

**FOODU A WEB BASED ONLINE FOOD ORDERING APPLICATION
BY**

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This Report Presented in Partial Fulfillment of the Requirements for the
Degree of Bachelor of Science in Computer Science and Engineering.

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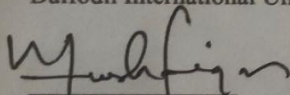
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This Project titled "FOODU A WEB BASED ONLINE FOOD ORDERING APPLICATION ", submitted by Md. Al-Amin Parves and to the Department of Computer Science and Engineering, Daffodil International University, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on 15/07/2024.

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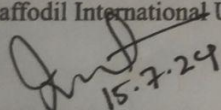
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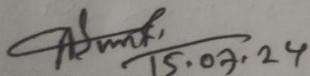
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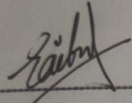
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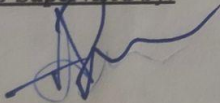
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ABSTRACT

FOODU, a MERN stack web application created for the final year project at DIU, introduces a transformative approach to food ordering within the university setting. By allowing users to place advance orders, the system ensures that individuals can secure their meals before potential shortages occur. Simultaneously, shop owners benefit from the ability to prepare food based on incoming orders, thereby minimizing excess and reducing overall food wastage. One of the notable features of FOODU is its commitment to real-time updates, ensuring that the menu remains current and responsive. This dynamic approach not only enhances the user experience but also contributes to the establishment of a highly organized and efficient food management system. FOODU is not just a technological solution. It represents an innovative initiative to create a sustainable and well-coordinated food ecosystem within the university. By addressing immediate concerns related to food access and waste, the application aims to bring about positive changes that extend beyond the digital realm, fostering a more thoughtful and environmentally conscious approach to food management.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

In response to the dynamic and bustling environment of university life, our final year project, FOODU, emerges as a transformative solution tailored to the specific needs of Daffodil International University (DIU). FOODU, a sophisticated food ordering web application, aims to revolutionize the dining experience on campus by introducing a seamless and efficient system. DIU's goal is to train IT professionals in the use of computers and computational techniques in order to develop effective information systems to solve real-world problems in organizational areas. The project assists in understanding the working environment in real life. Through this project, students can become more efficient in an ever-changing technological world. Understanding such an organization's functional and operational mechanisms is helpful to me. The applicant may be adequately equipped for the internship programme. Through this project, students will be able to evaluate and synthesize what they have learned throughout the semester and produce original work in any area of information technology and business administration that interests them. It's a chance to expand your network and improve your public relations. To solve any problem, critical thinking skills are beneficial. As a result, it is crucial that the students complete this project in order to experience the workplace and further their own communication skills. The core objective of FOODU is to address the challenges associated with conventional food ordering processes. By allowing users to place orders in advance, we seek to alleviate the common inconvenience of long queues and ensure that individuals can retrieve their meals promptly, mitigating the risk of food shortages. This innovative approach not only enhances the overall efficiency of the dining process but also provides a convenient solution for the time-conscious university community. Recognizing the pivotal role of food vendors in this ecosystem, FOODU facilitates a streamlined order fulfillment process. Shop owners can now prepare meals according to incoming orders, reducing the likelihood of excess food waste and contributing to a more sustainable and cost-effective operation. This collaborative approach fosters a symbiotic relationship between consumers and vendors, creating a win-win scenario for both parties. FOODU prioritizes real-time updates, enhancing the user experience and vendor

management efficiency, resulting in a synchronized system that minimizes discrepancies and ensures a smooth food ordering process. FOODU offers a discount and promotion system to cater to diverse user needs, foster community and affordability on DIU campus, enhance user engagement, and promote inclusivity. In essence, FOODU represents a holistic solution designed to optimize the food ordering experience at Daffodil International University. By addressing the practical challenges associated with on-campus dining, we aspire to contribute to a more organized, sustainable, and enjoyable university environment.

1.2 Motivation

The FOODU web application was developed for Daffodil International University's final year project to address challenges in on-campus food ordering systems, such as long queues and excess food waste. Recognizing the need for a more streamlined and user-centric approach, we were inspired to create FOODU. The core motivation lies in providing a solution that not only enhances the convenience and efficiency of the food ordering process for students and faculty members but also addresses the operational challenges faced by food vendors on campus. The concept of ordering meals in advance not only caters to the time constraints of our university community but also aims to eliminate the uncertainty associated with food availability. By enabling users to secure their meals ahead of time, we aspire to create a more organized and predictable dining experience. The integration of real-time updates for menu items serves a dual purpose. It ensures that users have accurate and up-to-date information about available dishes, enhancing their overall experience. Simultaneously, it assists food vendors in managing their inventory effectively, reducing the likelihood of over-preparation and subsequent food waste. In our pursuit of a holistic and inclusive solution, we sought to address the financial aspect of dining on campus. The introduction of various discounts and promotions for special buyers aims to make meals more affordable while fostering a sense of community within the university.

Ultimately, the motivation behind FOODU is to contribute to a more efficient, sustainable, and user-friendly food ordering ecosystem at DIU. By leveraging technology to streamline operations and enhance the overall experience for both consumers and vendors, we aim to create a positive impact on the daily lives of our university community. FOODU represents not just a web application but a solution born out of a genuine desire to improve the dining experience and promote efficiency within the university environment.

1.3 Objectives

The objectives of the FOODU web application project are multi-faceted and aimed at addressing key challenges in the current on-campus food ordering system. Here are some objectives of FOODU project are as follows:

Optimizing the Ordering Process: The primary objective of the FOODU web application is to streamline the food ordering process at Daffodil International University (DIU). By allowing users to place orders in advance, the system aims to reduce wait times and ensure that individuals can access their meals efficiently, mitigating the risk of food shortages.

Reducing Food Wastage: A key focus is on minimizing excess food wastage by enabling shop owners to prepare meals based on incoming orders. This objective contributes to a more sustainable and cost-effective operation for vendors while addressing environmental concerns related to food wastage on campus.

Real-time Menu Updates: Ensuring that all menu items are kept real-time updated is a crucial objective. This feature enhances the user experience by providing accurate information about available dishes. Simultaneously, it assists food vendors in managing their inventory effectively, promoting a well-coordinated and synchronized system.

Enhancing Operational Efficiency for Vendors: The application aims to improve the overall operational efficiency for food vendors on campus. By allowing them to prepare food based on orders, it optimizes the use of resources and minimizes unnecessary food preparation, contributing to a more organized and efficient system.

Promoting Affordability through Discounts: Incorporating various discounts and promotions for special buyers is an objective aimed at fostering a sense of community and affordability within the DIU campus. This inclusivity feature makes the dining experience more accessible and enjoyable for a diverse range of users.

Creating a User-friendly Experience: A fundamental goal is to design a user-friendly interface that enhances the overall experience for both consumers and vendors. The application should be intuitive, easy to navigate, and provide a seamless process for placing and fulfilling food orders.

Contributing to a Positive Campus Environment: The broader objective is to contribute to a positive and organized campus environment by addressing the practical challenges associated with on-campus dining. FOODU aims to create a system that enhances the quality of life for the university community, both in terms of convenience and sustainability.

Overall, the primary objective is to create a user-friendly, efficient, and sustainable food ordering system that addresses the practical challenges associated with on-campus dining at DIU. The successful implementation of these objectives is expected to contribute to a positive and streamlined experience for both consumers and food vendors within the university community.

1.4 Expected Outcomes

The anticipated outcomes for the FOODU web application project at DIU are diverse and aim to address key aspects of the on-campus food ordering system.

- The DIU community is set to experience a more efficient food ordering process, enabling users to place orders in advance and reducing wait times.
- Shop owners can reduce food wastage by preparing meals based on incoming orders, promoting sustainability and responsible resource management in the campus dining ecosystem.
- The menu will feature real-time updates for all dishes, enhancing user experience and aiding vendors in efficient inventory management.
- Food vendors can expect enhanced operational efficiency by optimizing preparation processes based on incoming orders, resulting in a more organized and streamlined operation for both vendors and consumers.
- The DIU campus plans to promote community through strategic discounts and promotions, aiming to make the dining experience more inclusive and affordable.
- The FOODU application is expected to feature a user-friendly interface that enhances the overall experience for both consumers and vendors, ensuring ease of navigation and positive interaction.
- The FOODU web application aims to enhance campus life by providing a more organized, sustainable, and enjoyable dining experience for the university community.

In summary, the expected outcomes encompass improvements in efficiency, sustainability, user experience, operational processes, community engagement, and the overall campus environment through the successful implementation of the FOODU web application at DIU. These outcomes collectively contribute to the success and positive impact of the project within the university setting.

1.5 Project Management:

Embarking on the development of FOODU, demanded a comprehensive and individualized project management approach. The project initiation phase involved a detailed analysis of existing challenges in on-campus food ordering, leading to a clear definition of project objectives and scope. The project followed a modified version of the Waterfall model, incorporating phases like initiation, planning, execution, testing, and deployment.

Project Initiation:

- Defined project objectives and scope, identifying the challenges in on-campus food ordering at DIU.
- Conducted a detailed analysis of user requirements and technical specifications.

Planning:

- Developed a comprehensive project plan outlining tasks, milestones, and deadlines.
- Selected the MERN stack (MongoDB, Express.js, React.js, and Node.js) based on its alignment with technical requirements.
- Established a structured project timeline to guide development activities.

Execution:

- Began the development process, focusing on a user-centric design approach for a seamless user experience.
- Implemented features such as advanced ordering, real-time updates, and discounts for special buyers with meticulous attention to detail.
- Utilized MongoDB for database management, Express.js for the backend, React.js for the frontend, and Node.js for server-side scripting.

Testing:

- Conducted thorough testing of the application at various stages of development.
- Identified and addressed issues promptly through iterative testing and debugging.
- Ensured the security, functionality, and user-friendliness of the application.

Deployment:

- Implemented a phased deployment strategy to facilitate a smooth transition to the new system.
- Conducted final testing to validate the application's performance in a live environment.
- Established ongoing support and maintenance plans for post-deployment issues.

Project Review and Reflection:

- Conducted regular self-assessment sessions to ensure the project remained aligned with its defined goals.
- Adapted to challenges and refined the project based on feedback and personal reflections.

Risk Management:

- Employed a personalized risk management strategy, anticipating and mitigating potential challenges throughout development.
- Proactively adapted to unforeseen issues, ensuring minimal disruption to the project's progression.

In summary, the project management model for FOODU incorporated elements of the Waterfall model, emphasizing a structured approach to project initiation, planning, execution, testing, and deployment. This individualized strategy ensured the successful creation of a MERN stack web application tailored to address the specific needs of on-campus food ordering at DIU.

1.6 Report Layout

This report consists of 7 chapters. These are:

Introduction

- Introduction
- Motivation
- Objectives
- Expected Outcome
- Project Management
- Report Layout

Background

- Preliminaries / Terminologies
- Related Works
- Comparative Analysis
- Scope of the Project
- Challenges

Software Requirement Specification

- Business Process Model
- Requirement Collection & Analysis
- Use Case Modeling
- Logical data model
- Design Requirement

Design Specification

- Back-end Design
- Front-end Design
- Interaction Design and user Experience
- Implementation Requirements

Implementation and Testing

- Implementation of Database
- Interaction of Front-End
- Testing Implementation
- Test Results and Reports

Impact on society, Environment and Sustainability

- Impact on society
- Impact on Environment
- Ethical Aspects
- Sustainable Plan

Conclusion and Future Scope

- Discussion and conclusion
- Scope for Further Development

CHAPTER 2

BACKGROUND

2.1 Preliminaries/Terminologies

When writing online web based food ordering application FOODU project reports using MERN, it is important to provide a clear understanding of the key terminologies and concepts used throughout the document. This section introduces and defines the relevant terminologies that will be used in the report. Here are some examples:

FOODU: The name of the web application, FOODU, encapsulates its purpose, serving as a convenient and efficient platform for food ordering within the DIU campus.

MERN Stack: An acronym representing the technologies used in the development of the application MongoDB (database), Express.js (backend framework), React.js (frontend library), and Node.js (runtime environment).

MongoDB: As the database component, MongoDB stores and manages the data related to users, orders, menus, and discounts within FOODU. It provides a scalable and flexible structure for handling diverse types of information.

Express.js: Serving as the backend framework, Express.js handles server-side operations for FOODU. It manages routing, middleware, and communicates with the MongoDB database, ensuring smooth data flow between the frontend and backend.

React.js: As the frontend library, React.js facilitates the creation of a dynamic and interactive user interface. It allows for the seamless updating of content, such as real-time menu updates and advanced ordering features, enhancing the overall user experience.

Node.js: Node.js is the runtime environment that executes server-side code. It powers the backend operations, handling requests from the frontend, communicating with the MongoDB database, and ensuring the overall functionality of FOODU.

Entity-Relationship Diagram(ERD):The ERD for FOODU outlines the relationships between various entities, such as User, Order, Menu, Discount, and Shop Owner, within the database. It establishes relationships, defines attributes for each entity, and provides a visual representation of the data structure, aiding in understanding how different application components interact.

User Interface(UI): FOODU's UI is a graphical interface for users to place orders and navigate the application. It features menus, order forms, and promotional sections, with real-time updates represented through dynamic content. The design is responsive and consistent, ensuring a positive and intuitive interaction for both users and shop owners.

In summary, MARN components contribute to the technical architecture of FOODU, the ERD defines the data structure, and the UI provides the visual and interactive interface for users and shop owners. Together, these elements form a cohesive and functional web application.

2.2 Related Works

Foodpanda: Foodpanda in Bangladesh offers a convenient online food ordering process for users. Users register or log in, select desired items, customize orders, and proceed to checkout. Payment options include credit/debit cards, mobile wallets, and cash on delivery. Once confirmed, users receive an estimated delivery time and can track their orders in real-time. Foodpanda simplifies the online food ordering experience, providing a seamless experience for users in Bangladesh[7].

HungryNaki: HungryNaki is a popular online food delivery platform in Bangladesh that simplifies the ordering process for users. Users sign up or log in, input their delivery location, and choose from a variety of restaurants. The platform allows customization of orders, including special instructions or preferences. After finalizing selections, users can checkout, provide delivery details, and choose a payment method. HungryNaki ensures timely delivery, providing a convenient and user-friendly online food ordering experience in Bangladesh[8].

Pathao Food: Pathao Food, a Bangladeshi online food ordering platform, offers a user-friendly process for ordering food. Users log in or create an account, select their delivery location, and choose from a variety of restaurants. They then proceed to checkout, provide delivery details,

and choose a payment method. Payment options include credit/debit cards, mobile wallets, and cash on delivery. Pathao Food ensures prompt and efficient delivery, providing a convenient and seamless online food ordering experience[9].

Shohoz food: Shohoz Food in Bangladesh offers a user-friendly online food ordering process. Users log in or create an account, input their delivery location, and select from a selection of restaurants. They can customize orders, provide delivery details, and choose a payment method. Real-time order tracking is available for those who want to monitor their delivery. Shohoz Food ensures timely delivery, providing a convenient and user-friendly online food ordering experience in Bangladesh[10].

2.3 Comparative Analysis

Market Focus: FOODU is specifically designed for university settings, focusing on reducing food wastage and streamlining the ordering process within a campus environment. In contrast, FoodPanda, HungryNaki, Pathao Food, and Shohoz Food are general food delivery platforms catering to a broad audience, covering various cities and a wide range of restaurants.

Advance Ordering: FOODU emphasizes ordering food in advance to ensure availability and reduce waste, whereas FoodPanda, HungryNaki, Pathao Food, and Shohoz Food primarily operate on immediate delivery of orders, with less focus on advance planning.

Branch Management: FOODU allows customers to handle multiple branches using one application, which is particularly useful in a university setting with multiple dining outlets. In contrast, FoodPanda, HungryNaki, Pathao Food, and Shohoz Food typically do not offer a centralized system for managing multiple branches under one account.

Admin Control: FOODU admins can dynamically handle all front-end pages, see total sales amounts for the last 7 days, and view top-selling products and their quantities. FoodPanda, HungryNaki, Pathao Food, and Shohoz Food provide admin controls that are generally less flexible, focusing more on restaurant partnerships and logistics.

Customization and Flexibility: FOODU is highly customizable to suit the specific needs of a university environment, with features like advance ordering and branch management. In contrast,

FoodPanda, HungryNaki, Pathao Food, and Shohoz Food are less customizable as they are designed to serve a wider audience with a standard set of features.

Sustainability Focus: FOODU aims to reduce food wastage by enabling precise preparation according to orders, while FoodPanda, HungryNaki, Pathao Food, and Shohoz Food, while making some efforts towards sustainability, primarily focus on delivery efficiency.

User Experience: FOODU is tailored to meet the needs of students and university staff, providing a user-friendly experience within a campus setting. FoodPanda, HungryNaki, Pathao Food, and Shohoz Food are designed for a broader audience, providing a consistent but less specialized user experience.

Sales Insights: FOODU offers detailed sales insights, including total sales for the last 7 days and top-selling products, aiding vendors in inventory and sales strategies. FoodPanda, HungryNaki, Pathao Food, and Shohoz Food provide sales reports but may not offer the same level of detailed, real-time insights specific to a university setting.

By focusing on the specific needs of a university environment, FOODU distinguishes itself from general food delivery applications like FoodPanda, HungryNaki, Pathao Food, and Shohoz Food. The targeted features and flexibility make FOODU a valuable tool for enhancing the efficiency and sustainability of campus food services.

2.4 Scope of the Project

The FOODU web application project aims to revolutionize Daffodil International University's on-campus food ordering experience by developing a feature-rich MERN stack web application. This application will enable advanced food ordering, allowing users to place orders in advance and secure meals before potential shortages occur. A dedicated module for shop owners will enable efficient order management and preparation according to demand, minimizing excess food waste and contributing to a more sustainable campus dining environment. Real-time updates will be provided to users and shop owners, ensuring accurate information about available dishes. The project utilizes the MERN stack, including MongoDB for database, Express.js for backend, React.js for frontend, and Node.js for server-side scripting. The goal is to create a comprehensive, user-centric solution that addresses challenges associated with traditional ways.

2.5 Challenges

Developing the FOODU MERN stack web application for your university's final year project involves addressing various challenges to ensure the success and efficiency of the system. Here are some challenges that you might encounter and that I can include in my report

- **Advanced Ordering Complexity:**Implementing a seamless and user-friendly system for advanced ordering requires addressing potential complexities in managing order scheduling, modifications, and ensuring accurate fulfillment.
- **Real-Time Updates and Synchronization:**Ensuring real-time updates for available dishes and synchronized data between users and shop owners pose challenges in terms of data consistency, server performance, and efficient communication.
- **Inventory Management Precision:**Developing an effective inventory management system demands precision in tracking available ingredients and dishes. Maintaining accurate inventory levels while considering various factors, such as order cancellations, is a challenge.
- **Shop Owner Module Efficiency:**Creating an efficient module for shop owners to receive and manage orders involves addressing issues related to order prioritization, preparation time estimation, and handling a potentially high volume of orders during peak times.
- **Security and Privacy Concerns:**Ensuring the security of user data, order information, and payment details is crucial. Implementing robust security measures to protect against potential breaches and unauthorized access is a significant challenge.
- **User Interface Design Challenges:**Designing a user-friendly interface that accommodates various user roles (customers, shop owners) and provides an intuitive experience can be challenging. It involves addressing usability issues, responsiveness, and visual appeal.
- **Integration of Promotional Strategies:**Implementing various discounts for special buyers and promotional strategies requires careful consideration of the application's architecture. Ensuring that discounts are applied accurately and promotions are effectively communicated poses a challenge.
- **Scalability and Performance Optimization:**Anticipating the potential growth of the user base and ensuring the application's scalability and performance under increased load are challenges that need to be addressed to maintain a smooth user experience.

- User Adoption and Community Engagement: Encouraging users to adopt the new platform and engage with promotions and discounts may pose challenges related to user awareness, communication strategies, and overcoming any resistance to change.
- Testing and Debugging: Rigorous testing is essential to identify and rectify any bugs or issues in the application. Ensuring thorough testing of all features, including advanced ordering, real-time updates, and promotions, is a challenge.

Addressing and overcoming these challenges will contribute to the successful development and implementation of the FOODU web application, and documenting your strategies for overcoming these challenges will add depth to your project report.

CHAPTER 3

REQUIREMENT SPECIFICATION

3.1 Business Process Modeling

FOODU's business process model streamlines the ordering process, starting with user-friendly interfaces and integrating MongoDB, Express.js, React.js, and Node.js technologies. The system provides real-time inventory updates, synchronizing user and shop owner interfaces. Shop owners receive notifications of incoming orders, triggering organized food preparation and optimizing inventory levels. Security measures protect user data and payment information. Promotional strategies offer discounts for special buyers, enhancing community engagement. The model considers scalability and performance optimization, accommodating potential growth and ensuring a robust system. This comprehensive approach contributes to an organized and efficient food ordering system on the DIU campus.

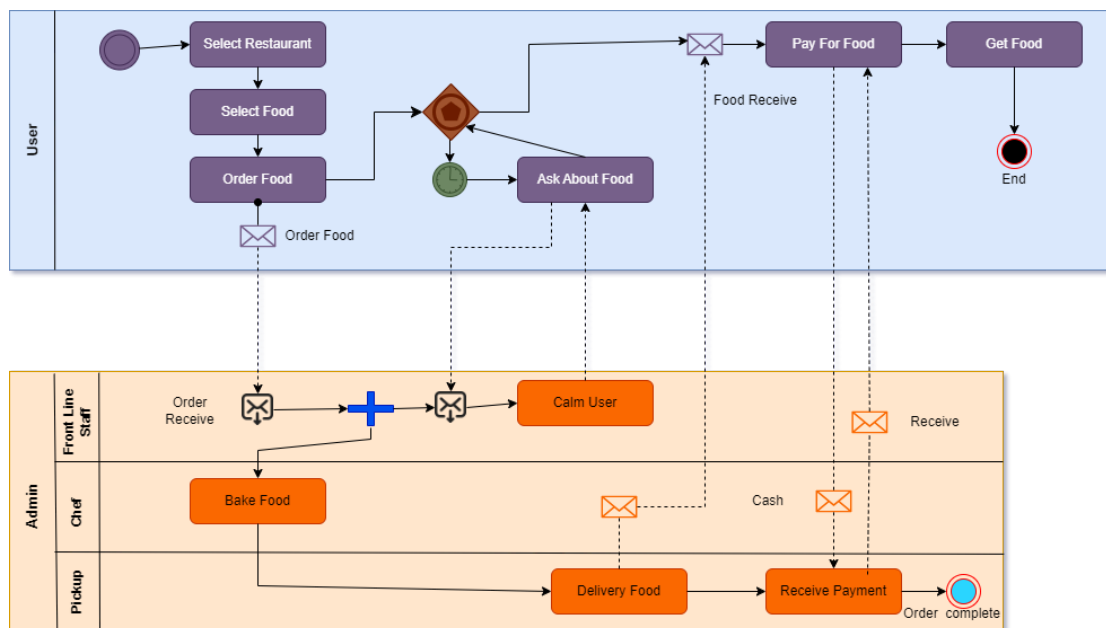


Figure 3.1.1: Business Process Model

3.2 Requirement Collection and Analysis

The requirement collection and analysis for the FOODU web application involve a thorough examination of the needs and expectations of both users and shop owners within the DIU campus.

- The primary requirement is the implementation of an advanced ordering system, allowing users to place food orders in advance to avoid shortages. This necessitates a user-friendly interface that supports seamless order placement, modifications, and cancellations.
- Real-time updates of available dishes are crucial for both users and shop owners. Users need accurate information to make informed decisions, while shop owners require up-to-date inventory data for efficient food preparation and inventory management.
- Efficient inventory management is a critical requirement to minimize food wastage. The system must enable shop owners to monitor ingredient levels, receive timely notifications for restocking, and dynamically adjust inventory based on order fulfillment.
- The shop owner module is designed to facilitate order preparation and efficient management. It should provide features for order prioritization, preparation time estimation, and streamlined processes to handle a potentially high volume of orders during peak times.
- Security measures are integral to the requirements, ensuring the protection of user data, order information, and payment details. The application must adhere to industry standards for data privacy and security.
- Promotional strategies, including discounts for special buyers, are incorporated to enhance community engagement. The system should support the seamless implementation and management of various promotional campaigns to attract and retain users.
- Scalability and performance optimization are essential requirements to accommodate the potential growth of users and orders. The application must be designed to handle increased loads while maintaining a smooth and responsive user experience.
- User adoption and community engagement are emphasized, requiring strategies to promote awareness and encourage users to adopt the new platform. The system should be designed to provide a positive and engaging experience, fostering a sense of community among users.

- Testing and debugging processes are imperative to ensure the robustness and reliability of the application. Rigorous testing should cover all features, including advanced ordering, real-time updates, inventory management, security measures, and promotional functionalities.

Overall, the requirements collection and analysis focus on creating a comprehensive and user-centric web application that addresses the specific needs of the DIU community, promoting efficiency, sustainability, and an organized food ordering experience.

3.3 Use-case modeling

The web application features a user and an admin. Users can access various pages and select restaurants to view food options. They can order food and clear their selected card. Users must log in to complete the process and provide feedback. The admin must log in first, verify details, and access their profile to track orders. Users can add new food items and update previous ones. The admin can manage users, including their mobile number, ID, email, and data store. They can manage food orders, restaurant information, and food categories. The user feedback option allows users to see comments and details, allowing them to work on improving the application. The application also includes a managed food category option, which allows for the addition of new foods category-wise, ensuring an organized and user-friendly experience. Overall, the web application provides a user-friendly and efficient platform for managing food orders and food

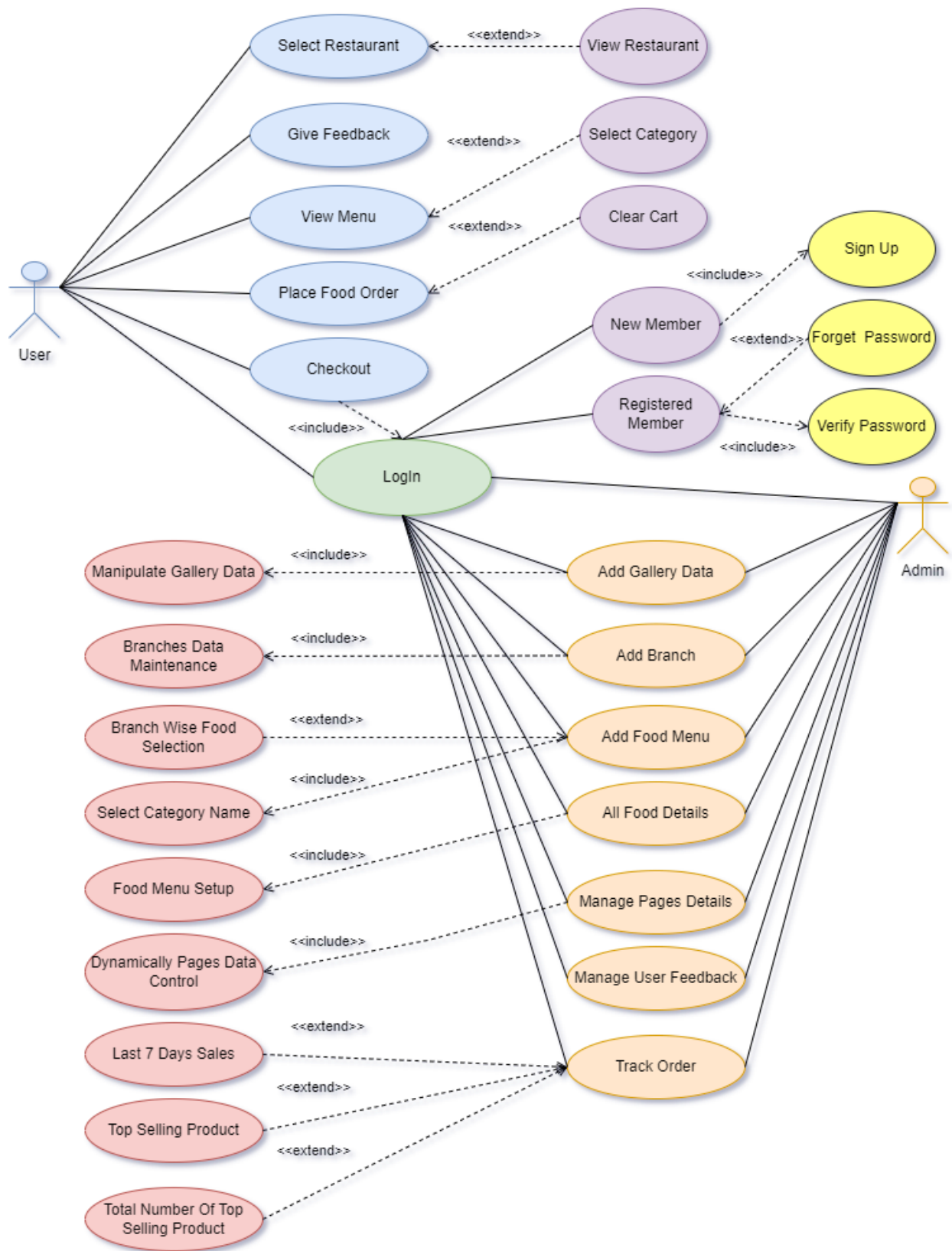


Figure 3.3.1:Use case Model

Use Case Name	LogIn
Prerequisite	Registration
Actor	User
Internal Path	Enter Website
	Click Login Button
	Enter Registration Button
	Fill Required Information
	Submit Data
	Now LogIn
Exceptional Path	Registration Form
Notes	Written by Md. Al-Amin Volunteered by Mr. Saiful Islam

Table 3.3.1:FOODU Login Use Case

Foodu login use case show how to login process work step wish. Also a how to entree login and what kind of data to input. This table show a short overview of all Process.

Use Case Name	View Restaurant
Prerequisite	Select Restaurant
Actor	User
Internal Path	Enter Website
	Click Online Order

	Select Restaurant Dropdown Button
	Explore your Preferred Restaurant
Exceptional Path	Multiple Restaurant Selection Option
Notes	Written by Md. Al-Amin Volunteered by Mr. Saiful Islam

Table 3.3.2: FOODU View Restaurant Use Case

Foodu View Restaurant Use case present many restaurant option available in our websites. User can choose there preferred restaurant. Multiple Restaurant provide more flexible way to choose favorite food .

Use Case Name	Select Category Wise Food
Prerequisite	View Menu
Actor	User
Internal Path	Enter Website
	Click Online Order
	Select your Preferred Category
	Picked You Food
Exceptional Path	Multiple Category Food
Notes	Written by Md. Al-Amin Volunteered by Mr. Saiful Islam

Table 3.3.3: FOODU Select Category Wise Food Use Case

Foodu Select Category Wise Food selection option make this web application more user friendly .Using this option user can easily find there food. More effective arranged for food.

Use Case Name	Place Food Order
Prerequisite	Add Cart
Actor	User
Internal Path	Enter Website
	Click Online Order
	Select Restaurant Dropdown Button
	Select your Preferred Category
	Add You Food in Cart
	Increase or Delete Food Number
Exceptional Path	Multiple Category Food
Notes	Written by Md. Al-Amin Volunteered by Mr. Saiful Islam

Table 3.3.4: FOODU Place Food OrderUse Case

Foodu Place Food Order Use Case Show how to place order ,what the prerequisite to order food.In this option also provide food quantity manipulate option.

Use Case Name	Checkout
Prerequisite	LogIn
Actor	User
Internal Path	Enter Website

	Click Online Order
	Add You Food in Cart
	Click Order Now
	If you are New Member Please LogIn
	Receive Your Food After 20 Minutes
Exceptional Path	New Members LogIn
Notes	Written by Md. Al-Amin Volunteered by Mr. Saiful Islam

Table 3.3.5: FOODU Checkout Use Case

Foodu Checkout Use Case Show how to checkout and what the prerequisite of it. And what's the payment option and what's the process to collect your order food.

Use Case Name	Add Gallery Data
Prerequisite	Admin LogIn
Actor	Admin
Internal Path	LogIn Admin Sites
	Title Name
	Select Card Photo
	Select Slider Photo
	Save Data
Exceptional Path	Upload File
Notes	Written by Md. Al-Amin

	Volunteered by Mr. Saiful Islam
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Table 3.3.6:FOODU Add Gallery Data Use Case

Foodu Add Gallery Data Use Case is admin sites Part. This add gallery option provides a dynamically handel front-end gallery page. Admin can change anything and upload or delete data.

Use Case Name	Add Branch
Prerequisite	Admin LogIn
Actor	Admin
Internal Path	LogIn Admin Sites
	Click Branches
	Write New Branch
	Save Data
Exceptional Path	Add New Branch
Notes	Written by Md. Al-Amin Volunteered by Mr. Saiful Islam

Table 3.3.7: FOODU Add Branch Use Case

Foodu Add Branch Use Case option provides a new branch or old branch optimize option. Admin can handle all kinds of branches.

Use Case Name	Add Food Menu
Prerequisite	Admin LogIn
Actor	Admin

Internal Path	LogIn Admin Sites
	Click Products
	Write Branch Name
	Write Category Name
	Select Those Product You Like To Add
	Save Data
Exceptional Path	Branch & Category Wise Product Selection
Notes	Written by Md. Al-Amin Volunteered by Mr. Saiful Islam

Table 3.3.8: FOODU Add Food Menu Use Case

Foodu Add Food Menu Use Case Provide add food branch wish & category food addition option for admin. This option makes it easy to handle all branch wish food distributing jobs. Also select category wish food for those branches .

Use Case Name	All Food Details
Prerequisite	Admin LogIn
Actor	Admin
Internal Path	LogIn Admin Sites
	Click Category
	Write Product Name
	Write Product Price
	Write Content About Product
	Upload Product Image

	Save Data
Exceptional Path	Initial Product Declaration
Notes	Written by Md. Al-Amin Volunteered by Mr. Saiful Islam

Table 3.3.9: FOODU All Food Details Use Case

Foodu All Food Details Use Case Provide an initial stage for a food. This option optimizes food name , food content , food price and also food image. That helps an admin always update information about food.

Use Case Name	Manage Pages Details
Prerequisite	Admin LogIn
Actor	Admin
Internal Path	LogIn Admin Sites
	Click Page Name
	Select Page
	Edit Section Content
	Save Data
Exceptional Path	Dynamically Pages Data Control
Notes	Written by Md. Al-Amin Volunteered by Mr. Saiful Islam

Table 3.3.10: FOODU Manage Pages Details Use Case

Foodu Manage Pages Details Use Case Provide an admin update all content of every single page even section of a page in front end.

Use Case Name	Track Order
----------------------	-------------

Prerequisite	Admin LogIn
Actor	Admin
Internal Path	LogIn Admin Sites
	Click Order Book Now
	View All Order History
	Last 7 Days Sales
	Top Selling Product
	Total Number Of Top Selling Product
	Save Data
Exceptional Path	Dynamically Pages Data Control
Notes	Written by Md. Al-Amin Volunteered by Mr. Saiful Islam

Table 3.3.11: FOODU Track Order Use Case

Foodu Track Order Use Case view over all information about all orders. Here the admin shows all the info about sales . Here specially some options for admin. Last 7 Days Sales, Top Selling Product, Total Number Of Top Selling Product one of them. Also here an admin sees all order people name , phone number , email and date.

3.4 Logical Data Model

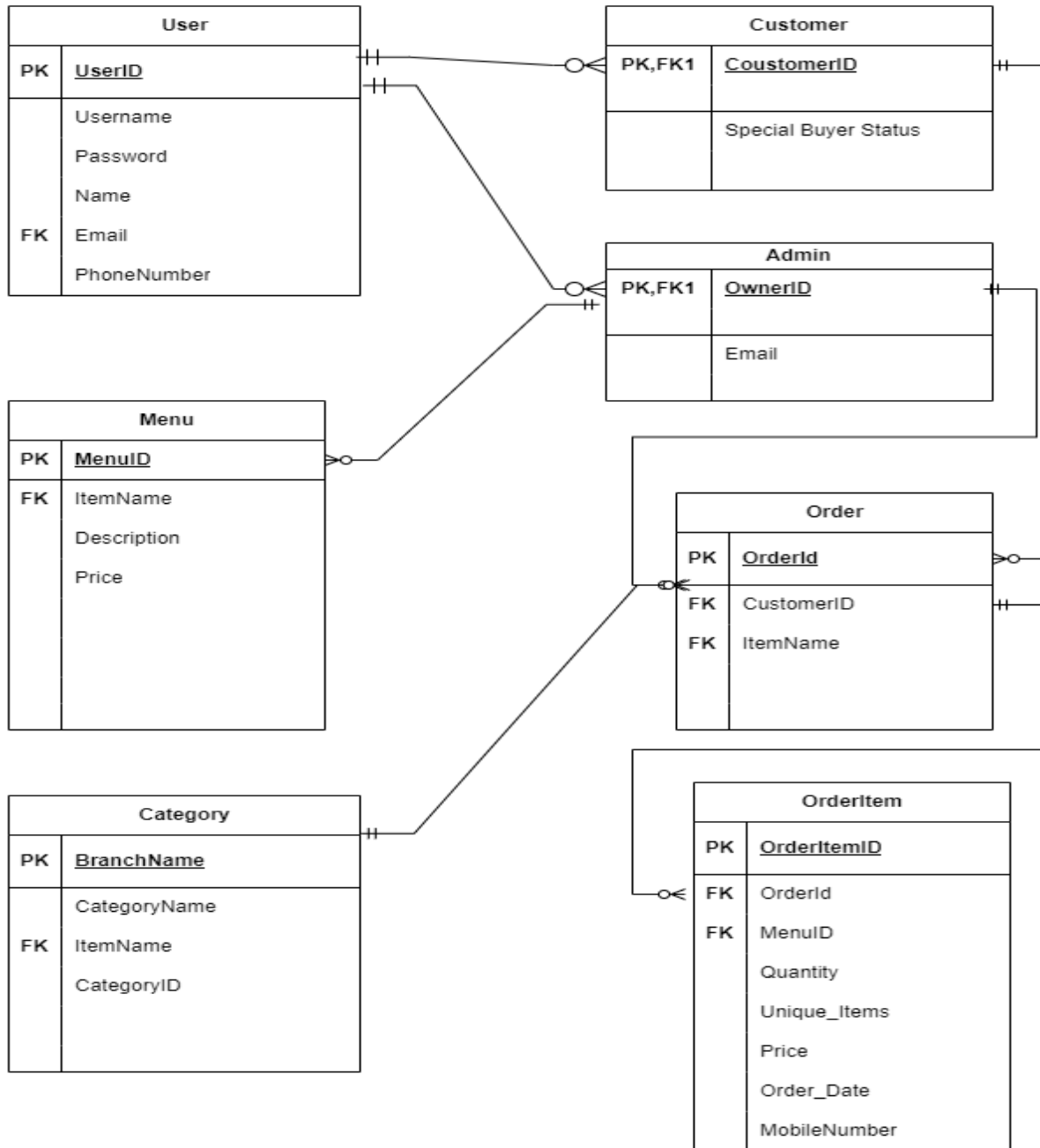


Figure 3.4.1:Logical Data Model

3.5 Design Requirement

User Interface Design:The user interface should be intuitive, responsive, and visually appealing. Design requirements include a seamless navigation experience for users to place advance orders easily, view real-time updates, and engage with various features effortlessly.

Advanced Ordering Functionality:The system should support advanced ordering features, allowing users to specify meal preferences, choose from a variety of dishes, and schedule orders in advance. The design should ensure a straightforward process for users to modify or cancel orders as needed.

Real-Time Updates:Implement a design that facilitates real-time updates of available dishes. Users should receive instant notifications regarding dish availability, ensuring accurate and timely information for decision-making.

Shop Owner Module Design:The dedicated module for shop owners should be designed for efficient order processing, enabling them to view, prioritize, and prepare dishes based on incoming orders. The design should support streamlined processes for managing a potentially high volume of orders during peak times.

Inventory Management System:Design an efficient inventory management system for shop owners, allowing them to monitor ingredient levels, receive restocking notifications, and dynamically adjust inventory based on order fulfillment. The design should emphasize ease of use and accuracy.

Security Measures:Incorporate robust security measures to protect user data, order information, and payment details. The design should adhere to industry standards for data privacy and implement encryption and secure authentication methods.

Promotional Feature Design:Design a system that seamlessly integrates various promotional features, including discounts for special buyers. The design should support the implementation and management of promotions to enhance community engagement.

Scalability and Performance Design:Ensure that the design accommodates scalability and performance optimization. The system should handle increased user loads and order volumes without compromising speed or responsiveness.

User Adoption and Community Engagement Design:Design features that encourage user adoption and community engagement. The interface should be designed to promote awareness of promotions, foster a sense of community, and provide a positive user experience.

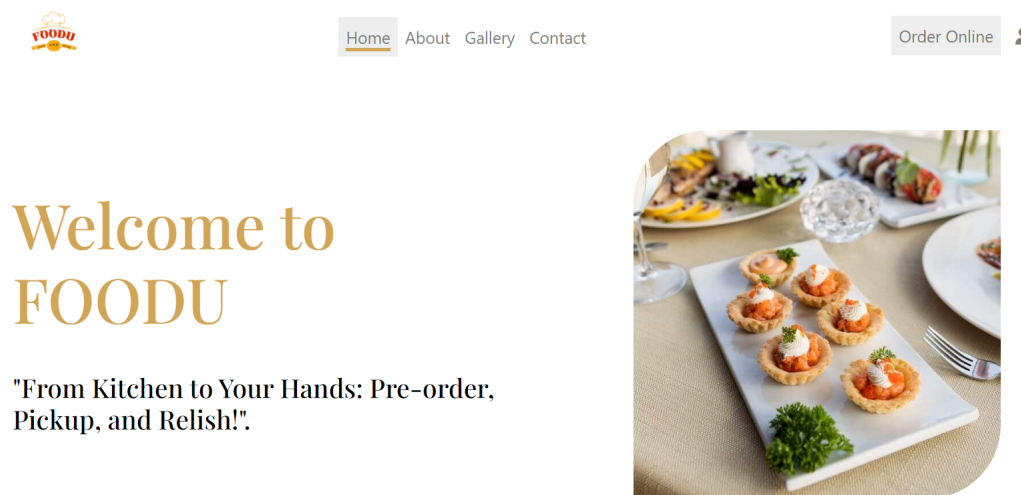
Testing and Debugging Design:Include design considerations for rigorous testing and debugging. Design features that facilitate thorough testing of all components, ensuring the identification and resolution of any issues for a robust and reliable system.

CHAPTER 4

DESIGN SPECIFICATION

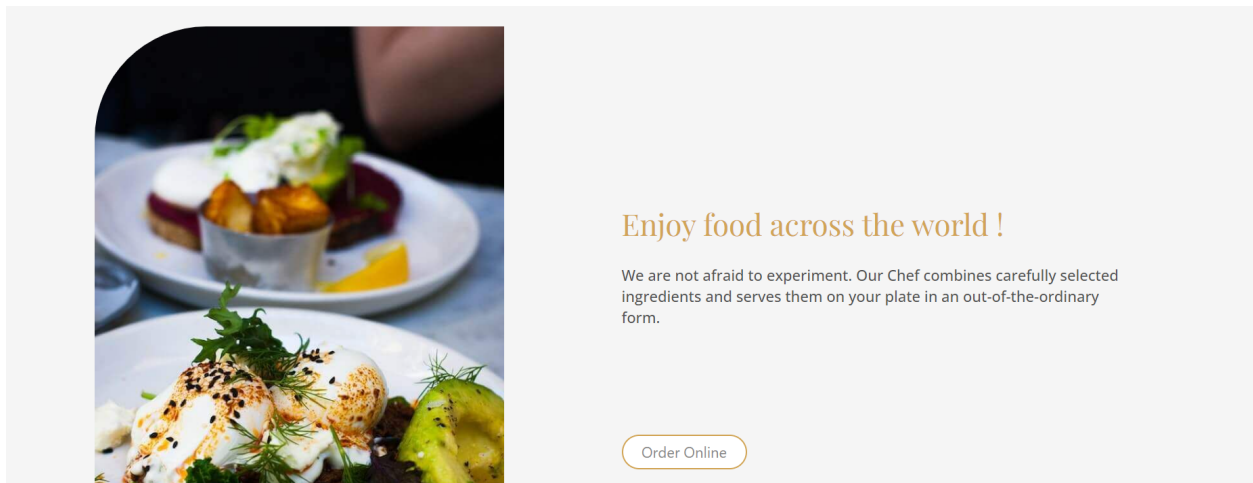
4.1 Front-end Design

I have used react js to implement the front-end. Along with basic HTML, CSS and bootstrap has been used to make the page more attractive. Also json, and various libraries have been used. Various icons, fonts are used to make the website look more beautiful and dynamic so that a user can use the application with ease.



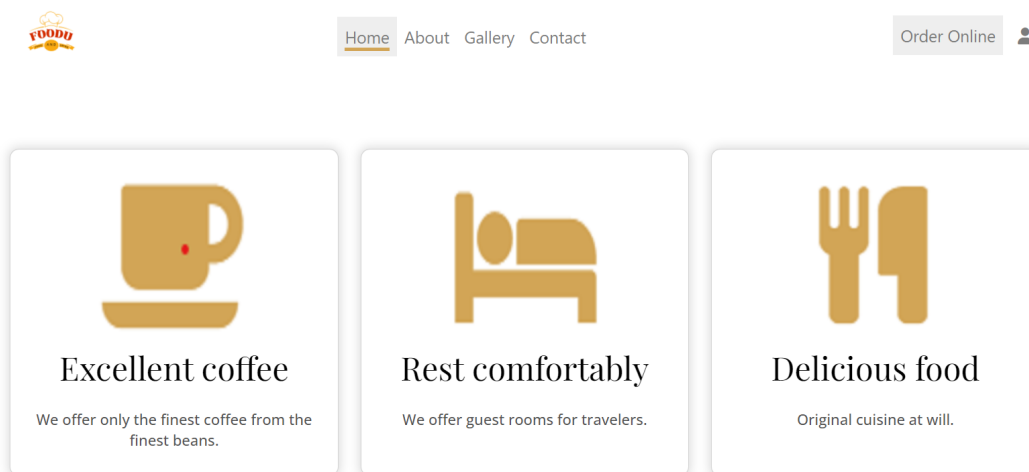
4.1.1: Home Page

This is the home page of FOODU Web application. A user when entering this application first sees this page. Here we show the same important key word and welcome to a user.



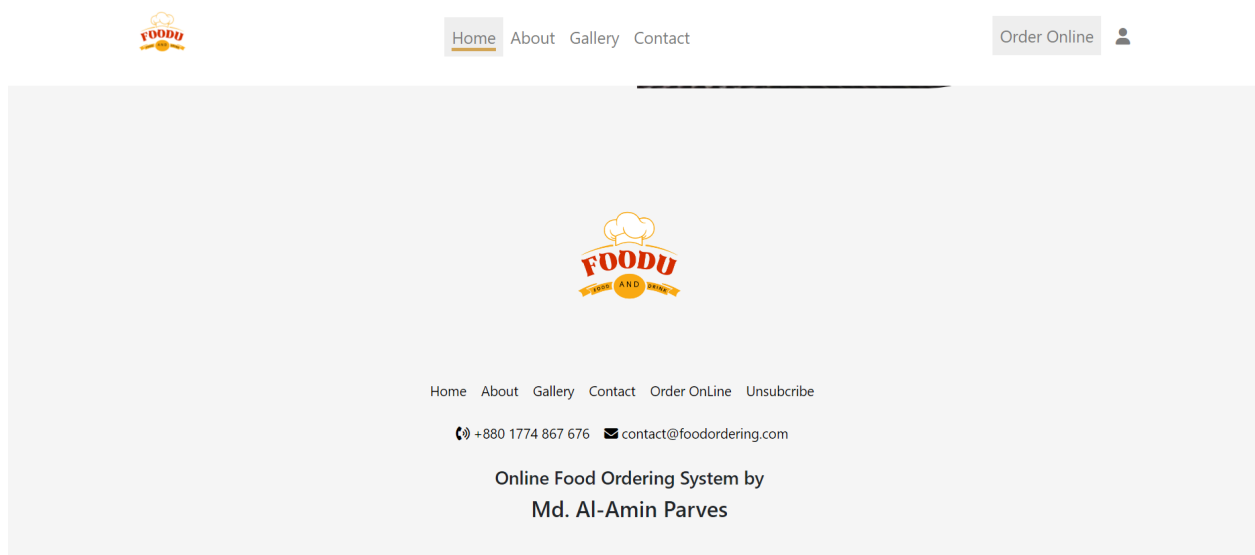
4.1.2: Home Page section 2

This page is 2ed section of the Home page. Here ,Show some highlighted words about our food.



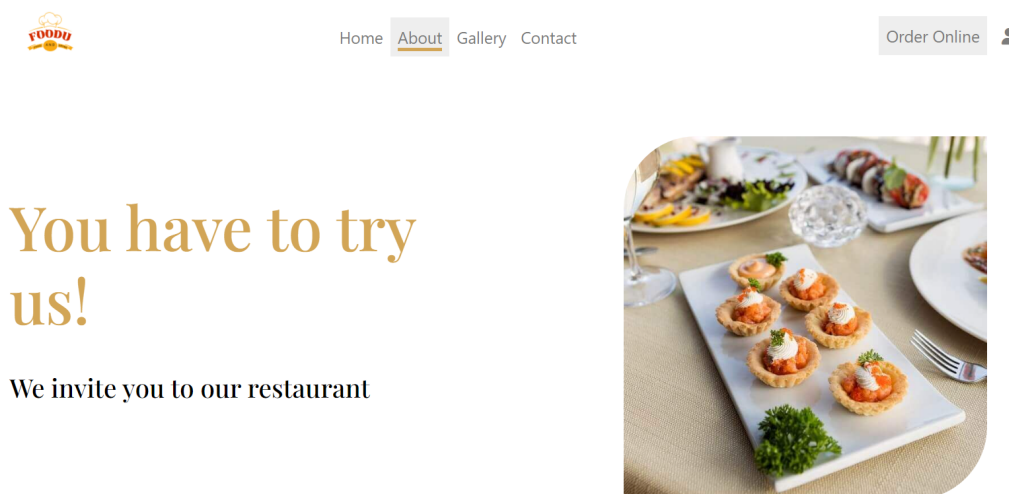
4.1.3: Home Page Special Features

Here we see some special features in our restaurant. Highlighted those options for users.



4.1.4: Home Page Footer

On the home page, we first welcome you to the restaurant, and some pictures of our food are given. Then there is some discussion about the quality of our food. After that, we have highlighted some special features of our restaurant. At the end, the footer has been added, and some short information about our restaurant has been given.



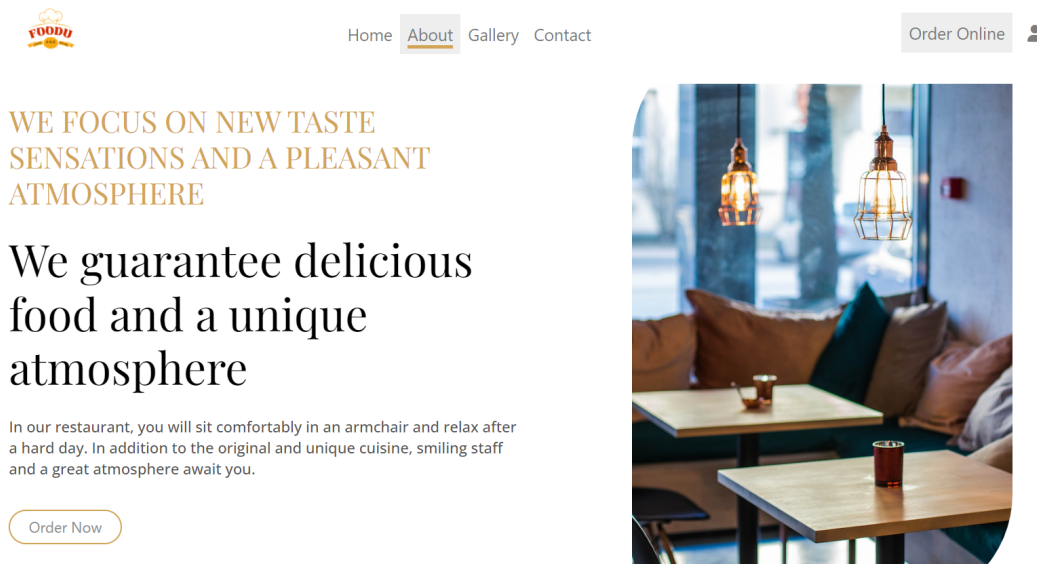
4.1.5: About Page

WE COOK FOR YOU EVERY DAY

Cooking is our greatest
passion, and we prove it
every day

We love surprising our guests, so every day we serve new dishes inspired by recipes from many countries. Our restaurant combines Polish cuisine with Mexican, Italian or French specialties. See what we have prepared for you today!

4.1.6: About Page section 2



4.1.7: About Page, section 3

The About page has just discussed our restaurant in detail. What pictures and details have been given.



Gallery

Our dishes will enchant your senses.



4.1.8: Gallery Page



4.1.9: Gallery Image section Page

The gallery page is mainly for displaying the beauty of the restaurant. On this page, we can see different pictures. In which you can see different pictures with different interiors and food.



Contact us

You can place your order online.



4.1.10: Contact Us Page

Write us a message

Name

Email address

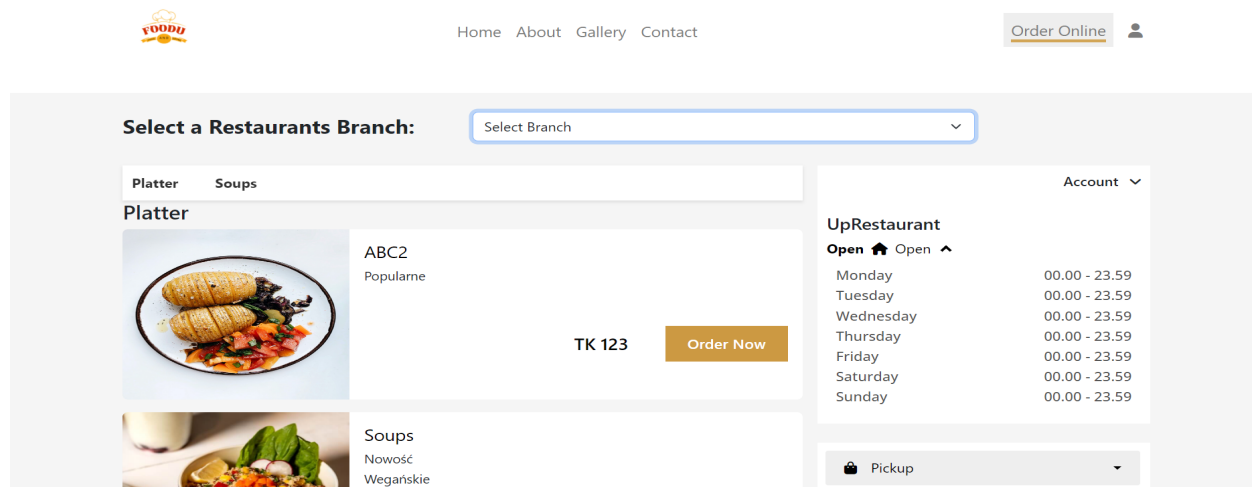
Phone

Your Comments
Leave a comment here

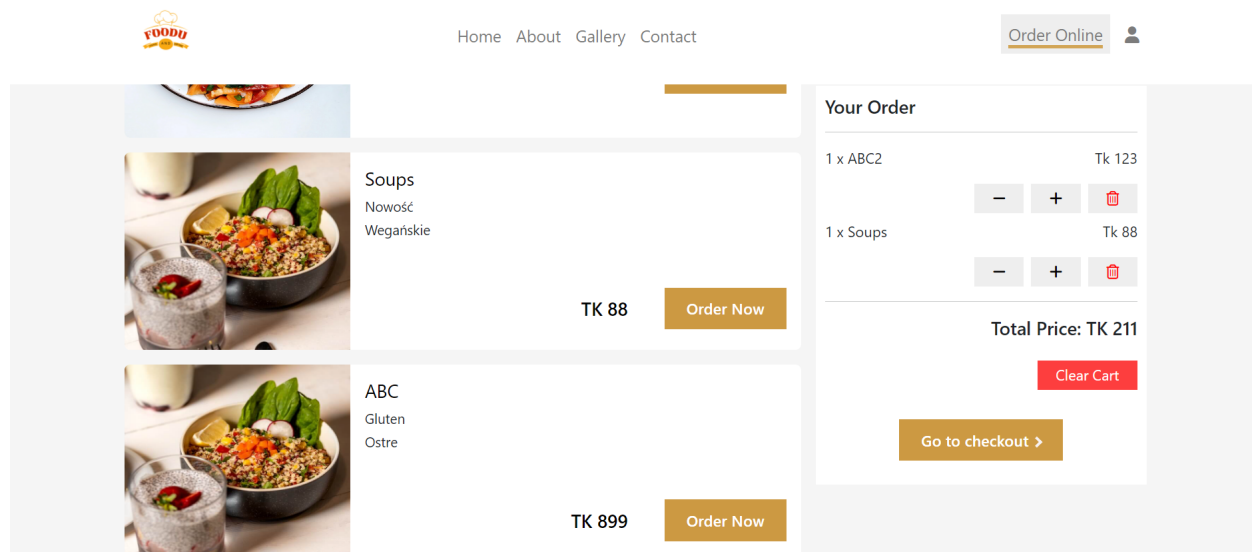
☐ I agree to the [Privacy Policy](#) and [Terms of Service](#).

4.1.11: Contact Us message Page

Contact us page is for taking feedback from a user. Here the user can express his opinion by providing all his information.



4.1.12: Order OnlinePage



4.1.13: Order Online Checkout Page

Online order page is for food order. Here first we can see the restaurant select option. After selecting the preferred restaurant, we can see its menu. You can list the food in your order by clicking on the order now button. There you can see all data including quantity and price. From here you can complete the food order process directly through the checkout option. An adjacent section lists restaurant open days. If desired, the process of registration and login can also be completed from here.

Book Now

Registered Member
New Member

Registration Now

Full Name *

Email address

alamin12@gmail.com

Password

..... Show

Confirm Password

Confirm password Show

Phone *

Your Address *

Payment *

Select

☐ I agree to the [Privacy Policy](#) and [Terms of Service](#).

Submit

All ready have an Account? [Registered Member](#)

4.1.14:Registration Page

Book Now

Registered Member
New Member

ABC2Soups

Email address

alamin12@gmail.com

Password

..... Show

☐ I agree to the [Privacy Policy](#) and [Terms of Service](#).

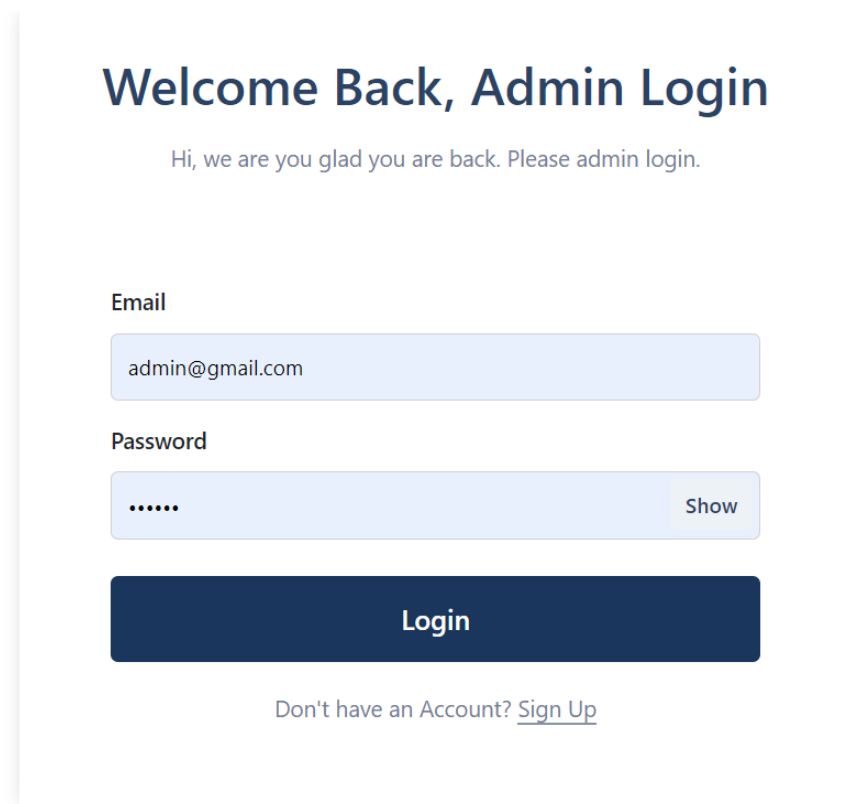
Book Now

Don't have an Account? [New Member](#)

4.1.15: Login Page

4.2 Back-end Design

The entire project's back-end design is created using HTML, JavaScript, React, and bootstrap. React code is used to design the entire back-end. React is a JavaScript library for creating declarative, effective, and adaptable user interfaces. It enables you to put together complex user interfaces from discrete, small pieces of code. The admin will have complete control over the website's features from the back end.



The image shows a web form for admin login. At the top, the heading "Welcome Back, Admin Login" is displayed in a large, dark blue font. Below it, a message reads "Hi, we are you glad you are back. Please admin login." in a smaller, grey font. The form contains two input fields: "Email" with the value "admin@gmail.com" and "Password" with masked characters ".....". A "Show" link is positioned to the right of the password field. Below the inputs is a large, dark blue "Login" button. At the bottom, a link says "Don't have an Account? [Sign Up](#)".

Figure 4.2.1: FOODU Admin Login Page

Figure 4.1.1 shows the login page, where admins can input email and password to log in to the admin panel. If any new admin needs to sign up, there is also a sign up button . Admin logs in to the admin panel and controls the things in the back-end.

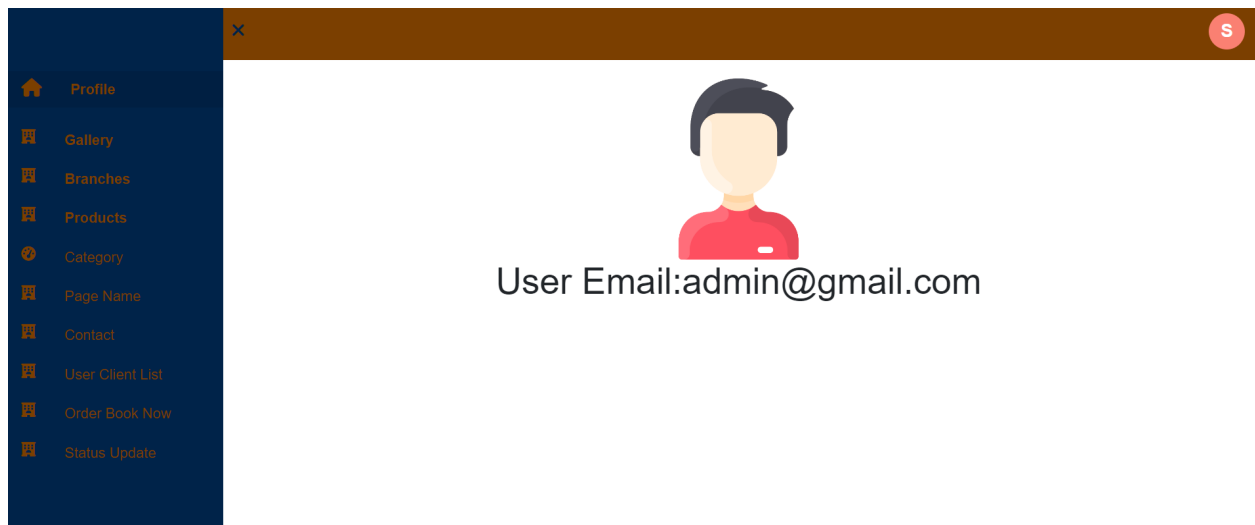


Figure 4.2.2: FOODU Admin Profile Page

Figure 4.1.2 On the FOODU admin profile page, we see the admin email. Here we can see everything that is on this page, like Gallery, All Branches, Products, Category, Page Name, Contact, and Use Client List. We can operate everything from this page.

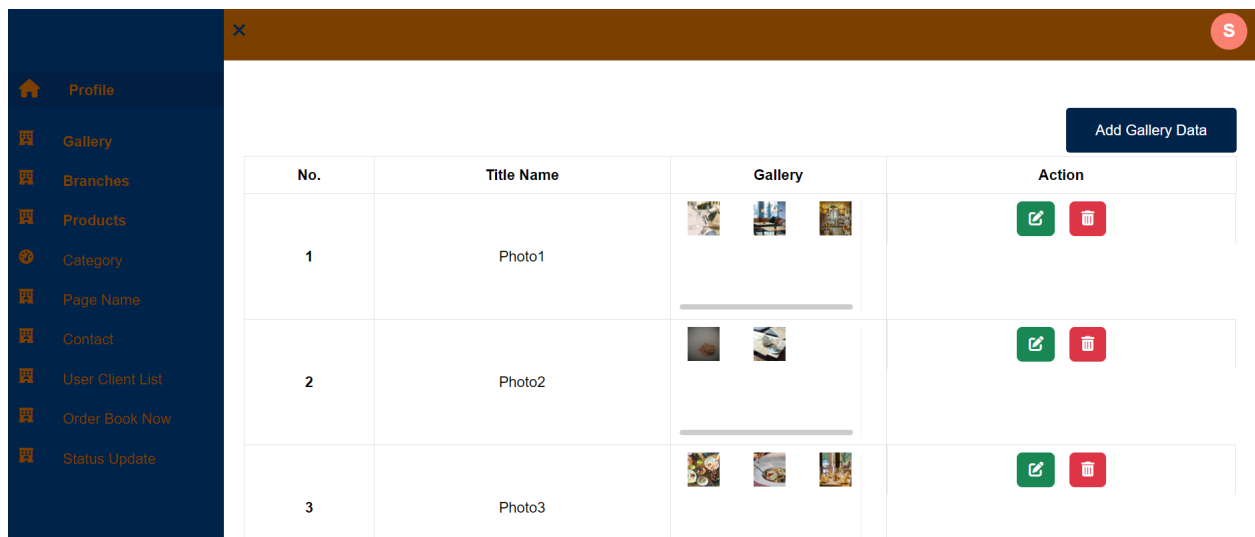


Figure 4.2.3:FOODU Admin Gallery

Figure 4.1.3 This is the gallery page of FOODU .Here admin can do the maintenance of all the images inside the web app. This page is used to import new images,delete , add description.

#	Branch Name	Action
1	Restaurant_1	 
2	Restaurant_2	 
3	Restaurant_3	 
4	Daffodil	 

Figure 4.2.4:FOODU All Branches Admin Page

Figure 4.1.4 Admin can manipulate the data of each Branches on the All Branches page. All types of data update information are added here in short form. Different Branches have different types of food lists or the list of what new food has been added can be seen here. This page also works for adding, updating or deleting any new information if desired.

#	Branch Name	Category Name	Category	Action
1	Daffodil	Sweets	Categories By Id: 659be5609fed4d5ab2d83899 Product:sweet1 Price: 70 Image:  Details: Milk Sugar Categories By Id: 659be5ab9fed4d5ab2d8389d Product: Cake Price: 90 Image:  Details: Milk Flour Categories By Id: 65edf40f807da Product:tea_or Price: 50 Image:  Details:orange tea	 
2	Restaurant_1	Food	Categories By Id: 659bd73c9fed4d5ab2d83876 Product: Pizza Small Price: 300 Image:  Categories By Id: 659bd6aa9fed4d5ab2d83872 Product: Pizza Big Price: 450 Image:  Categories By Id: 659bd8199fed4 Product: Burge Price: 60 Image: 	 

Figure 4.2.5: FOODU Products Admin Page

Figure 4.1.5 On the product page, we can see the menu for each restaurant. All the information about what foods have been added in the new way will be in short form.

#	Product Name	Card Image	Price	Description	Action
1	Tea1		20	Milk ,Tea Leaves Sugar	 
2	Shup1		150	Water ,Corn Flour Vegetable	 
3	Tea2		25	Sugar Tea Leaves	 
4	Coffee		50	Coffee Beans Sugar Milk	 

Figure 4.2.6: FOODU Category Admin Page

Figure 4.1.6 On the category page we can see a list of foods. All types of food are listed here along with food name, picture, price, food description, and complete details of food category. Also, all the work of managing the food list is done on this page.

#	Content	Single Image	Page Name	Section of page name	Action
1	Welcome to FOODU "From Kitchen to Your Hands: Pre-order, Pickup, and Eat".		Home	Welcome	 
2	Enjoy food across the world ! We are not afraid to experiment. Our Chef combines carefully selected ingredients and serves them on your plate in an out-of-the-ordinary form.		Home	TasteCuisine	 

Figure 4.2.7: FOODU Page Name Admin Page

Figure 4.1.7 The Page Name page stores the details and content of all the pages of the main web application. All data, including content, images, and sections of all pages, is stored as static data. From here, an admin manages a fully dynamic website. All the data is stored according to its own form; when any new data is inputted, it will be automatically updated on the main page. Also, delete, edit, and all other operations are handled from here.

#	Name	E-mail Address	Phone	Message	Action
1	Al-Amin	alamin12@gmail.com	01319103866	fjnkgnkldfngkn	
2	Alamin51	alamin12@gmail.com	0179349834	kfhdkhgkjshgdksjshdgk	
3	MD.AL-AMIN PARVES	alamin12@gmail.com	01457674335	hjuhklhofttdgfiuyi9	
4	murad	murad@gmail.com	01568385953	Good food	
5	jahid	Jahid@gmail.com	01761660719	Best ever	
6	Emon	emon@gmail.com	01346238321	All foods is good	
7	Jahin	jahin@gmail.com	0179349834	Best coffee ever.	

Figure 4.2.8: FOODU Contact Admin Page

Figure 4.1.8 The contact page basically stores all of a user's feedback. Here, you can see what a user is commenting on. Also, all its data is stored.

#	Full Name	E-mail Address	Contact	Action
1	Md shyket	shyket@gmail.com	01903417676	
2	chimoy	chimoy@gmail.com	01955617676	
3	demo	demo@gmail.com	55545	
4	me	me@gmail.com	01953417676	
5	alamin	alamin@gmail.com	01319103866	
6	shanin	shanin@gmail.com	01728936485	
7	Rahyen	rahyen@gmail.com	01738939485	
8	Jobyer	jobyer@gmail.com	01377854933	

Figure 4.2.9: FOODU User Client List Admin Page

Figure 4.1.9 The User Client List page is a list of all accounts using the Fudo application. Information about all those who have registered for the application is stored here. Everyone's name, email, contact number, and all other data can be seen here.

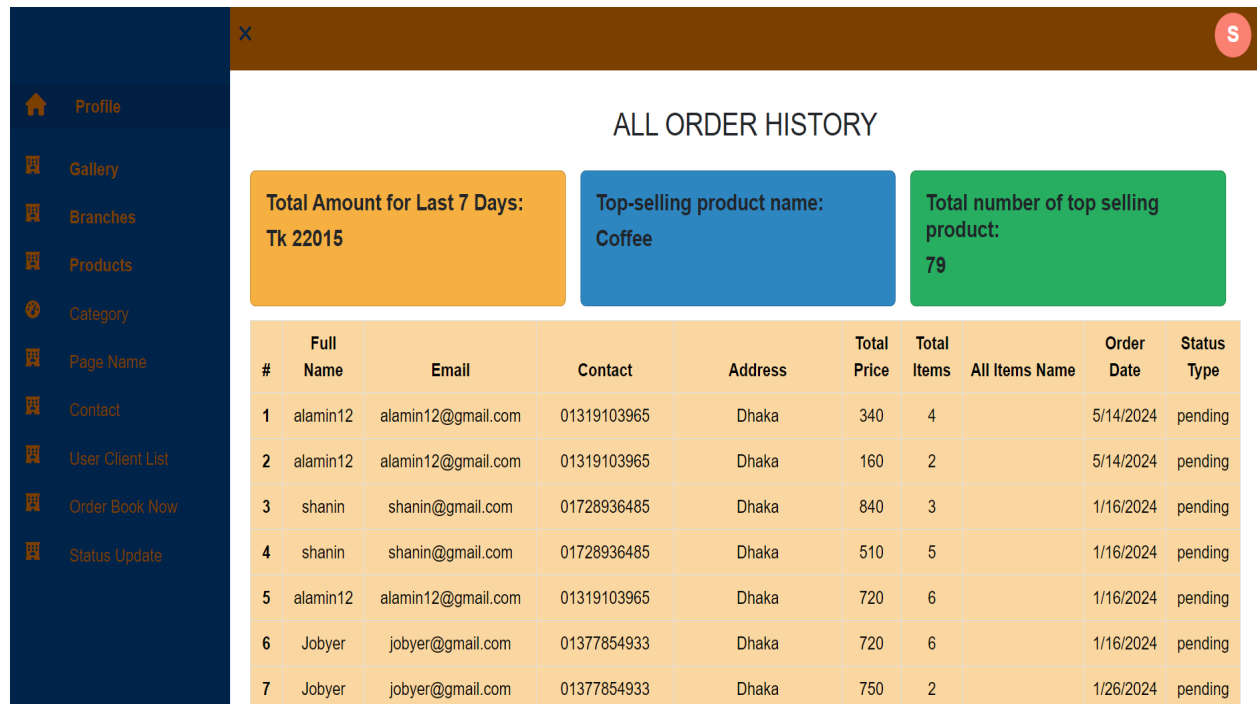


Figure 4.2.10: FOODU All Order History Admin Page

Figure 4.2.10 This figure shows all the food order history. Here we can see the customer's name, email, phone number, address, total price, total order items, order date and some other information. Special features here are the amount of money sold for the last seven days, the most sold items and the number of best selling items.

4.3 Interaction Design and User Experience (UX)

The MERN stack web application, FOODU, is designed to provide a seamless, intuitive, and enjoyable experience for users and shop owners. The user interface is designed to be visually appealing, with simplicity and clarity prioritized. The application offers advanced ordering functionality, allowing users to specify meal preferences, choose from a variety of dishes, and schedule orders in advance. Real-time updates are central to the interaction design, providing users with accurate information. The shop owner module is designed for efficiency, providing a

comprehensive view of incoming orders and facilitating streamlined processes. The interface also supports efficient inventory management, allowing shop owners to monitor ingredient levels, receive timely notifications, and adjust inventory based on order fulfillment. Security measures are integrated to safeguard user data, order information, and payment details. Promotional features are thoughtfully incorporated, fostering community engagement. The application is designed to handle increased user loads and order volumes without compromising speed or functionality. User adoption and community engagement are integral to the design philosophy. Testing and debugging are part of the overall design process, ensuring a robust and reliable system.

4.4 Implementation Requirements

Implementation requirements for the FOODU MERN stack web application involve a comprehensive set of tasks and considerations for each component of the technology stack.

The entire system was developed according to an examination of user requirements. It is among the most important stages of a development project. I created a login page to provide user authentication in my system.

My system categorizes users into three distinct roles: admin, user, and guest. Administrators and authenticated users have the ability to utilize all available features while restricting access to viewing only for guests.

In the detailed planning phase, I went through these:

- Analyzed the System
- System creation started
- React js
- Node js
- Express js
- MongoDB

CHAPTER 5

IMPLEMENTATION AND TESTING

5.1 Implementation of Database

The MongoDB database for FOODU is designed to manage and organize data related to users, orders, dishes, and inventory. The database ensures secure storage of user information, order details, and dish information for user authentication and personalization. It also tracks dish availability, enables real-time updates, and dynamically manages inventory to minimize waste. Data validation measures ensure consistency and accuracy in stored information. The MongoDB database serves as a robust foundation for FOODU's core functionalities, providing a scalable and efficient data storage solution, contributing to the success and functionality of the MERN stack web application.

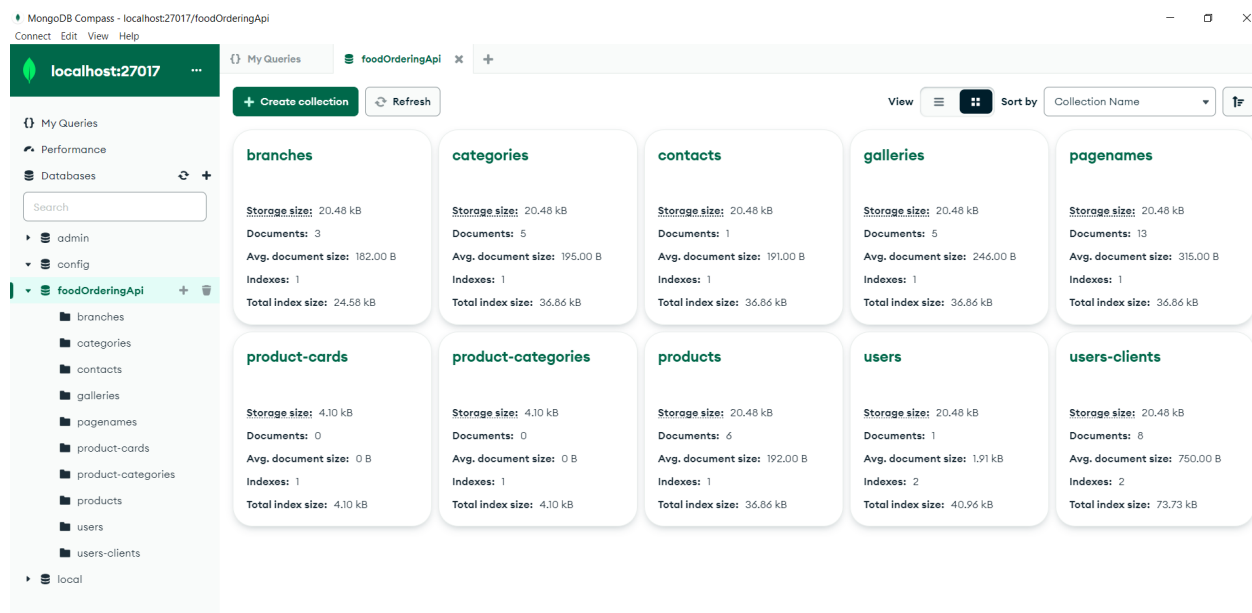


Figure 5.1.1: All Database Table of FOODU

MongoDB Compass - localhost:27017/foodOrderingApi.branches

Connect Edit View Collection Help

localhost:27017

My Queries

Performance

Databases

admin

config

foodOrderingApi

branches

categories

contacts

galleries

pagenames

product-cards

product-categories

products

users

users-clients

local

My Queries

foodOrderingApi

branches

foodOrderingApi.branches

3 DOCUMENTS1 INDEXES

Documents

Aggregations

Schema

Indexes

Validation

Filter

Type a query: { field: 'value' } or [Generate query](#)

Explain

Reset

Find

Options

ADD DATA

EXPORT DATA

1 - 3 of 3

#	branches	_id ObjectId	branch_name String	branchContentSections Arr...	createdAt Date	updatedAt Date	_v Int32	
1	ObjectID('6583e58a6853133...	"Restaurant_1"	[5 elements	2023-12-21T07:13:14.189+0...	2023-12-21T07:13:14.189+0...	0		
2	ObjectID('6583e9b5792d766...	"Restaurant_2"	[3 elements	2023-12-21T07:31:01.824+0...	2023-12-21T09:14:37.811+0...	0		
3	ObjectID('6584022846d1e8f...	"Restaurant_3"	[3 elements	2023-12-21T09:15:20.822+0...	2023-12-21T09:15:20.822+0...	0		

Figure 5.1.2: All Branches Database Table of FOODU

MongoDB Compass - localhost:27017/foodOrderingApi.categories

localhost:27017

My Queries

foodOrderingApi

categories

My Queries

Performance

Databases

Search

admin

config

foodOrderingApi

branches

categories

contacts

galleries

pagenames

product-cards

product-categories

products

users

users-clients

local

foodOrderingApi.categories

Documents

Aggregations

Schema

Indexes

Validation

Filter

Type a query: { field: 'value' } or [Generate query](#)

Explain

Reset

Find

Options

ADD DATA

EXPORT DATA

1 - 5 of 5

#	categories	_id ObjectId	card_pack_image String	prd_name String	price String	content_pack String	createdAt Date
1	ObjectID('6582e398e5bbb0d...	"1703349047767_about_img...	"ABC"	"899"	" Gluten Ostre ..."	2023-12-20T12:5	
2	ObjectID('6582e3b5e5bbb0d...	"1703349080950_danie_glow...	"ABC2"	"123"	" Popularne ..."	2023-12-20T12:5	
3	ObjectID('6582e96d35914e8...	"1703133877863_about_img...	"Soups"	"88"	"<p>NowoŚ</p><p>Wegański...	2023-12-20T13:1	
4	ObjectID('658500731d09a8d...	"1703215219251_napoj_1.jp...	"Soups"	"22"	" gh jhk ..."	2023-12-22T03:2	
5	ObjectID('6586f97124a3393...	"1703344497428_2874562717...	"Tea"	"20"	" tea water ..."	2023-12-23T15:1	

Figure 5.1.3: All Categories Database Table of FOODU

MongoDB Compass - localhost:27017/foodOrderingApi.galleries

localhost:27017

My Queries Performance Databases Search

admin config foodOrderingApi galleries

foodOrderingApi.galleries

Documents Aggregations Schema Indexes Validation

Filter Type a query: { field: 'value' } or [Generate query](#)

ADD DATA EXPORT DATA

1 - 5 of 5

# galleries	_id ObjectId	title String	single_image String	multiple_images Array	createdAt Date	updatedAt Date
1	ObjectId('657929704bb39ce...')	"asd"	"single_image-17024392796..."	[] 1 elements	2023-12-13T03:48:00.030+0...	2023-12-13T04:4...
2	ObjectId('657e4ee64a2974a...')	"ss"	"single_image-17027765499..."	[] 2 elements	2023-12-17T01:29:10.029+0...	2023-12-17T01:2...
3	ObjectId('6587a819602cfbb...')	"place"	"single_image-17033892093..."	[] 1 elements	2023-12-24T03:40:09.417+0...	2023-12-24T03:4...
4	ObjectId('6587ae64602cfbb...')	"Interior"	"single_image-17033908206..."	[] 3 elements	2023-12-24T04:07:00.705+0...	2023-12-24T04:0...
5	ObjectId('6587aece602cfbb...')	"Food"	"single_image-17033909265..."	[] 4 elements	2023-12-24T04:08:46.637+0...	2023-12-24T04:0...

Figure 5.1.4: Galleries Database Table of FOODU

MongoDB Compass - localhost:27017/foodOrderingApi.pagenames

localhost:27017

My Queries Performance Databases Search

admin config foodOrderingApi pagenames

foodOrderingApi.pagenames

Documents Aggregations Schema Indexes Validation

Filter Type a query: { field: 'value' } or [Generate query](#)

ADD DATA EXPORT DATA

1 - 13 of 13

# pagenames	_id ObjectId	content String	single_image String	selectedCategory String	selectedSubcategory String	createdAt Date
1	ObjectId('6577e29d8e6d077...')	" Welcome to FOODU ..."	"single_image-17028226725..."	"Home"	"Welcome"	2023-12-12T04:3...
2	ObjectId('657f0424c748c2b...')	"<h4>Enjoy food across th..."	"single_image-17028298023..."	"Home"	"TasteCuisine"	2023-12-17T14:2...
3	ObjectId('657f050ac748c2b...')	" Excellent coffee ..."	"single_image-17028231782..."	"Home"	"CardHome"	2023-12-17T14:2...
4	ObjectId('657f052dc748c2b...')	" Rest comfortably ..."	"single_image-17028232130..."	"Home"	"CardHome"	2023-12-17T14:2...
5	ObjectId('657f054ac748c2b...')	" Delicious food ..."	"single_image-17028232421..."	"Home"	"CardHome"	2023-12-17T14:2...
6	ObjectId('657f05e1c748c2b...')	" Original cuisine ..."	"single_image-17028303730..."	"Home"	"OriginalCuisine"	2023-12-17T14:2...
7	ObjectId('657fba5938bbb79...')	"<h1>Gallery</h1><h3>Our ..."	"single_image-17028695930..."	"Gallery"	"GalleryFirstSection"	2023-12-18T03:1...
8	ObjectId('657ff0ea38bbb79...')	"<h1>You have to try us<..."	"single_image-17028835626..."	"About"	"TryUs"	2023-12-18T07:1...
9	ObjectId('657ff19f38bbb79...')	"<h4>WE COOK FOR YOU EVER..."	"single_image-17028837434..."	"About"	"WeCook"	2023-12-18T07:1...
10	ObjectId('657ff1ee38bbb79...')	"<h4>WE FOCUS ON NEW TAST..."	"single_image-17028838221..."	"About"	"WeFocusOn"	2023-12-18T07:1...
11	ObjectId('657fffa738bbb79...')	"<h1>Contact us</h1><h3>Y..."	"single_image-17028873355..."	"Contact"	"ContactFirstSection"	2023-12-18T08:1...
12	ObjectId('658006f738bbb79...')	"<h1>Our menu</h1><h3>Che..."	"single_image-17028892074..."	"OrderOnline"	"OrderOnlineFirstSection"	2023-12-18T08:4...
13	ObjectId('65806e9479719c2a...')	"<h1>Ala</h1><h3>dffbajd<..."	"single_image-17033403594..."	"Home"	"Welcome"	2023-12-23T14:0...

Figure 5.1.5: All PageName Database Table of FOODU

MongoDB Compass - localhost:27017/foodOrderingApi.products

localhost:27017

My Queries Performance Databases Search

admin config foodOrderingApi

branches categories contacts galleries pagenames product-cards product-categories **products** users users-clients local

foodOrderingApi.products

Documents Aggregations Schema Indexes Validation

Filter Type a query: { field: 'value' } or [Generate query](#)

ADD DATA EXPORT DATA

1 - 6 of 6

#	products	_id	branch_name	category_name	categories	createdAt	updatedAt
		ObjectId	String	String	Array	Date	Date
1		ObjectId('6582fdca02843f0...')	"Restaurant_1"	"Platter"	[3 elements	2023-12-20T14:44:26.236+0...	2023-12-20T17:3
2		ObjectId('658301044fb3aab...')	"Restaurant_3"	"Platter"	[3 elements	2023-12-20T14:58:12.265+0...	2023-12-20T16:3
3		ObjectId('658301454fb3aab...')	"Restaurant_2"	"Platter"	[3 elements	2023-12-20T14:59:17.169+0...	2023-12-20T17:3
4		ObjectId('658301c84fb3aab...')	"Restaurant_2"	"Soups"	[3 elements	2023-12-20T15:01:28.722+0...	2023-12-20T17:3
5		ObjectId('658324234fb3aab...')	"Restaurant_3"	"Soups"	[3 elements	2023-12-20T17:28:03.394+0...	2023-12-20T17:2
6		ObjectId('6586f98c24a3393...')	"Restaurant_1"	"Drinks"	[5 elements	2023-12-23T15:15:24.529+0...	2023-12-23T15:1

Figure 5.1.6: All Products Table of FOODU

MongoDB Compass - localhost:27017/foodOrderingApi.users-clients

localhost:27017

My Queries Performance Databases Search

admin config foodOrderingApi

branches categories contacts galleries pagenames product-cards product-categories products **users-clients** users local

foodOrderingApi.users-clients

Documents Aggregations Schema Indexes Validation

Filter Type a query: { field: 'value' } or [Generate query](#)

ADD DATA EXPORT DATA

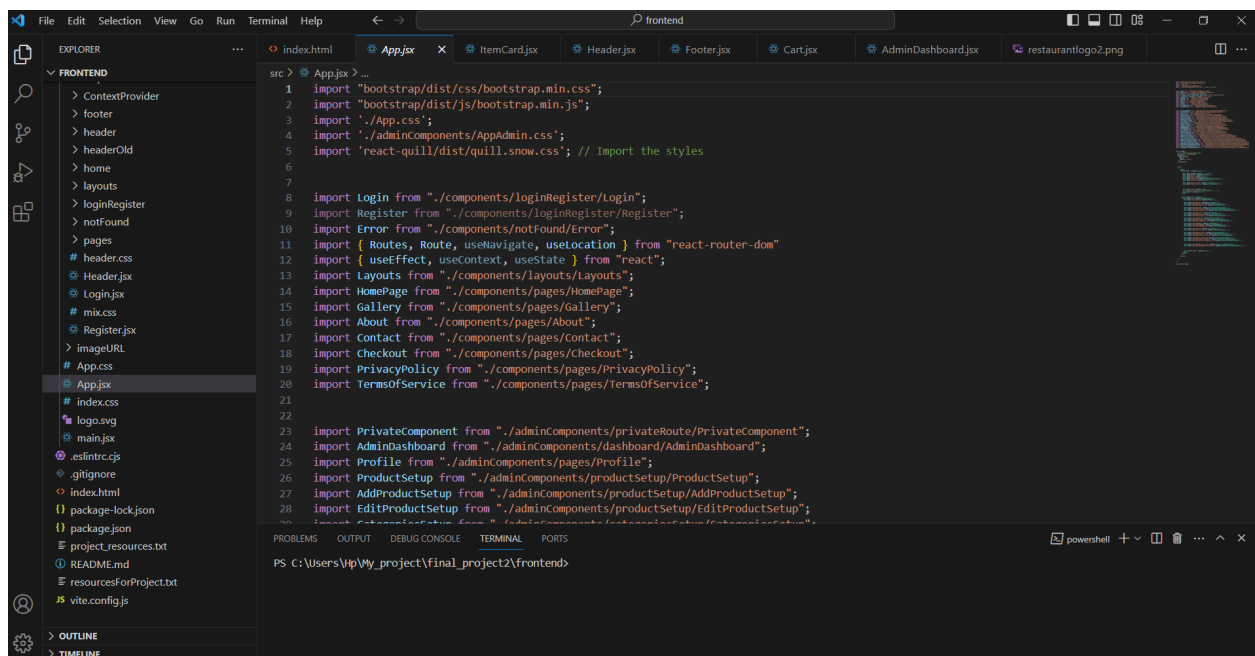
1 - 8 of 8

#	users-clients	_id	fname	email	password	cpassword	contact_no
		ObjectId	String	String	String	String	String
1		ObjectId('658669bb925e62b...')	"Md shyket"	"shyket@gmail.com"	"\$2a\$12\$xEuU1.tZyZLs1jLE...	"\$2a\$12\$5t54LGbfrQ5q/.2gOn...	"01903417676"
2		ObjectId('65866ab74de3f59...')	"chimoy "	"chimoy@gmail.com"	"\$2a\$12\$GmeTgy29ouEINccNG...	"\$2a\$12\$ZIVndDEsvHfDyZbz...	"01955617676"
3		ObjectId('6586942c37d5735...')	"demo"	"demo@gmail.com"	"\$2a\$12\$.8rdmwBLSiwnuzgS6...	"\$2a\$12\$z0919f5zLTnJ/ztyu...	"555545"
4		ObjectId('6586974d36f32a3...')	"me"	"me@gmail.com"	"\$2a\$12\$u2AxZK0UkpW0J3ph...	"\$2a\$12\$skdE67p/FAGnUJUQpY...	"01953417676"
5		ObjectId('6586e7349719c2a...')	"aLamin"	"alamin@gmail.com"	"\$2a\$12\$qKm9WfRZzrVguk13J...	"\$2a\$12\$MBHkjdyDatqeL/Ak...	"01319103866"
6		ObjectId('6587a563602cfbb...')	"shantin"	"shantin@gmail.com"	"\$2a\$12\$11To1rg1WozRTt9p...	"\$2a\$12\$0h1tzCBf5R98AY3E...	"01728936485"
7		ObjectId('6587a6c8602cfbb...')	"Rahyen"	"rahyen@gmail.com"	"\$2a\$12\$01whVmhDG.CpLs1QL...	"\$2a\$12\$53veIbFk124s/1nP8U...	"01738939485"
8		ObjectId('6587a716602cfbb...')	"Jobyer"	"jobyer@gmail.com"	"\$2a\$12\$PBKc/YFWnZLWvgjX...	"\$2a\$12\$3JINDgspFEvp1IC5zf...	"01377854933"

Figure 5.1.7: All Users-Clients Table of FOODU

5.2 Implementation of Front-end Design

FOODU is a mobile app designed for DIU campus that offers a user-friendly, intuitive interface using React.js. The design prioritizes user experience and accessibility, ensuring seamless interactions for customers and shop owners. The app features an advanced ordering interface that allows users to specify meal preferences, choose from dishes, and schedule orders in advance. The interface is designed for simplicity and clarity, making navigation straightforward. Real-time updates are integrated into the design, providing users with instant notifications about dish availability. Shop owners have access to a user-friendly module for efficient order processing. The design is responsive, incorporating modern UI/UX principles, and uses security measures like token-based authentication to protect user accounts and sensitive information. FOODU's front-end design contributes significantly to the success of the MERN stack web application, facilitating advanced ordering, real-time updates, and efficient interactions.



```
src > App.jsx > ...
1 import "bootstrap/dist/css/bootstrap.min.css";
2 import "bootstrap/dist/js/bootstrap.min.js";
3 import './App.css';
4 import './adminComponents/AppAdmin.css';
5 import 'react-quill/dist/quill.snow.css'; // Import the styles
6
7
8 import Login from './components/loginRegister/Login';
9 import Register from './components/loginRegister/Register';
10 import Error from './components/notFound/Error';
11 import { Routes, Route, useNavigate, useLocation } from "react-router-dom"
12 import { useEffect, useContext, useState } from "react";
13 import Layouts from './components/layouts/Layouts';
14 import HomePage from './components/pages/HomePage';
15 import Gallery from './components/pages/Gallery';
16 import About from './components/pages/About';
17 import Contact from './components/pages/Contact';
18 import Checkout from './components/pages/Checkout';
19 import PrivacyPolicy from './components/pages/PrivacyPolicy';
20 import TermsOfService from './components/pages/TermsOfService';
21
22
23 import PrivateComponent from './adminComponents/privateRoute/PrivateComponent';
24 import AdminDashboard from './adminComponents/dashboard/AdminDashboard';
25 import Profile from './adminComponents/pages/Profile';
26 import ProductSetup from './adminComponents/productSetup/ProductSetup';
27 import AddProductSetup from './adminComponents/productSetup/AddProductSetup';
28 import EditProductSetup from './adminComponents/productSetup/EditProductSetup';
29
```

Figure 5.2.1: Some code of front-end by using ReactJs

```

1 <!doctype html>
2 <html lang="en">
3
4 <head>
5   <meta charset="UTF-8" />
6   <link rel="icon" type="image/svg+xml" href="/vite.svg" />
7   <meta name="viewport" content="width=device-width, initial-scale=1.0" />
8
9
10  <link rel="stylesheet" href="https://fonts.googleapis.com/icon?family=Material+Icons" />
11  <link rel="stylesheet" href="https://cdnjs.cloudflare.com/ajax/libs/font-awesome/6.1.1/css/all.min.css"
12    integrity="sha512-KfkfwYDsLkIlwQp6Lnl8Zg3X0uY9wVAQIQw1NKs4PhCElQsvqcyVLLD9aVhxd13uQjoxTExN0s0Ma7qXgel0g=="
13    crossorigin="anonymous" referrerpolicy="no-referrer" />
14
15  <title>Vite + React</title>
16 </head>
17
18 <body>
19   <div id="root"></div>
20   <script type="module" src="/src/main.js"></script>
21 </body>
22
23 </html>

```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

PS C:\Users\Utp_Vhy_project\final_project2\frontend>

Figure 5.2.2: Some code of front-end index.HTMl

```

1 {
2   "name": "Frontend",
3   "private": true,
4   "proxy": "http://localhost:5000",
5   "version": "0.0.0",
6   "type": "module",
7   "scripts": {
8     "dev": "vite",
9     "build": "vite build",
10    "lint": "eslint . --ext js,jsx --report-unused-disable-directives --max-warnings 0",
11    "preview": "vite preview"
12  },
13  "dependencies": {
14    "@emotion/react": "^11.11.1",
15    "@emotion/styled": "^11.11.0",
16    "@mui/icons-material": "^5.14.18",
17    "@mui/material": "^5.14.18",
18    "axios": "^1.6.2",
19    "bootstrap": "^5.3.2",
20    "react": "^18.2.0",
21    "react-custom-scrollbars-2": "^4.5.0",
22    "react-dom": "^18.2.0",
23    "react-modal": "^3.16.1",
24    "react-quill": "^2.0.0",
25    "react-router-dom": "^6.20.0",
26    "react-slideshow-image": "^4.3.0",
27    "react-toastify": "^9.1.3",
28    "react-voice-react": "^1.13.0"
29  }
30 }

```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

PS C:\Users\Utp_Vhy_project\final_project2\frontend>

Figure 5.2.3: Some json code of front-end

5.3 Testing Implementation

Certainly, below is a simplified table outlining aspects of testing implementation for the FOODU MERN stack web application. Each row represents a different aspect of testing:

Testing Aspect	Description
Unit Testing	Conduct tests on individual components and functions to ensure they perform as intended.
Integration Testing	Verify that different modules or components of the application work seamlessly together.
End-to-End Testing	Test the entire application flow, simulating real user interactions from start to finish.
User Acceptance Testing	Involve actual users to evaluate and validate whether the application meets their expectations.
Performance Testing	Assess the system's responsiveness, scalability, and resource usage under various load conditions.
Security Testing	Identify and address potential vulnerabilities to ensure the application is secure from external threats.
Cross-Browser Testing	Confirm the application's compatibility across different web browsers to provide a consistent user experience.
Accessibility Testing	Ensure the application is accessible to users with disabilities, adhering to accessibility standards.
Usability Testing	Evaluate the user interface's ease of use, navigation, and overall user experience.
Regression Testing	Ensure that new code changes do not negatively impact existing functionalities of the application.

Automated Testing	Develop automated test scripts to streamline the testing process and catch regressions early.
Load Testing	Evaluate the system's performance under heavy loads to identify potential bottlenecks or issues.

Table 5.3.1: FOODU Testing Implementation Table

This table provides a brief overview of the testing aspects to be implemented for the FOODU web application, ensuring a comprehensive testing strategy to validate its functionality, performance, security, and user experience. Adjust or expand as needed based on the specific testing requirements of your project.

5.4 Test Results and Reports

Certainly, below is a simplified table outlining test results and reports for various aspects of the FOODU MERN stack web application. Each row represents a different type of testing, and the columns provide information on test outcomes and any relevant reports:

Testing Aspect	Test Results	Reports
Unit Testing	All individual components and functions passed unit tests.	Unit Test Report detailing test cases, outcomes, and coverage.
Integration Testing	Modules successfully integrated, and interactions function as expected.	Integration Test Report summarizing integration test results.
End-to-End Testing	Application flow tested; user interactions and workflows function smoothly	E2E Test Report documenting scenarios, pass/fail results, and observations.
User Acceptance Testing	Users provided positive feedback, and the application met their expectations.	UAT Report with user feedback, issues identified, and overall satisfaction.

Performance Testing	Application demonstrated optimal responsiveness under varying loads.	Performance Test Report outlining response times, resource usage, and scalability.
Security Testing	No critical vulnerabilities detected; security measures effective.	Security Test Report with findings, remediation steps, and overall security status.
Cross-Browser Testing	Application compatible with major browsers (Chrome, Firefox, Safari, etc.).	Cross-Browser Test Report documenting browser compatibility results.
Accessibility Testing	Application adheres to accessibility standards; usable by individuals with disabilities.	Accessibility Test Report with compliance details and suggested improvements.
Usability Testing	Positive user feedback on the ease of use and overall user experience.	Usability Test Report summarizing observations and user feedback.
Regression Testing	New features did not negatively impact existing functionalities.	Regression Test Report detailing tested areas and any regression issues found.
Automated Testing	Automated test scripts executed successfully; no critical failures.	Automated Test Report providing details on script execution, pass/fail results.

Table 5.4.1: FOODU Test Results and Reports

These reports provide a comprehensive overview of the testing results, helping stakeholders understand the application's quality, performance, and adherence to various criteria. Adjust or expand the table based on the specific testing requirements and outcomes of your project.

CHAPTER 6

IMPACT ON SOCIETY, ENVIRONMENT AND SUSTAINABILITY

6.1 Impact on Society

The FOODU MERN stack web application is a revolutionary tool that aims to optimize food consumption and reduce food waste. It facilitates advanced food ordering and provides real-time updates, promoting sustainability and reducing environmental impact. In university settings, FOODU allows students to plan meals in advance, enhancing their dining experience and time management. The application also supports local businesses, allowing them to manage inventory and minimize waste. The real-time updating of available dishes creates a dynamic dining ecosystem, empowering users with timely information. This approach fosters a more efficient dining environment within the university community, promoting sustainability and fostering a more profitable model. The FOODU application aligns with contemporary values of efficiency, sustainability, and technological innovation.

6.2 Impact on Environment

The FOODU MERN stack web application is a sustainable food ordering and management system that reduces food waste by allowing users to place orders in advance and providing real-time updates on dish availability. This system minimizes excess food production, allowing shop owners to prepare the right amount of food for customers. The application aligns with sustainability goals by conserving resources invested in food production, transportation, and disposal. The real-time updating feature optimizes inventory management for food vendors, ensuring food is consumed before expiration. This reduces food waste and promotes a more environmentally conscious food consumption cycle. Overall, the FOODU application contributes to a more sustainable and environmentally friendly approach to food ordering and management within the university community.

6.3 Ethical Aspects

The FOODU MERN stack web application is a platform that promotes responsible technology use within the university community. It encourages ethical consumption practices by enabling users to order in advance, reducing food waste and supporting local businesses. The application also provides real-time updates on dish availability, empowering users to make informed choices. It optimizes food production and inventory management, promoting ethical resource use and reducing environmental impact. Ethical considerations extend to user privacy and data security, with secure authentication measures protecting user accounts. The user-friendly design ensures inclusivity and accessibility, allowing individuals with diverse needs to participate equally. FOODU embodies responsible technology use by streamlining processes and enhancing efficiency, contributing positively to the university community. These ethical considerations collectively contribute to a positive and socially responsible impact within the university community.

6.4 Sustainability Plan

The sustainability plan for FOODU is designed to ensure the application's long-term success and positive impact within the university community. It revolves around continuous user engagement and education, fostering collaborative relationships with local food vendors, and providing regular updates and feature enhancements based on user feedback. The plan also focuses on building a sense of community, maintaining robust data security and privacy compliance, assessing the environmental impact, and ensuring financial sustainability through a well-defined business model. Scalability, adaptability, community outreach, ongoing monitoring and evaluation, and a commitment to user satisfaction are integral components of the sustainability plan. These measures collectively aim to position FOODU as an enduring and valuable solution within the university context.

CHAPTER 7

CONCLUSION AND FUTURE SCOPE

7.1 Discussion and Conclusion

The FOODU MERN stack web application is a comprehensive solution for university campus dining. It offers advanced features like real-time dish updates, enabling users to make informed decisions and plan meals in advance. The application also supports ethical practices in reducing food waste, promoting sustainability and responsible resource management. It collaborates with local food vendors, fostering community engagement and supporting local businesses. The application also includes discounts and promotional features, catering to special buyers and a diverse user base. The successful integration of MERN stack technologies ensures a robust and scalable platform, while the user-friendly interface enhances accessibility. The sustainability plan focuses on user engagement, vendor collaboration, environmental impact assessment, and financial viability. FOODU not only meets the immediate needs of the university community but also contributes to broader ethical considerations related to food waste reduction, local business support, and responsible technology use.

7.2 Scope for Further Developments

Mobile Application Development: Develop into consideration creating a mobile app for the FOODU system. Users will be able to conveniently manage their accounts, and manage all the things that are in Web applications. An application for mobile devices can improve accessibility and user experience, meeting the needs of the expanding mobile user base.

Integration of Emerging Technologies: Exploring the integration of emerging technologies like AI and ML could elevate the application's capabilities. These technologies can enhance personalization, predict user preferences, and contribute to a more intelligent and responsive system.

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FOODU

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6%

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