AUTOMATED FOOD ORDERING SYSTEM

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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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DHAKA, BANGLADESH

JANUARY 2023

APPROVAL

This Project titled **"Automated Food Ordering System"**, submitted by **Md. Abu Bakar Siddique, Al Ashrif Bin Ahamed and Md. Muhaiminul Sarkar** ID No: **191-15-12560, 191-15-12439 and 191-15-12425** 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 January 2023.

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We hereby declare that, this project has been done by us under the supervision of **Dr. Md. Fokhray Hossain, Professor, Department of CSE** Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

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ACKNOWLEDGEMENT

Firstly, we express our heartiest thanks and gratefulness to almighty God for His kindness blessing which makes us possible to complete the final year project/internship successfully.

We are really grateful and expressing our gratitude to **Dr. Md. Fokhray Hossain**, **Professor**, Department of CSE, Daffodil International University, Dhaka. Deep Knowledge & keen interest of our supervisor in the field of "*web based*" to carry out this project. His endless patience and support, scholarly guidance, continual encouragement, energetic supervision, constructive criticism, valuable advice, reading many inferior drafts and correcting them at all stage have made it possible to complete this project.

We would like to express our heartiest gratitude to **Prof. Dr. Touhid Bhuiyan**, **Professor and Head,** Department of CSE, for his kind help to finish my project and also to other faculty member and the staff of CSE department of Daffodil International University.

We would like to thank our all class and batch mate in Daffodil International University, who took part in this discuss while completing the course work.

Finally, we must be acknowledged with due respect the constant support and patients of our parents.

ABSTRACT

This “Automated Food Ordering System” is a software system for making an easy ordering system at café or restaurants. This entire system is for ordering at restaurants by customers and also for restaurant owners to manage the restaurant easily. In recent days, there are huge numbers of restaurants and food shops in Bangladesh but most of them use manual ordering and restaurant handling systems which is so time-consuming and complex. Most often, there held misunderstandings between customers and restaurants about order details. The restaurant has to go through a lot of trouble to deliver all the order properly. For these kinds of reasons, we have developed a web base software system with some unique features. We mainly focus on easy ordering, payment and easy management for restaurant. This system will be helpful for both customers and owner of the restaurant. This website tested in several ways after implementation and it works successfully.

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CHAPTER 1

Introduction

1.1 Background of the Project

A quick ordering and management system at restaurant is “Automated Food Ordering System”. This system will provide anyone an easy and hassle-free restaurant experience. In here, customer will order their desired food from preferred restaurant by just scanning a QR code. Also, customer can search food from search bar and modify their order after creating an order successfully. Here will have several payment methods to make payment by customers. Restaurant owners can modify their food menu or prices by this system. Both customer and restaurant owners can view the ordering details.

1.2 Motivation

Usually, we face some problems when we go to restaurant. These are like order process, modify order, payment process and others. We have to face difficulties for manual handling order which taken by staffs or waiter. Sometimes they made mistakes about order details. For these kinds of reason, the goal of an automated food ordering system is to arrange all of orders into clear and manageable tasks so that they can be performed more quickly.[1] We build this automated system to make the whole restaurant experience smooth and hassle free for both customer and owners. The main purpose of this system is to perform instant ordering for the customers and smooth managing restaurant for owners. Overall, the implementation of an automated food ordering system can lead to a more convenient and efficient dining experience for both customers and the business.

1.3 Problem Statement

Restaurants and other food service establishments are facing increasing competition from online food delivery services. In order to remain competitive, these businesses need to be able to efficiently process and manage orders, as well as offer customers a convenient and user-friendly online ordering experience. However, many current automated food ordering systems do not fully meet these needs. There is a need for an automated food ordering system that integrates seamlessly with online delivery platforms and offers a more efficient and user-friendly ordering experience.

1.4 Aim of the Project

Functionalities provided by "Automated Food Ordering System":

- Automated order system by scanning QR code.
- Search food, view and update orders by customer.
- Admins have the options of update and modify food menu.
- No mistakes about order details.
- This system helps to reduce the restaurant cost.
- System will be able to handle various types of payment method.

1.5 Methodology

The methodology for an automated food ordering system project would involve several key steps, including:

- Research and analysis: This step involves gathering information about the current state of food ordering systems, identifying the challenges and limitations of existing systems, and researching new technologies and best practices that can be used to improve the system.
- Design and development: Using the information gathered in the research and analysis step, the design and development of the automated food ordering system

can begin. This step includes creating a user interface, developing the necessary software and hardware, and integrating the system with existing technologies.

- Testing and evaluation: Once the system has been developed, it must be thoroughly tested to ensure that it is functioning properly and meets the needs of customers and staff. This step may involve user acceptance testing, where a group of customers and staff test the system to ensure that it is user-friendly and meets their needs.
- Implementation and maintenance: After the system has been tested and evaluated, it can be implemented in the food service establishment. Ongoing maintenance and support will be required to ensure the system continues to function properly and can be updated as needed.
- Continual improvement: After the system is implemented, it is important to gather feedback from customers and staff, and use this feedback to make continual improvements to the system over time.

1.6 Proposed Solutions

- Increased convenience for customers, as they can place their orders from anywhere at any time without having to wait in line or call in.
- A more personalized experience for customers, who can easily browse through menus and choose from a variety of options.
- Reduced errors and improved customer satisfaction.
- Improved efficiency and cost savings for the business, as the system streamlines the ordering process.
- Increased revenue for the business, as the system may lead to more orders being placed.

1.7 Report Layout

Here is the summary of the total project report format.

Chapter 1: Here, we've provided a project overview. We first talked about the project's introduction and motivation before moving on to its goals and desired outcomes.

Chapter 2: Here, we discussed the structure about our project. We have also talked about the project's relevant tasks, critical areas, and difficulties. Additionally, contrast it with a different competing system.

Chapter 3: We need some diagrams to correctly implement a project in order to make it successful. Here, various diagrams will be used to simplify the task.

Chapter 4: Here, we explain how to use the database system and back-end operations.

Chapter 5: Here, we highlight the project's results as well as the user interface.

Chapter 6: The effects on society, the environment, and sustainability Impact on the environment, society, and sustainability are discussed here.

Chapter 7: Our planning in this case has been primarily directed at this application. Here, the focus is primarily on how far we will fork in the future.

1.8 Conclusion

An automated food ordering system is a computerized system that allows customers to place orders for food items through a computer or mobile device, without the need for human interaction. The system typically includes a user-friendly interface for customers to browse menu items, select options, and submit orders. The widespread adoption of automated food ordering systems is driven by the need to improve the efficiency and accuracy of order taking, reduce the potential for errors and wait times for customers, and also to minimize human interaction during the pandemic.[2] This system can also help food service establishments to manage orders and payments more effectively, and to remain competitive in the food industry.

CHAPTER 2

Literature Review

2.1 Introduction

In this project aims to gather and analyze existing research and literature on the topic in order to gain a deeper understanding of the current state of food ordering systems, the challenges and limitations of existing systems, and the best practices and technologies that can be used to improve the system. The literature review will be based on reputable sources such as research papers, articles, and studies in the field of food service management, computer science, and engineering.[1] The review will cover key areas such as the current state of food ordering systems, the use of new technologies, the impact of online food delivery services and the role of automation in improving efficiency and accuracy in food ordering and preparation.[8] Overall, the literature review will provide a comprehensive overview of the field and inform the design and development of the automated food ordering system project.

2.2 Preliminaries

It is difficult to order at restaurant manually which handled by humans. Usually, they make error about taking order and serve food to the right customer. It is also difficult for the restaurant owners to handle the restaurant manually. Here, we want to develop a user-friendly system based on automated system that gives the customer to order online easily, modify orders and the restaurant owners to edit and update food menu. We worked hard to create a fully automated system that will be reliable, secure, and most importantly, user-friendly.

2.3 Literature Work

Literature work of an automated food ordering system discuss about some topics. These are like an overview of the food ordering industry and the need for automation. Technical descriptions of the system architecture, hardware, and software components. Evaluation of the system's performance, including reliability, accuracy, and user satisfaction. Comparison with traditional food ordering methods and discussion of the advantages and disadvantages of automation [9]. Case studies and real-world examples of successful implementation of [15] automated food-ordering systems. Discussion of security and privacy concerns, including payment processing and customer data protection. Analysis of the economic and business impacts of automated food ordering systems, including cost savings, increased efficiency, and improved customer experience [3]. Exploration of the potential for integration with other technologies, such as kitchen automation, intelligent menu design, and predictive analytics. including factors that influence adoption and usage. Discussion of the ethical and social implications of automation in the food ordering industry, including the impact on jobs and the wider economy [23]. Examination of regulatory and legal requirements for automated food ordering systems, including food safety, accessibility, and data protection regulations [12]. These topics provide a comprehensive overview of the literature related to automated food ordering systems and can serve as a guide for researchers, developers, and industry professionals seeking to better understand this rapidly evolving field.

2.4 Comparative Analysis

A comparative analysis of automated food ordering systems can provide valuable insights into the strengths and weaknesses of different systems and help businesses decide which one is the best fit for their needs. We provide our best to make “Megaan Food” easy to use and understand for both customers and restaurant owners. We gathered some important information which will be helpful to make our system best. We gathered information on a variety of factors, such as different types of payment methods supported, the user experience and interface, the level of customization and personalization offered, and the overall cost saving rather than others.

2.5 Scope of the Problem

The scope of the problem refers to the specific aspects of the automated food ordering system that will be addressed in the report. We are facing some issues after finishing the work of our system. Here are some problems:

- We don’t able to send real time confirmation of orders to the customers
- Our system does not have offline version so that a data connection is always required to use this system.
- A smart device is must to use this system.

2.6 Challenges

Mainly we faced a huge problem to ensure the security of my system. And it has to mentioned that we worked so hard to design a user-friendly interface. We faced compatibility problems, security vulnerabilities and scalability issues which was one of the big challenges for us. Blocking unauthorized users from reading, writing and deleting data from database was also a challenging part for us. Overall, we faced some problems during the building of our system but we took them as challenge for us and overcome as much as we can.

2.7 Conclusion

In the literature review suggests that future research can help improve the automated food ordering system and make it more efficient and user-friendly. Overall, the literature review provides a comprehensive understanding of the field and helps establish the relevance and importance of the research in the context of the project.

CHAPTER 3

Requirement specification

3.1 Introduction

The requirement specification for an automated food ordering system would include details such as the system's user interface design, ordering process, payment methods, and reporting capabilities. It would also include any specific requirements for integrating with existing systems or online delivery platforms. The requirement specification will be used as the basis for the design and development of the system and will be referenced throughout the project to ensure that the final product meets the needs of the users.

3.2 Business Process Modeling

Here is the Business Process Model (BPM) or our system for easy understanding because sometimes it’s hard to understand the workflow of a website.

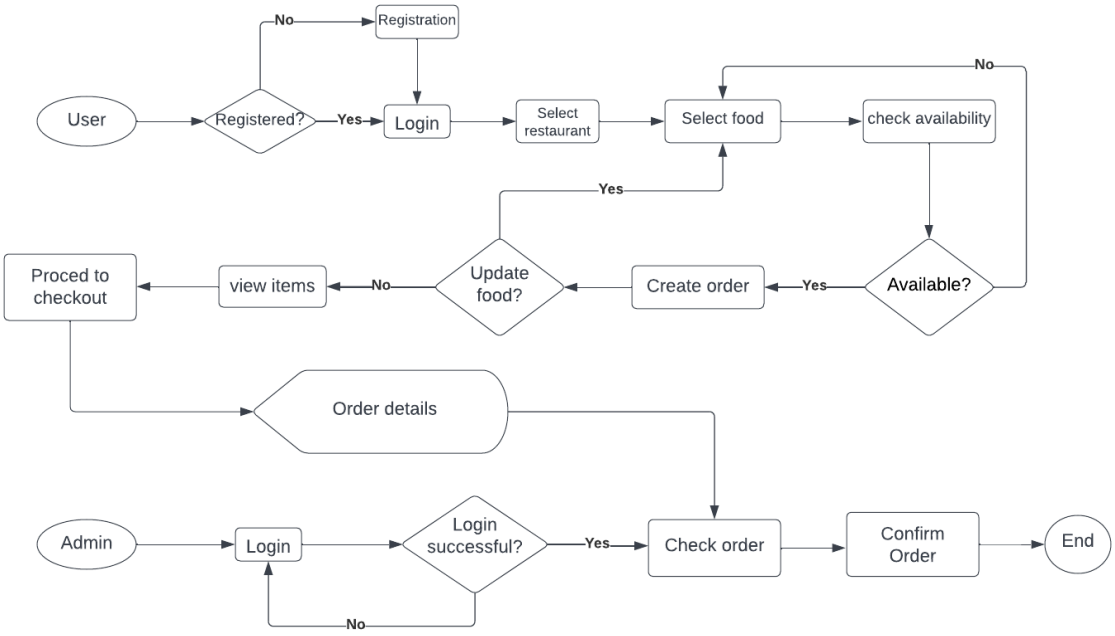


Figure 3.2.1: Business Process Modeling

A workflow is significantly simpler to understand and assess when presented graphically. The key components of the system are available to us based on our model. Here we add a total graphical explanation about how our system works.

3.3 Requirement Collection and Analysis

Analyzing the requirements gathered to determine whether it is feasible and accurate to convert the requirements into a potential product. Here have two requirements for this project. These are functional and non-functional requirement. In this category, there is application configuration. The configuration is:

3.3.1 Functional

Functional specifications are applicable to a system or a component of it. It responds to the query, "What does the system perform?" The user specifies the required functionality. For the project, it is essential that certain standards should be fulfilled. It is also referenced in the use case.

The following are the "Automated Food Ordering System" functional requirements:

- Registration
- Log in
- View Category
- Get Order Notification
- Modify/Cancel Order
- Show Order List
- Add Product
- View/Update Product
- Edit Menu
- Checkout From Cart
- QR Code Scan
- Make Payment for Order

- Manage Stock Limit
- Log Out

3.3.2 Non-functional Requirements

The performance metric of a system is known as its non-functional needs. It is said "How should the system satisfy the functional requirements?" Engineers or software developers refer to such needs as "non-functional needs." These must be fulfilled. This data is also saved as a system quality indicator. The following are the "Automated Food Ordering System" functional requirements:

- Security
- Performance
- Availability
- Quality
- Stability
- Maintenance

3.4 Use Case Modeling and Description

3.4.1 Use Case Modeling

Figure 3.4.1.: Use Case Diagram

A visualization of the links between system components is a use case. Use cases are tools for identifying, outlining, and planning system needs in system analysis. There are only 4 main components in a use case: an actor, a use case, a system, and a relationship.

3.4.2 Use Case description

3.4.2.1 Registration

Description	If anyone wants to use the system for the first time, then he/she must input information as user ID, email and password.

3.4.2.2 QR Code Scan

Description	User can scan QR code for get the menu in this.

3.4.2.3 Log In

Description	If an administrator or user already has an account, they can log in.

3.4.2.4 Update Order

Description	User can able to create and update order on it.

3.4.2.5 Update Menu

Description	An admin can update menu in this.

3.4.2.6 View Order

Description	User can view all types order on this.

3.4.2.7 Create Order

Description	User can able to create order on it.

3.4.2.8 Select Menu

Description	User will select their desired food from their choice.

3.4.2.9 Feedback

Description	Users can express their opinions about authority.

3.4.2.10 Make Payment

Description	When the customer or operator confirms the order, then user can make payment.

3.4.2.11 Log Out

Description	The program can be exit and logged out using this module.

3.5 Activity Diagram

3.5.1 Registration

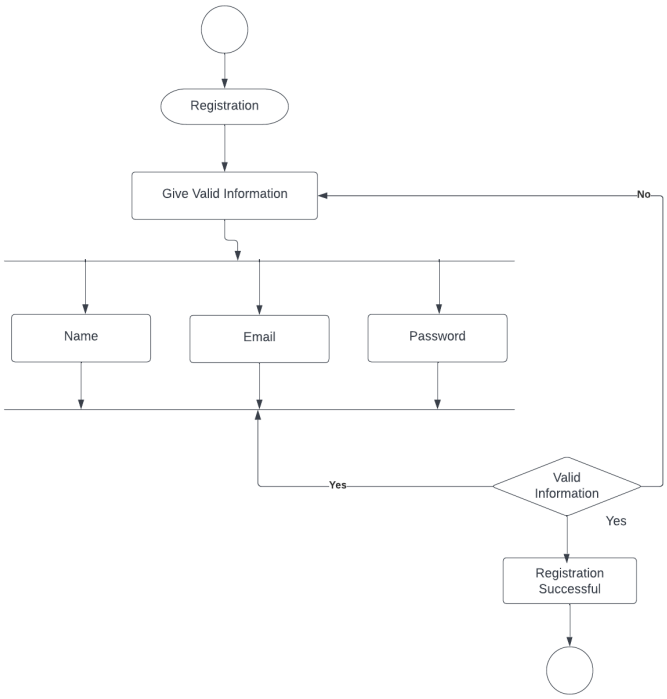


Figure 3.5.1: Registration Diagram

This diagram is a visual representation of the registration process. It shows the steps that a user must go through in order to create an account and gain access to the system's features and capabilities. The registration diagram typically includes the following steps: opening the registration page, entering personal information, creating a unique username and password and email, verifying the account, and accessing the system.

3.5.2 Login

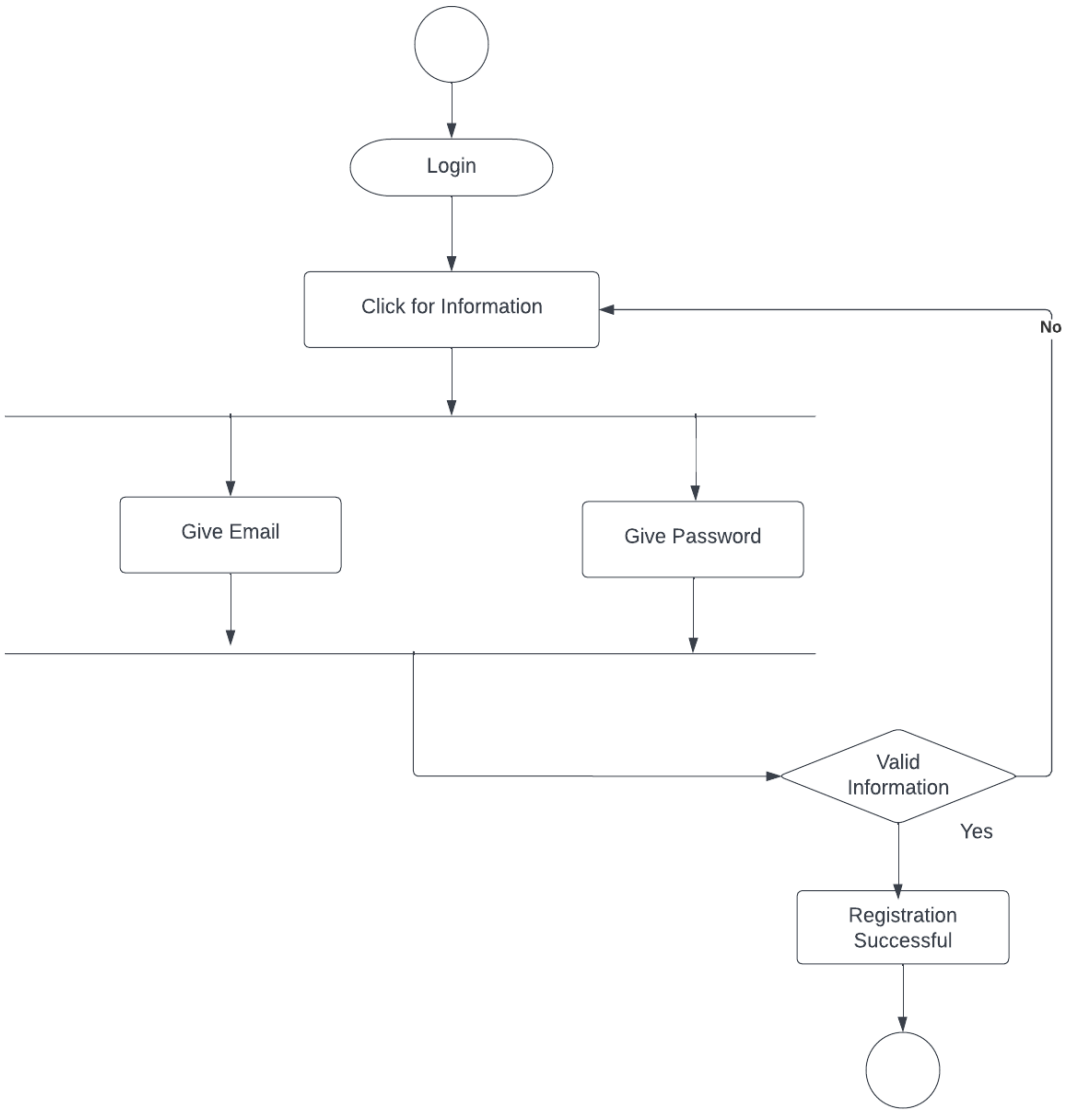


Figure 3.5.2: Login Diagram

The login diagram typically includes the following steps: opening the login page, entering a unique username and password, verifying the user's credentials, granting access if the credentials are valid, and displaying an error message if the credentials are invalid.

3.5.3 Create Order

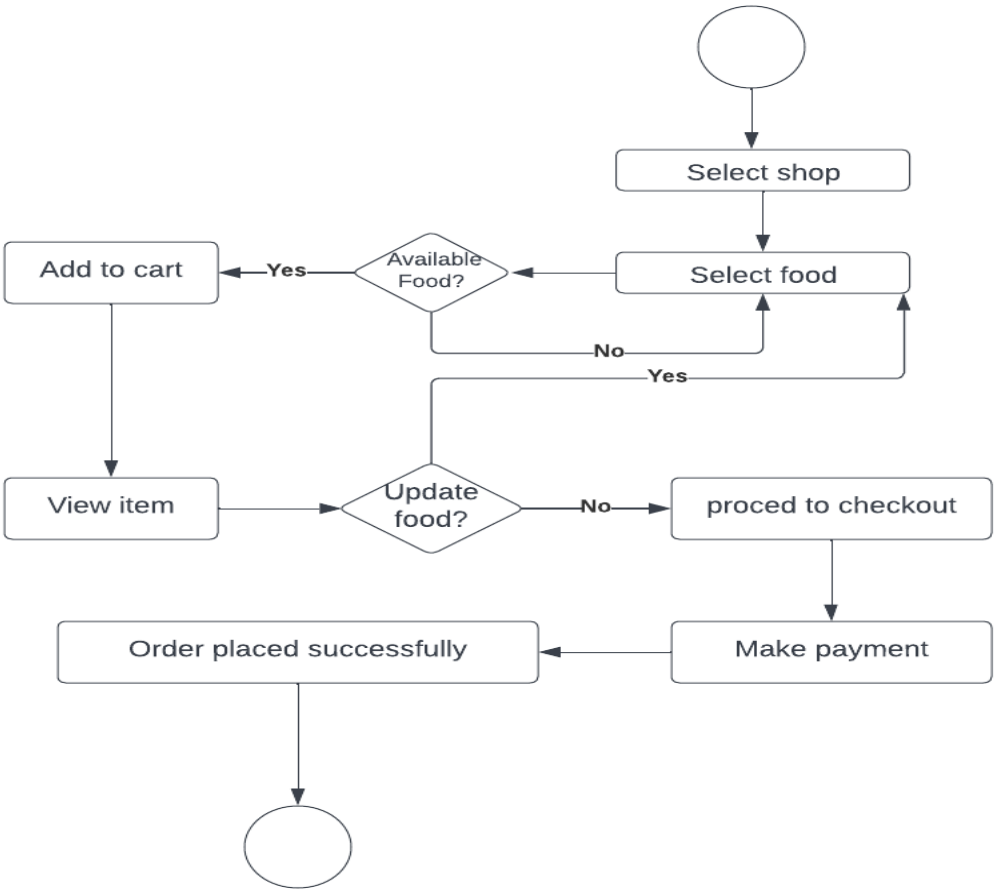


Figure 3.5.3: Create Order Diagram

The create order diagram is a visual representation of the process of creating an order using an automated food ordering system. The create order diagram typically includes the following steps: logging in, selecting the "Create Order" option, choosing menu items, specifying special requests, reviewing the order summary, confirming the order, receiving a confirmation notification, and sending the order to the kitchen or restaurant for preparation.

3.5.4 View Order

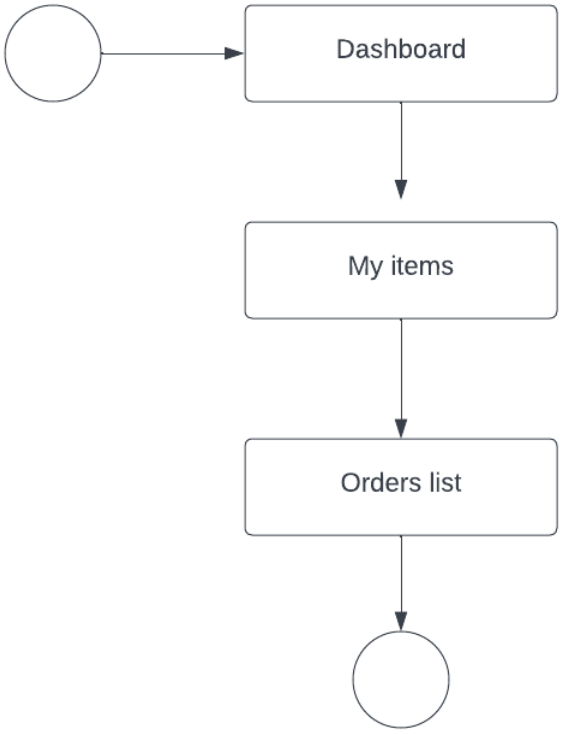


Figure 3.5.4: View Order Diagram

The view order diagram typically includes the following steps: logging in, selecting the "View Order" option, choosing the order to view, viewing the order details, including the items ordered, the total cost, the status of the order and any additional instructions or special requests. The user can also cancel the order if it is still being prepared or has not been delivered yet.

3.5.5 Admin

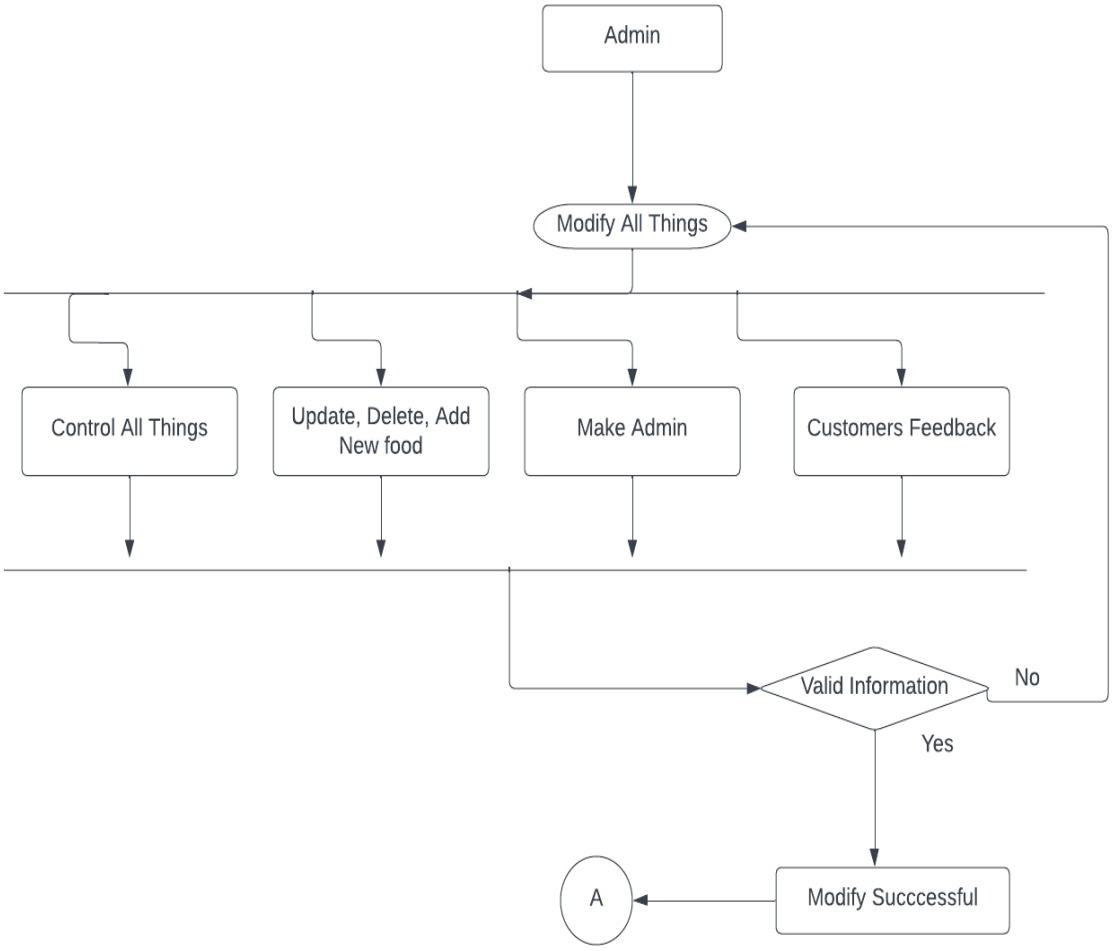


Figure 3.5.5: Admin Diagram

It shows the steps that an administrator must go through in order to perform various tasks such as adding or removing menu items, managing customer orders, and monitoring system performance. The admin role diagram typically includes the following steps: logging in as an admin, selecting the "Admin" option, choosing the task to perform, viewing the relevant information or options for the selected task, performing the task and the system updates accordingly.

3.5.6 Feedback

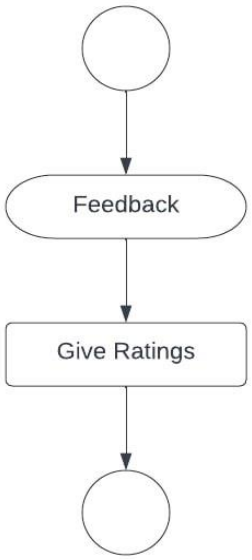


Figure 3.5.6: Feedback Diagram

It shows the steps that a user must go through in order to provide feedback on their experience with the system, such as rating their order, providing comments, and submitting feedback.

3.6 Sequence Diagram

3.6.1 Create order

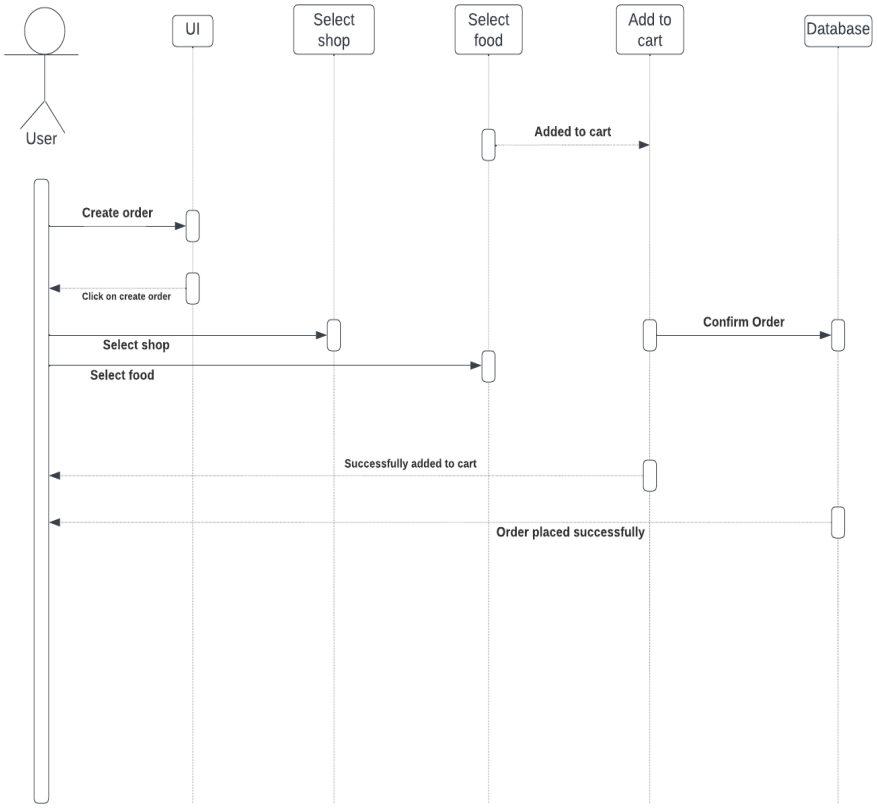


Figure 3.6.1: Create Order Sequence Diagram

A create order sequence diagram would typically include the following steps: user logs in, select "create order", selecting the items from the menu, confirm the order with any special instructions or requests, system displays the total cost and prompt user to confirm the payment details, system sends the order details to the kitchen or restaurant.

3.6.2 Search Food

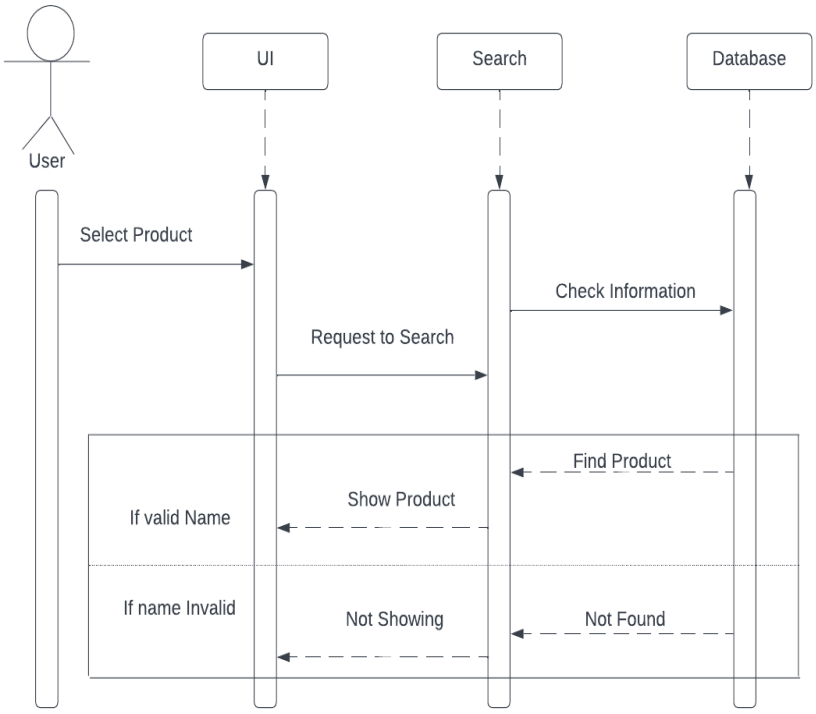


Figure 3.6.2: Search Food Sequence Diagram

A create order sequence diagram would typically include the following steps: user logs in, select "create order", selecting the items from the menu, confirm the order with any special instructions or requests, system displays the total cost and prompt user to confirm the payment details, system sends the order details to the kitchen or restaurant

3.6.3 Make Payment

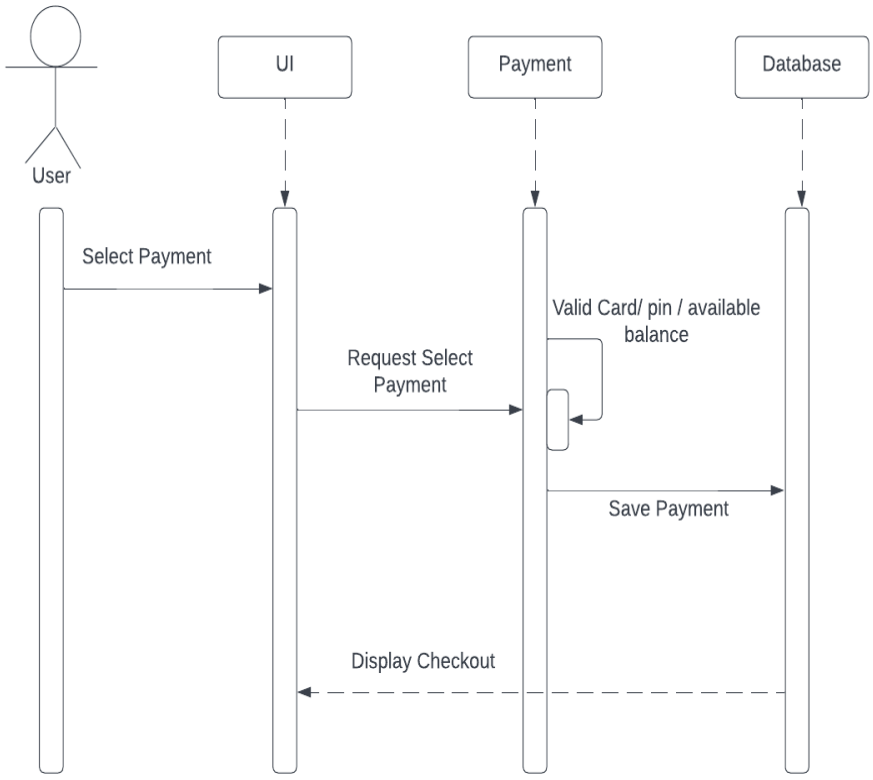


Figure 3.6.3: Make Payment Sequence Diagram

A make payment sequence diagram would typically include the following steps: user confirms their order and proceeds to the checkout page, system displays the total cost of the order and prompts the user to enter their payment details, user enters their credit or debit card information or selects a saved payment method, system sends the payment details to the payment gateway for processing, payment gateway validates the payment details and sends a response to the system.

3.6.4 Add to cart

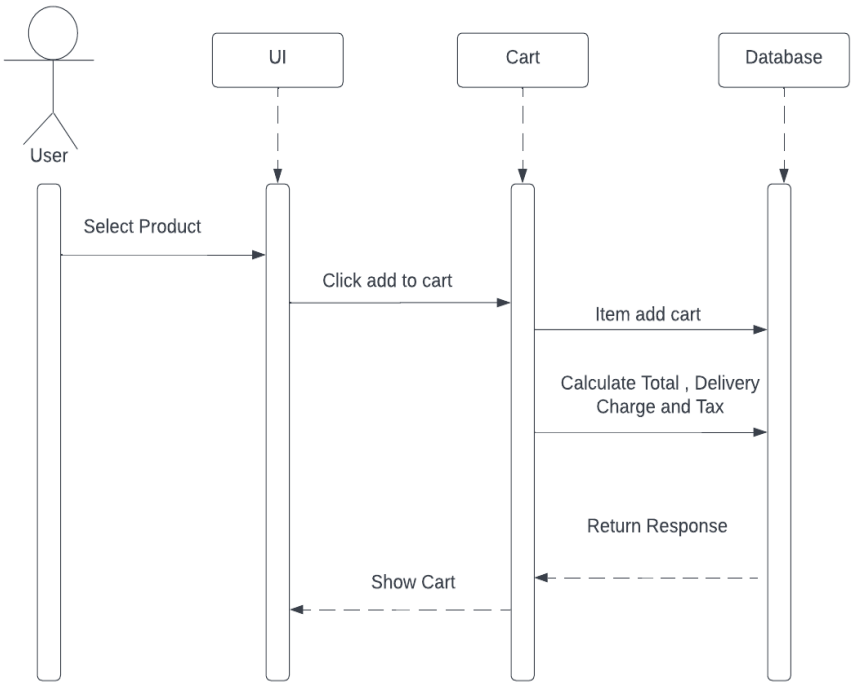


Figure 3.6.4: Add to Cart Sequence Diagram

An add to cart sequence diagram would typically include the following steps: user selects the "Add to Cart" option, system adds the selected items to the user's cart and updates the cart total, user reviews the contents of the cart and can make changes if necessary, user confirms the order and proceeds to the checkout page, system sends the order to the restaurant or kitchen for preparation.

3.6.5 Admin

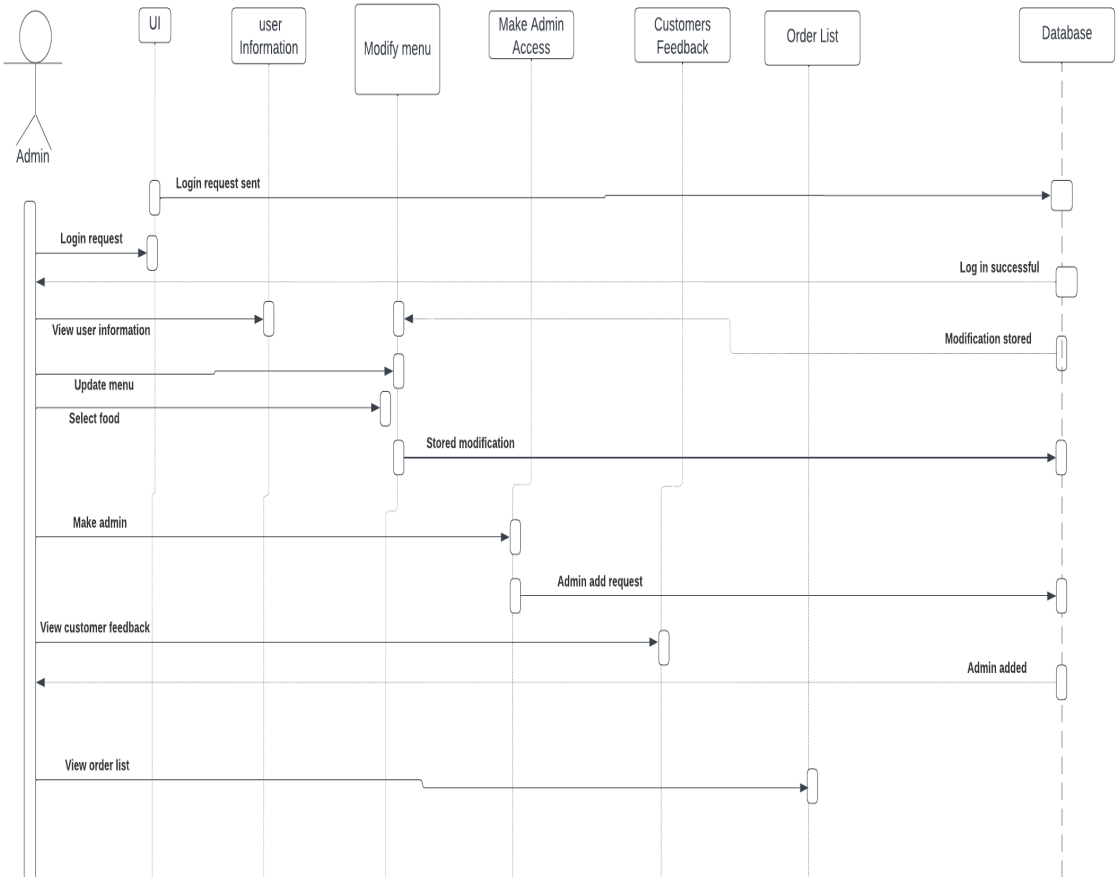


Figure 3.6.5: Admin Role Sequence Diagram

An admin role sequence diagram would typically include the following steps: admin logs into the system, the system grants the admin access to the admin dashboard, admin can perform various tasks such as adding new menu items, editing existing ones, and viewing reports on sales and customer behavior, admin can also manage user accounts by adding, editing, or deleting them, admin can also update the order status, and admin can also view the feedback given by the users and can take appropriate actions accordingly.

3.7 Logical Data Model

This is a visual representation of the Entity Relationship Diagram, which assists in our understanding of the relationships and concepts throughout the entire system. This data table gives us an idea of the users, objects, and administrators that are available.

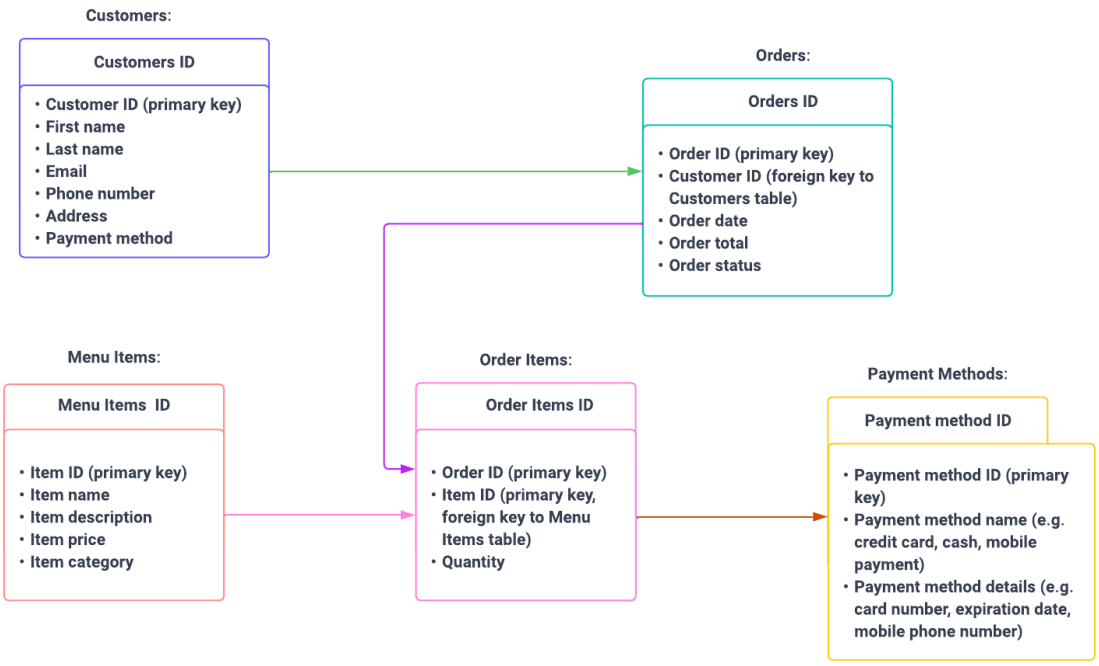


Figure 3.7.1: Logical Data Model

This diagram shows that each user has an individual ID, they are able to order several things, and each product also has a unique ID. Users can also order a variety of products.

3.8 Design Requirement

Design requirements are the necessary elements that allow an idea to become a design feature. We use some software and tools to implement our system. Here are the specifications of the tools we used:

Front-End: Javascript, reactJS, HTML, CSS, Tailwind CSS

Back-End: NodeJS, ExpressJS

Database: MongoDB

Authentication: Firebase

Tools: Postman, VScode, Lucid app

Operating system: Windows10 or latest

Browser: Google chrome,Microsoft edge

Hosting: Firbase free hosting

3.9 Conclusion

It is an essential part of the project as it ensures that the final product meets the needs of the users by providing detailed information on the system's user interface design, ordering process, payment methods, and reporting capabilities. It also includes any specific requirements for integrating with existing systems or online delivery platforms.[15] The requirement specification will be referenced throughout the project to ensure that the final product meets the needs of the stakeholders such as customers, staff and management.

CHAPTER 4

Design Specification

4.1 Introduction

The design specification for an automated food ordering system would include details such as the system architecture, the technology stack, the database design, and any relevant algorithms or models. It would also include details on the user interface design, including wireframes and mockups of the various screens and interactions. The design specification will be used as a guide for the development and testing of the system, and will be referenced throughout the project to ensure that the final product is built according to the design specifications.

4.2 Front-end Design

Front-end design for an automated food ordering system project refers to the visual and interactive elements of the system that users interact with, such as the user interface (UI) and user experience (UX). It includes the design of the system's layout, navigation, buttons, forms, and other elements that make up the interface.

Front-end design for an automated food ordering system would involve creating wireframes and mockups of the various screens and interactions, such as the home screen, menu, order placement, and payment screens. It would also include selecting and implementing appropriate design elements such as colors, typography, and images.

4.2.1 QR Code Scanning

Figure 4.2.1: QR Code

4.2.2 Registration

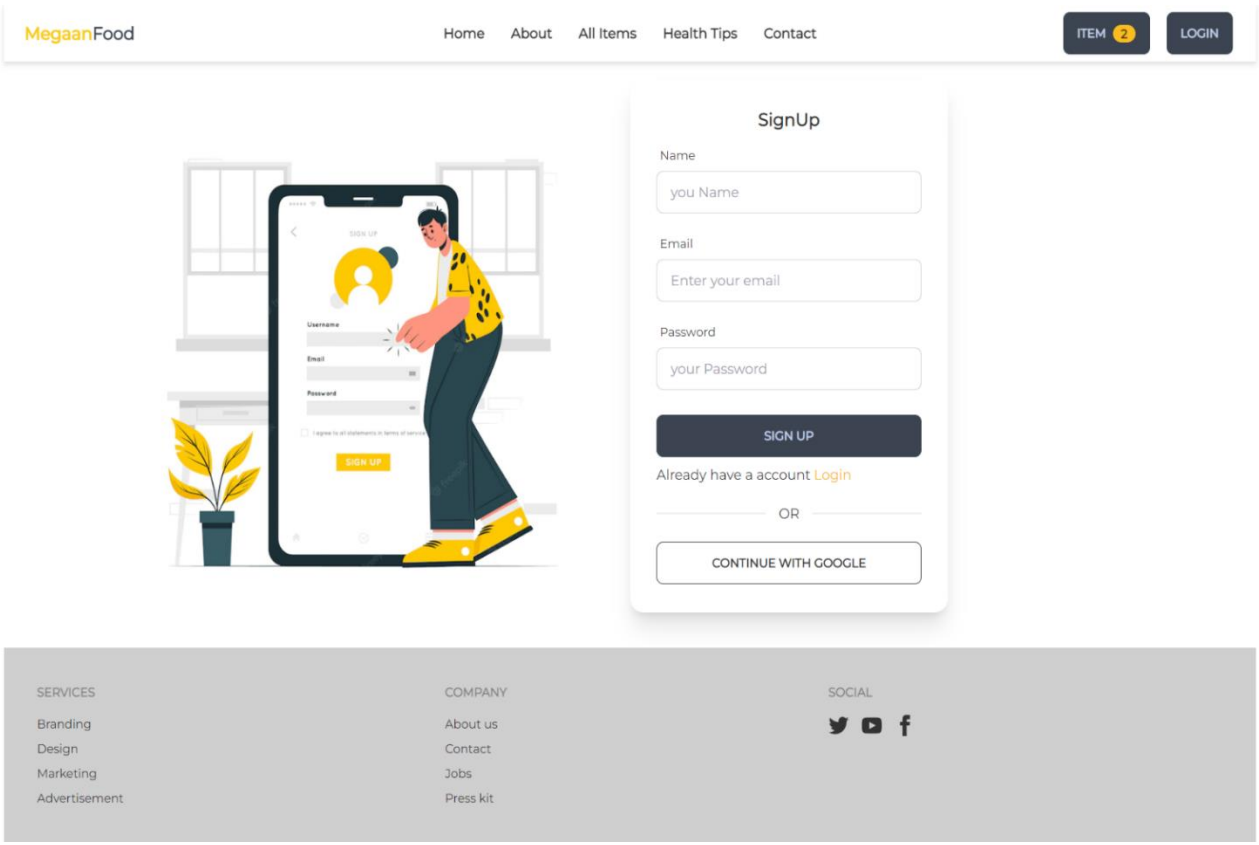


Figure 4.2.2: Registration Page

4.2.3 Login

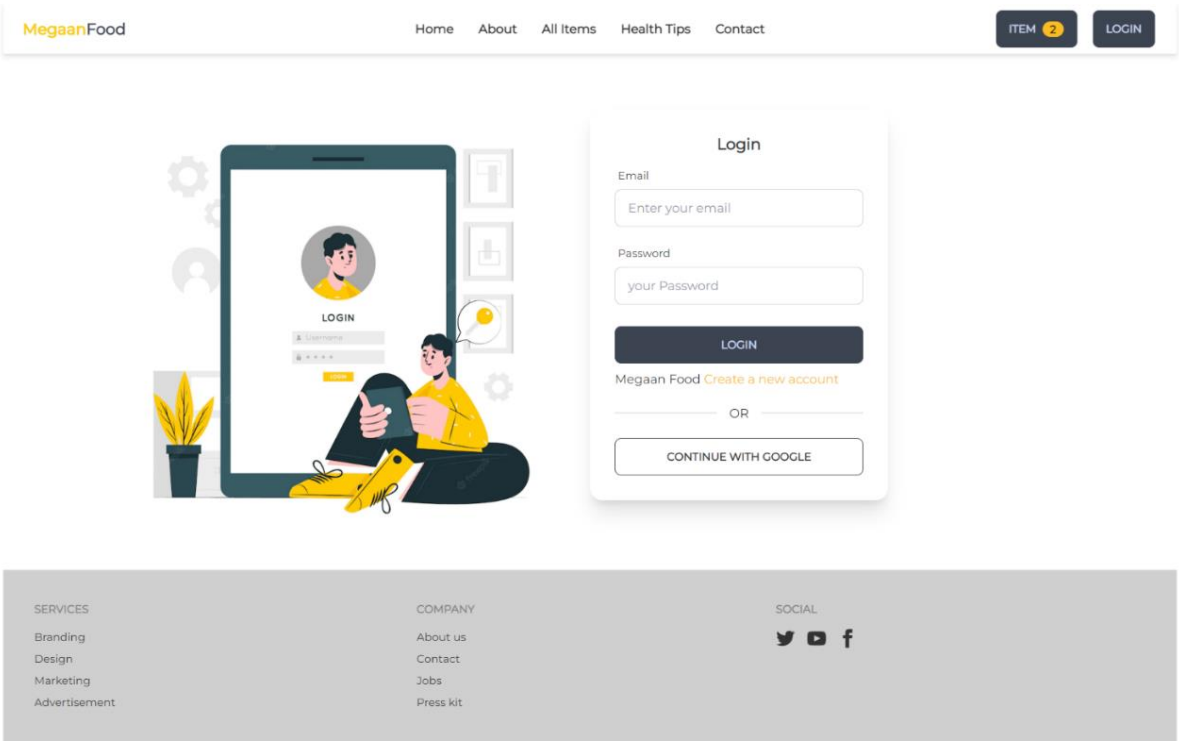


Figure 4.2.3: Login Page

4.2.4 Home Page

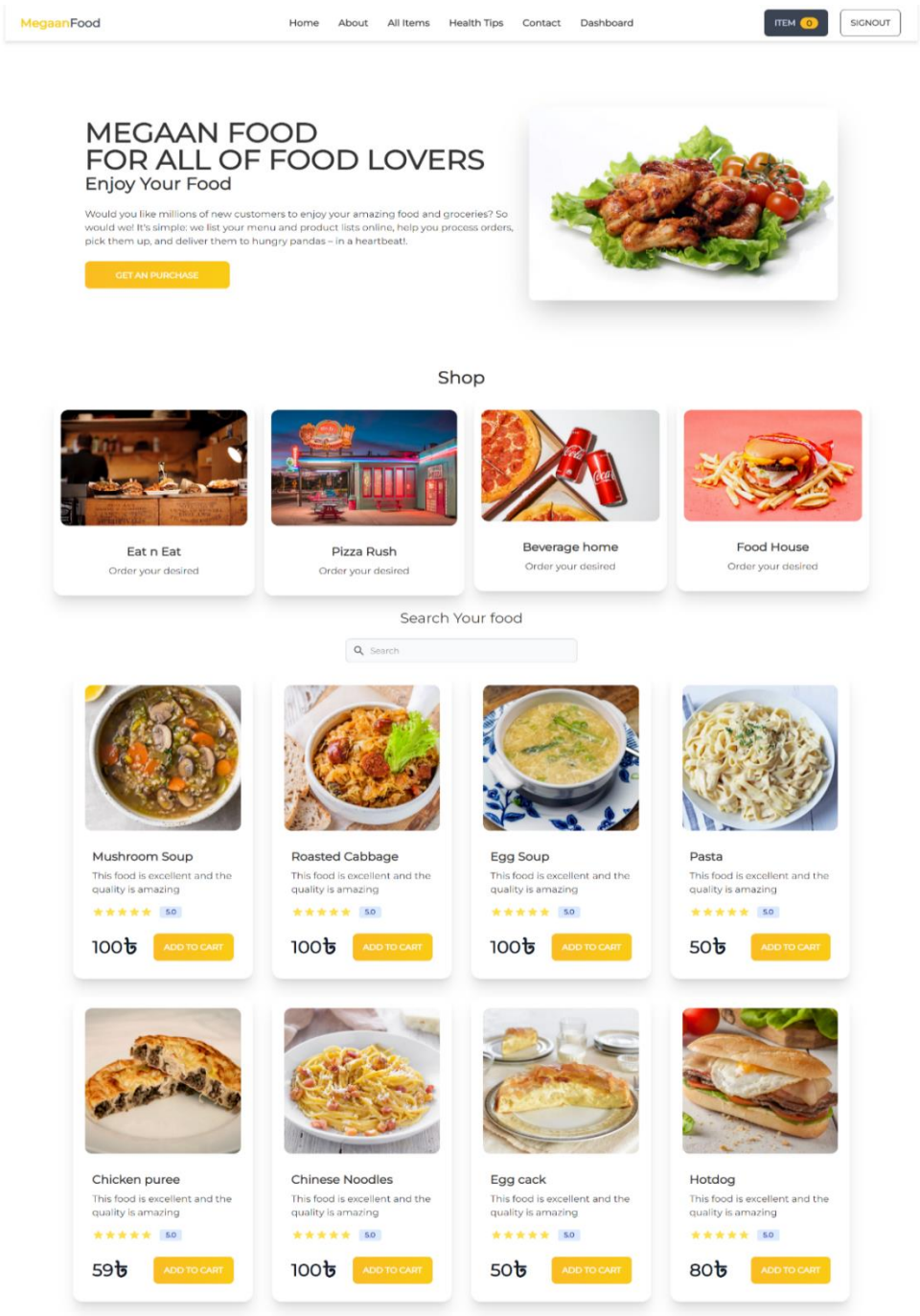


Figure 4.2.4: Home Page

4.2.5 All Food Items

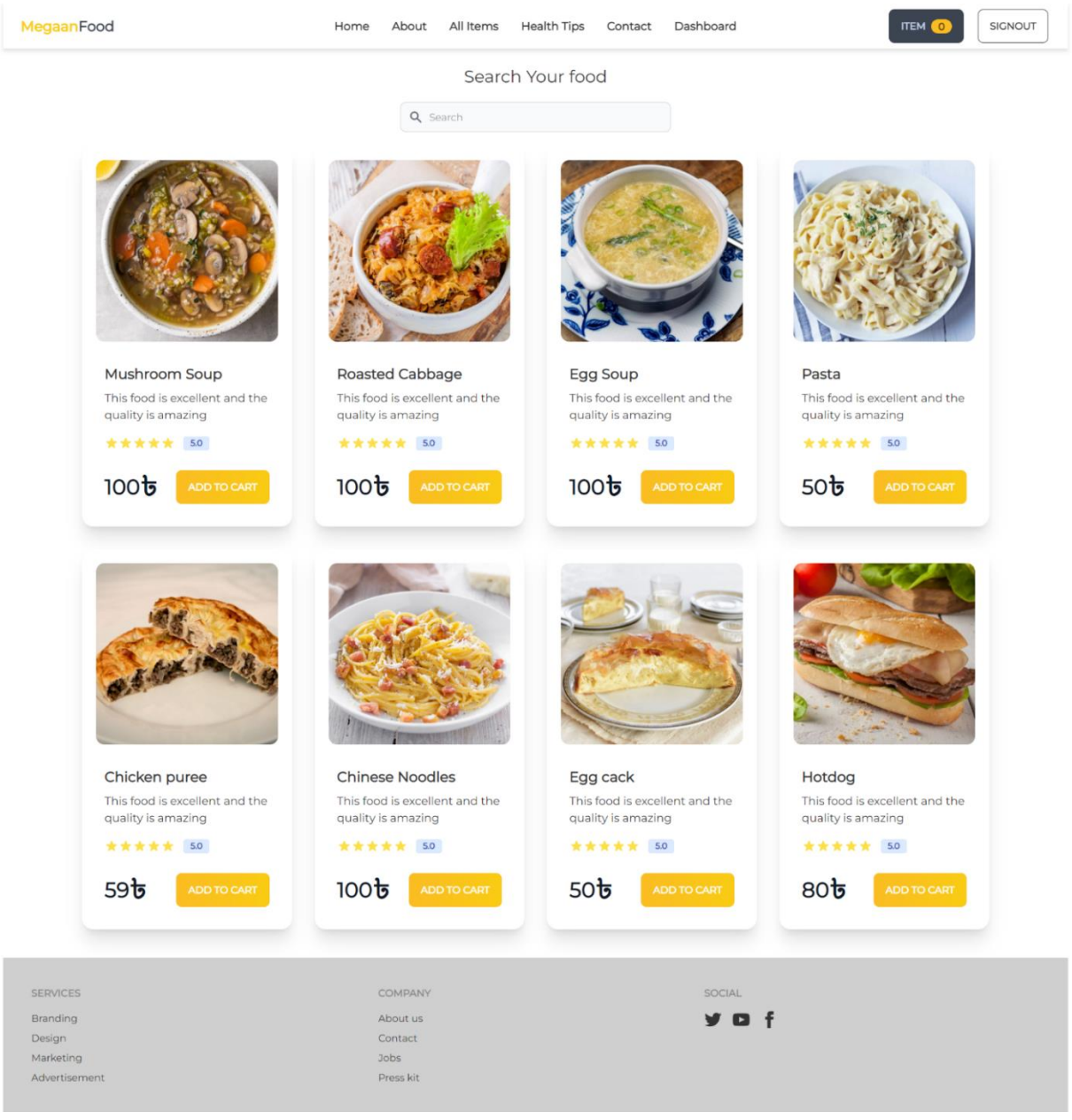


Figure 4.2.5: Food Page

4.2.6 Details & Feedback

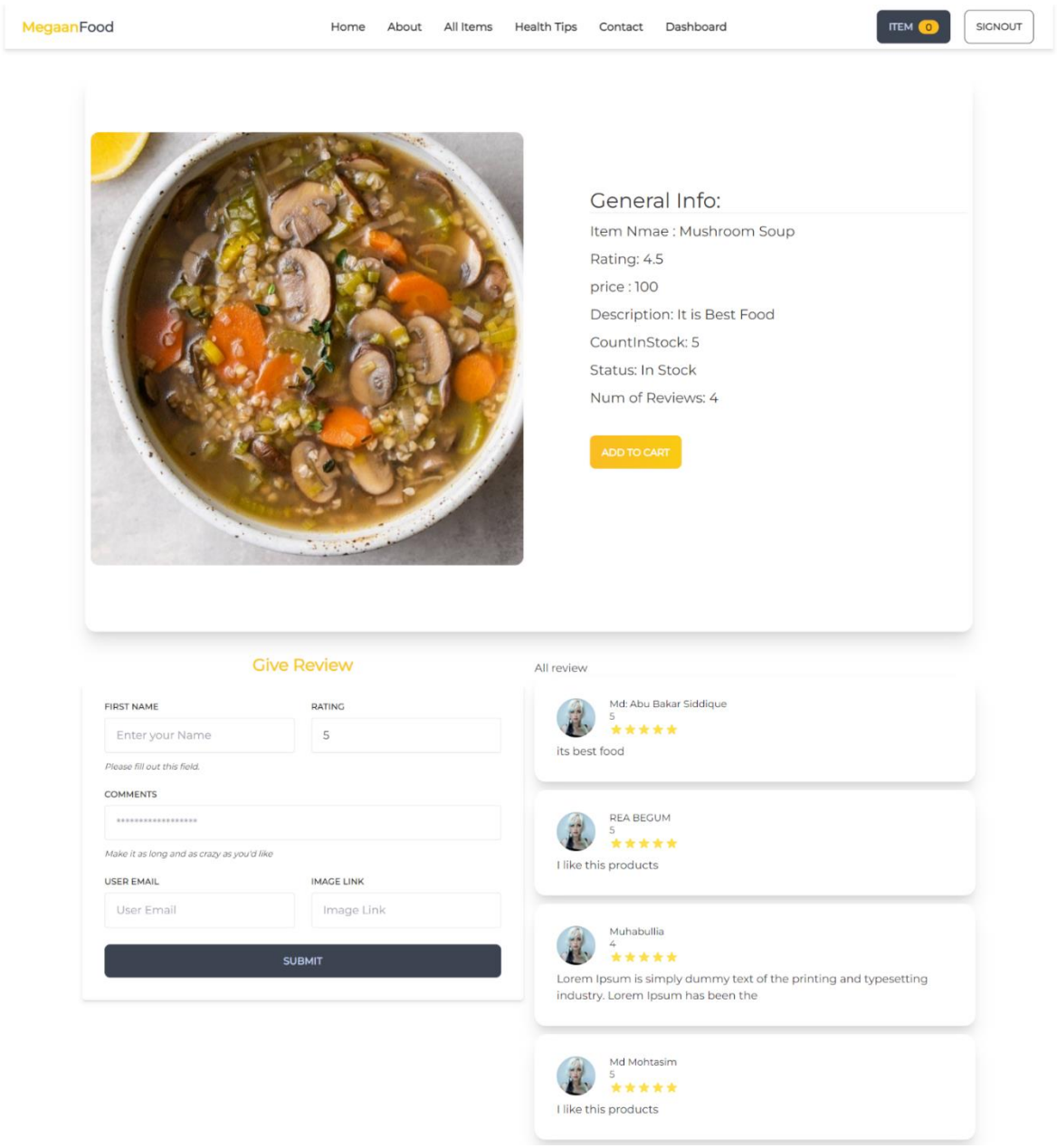


Figure 4.2.6: Details & Feedback Page

4.2.7 Place Order

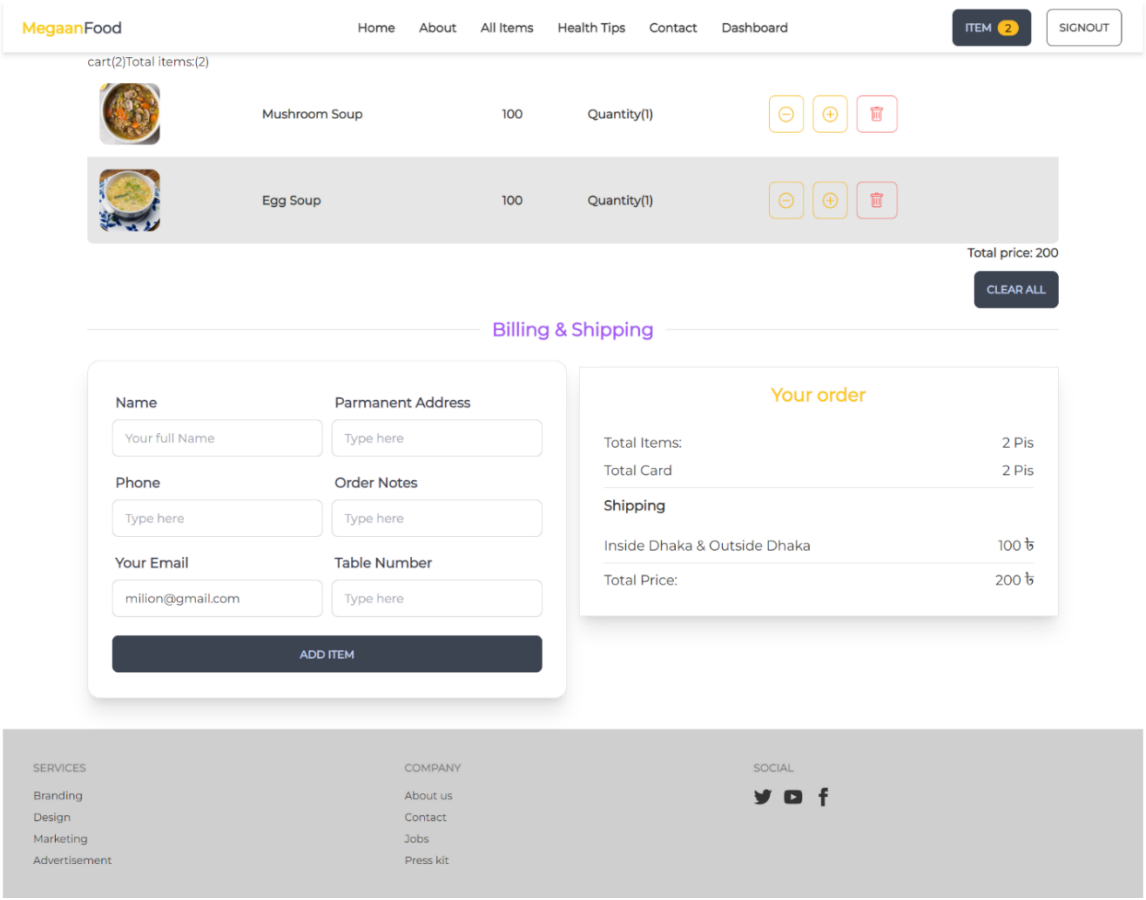


Figure 4.2.7: Order Page

4.2.8 My Item

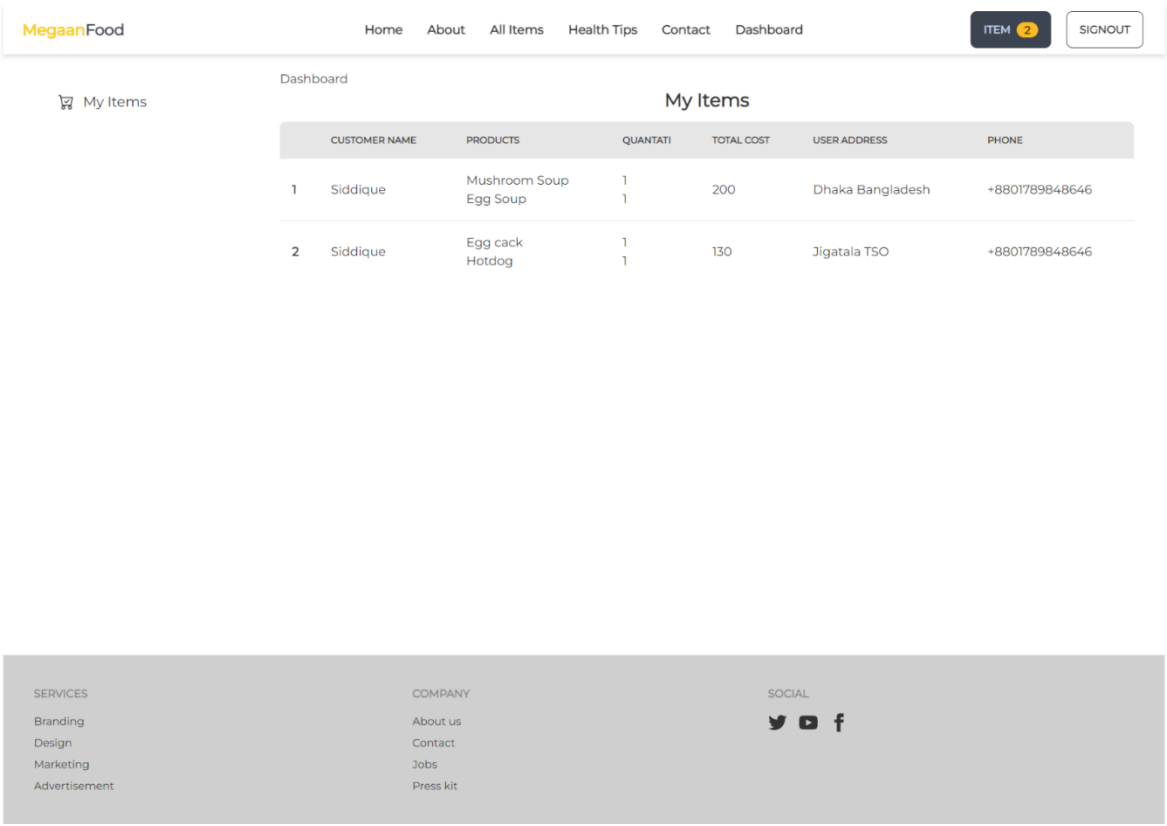


Figure 4.2.8: Item Page

4.2.9 Order List (Admin)

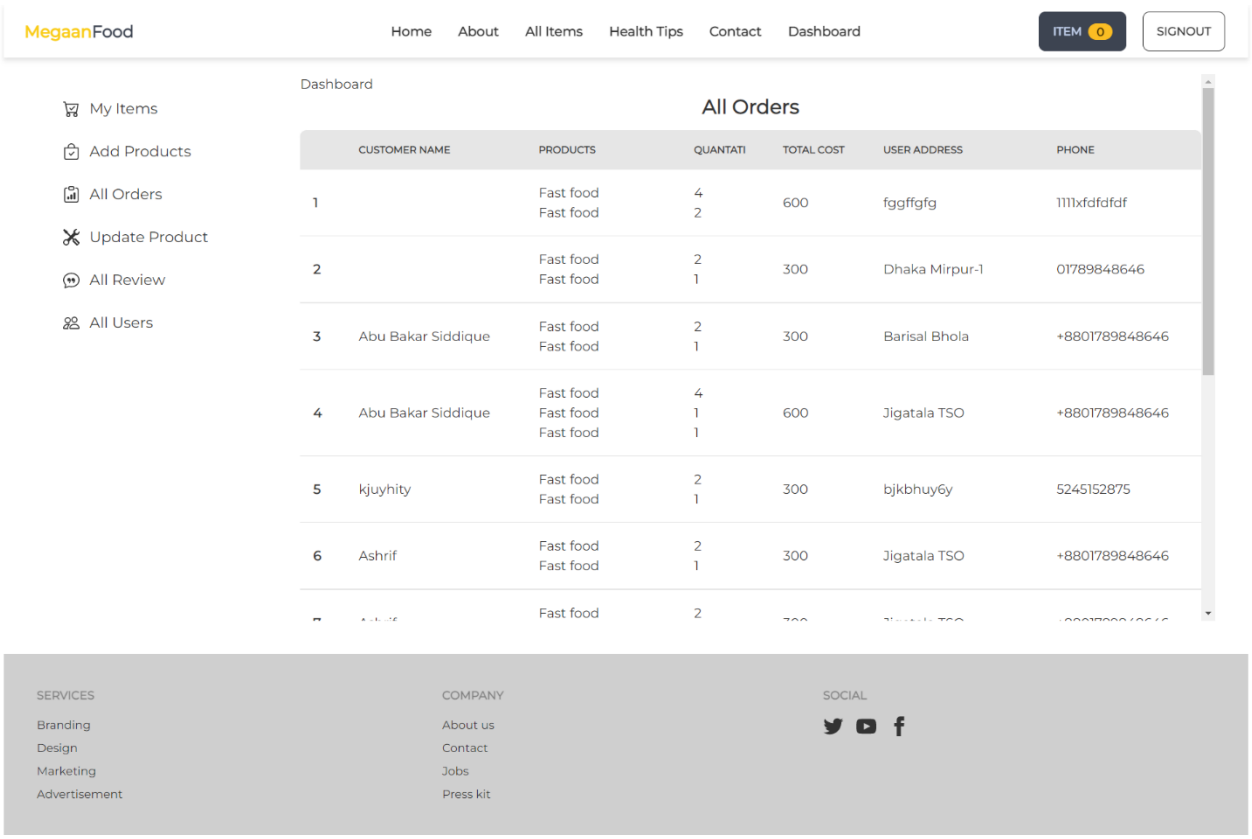


Figure 4.2.9: Order List (Admin) Page

4.2.10 Stock Update (Admin)

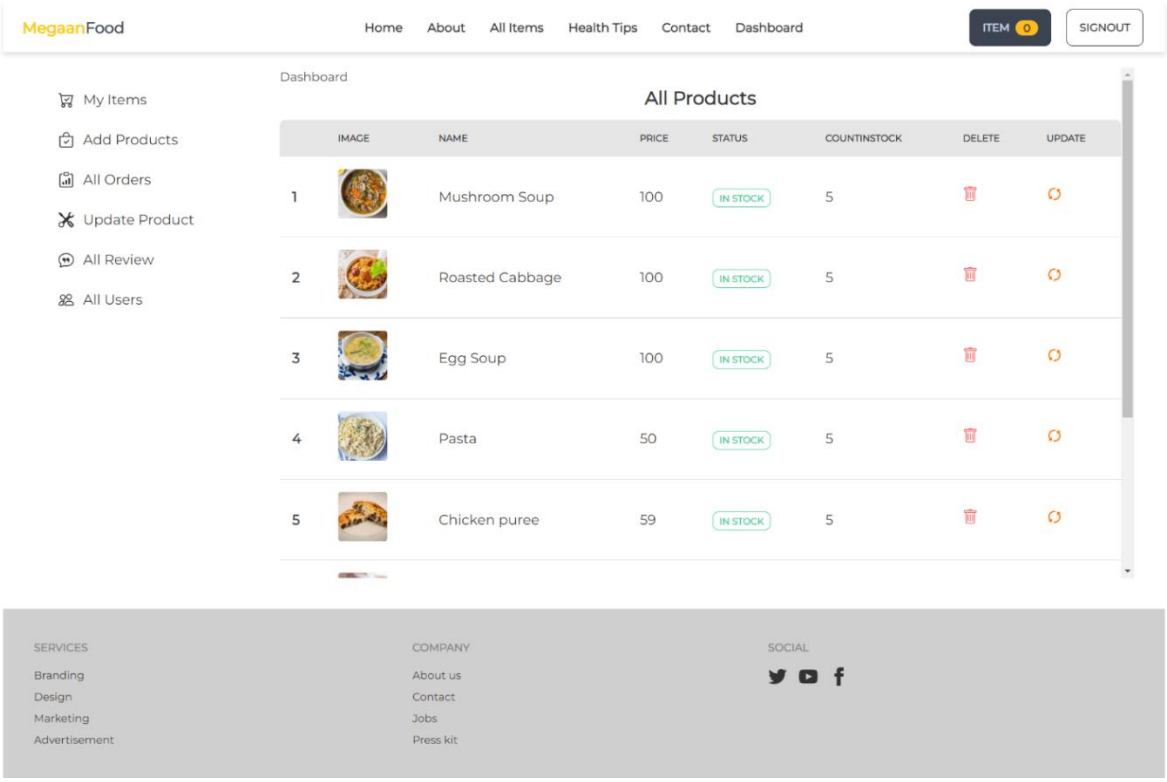


Figure 4.2.10: Stock Update (Admin) Page

4.2.11 Add Item (Admin)

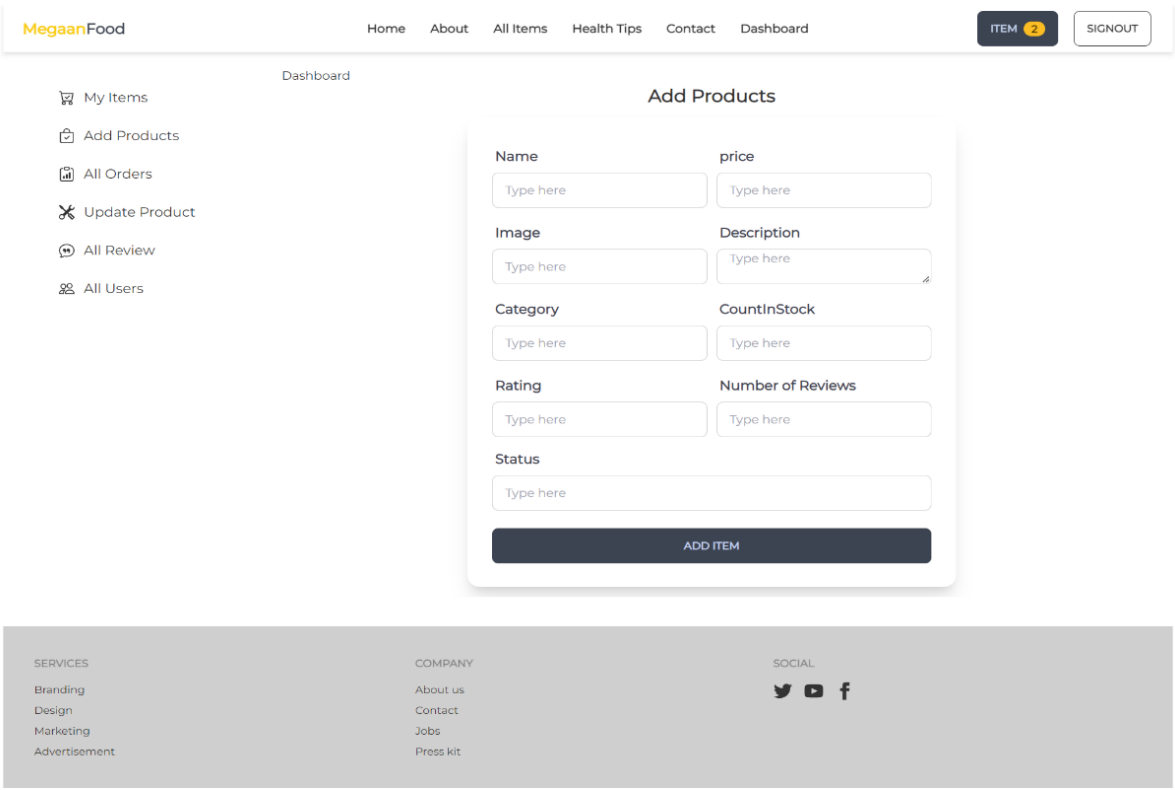


Figure 4.2.11: Add Item (Admin) Page

4.2.12 Update Product (Admin)

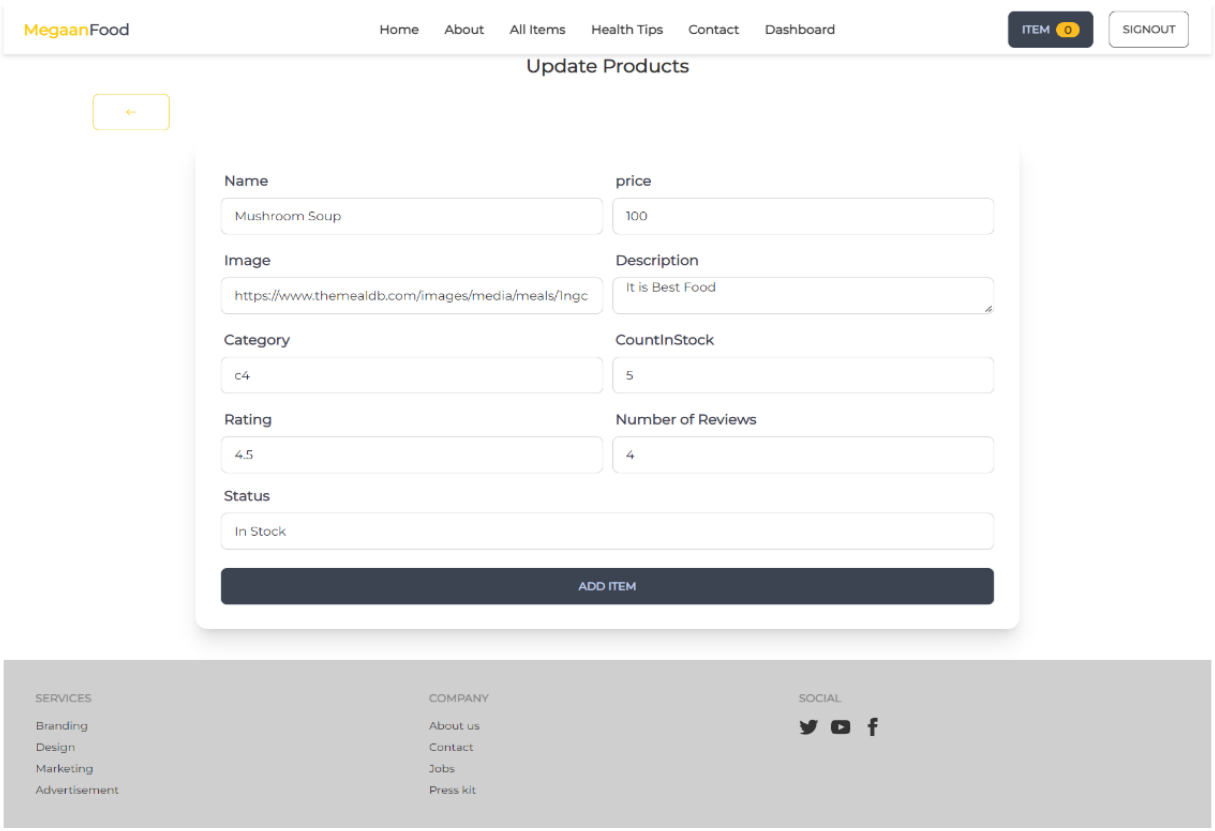


Figure 4.2.12: Update Product (Admin) Page

4.2.13 Customer Review (Admin)

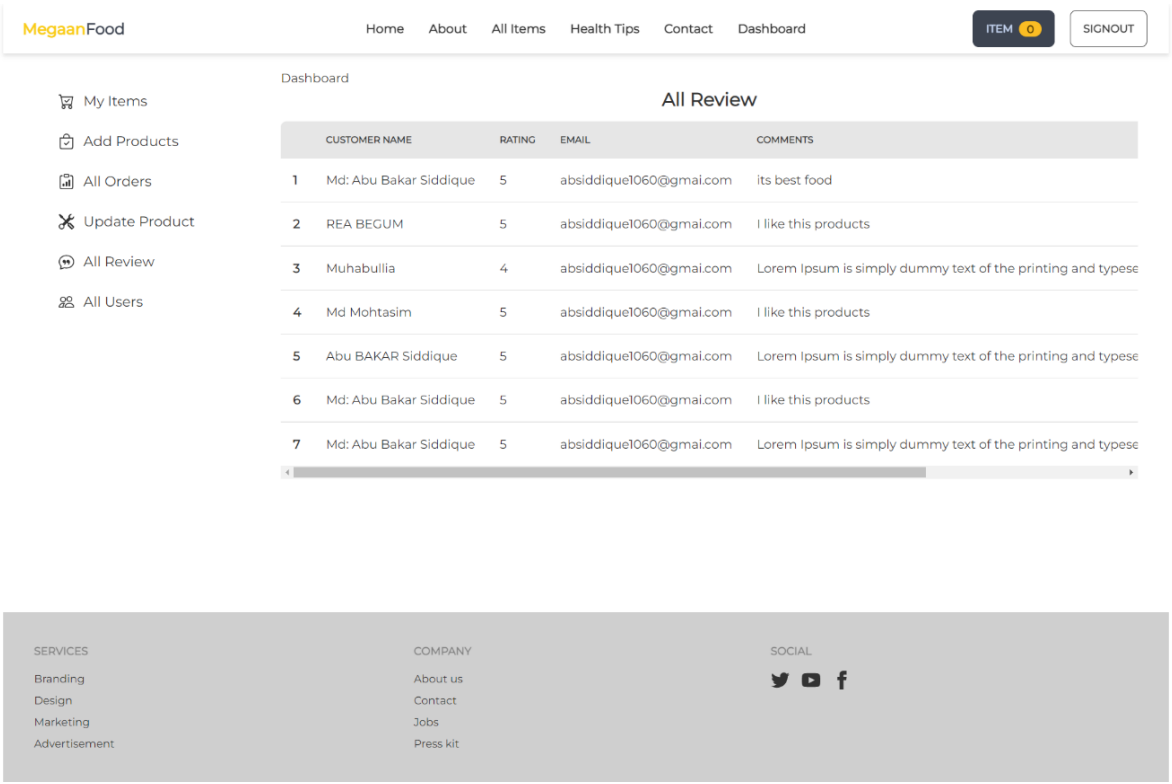


Figure 4.2.13: Customer Review (Admin) Page

4.2.14 Summary Dashboard

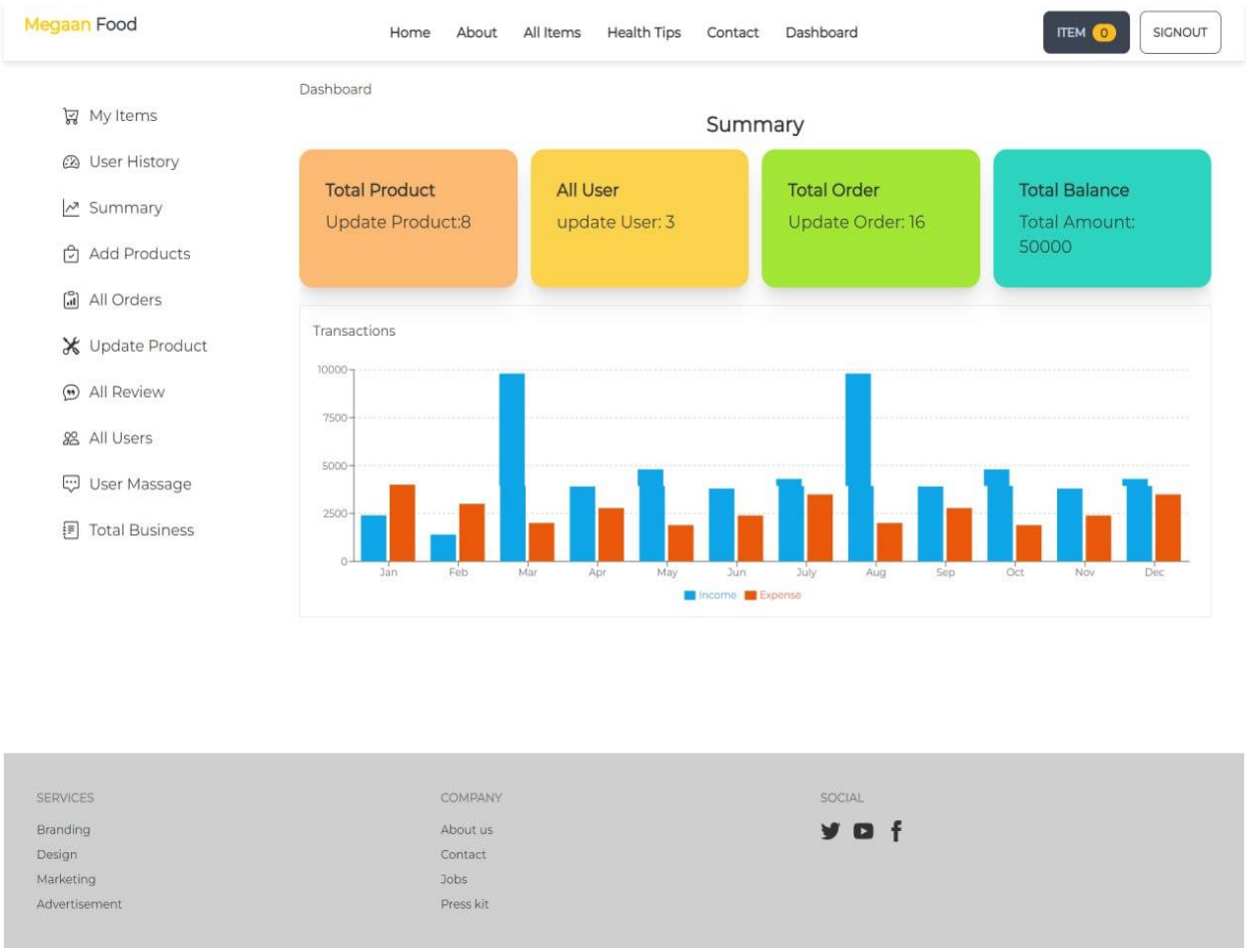


Figure 4.2.14: Summary Dashboard Page

4.2.15 Total Calculate

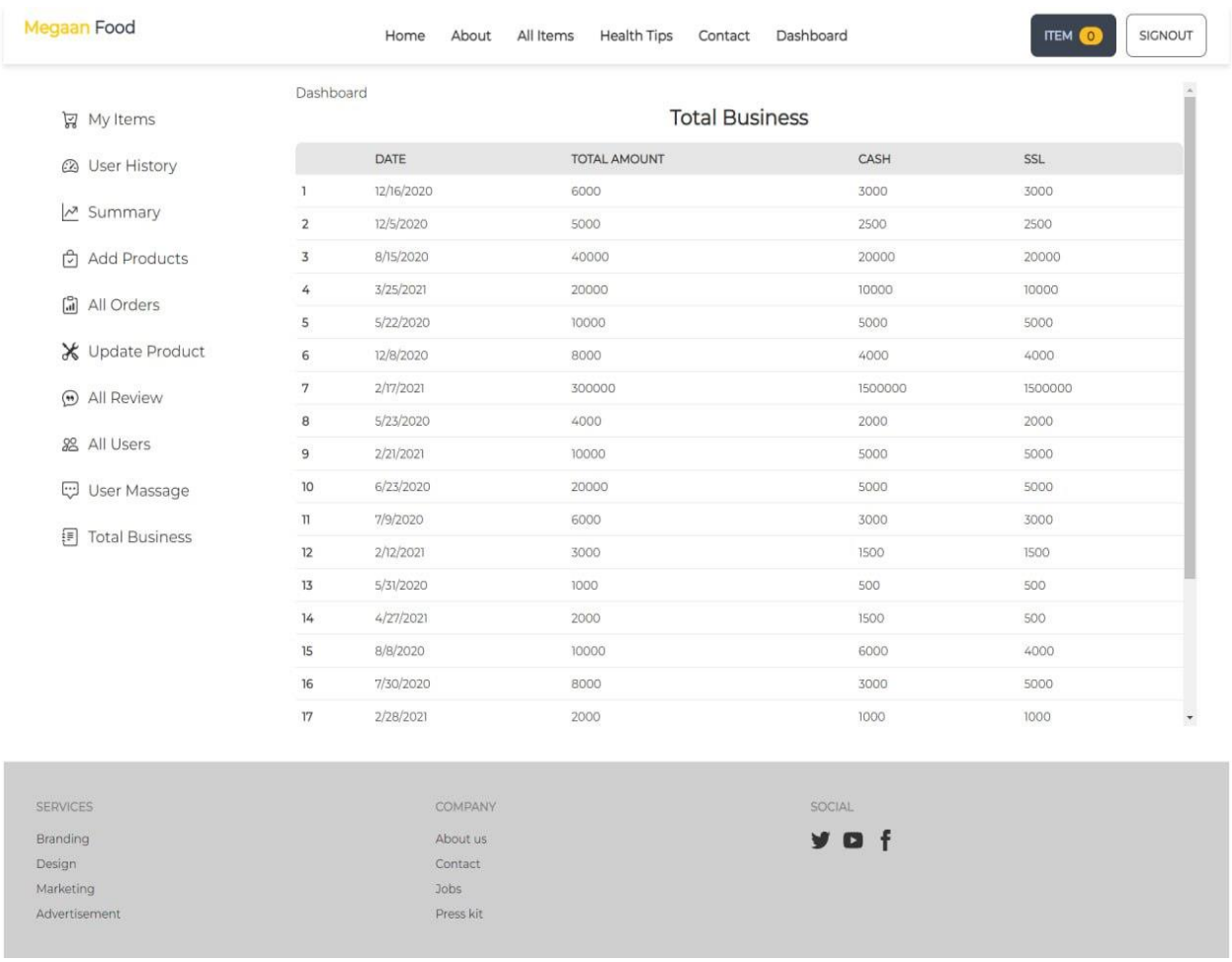


Figure 4.2.15 Total Calculate Page

4.2.16 About Us Page

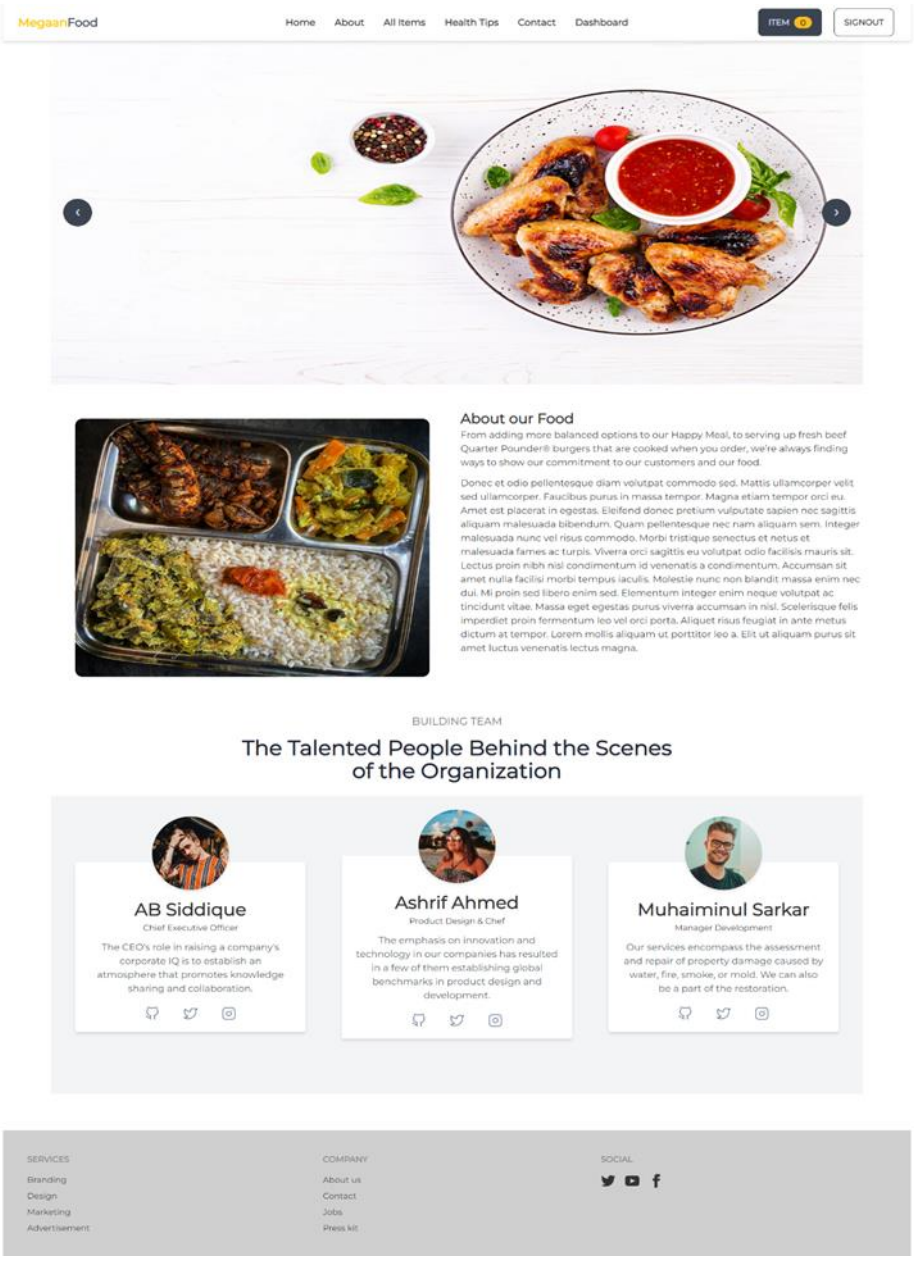


Figure 4.2.16: About Us Page

4.2.17 Blog Page

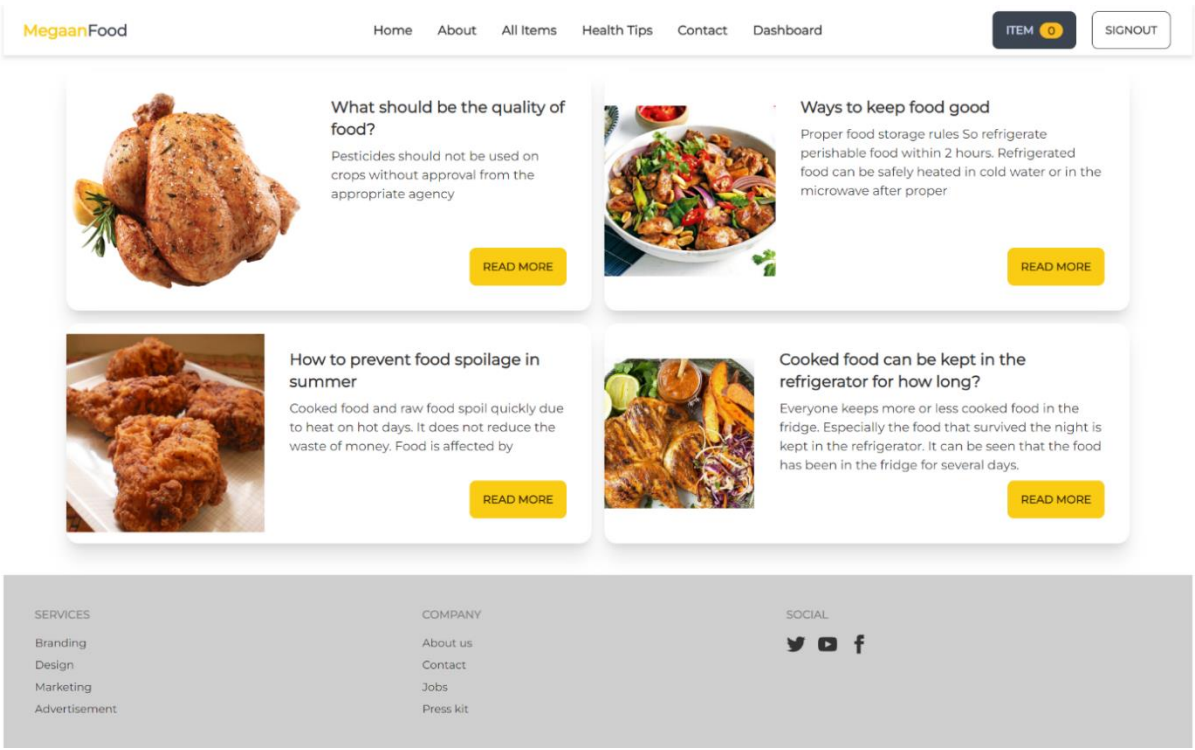


Figure 4.2.17: Blog Page

4.3 Back-end Design

The portion of a website that users cannot see is known as the back-end design. Users cannot inspect or alter the back end; they can only interact with the front end.

4.3.1 Database (MongoDB)

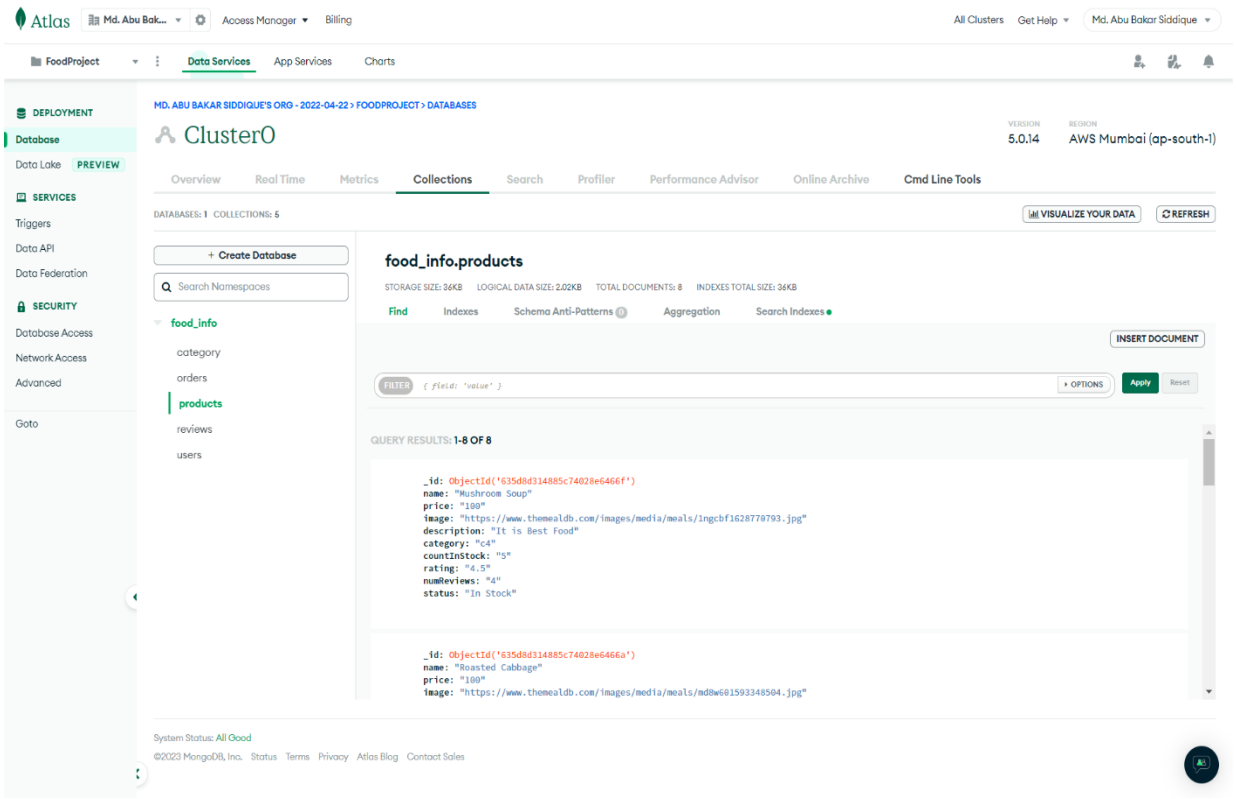


Figure 4.3.1: Database Page

4.3.2 Code Editor

Our main coding editor is VScode. NodeJS was used at the studio. For coding, we also used sublime text. The primary library is ReactJS, and JavaScript is the programming language. The MongoDB database is used to power the entire software.

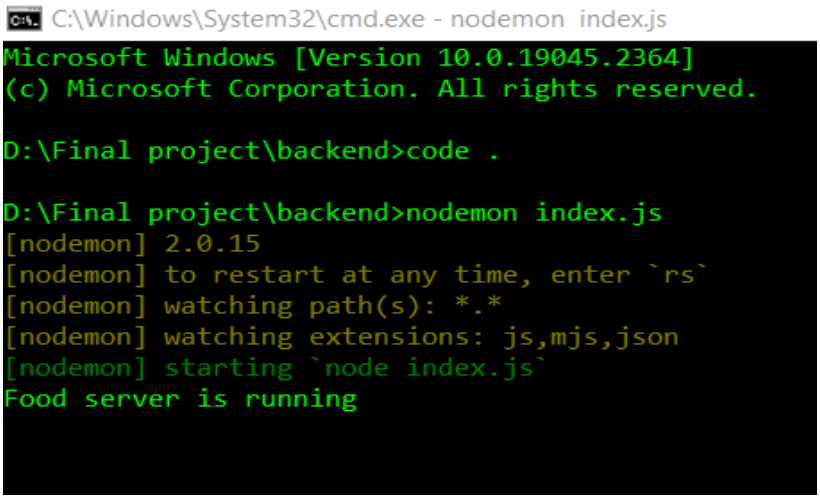
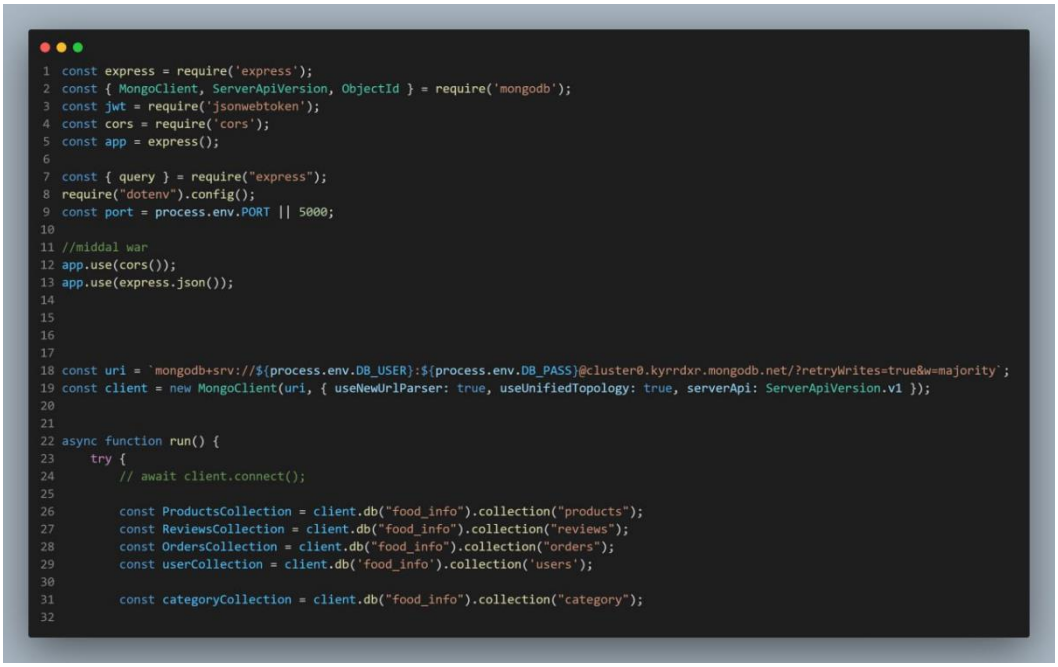


Figure 4.3.2.1: Backend Server Running



```
const express = require('express');
const { MongoClient, ServerApiVersion, ObjectId } = require('mongodb');
const jwt = require('jsonwebtoken');
const cors = require('cors');
const app = express();

const { query } = require("express");
require("dotenv").config();
const port = process.env.PORT || 5000;

//middal war
app.use(cors());
app.use(express.json());




const uri = `mongodb+srv://${process.env.DB_USER}:${process.env.DB_PASS}@cluster0.kyrrdxr.mongodb.net/?retryWrites=true&w=majority`;
const client = new MongoClient(uri, { useNewUrlParser: true, useUnifiedTopology: true, serverApi: ServerApiVersion.v1 });


async function run() {
    try {
        // await client.connect();

        const ProductsCollection = client.db("food_info").collection("products");
        const ReviewsCollection = client.db("food_info").collection("reviews");
        const OrdersCollection = client.db("food_info").collection("orders");
        const userCollection = client.db('food_info').collection('users');

        const categoryCollection = client.db("food_info").collection("category");

```

Figure 4.3.2.2: Backend Server Coding Page

4.4 Interaction Design and User Experience (UX)

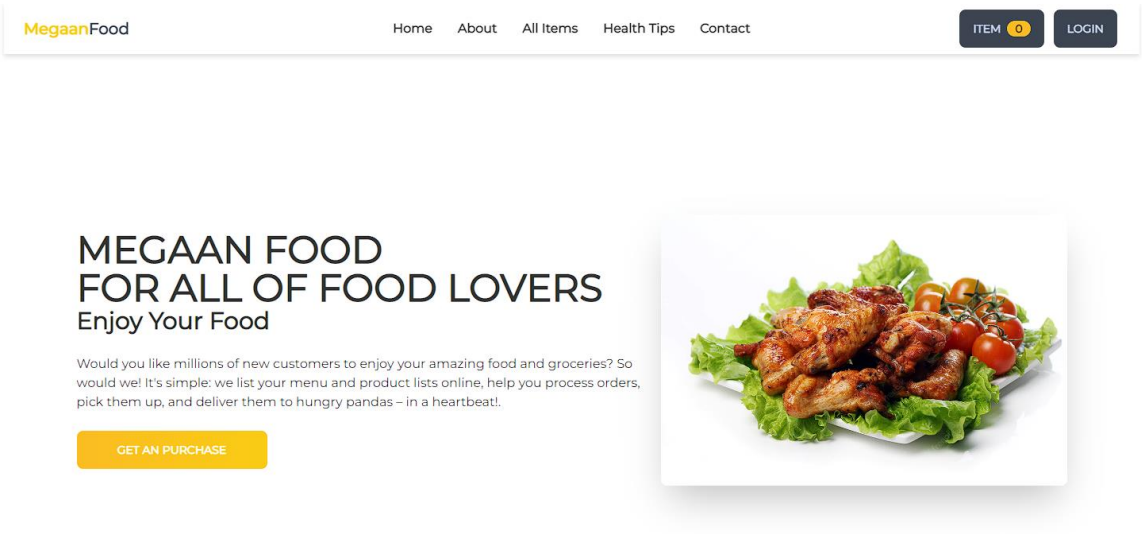


Figure 4.4.1: Home Page

We simplify the design of our website for a better user experience. From the main page, users can access any section or page with ease. Each button and link work as intended. Here is a screenshot of our whole home page.

4.5 Implementation Requirements

To implement the project some most popular and widely used technologies are used. For this system we used MongoDB for real time database. There are various technologies to develop website for and Web Application System, but we have used the most raw and rooted code in our site. The technologies we used, that's are:

Database: MongoDB
Language: JavaScript, Html, CSS
Framework: Tailwind CSS, ReactJS
Software: VS Code, Postman, Chrome Browser

4.6 Conclusion

To conclude, the design specification is an essential part of the project as it provides a clear and detailed understanding of the technical aspects of the system, including the system architecture, technology stack, database design, and any relevant algorithms or models. The front-end design, which includes the user interface and user experience, is also an important part of the design specification, as it ensures that the system is user-centered, intuitive, and easy to use. The design specification will be used as a guide for the development and testing of the system, and will be referenced throughout the project to ensure that the final product is built according to the design specifications.[6] Overall, the design specification helps to ensure that the final system is functional, efficient, and user-friendly.

CHAPTER 5

Implementation and Testing

5.1 Introduction

The testing phase is the process of evaluating the system to ensure that it meets the requirements and design specifications. This includes both functional testing, to ensure that the system is working as intended, and non-functional testing, to ensure that the system meets performance and usability requirements. The testing phase may include various types of testing such as unit testing, integration testing, system testing, and acceptance testing.

5.2 Implementation of Database

To complete the project, we use the MongoDB database for storage. Then we use context API to show data to the system UI from MongoDB database. We also use Post, Put, Fetch and Get method to stored data to MongoDB and create a API to use as our necessary purpose.

5.3 Implementation of Front-end Design

We usually use ReactJS to create a single-page application, that's why we used ReactJS on our website. It is a waterfall model and most of the popular websites are built with this ReactJS. In terms of design, we have given highest priority to a library of JavaScript and it makes our website low time consuming, works very fast and user friendly.

5.4 Testing Implementation

5.4.1 Test Case 1

TABLE 5.4.1: CASE 1 (LOGIN)

Test case id: 01		Test case name: Login	
Design by: Md. Abu Bakar Siddique		Design date: 07/12/2022	
Executed by: Md. Abu Bakar Siddique		Execution date: 12/12/2022	
Step	Action	Pass/Fail	Comment
1	Admin taps the login button after simply entering the email field	Pass	Other fields are required
2	admin clicks simply the login button without filling out any fields.	Pass	Fill out the fields
3	When admin enters email like abc.com	Pass	This is not an email

5.4.2 Test Case 2

TABLE 5.4.2: CASE 2 (LOGOUT)

Test case id: 02		Test case name: Log out	
Design by: Md. Abu Bakar Siddique		Design date: 07/12/2022	
Executed by: Md. Abu Bakar Siddique		Execution date: 12/12/2022	
Step	Action	Pass/Fail	Comment
1	Upon pressing the logout button, should the session end	Pass	Successfully logged out

5.4.3 Test Case 3

TABLE 5.4.3: CASE 3 (VIEW ORDER)

Test case id: 03		Test case name: View order	
Design by: Md. Abu Bakar Siddique		Design date: 15/12/2022	
Executed by: Md. Abu Bakar Siddique		Execution date: 19/12/2022	
Step	Action	Pass/Fail	Comment
1	Enter my items to view order	Pass	View order successfully
2	When user click my items without creating order	Pass	You have no orders

5.4.4 Test Case 4

TABLE 5.4.4: CASE 4 (REGISTRATION)

Test case id: 04		Test case name: Registration	
Design by: Md. Abu Bakar Siddique		Design date: 07/12/2022	
Executed by: Md. Abu Bakar Siddique		Execution date: 12/12/2022	
Step	Action	Pass/Fail	Comment
1	User taps the registration button after simply entering the email	Pass	Please fill up another field
2	User taps the registration button without filling any field	Pass	Please fill out the fields
3	When admin enters email like def.com	Pass	This is not an email.

5.4.5 Test Case 5

TABLE 5.4.5: CASE 5 (CREATE ORDER)

Test case id: 05		Test case name: Create order	
Design by: Md. Abu Bakar Siddique		Design date: 15/12/2022	
Executed by: Md. Abu Bakar Siddique		Execution date: 19/12/2022	
Step	Action	Pass/Fail	Comment
01	If the admin doesn't choose a quantity	Pass	Choose a quantity
02	When an administrator chooses a product that is out of stock	Pass	Sorry, we're sold out.
03	When the admin fails to choose a payment method	Pass	Please choose a payment option.

5.4.6 Test Case 6

TABLE 5.4.6: CASE 6 (ADD FOOD ITEM)

Test case id: 06		Test case name: Add Food Item	
Design by: Md. Abu Bakar Siddique		Design date: 17/10/2022	
Executed by: Md. Abu Bakar Siddique		Execution date: 22/10/2022	
Step	Action	Pass/Fail	Comment
01	When the admin merely enters the item's name, price, and quantity	Pass	Other fields are required
02	admin only displays the item photo	Pass	Fill out other fields
03	admin only inputs the item price	Pass	Fill out other fields

5.4.7 Test Case 7

TABLE 5.4.7: CASE 7 (FEEDBACK)

Test case id: 07		Test case name: Feedback	
Design by: Md. Abu Bakar Siddique		Design date: 17/10/2022	
Executed by: Md. Abu Bakar Siddique		Execution date: 22/10/2022	
Step	Action	Pass/Fail	Comment
1	When user click feedback without any comment and rating	Pass	Please give ratings
2	When user click feedback button after giving rating	Pass	Feedback given successfully

5.5 Conclusion

Regarding the implementation and testing, it is a crucial step in the software development process. It involves taking the design specifications and turning them into a working system. This phase is critical to the success of the project, as it ensures that the final system is functional, efficient, and user-friendly. The testing phase is also important to ensure that the system meets the requirements and design specifications. In summary, The implementation and testing phase is the final step before the deployment and it is the last chance to catch and fix any issues with the system.

CHAPTER 6

Impact on society, environment and sustainability

6.1 Introduction

The impact this project refers to the potential positive or negative effects that the system may have on different aspects of society, the environment, and the long-term viability of the system. This section of the report would assess the system's impact on various stakeholders such as customers, staff, restaurant owners and the community.[3] It will also evaluate the environmental impact of the system, such as energy consumption and waste generation, and the sustainability of the system, such as its scalability and maintainability.

6.2 Impact on Society

Automated food ordering systems have the potential to have a significant impact on society. Some potential impacts include:

- Convenience: Automated food ordering systems make it easier for customers to place orders.
- Increased efficiency: Automated systems can process orders more quickly and accurately than manual systems, leading to increased efficiency and reduced errors.
- Job creation: The development and maintenance of automated food ordering systems can create new job opportunities in the technology industry.
- Economic impact: Automated food ordering systems can help to increase sales and revenue for restaurants, potentially leading to economic growth in the food industry.
- Environmental impact: Automated systems can help to reduce waste by accurately tracking inventory and ensuring that food is prepared and delivered efficiently.

- Increased efficiency: Automated food ordering systems can streamline the process of ordering and delivering food, making it more efficient for both restaurants and customers.
- Negative impacts on employment: On the other hand, automated food ordering systems may also have a negative impact on employment by replacing some jobs traditionally held by humans, such as cashiers and servers.

Overall, automated food ordering systems can bring about positive changes in society by making it easier for customers to access food and increasing efficiency in the food industry.

6.3 Impact on Environment

Automated food ordering systems can have a number of impacts on the environment, both positive and negative. Some potential impacts include:

- Reduced food waste: Automated food ordering systems can help to reduce food waste by more accurately forecasting demand and ensuring that restaurants only prepare the amount of food that is needed.
- Improved energy efficiency: Automated food ordering systems can help to reduce energy consumption by streamlining the food ordering and reducing the need for physical menus and paper receipts.

Overall, the impact of automated food ordering systems on the environment will depend on a variety of factors, including the specific system being implemented and the broader context in which it is used. It is important to carefully consider these impacts and take steps to mitigate any negative environmental consequences.

6.4 Ethical Aspects

There are a number of ethical aspects to consider when implementing an automated food ordering system. Some of these ethical considerations may include:

- Privacy: Automated food ordering systems collect and store personal information, such as customer names, addresses, and payment information. It is important to ensure that this information is securely stored and that customers have control over how their personal data is used and shared.
- Accessibility: Automated food ordering systems should be accessible to all users, including those with disabilities. This may involve designing the system to be compatible with assistive technologies and ensuring that it is easy to use for people with a wide range of abilities.
- Fairness: Automated food ordering systems should be designed to be fair and unbiased. This may involve ensuring that the system does not discriminate against certain groups of users or unfairly favour certain restaurants over others.
- Transparency: It is important for automated food ordering systems to be transparent about how they operate and how they use customer data. This can help to build trust and ensure that the system is used ethically.

By considering these ethical aspects, it is possible to design and implement an automated food ordering system that is fair, accessible, and respectful of customer privacy.

6.5 Sustainability Plan

A sustainability plan is a set of strategies and actions that aim to minimize the environmental impact of an automated food ordering system. Some potential elements of a sustainability plan for an automated food ordering system may include:

- Reduction of food waste: The system could implement measures to minimize food waste, such as allowing customers to customize their orders or offering smaller portion sizes.
- Use of eco-friendly packaging: The system could use biodegradable or compostable packaging materials to reduce the amount of waste generated by the system.
- Energy-efficient design: The system could be designed to be energy-efficient, using energy-saving features such as power management and sleep modes.
- Carbon offsetting: The system could offset the carbon emissions associated with delivery by supporting carbon-reducing initiatives such as reforestation projects.
- Waste reduction: Strategies to minimize the generation of waste, such as using recycled materials and designing the system to minimize paper usage.

By implementing a sustainability plan, it is possible to minimize the environmental impact of an automated food ordering system and contribute to a more sustainable future.

6.6 Conclusion

In conclusion, the report is an important aspect to consider when developing an automated food ordering system project. It helps to understand the potential positive and negative impacts that the system may have on different aspects of society, the environment, and the long-term viability of the system. It also helps to ensure that the system is designed and developed in a way that is socially, environmentally and economically responsible. It's important to consider the long-term impact of the system, as well as its scalability, maintainability, and overall sustainability. The report can recommend actions or steps to mitigate any negative impact identified during the assessment and enhance the positive impact.

CHAPTER 7

Conclusion

7.1 Conclusion

In conclusion, automated food ordering systems are technology-based solutions that aim to streamline the process of ordering and delivering food in various settings such as restaurants, cafes, and fast-food chains. These systems work by allowing customers to place orders through self-service kiosks, mobile apps, or websites, and then transmitting the orders to the kitchen or bar for preparation.

Automated food ordering systems offer several benefits over traditional methods of food ordering. They can improve the accuracy and speed of order taking, reduce waiting times, and enhance the overall customer experience. They can also help restaurants to manage their operations more efficiently, reduce food waste, and increase revenue.

The system involves a range of technical components, including hardware such as self-service kiosks and mobile devices, software for processing orders, and communication infrastructure to link the different components.

7.2 Further Suggested Work

There are numerous approaches to making things simple and useable. Its usefulness can be improved because some of the code may be expanded. one suggestion could be to explore the use of Artificial Intelligence and Machine Learning to improve the system's ability to suggest menu items to customers based on their preferences and past orders.[7] We will further add SMS confirmation of order which will be more understandable for the customers. Based on the security issued in the future, emerging technologies can be employed to strengthen security.

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Appendix-A

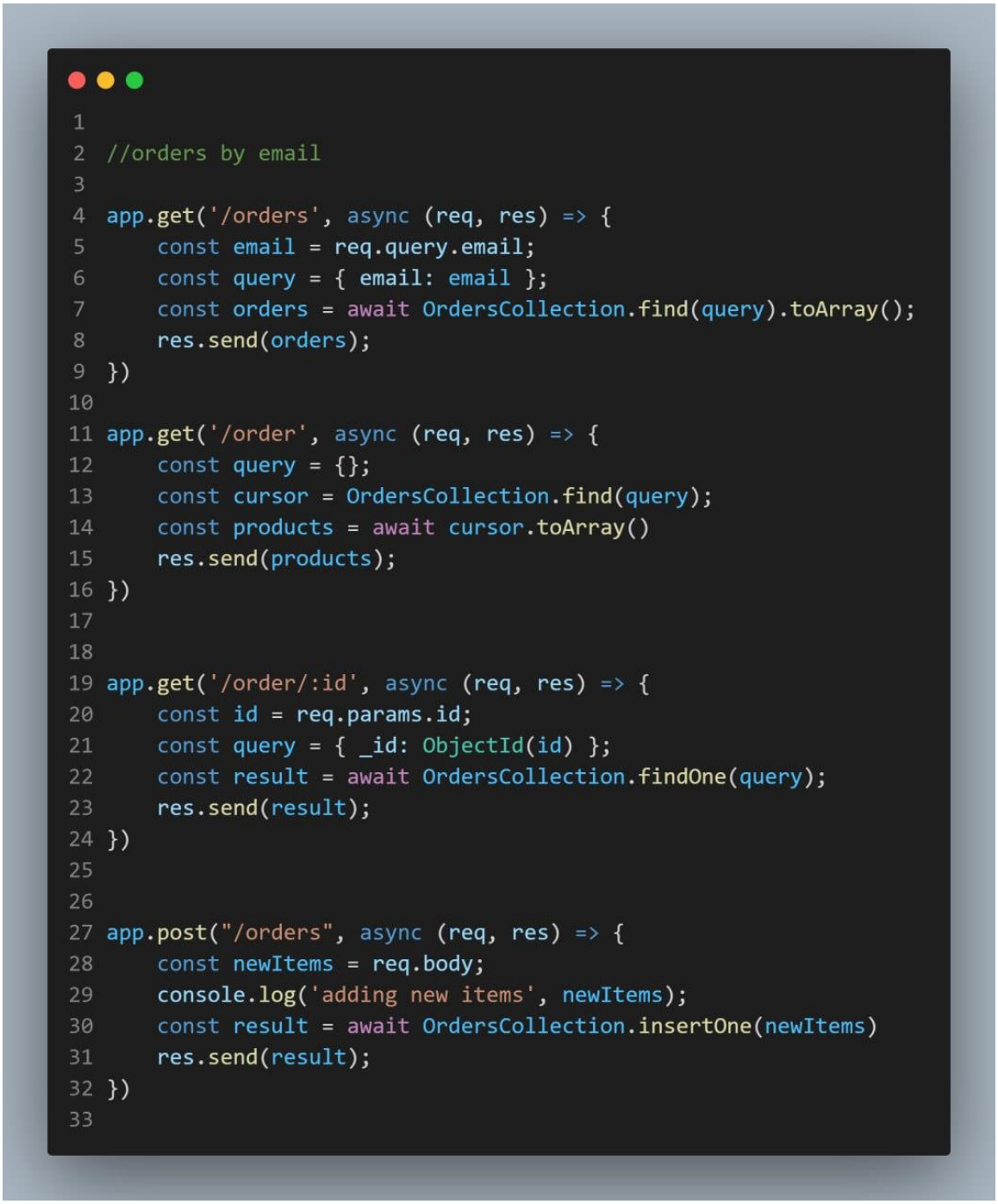
Backend Coding

```
const express = require('express');
const { MongoClient, ServerApiVersion, ObjectId } = require('mongodb');
const SSLCommerzPayment = require('sslcommerz-lts')
const jwt = require('jsonwebtoken');
const cors = require('cors');
const app = express();

const { query } = require("express");
require("dotenv").config();
const port = process.env.PORT || 5000;

```

Figure A1: Backend Server Require Packages

```
const ProductsCollection = client.db("food_info").collection("products");
const ReviewsCollection = client.db("food_info").collection("reviews");
const OrdersCollection = client.db("food_info").collection("orders");
const userCollection = client.db('food_info').collection('users');
const categoryCollection = client.db("food_info").collection("category");
const MessageCollection = client.db("food_info").collection("messages");
const BlogsCollection = client.db("food_info").collection("blogs");
const PayCollection = client.db("food_info").collection("pays");

```

Figure A2: Connected with MongoDB

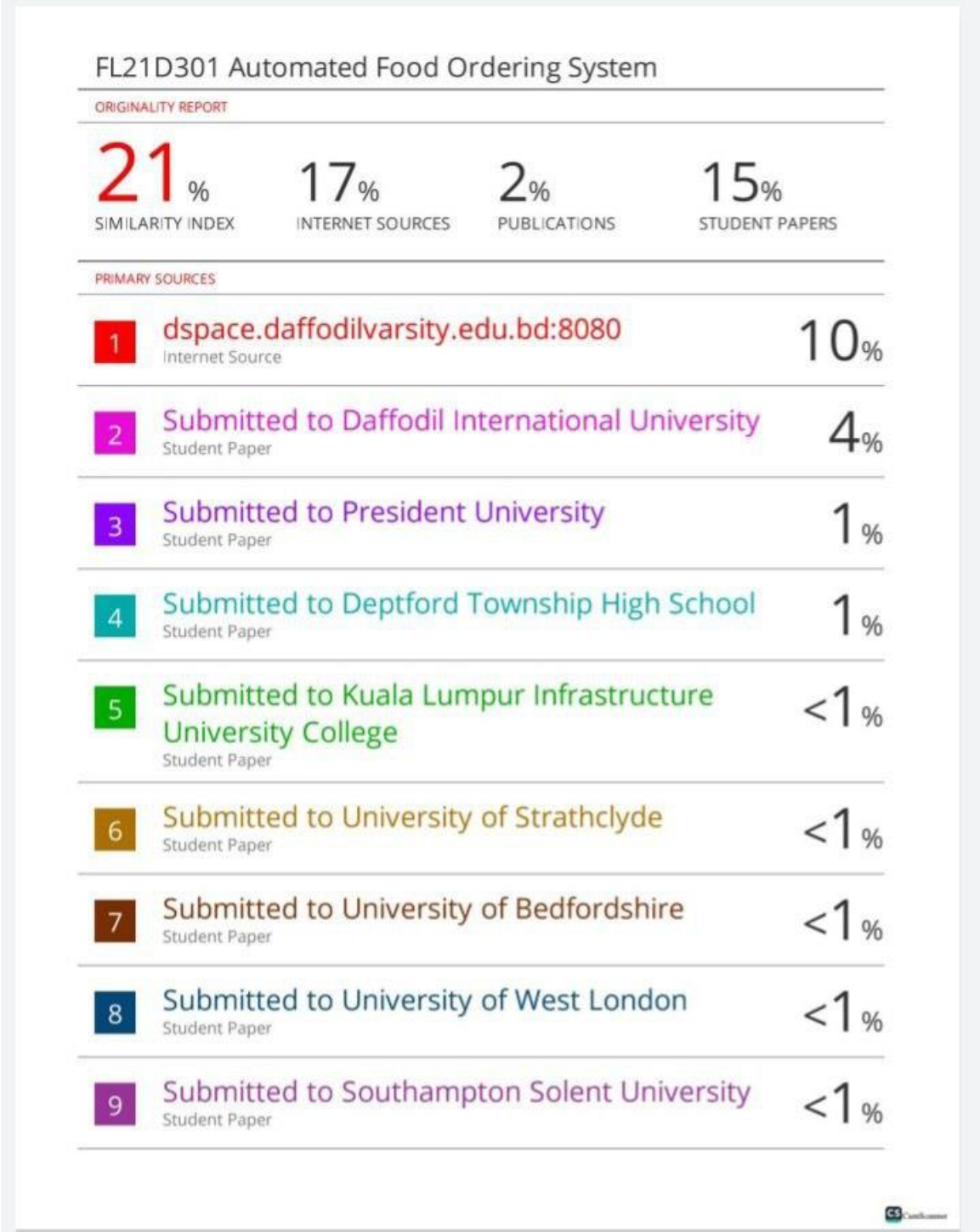


```
1
2  //orders by email
3
4  app.get('/orders', async (req, res) => {
5      const email = req.query.email;
6      const query = { email: email };
7      const orders = await OrdersCollection.find(query).toArray();
8      res.send(orders);
9  })
10
11 app.get('/order', async (req, res) => {
12     const query = {};
13     const cursor = OrdersCollection.find(query);
14     const products = await cursor.toArray()
15     res.send(products);
16 })
17
18
19 app.get('/order/:id', async (req, res) => {
20     const id = req.params.id;
21     const query = { _id: ObjectId(id) };
22     const result = await OrdersCollection.findOne(query);
23     res.send(result);
24 })
25
26
27 app.post("/orders", async (req, res) => {
28     const newItems = req.body;
29     console.log('adding new items', newItems);
30     const result = await OrdersCollection.insertOne(newItems)
31     res.send(result);
32 })
33
```

Figure A3: Backend Server Product API

Appendix-B

Plagiarism



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