An Industry Internship Report at Zapcom Solutions Pvt. Ltd.

An Internship Report for

Course code and Course Title: CSA-652 Industry Internship

Credits: 16

Submitted in partial fulfillment of Masters Degree

Masters of Computer Application

by

GANDHAR R. NERURKAR

Seat Number: 2251
ABC ID: 456508882195
PRN: 20190417

Under the Mentorship of

JANAKIRAM REDDY

Goa Business School
Discipline of Computer Science & Technology

Goa University

Date: June 2024

Examined by:

Seal of the School

DECLARATION BY STUDENT

I hereby declare that the data presented in this Internship report entitled, "An Industry Internship Report at Zapcom Solutions Pvt. Ltd." is based on the results of investigations carried out by me at Zapcom Solution Private Limited, under the mentorship of Mr. Janakiram Reddy and the same has not been submitted elsewhere for the award of a degree or diploma by me. Further, I understand that Goa University or its authorities/College will not be responsible for the correctness of observations / experimental or other findings given the internship report/work.

I hereby authorize the University/college authorities to upload this internship report on the University repository or anywhere else as the UGC regulations demand and make it available to anyone as needed.

Date: 12 June 2024   Gandhar Nerurkar

Place: Goa University   Seat no: 2251

OFFER LETTER

zapcom.

Mr. Gandhar Nerurkar
Mobile No: 8830789683

LETTER OF INTERNSHIP

Dear Gandhar,

Congratulations!

Consequent to your conversation held with us, we are pleased to offer you an internship as **"Intern"** at Zapcom Solutions Pvt Ltd on the terms and conditions mentioned below:

> **Current Place of Posting:** Bangalore
> **Stipend:** Rs.25,000/- per month
> **Internship Start Date:** 8th January 2024

This internship is for a period of **6 months** and based on your performance the company will evaluate full time opportunity for you with the organization. You are obliged to observe the work regulations in force at Zapcom, as far as the punctual beginning and ending of work within the working hours binding for the employees of Zapcom, the discipline at work and the reliable work performances are concerned.

During that term, company may terminate this agreement for any reason or no reason with fifteen (15) days' notice. The terms of this Agreement shall be governed by and interpreted in accordance with the laws of India.

You will be given a laptop and its accessories during the training in Zapcom. The same will have to be returned by you to Zapcom on completion of the training.

Please sign and return the duplicate copy of this letter in token of your acceptance. We look forward to welcoming you in the organization on Monday, **8th January 2024** at 11 am.

Yours faithfully,

For ZapCom Solutions Pvt Ltd,   Accepted

SRINIVAS KOTHAKOTA
COO

INTERNSHIP CERTIFICATE

zapcom.

31st May 2024

TO WHOMSOEVER IT MAY CONCERN

This is to inform you that **Mr. Gandhar Nerurkar, ZC00613** is currently undergoing internship at our company, **Zapcom Solutions Pvt. Ltd** from 8th January 2024.

During his tenure he has met the expectations of his team lead/mentor/guide and found to be regular and sincere.

This letter is being issued on his request to be submitted with the project report at Goa University.

For Zapcom Solutions Pvt. Ltd.

Srinivas Reddy Kothakota
Chief Operating Officer

<u>COMPLETION CERTIFICATE</u>

This is to certify that the internship report "An Industry Internship Report at Zapcom Solutions Pvt. Ltd." is a bonafide work carried out by Mr. Gandhar R. Nerurkar under my mentorship in partial fulfillment of the requirements for the award of the degree of Master of Computer Application in the Discipline of Computer Science and Technology at Goa Business School, Goa University.

Date: 12 June 2024

Place: Bangalore, Karnataka   Janakiram Reddy

ACKNOWLEDGEMENT

I would also like to express my appreciation to the HR and Accounts teams at Zapcom Solutions for their unwavering assistance throughout the internship. Their support in administrative matters and ensuring a smooth internship experience is highly valued. They have been pivotal in creating an organized and welcoming environment, allowing me to focus on my learning and development.

Additionally, I extend special thanks to all the senior colleagues for their exceptional mentoring and motivation. Their guidance has been invaluable not only in professional aspects but also in my personal growth. The insights and encouragement they provided have made my internship experience profoundly enriching and have inspired me to strive for excellence.

EXECUTIVE SUMMARY

During my internship at Zapcom Solutions, I engaged in several key projects that significantly enhanced my technical skills and practical experience in full-stack development. The Data API project focused on creating a web application to retrieve, display, and manage data using HTML, CSS, and JavaScript. Key features included user authentication, dark and light mode themes, and interactive news cards, which strengthened my JavaScript skills, particularly in asynchronous programming and user interface design.

I worked on two e-commerce projects. The first, a JavaScript-based application, allowed users to manage their shopping cart, apply discounts, and calculate total amounts. I developed product listings, cart management features, and coupon code applications. The second project utilized React, Node.js, Express, and MongoDB, adding advanced features like JWT token-based authentication and an admin panel for product management. I implemented user registration and login, cart operations, and developed the admin panel. This project enhanced my skills in backend development, secure authentication, and database management.

The Task Master project involved creating an admin portal for task and employee management using React, TypeScript, and Material-UI. I developed the employee form, integrated it with the backend API, and implemented toast messages for success or error notifications. This project improved my proficiency in TypeScript, frontend development, and API integration. I also gained experience using Azure DevOps for code management.

In the NBLY Data Migration project, I manually transferred data from an old system to a new one and later automated the process using scripts. This experience provided insights into data migration processes and client interaction. Additionally, I participated in an Ideathon and Hackathon, where our team developed a solution for the travel and hospitality industry and secured second place. My contribution focused on frontend design, enhancing my skills in creating user-friendly interfaces.

Throughout these projects, I improved my knowledge of JavaScript, React, Material-UI, TypeScript, and Azure DevOps. I developed expertise in asynchronous programming, state management, responsive design, secure authentication, API development, and database management. I faced challenges in managing complex states in React, integrating frontend and backend systems, and mastering TypeScript's type system. Overcoming these challenges required persistence, problem-solving skills, and continuous learning.

In conclusion, my internship at Zapcom Solutions was a transformative experience that equipped me with the technical skills and practical knowledge needed to excel in full-stack development. The projects provided a comprehensive understanding of modern web development practices and prepared me for future professional challenges.

CONTENTS

CHAPTER 1: ORGANIZATION/COMPANY

1.1 BIRDS-EYE VIEW OF ZAPCOM GROUP

Zapcom Group stands as a global frontrunner in product engineering and technology services, dedicated to crafting custom software solutions that empower partners to meet their business objectives with precision and efficiency. With a strategic focus on the Travel, Hospitality, Fin-Tech, and Retail industries, Zapcom has established itself as a hub of innovation and technological excellence. The company's headquarters in California are complemented by a global presence, with offices in Dublin (California), Dallas (Texas), Bangalore (India), Hyderabad (India), and San Jose (Costa Rica). This geographical distribution allows Zapcom to engage closely with clients worldwide, ensuring that their unique needs and challenges are addressed with tailored solutions.

The hallmark of Zapcom's success lies in its high-performing team, which brings together expertise in disruptive innovative ideas and emerging technologies. The leadership team, comprising industry veterans with extensive experience in technology consulting, product engineering, and custom solution development, drives the company's strategic vision and operational excellence. Zapcom's commitment to leveraging the latest technological advancements ensures that their clients stay ahead of the curve, adapting swiftly to market changes and evolving customer expectations. By fostering a culture of continuous improvement and agility, Zapcom consistently delivers exceptional value and supports its clients in achieving sustained growth and success.

1.2 PRODUCTS AND SERVICES OF ZAPCOM GROUP

Zapcom Group offers an expansive range of products and services meticulously designed to cater to the dynamic needs of modern businesses. At the core of their offerings is custom software development, where they create bespoke solutions that align perfectly with the specific requirements of their clients. Specializing in scalable platform development, Zapcom has built numerous advanced systems, such as travel connectivity platforms that integrate various services like Expedia and Agoda, and personalized cruise shopping experiences that leverage AI to offer tailored recommendations.

In the realm of data solutions, Zapcom excels in transforming raw data into valuable insights. Their services include data migration, engineering, visualization, and machine learning (ML) engineering, helping businesses harness the power of data to drive decision-making and innovation. Their cloud platform services focus on optimizing performance, reliability, and cost-efficiency, with expertise in cloud-native development, app modernization, and cloud transformation. Additionally, Zapcom's enterprise asset management services enable businesses to integrate multiple facets of their operations, fostering reusable technical assets that deliver consistent innovation.

One of their standout projects, AI Model Life Cycle Management, showcases their ability to develop sophisticated machine learning platforms that enhance product and service quality in the hospitality industry. By employing Agile and Scrum methodologies, ZapCom ensures that their project delivery is not only efficient but also adaptive to the changing needs of their clients, ultimately driving measurable business value and competitive advantage.

1.3 ORGANIZATIONAL STRUCTURE AND ORGANOGRAM OF ZAPCOM GROUP

Zapcom Group's organizational structure is crafted to promote innovation, agility, and operational efficiency, with a clear focus on client success and technological excellence. At the helm is Kishore Pallamreddy, the Founder and CEO, whose visionary leadership steers the company's strategic direction. The executive team includes Sai Konda as the Chief Information Officer, overseeing the company's information technology strategies; Srinivas Kothakota, the Chief Operating Officer, managing daily operations and ensuring seamless execution of projects; Deepak Puranam, the Chief Product Officer, driving product development and innovation; Paul Lehman, the Chief Commercial Officer, leading business development and client relationships; and Pooja Parthi, the Head of HR, focusing on talent acquisition and organizational culture.

The company also benefits from the strategic insights of its Board of Advisors and Directors, featuring seasoned professionals like Jim Fitzpatrick and Joan Khuel, who provide valuable guidance on industry trends and corporate governance. Kumar Saurabh Johny, as the Head of Innovation and AI Strategy, spearheads initiatives in emerging technologies and artificial intelligence, ensuring that Zapcom remains at the forefront of tech advancements.

Zapcom's internal structure is divided into several key departments, each specializing in critical areas of the business. These include Product Development, where innovative software solutions are conceptualized and built; Data Solutions, which focuses on data engineering and analytics; Cloud Platforms, dedicated to optimizing cloud infrastructure and services; and Enterprise Asset Management, which handles the integration and management

of business operations. Each department is staffed with skilled professionals who are committed to delivering high-quality solutions and achieving client satisfaction.

This well-organized yet flexible structure allows Zapcom to respond swiftly to market demands and client needs, ensuring that they can provide tailored, effective solutions in a rapidly changing technological landscape. By maintaining a collaborative and client-centric culture, Zapcom continues to enhance its service offerings and deliver exceptional value to its global clientele.

CHAPTER 2: TASKS HANDLED

During my internship, I worked on a dynamic and user-friendly Data API project. This project involved creating a web application designed to retrieve, display and manage data from a variety of sources. The main technologies used in this project are HTML, CSS and JavaScript. The project also included improvements such as user authentication, themes that can be used with dark and light styles. The main purpose of this project was to strengthen my JavaScript skills through hands-on activities..

Key Features

User Authentication (Login Functionality)

Implementation: One of the most important parts of the project was the login feature. JavaScript was used for front-end interaction and validation, and backend APIs were used to safely manage user authentication.

Dark and Light Mode

Implementation: The program had a toggle between light and dark modes to improve user experience. JavaScript and CSS variables were used to change themes based on user preferences.

User Experience: The theme switcher let users select their favorite viewing mode, which made text easier to see and less taxing on the eyes in varying lighting situations. Local storage was used to store user preferences so that the selected mode was maintained between sessions.

Accessibility: The program accommodated a broader spectrum of users, including those with distinctive visual challenges or choices, by offering the ability to switch between dark and light settings.

Interactive News Cards

Implementation: A clickable card was used to display each news item. JavaScript was used in this implementation to manage click events and produce the news cards dynamically utilizing API data.

User Experience: Upon clicking a news card, the user was taken to the original website's news piece in its entirety. This gave customers a smooth and simple way to get in-depth news articles without ever leaving the app.

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After working on the News API project, I started a JavaScript e-commerce project. The goal of this project was to provide a fully functional online store where customers could manage their shopping basket, view products, and apply discounts. The application of coupon codes, product display, cart management, user identification, and total amount calculation were among the primary features. With an emphasis on improving user interactions and guaranteeing a flawless shopping experience, the project offered substantial practical expertise in front-end development.

Sections I Worked On

Product Display

- **Product Listing:** Developed dynamic product listings that were shown on the website by retrieving product information from an API or database.

- **Product Details:** Detailed information on each product, including pictures, descriptions, and costs, were supplied on separate product detail sites.

Cart Management

- **Add to Cart:** Made it possible for customers to quickly add items to their shopping carts, complete with real-time updates.

- **Modify Quantity**: A feature was created to enable customers to modify the number of items in their cart, automatically taking into account variations in the overall cost.

- **Remove goods**: Users now have the option to take goods out of their carts, which modifies the cart total.

Coupon Code Application

- **Coupon Validation**: To make sure that only legitimate codes were accepted, coupon code validation was implemented.

- **Discount Calculation**: Logic was developed to apply discounts in accordance with the coupon code, and the total cost in the cart was recalculated to account for the discount.

Total Amount Calculation

- **Subtotal Calculation**: Based on the items and amounts in the cart, the subtotal was determined.

- **Discount Application**: Apply any available discounts to the subtotal when applying a discount.

- **Final Total:** After deducting coupons, the final total was computed to provide the user with accurate and clear pricing.

Types of Tasks I Was Exposed To

HTML and CSS: These languages were used to structure and style the e-commerce platform, guaranteeing an aesthetically pleasing and user-friendly layout.

JavaScript: Made heavy use of JavaScript to manage user interfaces, dynamic content updates, and general application operations.

The application was made to be fully responsive for the best possible user experience on a range of screens and devices thanks to responsive design.

User Experience (UX) Design

- **Simple Navigation**: The user interface was created to offer simple navigation and a seamless online buying experience.

- **Interactive Elements**: Added features include dynamic cart updates, clickable product cards, and feedback that changes in response to user actions.

Using a full stack approach, I worked on an enhanced version of the E-commerce project after the first one, utilizing React for the front end, Node.js and Express for the back end, and MongoDB for the database. More advanced features like JWT token-based authentication, personalized cart management for each user, and thorough login validation were also part of this project. I also created an admin panel for managing products. The goal of this project was to offer a stable, expandable, and safe platform for online sales.

Sections I Worked On

User Authentication and Authorization

- **JWT Authentication**: To securely manage user sessions and safeguard endpoints, JSON Web Token (JWT) based authentication was implemented.

- **User Registration and Login**: Secure password processing using hashing is one of the developed features for user registration and login.

Cart Management

- **User-Specific Cart**: A mechanism was created to oversee each user's unique cart, enabling users to add, edit, and remove items.

- **Cart Perseverance:** MongoDB was used to store cart data associated with user accounts, ensuring that the status of the cart was maintained between sessions.

- **Quantity Adjustment:** Provided consumers with the option to change the number of products in their cart, updating the total amount.

Admin Panel

- **Product management:** To enable administrators to manage products, an admin interface was created.

- **Add/update products:** Provided admins the ability to upload photos, change product names, descriptions, and prices, as well as add new goods and update current ones.

Data synchronization guaranteed that any modifications made by the administrator appeared instantly on the front end, giving customers access to the most recent product details.

Types of Tasks I Was Exposed To

Frontend Development with React

- **Component-Based Architecture**: To provide a modular and maintainable codebase, reusable React components were built.

- **State management:** The application's state, including the status of user authentication and the contents of the cart, was managed using React hooks and the context API.

- **Routing:** React Router was used to implement client-side routing in order to produce a smooth single-page application experience.

- **Admin Panel Development:** Using React, an admin panel for product management was created that is easy to use.

Using Express and Node.js for Backend Development

- **API Development:** Used Express to create RESTful APIs that manage order processing, user authentication, cart operations, and product data.

- **Implementation of Middleware:** Middleware was created to manage error handling, logging, and authentication.

- **Admin Routes:** These are the routes that are in place for admin-specific features, such adding and changing goods.

Database Management with MongoDB

- **CRUD Operations**: Implemented CRUD operations for managing product and user data in the database.

Hands-On Experience

Advanced Frontend Development

- **React Proficiency**: Acquired a deeper understanding of React, including component lifecycle, state management, and complex hooks.

Scalable Backend Development

- **API Design:** A deeper comprehension of the RESTful design concepts for APIs, encompassing route organization, middleware utilization, and error management.

Task Management

We worked on a Task Master project after finishing the E-commerce project. Creating an admin interface for managers to oversee tasks and staff was part of this project. The administrator has the ability to add tasks, assign tasks to workers, and change the status of tasks (assigned, pending, or completed). React, TypeScript, and Material-UI were utilized in the frontend development process. Azure DevOps was utilized for code management and teamwork. Specifically, My specific responsibilities included creating the employee form, connecting the employee form to the API, and implementing toast messages to display the success or error status of task-related actions.

Sections I Worked On

Employee Form Development

- **Form Creation:** React and Material-UI were used in the design and implementation of the employee form to guarantee an approachable and user-friendly user interface.

API Integration

- **API Connection:** The backend API and the employee form were integrated.

Toast Message Display

- **Toast Messages**: Added toast notifications to let users know in real time whether employee-related actions, such hiring a new employee, were successful or unsuccessful.

Types of Tasks I Was Exposed To

Frontend Development with React and TypeScript

- **Component-Based Architecture:** Utilizing TypeScript and React, reusable and modular components were created to enhance scalability and maintainability.

- **TypeScript Integration**: Strong and error-free code was produced by utilizing TypeScript for type safety and enhanced code quality.

- **Material-UI:** Made use of Material-UI to create user interfaces that are both aesthetically pleasing and responsive.

Backend Integration

- **API**: RESTful APIs were used to retrieve and submit data, enabling smooth front-end and back-end communication.

- **Asynchronous Data Handling**: Effective data flow and state management were ensured by using React hooks to manage asynchronous processes.

Collaboration and Version Control

- **Teamwork:** I collaborated with my teammates, taking part in code reviews and adding to the project's general progress.

- **Azure DevOps:** Used Azure DevOps for collaborative development processes and code management, including version control.

Hands-On Experience

TypeScript Proficiency

- **Type Safety:** I've become more adept at using TypeScript for code dependability assurance and type checking.

- **React integration:** I improved my knowledge of designing type-safe components and hooks, as well as integrating TypeScript with React.

API Integration and Asynchronous Handling

- **API Connections:** Gained a deeper comprehension of performing CRUD operations and coupling frontend forms to backend APIs.

Azure DevOps Integration

- **Version Control:** Acquired expertise in branch, commit, and merge management using Azure DevOps.

Using React, TypeScript, and Material-UI to create a sophisticated admin interface with cutting-edge features was a useful experience gained from the Task Master project. My contributions improved my frontend development, API integration, and user experience design skills. Specifically, I created the employee form, integrated it with the backend API, and implemented toast notifications for task-related tasks. Using TypeScript also helped me write more dependable and high-quality code, and working with Azure DevOps gave me insights into efficient code management and teamwork techniques. I now have the skills and knowledge necessary to manage challenging web development projects and produce effective, user-friendly applications thanks to this project.

I contributed to the NBLY Data Migration project. Data had to be manually transferred from a previous system to a new one for this project. To guarantee that all previous data was correctly moved and available in the new system, this work was essential. This project offered the chance to practice dealing with clients in addition to its technical responsibilities.

Automation of Data Migration

- **Script Development:** By creating and executing scripts to move data to the new system, the manual migration process was automated.
- **Efficiency and Accuracy:** Made sure the automated scripts improved the migration process's efficiency and accuracy.

Client Interaction and Meetings

- **Client Meetings:** To discuss migration progress, resolve issues, and gather needs, I took part in regular meetings with clients.

- **Incorporating Client comments:** To meet the expectations and requirements of the clients, we actively listened to their comments and included it into the migration process.

Ideathon - Hackathon

During my internship at ZapCom, We had the exciting opportunity to participate in an Ideathon event. This event challenged us to brainstorm and pitch innovative ideas. We actively participated in this collaborative process, contributing our skills and ideas.

Following a successful pitch, our team's concept was shortlisted for the next round – a Hackathon. This intensive competition pitted the top teams against each other in a race to develop and present a fully functional solution based on the proposed idea.

The Hackathon involved a talented pool of participants, and I'm proud to report that our team secured the second-place position. Our topic focused on the travel and hospitality industry, and my specific contribution involved frontend design. I leveraged my design skills to create a user-friendly and visually appealing interface that effectively communicated the functionalities of our proposed solution.

This participation in the Ideathon and Hackathon not only reflects my design abilities but also demonstrates my ability to adapt, collaborate, and thrive in a competitive and fast-paced environment.

CHAPTER 3: LEARNINGS

Improved Knowledge of Asynchronous Programming: Using APIs required a thorough understanding of JavaScript's asynchronous programming ideas, particularly the use of Promises and the Fetch API. My capacity to handle asynchronous processes and effectively manage data flows has greatly increased as a result of this experience.

Using React, Node.js, Express, and MongoDB on a full stack E-commerce project was an extensive learning experience that greatly improved my technical proficiency throughout the web development stack. I became more adept at using React to create modular and scalable frontend components, efficiently managing state, and putting advanced client-side routing into practice. I gained extensive knowledge of secure JWT-based authentication, middleware development, and RESTful API design on the backend. Designing effective schemas, carrying out CRUD activities, and guaranteeing data permanence were all part of my MongoDB expertise. In addition, I became more adept at managing frontend-backend communication, handling mistakes graciously, and designing UI/UX that is responsive and focused on the user.

Material-UI Skill

- **Component Library:** By thoroughly comprehending Material-UI's vast component library, I was able to rapidly create UI components that are aesthetically pleasing, responsive, and accessible.

Theming and Styling: I learned how to use Material-UI theming features to apply uniform styling throughout the application and create personalized themes, which enhances the user experience in general.

Grid System: I developed expertise in creating intricate, responsive layouts that fluidly adjust to various screen sizes utilizing Material-UI's grid system.

TypeScript Integration

- **Type Safety**: Using TypeScript helped me write more type-safe code, which decreased errors and increased the application's dependability. I gained knowledge on how to create interfaces and types that faithfully depict the data structures the project required.

- **Advanced TypeScript capabilities**: Creating more adaptable and reusable components was made easier for me by my increased familiarity with advanced TypeScript capabilities like generics, type unions, and type intersections.

- **React integration**: I became more adept at combining TypeScript and React, handling props and state with appropriate type definitions, and writing more reliable and manageable code.
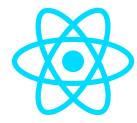
Azure DevOps Integration

- **Version Control:** Gain experience in branch, commit, and merge management using Azure DevOps.

- **Collaboration Tools:** Code reviews, task tracking, and team communication were all done using Azure DevOps collaboration tools.

Using React, TypeScript, and Material-UI to create a sophisticated admin interface with cutting-edge features was a useful experience gained from the Task Master project. My contributions improved my frontend development, API integration, and user experience design skills. Specifically, I created the employee form, integrated it with the backend API,

and implemented toast notifications for task-related tasks. Using TypeScript also helped me write more dependable and high-quality code, and working with Azure DevOps gave me insights into efficient code management and teamwork techniques. I now have the skills and knowledge necessary to manage challenging web development projects and produce effective, user-friendly applications thanks to this project.

Improved my knowledge of the foundations of JavaScript, including ES6+ capabilities, asynchronous programming, and DOM manipulation, resulting in the creation of dynamic and effective web apps.

Developed expertise in utilizing state management, hooks, components, and best practices for scalable and maintainable programs to create interactive user interfaces.

Learned how to create visually appealing, responsive, and accessible user interfaces with a consistent look and feel by using Material-UI.

Gained expertise in utilizing TypeScript for type-safe coding, enhancing the quality of the code, and lowering runtime errors via static type checking.

Gained expertise utilizing Azure DevOps for efficient project management, version control.

CHAPTER 4: CHALLENGES

Managing complicated states was a major difficulty in the e-commerce project, particularly for the shopping cart and user authentication. To keep state changes predictable and debuggable, Redux was used. For a Node.js/Express backend and MongoDB database to integrate seamlessly, a strong API layer and elegant API call handling with Axios were needed. Developing frontend logic for dynamically applying discounts and backend logic for validating coupon codes was necessary to implement a coupon code system that applied discounts and accurately calculated total amounts.

React-built full-stack e-commerce projects brought new levels of complexity. Implementing token storage and refresh procedures was necessary for securely managing user sessions with JSON Web Tokens (JWT). Cart data had to be stored in the database and connected to user accounts in order to guarantee that each user's cart was maintained autonomously and continued between sessions. To enable product addition, updating, and deletion as well as seamless backend integration, an admin panel for product management that is easy to use was developed using Material-UI and React.

Learning React came with a number of obstacles that needed to be solved with tenacity and problem-solving skills. Understanding the basic ideas of React, such as components, state, and props, was one of the first challenges. It took some time and practice to understand how these components work together to create dynamic, reusable user interfaces. It was a big paradigm change to go from thinking in terms of traditional, unified front-end development to a component-based architecture

Learning state management was another difficulty, particularly in complicated systems. Simple scenarios work well with React's built-in state and props, but more intricate

apps require sophisticated state management. It took some time to figure out how to use the Context API for global state management. It took a lot of work to completely comprehend the principles of setting up a context, giving the context value, and consuming it in other components. It required a lot of research and work to figure out how to organize the context logic, control state updates, and make sure the data moves through the program predictably.
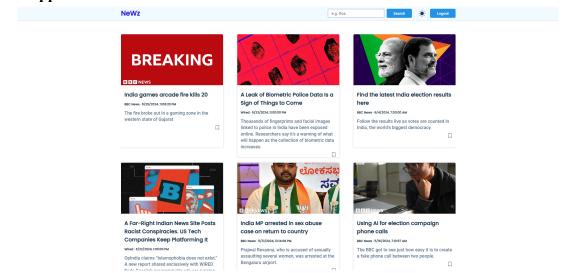
An application's frontend and backend integration presented a number of difficulties that needed careful attention to detail. Creating and describing APIs to enable efficient communication between the frontend and backend was one of the major challenges. This was made simpler by using tools like Swagger and creating thorough API documentation.

Acquiring knowledge about TypeScript posed several difficulties. Knowing the TypeScript type system was one of the first challenges. Though TypeScript is statically typed, unlike JavaScript, variables, function parameters, and return values must all be defined. This necessitated a mental adjustment, particularly for those accustomed to JavaScript's dynamic, flexible typing.
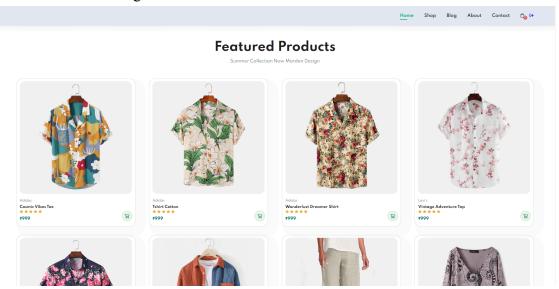
Samples Of the Work Done

News App
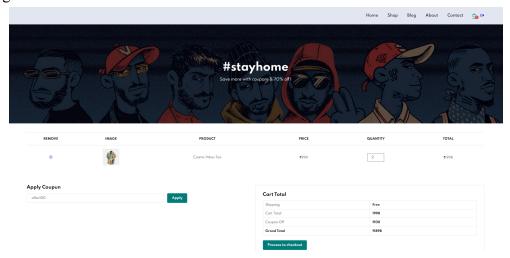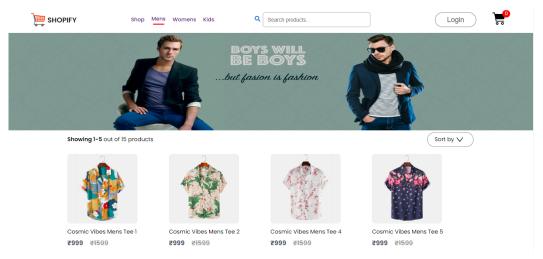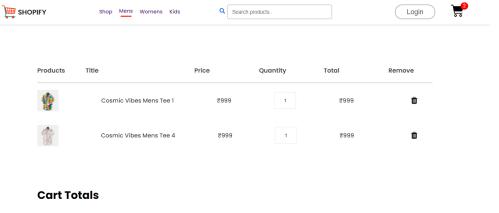

E-commerce - Home Page

Cart Page

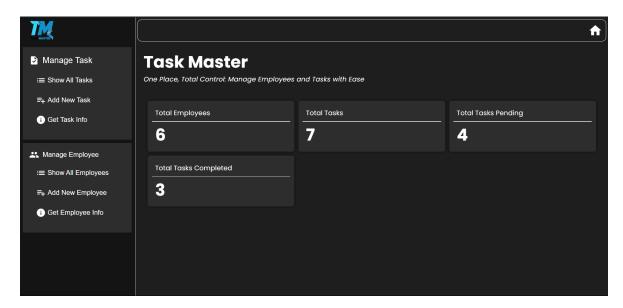E-commerce - React - Mens Section

Add to cart page

TaskMaster - Home Page
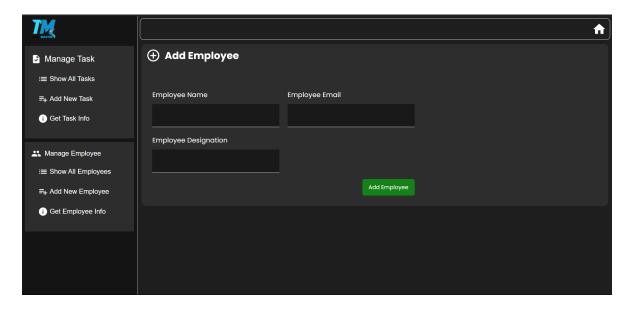

TaskMaster - Add Employee Form

Appendix II

Photos While At Work

Work Place