Birla Institute of Technology & Science (BITS), Pilani
Practice School Division
Practice School-I course (May 26th – July 19th, 2025)

PS Chronicles (Core Engineering – Cement, Steel, Chemical, Civil, Mechanical & others)

(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 7th edition of the PS-I Chronicles. This edition features over 950 articles from PS-I students sharing their experiences during summer 2025.

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 five categories based on the industry domain.

- Chronicle 1: Information Technology
- Chronicle 2: Electronics
- Chronicle 3: Chemical, Mechanical, Cement, Textile, Steel, Infrastructure
- Chronicle 4; Health Care and other
- Chronicle 5: Finance and Management

I would like to thank students for sharing their experiences during their stint at the organization. I would also like to thank the entire PSD team members for reviewing the articles and providing us the valuable feedback. I would also like to extend our sincere thanks to Mr. Om Prakash Singh Shekhawat, Ms. Ankita Duggal, Mr. Shyam Sunder Saini and Mr. Varun Singh of the Practice School Division, of BITS Pilani, Pilani Campus, Pilani 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.

The Associate Dean,
PSD Pilani.

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PS-I station: Biofrank Pharmaceuticals, Ambala

Student

Name: DIVYANSHU JHA (2023B1A81285P)

Student Write-up:

PS-I Project Title: Website development+web designing

Short Summary of work done: During PS-I, I conceptualized, designed, and developed a comprehensive student wellness website titled Campus Flex. The platform focuses on promoting physical fitness, mental health, and nutrition among college students through well-structured web pages. The project involved extensive content planning, UI/UX design, and implementation using WordPress, Elementor, Spectra blocks, and the Astra theme. I created multiple dynamic pages such as fitness myths vs. facts, wellness challenges, dietary hacks, and resource sections. Key features included mobile responsiveness, interactive design, and accessibility enhancements. I addressed design issues like spacing, alignment, and group block inconsistencies through mobile view inspection. The site was tested across devices and optimized for clarity, navigation, and content structure. The experience sharpened my skills in web development, content integration, problem-solving, and user-centered design.

Objectives of the project: Designing a website of our choice.

Tool used: Software: WordPress, Elementor, Spectra plugin, Astra Theme, Hostinger hosting panel, Google Docs (for planning and content), Canva (for visuals).

Details of Papers/patents: none

Brief description of the working environment: The working environment was primarily independent and remote, with freedom to experiment and implement creative solutions. The hosting platform (Hostinger) and WordPress dashboard provided a professional setup for testing and deployment. The project demanded proactive problem-solving, especially when dealing with responsive layout issues and plugin compatibility. Expectations included delivering a fully functional, student-centric website with clear navigation and engaging content. I collaborated virtually when required and followed a structured workflow—from ideation to launch. I learned the intricacies of WordPress customization, responsive design, plugin integration, and content structuring. Working with tools like Elementor and Spectra expanded my understanding of visual hierarchy, block-based design, and mobile optimization. I also improved my ability to convey information effectively through clean design and well-curated

content. The PS-I internship gave me practical insight into the workflow of web development projects and honed both my technical and communication skills.
Academic courses relevant to the project: Web Development Fundamentals
Introduction to UI/UX Design
Digital Media and Communication
Applied Computer Applications
Content Management Systems

Learning Outcome: Learning wordpress and basic html,css,java basics.

PS-I station: Biofrank Pharmaceuticals, Ambala

Student

Name: ABHINAV YADARAM (2023B5A30999G)

Student Write-up:

PS-I Project Title:
Web dashboard for enhancing productivity

Short Summary of work done: The project, Productivity Base, was developed during a Practice School-I internship at Biofrank Pharmaceuticals, aimed at addressing digital workflow fragmentation by creating a centralized productivity dashboard. Built using WordPress and custom PHP, the platform integrates real-time tracking, user authentication, and visual feedback to help users monitor and enhance their productivity. Key features include a Mission Clock that passively tracks active work sessions, a Productivity Score that updates in real time against user-defined goals, and tool shortcuts to platforms like Notion, Gmail, Slack, and OpenAI. A clean, dark-themed UI with neon highlights was implemented using Elementor to ensure minimal distractions and a professional look. User authentication was enabled through a membership plugin, allowing role-based access and secure session tracking. Additional elements like the Contact Us page, implemented via WPForms and WP Mail SMTP, ensure reliable communication with administrators. Despite using a free hosting service (InfinityFree), the project achieved robust functionality by overcoming limitations through solutions like SMTP-based email delivery. The platform was tested successfully for core features like session logging, form submission, and productivity tracking. Limitations like slow load times were noted, suggesting future migration to paid hosting. Recommendations for future work include integrating heatmaps, gamification, mobile optimization, and deeper tool activity tracking. In conclusion, Productivity Base demonstrates that meaningful and scalable web applications can

be built using free tools, and it sets the foundation for further development in integrated digital productivity platforms.

Objectives of the project: creating a online productive collaboration tool
Tool used: WordPress

Details of Papers/patents: no

Brief description of the working environment: The company handed over the project to a web developer, and he gave us the freedom to work and build a website of our choice using WordPress .

Academic courses relevant to the project: computer programming

Learning Outcome: WordPress,graphic design php

PS-I station: Cosmasol Technologies Private Limited, Thiruvananthapuram

Student

Name: GUNISHA KHARBANDA (2023AAPS0150G)

Student Write-up:

PS-I Project Title: Understanding company and do deep analysis and suggesting a GTM strategy and investor analysis

Short Summary of work done: My part was market analysis and providing a strategy for which segment to target first and also first dividing TAM in various segments.

Objectives of the project: My part was market analysis and providing a strategy for which segment to target first and also first dividing TAM in various segments.

Tool used: Google , zoho , google maps

Details of Papers/patents: None

Brief description of the working environment: The environment was really good , daily update was taken on what is done and what to do, targets are set and expected to be met.

Academic courses relevant to the project: Yes

Learning Outcome: Learnt about US market and pattern and analysed and learnt about crm.

PS-I station: Cosmasol Technologies Private Limited, Thiruvananthapuram

Student

Name: SNEHIL GUPTA (2023B5A40737H)

Student Write-up:

PS-I Project Title: Market research analysis

Short Summary of work done: In the initial periods, I helped in studying cosmetic surgery industry in the US and estimating market size for different sizes (Total Addressable Market, Serviceable Addressable Market, Serviceable Obtainable Market). I attained this through multiple data scraping and secondary market research analysis tools like POIdata.io, ScrapeYogi, HealthLink Dimensions etc. I helped leverage these tools to automate market research process and help gain valuable insights which were data driven and business centric. This allowed us to segment our market by factors like clinic age, geographical location etc. which in turn allowed for a streamline Customer relationship management pipeline in Zoho CRM During the second half of the internship, I dabbled in a lot of domains, such as product development by developing a clinic's metric tracking dashboard module and creating wireframes/prototypes based on user research, running a targeted cold-mail campaign using Apollo.io and Google Sheets, investor mapping and competitive benchmarking of Cosmasol to lay the groundwork for future fundraising efforts.

Objectives of the project: CUSTOMER ANALYSIS & SEGMENTATION | INVESTOR MAPPING & STRATEGY.

Tool used: Apollo.io, Zoho CRM, Clay AI, Manus AI, Miroboard, v0.dev, G suite and GitHub, allowing me to perform tasks with precision and efficiency.

Details of Papers/patents: NA

Brief description of the working environment: Working environment was supportive and allowed for professional growth of students involved in the project. No further expectations from the companies; learnings are as mentioned above.

Academic courses relevant to the project: NA

Learning Outcome: Market Research analysis and segmentation; Go-to-market Strategy development; investor analysis and mapping; AI agent automation; Competitive Benchmarking, Product Prototyping/Wireframing; Client Outreach; CRM Pipeline Streamlining.
Tools - Apollo.io, Zoho CRM, Clay AI, Manus AI, Miroboard, v0.dev, G suite and GitHub, allowing me to perform tasks with precision and efficiency.

PS-I station: Deep Holistics India Private Limited, Bangalore Urban

Student

Name: AKHILA VELMURUGAN (2023A5PS1047H)

Student Write-up:

PS-I Project Title: Leveraging health and mental data -startegies for retention culture and well-being

Short Summary of work done: During my PS-I at Deep Holistics, I worked on a unique project exploring the application of a "human token" system designed to capture and reflect team members' contributions, behaviors, and emotional health. The focus was on building a digital tool that helps startups retain talent, promote a healthy work culture, and recognize invisible labor. My role involved researching behavioral science principles, interviewing internal stakeholders (from research, design, and the founder's office), and analyzing how the token framework could align with organizational needs. I also benchmarked existing tools in HR-tech and contributed to UI feedback sessions using platforms like Miro and Figma. I studied developer burnout metrics and how emotional visibility influences performance. Through this, we created use cases for integrating the human token into Slack workflows and wellness dashboards. The project offered a cross-functional experience blending research, analytics, and product thinking in a healthcare-tech startup environment. ◈ Tools Used (Development tools – H/w, S/w) Figma, Notion, Miro, Slack, Google Sheets, Internal Token Dashboard (Web), Google Meet, Excel Let me know if you'd like this in a Word file or PDF for your records before submission. Tools ChatGPT can make mistakes. Check important info. See Cookie.

Objectives of the project: To understand the framework of Deep Holistics' human token system. To explore how emotional and behavioral data can drive strategic decisions in HR and wellness. To assess the system's effectiveness in employee retention and burnout visibility. To develop actionable insights for improving employee culture using digital tokenization.

Tool used: Software tool Slack – Communication and token tracking integration Google Sheets & Excel – Data analysis and logging Internal Token Dashboard (Web App) – Token assignment and review Google Meet – Remote stakeholder interviews and meetings Hardware (H/w): Laptop – Used for all remote work (no specific hardware tools were developed or tested).

Details of Papers/patents: NA

Brief description of the working environment: During my PS-I at Deep Holistics, Bangalore – Online, I worked in a dynamic, research-focused startup environment. The company operates at the intersection of healthcare, emotional well-being, and technology, with a strong emphasis on internal experimentation, user empathy, and iterative feedback.
Despite being a remote internship, communication was seamless through Slack and Google Meet. The culture encouraged asking questions, contributing to discussions, and owning responsibilities early on. Expectations from the company were clear: engage proactively with ongoing projects, understand the token-based HR system, and contribute meaningful insights based on research and user behavior.
My project involved studying a novel "human token" system—a framework designed to make invisible emotional labor and team contributions visible, trackable, and valued. I participated in research interviews, learned canva. I also analyzed how token data tied into team morale, burnout visibility, and behavioral triggers for retention.
Key learnings included applying behavioral science to digital tools, understanding emotional analytics in workforce management, and working cross-functionally across design, research, and the founder's office. The internship also enhanced my collaboration, communication, and critical thinking skills in a startup setting.

Academic courses relevant to the project: Principle of economics to some extent and trw for report writing.

Learning Outcome: Gained exposure to how tech startups approach human capital management.
Understood the role of design thinking in building internal tools (via Figma, Notion).
Learned to interpret qualitative feedback from founders and researchers.
Developed insights into burnout dynamics, behavior-based triggers, and team morale tracking.

PS-I station: Defence Institute of Physiology & Allied Science, New Delhi

Student

Name: BIDISHA SARKAR (2023A5PS1023H)

Student Write-up:

PS-I Project Title: Molecular Biological Techniques used in Research

Short Summary of work done: During my PS-I, I was assigned to various labs where I gained hands-on experience in essential molecular biology techniques. In the Biochemical Pharmacology Lab, I learned Western blotting, including SDS-PAGE, protein transfer to membranes, and antibody-based detection methods. In the Genomics Lab, I was trained in agarose gel electrophoresis, Qiagen DNA isolation, and Real-Time PCR, gaining insight into DNA analysis and gene expression quantification. In the Proteomics Lab, I performed tissue homogenisation and various gel staining techniques to visualize protein content and expression. Though I was not given a specific individual project, the lab rotations helped me develop practical skills and understand the workflow of different research environments. This exposure also allowed me to interact with interdisciplinary teams and understand how collaborative research is conducted.

Objectives of the project: The objective of the project was to learn various techniques used in research like Western Blotting, Qiagen DNA extraction, Gel electrophoresis, Gel staining and Real Time PCR.

Tool used: SDS PAGE, PVDF (Nitrocellulose), Coomassie brilliant blue, Silver stain, Ponceau S, Antibodies, Qiagen DNA extraction midi kit, Loading buffer, running buffer, gels, Real Time PCR, Homogeniser.

Details of Papers/patents: NA

Brief description of the working environment: The working environment was collaborative and well-structured. Although my faculty-in-charge was from Computer Science and less involved in the biological aspect, he still helped us a lot with our doubts and problems, and gave us advice. He was also available whenever we wanted his help. The scientist and JRFs were highly supportive, approachable, and keen on teaching. The labs were well-equipped and maintained a research-oriented atmosphere that encouraged active learning and exploration.
I expected a hands-on experience in basic biomedical techniques, mentorship from experts, and exposure to real research settings. These expectations were fully met through practical sessions, guidance from researchers, and access to laboratory resources.

Academic courses relevant to the project: Biological Chemistry, Molecular Biology, Instrumentation of Analysis

Learning Outcome: - Mastered basic molecular biology lab techniques
- Understood protein and DNA analysis workflows
- Learned to interpret experimental results
- Developed teamwork and scientific communication skills
- Gained clarity about research practices and lab functioning
- Learned to correlate different topics/concepts to see the bigger picture

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PS-I station: Defence Institute of Physiology & Allied Science, New Delhi

Student

Name: TANYA SAPRA (2023A5PS1033H)

Student Write-up:

PS-I Project Title: To learn explore different techniques used in research

Short Summary of work done: During my PS-I at DIPAS (DRDO), I was involved in various domains including Genomics, Biochemical Pharmacology, Proteomics, and Exercise Physiology. In the Genomics lab, I observed and learned DNA extraction, quantification, and agarose gel electrophoresis. I also explored qPCR principles and result interpretation. In the Biochemical Pharmacology lab, I participated in protein separation via SDS-PAGE and understood the complete Western blotting workflow. The Proteomics lab further enhanced my hands-on experience through protein extraction and gel staining using Coomassie Brilliant Blue and Silver Staining methods. I studied each protocol in detail and learned about proteomic analysis in high-altitude physiology. In the Exercise Physiology and Yoga lab, I observed the use of equipment for assessing aerobic capacity, muscle strength, flexibility, and cognitive function, and participated in basic physical assessments. I also reviewed and summarized several scientific papers related to the techniques and studies I was exposed to. The internship provided a multidisciplinary research experience and practical insight into human physiology and molecular biology.

Objectives of the project: To gain practical exposure to molecular biology and proteomic techniques used in physiological and defense research. To understand the methodologies behind DNA extraction, protein analysis, and stress biomarker identification. To contribute to ongoing research on high-altitude stress and de-acclimatization using genomics and proteomics.

Tool used: H/w: NanoDrop Spectrophotometer, SDS-PAGE and Western Blotting apparatus (Bio-Rad), Agarose gel electrophoresis units, UV transilluminator, qPCR machine (Applied Biosystems), LC-MS/MS system (Thermo Scientific), centrifuges, micropipettes, vortex mixers, heating blocks S/w: Microsoft Excel for data logging; exposure to qPCR software interface (Applied Biosystems); NCBI and PubMed for literature review.

Details of Papers/patents: No patents or papers were generated, but relevant research papers were read and summarized for internal understanding and learning.

Brief description of the working environment: The working environment at DIPAS was highly academic and research-oriented, with a strong emphasis on protocol standardization, biosafety, and accuracy. As interns, we were expected to observe, assist, and comprehend the experimental workflows carried out in various labs. Scientists and research staff were approachable and encouraged us to ask questions, helping us understand the rationale behind every step. Despite the limited internship duration, we received valuable exposure to core techniques in genomics, proteomics, and physiology. The emphasis on interdisciplinary learning—from DNA analysis to protein profiling to physiological assessments—allowed us to connect theoretical knowledge with real-world research. The experience enhanced our technical vocabulary, critical thinking, and appreciation for detail-oriented scientific work.

Academic courses relevant to the project: 1)Molecular Biology 2)Pharmaceutical Biotechnology 3)Biochemistry 4)Instrumental Methods of Analysis 5)Genetics and Genomics 6)Pharmacology

Learning Outcome: 1)Acquired hands-on experience in DNA extraction, SDS-PAGE, gel staining, and Western blotting.
2)Understood the principle and interpretation of agarose gel electrophoresis and real-time PCR.
3)Gained insight into proteomic workflows including protein extraction and mass spectrometry-based analysis.
4)Improved scientific reading skills through paper reviews and summaries related to lab techniques and research focus.

PS-I station: Defence Institute of Physiology & Allied Science, New Delhi

Student

Name: KRITIKA SEHGAL (2023A5PS1035H)

Student Write-up:

PS-I Project Title: Comprehensive study of molecular techniques

Short Summary of work done: During my internship at DIPAS, I had the opportunity to interact with several scientists who guided me in understanding how to identify a research problem, select appropriate methodologies, and apply scientific techniques to achieve results. Reading research papers authored by these scientists improved my scientific reading skills and broadened my knowledge of their respective research areas. Throughout the internship, I observed various molecular biology techniques and discussed their objectives and applications with research scholars. Over the span of seven weeks, I was assigned to four different laboratories, each focusing on a unique area of study. In the Biochemical Pharmacology lab, I

learned the importance of Western blotting in identifying specific proteins expressed in test and control groups. In the Genomics lab, I observed DNA isolation, gel electrophoresis, and real-time PCR being used to validate results and correlate the presence of specific genes with disease conditions. In the Proteins and Proteomics lab, I gained exposure to protein extraction, Western blotting, and gel staining, which were used to study protein expression changes at different altitudes. Lastly, in the Exercise Physiology and Yoga division, I learned about ongoing research examining how yoga asanas can help the human body adapt more effectively to high-altitude environments. This multi-laboratory exposure allowed me to relate classroom concepts to real-world research and enhanced my understanding of experimental design and laboratory practices in the field of biomedical science.

Objectives of the project: The objective was to acquire hands-on experience in the research field, observe laboratory methodologies, and connect them with the theoretical concepts learned in the classroom.

Tool used: Laboratory instruments - Bioazure imaging system, biorad RT-PCR machine, gel cast, gel tank, UV transilluminator, vortex mixer, VDRL shaker, western blotter, homogeniser, ergonomic exercise equipments.

Details of Papers/patents: Various papers and protocols relevant to the research in specific laboratories were read and discussed but the details about the same cannot be disclosed as an undertaking was signed.

Brief description of the working environment: The working environment in DIPAS was professional and research oriented. The institution housed several specialized laboratories dedicated to enhancing military performance at the molecular level, particularly under high-altitude hypoxic conditions. Each lab was engaged in intensive research, led by scientists and supported by research scholars working collaboratively toward specific objectives. The scientists were highly knowledgeable and intellectually driven, providing us with valuable insights into their research approaches and methodologies. The research scholars were equally supportive, patiently explaining the experimental techniques they employed and how the outcomes contributed to advancing their respective projects.

Academic courses relevant to the project: 1)Molecular Biology 2)Instrumental Methods of Analysis 3)Anatomy, Physiology and Hygiene 4)Genetics and Genomics 5)Biochemistry 6)Pharmaceutical Biotechnology.

Learning Outcome: During the internship, we learned key experimental techniques such as protein isolation, Western blotting, real-time PCR, etc. We also gained insight into scientific reading, research planning and data interpretation. The experience bridged the gap between classroom learning and practical application, enhancing our technical and analytical skills significantly.

PS-I station: Defence Institute of Physiology & Allied Science, New Delhi

Student

Name: MOHIT SHARMA (2023A5PS1207P)

Student Write-up:

PS-I Project Title: Application of Molecular and Physiological Techniques—Western Blotting, DNA Extraction, RT-PCR & Ergometry—in Enhancing Soldier Health and Performance at DIPAS–DRDO

Short Summary of work done: During my PS-I internship at DIPAS–DRDO, I was exposed to a diverse range of molecular and physiological techniques used in defense research to enhance soldier health and performance. The internship was structured across four specialized labs. In the Biochemical Pharmacology Lab, I learned the technique of Western Blotting, including protein transfer, antibody probing, and visualization. In the Genomics Lab, I performed DNA extraction and Agarose Gel Electrophoresis to assess DNA quality and integrity. In the Proteomics Lab, I gained hands-on experience in Gel Staining and RT-PCR, understanding gene expression analysis at a practical level. In the Exercise and Physiology Lab, I was introduced to ergometry—a technique used to evaluate physical fitness, endurance, and fatigue levels in soldiers under simulated stress conditions. Throughout the internship, I also observed interdisciplinary collaboration between physiology, molecular biology, and defense medicine. The project helped me improve my technical proficiency, scientific reasoning, and understanding of how lab-based research directly contributes to enhancing the performance and well-being of armed forces personnel.

Objectives of the project: To learn key lab techniques: Western Blotting, DNA Extraction, RT-PCR, Gel Electrophoresis, and Ergometry To understand their application in enhancing soldier health and performance To gain exposure to defense-focused molecular and physiological research.

Tool used: Hardware Tools (H/W): Gel Electrophoresis Apparatus Thermal Cycler (RT-PCR Machine) Western Blotting Unit UV Transilluminator Ergometer (Cycle-based and Treadmill models) Micropipettes and Centrifuges Software Tools (S/W): RT-PCR Analysis Software Gel Documentation System Software Microsoft Excel (Data Recording and Analysis) Lab-specific data acquisition systems (for Ergometry).

Details of Papers/patents: NA

Brief description of the working environment: My PS-I internship at DIPAS–DRDO, Delhi, offered a highly professional, research-focused, and collaborative working environment. The labs were well-equipped with advanced instruments, and all safety protocols were strictly followed. Scientists and mentors were approachable, patient, and committed to student learning. Regular briefings, demonstrations, and supervised hands-on sessions ensured structured and meaningful engagement throughout.
I expected to gain practical exposure to molecular biology and physiology, and the experience exceeded those expectations. Each lab introduced us to real-world applications of the techniques we had only studied theoretically. We were treated as young researchers and encouraged to ask questions, troubleshoot, and understand the "why" behind each step.
Over the course of the internship, I learned essential techniques such as Western Blotting, DNA Extraction, RT-PCR, Gel Electrophoresis, and Ergometry. These not only enhanced my technical skills but also deepened my understanding of how such tools contribute to improving soldier health, performance, and stress resilience.
The experience also taught me lab discipline, the importance of precision, ethical research conduct, and the value of interdisciplinary collaboration. It has been a rewarding and motivating experience that significantly contributed to my academic and professional growth.

Academic courses relevant to the project: 1) Biochemistry – Helped understand protein structure, enzymes, and blotting techniques 2) Molecular Biology – Provided foundation for DNA/RNA work, RT-PCR, and gene expression.

Learning Outcome: Acquired practical skills in Western Blotting, DNA Extraction, RT-PCR, and Gel Electrophoresis.
Understood the use of ergometry in monitoring soldier fitness and fatigue.
Gained insight into the role of molecular and physiological research in defense applications.
Developed lab discipline, data interpretation skills, and exposure to real-world research environments.

PS-I station: Docquity services private limited, Gurgaon

Student

Name: SHUBH CHAPRA (2023A7PS0005P)

Student Write-up:

PS-I Project Title: Universal URL Shortener & App Linking Platform

Short Summary of work done: During the internship at Docquity, I contributed to building a backend system for a universal URL shortener. I worked on implementing CRUD APIs, integrated deep linking, token-based authentication, and hybrid redirection logic. I participated in code reviews, used modular design patterns for services and controllers, and ensured strict input validation with centralized error handling. Redis was used for caching and health checks, while MongoDB managed application and URL data. Swagger was used for documentation, and the project adhered to clean, scalable architecture principles.

Objectives of the project: To design and implement a URL shortening service with app-based access control.

Tool used: Node.js, Express.js, MongoDB, Redis, Postman, Swagger, Git, GitHub, VS Code.

Details of Papers/patents: None

Brief description of the working environment: The internship was conducted in a remote environment. The environment was chill. I was expected to deliver modular, clean code and follow API design best practices. I learned about clean MVC architecture, production-grade backend development.

Academic courses relevant to the project: Database System

Learning Outcome: Hands-on experience with Node.js, Express.js, MongoDB, Redis.
Gained proficiency in MVC architecture, RESTful API design, and middleware handling.
Understood API development workflows, Swagger documentation, and input validation using Joi.

PS-I station: Docquity services private limited, Gurgaon

Student

Name: TANUSH BIREN BHATT (2023A7PS0010G)

Student Write-up:

PS-I Project Title: URL Shortener

Short Summary of work done: We were all given the same task to work on together. We took turns collaborating in the github repo and presented our updates in weekly meetings.

Objectives of the project: Developing a URL shortener backend for the company

Tool used: MongoDB, Node.js, Express, React, GitHub

Details of Papers/patents: NA

Brief description of the working environment: The company had a welcoming onboarding from HR, after which we interacted with 2 to 3 members of their software team on a weekly basis. They gave us tasks and completion deadlines. They answered doubts to the best of their capabilities.

Academic courses relevant to the project: DBMS, Computer Programming

Learning Outcome: MongoDB, Node.js, Express, React

PS-I station: Docquity services private limited, Gurgaon

Student

Name: KRISH GUPTA (2023A7PS0525P)

Student Write-up:

PS-I Project Title: URL Shortener

Short Summary of work done: During my Practice School-I (PS-I) at Docquity, I worked on building a Token-Based URL Shortener using Node.js, Express, MongoDB, and Swagger for API documentation. The project was designed with a modular architecture following a controller-service-repository pattern to ensure clean, maintainable, and scalable backend code. The system allowed registered applications to generate and manage shortened URLs through secure, token-based authentication. Each application, upon registration, received a unique token used to authorize requests. Authenticated apps could create, retrieve, update, and delete shortened URLs associated with their account. The application ensured that duplicate entity records were handled gracefully, and appropriate validations were enforced.

Objectives of the project: To construct a URL shortener which shortens URLs into legible and clean URLs instead of clunky and long URLs, and also possess the deep linking feature.

Tool used: Node.js, MongoDB, Swagger, Express

Details of Papers/patents: NA

Brief description of the working environment: During my Practice School-I (PS-I) at Docquity, I worked as part of a collaborative team environment focused on backend development. We followed a modular and structured development approach, with clearly defined responsibilities and regular check-ins to ensure coordination and consistency.
Academic courses relevant to the project: OOPs, DBMS

Learning Outcome: Learned a new tech stack consisting of Node.js, MongoDb and Express.

PS-I station: Docquity services private limited, Gurgaon

Student

Name: MOHAMMAD MAAZ N KHAN (2023A8PS0496G)

Student Write-up:

PS-I Project Title: URL Shortener

Short Summary of work done: We made a backend server of CRUD APIs for shortening long URLs. The long URL was shortened with a 6 length code with Base62 encoding. We also added the option of giving custom aliases for the short code and collision detection. We tested the APIs using SwaggerUI. It was all done on local MongoDB.

Objectives of the project: Develop a backend server for shortening long URLs using Base62 encoding, with support of custom aliases.

Tool used: VS Code, SwaggerUI, Postman

Details of Papers/patents: NA

Brief description of the working environment: The company officials were good.

Academic courses relevant to the project: DBS

Learning Outcome: MongoDB, Node.js, Express.js

PS-I station: Docquity services private limited, Gurgaon

Student

Name: SAI KAUSHIK SADHU (2023AAPS0248H)

Student Write-up:

PS-I Project Title: URL Shortener and Universal Linking System

Short Summary of work done: Learnt how to build a URL Shortener using Node.js, MongoDB, Swagger, JWT (for authentication), Joi (for Validation) etc.

Objectives of the project: To build a URL Shortener with Universal Linking System with proper authentication and validation.

Tool used: Swagger, Node.js, MongoDB

Details of Papers/patents: NIL

Brief description of the working environment: Decent work environment, I didn't have any expectations as of such, learnt how to build a URL Shortener using Node.js, MongoDB, Swagger, JWT (for authentication), Joi (for Validation) etc.

Academic courses relevant to the project: Computer programming

Learning Outcome: Swagger, Node.js, MongoDB, JWT, Joi

PS-I station: Docquity services private limited, Gurgaon

Student

Name: YASH MITTAL (2023B4A71140P)

Student Write-up:

PS-I Project Title: Scalable and Secure URL Shortening Service with API Integration

Short Summary of work done: During PS-I, I developed a production-grade URL shortening service with secure, scalable, and maintainable architecture. The project included collision-

resistant short link generation using the nanoid library, JWT-based authentication for user-specific access, and robust CRUD operations (create, update, delete shortened URLs). Sequelize ORM with MongoDB was integrated for structured data access, along with database pooling for performance optimization. DTO-based validation ensured input integrity, while Swagger documentation facilitated easy API usage for developers. Comprehensive error handling, logging mechanisms, and automated testing workflows were implemented to enhance reliability. The project followed best engineering practices, with structured code organization to support future feature expansion.

Objectives of the project: The objective of the project was to design and develop a robust, collision-resistant URL shortening service with secure authentication and authorization for API endpoints. It aimed to provide interactive, developer-friendly API documentation while ensuring the system's scalability, modularity, and maintainability for future enhancements.

Tool used: Software: Node.js, Express.js, MongoDB, Sequelize ORM, Swagger, Postman, Nanoid, JWT, Git/GitHub.

Details of Papers/patents: NA

Brief description of the working environment: The working environment was collaborative and supportive, encouraging independent problem-solving and constructive mentor feedback. The company emphasized clean coding, proper documentation, and secure development practices, with expectations of delivering a reliable, scalable product on time. This experience strengthened my skills in backend system design, authentication, database management, and API development, while providing exposure to production-level coding, debugging, and automated testing.

Academic courses relevant to the project: Computer Programming

Learning Outcome: The major learning outcomes of the project include gaining hands-on experience in building full-stack backend services using Node.js, MongoDB, and Sequelize ORM, along with implementing JWT-based authentication and role-based access control. I developed skills in creating API documentation with Swagger, applying DTO validation, managing database pooling, handling errors effectively, and designing scalable architectures. Additionally, I gained exposure to automated API testing using Postman and curl, further strengthening my backend development expertise.

PS-I station: Edhaa Innovations Private Limited - Tech, Mumbai

Student

Name: TVISHA BHAVIN KHAMBHADIA (2023A8PS0947G)

Student Write-up:

PS-I Project Title: Design of Embedded Incubator System and Machine Learning-Driven Fluid Anomaly detection in Point-of-Care Devices

Short Summary of work done: Conducted market research on competitor products, analyzing over 15 key parameters, and performed Voice of Customer (VoC) analysis to identify opportunities for product improvement. Based on these insights, redesigned the BIO-CHEQ™ diagnostic device to enhance compactness, usability, and manufacturability while optimizing the Bill of Materials (BOM). Designed and developed a temperature-controlled, 20-slot bio-incubator with independent web-integrated timers, built from the ground up using embedded systems. Leveraged KiCad and SPICE simulation for mixed-signal circuit design, ensuring performance and manufacturability. Achieved an estimated 80% cost reduction compared to existing market alternatives. Implemented and evaluated multiple machine learning models, including XGBoost, SVM, k-Nearest Neighbours, and Neural Networks, to detect and classify 5–6 types of fluid anomalies (e.g., bubbles, wrong volume, incorrect reagents) across more than 15 reagents. These models were integrated into the diagnostic workflow, significantly improving reliability and real-time diagnostic accuracy. Created, verified, and optimized detailed BOMs for both the BIO-CHEQ™ device and the incubator system. Conducted procurement planning by sourcing components from local and online vendors, validating specifications against design files, and performing cost estimation using Gerber files and vendor tools. Ensured procurement accuracy, minimized costs, and supported readiness for large-scale production. This work provided hands-on experience in embedded systems design, machine learning integration, product redesign, supply chain coordination, and cost-driven engineering, contributing to the development of scalable, high-performance, point-of-care diagnostic technologies.

Objectives of the project: To design and develop a programmable, modular, multi-slot embedded incubator system with PID-based temperature regulation and web-based control. To create a machine learning pipeline for real-time detection of fluid anomalies in point-of-care diagnostic cuvettes. To redesign the BIO-CHEQ™ device for improved compactness, usability, manufacturability, and thermal management. To perform detailed Bill of Materials (BOM) analysis, procurement planning, and cost estimation for production readiness. To statistically validate device performance against gold-standard laboratory systems using robust biostatistical methods.

Tool used: Hardware Tools: ESP32 Development Board – Microcontroller platform for incubator control and device integration. Peltier Modules & Thermistors – Thermal regulation and sensing. MOSFET Switches & Power Electronics Components – PWM-based control of

heating/cooling units. Optical Spectral Sensor (8-channel) – Fluid anomaly detection. Prototyping Equipment – Breadboards, soldering tools, multimeter, and oscilloscope for testing. Software Tools: KiCad – PCB schematic design, layout, and SPICE circuit simulation. Arduino IDE – Firmware development for ESP32 microcontroller. Python (Pandas, NumPy, Matplotlib, Seaborn) – Data preprocessing, visualization, and statistical analysis. Scikit-learn, XGBoost – Machine learning model training and evaluation. LTspice – Mixed-signal circuit simulation and validation. Google Colab – Cloud-based ML model development and visualization. AutoCAD – Enclosure design and internal mechanical layout. Excel / Google Sheets – BOM verification, cost estimation, and procurement tracking. ESP32 Web Server Libraries – Local browser-based UI control for incubator slots.

Details of Papers/patents: NA

Brief description of the working environment: The working environment at Edhaa Innovations was friendly, collaborative, and highly supportive, making it easy to gel with the team. Mentors were approachable and always ready to guide.
The company expected us to take ownership of our tasks, complete them diligently, document our work, and update mentors daily on progress and challenges.
During PS-I, I gained hands-on experience in embedded systems, machine learning, product redesign, and BOM optimization, while also learning the importance of clear communication, documentation, and teamwork in an R&D setting.

Academic courses relevant to the project: Electrical Sciences, Microelectronics, Computer Programming, Control Systems, ML for EE (I am doing this course after completing my PS though).

Learning Outcome: Practical application of embedded system design, including ESP32 programming, PID control, PCB design, and hardware simulation.
Hands-on experience in machine learning model development, evaluation, and integration into biomedical devices.
Exposure to product redesign principles based on Voice-of-Customer (VoC) feedback and competitive market benchmarking.
Skills in BOM creation, cost optimization, supply chain coordination, and procurement management.
Proficiency in statistical validation techniques such as Bland–Altman analysis, Passing–Bablok regression, and McNemar tests for clinical data verification.
Understanding of interdisciplinary workflows combining electronics, software, biomedical engineering, and data science for scalable healthcare solutions.

PS-I station: EvoReality Private Limited, Amravati

Student

Name: ARYAN DANGI (2023B3A71108G)

Student Write-up:

PS-I Project Title: Backend script for cogtrack

Short Summary of work done: During the course of my internship, I gained in-depth practical knowledge of cloud computing, serverless architectures, and backend development using Firebase and JavaScript. I learned how to build, deploy, and scale cloud functions to support real-time data processing and user evaluation. Through this project, I strengthened my understanding of database design, statistical analysis (mean, median, standard deviation), and cognitive performance benchmarking using Chebyshev's Theorem. I also learned to work with Firebase Realtime Database triggers, authentication, and RESTful APIs using tools like Postman. This experience enhanced my skills in debugging, asynchronous programming, modular code structuring, and writing production-level, maintainable code. Overall, the internship provided me with valuable technical and problem-solving skills that are directly applicable to real-world software engineering and data-driven application design.

Objectives of the project: Create a backend on firebase that will read and process game scores and give user specific processed data.

Tool used: Firebase and android studio

Details of Papers/patents: None

Brief description of the working environment: Very friendly

Academic courses relevant to the project: Computer programming

Learning Outcome: Java. JavaScript , Backend development

PS-I station: GenoSaathi – Non-Tech, Pilani

Student

Name: SIYA MADAN (2023A5PS1156P)

Student Write-up:

PS-I Project Title: Founders office — outreach and database

Short Summary of work done: I created a database of gynecologists and fertility clinics and sorted them according to cities. I included their contact numbers, email addresses and specialty. I mainly collected specialists in infertility and rpl (recurrent pregnancy loss). After this i moved on to the next stage of contacting them via email. I sent around 250 cold mails and received multiple responses.

Objectives of the project: To build a database of fertility clinics and gynecologists and to initiate conversations that might lead to collaborations.

Tool used: SalesHandy, Woodpecker, GMass, Sheetsy, Excel

Details of Papers/patents: NA

Brief description of the working environment: The environment was very chill, they had assigned us our domains at the very beginning and we were expected to finish our tasks as soon as possible, there were no hard deadlines as such.

Academic courses relevant to the project: n/a

Learning Outcome: Outreach and cold mailing strategies and understanding various tools for the same.

PS-I station: GenoSaathi - Tech, Pilani

Student

Name: ARAVIND SATHESH (2023A8PS1187H)

Student Write-up:

PS-I Project Title: GenoSaathi Website - Web Development

Short Summary of work done: We were tasked with revitalizing GenoSaathi's digital presence. With a slow legacy site and no existing documentation, the platform needed more than just a redesign, it required a complete rebuild. We reimagined the entire system from the ground up using Next.js and React. My colleague and I implemented a full-stack blog powered by a Supabase backend and built a custom admin interface to streamline content management and updates. The result is a high-performance, fully responsive platform that's modern, maintainable, and built for scale, bringing GenoSaathi's web presence up to the standards their mission deserves.

Objectives of the project: To develop the primary corporate website from scratch for GenoSaathi

Tool used: Design: Figma, Frontend: React.js and TailwindCSS, Database: PostgresSQL using Supabase.

Details of Papers/patents: None

Brief description of the working environment: I learned how to manage tasks and complete work within deadlines.

Academic courses relevant to the project: None

Learning Outcome: Full-stack web development, database management, cross-team collaboration.

PS-I station: GenoSaathi - Tech, Pilani

Student

Name: AVANISH GUPTA (2023B3A70844G)

Student Write-up:

PS-I Project Title: App Development Project

Short Summary of work done: During my PS-I at Genosaathi, I worked in a team on a mobile app development project. We first created the app design using Figma, where we planned the layout, features, and user interface. After finalizing the design, we used Flutter and Dart to

build the front end of the app based on the Figma model. My role involved designing screens, adding navigation, and ensuring the UI matched the planned design. We used Git for version control and collaborated closely as a team, regularly sharing updates and solving issues together. Though we didn't connect the app to a backend, we successfully built a working front-end prototype. The project helped me improve my skills in Flutter, UI/UX design, teamwork, and real-world app development workflows.

Objectives of the project: To design a user-friendly mobile app interface using Figma and to implement the designed UI using Flutter and Dart.

Tool used: Figma and Flutter

Details of Papers/patents: Not Applicable

Brief description of the working environment: During my PS-I at Genosaathi, I worked as an App Developer, mainly focusing on building and improving a mobile application. The working environment was friendly and flexible. Most of the communication happened online, so I learned to manage my time well and work independently.
The company had a start-up culture, which means things moved fast, and I was encouraged to share ideas and take responsibility. I was expected to complete my tasks on time and solve problems on my own, but I could also ask for help when needed. Regular updates with my mentor helped me stay on track.
I worked on designing app screens and fixing small issues in the code. I used tools like Flutter and Git, which I had only basic knowledge of before the internship. Now, I feel more confident using them.
One of the main things I learned was how to turn a simple idea into a real app feature. I also understood how real-life app development is different from what we usually learn in theory. Working in a team, sharing code, and learning from feedback were very useful experiences.
Overall, this internship helped me improve my technical skills, communication, and confidence. It gave me a good idea of how work happens in real companies.

Academic courses relevant to the project: Nothing

Learning Outcome: Learned to convert Figma designs into working Flutter app interfaces.Improved skills in Flutter and Dart programming.Understood the process of UI/UX design and its practical implementation.

PS-I station: Giga Health, Bengaluru

Student

Name: KAYSHAV MANDA (2023A4PS0007G)

Student Write-up:

PS-I Project Title: Product Design

Short Summary of work done: -

Objectives of the project: Designing UI/UX for website

Tool used: Figma, Canva

Details of Papers/patents: NA

Brief description of the working environment: -

Academic courses relevant to the project: -yes

Learning Outcome: UI/UX Design, marketing etc.

PS-I station: Giga Health, Bengaluru

Student

Name: SAI JASWANTH BAVIGADDA (2023A4PS0562H)

Student Write-up:

PS-I Project Title: Partnerships and AI Enablement at Giga Health

Short Summary of work done: As a Health Tech Business Development Intern at Giga Health, I conducted hospital outreach, contacting over 2,764 hospitals via cold calls and emails, securing 10 follow-up meetings and 29 detailed requirement captures. I established recruitment partnerships with four MBA colleges, onboarding two candidates. Additionally, I categorized 100 medical scripts for Five AI agents, enhancing data accuracy through batch processing. My

efforts expanded Giga Health's network, streamlined hiring processes, and laid the foundation for AI-driven solutions, contributing to operational efficiency and strategic growth.

Objectives of the project: Conduct hospital outreach through cold calling and email campaigns to promote concierge and staffing services. Build a talent pipeline by establishing academic partnerships with MBA colleges. Prepare and structure medical datasets for AI agent development (e.g., receptionist, doctor,nurse , claims , FWA). Enhance Giga Health's network, streamline recruitment, and support AI-driven healthcare solutions.

Tool used: Software: Google Sheets (data tracking, CRM), LinkedIn (sourcing), Microsoft Office (proposals, emails).

Details of Papers/patents: NIL

Brief description of the working environment: The working environment at Giga Health was dynamic and collaborative, with a focus on innovation in healthcare delivery. Expectations included proactive outreach, precise data handling, and effective communication with hospital stakeholders and academic institutions. I learned practical business development skills, such as lead generation and CRM usage, and gained insights into AI's role in healthcare. The mentorship from Prabhat Hussain, CEO & Co-Founder, and support from Employees Devashish Raj, Satwik, Jaideep, and Shravan fostered a hands-on learning experience, enhancing my ability to navigate real-world challenges in sales, recruitment, and data management.

Academic courses relevant to the project: Business Communication, Marketing Management Data Management and Analysis.

Learning Outcome: Gained expertise in client acquisition strategies, including cold calling, email outreach, and lead nurturing.
Developed skills in recruitment processes, including sourcing, screening, and onboarding candidates.
Learned to categorize and structure large-scale medical datasets for AI applications.
Improved professional communication and stakeholder coordination skills.

PS-I station: Giga Health, Bengaluru

Student

Name: KODIDASU V SIDDHARTH (2023B3A10981P)

Student Write-up:

PS-I Project Title: Comprehensive Healthcare Value Assessment: TAM Sizing of Giga Health and Hospital DCF Valuation

Short Summary of work done: During the PS-I phase, I implemented a two-pronged valuation protocol combining comprehensive market sizing with asset-level cash-flow analysis. First, I quantified Giga Health's Total Addressable Market (TAM) across six verticals—Rx, GPO, Health, EoR, Finance, and Insurance—leveraging both top-down industry research and bottom-up unit economics. I refined this into Serviceable Available Market (SAM) and Serviceable Obtainable Market (SOM) by applying empirically grounded uptake and capture-rate assumptions, and converted SOM into revenue streams via Giga's proprietary charge-rate schedule. To stress-test forecast integrity, I engineered an automated Excel-based sensitivity matrix and constructed base, upside, and downside scenario decks. Concurrently, I performed a standalone Discounted Cash Flow (DCF) valuation of the hospital asset, projecting unlevered free cash flows, deriving the firm's WACC, and triangulating terminal value using both Gordon Growth and exit-multiple methodologies. Finally, I integrated these analyses into a consolidated enterprise valuation framework, establishing a solid foundation for probabilistic Monte Carlo simulations and preliminary IPO sizing. Throughout PS-I, I employed advanced financial modeling techniques, capital-structure mechanics, and investor-grade deliverables to furnish actionable insights for strategic fundraising and market-entry decisions.

Objectives of the project: Develop a holistic enterprise valuation for Giga Health by sizing its six verticals and Complement this with a standalone DCF valuation of a potential hospital asset.

Tool used: Microsoft Excel, Python (NumPy, Pandas), Pre-built DCF modeling templates, S&P Capital IQ, Bloomberg Professional, PitchBook, Statista, IBISWorld, McKinsey & Company reports, Microsoft PowerPoint, Canva, Tableau, Microsoft Power BI.

Details of Papers/patents: None

Brief description of the working environment: During PS-I, I operated within a fast-paced, matrixed environment that mirrored top-tier investment banking and strategy consultancies—characterized by rigorous deliverable deadlines, real-time stakeholder feedback loops, and cross-functional collaboration. The company expected precision in financial modeling, clarity in assumption documentation, and proactivity in surfacing upside/downside risks. I was tasked to maintain deal-quality standards: ensuring models were audit-ready, sourcing best-in-class market data, and distilling complex analyses into investor-grade slide decks. Under this regimen, I deepened my technical acumen—mastering dynamic Excel architectures, leveraging Python for sensitivity automation, and honing DCF valuation mechanics including WACC calibration and terminal value triangulation. Simultaneously, I refined soft skills vital for PS-I success: managing stakeholder expectations through structured communication, iterating rapidly based on senior leadership input, and balancing scope versus timeline trade-offs. Exposure to due-diligence protocols and peer-reviewed model governance practices fortified my understanding of deal flow execution and risk mitigation. Collectively, PS-I cultivated both

my quantitative rigor and consultative instinct, equipping me to deliver actionable insights that align with strategic fundraising and market-entry imperatives.

Academic courses relevant to the project: Financial Management, Business analysis and valuation, Fundamentals of Finance and Accounting.

Learning Outcome: 1} Mastered dual-method TAM sizing (top-down and bottom-up) and learned to reconcile disparate data sources for high-confidence market estimates.
2} Gained expertise in translating market potential into revenue forecasts using uptake/capture rates and customized charge-rate assumptions.
3} Developed advanced Excel modeling skills, including modular design, dynamic sensitivity tables, and scenario toggles.
4} Understood the interplay between key drivers (penetration, pricing, conversion) and long-term revenue outcomes through systematic stress-testing.
5} Acquired proficiency in standalone DCF valuation techniques, including cash flow projection, WACC estimation, and terminal value calculation.
6} Learned to integrate multi-segment market analysis with asset-level valuation into a cohesive enterprise value framework.
7} Built the foundation for probabilistic forecasting via Monte Carlo simulation and strategic IPO sizing considerations.
8} Enhanced capability to craft investor-ready deliverables, articulate assumptions transparently, and support data-driven strategic decisions.

PS-I station: Hyderabad Eye Institute (DBA - L V Prasad Eye Institute), Hyderabad

Student

Name: ANUJ KHEMKA (2023A4PS0321G)

Student Write-up:

PS-I Project Title: Mechanical Engineering Support for Project One and Mod SL

Short Summary of work done: I was majorly involved in the iterative development and testing of a headrest component for portable slit lamp prototypes. Other than this I was involved in many other aspects of the work at my PS station.

Objectives of the project: Prototyping and development of a headrest component in certain medical devices.

Tool used: Fusion360, Bambu Slicer

Details of Papers/patents: no

Brief description of the working environment: I learned how to apply theoretical knowledge to real-life situations.

Academic courses relevant to the project: EG, Workshop

Learning Outcome: Fluency in CAD and 3d printing operations, design for manufacturing.

PS-I station: Hyderabad Eye Institute (DBA - L V Prasad Eye Institute), Hyderabad

Student

Name: SAMUDRALA VENKATA NAGA CHANDRA PRANAV (2023B3A40991P)

Student Write-up:

PS-I Project Title: FINANCIAL PERFORMANCE AND STRATEGIC RECOMMENDATIONS OF GSR HOSPITALITY SERVICES

Short Summary of work done: Financial analysis

Objectives of the project: This project is designed to analyze and assess the cost structure and financial performance of GSR Hospitality Services, with a focus on identifying opportunities for cost savings, operational improvements, and strategic financial planning.

Tool used: powerBI,excel,canva

Details of Papers/patents: NA

Brief description of the working environment: very good,high expectations,learnt how to confidently communicate.

Academic courses relevant to the project: fundafin,finman,bav,poe.

Learning Outcome: experience of handling a finance project.

PS-I station: Indian Red Cross Society, New Delhi

Student

Name: SONAM CHOUDHARY (2023A5PS1042H)

Student Write-up:

PS-I Project Title: I worked in finance office

Short Summary of work done: Cross checking work , data entry in their software, making slides on microsoft excel.

Objectives of the project: Data entry in their software

Tool used: finsql-shortcut

Details of Papers/patents: NA

Brief description of the working environment: I really enjoyed working with them , they didn't pressurize us for any work.

Academic courses relevant to the project: Finance

Learning Outcome: Data entry , cross checking, working on microsoft excel.

PS-I station: Indian Red Cross Society Delhi, New Delhi

Student

Name: MOHAMMAD AMAN (2023A5PS1208P)

Student Write-up:

PS-I Project Title: Business central usage for erp

Short Summary of work done: During my two-month internship at the Indian Red Cross Society (IRCS) National Headquarters, I worked in the Finance Office as part of the Practice School-I

program from BITS Pilani. My responsibilities focused on four core financial processes that are essential to the organization's operational efficiency and accountability. Firstly, I prepared various vouchers including payment, receipt, and journal vouchers. This involved verifying supporting documents for accuracy and ensuring that all transactions were properly coded and approved—enhancing the precision of financial records and audit readiness. Secondly, I processed bank reconciliation statements by comparing the organization's cash book with official bank records. I identified and corrected discrepancies, thereby improving the reliability and transparency of IRCS's financial reporting. In the third component, I managed journal entries for two key units: the St. John Ambulance and the Blood Bank. I recorded and categorized income and expense transactions under appropriate ledger heads, supporting their financial tracking and budgeting processes. Lastly, I worked on data reconciliation and optimized the filing system for better retrieval and audit preparation. This included correcting inconsistencies in historical data and organizing both digital and physical financial documents using a more structured format. Throughout this internship, I developed practical skills in financial documentation, bookkeeping, reconciliation, and data management within a nonprofit setting. The experience not only strengthened my technical proficiency but also deepened my understanding of how robust financial systems support the humanitarian mission of an organization like IRCS.

Objectives of the project: To ensure accurate transaction recording through proper voucher preparation, to align IRCS's cashbook with bank statements for financial accuracy, to maintain accurate ledger entries for various funds, to reconcile financial data and streamline filing for audit readiness.

Tool used: Microsoft Dynamics NAV

Details of Papers/patents: NA

Brief description of the working environment: The working environment at the Indian Red Cross Society (IRCS) was professional, supportive, and aligned with the organization's humanitarian mission. As an intern in the Finance Department, I experienced a structured yet collaborative atmosphere where teamwork, discipline, and responsibility were emphasized. The office environment encouraged learning through observation, guided practice, and active participation in daily financial operations.

From the outset, the organization had clear expectations from interns. We were expected to be punctual, attentive, and detail-oriented. Tasks assigned to us were real-time and impactful, which required accuracy, confidentiality, and adherence to standard accounting practices. The staff, particularly our guide and supervisors, offered regular feedback and mentorship, helping us navigate complex financial procedures with clarity and confidence.

The internship provided a valuable opportunity to bridge theoretical knowledge with practical application. I gained hands-on experience in voucher preparation, bank reconciliation, journal entry recording, and data management. These activities honed my skills in financial documentation, analytical thinking, and organizational efficiency. I also learned how financial

accuracy and accountability play a critical role in sustaining nonprofit initiatives like those undertaken by IRCS.
Moreover, working in a nonprofit setting instilled a sense of social responsibility and highlighted the importance of financial transparency in organizations that serve vulnerable communities. Overall, PS-I at IRCS was an enriching experience that not only enhanced my technical capabilities but also shaped my professional work ethic and commitment to service-oriented goals.

Academic courses relevant to the project: FundaFin

Learning Outcome: Record-keeping proficiency, non-profit accounting knowledge, analytical skills.

PS-I station: Indian Red Cross Society Delhi, New Delhi

Student

Name: SHREYA RAI (2023AAPS1061G)

Student Write-up:

PS-I Project Title: Chatbot

Short Summary of work done: Made a chatbot

Objectives of the project: Blood bank chatbot

Tool used: Python html css

Details of Papers/patents: Na

Brief description of the working environment: It was helpful

Academic courses relevant to the project: Cp

Learning Outcome: Chatbot

PS-I station: Indian Red Cross Society Delhi, New Delhi

Student

Name: NARENDRA SINGH (2023D2TS1243P)

Student Write-up:

PS-I Project Title: Development of a Centralized Digital Repository for Data Collection and Knowledge management at IRCS

Short Summary of work done: We will prepare templates and portal and learn new skill and software and learn ho to work in team.

Objectives of the project: Template

Tool used: Html and canva

Details of Papers/patents: NA

Brief description of the working environment: Project Report
Title: Development of a Centralized Digital Repository for Data Collection and Knowledge Management at IRCS.
Our project aimed to design and implement a centralized digital repository for the Indian Red Cross Society (IRCS), focusing on efficient data collection and knowledge management. The goal was to streamline the process of storing, accessing, and managing documents, reports, images, and records related to IRCS programs and activities.
During this project, we conducted a detailed needs assessment to understand the existing challenges in data management. Based on our findings, we created a digital platform where all key resources can be uploaded and accessed from one place. This repository enhances transparency, improves data security, and enables faster decision-making for the organization.
In the course of this project, we learned and applied several technical and creative skills. We developed front-end pages using HTML, which helped us understand web structure and basic design. We also used Canva to design visually engaging posters, infographics, and banners for user training and promotional purposes. These tools enabled us to combine functionality with attractive design, making the repository user-friendly and visually appealing.
This project has helped us gain hands-on experience in digital transformation, team collaboration, and communication within a real-world organizational context. It has also deepened our understanding of how technology can support humanitarian work and improve operational efficiency.
Overall, this project was a valuable learning experience that combined technology, creativity, and social impact.

Academic courses relevant to the project: Template

Learning Outcome: Learn new software

PS-I station: Indian Red Cross Society, New Delhi

Student

Name: MOHIT BISHT (2023D2TS1250P)

Student Write-up:

PS-I Project Title: Creating a digital repository for data collection

Short Summary of work done: Main project assigned to us was making a digital repository only but then in between I did some extra tasks like video editing featuring the responder's voice from Ahemdabad plane crash site , structuring annual reports, had done volunteering in a Blood camp organised by IRCS in delhi itself and wrote some stories also related to aid provided by IRCS during a flood in South side of India.

Objectives of the project: To prepare some questionarrie and then make a Portal where all the data collected through them can be collected and also can be accessed from that portal.

Tool used: Canva, visual studio code, HTML, microsoft word and powerpoint, python, kobo collect.

Details of Papers/patents: NA

Brief description of the working environment: Working environment was good no problem.

Academic courses relevant to the project: yes

Learning Outcome: Learnt how to work on frontend and backend.

PS-I station: Indus International Hospital, Mohali

Student

Name: VINAYAK SINGH (2023B2AA0760G)

Student Write-up:

PS-I Project Title: AI in Healthcare Analysis

Short Summary of work done: During my time at Indus International Hospital PS1, I was primarily engaged in research and documentation related to healthcare ethics, with a special focus on artificial intelligence in clinical settings. My work involved studying the ethical considerations and potential biases in healthcare AI, examining existing guidelines such as the NABH standards, and exploring government-mandated ethical protocols. I collaborated with colleagues to identify areas where AI implementation could conflict with patient privacy, informed consent, and fairness in treatment outcomes. Part of my role also included preparing formal reports and structured presentations for the hospital's internal review, aimed at aligning future AI adoption with ethical best practices. This experience not only exposed me to the intersection of technology and medical ethics but also allowed me to develop professional communication and analytical skills, particularly in synthesizing research into actionable recommendations for healthcare practitioners.

Objectives of the project: "State of AI in Healthcare" Sub-Specialty Reports

Tool used: Google Docs, Google Slides

Details of Papers/patents: NA

Brief description of the working environment: As it was an online internship, we were continuously in touch with our mentor.

Academic courses relevant to the project: TRW, Natural Language Processing, Ethics and Philosophy in Science.

Learning Outcome: Strengthened understanding of healthcare regulations and quality assurance processes.
Improved presentation and communication skills through report writing and presentations.Insight into healthcare product manufacturing processes and market dynamics.
Understanding of customer needs and market demands in the rehabilitation aids sector.

PS-I station: Indus International Hospital, Mohali

Student

Name: NISCHIT KUMAR K (2023B3AA0813G)

Student Write-up:

PS-I Project Title: AI in Healthcare

Short Summary of work done: I'd researched about the SOTA vision, RL and ML models and their applications in the healthcare sector.

Objectives of the project: Make a well Documented report for AI in Healthcare

Tool used: LaTeX, Python, Google Colab

Details of Papers/patents: NA

Brief description of the working environment: We had regular meetings to discuss progress of our project and presentations that were to be made in coming days. We were also given the freedom to explore other similar domains while making.

Academic courses relevant to the project: Machine Learning, Reinforcement Learning, Computer Vision.

Learning Outcome: Machine Learning, Reinforcement Learning, Computer Vision, LaTeX Report Writing.

PS-I station: Laurus Labs, Anakapalle

Student

Name: VSREEVIDH (2023A5PS1182P)

Student Write-up:

PS-I Project Title: The importantance of punch and accessories management in tablet manufacturing

Short Summary of work done: NA

Objectives of the project: To understand how the PAM application works

Tool used: Upper punch, lower punch, die cavity

Details of Papers/patents: NA

Brief description of the working environment: NA

Academic courses relevant to the project: Pharmaceutical formulations

Learning Outcome: How digitalization has helped handling the punches in the pharmaceutical industry.

PS-I station: Lenest, Mumbai

Student

Name: AARNI RAVI PALLOD (2023A5PS2040H)

Student Write-up:

PS-I Project Title: Omnichannel approach to women's health

Short Summary of work done: During my internship, I worked on a project focused on the psychological impact of endocrine disorders such as PCOS, endometriosis, infertility, and abortion on women. My responsibilities included researching and drafting a scientific review paper, as well as designing patient-friendly newsletters to raise awareness and promote mental wellness. I collaborated with medical professionals to ensure accuracy and with designers to create engaging, accessible content. This experience strengthened my skills in scientific communication, research, and health education.

Objectives of the project: Branding and marketing, researching

Tool used: Canva, word, google scholar

Details of Papers/patents: During my internship, I completed a review paper titled "Psychological Impacts on Women with Endocrine Disorders." The paper focuses on the mental health consequences of conditions such as PCOS, endometriosis, infertility, and abortion,

emphasizing issues like anxiety, depression, low self-esteem, and reduced quality of life. It involved an extensive review of recent peer-reviewed literature from databases like PubMed and Google Scholar. My contributions included conducting the literature review, identifying key psychological themes, organizing the content, interpreting findings, and writing the paper with scientific accuracy and clarity.

Brief description of the working environment: During my internship, I worked both independently and collaboratively within a multidisciplinary team that included doctors, researchers, and designers. While I was primarily responsible for researching and writing the review paper, regular communication with medical professionals ensured clinical accuracy, and coordination with the design team helped align content with visual communication goals. Weekly check-ins, feedback sessions, and shared document reviews contributed to a smooth workflow and helped maintain consistency across newsletters and the review paper.

Academic courses relevant to the project: Pharmacy

Learning Outcome: Endocrine disorders in women, branding strategies

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PS-I station: MedSupervision, Faridabad

Student

Name: AAHANA GUPTA (2023A3PS0211G)

Student Write-up:

PS-I Project Title: Safety measures in LLMS

Short Summary of work done: I had to find various papers on safety threats and measures in LLMs, summarize those papers and write a review paper, also I had to find limitations in various measures and write a conclusion for the paper.

Objectives of the project: to understand and write a review paper on "Safety measures in LLMS".

Tool used: Google scholar mostly

Details of Papers/patents: its a review paper, yet to be published since minor changes are left.

Brief description of the working environment: ps company mentor was nice and helpful, gave ample time for work and explained stuff nicely.
Academic courses relevant to the project: yes

Learning Outcome: Various threats and safety measures in LLMs, how to write a review paper.

PS-I station: MedSupervision, Faridabad

Student

Name: MANASVI PABBATI (2023A7PS2011H)

Student Write-up:

PS-I Project Title: Writing a paper on the Enhancement of Digital Twins using Agentic AI

Short Summary of work done: On the given research topic, we first identified various domains which could have those applications. We went through several papers to then start writing about the topic giving an introduction of the 2 technologies, their applications in various domains, future potential and limitations and challenges.

Objectives of the project: Writing a paper on the Enhancement of Digital Twins using Agentic AI

Tool used: Google scholar, grammarly

Details of Papers/patents: Looked through various papers on the topics of digital twins and Agentic AI as well as the enhancement in various applications.

Brief description of the working environment: This PS station operated in a relaxed and flexible environment. Deadlines were typically set every 2 to 3 days, and most communication took place via email threads. Our mentors were approachable and supportive, encouraging questions and providing clear guidance throughout.

Academic courses relevant to the project: None

Learning Outcome: How Digital Twins can be enhanced using Agentic AI and how this integrated technology can be used in various applications.

PS-I station: MindPeers - Non Tech, New Delhi

Student

Name: ANKITA CHOUDHURY (2023A5PS1166P)

Student Write-up:

PS-I Project Title: Resource curation, lead management & community support

Short Summary of work done: During my internship at Therapeers by Mindpeers, I engaged in resource curation, lead management, and community support, gaining hands-on experience in translating psychological knowledge into real-world mental health tools. I contributed to the creation of therapist-facing materials on adolescent and queer mental health, including case studies, worksheets, and session aids. In lead management, I conducted personalized outreach and follow-ups, learning to communicate professionally and empathetically. I also supported live sessions by assisting facilitators, documenting events, and addressing participant queries. Additionally, I worked on building detailed therapist directories and tracking mental health influencers. This experience enhanced my research, communication, and organizational skills while deepening my understanding of how structured content and community spaces can strengthen therapist impact and care delivery.

Objectives of the project: 1. To curate evidence-based, accessible, and teen-friendly mental health resources. 2. To support outreach efforts by managing therapist and participant leads efficiently and professionally. 3. To contribute to the facilitation and smooth coordination of live mental health sessions. 4. To promote community engagement through supportive and empathetic interactions. 5. To deepen practical understanding of adolescent mental health issues and therapeutic interventions.

Tool used: 1. Hardware - a) Personal Laptop/Desktop b) Smartphone (for outreach, WhatsApp follow-ups, and on-the-go documentation) 2. Software & Digital Tools - a) Google Workspace (Docs, Sheets, Slides – for content creation, directories, and reports) b) Zoom / Google Meet (for hosting and supporting live sessions) c) WhatsApp and Slack (for lead engagement and community communication) d) Instagram & LinkedIn (for influencer research and content capture).

Details of Papers/patents: Nil

Brief description of the working environment: The internship at Therapeers by Mindpeers offered a deeply collaborative, learning-focused environment that bridged clinical psychology with real-world mental health applications. The team maintained a flexible yet structured culture, encouraging interns to take initiative, be responsive, and uphold professionalism while supporting therapists and users. Expectations were clear: work had to be research-informed, age-appropriate, clinically grounded, and adapted to diverse Indian contexts. Guidance from

mentors was regular, and feedback was action-oriented, helping refine tone, formatting, and therapeutic clarity. Working across resource development, lead communication, app testing, and live session support required adaptability and self-driven problem solving. I learned to design therapist-facing content, conduct directory research using platforms like Practo and LLL Foundation, format tracking sheets, and write reflective and psychoeducational material. I also strengthened my communication through lead follow-ups and support roles during workshops, where clarity, sensitivity, and timeliness were key. The experience enhanced my understanding of therapy frameworks (CBT, DBT, ACT, queer-affirmative practices), adolescent development, and therapist-client dynamics. The overall work environment was supportive and collaborative, where even critical feedback was aimed at learning and growth.

Academic courses relevant to the project: Not sure, but psychology related courses offered.

Learning Outcome: 1. Content Development:
Gained expertise in researching adolescent psychology and simplifying complex therapeutic concepts into practical tools like worksheets and handouts.
2. Communication & Lead Handling:
Developed strong interpersonal communication skills, including follow-up messaging, tracking outreach progress, and knowing when to escalate leads.
3. Community Engagement:
Built confidence in moderating and supporting mental health spaces, understanding group dynamics, and responding sensitively to participant queries.
4. Session Support:
Acquired firsthand experience in coordinating online sessions—assisting with logistics, trainer support, and participant engagement.
5. Therapeutic Insight:
Strengthened understanding of teen mental health frameworks, including emotional regulation, identity issues, perfectionism, and peer pressure.
6. Applied Learning:
Applied theoretical knowledge from readings and internal resources to real-world content design and session support tasks.

PS-I station: MindPeers - Tech, New Delhi

Student

Name: AMEYA SHENDE (2023AAPS0749P)

Student Write-up:

PS-I Project Title: Backend Development and Product Management

Short Summary of work done: I began my PS-1 at Mindpeers with backend and chatbot integration, then shifted to product management to draft a PRD for an HR dashboard. This gave me hands-on experience in backend development, AI conversation flows, content writing, and CRM messaging. I later worked on audiobook modules, therapist feedback, and finally, chatbot development using LangChain and MCP. The experience helped me develop both technical and product thinking, combining empathy with AI-driven solutions to support mental well-being.

Objectives of the project: Product Management and Chatbot Development.

Tool used: Langchain, MERN stack, GraphQL, Mongoose, Elevenlabs.

Details of Papers/patents: None

Brief description of the working environment: Very compact team allowing for diverse exposure and interaction with people with different skillsets. Overall warm and supportive environment with approachable authority.
During my time at Mindpeers, I gained practical experience across both technical and product domains. I learned backend development using the MERN stack and GraphQL, improved my understanding of database design, and explored chatbot integration using LangChain and MCP architecture. On the product side, I learned how to write PRDs, structure CRM messaging based on user behavior, and craft communication that drives engagement. I also developed skills in AI conversation flow design, content writing, and collaborative problem-solving across cross-functional teams.

Academic courses relevant to the project: NA

Learning Outcome: Backend Development, Langchain, Product Management.

PS-I station: Myoworks Private Limited - Non tech, Mumbai

Student

Name: SHREYAS SHAILESH RAI (2023A1PS1264G)

Student Write-up:

PS-I Project Title: Sales and Marketing

Short Summary of work done: We were assigned to optimize the dewatering process for mushroom based bio-leather. Tasks included testing drying methods, documenting material behavior, and assisting in biomaterial R&D. The team also handled sourcing of cotton-based textiles, vendor coordination, and contributed to initial B2B outreach.

Objectives of the project: Process Optimization and Market Enablement in Sustainable Mushroom-Based Leather.

Tool used: Excel / Google Sheets, Canva, Wix, Industrial Autoclave.

Details of Papers/patents: None

Brief description of the working environment: The working environment was very chill and flexible. We were assigned individual projects with clear deadlines, and the founders were always available to help out with any doubts or hurdles. If it rained too much, we were allowed to work from home.

Academic courses relevant to the project: yes

Learning Outcome: Biomaterial Process Optimization, Biomaterial R&D, B2B Sales for Startups Vendor Sourcing & Management.

PS-I station: Myoworks Private Limited, Mumbai

Student

Name: KUSHAGRA KUMAR (2023A1PS0050G)

Student Write-up:

PS-I Project Title: Optimizing fabrication of zein-based microcarriers

Short Summary of work done: The internship focused on optimizing fabrication of zein-based microcarrier beads at MyoWorks Private Limited, Mumbai. Main objectives: improve bead uniformity, reduce clumping, minimize heating matrix wastage, and scale up production. Adjusted fabrication parameters and tested material reuse techniques to streamline the process. Explored batch scaling methods while maintaining consistency in bead quality. Performed bead analysis using FIJI software to assess size distribution, count-to-mass ratio, and density. Applied basic statistical methods to monitor and improve process outcomes. Achieved noticeable improvements in usable bead yield and process consistency. Contributed towards

developing a more efficient, resource-conscious, and scalable bead fabrication process. Gained hands-on experience in lab-based R&D, process optimization, and imaging analysis. Worked in an interdisciplinary start-up environment, coordinating with material science and cell culture teams.

Objectives of the project: To optimize the fabrication process of zein-based microcarrier beads at MyoWorks Private Limited by enhancing bead uniformity, minimizing clumping, promoting heating matrix reuse, and scaling up production for applications in cellular agriculture and related biotechnology fields.

Tool used: FIJI Software, Hot air oven, magnetic hotplate stirrer, separation equipments

Details of Papers/patents: None

Brief description of the working environment: Working Environment:
1] Start-up R&D setup focused on process development in biotech materials.
2] Interdisciplinary collaboration with biologists and lab technicians.
3] Lab-scale operations requiring hands-on fabrication, material handling, and equipment use.
Expectations:
1] Adaptability to non-standardized, trial-and-error workflows.
2] Accurate documentation, regular reporting, and clear communication with mentors.
3] Responsible lab conduct, including safety, cleanliness, and resource management.
Key Learnings:
1] Practical skills in fabrication, material recovery, and batch scaling techniques.
2] Experience in quantitative image analysis using FIJI software and basic statistics.
3] Insight into process optimization with an emphasis on consistency, efficiency, and sustainability.

Academic courses relevant to the project: Separation Processes-II (CHE F313), Biological Laboratory (BIO F110).

Learning Outcome: 1] Understanding microcarrier bead fabrication techniques and their relevance in lab-grown meat applications.
2] Skills in process optimization, including systematic parameter adjustment, heating matrix recovery, and batch scaling.
3] Proficiency in imaging and statistical analysis using FIJI software to assess bead metrics like size distribution, density, and surface area-to-mass ratio.
4] Experience working in a biotech R&D start-up environment, dealing with practical challenges such as material reuse, process scaling, and resource management.

PS-I station: Myoworks Private Limited, Mumbai

Student

Name: YOGINI N JAYALEKSHMI (2023A5PS1204P)

Student Write-up:

PS-I Project Title: Optimization in fabrication process of zein based microcarriers

Short Summary of work done: Worked on the development and optimization of zein-based microcarriers for applications in lab-grown edible meat and vaccine production, focusing on improving fabrication efficiency, scalability, and performance for biomedical use.

Objectives of the project: To optimize fabrication process of zein based microcarriers, improve bead properties and diversification of scaffold.

Tool used: Hardware: UV spectrophotometer, IR spectroscopy and NMR. Software:Figi,spectramanager.

Details of Papers/patents: Not applicable

Brief description of the working environment: My internship at Myoworks Private Limited provided a collaborative, research-focused environment where I worked on the fabrication and optimization of zein-based microcarriers for applications in lab-grown edible meat and vaccine delivery systems. The experience gave me hands-on exposure to biomaterial formulation, experimental analysis, and troubleshooting, while also strengthening my skills in teamwork, time management, and technical documentation. It allowed me to bridge academic knowledge with industrial practice, deepening my understanding of how laboratory research is translated into practical biotechnology solutions.

Academic courses relevant to the project: General chemistry, Biochemistry, Process engineering

Learning Outcome: Protocol optimization, UV spectroscopy

PS-I station: National Centre for Biologicaal Sciences (NCBS), Bengaluru

Student

Name: ADITYA SHESHADRI (2023B1AA0977H)

Student Write-up:

PS-I Project Title: Back End Development and Data Querying for a Web Based Data Visualization Platform

Short Summary of work done: In this project, a comprehensive database containing information about plants, phytochemicals, diseases, formulations, and their connections, as mentioned in the Ayurveda, has been integrated with a Neo4j DBMS(database management system).Data from the Neo4j database was queried using the Neo4j python driver. The data queried was conveyed to the front-end, which is a web based platform in development. The aim of the web based platform is to enable users to explore the intricate relationships between plants, phytochemicals, formulations, and diseases documented in Ayurvedic medicine.

Objectives of the project: Create the back end for a web based database, with simple search, advanced search, and graph viewer features.

Tool used: Python, Neo4j, Cypher, VS Code(IDE)

Details of Papers/patents: None

Brief description of the working environment: Dry lab work, company expects regular completion of assigned tasks and weekly meetings are conducted to discuss and review performance and work done. Learning experience is vast with a good understanding of basic data Querying, python programming, graph databases, etc being developed.

Academic courses relevant to the project: CS F111, BIO F242, BIO F111

Learning Outcome: Data Querying, Neo4j, Cypher, Python

PS-I station: National Centre for Biologicaal Sciences (NCBS), Bengaluru

Student

Name: MEGHANA MAHESH (2023B1AD0682G)

Student Write-up:

PS-I Project Title: Integrated Molecular Techniques for Mouse Genotyping and Protein Expression Validation

Short Summary of work done: My work at NCBS primarily involved learning the molecular biology techniques for the genotyping and protein expression analyses of mouse models. This involved the extraction of genomic DNA from mouse tissue biopsies, followed by amplification of ALDH2 and BTr gene loci using polymerase chain reaction (PCR). The amplified products were resolved on agarose gels through electrophoresis to determine genotype patterns. To complement and validate these genotyping results at the protein level, Western blotting was employed to detect gH2AX expression in liver tissue lysates, serving as a marker for DNA damage response. The workflow combined nucleic acid and protein-based methods to ensure robust molecular characterization of the samples.

Objectives of the project: To extract DNA from mice tissue biopsies, amplify the ALDH2 and BTr genes from the DNA samples obtained through PCR, and genotype the samples after running the PCR products on an agarose gel through electrophoresis. To also validate these results by probing for the gH2AX protein in mice liver tissue lysates through Western blotting.

Tool used: Hardware - PCR Thermal Cycler, Nanodrop Spectrophotometer, Gel Documentation system, Centrifuge, SDS-PAGE and Western Blot apparatus.

Details of Papers/patents: None

Brief description of the working environment: The working environment at NCBS was intellectually stimulating, research-driven, and collaborative. I was a part of the Cell Biology team in the lab, where there were 3-4 ongoing projects, and I had the opportunity to work under each of the project associates to learn techniques in molecular biology. The atmosphere fostered independent thinking, while also encouraging peer-to-peer learning with fellow interns and mentorship under the guidance of the project associates, who were all extremely friendly and approachable.
Interns were expected to familiarize themselves with lab protocols, maintain accurate records, and execute experiments with minimal supervision after adequate training.
During the course of the internship, I learned to perform key molecular techniques such as genomic DNA extraction, PCR-based genotyping, and Western blotting for protein expression analysis. I understood the importance of controls, experimental design, and reproducibility. I

also gained experience in interpreting data and troubleshooting common issues. Beyond technical skills, I developed a deeper appreciation for collaborative research.

Academic courses relevant to the project: Cell biology, Molecular biology, Instrumental methods of analysis, Genetics.

Learning Outcome: Gained hands-on experience in molecular techniques including genomic DNA extraction, PCR amplification, and agarose gel electrophoresis for genotyping, and Western blotting for protein detection, including tissue lysate preparation, SDS-PAGE, membrane transfer, and antibody-based probing. Also learnt to isolate plasmids, perform colony PCRs and prepare standard buffers.
Learnt to interpret electrophoresis and blotting results to correlate genotype with protein expression. Acquired familiarity with scientific record-keeping, troubleshooting experimental protocols, and working in a research-grade molecular biology lab.
Soft skills learnt/practised include team collaboration, communication, paying attention to detail and adaptability.

PS-I station: Nirmaan Organization, Rangareddi

Student

Name: ARYAN SINGH (2023A7PS0326G)

Student Write-up:

PS-I Project Title: Women Empowerment

Short Summary of work done: Nirmaan Organisation, founded by BITS-Pilani alumni in 2005, operates across Telangana and several other Indian states to translate education and livelihood programmes into measurable social mobility. Its flagship Fatehnagar Vocational Training Centre (VTC) in Hyderabad graduates more than 150 women tailors each year, equipping them with industrial sewing, pattern-making and quality-control skills intended to yield dignified incomes. Yet monitoring data show that many alumnae remain excluded from formal markets, stalled by four persistent barriers: start-up capital, access to commercial-grade machines, exposure to essential business practices such as pricing, bookkeeping and customer service, and the credibility that comes with an established brand umbrella. During field visits and stakeholder consultations in May 2025, these obstacles were mapped and prioritised, clearing the way for Threads of Hope—a lean, women-led boutique-microfactory designed to function both as a workplace and a living classroom. The pilot will convert a compact storefront into a professionally managed studio offering everyday alterations alongside creative small-batch

production, anchoring revenue through pre-secured uniform contracts while showcasing the artisans' design innovation. By integrating infrastructure, mentorship and market access under one roof, the project turns vocational promise into predictable, empowering livelihoods. Its success will validate a replicable template for other Nirmaan VTC hubs nationwide.

Objectives of the project: Social Work

Tool used: Google docs, excel

Details of Papers/patents: none

Brief description of the working environment: Good and relaxed

Academic courses relevant to the project: yes

Learning Outcome: Interpersonal skills, project management

PS-I station: Prudence lifecare Private Limited, Ankleshwar

Student

Name: HARMIN CHODVADIA (2022A1PS0841G)

Student Write-up:

PS-I Project Title: Increasing efficiency of a pharmaceutical plant

Short Summary of work done: How to build a pharmaceutical plant and how to run it.

Objectives of the project: Increasing efficiency of a pharmaceutical plant

Tool used: Many tools

Details of Papers/patents: Many api

Brief description of the working environment: Very excellent work culture

Academic courses relevant to the project: Each and every subject that we studied

Learning Outcome: How to build a pharmaceutical plant and how to run it.

PS-I station: Prudence lifecare Private Limited, Ankleshwar

Student

Name: AMOGH RAHUL NENE (2023A1PS0162P)

Student Write-up:

PS-I Project Title: Integrated study of phama company and everything related to it

Short Summary of work done: It was mostly reading up on the internet about the mentioned topics. basically zero work.

Objectives of the project: To gain a comprehensive understanding of a pharmaceutical company and its operations.

Tool used: -

Details of Papers/patents: NA

Brief description of the working environment: Work was given periodically; however, the station wasn't strict. You could submit tasks a few days late and it wouldnt be a problem.

Academic courses relevant to the project: Chemical engineering courses to get an introduction, but not strictly required.

Learning Outcome: How APIs are manufactured, working of pharmaceutical company equipment, ways to increase chemical plant efficiency.

PS-I station: Prudence lifecare Private Limited, Ankleshwar

Student

Name: HARSHIT MISHRA (2023A1PS0889H)

Student Write-up:

PS-I Project Title: Pharmaceutical company

Short Summary of work done: It was nice working at prudence, got to add more stuff to my knowledge.

Objectives of the project: To see what all it takes to build a pharma company

Tool used: got to know about various tools used in pharma industry

Details of Papers/patents: No

Brief description of the working environment: Though it was online but was fun

Academic courses relevant to the project: Thermodynamics, finance

Learning Outcome: How a pharma company can be started.

PS-I station: Prudence lifecare Private Limited, Ankleshwar

Student

Name: SHAMBHAWI NANDI (2023A5PS1025H)

Student Write-up:

PS-I Project Title: Conducting research on the functioning of a Pharmaceutical manufacturing company

Short Summary of work done: I learnt about various departments, utilities and machineries, the strict regulatory requirements, starting materials and intermediates needed for production of certain APIs, how a chemical/pharmaceutical plant's efficiency can be improved along with safe effluent disposal.

Objectives of the project: Understanding how a Pharmaceutical manufacturing plant operates

Tool used: S/w

Details of Papers/patents: NA

Brief description of the working environment: Working environment was fine and we got regular feedbacks on our weekly reports. The company expected timely completion of the

assigned tasks. I learnt about how a manufacturing plant works, departments , the different stages of quality checks for the manufactured APIs during their production, regulatory requirements, technical challenges for a chemical manufacturing plant and how to increase its efficiency and also safe disposal method for effluents.

Academic courses relevant to the project: Process engineering, Instrumental methods of analysis, Pharmaceutical analysis, Pharmaceutical formulations, Microbiology, Pharmaceutical chemistry, Medicinal chemistry, Pharma management and quality control, General chemistry.

Learning Outcome: Machineries used, regulatory documents and quality control, different APIs and their starting materials.

PS-I station: Prudence lifecare Private Limited, Ankleshwar

Student

Name: CHALLA SUSHRUTH REDDY (2023A7PS0504P)

Student Write-up:

PS-I Project Title: Integrated Research on API, studying and improving the function of a manufacturing plant

Short Summary of work done: First part was about research on APIs then efficient of manufacturing plants, making reports on everything every week.

Objectives of the project: To learn about APIs (Active Pharmaceutical Ingredients) and about manufacturing plants.

Tool used: Simple report making on Word, Research using pharmaceutical websites.

Details of Papers/patents: NA

Brief description of the working environment: The company environment was very supportive and motivating.

Academic courses relevant to the project: -

Learning Outcome: Research and report making on APIs and manufacturing industries.

PS-I station: Prudence lifecare Private Limited, Ankleshwar

Student

Name: ANANYA XAVIER (2023B4AA1188G)

Student Write-up:

PS-I Project Title: The Technical Insights Into Pharmaceutical Manufacturing

Short Summary of work done: During my internship at Prudence Lifecare, I have engaged in research-focused work and on understanding the core functions of pharmaceutical manufacturing, with emphasis on technical operations, regulatory compliance, and market dynamics. One of my initial tasks involved documenting the various machines and equipment used in the production process. A significant part of my research centered around 30 APIs (Active Pharmaceutical Ingredients), where I conducted a detailed study of each API's market growth trends, estimated manufacturing cost, required starting materials, manufacturing timeline, patent requirements, and technical constraints. Another major component of my work was analyzing the logistics processes, where I identified methods to increase efficiency through inventory tracking systems, cold chain management, route optimization, and regulatory documentation for smooth product flow. This led to more in-depth plans to increase efficiency in different utility systems that support pharmaceutical manufacturing such as purified water systems, chilled brine, electricity systems, compressed air and steam boilers. I then moved into research behind the working of several machines including the rotocome vacuum dryer and the multi-effect evaporator. In addition, I compiled a reference guide on the functions of the FDA and the various licenses required to operate a pharmaceutical manufacturing company in India.

Objectives of the project: To understand, document and present the key technical, regulatory and operational aspects of pharmaceutical company at Prudence Lifecare.

Tool used: Internet, Google Docs, Google Sheets

Details of Papers/patents: NA

Brief description of the working environment: The working environment at Prudence Lifecare has been structured, collaborative, and research-focused. As an intern, I was given the flexibility to explore technical topics independently while also being supported by my mentors, Satisha sir and Rarish sir. We were regularly given work with deadlines although we could complete the work in our own timeline. The company made sure we were exposed to all different aspects of pharmaceutical manufacturing since there were students from various fields in the internship. Throughout the internship, I have gained a much larger understanding of how a pharmaceutical company works, what guidelines they need to follow, and the entire process from raw materials to active pharmaceutical ingredients, medicines and vaccines. Overall, the experience has

helped me bridge the gap between academic learning and real-world industrial application, while sharpening my analytical, research, and communication skills.

Academic courses relevant to the project: General Chemistry; Workshop; Mechanics, Oscillations and Waves.

Learning Outcome: Working of several pharmaceutical machines including Rotocone Vacuum Dryer and Multi-effect Evaporator and what they are used for in the company, how to increase efficiency in the company, detailed reports of 30 major Active Pharmaceutical Ingredients including their material constraints, manufacturing timeline and cost, report on the patents and licensing required by a pharmaceutical company, functions of the FDA and the key challenges in pharmaceutical manufacturing in India.

PS-I station: The Akshaya Patra Foundation, Jaipur

Student

Name: NOOTAN KUMAR RATHORE (2023B4A40883G)

Student Write-up:

PS-I Project Title: Meeting Management App development

Short Summary of work done: Developed an app with multiple features for akshaya patra.

Objectives of the project: Develop an app to manage meetings at akshaya patra

Tool used: Replit github google cloud console mongodb render

Details of Papers/patents: NA

Brief description of the working environment: Good environment

Academic courses relevant to the project: CP

Learning Outcome: Web development.

PS-I station: Varaha ClimateAg Private Limited, Gurgaon

Student

Name: CHANDRASNATA MOHANTY (2023A4PS0470P)

Student Write-up:

PS-I Project Title: Strategic Enablement and Cross-Functional Growth Execution at an Early-Stage Climate-Tech Venture

Short Summary of work done: At Varaha, I've had the opportunity to work closely with the founding team and senior leadership across a broad spectrum of functions, extending far beyond the typical scope of a founder's office role. My responsibilities have ranged from internal operations and strategy to external-facing functions like partnerships, outreach, and investor relations. This cross-functional exposure has allowed me to develop a deep understanding of how a mission-driven startup builds systems, trust, and value simultaneously. I've been involved in preparing investor and grant-facing materials that communicate complex project details in a way that aligns with both commercial and climate-impact objectives. Through this, I've gained strong insight into how investors evaluate early-stage climate ventures, what drives credibility, how traction is framed, and how teams translate field-level operations into scalable climate finance models. I've also participated in strategy discussions around business development, helping shape how the company engages with clients across sectors like pharma, cement, and agriculture. A significant focus of my work has been on Varaha's biochar portfolio, where I contributed to framing operational narratives. This gave me end-to-end visibility into how climate-tech ventures operate on the ground, from biomass logistics, decentralized pyrolysis infrastructure, and reactor performance to emissions monitoring (MRV), DPI integration, and navigating the nuances of carbon finance. I learned how to build operational systems that are both scalable and verifiable, how to communicate impact to multiple stakeholders, and how to align sustainability outcomes with financial ones. Beyond core project execution, I supported marketing and PR initiatives, crafting messaging and outreach collateral that positioned Varaha in front of media, partners, and key ecosystem players. This helped me understand how brand, credibility, and scientific rigour intersect in high-trust spaces like carbon finance. Overall, this internship has offered a rare 360-degree view into how an impact-driven climate-tech startup scales responsibly, balancing operational realities, technical sophistication, and investor readiness, while staying grounded in long-term sustainability and rural inclusion.

Objectives of the project: Operations, Strategy, Marketing & PR, Grants, and Partnerships

Tool used: G-Suite, Excel

Details of Papers/patents: NA

Brief description of the working environment: Although my internship at Varaha was remote, the team is flexible with both remote and on-site roles. The work culture is driven yet supportive — the office is filled with highly accomplished individuals, each an expert in their domain, and there's a great deal to learn from every interaction. Expectations are clear: deliver high-quality work within deadlines, take full ownership, and bring dedication to everything you do.
Effort and initiative are genuinely recognized, and there's encouragement to explore cross-functional projects if you're willing to take the lead. I truly enjoyed working with the team, especially my mentor, and found the environment intellectually enriching and professionally respectful.
Notably, the company has a strong BITSian presence, which adds a sense of familiarity and shared drive to the culture.

Academic courses relevant to the project: Nil

Learning Outcome: Understood how climate-tech startups operate across strategy, operations, and carbon finance.
Gained insight into investor expectations, grant writing, and high-impact communication.
Learned about biochar supply chains, MRV systems, and rural deployment challenges.
Built cross-functional skills through work on marketing, partnerships, and internal systems.
Developed initiative, clarity, and adaptability in a fast-paced, mission-driven environment.

PS-I station: Varaha ClimateAg Private Limited, Gurgaon

Student

Name: ANURAG BADHE (2023AAPS0628G)

Student Write-up:

PS-I Project Title: Designing a product for Field Team Task Management

Short Summary of work done: -

Objectives of the project: Creating dashboards for tracking user onboarding and data capturing through digital tools.

Tool used: Python, pandas, streamlit, Matplotlib, Numpy

Details of Papers/patents: NA

Brief description of the working environment: -

Academic courses relevant to the project: -

Learning Outcome: I learnt about data analysis.

PS-I station: Yashoda Hospitals, Hyderabad

Student

Name: PANJALA SRIMAN GOUD (2023A1PS0216P)

Student Write-up:

PS-I Project Title: Comparative Analysis of Alteplase Versus Tenecteplase in Acute Ischemic Stroke, and Traumatic Brain Injury (TBI): Recovery Analysis and Patient-Based Insights

Short Summary of work done: We started learning about alteplase and tenecteplase as we don't have knowledge on the medical aspects. We searched through online websites like PUBMED, JAMA, Etc to get a grip on WhatsApp we're working on. Then later from the publications we've gone through we listed some parameters which will be helpfull for our analysis. Coming to TBI we brought data from one our teammates hospital and analysed recovery rates based on patients insights.

Objectives of the project: To analyse the outcomes of tenecteplase compared to alteplase & recovery analysis based on patients insights for TBI.

Tool used: Canva, word, Power point, Excel.

Details of Papers/patents: NA

Brief description of the working environment: So many other groups got a good projects where they designed chatbots, apps, websites, and even a software, but our group project was based on more medical perspective.

Academic courses relevant to the project: yes

Learning Outcome: Learned about the different types of severity on both acute ischemic stroke and TBI. Also learned to analyse based on the data provided.

PS-I station: Yashoda Hospitals, Hyderabad

Student

Name: GAYATHRI KRISHNA VUYYURU (2023A4PS0781H)

Student Write-up:

PS-I Project Title: Quantitative analysis of muscle recruitment

Short Summary of work done: We've taken values from 2 devices and built a regression module

Objectives of the project: Convert the values of fitmust to absolute values using EMG

Tool used: MS office, EMG, FitMust machine, Java

Details of Papers/patents: NA

Brief description of the working environment: Gained confidence and improved my communication and teamwork skills.

Academic courses relevant to the project: NA

Learning Outcome: Presentation skills.

PS-I station: Yashoda Hospitals, Hyderabad

Student

Name: SHWETA PANDEY (2023A5PS1036H)

Student Write-up:

PS-I Project Title: Automatic triaging in Emergency Section(App dev)

Short Summary of work done: We created an application for automatic triaging in emergency section for Yashoda Hospitals under Dr. Malaya Kumar Mishra, it improves the efficiency and management in emergency section without the use of even a single pen and paper.
Objectives of the project: To create an AI based application for automatic triaging in emergency section to increase efficiency and decrease time consumption.

Tool used: Software Tools like flutter, backend, frontend,etc.

Details of Papers/patents: We got ER initial assessment form based on which we created the application including the details from the pdf form.

Brief description of the working environment: Working environment was quite good, the overall staff was very cooperative and met my expectations, I learned how the real corporate world executes and it added a lot to me as a person.

Academic courses relevant to the project: yes

Learning Outcome: Flutter,backend, frontend,.net,etc.

PS-I station: Yashoda Hospitals, Hyderabad

Student

Name: ASHWIN G (2023A5PS1049H)

Student Write-up:

PS-I Project Title: Detection of Autism and Adhd

Short Summary of work done: We developed a chatbot for the early detection of autism and adhd. We worked with Dr. Varsha Reddy from Yashoda Hospital for this project. She guided us by providing the necessary knowledge and the question bank to be included in the chatbot. We used react.js for the back end and figma for the front end.

Objectives of the project: Make a chatbot for early detection of ADHD and Autism.

Tool used: React.js, Powerpoint, LaTeX, Figma.

Details of Papers/patents: None

Brief description of the working environment: Good working environment.

Academic courses relevant to the project: Computer Programming.

Learning Outcome: Learning abt how Autism affects children, toddlers specifically and how early detection can help in making quality of life much better for the kids.

PS-I station: Yashoda Hospitals, Hyderabad

Student

Name: SINTHOJU MOHAN KUMAR (2023B2A20942P)

Student Write-up:

PS-I Project Title: Comparative Analysis of Alteplase Versus Tenecteplase in Acute Ischemic Stroke, and Traumatic Brain Injury (TBI): Recovery Analysis and Patient-Based Insights

Short Summary of work done: This study analyzes real-world data on ischemic stroke treatment using Alteplase and Tenecteplase, comparing outcomes such as recovery, disability, and safety. It also explores traumatic brain injury (TBI) metrics to assess consciousness and memory loss, providing insights into acute neurological care and drug efficacy.

Objectives of the project: Comparative Analysis of Alteplase Versus Tenecteplase & Traumatic Brain Injury (TBI): Recovery Analysis and Patient-Based Insights.

Tool used: Excel, PPT, MS WORD, canva, etc.

Details of Papers/patents: NA

Brief description of the working environment: I learned the importance of professionalism, time management, and responsibility.

Academic courses relevant to the project: Nothing is relevant except for the tools we used like power point presentation, excel, word, etc.

Learning Outcome: Traumatic Brain Injury (TBI) is a serious public health concern, characterized by a disruption in normal brain function resulting from an external force, such as a blow, jolt, or penetrating injury to the head. TBI can range from mild injuries, like concussions, to severe cases that can lead to long-term disability or even death. Alteplase, a recombinant tissue

plasminogen activator (rt-PA), has been a cornerstone of thrombolytic therapy since its FDA approval for AMI in 1987 and AIS in 1996. Its mechanism involves binding to fibrin within a clot, converting plasminogen to plasmin, which then degrades the fibrin mesh.
Tenecteplase, a genetically engineered variant of Alteplase, was developed to improve upon its predecessor's pharmacological properties. Initially approved for STEMI in 2000, its role has expanded significantly with recent approvals for AIS in Europe (January 2024) and by the FDA (March 2025). Tenecteplase operates via the same fundamental mechanism of activating plasminogen to plasmin but with enhanced characteristics.

PS-I station: Yashoda Hospitals, Hyderabad

Student

Name: GARAPATI VISWA (2023B3A10984P)

Student Write-up:

PS-I Project Title: Stroke

Short Summary of work done: We just collected the data and made a report

Objectives of the project: To make a report

Tool used: Canva and excel

Details of Papers/patents: NA

Brief description of the working environment: My experience with the company helped me grow both personally and professionally.

Academic courses relevant to the project: -

Learning Outcome: A few biological terms and the use of canva and excel.
