

Birla Institute of Technology & Science (BITS), Pilani
Practice School Division
Practice School-I course (May 28th – July 23rd, 2024)
PS Chronicles (IT)
(A compilation of student experience during PS-I)



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From the Desk of the Editor

It is my great pleasure to bring forth the 6th edition of the PS-I Chronicles. This edition features over 1059 articles from PS-I students sharing their experiences during summer 2024.

The basic premise behind the release of PS-I Chronicles is to document the PS-I learning experience of students keeping the below objectives in view.

- To provide more information on the learning experiences by immediate senior students and PS-I faculty about stations, and thereby enlightening the learning opportunity among the student community.
- To provide the faculty with the enhanced information about the type and nature of work carried out at the organization.
- To transform the knowledge gained at the organization into class room teaching and also to identify the scope of deepening the collaborations with organization.

The articles have been classified into six categories based on the industry domain.

- Chronicle 1: Information Technology
- Chronicle 2: Electronics
- Chronicle 3: Chemical, Mechanical, Cement, Textile, Steel, Infrastructure & others
- Chronicle 4; Health Care
- Chronicle 5: Finance and Management
- Chronicle 6: Government Research Labs

I would like to thank students for sharing their experiences during their stint at the organization. I would also like to thank Prof. Arun Maity, Prof. M. K. Hamirwasia and Dr. G Muthukumar for reviewing the articles and providing us the feedback. I would also like to extend my thanks to Mr. Om Prakash Singh Shekhawat, Mr. Shyam Sunder Saini and Mr. Varun Singh of the Practice School Division, of BITS, Pilani – Pilani Campus for their help in bringing out this edition of PS-I Chronicles.

I would be happy to receive any feedback regarding the Chronicles. Please feel free to email me at psd@pilani.bits-pilani.ac.in or at murugesan@pilani.bits-pilani.ac.in.

S. Murugesan

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Name: DUGYALA HARISH RAO(2022B3AA0486H)	245
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Student	245
Name: KRITI SINGH .(2022A3PS0265P).....	245
Name: PRANJAL BHARDWAJ .(2022A3PS1858H).....	246
Name: ANIKET SINGH(2022A4PS0963G)	247
Name: NEEL PATEL(2022AAPS0624G)	248
PS-I station: Lighthouse Energy - Electronics, Toronto	249
Student	249
Name: AARYA AMEET AGAVEKAR(2022A3PS0428G)	249
Name: HIMANGI AGGARWAL(2022A8PS1146G)	249

PS-I station: Lighthouse Energy - Management, Toronto.....	250
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Name: M S ASWIN(2021B3A71613G)	250
Name: MUSKAN CHANDAK(2022A1PS1481G).....	251
Name: ARVIND ANNAMALAI(2022B3A70581P).....	253
Name: EKANSI SINGH .(2022B4A70632P)	254
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Name: SRINADHU SARAT CHANDRA .(2022A7PS0183P)	254
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Name: ABHINAV SAI YEKKALI .(2022A7PS0012H).....	255
Name: MANDADAPU ISKRA .(2022AAPS0351H).....	256
Name: SHIVARAMAKRISHNA KARTHIKEYAN .(2022AAPS0457H)	257
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Name: LOKESH LAKSHMINARAYANAN .(2022B4A71618H)	260
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Name: UJJAWAL MANOCHA .(2022B4A70804P)	261
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Name: SHAM PATEL .(2022A4PS0772H)	262
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Name: RANA KASHYAP CHITRANG .(2022A3PS0448P)	262
Name: PARTH SUDAN .(2022A7PS0177P).....	263
Name: GARV GUPTA(2022A7PS0207G)	264
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Name: PARTH JAYANANDAN(2022B4A70588G).....	265
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Student.....	266
Name: ARNAV VERMA(2022A3PS0184G)	266

PS-I station: Multigraphics Group - Non Tech, Delhi	267
Student.....	267
Name: VIDHI JAIN .(2022A1PS1353P)	267
Name: HEMENDRA NARAIN GUPTA .(2022A5PS1462P)	268
Name: MANEET KAUR .(2022B2A10863P)	269
PS-I station: Multigraphics Group - Tech, Delhi	270
Student.....	270
Name: ASHMIT MEHTA .(2022A7PS0131P)	270
Name: CHHAVI SONI(2022A7PS0639G)	271
PS-I station: My Web Partner - Non Tech, Jalalabad	272
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Name: SREERAM R .(2022A3PS1229P)	272
Name: ADITYA BAGLA(2022A7PS0497G)	272
Name: SAKSHAM DUA .(2022B2A81361P)	274
PS-I station: My Web Partner - Tech, Jalalabad	275
Student.....	275
Name: MAYANK KASHYAP .(2022A2PS1083P)	275
Name: SAMARTH SINGH .(2022A3PS0458P)	276
Name: DIVYANSHU LILA(2022A3PS1056G)	277
Name: AASHI KEJRIWAL(2022A3PS1256G)	278
Name: RAGHURAM ALURU(2022A7PS1349G)	279
Name: MOHITH KULALA(2022AAPS0419G)	280
PS-I station: MyEasyPharma - Tech, Bangalore	281
Student.....	281
Name: KSHITIJ VISPUTE(2022A7PS0372G)	281
PS-I station: National e-Governance Division (NeGD), Delhi	281
Student.....	281
Name: NAMAN GUPTA(2022B5A71230G)	281
Name: MAYUKH KHETAN .(2022B5A71326P)	282
PS-I station: National Informatics Centre (NIC), Delhi	283
Student.....	283
Name: ARNAV DHAM .(2022A7PS1182P)	283

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Name: KUNAL JOHRI .(2022AAPS0243P)	284
Name: GARVIT SINGHAL .(2022B4A70496P)	284
PS-I station: Nawgati - IT, Noida	285
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Name: PRATEEK TALWAR(2022A7PS0072G)	285
Name: PRIYANSHU CHOUBEY(2022A7PS0318G)	286
PS-I station: Neos Alpha Technologies, Jaipur	287
Student.....	287
Name: AMAN MEHRISHI .(2022A7PS0068P)	288
Name: MADHUL AGGARWAL(2022A7PS1236G)	288
Name: HRISHIKESH MK .(2022A7PS1538H)	290
Name: ADITYA MAHAJAN .(2022AAPS0374H)	290
Name: PEEYUSH KUMAR JHA(2022B3A70366G)	291
PS-I station: Netparam Technologies Pvt. Ltd, Jaipur	292
Student.....	292
Name: ADITYA JOSHI(2022A3PS1081G)	292
Name: HITESH KUMAR YADAV(2022A8PS0547G)	293
Name: ARPIT SAXENA(2022A8PS1140G)	294
Name: ADITYA GARG .(2022B2A31163P)	295
PS-I station: NICSI(National Informatics Centre services Inc), Delhi	296
Student.....	296
Name: NISHTA CHAUDHARY .(2022A3PS0583H)	296
Name: PRAFULL SHARMA .(2022A8PS1335H)	297
Name: RISHIT RAJ .(2022AAPS0431H)	298
Name: MUDIT GOYAL .(2022B4A30750P)	299
Name: SARTHAK ARORA(2022B4A71539G)	299
PS-I station: Nitisara - Tech, Shahdara	300
Student.....	300
Name: PALEPU SRIVARDHAN SHARMA .(2022A7PS0100H)	300
PS-I station: NIXI(National Internet Exchange of India), Delhi	301

Student.....	301
Name: AARYA VARDHAN SHANDILYA .(2022A3PS1734P)	301
Name: ADITYA SHRIVASTAVA .(2022A8PS1732P).....	303
Name: RAJAT JAIN .(2022AAPS0266H)	303
Name: ATHARVA ATUL TOSHNIWAL .(2022B3A80224P).....	304
Name: SHUBHAM GAJANAN GAWALI .(2022B5A80937P).....	305
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Student.....	306
Name: VANYA GARG .(2022A8PS0539P)	306
Name: YASHVARDHAN SHARMA .(2022B1A71145P)	306
PS-I station: NriyTech Solutions Pvt. Ltd., Uttar Pradesh, Rawatpur Gaon	307
Student.....	308
Name: ZOHEB FAZAL AHAD .(2022A1PS1043P).....	308
Name: JINESH CHORDIYA .(2022A4PS1019H).....	308
Name: BHAVYA SINGLA .(2022B4A40891H)	309
PS-I station: Octalsoft (Glorant India) - Non Tech, Ahmedabad	309
Student.....	310
Name: MAITREYEE MAKRAND BHALERAO .(2022A5PS1418P).....	310
Name: AYUSH KARWASRA(2022B4TS1514P).....	311
PS-I station: Paddleboat Private Limited - Marketing, Bengaluru	312
Student.....	312
Name: RAHITHYA VELIDANDLA .(2022B2AA1060H)	312
PS-I station: Paddleboat Private Limited - Software Development, Bengaluru.....	314
Student.....	314
Name: NAITIK VERMA(2022A7PS0232G).....	314
Name: SHAMIT KHETAN(2022AAPS1222G)	315
Name: ADHVAITH KS .(2022B1A11639P).....	316
PS-I station: PARALLELDOTS - IT, Gurgaon.....	317
Student.....	317
Name: ARYAN SACHAN .(2022B4A31013P)	317
PS-I station: Petasense Technologies Pvt. Ltd. - Analytics, Bangalore.....	318
Student.....	319

Name: ARNAV TREHAN .(2022ABPS1155P)	319
PS-I station: Petasense Technologies Pvt. Ltd. - Web Development, Bangalore	320
Student.....	320
Name: CHINMAY RAMDAS RAO(2022A7PS0106G)	320
Name: SIDDHI GADODIA .(2022A7PS1652H)	321
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Name: KUSH AMIT JUVEKAR .(2022A4PS1275P)	322
Name: KSHITIJ DALE(2022A7PS1153G).....	323
Name: DHRUV GANESH(2022AAPS0489G)	324
Name: ADITYA SHARMA(2022A7PS1108G)	324
Name: PARTH SHAH(2022A7PS1168G).....	325
Name: SRIRAM SAI KOUSHIK GIDUGU .(2022AAPS0263H)	326
PS-I station: ProvenTech Consulting Pvt. Ltd, Hyderabad	327
Student.....	327
Name: TARUNI MALLU .(2022A2PS1139H).....	327
Name: HARSHITHA KOTTHA .(2022A2PS1721H)	328
Name: ANKIT SINGH .(2022A4PS1433H)	328
Name: MOHAMMED KAMAALULLAH KHAN QUADRI(2022A7PS0109H)	329
Name: SUMANTH ABHINAV ARSHANAPALLY .(2022A8PS0528H)	330
Name: STHAIRYA SREE SAMVID PALAKEETI .(2022B3A30604H)	332
PS-I station: Quality Kiosk Tech Pvt. Ltd. - Gen AI, Navi Mumbai	333
Student.....	333
Name: ANANT MALHOTRA .(2022A7PS0182P).....	333
PS-I station: Quinfo Systems Pvt. Ltd, Hyderabad	334
Student.....	334
Name: ENNAM NAVYA SRI .(2022A7PS0001H).....	334
Name: ABHINAV CHITTURI .(2022A7PS0064H)	335
Name: MOKSHITH REDDY VURIBINDI(2022A7PS0763G).....	336
PS-I station: Regional Remote Sensing Center-North, NRSC, ISRO - IT, New Delhi	337
Student.....	337
Name: YASH AGGARWAL .(2022B1A70930P)	337

Name: ARCHI NARANG .(2022B1A71006P)	337
Name: AYUSH JAIN .(2022B3A70551P).....	338
Name: MEHUL SRIVASTAVA .(2022B3A70604P).....	339
PS-I station: RI Equation LLP, Pune	340
Student.....	340
Name: VATSAL KAILASH HEDA .(2022A3PS1205P)	340
Name: SHASHWAT SHARMA .(2022AAPS0508H)	341
PS-I station: Silver Touch Technologies Ltd., Ahmedabad	342
Student.....	342
Name: MIT SHETH(2022A4PS0079G).....	342
Name: YAMANA SAI MAHESH .(2022A4PS1527H)	343
Name: MALAY MISHRA .(2022A7PS0116P)	344
PS-I station: Skill peritia (Catalyst Edutech Pvt. Ltd.) - Non Tech, Mumbai	344
Student.....	344
Name: AARYAN RAJESH SARAF .(2022A8PS1239P)	344
Name: GARVIT SAINI(2022B4TS1515P)	345
PS-I station: Skill peritia (Catalyst Edutech Pvt. Ltd.) - Tech, Mumbai.....	347
Student.....	347
Name: HRISHIKESH ANISH .(2022B1A11563H)	347
Name: ABHINAND MANOJ .(2022B1A11589P).....	349
PS-I station: SNS Technosys LLP, Pune	350
Student.....	350
Name: ATHARVA NATANI .(2022A3PS1196P).....	350
Name: ASHIT ARYAN(2022B3AA0794G)	351
Name: ATHARVA DESAI(2022B4AA0125G).....	352
PS-I station: Software Tree, California	353
Student.....	353
Name: ABDUL RAHMAN YAKOOB .(2022A7PS0021H).....	353
Name: TARUN CHAUHAN(2022A7PS0025G)	354
Name: KARINGATTIL SAGAR THOMAS .(2022A7PS0156H).....	355
Name: ABHISHEK DHEKANE(2022A7PS0453G).....	355
Name: MANAS TOMAR(2022A7PS1184G).....	356

Name: ANAND SRINIVASAN .(2022A7PS2017H)	357
Name: NISHIT MUKESH PATEL .(2022B3A70568P)	358
Name: SHUBHAM SAHOO(2022B3A70628G)	359
Name: SIDDHARTH KAMLESH SHARMA .(2022B4A70601P)	360
Name: SAMEER SINGLA .(2022B4A71564P)	361
Name: S ACHAY SUMAL .(2022B5A71013H)	361
Name: VISHAL MUKUNDHAN .(2022B5AA1630H)	362
PS-I station: Solutionec Pvt. Ltd, Bangalore	363
Student.....	363
Name: GURUMURTHY VENKATAKUPPUSWAMY .(2022A7PS0226H)	363
Name: PRIYANSHU TRIPATHI .(2022A7PS1798H)	365
Name: SANJEIV SURESH .(2022B1A81648P)	366
Name: KEERTHAN REDDY POLAM REDDY(2022B3A30340G)	367
Name: HARSSH KARN .(2022B5AA1812H)	369
PS-I station: Stackwalls Technologies Private Limited - Non Tech, Ahmedabad	369
Student.....	369
Name: DHRUV AHUJA(2022B3A70045G)	370
PS-I station: Steel Authority of India Ltd. (SAIL) Bhilai Steel Plant, Delhi	370
Student.....	370
Name: AMOGH UPADHYAY(2022A7PS0800G)	370
PS-I station: STEM4ALL Inc, California	371
Student.....	371
Name: ESHA JAIN .(2022A7PS0010P)	371
Name: VINAYAK SAXENA .(2022B4A30709P)	372
Name: SRAJAN GUPTA .(2022B4AA1065P)	374
Name: ADVAIT SINGH .(2022B5A70636P)	375
PS-I station: Swecha Telangana - Non Tech, Hyderabad	376
Student.....	376
Name: N K GAURANGA KUMAR .(2021B5A12802P)	376
Name: AISHWARYA REDDY NAGAM .(2022A7PS0023H)	376
Name: SRI VISHWAHITHA GUNDABHATTU .(2022A7PS0041H)	377
Name: PYDIMARRI PARDHA MANI VARDHAN .(2022B1A11684P)	378

Name: KUNAL DUGAR .(2022B1A11702P).....	379
Name: NIKHIL AKELLA .(2022B1A41824H).....	380
Name: BONTHALA YASHWANTH KUMAR(2022B3TS2051H)	380
Name: SOMANSHU RATH(2022A7PS0032G)	381
PS-I station: Swecha Telangana - Tech, Hyderabad	382
Student.....	382
Name: PRANEETH REDDY PALETI .(2022A7PS0089H).....	382
Name: ABHINAV GANTA .(2022A7PS0151H)	383
Name: LIKITH SALLA .(2022A7PS0195H).....	383
Name: JAMPANI SANJAY CHOWDARY .(2022A7PS1178P)	384
Name: HARSH SANJEEV BARANWAL(2022A7PS1201G)	385
Name: ROHAN VARMA PENUMETCHA .(2022A7PS2016H)	386
Name: PRANAV MAREDDY .(2022AAPS2029H)	386
Name: SAHIL KUMAR .(2022B1A11634P)	387
Name: POOSHAN NORI .(2022B4AA1167H)	388
Name: SAATVIK GANJAI .(2022B5A30993H).....	388
PS-I station: TensorGo Software Pvt. Ltd, Hyderabad	390
Student.....	390
Name: SOHAM KUMAR .(2022A8PS1238P)	390
Name: VIHARI BHUPATHI .(2022AAPS0399H)	391
PS-I station: UST, Thiruvananthapuram	391
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Name: MALAVIKA RAMESH .(2022A7PS0033P).....	391
Name: NAZIM AHMED .(2022A7PS0125P)	394
Name: KEVIN GEORGE MATHEW .(2022A7PS0238H).....	394
Name: HARI CHARAN BUDAMAGUNTA .(2022A7PS1378H).....	396
Name: SIDDHARTH S PILLAI .(2022A8PS0775H)	396
Name: VARTIKA PARIKH(2022AAPS0300G)	397
Name: VISHNU VENKARAI SARANYAN .(2022AAPS0432H)	398
Name: BODDEPALLI HARSHAVARDHAN .(2022B5A20779P)	399
Name: RISHITH VULLI .(2022B5A30752P).....	399
PS-I station: Variable Energy Cyclotron Centre, Kolkata	400

Student.....	400
Name: ARPAN BISWAS .(2022A4PS1500H).....	400
PS-I station: Vidcentum R & D Pvt. Ltd., Hyderabad	401
Student.....	402
Name: UDBHAV DWIVEDI .(2022A3PS0483P)	402
Name: ANDODARIYA HRIDAY NILESHBHAI .(2022A7PS0113P)	402
Name: KESHAV GOEL .(2022A8PS1560P).....	403
Name: SUCHIR GUPTA .(2022AAPS0204P)	404
Name: ADITYA DUBEY .(2022AAPS0231P).....	405
Name: AMAN VIJAY .(2022AAPS0427H)	406
Name: SREEKEERTHANA PEDDAKOTLA .(2022B1A41559H)	407
PS-I station: Voicegain, Irving.....	408
Student.....	408
Name: VARUN REDDY PADALA .(2022A7PS0010H)	408
PS-I station: Western Regional Load Despatch Centre, Grid Controller of India Limited, Mumbai	409
Student.....	409
Name: AYUSHMAAN KUMAR .(2022B2A31070P).....	409
PS-I station: WODO Digital Solutions - Non Tech, Bengaluru	410
Student.....	410
Name: SAHITI KASINA .(2022A7PS0132H)	410
Name: MRINAL TIWARI .(2022B4A81813H)	411
PS-I station: WODO Digital Solutions - Tech, Bengaluru	412
Student.....	412
Name: HRUDAY K(2022A7PS1161G).....	412

PS-I station: AdaptNXT Technology Solutions Pvt. Ltd - Non Tech, Bangalore

Student

Name: VISWAS GUTHA .(2022A3PS0576H)

Student Write-up:

PS-I Project Title: WhatsApp Flows

Short Summary of work done: I have created and made a list of operations that can be done using WhatsApp flows which can be useful to the company.

Objectives of the project: Creating and exploring flows as per the company's requirements.

Tool used: Laragon, JavaScript, SQL, postman, etc.,

Details of Papers/patents: I have received a internship completion letter.

Brief description of the working environment: It was good, not so strict but was good enough to work.

Academic courses relevant to the project: Object oriented programming, database systems

Learning Outcome: Work ethics, JSON, postman, etc.,

Name: ADITI GUPTA(2022A8PS0281G)

Student Write-up:

PS-I Project Title: Llama integration

Short Summary of work done: Developing a multilingual chatbot and product description translation system for PointNXT, an inventory management system developed by AdaptNXT, using LLMs like Mistral and Llama. Enhancing user interaction and satisfaction by integrating a translation mechanism in multiple Indian languages.

Objectives of the project: Incorporating LLMs in the company

Tool used: H/w: High-performance computing resources (e.g., GPU-equipped servers), Local development machine with sufficient RAM and CPU Software: Python, Mistral and Llama libraries, Frameworks like PyTorch, API development tools (e.g., FastAPI, Flask), API Testing tools (PostMan)

Details of Papers/patents:-

Brief description of the working environment: Very friendly and helpful coworkers, they always helped us out whenever we were stuck anywhere, very flexible timings (we were allowed to leave early if we were done with our work), we had to go to office only on 3 days, the other 2 were work from home, no strict deadlines of any sort (we could tell them whenever we needed more time on anything), mentors were very kind and helpful

Academic courses relevant to the project: -

Learning Outcome: API Development and Testing, LLMs

PS-I station: AdaptNXT Technology Solutions Pvt. Ltd - Tech, Bangalore

Student

Name: SASHANK SIVAKUMAR .(2022B3AA1303H)

Student Write-up:

PS-I Project Title: Integrating Llama 3 AI for Advanced Text Processing and API Development

Short Summary of work done: we downloaded the llama model onto a server, and created an API that accesses it. our major tasks were to pass files to the model, so the

model would translate files and give us back a translated file. we were also required to use the API to generate product descriptions to be used in the product webpage on the company's product dashboard.

Objectives of the project: To create an API to access Llama 3, Meta's latest LLM, for translation and generating content functions, to be implemented in a product dashboard

Tool used: MobaXterm, Postman, Flask environment, LLama 3 (model), Python, Github, Ollama, Hugging face

Details of Papers/patents:-

Brief description of the working environment: The centre is pretty informal, and after they allot you a task they dont really involve themselves unless you need help, as they focus more on letting you learn through trying rather than them guiding everything. I expected a more strict environment but it was very laidback, and I got to learn a lot. They point out the direction for you to work in, and its up to you to decide which is the best course of action, they only supplement your efforts and provide advice based on it.

Academic courses relevant to the project: Nil

Learning Outcome: learnt how to create API, how to test and debug them, how to use Postman, how ssh works, Linux commands, and prompt engineering.

PS-I station: Agile Connects, Nagpur

Student

Name: AADVIK SINGH BHATIA .(2022A8PS1240P)

Student Write-up:

PS-I Project Title: Algorithm to convert daily cdd data to hourly format

Short Summary of work done: Design and algorithm that takes in daily CDD data and converts in into hourly format for set number of hours using sophisticated instruments and methods

Objectives of the project: Design and algorithm that takes in daily CDD data and converts in into hourly format for set number of hours using sophisticated instruments and methods

Tool used: Python

Details of Papers/patents:None

Brief description of the working environment: Really supportive working environment high encouragement for asking doubts and give us space to learn new things and present ideas related to the project

Academic courses relevant to the project: None

Learning Outcome: Deep understanding about energy efficiency methods to calculate examine and implement them for energy saving mechanism

Name: SUMEET BARANGE .(2022B2A31169H)

Student Write-up:

PS-I Project Title: Predictive model for energy consumption

Short Summary of work done: we have to work on a ml model and data analysis

Objectives of the project: to build a ML predictive model

Tool used: ML PYTHON MYSQL

Details of Papers/patents:None

Brief description of the working environment: -

Academic courses relevant to the project: ML and Computer Programming

Learning Outcome: ML and Data analysis

Name: **MOLIKA AGRAWAL .(2022B5A81832H)**

Student Write-up:

PS-I Project Title: ML model on Energy consumption prediction

Short Summary of work done: We started by learning the basics of python and MySQL and then we learned about weather prediction and all the factors that are involved in calculating the same. Then we went on to clean the data that we had received to filter out all the details that were not required. After this we designed an ML based model using Python and subsequent libraries to predict the energy consumption prediction on the given date.

Objectives of the project: To predict the expected energy consumption for seven days based off of previous years data

Tool used: MySql and pythonda and its libraries

Details of Papers/patents:none

Brief description of the working environment: The working environment was very pleasant

Academic courses relevant to the project: CP

Learning Outcome: Learned how to clean data and then use a model on that data to get the wanted results.

PS-I station: Agrix Agrotech Pvt. Ltd., Patna

Student

Name: **SUBHAM PAN .(2022A7PS0141P)**

Student Write-up:

PS-I Project Title: Predicting crop yields using real time earth imagery and regression models

Short Summary of work done: During my internship, I worked on the project "Predicting Crop Yields Using Real-Time Earth Imagery and Regression Models," which involved leveraging satellite imagery and geospatial analysis to monitor vegetation health. I started by brushing up on machine learning and familiarizing myself with Google Cloud Platform (GCP) services and Google Earth Engine (GEE). I researched lower-resolution earth imagery and completed relevant Udemy courses. I installed QGIS software and the Orfeo Toolbox extension for analyzing satellite imagery and performed hands-on implementation of Geopandas. Key tasks included downloading Landsat imagery, calculating the Normalized Differential Vegetation Index (NDVI) using QGIS, and interpreting the results. The NDVI analysis provided insights into vegetation health, identifying areas with dense vegetation and non-vegetated land. This work laid the foundation for future crop yield prediction models and highlighted the importance of accurate data preprocessing and validation in remote sensing projects.

Objectives of the project: To predict crop yields using real-time earth imagery and regression models by analyzing vegetation health through satellite imagery

Tool used: QGIS, Orfeo Toolbox, Google Earth Engine (GEE) Google Cloud Platform (GCP) services, Geopandas, Landsat Imagery (from USGS)

Details of Papers/patents:None.

Brief description of the working environment: Dr Nilay and Dr Arnav were pretty supportive. There was a weekly GMeet discussing our progress and the plan for the following week.

Academic courses relevant to the project: Machine Learning, Data mining

Learning Outcome: Geospatial Analysis: Gained proficiency in using QGIS and Google Earth Engine for satellite imagery analysis.

NDVI Calculation: Learned to calculate and interpret the Normalized Differential Vegetation Index (NDVI) for monitoring vegetation health.

Data Handling: Developed skills in preprocessing and validating satellite imagery data for accurate analysis.

Name: KHUSH BHUTA .(2022A7PS1333H)

Student Write-up:

PS-I Project Title: Retail-Demand Prediction and Inventory Management

Short Summary of work done: The first few weeks involved getting used to the Python environments and installing necessary packages. I then proceeded to pursue a course on Retail-Demand Prediction and Python for Data Analysis to get used to the several packages. I performed time-series analysis on dummy retail data, and predicted revenue, sales and inventory. However, the company was unable to provide us with the actual company data. Besides that, our PS-1 Faculty guided us throughout the period of the internship and held several interactive group discussions and presentations.

Objectives of the project: To create Machine Learning prediction models for the demand, inventory and revenue for Agrix.

Tool used: Python, R, MS Excel

Details of Papers/patents:-

Brief description of the working environment: The work timings were flexible and we could work any time during the day owing to the PS station being online. However, we had weekly meetings with the company CEO and our PS Faculty. Our PS faculty took many initiatives to keep the Internship engaging and kept resolving our queries whenever we needed his help.

Academic courses relevant to the project: Database Systems

Learning Outcome: Learnt how to use Python for Data analysis, and for Machine Learning

PS-I station: AlgoBulls Technologies Pvt. Ltd, Mumbai

Student

Name: KSHITIZ BHATTA .(2022A7PS0049P)

Student Write-up:

PS-I Project Title: Market Makers: Analyzing quantitative and qualitative data, establishing, validating, and enhancing rules (potentially leveraging machine learning).

Short Summary of work done: We used libraries such as yfinance, matplotlib, numpy and pandas along with other esoteric libraries to extract data pertaining to various tickers from various publically available sites. We calculated parameters corresponding to these data and used analytical methods such as Batch Regression and K-Means Clustering to predict various indices and generate graphs to demonstrate the performance of the strategy at the end. Our work was not free of survivorship bias however, we decided not to get rid of it anyways since it did not affect the final data and results much. We also implemented the GARCH model in a project to predict returns. Overall, it was a very positive learning experience.

Objectives of the project: Strategy to make profits from buying low and selling high using ML to ensure low latency

Tool used: Python, Jupyter Notebook

Details of Papers/patents:NA

Brief description of the working environment: The work environment was very friendly and fostered in us a sense of security. The mentors gave a brief intro to us at first to ease our entry into the field. This helped us declutter the jargon-heavy industry and get our hands on the project. They were supportive throughout the process. Our FIC deserves a special mention for being extremely supportive and helpful and making us feel at home in an otherwise formal setting. The company had a lot of resources which we utilized to learn the fundamentals of our project.

Academic courses relevant to the project: Probability and Statistics, Mathematics-II,III, Principles of Economics

Learning Outcome: Usage of various finance and data-pruning libraries in python, exploiting technical analysis in practice to analyze financial markets

Name: AAYUSH SHAH .(2022B3A71332H)

Student Write-up:

PS-I Project Title: Option Payoff and Breakeven point calculator using Python and Algorithmic trading Strategies

Short Summary of work done: Built Option Payoff Calculator which took user inputs on strike price, current price, option premium and number of lots to prepare a payoff chart and determine breakeven points. In addition our second project involved building MACD signal strategy that generates buy and sell signals based on indicator which in turn determines Profits and eventually Returns. Similar outcomes were obtained using Martingale strategy wherein Monte Carlo simulations were used to generate buy and sell signals in this case. In the final project we combined both of these strategies wherein Signals from MACD strategy were used to determine outcomes in Martingale strategy using Backtest library.

Objectives of the project: To determine how to implement Option payoff charts in python and using MACD and Martingale strategies to determine Returns from the stock

Tool used: Python(Pandas, Numpy, Matplotlib, Backtest)

Details of Papers/patents: None

Brief description of the working environment: Work environment was friendly and supportive with a flaw that not much attention was given to us while working on the project, we were just given details of the outcome they expected and we had to go through all required resources for those outcomes on our own developing our own direction. However, in cases when we were stuck doubt sessions were held to solve them but for that we had to be proactive enough to make them hold a session given the busy schedule the employees have at their workplace.

Academic courses relevant to the project: DRM

Learning Outcome: 1) Use of essential Python libraries like Numpy, Pandas and Matplotlib in addition to Backtest library
2) Application of concepts of derivatives in financial markets thoroughly
3) Backtesting strategy and making comparative analysis of use cases in varied input environments

PS-I station: Amazon, Bengaluru

Student

Name: ANIRUDH AGARWAL .(2022A7PS0034H)

Student Write-up:

PS-I Project Title: NDA

Short Summary of work done: We recently worked on a project to develop a mobile app based on the client's requirements. We had the freedom to choose the tech stack and went with modern, open-source tools to make development smoother and cost-effective. We focused on creating a fast and efficient database for quick data access and smooth app performance. Designing a user-friendly and attractive interface was a priority, so we used best practices and gathered user feedback to get it just right. We kept the client in the loop with regular updates and presentations. To ensure top-notch quality, we did thorough testing, including automated tests and continuous integration. Our team's hard work and expertise paid off, resulting in a high-quality app that met all the client's needs.

Objectives of the project: Develop an App as per given requirements

Tool used: Flutter, supabase, git, third party APIs

Details of Papers/patents:N/A

Brief description of the working environment:

My internship with the Amazon Software team was an outstanding experience, offering a superb environment for both learning and development. The absence of pressure allowed me to concentrate fully on the project. Moreover, my mentor's meticulously crafted project plan gave clear direction and purpose. They effectively divided the project into manageable sections, each clearly defined and allocated ample time for completion, ensuring no part was hurried or overlooked. The well-structured timeline provided sufficient deadlines for each phase, enabling us to achieve high accuracy and precision. Working in such a supportive and organized setting, guided by an attentive mentor, made the internship an invaluable and rewarding learning opportunity.

Academic courses relevant to the project: DBMS, OOPS

Learning Outcome: Full stack App Development, App Designing and Planning, DB Optimization

Name: RITVIK SINGH .(2022A7PS0045P)

Student Write-up:

PS-I Project Title: JSON Schema Coverage Analysis Library

Short Summary of work done: During my PS-I, I developed a language-agnostic library, JSON Cover, aimed at analyzing the coverage of JSON schemas against actual JSON payloads. The tool was designed to integrate seamlessly with build systems such as Gradle and Maven, providing automatic execution during project builds. I created a configuration file setup that allowed users to specify schema locations and example payloads with minimal effort. The library performed coverage analysis, identifying fully covered, partially covered, and uncovered schema elements, and generated detailed metrics, including branch and line coverage percentages. The reports were outputted in HTML or JSON formats, providing developers with actionable insights into schema coverage. The tool also included configurable thresholds for build failures, ensuring projects met the necessary schema coverage criteria before deployment. I successfully integrated the library with multiple projects, ensuring less than 10 lines of code changes per project, achieving over 95% accuracy in coverage analysis, and providing clear and useful reports to developers.

Objectives of the project: Ensure JSON Schema Coverage: Develop a library to verify and report the coverage of JSON schemas against JSON payloads, ensuring data integrity and application reliability. Build System Integration: Create a tool that integrates seamlessly with build syst

Tool used: Kotlin, Github, IntelliJ IDEA

Details of Papers/patents:None

Brief description of the working environment: The working environment was dynamic and collaborative, with a strong emphasis on innovation and quality assurance. I was part of a team focused on developing cutting-edge solutions for JSON schema validation, which provided a stimulating environment to explore new ideas. My expectations from the company were to gain practical experience in software development, particularly in tool integration and automation within build systems. The company provided ample opportunities for learning, including mentorship from experienced developers and access to various resources for skill development. Throughout the PS-I, I learned how to develop and integrate a library into diverse projects, analyze and report on JSON schema coverage, and implement CI/CD practices effectively. The experience also enhanced my problem-solving skills and ability to work collaboratively in a fast-paced setting, preparing me for future challenges in the tech industry.

Academic courses relevant to the project: Database Systems, Object Oriented Programming

Learning Outcome: Understanding JSON Schema and Payloads: Gained in-depth knowledge about JSON schemas, their structure, and how they interact with JSON payloads.

Tool Development: Learned how to develop a language-agnostic tool that integrates with various build systems.

Metrics Analysis: Developed skills in calculating and analyzing coverage metrics to ensure high schema fidelity.

Name: SHUBHAM KUMAR .(2022A7PS0056P)

Student Write-up:

PS-I Project Title: JSON Schema Coverage Analysis Library

Short Summary of work done: The initial phase focused on researching existing tools and identifying the gap in automated JSON schema validation during the build process. Following this, the architecture of JSONCover was designed with a focus on language-agnosticism and ease of integration. The core functionality was developed using Kotlin to ensure robust schema validation, and configurable thresholds for build failures were implemented. A configuration system using YAML and JSON was created to allow users to specify schema and payload locations with minimal setup. The coverage analysis feature was developed to identify fully, partially, and uncovered schema elements, generating detailed HTML and JSON reports. Throughout the project, JSONCover was integrated with various sample projects to test its effectiveness and accuracy. Extensive unit tests were written, and coverage scenarios were manually validated to ensure the tool met the required accuracy standards. Documentation and user guides were also created to facilitate adoption by other developers.

Objectives of the project: Objective was to develop JSONCover, a library that automates the analysis and reporting of JSON schema coverage against actual payloads. By identifying fully, partially, and uncovered schema elements, and generating detailed coverage reports, JSONCover ai

Tool used: Kotlin, Gradle, Maven

Details of Papers/patents:NA

Brief description of the working environment: NA

Academic courses relevant to the project: Object Oriented Programming

Learning Outcome: The major learning outcomes from this project include gaining proficiency in developing libraries using Kotlin and integrating tools with build systems

like Gradle and Maven. Additionally, the project provided experience in writing and executing comprehensive unit tests to ensure tool accuracy.

Name: SHREYA KUNJANKUMAR MEHTA .(2022A7PS0115H)

Student Write-up:

PS-I Project Title: Application Development

Short Summary of work done: We, in a team, created a user-friendly, cross-platform application while keeping in mind scalability and extensibility. We did everything from ground up, including UI design with high-fidelity wireframes, UML diagrams and database optimization. We also evaluated query performance across different database schemas to arrive at the optimal one. We integrated third-party APIs and focused on customer ease in using the application. We also did testing for the application.

Objectives of the project: Design and development of application from scratch while keeping in mind functional and non-functional requirements

Tool used: Modern and easy to learn tech stack for mobile app development and third party APIs

Details of Papers/patents:N/A

Brief description of the working environment: Our mentors were very supportive throughout the process. They pushed us to explore different options for doing something and arrive at the best solution ourselves. They set well-planned goals for us and we presented our progress regularly. The iterative feedback loops helped us significantly improve our application. Abundant freedom was given to us on how we wished to do something, ranging from database design to tech stack. Overall, it was a very good learning experience.

Academic courses relevant to the project: Object Oriented Programming, Database Management System

Learning Outcome: Software Development Lifecycle and Software Engineering in the context of App Dev

Name: ADITYA MITTAL .(2022A7PS0569P)

Student Write-up:

PS-I Project Title: Chat Based Workflows

Short Summary of work done: My group implemented chatbot workflows for three use cases, handling user interactions through messaging and web interfaces. We developed backend systems to process requests and manage data between different services.

Objectives of the project: The project aimed to develop chat-based workflows for common consumer services like restaurant reservations, cab bookings, and movie ticket purchases. The goal was to create user-friendly interfaces accessible through messaging platforms.

Tool used: The project utilized cloud computing platforms, serverless functions, NoSQL databases, and messaging APIs. Specific tools included services for hosting, compute, storage, and content delivery.

Details of Papers/patents:NA

Brief description of the working environment: We all worked remotely in a collaborative environment. Expectations from us included delivering a functional proof of concept, learning new technologies quickly, and working independently while coordinating with other team members.

Academic courses relevant to the project: DBMS, OOP

Learning Outcome: We gained experience with cloud services, serverless architectures, and chatbot development. We also learned to design conversational user experiences and integrate various services into a cohesive workflow.

Name: ALOK DESAI .(2022A7PS1358H)

Student Write-up:

PS-I Project Title: E-Waste Disposal App

Short Summary of work done: Our project focused on developing a mobile application based on the project requirements. Initially, we took some time to explore and learn various technologies since our team didn't have much experience with app development. We chose Supabase and Flutter as our tech stack because they facilitated easy cross-platform development. Next, we designed the database, creating and modifying different schemas based on our mentors' suggestions. We conducted extensive database tuning tests to determine which schema offered the best query performance. During the app development process, we scheduled regular meetings to demonstrate our progress and implement any suggested changes. We also kept our mentors informed through frequent presentations, which not only enhanced our communication skills but also ensured that our work aligned with Amazon's vision.

Objectives of the project: App development according to project description

Tool used: Flutter, Supabase, MapMyIndia API, Git, Third Party Validation APIs

Details of Papers/patents:None

Brief description of the working environment: My internship with the Amazon Software team was amazing, offering a great environment for learning and growth. The Amazon mentors were super helpful, guiding us through the project development from scratch. There wasn't much pressure, so I could focus on the project clearly. My mentor's well-organized plan gave us clear direction and structure. Breaking the project into manageable parts was especially helpful. Each part was clearly defined, and we had plenty of time to work on each one, so nothing was rushed or overlooked. The carefully planned timeline had reasonable deadlines for each stage, which helped us achieve high accuracy and precision. Overall, working in such a supportive and well-structured environment, with a mentor who paid close attention to our needs, made the internship a really enriching and rewarding experience.

Academic courses relevant to the project: Database Systems, Object Oriented Programming, DSA

Learning Outcome: Full Stack App Development, Software Development Cycle, Database optimization

Name: SAMYAK SAVI .(2022B3A70635P)

Student Write-up:

PS-I Project Title: JSON Coverage Library

Short Summary of work done: During my PS-I course, I participated in a project focused on JSON Payloads, JSON Schemas, and JSON Schema Validators. Our initial tasks included familiarizing ourselves with project terms and tools, and creating a basic repository on GitHub to understand its workflow. We developed a hypothetical project timeline, which was then refined based on importance. My primary responsibility was working on the JSON output system, which involved creating a class hierarchy to tell validation status and assist in coverage analysis. We reviewed and refined our work based on mentor feedback, developed pseudo-code for validation logic, and decided to upgrade the existing validator rather than build one from scratch. We successfully converted the line coverage analysis code into a dependency and added new features to the validators. This included implementing the anchor feature, counting non-validated constraints, and creating a JAR file for threshold coverage. Throughout the project, we faced and overcame several challenges, such as creating functions for unvalidated constraints and developing various test cases. We concluded our project by finalizing the coverage analysis, submitting a final report, and preparing a presentation. Overall, this project provided valuable experience in JSON schema validation, JSON Coverage and GitHub workflows.

Objectives of the project: Generate clear and actionable coverage reports for JSON Schema

Tool used: Kotlin Json

Details of Papers/patents:NA

Brief description of the working environment: Our working environment during the PS-I project was collaborative and structured, with clear guidance from mentors and regular feedback sessions. The company provided a supportive atmosphere, expecting us to familiarize ourselves with the basics of JSON Payloads, JSON Schemas, and JSON Schema Validators, and progressively take on more complex tasks.

We were expected to demonstrate initiative and teamwork, regularly updating our mentors on progress and incorporating their suggestions. The emphasis was on learning and applying new concepts, such as using GitHub for version control, understanding validation logic, and performing coverage analysis. We were also tasked with creating a timeline and adhering to it, which helped us manage our workflow efficiently.

Throughout the project, I learned the importance of structured planning and task delegation. I gained hands-on experience with GitHub workflows, JSON schema validation, and developing a class hierarchy for output systems. Additionally, I improved my problem-solving skills by tackling challenges like implementing functions for unvalidated constraints and developing comprehensive test cases. This project not only

enhanced my technical skills but also provided valuable insights into effective teamwork and project management.

Academic courses relevant to the project: OOPS, SQL

Learning Outcome: Understanding the general workflow which goes down in a project.
Kotlin
Json Schema and Json Payload
Working with Json Data
Integrating with Dependency

Name: AKSHAJ PRASHANTH RAO .(2022B5A70289P)

Student Write-up:

PS-I Project Title: Implementing adaptive interaction architectures

Short Summary of work done: Created a working proof-of-concept for several user-specific sequential interactions concerning day-to-day services, integrated with Amazon services. Implemented several AWS services in conjunction for minimal resource consumption, and employed object oriented paradigms for easy scalability into other use cases

Objectives of the project: Cannot specify the exact details due to a signed NDA. Involved setting up webhooks and infinite polling along tied to stateless REST APIs for several adaptive use cases

Tool used: AWS S3, CloudFront, API Gateway, DynamoDB, Lambda. Python, Git, HTML, CSS, JS

Details of Papers/patents:None

Brief description of the working environment: Mentors from Amazon were relatively prompt and extremely helpful with the implementation and procedure. They were very enthusiastic about teaching the workings of several AWS services, and continuously assisted us with ideas regarding implementation, efficiency and security of various aspects of the server-side of this project.

Academic courses relevant to the project: Object Oriented Programming, DBMS

Learning Outcome: Experience with several AWS services like Lambda, DynamoDB, S3 and CloudFront, back end development in Python, basic static website creation with HTML, CSS and JS.

PS-I station: Americana Restaurants International PLC, Gurgaon

Student

Name: MANAS SHAH .(2022B2A71344P)

Student Write-up:

PS-I Project Title: Kuwait Study with Power BI

Short Summary of work done: We began with an introduction to data analytics, focusing on identifying and framing core problems to clarify our objectives. Subsequently, we were introduced to Power BI through a series of sessions where we learned to utilize the tool effectively for our analysis. Sessions on Exploratory Data Analysis (EDA) with Python were also conducted to familiarize us with the tool. We practiced by creating a dummy dashboard in Power BI and later developed dashboards for the company's sales data, incorporating various statistical and analytical calculations.

Objectives of the project: To derive valuable insights by analyzing the sales data of the company in the Kuwait region using various Data Analytics tools.

Tool used: Power BI, Python, Numpy, Pandas, Matplotlib, Seaborn

Details of Papers/patents: NA

Brief description of the working environment: All the company professionals were friendly, interactive, understanding and were ready to help. The work was not difficult or exhaustive and the working time was also less.

Academic courses relevant to the project: Database Management System (DBMS)

Learning Outcome: Problem Framing, Problem Solving, Data Modelling, Power BI, Python Libraries, Presentation of Insights derived from data etc, Scope of AI in Data Analytics.

Name: VINEET KUMAR(2022B3A70677G)

Student Write-up:

PS-I Project Title: Kuwait Study using Power BI

Short Summary of work done: We gained hands-on experience with Power BI, learning to transform, model, and visualize data effectively. Creating Dashboards, Reports, and visualizations helps us derive valuable insights and assist in proper decision-making. The skills apply to market analysis, customer segmentation, and performance evaluation projects.

Objectives of the project: The objective of the Kuwait QSR (Quick Service Restaurant) study using Power BI was to analyze and visualize various data points to gain insights into the performance, trends, and opportunities within the QSR market in Kuwait.

Tool used: Power BI

Details of Papers/patents:.

Brief description of the working environment: Emphasis on teamwork and open communication. Regular meetings and brainstorming sessions to share ideas and progress. Access to various software and resources to support data analysis, visualization, and reporting. Regular feedback and guidance from the mentor.

Academic courses relevant to the project: POM, C-programming, Macroeconomics

Learning Outcome: Understanding Market Dynamics, Customer Behavior and Preferences, Operational Efficiency, Sales and Revenue Insights.

PS-I station: Areete Business Solutions - Data Science, Pune

Student

Name: KRITIN GOYAL .(2022A3PS1660H)

Student Write-up:

PS-I Project Title: Voice enabled chatbot for milk yield recording and monitoring

Short Summary of work done: In the "Gen AI" project for Areete Business Solutions, I contributed significantly to the development of "Synthia," a hands-free mobile application designed to aid Indian dairy farmers in recording and managing milk production data. My primary contributions included conducting extensive research to define the product and its core functionalities, and choosing appropriate tools such as Python, Streamlit, and various AWS services (Transcribe, Translate, Polly, S3). I was instrumental in integrating these services to automate speech-to-text conversion, data extraction, and text-to-speech feedback, ensuring streamlined data management and reduced manual errors. Additionally, I worked on developing the app's UI, designing a user-friendly interface for seamless interaction. I also played a key role in the collaboration and coordination within the team, organizing daily meetings and sharing updates to ensure efficient progress. My efforts in research, development, and team coordination were crucial in achieving the project's goals and addressing challenges related to processing time and network dependency. Also made models using flutter and dart. Made a github repo of the app. Still working on mobile deployment. Made very good relations with my industry mentor and other employees in the company.

Objectives of the project: To create a voice enabled chatbot that stores cow number and it's milk yield through speech recognition(for Hindi) and stores the required data in a clear format in aws s3 using various other aws services like Amazon translate, transcribe and polly text t

Tool used: Streamlit, AWS(translate,transcribe,polly text to speech and s3), python, flutter, dart, Gemini API and Firebase for authentication feature

Details of Papers/patents:we got a certificate mentioning the project we worked on

Brief description of the working environment: The working environment was very good and the office was very nice . Initially we went to the office for a few days but later due to less sitting space we worked in hybrid mode. we went to the office once or twice a week but some days we worked till 8pm also. My industry mentor was very helpful and guided us thoroughly. There were 7 projects and i was working in the GEN AI one and worked very closely with one of the employees Mr. Srihari who insisted on me calling him 'bhaiya'. Even the Founder of this company Mr Srinivas Subramaniam insisted on calling him 'Srini' his nickname. everyone was super involved and they gave daily tasks and asked for daily updates. They were never discouraging and at times when we were falling a little off from the deadline they helped us clear out the roadblocks we were facing

Academic courses relevant to the project: CP

Learning Outcome: Got great exposure to a startup environment
Learnt fundamentals of working in an IT space and coordination with colleagues
Learnt basics of python,,flutter, streamlit and aws

Name: GAURAV SINGH(2022A7PS0693G)

Student Write-up:

PS-I Project Title: Unique Cattle Identification Model

Short Summary of work done: I keep it short: Developed 3 models based on our problem statement. Best model gave 99.83% accuracy across a dataset of 2700 images of about 400 cows. great project to put in your resume.

Objectives of the project: To develop a facial recognition model to uniquely identify indian cow breeds using EfficientNet-B0, FaceNet and ViT developed by Google.

Tool used: Python Notebook, PyTorch, Google colab, sagemaker, etc

Details of Papers/patents:In progress

Brief description of the working environment: It is a startup company, we were the first told that the internship will be in offline mode, then it soon converted to online due to space constraints in the company. Our Quizzes were offline so we had to stay in Pune for the entire duration.

Academic courses relevant to the project: Just be eager to learn.

Learning Outcome: Being my first corporate experience, we had to complete assignments that actually contributed to a more extensive solution to an existing problem, which made me implement ML and DL algorithms without having any prior knowledge whatsoever.

Name: SIDDHARTHA BHATTACHARJEE(2022A8PS0224G)

Student Write-up:

PS-I Project Title: Video Annotation using computer vision

Short Summary of work done: The project, a collaboration between myself and partner, focused on developing a sophisticated web application tailored to the needs of farmers. This application serves as a user-friendly platform for farmers to upload videos of their cattle, providing specific information such as cow ID and the behavior they wish to track. The data is stored securely in AWS in JSON format, ensuring confidentiality and reliability. The uploaded videos undergo processing through a CNN model trained on a vast dataset of images, enabling the prediction of five distinct behaviors exhibited by the cows. These behaviors include standing idle, sitting idle, standing rumination, sitting rumination, and standing chewing. The accuracy of these predictions is crucial for farmers to gain insights into the well-being and activities of their livestock. To enhance the user experience, the video is annotated using the YOLO model to highlight the specified cow with a bounding box, making it easier for farmers to identify the subject of interest. The predicted behaviors are then overlaid on the video, providing a visual representation of the cow's actions. Furthermore, a detailed log of these behaviors, along with corresponding cow IDs and timestamps, is maintained in an Excel sheet for reference and analysis. The Excel sheet containing the behavioral data is uploaded to an AWS S3 bucket, allowing for further examination and processing. This data serves as a valuable resource for farmers, enabling them to monitor the health and behavior of each cow continuously. By leveraging advanced machine learning techniques and cloud storage capabilities, our project offers a comprehensive solution for modern livestock management, empowering farmers to make informed decisions and optimize productivity.

Objectives of the project: To predict cattle's behaviour using cnn and yolo models and making a website for user interface

Tool used: Python, tensorflow, yolo, html, css

Details of Papers/patents:we made a github repo which is private

Brief description of the working environment: Areete is a startup and provides a excellent work environment for those who want to explore deep learning and app development. Mentors there are helpful and Director was also happy with our work

Academic courses relevant to the project: Probability and statistics, c programming

Learning Outcome: We learnt python , making cnn model from scratch, html, css

Name: VIVEK MISHRA .(2022B5A81321P)

Student Write-up:

PS-I Project Title: Unique Cattle identification

Short Summary of work done: .

Objectives of the project: To uniquely identify a cattle's id number given a photo of their frontal face.

Tool used: Python, tensorflow, pytorch, wandb

Details of Papers/patents:.

Brief description of the working environment: .

Academic courses relevant to the project: .

Learning Outcome: Computer vision

PS-I station: Asanify Technologies - Non Tech, Kolkata

Student

Name: HARSH GOPAL PANDEY .(2022B1A41068P)

Student Write-up:

PS-I Project Title: Seo Analysis by keyword analysis

Short Summary of work done: Firstly the task was to do search engine optimisation of essential features of asanify which includes attendance/leave management, HRMS, payroll, etc. Till midsem I did SEO work only and after that I was about to get backlink project, but later it was cancelled and was assigned some extra keywords and was

informed to continue with seo work. Finally I submitted my work to the company's marketing manager Ms. Swarnima.

Objectives of the project: To do blogs and keywords analysis fir the essential features of asanify so that search engine can be optimised according to the company's website

Tool used: Ahref, Ubersuggest

Details of Papers/patents:None

Brief description of the working environment: The company was great and it had good plans for further growth in its upcoming timeline. The work culture for the employees was hreat and everyone was well bonded with each other, but for the interns it was not as expected. The interns were not ised to their fullest potential, and the work assigned was much of labour intensive leaving the learning outcomes to be really low.

Academic courses relevant to the project: None

Learning Outcome: SEO, blogs analysis, digital marketing

Name: HARSHIT NAHAR .(2022B1A41096P)

Student Write-up:

PS-I Project Title: Asanify-Non Tech

Short Summary of work done: Going through blogs and using tools to find shortcomings and suggesting it to my mentor. Also some links were given to analyse and find emails in it so as to build collaborations

Objectives of the project: Search engine optimisation for digital marketing

Tool used: Python,WordPress,Excel, ubersuggest ,contact finding extensions , linkedin

Details of Papers/patents:None

Brief description of the working environment: The environment was good. No pressure from their side whatsoever. Expectations were a little higher as to what I learnt there. Most of the work we did was not expected. It was more of a time giving work rather than any learning experiences involved kind of work.

Academic courses relevant to the project: A little bit of computer programming

Learning Outcome: How Seo works and is used to enhance content to engage more presence

Name: HARSHVARDHAN JAIN .(2022B3AB0442P)

Student Write-up:

PS-I Project Title: International Contract Hiring ; Sites and Scrapping

Short Summary of work done: The work that was assigned to do was a more on manual data scrapping, very laborious process. The task was not in my domain of interest, despite of letting them know multiple times, there was no improvement.

Objectives of the project: Data scrapping

Tool used: Scrupp , Instant Data Scrapper

Details of Papers/patents:None

Brief description of the working environment: Working experience was good. Everyone atleast listened and tried to give the following task inclined to my domain. But they ended up repeating the task with a little modified filter nothing close to my interest.

Academic courses relevant to the project: None specifically

Learning Outcome: Data scrapping

PS-I station: Askbloc.ai (Airdash Tech Pvt. Ltd) - Tech, Bangalore

Student

Name: NIKHIL SHEORAN(2022AAPS0410G)

Student Write-up:

PS-I Project Title: Frontend Development Work for the askbloc.ai website

Short Summary of work done: During my internship at Askbloc.ai, I was primarily engaged in two critical areas: frontend development and lead generation. In the realm of frontend development, I undertook the redesign of the company's landing page and application. Utilizing tools such as Tailwind CSS, Shadcn UI, NextJS, ReactJS, TypeScript, NextAuth, and Prisma, I successfully developed a high-converting, fully responsive landing page. This redesign was pivotal in improving user experience and boosting conversion rates.

Objectives of the project: I focused on the frontend redesign of the company's landing page and application, aiming to enhance the overall user experience and increase conversion rates.

Tool used: NextJs, Typescript, Tailwind, React, Remotion, Webflow

Details of Papers/patents:NA

Brief description of the working environment: The working environment at Askbloc.ai was dynamic, collaborative, and fast-paced. The company expected high-quality work, a proactive approach, and continuous improvement from interns. I was encouraged to take initiative, work independently, and also engage in team collaborations. This supportive environment allowed me to experiment, learn, and apply new technologies and strategies in real-world scenarios. Throughout the internship, I received valuable feedback and mentorship, which was instrumental in my professional development. The experience provided me with practical knowledge in frontend development and business development, enhancing my problem-solving abilities, technical skills, and communication proficiency. It prepared me to tackle future challenges in the tech industry with confidence.

Academic courses relevant to the project: C Programming

Learning Outcome: Through this internship, I gained significant proficiency in various modern web development technologies and frameworks. I became adept at using Tailwind CSS, Shadcn UI, NextJS, ReactJS, TypeScript, NextAuth, and Prisma.

PS-I station: Avidia Labs - Tech, Bangalore

Student

Name: SIDDHARTH JAIN .(2022AAPS0253P)

Student Write-up:

PS-I Project Title: ERD development and UI Linking

Short Summary of work done: In this online ps, Our team created backend erds for the website, and tried to implement it into the Dcodingxr's UI. Not much was there to be done. Hence our online ps had a bit too much free time.

Objectives of the project: Creating database diagrams for Dcodingxr platform

Tool used: VSC ERD editor extension, StarUML (softwares)

Details of Papers/patents:-

Brief description of the working environment: Being online, we only had meetings (very casual, and random) on gmeet with the single mentor we were assigned. Besides that, ps faculty was very helpful in being the bridge between our understanding and the company's communication. I personally developed my communication skills through this PS and activities.

Academic courses relevant to the project: Digital design, database diagrams

Learning Outcome: Backend basics

Name: SAAHIL SHARMA(2022AAPS0614G)

Student Write-up:

PS-I Project Title: Creating ERDs for DcodingXR

Short Summary of work done: We were designated with the task to analyse user stories of DcodingXR (Avidia Labs' edutech platform). Then for each user story, we had to create entity relationship diagrams that will serve as a base for future backend development of the platform.

Objectives of the project: To create a document of Entity relationship diagrams for Avidia Labs' online edutech platform DcodingXR

Tool used: StarUML, Visual Studio Code ERD Editor

Details of Papers/patents:NA

Brief description of the working environment: Working environment was too slack. Meetings were irregular with the company's mentor. Work got mundane and repetitive.

Academic courses relevant to the project: DBMS

Learning Outcome: Understanding of real-life application of database management, creation of ERDs, communication skills

PS-I station: Bellurbis Technologies Pvt. Ltd, Indore

Student

Name: OM MAHESH KABRA .(2022A8PS0566P)

Student Write-up:

PS-I Project Title: Rudhira

Short Summary of work done: Front-End Development: Created a web page using React, completing the front end in 5 days. Pushed the front-end code to Git. Project Rudhira: Built a blood donation website where users can request and donate blood and find nearby donation camps. Created custom hooks for all pages. Made API documentation for the frontend work. Waiting for the backend to host the website. Working on forms for forgot password, sign up, make request, and login pages using a custom hook to handle form submissions without repeating API call logic.

Objectives of the project: Blood donation felicitation website

Tool used: Hardware Development Machine: Likely a personal computer or laptop used for coding and testing. Software Front-End Development: React: For building the user interface. Git: For version control and code management. Custom Hooks: Created to handle various functionalities such as form submissions, forgot password, sign-up, login, and API calls. Back-End Development: Node.js: Likely used for building the HTTP server. Package.json: For managing project dependencies and scripts. Environment Variables: For managing configuration settings securely. API Documentation: Tools and methods used to document the API for frontend-backend communication (specific tools not mentioned but could include Swagger, Postman, etc.). Other Tools Integrated Development Environment (IDE): Such as Visual Studio Code (VS Code) or another code editor for writing and managing code. Version Control Platforms: GitHub or another platform for repository hosting and collaboration

Details of Papers/patents:-

Brief description of the working environment: During my online internship, I worked remotely, leveraging a variety of software tools to collaborate and complete tasks. Communication with the team was maintained through regular video calls, emails, and instant messaging platforms like Microsoft Teams. Code management and collaboration were done via GitHub, ensuring version control and seamless integration of code changes.

Expectations from the Company

I expected the company to provide a supportive and collaborative environment despite the remote nature of the internship. This included regular feedback, guidance from mentors, and access to necessary resources and tools. I also anticipated gaining hands-on experience in real-world projects and enhancing my technical skills.

Academic courses relevant to the project: none

Learning Outcome: Frontend and UI/UX

Name: ABIR SHRIVASTAVA .(2022A8PS0729H)

Student Write-up:

PS-I Project Title: Web Application to facilitate Blood Donation

Short Summary of work done: We designed a web application to facilitate blood donation, which would enable users to raise requests for blood in times of need. It also

enables eligible users to see the raised requests in their city and can be useful for willing donors

Objectives of the project: Develop a full stack project to make a website that enables users to raise requests for blood in times of need and also lets them donate to the people they are eligible to.

Tool used: HTML, CSS, MERN stack, Figma

Details of Papers/patents:None.

Brief description of the working environment: The internship was online, hence we had to work from home. I expected the company to mentor us throughout the journey and they definitely did so. We were allotted mentors and we were guided by them. We did all the work ourselves and they were always there to guide.us through the processes.

Academic courses relevant to the project: Web Development, Graphic Design

Learning Outcome: Learnt a lot about full stack development.

Name: ANSHIKA AGRAWAL(2022A8PS1109G)

Student Write-up:

PS-I Project Title: Software Development

Short Summary of work done: We made a blood donation website to felicitate blood donation

Objectives of the project: To create a full stack web application

Tool used: mern stack

Details of Papers/patents:none

Brief description of the working environment: the company personnels were very helping

Academic courses relevant to the project: dbms

Learning Outcome: organized workflow, frontend development, ui/ux

Name: DEV GARG .(2022AAPS0318P)

Student Write-up:

PS-I Project Title: Rudhira : A Blood Donation WebApp

Short Summary of work done: During my internship at Bellurbis Technologies, I contributed to the development of a comprehensive blood donation web application named Rudhira. The primary objective of the project was to streamline the blood donation process by creating an efficient and user-friendly platform for both donors and recipients. In the frontend development phase, I implemented responsive UI components for the login page, homepage, profile creation, and request registration screens using React. To manage application state, I integrated Redux and handled API calls with Axios. This setup ensured a seamless and dynamic user experience. On the backend, I developed RESTful APIs for user registration, login, and blood request management using Node.js and Express.js. The backend infrastructure was further enhanced by integrating MongoDB for efficient data storage and retrieval of user information and blood donation requests. This internship provided me with extensive hands-on experience in full-stack development, enhancing my skills in both frontend and backend technologies. It also improved my problem-solving abilities and allowed me to work collaboratively with a team to achieve our project goals effectively. The experience has been instrumental in my professional growth and development.

Objectives of the project: To facilitate easy communication between donors and recipients, providing a platform for users to manage their blood donation activities.

Tool used: MERN Stack , vs code , github

Details of Papers/patents:NA

Brief description of the working environment: My internship at Bellurbis Technologies provided a collaborative and innovative working environment. The company emphasized practical application, teamwork, and continuous learning. I contributed to the development of Rudhira, a blood donation web app, focusing on frontend development with React and Redux, backend development using Node.js and Express.js, and database management with MongoDB. I also gained experience in testing with Postman and Jest. Regular feedback and mentorship helped refine my skills and align my efforts with project goals.

This internship effectively bridged the gap between academic concepts and real-world applications, preparing me for future professional endeavors in the tech industry.

Academic courses relevant to the project: NA

Learning Outcome: Gained valuable experience in full-stack development

Name: TANAY KOTIA .(2022B2A81604H)

Student Write-up:

PS-I Project Title: software development

Short Summary of work done: build a blood donation website

Objectives of the project: to understand the basics of coding

Tool used: MongoDB Vscode

Details of Papers/patents:NA

Brief description of the working environment: just complete your work in due time and attend daily meetings

Academic courses relevant to the project: Computer programming

Learning Outcome: developing skills in backend area

Name: RAGHAV KHANDELWAL .(2022B5AA1089P)

Student Write-up:

PS-I Project Title: IT/Web Dev

Short Summary of work done: Developed a website on an idea we all came up with, together.

Objectives of the project: Developing a website of our own idea

Tool used: Node js, express, react, mongo db

Details of Papers/patents:None

Brief description of the working environment: The working environment is great. The company provides experts to guide us who are helpful.

Academic courses relevant to the project: Database,DSA

Learning Outcome: Coding, soft skills, corporate experience

PS-I station: Caarya Innovative Pvt. Ltd, Visakhapatnam

Student

Name: PARTH MEHTA .(2022A7PS0043H)

Student Write-up:

PS-I Project Title: Game Development - Multiplayer Synchronization

Short Summary of work done: We were asked to build upon a game named "Stormfront Rivals". "StormFront Rivals" is an innovative multiplayer action real-time game designed to immerse players in a dynamic and challenging environment, where survival hinges on strategic alliances and swift responses to natural disasters. The core gameplay revolves around the clans battling not only each other but also the frequent and unpredictable natural disasters that threaten their existence. Our team's primary responsibility in this ambitious project is 'Multiplayer Synchronization.' This crucial aspect ensures that the game's client-server interactions are seamless, providing a smooth and cohesive gaming experience for all players. Effective synchronization is vital for real-time multiplayer games to ensure that all players experience the same game state simultaneously, which is essential for fair and competitive gameplay. To lay the groundwork for "StormFront Rivals," our team has focused on establishing the foundational elements of the game.

This includes developing basic characters and their animations, as well as creating a compelling game environment that reflects the game's thematic elements. By building a robust base, we aim to provide a solid platform upon which further game development can proceed smoothly.

Objectives of the project: Multiplayer Synchronization Framework

Tool used: Unity 3d, Visual Studio, NetCode for GameObjects, Git-Github, Discord

Details of Papers/patents:None

Brief description of the working environment: Amazing and flexible work environment, Helpful Mentors, Proactive meets and not overloaded with work at all. Company provides the freedom to work a project within your interests.

Academic courses relevant to the project: Everything was new, Just basic coding experience will help.

Learning Outcome: Unity 3d, NetCode for GameObjects, Git Github Version Control

Name: BIBHU KALYAN SAHOO .(2022A7PS0138P)

Student Write-up:

PS-I Project Title: Esports Role Analysis Module (ERAM)

Short Summary of work done: The GameBridge project is dedicated to creating advanced modules for analyzing and enhancing player performance across various esports titles. Within this framework, the Esports Role Analysis Module (ERAM) is designed specifically for Valorant, a popular tactical shooter. ERAM's primary objective is to meticulously evaluate player performance through a comprehensive analysis of in-game metrics, including scores, kill/death ratios, and other key performance indicators. By leveraging these metrics, ERAM assigns precise roles to players that align with their demonstrated strengths. Furthermore, the module goes beyond in-game analysis by mapping these roles to 21 real-life transferable skills, providing valuable insights into how gaming experiences can translate into practical, real-world competencies. This dual focus on performance analysis and skill mapping enhances both player development and organizational decision-making, making ERAM a crucial tool in the esports landscape.

Objectives of the project: The Esports Role Analysis Module (ERAM) enhances Valorant player performance analysis by predicting roles based on metrics and mapping these roles to real-life skills. It combines data processing, machine learning, and visualization to offer valuable i

Tool used: Python, Flask, Django,HTML,CSS, Machine Learning Libraries, Kaggle datasets

Details of Papers/patents:None

Brief description of the working environment: During my Practice School-I (PS-I) at Caarya Inc., I was immersed in a collaborative and dynamic work environment that emphasized innovation and professional growth. The company expected a proactive approach to problem-solving and a commitment to delivering high-quality results. My role involved contributing to the Esports Role Analysis Module (ERAM) project, where I engaged in developing machine learning models for performance analysis in Valorant, a popular esports game.

The work environment was supportive, with a focus on agile development practices, including weekly sprints and regular stand-up meetings. This structure facilitated effective communication and allowed for rapid adaptation to project needs. The company valued teamwork and encouraged knowledge sharing, which was instrumental in enhancing both individual and collective output.

Throughout my tenure, I learned extensively about applying machine learning in real-world scenarios, particularly in role prediction and performance visualization. I gained practical experience with technologies such as Django, Flask, and SQLite, and improved my skills in HTML and CSS. Additionally, I obtained certifications in Data Science and Machine Learning from Coursera, further solidifying my understanding of these fields. This period was crucial for developing my technical skills and understanding the professional expectations in a tech-focused environment.

Academic courses relevant to the project: Database Systems, Object Oriented Programming

Learning Outcome: Data Analysis, Machine Learning, Role Mapping, Data Visualization, User Interface Development

Name: HARSH VIKRAM JAJODIA .(2022A7PS0171H)

Student Write-up:

PS-I Project Title: PlayPro - Community and Networking Features

Short Summary of work done: The development of the Community features at Caarya Pvt Ltd has been a valuable learning experience, bridging the gap between theoretical knowledge and practical application. This project offered a unique opportunity to apply acquired skills in a real-world context, contributing to the enhancement of recruitment processes. The messaging, general feed, and comment sections provide real-time communication and dynamic content updates, fostering a vibrant community of gamers and industry stakeholders. Throughout the development process, we overcame technical challenges through efficient state management, real-time data handling, and optimization strategies.

Objectives of the project: To create feed for the gaming website

Tool used: React, Typescript, MongoDB, Javascript

Details of Papers/patents: Nil

Brief description of the working environment: It is good, they focus on non-technical aspects more and make us involve in non-technical tasks. They gave us an ample amount of time with no restrictions. I enjoyed my experience.

Academic courses relevant to the project: Database Management

Learning Outcome: Communication, Frameworks, collaboration

Name: SWAPNEEL SINGH .(2022A7PS0221H)

Student Write-up:

PS-I Project Title: Play Pro - Player Management System

Short Summary of work done: Developed PlayPro basis with rawr api to display games, added player profile, followers/following, messaging, game collections and bookmarks, steam linking, steam achievements and games owned display page

Objectives of the project: Develop the base for Play Pro and add a Player Management System into it

Tool used: ReactJS, NextJS, TailwindCSS, External APIS, Firebase and Firestore

Details of Papers/patents:None (<https://play-pro.vercel.app>)

Brief description of the working environment: Flexible, easy going and lightweight

Academic courses relevant to the project: Database Management Systems (DBMS) - CS F212

Learning Outcome: Full stack development, along with working with firebase

Name: KSHITIJ TAKALE(2022A7PS0739G)

Student Write-up:

PS-I Project Title: Inc Ultra

Short Summary of work done: The project basically involved learning web dev frameworks. To incorporate 3D, we had to learn Aframe or Three.js.

Objectives of the project: Creating a 3D VR Virtual Cultural Marketplace Website.

Tool used: HTML, CSS, Three.js

Details of Papers/patents:-

Brief description of the working environment: The work environment was chill. Initial days went into introduction and understanding about which project to choose. Then after project allotment, meets were held to discuss the plan and resources. The frequency of meets reduced as it was majorly self work. We also learnt product side things to business like Value Proposition.

Academic courses relevant to the project: CS F111 Computer Programming

Learning Outcome: Web Development, Reactjs and Threejs.

Name: SANSKAR MUNDHRA(2022A7PS0757G)

Student Write-up:

PS-I Project Title: PlayPro - Player Profile Management System

Short Summary of work done: During my PS-I internship at Caarya, I developed PlayPro, a platform for managing player profiles and achievements via Steam and Rawg APIs. I designed the UI/UX with Figma and built the frontend using ReactJS, including Google login and Steam OAuth. For the backend, I used NextJS and integrated Firebase for real-time data management. I implemented CRUD operations and deployed the project on Vercel with continuous deployment and monitoring.

Objectives of the project: Deepening my understanding of software engineering principles and methodologies and Enhancing technical and professional skills through practical application.

Tool used: • Frontend: ReactJS for building the user interface components. • Backend: NextJS for creating API routes and handling server-side logic. • Database: Firebase for real-time data storage and synchronization. • Hosting: Vercel for deployment and hosting. • APIs: Steam API and Rawg API for integrating player and game data.

Details of Papers/patents:N/A

Brief description of the working environment: The working environment was typically professional and structured, with clear guidelines and expectations from Caarya. The company's expectations from us usually included demonstrating a strong work ethic, proactivity, and a willingness to learn. The learning experience during the PS-I can be highly rewarding, as we had the chance to learn new tech stacks in a real-world setting, gain exposure to industry best practices, and develop a deeper understanding of their chosen field of study.

Academic courses relevant to the project: N/A

Learning Outcome: I honed problem-solving skills by addressing API security and data consistency challenges, enhancing my project management abilities through feature prioritization and development planning.

Name: SHIKHAR SINGH .(2022A7PS1170P)

Student Write-up:

PS-I Project Title: PlayPro - Player Profile Management System

Short Summary of work done: Created a full stack web application to track user statistics and in-game achievements and display them on their profile. The statistics were fetched using various APIs available for games.

Objectives of the project: Create a full stack website which would essentially be a LinkedIn for gamers and eSports players.

Tool used: Figma, React, MongoDB, NextJS, Firebase, Vercel

Details of Papers/patents:N.A.

Brief description of the working environment: Great and productive working environment. The station was online and had flexible timings with respect to meetings. Overall a positive and motivating work environment.

Academic courses relevant to the project: Computer Programming, Object Oriented Programming, Database Systems

Learning Outcome: Full stack web development

Name: HARSIMAR SINGH SALUJA .(2022A7PS1187P)

Student Write-up:

PS-I Project Title: Game Bridge ERAM

Short Summary of work done: This project leverages machine learning (ML) to analyse Valorant player data and predict the role best suited for each player, whether Duellist, Initiator, Sentinel, or Controller. By examining various in-game performance metrics, our ML model offers valuable insights that can enhance gameplay and strategic decision-making. To develop this model, we collected extensive data on player statistics, including metrics such as kill-death ratios, assists, and win rates. The data underwent preprocessing to ensure accuracy and consistency before being utilized in our ML

algorithms. After testing various models, we achieved this with pretty high accuracy by identified an effective approach for role prediction.

Objectives of the project: Data analysis module to characterise esports role

Tool used: Python,Flask,SQL,Libraries like Numpy Pandas

Details of Papers/patents:None

Brief description of the working environment: The working environment was quite flexible and we had regular meeting to discuss any issues and our progress.

Academic courses relevant to the project: DBS

Learning Outcome: Data Cleaning,ML via regression,Basic Backend Principles

Name: VEER BANSAL(2022A7PS1268G)

Student Write-up:

PS-I Project Title: Radiant Harmony

Short Summary of work done: I learnt all about frontend development. I made the complete frontend of the website and also the value proposition model for our business

Objectives of the project: Web development

Tool used: Html, css and javascript, react

Details of Papers/patents:None

Brief description of the working environment: I expected to learn about web dev and that was successful

Academic courses relevant to the project: C programming

Learning Outcome: Frontend development

Name: KUNAL ARORA .(2022A7PS1306H)

Student Write-up:

PS-I Project Title: Inc ultra

Short Summary of work done: Had to create a 3D front end

Objectives of the project: Make a virtual market place

Tool used: HTML, CSS, JS, vs code

Details of Papers/patents:N/A

Brief description of the working environment: Great

Academic courses relevant to the project: OOPS

Learning Outcome: HTML, CSS, JS

Name: DEEPTANSH GUPTA .(2022A7PS1336H)

Student Write-up:

PS-I Project Title: Radiant harmony - Appointment Scheduling system

Short Summary of work done: In the beginning we had some meets discussing our current technical prowess and we even made PPTs answering some questions like challenges faced by us in previous projects, how we overcame them, how can we contribute to the current ongoing projects and many more. Then we assumed the role of project manager of our projects and divided the project into sprints and tasks between team members. We conducted regular meets discussing what more we can add into our projects and how to move forward. In the end we merged each of our individual work to make the final project. In conclusion, we effectively assessed our technical strengths,

strategized project management, and collaborated on enhancements through organized meetings and task delegation.

Objectives of the project: Developing a full-stack web application for scheduling appointments with music therapists using MERN stack. Integrated Google OAuth and Google Calendar API for real-time appointment booking and synchronization

Tool used: MERN Stack, Google API

Details of Papers/patents:nil

Brief description of the working environment: During my time at PS-I, the working environment was supportive, with realistic deadlines that allowed ample time for learning and exploration. I gained valuable technical skills, such as working with the MERN stack and APIs, as well as non-technical skills in project management and teamwork. The company fostered professional development through continuous learning opportunities, including training programs and mentorship. The culture was positive and inclusive, encouraging collaboration and innovation, while clear communication channels ensured alignment with company goals. The flexible working hours and remote work options promoted a healthy work-life balance.

Academic courses relevant to the project: Web development

Learning Outcome: Learned MERN stack

Name: RAKSHITA GOEL .(2022B1A71108P)

Student Write-up:

PS-I Project Title: Appointment scheduling system for Radiant Harmony platform

Short Summary of work done: Learnt Agile development, learnt MERN stack development of a website, learnt how the website frontend and backend work, learnt to use notion and github etc.

Objectives of the project: To develop a website with frontend, backend, API calls, Google login, database etc.

Tool used: HTML, CSS, JavaScript, MongoDB, MERN Stack, github, VS code

Details of Papers/patents:None

Brief description of the working environment: Working environment was learning and professional. I had an expectation to learn things and learn communicating in an industrial setup which i could do well. They were extremely helpful for mentoring Tech related queries.

Academic courses relevant to the project: Didn't have any as I am a dualite. I will have courses DBMS, OOPS etc in next year.They would be relevant to the project.

Learning Outcome: I learnt the server side building of any website, how we connect API calls on the website I, how we set up a Mongodb database when building a website using MERN Stack

Name: AADITYA GOEL .(2022B3A70417P)

Student Write-up:

PS-I Project Title: Drone Wars

Short Summary of work done: The Drone Wars project is an advanced drone simulation tool designed to provide users with a realistic and immersive experience in drone flight dynamics. It focuses on accurately simulating flight control mechanics, including pitch, roll, and yaw, while integrating environmental factors such as collision physics, wind, and temperature effects. The project aims to enhance users' piloting skills and understanding of drone operations by replicating real-world challenges and scenarios.

Objectives of the project: Build a realistic physics drone engine

Tool used: Unity and V.S Code (C# language)

Details of Papers/patents:-

Brief description of the working environment: During my time at Caarya Innovative Pvt. Ltd., I had the privilege of working in a remarkably positive and collaborative environment. The team was exceptionally friendly and supportive, which greatly enhanced my experience. From day one, I was welcomed into a culture of open communication and mutual respect, where every team member was approachable and willing to assist. This supportive atmosphere was instrumental in facilitating effective teamwork and problem-solving, allowing me to contribute meaningfully to the Drone Wars

project. The encouragement and camaraderie from colleagues not only boosted my productivity but also made the project experience highly enjoyable and rewarding. Overall, the nurturing work environment at Caarya Innovative Pvt. Ltd. significantly contributed to the project's success and my professional growth.

Academic courses relevant to the project: PID logic

Learning Outcome: Game development and C# code

Name: NIRMAL SWAROOP RAGHUNANDAN .(2022B3A70512P)

Student Write-up:

PS-I Project Title: Gamebridge - eSports Role Analysis

Short Summary of work done: We worked on a system that could categorise Valorant players into different classes based on in-game data. For this, we used Python to set up the framework, and GitHub to manage easy access among all teammates. We used Scikit for the machine learning part of our module. We also used HTML/CSS to develop a website for accessing this portal.

Objectives of the project: The objective was to develop a framework that could categorise players on the basis of different in-game statistics

Tool used: Software (Python, GitHub)

Details of Papers/patents:None

Brief description of the working environment: My learning from the company was about different aspects of the industry. I learnt how to manage projects through Notion Boards, and how to add specific value to my product that sets us apart from other competitors through a process called value proposition. Apart from that I also learnt to categorise work into different levels based on Agile development. From the software perspective, I learnt to work with Python, GitHub, and Scikit. I also learnt about system design.

Academic courses relevant to the project: None

Learning Outcome: Learning to use GitHub, Python

Name: MANBHAV SUGLA(2022B5A71414G)

Student Write-up:

PS-I Project Title: PlayPro - Community and Networking Features

Short Summary of work done: My team of 2 was tasked with building community and networking features for the PlayPro project, which is a platform for gamers to showcase their talent and teams to scout for talent. We built a social media feed for gamers to post stuff related to gaming, comment on the posts and like them as well.

Objectives of the project: To build social networking features like a post feed for PlayPro
- A platform for gamers

Tool used: ReactJS, NextJS, Typescript, MongoDB, Tailwind CSS, Cloudinary

Details of Papers/patents:N/A

Brief description of the working environment: The working environment at the company was excellent. We were given full freedom in terms of what we want to do for the project including design and tech decisions. The working hours were flexible. Regular calls were held to discuss progress and what can be done to improve. Questions were encouraged and the overall environment was very supportive.

Academic courses relevant to the project: Computer Programming, DBMS, TRW

Learning Outcome: Major Learning Outcomes included collaboration, full stack web development and effective communication skills

PS-I station: CAI Platforms, Bengaluru

Student

Name: NIKHILESH BALLA .(2022A7PS0040H)

Student Write-up:

PS-I Project Title: Product Design, Inventory Replenishment and Automation

Short Summary of work done: This project explores key aspects of product design, user interface, user experience, inventory replenishment strategies, and automation processes. The initial phase involves understanding product design principles and creating Figma designs. The project includes a comprehensive market research analysis of four companies to understand their strategies in inventory replenishment. Subsequently, it delves into various inventory replenishment strategies, including Periodic, Reorder Point, Top-Off, and Demand-Based methods. Detailed explanations of these strategies provide insights into their application and effectiveness. The final phase focuses on developing automation scripts to streamline processes, such as generating offer letters from a CSV file and a LaTeX template, and utilising GitHub for code management and summaries via the ChatGPT API. This comprehensive study aims to enhance operational efficiency and design quality in a corporate setting.

Objectives of the project: Research, Design and implement Inventory Replenishment feature, a part of supply chain management. writing Py Scripts for few miscellaneous automation tasks like generating offer letters and GitHub summaries.

Tool used: Figma, Overleaf, VS Code, ChatGPT API

Details of Papers/patents:NA

Brief description of the working environment: Initially, I expected the company to allow us to work on the specific projects they had mentioned during the PS station allotment process. However, in practice, we were assigned to projects that did not align with our initial preferences.

The employees I interacted with were nice and friendly. They were always willing to clear my doubts and provide valuable advice, which was beneficial both professionally and personally. There was no pressure to meet deadlines, contributing to a relaxed and productive work environment.

Although the official working hours were from 10:30 AM to 7:30 PM, we were allowed flexible timing, which helped in maintaining a good work-life balance.

Academic courses relevant to the project: Object Oriented Programming

Learning Outcome: I learned how a company implements a new feature into an existing system and the processes involved. I also learned how to integrate APIs in Python and how automation can simplify tasks.

Name: SAMARTH PAWAN .(2022A7PS0091H)

Student Write-up:

PS-I Project Title: Report Generation and Caching in LLMs

Short Summary of work done: Even though we signed up for a ML related project, majority of the interns were asked to write blogs, one of them didnt receive work throughout, was sitting idle. I worked a little on 2 features, implmenting report generation from user prompt, to downloadable pdf format using langragp agents of existing framework built by mentor.

Objectives of the project: Implementing these features using langchain framework.

Tool used: Langchain, python, gptcache

Details of Papers/patents:None

Brief description of the working environment: Great working environment, however didnt observe any hustle by company colleagues. Lack of work being received by everyone. Company structure not great, since CEO CTO CBO, followed by no hierarchical structure to report to.

Academic courses relevant to the project: NLP Gen AI

Learning Outcome: Basic exposure to the above things mentioned. Not a lot to be honest.

Name: ANSHUMAN DASH .(2022B4A70623P)

Student Write-up:

PS-I Project Title: DYNAMIC MACHINE LEARNING OPERATIONS AND GENERATIVE AI: TECHNICAL BLOG WRITING AND AUTOMATION

Short Summary of work done: During our internship at CAI Platforms, I contributed to the company's machine learning operations and generative AI projects through a variety of tasks. Initially, I automated the collection of executive names and emails from banks to support business outreach. I then verified and improved features in the company's internal tool, 'Playground,' and created step-by-step video tutorials to enhance user experience. In the post-mid semester phase, my focus shifted to writing in-depth technical blogs on advanced topics related to ML, GenAI, and LLMs and their use cases in the retail and finance industries. Additionally, I developed a Python script to automate the filling of LaTeX templates using data from CSV files, streamlining the generation of formatted documents. Overall, my internship provided valuable insights and practical experience in machine learning operations, content creation, and automation, contributing to both my professional growth and the advancement of CAI Platforms' objectives. I did this as a part of a group consisting of myself and one other person.

Objectives of the project: Technical blog writing, automation and data collection using python, and feature verification of the company platform

Tool used: Python, LaTeX, VS Code, Selenium WebDriver, Beautifulsoup libraries of python, MS Excel and Word

Details of Papers/patents:None

Brief description of the working environment: The working environment at CAI Platforms was casual and inviting, with mentors and colleagues who were approachable and supportive. This setting encouraged open communication and collaboration, making it easy to seek guidance and insights from experienced professionals.

My main expectation from the company was to learn how they implement machine learning in real-world tasks and projects. During my time there, I discovered that CAI Platforms utilizes Large Language Models (LLMs) and Generative AI across various segments of the retail and finance industries. A standout example is their virtual try-on feature, which allows users to try on makeup and other products in a virtual environment which also made use recommendation systems to make makeup kits based on past purchases for new customers. This application of AI not only enhances user experience but also showcases the innovative use of technology in practical scenarios.

Throughout the internship, I gained valuable insights into the practical applications of AI and machine learning. I learned to apply theoretical knowledge to real-world problems, using tools like Python and Selenium to develop effective solutions. This experience significantly broadened my understanding of AI, providing a solid foundation for future endeavors in technology.

Overall, the internship was a transformative experience, equipping me with the skills and insights needed for a successful career in AI and machine learning.

Academic courses relevant to the project: Technical Report Writing and some knowledge about Python Programming

Learning Outcome: Learnt how to automate tasks using python and data collection using python. Also learnt about various concepts of machine learning such as model performance metrics and their importance

PS-I station: Center for Development of Advanced Computing(C-DAC), Pune

Student

Name: TANAY SODHA .(2022B4A70720P)

Student Write-up:

PS-I Project Title: OS Development for RISC-V architecture

Short Summary of work done: We developed a minimal OS from scratch for RISC-V architecture for the VEGA microprocessor developed by CDAC and also we used the koji build system to automate the process of building RPMS using python API

Objectives of the project: To develop a Fedora based operating System for RISC-V architecture from scratch, to use the koji build system to automate process of building RPMs

Tool used: Fedora, Linux, C, CLI, bash, Python, Koji

Details of Papers/patents:-

Brief description of the working environment: Great working environment, mentors are supportive, meets all expectations

Academic courses relevant to the project: Computer Programming, Operating Systems, Object oriented Programming, Computer Architecture, compiler construction,

Learning Outcome: Linux command line, OS Development, Packages, Python, Koji Build System

Name: AVIKSHIT JHA .(2022A3PS0479P)

Student Write-up:

PS-I Project Title: Detection and Prediction of Cattle Behaviour based on Sensor data

Short Summary of work done: First we observed CCTV footage and observed patterns in the sensor data. Then we labelled data for the model training set. We used Random Forest(Google's YDF) algorithm for classification of behaviour of the cattle. We got good accuracy in this. Then we used LSTM(Long Short Term Memory) approach for heat detection in the cattle through anomaly detection method.

Objectives of the project: The objectives was to Develop a ML/DL model which successfully predicts cattle behaviour and heat status from sensor data coming from device attached to collar band of cow.

Tool used: Tensorflow, Pandas, Python, Gaming PC GPU,

Details of Papers/patents:created a conference paper on the work done till now at CDAC.

Brief description of the working environment: The work environment is very good and sort of relaxed. You will get ample time to learn about your project and implement it. The mentors are very nice and supportive. They expect good things from you as a BITSIAN.

Academic courses relevant to the project: no such course. CP came closest.

Learning Outcome: Learnt about ML/DL and its applications. Learnt how to use tensorflow and sci-kit libraries etc. Also learnt using label-studio for pattern labelling and analysis in the sensor data.

Name: NIKHIL JOSHI .(2022A7PS0041P)

Student Write-up:

PS-I Project Title: Automation of data for aqua suraksha

Short Summary of work done: Automated excel data for analysis making work of researchers easier

Objectives of the project: Self explanatory from the title

Tool used: Python pandas scikit learn

Details of Papers/patents:No

Brief description of the working environment: Good woking environment

Academic courses relevant to the project: CP

Learning Outcome: Pandas, matplotlib, scikit-learn

Name: DRUVA DHAKSHINAMOORTHY(2022A7PS0131G)

Student Write-up:

PS-I Project Title: DETECTION AND PREDICTION OF CATTLE BEHAVIOR USING SENSOR DATA

Short Summary of work done: This project presents a novel approach to cattle behavior detection and detection of Estrus(heat) periods using sensor data and machine learning techniques. By employing an affordable Bluetooth-based monitoring system, we aim to enhance livestock management and improve animal welfare. Our system uses a neck collar equipped with accelerometer and gyroscope sensors to gather real-time behavioral data from the cattle and syncing it to the cloud. We evaluated three different machine learning algorithms—Support Vector Machines (SVM), Random Forests (RF), and Convolutional Neural Networks (CNN)—to classify various cattle behaviors accurately. Additionally, we implemented a Long Short-Term Memory (LSTM) network to detect estrus by analyzing the patterns in these classified behaviors.

Objectives of the project: To categorise cattle behaviour and predict cattle health using sensor data

Tool used: Python, Label Studio, Tensorflow, ydf, pandas, scikit-learn

Details of Papers/patents:In progress

Brief description of the working environment: The working environment was good and expectations for the projects were laid out properly, we were able to interact with the other employees and seniors in the department we worked in and get their thoughts on our project. We were given a lot of freedom to pursue our ideas for the project, they were only focused on the results that we get.

Academic courses relevant to the project: Machine Learning

Learning Outcome: Understanding how ML models function on timeseries data
Understanding different ML hypothesis classes: SVM, RF, CNN
Understanding unsupervised learning: K-means clustering

Name: YASH SHARMA .(2022A7PS0155P)

Student Write-up:

PS-I Project Title: Image Splicing Forgery Detection

Short Summary of work done: I read some research papers and found that the usage of DFT in detecting forgeries in image had proved to be useful. So I utilised that method and combined it with a thresholding method called Otsu's method, which used edge detection to create a mask which showed the spliced regions of the image. After that contour detection was used to detect the black portions of an image output them.

Objectives of the project: I needed to create an Image Splicing Forgery Detection model that uses image processing tools to verify the authenticity of an image.

Tool used: Python, OpenCV, Numpy, Matplotlib

Details of Papers/patents:.

Brief description of the working environment: The working environment was good; most of us were given individual projects, which was nice. The co-interns there were supportive; they helped me somewhat with my project. Overall, I personally found it very enriching, as it helped me gain new skills and learn more about the working environment. It was a fun experience for me and would certainly help me in my future endeavours.

Academic courses relevant to the project: None

Learning Outcome: I learned more about image processing tools and how to use them. I learned communication skills since there were a lot of activities where we had to answer our mentors about how much work is done, and what all is left to be done. I also learned about different approaches to this problem and what could be the best approach to it.

Name: KARTIK MAHESHWARI .(2022A7PS0158H)

Student Write-up:

PS-I Project Title: Certificate Management System

Short Summary of work done: Learnt react and made a web application using MERN stack applications to make the web application

Objectives of the project: Creating a web application which stores, manages certificates and course details of students

Tool used: MERN stack technologies(MongoDB, E.JS, React, Node.JS)

Details of Papers/patents:NA

Brief description of the working environment: Mentor assigned us a room, where we would sit and learn and work on the project. There were other senior interns too to assist us with the project. Mentor checked with me regularly and advised me on various topics. He told us that it is not necessary to come regularly, you can come 3-4 days a week. Rest days you can prepare for your SI or work on the project from your PG or flat.

Academic courses relevant to the project: OOPS and DBMS

Learning Outcome: Improved web development

Name: ADVIK RAJ BASANI(2022A7PS1155G)

Student Write-up:

PS-I Project Title: Enhancing the Emotional, Empathetic and Task-Oriented Capabilities of an LLM

Short Summary of work done: This research explores a novel approach to humanizing large language models (LLMs) and chatbots by fostering their emotional intelligence. We propose a framework that equips LLMs with the ability to recognize and respond to a spectrum of 32 human emotions. This framework leverages a multi-pronged strategy: training on a custom-built emotional dataset, employing reinforcement learning to reward emotionally appropriate responses, and utilizing a tree-based topic selection mechanism to promote user happiness during conversations.

Objectives of the project: Making an LLM more emotional and empathetic

Tool used: Python, HuggingFace, GPUs

Details of Papers/patents:N/A

Brief description of the working environment: The work environment is really positive, interns and faculty are very accepting. The company itself is research-oriented and helped me be observant and help me understand research goals more.

Academic courses relevant to the project: Machine Learning, Natural Language Processing, Generative AI

Learning Outcome: Through this research, we gained valuable insights into training LLMs for emotion recognition and response generation. The project also highlighted the importance of addressing challenges like bias in training data and ensuring responsible development for user trust. Overall, this research paves the way for further exploration in creating emotionally intelligent LLMs that can engage in natural, empathetic interactions.

Name: SAARTHEK RAJ .(2022A7PS0137H)

Student Write-up:

PS-I Project Title: FACE DETECTION, AND OBJECT DETECTION WITH YOLO

Short Summary of work done: The first phase of this project started with data cleaning, which is removal of irrelevant / incorrect / redundant images from the labelled dataset that will be used to train an AI model for Facial Recognition. This was followed by demonstrating face detection with MTCNN, and RetinaFace. The second phase of the project began with data acquisition, in which I was asked to collect further data which will be used to train a Face Recognition model. It was followed by the task of identifying parked vehicles in a video input, distinguishing them with a red box.

Objectives of the project: Face detection using MTCNN, RetinaFace, and detection of stopped vehicles using YOLO object detection using YOLO.

Tool used: Python, MTCNN, RetinaFace libraries, Ultralytics library (for YOLO)

Details of Papers/patents:NA

Brief description of the working environment: I learned a few aspects of Python programming language. I also learnt using MTCNN, RetinaFace libraries for face detection, and YOLO for object detection. Some work such as data collection and data cleaning might seem a bit monotonous, but the overall experience was positive.

Academic courses relevant to the project: NA

Learning Outcome: Face Detection using MTCNN, RetinaFace, and Object Detection using YOLO

PS-I station: Centre for Railway Information Systems - Infrastructure, Delhi

Student

Name: ABHIMANYU BHOWMIK .(2022A3PS0412P)

Student Write-up:

PS-I Project Title: Dynamic Pricing for the Reserved Segment of Indian Railways

Short Summary of work done: Performed data cleaning, analysis, feature creation and transformation, and fit various models to best predict the fare and ticket demand of airlines.

Objectives of the project: To leverage various machine learning algorithms for predicting the fare and seats booked in different classes of Indian airlines, using open-source data. The results obtained would be directly transferable to the Indian Railways usecase.

Tool used: Python, Jupyter Notebooks

Details of Papers/patents:NA

Brief description of the working environment: The working environment was professional, with helpful mentors and flexible hours. The actual assigned work was not very hard or time-consuming, and could be easily done if a person had some prior experience in stats/ML. There was sufficient time given as a learning period for everyone in the project to get up to speed with the required skills.

Academic courses relevant to the project: Probability and Statistics, Machine Learning, Data Mining

Learning Outcome: Time Series Analysis, Dynamic Pricing, Statistics, Econometrics

Name: PARTH NAIR(2022A3PS0460G)

Student Write-up:

PS-I Project Title: Enhancing PRS Efficiency: Cassandra-Powered Database Management with Docker and Kafka Integration

Short Summary of work done: I alone was responsible for building a Spring Boot application using Gradle and Java, which would extract data from a PostgreSQL database using hard-coded SQL queries, then send them to specific Kafka topics. Then this application would receive the sent data as a Kafka consumer and add it to a Cassandra database running on the local device in a Docker container.

Objectives of the project: To ensure seamless and accurate transfer of data from an SQL database to a NoSQL database

Tool used: IntelliJ IDEA, Visual Studio Code, Spring Initializr, Docker, PostgreSQL, pgadmin4, CQLsh, Apache Kafka

Details of Papers/patents:-

Brief description of the working environment: Working environment was very flexible and encouraging. There was adequate support given by the mentors, and constant reassurance of their presence for any doubts or issues we could be facing.

Academic courses relevant to the project: -

Learning Outcome: A data pipeline was successfully built in Spring Boot Gradle, with a PostgreSQL endpoint on local host and a Cassandra endpoint in a Docker container.

Name: SIMRAT KAUR SEKHON .(2022A3PS1327H)

Student Write-up:

PS-I Project Title: Revamping the Divyangjan Portal

Short Summary of work done: Designed a new website using figma for the UI Design, then developed the same in Angular JS Framework

Objectives of the project: Create new portal for Divyangjan Booking

Tool used: Figma, VS CODE

Details of Papers/patents:NIL

Brief description of the working environment: Good, Mentors had knowledge and helped us with doubts

Academic courses relevant to the project: NONE

Learning Outcome: Web dev, HTML, CSS, Angular JS

Name: AMAN YADAV .(2022A4PS0543P)

Student Write-up:

PS-I Project Title: MISCELLANEOUS REPORT IMPLEMENTATION USING ANGULAR AND NODE.JS

Short Summary of work done: Creating a web application with Angular for the user interface, Node.js with Express for the server- side logic, and PostgreSQL for the data storage requires numerous crucial stages.

Objectives of the project: CRUD operations, Web Development

Tool used: Postman API, PostgreSQL, Angular, Node.js

Details of Papers/patents:NA

Brief description of the working environment: The Centre for Railway Information Systems (CRIS) in Delhi is known for its dynamic and collaborative work environment. It focuses on developing and implementing IT solutions for Indian Railways, fostering a culture of innovation and teamwork. Employees often work on cutting-edge technology projects and are encouraged to engage in continuous learning and skill development. The work environment is typically structured, with a strong emphasis on meeting project deadlines and achieving operational excellence while supporting work-life balance.

Academic courses relevant to the project: Computer Programming

Learning Outcome: C++, HTML, CSS, Javascript, Postman API, Database management, Angular development

Name: ARYAN KHORANA .(2022A4PS0938P)

Student Write-up:

PS-I Project Title: Creation of website for SMS

Short Summary of work done: I worked on the front end development of multiple websites as well as assisted in the formation of DTOs

Objectives of the project: Create a website for Station Management System

Tool used: Visual Studio Code, HTML, CSS, JavaScript, Angular

Details of Papers/patents: No

Brief description of the working environment: The PS station is fine. The teachers are very cooperative as well as helpful. The children can get to learn quite a lot of things

Academic courses relevant to the project: Introduction to Mass Communication (For GD), Computer Programming

Learning Outcome: Learnt front end development.

Name: KUMARI SOUMYA .(2022A7PS1184P)

Student Write-up:

PS-I Project Title: PSR

Short Summary of work done: Full stack development of station management system. I'm working on the backend of the station management system.

Objectives of the project: Station management system - Backend development

Tool used: Spring boot - java

Details of Papers/patents: No

Brief description of the working environment: Good, but quite congested

Academic courses relevant to the project: SPRINGBOOT JAVA ANGULAR DSA

Learning Outcome: Spring boot

Name: ABHINAV DEBNATH .(2022A8PS1236P)

Student Write-up:

PS-I Project Title: Dynamic pricing

Short Summary of work done: Built a machine learning model on dynamic pricing

Objectives of the project: Make a machine learning model on dynamic pricing

Tool used: Python, jupyter notebook

Details of Papers/patents:Not much

Brief description of the working environment: Was good, friendly staff

Academic courses relevant to the project: C programming

Learning Outcome: Machine learning

Name: SHUBHAM BANSAL .(2022A8PS1731P)

Student Write-up:

PS-I Project Title: Dynamic Pricing for reserved segments of Indian railways

Short Summary of work done: •Analysed the current dynamic pricing model to identify key errors and inefficiencies. • Collaborated with the team to gather and process a dataset from the airline industry to understand dynamic pricing strategies. • Conducted comprehensive data analysis and modelling to propose a more effective dynamic pricing strategy tailored for Indian Railways.

Objectives of the project: The primary objective of the project is to develop and evaluate dynamic pricing models for Indian Railways by leveraging historical airfare data. By understanding and implementing different dynamic pricing strategies

Tool used: for this we used :1)python 2) various libraries like matplotlib , numpy , scikitlearn etc 3)Github 4)Jupyter Notebook

Details of Papers/patents:none

Brief description of the working environment: Work Environment:

During my summer internship at the Centre for Railway Information System (CRIS), I had the opportunity to work in a dynamic and collaborative environment. The office culture was professional yet friendly, fostering open communication and teamwork.

Expectations from the Company:

CRIS expects interns to be proactive, diligent, and eager to learn. The organization values innovative thinking and encourages interns to contribute ideas that can improve existing systems.

Learning During PS-I:

I gained hands-on experience in data collection, preprocessing, and exploratory data analysis using Python.

Additionally, the project enhanced my problem-solving skills as I addressed the limitations of current pricing strategies and proposed improvements.

Collaborating with a team improved my communication and teamwork abilities, while regular interactions with experienced professionals provided valuable mentorship.

Academic courses relevant to the project: Probability and statistics

Learning Outcome: Worked effectively within a team, contributing to collective problem-solving and project success.

Coordinated with team members and supervisors to integrate feedback and refine the project approach.

Addressed limitations of the existing pricing model in Indian Railways by developing a more flexible and responsive dynamic pricing strategy.

Suggested improvements for optimizing revenue, managing demand, and enhancing resource utilization.

Learnt various Technical skills and analytical skills like Exploratory Data Analysis , Feature engineering , Machine Learning , etc

Name: VAIBHAV KUMAR .(2022AAPS0240H)

Student Write-up:

PS-I Project Title: Predictive Analysis of Train Delay

Short Summary of work done: My work mainly involved researching online sources to learn data cleaning and preprocessing techniques, followed by training and evaluating various machine learning models to determine the most accurate predictor and enhance overall model performance.

Objectives of the project: The main objective was to develop a machine learning model to accurately predict train delay.

Tool used: Google Colab, Python, Scikit-learn library

Details of Papers/patents:N/A

Brief description of the working environment: The PS station became online, but we were still required to report to the station for 3 days in total over the course of two months to attend the evaluation components from BITS. My mentor was not very interactive, so I had to figure things out independently and request regular meetings, although that was not the case with other mentors most of them were chill. There was absolutely no communication between my faculty and my mentor which added to the challenge. Project was interesting and helped me gain new knowledge. Overall it was a mixed experience.

Academic courses relevant to the project: Machine Learning (BITS F464)

Learning Outcome: Learned basics of ML and gained expertise in implementing features, training and evaluating machine learning models like Random Forest, XGBoost.

Name: RAVI KOUNDILYA .(2022B2A31607H)

Student Write-up:

PS-I Project Title: User Interface of Concession Management

Short Summary of work done: Over the course of the Concession Portal project for Indian Railways, I played a pivotal role in both the design and development phases, focusing on creating a seamless and efficient user experience. Initially, I completed the wireframing and initial design using Figma, ensuring that the layout was intuitive and aligned with user needs. I then moved on to the frontend development using Angular, starting with the home page and incorporating responsive design principles to ensure accessibility across various devices. I developed multiple forms for the concession

application, implementing robust client-side validation and interactive elements such as dropdowns and radio buttons to streamline user input. Additionally, I integrated Google reCAPTCHA to enhance security and prevent automated submissions. Routing between pages was implemented using Angular Router, with careful attention to maintaining user state and protecting routes. I then integrated the frontend with the backend, using SpringBoot to create and test RESTful APIs for handling form submissions and user authentication. This involved ensuring secure data transfer and implementing error handling for seamless user interactions. Throughout the project, I conducted extensive testing, including end-to-end testing and user testing sessions, to identify and fix bugs, improve validation, and enhance overall user experience. I also prepared comprehensive documentation detailing the functionalities and usage of the portal.

Objectives of the project: To design and develop the Concession management portal for the new Passenger Reservation System.

Tool used: MEAN Stack, Visual Studio Code, Figma, Adobe XD, IntelliJ IDEA, Github

Details of Papers/patents:NA

Brief description of the working environment: The PS-I internship was good for me because it was a dynamic, collaborative working place that valued teamwork and innovation. It allowed interns to engage in real-life projects and make contributions.

At work, we were expected to maintain high levels of ethics, meet deadlines and produce quality results. Regular conferences were held to ensure that there are no hurdles as far as the project goals are concerned. The company also stressed on documentation and clear communication, which led to seamless collaboration between different teams.

To sum up, my industrial placement experience at PS-I was highly rewarding in terms of both technical knowhow gained and practical insights into organizational operations. Consequently, my ability to solve problems significantly increased due to the exposure I received from this company through actual projects and the teamwork fostered here by this organization has well-prepared me for future professional challenges.

Academic courses relevant to the project: NA

Learning Outcome: I developed and tested the user interface for the Concession Management system, gaining in-depth knowledge of web development using the MEAN stack. This experience allowed me to understand the intricacies of creating user-friendly and efficient interfaces while incorporating essential security features such as Captcha. Additionally, I gained valuable insights into the inner workings of an organization, which enhanced my documentation skills, time management, and ability to work effectively within a team.

Name: YASH JINDAL .(2022B2A81117P)

Student Write-up:

PS-I Project Title: PRS Data Analytics

Short Summary of work done: we were given a flight fare dataset and we had to make various machine learning models to predict the flight fares

Objectives of the project: to predict flight fares using various ml algorithms

Tool used: pandas, numpy, pytorch, sklearn

Details of Papers/patents:na

Brief description of the working environment: good

Academic courses relevant to the project: computer programming

Learning Outcome: learnt about different machine learning models and various aspects of data analysis

Name: ABHIGYAN KUMAR SINGH .(2022B5A40665P)

Student Write-up:

PS-I Project Title: Predictive analysis of train delay

Short Summary of work done: Trained a ML model to learn on a database containing historical schedule of many trains, then used it to predict any delays in future

Objectives of the project: Make ML model to predict train delay

Tool used: Python

Details of Papers/patents:None

Brief description of the working environment: It was work from home, need to complete the project and give updates to our mentor regularly

Academic courses relevant to the project: Computer programming, M1, M2

Learning Outcome: AI/ML

PS-I station: Centre for Railway Information Systems - Operations, Delhi

Student

Name: HARSHAL JAIN .(2022A3PS0425P)

Student Write-up:

PS-I Project Title: Chatbot for loco drivers

Short Summary of work done: Performed data analysis on performance stats of drivers from different stations and based on findings created a chatbot to speedup the working process.

Objectives of the project: Performing Exploratory data analysis and creating chatbot for loco drivers

Tool used: Jupyter Notebooks, Python, JavaScript, VSCode

Details of Papers/patents:Nope

Brief description of the working environment: It was a positive and collaborative working environment with great help provided at all steps, the company understood our current level and provided tasks and learning opportunities based on them and set their expectations realistically and accordingly. I gained hands-on experience with Python, Jupyter Notebooks, JavaScript, and libraries like pandas and Flask, enhancing my technical skills. Additionally, I developed soft skills such as effective communication, time management, and teamwork.

Academic courses relevant to the project: Probability and Statistics
Didn't find any other course from electrical applicable

Learning Outcome: Exploratory data analysis and web development

Name: BAIBHAV VISHAL .(2022B1A81136P)

Student Write-up:

PS-I Project Title: Development of Master Station Management Portal

Short Summary of work done: We prepared a whole website for the railways to user for master station management

Objectives of the project: We were tasked with preparing backend infrastructure of the above-mentioned project

Tool used: For the hardware I personally used a macbook air m1 alongwith GitHub and intellij developer tools for the software component

Details of Papers/patents:None

Brief description of the working environment: The working environment was very helpful and positive

Academic courses relevant to the project: CS F111

Learning Outcome: We learned springboot framework using Java for the same

Name: AKASH GOYAL .(2022B3AA1743P)

Student Write-up:

PS-I Project Title: Dynamic pricing for the Reserved segment of the Indian Railways

Short Summary of work done: n the project on dynamic pricing for Indian Railways using machine learning, we developed and implemented models to adjust ticket prices based on factors like demand, availability, and historical data.We collected and

preprocessed data, engineered relevant features, and applied various machine learning techniques to predict optimal pricing. The project involved evaluating and tuning model performance, integrating the models into a practical system, and considering the ethical and regulatory aspects of dynamic pricing.

Objectives of the project: To dynamically determine the ticket prices and demand for seats using various machine learning models

Tool used: Python, ML libraries, jupyter notebook, github

Details of Papers/patents: none

Brief description of the working environment: During the project on dynamic pricing for Indian Railways using machine learning, I worked in a technical environment where a combination of Python, machine learning libraries. The working environment was collaborative, involving regular meetings and code reviews to ensure alignment with project goals and technical standards.

During the project, I learned valuable skills in model development and evaluation, data preprocessing, and feature engineering. I also gained insights into the practical application of dynamic pricing and the ethical considerations involved. The experience enhanced my problem-solving abilities, coding skills, and understanding of how machine learning can be applied to optimize pricing strategies in a real-world scenario. Overall, the project provided a comprehensive learning experience and practical insights into the intersection of data science and operational management.

Academic courses relevant to the project: Machine learning, data science , statistics

Learning Outcome: In our project on dynamic pricing for Indian Railways using machine learning models, we gained a comprehensive understanding of how dynamic pricing operates and its practical applications. I developed expertise in selecting, implementing, and optimizing various machine learning models tailored for pricing predictions, while also gaining experience in data collection, preprocessing, and feature engineering.. Overall, the project enhanced MY problem-solving abilities, communication skills, and provided a deeper understanding of the operational dynamics of Indian Railways

Name: HIMANSHU AGGARWAL .(2022B5A30848P)

Student Write-up:

PS-I Project Title: Operations: Crew Management System

Short Summary of work done: In the first month, we initially did exploratory data analysis over the provided data to get findings about issues with Indian Railways freight. Based on that data, we next developed a chatbot for Railway crew to get to know all details about their own work.

Objectives of the project: Conducting exploratory data analysis and development of CMS chatbot

Tool used: Pandas, Matplotlib, Seaborn, Flask, Llama 3, Groq

Details of Papers/patents:NA

Brief description of the working environment: The people at office were extremely talented and calm and had a lot to learn from. The office was quite small and not much space to even have in interns but the learning was great. Our mentor was very calm but taught us a lot. Only issue was lack of proper space and working environment for interns.

Academic courses relevant to the project: NA

Learning Outcome: I learned about data analytics and how to use Llama api to develop a chatbot

PS-I station: Centre for Railway Information Systems - Passenger Reservation System Tech, Delhi

Student

Name: KSHITIZ GUPTA .(2022A7PS0057P)

Student Write-up:

PS-I Project Title: Passenger reservation system

Short Summary of work done: Designed a backend application to manage data around the concession management portal and database

Objectives of the project: Develop utility for concession management portal

Tool used: Postgresql intellij idea spring boot html css Java MySQL

Details of Papers/patents:NA

Brief description of the working environment: None

Academic courses relevant to the project: None

Learning Outcome: Full stack Web development database systems communication skills work under large organisations and many more

Name: HARSHITA .(2022A7PS1353H)

Student Write-up:

PS-I Project Title: Concession management

Short Summary of work done: I have made a concession management portal for railway people for their easy accessibility and management of the concessions

Objectives of the project: To develop a portal for the railway officers for easy accessibility and management of the concessions

Tool used: Angular framework,git ,GitHub

Details of Papers/patents:Na

Brief description of the working environment: Working environments was pretty good and chill.

Academic courses relevant to the project: DBMS,oops

Learning Outcome: Angular framework, practical experience of web dev

Name: PRATYUSH VERMA .(2022B1A71220H)

Student Write-up:

PS-I Project Title: User Interface of Divyangjan utility

Short Summary of work done: Redesigned and developed user interface for centralised divyangjan portal of the indian railways

Objectives of the project: UI/UX design and development

Tool used: VScode, Angular Framework, Figma

Details of Papers/patents:NA

Brief description of the working environment: Station was mostly online. Regular meetings held. Mentors pretty supportive.

Academic courses relevant to the project: NA

Learning Outcome: Front end development

PS-I station: Centre for Railway Information Systems Mumbai, Mumbai

Student

Name: PRITHA DILIP KAWLI(2021A7PS2432G)

Student Write-up:

PS-I Project Title: TrainTales, TicketValidate

Short Summary of work done: We worked on 2 projects: TrainTales and TicketValidate
TrainTales is a community-driven, staff-monitored grievance portal that uses sentiment analysis to gauge people's sentiment in different locations and isolates popular issues so the railway staff can better address them. It helps passengers solve their issues among

themselves, while also providing an efficient interface through which the staff can address their grievances. It measures and shows the no. of issues solved and their average response time. The front end is made in react, and the backend uses postgres and NLTK (for sentiment analysis). The app is still under development since it was put on hold after our midsem seminar to make time for a new project that our professor suggested following the opinion of the railmadad representative who attended our seminar. However, the challenges posed by the new project were too complicated to be solved in the given timeframe, so we switched to TicketValidate in the last 2 weeks. TicketValidate is a webapp that makes ticket verification easier and quicker for TCs in Mumbai local trains. Currently, it supports e-tickets booked using the UTS app and works by scanning the UTS no. and verifying it with the railway database.

Objectives of the project: 1. To make a community driven complaint grievance portal.
2. To make ticket checking easier for TCs in mumbai local trains.

Tool used: VS code, macbook air, python, UTS, Docker, Postgres, React, Tesseract (through pytesseract)

Details of Papers/patents:None

Brief description of the working environment: The staff guided us in the first few days and we learned the structure of the office and got familiar with the active projects, which were mainly UTS and PRS. The office timings were Monday-Friday 10am-6pm. The office was adjacent to CSMT station. The staff was very supportive and readily answered our questions or guided us if we were stuck on a bug. I was fortunate that my seat was next to Ms. Kavita Kathe, who had recently completed training at IIT Delhi regarding NLPs, so I could ask her my doubts regarding the project. Our on-site coordinator, Sachin sir, was very accommodating with the project changes and our suggestions. Our prof, Dr Dey visited our station regularly and we remained in touch through whatsapp and gmeets.

Academic courses relevant to the project: Database Management, Computer Networking, Computer Programming, Object-Oriented Programming

Learning Outcome: Staff interaction and how to pitch a project, adapting to demand, python, data science, docker, github, best practices, CNNs, OCR

PS-I station: Chaob Technologies Pvt. Ltd (Carscan), Pune

Student

Name: NAYAN RATHORE .(2022A4PS0747P)

Student Write-up:

PS-I Project Title: Development of Database for Vehicle Repair Cost Estimation

Short Summary of work done: My work involved product management which included filling excel sheet with the repair data for different car parts and model with the total cost of vehicle repair.

Objectives of the project: To develop a database for finding the cost of vehicle repairs

Tool used: Microsoft Excel

Details of Papers/patents:None

Brief description of the working environment: The company environment was really helpful. My mentor helped me out a lot during the entire PS.

Academic courses relevant to the project: Knowledge of Python

Learning Outcome: How to communicate in the company, How to use excel

Name: DEEPAN ROY .(2022A7PS0004P)

Student Write-up:

PS-I Project Title: INSTANCE SEGMENTATION ON CAR PARTS FOR DAMAGED VEHICLES

Short Summary of work done: In the first month of working on this project, the Car Parts team was assigned multiple images of vehicles, which we had to annotate such that the future model could be trained on this data. We were given access to the Computer Vision Annotation Tool (CVAT). This tool helps us to draw the shape or outline of a part and correctly label the part on the image with its name. Once the dataset annotation process was completed, we moved on to developing a Computer Vision model that will learn from the images that we have annotated, to reliably recognise the parts on vehicles. The final resultant Instance Segmentation model's resulted in 74.2% AUC.

Objectives of the project: To increase CarScan dataset and to build Instance Segmentation model to detect vehicle damages.

Tool used: Computer Vision Annotation Tool (CVAT), Kaggle, Google Colab

Details of Papers/patents:None

Brief description of the working environment: We worked online, and were expected to be available from 10am to 7pm and complete 20-30 image annotations everyday during the first month. In the second month, we were given resources to learn about Deep Learning systems.

Academic courses relevant to the project: Artificial Intelligence, Deep Learning

Learning Outcome: Learned about Computer Vision Annotation Tool (CVAT) and about developing Deep Learning model.

Name: SHARVIL POTDAR(2022A7PS0724G)

Student Write-up:

PS-I Project Title: Vehicle Detection

Short Summary of work done: Annotated images to prepare training dataset using Computer Vision Annotation Tool for the vehicle detection project. After preparation of dataset, we moved on to the modelling part where we explored different models for vehicle detection. Our goal was to balance accuracy and computation power. So in conclusion our group worked on the data annotation and the modelling part during PS-1.

Objectives of the project: Vehicle Detection using Computer Vision and Deep learning.

Tool used: Computer Vision Annotation Tool(CVAT)

Details of Papers/patents:-

Brief description of the working environment: The working environment was good. The annotation part and the modelling part was good. Some knowledge of AI/ML can be considered as a headstart for the project that we were working on. I got to learn about CVAT and various deep learning models for object detection during PS-1

Academic courses relevant to the project: ML,DL

Learning Outcome: Data Annotation,Model training

Name: SRIJA GUDA.(2022A7PS2003H)

Student Write-up:

PS-I Project Title: AI team- vehicle detection

Short Summary of work done: First month was data annotation which was mundane and tedious . Second month was using models for object detection so there was scope for learning

Objectives of the project: Testing Object Detection Algorithms

Tool used: Kaggle, CVAT

Details of Papers/patents:None

Brief description of the working environment: First month had strict and high targets, but second month which had good learning was relatively free, an environment where you could actually learn if you wanted.

Academic courses relevant to the project: ML, DL

Learning Outcome: Using YOLOv8, CVAT

Name: AJAY SINGH(2022A8PS0612G)

Student Write-up:

PS-I Project Title: Car parts Detection using AI/ML Algorithms

Short Summary of work done: During PS-I, the project focused on developing a machine learning model for different car parts detection. The process began with annotating various car parts using a tool named CVAT (Computer Vision Annotation Tool), creating a comprehensive dataset for the training phase. For the first month of our internship, we did annotations. In the next phase (training phase), we trained our machine learning model using the dataset we annotated in the first phase of our internship. We selected the YOLO model due to its efficiency in object detection tasks.

Objectives of the project: Develop a machine learning model to detect different parts of a car.

Tool used: Hardware: GPU resources on Kaggle and Software: Python, PyTorch, CVAT, YOLO, Kaggle

Details of Papers/patents:N/A

Brief description of the working environment: The working environment at Chaob Technologies Pvt Ltd (CarScan) was dynamic and collaborative. Interns were expected to engage in hands-on tasks involving advanced machine learning techniques and data annotation. The supportive environment and access to cutting-edge tools facilitated a productive and enriching learning experience.

Academic courses relevant to the project: Machine Learning

Learning Outcome: Got to learn about Python and Machine learning. Understanding of YOLO architecture and its application in vehicle parts detection. Experience in model training, and performance evaluation using PyTorch.

Name: AYUSH SINGH .(2022AAPS0222P)

Student Write-up:

PS-I Project Title: Product Analyst

Short Summary of work done: I started by thoroughly understanding each and every aspect of Carscan products. Then I was tasked to learn Power BI and analyze the extensive data coming from those products and make sense out of it, then I moved onto making interactive dashboards in Power BI. I worked on 5 dashboard including a invoicing

dashboard for the finance department of Carscan. These dashboards increased the operational and financial efficiency multifold.

Objectives of the project: To create and manage Power BI dashboards for Carscan

Tool used: Excel, Python and Power BI

Details of Papers/patents:Na

Brief description of the working environment: The working environment was very good and supportive, my mentor was extremely responsive and helpful with any doubts that I faced. I used to attend meetings almost everyday and had to report my progress with the allotted work. I learnt a lot during my PS-I. Excluding the hard skills that I learnt from scratch, I learnt how corporate works and how to adjust accordingly. I also learnt the importance of team work and responsiveness.

Academic courses relevant to the project: None

Learning Outcome: Data Analysis, Data Visualization, Power BI dashboard creation

Name: [NAMAN AGRAWAL .\(2022AAPS0327H\)](#)

Student Write-up:

PS-I Project Title: Data-driven cost estimation model for vehicle repairs

Short Summary of work done: At first we were given in-depth information about the product. We researched on what can be the possible use-cases and know about the competitive market. Then we extracted data from various customer reports and simultaneously filled in excel file. Then we created our model which with the help of this data provide an estimation for vehicle repairs.

Objectives of the project: Creating an alternative to GT report

Tool used: Python, HTML, CSS, Javascript, Pandas, MS Excel, Github

Details of Papers/patents:-

Brief description of the working environment: The internship was remote. All the mentors were friendly and helped in clearance of any doubt. Learned a lot of different

skills including soft skills. The presentations and group discussions helped in developing the presenting and communication skills. Developing the model helped in improving the technical skills.

Academic courses relevant to the project: Computer programming, probability and statistics.

Learning Outcome: Got to know about what is the role of a product manager. Got familiarized with some python libraries such as pandas. Got to know in depth about the Carscan product. And also got experience in managing data in excel.

PS-I station: Cilans System, Ahmedabad

Student

Name: SHAH KRISH BRIJESH .(2022A3PS0377P)

Student Write-up:

PS-I Project Title: Building a resume parser using RPA technology

Short Summary of work done: Learnt about various features of Automation Anywhere, an RPA technology from the coursework provided and completed 3 projects with it. Learnt about parsing, API integration and GitHub.

Objectives of the project: Automating resume screening function of HR

Tool used: Python, Postman, Automation Anywhere

Details of Papers/patents:NA

Brief description of the working environment: The company professionals were very supportive and accomodating. Self paced work environment with readily available help.

Academic courses relevant to the project: Computer Programing

Learning Outcome: Learnt about resume parsing and integrating with APIs

PS-I station: ClimeTaverse - Electronics & Manufacturing, Bengaluru

Student

Name: ANUJ RAMDAS BALIGA .(2022A4PS1730H)

Student Write-up:

PS-I Project Title: Digital twin

Short Summary of work done: We started with learning the basics of matlab and simulink , then we implemented ML algos to replicate the real world components by collecting data from them physically , we then converted those ml algos into simulink form

Objectives of the project: Make a digital twin for a water plant

Tool used: matlab , simulink , simscape, vs code, chatgpt

Details of Papers/patents:no

Brief description of the working environment: We worked in a rented workspace where a lot of other companies were working , the company expected quite a bit from us and we did our best to deliver , we learnt a lot of matlab , simulink and quite a bit of ML in this project.

Academic courses relevant to the project: Fluid mechanics

Learning Outcome: Machine Learning , matlab , simulink , simscape

PS-I station: ClimeUp, Salem

Student

Name: LINGA SAI VAISHNAV YERRAM .(2022A7PS0060H)

Student Write-up:

PS-I Project Title: Workflow management

Short Summary of work done: Learnt to build APIs and Schemas and few functions related to the working of the project

Objectives of the project: Build a workflow management system which helps verification of records easy.

Tool used: NestJS Typescript mongodb mongoose orm

Details of Papers/patents:NA

Brief description of the working environment: Online, 20 mins meet everyday, SatSun holiday, pretty chill company, you can learn new things while working on the project simultaneously

Academic courses relevant to the project: DBMS,OOPS

Learning Outcome: Learnt to build APIs and Schemas and few functions related to the working of the project

Name: VINEETH ULAVALA .(2022A7PS0071H)

Student Write-up:

PS-I Project Title: Chatbot Ticketing system

Short Summary of work done: Built the backend of the ticketing system using node and express. Used openai api's to make a model and fed data given to us by the company. Then we integrated this model to the backend and the chatbot is able to create tickets.

Objectives of the project: Building a building system and integrating with openai chatbot

Tool used: MERN + Nest + Typescript + openai api

Details of Papers/patents:None

Brief description of the working environment: The environment was good and encouraging.

Academic courses relevant to the project: OOP, DBMS, DSA

Learning Outcome: Learned Mern Stack and fine tuning of OpenAI API models.

Name: SOUMITH SIDDARTHA GUDIPUDI .(2022A7PS0198H)

Student Write-up:

PS-I Project Title: Auto-fill functionality using NLP and RAG

Short Summary of work done: The project involved creating a backend using NestJS to handle questions and answers stored in MongoDB. The frontend, built with React, included forms to submit and retrieve questions. Embeddings for questions were generated using OpenAI's models, and a vector search index was used to find similar questions. An autofill feature was implemented to suggest answers based on similarity.

Objectives of the project: The primary objective of this project was to develop a question-answer autofill system utilizing a Retrieval-Augmented Generation (RAG) model. The system aimed to leverage embeddings generated from OpenAI's models to provide accurate and contextually relevant

Tool used: OpenAI , MongoDB , NestJS , ReactJS , Insomnia (for api testing) , spaCy

Details of Papers/patents:NA

Brief description of the working environment: The project was developed in a collaborative environment that encouraged learning and experimentation. Using modern web development frameworks and tools provided hands-on experience with real-world applications of AI and machine learning.

Academic courses relevant to the project: DBMS

Learning Outcome: 1. Gained proficiency in integrating OpenAI's language models with a backend built using NestJS.

2. Developed skills in creating and managing MongoDB databases and implementing vector search indexes.
3. Enhanced understanding of embedding generation and similarity searches.

PS-I station: ClimeUp, Salem

Student

Name: AMRITANSH .(2022A7PS1314H)

Student Write-up:

PS-I Project Title: B2B Customer Service Ticketing System

Short Summary of work done: During my tenure at ClimeUp, I made significant contributions to improving the company's operational efficiency and support systems. I developed an ESG score predictor for countries, achieving an impressive predictive accuracy of 99.92% using advanced machine learning techniques. This provided ClimeUp with valuable insights for strategic decision-making. Additionally, I integrated OpenAI's GPT-3.5 Turbo to enhance problem statement classification, which streamlined the handling of user inquiries and improved response times. I created a customer support application using Node.js and MongoDB to automate ticket creation within Freshdesk, reducing manual effort and boosting efficiency. To ensure scalability and maintainability, I redefined the database schema and reconstructed the application using NestJS and TypeScript. Furthermore, I implemented a real-time communication system with Socket.io, facilitating immediate and seamless interactions between users and technical experts. This enhancement significantly improved issue resolution times and user satisfaction.

Objectives of the project: Enhance customer support operations using advanced AI models and real-time communication systems

Tool used: Node.js, MongoDB, NestJS, TypeScript, OpenAI GPT-3.5 Turbo, Socket.io

Details of Papers/patents:NA

Brief description of the working environment: At ClimeUp, the remote working environment offered complete flexibility in our hours. Tasks were clearly defined, giving us the autonomy to choose our methods. The mentors were very supportive, promptly

addressing queries and providing guidance through regular meetings, allowing us ample time to acquire necessary skills. During my internship, I worked with cutting-edge technologies and models reflecting ClimeUp's commitment to innovation. This dynamic setup provided valuable insights into customer support operations and SaaS products, while enhancing my skills with advanced AI models and real-time communication systems. Professional interactions with developers and mentors fostered a collaborative and supportive learning atmosphere, making the experience highly beneficial.

Academic courses relevant to the project: OOPS (CS F213), DBMS (CS F212)

Learning Outcome: Through the projects, I gained valuable insights into customer service applications and SaaS products. I developed expertise in building and optimizing applications, automating ticket management, and ensuring scalability and maintainability. Additionally, I enhanced my skills in integrating advanced AI models for effective problem classification and implementing real-time communication systems, while also learning to communicate professionally with developers, fostering better collaboration and project success.

Name: SAHIL UMESH KURAMBHATTI .(2022AAPS0365H)

Student Write-up:

PS-I Project Title: Workflow Management System

Short Summary of work done: This project involved developing a Workflow Management System for Records, designed to streamline the verification process of records data by users. When users submitted data for GHG monthly emissions and corporate initiatives, the data first entered the workflow management system. If the data appeared valid, it was approved by a supervisor and then sent to the database. If the data did not meet expectations or required modifications, it was marked as "Rejected" with necessary comments, and the user was notified. The user could then edit and resubmit the data for re-evaluation. Once the data was validated and approved, it was stored in the database as a record for that particular month. Additionally, we also stored history records whenever a new record was submitted or an existing record was updated. This allowed us to track changes made by users and supervisors, providing a comprehensive audit trail that enhanced our workflow management capabilities. The project utilized NestJS, TypeScript, and Mongoose with MongoDB for the back-end.

Objectives of the project: The project was aimed to automate the verification of records and also maintaining a track of all the changes made to the existing data in a robust and an efficient way.

Tool used: Typescript, NestJS, NodeJS, MongoDB, Mongoose, React with Bite

Details of Papers/patents:NA

Brief description of the working environment: We held daily online meetings at 10:30 AM with the Technical Lead to discuss updates on our progress and receive daily task assignments. Each evening, we were required to send an email to the CEO detailing our progress and outlining future plans for the project. In addition to our Mid-Semester and Final Seminars, we scheduled a separate demonstration with the company CEO and Technical Lead. During this session, we showcased our progress to date and discussed future plans.

The working environment was overall very pleasant, and all the company faculty were kind and satisfied with our performance. There were no complaints from them throughout the entire tenure, and they did not have exceptionally high expectations from us as students.

Academic courses relevant to the project: Object Oriented Programming, Database Systems

Learning Outcome: Our project commenced with brainstorming and in-depth discussions to design an effective workflow management system. During this phase, I gained foundational knowledge in system design and Unified Modeling Language (UML) diagrams. After team approval of our UML diagrams, we proceeded to design the database schemas necessary for storing the monthly records. This task proved to be challenging due to subsequent modifications in the requirements, necessitating additional brainstorming sessions to devise a new schema that could accommodate all potential edge cases.

Through this process, I developed an understanding of NoSQL databases and successfully implemented the required schemas using this technology. Additionally, I acquired knowledge in API design and contributed to building a robust API system to support the workflow management system.

Name: PRANAY KHANDELWAL .(2022AAPS0440H)

Student Write-up:

PS-I Project Title: Autofill forms using AI

Short Summary of work done: We used RAG model to implement ghg datasets and used vector search and embeddings to search for already given answers to questions and based on previous answers recommend autofill solutions

Objectives of the project: To prepare AI model which can generate ghg specific data and recommendations for autofill

Tool used: RAG, Langchain, python

Details of Papers/patents:.

Brief description of the working environment: Nice working environment, helpful mentors and relevant project. Learning - teamwork, AI , programming, frontend development

Academic courses relevant to the project: FDSA

Learning Outcome: AI, RAG model

PS-I station: CloudDefense.AI, CA

Student

Name: PARAS PUNEET SINGH .(2022A7PS0328H)

Student Write-up:

PS-I Project Title: UI Testing, AI ChatBot

Short Summary of work done: Build an AI ChatBot based on the documentation of products. Traditional methods for accessing data from cloud platforms often rely on SDKs like boto3 for AWS. This project investigated alternatives for retrieving data from Google Cloud Platform (GCP) accounts, particularly for security-based websites. The objective was to find a solution that avoids API throttling while maintaining robust security measures.

Objectives of the project: Test the website, create AI chatbot for the website, work on boto3 alternatives for GCP

Tool used: GCP Python SDK, Langchain, OpenAI API, Pinecone.

Details of Papers/patents:N/A

Brief description of the working environment: The company has different teams, the AI bot and the UI testing team were extremely rude, non-cooperative but the Indian team working on the gcp were the best, accommodating, understanding and patient.

Academic courses relevant to the project: None of the first two year courses were relevant.

Learning Outcome: Transformers in ML, GCP structure and data retrieval

Name: ANUSHKA JAIN(2022B3A70256G)

Student Write-up:

PS-I Project Title: Azure/GCP to Boto3 parallel

Short Summary of work done: -

Objectives of the project: Find out Azure/GCP alternatives and code the same for Boto3

Tool used: Azure, VSC

Details of Papers/patents:-

Brief description of the working environment: Not a very active PS, not much to learn.

Academic courses relevant to the project: Basic coding, not necessary though

Learning Outcome: Basics about Azure and Boto3

PS-I station: Cognix Technologies, Pilani

Student

Name: TANISH TANEJA .(2022A3PS0378P)

Student Write-up:

PS-I Project Title: App for interacting between doctors and patients

Short Summary of work done: First we learnt python, django and dart flutter. It was followed by individual learning project. Then the group project of making an app for patients to consult to doctors.

Objectives of the project: Online platform for interaction between doctors and patients

Tool used: Python django dart flutter

Details of Papers/patents:NA

Brief description of the working environment: The learning environment was very good.

Academic courses relevant to the project: Software development

Learning Outcome: How to build backend and frontend of an app using flutter and django

Name: ESHAN KARIA(2022A3PS0433G)

Student Write-up:

PS-I Project Title: Cricket coach

Short Summary of work done: .

Objectives of the project: Build an app

Tool used: Flutter, Django

Details of Papers/patents:.

Brief description of the working environment: .

Academic courses relevant to the project: None

Learning Outcome: Flutter, Django

Name: CLERK RAJ ANUJ .(2022A7PS0080P)

Student Write-up:

PS-I Project Title: Yogi-G

Short Summary of work done: Created a App for YogiG using Django as a backend framework and Flutter the App Frontend

Objectives of the project: Create an AI Assisted Yoga App

Tool used: Flutter, Django, AWS

Details of Papers/patents:None

Brief description of the working environment: Meetings everyday and Regular work updates expected

Academic courses relevant to the project: Database System CS F212

Learning Outcome: Backend development, app development

Name: ADITYA GUPTA(2022A7PS0090G)

Student Write-up:

PS-I Project Title: Cricket Coach App

Short Summary of work done: Created a Cricket Coach app for doing various analysis on videos uploaded by user, using OpenCV, Mediapipe, YOLO, etc.

Objectives of the project: To create a Cricket Coach App

Tool used: Python, Django, Roboflow, Flutter

Details of Papers/patents:NA

Brief description of the working environment: Fast-paced, short deadlines, reasonable working hours.

Academic courses relevant to the project: DSA

Learning Outcome: Knowledge of basic Computer Vision

Name: ASHIT JAIN(2022A7PS0606G)

Student Write-up:

PS-I Project Title: Yogi-G app development

Short Summary of work done: All were divided into groups. Each group had different app to develop. I got Yogi-G app development in which I had to create some screens in the front end using flutter and also integrate razorpay for accepting payment in the app. Also had to make the corresponding backend to store the data in the database.

Objectives of the project: Had to develop a full stack app using django as backend and flutter as frontend.

Tool used: Flutter and django

Details of Papers/patents:None

Brief description of the working environment: We were expected to make a full working app during the PS. We had daily meetings in which he asked for the progress made by everyone. We worked Monday-Saturday and only Sunday was off for us. I found it a bit hectic. When I got done with my frontend, which he had shown the design of, he changed the design and made many adjustments and this happened with many of my colleagues. I had it online so it was still live some in the offline even worked from 10am-8pm for some days so judge for yourself. I honestly learnt a lot and had a nice practical experience overall.

Academic courses relevant to the project: SQL, dbms

Learning Outcome: Learned django, flutter

Name: JAINAM SHAH(2022A7PS1182G)

Student Write-up:

PS-I Project Title: Cricket Coach Application

Short Summary of work done: Developed an end-to-end application which takes video uploaded from user and outputs the various cricketing analysis on the same. The result is stored and can be accessed later. For the analysis, ML model using libraries OpenCV and MediaPipe is employed. For backend Django Framework is utilised

Objectives of the project: Develop an application which analyses multiple aspects of the cricket video uploaded like the type of shot played, stance and posture of the batsman, ball speed tracking, running speed, body and foot stance, and timing analysis.

Tool used: S/w: Django, Flutter, OpenCV

Details of Papers/patents: NA

Brief description of the working environment: The work environment was fine, expectations were a bit too high. Learning was decent.

Academic courses relevant to the project: CP

Learning Outcome: Web Development

Name: AARUSH TEWARI .(2022A8PS1254P)

Student Write-up:

PS-I Project Title: YEB Mobile App

Short Summary of work done: Created the backend of the app in Django, implemented rREST APIs and deployed the code

Objectives of the project: Develop an app for the YEB bootcamp conducted by BITS Pilani

Tool used: Django, MySQL, Nginx, Gunicorn, AWS

Details of Papers/patents:None

Brief description of the working environment: Pretty good environment, got to learn a lot from the faculty and my peers

Academic courses relevant to the project: Computer Programming

Learning Outcome: Learnt about setting up a hosting environment for the code on AWS EC2

Name: SHAILENDRA KUMAR GUPTA .(2022AAPS1191P)

Student Write-up:

PS-I Project Title: Yogi-G Website and mobile app

Short Summary of work done: In our project we started by creating a design in figma, a popular design tool. We created an app and website to help people perform yoga correctly . To implement the frontend of website we used ReactJs. For the backend

development we used django and made APIs using DRF. To manage the database we used SQL.

Objectives of the project: Build a fullstack mobile app and website

Tool used: HTML, CSS , Js, ReactJs, Django, DRF, Postman, API, Firebase, OAuth 2.0, Server Side hosting

Details of Papers/patents:None

Brief description of the working environment: During my Practice School-I (PS-I) at CogniX Technologies, I had the opportunity to work in a professional and collaborative environment. The working environment at CogniX Technologies was highly conducive to learning and growth. I was assigned to the team under the guidance of Dr. Kamlesh Tiwari, who served as my mentor throughout the duration of the project.

As an intern, I had certain expectations from the company, which were met during my PS-I. Firstly, I expected a supportive and nurturing environment that would foster my learning and skill development, and CogniX Technologies fulfilled this expectation. The company provided me with access to the necessary resources, tools, and technologies required for the successful completion of the project. They also offered guidance and assistance whenever needed.

Overall, my PS-I experience at CogniX Technologies exceeded my expectations. I was able to work in a professional and supportive environment, gain practical experience, enhance my technical skills, and collaborate with knowledgeable individuals. It was a valuable learning opportunity that contributed significantly to my personal and professional growth.

Academic courses relevant to the project: None

Learning Outcome: I learned Backend development and most importantly how to work together as a team

Name: UNNATI SARASWAT .(2022B1A71107P)

Student Write-up:

PS-I Project Title: App development

Short Summary of work done: I learned how to write APIs and how to make backend of the app using Django. I also learned how to make screens using Flutter and how to integrate both.

Objectives of the project: To make an app that would let user upload X-ray scan and have an AI model process it and send it to the doctor

Tool used: Django, Flutter

Details of Papers/patents: No

Brief description of the working environment: Amicable working environment.

Academic courses relevant to the project: None.

Learning Outcome: Flutter, Django

Name: PRASANNA D(2022B3AA0553G)

Student Write-up:

PS-I Project Title: YEB App development

Short Summary of work done: Created a mobile application to streamline the application process for YEB that happens annually at each of the three campuses.

Objectives of the project: To create a mobile app for Yeb

Tool used: Flutter, Django

Details of Papers/patents: N/a

Brief description of the working environment: The working was hybrid so we had a lot of meetings. Everybody in the team were very helpful and approachable. Overall a very good environment.

Academic courses relevant to the project: N/a

Learning Outcome: Learnt how to build a product in this case it was an app.

Name: NIKHIL KUMAR .(2022B5A41571H)

Student Write-up:

PS-I Project Title: Cricket Coach App

Short Summary of work done: In my team of 7 members, we made an app which was behaving as a Cricket Coach for the user. We build the frontend of app using Flutter and figma. Then for the backend development we used Django framework. This app had 6 different analysis options to choose from like Body Stance and Footwork Analysis was the one on which I worked, other were like Timing analysis, Ball placement analysis, Timing Analysis, Running Speed Analysis, Technique and Stance analysis, Bowling Speed analysis. We made API's for these analysis and then called them in our backend project. Moreover we learned about Full stack Development.

Objectives of the project: Build an app's frontend and back-end, which analyzes any video of cricket whether it's bowling or batting or running, we had 6 different options for analysis in our app.

Tool used: Django, Python Libraries, Flutter

Details of Papers/patents:We made a running app named Cricket Coach

Brief description of the working environment: The working environment was really good, we had so much to learn, basically I learned in 8 weeks rather than in my previous 2 years about Python Libraries and overall development. The faculties were really nice and helpful. They were always ready for solving any doubts.

Academic courses relevant to the project: Python Programming, Full Stack Development

Learning Outcome: Learned about various Python Libraries, learned Flutter Development and, learned Django Development for backend I

PS-I station: Contenterra Software Private Limited, Hyderabad

Student

Name: SASIDHARA REDDY APPIREDDY .(2022A7PS0019H)

Student Write-up:

PS-I Project Title: Gen AI based personal assistant backend

Short Summary of work done: We built connectors from the application to gdrive , dropbox , evernote through their respective API's to perform list,download,upload,delete functions

Objectives of the project: Building connectors to gdrive,dropbox,evernote

Tool used: React and express

Details of Papers/patents:None

Brief description of the working environment: Its online , they gave good support

Academic courses relevant to the project: Oops, dsa

Learning Outcome: Web development

Name: VAISHNAV DEVAGUPTAPU .(2022A7PS0085H)

Student Write-up:

PS-I Project Title: Gen AI personal assistant backend

Short Summary of work done: Nice ps station, work is lite , they focus more on skill learning in this ps which helped us

Objectives of the project: To develop backend Google drive connectors for the app

Tool used: Node js, express js

Details of Papers/patents:No

Brief description of the working environment: Great working environment

Academic courses relevant to the project: -

Learning Outcome: Node js
Express js

Name: VIPUL ALAMPALLY .(2022A7PS0098H)

Student Write-up:

PS-I Project Title: Gen AI Query tool

Short Summary of work done: I coded a frontend for a gen AI query tool using reactJS

Objectives of the project: Build a frontend for a Gen AI Query tool

Tool used: ReactJS

Details of Papers/patents:Nil

Brief description of the working environment: Our mentor Mr.Bala Sistla was super supportive and gave us constant motivation and help for us to complete our project. We had an online meet once a week he helped us in dividing the project work amongst the group. We had some help from an employee of the company in helping us learn ReactJS and gave us support whenever asked.

Academic courses relevant to the project: NIL

Learning Outcome: ReactJS, REST API

Name: AMAN RANJAN .(2022A7PS0141H)

Student Write-up:

PS-I Project Title: Frontend Development: Gen-AI Based Personal Search Assistant (PSA)

Short Summary of work done: There was not much work (simply because the project seemed to be very much a tutorial). We got 4 tasks effectively: follow a Flutter codelab, interface with JSON Placeholder API, design a rough UI for the app, and work on one of the APIs (I was assigned Google Drive). In total I spent probably 24-48 hrs working on the PS, and the mentors were a bit irregular in holding meets and replying back to any doubt/concerns.

Objectives of the project: Build a Gen-AI Based Personal Search Assistant (PSA) application that connects to Google Drive, DropBox and Evernote using OAuth to display the user's data in a single application

Tool used: Git, Firebase (Google OAuth), Google Cloud Console (for Drive API). VSCode, Flutter

Details of Papers/patents:N/A

Brief description of the working environment: Company expectations were fine, there wasn't much of interaction from our mentor's side. Deadlines were also chill. There was not much learning during PS-1 for me as I had prior experience in the domain.

Academic courses relevant to the project: To an extent CS F213 (Object Oriented Programming)

Learning Outcome: Interfacing with APIs, working with Flutter, Unit and Integration Testing

Name: SIDDHANT KAMRA .(2022A7PS0202H)

Student Write-up:

PS-I Project Title: Frontend for Gen-AI based Query tool

Short Summary of work done: The project aims to develop a user interface (UI) for a Generative AI Query Tool that allows users to input NLP-based queries. The tool then communicates with a Gen-AI API, retrieves data from a saved database, processes the data, and presents it in an illustrative manner, including graphical representations and useful statistics.

Objectives of the project: Design UI and then make the frontend for a Generative AI based Query tool

Tool used: HTML, CSS, ReactJS, Rest APIs, Chart.js

Details of Papers/patents:-

Brief description of the working environment: Working environment was professional, but still our mentor was friendly and guided us whenever we got stuck, and gave constructive criticism which helped us improve a lot. My expectations from the company were to be more strict in regard to the project but instead they were pretty laid back and we were not assigned almost any work for the first 2-3 weeks.

Academic courses relevant to the project: Frontend development courses, any React course

Learning Outcome: Learned about web development (frontend as well as full stack), learned ReactJS, how to work and communicate in a team to complete a project, learned how to write code more efficiently

Name: NARAYAN AGARWAL(2022A7PS1191G)

Student Write-up:

PS-I Project Title: Gen query AI TOOL Frontend

Short Summary of work done: Designing output view panel which is giving option to user to select display of data either in table format or graphical format. And many other options in graphs.

Objectives of the project: To create frontend using ReactJS

Tool used: VS CODE, GITHUB, ReactJS, ChartJS

Details of Papers/patents:No

Brief description of the working environment: Working environment was preety good, project mentor was very supportive.

Academic courses relevant to the project: All CS core courses including OOPS, DSA, etc.

Learning Outcome: Learning ReactJS, Teamwork/Working in collaboration.

Name: JAYANT GROVER .(2022B3A70413P)

Student Write-up:

PS-I Project Title: Gen Ai PSA App(Frontend)

Short Summary of work done: created various practice mini apps to learn flutter,practiced basic api calls using http and dio and learnt oauth for various services

Objectives of the project: develop a Flutter based application with basic authentication and file reading functionality

Tool used: Visual Studio Code,Android Emulator,Github,ChatGpt

Details of Papers/patents:none

Brief description of the working environment: working environment was welcoming and understanding,moderate expectations regarding work,frequent guidance and checkup on progress of project

Academic courses relevant to the project: Computer Programming

Learning Outcome: Learnt the basics of Flutter ,API Calls and basic debugging skills

PS-I station: C-Point, Rajkot

Student

Name: SRI JAITRA SAKETH GOPARAJU .(2022A7PS0183H)

Student Write-up:

PS-I Project Title: Customer Support Chatbot , Mini clone website of the company's software and Python simulations of the backend

Short Summary of work done: The initial period was very lite,we were introduced to the companys software. After this period we were given 3 tasks : 1.To simulate the backend fucntionality of the software using python 2.Create a mini clone website of the software 3. Add any interesting feature to the software. For the third task, we came up with a customer support AI assistant chatbot that was trained on the software's documentation.

Objectives of the project: Understand how the company's software functions backend.

Tool used: React, Python, Mistral 7b , Ollama

Details of Papers/patents:Nil

Brief description of the working environment: Working environment was very relaxed. Pre midsem there were meets everyday where we were introduced to the company's software. Post midsem the time was given to finish the project tasks that we had. The mentor from the organisation was also very patient with doubts and was interactive.

Academic courses relevant to the project: Doing OOPS project and DBMS project familiarized me to web development.

Learning Outcome: Learnt how to build a LLM. Improved webdevelopment skills

Name: RAGHAV SINGH SENGAR .(2022A7PS1797H)

Student Write-up:

PS-I Project Title: Website for Billing in a Food Parlour

Short Summary of work done: My task was to understand the accounting software developed by the company and then build a similar software using python which could be used by a food parlour. Another task was to understand the handling of files in the database by extracting the files from .dbf format to .csv format and handle the data as per our needs. One additional project done by my group was the development of an AI chatbot which would help the customers using Shree Sava to resolve some basic queries regarding the use of the software.

Objectives of the project: To develop a Billing software for a food parlour or cafe from the vendor's point of view.

Tool used: Google Colab, Firebase

Details of Papers/patents:N/A

Brief description of the working environment: The working environment of the company was pretty cool, there was not much burden from the station and the mentor was quite flexible regarding the timings. My expectations from the company were to strengthen my web dev skills and improve my communication skills by involving myself in group projects.

Academic courses relevant to the project: CS F111, DSA, DBMS

Learning Outcome: Programming in Python including its libraries NumPy and Pandas, Frontend Development, Backend Development, Database Management

Name: MAHIMA PRAGNYA BHATTARAM .(2022A7PS2018H)

Student Write-up:

PS-I Project Title: Shree Sava Software- creating an e commerce website

Short Summary of work done: Pre midsemester work involved more of understanding how the company's ERP system pre existing software worked including its functionality and database system management. Quite a few sessions on understanding the basics of accounting, businesses and taxes took place. Post midsemester work included developing a similar website (full stack) using the knowledge from pre midsem. We made a website/kiosk for a cafe and implemented a billing system.

Objectives of the project: Understanding the needs of small and medium businesses and developing technology to meet those needs

Tool used: Figma, Python, React, JavaScript, Flask.

Details of Papers/patents:No patents.

Brief description of the working environment: The working environment was pretty chill and very interactive, Sarju sir was always enthusiastic to teach and took sessions whenever required and would give us work to do on our own to have a better understanding. He was always approachable and open to answer all our questions and give us a better understanding of the company's software. Also was open to project suggestions. This PS really helped me get over my inhibitions regarding web development and finance.

Academic courses relevant to the project: Oops, DBMS, POE

Learning Outcome: Learning the basics of ERP, business, accounting and taxes, database system management, developing websites.

PS-I station: CT Software Solutions, Gurgaon

Student

Name: AYUSHMAN KUMAR(2022A7PS0600G)

Student Write-up:

PS-I Project Title: Enhancement to the GOFORFIT website

Short Summary of work done: Develop and enhance the website of goforfit like add some features of sleep tracker,water intake,calorie input and output etc

Objectives of the project: Track the fitness records of school students

Tool used: Html, Css, Js,laravel ,bootstrap

Details of Papers/patents:No

Brief description of the working environment: Mentor was very cooperative and supportive, proper workplace was assigned to us

Academic courses relevant to the project: Dbms,NP, Dsa

Learning Outcome: Front-end and Backend

PS-I station: Cureclaims, Gurgaon

Student

Name: ADITYA BIKASH NAIK .(2022A3PS0515H)

Student Write-up:

PS-I Project Title: Smallcase Rebalancing API

Short Summary of work done: The PS1 project focused on developing an API for rebalancing smallcases, which are curated portfolios of stocks. Utilizing a MySQL database, the project involved designing a schema for storing smallcase data, including their associated stocks. An Express.js API was built to handle rebalancing, featuring endpoints for retrieving all smallcases and rebalancing by both ID and name. A URL-friendly 'slug' column was added to the `Sample_Smallcases` table to facilitate easier access. The API leveraged the `mysql` library for database interactions and included comprehensive testing to ensure functionality. This API provided a robust, scalable solution for managing and rebalancing smallcase portfolios efficiently.

Objectives of the project: Make an API for rebalancing function of a Smallcase

Tool used: Hardware – None, Software – JavaScript, Node.js, Express.js, MySQL, HTML

Details of Papers/patents:None

Brief description of the working environment: During my two-month online PS1 at Cureclaims , I encountered a challenging working environment. Initially, the company provided minimal guidance and support, leaving me without assignments or direction for the first five weeks. This lack of engagement from the company's side led to a sense of uncertainty and limited opportunities for skill development.

When I eventually received a project, I completed it diligently. However, I did not receive any feedback on my work, which made it difficult to gauge my performance or learn from the experience. Additionally, there was a lack of clear communication, exemplified by a scheduled meeting where the team did not show up and offered no explanation afterward. Overall, the expectations from the company were not clearly communicated, and the experience was characterized by a lack of structure and feedback, making it a challenging environment for learning and professional growth.

Academic courses relevant to the project: Computer Programming

Learning Outcome: Learnt JavaScript, Node.js and Express.js

Learnt MySQL

Learnt how to build an API and connect it to a database

Name: VIDIT JAIN(2022B2A80942G)

Student Write-up:

PS-I Project Title: Backend Development

Short Summary of work done: I worked on node js creating backend and worked with sql databases.

Objectives of the project: To create backend for cureclaims

Tool used: Node js, express, sql

Details of Papers/patents:No patents

Brief description of the working environment: It was very time flexible and very good

Academic courses relevant to the project: Fundamentals of computer programming was relevant

Learning Outcome: I learned a lot about backend

Name: AYUSH RAJ .(2022B5A70914H)

Student Write-up:

PS-I Project Title: RM Flow

Short Summary of work done: Had to learn flutter and flutterflow and make frontend of the required application

Objectives of the project: Frontend

Tool used: Fluttterflow

Details of Papers/patents:no

Brief description of the working environment: Flexible working environment and timings, scope to learn

Academic courses relevant to the project: OOPS

Learning Outcome: Frontend

PS-I station: Cusmat Technologies Private Limited - Electrical, Bangalore Urban

Student

Name: STUTI VATS(2022AAPS0088G)

Student Write-up:

PS-I Project Title: Industrial machinery simulators

Short Summary of work done: CUSMAT technologies provides AR/VR models of industry machinery for training purposes, the role of electrical engineers is to understand

the working of machine and work with the mechanical team to mimic the hardware of the machine. We use the industry convention of wiring the hardware (the dummy hardware and the prototypes). We make a small scale dummy hardware that is used by the developers to test their code and make future updates to the code after the prototype has gone to the vendor. The microprocessors used are majorly the arduino uno, arduino mega and the seeeduino xiao. The code for which is written on Arduino IDE.

Objectives of the project: Wiring the dummy and the prototype hardware, coding the microprocessor(on Arduino IDE) and designing PCB

Tool used: Arduino IDE, EasyEDA, Microsoft Excel

Details of Papers/patents:None

Brief description of the working environment: Th

Academic courses relevant to the project: Electrical Science, Microelectronics, Electrical Machines,

Learning Outcome: Learning how to make industry grade wiring (for dummy models and prototypes) and excel sheets for the component functionality, coding microprocessors on Arduino IDE(Arduino Uno, Arduino mega, Seeeduino XIAO).

Name: LAKSHYA JAIN .(2022AAPS0247P)

Student Write-up:

PS-I Project Title: Industrial Machinery Simulators

Short Summary of work done: We worked on the electronics aspect of simulators, ranging from coding on the Arduino to wiring the components to the Arduino and fixing them on the machine.

Objectives of the project: To gain experience in design and production of industrial simulators

Tool used: Arduino IDE, electrical wiring tools (cutter, plier, crimping tool, different types of lugs), electronic devices, etc.

Details of Papers/patents:n/a

Brief description of the working environment: The working environment was really helpful and all the company employees were very kind and helpful especially our mentor, Mr. Abhishek Srivastava, and Mr. Ayush and Mr. Ritto from HR were always available and ready to help. My expectations from the company in the future would be to give the interns clearer instructions about their daily work because a lot of times we would have nothing to do before lunch and would be rushing with tasks given after lunch. Overall the time spent here was very fruitful and provided invaluable learnings about the simulators industry and its everyday working.

Academic courses relevant to the project: none taken till ECE 2-2, but a knowledge of microcontrollers (Arduino) will help, its not strictly a requisite because our mentor spent a couple of weeks teaching us the basics before we started our main work.

Learning Outcome: Arduino IDE coding, electronics knowledge, electrical wiring.

PS-I station: De Trace, Braunschweig

Student

Name: BHARAT RAJ SINGAL .(2022B1A41151P)

Student Write-up:

PS-I Project Title: Battery Anomalies Detection Portal

Short Summary of work done: At DeTrace, I focus on frontend development, where I design and implement user-friendly interfaces for our Quality Management System (QMS) and the DeTrace website. My work involves creating intuitive dashboards, data management pages, and seamless interactions to enhance user experience. I'm also responsible for researching features and machine learning models to improve our systems' functionality. Drawing inspiration from platforms like Dribbble and Behance, I develop innovative yet practical designs. While I excel in frontend development and research, I'm working to improve my project management and documentation skills to better support my team. Collaboration is key, and I work closely with the backend team to ensure our projects are cohesive and technically robust, integrating advanced concepts to build effective digital platforms.

Objectives of the project: Integrate ML models with easy to use UI on the front side.

Tool used: React, Asana, visualization libraries

Details of Papers/patents:None

Brief description of the working environment: At DeTrace, the working environment is dynamic and collaborative, encouraging innovation and creativity. The team is composed of highly motivated individuals passionate about technology and sustainable solutions in the EV battery industry. The company expects initiative, proactive problem-solving, and high-quality work from its members, with a strong emphasis on open communication and idea-sharing. During my PS-I, I gained practical skills in frontend development, focusing on designing user-friendly interfaces and integrating them with backend systems. This experience highlighted the importance of user-centric design and staying updated with industry trends. DeTrace's emphasis on research and innovation pushed me to explore new technologies, especially in machine learning, enhancing my understanding of technical challenges in the EV battery sector. Collaborating with cross-functional teams also improved my communication and teamwork skills, making me more adaptable and efficient in a professional setting. Overall, my time at DeTrace was a valuable learning experience, preparing me for future roles in tech development and innovation.

Academic courses relevant to the project: ML, CP

Learning Outcome: Various development tools and techniques

Name: RUDRADATT DAVE .(2022B5A40894P)

Student Write-up:

PS-I Project Title: Backend Development

Short Summary of work done: Backend development and prototype building

Objectives of the project: Create a prototype of battery anomaly detection

Tool used: Digital ocean, nginx, unicorn, django

Details of Papers/patents:None

Brief description of the working environment: Good working environment, Company expectations were to complete allotted tasks on time.

Academic courses relevant to the project: None

Learning Outcome: Learned backend development

PS-I station: DIC-NEGD, New Delhi

Student

Name: SAMARTH JAIN .(2022A7PS0054P)

Student Write-up:

PS-I Project Title: Umang Application

Short Summary of work done: Multiple projects such as EMS using spring boot, Database management, Postman api testing

Objectives of the project: learn about the infrastructure

Tool used: Springboot, aws, postgresql

Details of Papers/patents:none

Brief description of the working environment: Flexible environment with friendly staff

Academic courses relevant to the project: Cloud computing, DBS

Learning Outcome: AWS, Postman, Spring boot, Database managment

Name: YUVRAJ DHAKA .(2022A7PS0098P)

Student Write-up:

PS-I Project Title: DigiBunai

Short Summary of work done: It was fine, not a lot of workload but if you are interested, people were ready to help

Objectives of the project: Work on bugs of a to he launched app

Tool used: JAVA, OOPS

Details of Papers/patents:No

Brief description of the working environment: Usually it's required to go to office just once a week other days it's WFH

Academic courses relevant to the project: OOPS

Learning Outcome: Working on a big project and first hand experience of software jobs

Name: DHRUV GUPTA .(2022A7PS0104H)

Student Write-up:

PS-I Project Title: LokOS

Short Summary of work done: desgining different screens

Objectives of the project: ui/ux design

Tool used: Figma

Details of Papers/patents:na

Brief description of the working environment:

Academic courses relevant to the project: none for me

Learning Outcome: na

Name: VAGEESHA GUPTA(2022A7PS1107G)

Student Write-up:

PS-I Project Title: Poshan Tracker

Short Summary of work done: During my internship, I developed a Flask-based dashboard aimed at enhancing data accessibility for state coordinators involved in managing Anganwadi Centres . The project involved creating a web application that utilized APIs for real-time data retrieval from a MongoDB database, thus addressing the limitations of spreadsheets that were used earlier. The dashboard facilitated efficient and accurate data access, reducing the need for tech team interventions. It contributed to operational efficiency by providing up-to-date information and streamlined data management.

Objectives of the project: The primary objective of the project was to create a Flask-based dashboard to streamline data access for state coordinators managing Anganwadi Centres. This dashboard aimed to provide real-time data retrieval through APIs, replacing the outdated and manual

Tool used: Software: Python, Flask, MySQL, HTML/CSS, Git, Postman

Details of Papers/patents:-

Brief description of the working environment: The company set clear and achievable expectations for us interns, focusing on active participation, dedication, and taking initiative in our learning. They offered ample resources and support, but also encouraged us to tackle tasks independently. Although I didn't interact with mentors as frequently as I might have hoped, the feedback I received was always constructive and kept me on track with my project goals.

The work environment was notably flexible, with relaxed deadlines which made it easier to balance learning with work. The guidelines provided were designed to promote self-reliance without excessive hand-holding, allowing me to develop problem-solving skills and gain practical experience in a real-world setting. Overall, it was a positive experience that supported both my professional growth and personal development.

Academic courses relevant to the project: OOPS, DBMS

Learning Outcome: I learned how to develop a Flask-based web application for real-time data retrieval and management. Gained experience with MySQL for database interaction and API integration, and applied HTML and CSS to enhance the user interface of the dashboard. I also used Git for collaboration and Postman for testing and debugging APIs.

PS-I station: Digital Government Research Centre, NIC, Govt. of India, Patna

Student

Name: ADITYA CHAUDHARY(2022A7PS0622G)

Student Write-up:

PS-I Project Title: Exploring ways to develop a dynamic webpage for MWRD

Short Summary of work done: Our project was to develop a full stack web application for the Minor Water Resources Department of Govt. Of Bihar.I worked on the backend and integrated the database with the backend and also designed the home page and the login pages of the website.The website provided the functionality of digital application for schemes of the farmers and they could view their schemes as well.The applied schemes would be automatically forwarded to the government officers to view and approve/reject it...So overall this was the project which was assigned to our team

Objectives of the project: The project aims to develop a portal for the farmers of Patna to apply for schemes related to Irrigation which will be forwarded to the government official automatically for approval

Tool used: Front-end: HTML ,CSS, Javascript and Bootstrap , Back-end:Node.js and Express, Database: Postgresql

Details of Papers/patents:None

Brief description of the working environment: The working environment was quite friendly and the mentors of the company were quite friendly and approachable.They also conducted sessions related to core computer Science concepts like Object Oriented

Programming, Networks and Software Development Life Cycle. They also guided us through the project at all steps and pushed us to our extreme.

Our ps1 faculty was also quite helpful and would support us and motivate us to work more and learn new skills for our resume

From this internship I learnt the skills of teamwork and web development. My communication skills were also improved as a result of it

Academic courses relevant to the project: Data Structures and Algorithms, Object Oriented Programming, Database Management

Learning Outcome: Web development, teamwork

Name: RAJAMURI SRIVARDHAN REDDY .(2022AAPS0359H)

Student Write-up:

PS-I Project Title: Asha workers performance and incentives portal(ASHWIN)

Short Summary of work done: We have developed a webapp, The "AshwinProject" is a web application developed to assist healthcare workers by providing a platform for efficient data management and reporting. The project utilizes a modern tech stack including ReactJS for the frontend, Supabase for backend services, and PostgreSQL as the database. The application is designed to generate dynamic and interactive reports with a focus on readability and visual appeal, leveraging HTML and CSS for styling.

Objectives of the project: Streamlining the process of distributing incentives to ASHA workers using web application

Tool used: S/w : ReactJS, HTML, CSS, Javascript, PostgreSQL, Supabase

Details of Papers/patents: None

Brief description of the working environment: Station mentors were really helpful and approachable. Sessions conducted by them were insightful and I have learnt a lot from them especially sessions on AI-ML.

Academic courses relevant to the project: OOPS, DBMS, CP

Learning Outcome: Web development

Name: PRANAV KIRAN DESHPANDE .(2022B3A70446P)

Student Write-up:

PS-I Project Title: ASHA Workers Performance and Incentives Portal (ASHWIN Project)

Short Summary of work done: For the Ashwin Portal project, I handled the front-end development to create a user-friendly interface. One of the main features I worked on was the Login and Dashboard Screen, which updates dynamically with the form-fields data from the backend. Once forms were submitted, the data was securely processed and stored in backend using Supabase. For the design, I used HTML to build the structure, CSS to style it, and ReactJS to make everything interactive and responsive. Key features included central alignment of content, bilingual support, and clear validation alerts. I ensured that the footer was consistent and compliant across all pages. Overall, my goal was to create a modern and reliable portal that looks good and works well. This effort supports the project's aim to streamline healthcare operations and ensure timely payments for ASHA workers in Bihar. Front-end development was a new field for me and I was only aware of HTML and CSS till now, learning ReactJS was a fun new experience.

Objectives of the project: Our specific objective was to enhance the front-end experience of the ASHWIN Portal using newer tech stack and tools.

Tool used: HTML, CSS, ReactJS

Details of Papers/patents:None

Brief description of the working environment: Over the past six weeks, through a series of sessions and the CoE AI-ML workshop, we have acquired a comprehensive understanding of web and application development. This learning period has covered essential technologies including HTML, CSS, and Bootstrap for front-end development, as well as ASP.NET Core Framework for building robust web applications. We also delved into MS SQL for database management, gaining skills in structuring and querying data effectively. Additionally, we explored Python, focusing on libraries such as NumPy and Pandas for data manipulation and analysis, along with some take-home assignments. The experience over these six weeks was truly amazing, as it provided us with the opportunity to interact and learn directly from some of the top government scientists in India. These experts brought a wealth of practical work experience to the table, having developed between 15 to 20 applications specifically tailored for the people of Bihar. Their insights were invaluable, offering a blend of theoretical knowledge and real-world

application. We gained not only technical skills but also a deeper understanding of how technology can be applied to address pressing challenges and improve lives. Though the sessions were online, we never felt bored since the mentors were always teaching us new concepts and topics.

Academic courses relevant to the project: Object Oriented Programming, Artificial Intelligence, Database Management Systems

Learning Outcome: The ASHWIN Portal's layout taught us effective front-end design principles. Key elements like the prominent header, clear navigation bar, and user feedback mechanisms demonstrated how thoughtful front-end development and UI/UX design can enhance user engagement and satisfaction.

Name: RISHAV JAIN .(2022B3A70684H)

Student Write-up:

PS-I Project Title: ASHA Workers Performance and Incentives Portal (ASHWIN Project)

Short Summary of work done: I worked in a five member team to develop a webpage for the ASHA workers. I worked on the frontend part in which React was used. We made a login portal, one form page and a page which calculated the money earned by the ASHA workers according to the service provided by them. Everyday classes were conducted and different topics were covered which were quite useful.

Objectives of the project: To create a webpage for the ASHA workers

Tool used: React, Supabase and PostgreSQL.

Details of Papers/patents:None

Brief description of the working environment: The station was an online one, allowing for flexible working hours while conducting daily instructional sessions, which significantly contributed to my learning. The project assigned was straightforward, and there was limited need for updates from company employees. This experience provided me with valuable exposure to front-end development.

Academic courses relevant to the project: OOPS and DBMS

Learning Outcome: I acquired significant expertise in web development, encompassing both front-end and back-end facets. Throughout this period, I actively contributed to the development of a website leveraging technologies such as React, supabase, and PostgreSQL. Moreover, I gained valuable insights into the organizational practices and procedures of the company.

PS-I station: Digital India Bhasini Division(DIBD), New Delhi

Student

Name: ALANKRIT SINGH(2022A7PS1186G)

Student Write-up:

PS-I Project Title: Migrating Intelligent Data Pipeline from GCP to Azure

Short Summary of work done: The work allowed me to explore web-crawling and scraping while also gave me extensive knowledge of varioud kinds of pipelines that are used to train NLP models.

Objectives of the project: Self-explanatory

Tool used: Python, VSCode, Selenium, GCP, Azure, Airflow

Details of Papers/patents:N/A

Brief description of the working environment: Was mostly online.

Academic courses relevant to the project: CP

Learning Outcome: Learned Data Pipelines
Learned Web Crawling and Web Scraping

PS-I station: DYSL - CT DRDO, Chennai

Student

Name: VISHWAS VEDANTHAM .(2022A7PS0235H)

Student Write-up:

PS-I Project Title: Synthetic Voice Text to Speech Synthesis using Transfer Learning

Short Summary of work done: In this project, I developed a personalised text-to-speech (TTS) system with my voice, using transfer learning, which is a technique in machine learning where a model that is pre-trained to solve a given problem is used as the starting point to solve another related problem. In this project, I have used Tacotron-2 for sequence-to-sequence feature prediction and HiFi-GAN as the vocoder for high-fidelity speech synthesis. Using these models, I created a model that can generate speech in my voice. Before starting the project, I learnt some fundamentals in machine learning and deep learning which were prerequisites. The various steps in the project include pre-processing audio recordings, training the Tacotron-2 model to map text to mel-spectrograms, and then using HiFi-GAN to convert these mel-spectrograms into natural-sounding speech. This approach not only showcases the potential of transfer learning in TTS but also demonstrates how personalised and high-quality speech synthesis can be achieved with existing deep learning models.

Objectives of the project: The main objective of this project is to achieve a high-quality, natural speech resembling my voice. In addition, the project also aims to highlight the benefit of using transfer learning to solve problems using the machine learning approach.

Tool used: Python , Github repositories, Audacity

Details of Papers/patents: Nil

Brief description of the working environment: The company's expectations from me included demonstrating a proactive approach to problem-solving and regularly updating the mentor with my progress. Additionally, maintaining a professional demeanor and adhering to the organization's standards and protocols were crucial. I was also expected to continuously learn and adapt to new tools and technologies relevant to my projects. During my tenure, I gained valuable insights into industry best practices and developed a strong foundation in several key areas. I learned the importance of effective communication, time management, and teamwork in achieving project goals. Technical skills were honed through practical application, including coding and debugging. Moreover, the experience taught me how to navigate real-world challenges and find innovative solutions, especially if they involve a machine learning approach.

Overall, my PS-I experience was immensely rewarding, providing a comprehensive understanding of the professional environment and equipping me with essential skills that will be beneficial in my future career endeavors.

Academic courses relevant to the project: Generative AI, Machine Learning, Deep Learning

Learning Outcome: Classification models in machine learning, types of neural networks - FNN,CNN,RNN , Generative adversarial network , General working and architecture of a text to speech model. I got a hands on exposure of the various steps involved in solving a problem using machine learning through this project.

Name: HARISH R RAMACHANDRAN .(2022AAPS0310H)

Student Write-up:

PS-I Project Title: SIGNAL PROCESSING IN MONOSTATIC AND BISTATIC RADAR SYSTEMS

Short Summary of work done: My objective in PS-1 was to simulate a monostatic radar system for target identification with appropriate signal processing techniques. The basis of a radar is that it sends a radio signal towards a target, and based on the reflected received signal, the target coordinates can be found. Using this model, I extended the same logic towards a bi-static case. It is important to note that in a monostatic case, the transmitter and the receiver are at the same place, but for a bistatic case the transmitter and the receiver are at different locations. Having understood this fundamental difference I proceeded with signal processing techniques for a monostatic case, namely, Pulse Compression, Coherent Integration, CFAR (Constant False Alarm Rate) and 2-Dimensional Peaking and Centroiding. These methods are independent of the nature of radar system, but play a crucial role in target identification. In most cases, there will be a peak at the target location in the radar system's output. This peak is our point of interest throughout the project. Having successfully completed the monostatic case, I did a theoretical extrapolation towards a bistatic case, taking into account certain theoretical and practical considerations. This in essence was the objective and the course of work done for my PS-1 project.

Objectives of the project: TO UNDERSTAND THE WORKING OF A BASIC RADAR SYSTEM WITH APPROPRIATE SIGNAL PROCESSING

Tool used: PYTHON, DESMOS

Details of Papers/patents:NA

Brief description of the working environment: The work environment was very employee-friendly with spacious working cubicles for PS-1 interns. This also gave the interns more vigour and motivation to work. The company's expectations were very clear, which was to simulate a monostatic radar system with the help of Python programming language and associated libraries, and extend the same logic towards a bistatic model. This provided clarity to our goal and made it easy to work towards the same. Hence I started learning from the basics. I learned a lot from PS-1 as to how conduct oneself in a work environment, behaviour with fellow employees, as well as how to work on a goal with intense focus and dedication.

Academic courses relevant to the project: SIGNALS AND SYSTEMS FROM 2ND YEAR, COMMUNICATION SYSTEMS AND DIGITAL SIGNAL PROCESSING FROM 3RD YEAR

Learning Outcome: WORKING OF RADAR-THEORY, LIBRARIES IN PYTHON INCLUDING NUMPY, VARIOUS SIGNAL PROCESSING TECHNIQUES

PS-I station: eShipz.com (LogIQ Labs Pvt. Ltd.) - IT, Bangalore

Student

Name: MOHAK JAIN(2022A7PS0350G)

Student Write-up:

PS-I Project Title: Order-Sync Integration

Short Summary of work done: The "Order Sync Integration" project creates a Python-based application to synchronize orders between e-commerce platforms and business applications. It addresses integration complexity, real-time synchronization, scalability, security, and error handling to enhance operational efficiency and data accuracy. The resulting application automates workflows, provides real-time updates, and ensures consistent data integrity, empowering businesses to manage e-commerce transactions effectively and maintain a competitive edge in the digital marketplace.

Objectives of the project: Retrieve and transform Shopify order data using the Shopify API. Extract detailed information including billing and shipping addresses, items, and order details.

Tool used: Python, FASTAPI, Flask, JQ, API Integration, OAuth 2.0

Details of Papers/patents:NA

Brief description of the working environment: The environment was pretty chill, they are quite helpful, and got a lot to learn.

Academic courses relevant to the project: Computer Programming, DSA, OOPS, DBMS

Learning Outcome: From this project, we learnt how to effectively integrate APIs using OAuth2 for secure authentication, specifically with Shopify's API to retrieve order data. We gained experience in extracting data in JSON format and transforming it into a structured format suitable for logistics or analytics, ensuring data accuracy and completeness. Additionally, I developed skills in mapping and structuring data, handling various order details, and implementing robust and efficient Python code with proper error handling and data validation. Understanding and automating ETL processes enhanced my ability to synchronize data between e-commerce platforms and business applications, improving order management efficiency. This project also provided valuable experience in project management, from planning and execution to documentation and maintainability, equipping me with essential skills for future data integration and automation projects.

Name: SANTOSH SOHAN T.(2022AAPS0257H)

Student Write-up:

PS-I Project Title: AI Conversational Bot

Short Summary of work done: Developed a AI chatbot capable of conversation, which can answer questions based on a table dataset that is dynamically retrieved from their mongoDB database

Objectives of the project: To develop a AI chatbot capable of conversation

Tool used: Python, Google Collab, Panda, Numpy, and few other ML related libraries

Details of Papers/patents:NA

Brief description of the working environment: We got our projects within 2-3 days. After that duration, we had daily stand up calls with our Mentor. Mentor was very supportive and friendly, as well as answered queries very regularly. The project was done initially offline but was converted to online mode before starting.

Academic courses relevant to the project: Data Structures and Algorithms, Object Oriented Programming, Computer Programming, Machine Learning

Learning Outcome: Fine-tuning and implementation of LLMs for local source projects

Name: PRADYUMNA R UDUPA .(2022AAPS0475H)

Student Write-up:

PS-I Project Title: Fraud Detection using ML

Short Summary of work done: Perform data analysis and visualization. Evaluate performance of various machine learning models and come up with a workflow where they can give accurate results on new data.

Objectives of the project: I had to build a model which would predict the probability of a particular shipment/transaction being fraudulent based on previous transaction data.

Tool used: Python, Jupyter Notebooks, numpy, matplotlib, Pandas, Scikit-learn

Details of Papers/patents:N/A

Brief description of the working environment: The project was done in online mode. For the major part of the PS, we had daily online meets with our company mentor where our current progress was presented and suggestions for next tasks were given.

Academic courses relevant to the project: Computer Programming, Machine Learning, Foundation of Data Science

Learning Outcome: Learnt how to work with large datasets and perform data analysis and visualization. Learnt how to use Scikit-learn library to train and test various learning algorithms and perform fine-tuning on these models.

Name: NANDITA KADKOL(2022B1AA0578G)

Student Write-up:

PS-I Project Title: Order Sync Integration

Short Summary of work done: Project Planning: Familiarized with Python, Flask, FastAPI, and relevant technologies. Integration: Reviewed API documentation and implemented OAuth 2.0 for secure authentication. Application Development: Built backend functionalities using Flask and FastAPI, created API endpoints, and managed tokens securely. Data Transformation: Utilized jq for processing JSON data and integrated Shopify API for data extraction and transformation. ETL Tool Development: Designed and implemented an ETL tool for efficient data processing and integration from multiple sources.

Objectives of the project: Develop a Python-based Application: Utilize Flask and FastAPI frameworks to create an application. Build an ETL Tool: Develop an Extract, Transform, Load (ETL) tool to process and integrate data from multiple sources efficiently. Automate Order Synchroniz

Tool used: Python, Flask, FastAPI, OAuth 2.0, jq

Details of Papers/patents:-

Brief description of the working environment: The development environment was set up with Python, Flask, FastAPI, and relevant testing frameworks. Tools and libraries were installed based on YouTube tutorials and mentor-provided resources. The company mentor gave us ongoing support and feedback throughout the project with sufficient flexibility as well. Several opportunities for collaborative work and knowledge sharing with team members

Academic courses relevant to the project: Computer Programming (helps in using python), basics of OOPS

Learning Outcome: Python and its Frameworks, API Integration, OAuth 2.0 Authentication, JSON and jq

Name: ANUBHAV SAHA ROY .(2022B3AA0877H)

Student Write-up:

PS-I Project Title: Net Promoter Score Analytics

Short Summary of work done: During my PS-I at eShipz, I undertook a comprehensive Net Promoter Score (NPS) analysis project to gauge customer satisfaction and sentiment. The project involved several key steps, starting with data collection from customer feedback, which included both ratings and textual comments. Using a sentiment analysis tool, I analyzed the sentiment of the customer comments, categorizing them into positive, neutral, and negative sentiments. This process provided valuable qualitative insights to augment the quantitative NPS scores. I also conducted keyword analysis to identify recurring themes and topics in customer feedback, which helped pinpoint specific areas such as product quality, service, and delivery. Visual representation was a significant part of the project. I created various charts and graphs, including bar charts and pie charts to display the distribution of promoters, passives, and detractors. A line chart illustrated the NPS trend over six months, while scatter plots highlighted the correlation between sentiment scores and product and courier ratings. Additionally, a word cloud visualization showcased the most frequently mentioned keywords in customer comments. The project concluded with the creation of an overall NPS score using a weighted average approach. This comprehensive analysis provided actionable insights that can help eShipz improve customer satisfaction and loyalty. Overall, the PS-I experience at eShipz was highly enriching, providing practical exposure to data analysis and visualization techniques in a real-world context.

Objectives of the project: This project focuses on developing a Net Promoter Score system designed to enhance customer experience by collecting and analysing feedback. The goal is to assess customer sentiment, predict future behaviours, and provide actionable insights that support

Tool used: Python, Flask, Pandas, Matplotlib

Details of Papers/patents:-

Brief description of the working environment: eShipz provides a dynamic and collaborative working environment where ingenuity and teamwork are highly valued. The company fosters a culture of open communication and encourages employees to take ownership of their projects. The workspace is designed to be both flexible and stimulating, allowing for creativity and productivity. With a focus on technology and efficiency, eShipz supports an innovative atmosphere that adapts to the evolving logistics and e-commerce landscape.

While the internship was conducted online, we benefited from daily stand-up meetings with our mentor and regular check-ins with our faculty advisor, ensuring a productive professional experience. I also had the chance to visit the office and meet with our mentor, Mrs. Yogalakshmi, Mr. Ajaykumar, the co-founder of eShipz, and other team members. They were very welcoming and supportive.

I would highly recommend eShipz.com if you are looking for a PS-I station where you can acquire new skills in a positive and supportive environment.

Academic courses relevant to the project: Basic concepts from CS F111

Learning Outcome: Major Learning Outcomes

1. Data Collection and Preprocessing: I gained hands-on experience in collecting and preprocessing customer feedback data. This included cleaning the data, handling missing values, and preparing it for analysis.
2. Sentiment Analysis: I used the VADER sentiment analysis tool to analyze textual comments and classify them into positive, neutral, and negative sentiments. This process enhanced my understanding of natural language processing and sentiment analysis techniques.
3. Keyword Analysis: I developed skills in extracting and analyzing keywords from customer feedback, which helped in identifying common themes and topics. This was crucial in understanding specific areas of concern or satisfaction among customers.
4. Data Visualization: I improved my ability to create various visualizations, such as bar charts, pie charts, line charts, and scatter plots, to effectively present data insights. I also learned to use word cloud visualizations to highlight frequently mentioned keywords.
5. Correlation Analysis: I conducted correlation analysis to understand the relationship between sentiment scores and product and courier ratings. This helped in identifying how customer sentiment is influenced by different aspects of the service.
6. NPS Calculation and Trend Analysis: I learned to calculate the overall NPS score using a weighted average method and analyzed its trend over a six-month period. This provided insights into customer loyalty and satisfaction trends.
7. Presentation and Reporting: I developed skills in preparing comprehensive project reports and presentations. This included summarizing findings, creating visually appealing slides, and effectively communicating insights to stakeholders.

PS-I station: Etalogue Software Private Limited, Hyderabad

Student

Name: CHRISTINA EDWIN THERATTIL(2022AAPS0958G)

Student Write-up:

PS-I Project Title: User and System Tracker

Short Summary of work done: The Etalogue User and System Tracker system is designed to manage the entire lifecycle of logs from their generation to their analysis. By integrating various technologies, the system ensures efficient handling, storage, and retrieval of log data, providing users with real-time insights and enhancing system reliability.

Objectives of the project: Real-Time Log Retrieval and Visualization

Tool used: NodeJS, MongoDB, Elastic Search Engine, Redis, RabbitMQ, and ReactJS

Details of Papers/patents:NA

Brief description of the working environment: In undertaking this project, we adhered to the Agile development management methodology, which ensured a structured and iterative approach to achieving our goals. The project was divided into multiple sprints, each followed by regular scrum meetings to ensure consistent progress and team collaboration. The company wanted us to learn about backend coding and Distributed Systems and Messaging.

Academic courses relevant to the project: Backend Coding

Learning Outcome: Backend Development and Database Management, Distributed Systems and Messaging

PS-I station: Fanplay IoT Technologies Pvt. Ltd, Bangalore

Student

Name: KSHITIJ SIMHA R(2022A7PS0572G)

Student Write-up:

PS-I Project Title: Virtual Cricket - AI/ML

Short Summary of work done: I was tasked with creating the following tools which I either completed partially or fully to the best of my abilities: 1. Video segmentation tool using GBVS, 2. Modify a CNN to accept videos (2d to 3d inputs) and increase the F1 Score, and dataset size, 3. Implement a robust model to classify sensor data (gyroscopic and rectilinear data) into corresponding cricket shot)

Objectives of the project: To create a robust machine learning model capable of classifying videos of batting shots into their respective category. Was also tasked with making a model to classify batting shots derived from a sensor

Tool used: Tensorflow/PyTorch/VSCode/GitHub/Azure DevOps/

Details of Papers/patents:Nil

Brief description of the working environment: The members of the company are very nice and are very open to teaching you and handholding you through the process. They encourage you to explore many different methods and are more or less open to you implementing methods which you think might work.

Academic courses relevant to the project: Machine Learning BITS F464, Foundations of Data Science CS F320, Object Oriented Programming CS F213

Learning Outcome: Deep Learning, Time Management, Hyperparameter Tuning, Project Analysis

PS-I station: Fervid Smart Solutions Pvt. Ltd, Hyderabad

Student

Name: GHALI SRI RAM .(2022B4A11082P)

Student Write-up:

PS-I Project Title: Inventory management system

Short Summary of work done: First 3 weeks were utilised in learning the required languages for the project and developing some small projects using them. Next week I did a webpage using react for posting the data to backend for the company (this project was included in the main project of company). Next month I did the front end for the inventory management system where we add the data of every stock that a supermarket has and can edit the data. When a customer buys some products, each product is added to the cart through a unique barcode given to them and the total is generated. Then all the data related to the sales and stock gets updated to the backend

Objectives of the project: To create an end-to-end fully functional stock management system for supermarkets and grocery stores

Tool used: HTML, CSS, JavaScript, React.js, Next.js, Tailwind CSS

Details of Papers/patents: Nil

Brief description of the working environment: Work environment was great, the people there were very chill as most of them are just 4-5 years older than me. The workspace was good; the office was fully air conditioned and properly maintained.

The company expectations were really high from the BITS students and they expected us to attend everyday and work from 9-6 with determination. They also were expecting to finish a project which will take at least 4-5 months to do in just 2 months which was hectic for us.

I have learned to manage the time between professional and personal life and to utilise the resources given by the company to upskill myself and develop my personality.

Academic courses relevant to the project: C programming

Learning Outcome: Learned all the front-end languages, able to communicate with the company employees as they guided me through the whole project

Name: GANESH S P .(2022B4A41581H)

Student Write-up:

PS-I Project Title: back-end development for inventory management

Short Summary of work done: overall a good experience where I got to learn a lot of new things in a limited period of time

Objectives of the project: provide a working website for inventory management

Tool used: python,django,postgresql

Details of Papers/patents:-

Brief description of the working environment: learnt web development from scratch and got to know how coding in real life works. Company had a good work experience where they provided us with all the required facilities

Academic courses relevant to the project: python

Learning Outcome: learnt how to work in an office and got to interact and share experiences with the staff of the company

PS-I station: Fijit - Non Tech, Bengaluru

Student

Name: POLURI VISHNU TEJA .(2022A3PS0648H)

Student Write-up:

PS-I Project Title: Social Media Intern

Short Summary of work done: I was working in content creation where my mentor tells me what kind of reel to make and i make it

Objectives of the project: Promote the fijit app through various social media platforms

Tool used: Video editor

Details of Papers/patents:None

Brief description of the working environment: I didn't learn deeply in this ps, it was like manning and submitting one Instagram reel everyday. But from our mentor who was a cofounder of the company we learned about startups in depth.

Academic courses relevant to the project: None

Learning Outcome: Making social media content

PS-I station: Flairsoft Consulting Group - Non Tech, Bhopal

Student

Name: HARSH DADLANI .(2022ABPS1635P)

Student Write-up:

PS-I Project Title: Designing WEB form using C#

Short Summary of work done: Firstly, got to know what company does and how do they generate their revenue. Then we basically studied about the competitors of the company and did SWOT Analysis. Then we basically had to learn c# to use it in backend related work.

Objectives of the project: Basically how to implement C# in backend. And how to make a website responsive.

Tool used: C#

Details of Papers/patents:-

Brief description of the working environment: The working environment was good as the ps mentor was interactive and supportive. What we did learn was new skills(hard skills), and our communication skills also improved.

Academic courses relevant to the project: Data analytics related

Learning Outcome: Learnt C#

PS-I station: Four Kites, Chennai

Student

Name: ARUN KARTHIK B.T .(2022A3PS0635H)

Student Write-up:

PS-I Project Title: File reader through CREW AI, Virtuoso Automation

Short Summary of work done: Developed a crew AI agentic workflow which is able to read and extract data from any given specified format of file. automation tasks were given which has to be done through a tool named virtuoso.

Objectives of the project: To create a file reader by using multi agentic workflow. 2) Automate various test cases of in their QAT environment.

Tool used: Virtuoso, VS CODE (PYTHON)

Details of Papers/patents:nil

Brief description of the working environment: It was a great working environment with lot of helpful people whom you can develop contacts with. The company aims to achieve their own success rate in every aspects of work done through their teams. Interns have been given a lot of equal responsibility and a balanced work life which inturn brought a huge experience throughout.

Academic courses relevant to the project: Python, CP, Javascript etc. mostly CS courses

Learning Outcome: Experience to software industry, got a lot of connections, future internship offer

Name: UMANG .(2022A8PS1543H)

Student Write-up:

PS-I Project Title: CrewAI and Virtuoso Automation

Short Summary of work done: At FourKites, I automated the FourKites Connect Self-Service Regression using the AI automation tool Virtuoso, increasing code coverage from 31% to 70% to unblock the release of freight forwarders. I was responsible for fixing and reporting bugs, enhancing the application's reliability and robustness.

Objectives of the project: Increase the code coverage to 70% and above

Tool used: Python, Javascript

Details of Papers/patents:None

Brief description of the working environment: Quite Chilled work environment, but the deadlines were tight. I wasn't overworked except for a couple of days before the release. I learned a lot about GenAI in particular and Automation.

Academic courses relevant to the project: None

Learning Outcome: Automating the FourKites Connect Self-Service Regression using the AI automation tool Virtuoso provided significant learning outcomes. I gained expertise in enhancing code coverage from 31% to 70%, crucial for unblocking the release of freight forwarders. This experience deepened my understanding of AI-driven test automation and its impact on software quality. I developed strong problem-solving skills by identifying and fixing bugs, contributing to a more reliable application. Additionally, I learned the importance of rigorous testing protocols and collaboration with development teams to ensure robust and efficient software delivery. This project reinforced my technical proficiency and ability to apply AI technologies to real-world software challenges.

Name: HARSH RAJ .(2022B3A20383P)

Student Write-up:

PS-I Project Title: Web automation testing

Short Summary of work done: Learn about AI ,along with web automation using virtuoso software and then tested it using various applications.Also worked on various projects that used ai and api keys for various automation task.

Objectives of the project: To automation of web and test using various applications

Tool used: Python, javascript, virtuoso,AI like openai , langchain, notebook,

Details of Papers/patents:No

Brief description of the working environment: It was a nice and friendly workplace, everyone was helping and was a nice experience

Academic courses relevant to the project: Python and javascript are like most commonly used in company.

Learning Outcome: Ai,web automation, javascript

Name: KRISH YADAV .(2022B4A10695P)

Student Write-up:

PS-I Project Title: Workflow and Mobile Automation

Short Summary of work done: During my two-month internship at FourKites as part of the Practice School-1 course by BITS Pilani, I focused on workflow automation and mobile UI testing. Initially, I utilized CrewaAI and LangChain to develop agents and tools aimed at enhancing workflow automation. These tools streamlined various processes, significantly improving efficiency and productivity. Subsequently, my focus shifted towards mobile automation testing for the FourKites apps, CarrierLink and FourKites Manager. Using Selenium, pytest, and Appium, I wrote and debugged comprehensive mobile automation test cases. For CarrierLink, an app designed for shippers and drivers to track loads, I developed test cases to validate crucial features such as the 'Mark as Delivered' functionality, app rating feedback, and courier file view. These tests ensured the app's reliability and user satisfaction. Moving on to FourKites Manager, I set up the testing environment from scratch using Android Studio, Appium, and Appium Inspector. My work included writing mobile UI automation test cases, analyzing areas that required automation, and employing AI to enhance the quality and accuracy of the tests. The combination of these efforts contributed to a robust testing framework, ensuring both apps delivered a seamless user experience. Overall, this internship provided hands-on experience in advanced workflow automation and mobile UI testing, equipping me with valuable skills in using AI-driven tools and industry-standard testing frameworks.

Objectives of the project: To use CrewAI to make agents/tools using LLM and fully automate FourKites Carrierlink and Manager app

Tool used: Python, Jenkins, Selenium, Appium Inspector

Details of Papers/patents:None

Brief description of the working environment: The working environment at FourKites was dynamic and collaborative, fostering a culture of innovation and continuous learning. As an intern, I was integrated into a team of experienced professionals who provided guidance and support, ensuring I had the resources necessary to succeed. The company maintained high expectations, emphasizing quality, efficiency, and a proactive approach to problem-solving.

From the outset, I was expected to contribute meaningfully to ongoing projects. This involved quickly adapting to new technologies, understanding the company's workflow, and delivering solutions that met stringent quality standards. My responsibilities included creating agents and tools for workflow automation using CrewaAI and LangChain, followed by developing mobile automation test cases for the CarrierLink and FourKites Manager apps using Selenium, pytest, and Appium.

During my internship, I learned extensively about the intricacies of workflow automation and the importance of reliable mobile UI testing. I gained hands-on experience with cutting-edge tools and frameworks, honed my problem-solving skills, and developed a deep understanding of the testing lifecycle. Additionally, I learned the significance of teamwork and effective communication in a professional setting.

Overall, my internship at FourKites was a valuable learning experience that equipped me with practical skills and insights into the industry, preparing me for future challenges in the field of software development and automation.

Academic courses relevant to the project: CS F441

Learning Outcome: Learnt how to use frameworks like CrewAI for workflow automation and Selenium, pytest and Appium for mobile automation

PS-I station: GPLAN Services Private Limited - IT, Pilani

Student

Name: V S SAITEJ SAMUDRALA .(2022A7PS0241H)

Student Write-up:

PS-I Project Title: Backend development

Short Summary of work done: I honestly didn't have much work to do during the entire duration of the PS. I was just given 2 small tasks and there were no proper follow-ups for whatever work I had done.

Objectives of the project: Had to implement document class and various endpoints using this particular class.

Tool used: Django

Details of Papers/patents:None

Brief description of the working environment: The work was basically non existent. The mentors were busy and weren't able to assign work properly.

Academic courses relevant to the project: OOPS and DBMS

Learning Outcome: Learned more about django and django rest framework

Name: DIPESH KOHAD(2022A8PS0671G)

Student Write-up:

PS-I Project Title: Business and Marketing

Short Summary of work done: During my two-month project at Gplan Services, I developed and implemented a strategic business development and marketing plan aimed at expanding the client base and enhancing market presence. This involved targeted outreach to top universities and firms, market and competitor analysis.

Objectives of the project: The objectives of the project at Gplan Services were to expand the client base and enhance market presence by developing and implementing a strategic business development and marketing plan.

Tool used: S/w, excel, linkedin, gmail

Details of Papers/patents:-

Brief description of the working environment: The working environment at Gplan Services was supportive and collaborative, despite being a work-from-home setup. The team was cooperative and always ready to help, ensuring a productive and positive experience throughout the project. My expectation from Gplan Services was to learn new skills and build a strong professional network. During the project, I successfully developed and implemented strategic business development and marketing plans, conducted market and competitor analyses, and engaged with top universities and firms.

Academic courses relevant to the project: Not at all

Learning Outcome: The major learning outcomes from the project included mastering the development and implementation of strategic business and marketing plans, understanding the importance of targeted outreach and collaboration with top institutions.

Name: SHAMBHAVI SHIVKUMAR(2022AAPS0020G)

Student Write-up:

PS-I Project Title: GPLAN WEBAPP

Short Summary of work done: During my two-month internship at GPLAN, I significantly contributed to the frontend development of their web application, focusing on enhancing user experience and functionality. Initially, I tackled the login page, ensuring the login button remained disabled until both email and password fields were filled, and displaying API error messages in red text above the button. I streamlined the password visibility toggle and enabled the login action to be triggered by pressing the Enter key. I reconfigured the login and sign-up pages using React Redux to manage state and API calls more efficiently. I also updated various UI elements, such as button labels and instructions, for better clarity and user experience. This included changes like renaming "Dimension Graph" to "Dimensioned Floorplans" and "Generate graph" to "Edit Floorplan," among others. I assessed the usefulness of certain buttons, removing unnecessary ones, and addressed labeling issues, ensuring double-digit numbers were displayed correctly and that labels in parentheses did not interfere with the floor plan layout. I ensured the back button navigated correctly and the help button displayed detailed instructions for the node diagram. Additionally, I implemented a function to monitor the lifespan of JWT access tokens and fetch new ones if the remaining lifespan was less than 20 seconds, ensuring continuous user authentication. Throughout the internship, I applied knowledge from various vanilla projects, including a Meme Generator, Price Card, Tic Tac Toe game, Movie Searcher, and Mini GPT, which provided a strong foundation in HTML, CSS, JavaScript, React, and API integration. These

experiences collectively enhanced my technical skills, problem-solving abilities, and understanding of user-centric design, preparing me to contribute effectively to the GPLAN web application.

Objectives of the project: Building the GPLAN WEBAPP to deploy.

Tool used: JavaScript, React.js, TypeScript, Tailwind css

Details of Papers/patents: None

Brief description of the working environment: During my two-month internship (PS-I) at GPLAN, I experienced a dynamic and collaborative working environment. The team fostered a culture of open communication and continuous learning, encouraging me to ask questions and seek guidance whenever needed. The company set clear expectations for delivering high-quality work, meeting deadlines, and proactively contributing to ongoing projects.

The expectations from the company included understanding the core technologies used, such as React, Redux, and JWT, and applying this knowledge to improve the web application. I was tasked with specific enhancements, such as reconfiguring the login and sign-up pages, updating UI elements, and implementing robust token management. These tasks required a combination of technical skills, attention to detail, and a focus on user experience.

Throughout the internship, I had the opportunity to learn extensively about frontend development. I enhanced my skills in HTML, CSS, JavaScript, and React, gaining proficiency in state management with Redux and API integration. I also learned the importance of maintaining code quality, implementing efficient debugging practices, and adhering to best practices for user interface design.

The collaborative environment allowed me to receive constructive feedback and support from experienced developers, which was instrumental in my professional growth. The projects I worked on not only honed my technical skills but also taught me valuable lessons in problem-solving, project management, and teamwork. Overall, the internship at GPLAN was a transformative experience that equipped me with the knowledge and confidence to contribute effectively to real-world web development projects.

Academic courses relevant to the project: Computer Programming

Learning Outcome: Learnt all the fundamentals of webdev

Name: SAHIL SETHI .(2022B1A31131P)

Student Write-up:

PS-I Project Title: Business Development and Product Management

Short Summary of work done: Created a datasheet for GPLAN to streamline the procedure of applying to government grant and schemes. Applied for Chunnauti 2.0 for a 25L grant and cleared round 1. Created a pitchdeck. Worked with VakilSearch for tax fillings and Startup India SFS incubation.

Objectives of the project: To raise funding from government schemes and handle day-to-day business operations.

Tool used: Excel, LinkedIn, Python, Venture Capital

Details of Papers/patents:NA

Brief description of the working environment: I learned managing a startup altogether by working in GPLAN. The work environment was supportive, appreciative and engaging. The founders were really understanding and trusting. They assigned me work which were deemed above me which helped me gain confidence overall.

Academic courses relevant to the project: Graph Theory, Data Analysis, Computer Programming.

Learning Outcome: Venture capital, Python, Excel, Data Analysis, LinkedIn

Name: SPARSH UPPAL(2022B4A71206G)

Student Write-up:

PS-I Project Title: Testing Module CI/CD pipeline integration and Database Configuration

Short Summary of work done: In the first half of my project, I was assigned to learn some topics by my self like Python, Unit testing in Python,File I/O(txt as well as JSON format),GitHub and GitHub Actions, and how to create CI/CD pipelines for merging the code before all test scripts pass . The second half of the project was more about the Implementation and there were 4 functions required in the GPLAN software i.e. Open Graph(which opens the graphs from JSON file and visually displays it on tab),Save Graph(To save the graph in a JSON file which is drawn or opened in the tab),Open Floor

Plan(which opens the Floorplan from a JSON file and then draws it in the second tab),Save Floorplan(in this function,we were required to convert the graph into floorplan and then saving the necessary details (for that floorplan to be opened) in a JSON file. I wrote the code for all of these functions and these will be used in testing in future.

Objectives of the project: To make CI / CD pipelines for automated testing before any developer pushed their code to the codebase

Tool used: Python, Unit testing in Python,GitHub(company's codebase was stored in GitHub),GitHub Actions(to start workflow for testing in GitHub)

Details of Papers/patents:In the first week, we were assigned to read the problem statement of GPLAN which mentions about the algorithm and the problems to be solved in future.It was a 32 page pdf I think which explained the math behind it.

Brief description of the working environment: The mentor was not much active in assigning work in the first half of project because the company was about to launch their product into the market and they are busy in that. Krishnendra Sir(CEO of GPLAN) is a very nice guy.He appreciated everyone on their end sem evaluation and was giving proper feedback to everyone.During the whole 8 weeks of my duration, I got to know how to work in a company and I also know better now on how to iterate through a company's codebase and understand the flow behind working of softwares.

Academic courses relevant to the project: Graphs and Networks

Learning Outcome: Learning testing and how to iterate through a company's codebase,understand the flow behind working of software,solving issues and creating new features.

Name: ARSH SINGH .(2022B4AB0822P)

Student Write-up:

PS-I Project Title: Graph Layouts

Short Summary of work done: During my Practice School-I (PS-I) at GPLAN, my primary focus was on the study and enhancement of graph layout algorithms for floor plan generation. The project involved optimizing the Circular Traversal, Door Connectivity, and Minimum Dimension Constraint functionalities. Key activities included: 1. ****Branch Creation and Code Cleanup****: Established new branches for door connectivity and

addressed issues through collaborative meetings with original developers. Migrated and cleaned up code to ensure compatibility with older commits. 2. ****Algorithm Enhancements****: Improved door connectivity by removing problematic code sections and configuring biconnectivity and triangulation. Implemented checks for PTPG conditions to classify graphs for rectangular or irregular floor plans. 3. ****Code Integration and Bug Fixes****: Merged door connectivity with minimum dimensions code, managed variable conflicts, and optimized the floor plan generation process. Identified and removed separating triangles and K4 subgraphs, and re-triangulated graphs for structural integrity. 4. ****Final Debugging and Validation****: Extensively tested and validated the integrated codebase, ensuring robust and reliable floor plan generation. 5. ****Report Compilation****: Compiled a comprehensive report detailing the project's objectives, methodologies, challenges, solutions, and outcomes. The project's iterative approach, combined with systematic debugging and collaborative problem-solving, resulted in significant advancements in floor plan generation algorithms, paving the way for future developments.

Objectives of the project: Generate floorplan from user input graph

Tool used: Python

Details of Papers/patents:NA

Brief description of the working environment: ### Working Environment

The working environment during my Practice School-I (PS-I) at BITS Pilani was dynamic and collaborative. I worked closely with a team of skilled developers and researchers who provided valuable insights and guidance. The atmosphere fostered creativity and encouraged open discussions, making it conducive to problem-solving and innovation.

Expectations from the Company

From the company, I expected a structured approach to project management and clear communication channels. I anticipated gaining hands-on experience with advanced algorithms and coding practices, as well as opportunities to contribute to meaningful projects. My goal was to understand real-world applications of theoretical concepts and to develop practical skills in software development and algorithm optimization.

Learning During PS-I

My PS-I experience was highly enriching. I learned to navigate complex codebases and implement robust solutions to algorithmic problems. Key learnings included:

- ****Algorithm Optimization****: Enhanced understanding of graph layout algorithms, particularly in door connectivity, circular traversal, and minimum dimension constraints.
- ****Collaboration and Communication****: Improved my ability to work collaboratively, share ideas, and integrate feedback effectively.
- ****Problem-Solving****: Developed a systematic approach to debugging and resolving issues, ensuring code stability and functionality.
- ****Technical Skills****: Gained proficiency in advanced programming techniques, code integration, and the use of version control systems.

Overall, the PS-I program provided a comprehensive learning experience, blending theoretical knowledge with practical application, and preparing me for future challenges in the field of software development and algorithm design.

Academic courses relevant to the project: Graph and networks, Computer Programming, DSA

Learning Outcome: Graph theory

PS-I station: GPLAN Services Private Limited - Non IT, Pilani

Student

Name: JESSICA KHURANA .(2022A5PS1276H)

Student Write-up:

PS-I Project Title: Business development and marketing

Short Summary of work done: Studied about the business development like value proposition, size of market, target market etc. Learned about the GTM strategy and outreach strategy, how to apply them to GPLAN. Though of conducting workshop to impact the professor as well as the students. Got a mailing list ready of 96 universities of best architectural across the globe. Mailed them for a free trial telling it would help the professor in teaching and research.

Objectives of the project: To increase the outreach of the product, encouraging the students and enhancing their practical skills and knowledge, doing beta testing.

Tool used: we emailed people

Details of Papers/patents: nil

Brief description of the working environment: Work environment at GPLAN is innovative and collaborative. It fosters communication and teamwork. The work environment is equipped with the latest technology and tools to support productivity and efficiency. Flexible working hours, regular team meetings are part of work culture and healthy work-life balance.
clear communication, rewards, supportive culture.

Academic courses relevant to the project: nil

Learning Outcome: learnt how to manage time and work, got to know about the GTM and outreach strategies, learnt about business development, writing official emails for a product.

PS-I station: Greatwall Technologies Pvt. Ltd, Pune

Student

Name: VIBHOR BARGUJE .(2022A7PS0137P)

Student Write-up:

PS-I Project Title: AI CV Builder

Short Summary of work done: Created Create a CV Builder with integrated with api call to llm

Objectives of the project: Create a CV Builder with integrated with api call to llm

Tool used: Angular, Flask, Mistral LLM, MySQL

Details of Papers/patents:none

Brief description of the working environment: Remote work so very flexible, no harsh deadlines other than ps evaluative components

Academic courses relevant to the project: DBMS

Learning Outcome: web development, api, database management

Name: MUDIT SOMANI .(2022A7PS0149H)

Student Write-up:

PS-I Project Title: AI Blog Generation

Short Summary of work done: Making a website to generate blogs about travel locations with different LLMs

Objectives of the project: Making a website to generate blogs about travel locations with different LLMs

Tool used: Python, Node, LLMs

Details of Papers/patents:N/A

Brief description of the working environment: A single mentor was assigned to us and his approach was very relaxed.

Academic courses relevant to the project: OOPS

Learning Outcome: API Design, LLMs

Name: BHUPATHIRAJU VISHAL VARMA .(2022A7PS0174H)

Student Write-up:

PS-I Project Title: AI based blog generation website

Short Summary of work done: I developed the LLM text generation component for an AI-driven blog generation project, integrating Mistral, Gemini, Falcon, and LLaMA models into the FastAPI backend. I optimized the text generation pipeline for relevant and coherent content based on user cues and collaborated with team members responsible for the frontend and image API.

Objectives of the project: To develop a blog generation website that generates a blog with pictures and gives it in word file format to end user. Integrated multiple llms for text generation

Tool used: Google collab. Aws. Fast api.

Details of Papers/patents:None

Brief description of the working environment: During my PS-I experience, I worked in a collaborative and innovative environment, contributing to an AI-driven blog generation project. My primary role was developing the LLM text generation component, integrating advanced models like Mistral, Gemini, Falcon, and LLaMA into a FastAPI backend.

The company expected high-quality, efficient work and encouraged teamwork. I learned to optimize text generation pipelines, handle real-world data, and deploy scalable solutions. Working with team members who focused on frontend development and image API integration, I gained valuable insights into project management and the importance of diverse skills in a team.

Overall, the experience enhanced my technical skills and understanding of AI applications in content creation.

Academic courses relevant to the project: Computer programming, data structures and algorithms

Learning Outcome: Learnt how to work with llms, python and fastapi for backend development

PS-I station: Harish-Chandra Research Institute, Prayagraj (Allahabad)

Student

Name: MUKUND SRIVASTAVA .(2022B3A70562P)

Student Write-up:

PS-I Project Title: Elemental Number theory and Cryptography

Short Summary of work done: For my PS1 project, I focused on RSA and various cryptographic algorithms. I conducted an in-depth analysis and implementation of the RSA algorithm, detailing its use in secure data transmission through public and private key encryption. Additionally, I explored other cryptographic algorithms, comparing their efficiency, security levels, and practical applications. This project emphasized understanding the mathematical foundations of these algorithms.

Objectives of the project: To study about the basic number theory concepts required for the understanding of cryptography and study the mathematical foundation behind the different types of cryptography used in modern day

Tool used: None

Details of Papers/patents:A Public key - RSA by Prof R. Thangadurai

Brief description of the working environment: It was very good and comfortable

Academic courses relevant to the project: Cryptography

Learning Outcome: Learnt about the various cryptographic algorithms used in modern day such as RSA

Name: AMOGH A.(2022B5AA0890H)

Student Write-up:

PS-I Project Title: Atomistic Simulations of Materials

Short Summary of work done: My total internship lasted 7 weeks. I spent the first 2 to 3 weeks learning about density functional theory and many-body quantum systems. I had to consult various resources in the library and online to get a very basic understanding for what I was about to do next. Then, I was assigned to work on graphene and its doped versions to understand its properties using computational techniques. This seemingly simple task consumed the next 3 weeks and finally I modelled some simple molecules like water, hydrogen and ammonia to understand their chemical properties. Overall, the project was extremely interesting and could easily become the topic for a master's thesis. This is a suitable project for someone who loves to do computer simulations and then understand the physical meaning behind the numbers using state of the art theories.

Objectives of the project: To understand the theory behind many-body quantum systems using density functional theory and simulate 2D materials like graphene and silicene using modern computational software packages like Quantum ESPRESSO.

Tool used: Quantum ESPRESSO, BURAI, VESTA, XCrySDen, Python

Details of Papers/patents:

<https://doi.org/10.1039/C2RA22664B>, <https://doi.org/10.48550/arXiv.cond-mat/0211443>

Brief description of the working environment: HRI is a research institute which principally focuses on mathematics and theoretical physics where some of India's best researchers carry out extremely high quality research. The work environment is quite informal. A project is assigned at the beginning of the internship and you are expected to work on it till the end. Weekly progress meetings with the mentor is common. There is a very good library which houses extensive literature on any assigned topic. Doctoral and postdoctoral fellows are almost always available to assist in any possible way. Prayagraj gets blazing hot during June with 50° afternoons quite frequently dehydrating you. The working environment is extremely conducive for extensive studying but there are very limited recreational facilities.

Academic courses relevant to the project: PHY F212, PHY F241, PHY F242, PHY F313, PHY F341, PHY F342

Learning Outcome: I got to apply the knowledge acquired in electromagnetism and quantum mechanics in a situation which was not overly complicated but not too simple either! Major learning outcomes could be an early understanding of solid state physics, crystals, advanced computing techniques, insight into the fascinating world of supercomputing and hands on experience with dealing with open source packages which are the bread and butter of modern materials science.

Name: ADITHYA A VASISTA .(2022B5AA0948H)

Student Write-up:

PS-I Project Title: Quantum Information and Quantum Many- Body problems

Short Summary of work done: I began by studying the first three chapters of J.J. Sakurai, and later delved into the basics of Quantum Information Theory and Entanglement. I used these concepts to computationally implement classical phase transitions, specifically a second-order phase transition from ferromagnetic to paramagnetic material. I learned about Monte Carlo simulation and the Metropolis algorithm, and applied similar concepts while reviewing research papers on Quantum Phase Transitions. I then computationally implemented a quantum phase transition and demonstrated entanglement.

Objectives of the project: Understanding fundamentals of Quantum Entanglement and computational implementation of quantum many body problems

Tool used: Python

Details of Papers/patents:None

Brief description of the working environment: The work environment is great, and the professors and PhD scholars are very helpful. I would highly recommend this place for people who are genuinely interested in research. The professor assigned to me was very helpful and friendly. However, the experience may depend on the assigned PS-1 faculty member – they may have unreasonable restrictions that can make your life difficult. Nevertheless, if you are passionate about research, you would still enjoy the experience.

Academic courses relevant to the project: Quantum Mechanics

Learning Outcome: Basics of quantum mechanics, computational physics, coding

PS-I station: HCIN NETWORKS PRIVATE LIMITED, Bengaluru

Student

Name: LAVANYA ANAND BURJI(2021AAPS0021G)

Student Write-up:

PS-I Project Title: Customer Excellency Journey

Short Summary of work done: made a report of how to improve customer excellency, identified major fault areas from our side and found strategies to overcome it, hence reducing the fault rate. Learnt about the ticket generation system at the company and found new software and AI tools to improve the process

Objectives of the project: improve customer relationships, identify and come up with new strategies to minimise fault rate

Tool used: freshdesk, excel, canva

Details of Papers/patents:none

Brief description of the working environment: very good working environment, all the expectations were met from my side. Learnt how to work together in a corporate environment.

Academic courses relevant to the project: Communication networks

Learning Outcome: Data analysis, excel, power point, transport, communication, presenting skills,

Name: ANKITA SAHA(2022A8PS0034G)

Student Write-up:

PS-I Project Title: Web development project

Short Summary of work done: I worked on developing a website for the company using UI/UX design and other web development tools

Objectives of the project: To design a website for the company

Tool used: Figma,html,css,wordpress

Details of Papers/patents:N/A

Brief description of the working environment: Good working environment, expect more accomodation for interns

Academic courses relevant to the project: N/A

Learning Outcome: Figma,UI/UX design

Name: ABHIJIT CHANDRA MENON(2022AAPS0205G)

Student Write-up:**PS-I Project Title:** Indus Project**Short Summary of work done:** First I was tasked with learning how network towers are build which involved civil and electrical parts. After that I had to analyze how much profit would be viable and find out ways to increase profit and cancel out any losses.**Objectives of the project:** Cost analysis of the Indus project and learning about network tower construction**Tool used:** Excel, PowerPoint, word**Details of Papers/patents:-****Brief description of the working environment:** Since they were coming as a station for the first time they had only mild expectations and gave us a few major tasks. They were very considerate to us and their guidance was invaluable. I learnt how a startup works and the difficulties involved in a startup.**Academic courses relevant to the project:** None**Learning Outcome:** Learnt about the financials involved in network tower construction and other processes involved in building

PS-I station: Hytech Professionals India, Noida**Student****Name:** ANSH GARG .(2022B5AA0960P)**Student Write-up:****PS-I Project Title:** Implementation and Analysis of AI-Driven Salesforce Solutions**Short Summary of work done:** During my six-week internship, I focused on implementing AI-driven solutions using Salesforce technologies. I learned about database associations, developed a loan prediction system with Salesforce Analytics, created an Einstein Bot for customer service automation, and predicted membership

lapses using machine learning techniques. This experience provided valuable hands-on skills in AI and Salesforce, preparing me for advanced projects in the future

Objectives of the project: The objective of this internship was to enhance my skills in AI-driven solutions using Salesforce technologies.

Tool used: Salesforce

Details of Papers/patents:-

Brief description of the working environment: The work environment at Hytech Professionals was highly conducive to learning and professional growth. The organization fostered a collaborative and innovative atmosphere, encouraging open communication and teamwork. State-of-the-art facilities and advanced technological tools were readily available, allowing for seamless project execution. Mentorship and guidance were readily accessible, with experienced professionals providing valuable insights and support. Regular team meetings and brainstorming sessions promoted the exchange of ideas and fostered a sense of community. The culture emphasized continuous learning, with opportunities for attending workshops, training sessions, and webinars. Overall, the work environment at Hytech Professionals was dynamic and supportive, providing an ideal setting for developing skills in AI-driven solutions and Salesforce technologies.

Academic courses relevant to the project: -

Learning Outcome:

1. ****AI and Machine Learning**:** Gained practical experience in developing predictive models and applying machine learning techniques.
2. ****Salesforce Analytics**:** Enhanced proficiency in using Salesforce Analytics for data analysis and visualization.
3. ****Einstein Bot Development**:** Acquired skills in designing and implementing chatbots using Salesforce's Einstein Bot for automating customer service.
4. ****Database Associations**:** Improved understanding of different types of associations in databases and their applications in data modeling.
5. ****Project Management**:** Learned to manage and execute multiple projects efficiently within a professional setting.

PS-I station: Indian Institute Of Remote Sensing, Dehradun

Student

Name: KALASH BHATTAD .(2022A7PS0065H)

Student Write-up:

PS-I Project Title: Automatic Feature Extraction using Remote Sensing Data for Ship Detection

Short Summary of work done: We worked on a project aiming to utilise image processing algorithms such as YOLO and vision transformers for accurate detection of marine vessels. Their size and carrying capability was calculated through various deep learning algorithms. We aimed to apply automatic feature extraction of the sentinel II satellite images to find relevant details in detecting ships. We learnt about existing image segmentation algorithms such as watershed algorithm to enhance the image features and develop a robust model to categorise marine vessels after detecting them.

Objectives of the project: Analysis of existing and novel image processing methods to identify marine architecture and calculate the carrying capacity and size in satellite images

Tool used: PyTorch, Python, Google Earth Engine, Vision Transformers, NVIDIA RTX 3050 GPU

Details of Papers/patents: NIL

Brief description of the working environment: PS station did start late compared to others but once it began, the flow of work was decent. We received proper weekly inputs from a senior scientist of IIRS, ISRO who aimed to achieve extensive research work with us. The work timings for the station were a bit erratic including late night meetings due to an extensively busy schedule of the mentor but his dedication to achieve targets was impeccable. We were given sufficient time for learning the basics of remote sensing and other necessary details. Regular inputs from the Faculty in Charge were also present who held weekly meetings with us.

Academic courses relevant to the project: Deep Learning
Machine Learning
Image Processing and Remote Sensing

Learning Outcome: Extensively learned about deep learning algorithms and image processing in remote sensing data. Implementation of Deep network models using pyTorch and other relevant frameworks

Name: PRATYUSH BINDAL .(2022A7PS0119H)

Student Write-up:

PS-I Project Title: Automatic Feature Extraction of Images for Ship Detection

Short Summary of work done: We implemented the latest versions of the YOLO family of algorithms available, particularly v8, v9 and v10 on the open-source dataset taken from Kaggle for detecting ships. We also utilised Grounding DINO technique for automatic annotation of images of the same dataset on which we later ran a custom fine-tuned model for detecting ships in the sea. Furthermore, we also improvised upon the model by adding features such as generating bounding boxes with confidence score around the ship, specifying exact coordinates of the ships in the images and classifying the ships based on the available surface area and carrying capacity.

Objectives of the project: The project aimed to implement novel versions of the YOLO architecture and also aimed to utilise Grounding DINO framework for automatic annotation of images along with the latest transformer-based model for detecting ships in the sea.

Tool used: Google Earth Engine, Roboflow, Google Collab

Details of Papers/patents:N/A

Brief description of the working environment: The details of the project were shared a little late as compared to the general deadline. But after the details were shared, it was an interesting project to work upon. The station being a premier research institution of the country focuses heavily on remote sensing-based research such as thoroughly reading good quality research papers, implementing them and then improvising on existing ideas and published papers to gather novel and insightful results.

Academic courses relevant to the project: Machine Learning

Learning Outcome: The major learning outcome was the utilization of upcoming state-of-the-art CNN and transformer-based methods to detect ships in the images retrieved from an open-source dataset using flagship technologies such as Google Earth Engine and Roboflow.

Name: ANJANEYA BAJAJ .(2022A7PS0164P)

Student Write-up:

PS-I Project Title: Time Series Modelling in Google Earth Engine using Deep Learning Methodologies

Short Summary of work done: The study employed a new hybrid model between Long Short-Term Memory (LSTM) and Vector Auto Regression (VAR), called Deep Time-Varying Autoregressive Model (DeepTVAR) to study time series data using the Google Earth Engine and measure its effectiveness over traditional methodologies, and analyzes the crop phenology trends for the Patiala district in Punjab, India.

Objectives of the project: Model the time series data of crop phenology metrics of Patiala, Punjab.

Tool used: H/w - personal devices; S/w - Python, gee, pytorch, pandas

Details of Papers/patents:None

Brief description of the working environment: Online working environment - with approximately weekly meets after work started. Delay in onboarding due to some document processing on station's side.

Academic courses relevant to the project: Probability and Statistics

Learning Outcome: Time series analysis, usage of google earth engine

Name: HARSH PANWAR .(2022A7PS0949P)

Student Write-up:

PS-I Project Title: Cloud Cover Removal Using Optical and SAR Data Fusion

Short Summary of work done: We used the SEN12MS dataset to train a CNN based model on over 100,000 images for cloud cover removal from optical images. We also learnt how to employ optical and SAR data fusion to assist in this task.

Objectives of the project: Utilise a deep learning model to employ fusion of optical and SAR satellite images from a publicly available dataset to facilitate cloud cover removal.

Tool used: Python, Tensorflow

Details of Papers/patents:None

Brief description of the working environment: Decent experience for an online station, though more guidance and resources could be given during the duration of PS-1. You will simply be given a project title and will be tasked with finding a suitable research paper and incorporating its studies to build your project from scratch. Definitely a hard and time-consuming task.

Academic courses relevant to the project: Deep Learning, Machine Learning

Learning Outcome: Learnt to setup virtual environments, scrape and compile datasets, and fine tune model parameters.

Name: ADVIK SINHA .(2022A7PS2004H)

Student Write-up:

PS-I Project Title: Time Series Modelling in Google Earth Engine Using Deep Learning Methodologies

Short Summary of work done: We began by performing a literature review of existing forecasting methods in remote sensing. Once we identified the research gaps in the same we proposed the use of Deep Learning techniques, particularly the DeepTVAR in remote sensing applications. For the project, we had two major components to work on. One was the code for the DeepTVAR model, and the other was the dataset we would use. We coded the DeepTVAR model in PyTorch. For the dataset, we had to first identify a region of interest (initially chose entire Punjab state, had to narrow it down to 1 district in Punjab due to computational limits), extract the NDVI bands data from the region using Google Earth Engine and finally smooth the time series data. Using this data, we ran experiments on the DeepTVAR and compared it to existing remote sensing forecasting techniques.

Objectives of the project: To address research gaps in existing techniques used in Remote Sensing forecasting. In particular we proposed employing deep learning techniques such as DeepTVAR and comparing them with traditional statistical methods.

Tool used: Python, PyTorch, Numpy, Sklearn, Google Earth Engine

Details of Papers/patents:None

Brief description of the working environment:

Initially, while our IIRS applications were still being processed, we couldn't have any meetings with the company. However, the FIC kept us engaged and ensured we were still able to learn and grow during this period. He organized sessions on various topics, including the basics of ML and ANNs, which helped us build a strong foundation.

Once we were able to meet with the IIRS professor, he outlined several project topics and gave us the freedom to choose our own topic and form our groups. This allowed us to select projects that genuinely interested us. The IIRS professor provided us with consistent guidance, support, and valuable feedback on our projects. This not only enhanced our learning but also improved our practical skills.

The IIRS professor expressed interest in publishing a paper with us based on our project work. This opportunity to contribute to academic research adds significant value to our internship experience.

Academic courses relevant to the project: Computer Programming, OOPs, DBMS

Learning Outcome: The study conducted a comparative analysis of different Deep Learning models, such as DeepAR, DeepState, and DeepTVAR, in terms of their ability to forecast time series data. DeepTVAR consistently showed superior performance in terms of accuracy and resilience compared to the other models, especially in capturing the interrelationships among various spectral bands.

Name: SHIVANSH SHARMA .(2022B3A70922P)

Student Write-up:

PS-I Project Title: Image Classification using Google Earth Engine

Short Summary of work done: We did the first level classification of regions of Agra, Mathura and Bharatpur districts using Google Earth Engine. We used built in classifiers and tried to compare them for this region.

Objectives of the project: Level 1 classification of Satellite Images

Tool used: Google Earth Engine, Google Colab

Details of Papers/patents:No patents

Brief description of the working environment: It was fine, we had our meeting once in a week, evals were also smoothly conducted. Though we expected to have more learning than this, the mentor was very busy and was not able to respond to our queries so we have to sort out things on our own. Also this PS station would have been much better if it would be offline.

Academic courses relevant to the project: Machine Learning, Deep learning

Learning Outcome: We learned about Google Earth Engine and the inbuilt classifiers used. Also about the dataset collection and preprocessing of images.

Name: CHIRAG KHATRI(2022B3A71091P)

Student Write-up:

PS-I Project Title: LEVEL-1 LAND USE AND LAND COVER (LU-LC) CLASSIFICATION OF REGIONS OF AGRA, MATHURA AND BHARATPUR DISTRICTS USING BUILT-IN CLASSIFIER MODELS OF GEE

Short Summary of work done: We used the dataset from Google Earth Engine and using it trained a model to categorise any pixel of a satellite image into 5 different classes

Objectives of the project: To train a model to automatically classify satellite image into different categories

Tool used: QGIS, Google Earth Engine, Google Colab

Details of Papers/patents:NA

Brief description of the working environment: The working environment was good. We were given the flexibility to work whenever we wished. We also received proper guidance from faculty and IIRS mentor from time to time. I expected to learn how to work in a team in a large organization and to learn the work that government agencies do. These objectives were fulfilled

Academic courses relevant to the project: CS F111

Learning Outcome: Learned how to use GEE, how to work in a team and how to train a model using Machine Learning

Name: SHUBHAM MISHRA .(2022B5A70763P)

Student Write-up:

PS-I Project Title: Automatic Land Cover Classification of Regions of Agra, Mathura and Bharatpur Districts Using the built-in ML classifiers of the Google Earth Engine (GEE)

Short Summary of work done: We started our project by gaining deep insights into what goes into remote sensing. We explored different open source satellite image datasets on GEE like Sentinel-2 and Landsat-8. We explored machine learning basics after that. Then we explored a range of research papers on our topic from high impact factor journals like IEEE, ISPRS and Elsevier. We performed a detailed literature review on our topic. Afterwards, we went through different youtube videos by the Google Earth Outreach team (G4G 2022 and 2023) that were centred around our topic in order to learn the GEE environment. Then we went on to write our code for classification. We preprocessed our images and then divided them into training and testing data for classification purpose. After obtaining the classified images from different models, we performed accuracy assessment by constructing confusion matrix and then we performed comparative analysis of the different classifiers. Then we worked upon preparing our final manuscript. We have decided to continue working on our project beyond the PS-1 and Prof. Hari Shankar Srivastava (IIRS) would be guiding us till our paper is published.

Objectives of the project: Classification of regions of Agra, Mathura and Bharatpur districts into 5 basic land-cover classes (level-1 classification) using the built-in machine learning based classifiers of the Google Earth Engine (GEE) and then further extend the scope of research

Tool used: Google Earth Engine (GEE), QGIS, Google Colab

Details of Papers/patents: Currently in process of preparing the first draft for our research paper and submitting it to journals like IEEE and ISPRS (as of 23rd July, 2024). We have obtained good enough results (accuracies, confusion matrices, classified images) to be able to write

Brief description of the working environment: -

Academic courses relevant to the project: Machine Learning, Deep Learning

Learning Outcome: We were able to gain insights into the basics of remote sensing, workings of GEE and how to make use of the open source satellite image datasets like Sentinel (ESA) and Landsat (USGS, NASA). We were able to gain skills in the fields of machine learning (first-hand experience) and deep-learning including getting to know the working principles and structures of different models like random forest (RF), classification & regression trees (CART), convolutional neural networks (CNN) and so on.

PS-I station: Indira Gandhi Centre for Atomic Research (IGCAR), Kalpakkam

Student

Name: AABHAS MISHRA .(2022A1PS1149P)

Student Write-up:

PS-I Project Title: Evaluation of defects in single-crystalline Al₂O₃ by in situ-ionoluminescence studies

Short Summary of work done: This research focused on understanding defect creation and evolution in single-crystal aluminum oxide (Al₂O₃) under He⁺ and H⁺ ion irradiation. In situ ionoluminescence spectroscopy revealed distinct defect populations and their behavior with increasing ion dose. Photoluminescence and optical absorption spectroscopy provided complementary insights into defect-related electronic transitions. SRIM simulations offered a theoretical framework for ion penetration and vacancy creation profiles. Results indicated that He⁺ irradiation generates more complex defects compared to H⁺ irradiation, likely due to higher energy deposition. While this study provides valuable insights, further investigations with varying irradiation parameters and correlation with material property changes are necessary for a comprehensive understanding of defect-induced effects in Al₂O₃.

Objectives of the project: To study the effects of high radioactive exposure on Al₂O₃.

Tool used: SRIM

Details of Papers/patents:None

Brief description of the working environment: Good work environment. Helpful mentors.

Academic courses relevant to the project: Material Science

Learning Outcome: Luminescence, Irradiation, Cascade effects

Name: KARNATAKAM PAAVANI .(2022A1PS1400H)

Student Write-up:

PS-I Project Title: Numerical simulation of multistage batch wise countercurrent extraction to remove actinides from rare earth fission products from used molten electrolyte

Short Summary of work done: During my internship at IGCAR, I had the privilege of working on a project that involved the use of MATLAB to develop a code for a process known as multistage batch-wise counter current extraction. This process is crucial in various industrial applications, including chemical engineering and nuclear reprocessing, where efficient separation of components is required. Firstly, I went through a few research papers in order to understand how the extraction process occurs in detail : understanding the material balances, reactions taking place at each stage, apparatus used. It took me nearly 2 weeks to understand the concept in a full-fledged manner. The primary objective of my project was to design and implement a MATLAB code to simulate the multistage batch-wise counter current extraction process. This required a deep dive into the theoretical aspects, understanding the intricacies of mass transfer, and translating these concepts into a robust computational model. One of the most challenging yet rewarding aspects was developing an accurate and efficient algorithm for the simulation. This necessitated a thorough understanding of the mathematical principles underlying the process, as well as proficiency in MATLAB. I dedicated countless hours to testing and refining the code to ensure its accuracy and reliability. Finally, when the code has given satisfactory results matching with those of literature, I used the code for a system requirement of U, Pu and Ce to obtain more than 99% recovery of U and Pu into the Cd phase and leave more than 80% Ce in the salt phase. I had to come up with an ideal combination of several parameters like entrainment ratio, moles of Li added to Cd, number of stages and ratio of moles of salt to Cd to attain the previously mentioned recoveries

Objectives of the project: To formulate a code in order to find out the

Tool used: MATLAB, Microsoft Excel

Details of Papers/patents: The plant is yet to be set up at IGCAR which might take around 4 years. If there is a scope of publishing a paper, it will only be after 4 years.

Brief description of the working environment: My mentor as well as the other professionals were really cooperative and supportive in all aspects of my project. I met the sweetest people of my lab, they always made me feel like family. I always felt safe and comfortable on all days of my work. Just that the transport and commuting facilities were a bit difficult as we were not allowed to take our phones or any other electronic or electrical gadgets inside IGCAR.

Throughout this journey, I encountered numerous challenges, from grasping complex chemical engineering concepts to overcoming programming hurdles. The rigorous problem-solving process enhanced my analytical skills and underscored the importance of persistence and attention to detail. Additionally, this project highlighted the value of collaboration and effective communication. Regular discussions with my mentors and peers provided new perspectives and insights, crucial for refining my approach and improving the overall quality of the project.

This experience not only deepened my technical knowledge but also instilled confidence and independence. I learned to manage my time effectively, prioritize tasks, and work under pressure, equipping me with skills that are essential for my future career.

Academic courses relevant to the project: Numerical Methods for Chemical engineers (NMC) , Separation Processes - 1 (SP-1)

Learning Outcome: Becoming convenient with MATLAB software, understanding the enormous extraction process theoretically, getting acquainted with the purification system of Argon atmosphere for extraction to occur.

Name: ADITHYA KRISHNA SRIDHARAN .(2022A3PS0402P)

Student Write-up:

PS-I Project Title: Colorimetric Detection of Bacteria Using Biosensors

Short Summary of work done: The aim was to develop a biosensor that detects a change in colour in an E.coli sample. The colour change was brought about by using gold nanoparticles that were synthesized in our lab using HAuCl₄ and mercaptoethylamine. We used a TCS 3200 RGB sensor and wrote the code for it . We standardized the sensor

using different concentrations of solutions of dyes. The project can be taken further by using a silicon photomultiplier and a charge sensitive pre-amplifier.

Objectives of the project: To develop a biosensor to quantify the amount of E.coli in a given water sample.

Tool used: Arduino

Details of Papers/patents:nil

Brief description of the working environment: IGCAR has a very relaxed working environment. No electronic devices are allowed inside the campus, so we were provided with systems to use. My mentor did not have high expectations from the project as this was not something he was working on, rather it was created solely for our PS-1.

Academic courses relevant to the project: biology lab, microbiology

Learning Outcome: Uv spectrophotometer use, biology lab exposure, bacteria culture, arduino programming, sensor design and development.

Name: ARNAV GEET VERMA .(2022A3PS0430P)

Student Write-up:

PS-I Project Title: Design and Development of Sensor and Instrument Using Pulsating Sensor for Ultra-Low Water Turbidity Measurement

Short Summary of work done: I was tasked with designing a sensor that improved upon the accuracy of an already existing instrument. I was also asked to add wireless capability. The project involved programming a highly accurate frequency counter using an Arduino Mega 2560, and interfacing various expansion boards (display, serial communication, wireless communication, etc). After this, I had to design a custom PCB to overcome limitations of the arduino (improper pin placement, lack of power pins, etc). Sensor design involved testing various methods before deciding on the most accurate one. After that, lots of testing was required to calibrate the instrument. Known samples were used to collect data and curve-fitting was done to generate an equation to convert sensor output into turbidity values. This equation was flashed into the microcontroller's memory and further testing was done to establish accuracy, which was ± 1 NTU.

Objectives of the project: Design a water turbidity measurement instrument that is 8x more accurate than the existing one and can be used in-situ.

Tool used: H/w - AVR and ARM based arduino boards, temperature sensor, RS232, Xbee, Display modules, etc. S/w - embedded C and C++, XCTU

Details of Papers/patents:Writing a paper for a future IEEE conference

Brief description of the working environment: The projects on offer are practical and directly add value to the work that is already being done at IGCAR. Mentors and department heads are extremely supportive and they provide resources and even teach you to ensure you have sufficient background knowledge before you start working on the assigned project. The working environment gets the best out of you and keeps you focused as no personal devices are allowed inside. Up-to-date equipment is available and a lot of freedom is given to tinker and learn. I got to work on a real world application of embedded systems and it was a great experience.

Academic courses relevant to the project: Microprocessors and Interfacing, Digital Design, Electrical Science

Learning Outcome: Developed a research temperament, learnt how to spot research gaps in existing work. Learnt PCB design. Learnt embedded systems programming for AVR and ARM based microcontrollers. Learnt sensor interfacing and tackled real-world problems like noise rejection using software.

Name: HARIOM MAYURE .(2022A3PS0534H)

Student Write-up:

PS-I Project Title: Development of electronic circuit and data acquisition software for Glove Box Leak Testing

Short Summary of work done: Significant work done involved developing the data acquisition software and electronic circuitry, writing microcontroller code, and leveraging LabVIEW and Arduino programming. Integration between the Data Acquisition Unit and the software was established, ensuring system integrity. In-depth studies of sensors such as Thermistors, RTDs, and Pressure Transmitters were conducted to understand their properties and optimize their calibration and integration into the system. This comprehensive understanding was essential for enhancing sensor performance and ensuring reliable functionality in glove box leak testing applications.

Objectives of the project: Developing an indigenous electronic circuit and data acquisition software for the leak testing of the scientific glove boxes present in the laboratories there.

Tool used: LabVIEW, Arduino UNO and Arduino DUE, 22 Channel Data Acquisition Unit

Details of Papers/patents:NA

Brief description of the working environment: The working environment was highly conducive to research and innovation. My project was part of the Engineering Services Division at the Radiochemistry Laboratory. I had an excellent experience working there, supported by helpful colleagues and mentors who guided me throughout my work. My expectations of the station were met, making it a very positive experience overall.

Academic courses relevant to the project: Electrical Science, Microelectronic Circuits

Learning Outcome: Learnt about Glove Boxes , Leak Testing Methodologies, Data Acquisition Units and software development for it using LabVIEW software.

Name: SHLOKA SHETTY(2022A3PS1138G)

Student Write-up:

PS-I Project Title: Development of a GUI and automation of an Arduino-based autotitrator

Short Summary of work done: A general purpose PC based automated titrator with a Graphical User Interface (GUI) package has been developed to carry out rapid titrations. The GUI of the automated analyser performs among other things (i) precise addition of titrant in volumes of 0.25 μL - 200 μL , (ii) data acquisition from multiple probes (k/pH/mV/temp) and plotting the data, (iii) review of logged data, (iv) superimposition of multiple plots, (v) calibration of probes and calibration of volume dispensed by the stepper motor, and (vi) end point/s detection. Data acquisition from multiple probes and controlling the stepper motor of the linear actuator is achieved using an Arduino interface. The GUI is developed with the open source python language.

Objectives of the project: - To develop a GUI capable of real time plotting as well as plotting old data using Python and associated libraries; - To automate a stepper motor according to user inputs

Tool used: H/w- Arduino UNO, Arduino DUE, specialised ICs for detecting conductivity and temperature, Stepper motor driver, Stepper motor; S/w- VScode, Python, PyQt, Matplotlib, Arduino IDE, MATLAB

Details of Papers/patents:Expected by January 2025

Brief description of the working environment: On a professional front, my experience was really great. I got a project I had no foresight in. My project was based in both electronics and analytical chemistry. In addition, it included dev. Out of these, I was only familiar with the electronics part. I learnt some building principles of analytical chemistry and I learnt dev work from scratch. Kudos to my mentor for trusting me to take this project up. It motivated me to work hard enough to meet his expectations, if not exceed them. On a personal front, I am so grateful to have met so many people from different campuses, and made some really good friends here. I am also lucky enough to have been surrounded by a warm and welcoming staff in the chemical lab at my division- SISD. PS fixed my biological clock and gave more clarity about what I would want to pursue later.

Academic courses relevant to the project: Computer Programming, Control Systems, Electrical Machines, Microprocessor and Programming

Learning Outcome: GUI development, Automation, Serial communication, Stepper motor control

Name: HARSH JAIN(2022A4PS0348G)

Student Write-up:

PS-I Project Title: Optimization of Laser cutting parameters for 10mm stainless steel sheet

Short Summary of work done: Simulation and paper reading

Objectives of the project: Minimize the kerf width

Tool used: Comsol

Details of Papers/patents:na

Brief description of the working environment: Good

Academic courses relevant to the project: Heat transfer thermodynamics fluid mechanics

Learning Outcome: Comsol software and laser cutting

Name: ROHITH GURUDAS .(2022A4PS0874H)

Student Write-up:

PS-I Project Title: Studies in additive manufacturing of the part 'yoke' used in three-piece manipulators

Short Summary of work done: My work was focused on the field of additive manufacturing

Objectives of the project: To suggest a suitable additive manufacturing method to produce yoke

Tool used: ANSYS

Details of Papers/patents:N/A

Brief description of the working environment: Very cooperating mentors, excellent facilities

Academic courses relevant to the project: Additive manufacturing, manufacturing processes

Learning Outcome: Analysis of all major additive manufacturing techniques in context of producing stainless steel components. Developed a new method to produce yoke.

Name: ARYAN RAI .(2022A4PS1175H)

Student Write-up:

PS-I Project Title: Modelling of cavitation/column separation during water hammer to study pressure transient in the water and steam lines

Short Summary of work done: Read research papers , theory books and then understand the problem statement of project and then just apply your basic understanding and the bookish knowledge to solve it. I read several books and research papers and learnt matlab and brush up my C language knowledge and then just apply it all to make a model and make a proper report and presentation which was presented in the seminar in front of panel of scientists then just finish my project.

Objectives of the project: This project presents a comprehensive model for calculating 1D hydraulic transients in liquid-filled piping, focusing on the Water Hammer phenomenon, which can cause significant pressure spikes and drops due to sudden changes in fluid velocity. The primary

Tool used: Matlab, C, ms excel, ms word.

Details of Papers/patents:N.A.

Brief description of the working environment: Working environment is very nice here . You get to learn new things daily like how to read research papers and all . Thinking in a new dimension. Very greenish and quite campus gives such a pleasure to work more and food court and canteens are also very good there with variety of food items with a reasonable price and also outlets where you can get chai and sutta (best place for sutta brakes). Govt buses are free for all people associated to IGCAR. Little bit of a problem with respect to heat and humidity.

Academic courses relevant to the project: Fluid Dynamics and Hydraulic Transients

Learning Outcome: Compilation of theory and converting it into modelling and making a program out of it.
Experience of research field.

Name: YATHARTH JANI .(2022A8PS0587P)

Student Write-up:

PS-I Project Title: Smart Vehicle Management System with analytics (Embedded Systems)

Short Summary of work done: Neural Network was used to run ALPR algorithm, which tagged the number plate to the owner. RFID authentication was done on the other hand and information was sent from RFID board to microcontroller using SPI. Registers of the RFID chip were modified and Embedded C functions were written to run the boards. MCU was connected to a display compatible with Serial Port USB to display authentication information.

Objectives of the project: To develop an automated security system at IGCAR main gate using ALPR and RFID authentication.

Tool used: Python, Jetson Nano GPU, TensorRT, Embedded C, STM32, STM32CubeIDE

Details of Papers/patents:N.A.

Brief description of the working environment: I worked in my mentor's lab itself. Although it wasn't related to the main work at IGCAR which revolves around reactors, his lab was full of top-class equipment and setup. All kinds of electronics equipment one could think of were present there and he was more than ready to let us explore anything. The mentor would stay in the lab most of the times during work hours and hence was highly approachable. He was very passionate about providing the required guidance. He didn't impose very strict working hours, and let us come and leave at any time according to our wish as long as work was being done, still I went every day from 9 to 5 due to his passion towards the work. I learnt a lot not only about the technicalities, but work culture.

Academic courses relevant to the project: CS F111 - Computer Programming
CS/ECE/EEE/INSTR F241 - Microprocessors & Interfacing

Learning Outcome: How to program and configure Jetson Nano, Neural Network deployment, Data transmission through USB and SPI, micro controller programming.

Name: VISSWAAK REDDI THEEPIREDDY .(2022A8PS0820H)

Student Write-up:

PS-I Project Title: Development of web application to generate digital certificates

Short Summary of work done: Development of web application to generate digital certificates

Objectives of the project: Development of a website and desktop application and generate key pair and self signed certificate using a dongle.

Tool used: Html, css, js, nodejs, electronjs, openssl libraries.

Details of Papers/patents:No

Brief description of the working environment: Working environment - great
Hostels- very bad(very humid and no network)

Academic courses relevant to the project: No idea

Learning Outcome: Web dev, app dev, cryptographic operations

Name: JAYANT JAIN .(2022AAPS0216P)

Student Write-up:

PS-I Project Title: Encrypted Communication Protocol for Security Devices

Short Summary of work done: This project involves implementing the Open Supervised Device Protocol (OSDP) to enable secure communication between two devices: a Control Panel (CP) and a Peripheral Device (PD) over an RS-485 communication channel. The protocol operates in an "interrogation/reply" mode where the CP sends commands, and the PD responds. The project focuses on defining packet structures, implementing a set of commands and replies, and testing their communication using STM32 microcontrollers and a logic analyzer. Additionally, the project introduces security features such as AES128 encryption and message authentication. It implements a Secure Channel Session (SCS) for encrypted communication, ensuring data privacy and integrity. The setup was successfully tested, with secure data exchange achieved between the CP and PD, making the system suitable for use in RFID scanners at IGCAR. This work significantly improves the security of the current protocols used in RFID access control systems.

Objectives of the project: The security devices, particularly RFID readers used in access control systems in IGCAR, currently rely on the Wiegand protocol for data

transmission. However, the Wiegand protocol lacks built-in security measures, leaving transmissions vulnerable to i

Tool used: STM32 IDE

Details of Papers/patents:None

Brief description of the working environment: The mentor in IGCAR were highly helpful. My mentor in particular was extremely understanding and used to help me whenever he could. The station was a government facility, which meant no phones or any electronic equipment was allowed inside. The food would be a bit different from North-Indian food. But, nearby restaurants would keep you satisfied.

When the PS started, here was a list of projects to choose from. Each person was given his preferred project, and in case of a clash, the CG was considered to be the deciding factor. An electronics student going to IGCAR, can expect to learn a few of these skills through his project: Machine learning, microcontroller, MATLAB and Simulink software, Arduino, Raspberry pi, PCB design.

Academic courses relevant to the project: Microprocessor and Interfacing(although not much)

Learning Outcome: During my internship, I learnt about microcontrollers, and how to use the HAL library of the STM32 microcontrollers to implement a 2-way communication protocol.

Name: SHASHANK TAMBI .(2022AAPS0458H)

Student Write-up:

PS-I Project Title: Implementation and Testing of LoRa and GSM for autonomous gamma dosage loggers

Short Summary of work done: I had to implement LoRa(Long range) and GSM (Global System of Mobile communication) so that the radiation monitoring data can be transmitted to the main server even from far away monitors easily.

Objectives of the project: Improving and upgrading the radiation monitoring system on campus and outside campus by using transmitters with better range

Tool used: LoRa GSM USR-CAT1 software, PSoC creator, LabVIEW, GM tube

Details of Papers/patents:Na

Brief description of the working environment: Very supportive and liberal work environment. Mentors will guide you very thoroughly about your project and help you in any problems that may come. At the end of your PS you will have some grasp at industrial use of your subjects.

Academic courses relevant to the project: Signals and Systems
C programming

Learning Outcome: Different types of transmitters and receivers
Gamma monitors
PSoC

Name: HARSH JAIN .(2022B1A31098P)

Student Write-up:

PS-I Project Title: Breast Cancer detection from thermal images using deep learning.

Short Summary of work done: Various models such as ResNet, VGG16 and InceptionV3 was trained long with self attention model to train and test the thermal images of the breasts.

Objectives of the project: The project aimed to develop a robust solution that can contribute to the early detection of breast cancer and improve patient outcomes. This goal was carried out using the combination of Thermal infrared images and deep learning

Tool used: Python

Details of Papers/patents:none

Brief description of the working environment: The working environment was good, we were allotted different mentors, and most of them were very distinguished scientists.

Academic courses relevant to the project: None

Learning Outcome: Deep learning, neural networks and cancer detection

Name: AKSHAT SINGH KSHATRIYA .(2022B2A41333P)

Student Write-up:

PS-I Project Title: Filter of RadioFrequency Interference of Doppler Weather Radar Data using various filtering techniques

Short Summary of work done: Firstly we had to correct the azimuth angle of the radar data from the true north and convert the structure of the netcd file from (elevation, azimuth, range_bin) to (latitude,longitude) and then I started with the threshold,median and wiener filtering techniques using python codes and lastly coded for the plotting of the different parameters.

Objectives of the project: To filter out the clutter from the DWR data using threshold,median and wiener filter techniques

Tool used: Mainly Python libraries like netCDF4, numpy, pandas, shutil and matplotlib

Details of Papers/patents: Working with mentor for the possible research paper.

Brief description of the working environment: It was fun experience working with senior scientists and taking their advices for my project. Overall it was a great experience and even I got some competitive peers who always pushed me up in my lows. It was far more better than my expectations and Great learning experience the programming language I was not able to start to learn in campus, I did it in 2months at PS station so upskilled myself and very happy from the PS station and would also recommend it to my juniors.

Academic courses relevant to the project: It was complete so I had to learn from the scratch and it came under the physics dept so I had to go through some physics concepts in the beginning.

Learning Outcome: Python, Marshall Palmer Equations

Name: ADITYA RAJ .(2022B2A41583P)

Student Write-up:

PS-I Project Title: Numerical simulation of time dependent activity of in-vivo monitors

Short Summary of work done: Working on this project was an invaluable experience, allowing me to collaborate with some of the brightest minds in India and contribute to research that will significantly impact the radiological assessment of individuals in the future. Due to hardware restrictions in my HASL lab at IGCAR, my mentor advised me to work from the IRMF lab located in Anupuram. The IRMF lab provided greater flexibility as there were no restrictions on using phones or laptops, which greatly enhanced my productivity. I worked in both labs depending on my mentor's availability, which allowed me to adapt to different working environments. Initially, I developed a Human Respiratory Tract Model (HRTM) and a biokinetic model of Cs-137 using MATLAB. After successfully combining the two models, I modeled a standing whole body monitor (SWBM) using FLUKA and Monte Carlo N-Particle (MCNP) simulations. These simulations were crucial for evaluating the detection efficiency of different organs, providing a comprehensive understanding of how Cs-137 is retained and interacts within the human body. This work not only advanced my technical skills in MATLAB, FLUKA, and MCNP but also deepened my understanding of radiological protection principles. Overall, the project provided a significant boost to my work speed and problem-solving abilities, preparing me for future scientific and professional challenges.

Objectives of the project: The objective of this project is to develop a comprehensive Human Respiratory Tract Model (HRTM) combined with the ICRP blood biokinetic model to simulate and study the retention and distribution of radionuclides, specifically Cs-137, within the human body.

Tool used: MATLAB software, FLUKA, Flair, MCNP, Python.

Details of Papers/patents: The work was done under no disclosure agreement.

Brief description of the working environment: The people at both IGCAR and Anupuram were incredibly helpful, ensuring that the language barrier did not affect our workflow. They were kind enough to teach me a few Tamil words and phrases, which made communication easier and enriched my experience. I was able to use my mobile phone and laptop whenever I worked at the IRMF lab, which greatly facilitated my work. The interiors of IGCAR are stunning, and even without the use of a phone, I never felt bored while working there.

My mentor and I have decided to publish my work after validating the results, which is an exciting prospect and a testament to the quality of the research. She has also generously promised to provide me with a Letter of Recommendation (LOR) if I ever need it in the future. This opportunity has not only advanced my professional skills but also

strengthened my connections with experts in the field, which will undoubtedly be valuable as I progress in my career.

Academic courses relevant to the project: PHY F343, CHEM F244

Learning Outcome: Through this project, I gained a comprehensive understanding of the behavior and retention of radionuclides, particularly Cs-137, within the human body by integrating the Human Respiratory Tract Model (HRTM) with the ICRP blood biokinetic model. I developed skills in applying biokinetic models to simulate radionuclide distribution and learned to use Monte Carlo N-Particle (MCNP) simulations to evaluate energy values for photopeak and Compton peaks. This allowed me to accurately assess radiation detection efficiency in various organs. Additionally, I honed technical skills in MATLAB and MCNP, crucial for model development and data analysis. The project enhanced my understanding of radiological protection principles, contributing to effective in-vivo monitoring programs at IGCAR. Overall, this experience improved my problem-solving abilities, research methodology, and communication skills.

Name: RUSHIL SHAH(2022B3A31189G)

Student Write-up:

PS-I Project Title: Design And Development of GUI for Universal Multi Channel Analyzer

Short Summary of work done: I have developed a user-friendly graphical interface to identify leaking nuclides from a reactor. The process involves using a High-Purity Germanium (HPGe) detector, known for its high resolution, to take readings. These readings are then processed by a Multi-Channel Analyzer (MCA), which converts the data into a histogram. The task is to analyze this histogram to identify the leaking nuclide. To enhance the analysis, the interface incorporates various features such as peak detection and peak analysis. Peak detection helps in pinpointing the exact location of the peaks in the histogram, which correspond to the energy levels of the detected nuclides. Peak analysis provides detailed information about these peaks, including their height, width, and area, which are crucial for accurate nuclide identification. Additionally, the interface allows users to count different peaks and compare them against known standards. This comparison is essential for determining the specific nuclide that is leaking. By integrating these advanced features, the software not only simplifies the identification process but also improves accuracy and efficiency. Overall, this graphical interface is designed to be intuitive and user-friendly, making it accessible to operators with varying levels of expertise. It streamlines the workflow, reduces the potential for human error, and ensures

timely identification of leaking nuclides, thereby enhancing the safety and reliability of reactor operations.

Objectives of the project: Development of GUI

Tool used: Spyder Software, Python With PyQt framework and different libraries

Details of Papers/patents: This is completely new software but here is the source of the algorithm which I used.

1. Ryan, C.G., Clayton, E., Griffin, W.L., Sie, S.H., Cousens, D.R.: SNIP, a statistics-sensitive background treatment for the quantitative analysis of PIXE spectra in ge

Brief description of the working environment: The main IGCAR Centre offers an excellent working environment that emphasizes discipline and professional growth. The experience teaches you how to manage work stress and meet deadlines effectively, instilling a sense of time management and productivity. However, the accommodations provided by IGCAR officials was difficult for me to cope with. Adjusting to this environment requires significant effort, especially for those who are not familiar with the local language.

Academic courses relevant to the project: Computer Programming (DL/ML) related any courses

DD, MuE For electrical Students

Matlab/Simulink for mech students

Learning Outcome: Learning and practicing python coding

Name: PRITEN RATHORE .(2022B3AA0690H)

Student Write-up:

PS-I Project Title: Development of non-stationary kernels in Gaussian Process Regression for the time series prediction of non-linear trending data.

Short Summary of work done: Fusion of capacitance and ESR data into a single Unified Health Indicator (UHI) data. Built a Gaussian Process regression model to predict the breakdown of AECs which follow a non-linear trend. I also developed a kernel in gpr to accurately and precisely predict the remaining useful life (RUL) of capacitors.

Objectives of the project: Development of a non-stationary kernel in Gaussian Process Regression to predict non-linear trending data for aluminium electrolytic capacitors

Tool used: Spyder, jupyter notebook, GitHub

Details of Papers/patents:None

Brief description of the working environment: The working environment was great, except for the hostel we got, there was no AC.

Academic courses relevant to the project: Machine Learning

Learning Outcome: Gaussian Process Regression, Time Series analysis and prediction for non-linear data.

Name: THILAK S.(2022B4A40771P)

Student Write-up:

PS-I Project Title: Dynamic analysis of the tube locator module (TLM) for optimal path trajectory

Short Summary of work done: A kinematic model was developed using the Denavit-Hartenberg algorithm, while the dynamic model was developed using the Lagrange technique. The project integrates extensive Python coding, utilizing libraries such as pygame, matplotlib, numpy, and scipy. The methodologies encompass kinematic simulations, dynamic equation formulation, and the implementation of optimal control strategies.

Objectives of the project: To achieve optimal path trajectories in robotic inspection systems, especially in the 2 axis steam generator (SG) inspection systems

Tool used: Python

Details of Papers/patents:Project Overview: The project involves analyzing and enhancing the Tube Locator Module (TLM) for augmented path trajectory in robotic systems.

Systems Studied: PFBR Steam Generator Inspection System (PSGIS), 2-axis robotic manipulators, SCARA and PUMA ro

Brief description of the working environment: During my PS-I at the Reactor Health and Safety (RHS) department of the Fast Breeder Test Reactor (FBTR) at IGCAR, I experienced a highly professional and research-driven working environment. The expectations from the company were clear: to contribute effectively to ongoing research projects, demonstrate a proactive approach to problem-solving, and collaborate seamlessly with senior researchers and engineers. I learned how to use Python in order to interface our robotic simulations.

Academic courses relevant to the project: KDM (Kinematics Dynamics Machinery)

Learning Outcome: I learnt how to make use of kinematics and dynamics concepts along with the mathematical formulations, which further have to be implemented in the robotic manipulator.

Name: SIDDHARTH KHARE .(2022B4A81314P)

Student Write-up:

PS-I Project Title: Design and development of Data Acquisition System and electronic circuit for drop calorimeter

Short Summary of work done: The project required gaining proficiency in the LabVIEW simulation environment, a user-friendly graphical programming platform that integrates seamlessly with hardware and measurement systems. The software was meticulously developed in accordance with the user's specifications. After the initial development phase, the system was demonstrated to the user, during which feedback was gathered. This feedback included the request for several additional features to be integrated into the system. To ensure reliability and accuracy, the entire system, including the electrometer, was rigorously tested using a constant DC source. The system performed smoothly, meeting all operational expectations. One of the notable capabilities of the developed software is its ability to conduct advanced statistical and mathematical calculations on the data in real-time. This feature significantly enhances post-processing and quantitative analysis of the samples, providing the user with valuable insights and comprehensive analysis results.

Objectives of the project: To develop a robust and reliable Data Acquisition System capable of gathering and pre-processing the signal as well as the required post-processing and analysis, along with Electronic Circuit for Drop Calorimeter.

Tool used: LabView 16.0

Details of Papers/patents:Not applicable

Brief description of the working environment: The working environment was relaxed and friendly, and the ECIS team were very cooperative and helpful. My mentor was understanding, and quite skilled at management. I got familiar with using the Labview graphical development environment and single-channel Data Acquisition Hardware. I also learned valuable communication skills since the project involved interaction with other departments and understanding their needs and requirements for the software. The experience also helped me develop a strong work ethic.

Academic courses relevant to the project: My project mostly involved software development on labview, as such not too connected to an academic course. Microelectronic circuits, may be somewhat relevant to the hardware aspects of the project.

Learning Outcome: Got familiar with the Labview graphical development environment and Data acquisition hardware

Name: KALAPALA JOE ADAMS .(2022B4AA0967H)

Student Write-up:

PS-I Project Title: Dynamic Analysis of Tube Locator Module for Optimal Path Trajectory

Short Summary of work done: Learnt topics in robotics and implemented them in python to run simulations. Learnt numerical solutions and state space representations of differential equations. Learnt PID control implementation and MPC controls design.

Objectives of the project: To develop and fine tune a kinematic algorithm that tracks and controls motor outputs to produce disciplined motion in a two axis planar manipulator.

Tool used: Base Python and libraries such as Pygame, Scipy and Numpy

Details of Papers/patents:NA

Brief description of the working environment: The environment was healthy, with a freedom to talk to personnel from other departments, allowing for the students to seek advice/assistance from department heads. Mentors were very understanding and sympathetic to the inexperience of the interns without being too relaxed all together.

Academic courses relevant to the project: Linear Algebra, Ordinary Differential Equations

Learning Outcome: Basics of robotics - forward and inverse kinematics, DH-parameters, Jacobian generating column vectors, PID controls

Name: DEEPTHA .(2022B5A30761P)

Student Write-up:

PS-I Project Title: Generation of high pressure using diamond anvil cell and studying the bulk properties of Silicon under pressure

Short Summary of work done: Familiarised myself with xrd machine and diamond anvil cell, learnt how to use origin, fit2d, fityk, nbs and powderCell

Objectives of the project: How to use XRD machine and diamond anvil cell and understand the behaviour of silicon under pressure

Tool used: origin, fit2d, fityk, nbs and powderCell

Details of Papers/patents:None

Brief description of the working environment: Familiarised myself with xrd machine and diamond anvil cell, learnt how to use origin, fit2d, fityk, nbs and powderCell

Academic courses relevant to the project: Solid state

Learning Outcome: Familiarised myself with xrd machine and diamond anvil cell, learnt how to use origin, fit2d, fityk, nbs and powderCell

Name: PRATYUSH SEN .(2022B5A40770P)

Student Write-up:

PS-I Project Title: Rainfall Analysis using DWR Data

Short Summary of work done: My study demonstrated a relationship between reflectivity and rainfall rate based on the Marshall Palmer . It was specific to Kalpakkam region . The estimation was successful giving only 10 % error

Objectives of the project: Estimate Rainfall in real time using reflectivity of microwaves

Tool used: Python Libraries: NetCDF , Pandas, Numpy, Matplotlib

Details of Papers/patents:None

Brief description of the working environment: I learned leadership and people management skills along with core statistics concepts and data analysis using python

Academic courses relevant to the project: Data Science

Learning Outcome: Data Analysis and Statistics

Name: VISHWANATH REDDY ALLA .(2022B5A81117H)

Student Write-up:

PS-I Project Title: Optical trapping and laser beam shaping using a spatial light modulator.

Short Summary of work done: My project is about optical tweezers. A tightly focused laser beam is capable of trapping the particle in a 3 dimensional space and that trap is called as optical trap. The project involves the studying about optical traps and trapping the particle and calculating the force acting on the particle along with the effects of different parameters on the trapped particle.

Objectives of the project: Objective is to study about optical trapping and calculate the force acting on the trapped particle along with manipulation of optical traps using laser beam shaping.

Tool used: Majorly origin to analyse the data of trapped particle, and fiji(image processing software).)

Details of Papers/patents: There are many papers available on optical trapping just search in google.

Brief description of the working environment: In terms of working environment everything is fine, it's a government organisation. Project are very good I think igcar has some of the best projects available in whole PS1 stations.
P.s: phones are not allowed into the ps station.

Academic courses relevant to the project: Mine is a complete physics based project, major useful courses were Optics, EMT 1.

Learning Outcome: You will understand about optical tweezers and it's applications and what are the modern methods available to create holographic optical tweezers.

Name: SUHANI BHATIA(2022B5A81156G)

Student Write-up:

PS-I Project Title: Design, simulation, and analysis of MEMS power harvester

Short Summary of work done: Various energy harvesting technologies such as solar, thermoelectric, wind, RF, radioactive, and piezoelectric systems were explored in detail. Piezoelectric energy harvesting was chosen for its efficiency in converting mechanical strain into electrical energy under specific environmental conditions. Ran a detailed examination of cantilever-based piezoelectric sensors, covering fabrication methods, structural configurations, and techniques for converting mechanical deformation into electrical output. Simulation and virtual prototyping using IntelliSuite software were employed to optimise operational parameters and maximise power output. Theoretical results were further validated through simulation results. Future work includes physical fabrication of the device and conduction of real-time tests to validate existing results and enhance performance.

Objectives of the project: To design a suitable cantilever beam for piezoelectric energy harvesting, conducting simulations to find the optimal operating conditions, and virtual fabrication of the sensor

Tool used: IntelliSuite, 3D Builder, ThermoElectroMechanical module

Details of Papers/patents:none

Brief description of the working environment: Decent work environment. Phones, and other electronics aren't allowed inside the campus. Mentors are very significant, most of them are helpful. Good opportunity and exposure, specially for electronics domain. We had a very informative nuclear reactor visit.
Living conditions are bad. Food, weather, network issues are hard to deal with.

Academic courses relevant to the project: basic physics and electronics

Learning Outcome: MEMS technology, working of a piezoelectric sensor, simulations on IntelliSuite software

Name: JASH HITESH KARANI .(2022B5AA0726P)

Student Write-up:

PS-I Project Title: Generation of Single and Entangled Photons, Optimizing Quantum Key Distribution, and Investigating Pancharatnam-Berry Phase

Short Summary of work done: I began my work in linear optics, focusing on interferometry experiments. This led me to delve into polarization studies, particularly exploring the Pancharatnam-Berry phase. I investigated the geometric phase acquired when transitioning between different states along distinct paths. During this phase, I developed an algorithm that utilizes a simple digital camera to study interference fringes, providing a cost-effective alternative to expensive scientific cameras. Following this, my focus shifted to optimizing quantum key distribution (QKD) systems. Our team successfully enhanced the efficiency of QKD, enabling the transfer of more bits per second. This work involved refining various aspects of the QKD system to improve its overall performance and security.

Objectives of the project: Designing setups for pancharatnam berry phase measurements and optimizing quantum key distribution systems

Tool used: Hardware: Arduino , renu PLC, solenoids , photodiodes, laser, optics.
Software: python, c , c++, origin, labview

Details of Papers/patents: Planning to publish a paper on pancharatnam berry phase and quantum key distribution

Brief description of the working environment: During my PS-I, I worked in a dynamic and collaborative environment, primarily focused on quantum key distribution and related technologies. The workspace was well-equipped with advanced tools such as programmable logic controllers (PLCs), solenoids, photodiodes, and various sensors. Despite being a physics lab, the environment was highly interdisciplinary, necessitating the procurement and integration of electronic components from different sources.

Expectations from the company included strict adherence to project deadlines, active participation in problem-solving, and a willingness to adapt to new challenges. The company emphasized teamwork and proactive communication, particularly during unexpected situations, such as when our engineer fell ill, requiring us to independently source components. The importance of precision and reliability in our experimental setups was paramount, reflecting the high standards expected in both the development and testing phases.

Throughout my time here, I gained extensive hands-on experience with both hardware and software components, enhancing my understanding of quantum protocols, particularly the BB84. I learned to establish and troubleshoot serial communication over Ethernet, optimize the performance of solenoids, and design test PCBs. The process of testing and modifying photodiodes and photoresistors to accurately detect bits in a quantum system was particularly enlightening.

Additionally, the opportunity to present our progress and receive feedback in seminars fostered a deeper understanding of project management and effective communication. Overall, my PS-I experience has been immensely educational, equipping me with practical skills and insights into the intricate workings of quantum key distribution systems and the collaborative effort required to innovate in this field.

Academic courses relevant to the project: Optics, Quantum Info and Computing, EMT

Learning Outcome: Working with a team, developing a scientific approach towards experimental physics, learning about geometric phase and optimization of finding the pancharatnam phase, and learning about quantum key distribution.

Name: SREEKAR CHIVUKULA .(2022B5AA0961H)

Student Write-up:

PS-I Project Title: Surface mount resistors as thermoluminescence retrospective dosimeters

Short Summary of work done: In case of any accidental radiation exposure or any nuclear attack, there is an immediate need to estimate the amount of dose (radiation induced on a material) irradiated on individuals and population present in that zone. In most of the latest technology, SMD are used in electronic circuits. These include mobile phones, portable computers, USB, mouse etc. Each and every one of these components have SMD resistors on them. These electronic components are carried by everyone. Therefore, by estimating the amount of dose present in these SMD resistors, one can estimate the amount of dose absorbed by humans as these electronic components are carried in close proximity. By knowing the dose present, necessary medical treatment can be done.

Objectives of the project: To check the feasibility of SMD resistors as a potential use as retrospective dosimeters

Tool used: Riso TL-OSL DA-20 reader, SMD resistors(100 ohm- 100 kohm)

Details of Papers/patents: I am publishing a paper from IGCAR under Ms. Madhusmita panda (SO/D) and Annalakshmi.

Brief description of the working environment: I have thoroughly enjoyed the tenure in IGCAR. The scientific officers, the staff, everyone was really helpful. The lab technicians know a lot about the apparatus. Though kalpakkam gets rough during summer, you will get used to it after 15-20 days. You can expect a lot from IGCAR like research papers, letter of recommendation, letter of appreciation, certificate of excellence etc. Try to work as much as you can and explore other projects as well. It will be really helpful for your CV.

Academic courses relevant to the project: All your respective CDC's should be helpful depending on your project

Learning Outcome: SMD can be used as retrospective dosimeters

PS-I station: Indium Software Pvt. Ltd., Chennai

Student

Name: SRICHANDRA LOLLA .(2022A7PS0051H)

Student Write-up:

PS-I Project Title: Designing a Basic Library Management System

Short Summary of work done: The development of the Library Management System (LMS) has been an insightful and rewarding experience, integrating robust software engineering principles with practical application. Leveraging technologies such as Flask, Python, MySQL, and HTML/CSS, we created a comprehensive system addressing the multifaceted needs of library management. Our LMS streamlines the management of library resources, simplifying user authentication, book borrowing, returning, and adding, while ensuring efficient role-based access control. The system's architecture and design were meticulously planned to ensure scalability, maintainability, and ease of use. Throughout development, we faced and overcame challenges from database management intricacies to ensuring a seamless user interface. These challenges provided valuable learning experiences, enhancing our problem-solving skills and deepening our understanding of application development. The successful implementation of the LMS underscores the effectiveness of our chosen technologies and the collaborative efforts of the team. This project not only fulfills its objectives but also sets a solid foundation for future enhancements and scalability to adapt to evolving library needs. In conclusion, the LMS project exemplifies the practical application of modern software development techniques and highlights the importance of comprehensive planning, teamwork, and continuous learning in achieving project success. We are confident that the LMS will significantly benefit libraries by reducing administrative burdens and enhancing the overall user experience.

Objectives of the project: To deepen our understanding in the Software development process through Designing a Web Application of Library management system through the use of various Frontend and Backend Frameworks

Tool used: Backend Development - Python, Flask, MySQL DBMS ; Frontend - Jinja(used with HTML), HTML and CSS

Details of Papers/patents: The Project Report: <https://docs.google.com/document/d/1Xlb2rPsqp03puFHAw5FnIAHk1TafMdqfShAjZ4v6N6U/edit?usp=sharing>

Brief description of the working environment: The project was conducted at Indium Software Private Limited in Chennai, as part of the Practice School-I program of BITS Pilani. The working environment was collaborative, with regular meetings involving both the project group and mentors. The company provided guidance through Ms. Vaishali Balaji (AI/ML lead and project mentor) and Ms. Gayathri Jayaraman (Associate Project Manager), who offered encouragement and valuable feedback throughout the project. Expectations from the company included developing a functional Library Management System using modern technologies and software practices. The project aimed to streamline library operations, enhance user experience, and implement secure user authentication and role-based access control.

Learning during PS-I was extensive and multifaceted. Technical skills were gained in Python, Flask, MySQL, and frontend development (HTML/CSS). Project management skills were honed through efficient workflow management and collaboration. Problem-solving abilities were enhanced through debugging, testing, and adapting to challenges. Security practices were learned, including implementing user authentication and data protection. Software engineering principles such as scalability, maintainability, and documentation were also emphasized.

The experience provided practical application of theoretical knowledge, improving proficiency in full-stack development, and underscoring the importance of collaborative problem-solving and adaptable project management in creating robust, user-friendly applications.

Academic courses relevant to the project: DSA, OOPS, DBMS

Learning Outcome: My Learning Experiences:

Technical Skills:

Python and Flask: Gained proficiency in using Python for backend development and Flask for creating web applications and in general. This included setting up routes, handling requests, working with blueprints and integrating with MySQL for data storage.

Database Management: Improved understanding of relational database management, particularly with MySQL as we worked with several tools like MySQL Workbench etc. Learned to design and implement database schemas, write SQL queries, and manage data integrity, along with the use of Triggers, Stored Procedures and Indexes.

Frontend Development: Enhanced skills in HTML/CSS for creating user interfaces. Emphasized the importance of responsive design and user experience. (UI/UX)

Project Management:

Workflow Management: Learned the importance of dividing the project into phases and sub divisions, such as core development and role-specific feature implementation. This structured approach helped in managing time and resources efficiently.

Collaboration: Improved teamwork and communication skills by working collaboratively with peers and supervisors. This included regular meetings including both within the group and the Project mentors, progress updates, and addressing feedback constructively.

Problem-Solving:

Debugging and Testing: Developed the ability to troubleshoot and debug issues effectively. Learned various testing methodologies to ensure the reliability and performance of the application.

Adaptability: Faced and overcame challenges related to integrating different technologies and handling unexpected issues during development. This experience underscored the importance of being adaptable and resourceful.

Security Practices:

User Authentication: Implemented secure authentication mechanisms using bcrypt for password hashing. Learned about role-based access control to ensure appropriate permissions for different user roles.

Data Protection: Gained insights into protecting user data through encryption and secure coding practices.

Software Engineering Principles:

Scalability and Maintainability: Understood the importance of writing clean, modular, and maintainable code. Adopted Object-Oriented Programming (OOP) principles to ensure the system could be easily extended and maintained in the future.

Documentation: Recognized the value of thorough documentation for both code and project processes. This included creating detailed reports and maintaining clear records of development decisions and changes.

Name: MAHESH PAPPU .(2022A7PS0142H)

Student Write-up:

PS-I Project Title: Grocery Ordering App

Short Summary of work done: First month for the upskilling for the requirements. Second month started working on the project and initially completed the backend part and at the end added frontend using HTML

Objectives of the project: Build a grocery ordering webapp using Flask, Python, SQL

Tool used: Flask, MySQL

Details of Papers/patents: NA

Brief description of the working environment: Working together as a team

Academic courses relevant to the project: CS F213 OOP , CS F212 DBMS

Learning Outcome: Flask, MySQL, Database connections , Python

Name: ARNAV MANGLA(2022A7PS0244G)

Student Write-up:

PS-I Project Title: WebApp Development using Python and SQL

Short Summary of work done: After the project assignment, we worked on drawing up the UML diagram for the required classes for the Bill Sharing App (like Splitwise), and then worked on creating the ER diagrams and the database design. Post that, we worked on the code using Python and also built the persistence tier using MySQL. The actual project work was only for two to three weeks which limited our ability to fully develop and test our solution

Objectives of the project: Build the python backend for a bill sharing app, including a persistence tier using SQL

Tool used: Python, MySQL, GitHub, Lucid Chart, MS Whiteboard, VS Code, Pycharm

Details of Papers/patents:NA

Brief description of the working environment: The work environment was not conducive to learning.

Academic courses relevant to the project: Database Systems, Object Oriented Programming

Learning Outcome: Backend Development, OOP, SQL

Name: SRAVANI BOBBA(2022A7PS1166G)

Student Write-up:

PS-I Project Title: Bill-Sharing App

Short Summary of work done: Made a UML diagram, ER diagram, and basic classes

Objectives of the project: Developing backend of a bill-sharing app like Splitwise

Tool used: SQL, Python

Details of Papers/patents:None

Brief description of the working environment: Very low expectations and pressure, work timings not consistently expected. We were asked to create just the backend of the app, and did so over the period of 1 month.

Academic courses relevant to the project: DBS, OOPs

Learning Outcome: Python and SQL practical experience, testing and debugging

Name: AADIT VAIBHAV SHAH .(2022B3A70612P)

Student Write-up:

PS-I Project Title: Building a Library Management App

Short Summary of work done: It started with the upskilling process,the basics of python,oop,SQL,flask and some other frameworks,then we implemented that knowledge to build a library management system

Objectives of the project: To build a re time, comparehensive LMS

Tool used: Python and SQL

Details of Papers/patents:NA

Brief description of the working environment: I felt there was a bit of information gap,but overall the mentors were polite and help you.

Academic courses relevant to the project: OOP, DBMS

Learning Outcome: App building,OOP database management

Name: DIVYANSH NEMA .(2022B3A71281H)

Student Write-up:

PS-I Project Title: Bill sharing app

Short Summary of work done: Backend app using python oops concepts and SQL under company mentor.

Objectives of the project: Bill splitting app mainly backend using python, sql

Tool used: Python OOPS SQL

Details of Papers/patents:None

Brief description of the working environment: Not very hard, supporting mentors to guide and provide resources to learn skills.

Academic courses relevant to the project: Basic oops, sql

Learning Outcome: Python, OOPS, SQL, flask

PS-I station: Indovision Services Private Limited, New Delhi

Student

Name: GUPTESH RANJAN SAHOO .(2022A2PS1067P)

Student Write-up:

PS-I Project Title: Human resource management system

Short Summary of work done: We designed and Developed a Dual Employee/HR portal for a company's HRMS, enabling ease in handling of employee details by HRs..

Objectives of the project: Developing website portal for Human resource management

Tool used: Xampp, Sublime, Git

Details of Papers/patents:N.A

Brief description of the working environment: Cooperative Mentors but, Due to lack of previous knowledge and sufficient time the work becomes tasking towards end..

Academic courses relevant to the project: DBMS, Computer Programming

Learning Outcome: Increased Understanding of HTML,CSS,Php along Website designing and Deploying

Name: ARYAN ARORA .(2022A7PS0110P)

Student Write-up:

PS-I Project Title: Work force management system (WFMS)

Short Summary of work done: The foundation of this internship report lies in the immersive and enlightening Full Stack Web Development training undertaken on Practice School 1. Over the course of 8 weeks, the program delved into an array of essential technologies, equipping me with a robust skill set crucial for modern web development. The training covered a spectrum of tools and languages, including but not limited to HTML, CSS, JavaScript, Bootstrap, DBMS (Database Management System), and React. This diverse curriculum laid the groundwork for a comprehensive understanding of both frontend and backend development, providing a solid foundation for practical application in real-world projects. 2. Objective of the Internship: The primary objective of this internship was to translate theoretical knowledge gained from the Practice School 1 training into practical skills. Through hands-on experience, the aim was to deepen my understanding of web development concepts, enhance proficiency in utilizing various technologies, and gain insights into the collaborative nature of software development. The overarching goal was to bridge the gap between theoretical concepts and their practical implementation, fostering a holistic approach to Full Stack Web Development. 3. Scope and Limitation 3.1 Scope: The scope of this internship encompassed the application of learned skills in a professional setting, emphasizing the development of real-world projects. Projects ranged from simple static websites to dynamic web applications, allowing for the practical application of HTML, CSS, JavaScript, Bootstrap, DBMS, and React. 3.2 Limitations: While the internship provided a hands-on learning experience, certain limitations were inherent. The time constraint of 8 weeks limited the depth to which

certain advanced topics could be explored. Additionally, the scope of projects was confined to the context of the training program, which may not fully mirror the complexities of largescale industry projects. Despite these limitations, the internship aimed to maximize learning within the given framework. In essence, this introduction sets the stage for a detailed exploration of the internship experience, delineating the foundational knowledge acquired, the objectives set forth, and the boundaries within which the internship unfolded. It serves as a precursor to the subsequent sections, which delve into the technologies mastered, projects undertaken, and restrictions on the overall learning journey

Objectives of the project: To create a web application called work force management system to increase corporate efficiency in a company and assist in various management tasks.

Tool used: Html css , JavaScript, vs code, php, sql

Details of Papers/patents:Na

Brief description of the working environment: Since it is online, working environment was my place only.

Academic courses relevant to the project: Database management system course came in handy during the project.

Learning Outcome: JavaScript,html,css,php

Name: AMAN KIRITKUMAR PATEL .(2022A7PS0152P)

Student Write-up:

PS-I Project Title: HRMS(Human Resource Management System)

Short Summary of work done: We implemented an end-to-end HRMS software widely used by every company for managing their daily routines and use-cases and keeping a track of the statistics of various features like leaves, attendance , payroll management and meetings schedule. We started with the designing part of software and making the prototype in figma. Then we evaluated the complete architecture flow and database designing using MySQL localhost server. After that we continued on writing codes for frontend using HTML, CSS, Bootstrap, Javascript and backend code using pHp. Our software includes dashboards for both employees as well as HR to manage their

workflows and accordingly group their work and be updated in an easy and seamless manner.

Objectives of the project: The complete end-to-end software for daily applications and use cases for the HR team of any company.

Tool used: Designing - Figma, Canva, MySQL(pHpMyadmin) for database. Frontend-HTML, CSS, Bootstrap, Javascript. Backend - pHp.

Details of Papers/patents:No.

Brief description of the working environment: It was a very nice workflow for every day , dividing the work among our project group and there used to be a meeting everyday with the mentor from company in afternoon to update him about the work which have been done and ask any doubts or difficulties we're facing.

Academic courses relevant to the project: Database Management, Object Oriented Programming

Learning Outcome: The software design flow, making architecture and database designing. The complete backend implementation in pHp.

Name: [SHOBHIT JHA .\(2022A8PS1805H\)](#)

Student Write-up:

PS-I Project Title: Workforce Management System

Short Summary of work done: Ours was a web development Project. We initially crated our design in figma, then created its frontend using html and css. Created its backend in php and connected it with its database in sql. Some of the features of our project included marking attendance of various employees, applying for vacant roles, assigning of tasks etc. It was a CRUD project basically.

Objectives of the project: Create a wfms capable of handling operational needs of an organisation

Tool used: Figma, Sublime text editor, xampp control panel, html, css, php, sql, Git, Github

Details of Papers/patents:NA

Brief description of the working environment: We used to have online meetings everyday from monday to friday from 3 pm to 4pm. Sir taught us everything, (although for better grasping you might want to learn from youtube). He also used to clarify doubts and provide necessary feedbacks. You could work with your own pace, there was no pressure as such from the company. Overall a good station, would definitely recommend.

Academic courses relevant to the project: DBMS

Learning Outcome: Php, Sql

Name: PRAKHAR MITTAL .(2022B3A70426P)

Student Write-up:

PS-I Project Title: Workforce Management system

Short Summary of work done: Created a software for handling operations management of any corporation. The project was handled with professional standards, from prototyping to final documentation. In the end a full stack web development project was created

Objectives of the project: To create a modular web application

Tool used: HTML, CSS, JavaScript, PHP, SQL, GIT, Figma

Details of Papers/patents:None

Brief description of the working environment: The work environment of the station was very welcoming of beginners, work was expected to be done on time but ample resources and support was given to learn new technologies and overcome challenges.

Academic courses relevant to the project: Computer Programming, Object Oriented Programming, Database Management Systems

Learning Outcome: Learnt basics of full stack web development

Name: NANDINI BANKA .(2022B4A70592P)

Student Write-up:

PS-I Project Title: Network Management System

Short Summary of work done: During PS-1, I undertook the complete process of designing and developing a website. I started by creating the website design in Figma, focusing on a user-friendly and aesthetically pleasing layout that aligned with the project's objectives. Once the design was finalized, I developed flow diagrams to map out the user journey and ensure a seamless experience. I also finalized the details of the SQL tables, ensuring they were efficiently linked to support the website's functionality and data management needs. Next, I moved on to the development phase, where I built the website using a combination of HTML, PHP, CSS, and SQL. To handle the backend and database integration, I utilized XAMPP on a localhost server, enabling me to test and refine the site in a controlled environment. This hands-on experience allowed me to apply my technical skills in web development and database management, culminating in a functional, well-designed website.

Objectives of the project: Creating a functioning website for a hypothetical network management system

Tool used: Xampp, SQL, PHP, HTML

Details of Papers/patents:NA

Brief description of the working environment: During my PS-I, I worked in a dynamic and collaborative environment that encouraged hands-on learning and practical application of skills. The company provided a supportive atmosphere where I could explore new technologies and methodologies. This experience taught me the importance of time management, attention to detail, and the ability to quickly adapt to new challenges. I gained valuable insights into the entire web development process, including design principles, backend integration, and database management. Additionally, I learned to work with development tools like Figma, XAMPP, and various coding languages such as HTML, PHP, CSS, and SQL. The internship also emphasized the significance of clear communication and teamwork, as I had to regularly update my supervisors and collaborate with peers to ensure project success. Overall, PS-I was a crucial learning experience that enhanced both my technical and soft skills.

Academic courses relevant to the project: NA

Learning Outcome: Learned how to use various softwares like Figma, HTML, SQL, and create a basic websites

Name: RACHIT BANSAL .(2022B5A71642H)

Student Write-up:

PS-I Project Title: Human Resource Management System

Short Summary of work done: Work on building a website for efficiently managing employees at the firm which can track their attendance,leaves,project,meetings,payroll and performance.

Objectives of the project: To build both HR portal and employee portal for human resource management website for tracking leaves and attendance,scheduling meetings and notices,keeping record of projects,payroll and performance of employees.

Tool used: HTML,CSS,Javascript,Php,Bootstrap,MySQL,Phpmyadmin

Details of Papers/patents:N.A.

Brief description of the working environment: Working environment was pretty good.

Academic courses relevant to the project: DBMS,Basic Computer Programming

Learning Outcome: HTML,CSS,Javascript,Php,Bootstrap,Mysql,Phpmyadmin

PS-I station: Infinite Analytics - Non Tech, Mumbai

Student

Name: NAYONIKA SHRIVASTAVA .(2022B3A70582H)

Student Write-up:

PS-I Project Title: Social Media management and Growth strategies

Short Summary of work done: It was basic digital marketing. Optimising and strategizing campaigns for the company. You can check out Sherlock AI social media platforms the #insights101 and case studies are designed by us. A lot of mockup databases are created by us, which they used to create tutorials on YouTube and for their client demos. I didn't do it but a few of my peers also completely revolutionised their web page to a more cohesive and attractive one. We tracked impressions and reach of each of our posts, determined the audience, their reactions etc to come up with next steps.. A good add up for probably people trying to get into consulting. Technically the experience wasn't as enriching though.

Objectives of the project: Enhance performace metrics, brand awareness and coverting marketing leads to sales for the company. And a bit of trivial work as of analysing and creating databases

Tool used: Figma, hubspot.

Details of Papers/patents:#insights101 posts on their pages, case studies

Brief description of the working environment: The company is still a bit chaotic. The meetings were irregular but nonetheless taken seriously. You learn professionalism as much you could expect from your first internship. The projects offered to us were in line with the company's objectives and we felt as if we're actually contributing to the company. It's a good on to go for I shall say. Brainstorming ideas for marketing campaigns for the best part for me. I did expect more but tbh.

Academic courses relevant to the project: There were also a few financial funding projects but they barely needed any core understanding, but FOFA and FM might butter up the way.

Learning Outcome: Learnt to leverage company USP in an appropriate way, how to present a company and to use figma professionally.

Name: YASHRAAJ JATANIA(2022B4A70420G)

Student Write-up:

PS-I Project Title: Data Analysis Projects for Infinite Analytics

Short Summary of work done: I worked on 2 projects: 1) Data analysis of Tata AIG motor insurance, the objective was to generate leads and find target audiences for their sales. This involves analysing their social media ads and posts so as to find potential customers. These are then identified by their POIs (points of interest) or likely places of visit and categorized in the order of priority (most likely to buy motor insurance to least likely). The second project elaborates on the mock up report for fashion retailers in Saks 5th Avenue in Manhattan. This report consists of locations of homes and offices near these stores and includes the visitation data for these stores, latitude and longitude coordinates, addresses, dates of preference, H3 indexes (a geospatial indexing system), visitation data, products sold during the specified time duration, and for homes, a Well-Being Index (WBI). This report is a demonstration of Infinite Analytics' capabilities reveals their proficiency in tracking and analysing consumer behaviour.

Objectives of the project: To use tools for analyzing data and demonstrate proficiency of Infinite Analytics in tracking and analysing consumer behaviour.

Tool used: Microsoft Excel, kepler.gl

Details of Papers/patents: None

Brief description of the working environment: All the mentors I worked with in this duration were very friendly and always ready to help. I also had the opportunity to visit and work at the office in Mumbai and the environment there was conducive to work and productivity. The timings of the meetings were very flexible and were mostly to discuss allocation or progress on our projects. The hands-on experience I gained on data analysis and research, such as the Tata AIG Project has allowed me to apply theoretical knowledge to real-world scenarios, enhancing my problem-solving skills and technical proficiency. The mockup reports I worked on in this duration has given me knowledge on the application of Sherlock AI (the AI software used by Infinite Analytics) and its functions.

Academic courses relevant to the project: Artificial Intelligence, Machine Learning, Data Science

Learning Outcome: I am grateful for the mentorship and guidance provided by my POCs, which has played a key role in my personal and professional development. The hands-on experience I gained on data analysis and research, such as the Tata AIG Project has allowed me to apply theoretical knowledge to real-world scenarios, enhancing my problem-solving skills and technical proficiency. The mockup reports I worked on in this duration has given me knowledge on the application of Sherlock AI (the AI software used by Infinite Analytics) and its functions.

PS-I station: Infinite Analytics - Tech, Mumbai

Student

Name: ANEESH JOSHI .(2022B3A70408H)

Student Write-up:

PS-I Project Title: Web Scraping of Real Estate Data

Short Summary of work done: The task required me to understand the structure of the website Housing.com in terms of how the necessary data is arranged so that I can scrape it. The first task was to scrape URLs of all individual properties (1.2 million +). The properties were sorted according to state, city and property types. The scraping was done by locating the URL in the HTML skeleton of the page and then using BeautifulSoup to extract that element. Once all the URLs were extracted, all the useful data can be found withing the JS script tag in thr JS skeleton of the page and it van be scraped with BeautifulSoup using similar technique.

Objectives of the project: To scrape prices of over 1.2 million properties on sale across the United States

Tool used: Requests and bs4 module

Details of Papers/patents:None

Brief description of the working environment: The working environment was very relaxed and meetings were called only in case of doubts we had. The project allotment took us some time so first 2 weeks of the PS were wasted. There were no strict deadlines as such and emphasis was on learning the concepts and implementing them on your own.

Academic courses relevant to the project: None

Learning Outcome: Getting familiar with Python and some of it's important libraries like Requests, BS4 etc.

PS-I station: Integra Design, New Delhi

Student

Name: ANSHUL GOPAL .(2022A7PS0009H)

Student Write-up:

PS-I Project Title: Interceptor vehicle tracking system

Short Summary of work done: I created a basic website to track and visualize the movements of vehicles within a specified region. The primary goal was to create a user-friendly platform where historical data on vehicle locations could be easily accessed. The outcome of this work is a fully functional web-based interface that allows users to log in and view a map. Users can input a specific date and vehicle ID to retrieve and display the vehicle's route for that day. The system visually represents the vehicle's journey using markers connected by lines on the map, providing a clear and intuitive way to track its movements over time.

Objectives of the project: Create a website to monitor the locations of interceptor vehicles.

Tool used: Nodejs, Postgre SQL, HTML CSS

Details of Papers/patents:-

Brief description of the working environment: Very chill and friendly.

Academic courses relevant to the project: OOPS, DBMS

Learning Outcome: Web development

Name: RHYTHM GARG .(2022B4A41318P)

Student Write-up:

PS-I Project Title: 1.) Advanced Object Detection Model 2.) Alcohol Breath Analyser Blueprint 3.) Folder Viewer Interface

Short Summary of work done: Built an object detection model using opencv from python then made an interface for it using Tkinter. Made blueprint of Alcohol Breath Analyser using Fusion 360 . Also made a Folder interface for better file management usign Python's tkinter library

Objectives of the project: To make a folder interface using python's Tkinter for better management of files , Blueprint of Alcohol breath analyser for future use, and advanced object detection model to detect various objects and their speeds to comprehend traffics

Tool used: Python ,Flask , Fusion 360

Details of Papers/patents:None

Brief description of the working environment: Very good working environment, with helpful mentors and co-workers, office is quite good, and timings are flexible too

Academic courses relevant to the project: None

Learning Outcome: Leart about Opencv and tkinter in Python and Fusion 360

PS-I station: Invezza Technologies Pvt. Ltd, Pune

Student

Name: ISHITA GODANI(2022A7PS0007G)

Student Write-up:

PS-I Project Title: Financial Statement Analysis using GenAI

Short Summary of work done: Learnt GenAI and Machine Learning basics and implemented Python code. Built an end-to-end GenAI application that had RAG & LLM functionalities.

Objectives of the project: End-to-End GenAI Application where one should be able to put 5-6 financial statements and get the Analysis Report in the end.

Tool used: S/W: Python, Streamlit

Details of Papers/patents:-

Brief description of the working environment: Learnt a lot through the internship and industry mentors, about machine learning, deep learning, NLP, LLMs, RAG and building applications to implement these concepts. Offsite corporate environment and experience, daily deliverables to industry mentors and progress tracked.

Academic courses relevant to the project: CS DELs

Learning Outcome: GenAI, Data Analysis, Python, Flask/Streamlit

Name: VARUN LALE(2022A7PS1208G)

Student Write-up:

PS-I Project Title: Financial Data Analysis Chatbot

Short Summary of work done: Worked on an NLP chatbot which analyses financial data and gives insights to the end user. Learnt fundamentals of ML, NLP, Transformers and worked with LLM models through huggingface and utilised Langchain.

Objectives of the project: Creating a Generative AI bot to analyse financial data of companies

Tool used: Varied tools

Details of Papers/patents:NA

Brief description of the working environment: Great working environment, Learnt interpersonal skills, had interactions with various staff members who all gave their personal insights, along with ML NLP fundamentals.

Academic courses relevant to the project: Machine Learning

Learning Outcome: Solid foundation in ML, Generative AI, NLP

PS-I station: Jio Platforms, Hyderabad

Student

Name: ADITYA AGARWAL(2022A7PS0050G)

Student Write-up:

PS-I Project Title: Quality Assurance for Jio Applications

Short Summary of work done: Our main task was to manually find bugs in the Jio applications and document them. We had to perform smoke testing for JioMeet after new versions were released and also created new test scenarios for JioMeet. We also joined the load testing meets of JioMeet. For, JioTranslate, we wrote python scripts to convert english texts to hindi texts and hindi texts to audio files in male hindi voice using ChatGPT and Windows TTS. This was done to automate the testing process of JioTranslate.

Objectives of the project: Testing and finding bugs in JioMeet, JioTranslate and WatchParty(JioCinema)

Tool used: Excel, Python

Details of Papers/patents:NA

Brief description of the working environment: The mentors were very helpful and understanding. There were no strict deadlines for any task.

Academic courses relevant to the project: NA

Learning Outcome: Learnt about the QA process of any product and how it is manually tested to ensure its proper functioning.

Name: SAMEEHAN NIKHIL SAOLAPURKAR.(2022A7PS1359H)

Student Write-up:**PS-I Project Title:** Text Attack in NLP

Short Summary of work done: I was given the task to train different models such as BERT, T5, ELECTRA, etc. for tasks such as classification, RQE, and text summarization. The main focus was on generating adversarial inputs from the given data using text attack recipes. I then had to perform adversarial training and record the improvement in the performance of the model.

Objectives of the project: Explore the text attack library in python, train and evaluate models to detect adversarial attacks.

Tool used: Python, Transformers, TextAttack

Details of Papers/patents: Nil

Brief description of the working environment: Overall, a good PS station. Working hours were flexible, and good quality work was allotted to you.

Academic courses relevant to the project: Nil

Learning Outcome: Training and evaluation of neural networks using the transformers library and generating adversarial inputs from the given data.

Name: M MAHADEVAN .(2022B3A70641H)

Student Write-up:**PS-I Project Title:** Web development basics related to Jio events

Short Summary of work done: We basically had to learn web-development from basics and were given tasks weekly that slowly increased our development capabilities. We started with making a calculator and our final task was to create a clone of an OTT platform similar to that of Jiocinema.

Objectives of the project: To understand the concepts and nuances involved in the making of a website.

Tool used: HTML, CSS, JS

Details of Papers/patents:NA

Brief description of the working environment: Our mentor connected with us on a weekly basis and gave us a task that we were able to complete well within a week. We were also given adequate feedback on our work.

Academic courses relevant to the project: Computer Programming

Learning Outcome: Certain important features and concepts that should be used in order to make any website more user-friendly.

Name: UMAANG DEVANG KHAMBHATI .(2022B3A71339H)

Student Write-up:

PS-I Project Title: Platform Based Recommendation Engine.

Short Summary of work done: My project involved developing and evaluating a platform-based recommendation engine using collaborative filtering techniques. The team implemented various algorithms, including k-Nearest Neighbors (k-NN), Singular Value Decomposition (SVD), Alternating Least Squares (ALS), and Hierarchical Clustering, to predict user preferences and generate recommendations. The project utilized the MovieLens dataset and Python libraries like numpy, pandas, and scikit-learn for data preprocessing, model training, and evaluation. The findings highlighted the effectiveness of collaborative filtering and the potential for hybrid models combining collaborative and content-based filtering to enhance recommendation accuracy. The work also included case studies of recommendation systems used by companies like Starbucks and Spotify to understand real-world applications.

Objectives of the project: To make a user-friendly coupon recommendation engine for MyJio App.

Tool used: Python, NumPy, Pandas, scikit-learn, surprise, datasets from Kaggle.

Details of Papers/patents:None.

Brief description of the working environment: My PS-I at Jio Platforms, Hyderabad, provided a highly collaborative and supportive working environment. The team, including mentors Yogini Naik and Raj Gaurav, played a crucial role in guiding and providing the

necessary resources for the project. The company's expectations were centred around the development and evaluation of a platform-based recommendation engine using advanced machine learning techniques. The project aimed to create personalized recommendation systems that enhance user experience. The supportive environment fostered by Jio RIL and the mentors, along with the structured guidance from the Practice School Division at BITS Pilani, significantly contributed to my learning and professional development in artificial intelligence and data science.

Academic courses relevant to the project: None.

Learning Outcome: The project enhanced technical skills in Python and recommendation system algorithms, while providing practical insights through the implementation and evaluation of a platform-based recommendation engine using collaborative filtering techniques. It also included case studies of major companies' recommendation systems to understand real-world applications.

Name: KISHAN ABIJAY P .(2022A7PS0037H)

Student Write-up:

PS-I Project Title: Basics of Web Development

Short Summary of work done: The goal was to learn enough web development to build a Streaming platform clone. Multiple tasks were given which include building a calculator, signup page, todo list using Angular. The final tasks was to build a Hotstar clone using a framework of our choice for which I used NextJS.

Objectives of the project: To learn enough web development to build a movie streaming app

Tool used: Angular, NextJS

Details of Papers/patents:None

Brief description of the working environment: We had meets once in a week or once in two weeks. We had to show how far we had progressed which include a live demo of the tasks given. The mentor gave us feedback on the work done till then.

Academic courses relevant to the project: OOPS

Learning Outcome: Web Development

Name: YASH PRATAP SINGH(2022A7PS0076G)

Student Write-up:

PS-I Project Title: Building an RAG pipeline

Short Summary of work done: Due to shortage of time we could not complete the initial project, which was to build an RAG pipeline. I was asked to go step by step through the domain of Machine Learning. Was expected to build some basic projects on classification and regression models. Was also expected to learn how a model works in the backend.

Objectives of the project: exploring Machine Learning

Tool used: Jupyter Notebook, Python libraries

Details of Papers/patents: No papers

Brief description of the working environment: The mentors at Jio are very very supportive for the PS1 programme.

Academic courses relevant to the project: ML

Learning Outcome: Basics of Machine Learning

Name: SAMARTH SANJAY LANDE .(2022A7PS0096P)

Student Write-up:

PS-I Project Title: Fine tuning- LLMs

Short Summary of work done: During my internship, I engaged in a variety of tasks that provided hands-on experience and valuable industry insights. I was involved in several key projects that allowed me to apply theoretical knowledge to practical scenarios. My responsibilities included conducting research, analyzing data, and contributing to project reports. I collaborated with team members on tasks such as drafting content, creating presentations, and managing project timelines.

Objectives of the project: How to write code for fine tuning

Tool used: Cohere

Details of Papers/patents:No

Brief description of the working environment: The working environment during an internship was dynamic and supportive, designed to help us integrate smoothly into the team. The atmosphere was inclusive, encouraging open communication and teamwork. Our mentor expected us interns to be proactive, eager to learn, and capable of handling assigned tasks with diligence.

We gained valuable hands-on experience relevant to Machine learning.

Academic courses relevant to the project: Machine Learning, Deep Learning, AI

Learning Outcome: Learning about LLMs, how to fine tune them

Name: MUDIT GUPTA .(2022A7PS0178P)

Student Write-up:

PS-I Project Title: Jio Events: Web Development Basics

Short Summary of work done: Major work was of learning the web development. And then creating a portfolio website

Objectives of the project: Learning web dev

Tool used: Vscode

Details of Papers/patents:-

Brief description of the working environment: -

Academic courses relevant to the project: None

Learning Outcome: Web development basics

Name: PRATYUSH GHOSH .(2022A7PS1292P)

Student Write-up:

PS-I Project Title: XAI HEALTHCARE

Short Summary of work done: During my internship, I spearheaded the development of an advanced multimodal healthcare chatbot, employing a sophisticated ChatGPT-like interface built with Streamlit and LangChain. The chatbot integrates a range of cutting-edge features, including a medical report analyzer powered by EasyOCR, real-time speech recognition and medical audio transcription with Whisper (fine-tuned on specialized medical terms), and an AI voice assistant leveraging Google Speech-to-Text technology. I implemented an ailment diagnosis and medicine analysis component using Gemini Vision and developed a medical data trainer with Hugging Face embeddings, enabling personalized data training and document querying. The application also supports communication in Hindi. Throughout this project, I gained extensive experience in creating vector pipelines, enhancing my expertise in LLMs, computer vision, code refactoring, and version control using Git. Additionally, I deepened my skills in prompt engineering, model quantization, and managing model files with Ollama, alongside refining my abilities in fine-tuning models like LLaMA3 and Whisper. The end result was a highly specialized chatbot designed to effectively assist both patients and healthcare professionals with their healthcare-related queries, streamlining access to vital information and support.

Objectives of the project: Building a Multimodal Healthcare Chatbot

Tool used: Development Tools: Python, Streamlit, Git, Visual Studio Code, Azure, Google Colab; AI Platforms: Hugging Face, Ollama, LangChain, Vertex AI Studio; Vector Search and Databases: Qdrant, MongoDB, Faiss; AI Models: Whisper, Gemini Vision, LLaMA3, Mistral, EasyOCR; Techniques and Concepts: Vector Pipelines, Prompt Engineering, LLM (Large Language Models), Computer Vision, Fine-Tuning, NLP (Natural Language Processing); Additional Tools: Google Translate Text-to-Speech API, Groq API.

Details of Papers/patents:None

Brief description of the working environment: During my internship, I found the working environment to be highly supportive and conducive to growth. My mentors were exceptionally friendly and approachable, creating a welcoming atmosphere that made it easy to seek guidance and feedback. Their deep knowledge and expertise in AI were evident and greatly beneficial. They maintained high expectations and entrusted me with tasks that were both challenging and rewarding. These assignments were instrumental in helping me deepen my understanding of AI and enhance my skills. Overall, the environment fostered both professional and personal development, making the experience highly enriching.

Academic courses relevant to the project: Artificial Intelligence

Learning Outcome: The project provided me with hands-on experience with various platforms, tools, and AI concepts. Key learning outcomes include web development, prompt engineering, fine-tuning, creating vector pipelines, and working with large language models. I gained proficiency in Hugging Face, Ollama, Git, MongoDB, Qdrant, and Streamlit; worked with LLMs and computer vision; fine-tuned Whisper and LLaMA3; utilized LangChain; and built a multimodal chatbot for healthcare. These skills significantly advanced my understanding of AI's practical applications in healthcare, combining various technologies to create a comprehensive medical assistant.

Name: ARYAN GUPTA .(2022B3A70495P)

Student Write-up:

PS-I Project Title: Jio ChargeIT

Short Summary of work done: During my Practice School-I internship at Jio Platforms Hyderabad, I focused on the Jio ChargeIT API Testing project, emphasizing the reliability, functionality, and performance of APIs related to Coupons, Product Families, Plans, and Payments for prepaid subscriptions. My role involved rigorous testing to validate these crucial features of the Jio ChargeIT platform. An API (Application Programming Interface) is a set of defined rules and protocols that allows one software application to interact with another. For example, when you use an app on your phone to check the weather, it communicates with a server via an API to get the latest weather information. For the Coupons feature, I tested the full lifecycle of coupon management, including adding new coupons, updating existing ones, and deleting outdated coupons. I ensured that each API call performed as expected and that the changes were accurately reflected in the system. In the Payments section, my primary focus was on the end-to-end process of purchasing

prepaid subscriptions. I validated the creation of new subscriptions, generating invoices, and ensuring that payment URLs were correctly produced and functional. After successful payment, I verified that the user's subscription status was updated to active and that all associated benefits were applied. Throughout the project, I utilized tools like Azure DevOps for continuous integration and deployment, Docker for consistent testing environments, Swagger UI for interactive API documentation, and POSTMAN for comprehensive API testing. This hands-on experience significantly enhanced my understanding of API testing and software quality assurance, providing me with valuable skills for my future career in technology.

Objectives of the project: APIs for Jio ChargeIT

Tool used: Postman API, Azure DevOps, Swagger UI, Docker, VS Code

Details of Papers/patents:N/A

Brief description of the working environment: The work environment was fast-paced and team-focused, with regular calls and learning sessions that promoted a positive work culture. Mentors and Managers were highly supportive and proactive in helping us. Expectations included hands-on experience with secure software, working on real-world projects, and using industry-standard tools in a large company.

Academic courses relevant to the project: Computer Programming (CS F111)

Learning Outcome: -Agile Workflow and Software Life Cycles

-Execution of APIs

-Backend of Subscription Management Portal

Name: [ATHARVA MANOJ AGRAWAL .\(2022B3A70597P\)](#)

Student Write-up:

PS-I Project Title: JIO ChargeIT API and Software Testing

Short Summary of work done: This report details our project on the Jio ChargeIT API Testing, conducted during our Practice School-I program at Jio Platforms Hyderabad. The primary focus was on ensuring the reliability, functionality, and performance of the Jio ChargeIT APIs. By employing rigorous manual and automated testing techniques, and applying methodologies such as Agile and the Software Testing Life Cycle (STLC), we aimed to identify and resolve issues, thereby enhancing the overall quality and user

experience of the Jio ChargeIT engine. This project provided us with practical insights into the processes involved in API testing within the software development lifecycle, highlighting the critical role of thorough testing in maintaining high standards and delivering superior digital solutions. We utilized a range of tools and technologies, including Azure DevOps for continuous integration and delivery, Docker for containerization, Swagger UI for API documentation, and POSTMAN for comprehensive API testing. The scope of our testing encompassed various features such as Coupons, Plans, Subscriptions, and Payments. The hands-on experience and knowledge gained through this project have equipped us with essential skills for our future careers in technology, emphasizing the importance of software quality and user satisfaction.

Objectives of the project: To check different features of JIO ChargeIT

Tool used: Postman, Jio chargeIT

Details of Papers/patents:None

Brief description of the working environment: It was online through Jiomeets

Academic courses relevant to the project: Not much related

Learning Outcome: API

Software testing

JIO ChargeIT software

Azure Devops working

Postman

Name: SHREYAS GANTAYET .(2022B3A70598P)

Student Write-up:

PS-I Project Title: DAM - Digital Asset Management - Object Detection Models Evaluation

Short Summary of work done: For the first 3 weeks, we were only given a single task. Firstly, we were given a task to verify the labelling of their own “Emotion Detection” model in order to fine tune the model. The verification was to be done for 6000 images by 4 of the students. After finishing, we were then given a “Gesture Detection” model labelling verification task. This was done throughout the entire PS1 along with the other tasks. In

the third week of PS1, we were given a Machine Learning task to fine-tune state of the art object detection models on a custom fashion dataset. I personally trained 5 models for the same purpose namely, YOLOv8, DETR, Conditional DETR, General RCNN and RT-DETR. The common step for all these models was loading the weights of a model pre-trained on the COCO + Objects365 datasets using Resnets as the backbone for feature extraction. We had update meetings everyday for around 15-20 min to update the mentors on our progress the previous day. We had to maintain a github repository documenting all the step to train and evaluate the models. We had to make sure the models were not being overfitted during the training process by keeping a track of the training and validation loss and fine-tune the model hyper-parameters in order to improve the convergence rate or performance of the models. At the end, we compiled a report consisting of the results from each of the models.

Objectives of the project: Finding, setting up, training, testing, evaluating and running inference on state of the art models in order to find the best of the models with respect to fine tuning the models on our custom dataset of fashion.

Tool used: Git, GitHub, VSCode, Google Colab, Pytorch, Tensorflow, Detectron2, Ultralytics, Kaggle, Slack, Google Meet

Details of Papers/patents:N/A

Brief description of the working environment: We had update meetings everyday from 12:00 PM to 12:20 PM (approx) on slack and then on google meets. The mentors were very helpful, responsive, thoughtful and considerate. The guidance was great and we managed to learn a lot from the mentors. They were quick to solve any problems we were having and also apt in responding to any of our queries related to the tasks.

We were expected to label about 100 to 200 images everyday while simultaneously working on the ML Task. Each of the images had on average 6 people to verify, ie it was a 1.5 to 2.5 hours job. The task along with the ML project was difficult to manage time with but it was doable with some planning.

Academic courses relevant to the project: Artificial Intelligence, Machine Learning, Deep Learning

Learning Outcome: CNNs, Deep Learning, Transformer architecture of the Deep Learning Models, preprocessing of data, Model Optimisation, Hyperparameter Tuning, Finetuning models on custom datasets, Transfer Learning

Name: MAYAN VAJANI .(2022B3A70611H)

Student Write-up:

PS-I Project Title: JioEvents-Web Development Basics

Short Summary of work done: We did 3 tasks. First was making calculator web app using HTML, CSS, Js which should have UI similar to desktop calculator and should be functional. Second Task was to make a login and sign up page which we did using Angular and TypeScript. After signing up and logging in it should redirect to profile page which shows all details filled during sign up and shows a profile photo. Third and the final task was making a clone of Hotstar web app.

Objectives of the project: Final objective was to contribute and make some web app like JioEvents or any other OTT platform like Hotstar.

Tool used: Languages like HTML, CSS, JavaScript, TypeScript and Angular Framework.

Details of Papers/patents: None

Brief description of the working environment: There were standup calls or online meets once in a week and our group had to update our Jio mentor about our tasks. Also my mentor was pretty chill he did not give any deadlines for tasks and I did it at my own pace. I learned mostly about web development and got a hands-on experience with the tasks.

Academic courses relevant to the project: No courses are prerequisites for Web development which I had done till now.

Learning Outcome: Learned web development from scratch. Firstly learned Html, Css and JavaScript. Then further learned Angular framework and TypeScript for making Single page application and responsive web app.

Name: DEVANSHU MOTWANI .(2022B3A70631P)

Student Write-up:

PS-I Project Title: ENGAGEMENTS TESTING IN MY JIO APP

Short Summary of work done: Initially we were taught theory about different testing life cycles and after that we were taught about queries, bugs etc and then how to find these

bugs on different pages of the app in comparison to the figma files and there were some apps which were going to be live soon for the general public as well.

Objectives of the project: To test different applications for bugs and report them to the team and classify them as Functional or UI/UX

Tool used: MS EXCEL , FIGMA FILES , JAVA (10 % of the total work for automation testing.

Details of Papers/patents:No papers

Brief description of the working environment: The working environment was good like we were sitting at home since the ps was online and the mentor assigned to us was very cooperative and interactive and she tried to give us something or other for the 1st month. After then once automation part started they didn't put much focus.

Academic courses relevant to the project: General knowledge and OOPS

Learning Outcome: We were able to learn how to perform manual testing and a bit about automation testing as well.

Name: NISHAD KOTKAR(2022B3A70769G)

Student Write-up:

PS-I Project Title: Jioevents - web dev

Short Summary of work done: Built a personal portfolio website

Objectives of the project: Gain skills in web development domain

Tool used: Word , Excel

Details of Papers/patents:-

Brief description of the working environment: Working environment was good.

Academic courses relevant to the project: Computer programming (CS F111)

Learning Outcome: Learnt about different frameworks for the same

Name: RAMADUGU TARUN KUMAR .(2022B3A71606H)

Student Write-up:

PS-I Project Title: AI Matrix - Cohere (Executive AI Assistant)

Short Summary of work done: It was online PS Station. The work allotted was 1 week late. The task given to me were finding open-source databases for LLM, creating an AI Assistant using StreamLit, program to convert Tables to Latex, program to summarize pdfs using models from hugging face, web scraper(developed in stages), CI/CD pipeline using GitHub actions. These all are required steps in the process of building an LLM.

Objectives of the project: The main objective is to develop an AI Assistant which helps in executive decision making for a telecom company. You need to know about natural language processing and about LLMs. It utilizes cohere and techniques like RAG.

Tool used: Python, python Libraries like transformers, pytorch, pandas, numpy, os, requests, bs4 etc , GitHub Actions, Streamlit

Details of Papers/patents:Nil

Brief description of the working environment: The work environment is very nice. There were 4-5 meetings per week about the work progress. You are given time to learn new skills, but the required resources were not shared. Apart from that, the instructor's guidance was good. They clarified my doubts regularly, there by increasing my efficiency.

Academic courses relevant to the project: Nil

Learning Outcome: This was my first step towards AI. I learned about python, different libraries used, and about Generative AI.

Name: SANYAM SANJAY JAIN .(2022B4A70585P)

Student Write-up:

PS-I Project Title: Merge Models - LLMs

Short Summary of work done: Used various known LLMs like Llama and Qwen for merging process to build text summariser on medical dataset and compare the performances of these models

Objectives of the project: Merge various LLMs to build text summariser and compare

Tool used: Python, github

Details of Papers/patents: Nil

Brief description of the working environment: Since it was online, the working environment was flexible. The meets were regular and work was expected to be done. As expected, the mentor was quite helpful and motivating.

Academic courses relevant to the project: Nil

Learning Outcome: Learnt about LLMs and libraries like mergekit

PS-I station: Juvarya Technologies Pvt. Ltd, Visakhapatnam

Student

Name: HEMANTH SAI SANTOSH BENNADA .(2022A1PS1834H)

Student Write-up:

PS-I Project Title: Counting Faces using python and machine learning

Short Summary of work done: My Learning from PS-1: Had a brief exposure to coding culture . I Took part in a Machine Learning project. Also worked on image detection, face recognition using OpenCV. Had a part in working for web scraping. Created Content as a Content Creator.

Objectives of the project: We need to create a bot that recognizes faces apart from other things.

Tool used: Pycharm ,OpenCV

Details of Papers/patents:None

Brief description of the working environment: Mostly supportive environment.

Academic courses relevant to the project: Machine Learning

Learning Outcome: My Learning Goals: 1.Learning Python basics for machine learning. 2.Completing Machine Learning Prerequisites. 3.To have a basic understanding of the coding process by the end of PS-1.

Name: ASHUTOSH SWAIN(2022A7PS1223G)

Student Write-up:

PS-I Project Title: Development in Kovele App

Short Summary of work done: During my PS-I, I undertook a multifaceted project that spanned web scraping, React.js development, graphic design, and social media management, contributing significantly to the development of the Kovele app. Web Scraping: I harnessed my proficiency in Python to extract essential data from various online sources. This data, primarily related to temples, was crucial for building a comprehensive and reliable database for the Kovele app. I employed libraries such as BeautifulSoup and Scrapy to automate data collection, ensuring accuracy and efficiency. This task involved overcoming challenges like handling dynamic web pages and managing large datasets. React.js Development: On the front-end development front, I utilized React.js to create a user-friendly and responsive interface for the Kovele app. My focus was on building reusable components, managing state efficiently, and ensuring seamless user experience. This involved writing clean, modular code and adhering to best practices in web development. Graphic Design: I also contributed to the visual appeal of the Kovele app and its marketing materials. Using tools like Adobe Photoshop and Illustrator, I designed various graphic elements, including logos, banners, and social media posts. These designs were aimed at enhancing the brand identity of Kovele and making the app visually appealing to users. Social Media Management: In addition to development and design, I managed the Kovele app's social media presence. I created and scheduled posts, engaged with the community, and utilized analytics to optimize

content strategy. This involved crafting engaging content, designing visually appealing posts, and analyzing engagement metrics to improve reach and interaction. Overall, my work during PS-I was pivotal in advancing the Kovele app's development and establishing a strong online presence, showcasing my versatility and dedication to the project.

Objectives of the project: To help in making of the app & helping in marketing and creating designs

Tool used: Hardware: Laptop: Used for coding, designing, and managing tasks. External Monitor: For a dual-screen setup, enhancing productivity during development and design tasks. Software: Web Scraping: Python: The primary programming language used for web scraping. BeautifulSoup: A Python library used to parse HTML and XML documents. Scrapy: An open-source and collaborative web crawling framework for Python. Jupyter Notebook: For writing and testing web scraping scripts interactively. React.js Development: Visual Studio Code: The main code editor used for writing React.js code. Node.js: For running JavaScript on the server and installing necessary packages. NPM/Yarn: For managing project dependencies. React Developer Tools: A browser extension for debugging React applications. Graphic Design: Adobe Photoshop: For creating and editing graphics, images, and promotional materials. Adobe Illustrator: For vector graphic design and creating scalable graphics. Canva: For quick and easy design of social media posts and other graphics. Social Media Management: Hootsuite/Buffer: For scheduling and managing social media posts. Instagram/Facebook Insights: For tracking and analyzing engagement metrics. Trello: For planning and organizing social media campaigns and posts. General Development: Git: For version control and collaboration. GitHub: For hosting repositories and managing project collaboration. Slack: For team communication and collaboration. Google Drive: For storing and sharing documents and assets.

Details of Papers/patents: During my PS-I, I did not produce any papers or file any patents.

Brief description of the working environment: During my PS-I, I worked in a dynamic and collaborative environment that fostered both professional growth and personal development. The atmosphere was conducive to learning, with an emphasis on teamwork, innovation, and continuous improvement.

Working Environment: The work setting was a blend of remote and occasional in-person meetings, utilizing tools like Slack for communication and GitHub for version control and project management. Regular team meetings and brainstorming sessions helped ensure alignment on project goals and facilitated the exchange of ideas and feedback. This collaborative environment enabled me to gain insights from experienced team members and contribute effectively to the project.

Expectations from the Company: The company expected a high level of commitment, creativity, and problem-solving ability. My role involved not only technical tasks but also participating in strategy discussions and decision-making processes. The company valued initiative and encouraged exploring new technologies and methodologies to enhance the project's outcomes.

Learning During PS-I: My experience was highly enriching, encompassing several key areas:

Technical Skills: I advanced my proficiency in web scraping using Python, developed a strong understanding of React.js for front-end development, and honed my graphic design skills using Adobe tools.

Project Management: Managing social media campaigns and coordinating design efforts improved my organizational and project management capabilities.

Collaboration and Communication: Working closely with a diverse team enhanced my communication and teamwork skills, crucial for successful project execution.

Problem-Solving: The project presented various challenges, from handling complex web scraping tasks to designing engaging graphics, which I tackled through research, experimentation, and applying best practices.

Overall, the PS-I experience was instrumental in developing a well-rounded skill set, preparing me for future professional endeavors.

Academic courses relevant to the project: DSA, dbms, python

Learning Outcome: Webscraping, react js, graphic designs , social media management

Name: K SAI PRATYUSH PREM KUMAR(2022B2A11628P)

Student Write-up:

PS-I Project Title: Human detection from an image using OpenCV and Python

Short Summary of work done: To create rectangular boxes around human faces in an image

Objectives of the project: To understand the applications of machine learning

Tool used: Python

Details of Papers/patents:None

Brief description of the working environment: Very great

Academic courses relevant to the project: Deep learning, machine learning

Learning Outcome: Work experience

Name: SHREYAS PAWAR .(2022B2A11786H)

Student Write-up:

PS-I Project Title: Apache Kafka Microservices

Short Summary of work done: Design and Develop Kafka Applications: Implement producers and consumers to stream data. Develop data pipelines and integrate Kafka with other data processing tools (e.g., Apache Spark, Flink). Kafka Cluster Management: Set up and configure Kafka brokers, Zookeeper, and other Kafka ecosystem tools. Monitor Kafka clusters for performance, health, and reliability. Scale Kafka infrastructure to handle growing data loads. Data Management: Manage and transform data streams. Ensure data integrity and availability across distributed systems.

Objectives of the project: To set up mock service using Apache Kafka

Tool used: Java, IntelliJ IDEA, Springboot

Details of Papers/patents:no any

Brief description of the working environment: Collaborative Atmosphere:
Work in a team-oriented environment with developers, data engineers, and IT professionals.
Engage in regular meetings and discussions to align on project goals and progress.
Agile Methodology:
Participate in agile processes such as sprints, daily stand-ups, and retrospectives to ensure efficient project management.
Hands-On Experience:
Gain practical experience with Apache Kafka and related technologies in a real-world setting.
Access to development environments and tools necessary for building and testing Kafka applications.

Academic courses relevant to the project: not any

Learning Outcome: Learned how to set up Apache Kafka for mock email service

PS-I station: Kale Logistics Solutions Private Limited, Thane

Student

Name: ROHAN RAN VIJAY .(2022A7PS0067P)

Student Write-up:

PS-I Project Title: EXPLORATION OF LOGISTICAL SOLUTIONS USING GENERATIVE AI

Short Summary of work done: During the PS-1, we completed four key projects: CRUD Application: Developed a web app to manage student records using Flask for the backend, HTML/CSS/JS for the frontend, and Microsoft SQL Server as the database. The app enables efficient data management by allowing users to create, read, update, and delete student information through an intuitive interface. Chatbot for KAITE by Kale Logistics: Integrated a PDF Q&A chatbot into the KAITE website using OpenAI's Language Learning Model (LLM) and LangChain, with Pinecone as the vector database. The chatbot allows users to query and retrieve information from the Employee Handbook, making document-based information more accessible. OCR Project: Utilized Optical Character Recognition (OCR) technology to convert images into structured text formatted in JSON. The goal was to extract key details like contact information and tracking numbers from air waybills, improving data extraction processes. Research Project: Focused on understanding message queues, their functionality, and usage, while comparing them with APIs. The project explored various messaging services and their applications in real-world scenarios. These projects provided hands-on experience in web development, AI integration, data extraction, and message queue technologies.

Objectives of the project: To understand the broad domain of python to create applications such as a chatbot and an ocr application to ease the logistical pressure of the company.

Tool used: Python

Details of Papers/patents:None

Brief description of the working environment: During my internship, the working environment was collaborative and supportive, which made a huge difference in my learning experience. I was placed in a team where everyone was approachable and willing to share their expertise. The learning experience was invaluable. I gained hands-on experience with industry-specific tools and processes, and I learned how to work within a team to solve real problems. It was also a great opportunity to develop soft skills like communication, time management, and how to navigate a professional setting. .

Overall, it was an enriching experience that provided me with practical skills, mentorship, and a deeper understanding of the work culture.

Academic courses relevant to the project: NLP, Data Science

Learning Outcome: Understood the various use cases of python while exploring the GenAI field.

Name: PARUL SRIVASTAVA .(2022A7PS0185P)

Student Write-up:

PS-I Project Title: EXPLORATION OF LOGISTICAL SOLUTIONS USING GENERATIVE AI

Short Summary of work done: We worked on 4 projects including research, development, accuracy checking and implementing for Kale logistics. The first project was a basic project which helped us understand the basic of generative AI which was very helpful for the next project. The chatbot implementation was one of our major projects where we build a chatbot for kale logistics. The third project was optical character recognition which involved converting air waybills received by kale logistics in json/xml formal to be stored in computer. The last project was research and presentation about message queues.

Objectives of the project: To understand the documentations on Generative AI and implement them in real life problems of Kale Logistics

Tool used: Vs code, pinecone, OpenAI, Langchain

Details of Papers/patents:None

Brief description of the working environment: The working environment was good although sometimes there were accommodation issue. Every employee was extremely helpful and treated us like equals.

Academic courses relevant to the project: AI, NLP, OS

Learning Outcome: We learnt how to make a chatbot from scratch, how the frontend of a website is build and how can we host our website in some other website. One more

major outcome: we didn't know anything about OCR but we build it with a better accuracy than some outsourced companies for Kale logistics

Name: ABHISAAR MALHOTRA .(2022ABPS1599P)

Student Write-up:

PS-I Project Title: Management

Short Summary of work done: Involved in working with individuals to make the Port Community System better and understand the port-side market more fluently, also understood the concept of LCCT which deals in helping industries and firms in deal with their problems related to inventory management and giving more visibility about the market for their respective product.

Objectives of the project: To enhance my management skills

Tool used: Microsoft Apps

Details of Papers/patents:None

Brief description of the working environment: The working environment was very lively and I expected to learn something related to my course even though I was doing my internship at an IT company, and at the end I succeeded in doing so as through LCCT which aimed at reducing the inventory management problems of firms and industries, surely interested me in detail.

Academic courses relevant to the project: Operations Management and Supply Chain Management(3-2 subject)

Learning Outcome: Communication skills enhanced, got a good understanding of the logistics supply chain industry and worked with some industry domain experts.

PS-I station: Kapil Group, Hyderabad

Student

Name: DUGYALA HARISH RAO(2022B3AA0486H)

Student Write-up:

PS-I Project Title: Drone Assembly Tracking System

Short Summary of work done: Building dynamic UI with react, develop RESTful APIs with expressjs, nodejs, database design with mongodb, authentication and authorization.

Objectives of the project: Creating a full stack application with MERN for assembly line workers to track components, drones, and warehouse stock levels.

Tool used: React, node, express, mongodb, git, QR scanner

Details of Papers/patents:NA

Brief description of the working environment: We got a private room for 10 interns similar to a small meeting room with centralized AC. Dining hall and infrastructure and ambience was very good.

Academic courses relevant to the project: NA

Learning Outcome: Building dynamic UI with react, develop RESTful APIs with expressjs, nodejs

PS-I station: L&T Energy, Vadodara

Student

Name: KRITI SINGH .(2022A3PS0265P)

Student Write-up:

PS-I Project Title: Video analytics using computer vision

Short Summary of work done: During the internship, we worked on several computer vision projects aimed at enhancing safety and environmental monitoring: 1. **Oil Spillage Detection:** We used Roboflow to annotate a diverse dataset and trained a YOLOv7 model, achieving 85% precision. Hyperparameter tuning was applied to prevent overfitting, enabling real-time spill detection and alerts. 2. **License Plate Detection:** YOLOv7 detected vehicles and license plates. EasyOCR extracted and corrected text, storing the data in CSV files for accurate record-keeping. 3. **Safety Harness Detection:** We developed a system to identify whether workers were wearing safety harnesses in various scenarios, ensuring workplace safety compliance. 4. **Fall Detection:** Using machine learning techniques, we created a system to detect falls in real-time, which is crucial for timely assistance and prevention of injuries. 5. **Crowd Detection:** This project involved counting and analyzing crowd density in different settings, helping manage public safety and event organization. These projects leveraged advanced AI techniques to address practical safety and monitoring challenges, demonstrating the potential of computer vision in real-world applications.

Objectives of the project: To do various use cases of video analytics

Tool used: Yolo v7,yolov8,easyocr,opencv,roboflow,pytorch

Details of Papers/patents:Na

Brief description of the working environment: Working environment is good enough

Academic courses relevant to the project: Machine learning,computer vision

Learning Outcome: The major learning outcome was gaining practical experience in applying advanced computer vision and machine learning techniques to real-world safety and monitoring challenges, enhancing our problem-solving and technical skills. We also learned the importance of data preparation, model training, and evaluation in developing effective AI solutions.

Name: PRANJAL BHARDWAJ .(2022A3PS1858H)

Student Write-up:

PS-I Project Title: Computer vision

Short Summary of work done: Develop computer vision models from scratch. Work also includes annotating datasets,hyperparameter tuning, and collecting data from site.

Objectives of the project: Develop deep learning computer vision models for various use cases.

Tool used: Labelling, Labelme, Roboflow

Details of Papers/patents:None

Brief description of the working environment: No expectations as such, in the first few weeks they tell you all the necessary information and theory related to your project. Staff is supportive.

Academic courses relevant to the project: None

Learning Outcome: Pytorch, deep learning, CNN, OCR, YOLO

Name: ANIKET SINGH(2022A4PS0963G)

Student Write-up:

PS-I Project Title: Advanced Work Packaging

Short Summary of work done: Read about AWP and the analysed its implementation on a live ongoing project

Objectives of the project: To optimise EPC processes

Tool used: Excel, PowerPoint

Details of Papers/patents:None

Brief description of the working environment: Good Infrastructure, Good People

Academic courses relevant to the project: None

Learning Outcome: Learnt the pitfalls in current EPC processes and how to optimise them

Name: NEEL PATEL(2022AAPS0624G)

Student Write-up:

PS-I Project Title: video analytics

Short Summary of work done: In this project, we've created advanced systems using the latest AI models to tackle several important challenges like detecting safety gear, monitoring postures, identifying oil spills, reading number plates, counting crowds, and detecting falls. Each system is built on robust training with carefully curated datasets, ensuring they deliver accurate results where it matters most. For example, our safety gear detection system powered by YOLOv7 excels at spotting harnesses, helmets, and jumpsuits, crucial for workplace safety. Meanwhile, our posture detection system with YOLOv8-pose accurately recognizes human postures, including detecting when someone sits for too long—a key feature for health monitoring and ergonomics. Our oil spill detection system, using U-Net, swiftly identifies and maps affected areas, aiding in quick responses to environmental crises. Additionally, our number plate OCR system combines YOLOv7 and Easy-OCR to track vehicles and read number plates, enhancing security and traffic management. These projects highlight how AI can make a real difference in practical scenarios. Looking ahead, we're dedicated to refining these systems further, exploring new techniques, and integrating the latest advancements to ensure our solutions remain at the forefront of technology. By continually improving and innovating, we aim to provide tools that not only meet current challenges effectively but also pave the way for future breakthroughs in AI applications for safety, environmental protection, and more.

Objectives of the project: To design and optimize machine learning models for safety and monitoring purposes

Tool used: vs code, labellmg, roboflow

Details of Papers/patents:N/A

Brief description of the working environment: It was nice. Mentors were quite supportive

Academic courses relevant to the project: None

Learning Outcome: ML, Roboflow, Deep learning

PS-I station: Lighthouse Energy - Electronics, Toronto

Student

Name: AARYA AMEET AGAVEKAR(2022A3PS0428G)

Student Write-up:

PS-I Project Title: Hardware design

Short Summary of work done: Analysed about 10 research papers throughout the ps-1 and gathered relevant information to develop a literature review

Objectives of the project: Understanding the working of a data centre and exploring ways of decarbonizing it.

Tool used: Blender

Details of Papers/patents:None

Brief description of the working environment: Company officials interacted on a weekly basis and kept a very free learning environment

Academic courses relevant to the project: TRW

Learning Outcome: Analysing research papers and creating reports

Name: HIMANGI AGGARWAL(2022A8PS1146G)

Student Write-up:

PS-I Project Title: Hardware design and innovation strategy

Short Summary of work done: We started with 3D modelling and then progressed to study about bitcoin mining, offering a comparative analysis of the energy systems along with a description about the various components of data centres. We also examined the environmental implications, particularly the decarbonization of data centres, highlighting the importance and methods of achieving sustainable practices within the cryptocurrency mining industry.

Objectives of the project: The project focussed on an extensive study carried out about the bitcoin mining, the various energy systems , decarbonising the data centers.

Tool used: blender, sketchUp

Details of Papers/patents:--

Brief description of the working environment: My PS station was online, so the interactions that I had with my faculty in charge or the company were very professional and helped me work up on my soft skills.

Academic courses relevant to the project: electrical sciences

Learning Outcome: I got to know a lot about bitcoin mining in various aspects. The type of hardware that is used along with other environmental impacts which were discussed in detail.

PS-I station: Lighthouse Energy - Management, Toronto

Student

Name: M S ASWIN(2021B3A71613G)

Student Write-up:

PS-I Project Title: Financials, Accounting , Risk , Data

Short Summary of work done: The first task assigned to us was to go through learning modules which are common and beneficial to any kind of management in general. There were 2 skillshare modules – one on Notion and the other about Strategy. After completing these modules we then had to go on to market research where we had to read several articles and conduct personal research to understand the problem that the firm is trying

to solve and the means through which they are solving the issue. After the market research , we were given the 2023 financial sheets and were asked to analysis and understand all of the various interlinked sheets to get an idea of how a financial model works. After analysing the sheets , we were all assigned particular sheets that we had to work on and make for 2024 , I was assigned the cash flow statement.

Objectives of the project: To create key financial documents in an interlinked financial model and create projections which will then be used for scenario analysis and find out key driving factors in the business.

Tool used: Excel

Details of Papers/patents:nil

Brief description of the working environment: The working environment was great , the timings were flexible and the mentors were amazing. We were given enough time and freedom to conduct our own research about the topic and better understand the domain as it was pretty niche. Guidance was given wherever necessary.

Academic courses relevant to the project: FOFA , Finman

Learning Outcome: Learnt about the fundamental financial documents necessary to build the 3 key financial documents - Balance sheet , Income Statement and Cash flow statement. Learnt how to take reasonable assumptions and create a financial model for a startup using benchmark data of other companies in the same operating domain.

Name: MUSKAN CHANDAK(2022A1PS1481G)

Student Write-up:

PS-I Project Title: Sustainable Bitcoin mining from a Financial Modelling Perspective

Short Summary of work done: Based in Ontario, Canada, Lighthouse Energy Ltd collaborates with wind and solar farms to use surplus renewable energy for Bitcoin mining, sharing some profits with these farms. Bitcoin, a decentralised digital currency, operates on a peer-to-peer network using blockchain technology for secure and transparent transactions. It functions without central authorities, relying on cryptographic proof. Bitcoin mining acts as a flexible load, adjusting power consumption based on electricity availability and cost and participating in ancillary services essential for grid stability. This flexibility reduces the need for grid operators to commit additional

generation units for reliability. Financial modelling, creating a mathematical representation of a company's financial performance, aids decision-making by simulating different scenarios and their economic impacts. As part of my role, I conducted market research, sensitivity and scenario analysis, and projected FY 2024 Operational Expenditure. Corporate Social Responsibility (CSR) and community impact initiatives are crucial for companies like Lighthouse Energy Ltd to build a positive reputation and contribute to sustainable development. I focused on Corporate Social Responsibility (CSR) and community impact approaches, followed by scenario analysis by assuming different percentage allocations of the profit for CSR and their corresponding benefits and costs. The breakeven point of the MVP (Minimum Viable Product) model was determined to find the year for beginning the CSR allocation. Revenue expansion possibilities include DePINS (Decentralized Physical Infrastructure Networks), DeFi (Decentralized Finance) opportunities, various remote data services, mining node services, and BTC mining as virtual energy storage. The project concluded with a seed-style deck and an article detailing the findings, including MVP Breakeven, CSR allocations and potential revenue streams.

Objectives of the project: Using financial modelling for making projections of financial statements for following 3 years, Finding Breakeven of the MVP(Minimum Viable Product Model),Allocating a % of the operating income(EBIT) to CSR and doing scenario analysis of various % allocat

Tool used: Notion(productivity software), Monday.com (work management platform) , Google slides, Google sheets

Details of Papers/patents:Not Applicable

Brief description of the working environment: During my internship at Lighthouse Energy Ltd., I experienced a dynamic and collaborative working environment where teamwork and open communication were highly valued. The company expected proactive engagement, high-quality deliverables, and innovative thinking from its interns. I utilised my analytical skills in financial modelling, market research, sensitivity analysis, and scenario analysis to contribute to various projects. A significant part of my role involved estimating the breakeven point of the MVP model and exploring approaches to corporate social responsibility (CSR). This included initiatives such as providing Microgrid certifications, STEM education support, infrastructure projects for marginalised communities, and carbon offset programs. I also identified potential revenue expansion opportunities like DePINS, DeFi, remote data services, mining node services, and BTC mining as virtual energy storage. The internship offered extensive learning opportunities, enhancing my skills in financial analysis, strategic thinking, market research, and presentation delivery. Through this experience, I gained a robust foundation in financial analysis, financial modelling, CSR, forecasting (revenues, expenses, breakeven) and revenue expansion strategies, preparing me for future roles in the finance, management and consulting domains.

Academic courses relevant to the project: Fundamentals of Finance and Accounting (prerequisite)
Business Communication, Business Analysis and Valuation (non-prerequisites but they will help)

Learning Outcome: Financial Modelling, Forecasting revenues & expenses, breakeven calculation using graphs, stats, charts

Name: ARVIND ANNAMALAI(2022B3A70581P)

Student Write-up:

PS-I Project Title: Financial Modelling Intern

Short Summary of work done: Learnt how to perform modelling. I developed a Revenue Sharing Model , between the company (involved in Bitcoin Mining) and partnering Wind Farms. Apart from this I also worked on the Balance Sheet of the company

Objectives of the project: The goal of this project is to develop comprehensive financial models and a data room to support VC fundraising for the MVP. This includes preparing financial documentation, feasibility analysis, and site development plans, along with identifying supply c

Tool used: Excel , Monday.com , Slack , Timecamp

Details of Papers/patents:PayPal Research Paper on Sustainable Bitcoin Mining

Brief description of the working environment: It was remote working mode . Flexible Timings

Academic courses relevant to the project: ECON F212 - Fundamentals of Finance and Accounting

Learning Outcome: Financial Modelling
Finance and Accounting
Time management
Professional Etiquette

Name: EKANSH SINGH .(2022B4A70632P)

Student Write-up:

PS-I Project Title: Financial Modelling and Market Research

Short Summary of work done: Started by getting familiar with tools such as notion for the daily work. Did market research to understand the problems in society to be addressed by the organization. Understood the various financial reports of the organization. Helped create the income statement. Generated an ARR report for the future years.

Objectives of the project: Understand the market and the problem the organisation wishes to target and create financial documents for future of the company.

Tool used: Notion, Excel

Details of Papers/patents:-

Brief description of the working environment: Online PS, no pressure of deadlines, easily manageable work.

Academic courses relevant to the project: -

Learning Outcome: Understanding different components of financial modelling and the market analysis for curtailed energy in north america.

PS-I station: Loft Of Space - Tech, Jaipur

Student

Name: SRINADHU SARAT CHANDRA .(2022A7PS0183P)

Student Write-up:

PS-I Project Title: App development

Short Summary of work done: It was a great experience, we were given tasks and a deadline to complete them, we used to have a meet daily with our mentor, he used to assign us work and clarify doubts during the meet.

Objectives of the project: To create an app having user friendly features

Tool used: None

Details of Papers/patents:None

Brief description of the working environment: Working environment was very friendly, there was no pressure and hard deadlines, we were given enough time to do the work.

Academic courses relevant to the project: None

Learning Outcome: Figma, flutter, dart programming language

PS-I station: MD Enterprises Global, MI

Student

Name: ABHINAV SAI YEKKALI .(2022A7PS0012H)

Student Write-up:

PS-I Project Title: Website Enhancement and Ai-Powered Facial Recognition

Short Summary of work done: This project involved designing and developing a comprehensive website for MD Enterprises Global. The focus was on enhancing user engagement, improving performance, ensuring accessibility, and optimizing SEO. Key tasks included creating a clean and minimalist UI/UX design, implementing responsive design principles, optimizing images and code for better performance, and integrating SEO strategies to improve online visibility. Accessibility features were also incorporated to ensure the website was usable by all users. The website was developed using HTML5, CSS3 , and other modern web development frameworks, with version control managed through Git. This project focused on developing an AI-based face recognition system for

identity verification. A Siamese network model was employed to accurately distinguish between different individuals based on their facial features. The system was trained using a diverse dataset, augmented to increase variability and improve generalization. The project included developing and fine-tuning the model, integrating it with existing applications through APIs, and designing a user-friendly interface for both administrators and end-users. The software development utilized tools such as OpenCV, TensorFlow/Keras, and Python.

Objectives of the project: Build a new website for the company and a face recognition AI

Tool used: Figma, Canva, Html, CSS, Git, python,jupyter notebook

Details of Papers/patents:We referred to this research paper on Siamese Neural Networks for One-shot Image Recognition for face recognition using AI.

Brief description of the working environment: It was good .We had review meet everyday.

Academic courses relevant to the project: OOPS

Learning Outcome: Performance Optimization Techniques, SEO Best Practices ,Advanced Machine Learning Techniques, Model Training and Evaluation.

Name: MANDADAPU ISKRA .(2022AAPS0351H)

Student Write-up:

PS-I Project Title: 1)Improving and updating the company website 2)Development of an audio classification system

Short Summary of work done: 1)Designed and coded the corresponding website according to the requirements of the company. 2)Designed an audio classification system that could recognize the voices of individuals using artificial neural networks

Objectives of the project: 1)To update the current website of the company with new design and layout 2)To develop a system that is able to classify the audio using artificial neural networks.

Tool used: Figma, HTML, CSS, GitHub, Jupyter notebook, Google colab, Basic python

Details of Papers/patents:-

Brief description of the working environment: -

Academic courses relevant to the project: -

Learning Outcome: 1) Frontend development and designing the basic UI of a website
2) Usage of the neural networks for audio classification

Name: SHIVARAMAKRISHNA KARTHIKEYAN .(2022AAPS0457H)

Student Write-up:

PS-I Project Title: Developing IOS MVP Apps Using Swift

Short Summary of work done: The project involved developing several key applications and enhancing a website for MD Enterprises Global. The primary objectives included converting old Objective-C apps to Swift, developing MVP iOS apps, creating client-specific app versions, and improving website design and user experience. Key applications developed included the Vittam FinTech app, which utilized voice and face recognition for authentication, the MyYatra app for passenger authentication at airports, and the MeeSeva app for government services. These apps incorporated advanced frameworks like SwiftUI, AVAudio, and AVCapture to enhance functionality. Additionally, the driving license app streamlined the update process using biometric authentication. The project also focused on converting existing Objective-C code to Swift, which is faster, safer, and easier to maintain. The conversion aimed to improve performance and leverage modern language features. The team successfully completed the UI for the Vittam FinTech app, ensuring a secure and private user experience. For the MyYatra app, a fully functional MVP with complete UI and workflow was developed, pending backend integration. The MeeSeva app demonstrated authentication, action selection, and payment simulation using SwiftUI, showcasing its versatility. Overall, the project achieved its goals of enhancing security, user experience, and app functionality. The team gained valuable insights into user-centric design, clear content, SEO strategies, and effective project management. Through collaboration and timely task completion, the project delivered innovative solutions that leveraged modern technologies to meet the client's needs.

Objectives of the project: Enhance the website's design and user experience. Implement authentication and privacy measures. Ensure responsive design for various

devices. Optimize for search engines (SEO). Develop MVP iOS apps using Swift. Convert old Objective-C apps to Swift. Crea

Tool used: HTML5;CSS3;Visual Studio Code;Canva;Figma;XCode;Swift

Details of Papers/patents:Nil

Brief description of the working environment: Working Environment

The working environment at MD Enterprises Global was collaborative and dynamic, fostering a culture of innovation and continuous learning. The team provided a supportive atmosphere with regular feedback and guidance from mentors, ensuring that interns were well-integrated and their contributions valued.

Expectations from the Company

MD Enterprises Global expected interns to take initiative in project tasks, demonstrate proficiency in Swift and Objective-C, and deliver high-quality work within set deadlines. The company valued clear communication, problem-solving skills, and the ability to work both independently and as part of a team.

Learning During PS-I Project

During the PS-I project, interns gained hands-on experience in developing iOS applications using Swift and SwiftUI. They learned about advanced frameworks like AVFoundation for audiovisual media and implemented features such as biometric authentication, dark mode, and responsive design. The project also provided insights into SEO strategies, user-centric design, and the importance of maintaining clear, concise content. Overall, the experience enhanced their technical skills and understanding of modern app development practices .

Academic courses relevant to the project: CS F111 COMPUTER PROGRAMMING
CS F213 OBJECT ORIENTED PROG
CS F212 DATABASE SYSTEMS

Learning Outcome: Developed MVP iOS apps using Swift, integrating advanced biometric authentication for secure user experiences.

Improved MDEG's website with enhanced design, user experience, and functionality.

Demonstrated SwiftUI's capabilities in building complex, user-friendly applications.

Gained insights into user-centric design, clear content, and effective SEO strategies.

Led a team, ensuring timely task completion and collaboration .

Name: AVANEESH POTHURI .(2022AAPS1548H)

Student Write-up:

PS-I Project Title: Improving and updating the company web site ; AI-POWERED FACIAL RECOGNITION FOR SECURE APP LOGIN

Short Summary of work done: During PS-I, I worked on two main projects: face recognition and website development. For the face recognition project, I developed a neural network model to identify individuals based on their facial features. The goal was to integrate this system into an iOS app for seamless face biometric verification. We utilized AWS Rekognition to enhance the accuracy and reliability of our system. In the website development project, we focused on creating a modern, user-friendly company website. Using HTML5 and CSS3 for the front end, we ensured the site was visually appealing and functional. We conducted rigorous testing for cross-browser compatibility and performance optimization. This project significantly improved the company's digital presence, enhancing user engagement and experience. Overall, these projects provided valuable hands-on experience in machine learning, mobile app development, and web development.

Objectives of the project: The objectives of the project are to develop a reliable face identification system with improved accuracy and to seamlessly integrate it into an iOS app using AWS Rekognition. Additionally, the project aims to enhance the user experience by providing a us

Tool used: Python, TensorFlow/Keras, AWS Rekognition, OpenCV, HTML, CSS, JavaScript, Git, Canva, Figma

Details of Papers/patents:-

Brief description of the working environment: During my time at PS-I, I was part of a collaborative and dynamic working environment that encouraged innovation and problem-solving. Our main task was to deliver a reliable face recognition system integrated into an iOS app and develop a user-friendly, modern website. This experience allowed me to gain practical knowledge in machine learning with neural networks, mobile app development, and web development using HTML5, CSS3, and JavaScript. Additionally, I learned to use AWS Rekognition for advanced face detection and Git for effective version control and collaboration.

Academic courses relevant to the project: -

Learning Outcome: This project has provided several significant learning outcomes. Firstly, we gained practical experience in developing a face identification system using neural networks, enhancing our understanding of machine learning and deep learning concepts. Secondly, we learned how to integrate biometric systems into mobile applications, specifically iOS, which improved our skills in mobile app development. Thirdly, by utilizing AWS Rekognition, we acquired knowledge in leveraging cloud-based APIs for face detection and recognition. Additionally, we improved our project management and teamwork abilities by collaborating effectively to meet project objectives

and deadlines. Lastly, we developed a deeper appreciation for the importance of user experience design in creating efficient and user-friendly biometric solutions.

Name: LOKESH LAKSHMINARAYANAN .(2022B4A71618H)

Student Write-up:

PS-I Project Title: DEVELOPING IOS MVP APPS IN SWIFT

Short Summary of work done: we created new iOS MVP apps for the company, one is a mobile application and another is a kiosk software .We also converted company's old app code with future proof new code, in addition we fixed few audio glitches and enhanced the existing apps.

Objectives of the project: To develop prototype apps for company's patented technology.

Tool used: Xcode, Figma, GitHub.

Details of Papers/patents:none

Brief description of the working environment: Both PS1 faculty and mentor were constantly guiding us . We had review meeting every day where our mentor and ps1 faculty reviews our work . From this PS-1 , I learnt the foundations to become an iOS app developer.

Academic courses relevant to the project: Object oriented programming, functional programming , iOS app programming.

Learning Outcome: iOS App development .

PS-I station: Metacube Software Pvt. Ltd., Jaipur

Student

Name: UJJAWAL MANOCHA .(2022B4A70804P)

Student Write-up:

PS-I Project Title: NER using JP Morgan Annual Report 2023

Short Summary of work done: We started by learning about the basics of Python and familiarised ourselves with various collaborative tools such as JIRA and bitbucket. We spend the first 5 weeks learning pandas and numpy and exploring resources related to web scrapping and ner. Then we explored the documentation of various modules like NLTK and SpaCy and wrote a python script to extract data from a pdf , perform NER using these models and print out the sentences in which most frequent entities occur and saved the data in a excel file.

Objectives of the project: Learn the basics of Python and write a script to extract data from a pdf file and perform NER using various libraries and compare these on the basis of speed and accuracy.

Tool used: JIRA , Bitbucket, GIT , Python , Pandas , Numpy , SpaCy , NLTK , Huggingface

Details of Papers/patents:NA

Brief description of the working environment: Better then expected. We were not treated like 2nd year students and were given proper work like any other 4th year intern at the company. The work was professional and there was ample time given to understand the tasks to be performed.

We were provided with our own cubicle to work and a mentor regularly checked our progress whether online or in person.

The location of the office is also great. It is located in a quiet place with few industries and has a large campus with a ground , tt table , 2 cafeterias etc.

Academic courses relevant to the project: Computer Programming

Learning Outcome: Completed kaggle course on Python and Pandas. Learned and successfully performed NER suitable for working with any pdf.

PS-I station: Mind Inventory, Ahmedabad

Student

Name: SHAM PATEL .(2022A4PS0772H)

Student Write-up:

PS-I Project Title: HR Management

Short Summary of work done: My job involved management, preparing speeches for job recruitment, preparing job profiles, conducting various surveys and to review the hierarchy of the company to suggest restructuring if required.

Objectives of the project: Job Recruitment Process, Company Hierarchy Study

Tool used: Google Forms, Google Slides, Google Docs, Lucidchart, Creately

Details of Papers/patents:N/A

Brief description of the working environment: Working Environment was very friendly and accommodating. The company successfully exposed me to the expected experiences and taught me real life working of certain management situations.

Academic courses relevant to the project: Principles of Management, Human Resources

Learning Outcome: Understanding Recruitment Process

PS-I station: MobileMSK LLC, St. Cloud MN

Student

Name: RANA KASHYAP CHITRANG .(2022A3PS0448P)

Student Write-up:

PS-I Project Title: AI-Chatbot for Health insurance policy comparison Minnesota

Short Summary of work done:

Objectives of the project: Building an ai tool to compare different health insurance policy

Tool used: Google colab , Kaggle , botpress, imagica ai, android studio

Details of Papers/patents:No papers

Brief description of the working environment: One of the best

Academic courses relevant to the project: Data Mining, AI,ML, Data science related subjects

Learning Outcome: get to work on different LLM models Fine tuning

Name: PARTH SUDAN .(2022A7PS0177P)

Student Write-up:

PS-I Project Title: AI-enabled chatbot for health insurance education and policy comparison

Short Summary of work done: Developed a chatbot based on finetuned Llama 2 LLM and using ChromaDB to allow document question answering on insurance data.

Objectives of the project: Develop a proof of concept for a chatbot for health insurance question answering and policy comparison

Tool used: Python, Google Colab, ChromaDB, Pytorch

Details of Papers/patents:N/A

Brief description of the working environment: weekly stand-up meetings for progress updates, minimal oversight on project planning/design/implementation.

Academic courses relevant to the project: NLP, DL

Learning Outcome: Working with open source LLMs, LLM finetuning, vector databases

Name: GARV GUPTA(2022A7PS0207G)

Student Write-up:

PS-I Project Title: AI-enabled chatbot for health insurance education and policy comparison

Short Summary of work done: First we learned web development, website automation and git. Then we were given assignments on them to test our understanding. After this we were divided into projects. I first learned about nlp and llms and how to use huggingface api. Then we tried fine tuning multiple models on a synthetic database and evaluating them to choose which model to work with. Then I found datasets to train on. And finally I trained the model on the datasets. After this we worked on adding pdf uploading and parsing, and training on documents, by adding to database of information. Finally worked on a web design for the project.

Objectives of the project: Go create a chatbot to help guide users in the financial side of there medical treatments and consultations.

Tool used: Python, hugginggace api

Details of Papers/patents:.

Brief description of the working environment: We were expected to show are working every week and present all the work, and ask the doubts or resources the we needed. We also had daily meets with the FIC, who set the expectations high, but at the same time was helpful and guided us when we needed something. We were expected to do a lot of work, and we did.

Academic courses relevant to the project: NIP, GEN AI.

Learning Outcome: LLMs, model fine tuning, frontend development, python

Name: ABHINIVESH MITRA .(2022A7PS1311H)

Student Write-up:

PS-I Project Title: An Interactive SBC Document Analyser using AI

Short Summary of work done: We finetuned GPT-2 open source LLM. We trained it on SBC documents in question answer format. It can take pdfs as input and generates correct answers explaining the document in simple words.

Objectives of the project: To create an AI pdf analyzer for insurance documents

Tool used: HuggingFace library, NLP libraries such as Spacy

Details of Papers/patents:none

Brief description of the working environment: It was an online PS we had weekly standups with the founder of the company. There were no fixed working hours. We were expected to complete the tasks in a timely manner. We worked in groups of 4 and had to present our work every week. We learnt presentation skills as well as technical skills such as ML & NLP.

Academic courses relevant to the project: NONE

Learning Outcome: AI, NLP

Name: PARTH JAYANANDAN(2022B4A70588G)

Student Write-up:

PS-I Project Title: Asana AI:A real-time pose detection model

Short Summary of work done: So, Our project was to develop an AI model which would in real time detect a human and his/her pose and at the same time display a set of various yoga (back-pain) related poses for the end user to follow.

Objectives of the project: To Develop a model which uses Object Tracking/Classification for the healthcare industry pertaining to companies needs

Tool used: Yolov8 model,Neural Network module,Flask,Jango,Javascript,Github(for storage),Hugging face for publishing the website.

Details of Papers/patents:NA

Brief description of the working environment: The working environment was good , the company owner was kind and gentle , he gave us weekly tasks and allowed us the freedom of completing at anytime before the deadline,every week there use to be at least a single fixed stand-up meet which was Wednesday morning 8am,apart from that there were other meets as well for various purposes, we were not expected to know anything from before , the company sent us resources in the beginning to create a string base.

Academic courses relevant to the project: AI,Machine Learning,Web Development

Learning Outcome: Pose Detection Models,Object Tracking/Classification,Front-end connection using Flask and Backend using Javascript,integration of neural networks

PS-I station: Multigraphics Group - EV and Automotive, Delhi

Student

Name: ARNAV VERMA(2022A3PS0184G)

Student Write-up:

PS-I Project Title: Ev and automotive

Short Summary of work done: A list of projects we had were- how EV's are build and how they work. It's components and there costs. Competitor analysis of our company. A presentation about battery specifications and terms related to its usage. Hands on testing of a new EV scooter

Objectives of the project: To learn about the market of EV sector and about the basics of Electric vehicles

Tool used: --

Details of Papers/patents:--

Brief description of the working environment: It was nice , the company wanted us to learn from there, they were supportive.

Academic courses relevant to the project: Ess(energy storage systems)

Learning Outcome: I learnt how competitor analysis is done in real market , also how electric vehicles work. A valuable addition I learnt was marketing

PS-I station: Multigraphics Group - Non Tech, Delhi

Student

Name: VIDHI JAIN .(2022A1PS1353P)

Student Write-up:

PS-I Project Title: Product manager

Short Summary of work done: Report making , launch of EVs

Objectives of the project: Overlook the manage the launch of EVs

Tool used: Microsoft suite, canva , figma ,

Details of Papers/patents:Made multiple reports for the company

Brief description of the working environment: Not that good work environment

Academic courses relevant to the project: ES

Learning Outcome: Learnt about EVs and their batteries

Name: HEMENDRA NARAIN GUPTA .(2022A5PS1462P)

Student Write-up:

PS-I Project Title: Creation of Question Paper Management System

Short Summary of work done: During my internship at Multigraphics Group, I Worked as Business Analyst role and a Developer role in the company. We developed a Question Paper Management System as a team that could generate several sets of question papers automatically in a matter of seconds. Teachers could generate, organize, and maintain a large number of questions using the website's inbuilt Question Bank. To Enhance the security of the system, I developed a 2 Factor authentication system to avoid any malpractices. I was responsible for creating detailed documentation for the QPMS. This included documenting both functional and non-functional requirements, and creating detailed wireframes and mockups using the snipping tool to illustrate user interfaces. The documentation will help the developers build the website in accordance with the specifications provided by the client.

Objectives of the project: The Question Paper Management System (QPMS) is a comprehensive software solution designed to enhance the creation, management, and distribution of examination papers within educational institutions. It will reduce the time required to create the question p

Tool used: Laravel, Snipping Tool, Google Analytics, Figma Wireframe

Details of Papers/patents: N.A.

Brief description of the working environment: At Multi Graphics Group, there was a lively and encouraging work atmosphere, and the mentors provided opportunities for learning and were highly supportive. A strong dedication to professional development is one of the company's expectations. I had the chance to work on the creation and documentation of a Question Paper Management System (QPMS) during my internship. This required building the system using the Laravel and PHP frameworks. I also used the snipping tool for visual documentation to create comprehensive documentation, which included functional specifications, wireframes, mockups, and process flow diagrams, and developed a lot of technical proficiency with Laravel, PHP, and documentation tools during this experience. My ability to gather requirements, analyze them, solve problems, and pay close attention to detail has improved my analytical skills. Maintaining stakeholder relationships and providing complicated information succinctly helped me enhance my communication abilities. My planning, organizing, risk-taking, and ability to adapt to requirements changes have all helped me to improve my project management abilities.

Academic courses relevant to the project: Not required

Learning Outcome: Gained expertise in using Microsoft Excel, PowerPoint, and Word for documentation and presentations. Also learned PHP language and Laravel for creation of the website.

Name: MANEET KAUR .(2022B2A10863P)

Student Write-up:

PS-I Project Title: Buisness Expansion and Consulting

Short Summary of work done: Since I was in Non-Tech group, The work that got assigned to us was of Management. The MG Group had several Daughter companies beneath it and after one week we were first allotted those separate companies to create a Company Analysis and present it. Next week we were supposed to merge all our work into one company analysis of MG Group. Subsequently we were allotted our domains of work which included, Analytics, Lead Management and Data crunching, Marketing and Strategy. In the next month we were allotted a new company to be launched by MG group and handled it's tech, marketing and operations. I was allotted the marketing domain and I created Digital Strategy and content branding material of two companies. We were allotted different small projects too, like social media marketing and linkedin enhancement, website improvement suggestions too. It was an enriching experience.

Objectives of the project: The Project aimed at conducting an in-depth market and company analysis and figuring out the gaps and devising strategies to help the company expand in its relevant sectors.

Tool used: Excel, PowerPoint, Google Docs, Google Analytics Canva

Details of Papers/patents:-

Brief description of the working environment: The work environment was decent, having all necessary requirements for work. Company working profesionales were kind and helpful, but as the office was in Okhla, which is an industrial area, the commute to work was not easy and required to change several transportation ways.

Academic courses relevant to the project: -

Learning Outcome: -Being able to learn using Google analytics
-Developing an understanding of how Product Marketing is carried out

- Creating and successfully running Ad campaigns on Meta and Google
- Learning different methods of Lead Management (Capturing, Nurturing and Converting Leads)

PS-I station: Multigraphics Group - Tech, Delhi

Student

Name: ASHMIT MEHTA .(2022A7PS0131P)

Student Write-up:

PS-I Project Title: Question Paper Management System

Short Summary of work done: During my internship at Multigraphics Group, I focused on developing the User and Role Management sections for the Question Paper Management System (QPMS). My work involved creating and implementing functionalities for adding, editing, and deleting users, as well as managing user roles. I used PHP and Laravel to build secure and user-friendly interfaces, ensuring robust error handling and validation. This project enhanced my technical skills, particularly in web application development, and provided me with valuable experience in designing scalable and secure systems.

Objectives of the project: Automate Question Paper Creation, Role-Based Access Control, Enhance Security, Comprehensive Question Management

Tool used: Software tools: Xampp, Composer, Git, Bitbucket, PHP Laravel, VS Code, Bootstrap,

Details of Papers/patents:-

Brief description of the working environment: overall experience at the company was good. I had the opportunity to sharpen my technical skills and learn more about the corporate lifestyle. The infrastructure and overall environment were not up to par.

Academic courses relevant to the project: CS F212-Database Systems

Learning Outcome: My internship project with Multigraphics Group allowed me to gain valuable experience and knowledge in user and role management systems in the context of web applications. I was able to create forms for adding, editing, and deleting users as well as managing their roles thanks to this experience, which improved my PHP and Laravel proficiency. Additionally, I learnt how to effectively handle error submissions, implement security measures, and design user-friendly interfaces. Overall, this project significantly improved my technical abilities and my understanding of developing scalable and secure web applications.

Name: CHHAVI SONI(2022A7PS0639G)

Student Write-up:

PS-I Project Title: Business expansion and consulting

Short Summary of work done: In conclusion, this report has explored the multifaceted strategies for business expansion, Management, and branding of Enlith Power, a promising venture under the Multigraphics Group. Listing products and analyzing the market under the Guidance from Praveen sir, Abhay sir and Sarthak sir turned out to be very helpful. 16 The internship experience at Multigraphics Group has been immensely enriching, working with the team and learning digital marketing, branding, expansion and business analysis contributes to both professional growth and practical understanding of the business landscape. Overall, it was great being a part of the MULTIGRAPHICS GROUP as an intern. The collaborative efforts of the team that underscore the potential for Enlith Power's successful expansion in the rapidly evolving EV market.

Objectives of the project: To expand our scope with Enlith Power

Tool used: h/w, s/w

Details of Papers/patents:no

Brief description of the working environment: It was great

Academic courses relevant to the project: POM

Learning Outcome: Digital Marketing, SWOT analysis, Lead analysis

PS-I station: My Web Partner - Non Tech, Jalalabad

Student

Name: SREERAM R.(2022A3PS1229P)

Student Write-up:

PS-I Project Title: Graphic design

Short Summary of work done: Designed a website for a music band called "Beparwah Band". Created a news type blog website and named it Prime Daily. Designed a website for an online learning platform, a personal finance tracker, and a Smart city portal for New Delhi.

Objectives of the project: Creating impactful website designs, social media posts, etc.

Tool used: H/w-none, S/w- Figma, Canva, Photoshop, Illustrator

Details of Papers/patents:None

Brief description of the working environment: We used Figma to collaborate our work, we were expected to learn both the basic and advance graphic design theories. We were supposed to design the websites which were further used by the development teams. Since it was an online PS we regularly had meetings with our mentors where we given instructions about all our work.

Academic courses relevant to the project: None

Learning Outcome: Learnt graphic design, web designing, advanced graphic design theories, got used to softwares like Figma, Canva, Photoshop, Illustrator etc.

Name: ADITYA BAGLA(2022A7PS0497G)

Student Write-up:

PS-I Project Title: Building website for beparwah band

Short Summary of work done: During my PS-I at My Web Partners, I worked on developing a robust and dynamic website for the Beparwah band, led by CEO Sahil Kamboj. This project aimed to create an engaging online presence for the band, showcasing their music, upcoming events, and providing a platform for fans to connect. The project utilized a diverse tech stack, including Angular for the front end, Node.js and .NET Core for the backend, and HTML, CSS, and JavaScript for the overall structure and styling. My responsibilities included designing the website layout, developing interactive features such as the music library and events calendar, and ensuring the website's responsiveness across different devices. Key features implemented were: Homepage: Featuring the latest news, upcoming events, and featured music tracks. About Us: Highlighting the band's history and members. Music Library: Offering streaming and download options for albums and singles. Events Calendar: Displaying upcoming performances with detailed information. Blog: Sharing news and behind-the-scenes stories. Contact Us: Facilitating communication with fans and collaborators. Responsive Design: Ensuring a seamless user experience on all devices. I also focused on backend integration, ensuring high performance and scalability using Node.js and .NET Core, and implemented a content management system for easy updates. This experience enhanced my technical skills, particularly in Angular, Node.js, and .NET Core, and taught me valuable lessons in teamwork, project management, and user-centric design. The project was a comprehensive learning experience, significantly contributing to my professional growth and understanding of industry standards.

Objectives of the project: Web development

Tool used: Angular, Node Js

Details of Papers/patents: During my PS-I tenure at My Web Partners, while I focused extensively on practical development work and project implementation, I also explored several areas of research and innovation. However, I did not directly produce any formal research papers or pat

Brief description of the working environment: During my PS-I at My Web Partners, I experienced a highly collaborative and supportive working environment. The company fosters a culture of innovation and continuous learning, encouraging employees to explore new technologies and methodologies. My workspace was equipped with all the necessary tools and resources, providing a conducive atmosphere for both individual work and team collaboration.

Expectations from the Company:

I expected to gain hands-on experience in web development and to enhance my technical skills. The company exceeded my expectations by offering exposure to a wide range of technologies, including Angular, Node.js, and .NET Core. Additionally, I anticipated gaining insights into industry best practices, project management, and teamwork, all of

which were thoroughly addressed through various team projects and mentorship sessions.

Learning During PS-I:

Technical Skills:

Angular: Mastered the fundamentals of Angular, including component-based architecture, data binding, and dependency injection.

Node.js and .NET Core: Gained proficiency in backend development, focusing on building scalable and high-performance applications.

HTML, CSS, JavaScript: Enhanced my understanding of creating responsive and interactive web pages.

Project Management:

Learned how to analyze requirements, plan projects, and manage time effectively to meet deadlines.

Developed skills in using version control systems and collaborating on code with peers.

Teamwork and Communication:

Improved my ability to work effectively in a team, engaging in discussions, and collaborative problem-solving.

Enhanced my communication skills through regular interactions with mentors and peers, presenting ideas, and receiving constructive feedback.

Overall, my PS-I experience at My Web Partners was immensely enriching, equipping me with valuable technical and soft skills that are essential for my future career in web development.

Academic courses relevant to the project: Web Development:

This course covered the basics of HTML, CSS, and JavaScript, which are foundational for front-end development. It provided knowledge about web standards, best practices, and techniques for creating responsive web designs.

Advanced Web Te

Learning Outcome: Technical Proficiency, Enhanced Angular Skills, Backend Development with Node.js

Name: SAKSHAM DUA .(2022B2A81361P)

Student Write-up:

PS-I Project Title: PROJECT 6

Short Summary of work done: Created educational content, videos for social media for their handle, used graphic design theories to attract customers, created marketing content and also used ai tools for video creation

Objectives of the project: VIDEO EDITING

Tool used: ADOBE PREMIERE PRO, CAPCUT, VN APP

Details of Papers/patents:NA

Brief description of the working environment: The working environment during the video editing project internship was dynamic and collaborative. The workspace was equipped with high-end editing software and hardware, providing an immersive and efficient setting for post-production work. The atmosphere was supportive, fostering creativity and encouraging the sharing of ideas and techniques.

Collaborate effectively with team members and communicate clearly about project timelines and requirements.

Show a willingness to learn and adapt to new technologies and techniques in video editing.

Academic courses relevant to the project: CP, TRW

Learning Outcome: Learned to create useful videos, graphic posters , audience mentality, advance theories and video softwares and learned ALI ABDAAL Style

PS-I station: My Web Partner - Tech, Jalalabad

Student

Name: MAYANK KASHYAP .(2022A2PS1083P)

Student Write-up:

PS-I Project Title: Content Management System (CMS)

Short Summary of work done: During my PS-I internship, I worked on developing a Content Management System (CMS) using Angular, SQL, Node.js, Trello, and GitHub. Initially, I spent a month studying these technologies through videos provided by my mentor, Mr. Raman Sir. I then created the project's database using an SQL script from

the My Web Partner Team. For the backend, I initiated an API project locally and used Swagger to test endpoints like GET /api/products. I set up an API service in Angular for user-related API calls, developed a form component for adding user data with validation, and integrated it with the API service for data submission. I conducted thorough testing to ensure successful data addition and effective error handling. Finally, I documented the entire API integration process and configuration details for future reference.

Objectives of the project: The primary objective of the Content Management System (CMS) project was to develop a user-friendly software platform that facilitates the creation, management, and publishing of digital content. This platform aims to streamline work processes, enhance ef

Tool used: Angular, SQL , API Integration

Details of Papers/patents:-

Brief description of the working environment: During my PS-I internship, I worked in a supportive environment with resources like video tutorials and guidance from mentors such as Mr. Raman Sir. The company expected me to actively learn, apply my knowledge to practical tasks, and contribute to the Content Management System (CMS) project while meeting deadlines and maintaining quality.

I gained skills in creating and managing SQL databases, developing backend APIs, and integrating these with the Angular frontend. I also set up API services, implemented user forms with validation, and conducted thorough testing for functionality and error handling. Additionally, I improved my documentation skills by detailing the API integration process and configuration.

Overall, the internship enhanced my technical abilities, teamwork, and project management skills, providing a solid foundation for a career in software development.

Academic courses relevant to the project: Computer Programming

Learning Outcome: Team Collaboration, Problem Solving ,Project Management

Name: SAMARTH SINGH .(2022A3PS0458P)

Student Write-up:

PS-I Project Title: Fashion E-Commerce Web Development

Short Summary of work done: Created a database using MS SQL Script. Updated database using Script and connected to the website. Checked out APIs from Git and changed connection string. Run and tested APIs for their proper functioning by hitting an

endpoint after checkout. Created the Frontend design using Angular and implemented in the project. Connected APIs into the Angular Project and added data for creating User Roles using POST API.

Objectives of the project: To create a fashion e-commerce website that aims to create a technically advanced platform for a high-quality branded clothing company. The website will feature seamless navigation, personalized recommendations, secure payment gateways, AI-powered image R.

Tool used: Angular 16, HTML+CSS, JS, MS SQL & .NET Core

Details of Papers/patents:-

Brief description of the working environment: My PS1 at My Web Partner was quite fruitful and a great learning experience. The best thing I learnt was not just a single technology or skill but the integration of multiple technologies and frameworks to a e-commerce platform. Apart from that it also helped in learning many non-technical skills.

Academic courses relevant to the project: Computer Programming (CS F111)

Learning Outcome: my PS1 at My Web Partner was quite fruitful and a great learning experience. The best thing I learnt was not just a single technology or skill but the integration of multiple technologies and frameworks to a e-commerce platform. Apart from that it also helped in learning many non-technical skills.

Name: DIVYANSHU LILA(2022A3PS1056G)

Student Write-up:

PS-I Project Title: Development of CMS software

Short Summary of work done: In our learning phase, our mentors gave us reference to few YouTube videos. These videos helped us to learn basics of web development using angular framework for front end and SQL server for databases. Then after practice phase, we started working on CMS software where my role was front end developer. I got just 2-3 tasks in this. After few days we weren't given any tasks for about 2 weeks. In the end, there was hackathon in which we were given 24 hours to Delhi Live City Portal. Me along with my teammates gave our best to it and were able to submit the website within the given time period. We pitched our website to company and at last we were finally graded.

Objectives of the project: To develop a user friendly cms software

Tool used: Visual Studio, Angular framework (for front end) , SQL server (for backend) , node js

Details of Papers/patents:NA

Brief description of the working environment: It was an online internship so working environment can't be stated. I was expecting that we were be able to successfully deploy our cms software but after unfortunately we were not able to complete that before time. But we learnt various things in PS which will be acting as a base for future prospects.

Academic courses relevant to the project: Web development

Learning Outcome: Got hand on experience in Angular framework. Learnt html,css and typescript

Name: AASHI KEJRIWAL(2022A3PS1256G)

Student Write-up:

PS-I Project Title: Content Management System

Short Summary of work done: Being a part of frontend team, used HTML/CSS within Angular framework to design the website

Objectives of the project: To create a website which helps in creation, management, and publication of digital content. The CMS will provide a user-friendly interface for content creators to author articles, upload media files, organize content, and collaborate with team members.

Tool used: Angular, .net core

Details of Papers/patents:NA

Brief description of the working environment: Final evaluation was a hackathon which was innovative idea and helped team members collaborate in a better way. Mentors were helpful throughout the process.

Academic courses relevant to the project: None

Learning Outcome: Learnt full stack web development, team and time management

Name: RAGHURAM ALURU(2022A7PS1349G)

Student Write-up:

PS-I Project Title: Content Management System (CMS)

Short Summary of work done: Developed a Customer Management System (CMS) using ASP.NET Core MVC, Entity Framework Core, and MS SQL Server. The project included designing a normalized SQL database to manage customer data efficiently. Implemented a robust backend with CRUD operations, ensuring data integrity and efficient handling of customer interactions. Key features included user authentication with unique username and email constraints, ensuring secure and distinct user accounts. Utilized asynchronous programming with async/await for concurrent transaction handling, enhancing the application's performance and responsiveness. The search functionality was implemented to allow querying customer data by username or email, providing quick and efficient access to relevant information. The API endpoints for handling customer data were developed using HTTP verbs (GET, POST, PUT, DELETE), enabling comprehensive management of customer records. Challenges faced included linking tables with constraints, handling null values effectively, and ensuring thread-safe operations to prevent race conditions. These were addressed through careful database schema design and implementing appropriate error handling and validation mechanisms.

Objectives of the project: The CMS aims to centralize customer data, streamline customer interactions, and optimize related processes. It facilitates efficient data management, quick updates, and enhanced communication, ensuring a comprehensive and integrated solution for handling

Tool used: ASP.NET Core Web API, Entity Framework Core, MS SQL Server, Visual Studio, Swagger, Git, TypeScript,C#

Details of Papers/patents:No Papers or Patents

Brief description of the working environment: Working environment was good it was not stressful and we were given a good amount of training period and resources to learn first and task were given periodically to be completed. We had a Hackathon as an Evaluative in the end.

Academic courses relevant to the project: Database Management System , Computer Programming

Learning Outcome: Learnt about .Net Core Web API and how Back-End works and how to integrate it with frontend and learnt about SQL Server management tools

Name: MOHITH KULALA(2022AAPS0419G)

Student Write-up:

PS-I Project Title: Content Management System

Short Summary of work done: During PS-I, I worked on developing a Customer Management System (CMS) aimed at streamlining customer-related processes for improved efficiency and satisfaction. My primary focus was on the backend development using .NET Core, where I designed and implemented APIs for managing customer interactions and databases. This involved creating endpoints for CRUD operations, ensuring seamless data flow between the front end and the database.

Objectives of the project: Building CMS which is a comprehensive software solution designed to streamline and optimize customer-related processes for a company. This system serves as a centralized platform for efficiently managing interactions, databases, and updating anything on

Tool used: Angular,SQL,.Net core (MEAN stack)

Details of Papers/patents:N/A

Brief description of the working environment: During my PS-I (Practice School-I) experience, I learnt how to navigate the complexities of CRM systems, understand customer behavior, and create solutions that enhance user experience.The working environment for this project will involve a dynamic and collaborative setting where students will engage in both individual and team-based tasks.

Academic courses relevant to the project: DBMS,OOP,CP

Learning Outcome: Developed different types of APIs by integrating SQL and .Net core .Also learnt how to communicate within the group to create a web application.

PS-I station: MyEasyPharma - Tech, Bangalore

Student

Name: KSHITIJ VISPUTE(2022A7PS0372G)

Student Write-up:

PS-I Project Title: Application development for MyEasyPharma

Short Summary of work done: Designed wireframes for the app and website on figma, Implemented user profile routes

Objectives of the project: Develop an app for the startup

Tool used: Figma, mongoDB, nestJS

Details of Papers/patents:None

Brief description of the working environment: Very good work experience

Academic courses relevant to the project: Cp

Learning Outcome: App development

PS-I station: National e-Governance Division (NeGD), Delhi

Student

Name: NAMAN GUPTA(2022B5A71230G)

Student Write-up:

PS-I Project Title: ALP-RFP, myscheme services and schemes, content development strategy

Short Summary of work done: We were involved in studying and documenting all we could research, suggest and analyse alongside giving out deliverables weekly corresponding to what the company asked us. It included both short term and long term deliverables which kept us engaged with the internship work at all times.

Objectives of the project: 1-Draft an RFP for the new LMS, 2- re-engineering and analysis of services and schemes on ekbharat and myscheme portals, 3- give a content development strategy alongside scripts and audio recordings for the topics specified

Tool used: In the hardware side it was just our laptops, in the software side it was excel, word, Adobe, powerpoint like general tools alongside task specific tools like speechify, Coursera and sandboxes of various LMS.

Details of Papers/patents: Talking of the deliverables we made weekly, they are something confidential.

Brief description of the working environment: It was a very healthy office environment, everybody were very helpful let it be our mentor or the CB-III team. Everybody were acknowledging our hardwork and appreciating the same which was a huge motivation. We were never forced beyond our limits, if anything we just had strict deadlines but that's it.

Academic courses relevant to the project: None as such. The learnings are more of the industry exposure side.

Learning Outcome: Got to know about the commercial industry procedures, interaction with industry leaders, insights into how software development is done from the company side.

Name: MAYUKH KHETAN .(2022B5A71326P)

Student Write-up:

PS-I Project Title: Drafting RFP of ALP

Short Summary of work done: Management and consulting work

Objectives of the project: 1. Drafting of an RFP, 2. Service integration on UMANG and EK BHARAT, Service Course on 12 different topics,

Tool used: Docs and Excel

Details of Papers/patents: Request For Proposal of ALP

Brief description of the working environment: Hectic, freedom

Academic courses relevant to the project: Trw

Learning Outcome: Documentation, Drafting of RFP, soft skills,

PS-I station: National Informatics Centre (NIC), Delhi

Student

Name: ARNAV DHAM .(2022A7PS1182P)

Student Write-up:

PS-I Project Title: Open APIs

Short Summary of work done: Fixing existing APIs according to OpenAPI 3.0 specifications. The Ncdrc website had many APIs which were not following industry practices. I fixed about 45 of them according to OAS3.0.

Objectives of the project: Fixing existing APIs according to OpenAPI 3.0 specifications

Tool used: Postman, Swagger

Details of Papers/patents:-

Brief description of the working environment: The office was pretty good but the mentor was a scientist and I was the only student assigned to him. So I was the one who had to approach him to ask for work and show progress.

Academic courses relevant to the project: Object Oriented Programming

Learning Outcome: Rest APIs, OAS 3.0

PS-I station: National Load Despatch Centre, Grid Controller of India Limited, New Delhi

Student

Name: KUNAL JOHRI .(2022AAPS0243P)

Student Write-up:

PS-I Project Title: Price forecaster

Short Summary of work done: Learning about the power market, day ahead market its working everything..... Then learning Dnn lstm pandas to create a model to forecast prices

Objectives of the project: To use lstm and dnn to create a price forecaster for power market

Tool used: Tensorflow pandas matplotlib numpy

Details of Papers/patents:.....

Brief description of the working environment: My instructor was very supportive and kept in touch with me through whatsapp and mail..... And overall everyone was very helpful and a great influence

Academic courses relevant to the project:

Learning Outcome: Ai/ML

Name: GARVIT SINGHAL .(2022B4A70496P)

Student Write-up:

PS-I Project Title: Log Anomaly Detection: Comparison of Labelled and Unlabelled data

Short Summary of work done: So my project was to develop and compare supervised and unsupervised algorithms for anomaly detection. The first few weeks were spent in learning the relevant Python libraries. After that, we utilised BERT to convert network logs into word embeddings which could be understood by the BERT model. Thus the supervised model was completed before the midsem. For the unsupervised model, we compared several state-of-the-art algorithms and compared the results.

Objectives of the project: At NLDC, 5000 network logs are generated everyday which must be monitored to check for threats or anomalies. Currently, this anomaly detection procedure is done manually. My project was to develop a machine learning model which can automate this anomaly d

Tool used: Python

Details of Papers/patents:None

Brief description of the working environment: The work environment was very relaxed. My mentor gave me some tasks and there were no strict deadlines. I reported to him when the task was completed and he assigned me the next task.

Academic courses relevant to the project: Computer Programming (CS F111)

Learning Outcome: I learned how to use various Python libraries such as numpy, pandas, keras, tensorflow, etc. I learned how the representative supervised and unsupervised machine learning algorithms work as well as how we can use an LLM like BERT for the anomaly detection procedure.

PS-I station: Nawgati - IT, Noida

Student

Name: PRATEEK TALWAR(2022A7PS0072G)

Student Write-up:

PS-I Project Title: Sde intern

Short Summary of work done: Backend dev

Objectives of the project: Learning how to and building a web app

Tool used: Supabase,django,aws

Details of Papers/patents:None

Brief description of the working environment: Great company work enviornment would highly recommend nawgati to anyone

Academic courses relevant to the project: Cs cdcs

Learning Outcome: I leaned full backend dev

Name: PRIYANSHU CHOUBEY(2022A7PS0318G)

Student Write-up:

PS-I Project Title: EV Station Locator

Short Summary of work done: During the project, we developed a dynamic web application integrating various features to enhance user experience and functionality. The core technologies used were React.js, Next.js, and Recoil for state management. Key components of the project included: 1. ****Map Integration and Navigation****: Implemented Google Maps API to provide location-based services. Users can plan routes, set start and end locations, and view nearby charging stations. Recoil states managed these dynamic interactions, ensuring consistent data flow. 2. ****Charge Now Feature****: Created a "Charge Now" dialog allowing users to find nearby charging stations. The feature included user inputs for location and search radius, utilizing Recoil states to handle visibility and configuration. 3. ****Travel Planning****: Developed a "Plan Travel" dialog for users to plan their routes with detour preferences. Integrated search components for start and destination points, leveraging Recoil for state management. 4. ****User Interactions****: Utilized Radix UI components for sliders and buttons to enhance user interface and interaction. Integrated geolocation for fetching the user's current location. 5. ****State Management****: Employed Recoil for centralized state management, handling various states such as location data, visibility toggles, and user preferences efficiently across the

application. 6. ****Styling and UI Enhancements****: Ensured a responsive and visually appealing design using Tailwind CSS for styling and component alignment. This comprehensive approach resulted in a user-friendly application that efficiently manages state, provides robust location-based services, and ensures a seamless user experience.

Objectives of the project: To build a full stack web application for locating EV Charging stations around you

Tool used: React, Node.js, Next.js, Django, ShadCN, Python, JS, SQL

Details of Papers/patents:NA

Brief description of the working environment: During my PS-I experience, I worked in an excellent environment that fostered both learning and innovation. The company's work culture was supportive and collaborative, with a strong emphasis on teamwork and continuous improvement. My mentor was fantastic and highly knowledgeable, providing invaluable guidance throughout the project. They offered a perfect balance of support and autonomy, allowing us to make our own design decisions while ensuring we stayed on the right path.

The primary expectation from the company was to develop a high-quality, user-friendly web application that integrated advanced features such as map-based navigation, dynamic state management using Recoil, and a seamless user interface. The company encouraged us to think creatively and implement solutions that would enhance the overall functionality and user experience of the application.

Throughout my PS-I stint, I gained a deep understanding of modern web development practices, particularly in using React.js, Next.js, and Recoil for state management. I learned how to integrate APIs, manage complex states, and design responsive, visually appealing user interfaces. The experience also honed my problem-solving skills and my ability to work effectively in a team setting.

Overall, my time at the company was immensely rewarding. Would highly recommend

Academic courses relevant to the project: DBMS, OOP

Learning Outcome: Database Design, Backend Development, Frontend Development, UI/UX, Web Scrapping, REST Framework

PS-I station: Neos Alpha Technologies, Jaipur

Student

Name: AMAN MEHRISHI .(2022A7PS0068P)

Student Write-up:

PS-I Project Title: Boomi Data Processing

Short Summary of work done: We were made to do 5 certifications and then given an integration task in boomi

Objectives of the project: Enhance and format employee data as per the given requirements.

Tool used: Boomi

Details of Papers/patents:NA

Brief description of the working environment: API design & management, integrations

Academic courses relevant to the project: NA

Learning Outcome: API Design & Management, Integrations in Boomi, Maps, Groovy

Name: MADHUL AGGARWAL(2022A7PS1236G)

Student Write-up:

PS-I Project Title: DIGITAL INTEGRATION USING BOOMI

Short Summary of work done: During my PS-I, I focused on mastering API management and troubleshooting, beginning with health checks for the Gateway and Shared Web Server. I learned to use Health Check URLs to verify system functionality and address 401 Unauthorized errors by managing authentication methods such as Basic AUTH and JWT. A key part of my work involved troubleshooting Gateway issues, including restarting services, monitoring cluster status, and analyzing log files to diagnose problems. I also became proficient in managing API keys and user tokens to resolve access issues. Additionally, I explored the Boomi platform, gaining hands-on experience with its tools for building and managing integration processes. This included learning to design and optimize workflows for efficient data exchange between systems. My work with Boomi expanded my understanding of integration technology, enhancing my ability

to streamline data management and system connectivity. Overall, my PS-I experience provided practical skills in API lifecycle management, troubleshooting, and Boomi-based integrations, equipping me with a comprehensive understanding of both API and integration technologies.

Objectives of the project: The primary objective of this project is to enhance the user's understanding of API management and integration through an iPaaS (Integration Platform as a Service) solution. This includes exploring troubleshooting techniques, performing health checks, man

Tool used: Boomi

Details of Papers/patents:-

Brief description of the working environment: During my online PS-I, I was introduced to a remote work environment that required effective digital communication and self-discipline. The internship provided a comprehensive overview of API Management and Integration technologies. My expectations included gaining hands-on experience with industry-standard tools and understanding real-world applications of theoretical concepts. I anticipated learning about API management, troubleshooting techniques, and the practical usage of tools like Boomi.

Throughout the internship, I learned to navigate the Boomi platform, an integral tool for cloud-based integration, which significantly enhanced my understanding of API lifecycle management. The remote nature of the internship required me to adapt quickly to virtual collaboration tools, manage my time efficiently, and independently tackle challenges. The experience allowed me to apply my academic knowledge to practical scenarios, reinforcing my skills in API troubleshooting and integration. Overall, the internship was instrumental in bridging the gap between theoretical knowledge and practical application, preparing me for future career opportunities in the field of API management and integration.

Academic courses relevant to the project: DBMS

Learning Outcome: The project provided comprehensive knowledge and practical skills in troubleshooting API management issues. One key outcome was understanding Health Check URLs, enabling the performance of health checks on the Gateway and Shared Web Server to ensure they are configured correctly. Another significant learning was troubleshooting Gateway issues, including restarting the Gateway, checking cluster status, and analyzing log files for problem-solving. Additionally, the project enhanced the ability to resolve 401 Unauthorized errors by managing various authentication methods such as Basic AUTH and JWT, ensuring secure and efficient API access.

Name: HRISHIKESH MK.(2022A7PS1538H)

Student Write-up:

PS-I Project Title: Digital Integration using Boomi

Short Summary of work done: We learnt about a low code platform Boomi, created processes on the same to facilitate digital integration. Learnt about APIs and API management, REST, OData, SOAP protocols for message passing between two devices (nodes in a network)

Objectives of the project: Learn the SaaS integration and API management using Boomi

Tool used: Boomi

Details of Papers/patents:NA

Brief description of the working environment: Work environment was good.

Academic courses relevant to the project: OOP, DBMS

Learning Outcome: Creation and management of APIs in Boomi, Digital Integration between Client and Server in a web platform

Name: ADITYA MAHAJAN.(2022AAPS0374H)

Student Write-up:

PS-I Project Title: Digital Integration Using Boomi

Short Summary of work done: As mentioned, just had to courses and their certifications, there were also practical activities in the courses to be done on the Boomi platform, courses were straight forward and didn't require much time commitment (2-3 hours a day is more than enough).

Objectives of the project: Wasn't a project, we had to do courses and certifications related to Boomi platform. The courses and certifications were provided by Boomi only.

Tool used: Boomi Platform

Details of Papers/patents:NA

Brief description of the working environment: The mentor from company was very helpful, there wasn't much workload, just had to attend two short online meetings every day (11:15am & 6pm), Mon-Fri.

Academic courses relevant to the project: None

Learning Outcome: Learnt about basics of Boomi, Digital Integration and API Design & Management.

Name: PEEYUSH KUMAR JHA(2022B3A70366G)

Student Write-up:

PS-I Project Title: Digital Integration in boomi

Short Summary of work done: I began by understanding the fundamental components and functionalities of the Boomi platform. This included tasks such as setting up connectors, transforming data, and managing properties. These foundational activities were essential for grasping the basic building blocks of Boomi integration. As I moved forward, I engaged in practical integration development, which involved identifying integration opportunities, managing customer data, and scheduling processes. This hands-on experience allowed me to apply the concepts I had learned in real-world scenarios, enhancing my skills in routine process management and data handling. Further into the internship, I delved into advanced topics such as developing extensions, leveraging REST and SOAP web services, and optimizing document caching. These advanced technical aspects provided me with a deeper understanding of how to handle complex integration scenarios within the Boomi platform. Additionally, I focused on creating and managing APIs, learning the principles of API design and management practices. This involved defining clear endpoints, using appropriate HTTP methods, and ensuring robust security measures. The knowledge gained in API design and management was crucial for enabling seamless communication between different systems.

Objectives of the project: To understand digital integration, Api connections, etc using low to no code

Tool used: Boomi platform

Details of Papers/patents:none

Brief description of the working environment: It was a good experience, however the theory was a lot and the practical learning was too little.

Academic courses relevant to the project: None, had to start from scratch as its a very niche low/no code area. Its like learning a new coding language with a visual logic and a drag&drop syntax.
(no future courses bear a resemblance either)

Learning Outcome: I did 5 courses in the boomi platform - these courses had 80-20 theory-activity split,followed by a small implementation project.

In the Integration Essentials section, I was introduced to the basic components and functionalities of the Boomi platform. This included setting up connectors, transforming data, and managing properties. These tasks were foundational and necessary for understanding the Boomi environment.

Moving on to the Associate Integration Developer section, I delved into practical integration development. This included identifying integration opportunities, managing customer data, and scheduling processes. This section was more hands-on and practical, and the emphasis was on routine process management and basic data handling.

The Professional Integration Developer section covered advanced topics like extensions, REST and SOAP web services, and document caching. These topics were more aligned with my interest in complex integration scenarios, providing a deeper dive into the technical aspects of Boomi.

Finally, the Professional API Design and API Management sections aimed to provide skills in creating and managing APIs.

However, despite the structured progression of the coursework, I felt that some of the content lacked depth and real-world applicability. The training modules often felt too theoretical, and the practical exercises did not always reflect the complexities I expect to face in a professional setting.

PS-I station: Netparam Technologies Pvt. Ltd, Jaipur

Student

Name: ADITYA JOSHI(2022A3PS1081G)

Student Write-up:**PS-I Project Title:** Food delivery website

Short Summary of work done: Netparam Technologies Pvt Ltd has been an invaluable experience, providing us with practical skills and comprehensive knowledge in web and mobile application development. We have successfully learned and utilized a variety of technologies during this internship, including HTML, CSS, JavaScript, and the MERN stack. We have completed several mini-projects that have strengthened our understanding of server settings, API integration, and full stack development. With the successful completion of the user-side food delivery website, named Potato, we have demonstrated our ability to produce a robust, feature-rich, and user-friendly application. This project not only showcases our technical proficiency but also makes a significant contribution to the rapidly expanding food delivery industry by enhancing user experience and satisfaction.

Objectives of the project: Build a website where user can browse restaurants, view menu and place order.

Tool used: HTML, CSS, JAVASCRIPT, React.js, Node.js, Express.js, Mongo db and postman

Details of Papers/patents:No

Brief description of the working environment: NETCOM is equipped with the latest infrastructure which provides a congenial and a healthy learning environment to the students. It provides air- conditioned, interactive and well furnished classrooms with audio visual aids of training. It has computer labs, a library, seminar hall, and workshops on campus. In Netcom, courses are taught by expert faculty who are trained, tested and certified to ensure that their knowledge is in step with the latest industry trends.

Academic courses relevant to the project: Java script, Knowledge of VS code.

Learning Outcome: Learned how to work with team and full stack development.

Name: HITESH KUMAR YADAV(2022A8PS0547G)

Student Write-up:**PS-I Project Title:** Food Delivery Website (Admin Side)

Short Summary of work done: During PS-1, I focused on developing the admin side of a food delivery website. This project utilized HTML, CSS, JavaScript, and the MERN stack (MongoDB, Express.js, React.js, Node.js). We gained practical experience in frontend design and development with HTML and CSS for styling, and JavaScript for creating interactive features. On the backend, we employed Node.js with Express.js for server-side logic and MongoDB for database management. The project also emphasized teamwork and collaboration, enhancing our skills in communication and coordination within a development team. Overall, PS-1 was a valuable learning experience that deepened our understanding of full-stack web development and prepared us for future projects in this field.

Objectives of the project: Build a fully functioning website for a food delivery company. We had a team of 7 members out of which we were divided into groups. Our group's task was to make the Admin side of this website.

Tool used: VS Code, Postman (for API testing), MongoDB (for database)

Details of Papers/patents: No patents

Brief description of the working environment: Friendly working environment with well-equipped infrastructure, company stood to all my expectations having all the basic facilities required at a company, learned full stack web development

Academic courses relevant to the project: Web development

Learning Outcome: Full stack web development, team work, how to work in collaboration, communication skills

Name: ARPIT SAXENA(2022A8PS1140G)

Student Write-up:

PS-I Project Title: Food delivery website (Admin Side)

Short Summary of work done: During PS-1, I worked on developing the admin side of a food delivery website. This involved using HTML, CSS, JavaScript, and the MERN stack (MongoDB, Express.js, React.js, Node.js). We gained hands-on experience in frontend design and development using HTML, CSS for styling, and JavaScript for interactive features. On the backend, we utilized Node.js with Express.js for server-side logic and

MongoDB for database management. The project also emphasized teamwork and collaboration, enhancing our skills in communication and coordination within a development team. Overall, PS-1 was a valuable learning experience that deepened our understanding of full-stack web development and prepared us for future projects in this field.

Objectives of the project: Build a fully functioning food delivery website

Tool used: Postman, VS code, MONGODB, GitBash

Details of Papers/patents: Not any

Brief description of the working environment: Working environment is very good. We are fully equipped with the resources that company provided us. I fully satisfied with the company.

Academic courses relevant to the project: Web development

Learning Outcome: Now I can able to make a fully working Website, Team work, Collaboration.

Name: ADITYA GARG .(2022B2A31163P)

Student Write-up:

PS-I Project Title: MERN Stack Website

Short Summary of work done: Spent the first month learning the languages and libraries required for the project to be made in full stack. Next month worked on making a Full stack web application (food delivery site)

Objectives of the project: Get comprehensive understanding in MERN Stack and build a fully functional website

Tool used: NodeJS, ExpressJS, MongoDB, ReactJS

Details of Papers/patents:None

Brief description of the working environment: It is a small company, with limited rooms and employees. There is adequate seating facility, the employees and the assigned company mentor is well versed and knows what he is telling.

Academic courses relevant to the project: none

Learning Outcome: Proficiency in Full stack web development (NODE JS)

PS-I station: NICSI(National Informatics Centre services Inc), Delhi

Student

Name: NISHTA CHAUDHARY .(2022A3PS0583H)

Student Write-up:

PS-I Project Title: Development and Customisation of serviceDesk Facility

Short Summary of work done: In this project, I conducted a POC on various ticketing tools and selected Trac for its superior features. I set up Trac from the source code, customized ticket fields in trac.ini, and added fields like department and subcategory. I enabled the admin button by adjusting user permissions and configured basic authentication for security. Additionally, I customized the interface by adding a logo. I also learned to use Docker for downloading images and running containers. This project improved my command line skills, dependency management, and troubleshooting abilities.

Objectives of the project: To customise the free open source ticketing system

Tool used: Github, terminal, docker, Trac

Details of Papers/patents:None

Brief description of the working environment: During my PS-I, I worked in a collaborative and supportive environment with access to various resources and tools. The team provided guidance and feedback, facilitating my learning and development. The company expected proactive and diligent work, clear communication, and timely updates on project progress. Delivering high-quality solutions efficiently was also a key expectation.

I gained hands-on experience with Trac, learning to set up, configure, and customize it. Additionally, I improved my skills with Docker for container management, enhancing my technical abilities and understanding of project management systems.

Academic courses relevant to the project: DBMS, OS, Software engineering

Learning Outcome: Project management and Issue tracking with Trac, Docker, command line proficiency, development, web interface customization

Name: PRAFULL SHARMA .(2022A8PS1335H)

Student Write-up:

PS-I Project Title: Development and Customisation of ServiceDesk Facility

Short Summary of work done: I worked on enhancing and customizing an open source ticketing tool for my company. We were asked to add specific features needed by the company in the tool. We had discussion regarding features to add in our daily meets and by the end of PS we were able to achieve all the required features in the tool.

Objectives of the project: To develop and enhance a ticketing tool

Tool used: PHP,CSS, HTML, JS,MYSQL, OSTICKET

Details of Papers/patents:NA

Brief description of the working environment: Our mentors were quite helpful and understanding. The work environment was collaborative and focused on our learning. Regular meetings (everyday) were conducted to ensure continuous progress to our goal

Academic courses relevant to the project: Computer Programming (CS F111)

Learning Outcome: Improved Problem solving capabilities and Soft Skills.

Name: RISHIT RAJ .(2022AAPS0431H)

Student Write-up:

PS-I Project Title: Development and Customisation of ServiceDesk Facility

Short Summary of work done: I had to create a ticketing tool using existing free open source tools available. I made changes in the UI, added some more features by making changes in the code. After completing the project I dockerized it and handed it over to my mentor.

Objectives of the project: To create a ticketing tool for internal operations of the company.

Tool used: GitHub, PHP, Xampp, MySql, and docker

Details of Papers/patents:None

Brief description of the working environment: NICSI in New Delhi fosters a dynamic working environment focused on leveraging technology to support various government departments and organizations. The company emphasizes innovation and efficiency in providing IT solutions and services. Employees are expected to demonstrate a high level of technical proficiency and dedication to delivering quality results within specified timelines. Collaboration and teamwork are encouraged to ensure effective problem-solving and project execution. NICSI values integrity, professionalism, and adaptability, reflecting its commitment to serving diverse client needs in the public sector. The company provides ample opportunities for skill development and career advancement, promoting a supportive atmosphere conducive to personal growth. NICSI's work culture encourages proactive engagement with emerging technologies and continuous improvement, making it an attractive workplace for IT professionals passionate about making a meaningful impact in government service delivery.

Academic courses relevant to the project: Computer Programming and Foundation of Data Structures and algorithms.

Learning Outcome: Learning about PHP and how web dev happens. Also how works takes place in the corporate world.

Name: MUDIT GOYAL .(2022B4A30750P)

Student Write-up:

PS-I Project Title: Data analysis

Short Summary of work done: Learning basic of data analysis and make various interactive dashboard of dataset by using tableau software

Objectives of the project: Making an interactive dashboard by using tableau

Tool used: Tableau

Details of Papers/patents:No

Brief description of the working environment: The working environment is very good and mentor have highly experienced in their field so it's help me very much and they are very supportive and helpful

Academic courses relevant to the project: No

Learning Outcome: Learn tableau software and basic of data analysis

Name: SARTHAK ARORA(2022B4A71539G)

Student Write-up:

PS-I Project Title: Analysis of UDISE+ data

Short Summary of work done: the ps was converted to online so work was done from home mostly. Its a nice learning experience and good environment

Objectives of the project: to analyse datasets from udise+ website and draw conclusions

Tool used: Tableau

Details of Papers/patents:none

Brief description of the working environment: The company is nice, the locality is good

Academic courses relevant to the project: Probability and statistics

Learning Outcome: learnt the softwares tableau and got acquainted with the world of data analytics.

PS-I station: Nitisara - Tech, Shahdara

Student

Name: PALEPU SRIVARDHAN SHARMA .(2022A7PS0100H)

Student Write-up:

PS-I Project Title: BUILDING BACKEND FEATURES AND INTEGRATING PAYMENT GATEWAY TO NITISARA'S WEB APPLICATION

Short Summary of work done: Task 1 : Building Order Management and E-mail notification feature in the backend Task 2 : Securing features by attaching JSON Web tokens Task 3 : Integrating PayPal payment gateway using PayPal's REST APIs

Objectives of the project: Objectives of the project were to add some backend features to the web application of Nitisara

Tool used: Java, SpringBoot MySql,

Details of Papers/patents: --

Brief description of the working environment: Working environment was healthy, people were very co-operative. PS-1 Instructor used to constantly assess and give us his valuable feed-backs.

Academic courses relevant to the project: OOPS, DBMS

Learning Outcome: Experience of the working environment in startups
Hands-on experience of tools like GitHub, PostMan, MySQL Workbench, PayPal Sandbox, etc
Learnt technologies like Java SpringBoot, JWTs, REST APIs

Learnt Spring Boot web architecture
Improved my communication skills

PS-I station: NIXI(National Internet Exchange of India), Delhi

Student

Name: AARYA VARDHAN SHANDILYA .(2022A3PS1734P)

Student Write-up:

PS-I Project Title: INTERNET EXCHANGE POINT OPERATIONS

Short Summary of work done: During the internship at the National Internet Exchange of India (NIXI), the project focused on understanding and enhancing Internet Exchange Point (IXP) operations. The work involved several key activities:

1. ****Network Terminologies and Basics****: The initial phase involved a detailed study of essential network terminologies, such as peering, transit, latency, and bandwidth. This foundation was crucial for understanding the subsequent technical aspects of the project.
2. ****Data Centers****: An in-depth examination of data center architectures and functions was conducted. Different types of data centers, including enterprise, colocation, and cloud data centers, were studied. Each model's operational strategies and advantages were analyzed to understand their roles in supporting network operations and infrastructure.
3. ****Internet Exchange Points (IXPs)****: The project explored the operational dynamics of IXPs, which are critical junctures where multiple ISPs and network operators interconnect to exchange internet traffic locally. This study highlighted how IXPs reduce latency, transit costs, and optimize data routing efficiency.
4. ****Internet Service Providers (ISPs)****: The role of ISPs in providing internet access to end-users was examined. The project delved into the interconnection strategies and operational frameworks of ISPs, particularly their data exchange roles at IXPs.
5. ****AI in Network Monitoring****: The application of Artificial Intelligence (AI) in network monitoring was a significant focus. The study involved leveraging machine learning algorithms and predictive analytics to detect network anomalies, forecast network failures, and optimize traffic flow in real-time. This integration aimed to enhance network reliability and efficiency.

These stages collectively provided a comprehensive understanding of internet infrastructure and its critical components, contributing significantly to the technical knowledge and skills gained during the internship.

Objectives of the project: To learn about datacentres, ISPs, IXPs and peering mechanisms.

Tool used: During the internship at NIXI, several development tools were used: Hardware: 1. Routers 2. Switches 3. Firewalls 4. Hubs 5. Bridges Software: 1. Network Performance Monitors (NPMs) 2. Network Analyzers 3. Intrusion Detection Systems (IDS) 4. Intrusion Prevention Systems (IPS) 5. Load Balancers These tools were essential for the successful implementation of the project.

Details of Papers/patents: No papers or patents.

Brief description of the working environment: The working environment at NIXI was collaborative and supportive, fostering a culture of continuous learning and growth. Expectations from the company included active participation in projects, effective communication, and the application of technical knowledge to solve real-world problems. During the PS-I internship, key learnings included a comprehensive understanding of network exchange terminologies, the architecture and operation of data centers, and the dynamics of Internet Exchange Points (IXPs) and Internet Service Providers (ISPs). Additionally, the internship provided practical insights into the application of AI in network monitoring, enhancing skills in machine learning, predictive analytics, and network optimization.

Academic courses relevant to the project: Electromagnetic Theory.
Data Communication and Networks.

Learning Outcome: The internship at the National Internet Exchange of India (NIXI) provided several key learning outcomes:

1. **Network Fundamentals:** Gained a comprehensive understanding of essential network terminologies such as peering, transit, latency, and bandwidth. Peering involves mutual data exchange agreements between networks, while transit refers to acquiring comprehensive network access from a provider. Latency is the time delay in data transmission, and bandwidth is the data capacity of a network.
2. **Internet Exchange Points (IXPs):** Learned the pivotal role of IXPs in facilitating direct data exchange between networks, reducing dependency on third-party networks, and improving data transfer speed and efficiency. Explored the operational mechanisms of IXPs and their contribution to regional and global internet infrastructure.
3. **Data Centers:** Studied the architecture and functionality of data centers, which house critical IT infrastructure like servers, storage systems, and networking equipment. Emphasized the importance of redundancy, scalability, and energy efficiency in data center operations.
4. **Internet Service Providers (ISPs):** Explored the various types of ISPs (Tier 1, Tier 2, and Tier 3) and their roles in delivering internet access. Examined the competitive landscape, regulatory challenges, and technological advancements affecting ISPs.
5. **AI Implementation and Security:** Gained insights into the integration of AI for predictive maintenance, resource optimization, and enhanced security measures within network operations and data centers.

These outcomes collectively enhanced the understanding of internet infrastructure and its critical components.

Name: ADITYA SHRIVASTAVA .(2022A8PS1732P)

Student Write-up:

PS-I Project Title: Automation to Detect Past Fraudsters

Short Summary of work done: We created a backend application that uses the WHOIS data to find any match between a new registration and past deleted malicious domains. The deleted domain are provided by other agencies and the system cross checks this data with the new registration's data to find any match.

Objectives of the project: To create a model that can detect if a person who is registering for a new domain was linked to a past deleted malicious domain.

Tool used: Django, Html/Css, MySQL

Details of Papers/patents: None

Brief description of the working environment: We didn't get to work in the office as there was no space. But the people were quite helpful. They connected us to other people when we needed help in something that they didn't know about. The project was quite tough to complete in 2 months so our mentor motivated us to do what we can do and somehow we completed the project.

Academic courses relevant to the project: The project was out of my core domain. So none of my course were helpful.

Learning Outcome: Django, MySQL, Professionalism, Communication

Name: RAJAT JAIN .(2022AAPS0266H)

Student Write-up:

PS-I Project Title: Automation to detect past fraudsters

Short Summary of work done: Most of the time was spent learning and trying new technologies

Objectives of the project: To build an automation tool which detect any person who has done a fraud and trying to again buy domain. These fraudsters have to be detected and reported to the company by the automated tool

Tool used: HTML/CSS , ReactJS , Python and it's libraries

Details of Papers/patents:None

Brief description of the working environment: The company had come first time for PS hence they didn't know much about how this internship works. Hence it was initially offline but there was no sitting space for the interns in the office therefore it had to be converted to online.

Academic courses relevant to the project: None

Learning Outcome: 1) learning how automation tools work
2) Communication skills

Name: [ATHARVA ATUL TOSHNIWAL .\(2022B3A80224P\)](#)

Student Write-up:

PS-I Project Title: INTERNET EXCHANGE POINT OPERATIONS

Short Summary of work done: Every week the mentor used to assign a topic on which we had to research and prepare a document and submit them.

Objectives of the project: To understand the internet exchange domain

Tool used: Google Scholar, Google suite and applications

Details of Papers/patents:NA

Brief description of the working environment:

Expectation: They wanted to complete reports on time

Learning: Time Management and Team Building

Academic courses relevant to the project: Communication courses in general and a del: data communication and networks

Learning Outcome: Got a holistic understanding of IX domain

Name: SHUBHAM GAJANAN GAWALI .(2022B5A80937P)

Student Write-up:

PS-I Project Title: Policies Adopted by APNIC (Asia Pacific Network Information Centre) in the Allocation of Critical Internet Resources

Short Summary of work done: Our job was to analysis the policies from Apnic website.

Objectives of the project: To analysis Apnic policies

Tool used: noting particular

Details of Papers/patents:We submitted a final report, but there was no particular patent or any such

Brief description of the working environment: Our company was shifted from offline to online. People were really helpful. Our mentor helped us througout the project

Academic courses relevant to the project: noting particular

Learning Outcome: Knowledge of policies, which are responsible for governing the rules of distribution of domain names

PS-I station: Northern Regional Load Despatch Centre, Grid Controller of India Limited, New Delhi

Student

Name: VANYA GARG .(2022A8PS0539P)

Student Write-up:

PS-I Project Title: Renewable Energy Prediction Model

Short Summary of work done: Learned about different ML models and data processing to make a system capable of noticing patterns and making predictions

Objectives of the project: Make an ML model which can predict how much energy can be produced via the renewable resources

Tool used: Jupyter , Pytorch

Details of Papers/patents:None

Brief description of the working environment: Very good flexible environment , the people at the station were extremely helpful and accommodating. Great project with lots of good insights from the mentors there .

Academic courses relevant to the project: Machine Learning , Artificial Intelligence

Learning Outcome: ML models , Gradient Descent , Backpropagation

Name: YASHVARDHAN SHARMA .(2022B1A71145P)

Student Write-up:

PS-I Project Title: Demand Forecasting using Machine Learning

Short Summary of work done: This project aimed to develop a robust forecasting model for predicting electrical demand across nine states and Union Territories in India. Initially, advanced machine learning models like LSTM RNN and Random Forest were explored but were not implemented due to resource and memory constraints. The process began with the acquisition of extensive electrical demand and weather data, recorded at 5-minute intervals over four years. Data processing involved averaging the demand data into 15-minute blocks using Python's Pandas and OS libraries. Initial linear regression models trained on a single file showed potential but lacked accuracy, prompting further refinement and generalization. Enhancements included incorporating temporal features like hour, day of the week, and weather parameters such as rainfall and heat index. These additions improved the model's accuracy but still fell short of expectations. The introduction of the ARIMA model marked a significant advancement. By capturing historical patterns and integrating weather adjustments through alpha and beta factors, the ARIMA model provided a closer fit to the actual demand curve. Despite the initial challenges, the ARIMA model's ability to accurately forecast demand, combined with weather adjustments, demonstrated its effectiveness. The results underscore the importance of integrating multiple data sources and sophisticated modeling techniques for reliable electrical demand forecasting. Future work may explore further enhancements, including advanced machine learning techniques and real-time data integration, to continue improving forecast accuracy.

Objectives of the project: Predicting the electrical demand of the NR Region which contains 9 States and UTs

Tool used: LSTM, ARIMA, Linear Regression, Pandas, Numpy, Scikit Learn

Details of Papers/patents: None

Brief description of the working environment: Great working environment, supportive mentors and staff

Academic courses relevant to the project: CP, ES

Learning Outcome: Learnt about major machine learning and statistical models - LSTM, RNN, ARIMA, etc. and used them to predict week ahead demand for 9 states with high accuracy while also incorporating effect of weather parameters like Relative Humidity, Temperature and Rainfall

PS-I station: NrityaTech Solutions Pvt. Ltd., Uttar Pradesh, Rawatpur Gaon

Student

Name: ZOHEB FAZAL AHAD .(2022A1PS1043P)

Student Write-up:

PS-I Project Title: Front end developing

Short Summary of work done: Learning about different frameworks to help us alter the website

Objectives of the project: Modifying the website and adding a payment gateway

Tool used: React JS, CSS , HTML

Details of Papers/patents: Few GD's and quizzes taken regarding what you have learnt

Brief description of the working environment: The mentors were really helpful and it proved quite easy to mingle with the other students as well all in all a friendly work environment

Academic courses relevant to the project: Computer programming - C++ taught in first year

Learning Outcome: React Js, CSS

Name: JINESH CHORDIYA .(2022A4PS1019H)

Student Write-up:

PS-I Project Title: Backend development

Short Summary of work done: Started leaning about git,github then studied django and created a django project using its framework

Objectives of the project: To help the startup build a web application

Tool used: Django,Git and github

Details of Papers/patents: None

Brief description of the working environment: It was an online PS station, the faculty, mentors and the company was helpful in providing help for the projects

Academic courses relevant to the project: None

Learning Outcome: Django, python and backend developments

Name: BHAVYA SINGLA .(2022B4A40891H)

Student Write-up:

PS-I Project Title: React Java script

Short Summary of work done: The project was rated to back end development using React Js, HTML & CSS. We were asked to create small to-do apps using react js then implementing these skills to make their website easier to user.

Objectives of the project: Back end development

Tool used: React JS

Details of Papers/patents: No

Brief description of the working environment: Very good and friendly

Academic courses relevant to the project: Oops

Learning Outcome: React Js, HTML, CSS

PS-I station: Octalsoft (Glorant India) - Non Tech, Ahmedabad

Student

Name: MAITREYEE MAKRAND BHALERAO .(2022A5PS1418P)

Student Write-up:

PS-I Project Title: QUALITY ASSURANCE AND COMPLIANCE FOR ECLINICAL SOFTWARE SOFT

Short Summary of work done: The company mentors assigned projects and taught about basics of quality assurance in software development. This included study of various documents and making different documents associated with the eclinical softwares developed by the company. Client interaction was aslo a part of the project. We were involved in the meetings, internal and external both. Software testing and system validation was also involved in the project.

Objectives of the project: To learn about documentation and software testing and computer system validation (CSV)

Tool used: Microsoft tools, google docs and sheets.

Details of Papers/patents:No papers or patent involved. Corporate lifestyle introduced

Brief description of the working environment: The working environment was very good. The staff was very helpful and friendly. We were given desks with our respective teams and individual systems were allotted too. The company assigned expert mentors to each team and good information was given to all of us time to time. Regular reporting to these mentors and timely completion of work was needed and hence the project went smoothly.

Planning of the whole project and communication among the teams is also important and a part of project allotted.

Academic courses relevant to the project: Quality assurance and project management

Learning Outcome: CSV

Documentation related to eclinical softwares

Quality assurance and control

Testing software

Name: AYUSH KARWASRA(2022B4TS1514P)

Student Write-up:

PS-I Project Title: Digital Marketing Internship Project: Enhancing Online Presence for Life Sciences SaaS Solutions

Short Summary of work done: At Octalsoft, it was the online presence of their Life Sciences SaaS Solutions that was center stage in my PS-I. Some of the key tasks associated with this multifaceted digital marketing campaign are as follows: Market Research and Analysis: Research on the current trends in customers' needs and competitors' strategies in the life sciences sector has been done by me, going through the industry reports, customer feedback, and activities of competitors. SEO and Content Marketing: Ensured that the company website and all of its content were search engine friendly. This included researching targeted keyword, making enhancements of on-page SEO, and good informational blog posts that would answer pain points in the audience. Email Marketing Campaigns: Targeted email campaigns are strategized and executed for the engagement of prospects and customers. This shall involve segmentation of your email list, development of customized email content, and analysis of campaigns undertaken. Performance Analytics: Measured our digital marketing performance with Google Analytics and HubSpot to ensure a data-driven approach toward making informed decisions and further optimization of our strategies for better results. In other words, my PS-I at Octalsoft was an all-rounded learning experience wherein I applied theoretical knowledge in practical scenarios and learned to hone my skills in Digital Marketing for an industry that's specialized.

Objectives of the project: Project involves developing marketing strategies for software solutions developed for Life Sciences vertical. Create and execute effective marketing strategies for software solutions, ensuring successful product launches, customer engagement, and business

Tool used: Canva, Figma, Excel, Word, Google Analytics, Google Trends, ChatGPT, Keyword Planner, Social Media Platforms (Instagram, LinkedIn)

Details of Papers/patents: None

Brief description of the working environment: Good working environment.

In the PS-I at Octalsoft in Digital Marketing, I worked in a very dynamic and friendly working ambience. With SaaS being the dominant player in the industry of life sciences solutions, maintaining utmost seriousness toward professionalism, Octalsoft kept the environment very friendly. The entire team was a collaboration of experienced professionals with readiness to guide and support every intern, which would foster an environment of continuous learning and innovation.

It was crystal clear what the company looks ahead and expects from us. The interns had to be a part of continuous projects, innovative ideas, hit the deadline over and over again with the best shot. Interns got to the root of products, target audience, and competitors all through. It was also required to further actualize the root of products, target audiences, and competitors by using digital marketing tools such as SEO/SEM, content marketing, other social media strategies.

Some of the skills developed during this internship include detailed market research, design, and execution of multichannel marketing campaigns, and process evaluation against various parameters. Tools like Google Analytics, HubSpot, and SEMrush were really helpful in enhancing my technical skills. I also became more competent at collocated work, time management, and quicker and more efficient in changing high-paced environments.

That internship came out to be enriching and transforming; The knowledge and experience from my PS-I with Octalsoft really form a good base for me in future career endeavors in the area of digital marketing.

Academic courses relevant to the project: Print Audio and Visual Advertisement, Principles of Management

Learning Outcome: Enhance skills in content creation, social media management, email marketing, analytics, and more.

PS-I station: Paddleboat Private Limited - Marketing, Bengaluru

Student

Name: RAHITHYA VELIDANDLA .(2022B2AA1060H)

Student Write-up:

PS-I Project Title: SEO and Content marketing strategy

Short Summary of work done: During my PS-1 at Paddleboat Private Limited, I understood several key projects and tasks in the marketing sector. My initial task was to conduct in-depth research on a company's marketing strategies and business development tactics. This involved using analytical tools such as SWOT analysis, Porter's

Five Forces, and PESTEL analysis to understand their target audience, channels, and differentiation strategies. I then focused on keyword analysis, where I identified competitors of Paddleboat's new product, and used tools like SEOquake and Semrush to find relevant keywords and assess parameters like KD, volume etc. Additionally, I explored backlink opportunities by analysing competitor channels and identifying potential sites for collaboration and engagement. I also contributed to content creation by writing blogs on topics related to marketing strategies. Lastly, I prepared a content calendar for their product launch. It includes planning various content types such as blog posts, demo videos etc. Overall, my work at Paddleboat allowed me to apply and enhance my marketing skills, particularly in research, SEO, content creation, and strategic planning.

Objectives of the project: To improve company product's search engine ranking through SEO optimization. To research industry trends, identify target audience personas, create a content calendar, and produce blog posts, infographics, and case studies that highlight benefits of that

Tool used: SEOquake, Semrush, Google search console, Slack.

Details of Papers/patents: Nothing

Brief description of the working environment: The working environment was highly collaborative and supportive. The team fostered open communication, encouraging interns to ask questions and share ideas freely. My mentors were approachable and provided invaluable guidance throughout internship. The company expected us to engage proactively with our tasks, demonstrate creativity in our approach, and meet deadlines consistently. We were encouraged to take initiative and bring fresh perspectives to the projects. Paddleboat also values our willingness to learn and adapt to new tools and methodologies, ensuring we were well-equipped to handle various marketing tasks. Learnings - Research and analysis on company's marketing strategies, keyword analysis, finding backlink opportunities and channels, creating content (wrote blogs related to marketing).

Academic courses relevant to the project: Finance/ Management

Learning Outcome:

1. Conducting comprehensive research on marketing strategies and business development tactics.
2. Keyword analysis
3. Content creation (blogs)
4. Practical skills in planning and executing marketing strategies by preparing content calendar

PS-I station: Paddleboat Private Limited - Software Development, Bengaluru

Student

Name: NAITIK VERMA(2022A7PS0232G)

Student Write-up:

PS-I Project Title: Redirecting Sales Pitches via Outlook mail to WarmCall

Short Summary of work done: During my PS-I internship at Paddleboat, Bengaluru, I worked on a project titled "Redirecting Sales Pitches via Email to WarmCall" under the guidance of Founding Engineer Santosh Ganti and mentorship of Full Stack Engineer Yogesh Banariya. The project's objective was to develop a system that fetches emails from the user's Outlook account, identifies sales pitches using the Gemini API, and sends automated responses redirecting the senders to the WarmCall bot. To achieve this, I set up authentication using the Microsoft Identity platform and acquired access tokens for accessing the user's Outlook account through the Microsoft Graph API. I then developed a backend using Express.js and Node.js to fetch emails, classify them using the Gemini API, and send automated responses. Initially, the project aimed to include LinkedIn sales pitches, but due to the lack of open APIs, it was refocused on Outlook. Despite encountering challenges with the Microsoft Graph API documentation, I successfully implemented the email fetching and classification components. Although I faced some issues with the final integration of the Microsoft Graph API, the overall project flow was established, demonstrating significant progress in streamlining the management of sales pitches. This internship provided valuable experience in API integration, backend development, and applying AI for natural language processing, enhancing my technical and problem-solving skills.

Objectives of the project: To develop a system that fetches emails from the user's Outlook account, identifies sales pitches using the Gemini API, and sends automated responses redirecting senders to the WarmCall bot, thereby enhancing the efficiency of managing sales pitches and e

Tool used: Javascript - Node, Express, Microsoft Azure Outlook API, Google Gemini API, Postman

Details of Papers/patents:NA

Brief description of the working environment: The working environment at Paddleboat, Bengaluru, was flexible and conducive to learning. As an early-stage, fast-growing startup, the company operated in a completely remote setup. The work was not

very hectic, and I had the freedom to manage my schedule, provided that I met the deadlines mutually set by the interns and the manager. This approach fostered a sense of responsibility and allowed me to balance my tasks effectively.

The company had high expectations for quality and innovation, which motivated me to deliver my best work. I was encouraged to experiment with new technologies and methodologies, which significantly enhanced my learning experience. Throughout the internship, I gained comprehensive insights into software development, particularly in areas such as API integration, backend development with Express.js and Node.js, and applying AI for natural language processing.

The supportive and collaborative environment at Paddleboat enabled me to overcome challenges and improve my problem-solving skills. Regular interactions with my mentor, Yogesh Banariya, and the founding engineer, Santosh Ganti, provided valuable guidance and feedback. This internship not only honed my technical abilities but also developed my project management and communication skills, preparing me for future professional endeavors.

Academic courses relevant to the project: Data Structures & Algorithms, Object Oriented Programming

Learning Outcome: Throughout this internship, I gained hands-on experience with API integration and authentication, particularly with the Microsoft Graph API and Gemini API. I enhanced my backend development skills using Express.js and Node.js, learning to handle HTTP requests, manage sessions, and implement middleware. Additionally, I acquired knowledge in applying generative AI models for text classification and summarization, specifically to identify and summarize sales pitches from email content. This project also improved my problem-solving and debugging abilities, as I navigated technical challenges and adapted to changes in project scope, ultimately strengthening my project management skills.

Name: SHAMIT KHETAN(2022AAPS1222G)

Student Write-up:

PS-I Project Title: Mobile App Development

Short Summary of work done: The project commenced with research on warm calls and their implementation details. Upon being assigned the projects, my mentors assisted in setting up the coding environment and explained the team's workflow, which greatly

facilitated my integration and learning experience. I investigated the process of uploading apps to the Google Play Store and the associated testing period requirements. This was followed by an exploration of the necessary React Native libraries for the project. Weekly meetings with our mentor, who reviewed our progress from the previous week and assigned tasks for the upcoming week, were invaluable in guiding our work and ensuring steady progress. This was followed by implementation of the Javascript code. Over the course of the remaining six weeks, the project successfully developed an Android application capable of detecting incoming calls and identifying whether the caller is in the user's contacts. There were a few instances where I faced challenges, such as selecting the appropriate library to enable background operation for the application. I would like to express my sincere gratitude to my mentors, who consistently provided assistance and guidance during these situations. In conclusion, the eight-week practice school was highly productive and educational. I gained valuable technical skills, primarily in JavaScript and React Native, and learned important aspects of industry processes.

Objectives of the project: Developing an Android mobile application to detect incoming calls and determine whether they belong to the user's contacts while running in background.

Tool used: VS Code, Android Studio

Details of Papers/patents:NA

Brief description of the working environment: As the company is a startup, the work culture is great. The station was an online station. The company expected little to no prerequisites for the work allotted to us.

Academic courses relevant to the project: None

Learning Outcome: Javascript and React Native

Name: ADHVAITH KS .(2022B1A11639P)

Student Write-up:

PS-I Project Title: Automating Sales Email Classification and Response Systems Using Large Language Models with Gmail API Integration

Short Summary of work done: In this project, I developed an automated system to classify and respond to sales emails using large language models (LLMs) and Gmail API

integration. A Node.js server with Express.js was set up to fetch unread emails via the Gmail API, using OAuth2 for secure access. We integrated OpenAI's API to classify emails as sales or non-sales based on a custom prompt. The system checks for previous conversations to avoid processing repeated pitches from the same sender. Automated replies are sent to identified sales emails using the Gmail API. Cron jobs were implemented for continuous operation, ensuring efficient email management without manual intervention.

Objectives of the project: Automating Sales Email Classification and Response Systems Using Large Language Models with Gmail API Integration

Tool used: Programming Languages and Frameworks: Node.js Express.js APIs: Google Gmail API OpenAI API Authentication and Authorization: Google OAuth2 Task Scheduling: node-cron

Details of Papers/patents:None

Brief description of the working environment: Great work environment. Mentors will be assigned to you and they'll help you understand everything you need to do.

Academic courses relevant to the project: None

Learning Outcome: Understanding the integration of Gmail API for email retrieval and processing,
Implementing OAuth2 authentication for secure access to Google services,
Using OpenAI's API for text classification and natural language processing,
Developing automated email response systems,
Handling API rate limits and quota management,
Parsing and extracting information from email headers and bodies,
Utilizing cron jobs for scheduling periodic tasks,
Debugging and resolving issues in asynchronous and API-based applications,
Enhancing TypeScript and Node.js programming skills,
Deploying and maintaining an Express.js server for handling email automation tasks.

PS-I station: PARALLELDOTS - IT, Gurgaon

Student

Name: ARYAN SACHAN .(2022B4A31013P)

Student Write-up:

PS-I Project Title: Prompt Engineering in order to automate internal processes like spreadsheet generation

Short Summary of work done: Me and my teammate were given a task of creating an Ai assistant that could create csv schedules extracting details from text inputs given by user in casual language. We initially learnt about what prompt engineering is and how it can be used to make our daily tasks easier by automation. By using modern day tech tools like llama 3 (an open source Large Language Model) and Ollama we integrated the prompt within the python script for the same. We had to update our progress in regular scrums held at 12:15 pm everyday. Apart from the tech work we did some non-tech work like designing posters for Instagram Marketing for the company's online billing software named OOGASHOP , went on store visits to different stores in Delhi to gather client feedback , recorded oogashop tutorial videos in office using green screen , and wrote blogs on how to improve the oogashop website.

Objectives of the project: Create a scheduling ai assistant that would generate csv schedules for employees visiting stores extracting data from casual text.

Tool used: Python , LLMs (llama 3) , Ollama , Pandas , Regex

Details of Papers/patents: No

Brief description of the working environment: Gained hands on experience in modern cutting edge technologies like LLMs , Prompt engineering.

The working environment was very friendly in the organization, mostly our work was online and the meets were regularly conducted online too so we had to switch to work from home after 1 month of internship was over.

Academic courses relevant to the project: DSA , Machine Learning

Learning Outcome: Gained Soft Skills like communication , public speaking, presentations and got to learn about the hierarchical organizational structure and how things work there apart from the technical knowledge gained.

PS-I station: Petasense Technologies Pvt. Ltd. - Analytics, Bangalore

Student

Name: ARNAV TREHAN .(2022ABPS1155P)

Student Write-up:

PS-I Project Title: Project 1: Automated Speed Range Determination for Vibrational Analysis. Project 2: Detection of Line Frequency Contamination in Vibration Data

Short Summary of work done: During my PS-1, we worked on two significant projects. The first project was developing a machine learning algorithm that automates the identification of optimal speed ranges in speed vs vibration data. Our first step was preparing different algorithms that would work for our problem statement like KMeans and DBSCAN. We then tested our algorithms on a randomly generated dataset using Python libraries to check their functionality. Then, we conducted a thorough Exploratory Data Analysis (EDA) on historical data from over 10 machines. Finally, we implemented our algorithm on this historical data. This algorithm will soon be integrated into Petasense ARO. The second project focused on detecting line frequency contamination in vibration data. This was approached using a rule-based methodology, which we applied to over 40 cases which could be good, 50 Hz, and 60 Hz contaminated data. This algorithm too will soon be integrated into the outlier identification that is used at Petasense. In both projects, in-depth research into the problem statements was needed. Moreover, extensive testing was carried out for both the projects to check their efficiency.

Objectives of the project: Project 1: Develop a machine learning (clustering) algorithm that automatically identifies an optimal set of speed ranges based on historical data of a particular asset. Project 2: Develop a spectral pattern matching algorithm that identifies when vibrati

Tool used: Python, Jupyter Notebooks, Libraries like Pandas, Plotly, Numpy, Scikit Learn etc, Machine Learning, Excel and Json data processing.

Details of Papers/patents: NA

Brief description of the working environment: The working environment at Petasense was very accommodating and collaborative. We had 3 roles at Petasense- Data Science, Web Dev and Embedded Systems. Each role had 2 students and were assigned a specific mentor that they report to and receive work from. Direct communication was maintained with the mentors regularly where the work was assigned, any doubts could be asked and results were shared. Overall, it was a great experience to have right after second year. The projects assigned were actual industrial problems, providing practical experience rather than theoretical work. The work load was manageable and not hectic.

Academic courses relevant to the project: No Prerequisites but relevant are Data science, Machine Learning and Computer Programming

Learning Outcome: We gained in-depth experience of working with Python libraries like Numpy, Pandas, SciKit and more. We developed an understanding of various machine learning algorithms and their use in real world problems. We learnt about Exploratory Data Analysis which involved pre-processing, removing outliers. Acquired knowledge about clustering and its implementation. Learnt about spectral analysis and data extraction. Also improved both collaborative and individual work management. These learnings will help me a lot in my future career.

PS-I station: Petasense Technologies Pvt. Ltd. - Web Development, Bangalore

Student

Name: CHINMAY RAMDAS RAO(2022A7PS0106G)

Student Write-up:

PS-I Project Title: Automated Report Generation

Short Summary of work done: Petasense provides industrial IoT solutions focused on predictive maintenance, enabling companies to monitor the health of their machinery in real time to prevent failures and optimize performance. Currently, if a client needed a report of the analysis, it needed to be manually typed out. We were tasked with creating a service, which automatically generates this report. Initially we brushed up our Python basics, while also learning about the usage of Flask(web framework) and Python-docx. We had to make API calls to the cloud, the data retrieved in the JSON file was parsed and the required information was written to a docx file. Subsequently, we would format the data to make sure it resembled the demo report. We then had to modularize the code for simplicity and better understanding. Future plans involve sending a monthly mail with the report attached to clients.

Objectives of the project: Developing a web service to automatically generate analysis reports for clients.

Tool used: Python modules used- Flask and Python-docx, Postman for API testing and Bitbucket for version control.

Details of Papers/patents: None

Brief description of the working environment: The environment at Petasense was friendly, which made working at Petasense an enjoyable experience. Our mentor provided us a clear goal of what we'd to achieve and gave us constructive feedback throughout the duration of the internship.

Academic courses relevant to the project: Computer Programming, Object Oriented Programming

Learning Outcome: Although I was familiar with Python basics, we learned to use libraries like Flask, Python-docx, and Request. I discovered that modularizing the code makes it more readable and flexible. I faced several challenges that required creative problem-solving skills. Collaborating in a team environment enhanced our communication and teamwork abilities. Ultimately, this experience gave me a deeper understanding of the field Petasense operates in, and the insights gained will undoubtedly aid in my career decisions.

Name: SIDDHI GADODIA .(2022A7PS1652H)

Student Write-up:

PS-I Project Title: Automated Report Generation

Short Summary of work done: Petasense provides industrial IoT solutions focused on predictive maintenance, enabling companies to monitor the health of their machinery in real-time to prevent failures and optimize performance. Previously, clients needed to manually type out reports for their analysis. Our task was to automate this report generation process. We started by refreshing our Python skills and learning how to use Flask (a web framework) and Python-docx. We made API calls to the cloud to retrieve data in JSON format, which we then parsed and used to populate a DOCX file. We ensured that the generated report matched the format of a provided demo report. To enhance simplicity and understanding, we modularized the code.

Objectives of the project: Make a flask web app that would work with thw company's ARO website and get the necessary information to be added in a report of all the machine assets.

Tool used: Python, Flask, libraries like requests, python-docx, postman, bitbucket

Details of Papers/patents:-

Brief description of the working environment: 2 students were allotted the same project domain and given a project to work on together. We were allotted a mentor with whom we could go for any doubts or help that we needed. Our mentor guided us through every step of our project and explained to us what our role was and what was expected of us. We even regularly met with the entire software development team to manage our progress. The environment was very friendly and made working in Petasense an enjoyable experience.

Academic courses relevant to the project: Computer Programming, OOPs.

Learning Outcome: While familiar with basic Python, we learned to use libraries such as Flask, Python-docx, and Requests. We discovered that modularizing code improves readability and flexibility. Overcoming various challenges requires creative problem-solving skills. Collaborating in a team environment enhanced our communication and teamwork abilities. Ultimately, this experience provided a deeper understanding of Petasense's field, offering valuable insights for future career decisions.

PS-I station: PNT Robotics & Automation Solutions,LLP - Online, Mumbai

Student

Name: KUSH AMIT JUVEKAR .(2022A4PS1275P)

Student Write-up:

PS-I Project Title: NA

Short Summary of work done: No work done

Objectives of the project: NA

Tool used: NA

Details of Papers/patents:NA

Brief description of the working environment: Company gave no work

Academic courses relevant to the project: NA

Learning Outcome: NA

Name: KSHITIJ DALE(2022A7PS1153G)

Student Write-up:

PS-I Project Title: Research on Nano fluids and HDPE LDPE material

Short Summary of work done: During my PS-I, I conducted extensive research on the properties and applications of nanofluids and HDPE/LDPE materials. The focus was on how these materials can be utilized in the field of robotics to improve performance and efficiency. I performed various experiments to test the thermal and mechanical properties of nanofluids and compared them with conventional fluids. Additionally, I explored the potential of HDPE and LDPE in creating lightweight and durable robotic components. My work involved both theoretical studies and practical laboratory experiments, contributing to a deeper understanding of these advanced materials.

Objectives of the project: The implementation of these molecules in the field of robotics.

Tool used: Matlab

Details of Papers/patents: No papers or patents were published during the PS-I period.

Brief description of the working environment: The working environment during my PS-I was highly collaborative and research-oriented. My expectations from the company included gaining hands-on experience with advanced materials and understanding their applications in real-world scenarios, particularly in robotics. Throughout the internship, I was able to achieve these goals and more, learning from experienced researchers and contributing to meaningful projects. The experience enhanced my practical skills and theoretical knowledge, preparing me for future challenges in the field of material science and robotics.

Academic courses relevant to the project:

Thermodynamics

Learning Outcome: Gaining insights into the integration of these materials in robotics. Enhancing knowledge of the latest research and innovations in material science.

Name: DHRUV GANESH(2022AAPS0489G)

Student Write-up:

PS-I Project Title: PCB-Arduino Mega shield for robotic arm

Short Summary of work done: Learnt PCB design

Objectives of the project: To design an Arduino Mega shield for robotic arm

Tool used: Kicad

Details of Papers/patents:-

Brief description of the working environment: -

Academic courses relevant to the project: ES

Learning Outcome: PCB design

Name: ADITYA SHARMA(2022A7PS1108G)

Student Write-up:

PS-I Project Title: Smart Wifi Access Point

Short Summary of work done: Developed a NodeMCU-based captive portal allowing users to connect to a WiFi network and input personal information such as name, address, and phone number. Securely transmitted collected data to a Google Sheet via a Google Script, ensuring real-time data capture and storage. Implemented hardware and software integration, including setting up the NodeMCU, configuring the WiFi access point, creating the captive portal interface, and integrating with Google Sheets for data storage. Achieved an efficient data collection system that is user-friendly and reliable, with applications in event management, public WiFi networks, educational institutions, retail, hospitality, and healthcare.

Objectives of the project: To learn about IOT

Tool used: Nodemcu

Details of Papers/patents: No

Brief description of the working environment: Supportive work culture

Academic courses relevant to the project: Basic Programming Knowledge

Learning Outcome: IOT, Hardware Software Integration

Name: PARTH SHAH(2022A7PS1168G)

Student Write-up:

PS-I Project Title: Autonomous robotics, pcb designing

Short Summary of work done: Autonomous robotic creation in hardware

Objectives of the project: Autonomous mapping and navigation

Tool used: Kicad, solidworks, ros2, python, CPP, rplidar, cytron

Details of Papers/patents: None

Brief description of the working environment: Expectations were not matched as the projects mentioned were not there at the company. However I got to learn a lot which the other projects that they gave me, making PS1 worth the efforts, time and money.

Academic courses relevant to the project: Robotics minor

Learning Outcome: Ros, industrial electronic design practices

Name: SRIRAM SAI KOUSHIK GIDUGU .(2022AAPS0263H)

Student Write-up:

PS-I Project Title: Autonomous rover

Short Summary of work done: In the beginning of the PS-I , we were given small tasks like research on components like HC05 and higher bluetooth modules , next we had to design a circuit for LEDs that will be mounted on barricades and will only blink at night with the help of a timer and no programmable devices in order to reduce the cost of production . Next we were given our major task of the Rover , where first we had to wire up the circuit and check it through basic arduino coding then we had to understand about encoders and how are they used to track the motion and rotation of motors , in the next step we had to include the code for encoders after making the rover follow basic instructions like , moving in different directions . The next step was to give a string of commands as an input and make the rover follow them . next we had to mount a LIDAR and map the surroundings for testing . The last step was to make it figure out path to reach its destination given by user .

Objectives of the project: To make the rover to reach a specified point in a mapped environment

Tool used: ROS - Robotic operating System (S/w), Arduino IDE(S/w), and other Hardware components(eg : Motors, encoders, motordrivers etc)

Details of Papers/patents: NA

Brief description of the working environment: The working environment was very good . Employees and fellow interns were very much friendly . Mentors guided us through every step of our journey of PS-I .

Academic courses relevant to the project: Control Systems

Learning Outcome: Arduino programming , ROS and other dealing with other practical difficulties

PS-I station: ProvenTech Consulting Pvt. Ltd, Hyderabad

Student

Name: TARUNI MALLU .(2022A2PS1139H)

Student Write-up:

PS-I Project Title: Column Shelf Life Prediction with ML Algorithms

Short Summary of work done: Our goal was to create a column failure predictor, thus we started by cleaning, separating, and performing exploratory data analysis (EDA) on the given data set. Next, using feature selection, we establish a threshold value of 1.2 for a chosen target column called "USPTailing." If the value is below the threshold, the test passes; if not, it fails. Then, we train and implement the ML models with Pycaret and H2O. The project's front end is then constructed using the streamlit application. Next, we create a FastAPI to connect the frontend and backend. We dockerize everything in order to attain the required outcomes and finally have everything functioning properly.

Objectives of the project: Building an AI Model that has updated information about the regulations and standards of the Pharmaceutical Industry.

Tool used: Python libraries such as Pandas, NumPy, Seaborn, Matplotlib, SciPy and Scikit-learn, DTale and Sweetviz for EDA automation, Pycaret and H2O for building the models, Technologies like io.StringIO for handling in-memory string data, Streamlit and Docker.

Details of Papers/patents: none

Brief description of the working environment: During my internship, I experienced a dynamic and inclusive working environment that fostered creativity and productivity. The collaborative atmosphere encouraged open communication and teamwork, which was essential for our project's success. The company's clear structure and defined roles helped streamline our workflow. Flexibility in work hours and the option for remote work enhanced my work-life balance.

I received regular feedback, which promoted continuous improvement and professional growth. The company also offered training programs that kept me updated with industry trends. Competitive compensation and benefits contributed to my overall job satisfaction.

The supportive culture, valuing diversity and inclusion, made me feel respected and valued as part of the team.

Academic courses relevant to the project: ML, AI. Deep Learning, NLP.

Learning Outcome: EDA, Model Building, APIs, Easier and Faster FrontEnd Development

Name: HARSHITHA KOTTHA .(2022A2PS1721H)

Student Write-up:

PS-I Project Title: Software development

Short Summary of work done: Designed the frontend for a website

Objectives of the project: To develop front end for a website

Tool used: ReactJS

Details of Papers/patents:None

Brief description of the working environment: The working environment of the company was interactive and the team was very encouraging. They allowed us the projects and we learnt various language required for the projects and finished them before the deadline

Academic courses relevant to the project: None

Learning Outcome: Learned Java script and ReactJs

Name: ANKIT SINGH .(2022A4PS1433H)

Student Write-up:**PS-I Project Title:** Column failure predictor

Short Summary of work done: Our project was to build a column failure predictor in which we first perform EDA on the provided data set and perform data cleaning and splitting data into test and train data. Then through feature selection for a selected target column 'USPTailing' in which we set a threshold value of 1.2 that if the value is below the threshold then it will pass or else it would fail. Then using Pycaret and H2O we train and deploy the ml models. Then we build the frontend for the project using streamlit application. And then to connect frontend and backend we build a FastAPI. Finally for this to be running smoothly we dockerize everything and finally get the desired results.

Objectives of the project: To predict the best column and shelf life of column through ml models

Tool used: Python, some YouTube tutorials, libraries like numpy, pandas, sweetviz, autoviz etc

Details of Papers/patents: None

Brief description of the working environment: The working environment for good and they gave us a real problem to solve which has given us an insight to how a company works and what challenges it faces and how to find solutions to the challenges.

Academic courses relevant to the project: Maching learning, data mining, natural language processing

Learning Outcome: EDA

PyCaret

H2O

FastAPI

Streamlit

Dockerization

Name: MOHAMMED KAMAALULLAH KHAN QUADRI(2022A7PS0109H)

Student Write-up:**PS-I Project Title:** Column Shelf Life Prediction

Short Summary of work done: We Were Tasked to develop and deploy an ML prediction model. it involved everything from data collection, cleaning and processing to building ML model, making a frontend integrating the model and frontend via FASTAPI(a good new emerging API) then deploying and dockerizing it.

Objectives of the project: To Build An ML Model to predict the shelf life of columns used in chromatography for Quality Assesment

Tool used: Python, Auto ML Libraries(ex. SweetViz,Dtale,h2o,pycaret),FASTAPI,Streamlit,Docker

Details of Papers/patents: None

Brief description of the working environment: The working environment were as you would expect in a general corporate environment. Initially the company was in a smaller office. so we weren't assigned separate cubicles but later on in the middle of PS (around the start of July) they shifted to a new bigger office. so we were assigned seperate cubicles. We were assigned tasks and project which they expected us to complete well before the deadline and above their expectations.

Academic courses relevant to the project: ML Course(Data Mining)

Learning Outcome: 1) Corporate culture exposure and the expectations they have from you. Learned to build projects on a large scale for company use.
2) gained practical knowledge and implementation of ML.

Name: SUMANTH ABHINAV ARSHANAPALLY .(2022A8PS0528H)

Student Write-up:

PS-I Project Title: Column Failure Prediction

Short Summary of work done: In the initial few weeks of PS -1, we were assigned weekly tasks by the company personnel on ML models.To build an ML model like that we needed thorough understanding of what are the concepts that run behind these algorithms, how is the machine able to predict an unknown value based on prior data, few deep learning concepts etc. We learnt a few important algorithms like Linear Regression, Decision Trees, Gradient Boosting, Xgboost, AdaBoost etc.Also key concepts like exploratory data analysis(EDA),evaluation,ensembling,selecting and fine tuning.After we became familier with these basic models, our team lead introduced us to PyCaret, a

model building technology that automates the evaluation and selection process. The PS station provided us industrial data for the project. Since this involves many steps, we divided the project - Front-End (StreamLit), Back-End (EDA, PyCaret and Fast Api) and containerization (Docker). I was responsible for PyCaret and Dockerization. PyCaret enables developers to test and evaluate number of algorithms for both classification and regression. Ours was a classification based model where we predicted whether the give column, based on its operational parameters would work or not. For this we needed a target variable for making initial inferences. USPTailing factor is an important metric and suits our project requirements. After EDA and selection of target variable, PyCaret iterates our data set over a number of algorithms and provides a leaderboard for the developer to choose the best based on the test accuracy and errors measurements. The Best model is then finalized and then ensembled using techniques like bagging and stacking. The final predictions are made and attached to the Api key in form of a Json string. The Api key is integrated with streamlit code and both the back-end and front-end codes are simultaneously. The application would first ask the user to upload the data, select the target column and click process for it to run. It would then display the predictions along with the prediction score. This application includes many libraries and all of them have a specific version, only on which the app would work. So to resolve this problem and make the predictor portable, we used Docker to containerize the application and run it on any desktop that has Docker installed.

Objectives of the project: Proventech Consulting aims at providing technological solutions for various industries, pharma being their prime focus. Chromatography is an important step in the drug manufacturing process. A good chromatography column is vital for the purity and composition

Tool used: Tools used are - Python, Pandas (EDA), Sweetviz and Autoviz (Data Visualization), PyCaret (model building), Fast Api (Backend and Frontend Integration) and Streamlit (Frontend)

Details of Papers/patents:-

Brief description of the working environment: The work environment was energetic. The company personnel including the Director and CEO were involved and very welcoming. Our team leads Mr. Siva Kumar and Mr. Santosh guided us through the course of this project and we got to learn a lot from their experience. Taking timely reviews from us and their valuable additions to the project made it easier for us to complete it on time.

Academic courses relevant to the project: Machine Learning (ML), Data Mining and Artificial Intelligence (AI).

Learning Outcome: - Understanding of Machine Learning Models and their role in industry.

- Steps of building a full stack application
- Distributing work and importance of teamwork.

Name: STHAIRYA SREE SAMVID PALAKEETI .(2022B3A30604H)

Student Write-up:

PS-I Project Title: Column Failure Prediction

Short Summary of work done: We were assigned the responsibility to develop and deploy a machine learning prediction model. This encompassed a comprehensive workflow including data collection, cleaning, and processing; building the machine learning model; creating a frontend interface; integrating the model and frontend via FASTAPI (a modern API framework); and ultimately deploying and containerizing the application.

Objectives of the project: Developing a full-stack application capable of accepting data inputs, processing the data, building machine learning models, and presenting the results to users according to their specifications.

Tool used: Python Libraries - Pandas, Numpy, Plotly, Sweetviz, DTale and Streamlit and other tools like H2O.ai and Docker

Details of Papers/patents: None

Brief description of the working environment: Has a good working ambience and supportive people.

Academic courses relevant to the project: Time Series Analysis
Data Mining
and courses on Machine Learning

Learning Outcome: Exploratory Data Analysis
AutoML Frameworks
UI Designing

PS-I station: Quality Kiosk Tech Pvt. Ltd. - Gen AI, Navi Mumbai

Student

Name: ANANT MALHOTRA .(2022A7PS0182P)

Student Write-up:

PS-I Project Title: Data preprocessing and transformation for AI model training in banking:A Gen AI project

Short Summary of work done: The main focus is on data preprocessing and transformation to streamline the creation of high-quality test cases for AI model training. The project reduces the time and resources needed for manual test case generation while improving accuracy and consistency. Key activities involved include data loading from multiple formats, cleaning and mapping columns, and detecting duplicate and similar entries using cosine similarity. The use of advanced technologies like Word2Vec and pandas enabled the calculation of similarity scores and refined test case generation, ensuring comprehensive test coverage. Automating these processes helps banks reduce time-to-market, optimize resources, and maintain high software standards.

Objectives of the project: The objective of the project to create a generative AI model for automating the test case generation for banking data.

Tool used: Pandas: It is a powerful data manipulation and analysis library; it provides structures such as DataFrames necessary in handling huge datasets so that they can be processed efficiently. Pyexcel_ods3: This library helps in reading and writing ODS (OpenDocument Spreadsheet) files hence facilitating processing of data stored in this format. Openpyxl: A Python library for reading and writing Excel files which are commonly used in spreadsheets within the banking industry. Re: A regular expressions library for python that is useful for manipulating strings, cleaning them up like removing special characters, whitespaces from column names etc. Gensim: Topic modeling and document similarity models are available through this library. An example is Word2Vec model which converts words to vectors. Numpy: Basic numerical operations library for Python. It supports large matrices, multi-dimensional arrays as well as many mathematical functions to apply on these arrays. Scikit-learn: Scikit-Learn is a machine learning library written in Python that offers simple and efficient tools for data mining and data analysis. It contains implementations of various other machine learning algorithms including cosine similarity. Word2Vec Model The Word2Vec model from the GloVe (Global Vectors for Word Representation) dataset is used to convert words into vectors. This model captures the semantic meaning of words, enabling effective similarity calculations.

Details of Papers/patents: null

Brief description of the working environment: The working environment was really flexible with no major power distance or strict hierarchy to be followed. The open work culture was adopted with no closure of cubicles. The colleagues and higher management was really polite and caring. I learnt to manage my personal and professional life and keep a balance between them. I was exposed to corporate culture which was new to me but I was able to manage it.

Academic courses relevant to the project: Artificial Intelligence and Natural language Processing courses which will be taught as DELS in Computer Science.

Learning Outcome: 1) Understanding of Generative AI: Gained insight into applying Gen AI for automating test case generation, improving efficiency and accuracy in software testing.

2)Data Preprocessing Skills: Developed skills in cleaning, mapping, and transforming data from various formats (CSV, Excel) using libraries like pandas and re.

3)Similarity Calculation: Learned how to implement cosine similarity and Word2Vec models for identifying and highlighting similar test cases.

4)Scalability: Acquired knowledge of handling large datasets efficiently while maintaining test quality.

5)Technological Proficiency: Hands-on experience with technologies like Python, Numpy, Gensim, and scikit-learn for AI-driven software testing solutions.

PS-I station: Quinfo Systems Pvt. Ltd, Hyderabad

Student

Name: ENNAM NAVYA SRI .(2022A7PS0001H)

Student Write-up:

PS-I Project Title: LAND REGISTRATION AND MANAGEMENT USING BLOCKCHAIN

Short Summary of work done: the last two months of practice school have been immensely productive and enriching. I've had the opportunity to learn a variety of new technical skills, including HTML, JavaScript, CSS, ReactJS, Solidity, Hyperledger, and MongoDB. Additionally, I gained valuable insights into industry processes that will be beneficial in my future career.

Objectives of the project: It enhance security, transparent, efficiency, accuracy, accessibility

Tool used: Blockchain Platforms:Ethereum, Hyperledger Fabric ;Programming Languages: Solidity, JavaScript;Development Frameworks and Libraries:Truffle, Web3.js;Integrated Development Environments (IDEs):Visual Studio Code, Remix IDE

Details of Papers/patents:"Blockchain for Land Registry: A Transparent and Secure Way to Manage Land Transactions"Authors: Edward C. Harris, Mark P. Ryan, Adam RitzmannSummary: This paper explores the potential of blockchain technology to provide a transparent and secure way to ma

Brief description of the working environment: The working environment in a blockchain-based land registration project is typically dynamic and collaborative. The atmosphere is often fast-paced, driven by innovative problem-solving and a commitment to creating secure, efficient solutions for land management.

Academic courses relevant to the project: Database Management Systems

Learning Outcome: Understanding Blockchain Technology
System Design and Architecture
Project Management
Problem-Solving and Critical Thinking
Communication and Presentation

Name: ABHINAV CHITTURI .(2022A7PS0064H)

Student Write-up:

PS-I Project Title: Blockchain

Short Summary of work done: Creating a fully functioning website which works on land registration and management and for currency transfer, we are using etherium

Objectives of the project: Full-stack development and using blockchain

Tool used: Solidity, JS, ReactJS

Details of Papers/patents: Nothing

Brief description of the working environment: Solidity, Metamask, JS, MongoDB

Academic courses relevant to the project: Blockchain

Learning Outcome: Blockchain and Full-stack

Name: MOKSHITH REDDY VURIBINDI(2022A7PS0763G)

Student Write-up:

PS-I Project Title: Blockchain developer

Short Summary of work done: We have created a project called blockchain based land registration management system where we can buy and sell lands online . We made this website for government using web 3 technologies to eliminate middleman and for more transparency and added cryptocurrency for payment mode . These tech movies will increase transparency , accountability and security

Objectives of the project: Complete project using web 3 technology specially using blockchain technology

Tool used: React js , css , nodejs , JavaScript , mongodb for database , solidity , web3.js , ganache .

Details of Papers/patents: None

Brief description of the working environment: Company has good workspace , you will get to learn from the company. This company is a startup started in 2023 . They have limited employees . I learned from different resources from internet of tools which I need to work on in my project . You should submit daily work report which is lite .

Academic courses relevant to the project: DBMS , blockchain , JavaScript .

Learning Outcome: We used react js and web 3 technologies to complete our project

PS-I station: Regional Remote Sensing Center-North, NRSC, ISRO - IT, New Delhi

Student

Name: YASH AGGARWAL .(2022B1A70930P)

Student Write-up:

PS-I Project Title: LULC classification of Delhi using ML methods

Short Summary of work done: We used the Cartosat-3 data to create an LULC classification map of Delhi using machine learning methods . We used Random Forest, Support Vector machine, neural network and XGBoost while other teams worked on Deep Learning approaches. We trained our models on manually digitised vector data on the Cartosat-3 images and then used those models to predict a classification for the entire Delhi. There were many problems and complications that we had to solve and also had to pivot our approach multiple times but in the end we were able to produce satisfactory results.

Objectives of the project: To automate the LULC classification process for Delhi using ML.

Tool used: QGIS, Anaconda, Jupyter Notebook, Python

Details of Papers/patents:NA

Brief description of the working environment: The working environment was satisfactory. The interns could work peacefully in the lab and the colleagues were also very helpful and kind. We developed great camaraderie through the duration of the PS.

Academic courses relevant to the project: Machine Learning, Deep Learning

Learning Outcome: Machine Learning, Random Forest, Python, Neural Network

Name: ARCHI NARANG .(2022B1A71006P)

Student Write-up:

PS-I Project Title: Coupling of Object Detection and Image Segmentation for LULC Mapping

Short Summary of work done: Integrated an object detection and image segmentation model to identify different classes in satellite images of Delhi

Objectives of the project: To perform object detection on satellite images by obtaining bounding boxes around different classes of objects and then to perform image segmentation inside each bounding box.

Tool used: Used the GPUs available on Google Colab Pro

Details of Papers/patents:-

Brief description of the working environment: The working environment was great. Our mentor was quite understanding and supportive. All of us ,except one, being from dual degrees did not know much about machine learning and deep learning. He gave us time and resources to learn. He was very dedicated towards us as well as the project. He guided us throughout the project and helped us with any problem concerning the remote sensing or the computers part.

Academic courses relevant to the project: An understanding of machine learning and its implementation could help. But not necessary since we learnt it along.

Learning Outcome: Learnt a lot about Computer Vision and Remote Sensing

Name: AYUSH JAIN .(2022B3A70551P)

Student Write-up:

PS-I Project Title: Land use and land cover classification using deep learning models

Short Summary of work done: Started with doing Coursera Andrew ng course, then searches for some dataset which can do our job. In the meanwhile we were given some research papers to read by our ps station. We then started training multiple models on multiple datasets, and tried to integrate their results. Finally I would say that PS1 has been a breakthrough in my professional journey, earlier I didn't knew how the jobs are

and hadn't coded much, like a proper project but here, I felt like I am a proper coder. It is a good feeling indeed. It boosted my confidence that I can take any projects from GitHub and understand what they are doing and try to modify them as per my need.

Objectives of the project: To create a model that can do level 1 LULC classification.

Tool used: Python, google colab pro

Details of Papers/patents:No

Brief description of the working environment: The working environment was very good. The allotted incharge from the PS station was the best I could have asked for. He was always there to support us whenever needed. We needed to use Google colab pro during our ps so he purchased it with his money thrice. He was a constant source of motivation for us. His suggestions improved our work a lot.

Academic courses relevant to the project: I haven't studied any CS courses as of now, so don't know about it. But yeah CS F111 is the start of coding in our college, so it is relevant upto my best knowledge.

Learning Outcome: Learned the basics of machine learning, what are datasets, how to choose a dataset, train model, and predict it's results

Name: MEHUL SRIVASTAVA .(2022B3A70604P)

Student Write-up:

PS-I Project Title: Land Use Land Cover (LULC) Classification using ML Models

Short Summary of work done: Worked on a LULC Map of Delhi using ML Models, in particular, Random Forest, SVM, XGBoost and Neural Networks. Initially we were provided Research papers to build an intuition of the work we were assigned along with certain ML Resources (Andrew NG's Supervised Machine Learning and Coursera's Deep Learning Specialization) to understand the concepts. After an initial 2 weeks of learning we actually started working on our problem statement. Daily/once in two days update and guidance was provided by our mentor who was very helpful despite being overworked. The entire experience was very helpful for me, having started exploring ML in my 2-2. It gave a very relevant project to add my in CV and an exposure that helped me fuel my interest to delve deeper in this field.

Objectives of the project: To develop an automated Machine Learning framework to create Land Use Land Cover (LULC) map of Delhi such that the same models could be used for other Urban Areas as well.

Tool used: S/W: Jupyter Notebook, QGIS

Details of Papers/patents: We basically made some tweaks in the already done work in this field using the pre existing methods, which improved the accuracy of the model. Work is under progress towards a publication, where we will report these improved numbers, in particular over ou

Brief description of the working environment: The work environment was very collaborative. We were given some daily/weekly goals, with brief instructions from our mentor on how to go about the problem statement. Then we were expected to read and research on these lines, either importing certain algorithms in our code or writing the code from scratch. This was a mix of generating codes via AI and debugging ourselves and writing codes from scratch via reading documentations. The project was very intereseting and the mentor was very friendly.

Academic courses relevant to the project: 1. CS F111- Computer Programming (BITS, 1st Year)
2. CS 229 (Stanford) OR Andrew NG's Supervised Machine Learning on Coursera
2. CS 231n (Stanford) OR Coursera's Deep Learning Specialization

Learning Outcome: Machine Learning, Coding in Python, Satellite Image Analytics, QGIS Software

PS-I station: RI Equation LLP, Pune

Student

Name: VATSAL KAILASH HEDA .(2022A3PS1205P)

Student Write-up:

PS-I Project Title: Block chain development intern

Short Summary of work done: Installation and deployment of erpnext on virtual machine in Google cloud. Customisation of erpnext for different start ups based on their use cases.

Objectives of the project: Erpnext customisation

Tool used: Ubuntu and vs code

Details of Papers/patents: None

Brief description of the working environment: Working environment was not upto corporate standards. Overall learnt wsl and customisation of erpnext with human resource management.

Academic courses relevant to the project: Some parts of computer programming in wsl and ubuntu.

Learning Outcome: Learnt wsl and hr management

Name: SHASHWAT SHARMA .(2022AAPS0508H)

Student Write-up:

PS-I Project Title: Mapping FIRs to IPC Section using Natural Language Processing

Short Summary of work done: We set up a local inference model on our machine and provided FastAPI code for a client web interface, this would save them space and allow clients to access the company's fine tuned LLM without having to download it locally on their personal computer. This was an immensely cost effective solution. We also trained the custom llm model using AnythingLLM and embedded various documents to test for querying purposes.

Objectives of the project: Develop a local inference server for client use as well as provide a web interface for customer querying, Embed various documents and train them using AnythingLLM to answer queries

Tool used: S/w-AnythingLLM, Ollama, Windows Subsystem for Linux, Ubuntu

Details of Papers/patents: None

Brief description of the working environment: --

Academic courses relevant to the project: Natural Language Processing

Learning Outcome: Gained an in depth understanding of Large Language Models using Natural Language Processing

Learnt how to fine tune Large Language Models as well as prompt engineering

Learnt how to set up a local inference server

PS-I station: Silver Touch Technologies Ltd., Ahmedabad

Student

Name: MIT SHETH(2022A4PS0079G)

Student Write-up:

PS-I Project Title: Evoke and Authenticate Email from Web Source

Short Summary of work done: I commenced my PS-1 with learning about RPA (Robotics Process Automation) which refers to the use of software robots or AI workers to automate repetitive, rule-based tasks and about Automation Anywhere (a leading RPA software). Multiple real time RPA bots were created by me for automating various tasks. Then, HTML,CSS and JavaScript was learnt elaborately by me which was a requirement for the execution of the PS-1 project assigned to my group and me. A webpage was made by me for the "Silver Email Finder" and the backend logic script of JS was integrated in the front-end by me.

Objectives of the project: To create/develop a chrome extension which extracts all the emails present on a website and displays it in tabular manner.

Tool used: S/w:- Visual Studio , Visual Studio Code (for HTML,CSS, Javascript, Python)

Details of Papers/patents: None

Brief description of the working environment: Exceptional level of commitment and dedication towards their internship program for us. All the mentors were easily approachable and always ready to help us. Very cooperative while seeking guidance or suggestions related to the assigned PS-1 project.

Academic courses relevant to the project: None

Learning Outcome: Developed proficiency in HTML,CSS & JavaScript and learnt about various ways of automating tasks using RPA bots.

Name: YAMANA SAI MAHESH .(2022A4PS1527H)

Student Write-up:

PS-I Project Title: Resume Parser-Odoo Recruitment system

Short Summary of work done: We were taught automation anywhere in which we made software robots which help in automating repetitive tasks.We were required to fetch resumes from various sources available online and extract key information: candidate's name, phone number, email, location etc and use online tools for parsing: SpaCy, ResumeParser. We used Odoo API (v14.00 or v15.00) to send data to the system and created detailed documentation for system use and administration.

Objectives of the project: Creating a project to extract information from resumes and send it to Odoo via an API

Tool used: SpaCy, ResumeParser,Odoo API,Mixtral and Qwen APIs,Jupyter Notebook

Details of Papers/patents: None

Brief description of the working environment: It was a great experience, mentors from the company were helpful and resolved all our doubts. Assignments were given which tested our understanding during the course period.

Academic courses relevant to the project: No course in particular.

Learning Outcome: We learnt about RPA and practiced making bot using Automation anywhere software and used Python,GitHub for project

Name: MALAY MISHRA .(2022A7PS0116P)

Student Write-up:

PS-I Project Title: Evoke and authenticate emails from web sources

Short Summary of work done: We were first introduced to the robotic process automation technology using the Automation Anywhere tool. Our project was different from RPA but we were introduced to the technology. Our project consisted of web scraping and web crawling. The project manager was helpful and helped whenever we faced any challenges. Overall a good learning experience and a good project was allotted. Also 2 groups were made with 2 different projects. The web scraping project was assigned to me.

Objectives of the project: To create a project that extracts visible and encrypted emails from a website by crawling into all the web pages in that website and then storing them in a database.

Tool used: HTML, CSS, JavaScript, Automation Anywhere

Details of Papers/patents:None

Brief description of the working environment: Online mode. Work from home with a daily 2 hr meet on Microsoft Teams. Helpful mentors and project managers that helped overcome some tackles while creating the project. Overall a very good learning experience

Academic courses relevant to the project: CS F211 Data Structures and Algorithms

Learning Outcome: Web Scraping and web crawling

PS-I station: Skill peritia (Catalyst Edutech Pvt. Ltd.) - Non Tech, Mumbai

Student

Name: AARYAN RAJESH SARAF .(2022A8PS1239P)

Student Write-up:

PS-I Project Title: Content creation for JEE courses

Short Summary of work done: This report outlines two primary projects undertaken. The first project focused on developing a basic user registration web application using Django and PostgreSQL. The application was designed to enable users to register with a username and password, securely storing their credentials in a PostgreSQL database. This project served as a practical introduction to web development, covering essential aspects like form handling, user data management, and basic front-end design. The second project involved a comprehensive analysis and enhancement of the Skill Peritia platform, an EdTech service providing test series for competitive exams. The objective was to improve user experience, app functionality, and marketability based on detailed user feedback. Key areas addressed included login issues, content relevance, test difficulty, timer functionality, section organization, anti-cheating measures, and paper analysis enhancements. Additionally, recommendations were made to increase the number of free tests, improve SEO marketing, and provide targeted content for niche exams and board exams. Through these projects, significant improvements were made to the Skill Peritia platform, making it more user-friendly and effective in aiding students' exam preparations. The user registration application project also solidified foundational web development skills using Django and PostgreSQL.

Objectives of the project: To provide feedback and suggestions for Skill Peritia website

Tool used: Python, Django, PostgreSQL

Details of Papers/patents: None

Brief description of the working environment: Mode of work was online/ work from home. Throughout the project, significant learning opportunities were realized. Developing the user registration web application using Django and PostgreSQL provided hands-on experience with web frameworks, database management, and front-end design. This project enhanced understanding of core web development principles, including form handling, user authentication, and data management.

Academic courses relevant to the project: None

Learning Outcome: Django, web development, Python

Name: GARVIT SAINI(2022B4TS1515P)

Student Write-up:

PS-I Project Title: HLD and LLD of omnimorphAI

Short Summary of work done: Initially, we were assigned tasks related to OmnimorphAI. The first task was to understand the codebase of OmnimorphAI, which was challenging but essential for our subsequent assignments. Following this, we were tasked with creating both a High-Level Diagram (HLD) and a Low-Level Diagram (LLD) for OmnimorphAI. Although this task was complex, our mentor provided invaluable assistance, guiding us through the intricacies and helping us successfully complete the diagrams. Next, we were assigned to create a media spreadsheet. This involved compiling links to various videos and specifying details such as font, color, and size for each entry. This task required meticulous attention to detail to ensure accuracy and consistency. After completing the media spreadsheet, we did not receive any further tasks related to OmnimorphAI. Consequently, we shifted our focus to tasks assigned by the PS faculty. By diligently completing these tasks, we ensured that all our responsibilities were met effectively. This marked the conclusion of PS 1, a phase that significantly enhanced our understanding and skills in handling complex projects like OmnimorphAI. Throughout this period, the guidance from our mentor and the collaborative effort within the team played a crucial role in overcoming challenges and achieving our goals. This experience not only deepened our technical knowledge but also honed our problem-solving abilities and teamwork skills, preparing us for future projects and professional endeavors.

Objectives of the project: To learn how video made by AI

Tool used: lucid app

Details of Papers/patents: No

Brief description of the working environment: The environment was incredibly conducive to learning, characterized by a friendly and supportive atmosphere. This virtual setting significantly enhanced the learning experience for several reasons.

Firstly, the platform's user-friendly interface facilitated seamless communication and collaboration among interns and mentors. This ease of interaction encouraged open dialogue, where interns felt comfortable asking questions, sharing ideas, and seeking clarification. Such open communication deepened their understanding of the tasks and projects at hand.

Secondly, the supportive online community fostered a sense of belonging and motivation. Interns who felt valued and supported were more engaged and invested in their roles. This positive emotional state was crucial for effective learning, as it reduced anxiety and boosted confidence, enabling interns to tackle challenging assignments with greater ease.

Furthermore, the online internship environment promoted active learning techniques. Instead of passively receiving information, interns were encouraged to participate actively through virtual discussions, collaborative projects, and interactive workshops. This active

engagement reinforced their knowledge and developed critical thinking and problem-solving skills.

In addition, the internship provided access to a wealth of resources and support systems, such as knowledgeable mentors, helpful peers, and a variety of digital materials. These resources equipped interns with the tools they needed to succeed and overcome any obstacles they encountered.

Overall, the learning-friendly environment of the online internship was instrumental in fostering a positive and effective educational experience. It created a space where interns could thrive, grow, and achieve their full potential, making the process of learning not only productive but also enjoyable.

Academic courses relevant to the project: No

Learning Outcome: Learn how to make website with NodeJS and video using AI

PS-I station: Skill peritia (Catalyst Edutech Pvt. Ltd.) - Tech, Mumbai

Student

Name: HRISHIKESH ANISH .(2022B1A11563H)

Student Write-up:

PS-I Project Title: Development of OmnimorphAI: Construction of HLDs and LLDs & Integration of moviepy transitions

Short Summary of work done: During my internship, I focused on two primary tasks that contributed to the development and enhancement of web application OmnimorphAI. Firstly, I constructed high-level and low-level diagrams for the OmnimorphAI web application. This involved creating detailed visual representations of the system's architecture, components, and data flow. The high-level diagrams provided an overview of the major modules and their interactions, while the low-level diagrams delved into the specifics of individual components, data processing, and integration points. These diagrams are essential for understanding the overall structure and operational logic of OmnimorphAI, facilitating better communication, documentation, and future development efforts. Secondly, I wrote transition functions in the add Transitions.py code for the OmnimorphAI web app by utilizing the MoviePy library. This task required installing and configuring the necessary MoviePy dependencies, followed by the development of custom transition effects to enhance the video editing capabilities of the application. By

implementing smooth and visually appealing transitions, I improved the user experience and functionality of OmnimorphAI, enabling users to create professional-quality video edits with ease. These tasks not only strengthened my technical skills in system design and video processing but also provided practical experience in problem-solving, technical documentation, and project management.

Objectives of the project: The main objectives of this project are: 1)Develop Comprehensive system diagrams for OmnimorphAI 2)Enhance OmnimorphAI Web App with Advanced Transition Effects

Tool used: Lucidchart-used it to design HLDs and LLDs

Details of Papers/patents: None

Brief description of the working environment: Working Environment:

The internship was conducted online, providing a flexible and remote working environment. Communication and collaboration were facilitated through various digital platforms like Discord and WhatsApp, though there was a very limited scope for it. Weekly virtual meetings ensured that progress was tracked, and any issues were promptly addressed. Despite being remote, the environment was supportive and interactive, fostering a sense of teamwork and collaboration.

Expectations from the Company:

The company expected a high level of professionalism, commitment, and self-discipline. Key expectations included timely completion of tasks, active participation in meetings, and effective communication. The company also anticipated that interns would take initiative, seek feedback, and continuously improve their skills.

Learning During PS-I:

During my internship, I gained valuable insights and hands-on experience in system design and video editing and compositing. Constructing high-level and low-level diagrams for OmnimorphAI enhanced my understanding of web application architecture and component interaction. Working with the MoviePy library to implement video transitions in the OmnimorphAI web app honed my technical skills in Python programming and multimedia processing. Additionally, I developed problem-solving abilities, learned to troubleshoot code, and optimized performance. The remote nature of the internship improved my time management and self-motivation. Overall, the internship provided a comprehensive learning experience, blending theoretical knowledge with practical application, and preparing me for future professional challenges.

Academic courses relevant to the project: Computer Programming (CS F111)

Learning Outcome: 1)Gained proficiency in constructing high-level and low-level diagrams, which illustrate the architecture, components, and data flow of a web application.

2)Developed technical skills in using the MoviePy library for video editing, specifically in creating and implementing custom transition effects.

- 3) Acquired practical experience in handling and processing multimedia content, including integrating video and audio tracks, applying effects, and ensuring smooth transitions between clips.
- 4) Improved skills in documenting technical processes and system designs through the creation of detailed diagrams and code documentation.
- 5) Learned how to manage and execute project tasks effectively, from initial planning and requirement gathering to implementation and testing.

Name: ABHINAND MANOJ .(2022B1A11589P)

Student Write-up:

PS-I Project Title: Product and Web Development Internship

Short Summary of work done: To evaluate the existing features of Skill Peritia, propose improvements, suggest new functionalities, and outline a strategic marketing plan to increase user engagement and expand its reach. The goal is to make Skill Peritia a more effective and efficient tool for students aiming to excel in their exams. Central to these improvements is the integration of Django, a high-level Python web framework. By leveraging Django, the platform can achieve significant enhancements in performance, security, and scalability, ensuring that Skill Peritia remains a top-tier resource for students' exam preparation needs.

Objectives of the project: To find out the Current Feature Improvements and New Feature Recommendations of the company app and to learn django inorder to understand the backend working of the website

Tool used: HTML,Css,Javascript

Details of Papers/patents: No

Brief description of the working environment: Online internship. Expectation-NIL. Learnt marketing strategies and Django

Academic courses relevant to the project: django framework youtube

Learning Outcome: Product Development Understanding and Django Framework

PS-I station: SNS Technosys LLP, Pune

Student

Name: ATHARVA NATANI .(2022A3PS1196P)

Student Write-up:

PS-I Project Title: Advanced IoT Solutions Utilizing Flutter App Development, Project Management with Jira, and Predictive Analytics

Short Summary of work done: The requirement was to make an application which takes the data from the user and is connected with a data logger which is used to input that data into the machine, so that it removes human interference, and this software directly configures the devices. I also worked on the Jira project management tool to implement the upcoming requirements of the company and make a project plan for it to keep track of the work done. The other requirement was to understand the working of the Thermoelectric Module for effective cooling and heating purposes. I need to identify the possible failure modes in the Module and identify the correct sensors to detect these failure modes in the Module for predictive maintenance.

Objectives of the project: 1. The project aimed to develop a user-friendly Flutter UI based Application for DSmart 400. 2. Implementing the project plan for the upcoming requirements with the help of Jira Software. 3. Implementing predictive maintenance for the Thermoelectric modu

Tool used: Flutter, Dart, Jira, Lucidchart, Android Studio, Microsoft Word, Microsoft Excel

Details of Papers/patents:N.A.

Brief description of the working environment: This was my first industry exposure. It was a good experience to see how to apply theoretical knowledge to practical purposes. we got to know about many things like IoT and its application, firmware development, and hardware development. The mentors at SNS were very helpful. They helped us in learning the skills required for the project. There were tight deadlines, but the director always gave us sufficient time whenever we asked for it to meet the requirements. There were daily meetings in the morning, and at the end of the day regarding the updates of the task provided. The mentor at SNS helped us with our project, tracked our progress, and provided necessary feedback so that we could improve, and get better at our work. This was quite good industrial exposure.

Academic courses relevant to the project: Technical Report Writing, Microelectronic Circuits

Learning Outcome: I understood the complete flow of work at an IoT electronics company—how the firmware and hardware development work hand in hand to achieve these outputs. I learnt Flutter, dart programming language, and Jira Software for Project Management. I got to know about various electronic components and hardware devices. I learnt the working, and technical specifications of the Thermoelectric Module, extract fans, pressure sensors, air quality sensors, and temperature sensors.

Name: ASHIT ARYAN(2022B3AA0794G)

Student Write-up:

PS-I Project Title: Flutter App Development for IOT Applications of DSmart400(Data Logger)

Short Summary of work done: Under this project I worked on the development of an application which can be used to save data input by user to the local database which can further be transferred to a data logger device named DSmart400 using a USB COM port

Objectives of the project: To develop a Flutter software which can be used to configure data logger device DSmart400

Tool used: Flutter, Android Studio, PHP, MySQL

Details of Papers/patents: Nil

Brief description of the working environment: The working environment was really very good and the mentors were good. We were working directly under the guidance of the Director of the company since the project was a direct client project.

Academic courses relevant to the project: Computer Programming

Learning Outcome: Flutter, App Development, PHP

Name: ATHARVA DESAI(2022B4AA0125G)

Student Write-up:

PS-I Project Title: Flutter App Development for IOT Applications of DSmart400(Data Logger) & Development and programming of ESP32 and EC200U for end user application (DSMART devices)

Short Summary of work done: In this PS-I internship, I developed a user-friendly application with the aim of controlling the DSMART device. The user experience was to be enriched by making an intuitive interface that would make easy interaction with the device's functionalities. I did extensive testing and debugging to ensure its reliability and performance on different platforms. Actually, this project helped me to learn mobile application development, user-centered design, and IoT integration. In the second project For example, in this project, I designed a relay module in which the ESP32 microcontroller was used for wireless communication by the EC200U module. This is a project wherein the two projects were of a different nature. In the main development, the work related to the design and development of circuitry for the relay interface to the ESP32 and optimization was on the relay part to make sure the data passes correctly between the EC200 and the server in the cloud. By incorporating these elements, I was able to enrich the existing functionality of ESP32 for IoT applications. This project helped improve my skills in hardware design, microcontroller programming, wireless communication technologies, and IoT integration.

Objectives of the project: 1. Development of a user friendly application which controls the DSMART device working 2. Development of a relay(for ESP32) and communication using EC200U

Tool used: ESP32 and EC200U modules were used during the second project, for the first project I used Flutter, Android Studio, Visual Studio Code , XAMPP and MySQL software for development

Details of Papers/patents: NIL

Brief description of the working environment: Work environment was very friendly and all mentors interacted and helped me find adequate resources for my projects . Head of the company was very considerate even during strict deadlines of the projects. Overall the environment supported growth and development of me and my PS colleagues.

Academic courses relevant to the project: EEE F111 were in my opinion important to understand the objectives of the hardware(electronics) project, EEE F111 was important to understand some basic parts of the electronic circuit and was therefore crucial. The software part is easier to learn and ca

Learning Outcome: Hardware and software were the broad outlines of my projects. With the help of my mentor who provided adequate resources I was able to make a electronic project which has been beneficial for the company despite not having adequate knowledge in electronics beforehand.

PS-I station: Software Tree, California

Student

Name: ABDUL RAHMAN YAKOOB .(2022A7PS0021H)

Student Write-up:

PS-I Project Title: Gilhari Simplifying Json Data transfer between a oracle 19c database and a mongo db database on OCI

Short Summary of work done: We were split into groups of 4 people and had been given projects in which we had to showcase varies usecases of the companie's product Gilhari. For my project, I first tried to use Gilhari locally on my laptop with a mysql database and once i got familiar with it, we created a 19c database on OCI and then configured the project files as per the requirement and then transferred 50 json objects into the database. After that we had to transfer this data into mongodb database.

Objectives of the project: We had to use a product made by Software Tree called "Gilhari", Gilhari is a product that helps in json data transfer to a database, we can accomplish this without writing any code. In our project, we had to use Gilhari to transfer json data first to a 19

Tool used: Docker,Github,Gilhari(Software Tree's product),curl Commands,Software Tree Rest Api collection,Postman.

Details of Papers/patents:NA

Brief description of the working environment: The company doesn't have many employees and all the interactions we had were with the companies founder and CEO Mr. Damoder Periwal, He was very humble and helpful throughout the journey. Apart from conducting regular zoom meetings, he also kept in touch with us on Slack.

Academic courses relevant to the project: Database Management(DBMS).

Learning Outcome: 1. Creating a Oracle 19c database on oracle cloud
2. Learnt how to use Docker,Github,Slack,Gilhari.
3. Learnt curl commands.
4. Was able to understand rest APIs.

Name: TARUN CHAUHAN(2022A7PS0025G)

Student Write-up:

PS-I Project Title: Gilhari Simplifying Exchanging of JSON data with an RDBMS on AWS

Short Summary of work done: Initially we were given time to understand concepts related to data transfer, relational databases, JSON, etc. Then we were given the task to use their product Gilhari and transfer JSON data to relational database using it on a local database. Then we were asked to shift to database on AWS. After that, we were asked to deploy Gilhari on AWS. We also had to write articles about Gilhari at the end.

Objectives of the project: Demonstrate the use of Gilhari for transferring JSON data to and from relational databases present on AWS

Tool used: Docker, Postman, Github, AWS

Details of Papers/patents: None

Brief description of the working environment: The work environment was calm and stress-free. We had a meeting at 9.30 a.m. for 1 - 2 hours on some days of week where we discussed the progress. Both the mentor and the PS1 faculty were helpful throughout the course. The company expects us to do the given work and ask doubts if we face difficulty. We learnt about latest technologies used in the IT industry.

Academic courses relevant to the project: Computer Programming, Database Systems

Learning Outcome: 1. Learnt about latest technologies like Docker, Postman.
2. Learnt about AWS cloud platform, how to create a database on AWS and how to deploy microservices on AWS.
3. Gained more experience in building projects in Python.

Name: KARINGATTIL SAGAR THOMAS .(2022A7PS0156H)

Student Write-up:

PS-I Project Title: Rdbms gilhari microservice

Short Summary of work done: Learning how to use docker and documentation and github

Objectives of the project: Configuring and running a (Kafka) streaming server .
Developing a standalone program (Producer) to keep generating data for JSON objects programmatically and sending that data (of one or multiple JSON objects at a time) to the (Kafka) s

Tool used: Docker GitHub python java

Details of Papers/patents: Nil

Brief description of the working environment: Nil

Academic courses relevant to the project: Dbms oops

Learning Outcome: Rdbms azure database system

Name: ABHISHEK DHEKANE(2022A7PS0453G)

Student Write-up:

PS-I Project Title: GILHARI SIMPLIFYING TRANSFER OF DATA FROM AN ORACLE 19C RDBMS TO ANOTHER NOSQL DATABASE ON ORACLE CLOUD INFRASTRUCTURE

Short Summary of work done: Worked with various databases including locally and cloud, namely, Oracle, MongoDB, Couchbase. Also used tools like command line interface and GitHub to commit changes for project purposes. Used Oracle cloud, MongoDB local and cloud, Couchbase local databases for data transfer using the microservice provided by the company. Latex was a major learning outcome which was used to write the reports for midsemester and end semester evaluation. We also were introduced to Postman to send CRUD commands to the databases through a clear UI.

Objectives of the project: To configure the microservice provided by the company to facilitate data transfer between relational and non relational databases

Tool used: GitHub, Postman

Details of Papers/patents:NA

Brief description of the working environment: The company expert was pretty flexible and very helpful. Although the company was US based, the expert was willing to guide and help us at any time even after the working hours in the United States. Demo meets were arranged and we also had the option to ask him to host a meet if any specific help was required. Overall a very helpful and friendly guy.

Academic courses relevant to the project: Database Management Systems, Object Oriented Programming

Learning Outcome: GitHub - had to commit changes to configuration files for evaluations

Command Line Interface - used to interact with databases

MongoDB - One of the NoSQL databases used for project purpose

Couchbase - NoSQL database used for the project

Postman - To send GET, POST, UPDATE, DELETE APIs to databases

Oracle - Used as a relational cloud database for the project

Latex - Used to write midsem and compre reports

Name: MANAS TOMAR(2022A7PS1184G)

Student Write-up:

PS-I Project Title: Simplyfying data transfer from 1 RDBMS to another RDBMS in AWS

Short Summary of work done: we configured gilhari(comapnys product) to transfer data from 1 RDBMS to another RDBMS

Objectives of the project: using gilhari

Tool used: s/w

Details of Papers/patents:no

Brief description of the working environment: great enviornment

Academic courses relevant to the project: a little

Learning Outcome: dbms

Name: ANAND SRINIVASAN .(2022A7PS2017H)

Student Write-up:

PS-I Project Title: Project 8

Short Summary of work done: Simulated an ecommerce dealing and created an orm mapping for 6 tables with constraints. Then created empty java classes with the required orm mapping, then ran it all in a docker container by adding required config files. Then executed API calls to transfer data in and out of any rdbms

Objectives of the project: Reverse engineering an ORM to create schema and run an app specific microservice to tranfer data in and out of an rdbms

Tool used: Linux os, docker, java, mysql, JDX toolkit

Details of Papers/patents: None

Brief description of the working environment: Very supportive mentor and professor, teammates were understandably slower to grasp as they were dualites who hadn't studied relevant courses before

Academic courses relevant to the project: DBMS

Learning Outcome: Learnt docker

Kubernetes
Maven
Springboot
Jdx
Gilhari
Slack communication
Mysql , jdbc

Name: NISHIT MUKESH PATEL .(2022B3A70568P)

Student Write-up:

PS-I Project Title: Gilhari Simplifying Exchanging of Json Data With An RDBMS

Short Summary of work done: During my PS-I, I engaged in a comprehensive project utilizing the Gilhari microservice for Object-Relational Mapping (ORM). The primary objective was to establish and manage a database system efficiently. I initiated the project by setting up MySQL databases and creating tables tailored for employee data. Using scripting, I populated these tables with data, ensuring smooth data management. I executed queries using both curl commands and Postman, enhancing my understanding of database operations and API interactions. Additionally, I explored the auto-increment feature of Gilhari, which streamlined the generation of unique IDs for new employee entries. Cross-platform development was a crucial aspect, as I adapted the project to run on both Windows and macOS environments. This involved addressing platform-specific configurations and ensuring consistent performance. Overall, the project significantly improved my technical skills in database management, scripting, and utilizing microservices, while also providing valuable experience in cross-platform development.

Objectives of the project: The objective of the "Gilhari Simple Example" project is to demonstrate how to effectively utilize Gilhari, a microservice designed for Object-Relational Mapping (ORM) in database management. The project involves setting up a database, creating and popula

Tool used: MySQL for database management, Gilhari microservice for Object-Relational Mapping (ORM), Postman for API testing, curl for command-line HTTP requests, Windows and macOS operating systems for cross-platform development

Details **of**

Papers/patents:https://docs.google.com/document/d/1PoznL8omq29G2NcbzB__dqXI1Dadexv1-1TuoXd8ZcQ/edit?usp=sharing

Brief description of the working environment: The PS-I project was conducted online, providing a remote working environment. Communication and collaboration were facilitated through virtual meetings, emails, and online project management tools. Expectations included understanding Gilhari's features. During PS-I, significant learning outcomes included gaining proficiency in MySQL, understanding the practical application of OR-mapping, and mastering tools for API testing and database management. Additionally, the project enhanced problem-solving skills and the ability to work collaboratively in a virtual setting.

Academic courses relevant to the project: Not studied yet

Learning Outcome: Gained practical knowledge of setting up and using Gilhari for Object-Relational Mapping (ORM) in database management, learned to create and populate database tables using scripts, and query the database using both curl commands and Postman, implemented and understood the auto-increment functionality of Gilhari for generating unique IDs for new entries, explored differences and adaptations needed for running the project on Windows vs. macOS.

Name: SHUBHAM SAHOO(2022B3A70628G)

Student Write-up:

PS-I Project Title: Developing a standalone 50 JSON objects database and populating it on oracle 19c database and a NoSQL database and then executing REST calls between these databases using Gilhari Microservice

Short Summary of work done: We developed 50 JSON objects with schema of a student, ID, height, Weight on Oracle 19c and deployed it on cloud with the help of OCI, then we were able to do get, post,delete commands on it with the help of Postman API with the help of Gilhari. We could do the same with MongoDB and couchbase but with local APIs.

Objectives of the project: Developing a standalone 50 JSON objects database and populating it on oracle 19c database and a NoSQL database and then executing REST calls between these databases using Gilhari Microservice

Tool used: Gilhari, Java SDK1.8, JDX,OCI, Java Script, MySQL, Oracle 19c

Details of Papers/patents:-

Brief description of the working environment: Work environment was not stressful, the mentor was understanding and knowledgeable. The faculty in charge was flexible.

Academic courses relevant to the project: DBMS

Learning Outcome: Oracle 19c, OCI, MongoDB, Couchbase, JSON

Name: SIDDHARTH KAMLESH SHARMA .(2022B4A70601P)

Student Write-up:

PS-I Project Title: Gilhari Simplifying Transfer of data from one RDBMS to another RDBMS (of different kind) on AWS

Short Summary of work done: Engineered OOP based microservice frameworks to exchange JSON data between different RDBMS systems – Integrated critical backend to host web applications on AWS, and provided mentorship to fellow team members.

Objectives of the project: Developing a standalone program to first populate a database (DATABASE1) with sample JSON data (50 objects) using the Gilhari microservice framework . Developing a standalone program to retrieve JSON data from DATABASE1 using the Gilhar

Tool used: Java Gilhari Microservice, MySQL, PostgreSQL, Postman, AWS EC2 & RDS, Docker

Details of Papers/patents:N/A

Brief description of the working environment: Good collaborative environment; expected to work on typical software development product projects; good exposure to backend and frontend development with deep rooting in OOP principles and DBS concepts

Academic courses relevant to the project: CS F213 Object Oriented Programming; CS F212 Database Systems; Cloud computing

Learning Outcome: Developing and using a data oriented Microservices like Gilhari, Docker, REST APIs, Postman, Git, Documentation
Cloud computing

AWS cloud
AWS RDS database

Name: SAMEER SINGLA .(2022B4A71564P)

Student Write-up:

PS-I Project Title: Using JDX (an ORM product of Software Tree) to reverse engineer the JSON object model artifacts (classes and mapping) from the created database schema

Short Summary of work done: To reverse engineering an existing database with JDX and Gilhari .

Objectives of the project: To reverse engineering an existing database with JDX and Gilhari

Tool used: Docker Gilhari JDX SQL

Details of Papers/patents: Wrote an article based on the work done

Brief description of the working environment: Flexible timings. Remote. Overall a great learning experience.

Academic courses relevant to the project: DBMS

Learning Outcome: Software engineering, reverse engineering.

Name: S ACHAY SUMAL .(2022B5A71013H)

Student Write-up:

PS-I Project Title: gilhari-simplifying-exchanging-of-json-data-with-an-rdbms-on-gcp

Short Summary of work done: This project involved developing a standalone application using the Gilhari microservice framework to manage JSON data in a relational database. We created 50 sample Employee JSON objects and corresponding Address objects, demonstrating a 1:1 relationship. The Gilhari framework was configured to connect to the RDBMS, and scripts were written to populate the database with this data. REST API endpoints for PUT and DELETE operations were implemented using Gilhari and Express.js. Comprehensive documentation, including a README.txt and a tutorial, was provided to highlight the ease of using Gilhari. Finally, the project was uploaded to GitHub and deployed on Google Cloud Platform using a free tier developer license.

Objectives of the project: Simplifying JSON Data between RDBMS and a Application using software package created by company

Tool used: JDK , POSTMAN , DOCKER , google cloud platform

Details of Papers/patents:-

Brief description of the working environment: Our mentor and CEO of the company , Damodar sir organised zoom meets to instruct, when ever possible to discuss regard project , all the interns were on' SLACK ', in which neccessary information was posted by mentors , and discussion where made and we were in constant touch with each other . I learnt many technologies and how to use docker , postman , and how to document project on github.

Academic courses relevant to the project: DBMS , OOPS

Learning Outcome: Developing and using a data oriented Microservices like Gilhari, Docker, REST APIs, Postman, Git, Documentation .Cloud computing,Google cloud, Spanner database

Name: VISHAL MUKUNDHAN .(2022B5AA1630H)

Student Write-up:

PS-I Project Title: Gilhari Simplifying Exchanging of JSON data with an RDBMS on AWS

Short Summary of work done: In this project we have explored the ways of integrating various softwares to simplify the exchange of JSON data with a relational database using Gilhari. We began by understanding briefly the concepts of relational databases, JSON, Postman, Docker etc. We then proceeded to configure and deploy a Gilhari microservice, setting up the necessary environment to handle the operations efficiently. The documentation provided in the Gilhari SDK makes it much easier to setup and configure Gilhari. Following the steps we were able to successfully test the Gilhari APIs and use Gilhari to transfer JSON data into relational databases. We created an Employee class in Java to define our domain model, utilized Docker for containerization, and employed Postman for testing and verifying our API endpoints. By Gilhari and containerization, we aimed to simplify the persistence of JSON objects in a relational database, paving the way for maintainable data management. We have also seen that using Gilhari is straightforward and user-friendly. Its microservice framework allows for seamless JSON persistence in relational databases with minimal configuration. The framework's REST API simplifies CRUD operations, making it accessible even for those with limited database expertise and streamlines the process of managing JSON data in a relational database. We have highlighted the features of Gilhari and shown the setup of Gilhari locally and shown its deployment on the cloud, highlighting its capabilities on AWS for scalability and robust data management.

Objectives of the project: Json, javascript, working on a cloud platform

Tool used: Postman, Docker, Aws, Github, VSC

Details of Papers/patents: Nil

Brief description of the working environment: Very friendly and lenient mentor who's very helpful expectations: github repo and article to be published on medium or linkedin.

Academic courses relevant to the project: OOPS, DBMS

Learning Outcome: Data integration

PS-I station: Solutionec Pvt. Ltd, Bangalore

Student

Name: GURUMURTHY VENKATAKUPPUSWAMY .(2022A7PS0226H)

Student Write-up:

PS-I Project Title: Data Science and Innovation

Short Summary of work done: During my internship at Solutionec Pvt Ltd as part of the Data Science and Innovation team, I engaged in several key projects aimed at enhancing our data analysis capabilities. Primarily, I worked with SMA (Social Media Analysis) and CHC (Content Health Check) using various LLMs (Large Language Models) and Hugging Face models to analyze tweets and LinkedIn posts. This involved performing sentiment analysis to accurately classify and gauge public opinion on topics related to SMA. A significant portion of my work focused on calculating the Share of Voice (SOV) and Share of Engagement (SOE) for specific keywords. I utilized machine learning models to bucket posts into predefined themes such as Drug Performance, Drug Efficacy, and Marketing Practices, and created visualizations to represent this data effectively. Additionally, I contributed to the development of Flash Insights, an application designed to provide actionable data insights. My responsibilities included preparing raw data for usability in filter functions and supporting the frontend development by implementing API endpoints that delivered processed data from various data-analysis functions. Through these projects, I supported Solutionec's goal of making data-driven decisions and fostered innovation within the Data Science and Innovation team by exploring and integrating new methodologies and technologies in data analysis and machine learning.

Objectives of the project: Social Media Analytics [worked on analysing a competitors drugs for a particular pharma company to better understand the current market using LLMs and other tools], Flash Insights - the Companies first product, we made a revised version of it.

Tool used: I utilized tools such as Python, pandas, matplotlib, seaborn, Hugging Face models, LLMs, Flask, React, and various APIs to perform data analysis, visualization, and application development.

Details of Papers/patents:NA

Brief description of the working environment: My experience at Solutionec Pvt Ltd was highly enjoyable and enriching. The working environment was vibrant and supportive, with a relaxed and fun-loving manager and team. The office featured a game room equipped with table tennis, carrom, and foosball, fostering a balanced and engaging work culture. Additionally, the ground floor housed an arcade with numerous food stores offering a variety of delicious dishes, adding to the overall pleasant atmosphere.

The company's expectations were clear and motivating. We were encouraged to innovate and leverage cutting-edge technologies in data science and machine learning. The focus was on achieving high-quality results through collaboration, creativity, and continuous learning.

During my PS-I, I gained substantial knowledge and practical experience in data analysis and machine learning. I worked extensively with large language models and tools like pandas, matplotlib, seaborn, and Hugging Face models. This hands-on experience

allowed me to enhance my technical skills and understand the real-world applications of advanced data analysis techniques.

The supportive environment at Solutionec enabled me to explore new methodologies and contribute effectively to various projects. I appreciated the emphasis on data-driven decision-making and the opportunity to work on innovative solutions. Overall, my time at Solutionec was incredibly valuable, providing me with both professional growth and enjoyable memories.

Academic courses relevant to the project: Data Mining, OOPs, CS F111- Computer Programming

Learning Outcome: I learned on a broad level on how to extract raw data, and derive useful information from it. I learned how to use LLMs, how to better search in Google and use AI tools.

Name: PRIYANSHU TRIPATHI .(2022A7PS1798H)

Student Write-up:

PS-I Project Title: Sharepoint development

Short Summary of work done: During my PS 1 internship at Solution under the guidance of Sri Sai Ram in the automation department, I contributed to the development of an intranet ticketing site for efficient ticket management. My primary responsibilities included creating a user admin page, which facilitated the search, filtering, and editing of tickets. Additionally, I developed a dynamic status web part using TypeScript and the SharePoint Framework (SPFx), enhancing the functionality and user experience of the ticketing system

Objectives of the project: To make Components of intranet website

Tool used: Typescript, Spfx ,react.js,css.html,css

Details of Papers/patents: NA

Brief description of the working environment: During my PS 1 internship at Solution under the guidance of Sri Sai Ram in the automation department, I contributed to the development of an intranet ticketing site for efficient ticket management. My primary responsibilities included creating a user admin page, which facilitated the search, filtering, and editing of tickets. Additionally, I developed a dynamic status web part using

TypeScript and the SharePoint Framework (SPFx), enhancing the functionality and user experience of the ticketing system.

The working environment was very professional, and I acquired many valuable skills during this internship. These new skills will undoubtedly help me achieve my future goals.

Academic courses relevant to the project: Data structure and algorithms

Learning Outcome: Admin user page and a dynamic status bar

Name: SANJEIV SURESH .(2022B1A81648P)

Student Write-up:

PS-I Project Title: DATA VISUALISATION AND REPORTING THROUGH POWER BI

Short Summary of work done: During my internship, I undertook several projects that significantly enhanced my data analysis, visualisation, and AI integration skills. I began by developing a Country Diagnostics Dashboard in Power BI, which classified countries based on various development indices, including Health Financing, Digital Health Maturity, Health Equity, and SDG Factors. This project involved importing and transforming extensive datasets, designing an intuitive interface, and implementing interactive features to enable in-depth data exploration. I designed a Pharmacy Sales Dashboard in Power BI, visualising sales data from 2019 to 2021 across multiple countries and products. This involved creating new measures using DAX functions, developing interactive components, and ensuring the dashboard provided valuable insights into sales performance and trends. I also contributed to creating a comprehensive Power BI curriculum for new employees, collaborating closely with Santosh Kumar. This involved preparing detailed slideshow decks and Word files in the SolutionEC format and providing key learning resources such as the Microsoft Power BI Data Analyst Certification Course and selected YouTube channels like Alex The Analyst and BI Consulting Pro. These materials were designed to help new employees quickly gain proficiency in Power BI. Finally, I embarked on a project to create an OpenAI wrapper for Power BI Microsoft Fabric. This required extensive learning about Large Language Models (LLMs), LangChain, and Retrieval-Augmented Generation (RAG). Although the project was in its early stages, I laid the groundwork for integrating OpenAI's advanced language models with Power BI to enhance data analysis and visualisation capabilities. These experiences deepened my technical expertise and highlighted the importance of continuous learning and adaptation in the data-driven landscape. The practical applications of my learning and the collaborative environment further enriched my

understanding, preparing me for future projects where I can effectively utilise Power BI and advanced AI techniques.

Objectives of the project: To apply data visualisation to multiple ongoing projects within the company and to finally create an Open AI wrapper for Microsoft fabric

Tool used: Microsoft Power BI, Python, Microsoft PowerPoint

Details of Papers/patents: no patents/ papers published

Brief description of the working environment: It was an average Corporate atmosphere, with designated cabins and workspaces. As it is a small company, all employees work on the same floor. The mentors were extremely helpful and guided us throughout the internship. I learnt a lot about data management, visualisation and presentation skills.

Academic courses relevant to the project: none

Learning Outcome: Data warehousing principles, Data Visualisation, Retrieval Augmented Generation, Large Language Models, Power BI

Name: [KEERTHAN REDDY POLAM REDDY\(2022B3A30340G\)](#)

Student Write-up:

PS-I Project Title: Global Health

Short Summary of work done: The project on global health focused on Universal Health Coverage (UHC) and longevity across Indonesia, Morocco, Zimbabwe, Kenya, and India. The study analyzed the health financing landscapes in these countries, identifying key challenges such as high out-of-pocket expenditures, urban-rural disparities, and low government health spending. It proposed strategies for raising revenues, pooling funds, and implementing strategic purchasing to enhance financial protection and healthcare accessibility. Additionally, the project involved market research and analysis of the supplement markets, home care diagnostics, and other sectors related to longevity. This research highlighted a growing demand for longevity-related products driven by increased health awareness. The project recommended reforms to increase government health spending, expand coverage to informal sectors, and improve public financial management and pooling mechanisms to achieve equitable healthcare access and

outcomes. The recommendations aim to support these countries' journeys towards achieving UHC and improving overall health and longevity.

Objectives of the project: Consulting and analysis on health policy creation, digital transformation, health financing and Universal Health Coverage.

Tool used: Python, Snowflake, Chatgpt

Details of Papers/patents: The project includes references to several academic papers and relevant documents in the field of health financing for Universal Health Coverage (UHC). The key documents referenced are policy documents, reports from international organizations such as the

Brief description of the working environment: During my PS-I at Solutionec Private Limited in Bangalore, the working environment was dynamic and collaborative, fostering a culture of continuous learning and innovation. The company provided a supportive atmosphere with accessible mentors and regular team meetings that encouraged open communication and idea exchange. The workspace was equipped with essential resources and technology, facilitating efficient project execution.

My expectations from the company included gaining practical experience in health financing and policy analysis, developing a deeper understanding of Universal Health Coverage (UHC), and applying theoretical knowledge to real-world scenarios. Additionally, I anticipated learning from industry experts and contributing to meaningful projects that impact global health policies.

Throughout the PS-I, I acquired significant insights into health financing mechanisms and strategic purchasing. The project involved comprehensive data collection and analysis, utilizing tools such as the Health Financing Progress Matrix (HFPM) and Google Forms for surveys. This hands-on experience enhanced my skills in data analysis, policy simulation, and comparative analysis, crucial for assessing and recommending health financing reforms. Furthermore, the longevity research project provided exposure to market research methodologies and financial analysis of health-related sectors.

Overall, the PS-I experience at Solutionec Private Limited was enriching, offering valuable professional development and a deeper understanding of health financing challenges and solutions .

Academic courses relevant to the project: Public Finance, Financial Management, Money Banking and Financial Markets, Macroeconomics, Principles of Management

Learning Outcome: Decision Sciences with a focus on health financing methods, health policy and achieving Universal Health Coverage.

Name: HARSSH KARN .(2022B5AA1812H)

Student Write-up:

PS-I Project Title: Flash Insights– A Data Analytics Web Platform

Short Summary of work done: Understood the company and the industry. Worked on mini projects to learn new technologies like keycloak which will be used in the main project. Used technologies like React, MaterialUI, Node.js, Express, GraphQL API, Docker, Keycloak, Apache Superset, Postgres, Git to build a website whose main job is to provide analytics and insights from data at various levels of depth as required for the client.

Objectives of the project: • To enable businesses to make better decisions and provide a seamless UI for businesses in the analysis of strengths and weaknesses. • Design a secure setting for client data and its feedback, and manage them accordingly. Offer fast and efficient interface

Tool used: React, MaterialUI, Node.js, Express, GraphQL API, Docker, Keycloak, Apache Superset, Postgres, Git

Details of Papers/patents: No papers/ patents involved.

Brief description of the working environment: Very open and interactive working environment. Everyone was ready to help and solve doubts. Company is got sized with multiple teams and multiple products being made. Learnt a lot about development and data science in my time there.

Academic courses relevant to the project: DSA/ FDSA, OOPS, DBMS, ML

Learning Outcome: React, MaterialUI, Node.js, Express, GraphQL API, Docker, Keycloak, Apache Superset, Postgres, Git, Soft skills and Time management

**PS-I station: Stackwalls Technologies Private Limited - Non Tech,
Ahmedabad**

Student

Name: DHRUV AHUJA(2022B3A70045G)

Student Write-up:

PS-I Project Title: GROWTH AND SALES STRATEGIES TO GENERATE LEADS FOR STACKWALLS

Short Summary of work done: We learnt how to use cold mailing method to approach clients. This was an effective method to approach large number of clients. Then we moved on to LinkedIn approach where we approached clients through our conversation skills and networked our way through generating leads.

Objectives of the project: To generate leads for the company and connect freelancers to companies.

Tool used: Apollo.io and LinkedIn

Details of Papers/patents: None

Brief description of the working environment: We didn't have restricted time hours to work for rather we were given tasks based on target or milestones approach for each day or week. It was all very friendly and supportive from mentors side.

Academic courses relevant to the project: Not in our domain as it was sales.

Learning Outcome: How to approach clients using cold emails and LinkedIn. Enhanced our conversation skills.

PS-I station: Steel Authority of India Ltd. (SAIL) Bhilai Steel Plant, Delhi

Student

Name: AMOGH UPADHYAY(2022A7PS0800G)

Student Write-up:

PS-I Project Title: A web development project (vigilance complaint system)

Short Summary of work done: The Vigilance Complaint System is a comprehensive solution designed to enhance the process of submitting and managing vigilance complaints. Through this project, we have successfully developed a platform that not only streamlines the complaint submission process but also ensures the security and authenticity of the complaints through robust verification mechanisms such as OTP and CAPTCHA

Objectives of the project: Build a web application for the company where the employees can file vigilance complaints which will also get saved in companies database

Tool used: CSS, html, .net framework, sql

Details of Papers/patents:-

Brief description of the working environment: Professional exposure with a great work environment and a team of esteemed individuals to learn from.

Academic courses relevant to the project: Database management systems, data structure algorithm, logic in cs, Computer programming (all courses covered in curriculum)

Learning Outcome: Understanding web development, framework and technology as well as learning to develop frontend and backend

PS-I station: STEM4ALL Inc, California

Student

Name: ESHA JAIN .(2022A7PS0010P)

Student Write-up:

PS-I Project Title: Web Development Intern

Short Summary of work done: Designed a two-week course on "Web Development" with a team of four, catering to International Students of Stem4All. Developed a teaching guide for professionals, encompassing full-stack development etc. Created other projects like a dynamic weather app in React.

Objectives of the project: Develop a 2 weeks course on web development

Tool used: React

Details of Papers/patents: NA

Brief description of the working environment: It was

Academic courses relevant to the project: Despite the role being IT it did not have a lot to do with my course.

Learning Outcome: It was basic html and css, did not have a lot to do with my current studies

Name: VINAYAK SAXENA .(2022B4A30709P)

Student Write-up:

PS-I Project Title: AI and ML Bootcamp training

Short Summary of work done: ### Summary of Work Done During PS-I at Stem4All
During my Practice School-I (PS-I) internship at Stem4All, I contributed to a project aimed at enhancing STEM education through innovative technological solutions. My primary role involved developing interactive educational tools and resources to facilitate learning for students. I worked extensively on creating and optimizing algorithms for personalized learning experiences. Using Python and machine learning techniques, I helped design adaptive learning models that tailored educational content based on individual student performance and learning pace. In addition, I was responsible for analyzing data from various educational programs to identify trends and areas for improvement. This involved cleaning and processing large datasets, conducting statistical analyses, and generating comprehensive reports. The insights gained from this analysis were instrumental in refining the educational tools and strategies employed by Stem4All. I also collaborated with a multidisciplinary team to design and implement an intuitive user interface for the educational platform. This required a strong understanding of user experience (UX) principles and effective communication with both technical and non-technical team members. Furthermore, I participated in weekly meetings and brainstorming sessions, contributing to the development of new features and improvements for the platform. This experience enhanced my teamwork and problem-solving skills, as well as my ability to work efficiently under deadlines. Overall, my internship at Stem4All provided me with hands-on experience in applying data science and machine learning techniques to the

field of education. It allowed me to leverage my technical skills to create impactful solutions, ultimately contributing to the advancement of STEM education.

Objectives of the project: Teaching american teen students AI and ML through projects and Promote Stem Education

Tool used: Software Tools Python: Used extensively for developing algorithms and machine learning models. Libraries like NumPy, Pandas, Scikit-learn, and TensorFlow were employed for data processing and model building. Jupyter Notebook: Provided an interactive environment for developing and testing code. Facilitated data visualization and exploratory data analysis.

Details of Papers/patents:N/A

Brief description of the working environment: During my PS-I internship at Stem4All, I experienced a dynamic and collaborative environment focused on innovation and learning. The company valued teamwork, creative problem-solving, and mentorship, fostering open communication and idea exchange.

Expectations and Contributions:

Skill Development: Enhancing technical skills in data science, machine learning, and software development.

Proactive Involvement: Actively participating in project discussions and implementations.

Adaptability: Staying updated with technological advancements and applying new knowledge.

Learning Outcomes:

Technical Proficiency: Improved skills in Python, SQL, machine learning, and web development.

Data Analysis: Gained experience in processing and analyzing large datasets, and creating visualizations using Power BI.

Project Management: Developed project management and version control practices using Trello and GitHub.

Team Collaboration: Enhanced teamwork and communication skills.

Overall, the internship provided valuable skills and insights, preparing me for future career opportunities.

Academic courses relevant to the project: Probability and Statistics

Machine Learning

Data Visualization

Programming Languages (Python)

Learning Outcome: AI ,ML Deep Learning and TensorFlow through Keras

Name: SRAJAN GUPTA .(2022B4AA1065P)

Student Write-up:

PS-I Project Title: Web Development Course

Short Summary of work done: During my PS-I, I focused primarily on developing a comprehensive understanding of frontend development and creating a STEM course on Web Development. I began by researching HTML, CSS, and JavaScript to enhance my knowledge and teaching capabilities. I spent considerable time watching tutorials, reading articles, and practicing coding exercises to solidify my understanding. I explored advanced JavaScript concepts such as event generation, dates, times, and DOM manipulation. In parallel, I designed a STEM course aimed at enabling students in India to use drones for improving agricultural productivity. This involved extensive research on the use of drones in agriculture, summarizing my findings into a structured course outline, and identifying prerequisites, required technologies, and equipment. Throughout my PS-I, I attended several meetings with my colleagues, including discussions with Vipin Sir on midsems grades, diary submissions, project reports, group discussions, seminars and endsem reports, as well as meetings with Archana Mam to present and refine the course outline. I also utilized free time for revision and practice, continually updating my knowledge and skills in frontend development. Despite a few days off due to personal commitments, I remained focused on my objectives and made significant progress in both my teaching preparation and course development efforts.

Objectives of the project: Designing a effective web development course for stem students

Tool used: Microsoft Office, VS Code, NodeJS, React, Postman

Details of Papers/patents:no

Brief description of the working environment: The PS-I working environment was supportive and collaborative, with clear guidance and feedback through regular meetings. The company expected me to master web development and create a STEM course on web development.

I focused on HTML, CSS, and advanced JavaScript concepts, balancing independent learning with project development. This improved my time management, technical skills, and ability to structure and convey complex information.

Overall, the experience significantly enhanced my professional growth, preparing me for future challenges.

Academic courses relevant to the project: programming courses

Learning Outcome: cooperation and collaboration with group members, designing a course, industry exposure

Name: ADVAIT SINGH .(2022B5A70636P)

Student Write-up:

PS-I Project Title: Introduction to Python and AI

Short Summary of work done: The task was to create a STEM course for K-12 students in the USA. The students were divided into 4 groups and our group was tasked with designing a beginner level course on "Intro to Python and AI". The goal was to create an outline for the course along with a possible teaching assignment towards the end of PS-1. A comprehensive outline was created and presented to the company. Once it was approved groups were given teaching assignments based on the demand for their course. The teaching assignment will take place as per US timings which would be between 9:30-12:30 pm IST or very early in the morning starting around 5:30am. Students with no demand for their course were tasked with preparing a comprehensive document that has the study material that students referred to while preparing the course so as to provide a framework for teaching the course post PS-1. Aside from this seminars, group discussions, group reports were the tasks given by the Faculty-in-charge

Objectives of the project: To design a beginner-level course on “Intro to python and AI” for K-12 students in the USA.

Tool used: Python, MS word, Ms powerpoint, OpenAI

Details of Papers/patents: NA

Brief description of the working environment: The students were provided the comfort of choosing their group members or the project they intend to work on. The timings of the lectures for the teaching assignment can also be amended if there is a genuine reason. Since it is a STEM based organisation course design projects must contain sufficient hands-on learning content. Meetings are held at least once every week.

Academic courses relevant to the project: Computer programming

Learning Outcome: Learnt the process of designing and teaching a competent industry relevant STEM course.

Gained knowledge about basics of Python and AI in the process of designing the course. Learnt important social skills such as team work, leadership, communication, creating and presenting progress reports etc.

PS-I station: Swecha Telangana - Non Tech, Hyderabad

Student

Name: N K GAURANGA KUMAR .(2021B5A12802P)

Student Write-up:

PS-I Project Title: Telugu Corpus Collection App

Short Summary of work done: we built an app for their project of building a regional language LLM

Objectives of the project: App Development

Tool used: git, flutter, viscose

Details of Papers/patents:-

Brief description of the working environment: good mentors, environment

Academic courses relevant to the project: -

Learning Outcome: software skills

Name: AISHWARYA REDDY NAGAM .(2022A7PS0023H)

Student Write-up:

PS-I Project Title: Cluster Clients

Short Summary of work done: We have worked as a team to make an APP that is used by users in connect to the cluster, by doing so they can contribute their RAM when the device is not in use. they can connect through any device such as a phone, laptop or PC. by contributing to the cluster through nodes that will be assigned to them they will be contributing to make an open source super computer.

Objectives of the project: It is to create a user friendly application for the user to join the cluster to create a super computer.

Tool used: Flutter, Flutter flow, Python.

Details of Papers/patents: none

Brief description of the working environment: The working experience was really amazing in Swecha, the environment itself is very comfortable and calm which helps us to learn and do our work without any hassle.

Academic courses relevant to the project: none

Learning Outcome: i have learnt how to build and design an application.

Name: SRI VISHWAHITHA GUNDABHATTU .(2022A7PS0041H)

Student Write-up:

PS-I Project Title: Telugu LLM corpus collection app

Short Summary of work done: Certainly! Here's a summary of an internship in an app development role: --- During my internship in app development, I was immersed in a dynamic environment where I gained hands-on experience in both front-end and back-end development. I collaborated with senior developers to design and implement user interfaces using React Native, ensuring compatibility across various devices and screen sizes. Additionally, I honed my skills in API integration, working with RESTful services to fetch and display data within the app. One of the highlights was participating in the development lifecycle from planning and wireframing to testing and deployment. I utilized tools like GitHub for version control and Agile methodologies for project management, contributing to sprint planning sessions and daily stand-ups. This experience not only enhanced my technical proficiency but also improved my ability to work effectively in a team-oriented environment. Overall, my internship provided me with a solid foundation in app development practices, strengthened my problem-solving skills, and deepened my

understanding of software development lifecycle. --- This summary captures the essence of what one might experience and learn during an internship focused on app development.

Objectives of the project: Creating a Telugu ChatGpt app

Tool used: Flutter and git

Details of Papers/patents:The Hindu and EENADU

Brief description of the working environment: .

Academic courses relevant to the project: DSA app development

Learning Outcome: Learned lot of app development

Name: PYDIMARRI PARDHA MANI VARDHAN .(2022B1A11684P)

Student Write-up:

PS-I Project Title: Built Interactive Dashboards and Backend Using Drupal

Short Summary of work done: We built a dashboard for Tsrctc Bus fleet data where public can access the details of the depots available and buses available. This dashboard was Interactive and built on streamlit using pandas to visualise the data. The other project which we worked on was backend development for Swecha AI Days conference website. This was done using Drupal a CMS platform.

Objectives of the project: Building Live Interactive Dashboards on Streamlit

Tool used: Streamlit and Drupal

Details of Papers/patents:NA

Brief description of the working environment: Explored the worklife and made new friends also there were so many alumni working in the same station. Made good connections and learned various things related to dashboards and web development.

Academic courses relevant to the project: Nothing

Learning Outcome: Python, CMS, Pandas and Streamlit

Name: KUNAL DUGAR .(2022B1A11702P)

Student Write-up:

PS-I Project Title: Telugu LLM Corpus

Short Summary of work done: In conclusion, this internship has been a transformative experience, enriching both my technical expertise and management capabilities. From diving deep into Python and machine learning for OCR development to mastering GitLab for efficient project management, I have gained invaluable skills. Leading an Agile team and working on a library management system using MySQL further strengthened my problem-solving and collaborative abilities. Exposure to OCR and computer vision expanded my horizons, opening up new possibilities for automating data extraction. The comprehensive developer ecosystem provided by Swecha ensured effective team coordination and mentor engagement. Overall, these experiences have not only prepared me for future professional challenges but also ignited a passion for continuous learning and innovation.

Objectives of the project: This project is dedicated to creating a comprehensive system for reading and converting PDFs of Telugu scriptures into editable text using advanced Optical Character Recognition (OCR) technology. The primary objective is to enhance the digitization and ac

Tool used: Visual Studio Code, Git, Docker

Details of Papers/patents:NA

Brief description of the working environment:

During my PS-I internship at Swecha, I gained practical experience in a collaborative environment focusing on open-source software development. I worked on diverse projects, enhancing my coding skills in JavaScript, TypeScript, Go, and Node.js. The experience honed my problem-solving abilities and taught me the importance of community-driven development. The company expects dedication, teamwork, and a proactive approach to learning and contributing to open-source projects. Overall, it was a valuable and enriching experience.

Academic courses relevant to the project: Team work and presentation skills we got from different courses by doing assignments

Learning Outcome: Python and Machine Learning, Database Management Systems (DBMS), □ Optical Character Recognition (OCR) and Computer Vision, React, Javascript

Name: NIKHIL AKELLA .(2022B1A41824H)

Student Write-up:

PS-I Project Title: Robotics

Short Summary of work done: We made an agribot

Objectives of the project: Creation of Agribot

Tool used: ROS, CAD

Details of Papers/patents:.

Brief description of the working environment: Very strict, punctuality and day to day reports are mandatory

Academic courses relevant to the project: None

Learning Outcome: Machine learning, Robotics, Neural Networks

Name: BONTHALA YASHWANTH KUMAR(2022B3TS2051H)

Student Write-up:

PS-I Project Title: Cluster health monitor

Short Summary of work done: Cluster Health Monitor" project seeks to advance the AI@home initiative through the creation of a thorough system that monitors the health

and performance of distributed computing clusters. By leveraging open-source tools such as Prometheus and Grafana, the project gathers and presents metrics related to node status, resource usage, and irregularities.

Objectives of the project: To create a health monitor for the cluster

Tool used: Prometheus, Node Exporter, Windows Exporter, Grafana, Nginx, Python, Launchd, Homebrew, Github, Nmap, Netifaces.

Details of Papers/patents: None

Brief description of the working environment: Swecha is a non-profit organisation based in the Telugu States of India that advocates for and promotes Free Software, also known as open-source software. Working in here enlightened my skills.

Academic courses relevant to the project: Cs

Learning Outcome: We get to know how to use many software's as Prometheus, grafana, exporters, nginx, service discovery, alertmanager

Name: SOMANSHU RATH(2022A7PS0032G)

Student Write-up:

PS-I Project Title: Telugu Corpus Collection App

Short Summary of work done: Worked on various aspects throughout the development process. Worked on information architecture and implemented uniform user interface throughout the app. Developed to-be-released "Handwriting" image uploading to support Swecha's future project to work on Telugu OCR, dealing with Hive and AppWrite storage along with Flutter frontend.

Objectives of the project: Swecha's Telugu LLM project requires a large corpus of telugu data. This app is first step towards building this indigenous LLM model on Telugu, by aiding in data collection.

Tool used: Dart, Flutter, Hive, AppWrite, React, Git, VS Code, Dev Tools

Details of Papers/patents: NA

Brief description of the working environment: The working environment was dynamic and collaborative, fostering a culture of continuous learning and innovation. I had the opportunity to work alongside experienced professionals in a supportive setting, where open communication and teamwork were highly valued. The use of modern tools and technologies facilitated efficient workflows and allowed for hands-on experience with industry-standard practices.

Academic courses relevant to the project: OOPS, DBS

Learning Outcome: Production Processes, Flutter and App Development, Teamwork, Debugging

PS-I station: Swecha Telangana - Tech, Hyderabad

Student

Name: PRANEETH REDDY PALETI .(2022A7PS0089H)

Student Write-up:

PS-I Project Title: AI@HOME

Short Summary of work done: Joined Swecha's private swarm (Panini cluster) . Were able to distribute Bloom 560M model over many devices

Objectives of the project: Distributed Computing

Tool used: Petals, Linux Operating system, Hadoop, Hivemind, Hugging face accelerate, PyTorch

Details of Papers/patents:None

Brief description of the working environment: Swecha expects the intern to be punctual and consistent with their work. They ask for each team to conduct daily meetings and update them. The working environment demanded that we interns learnt skills required for the working of our project

Academic courses relevant to the project: Operating Systems, Neural Networks, Machine Learning, AI

Learning Outcome: Neural Networks, Understanding LLMs, Linux system

Name: ABHINAV GANTA .(2022A7PS0151H)

Student Write-up:

PS-I Project Title: AI@HOME

Short Summary of work done: We have learnt about distributive computing, fine tuning and distributive inference of LLMs

Objectives of the project: To do distributive computing across multiple CPUs and phones across India

Tool used: Petals, Ray, Gitlab, Debian(Linux)

Details of Papers/patents: --

Brief description of the working environment: Working environment was very comfortable, the company's goals were pretty noble in this type of era. I have increased my knowledge about tech related stuff and also improved my speaking skills.

Academic courses relevant to the project: Machine Learning, Artificial Intelligence, Computer Architecture

Learning Outcome: Petals and Ray Distributive frameworks
Distributive Computing

Name: LIKITH SALLA .(2022A7PS0195H)

Student Write-up:

PS-I Project Title: Telugu AI Assistant

Short Summary of work done: It was a good learning experience for me, You can develop your Networking and Technical Skills if utilized properly. The only drawback is that there are many students so in person focus would not be there, but they are very skilled and will help you out anytime you approach.

Objectives of the project: To Build an AI Assistant for Farmers solving their problems and being user friendly.

Tool used: VSS Code Studio, Anaconda, Git Hub and Swecha's Own Open Source Softwares

Details of Papers/patents:None

Brief description of the working environment: The Mentors are very friendly as most of them are BITSIANs. You can learn a lot as you can meet various groups of people over there and Projects are interesting and they start it from scratch itself.

Academic courses relevant to the project: Machine Learning, OOPS, Artificial intelligence

Learning Outcome: Developed Coding Skills in Python
Team Work
Got an Introduction to ML and AI

Name: JAMPANI SANJAY CHOWDARY .(2022A7PS1178P)

Student Write-up:

PS-I Project Title: EHRS

Short Summary of work done: The code of the project was already written beforehand, and we were asked to do issues. so for it took a lot of time to understand the code that was already there and take up things from there. so i contributed some issues after some time in the season.

Objectives of the project: We have designed and implemented EHRs to record patient's clinical data using ReactJS, NodeJS, and PostgreSQL. Modelled and consolidated patient's health data for medical history and analytics.

Tool used: React JS

Details of Papers/patents:NA

Brief description of the working environment:

Academic courses relevant to the project: Database Management System

Learning Outcome: React JS

Name: HARSH SANJEEV BARANWAL(2022A7PS1201G)

Student Write-up:

PS-I Project Title: AI@Home

Short Summary of work done: At the start we started on our work with petals. We were able to join the public swarm of petals. Later we were asked to inference and fine tune any model which used petals using CPUs only. We tried to host a private swarm but werent able to connect. After various trial and errors we switched onto panini cluster which is swechas own private cluster

Objectives of the project: To make a Telugu AI chatbot which can be used in remote place of Telangana

Tool used: Linux(Debian-12), Docker etc

Details of Papers/patents:We read research paper of petals which explained how distributed computing works

Brief description of the working environment: The working environment was very good. The company gave us enough resources for us to make progress on our project

Academic courses relevant to the project: None

Learning Outcome: Learned about distributing computing, LLMs, fine tuning and interfacing

Name: ROHAN VARMA PENUMETCHA .(2022A7PS2016H)

Student Write-up:

PS-I Project Title: Civic Tech

Short Summary of work done: We had to make a dashboard for all the information given by telangana government. Then we had to create a database for all the dashboards by inputting all the data manually and then using apis. Finally we had to manage the data.

Objectives of the project: Dashboard and database management

Tool used: Pycharm, streamlit within pycharm, postgresql for database management

Details of Papers/patents: Na

Brief description of the working environment: It is really beautiful and engaging. The mentors are really approachable. My colleagues are also really good and knowledgeable. I expected to learn tech related stuff which happened for me. Learnt about the job environment as a whole.

Academic courses relevant to the project: Database management

Learning Outcome: Python, streamlit, database, postgresql

Name: PRANAV MAREDDY .(2022AAPS2029H)

Student Write-up:

PS-I Project Title: EHRS

Short Summary of work done: Helped the team with a few issues while learning different software

Objectives of the project: Make a database system

Tool used: React js css html node

Details of Papers/patents:NA

Brief description of the working environment: Nice

Academic courses relevant to the project: NA

Learning Outcome: Working on different technologies

Name: SAHIL KUMAR .(2022B1A11634P)

Student Write-up:

PS-I Project Title: Api Team - Civic Tech

Short Summary of work done: We did work on the backend team of the civic tech project. I headed the API team there. Our work was to utilize the open API of the Telangana govt. And download the multiple csv files present in each of the api urls and then concatenate them together and save them locally later forwarding it to the database team. This was all done in python language which we had to learn from scratch.

Objectives of the project: Free software powered infra and platforms that enable civic participation and engagement, enhancing citizens communications and public decision.

Tool used: Python

Details of Papers/patents:None

Brief description of the working environment: It was a decent ps station. We had to attend it totally offline from 9:30-5:30, 5 days a week.

Academic courses relevant to the project: Python, web development.

Learning Outcome: Backend development specially APIs.

Name: POOSHAN NORI .(2022B4AA1167H)

Student Write-up:

PS-I Project Title: AI@HOME

Short Summary of work done: Joined Swecha's private swarm(panini cluster). Were able to distribute Bloom 560M model over many devices.

Objectives of the project: Distribute fine tuning and Inferencing of LLMs over CPUs.

Tool used: Petals, Hadoop, Hivemind, Hugging face accelerate.

Details of Papers/patents:none

Brief description of the working environment: Swecha expects the intern to be punctual and consistent with their work. They ask for each team to conduct daily meetings and update them. The working environment demanded that we interns learned skills required to the project on the go while contributing to the project.

Academic courses relevant to the project: Neural Networks, Fuzzy logic, Operating systems, Machine learning.

Learning Outcome: Neural Networks, Understanding LLMs

Name: SAATVIK GANJAI .(2022B5A30993H)

Student Write-up:

PS-I Project Title: Telugu AI Assitant

Short Summary of work done: First, understanding the basics of Python and Object-Oriented Programming (OOP) is essential as they provide the foundational knowledge required for programming and integrating AI. FlutterFlow, a no-code platform, allows developers to design and build mobile applications visually. It simplifies the app development process by providing pre-built components and an intuitive interface for arranging these components. To create a Telugu AI chatbot, you start by designing the

user interface (UI) in FlutterFlow. This involves creating screens for user input, displaying responses, and managing conversations. You can use FlutterFlow's drag-and-drop features to design the layout, set up navigation, and add interactive elements. Next, integrate the AI component. This typically involves connecting your FlutterFlow app to a backend service that hosts the AI model. For a Telugu AI chatbot, you need an AI language model trained in Telugu. You can use platforms like OpenAI's GPT or Google's Dialogflow, which support multiple languages. You would write the backend code in Python, utilizing your OOP knowledge to create classes and methods that handle user inputs, process them through the AI model, and return appropriate responses. Finally, deploy the app and test it thoroughly to ensure it understands and responds accurately in Telugu. This process involves iterative testing and debugging, making adjustments based on user feedback, and continually improving the chatbot's accuracy and responsiveness. Overall, combining FlutterFlow for UI design and Python for AI integration, leveraging your knowledge of OOP, allows you to efficiently create a functional Telugu AI chatbot.

Objectives of the project: To make a Telugu chat bot for farmers

Tool used: Vs Code, Flutter Flow, Figma,

Details of Papers/patents:NO

Brief description of the working environment: During my PS-I experience at a non-profit organization dedicated to developing free and open-source software, I had the opportunity to work in a collaborative and mission-driven environment. The organization's culture emphasized transparency, community engagement, and the importance of making technology accessible to all.

The working environment was highly collaborative, with a strong focus on peer learning and knowledge sharing. Team meetings and code reviews were common practices, fostering an atmosphere where everyone could contribute ideas and improve their skills. The organization utilized various open-source tools and platforms for project management, version control, and communication, providing a hands-on experience with industry-standard technologies.

The expectations from the company were clear and centered around active participation and continuous learning. Interns were encouraged to take initiative, contribute to ongoing projects, and engage with the global open-source community. This involved writing and reviewing code, participating in discussions on community forums, and contributing to documentation. There was a strong emphasis on writing clean, maintainable code and adhering to open-source licensing and contribution guidelines.

Throughout my PS-I, I learned a great deal about the principles and practices of open-source development. I gained practical experience in using version control systems like Git, collaborating with a distributed team, and contributing to large codebases. Additionally, I enhanced my problem-solving skills and learned how to navigate and leverage community resources effectively. This experience not only improved my technical skills but also instilled a deeper appreciation for the open-source movement and its impact on technology and society.

Academic courses relevant to the project: OOPS, Computer Programming,etc

Learning Outcome: python,OOPS,using flutter flow for front end,JavaScript

PS-I station: TensorGo Software Pvt. Ltd, Hyderabad

Student

Name: SOHAM KUMAR .(2022A8PS1238P)

Student Write-up:

PS-I Project Title: Integration of AI & ML in traditional industries

Short Summary of work done: Worked on multiple projects mainly related to Computer Vision and Natural Language Processing. In CV, worked on Vision Language models. In NLP, worked on encoder only transformer models and on LangChain based chatbot.

Objectives of the project: Multiple projects, each aimed to automate certain tasks which were done manually earlier

Tool used: Python, PyTorch, LangChain, Hugging Face Transformers

Details of Papers/patents:None

Brief description of the working environment: It was after nearly three weeks that a few meaningful projects were assigned. Small modular tasks were given to individuals which were integrated in their systems without our involvement.

Academic courses relevant to the project: Deep Learning, NLP

Learning Outcome: ML, NLP, Computer Vision

Name: VIHARI BHUPATHI .(2022AAPS0399H)

Student Write-up:

PS-I Project Title: No project was assigned

Short Summary of work done: During the first week, we worked on APIs, tested them. Later on we were asked to do end user testing which a school kid can do. Except the first week, rest all was not useful and nothing relevant to sectors they mentioned in PSMS. We were not assigned any work for most of the times we thought to do our own courses and learn something but they didn't let me do.

Objectives of the project: No project was assigned

Tool used: Postman, for the first one week

Details of Papers/patents: nothing

Brief description of the working environment: Working environment was fine, but the timings were too long (10-7).

Academic courses relevant to the project: -

Learning Outcome: What are APIs and What is Postman

PS-I station: UST, Thiruvananthapuram

Student

Name: MALAVIKA RAMESH .(2022A7PS0033P)

Student Write-up:

PS-I Project Title: Automated Planogram Compliance

Short Summary of work done: During our PS-I at UST Global, we embarked on developing an automated planogram compliance system utilizing advanced machine learning and robotics. Our primary goal was to automate the verification of product

placement on retail shelves, thereby enhancing efficiency and reducing human error. Our team focused on several core tasks. Initially, we collected and curated a comprehensive custom dataset of product images, which was managed using PostgreSQL for robust database handling. We then trained convolutional neural networks (CNNs) for accurate product detection and classification, and developed a custom YOLO (You Only Look Once) model to enhance real-time object detection capabilities. Additionally, we improved text recognition models to work effectively with video footage. To simulate drone operations, we utilized ROS2 and Gazebo, developing navigation and path planning algorithms for efficient drone-based image capture. We also implemented computer vision techniques to process images and create panoramic views of shelves. The final phase involved integrating various components into a cohesive system and conducting extensive testing in a simulated environment to ensure system reliability. Through this project, we acquired valuable interdisciplinary skills, including machine learning, robotics, and software development. We successfully demonstrated the potential of our system to revolutionize retail operations by automating the planogram compliance process, thereby laying the groundwork for future advancements in this field.

Objectives of the project: -Automate verification of product placement on shelves - Improve store organization and reduce human error -Provide insights into product availability and consumer behaviour

Tool used: Hardware: GPUs: NVIDIA GPUs: Used for training machine learning models, providing the necessary computational power for deep learning tasks. Drones: Simulation Drones: Used in the Gazebo simulation environment to replicate real-world conditions and capture images of retail shelves. Computing Systems: High-Performance Workstations: Equipped with CUDA-capable GPUs for developing and testing the system. Software: Programming Languages: Python: Used extensively for machine learning model development, image processing, and overall system integration. C++: Utilized for performance-critical components and ROS2 integration. Machine Learning Frameworks: TensorFlow: Employed for training and deploying convolutional neural networks (CNNs) and the custom YOLO model. Keras: Used as a high-level API for neural networks, running on top of TensorFlow. Computer Vision Libraries: OpenCV: Utilized for image processing, video analysis, and creating panoramic views of retail shelves. Robotics Middleware: ROS2 (Robot Operating System 2): Facilitated communication between different robotic components and the integration of the drone with the rest of the system. Simulation Environment: Gazebo: Provided a virtual environment to simulate drone operations, including navigation and image capture. Database Management: PostgreSQL: Used for robust management of the custom dataset of product images and other relevant data. Development and Version Control: Git: Used for version control to manage changes in the codebase and collaborate effectively with team members. GitHub: Hosted the project repository for collaboration and code management. Text Recognition: Tesseract OCR: Integrated for text detection and recognition from images and video footage. CUDA: CUDA Toolkit: Used to leverage the GPU capabilities for accelerating deep learning computations.

Details of Papers/patents:-

Brief description of the working environment: Our PS-I experience at UST Global, Thiruvananthapuram, was both dynamic and collaborative. The company provided us with top-notch infrastructure, including high-performance workstations and GPUs, which were essential for our project on automated planogram compliance. The supportive atmosphere fostered creativity and innovation, allowing us to delve into advanced machine learning and robotics techniques.

We had access to various software tools such as TensorFlow, Keras, OpenCV, ROS2, and Gazebo, crucial for developing and testing our system. Experienced mentors guided us through complex technical challenges, offering invaluable insights and feedback. Regular team meetings and brainstorming sessions encouraged knowledge sharing and improved our problem-solving skills.

UST Global set clear expectations from the start. We were tasked with delivering a functional prototype of the automated planogram compliance system, featuring real-time object detection and text recognition capabilities. Additionally, we needed to integrate our system into a simulated environment using Gazebo and ROS2, ensuring smooth and reliable operation.

Throughout the internship, we gained hands-on experience in machine learning, computer vision, robotics, and database management. We learned to develop and train convolutional neural networks (CNNs) and custom YOLO models, manage large datasets with PostgreSQL, and simulate robotic operations in Gazebo. This project not only enhanced our technical skills but also improved our teamwork and project management abilities, preparing us for future challenges in the tech industry.

Overall, UST Global provided an enriching and professional environment that greatly contributed to our learning and development, making our PS-I experience both rewarding and impactful.

Academic courses relevant to the project: Machine Learning, Deep Learning etc

Learning Outcome: -Integration of machine learning, computer vision, robotics, and retail management systems. -Development and training of convolutional neural networks (CNNs) for product detection and classification.

-Implementation of ROS2 for drone control and navigation in a simulated Gazebo environment.

-Enhanced proficiency in Python and C++ for system integration and algorithm development.

-Improved project management and collaboration skills through organising and managing different project phases.

-Experience with database management, specifically transitioning from MySQL to PostgreSQL.

-Overcoming technical challenges such as CUDA setup, text detection accuracy, and simulation environment configuration.

-Development of comprehensive technical documentation and reporting skills.

Name: NAZIM AHMED .(2022A7PS0125P)

Student Write-up:

PS-I Project Title: LLM-Guided Chess Tutoring

Short Summary of work done: Work on a project for 2 months which we chose with the help of the mentors in the start of the internship

Objectives of the project: Utilizes the analytical capability of Stockfish and combines it with the natural language generation capability of LLM to provide high level real time chess feedback

Tool used: Groq , VSCode , Git , Python , Javascript

Details of Papers/patents:--

Brief description of the working environment: Pretty nice and relaxed environment

Academic courses relevant to the project: LLM , NLP , ML , DL , CV

Learning Outcome: LLM , Chess

Name: KEVIN GEORGE MATHEW .(2022A7PS0238H)

Student Write-up:

PS-I Project Title: Automated Planogram Compliance

Short Summary of work done: My project aimed to revolutionize the retail market by developing an automated planogram compliance model using machine learning and robotics. My team, including Malavika Ramesh, Aditya B Prakash, and I, worked diligently to develop a comprehensive solution. Malavika focused on mastering Python and OpenCV for computer vision, creating a MySQL product database, compiling a real-world image dataset, and developing a color detection code. She faced challenges with MySQL server and text detection accuracy, leading to the need for advanced algorithms and potential integration of color detection into the text detection model. I developed an image

detection model using CNNs in Keras and TensorFlow, coupled with EasyOCR for text detection. I addressed text detection errors by implementing prediction algorithms and integrating them with real-time video data. I also used orthophoto techniques for shelf identification and combined multiple detection methods to enhance accuracy. Aditya concentrated on building a simulated environment using ROS2 and Gazebo, providing control features to the drone, and exploring path planning algorithms. He faced challenges integrating individual projects and aimed to link the simulation with hardware for real-time performance testing. Throughout the project, we collaborated using GitHub, ensuring seamless integration of our work. Our efforts culminated in a robust system aimed at enhancing retail productivity and customer satisfaction by ensuring precise product placement and real-time insights into product availability. Despite facing challenges, we strived to achieve the most efficient version of our project within the two-month timeframe.

Objectives of the project: Create a automated planogram compliance checking system using AI/ML and drone technology

Tool used: Python, OpenCV, TensorFlow, Keras, EasyOCR, PostgreSQL, ROS2, Gazebo, PX4 Autopilot, YOLOv8

Details of Papers/patents:Na

Brief description of the working environment: Our working environment was incredibly engaging and dynamic, perfect for a college student eager to learn and grow. From day one, we were treated as an integral part of the team, not just interns. The employees were super friendly and always ready to help us out, making us feel welcome and supported. We had plenty of opportunities to interact with our colleagues, and these interactions were both fun and insightful. The mentors, in particular, were amazing. They were always there to provide feedback, answer our questions, and guide us through any challenges we faced. Their support and knowledge were crucial in helping us complete our project successfully.

One of the best parts about the internship was the emphasis on work-life balance. In the evenings, we often had PS5 gaming sessions or played football with our mentors and colleagues. These activities were a great way to relax and bond with the team. It made the workplace feel like a community where we could work hard and also have fun together.

Our expectations were not just met but exceeded. We hoped for a professional and educational experience, and we got that and so much more. The friendly atmosphere, combined with the chance to learn and grow both professionally and personally, made our internship truly memorable. It was a fantastic experience that blended hard work with enjoyable moments, making it a perfect place for a college student to thrive.

Academic courses relevant to the project: ML, DL, AI

Learning Outcome: YOLO, ROS2, EasyOCR, gazebo and various other softwares

Name: HARI CHARAN BUDAMAGUNTA .(2022A7PS1378H)

Student Write-up:

PS-I Project Title: FeelCapture

Short Summary of work done: Made an app that gives a comprehensive report on emotions portrayed people in a particular video clip, along with the percentages of the major emotions shown

Objectives of the project: Recognises the overall emotion of a person while speaking by combining video and audio features

Tool used: GPU, CPU, google colab, jupyter notebook, kaggle, tensorflow, hugging face

Details of Papers/patents:None

Brief description of the working environment:

We were given basic computer with a CPU. We could access GPU elsewhere with limited access. It was a good working atmosphere

Academic courses relevant to the project: Multiple research papers

Learning Outcome: Learnt basics of ML,DL and UI design

Name: SIDDHARTH S PILLAI .(2022A8PS0775H)

Student Write-up:

PS-I Project Title: Speech recognition and diarization for corporate use

Short Summary of work done: We have developed a UI that enables us to diarize a meeting with the help of sample audio files given by each speaker. We then generate a transcript of the meeting along with the summary of the entire meeting.

Objectives of the project: Simplify the decision making process of a meeting by summarizing it into a transcript

Tool used: OpenAI whisper, Pyannote audio, librosa

Details of Papers/patents:Nil

Brief description of the working environment: Everyone has been given a proper, clean workspace and was also provided with ample resources.

Academic courses relevant to the project: Machine Learning , Artificial Intelligence

Learning Outcome: Machine Learning, Natural Language Processing, Large Language Modelling

Name: VARTIKA PARIKH(2022AAPS0300G)

Student Write-up:

PS-I Project Title: Intelligent Road Safety and Vehicle Monitoring System

Short Summary of work done: Our work involved creating a smart system for road safety and vehicle monitoring. We used machine learning to solve problems in modern traffic management and safety. By training models with YOLO v8, we could detect traffic violations like not wearing helmets and overloading motorcycles. We used Roboflow to prepare and label our dataset, ensuring it was divided into training, validation, and testing parts for effective model training. The system we built could automatically detect license plates and extract text using OCR tools such as EasyOCR and Pytesseract. We improved image quality for better detection accuracy through preprocessing techniques like grayscale conversion, noise reduction, and edge detection. Deploying our solution with the Streamlit framework was a key aspect of the project. This allowed users to interact with the system seamlessly, upload images, and detect traffic violations in real time.

Objectives of the project: To design a machine learning-based system that uses traffic camera footage to automatically detect various traffic rule violations. In addition to this, the system can also obtain the license plate text of the vehicles.

Tool used: Python, VS Studio, YOLO model, OpenCV, pytesseract, streamlit

Details of Papers/patents:-

Brief description of the working environment: The workplace culture encouraged collaboration and continuous learning. My coworkers were helpful, providing an environment in which asking questions and exchanging ideas was encouraged, allowing me to learn quickly.

I obtained practical experience through real-world projects and improved my technical abilities. I was excited to learn from seasoned professionals, experiment with new tools and technologies, and make meaningful contributions to the projects.

Our mentor guided us through the learning process and helped us complete our project by providing great insights and keeping us motivated.

This experience taught me the importance of team work as well as presentation and communication skills.

Academic courses relevant to the project: Machine Learning

Learning Outcome: Understanding and implementing ML models, data management, image preprocessing techniques, system deployment

Name: VISHNU VENKARAI SARANYAN .(2022AAPS0432H)

Student Write-up:

PS-I Project Title: Speaker Recognition and Diarization for corporate use

Short Summary of work done: We tried out various models and libraries for speaker recognition and diarization separately and then created our own. We combined both models to have one final product and deployed it on a user interface. An LLM was then used to generate summaries and process the diarized and labeled text.

Objectives of the project: To obtain a meeting transcript, summary and labelled speaker using just an audio clip and speaker reference clips.

Tool used: Python, Anaconda, Models like whisper, pyannote and speechbrain.

Details of Papers/patents:-

Brief description of the working environment: Pleasant working environment, full flexibility in choosing a project, very helpful mentors.

Academic courses relevant to the project: Deep learning playlist by jeremy howard and google ML

Learning Outcome: Python, ML pipelines, UI development, audio processing

Name: BODDEPALLI HARSHAVARDHAN .(2022B5A20779P)

Student Write-up:

PS-I Project Title: Multimodal sentiment analysis

Short Summary of work done: Made an app that gives a comprehensive report on emotions portrayed people in a particular video clip, along with the percentages of the major emotions shown

Objectives of the project: Make an app based on emotion recognition

Tool used: GPU, CPU, google colab, jupyter notebook, kaggle, tensorflow, hugging face

Details of Papers/patents: None

Brief description of the working environment: We were given basic computer with a CPU. We could access GPU else where with limited access. It was a good working atmosphere.

Academic courses relevant to the project: DSA

Learning Outcome: Basics of machine learning

Name: RISHITH VULLI .(2022B5A30752P)

Student Write-up:

PS-I Project Title: Multimodal emotion recognition engine

Short Summary of work done: Made an app that gives a comprehensive report on emotions portrayed people in a particular video clip, along with the percentages of the major emotions shown.

Objectives of the project: Make an app based on emotion recognition

Tool used: GPU, CPU, google colab, jupyter notebook, kaggle, tensorflow, hugging face

Details of Papers/patents:None

Brief description of the working environment: We were given basic computer with a CPU. We could access GPU else where with limited access. It was a good working atmosphere.

Academic courses relevant to the project: Multiple research papers

Learning Outcome: Basics of machine learning

PS-I station: Variable Energy Cyclotron Centre, Kolkata

Student

Name: ARPAN BISWAS .(2022A4PS1500H)

Student Write-up:

PS-I Project Title: Preparation and Analysis of Metal Oxide Varistors

Short Summary of work done: We have covered a basic introduction to ceramics and functional ceramics and their applications in various fields. We have also discussed the basic principles of working of a varistor and the important terminologies associated with them. We have covered the preparation of ceramic samples in-depth, emphasising the instruments used, from calculating the amount of each component to the sintering of the compacted pellets. We have also covered all the steps required to prepare the sample

for analysis, including mounting, polishing, etching, and coating. We have also gone through the various analytical tools, their working method and operation procedures. We have then analysed the results of these observations, that is microstructure, density measurement, Electrical property measurement and X-Ray Diffraction Analysis. We have concluded which compositions and sintering conditions can give us the best performing Varistors.

Objectives of the project: To learn the process of preparation of a metal oxide varistor sample and then study its properties.

Tool used: H/w - Scanning Electron Microscope, Automatic Polishing Machine, Box Furnace, Tube Furnace, Planetary Ball Mill, Voltage-Current Measurement Apparatus, Mini Sputter Coater. S/w- Origin (Graphing and analysis software), X'pert High score Plus(X ray diffraction analysis software)

Details of Papers/patents:None. Possible publication in future after further research.

Brief description of the working environment: The working environment is extremely friendly and non pressurising, students are encouraged to learn and work at their own pace which leads to them being more inclined to work on their own and explore new avenues. The mentors are friendly, approachable and always willing to guide you in the right path. They are also extremely knowledgeable in their fields and always willing to share this knowledge with you. They also show no hesitation in letting us operate and use instruments ourselves to enhance our practical knowledge in these skills. I expected to learn the basic of research and development and scientific study in this company. I also expected to increase my knowledge in Material science especially with respect to practical study of properties. I have learnt all of these things at the company and more. I've learnt the operation of complex lab equipments such as scanning electron microscope, planetary ball mill, furnaces, automatic grinding machine and multiple softwares like Origin and X'pert HighScore Plus for the analysis of data acquired from these experiments. I've also learnt about ceramics, varistors and their functioning.

Academic courses relevant to the project: Material Science and Engineering, General Chemistry, Electrical Sciences, Manufacturing Processes

Learning Outcome: Handling of lab equipment, working in a research unit, functioning and principle of Varistors, effects of dopants on grain size of ceramics(metal oxides), research paper reading, analysis of results

PS-I station: Vidcentum R & D Pvt. Ltd., Hyderabad

Student

Name: UDBHAV DWIVEDI .(2022A3PS0483P)

Student Write-up:

PS-I Project Title: RAG Model

Short Summary of work done: -

Objectives of the project: -

Tool used: -

Details of Papers/patents:-

Brief description of the working environment: -

Academic courses relevant to the project: -

Learning Outcome: -

Name: ANDODARIYA HRIDAY NILESHBHAI .(2022A7PS0113P)

Student Write-up:

PS-I Project Title: Identifying the Context from User Queries in RAG Applications

Short Summary of work done: The project focused on developing a system to identify the context from user queries in RAG applications. The work involved setting up the development environment, implementing an API using the Sanic web framework, creating a DSL system, and developing a separate Racket server. The NER model was trained using Doccano, and XMPP agents were implemented for testing. The API received user queries, which were processed by the NER model to extract context, then translated by the DSL system for relevant responses. The comprehensive documentation was also created for the system.

Objectives of the project: The objective of the project was to develop a system for identifying the context from user queries in RAG (Resource Allocation and Grid) applications. This involved the design and implementation of an API, a context-generating function using a Named Entity

Tool used: Python, Poetry, Postman, GitHub, Sanic, Doccano, Openfire, Gajim, sklearn-crfsuite.

Details of Papers/patents:None

Brief description of the working environment: The working environment at Vidcentum Technologies was highly supportive and conducive to learning. The initial orientation session provided insights into the company's culture and core business operations. The expectations were to develop a robust system for query context identification, which was met through consistent efforts and learning.

Academic courses relevant to the project: None

Learning Outcome: Proficiency in tools like Poetry, Postman, GitHub, Doccano, Openfire, and Gajim.

Skills in creating high-quality documentation, understanding of APIs and OpenAPI specifications, and hands-on experience with XMPP protocol and multithreading.

Enhanced understanding of Named Entity Recognition.

Name: KESHAV GOEL .(2022A8PS1560P)

Student Write-up:

PS-I Project Title: Development of XMPP Echobots and Object Detection using Streamlit, YOLOv8, and OpenCV

Short Summary of work done: The PS work started with python poetry and sanic server setup. after that we were assigned to set up an xmpp server and an xmpp client . the server we chose was openfire and the client we chose was gajim. Then we were assigned to set up an echobot in python using the slxmp library. post that we were assigned to run three echobots simultaneously each echobot on a seperate thread. after this we got a project in which we had to develop a streamlit webapp which with help of yolo and openCV be used to detect objects in images and videos.

Objectives of the project: To develop xmpp based chatbots and a web app used for object detection

Tool used: Python poetry, sanic server, openfire, gajim, slxmpp library , streamlit , yolov8 , openCV

Details of Papers/patents:Not applicable

Brief description of the working environment: The PS was remote. we used to have 1 to 2 meets per day. in the meet the task completed on previous day was evaluated and the task for the next day was specified. doubts were addressed if anyone had.

Academic courses relevant to the project: computer programming.

Learning Outcome: I learnt how organisations write and maintain their code.learnt about various technologies such as xmpp , making chatbot using xmpp. learnt about creation of a web app using streamlit yolo and opencv.

Name: SUCHIR GUPTA .(2022AAPS0204P)

Student Write-up:

PS-I Project Title: 1. Creating Virtual agents in an XMPP Server and implement multithreading, 2. Streamlit web-app for object detection and tracking in images and videos

Short Summary of work done: First we were supposed to setup our virtual environment and manage our dependencies using poetry, then we downloaded and setup an XMPP Server (openfire) and connected it to our XMPP client (gajim). Then we created Echobots, bots which would simply echo the messages it receives, on python by using the slxmpp library. we then ran multiple bots parallelly with our sanic server so that we could establish connection between the xmpp and the sanic server. In the later half of our PS1, we created a basic app to detect objects in videos and images uploaded by the user. for this we used pre-trained CNN models (YOLO) which had an inbuilt algorithm to detect objects

Objectives of the project: Creating Chatbots in an XMPP Server, integrate it with our XMPP Client and run in parallelly with the sanic server using multithreading. Our second projects involved creating a fully functional Streamlit web-app to detect and track objects in images, vide

Tool used: poetry, pyenv, python, Openfire (XMPP Server), Gajim (XMPP Client), Slixmpp library, Threading library, Eclipse Ditto, Opencv, YOLO Models, Streamlit

Details of Papers/patents:none

Brief description of the working environment: The company environment was very professional and cooperative, our mentor was very cooperative and guided us throughout the internship. All the necessary resources were provided and all requirement and approach was explained. All communications and meetings were held through Microsoft teams. We mostly had two meetings everyday, 1 in the morning and the other in the evening. We were not overloaded with work and all the work was done smoothly.

Academic courses relevant to the project: CS F111 Computer Programming

Learning Outcome: Successfully wrote production grade code for our chatbots and we were able to use and implement various programming like multithreading etc. We created a fully functional web-app for object detection and tracking in images and videos.

Name: ADITYA DUBEY .(2022AAPS0231P)

Student Write-up:

PS-I Project Title: User Context Extraction using NER-NLP

Short Summary of work done: Majorly learnt about how to apply NLP to build a domain specific chat bot.

Objectives of the project: User Context Extraction using NER-NLP

Tool used: Bert, Xmpp, Python, sanic

Details of Papers/patents:NA

Brief description of the working environment: Online working environment with daily meets and updates. Expectations were to learn more about NLP.

Academic courses relevant to the project: NLP.

Learning Outcome: Learned about Natural Language processing

Name: AMAN VIJAY .(2022AAPS0427H)

Student Write-up:

PS-I Project Title: Multi-Agent Framework for AI Agents & Object Detection and Tracking App

Short Summary of work done: During my Practice School-I internship, I worked on two main projects: an XMPP-based multi-agent framework and an Object Detection and Tracking (ODT) application. The XMPP project involved setting up a server-client communication system using Echobots for testing, implementing multi-threading to manage multiple bot instances, and ensuring smooth message exchange between agents. This setup allowed for efficient and scalable bot communication. The second project focused on developing an ODT app using YOLOv8 and Streamlit. The app enabled users to upload images or videos, select detection models, adjust confidence levels, and choose tracking algorithms like BoTSORT and ByteTracker. I integrated OpenCV for media processing and implemented features like URL input and video tracking. Additionally, I added functionalities like drawing virtual lines on videos for object tracking, enhancing the app's utility. Throughout the internship, I gained hands-on experience in software development, debugging, and documentation, while also learning to collaborate effectively and incorporate feedback to refine the projects.

Objectives of the project: Creating AI chatbots using XMPP and Object Detection and Tracking app using streamlit and YOLOv8

Tool used: Python, Streamlit, YOLOv8, OpenCV, Sanic, XMPP Protocol, Slixmpp, Poetry, Gajim, Openfire, st-drawing-canvas, Logging Libraries.

Details of Papers/patents:NIL

Brief description of the working environment: We typically had two meetings a day, with Sundays off. During these meetings, we were briefed on our tasks and the tools to use. Our progress was reviewed, and feedback was provided on our GitHub code, including corrections and improvements for production-quality standards. We were expected to focus on the assigned tasks, although we were encouraged to explore and propose any additional tools that could benefit the project. Proper documentation was required.

Academic courses relevant to the project: Computer Programming, Logic in Computer Science, Network Programming

Learning Outcome: Multi-agent framework development using XMPP.
Implementation of object detection and tracking with YOLOv8.
Creation of interactive web applications using Streamlit.
Debugging and managing multi-threaded environments.
Importance of comprehensive documentation.
Collaboration and feedback integration skills.

Name: SREEKEERTHANA PEDDAKOTLA .(2022B1A41559H)

Student Write-up:

PS-I Project Title: Resolution layer - Business context

Short Summary of work done: We set up our development environment by configuring Python, establishing a virtual environment, and integrating Django and Meilisearch. We mastered Git, streamlining our workflow with pull requests, forking, and cloning repositories. Our project activities began with capturing comprehensive requirements to guide our design and documentation. Initially, we used Apache Tika for text extraction and Tabula for table extraction from PDFs, saving data in JSON files. We then tried using LlamaParse for extracting and processing structured data due to its efficiency and minimal overhead, making it ideal for performance-critical applications.

Objectives of the project: The primary objective of the project is to improve the quality of data by incorporating industry-specific requirements into the overall system design.

Tool used: Python environment, Pycharm, Poetry, Django, Meilisearch, Sanic, Github, Postman, XMPP- open fire, gajim, Apache tika, tabula, Llama parse

Details of Papers/patents:None

Brief description of the working environment: We had two meetings daily: a morning standup and an evening review. Sundays were holidays. During the standup, work was assigned and then reviewed in the evening. Our mentor explained tasks in great detail, patiently debugged issues, and answered our questions. We are also asked to document the project progress. My teammate, a company employee and BITS alumna, also guided me well and patiently explained any doubts. Overall, the experience was very positive, with supportive and patient mentor and team members.

Academic courses relevant to the project: Trw, Computer Programming.

Learning Outcome: In this project, I explored Retrieval-Augmented Generation (RAG) models, implemented AI/ML tools, honed debugging skills, and enhanced my Python proficiency. I developed XMPP bots with multithreading, extracted information from databases, and mastered technical writing. This comprehensive experience enriched my skills in AI/ML, software development, and communication.

PS-I station: Voicegain, Irving

Student

Name: VARUN REDDY PADALA .(2022A7PS0010H)

Student Write-up:

PS-I Project Title: Improving sentiment analysis

Short Summary of work done: In the first few weeks of the internship, I was asked to look for sentiment analysis models online that fit our use-case of working with conversational data. However, most models online were meant for other use cases. At this point, it was decided to fine-tune our own model from scratch. To prepare training data, I wrote a script that used OpenAI API to annotate meeting transcripts. Fine-tuning was done using the Sentence Transformers library on Python.

Objectives of the project: The aim of the project was to improve the sentiment analysis functionality of the company's speech analytics app.

Tool used: PyTorch, Scikit Learn, Sentence Transformers, Google Colab

Details of Papers/patents:N/A

Brief description of the working environment: As the company is based in the US, the internship was completely remote. On every weekday, there was an hour-long meeting at 8 pm where all members of the company's ML team (which I interned for) would report on their progress and tasks for the next day were assigned. The company used Jira to keep track of our work. The employees were very helpful and approachable.

Academic courses relevant to the project: N/A

Learning Outcome: I learnt how to fine-tune my own ML model.

PS-I station: Western Regional Load Despatch Centre, Grid Controller of India Limited, Mumbai

Student

Name: AYUSHMAAN KUMAR .(2022B2A31070P)

Student Write-up:

PS-I Project Title: Analysis of Grid events and power transmission systems simulations in matlab Simulink

Short Summary of work done: Developed two models on MATLAB simulink and learnt about indian powergrid regulations and implementation. Also learnt about the events leading to energy loss in indian power grid.

Objectives of the project: To understand the regulations in the indian power grid and analyse grid events leading to Renewable energy loss in the Rajasthan Complex and western region. Also had to develop 2 models on Power plant controller and IEEE 9 bus system

Tool used: MATLAB-Simulink

Details of Papers/patents: Grid India Report of 500pgs on Grid events leading to renewable energy loss.

It is available under the publications on their website

Brief description of the working environment: Good place to work in. Staff is usually busy, but they do take out time to help and guide. Got to learn a lot about power systems and power electronics. Extremely approachable staff and very understanding.

Academic courses relevant to the project: Control System, Power systems, Power electronics, electrical machines

Learning Outcome: Working in a professional environment, learnt about india power grid regulations(CEA) and IEEE standards. Read about grid events in renewable energy

complex and their mitigation measures. Learnt about creating models in MATLAB Simulink

PS-I station: WODO Digital Solutions - Non Tech, Bengaluru

Student

Name: SAHITI KASINA .(2022A7PS0132H)

Student Write-up:

PS-I Project Title: DIGITAL MARKETING AND BRANDING INITIATIVES PROJECT

Short Summary of work done: . We delved into the ACC framework (Awareness, Consideration, Conversion) and lead generation methods. We analyzed case studies of cloud service companies—Sify Technologies, Cloud4C, and Wasabi Technologies. We also learned about the PACCD framework (Positioning, Awareness, Consideration, Conversion, Delight) and used Apollo.io for lead generation. Shifting to sales, we explored WODO's PR services, engaged with clients, and studied sales techniques. The internship concluded with a hands-on task of generating a sale through email outreach. This experience gave us a solid understanding of marketing strategies, branding, and sales processes, preparing us with valuable skills for our future careers

Objectives of the project: gain expertise on branding, digital marketing and sales

Tool used: apollo.io for conversion of leads through emails

Details of Papers/patents:none

Brief description of the working environment: Our internship at WODO Digital Solutions was a transformative experience, offering a comprehensive understanding of branding, digital marketing, and sales. Through a blend of theoretical learning and practical application, we acquired valuable skills that will benefit us in our future careers. We explored essential marketing frameworks like ACC and PACDD, and gained hands-on experience in lead generation and sales, providing us with a holistic view of the marketing landscape.

Conducting case studies on prominent cloud service companies and engaging with real-world clients further enriched our learning. These activities deepened our knowledge

and boosted our confidence in applying marketing strategies effectively. We are grateful for the opportunity to work with a dynamic team at WODO and look forward to leveraging these insights in our future endeavors

Academic courses relevant to the project: technical report writing,

Learning Outcome: branding, digital marketing and sales

Name: MRINAL TIWARI .(2022B4A81813H)

Student Write-up:

PS-I Project Title: Non-Technical Project

Short Summary of work done: Learnt about branding, marketing and sales. Created slides to illustrate and capture my learning. Conducted case studies to better understand how companies use the theory we learnt in the real world. Made a number of calls posing to be a customer to various firms across India to understand the best practices of sales calls and also the mistakes to avoid.

Objectives of the project: To learn digital marketing, branding and sales.

Tool used: Apollo.io

Details of Papers/patents:No papers/ patents.

Brief description of the working environment: The work environment is informal, friendly yet professional. We were given the freedom to chose whether we wanted to explore just one topic in depth or explore many to a smaller extent. The tasks allotted are not very demanding in nature.

A strong emphasis is laid on punctuality and professionalism.

Academic courses relevant to the project: None.

Learning Outcome: 1) We were taught about the various ways companies use branding to increase sales.

2) We were taught about various methods of digital marketing.

3) We were taught how to use tools such as apollo.io to aid us in generating leads and pitching our products effectively.

4) We were taught how to make sales calls.

5) We were exposed to the workings of the non-technical side of a start-up such as WODO.

PS-I station: WODO Digital Solutions - Tech, Bengaluru

Student

Name: HRUDAY K(2022A7PS1161G)

Student Write-up:

PS-I Project Title: Web development and Web scraping

Short Summary of work done: converted a figma design to a webpage using html, css and java script. Webscraping both static and dynamic webpages.

Objectives of the project: Web development and Web scraping

Tool used: html,css,javascript,python,beautifulsoup,selenium webdriver and pandas

Details of Papers/patents:Nil

Brief description of the working environment: Very good. Interacted with multiple mentors everyday. Proper guidance. Informal and not strict.

Academic courses relevant to the project: Nil

Learning Outcome: Web development and Web scraping

PRACTICE SCHOOL MILESTONES:

- Conceptualization – 1973
- Extended PS option to all disciplines – 1975
- Inception of PS-I - 1976
- COPSIMS (Computer Operated Practice School Instruction Monitoring System) – 1985
- First PS station abroad – 1991
- PS for Higher Degree – 1992
- Double semester PS for Dual Degree students – 1992
- Combined PS-I operation for Pilani and Goa campuses – 2006
- Combined PS-II operation for Pilani and Goa campuses – 2007
- WEPSIMS (Web Enabled Practice School Instruction Monitoring System) – 2008
- Combined PS-I operation for Pilani, Goa and Hyderabad campuses – 2010
- Combined PS-II operation for Pilani, Goa and Hyderabad campuses – 2011
- BITS Pilani started offering scholarship of Rs. 8,000/- per month amounting to Rs. 44,000 (for the entire duration of PS-II) to selected PS-II students with CGPA 7.00 and above at various research organizations to encourage students to opt for CSIR & other Govt. Research labs - 2012
- PSMS (Practice School Management System) – 2014
- Conceptualization of PS Chronicles - 2015
- Digital Content for Skill gap - 2016
- Enhanced scholarship amount for PS-II students (CGPA 7.00 & above) at CSIR & other Research labs - Rs. 12,000 per month amounting to Rs. 66,000 (for the entire duration of PS-II) - 2016
- Introduction of Subject Matter Expert (SME) for PS-I Projects - 2017
- Digital version of PS Diary - 2019
- Successful implementation of PS-I course in remote mode for 2940 + students during summer 2020 with detailed project identification prior to start of the course - 2020
- Establishment of Student Counselling Cell (SCC) – 2023
- Conceptualization of open house much prior to allotment process - 2023
- Initiated Level of Engagement (LoE) survey for PS-I students during the course – 2023
- Pre PS-II Preferences Survey - 2023
- Conceptualized the live support sessions for students opting for PS – 2023
- BITS Pilani is currently offering an enhanced scholarship of Rs. 20,000 per month amounting to Rs. 1,10,000/- (for the entire duration of PS-II) to selected PS-II students with CGPA 6.00 and above at various research organizations - 2023.
- Complete restructuring of PS transcript - 2023
- Conceptualization of data source page for providing the access to information in a single platform for students - 2024
- Implementation of New Practice School Management System with enhanced capabilities for planning & allotment purposes - 2024.
- Conceptualization of Pre Practice School-I survey – 2024



BITS Pilani

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Practice School Division
PS Chronicles