

INTERNSHIP REPORT

Full Stack Development

*A Summer Internship Report submitted in partial fulfillment
of the requirements for the award of degree of*

MASTER OF COMPUTER APPLICATIONS

Submitted

By

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24M11MC094



DEPARTMENT OF COMPUTER APPLICATIONS

ADITYA UNIVERSITY

A.Y. 2025-26

ADITYA UNIVERSITY

DEPARTMENT OF COMPUTER APPLICATIONS



CERTIFICATE

This is to certify that the internship report entitled “**Full Stack Development**” is being submitted by **Satya Krishnaveni Manekula– 24M11MC094** in partial fulfilment of the requirements for the award of the degree of **Master of Computer Applications** in the **Department of Computer Applications** for the academic year **2025–2026**. This report is based on the internship carried out at **Technical Hub**, and it reflects the student’s own work, conducted under our guidance and supervision.

Guide/Supervisor Name

Mrs. N. Gowri SreeLakshmi
Assistant Professor

Head of the Department

Dr. M. VAMSIKRISHNA
Professor

DECLARATION

I hereby declare that the internship report entitled “**Full Stack Development**” is a genuine and original work submitted to **Aditya University, Surampalem**, in partial fulfillment of the requirements for the award of the **Master of Computer Applications (MCA)** degree. I further declare that this report has not been submitted, either in full or in part, for the award of any degree or diploma at this or any other educational institution.

By

Satya Krishnaveni Manekula

(24M11MC094)

CERTIFICATE OF INTERNSHIP

Date: 28-07-2025

This is to certify that **Ms. Satya Krishnaveni Manekula**, of the **Master of Computer Applications** department with Roll No: **24M11MC094** of **Aditya University** has successfully completed a summer internship with **Technical Hub Pvt Ltd** from **02-06-2025 to 28-07-2025**.

During this tenure, the trainee worked with the technology **Full Stack Development** and excelled in major concepts.

- HTML, CSS & JavaScript
- ReactJS
- NodeJS
- MongoDB

As part of the internship, the trainee successfully completed a project titled **Campus Navigator**, demonstrating strong technical skills and implementation of practical concepts.

We found the trainee's performance and conduct were satisfactory.

Intern ID – THSI251520

<https://verify.technicalhub.io> /



ACKNOWLEDGEMENT

First and foremost, I would like to express my sincere gratitude to the **Director of Technical Hub, Mr. Neelam Babji**, for providing me the opportunity to undertake my internship within the organization. I am also thankful to all the team members at **Technical Hub** for their patience, cooperation, and the friendly work environment they created, which made the experience truly enjoyable.

It is with immense pleasure that I express my sincere thanks to **Mr. Ritik Patidar, Assistant Professor and Internship Coordinator**, for coordinating the internship process and facilitating the smooth submission and evaluation of reports.

I am deeply grateful to **Dr. M. Vamsikrishna, Head of the Department**, for his motivation, support, and for arranging all the necessary facilities and resources for the smooth execution of my internship project.

I also wish to extend my sincere thanks to **Mrs. N. Gowri SreeLakshmi**, my project guide, for her encouragement, valuable feedback, and consistent support throughout my internship.

I am thankful to the respected leadership of **Aditya University** for their unconditional support and for providing world-class infrastructure and state-of-the-art laboratories. My sincere thanks to:

- **Dr. Satish Reddy N, Pro Chancellor**
- **Dr. M. Sreenivasa Reddy, Deputy Pro Chancellor**
- **Dr. MB. Srinivas, Vice Chancellor**
- **Dr. S. Rama Sree, Pro-Vice Chancellor (Academics)**
- **Dr. Ramesh A, Pro-Vice Chancellor (Engineering & Sciences)**
- **Dr. Suresh G, Registrar**
- **Dr. M. Venkata Rajesh, Associate Dean of Academics**

Lastly, I would like to thank all the faculty members, lab technicians, non-teaching staff, and my friends who directly or indirectly helped and supported me in successfully completing my internship project on time.

SUMMER INTERNSHIP ABSTRACT

This Summer Internship Program offered by **Technical Hub** provided me with a valuable opportunity to gain hands-on experience in **Full Stack Development** through the design and development of a real-time **Campus Navigator**. Throughout the internship, I explored essential areas of modern web application development, including:

- Frontend development using **RHTML, CSS, JavaScript, React.js**
- Backend development using **Node.js and MongoDB**
- API integration and secure data handling

I collaborated closely with mentors and technical trainers at Technical Hub to understand how full stack applications are planned, architected, and deployed. The internship emphasized industry-standard practices such as:

- Version control using **Git & GitHub**
- Clean code structuring and modular development
- Debugging, testing, and documentation
- UI/UX design principles
- Database schema planning and optimization

This immersive experience strengthened my understanding of full stack development and helped me gain confidence in building scalable and functional web applications. The internship enhanced my technical foundation and prepared me for future roles in software development by combining practical project-building skills with professional development practices.

About Organization

Technical Hub, a flagship initiative of **Aditya University**, is a premier technological skill-development center established to bridge the gap between academic learning and industry requirements. It focuses on training students in cutting-edge technologies, project-based learning, and industry-recognized certification programs. With state-of-the-art infrastructure and expert trainers, Technical Hub has become one of the most recognized centers for producing industry-ready professionals in engineering and computer applications.

Mission and Vision

Mission:

To empower students with real-time technical skills, hands-on project experience, and professional competencies required to succeed in the global IT industry.

Vision:

To create a technically strong and innovation-driven student community capable of solving real-world problems through advanced technologies and industry-oriented training programs.

Technical Hub

Technical Hub is a premier skill development initiative of Aditya Educational Institutions, designed to equip students with industry-ready technical expertise through advanced training programs, real-time projects, and global certification pathways. The center plays a key role in transforming students into highly skilled professionals capable of meeting modern IT industry standards.

The key objectives of Technical Hub include:

- Training students in **Full Stack Development, cloud technologies, DevOps, AI/ML**, and emerging technologies
- Providing real-time project experience and internship opportunities
- Enhancing technical competency through **industry-recognized certifications**
- Promoting innovation through hackathons, workshops, and coding challenges
- Preparing students for placements with technical training, aptitude building, and interview readiness

With modern labs, expert trainers, and a strong focus on practical learning, Technical Hub continues to support thousands of students in building meaningful careers in the technology sector.

Key Initiatives

1. Technical Training Programs:

A structured 4 – 12 week internship and training ecosystem designed to help students gain hands-on experience in Full Stack Development, Cloud Computing, AI/ML, DevOps, Cyber Security, and other emerging technologies. The programs emphasize real-time project work, industry tools, and certification-based learning.

2. Project-Based Learning (PBL):

Students engage in real-world technical projects such as Campus Navigator Application, automation tools, dashboards, cloud deployments, and application development. These projects help students apply theoretical knowledge to real-time industry scenarios.

3. Centres of Excellence (CoEs):

Technical Hub collaborates with globally recognized companies through dedicated learning centres AWS Academy, Red Hat Academy, UiPath RPA Academy, Cisco Networking Academy, Salesforce Trailhead Academy, and Microsoft Learn to deliver advanced training and internationally accepted certifications.

4. Skill Acceleration Programs:

Specialized programs designed to boost student competencies in coding, UI/UX, problem-solving, system design, soft skills, and placement-readiness. These programs include intensive bootcamps, hackathons, coding competitions, and mentorship-driven learning.

Recognition and Impact

- Training partner for multiple globally recognized technology companies
- Thousands of students trained across engineering and MCA programs
- Strong track record of industry certifications, internships, and placements
- Recognized for innovation-focused learning and project-based training
- Hosts major hackathons, technical competitions, and research initiatives

SUMMER INTERNSHIP OVERVIEW

I completed a summer internship with **Technical Hub**, which provided a highly practical and project-driven experience focused on **Full Stack Development**. The internship allowed me to work on a real-time application from scratch, helping me understand how modern web technologies are applied to solve real-world problems within an institutional environment.

Throughout the internship, I gained hands-on experience in:

- Building full-stack applications using modern frontend and backend technologies
- Designing responsive and user-friendly interfaces
- Implementing secure APIs and integrating databases
- Following industry best practices such as Git-based version control, modular code structure, documentation, and debugging

The core objective of the internship was to convert problem statements into functional, scalable solutions that improve campus-level operations and efficiency.

KEY PROJECT: Campus Navigator – Smart Exam Building Finder

The highlight of my internship was developing **Campus Navigator**, a **smart exam-building locator system** designed to help students instantly find their allotted exam halls using their hall-ticket number and real-time campus navigation.

Problem We Solved:

Students often struggle to locate their exam buildings because campus maps, notice boards, and manual instructions are confusing and unreliable. This leads to last-minute stress, delays, and difficulty navigating large campuses.

Our Solution:

We built a smart navigation system that helps students instantly find their exam buildings by simply entering their hall-ticket number. Using **React.js, Node.js, Express, and MongoDB**, the system maps hall-ticket prefixes to campus buildings and provides floor/room details along with a direct Google Maps navigation link. This ensures faster access, reduces confusion, and offers a seamless navigation experience across the campus.

This internship transformed classroom concepts into practical skills. Working on **Campus Navigator** helped me strengthen my full stack development abilities and understand how real-world applications are planned, built, tested, and deployed. The experience significantly improved my technical confidence and prepared me for future roles in professional software development.

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Week 1 Report:

Week 1	DATE	DAY	NAME OF THE TOPIC/MODULE COMPLETED
	02-06-2025	Monday	Internship Orientation & Introduction to Technical Hub
	03-06-2025	Tuesday	HTML Basics – Structure, Elements, Forms
	04-06-2025	Wednesday	CSS Fundamentals – Layouts, Flexbox, Styling
	05-06-2025	Thursday	JavaScript Essentials – DOM, Functions, Events
	06-06-2025	Friday	Introduction to Full Stack Development & Tools
	07-06-2025	Saturday	Campus Navigator Project Requirement Gathering and Planning

Overview

Week 1 focused on establishing the foundations of full stack development and understanding the internship workflow at Technical Hub. I revised essential web technologies such as HTML, CSS, and JavaScript to strengthen my frontend fundamentals. During this week, I also received an introduction to the Campus Navigator Smart Exam Building Finder project, discussed its modules, and analyzed the problem statement. By the end of the week, I had a clear understanding of the project's objectives, requirements, and the technologies to be used throughout the internship.

Conclusion

The first week provided a solid starting point for the internship. Through structured learning and project planning, I strengthened my basics in web development and gained clarity on the complete scope of the Campus Navigator project. This prepared me to move confidently into the frontend and backend development phases in the upcoming weeks.

Week 2 Report:

Week 2	DATE	DAY	NAME OF THE TOPIC/MODULE COMPLETED
	09-06-2025	Monday	Advanced JavaScript – Arrays, Objects, APIs
	10-06-2025	Tuesday	Introduction to ReactJS – Components & JSX
	11-06-2025	Wednesday	ReactJS – Props, State & Events
	12-06-2025	Thursday	React Routing & Project Folder Structure Setup
	13-06-2025	Friday	UI Designing for Campus Navigator -Dashboard Wireframes
	14-06-2025	Saturday	Git/GitHub Version Control – Branching & Commits

Overview:

Week 2 marked the transition from basic web development into ReactJS and component-based UI development. I learned how to create reusable components, manage state, handle events, and use routing for navigation. Along with this, I also practiced API integration concepts and began creating the initial UI structure for the Campus Navigator Smart Exam Building Finder. Git and GitHub workflows were also introduced, helping me understand version control and collaborative development.

Conclusion:

This week strengthened my frontend development skills and provided a deeper understanding of how modern web applications are structured. By the end of the week, I had completed the basic UI wireframes and React setup for Campus Navigator, preparing me to connect the frontend with backend APIs in the coming weeks.

Week 3 Report:

Week 3	DATE	DAY	NAME OF THE TOPIC/MODULE COMPLETED
	16-06-2025	Monday	ReactJS – Forms, Validation & Controlled Components
	17-06-2025	Tuesday	ReactJS – Integrating API Calls (Axios/Fetch)
	18-06-2025	Wednesday	NodeJS Introduction – Modules, NPM, Basic APIs
	19-06-2025	Thursday	ExpressJS – Building Backend API Endpoints
	20-06-2025	Friday	MongoDB Basics – Collections, CRUD Operations
	21-06-2025	Saturday	Backend Setup for Campus Navigator – Student, Hall Ticket & Building Schemas

Overview:

Week 3 focused on transitioning from front-end development to backend technologies. I learned the fundamentals of NodeJS, Express JS, and how to build RESTful API endpoints. Alongside backend development, I worked with MongoDB to understand database structure, collections, CRUD operations, and schema design. Using these skills, I began building the backend for the Campus Navigator system by creating student schemas, hall-ticket mapping logic, and API routes for retrieving building details. This week helped me understand how the frontend communicates with the backend through APIs and how dynamic data can power real-time campus navigation.

Conclusion:

This week strengthened my backend development skills and gave me practical experience in building server-side logic and database operations. By the end of Week 3, I had completed the essential backend setup for Campus Navigator and was ready to integrate APIs with the frontend in the upcoming week.

Week 4 Report:

Week 4	DATE	DAY	NAME OF THE TOPIC/MODULE COMPLETED
	23-06-2025	Monday	Implementing Hall-Ticket Input Module & Validation
	24-06-2025	Tuesday	Creating API Routes for Building Mapping
	25-06-2025	Wednesday	Connecting Frontend with Backend (React + Node)
	26-06-2025	Thursday	Integrating Google Maps Navigation Link (Mapping)
	27-06-2025	Friday	Campus Navigator UI Creation
	28-06-2025	Saturday	Testing Hall-Ticket Search, Map Navigation APIs

Overview:

Week 4 focused on integrating the backend with the React frontend and developing key functional modules for the Campus Navigator application. I implemented the hall-ticket input and validation flow, created essential API routes for building and connected these APIs to the frontend components. Significant progress was made on the Google Maps integration module, where I worked on mapping latitude-longitude coordinates to each campus building for accurate navigation. The Campus Navigator Dashboard UI was also developed, and initial testing of hall-ticket lookup, building retrieval, and map navigation features was performed to ensure seamless communication between the client and server.

Conclusion:

This week played a crucial role in transforming the Campus Navigator into a functional full stack application. By successfully connecting the frontend with backend APIs and developing core modules, I gained confidence in handling end-to-end application workflows. The system became partially functional, setting the stage for implementing advanced features and polishing the UI in the upcoming week.

Week 5 Report:

Week 5	DATE	DAY	NAME OF THE TOPIC/MODULE COMPLETED
	30-06-2025	Monday	Building Scanner Module – QR Code Integration
	01-07-2025	Tuesday	Mapping Hall-Ticket Prefixes to Buildings
	02-07-2025	Wednesday	Adding Additional Campus Info – Images, & Location
	03-07-2025	Thursday	Forms Section – Student Queries & Building information
	04-07-2025	Friday	Admin Features – Viewing Student Search History & Navigation Logs
	05-07-2025	Saturday	Database Optimization & Error Handling

Overview:

Week 5 focused on developing and integrating some of the most important modules of the Campus Navigator application. I worked on implementing the Building Scanner module, which allows students to quickly access building details instantly using QR scanning. The hall-ticket prefix mapping logic was also completed, enabling dynamic assignment of students to their respective exam buildings. Additionally, I enhanced the campus information section by adding images, maps, and building information requests. Admin-side features such as viewing student search history and navigation logs, were also introduced. Toward the end of the week, I optimized the database and improved error handling to ensure smooth and accurate building lookup and navigation functionality.

Conclusion:

Week 5 was highly productive, as most major features of the Campus Navigator were completed and tested. I gained strong practical experience in QR integration, hall-ticket mapping workflows, and full stack module development. By the end of the week, the application had almost all core navigation functionalities in place, preparing the application for UI polishing, backend enhancements, and final optimization in the next phase.

Week 6 Report:

Week 6	DATE	DAY	NAME OF THE TOPIC/MODULE COMPLETED
	07-07-2025	Monday	UI Polishing – Improving React Components
	08-07-2025	Tuesday	Backend Enhancements – API Security & Validation
	09-07-2025	Wednesday	MongoDB Aggregations – Reports & Insights
	10-07-2025	Thursday	Integrating Activity Tracking for Students, map views
	11-07-2025	Friday	Fixing Bugs & Testing All Modules
	12-07-2025	Saturday	Creating Demo Data for Project Presentation

Overview:

Week 6 focused on improving the visual quality, performance, and stability of the Campus Navigator application. I refined several React components to enhance the UI/UX and ensured consistent styling across all pages. On the backend, I added API security measures, implemented request validation, and optimized existing endpoints for better efficiency. I also worked with MongoDB aggregations to generate insights and reports for the admin dashboard. Throughout the week, I tested each module thoroughly, fixed UI and backend bugs, and created demo data to simulate real-time usage. This testing process helped identify edge cases and improved overall system reliability.

Conclusion:

Week 6 significantly strengthened the functionality and quality of the Campus Navigator application. By polishing the interface, enhancing backend security, and conducting detailed testing, I ensured the application performed smoothly under different conditions. The system became more stable, user-friendly, and ready for deployment planning, documentation, and final presentation in the following weeks.

Week 7 Report:

Week 7	DATE	DAY	NAME OF THE TOPIC/MODULE COMPLETED
	14-07-2025	Monday	Project Deployment Planning (Local/Cloud)
	15-07-2025	Tuesday	Preparing Documentation for Campus Navigator
	16-07-2025	Wednesday	Video Recording – Project Walkthrough
	17-07-2025	Thursday	Presentation Slides Preparation
	18-07-2025	Friday	Code Cleanup & Refactoring
	19-07-2025	Saturday	Final Testing with All Use Cases

Overview:

Week 7 focused on preparing the Campus Navigator Application for deployment, documentation, and final evaluation. I worked on planning the deployment environment, organizing project files, and ensuring the application structure followed industry standards. A major part of this week was dedicated to creating detailed project documentation, including module descriptions, API endpoints, database structures, and system workflows. I also prepared presentation slides and recorded a walkthrough video to explain the features and functionality of the Campus Navigator. In addition, I refactored the code to improve readability, removed unused files, and conducted final testing on all use cases to verify system stability.

Conclusion:

This week strengthened my understanding of deployment readiness and professional documentation practices. By completing presentation materials, cleaning up the project, and performing final review checks, I ensured the Campus Navigator was polished and in a presentable state. Week 7 helped me prepare confidently for the final submission and evaluation scheduled for the following week.

Week 8 Report:

Week 8	DATE	DAY	NAME OF THE TOPIC/MODULE COMPLETED
	21-07-2025	Monday	Final Integration Testing & Bug Fixing
	22-07-2025	Tuesday	Creating Final Report & Internship Forms
	23-07-2025	Wednesday	Preparing for Final Evaluation
	24-07-2025	Thursday	Internal Review with Mentors at Technical Hub
	25-07-2025	Friday	Final Submission of Campus Navigator Project
	26-07-2025	Saturday	Internship Completion & Feedback Session

Overview:

Week 8 marked the final stage of the internship, focusing on integration testing, final corrections, and preparing the Campus Navigator Application for official submission. I performed thorough end-to-end testing across all modules, including ID Scanner, Rack Manager, Digital Library, Forms, and Dashboard components. Any remaining bugs, UI inconsistencies, or API issues were identified and resolved. I completed the final project documentation, updated the internship report, and organized all project files for submission. A review session was conducted with mentors at Technical Hub, where I demonstrated the full functionality of the Campus Navigator. Feedback was collected and minor refinements were made to ensure smooth performance. Finally, I submitted the project and completed the closing formalities of the internship.

Conclusion:

Week 8 successfully concluded the development, testing, and submission of the Campus Navigator application. By finalizing documentation, preparing evaluation materials, and completing all project requirements, I demonstrated a full understanding of the end-to-end software development process. This final week marked the completion of my internship journey, giving me confidence in my full stack development abilities and preparing me for future professional projects.

OVERALL OUTCOMES

- **Foundational Knowledge:**

Developed a strong foundation in full stack development, including frontend, backend, and database concepts. Gained a clear understanding of how modern web applications are structured and deployed.

- **Technical Skills:**

Acquired hands-on experience in HTML, CSS, JavaScript, ReactJS, NodeJS, and MongoDB. Built real-time modules such as QR-based scanner, APIs, and integrating maps to help students easily locate exam halls and campus buildings.

- **Project Management:**

Practiced end-to-end project development—from gathering requirements and planning architecture to building modules, testing, debugging, documenting, and submitting the final project.

- **Real-World Application:**

Successfully converted a real institutional problem into a functional full stack application. Implemented barcode/QR integration, automated workflows, and database-driven operations, demonstrating practical problem-solving in real-time scenarios.

- **Professional Development:**

Improved skills in Git/GitHub version control, UI/UX design principles, API integration, error handling, and database optimization. Gained confidence through presentations, reviews, and mentor feedback.

- **Career Advancement:**

Strengthened readiness for roles such as Full Stack Developer, Frontend Developer, Backend Developer, and MERN Stack Developer.

The internship boosted understanding of industry standards and enhanced technical communication skills.

This internship has prepared me with the technical confidence and real-world experience required to excel in full stack development and build scalable applications in the future.