CHAPTER 1

INTRODUCTION

1.1.Company Profile and Introduction

Web Stack Academy (WSA) is a forward looking EdTech company in the higher education space, founded by seasoned entrepreneurs who have been in the EdTech business for over 18+ years. Its mission is to empower entry level engineering graduates and working professionals with the skills needed to excel in the eve revolving field of web application development. It offers the best online MERN stack course for engineering graduates, equipping them with in demand skills for employability

This report examines the creation and implementation of a cutting-edge food delivery website powered by the MERN (MongoDB, Express.js, React.js, Node.js) stack. In today's dynamic digital sphere, the convergence of technology and food services has reshaped accessibility and convenience. The project's core lies in leveraging the comprehensive capabilities of the MERN stack, a robust amalgamation of MongoDB, Express.js, React.js, and Node.js. This report navigates through the intricacies of the website's architecture, outlining design principles, technological choices, and functionalities aimed at revolutionizing the food delivery experience.

Throughout this comprehensive report, we delve into the project's development journey, dissecting how the MERN stack underpins seamless operations. From user authentication and intuitive interfaces to real time order processing and data management, each aspect is examined to showcase the stack's flexibility, scalability, and efficiency. The analysis also highlights strategic decisions, challenges faced, and methodologies employed to align the project with industry standards and user expectations, emphasizing continual enhancement and iterative development in software design.

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Type of the company: Private

Nature of the company: Information Technology

Company Logo:

1.2.About Software:

- **VS CODE:**

  Visual Studio Code (VS Code) is a free, open-source code editor developed by Microsoft. It supports various programming languages, offers a rich set of extensions, and provides a customizable and efficient environment for coding. With a user-friendly interface and robust features, it has become a popular choice among developers.

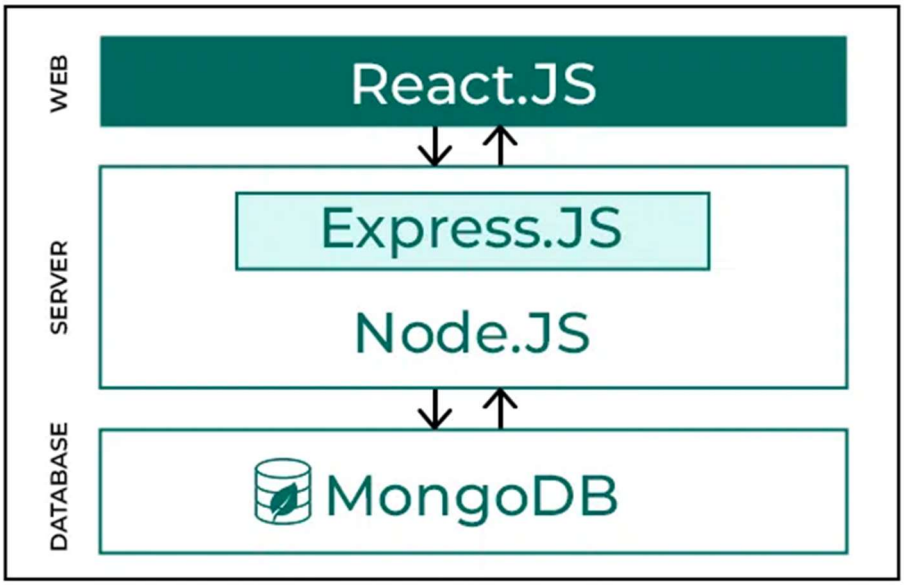

Figure 1.2.1 Mern Stack

- **MongoDB:**

  Cross-platform Document-Oriented Database . MongoDB is a NoSQL database where each record is a document comprising of key-value pairs that are similar to JSON (JavaScript Object Notation) objects. MongoDB is flexible and allows its users to create schema, databases, tables, etc. Documents that are identifiable by a primary key make up the basic unit of MongoDB.

- **Express: Back-End Framework:**

  Express is a Node.js framework. Rather than writing the code using Node.js and creating loads of Node modules, Express makes it simpler and easier to write the back-end code. Express helps in designing great web applications and APIs.

- **React: Front-End Library**

  React is a JavaScript library that is used for building user interfaces. React is used for the development of single-page applications and mobile applications because of its ability to handle rapidly changing data. React allows users to code in JavaScript and create UI components.

- **Node.js: JS Runtime Environment**

  Node.js provides a JavaScript Environment which allows the user to run their code on the server (outside the browser). Node pack manager i.e. npm allows the user to choose from thousands of free packages (node modules) to download.

CHAPTER 2

About The Department/Team Where The Internship Was Done

WSA Leadership Team

WSA executive management leadership team consists of veterans who have a long term vision of making a positive impact in the way education is delivered in the country. Our WSA executive management leadership team brings solid cross-functional and deep domain expertise that makes us unique in the education industry.

Maaz Jukaku
Managing Director

Jayakumar Balasubramanian
Director

Mubeen J
Technical Head

CHAPTER 3

SCOPE OF THE PROJECT

1. Introduction

The Food Delivery App aims to provide a convenient and efficient platform for users to order food from local restaurants, ensuring a seamless experience from restaurant discovery to doorstep delivery.

2. Objectives

The primary objectives of the Food Delivery App include:

- Simplifying the food ordering process.
- Enhancing the user experience for both customers and restaurants.
- Offering a reliable and timely food delivery service.

3. Core Features

3.1 Customer-Facing Application:

3.1.1 Restaurant Search and Discovery:

- Intuitive search functionality for finding local restaurants.
- Filters for cuisine types, ratings, and proximity.

3.1.2 Menu Browsing and Customization:

- Detailed restaurant menus with images and descriptions.
- Customizable order options and special requests.

3.1.3 User Accounts and Profiles:

- User registration and authentication.
- User profiles for order history, preferences, and loyalty rewards.

3.1.4 Shopping Cart and Checkout:

- Easy-to-use shopping cart for adding and reviewing items.
- Secure and streamlined checkout process.

3.1.5 Real-Time Order Tracking:

- Live tracking of order status, from preparation to delivery.
- Notifications for order confirmation, dispatch, and arrival.

3.1.6 Reviews and Ratings:

- Customer reviews and ratings for each restaurant.
- Feedback system for improving service quality.

3.1.7 Secure Payment Gateway:

- Integration with trusted payment gateways for secure transactions.
- Support for various payment methods, including credit cards and digital wallets.

3.1.8 User Support and Help Center:

- In-app customer support chat or contact options.
- Help center with FAQs and guides.

3.2 Restaurant Management Portal:

3.2.1 Restaurant Registration and Onboarding:

- Seamless onboarding process for restaurants to join the platform.
- Verification and approval system.

3.2.2 Menu Management:

- Intuitive dashboard for restaurant owners to manage menus.
- Real-time updates and item availability control.

3.2.3 Order Processing and Notifications:

- Order notification system for restaurant staff.
- Tools for tracking and managing orders.

3.2.4 Restaurant Analytics:

- Insights into order trends, popular items, and customer feedback.
- Reports for performance evaluation.

CHAPTER 4
RELATED WORK AND IMPACT

1. Uber Eats:
   - Features: Intuitive restaurant search, real-time order tracking, and a user-friendly interface.
   - Impact: Transformed the food delivery industry by offering a seamless app experience for both customers and restaurants.

2. DoorDash:
   - Features: Advanced delivery logistics, customer reviews, and a comprehensive restaurant selection.
   - Impact: Established a significant presence in the market through effective full stack development, focusing on user satisfaction and restaurant partnerships.

3. Grubhub:
   - Features: Extensive restaurant database, order customization, and loyalty programs.
   - Impact: Pioneered online food delivery, setting industry standards with a robust full stack web application.

4. Zomato:
   - Features: Social elements, restaurant reviews, and diverse payment options.
   - Impact: Expanded globally, offering a multifaceted platform that combines food discovery and delivery.

5. Postmates:
   - Features: On-demand delivery, a wide range of cuisine options, and subscription services.
   - Impact: Contributed to the gig economy, providing flexible opportunities for delivery personnel.

Impact of Full Stack Web Development in Food Delivery Apps

1. Enhanced User Experience:
   - Impact: Users can easily discover, order, and track their meals, contributing to increased customer satisfaction.

2. Efficient Order Processing:
   - Impact: Full stack development streamlines the entire process, from order placement to delivery, reducing wait times and enhancing efficiency.

3. Real-time Tracking:
   - Impact: Real-time tracking features have redefined transparency, offering users and delivery personnel instant visibility into order status.

4. Payment Security:
   - Impact: Secure payment gateways ensure trust and convenience, enabling users to make transactions confidently.

5. Data Analytics for Business Insights:
   - Impact: Full stack development allows for the implementation of robust analytics, providing valuable insights for both app operators and restaurants.

6. Global Market Penetration:
   - Impact: Full stack web development has facilitated the global expansion of food delivery apps, connecting users with local and international cuisines.

7. Restaurant Empowerment:
   - Impact: Restaurants benefit from user-friendly management portals, enabling them to update menus, track orders, and gain insights into customer preferences.

8. Job Creation in the Gig Economy:
   - Impact: The gig economy has flourished as a result of these apps, offering flexible job opportunities for delivery personnel.

9. Community Engagement:
   - Impact: Social features and customer reviews foster community engagement, contributing to a vibrant and interactive platform.

CHAPTER 5

TASK PERFORMED

All the tasks performed during the internship program were based on Full Stack Web Development. The trainer had assigned a project which would prove to be quintessential for industry standards and understanding the technology easily.

5.1 PROJECT INTRODUCTION

Project Introduction: MERN Stack Food Delivery App

Background:

The growing demand for online food delivery services underscores a shift in consumer behaviour towards convenience. Our project focuses on tapping into this trend by developing an advanced Food Delivery App using the MERN (MongoDB, Express.js, React, Node.js) stack. This technology stack, renowned for its adaptability and scalability, positions us to create a cutting-edge platform in the competitive food delivery market.

Objectives:

1. Streamlined User Experience: Develop an intuitive interface for customers, ensuring a seamless and enjoyable ordering process.
2. Efficient Restaurant Management: Provide a comprehensive portal for restaurants to effortlessly manage menus, track orders, and optimize their presence on the platform.
3. Real-time Order Tracking: Implement a real-time tracking system, enhancing transparency and keeping users informed about their orders.
4. Secure and Convenient Transactions: Integrate trusted payment gateways for smooth and secure transactions, fostering trust among users.
5. Scalability and Performance: Utilize the scalability of the MERN stack to accommodate the platform's growth, ensuring optimal performance as the user base expands.

Technology Stack: MERN

- MongoDB: NoSQL database for flexible and scalable data storage.
- Express.js: Robust web application framework for server-side development.
- React: Powerful front-end library for building dynamic user interfaces.
- Node.js: Server-side JavaScript runtime for scalable and high-performance applications.

Project Scope:

1. Customer-Facing Application:
   - Intuitive restaurant search and discovery.
   - Real-time order tracking.
   - Secure payment gateway integration.

2. Restaurant Management Portal:
   - Streamlined menu management.
   - Order processing and tracking tools.

Prerequites For MERN Stack:

- HTML
- CSS
- JAVASCRIPT(NODE.JS,REACT.JS)
- MONGODB
- EXPRESJS
- KNOWLEDGE OF DATABASE
- API AND WORKING

5.2 Introduction To MERN Stack:

HTML:

1. Document Structure:
   - Basic structure of an HTML document.
   - Use of tags, elements, and attributes.

2. Elements and Tags:
    - Common elements (headings, paragraphs, lists, links, images).
    - Purpose and usage of HTML tags.

3. Document Metadata:
    - Use of metadata elements (<head>, <title>, <meta>, <link>).

4. Forms:
    - Role of HTML forms in user input.
    - Different form elements (<input>, <select>, <textarea>).

5. HTML5 Features:
    - New features in HTML5 (semantic elements, multimedia elements, <canvas>).

6. Accessibility:
    - Importance of creating accessible HTML content.
    - Semantic HTML elements for better accessibility.

7. Best Practices:
    - Recommendations for clean and maintainable HTML code.
    - Importance of following web standards.

8. Responsive Web Design:
    - Role of HTML in creating responsive web designs.
    - Discussion on media queries and viewport settings.

9. HTML and CSS Integration:
    - Relationship between HTML and CSS.
    - How CSS is used to style HTML elements.

10. Validation and SEO:
    - Importance of validating HTML code.
    - HTML's impact on search engine optimization (SEO).

11. Future Trends:
    - Touch on emerging trends in HTML and web development.

CSS:

1. Introduction to CSS:
    - Role in controlling the presentation and layout of HTML.
    - Separation of content from design.

2. Basic Syntax:
    - Selectors targeting HTML elements.
    - Declarations defining styling rules.

3. Selectors, Properties, and Box Model:
    - Various selectors and common properties.
    - Fundamental understanding of the CSS box model.

4. Responsive Design:
    - CSS's role in responsive web design.
    - Use of media queries for adapting layouts.

5. Frameworks, Libraries, and Preprocessors:
    - Overview of CSS frameworks (e.g., Bootstrap).
    - Introduction to preprocessors like Sass and Less.

6. Best Practices:
    - Adherence to best practices for clean and efficient CSS.
    - Considerations for consistent naming and proper indentation.

7. Browser Compatibility:
    - Strategies for achieving consistent rendering.
    - Use of vendor prefixes and compatibility testing.

React:

1. Introduction to React:
   - JavaScript library for interactive user interfaces.
   - Component-based architecture and efficient rendering.

2. Basic Concepts:
   - Components, JSX, Virtual DOM, and Single-Directional Data Flow.
   - Unidirectional data flow simplifying data management.

3. Component-Based Architecture:
   - Reusable and modular components.
   - Encapsulation of visual and functional aspects.

4. JSX, State, Props, and Lifecycle:
   - JSX for concise UI definition.
   - Stateful components, props, and lifecycle methods.

5. Hooks, Routing, and State Management:
   - Introduction to hooks (e.g., useState, useEffect).
   - React Router for client-side routing.
   - Options for state management (local state, context API, Redux).

6. Testing, Best Practices, and Performance Optimization:
   - Importance of testing in React.
   - Best practices, patterns, and performance optimization techniques.

Node.js and Express.js:

1. Introduction to Node.js:
   - JavaScript on the server side.
   - Asynchronous I/O model for scalability.

2. Key Features and NPM:
    - Asynchronous I/O for responsiveness.
    - NPM for package management and efficiency.

3. Node.js Core Modules and Introduction to Express.js:
    - Essential core modules (e.g., http, fs).
    - Express.js as a minimalist web application framework.

4. Express.js Features:
    - Routing, middleware, templating engines.
    - RESTful API development and database integration.

5. Express.js Middleware, Routing, and Error Handling:
    - Chain of functions for request-response cycle.
    - Logical routing for clean and organized code.
    - Error handling mechanisms for reliability.

MongoDB:

1. Introduction:
    - Document-oriented NoSQL database system.
    - Flexibility, scalability, and ease of use.

1.2.Key Features and Data Model:
    - Document-oriented structure.
    - BSON format and various indexing options.

1.3.Querying, Aggregation, and Scaling:
    - Powerful query language.
    - Aggregation framework for server-side data processing.
    - Horizontal scaling for improved performance.

1.4.Security Features:
    - Authentication and authorization.
    - TLS encryption for secure data transmission.

FUNCTIONAL MODULES:

1) REGISTER AND LOGIN MODULE

2) FOOD CATEGORY : ADD CATEGORY, DELETE CATEGORY, VIEW CATEGORY

3) FOOD MODULE : ADD FOOD, UPDATE FOOD, DELETE FOOD, VIEW FOOD,SEARCH FOOD

4) CART MODULE : ADD TO CART, DELETE TO CART , VIEW CART

5) ORDER MODULE : ADD ORDER, VIEW ORDERS,CONFIRM ORDER

6) DELIVERY MODULE : ADD DELIVERY DETAIL,VIEW DELIVERY DETAIL

5.3 Code Snippet:

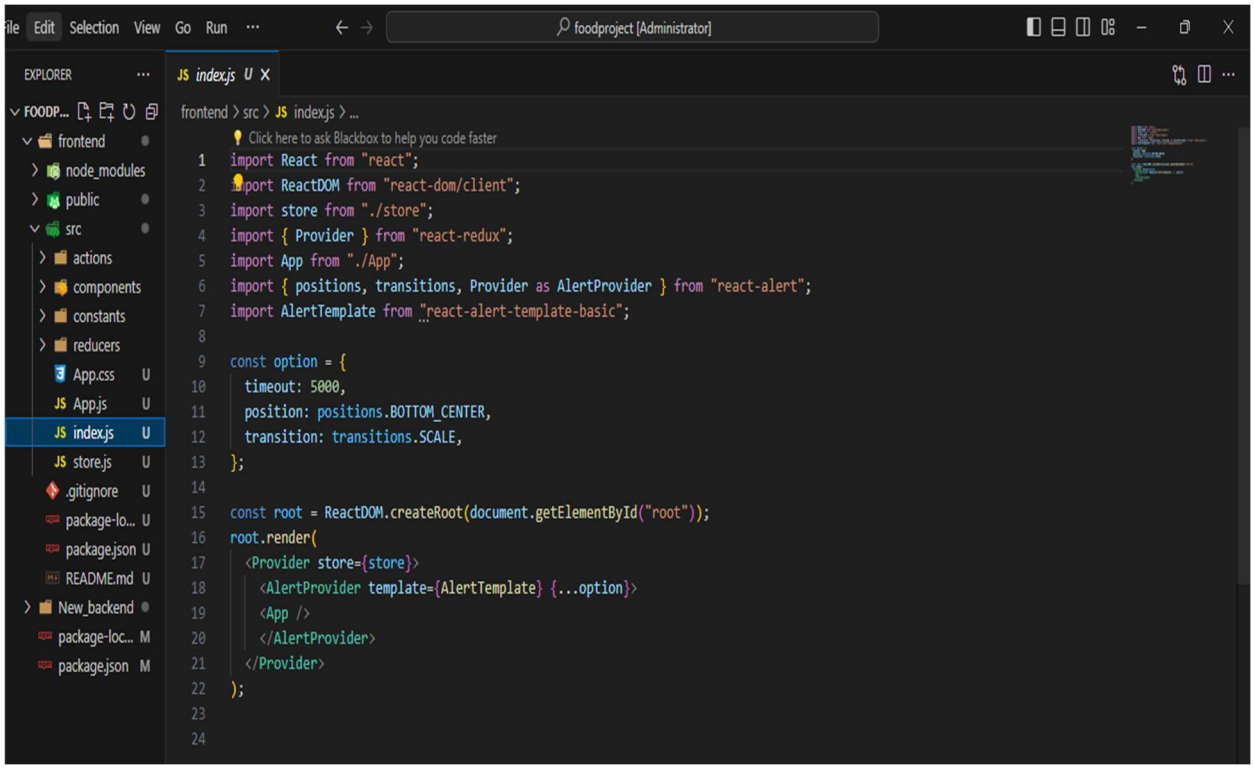

Figure 5.3.1 Snapshot of Front-end Code

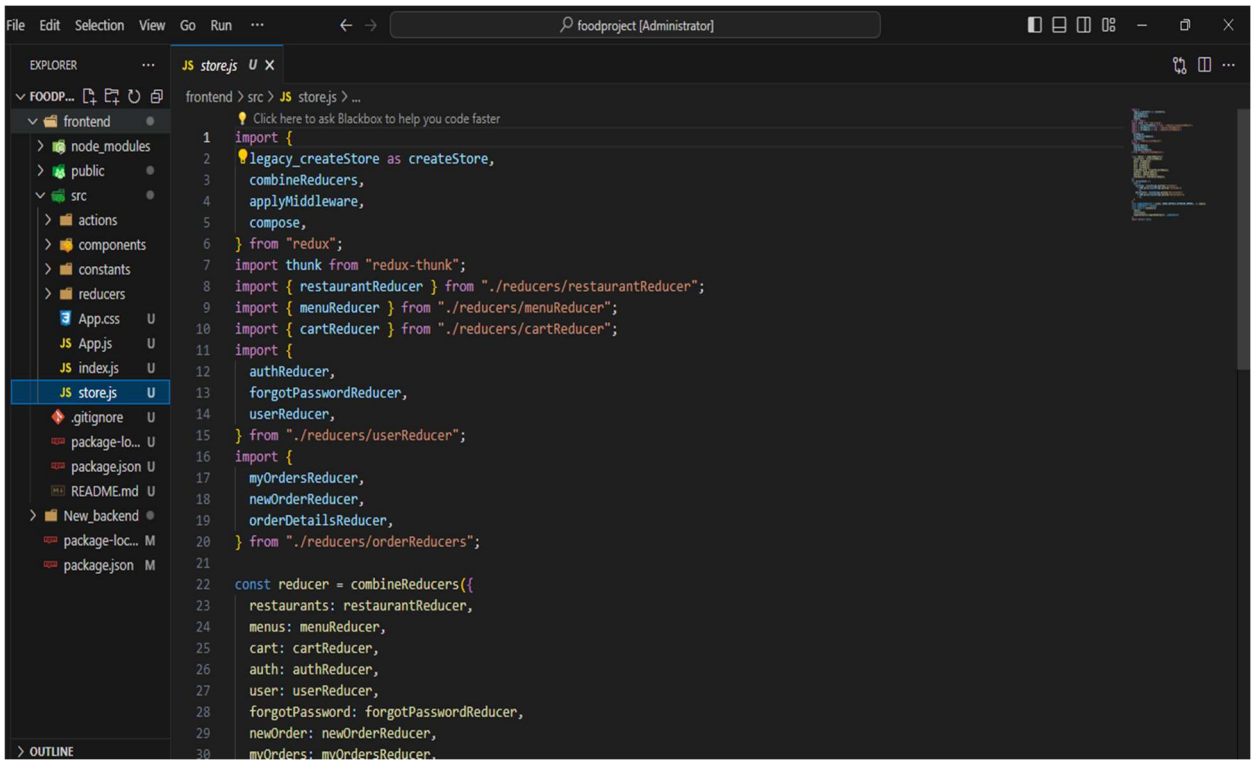

Figure 5.3.2 Snapshot of Front-end Code

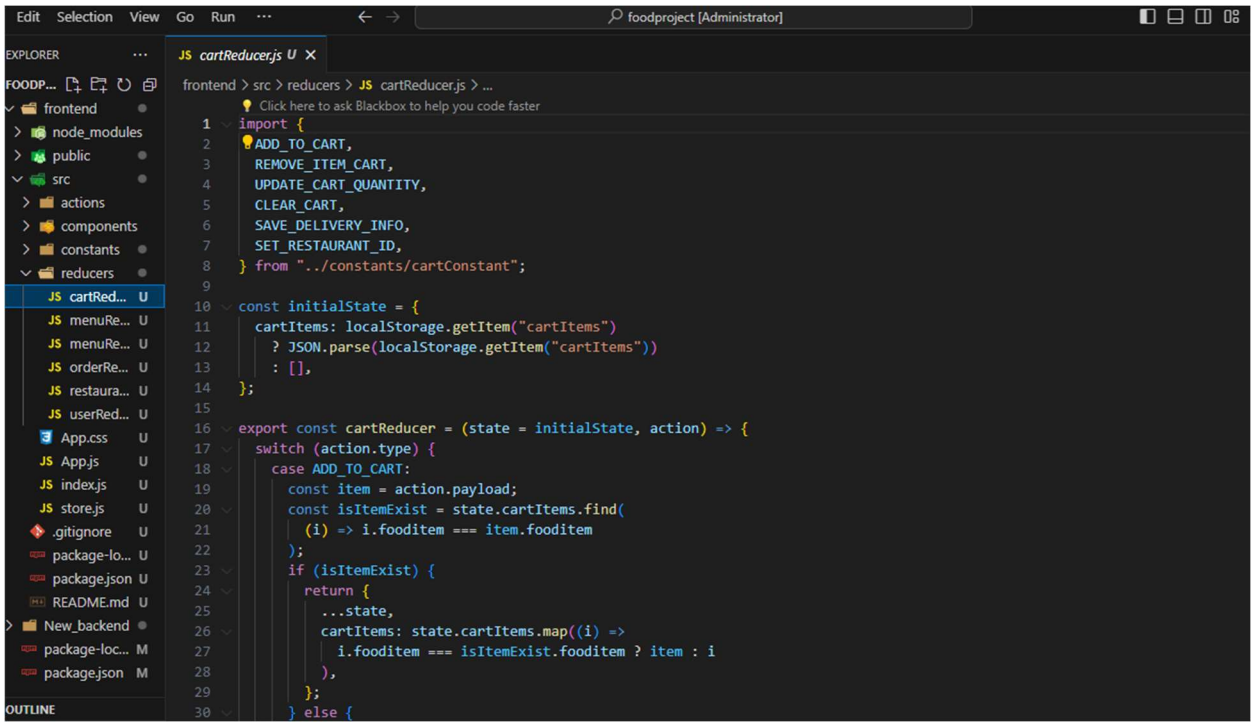

Figure 5.3.3 Snapshot of Front-end Code.

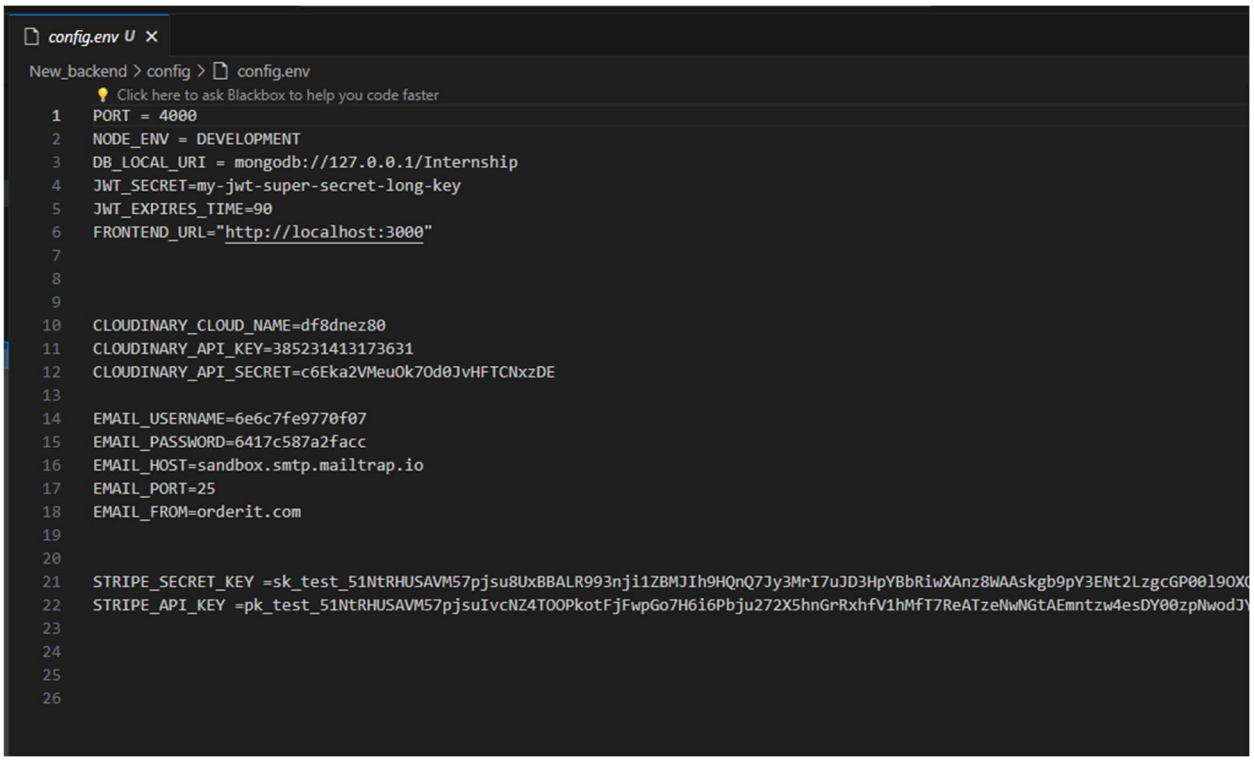

Figure 5.3.4 Snapshot of Backend Api

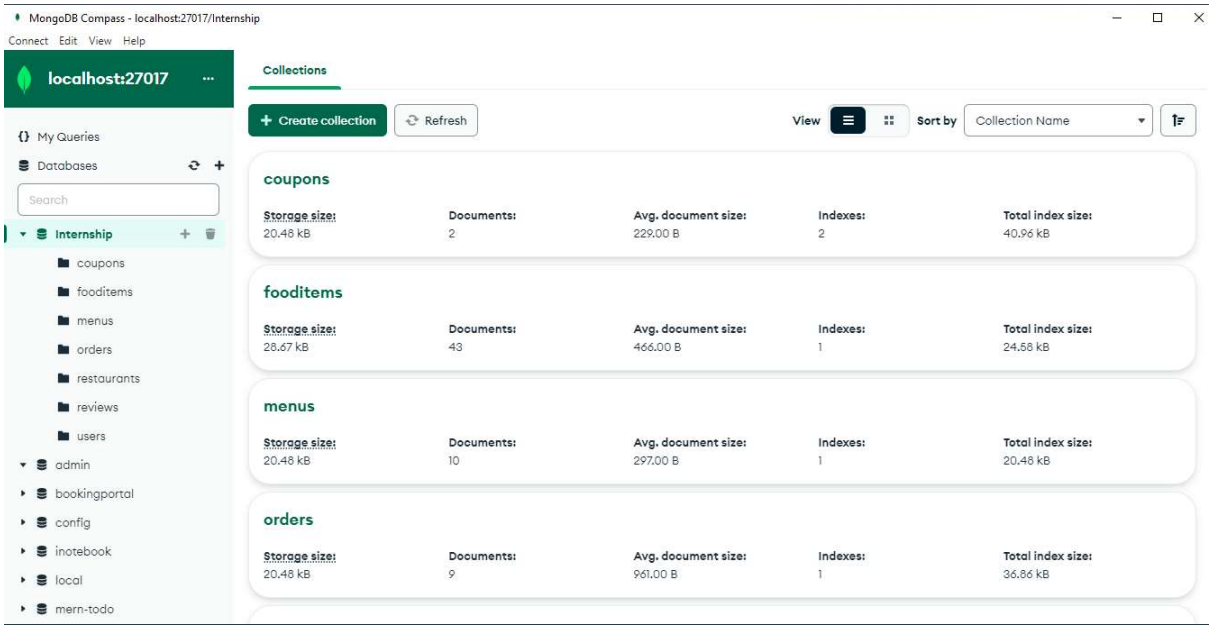

Figure 5.3.5 Snapshot of Database

5.4 Output:

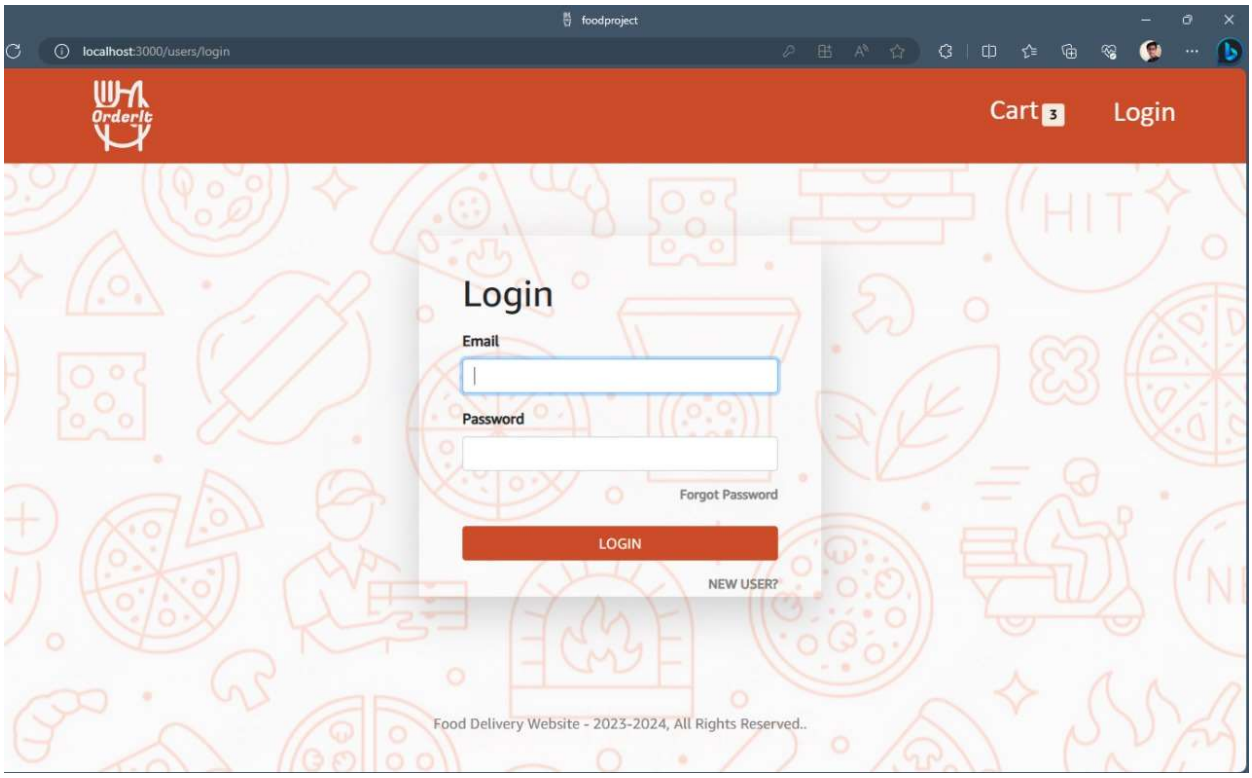

Figure 5.4.1 Snapshot of Login page.

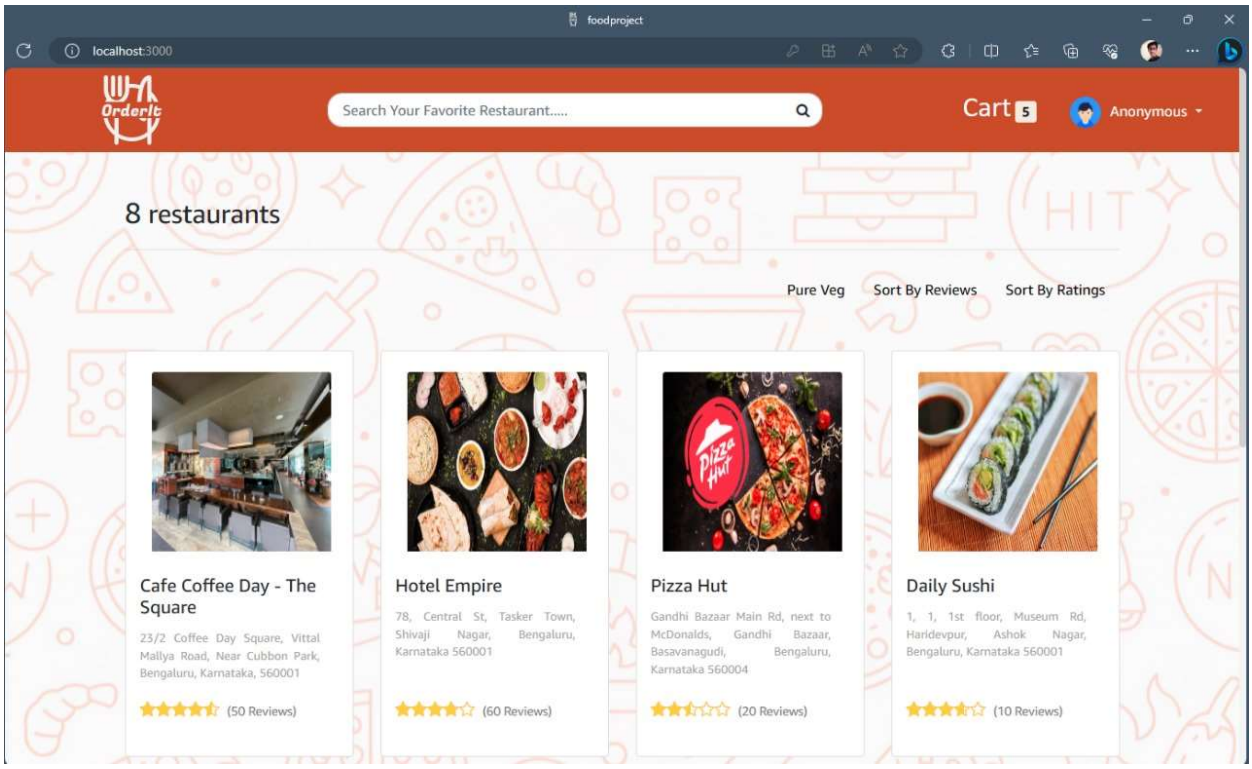

Figure 5.4.2 Home page of food delivery website.

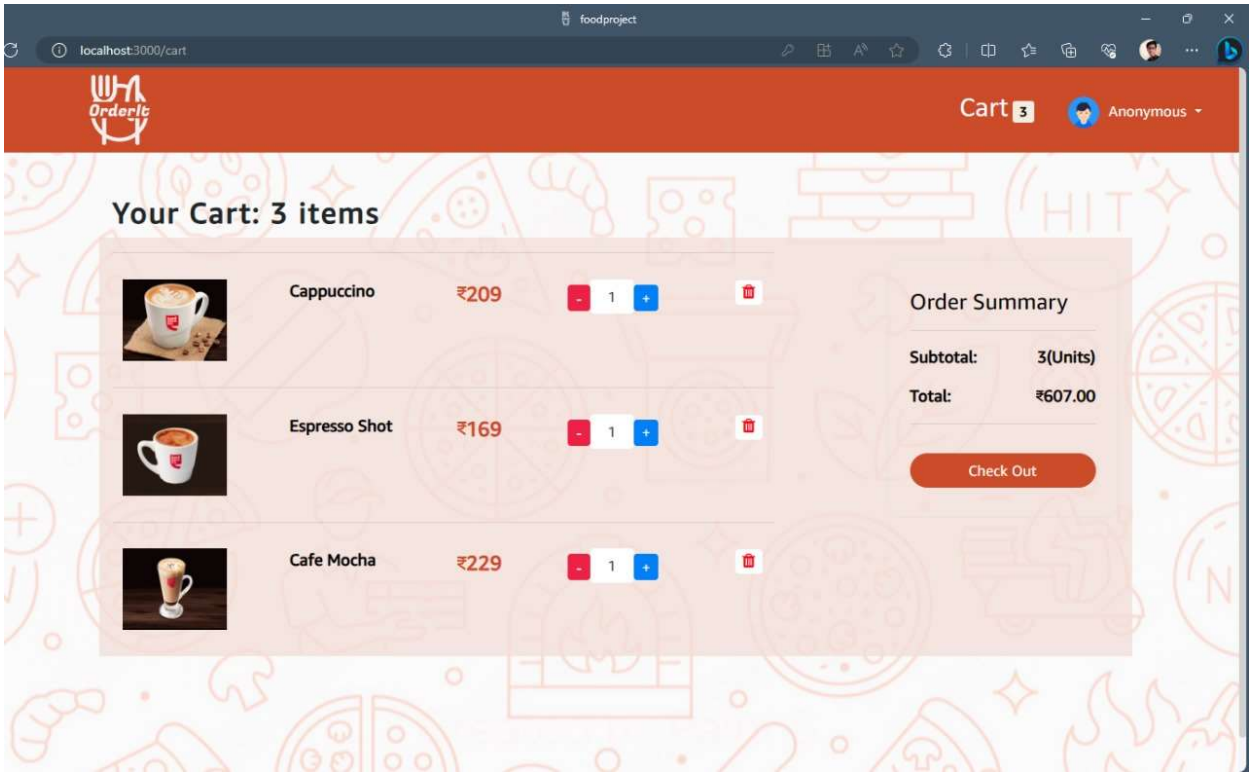

Figure 5.4.3 Snapshot of Cart page.

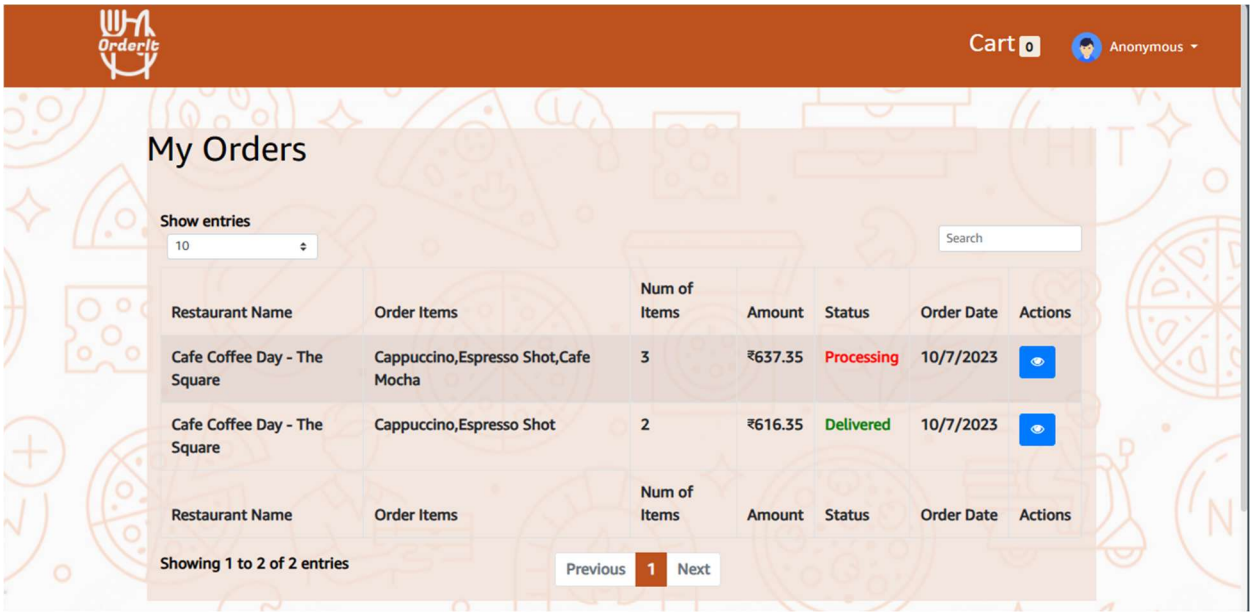

Figure 5.4.4 Snapshot of MY Orders page.

CHAPTER 6

Outcome Of The Internship And Impact Analysis

Gained knowledge on MERN(Mongo DB, Express, React , Node) , hands on experience on project, Error decoding skills , Internships yield valuable outcomes that significantly contribute to an individual's professional development. Throughout an internship, participants acquire practical, hands-on experience in a real-world work environment, applying theoretical knowledge gained from academic studies. Engaging in tasks and projects relevant to their field of study, interns enhance their technical skills, problem-solving abilities, and industry-specific knowledge.

Furthermore, internships foster the development of crucial soft skills, including communication, teamwork, and time management, as interns collaborate with professionals in their chosen field. Exposure to workplace dynamics provides interns with a deeper understanding of industry practices, professional etiquette, and the expectations of their chosen career path. Importantly, successful internships often lead to increased confidence and a clearer sense of one's professional goals, establishing a foundation for a successful transition from academic settings to the workforce. Additionally, positive internship experiences can result in valuable networking opportunities, mentorship connections, and potentially open doors to future employment within the industry.

CHAPTER 7

CONCLUSION

Developed a food delivery app, gaining hands-on experience in backend, frontend, and database integration. Implemented essential extensions for enhanced functionality, ensuring seamless connection between frontend, backend, and the database. Improved project management skills through effective task planning, version control using Git, and collaborative teamwork. Fostered a continuous learning mindset to tackle evolving technological challenges, honing problem-solving and debugging skills in the process.

CHAPTER 8

REFERENCES

- MERN Stack - GeeksforGeeks
- https://www.w3schools.com/html/
- CSS Navigation Bar (w3schools.com)
- React Tutorial (w3schools.com)
- WSA Learning Management System: Log in to the site (webstackacademy.com)