



# **Internship Report**

## **Chennai Container Terminal Limited (CCTL)**

By,

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Bachelor of Technology [B.Tech]

Artificial intelligence & Data science

IV–Year (2022-26)

**Internship Duration** : Jun 09-2025 – Jul 09-  
2025

## Acknowledgement

I would like to extend my sincere gratitude to **DP World** for providing this invaluable opportunity to explore the operations of the Container Terminal at the Port.

I would also deeply thank all the departments that offered their support throughout the internship. In particular, I would like to express my heartfelt gratitude to **Mr. Sathappan Mathavan (AGM IT)**, **Mr. Senthil Kumar Srinivasan (Manager-IT)**, **Mr. Ferosekhan.A (Manager-IT)** for their guidance, support, and for facilitating an enriching internship experience. Their mentorship significantly contributed to enhancing my knowledge and understanding of the field.

## Internship Overview

- **Duration:** 09th July 2025 – 09th July 2025.
- On First Day they start with induction training for Health & Safety Environment. They guided how we precaution in the high-risk areas, in case any emergency situation how we form in Emergency Assembly Point.
- I am doing an internship in the IT department where I observed and learned about various activities in type of servers, operating system, database, maintenance, type of software used in various applications.

## **Executive Summary**

It is the summary of the practical knowledge and vital information from DP World commonly known as Chennai Container Terminal Ltd., (CCTL). DP World is the developer and operator in CCTL and also the first private terminal started and operated in India. They have the advantage of located in a strategic location unlike other terminals or port it doesn't have much congestion. This report comprises of tedious IT support process of applications and CCTV management and maintenance. They have been awarded with Best container terminal operator in South India award from 2010 to 2014. In recent years, there are moving towards innovation like they have planned to reduce the carbon emission by investing (\$500 million) in renewable energy and alternative fuels. They are even contributing lot to humanitarian works through CSR Activities and many more to be carried further.

## Company Overview

DP World is a global logistics company that specializes in port operations and trade-related services. Headquartered in Dubai, it is one of the world's largest port operators, managing and operating more than 80 marine and inland terminals across six continents.

DP World plays a crucial role in facilitating international trade by providing services such as container handling, freight logistics, and other maritime solutions.

The company has been actively involved in developing and managing ports to enhance efficiency and connectivity in the global supply chain.

## CCTL Tracking Connectivity:

- Today, Chennai Container Terminal serves 60% of South India's container market thanks to its multimodal connectivity.
- strategically situated to provide the quickest transits to the Far East for South and East India.
- DP World Chennai's commitment to expanding trade in South India led to a highly robust support infrastructure of ICDs and CFSs.

## Internship Objective

The primary objective of this internship was to gain **practical exposure to IT infrastructure, networking, and software development** within a corporate environment. My goal was to:

- Understand how **IT supports port operations** through networking and system management.
- Gain hands-on experience in **web development, database management, and IT automation.**
- Explore **real-time data handling and enterprise IT solutions** used in a large scale organization.
- Work on **full-stack development**, including **user authentication, document management, and communication systems.**

Through this internship, I aimed to bridge the gap between theoretical knowledge and real-world applications by working on **practical projects and learning from experienced professionals.**

## **Day to Day Process**

- **Day 01: Internship Orientation & Introduction**
- **Day 02: PDF Chatbot using Gemini Vision**
- **Day 03: AI Chatbot Development**
- **Day 04: JSON Response Integration in Chatbot**
- **Day 05: Real-Time System Monitoring with Power BI**
- **Day 06: Stock market prediction using Power BI**
- **Day 07: Real-Time Attendance App (DP World Replica)**
- **Day 08: Attendance Punch In/Out as a Website**
- **Day 09: Setup the React Native project and complete it**
- **Day 10: Download the APK file of the React Native app.**
- **Day 11: Visiting the Tower Control to gain knowledge and understanding of its operations**
- **Day 12: Inspecting the server room infrastructure**
- **Day 13: Interactive R Dashboard with Live Stock Visuals**
- **Day 14: Understanding the R Programming languages**

- **Day 15: Completed R Dashboard with Data Visualization**
- **Day 16: Server Room Visit & Network Architecture**
- **Day 17: Worked on HR feedback module integration using ASP.NET**
- **Day 18: Designed UI and backend for candidate feedback management**
- **Day 19: Visited the yard and met with the engineering team to gain insights**
- **Day 20: Implemented HR login and feedback flow using ASP.NET**
- **Day 21: Summary of project status: completed milestones, current activities, and outstanding work**
- **Conclusion & Key Learnings.**

## **Day 1: Internship Activities**

### **1. IT Sector Induction**

- Attended an introduction session about the IT sector within the company.

- Learned about various software used, including:

- o **ZODIAC**

- o **ZingHR**

- Explored different devices used in their yards such as:

- o **VMT (Vehicle Mounted Terminal)**

- o **RTG (Rubber-Tired Gantry Crane)**

- Understood networking tools and infrastructure, including:

- o **Switches**

- o **Routers**

- o **WiFi Boosters**

- Overview of various departments within the company:

- o **IT Department**

- o **Finance Department**

- o **Operations Department**

- o **Engineering Department**



## **Project 1: PDF Chatbot using Gemini Vision AI-powered Document Assistant Document Assistant**

### **Learning Experiences:**

- Developed an AI-powered PDF chatbot using Google's Gemini Vision API to extract and interact with content from uploaded PDF documents.
- Gained experience in building a smart document assistant capable of handling complex queries.
- Learned how to:
  - Perform PDF parsing and preprocessing for effective content extraction.
  - Integrate the Gemini Vision API to interpret and analyze document content intelligently.
  - Build seamless frontend-backend communication for a responsive user interface
  - Enable natural language interaction, allowing users to ask questions and receive context-aware answers.

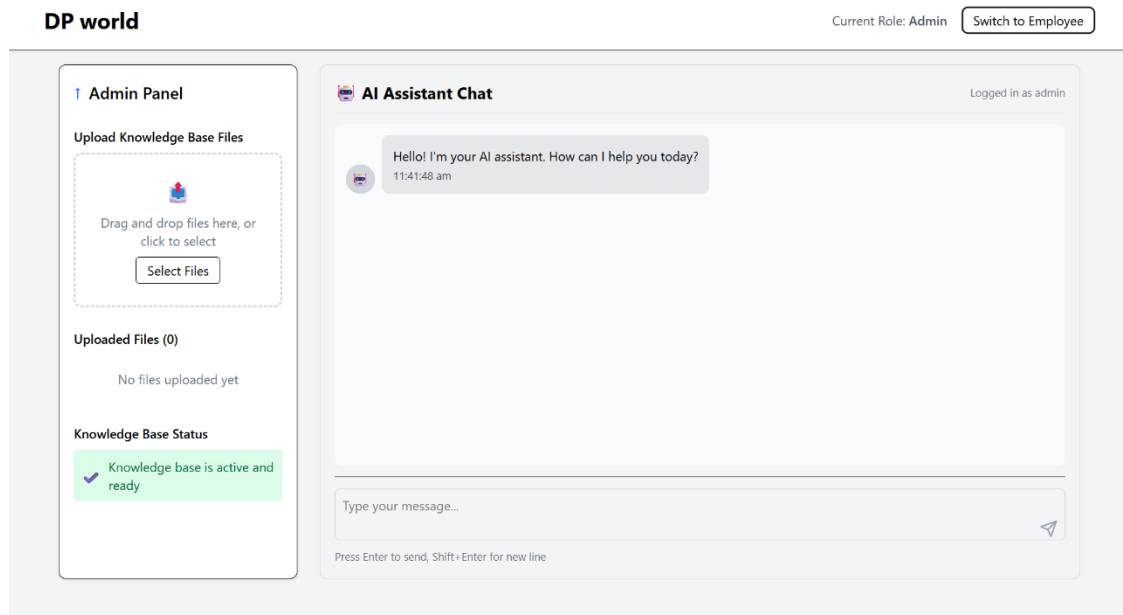
### **Challenges Faced:**

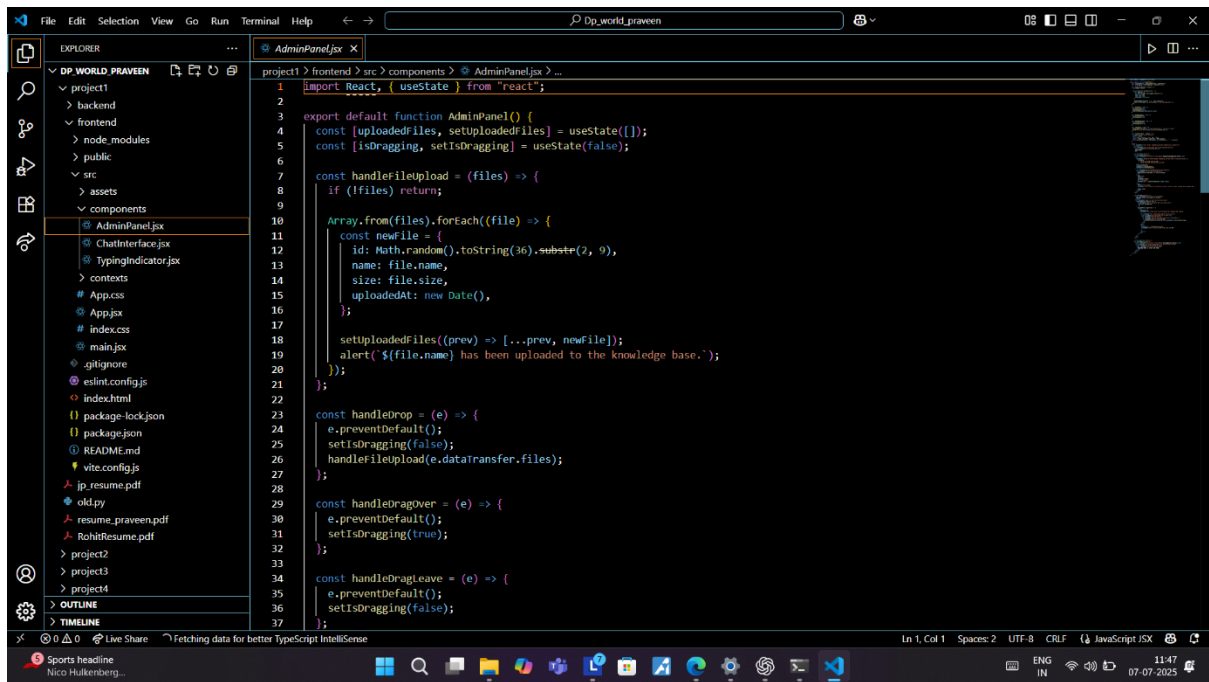
- Faced initial hurdles in:
  - Understanding the structure and output format of the Gemini Vision API.

- Extracting structured content from various types of PDF layouts.
- Ensuring accurate context retention when responding to user queries

## Key Takeaway:

- This project strengthened my skills in **AI integration, document analysis, and full-stack development**, and highlighted the potential of **AI-powered document assistants** in enhancing user interaction with complex files.





## Project 2: System Performance Monitoring with Power BI–Real-Time Analytics & Storage

### Learning Experiences:

- Built a **real-time system monitoring dashboard** using **Power BI** to track key performance metrics including **CPU usage, memory consumption, disk activity, and network usage**.
- Learned how to:
  - Develop background scripts using **Python** and **PowerShell** to **continuously collect system performance data**.
  - Store real-time data in **PostgreSQL** or **SQL Server** for persistent and scalable storage.
  - Connect Power BI to a live database to **visualize system data dynamically**.

- Design **interactive dashboards** to analyze both real-time and historical system performance trends.

### Challenges Faced:

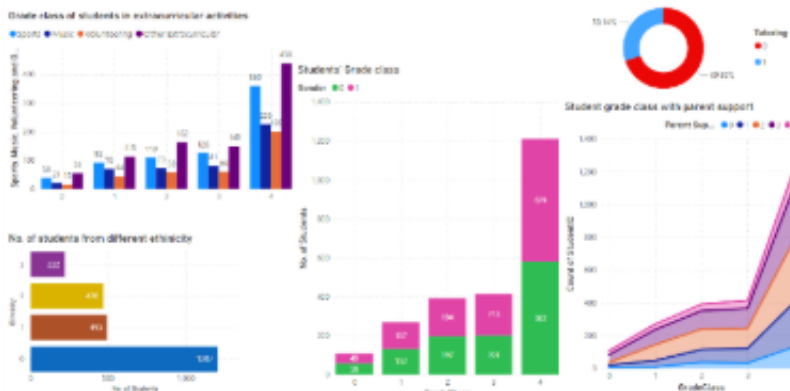
- Encountered difficulties in:
  - Configuring **Power BI for live data refresh** to maintain up-to-date visualizations.
  - Writing efficient scripts for **continuous data collection** without impacting system performance.
  - Ensuring smooth integration between **Power BI and SQL-based databases**.
- Struggled with optimizing visualizations to prevent **dashboard lag** during real-time updates.

### Key Takeaway:

- This project enhanced my understanding of **real-time data analytics** using Power BI and reinforced my skills in **backend scripting, database management, and dashboard design for system monitoring and performance analysis**.



### Student Performance details:



## Project 3: Real-Time Attendance Tracking App with Geolocation – DP World Replica Geolocation – DP World

### Learning Experiences:

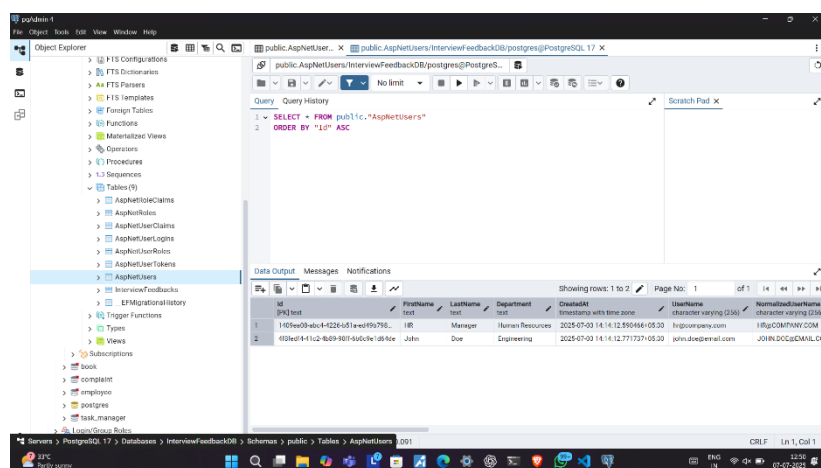
- Developed a React Native mobile application that replicates the DP World attendance system with real-time geolocation tracking.
- **Gained hands-on experience in:**
  - Implementing GPS-based location tracking to log accurate punch-in/punch-out data.
  - Storing timestamped attendance records securely in a backend database.
  - Creating role-based access controls for different employee types.
  - Displaying shift details and managing attendance workflows with real-time updates.
  - Integrating frontend and backend systems for a smooth user experience.

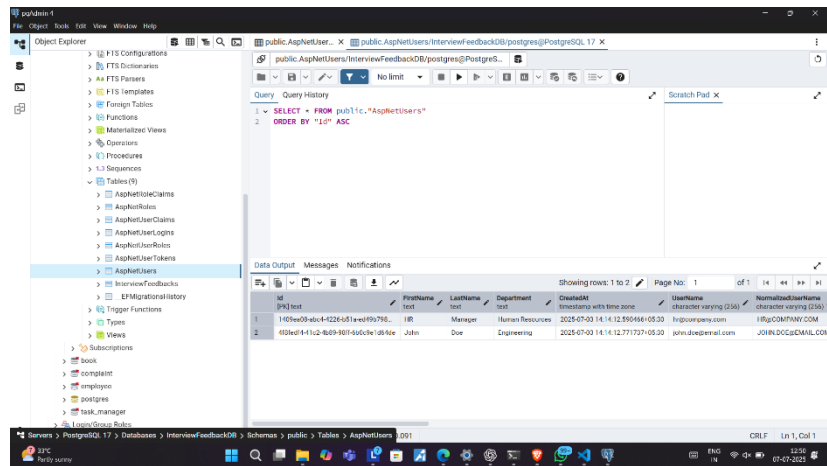
## Challenges Faced:

- Faced technical difficulties in:
  - Ensuring **accurate and consistent GPS data** across different mobile devices.
  - Maintaining **secure communication** between the app and the backend database
  - Implementing **reliable offline functionality** for areas with weak connectivity.
  - Handling **permissions and privacy concerns** related to location tracking.
- Optimizing the app for performance while handling **real-time data syncing** and user authentication.

## Key Takeaway:

This project enhanced my skills in **mobile app development, geolocation services, and real-time data handling**, while demonstrating how location-aware systems can improve **workforce attendance accuracy and efficiency**.





## Project 04: PHP - Project PHP

### Learning Experiences:

- Developed a **dynamic web application** using **PHP** that delivers content based on user interactions and predefined logic.
- Gained experience in:
  - Implementing a **responsive and user-friendly interface** using HTML, CSS, and PHP.
  - Integrating **MySQL/PostgreSQL databases** to support **CRUD operations** (Create, Read, Update, Delete).
  - Handling **form submissions** with **server-side validation** and **session management**.
  - Displaying content in real-time using PHP and structured queries.

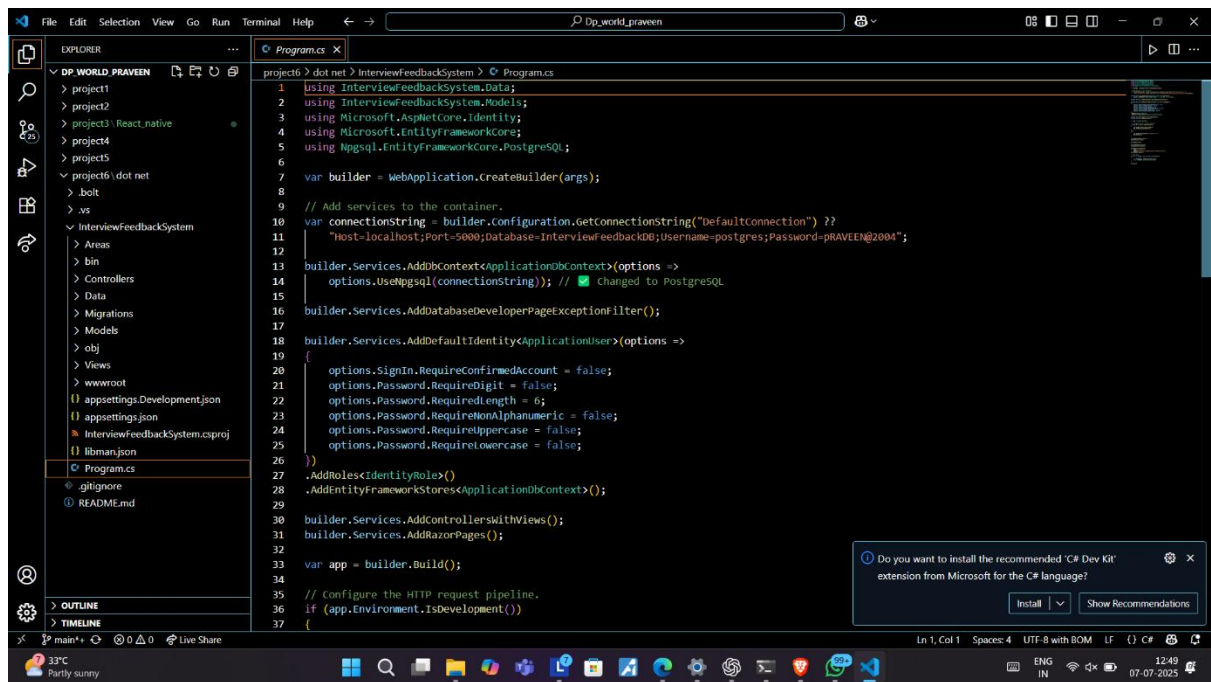
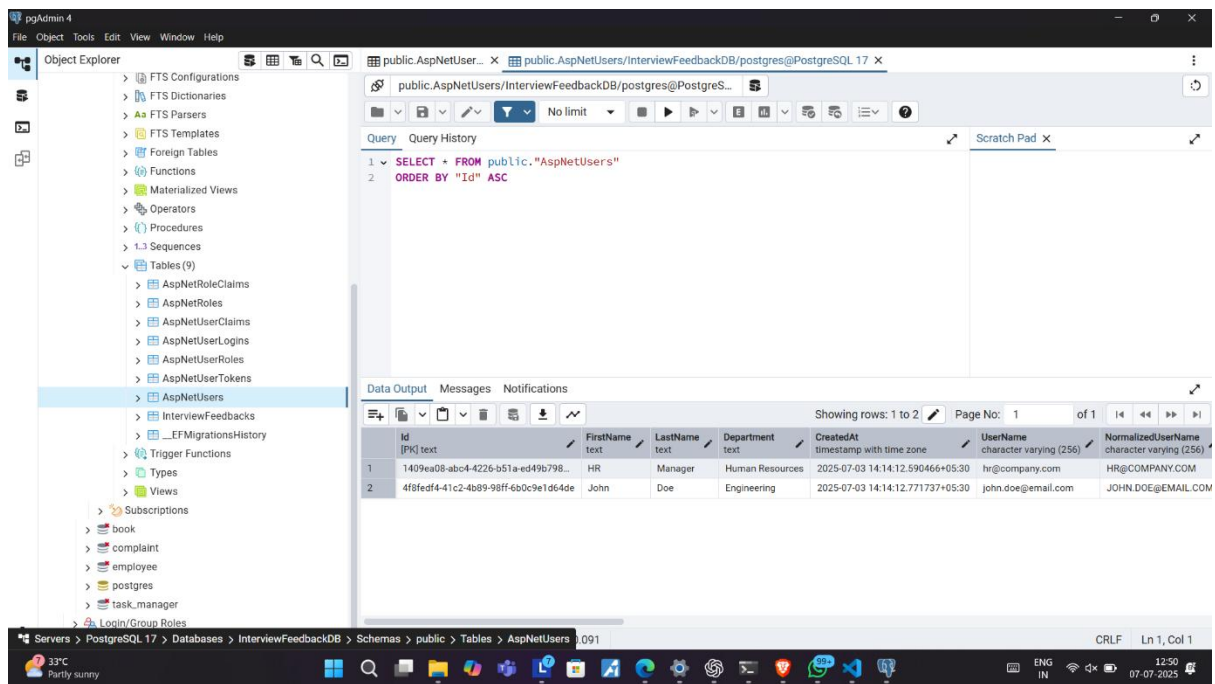
## **Challenges Faced:.**

- Encountered issues in:
  - Managing **session data securely**, especially during user login/logout.
  - Validating user input effectively to prevent **SQL injection** and **form tampering**.
  - Ensuring **compatibility and responsiveness** across different devices and browsers.
  - Structuring **dynamic content rendering** for an optimal user experience.

## **Key Takeaway:**

- Learned how to build a role-based admin portal in **PHP and MySQL**.
- **To manage students, courses, attendance, and academic records**, applying both backend logic and database design skills.





## **Project 5: Interactive Data Analytics Dashboard in R with Live Stock-Style Visualization**

### **Learning Experiences:**

- Built an **interactive data analytics dashboard** using **R programming**, enabling users to upload **CSV or Excel files** for instant insights.
- Learned how to:
  - Use R libraries like **dplyr** for efficient data manipulation and **ggplot2/plotly** for dynamic visualizations.
  - Process uploaded datasets to display **summaries, trends, and live stock-style visual charts**.
  - Implement **real-time data rendering** to help users make fast, data-driven decisions.
  - Build a user-friendly interface for seamless data upload and analysis.

### **Challenges Faced:**

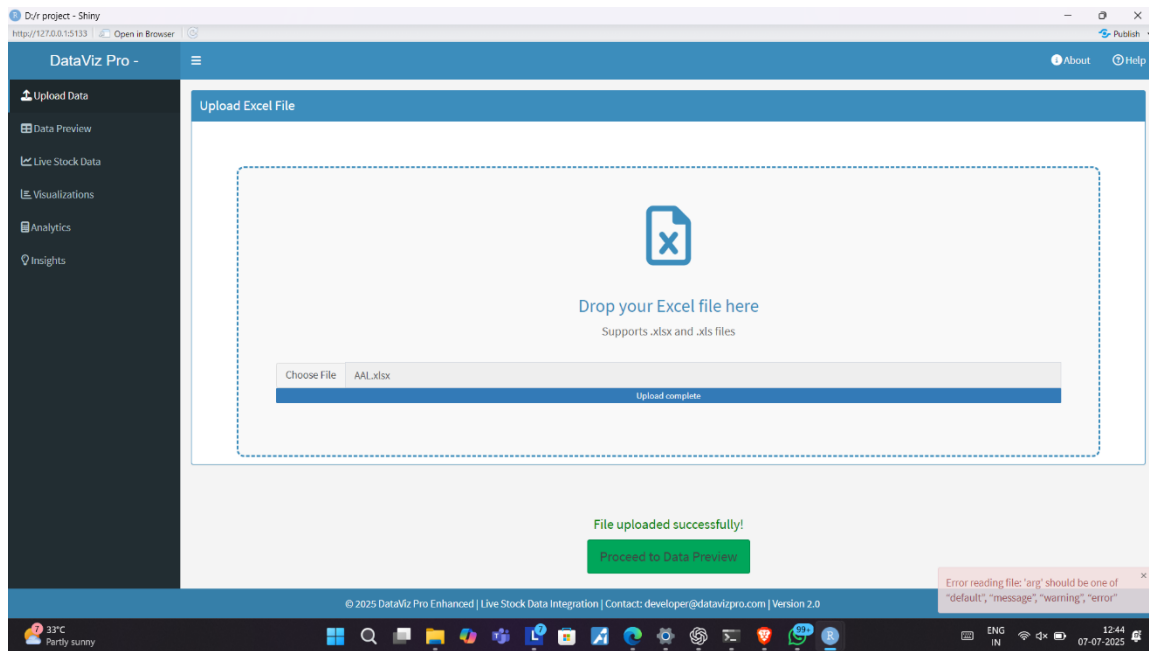
- Faced initial challenges in:
  - Ensuring **real-time chart updates** while handling large datasets.
  - Integrating **interactive plots** without compromising performance.
  - Handling **different file formats** (CSV, Excel) and ensuring robust data validation.

- Designing an intuitive layout for users unfamiliar with R-based tools.

## Key Takeaway:

- This project demonstrated the strength of **R in data analytics and visualization**, and significantly improved my skills in **interactive dashboard development and real-time data analysis** using R's advanced libraries.





## Project 06: HR and Candidate Feedback Management System using ASP.NETObjective:

### Learning Experiences:

- Developed a **web-based HR and Candidate Feedback System** using **ASP.NET**, aimed at streamlining the **interview evaluation process**.
- Learned to:
  - Implement **secure authentication** and **role-based access control** for HR and interviewers.
  - Design and build features such as **auto-filled candidate profiles**, **star rating components**, and **structured feedback forms**.
  - Store and retrieve feedback efficiently using a **SQL Server database**.

- Build a system that supports **both quantitative and qualitative feedback** for better decision-making.
- Create a clean, responsive user interface with a focus on **usability and data accuracy**.

### **Challenges Faced:**

- Implementing role-based permissions to ensure users only access relevant features.
- Creating a dynamic feedback form that handles various input types and validations.
- Ensuring secure and accurate data submission to the backend database
- Designing a consistent user experience across devices and browsers.

### **Key Takeaway:**

- This project improved my understanding of **ASP.NET web development, secure form handling, and database integration**, while demonstrating how technology can improve **transparency, efficiency, and standardization** in HR evaluation processes.

Interview Feedback System

HomeAll FeedbackSubmit FeedbackPrivacy

Hello hr@company.com!HR

HR Dashboard

Add Feedback

View All

Total Feedback

5

Average Rating

3.0

Recommendations

2

Recommendation Rate

40%

Recent Feedback

Candidate	Position	Rating	Date	Actions
praveen sec22ad068@sairamtap.edu.in	xz	★ ★ ☆ ☆ ☆ 2.0	Jul 04, 2025	
praveen sec22ad068@sairamtap.edu.in	xz	★ ☆ ☆ ☆ ☆ 1.0	Jul 04, 2025	
Robert Wilson	Data Analyst	★ ★ ★ ☆ ☆ 3.0	Jul 02, 2025	

Feedback by Position

Data Analyst

1

UI/UX Designer

1

Software Developer

1

xz

2

Interview Feedback System

HomeAll FeedbackSubmit FeedbackPrivacy

Hello hr@company.com!HR

Submit Interview Feedback

Help us improve our interview process by sharing your experience

Candidate Information

Candidate Name

Candidate Email

Interview Details

Position Applied

Interviewer Name

Interview Date  
07-07-2025

Rate Your Experience

# **NTT Roaster Office – Departmental Overview and Observations**

## **Purpose of Visit:**

To gain insights into the operational workflows and inter-departmental coordination involved in vessel planning, yard management, documentation, marketing, finance, and engineering functions at the NTT and Roaster Office.

## **Departments Visited and Key Learnings:**

### **Tower Control & Vessel Planning:**

- Observed real-time vessel scheduling and coordination with port operations.
- Gained insights into vessel turnaround management and resource allocation.

### **Yard Planning:**

- Learned about container stacking, space optimization, and equipment dispatch.
- Noted the use of digital tools to reduce congestion and improve efficiency.

### **Documentation Team**

- Observed import/export documentation processes and customs integration.
- Emphasized the importance of accuracy in shipment data.

**Marketing Team:**

- Reviewed how market trends and client demands shape strategy
- Discussed efforts to build client relationships and promote services

**Financial Team:**

- Explored budgeting, cost tracking, and financial reporting processes.
- Understood the use of real-time data for profitability analysis.

**Engineering Team:**

- Observed infrastructure maintenance and upgrade planning.
- Learned about preventive maintenance for operational continuity.



## **Server Room Visit & Network Architecture**

### **Server and Network Infrastructure Exposure:**

As part of my server-side and networking fundamentals training, I gained hands-on experience with the essential components of enterprise IT infrastructure. This included understanding the roles of:

- Core switches, distribution switches, and routers in managing internal and external data flow.
- Efficient routing mechanisms that ensure high availability and network reliability.
- Fiber optic technology and its importance in delivering high-speed data transmission for backbone connectivity in data centers.

### **System Administration Experience:**

During my training as a System Administrator, I developed key administrative skills including:

- **User management:** Creating, managing, and deleting user accounts and groups
- **System configuration:** Setting up servers, deploying security policies, and managing system resources.
- **Technical support:** Troubleshooting hardware, software, and network issues to minimize system downtime.

- **Desktop support:** Assisting end-users with workstation setups, software installations, and resolving system errors to maintain a stable and secure computing environment.

### **Networking Fundamentals:**

While working at DP World, I deepened my knowledge of enterprise networking by:

- Understanding structured network architectures that include core, distribution, and access layers.
- Learning about VLANs, IP addressing schemes, and firewall rules used to segment networks and enhance security.
- Exploring how fiber optic connections are leveraged for fast and stable communication between critical systems.
- Gaining awareness of network segmentation and access control to protect internal infrastructure and optimize performance.

## **Conclusion:**

The 30-day internship provided a comprehensive and hands-on learning experience across multiple domains including web development, data analytics, AI integration, automation, and infrastructure understanding.

Each day introduced new tools, technologies, and challenges that closely reflect real-world industry scenarios. The balance between coding, system design, practical exposure, and project implementation helped build a solid foundation for both technical and soft skills.

## **Key Learnings:**

### ➤ Full-Stack Web Development:

Gained experience in building complete systems using PHP, MySQL, HTML, and JavaScript, including authentication, CRUD, and admin portals.

### ➤ Data Analysis & Visualization:

Learned to clean, analyze, and visualize real-world datasets using Power BI, R, and Excel, and convert insights into interactive dashboards.

### ➤ AI & Automation:

Built and enhanced AI chatbots using Python, including features like PDF reading and JSON-based responses. Automated tasks such as email reports using Excel and VBA.

### ➤ Mobile & Web App Development:

Applied mobile-first design by converting a website into a Progressive Web App (PWA) for real-time attendance tracking.

### ➤ Networking & Infrastructure:

Gained hands-on experience with switches, routers, and VLAN configurations. Understood the role of fiber optics and network segmentation in large-scale IT environments.

➤ System Administration:

Managed users, roles, and system policies. Provided hardware/software support and ensured stable system performance with minimal downtime.

➤ Server Monitoring & Reporting:

Collected system metrics like CPU, memory, and disk usage through scripts and visualized them using Power BI for real-time monitoring.

➤ Database Management:

Worked with MySQL and SQL Server to store, retrieve, and manage structured data efficiently. Practiced writing optimized queries and managing relational databases.

➤ Project Collaboration & Communication:

Collaborated across departments (Engineering, HR, Documentation, Finance) to understand operational workflows and ensure system alignment.

➤ Document Management Systems:

Learned how digital documentation systems support import/export operations and integrate with customs processes for smooth logistics.

➤ Frontend Design & Usability:

Focused on building responsive user interfaces and improving user experience using HTML5, CSS3, and Bootstrap.