Tribhuvan University

Faculty of Humanities and Social Sciences

Online Cafeteria Food Ordering System

A PROJECT REPORT

Submitted to

Department of Computer Application

Jaya Multiple Campus

Gokarneshwor, Kathmandu

In partial fulfillment of the requirements for the Bachelors in Computer Application

Submitted by

Ngimatendi Sherpa

BCA 4th Semester

TU Reg. No.: 6-2-721-12-2021

Symbol No.:72102089

Under the Supervision of

Mukti Thapa

Tribhuvan University

Faculty of Humanities and Social Sciences

Jaya Multiple Campus

Gokarneshwor, Kathmandu

Bachelor in Computer Applications (BCA)

SUPERVISOR'S RECOMMENDATION

I hereby recommend that this project prepared under my supervision by **Ngimatendi Sherpa** entitled **"Online Cafeteria Food Ordering System"** in the Partial Fulfillment of requirement for the degree of Bachelor in Computer Application is recommended for that final evaluation.

Mukti Thapa

Project Supervisor

BCA Department

Jaya Multiple Campus

Tribhuvan University

Faculty of Humanities and Social Sciences

Jaya Multiple Campus

Gokarneshwor, Kathmandu

Bachelor in Computer Applications (BCA)

LETTER OF APPROVAL

This is certifying that this project prepared by **Ngimatendi Sherpa** entitled **"Online Cafeteria Food Ordering System"** in the Partial Fulfillment of requirement for the degree of Bachelor in Computer Application has been evaluated. In our opinion it is satisfactory in the scope and quality as a project for the required degree.

Mukti Thapa	Subash Bista
Project Supervisor	H.O.D
BCA Department	Jaya Multiple Campus
Jaya Multiple Campus	Gokarneshwor, Kathmandu

External Examiner

Internal Examiner

ABSTRACT

This document outlines the development of an integrated online platform for a Food ordering system, facilitating the seamless buying and selling Foods online. With the increasing reliance on digital solutions for various Food ordering systems, the demand for accessible and convenient online platforms has surged. Our online food ordering website caters to this demand by providing a user-friendly interface accessible through computers, tablets, smartphones, and other smart devices. Users can order foods after looking into the menu provided in the website and can easily order the foods. The integration of physical ordering systems ensures that customers have to suffer interacting with cafeteria staffs to get their food. This innovative approach combines the convenience of online food ordering with the tangible experience of getting food by using their phone or pc, thereby enhancing customer satisfaction and accessibility. Users can enjoy the flexibility of browsing and orderings foods from the comfort of their place, further contributing to online food ordering system. By bridging the gap between digital accessibility and physical fulfillment, our online food ordering platform aims to enhance customer satisfaction and engagement in their food ordering experience. Users benefit from the flexibility of accessing and acquiring online food ordering from the comfort of their seats, empowering them to use modernize food ordering system without any problems.

ACKNOWLEDGEMENT

We would like to express our special thanks of gratitude to our supervisor **Mukti Thapa** and BCA Coordinator **Subash Bista** who gave us the golden opportunity and also for his support and help for our personnel development and mainly for the completion of this wonderful project on the topic of **"Online Cafeteria Food Ordering System"**, which also helped us in doing a lot of research and we came to know about so many new tools and technologies.

We would like to express our special thanks of gratitude to our Campus Chief **Mr. Bhawani Prasad Paudel** who gave us permission to do this Project.

I am highly indebted to Jaya Multiple Campus for their guidance and constant supervision as well as for providing necessary information regarding the Project andsupport in the completion.

We would also like to express my gratitude to the library and member of Jaya Multiple Campus for their kind co-operation and encouragement which help me in completion of this Project.

We would also like to thank our parents and friends who helped us a lot in finalizing this project within the limited time frame.

In the end, I would also like to thank Tribhuvan University for giving us this opportunity via the course of Bachelor in Computer Application to help us understand the project ethics at this early stage and helped us to evaluate my knowledge and expand it a little more.

Yours sincerely,

Ngimatendi Sherpa

TABLE OF CONTENTS

SUPERVISOR'S RECOMMENDATION

LETTER OF APPROVAL

ABSTRACT ---------- **i**

ACKNOWLEDGEMENT ---------- **ii**

LIST OF ABBERVATIONS ---------- **v**

LIST OF FIGURES ----------**vi**

LIST OF TABLES ---------- **vii**

CHAPTER 1: INTRODUCTION ---------- **1**

1.1 Introduction 1

1.2 Problem Statement… 1

1.3 Objectives 2

1.4 Scope and Limitation 2

CHAPTER 2: BACKGROUND STUDY AND LITERATURE REVIEW 3

2.1 Background Study 3

2.2 Literature Review 4

CHAPTER 3: SYSTEM ANALYSIS AND DESIGN 6

3.1 System Analysis 6

3.1.1 Requirement Analysis 7

3.1.2 Feasibility Analysis 9

3.1.3 Data Modeling (ER-Diagram) … 11

3.1.4 Process Modeling (DFD) 12

3.2 System Design 15

3.2.1 Architectural Design 16

3.2.2 System Flowchart 16

3.2.3 Database Schema Design 18

3.2.4 Interface Design 19

CHAPTER 4: IMPLEMENTATION AND TESTING 22

4.1 Implementation 22

4.1.1 Tools Used 22

4.1.2 Implementation Details of Modules 25

4.2 TESTING 25

4.2.1 Purpose of Testing 25
4.2.2 Test Case for Unit Testing 26
A) Test case 1: Admin 26
A.1 Admin Login Page..... 26
A.2 Insert or Adding..... 26
A.3 Delete or Removing..... 26
B) Test Case 2: User 27
B.1 User Page 27
B.2 Cart Product Increment and Deletion 27
B.3 Categories 27
B.4 Order 28
B.5 Order Tracking 28
CHAPTER 5: CONCLUSION AND FUTURE RECOMMENDATIONS.....29
5.1 Lesson Learn..... 29
5.2 Conclusion 29
5.3 Future Recommendation..... 30
REFERENCE..... 31

LIST OF ABBREVIATIONS

CRUD	Create, Read, Update and Delete
CSS	Cascading Style Sheet
DFD	Data Flow Diagram
ERD	Entity Relationship Diagram
HTML	Hyper Text Markup Language
JS	Java Script
MySQL	Microsoft Server Structured Query Language
PHP	Hypertext Preprocessor
UI	User Interface

LIST OF FIGURES

Figure 3.1: Waterfall Model for Online Cafeteria Food Ordering System.....6

Figure 3.2: Use CASE Diagram of Online Cafeteria Food Ordering System.....8

Figure 3.3: Gantt chart for Online Cafeteria Food Ordering System.....11

Figure 3.4: ER-Diagram for Online Cafeteria Food Ordering System.....12

Figure 3.5: level 0 DFD for Online Cafeteria Food Ordering System.....13

Figure 3.6: Level 1 DFD for Online Cafeteria Food Ordering System.....13

Figure 3.7: Level 2 DFD for Online Cafeteria Food Ordering System.....14

Figure 3.8: Waterfall Model for Online Cafeteria Food Ordering System.....15

Figure 3.9: Architectural Design for Online Cafeteria Food Ordering System.....16

Figure 3.10: Flowchart of Online Cafeteria Food Ordering System for Admin.....17

Figure 3.11: Flowchart of Online Cafeteria Food Ordering System for User.....18

Figure 3.12: Database Schema Diagram for Online Cafeteria Food Ordering System.....19

Figure 3.13: Admin Login Page for Online Cafeteria Food Ordering System.....19

Figure 3.14: User Login Page for Online Cafeteria Food Ordering System.....20

Figure 3.15: Main Page for Online Cafeteria Food Ordering System.....21

LIST OF TABLES

Table 3.1: Gantt chart Table for Online Cafeteria Food Ordering System..... 11

Table 4.1: Admin Login Page of Online Cafeteria Food Ordering System..... 26

Table 4.2: Insert or Adding of Online Cafeteria Food Ordering System..... 26

Table 4.3: Deletion or Removing of Online Cafeteria Food Ordering System 26

Table 4.4: User Page of Online Cafeteria Food Ordering System..... 27

Table 4.5: Cart Product Insertion/Deletion in Online Cafeteria Food Ordering System..27

Table 4.6: Categories of Online Cafeteria Food Ordering System.....27

Table 4.7: Order Food of Online Cafeteria Food Ordering System.....28

Table 4.8: Track Food Order of Online Cafeteria Food Ordering System 28

CHATER: 1

INTROUCTION

1.1 Introduction

The Digital Dining Hub introduces an innovative Online Cafeteria Food Ordering System, designed to revolutionize the way individuals access and enjoy cafeteria-style dining experiences. This dynamic platform seamlessly integrates the convenience of online browsing and ordering with the traditional charm of cafeteria dining, offering users a comprehensive selection of culinary delights at their fingertips.

Within the Digital Dining Hub, customers can explore a diverse range of menu options, from hearty breakfast selections to savory lunch specials and delectable dinner entrees. With a user-friendly interface, patrons can effortlessly peruse the virtual cafeteria, select their desired items, customize orders to their preferences, and complete transactions with ease.

Once orders are placed, the Online Cafeteria Food Ordering System ensures swift processing and delivery, guaranteeing prompt receipt of freshly prepared meals. Whether opting for home delivery or convenient pickup options, customers can enjoy the convenience of having their favorite cafeteria fare delivered directly to their doorstep or readily available for collection.

1.2Problem Statement

In today's digital age, the demand for online food ordering solutions is surging, driven by the need for convenience, accessibility, and personalized experiences. However, existing platforms often fall short of providing comprehensive solutions. Issues like inadequate meal customization, food quality concerns, delivery delays, and data security risks hinder users' experiences and confidence in online cafeteria food ordering. To bridge this gap effectively, there's a pressing need for a user-centric food ordering platform that not only offers a wide range of high-quality meals but also provides personalized meal recommendations, ensures prompt and reliable delivery, and prioritizes robust data security measures. By addressing these challenges, the platform can revolutionize the way individuals approach food ordering, empowering them to make informed choices and enjoy their meals with confidence and convenience.

Objective

Some of the objectives of system are as follow:

- Improve user experience with a user-friendly interface.
- Expand the list of foods for accessibility.
- Provide online payment systems.
- Ensure prompt delivery of Foods.
- Implement efficient customer support mechanisms.

1.3 Scope and limitations

1.3.1 Scope

The scope of the project encompasses:

• Development of an online food ordering platform for Cafeteria.

• Integration of user-friendly features for easy navigation and food selection.

• Inclusion of a diverse range of fitness products catering to various needs and preferences.

• Implementation of secure payment gateways for seamless transactions.

• Incorporation of personalized food ordering and guidance for users.

• Collaboration with reliable delivery services for timely food delivery.

• Provision of responsive customer support to address queries and concerns.

• Potential expansion to include additional food categories based on user demand and market trends.

1.3.2 Limitations

1) **Limited physical interaction:** Users don't have to physically inspect food menu before ordering, potentially leading to dissatisfaction if products do not meet expectations.
2) **Technical challenges:** Possible issues like website downtime, server problems, or compatibility issues may disrupt user access and platform functionality.
3) **Security concerns:** The exchange of sensitive information during online transactions poses risks such as data breaches, hacking attempts, and identity theft, necessitating robust security measures.
4) **Limited physical interaction:** The absence of physical browsing in an online environment may pose challenges for users in assessing the quality and condition of foods before order, potentially affecting their decision-making process and overall satisfaction.

CHAPTER: 2
Background Study and Literature Review

2.1 Background Study

Cafeteria food ordering systems have undergone significant transformations over the years, transitioning from manual processes to sophisticated digital platforms. This background study aims to explore the evolution of cafeteria food ordering systems by analyzing specific sources from the provided project.

Historical Context: The historical context of cafeteria food ordering systems can be traced through the project's database structure and tables. For example, referencing the database dump provided in the project, you can highlight the shift from manual order-taking to database-driven systems. The "orders" table, with fields such as email, meal selection, order date, and delivery status, reflects the transition towards digitized food ordering management.

Transition to Digital Platforms: To illustrate the transition to digital platforms, you can cite the code snippets from the project that demonstrate the utilization of web-based technologies. For instance, the PHP code implementing session management, form submissions, and database interactions signifies the adoption of digital platforms for online food ordering tasks. Additionally, referencing the use of HTML and CSS in the project's frontend highlights the user interface enhancements made possible by web technologies.

Rise of Web-Based Applications: The rise of web-based applications in cafeteria food ordering can be explored through the project's architecture and functionalities. By examining the PHP scripts for meal selection, order management, and cancellation, you can discuss how web-based applications offer remote access, real-time updates, and scalability benefits. Furthermore, referencing the use of JavaScript libraries like Remix icon for iconography showcases the interactive and dynamic nature of modern cafeteria food ordering interfaces.

In conclusion, the evolution of cafeteria food ordering systems, as depicted in the provided project, underscores the industry's transition towards digitalization and innovation. By leveraging web-based technologies and database-driven architectures, modern cafeteria food ordering systems offer enhanced efficiency, accessibility, and user experience.

2.2 Literature Review

Cafeteria food ordering systems have undergone significant transformations over the years, influenced by past research findings and technological advancements. This literature review aims to synthesize past reviews and research on cafeteria food ordering systems, highlighting key themes such as system functionalities, user experiences, and business implications.

- In research by FOODTECH titled "The Cafeteria Industry Pre-Pandemic". The global cafeteria and food service industry experienced remarkable growth before the COVID-19 pandemic, reaching record revenue of US$120 billion in 2019, with millions of customers served across nearly 500,000 cafeterias and food service outlets worldwide. In response to this expansion, cafeteria food ordering systems emerged as indispensable tools for operators, offering functionalities like menu management, order processing, and payment integration. Research emphasized the importance of user-centric design principles to enhance customer satisfaction and retention, while studies highlighted the positive impact of these systems on business performance through integrated analytics and data-driven decision-making. Technological innovations such as mobile app integration and cloud computing have further shaped the evolution of cafeteria food ordering systems, catering to the dynamic needs of operators and customers alike, thus underscoring their pivotal role in driving efficiency and enhancing experiences within the food service industry.

- In research by Dominick Duda titled "Best Cafeteria Food Ordering Software," online cafeteria food ordering systems are essential tools for dining establishments, offering a range of functionalities to streamline operations. These systems efficiently store customer information, manage financial records, schedule meal deliveries, and reserve dining slots, catering to various dining-focused organizations such as school cafeterias, corporate canteens, and hospital cafeterias. Integration with other software enhances their capabilities, enabling tasks like billing management, transactional emails, and social media marketing. Overall, online cafeteria food ordering systems play a vital role in optimizing administrative processes and fostering customer engagement within the food service industry. [2]

- In research by Keep me in October 6th, 2023 titled “The Pain of Reporting - Understanding your Cafeteria’s Customer Engagement Data.” The food service industry relies heavily on data to drive decisions, yet extracting meaningful insights from this data can be challenging. Existing cafeteria management systems often lack the capability to provide actionable insights, leading to missed orders, decreased customer retention, and declining engagement. The need for centralized data management and smarter analytics tools is evident to effectively track and utilize customer engagement data. Segmentation and personalization play crucial roles in creating relevant and engaging campaigns, leveraging a wealth of customer data, including order history, visit frequency, preferred dishes, and personal preferences. Measuring customer engagement involves holistic approaches, including surveys, Net Promoter Scores (NPS), and predictive analytics, which enable proactive customer management and targeted outreach. Unified databases facilitate tracking and analyzing customer interactions, paving the way for predictive analytics to anticipate customer needs and tailor communications accordingly. Automation-powered engagement tools streamline processes, allowing for instant nurture sequences, personalized offers, and targeted follow-ups, ultimately enhancing customer experiences and driving business success.

CHAPTER: 3

SYSTEM ANALYSIS AND DESIGN

3.1 System Analysis

System analysis is a methodical approach that involves collecting and interpreting facts, identifying problems, and decomposing a system into its component parts. For the development of our "Online Cafeteria Food Ordering System," we employed the Waterfall Development Model. This model was chosen due to its simplicity and ease of comprehension. The Waterfall Model dictates that each phase of the development process must be completed before the next one begins, thereby eliminating phase overlap. This structured approach enabled us to systematically progress through the development stages of our system. In our case, the development cycle was meticulously divided into sequential phases: requirements analysis, system design, implementation, testing, deployment, and maintenance.

Through system analysis, we were able to identify and address potential issues early in the development process, ensuring that the final system is efficient and effective in managing food orders, processing payments, and handling various administrative tasks integral to the operation of a cafeteria.

The phases in waterfall model are shown as follows:

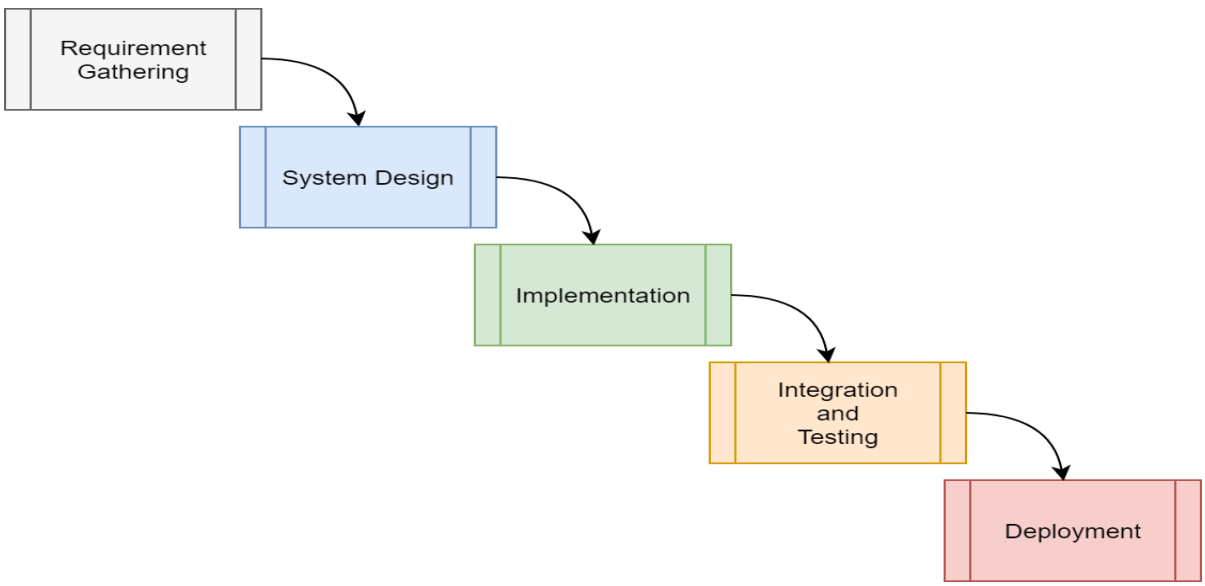


Figure 3.1: Waterfall Model for Online Cafeteria Food Ordering System

- **Requirement gathering:** The system's services, contents, and goals are established through consultations with system users. These requirements are often defined in detail and serve as the system specification.
- **System design**: This phase establishes the overall system architecture. It involves identifying and describing the fundamental software system abstractions and their relationships.
- **Implementation:** This stage includes writing the source code and implementing it within the organization. The software design is realized as a set of programs and program units.
- **Integration and Testing:** Individual program units or programs are integrated and tested as a complete system to ensure that the software requirements are met. After integration, the entire system is tested for any faults and failures.
- **Deployment:** Once functional and non-functional testing is completed, the product is deployed in the customer environment or released into the market.

3.1.1 Requirement Analysis

Requirement analysis is a crucial phase in the system development lifecycle where the specific needs and objectives of the system are identified and documented. During this stage, consultations with system users and stakeholders are conducted to gather detailed information about the system's desired functionalities, performance expectations, and constraints. This information is meticulously analyzed to create a comprehensive system specification that serves as a blueprint for subsequent development phases.

I. Functional Requirements

a. For Users

- The system shall allow users to register and create a personal account.
- The system shall record and manage member personal details (e.g., full name, email, mobile number, gender, role).
- The system shall enable members to order foods.
- The system shall display available foods, with specific category, with different items.
- The system shall allow users to order the foods.

b. For System Administrator

- The system shall allow administrators to add, update, or delete user record.
- The system shall enable administrators to manage food, food categories, and food availability.
- The system shall provide administrators with access to user and food order information.
- The system shall allow the system administrator to view the user's information.
- The system shall generate reports on user's orders, feedbacks, and financial transactions.

c. Use Case Diagram

In **Online Cafeteria Food Ordering System**, there are two actors such as user and admin, here users are allowed to create an account, login, order food, get food and logout from the system. Whereas admin can login, manage data, view user details and delete from the admin panel.

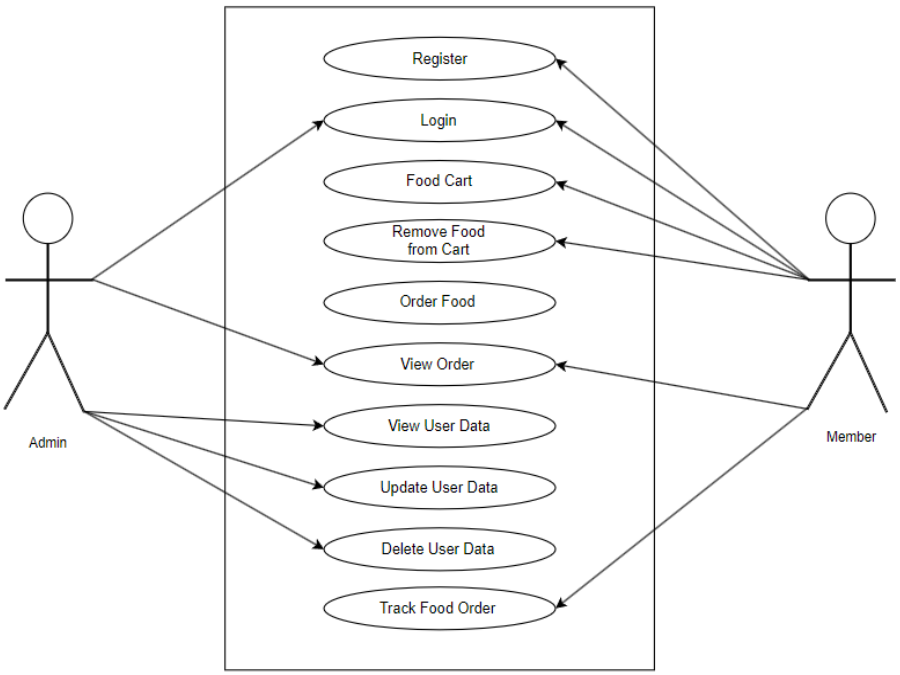


Figure 3.2: Use Case Diagram of Online Cafeteria Food Ordering System

II. Non-Functional Requirements

i. **Usability:** The system shall provide a user-friendly interface that is easy to navigate for both users and administrators**.**

ii. **Performance:** The system shall handle simultaneous access by multiple users without significant performance degradation.

iii. **Security:** The system shall ensure the security of user data through encryption and secure authentication mechanisms.

iv. **Reliability:** The system shall be highly reliable, with minimal downtime and robust error-handling procedures.

v. **Scalability:** The system shall be scalable to accommodate a growing number of users and increased data volume.

vi. **Compatibility:** The system shall be compatible with various devices, including desktops, tablets, and smartphones.

vii. **Maintainability:** The system shall be designed for ease of maintenance, with clear documentation and modular components.

viii. **Compliance:** The system shall comply with relevant data protection and privacy regulations.

3.1.2 Feasibility Analysis

i. Technical Feasibility

Technical feasibility assesses whether the proposed Online Cafeteria Food Ordering System can be implemented from a technological standpoint. It examines the availability of the required food, drinks, etc.

Key considerations for technical feasibility include:

- System Requirements: Evaluate whether the required technological infrastructure, including hardware and software, is available or can be acquired within budget constraints.
- Integration Capability: Assess the compatibility and feasibility of integrating the proposed system with existing food ordering software, databases, and third-party services.
- Scalability: Determine if the system architecture can accommodate future growth in membership and product offerings without significant performance degradation.

ii. Economic Feasibility:

Economic feasibility assesses whether the Online Cafeteria Food Ordering System project is financially viableand justifiable. It involves analyzing the costs and benefits associated with the project. Considerations for economic feasibility include:

- Cost-Benefit Analysis: Conduct a comprehensive analysis of the costs associated with system development, implementation, and maintenance, weighed against the anticipated benefits such as increased efficiency, revenue generation, and customer satisfaction.
- Return on Investment (ROI): Calculate the expected ROI based on projected revenue growth, cost savings, and other tangible and intangible benefits over a defined period.
- Budget Constraints: Determine if the project aligns with the available budget and financial resources of the cafeteria, considering both initial investment and ongoing expenses.

iii. Operational Feasibility:

Operational feasibility assesses whether the Online Cafeteria Food Ordering System project can be effectively implemented and integrated into the existing operational environment. Considerations for operational feasibility include:

- User Acceptance: Conduct surveys or interviews with cafeteria staffs and potential users to gauge their willingness to adopt the new system and identify any potential resistance to change.
- Training Needs: Assess the training requirements for cafeteria staff to effectively utilize the system and ensure smooth operations during the transition phase.
- Support and Maintenance: Evaluate the availability of technical support resources and the feasibility of maintaining and updating the system in the long term.

iv. Schedule Feasibility:

Schedule feasibility assesses whether the Online Cafeteria Food Ordering System project can be complete within the specified time. Considerations for schedule feasibility include:

- Timeline: Evaluate the feasibility of completing the project within the desired time, considering factors such as development complexity and potential delays.
- Milestones: Define clear project milestones and deliverables to track progress and ensure that the project stays on schedule.
- Risk Management: Identify potential risks and develop contingency plans to mitigate delays and minimize the impact on project timelines.

Task Name	Duration
Getting Started	2 weeks
System Design &Architecture	2 weeks
Implementation	7 weeks
Deployment	4 weeks
Documentation	12 weeks

Table 3.1: Gantt chart Table for Online Cafeteria Food Ordering System

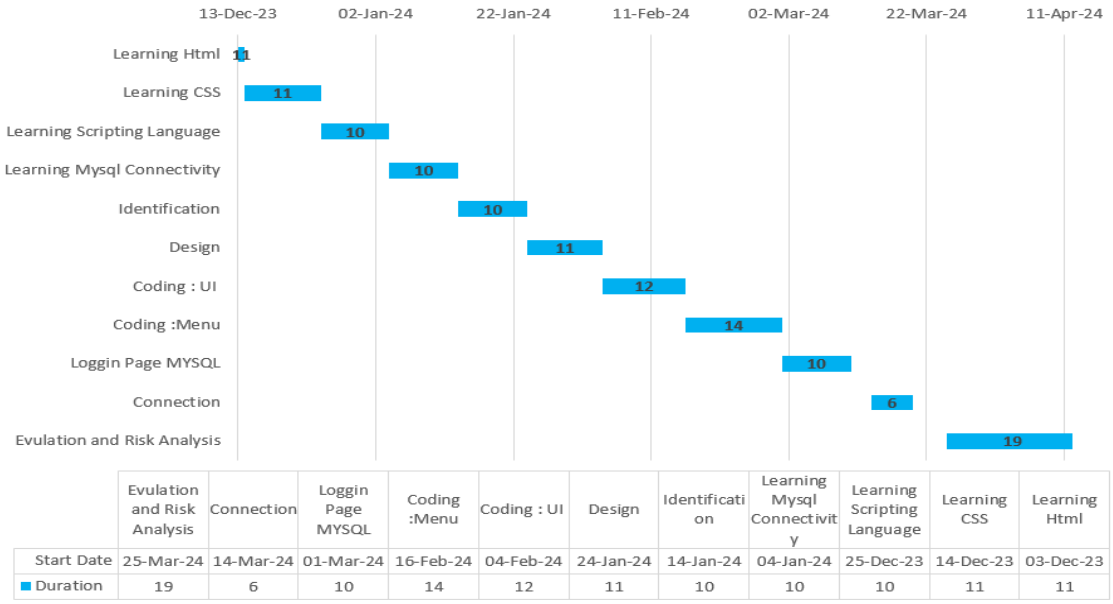


Figure 3.3: Gantt chart for Online Cafeteria Food Ordering System

3.1.3 Data Modeling

Data modeling is the process of creating a conceptual representation of the data requirements for a system or application. It involves identifying the entities, their attributes, and the relationships between them to create a structured and organized representation of the data. Data modeling is essential for designing and implementing databases, ensuring data integrity, and facilitating efficient data storage and retrieval.

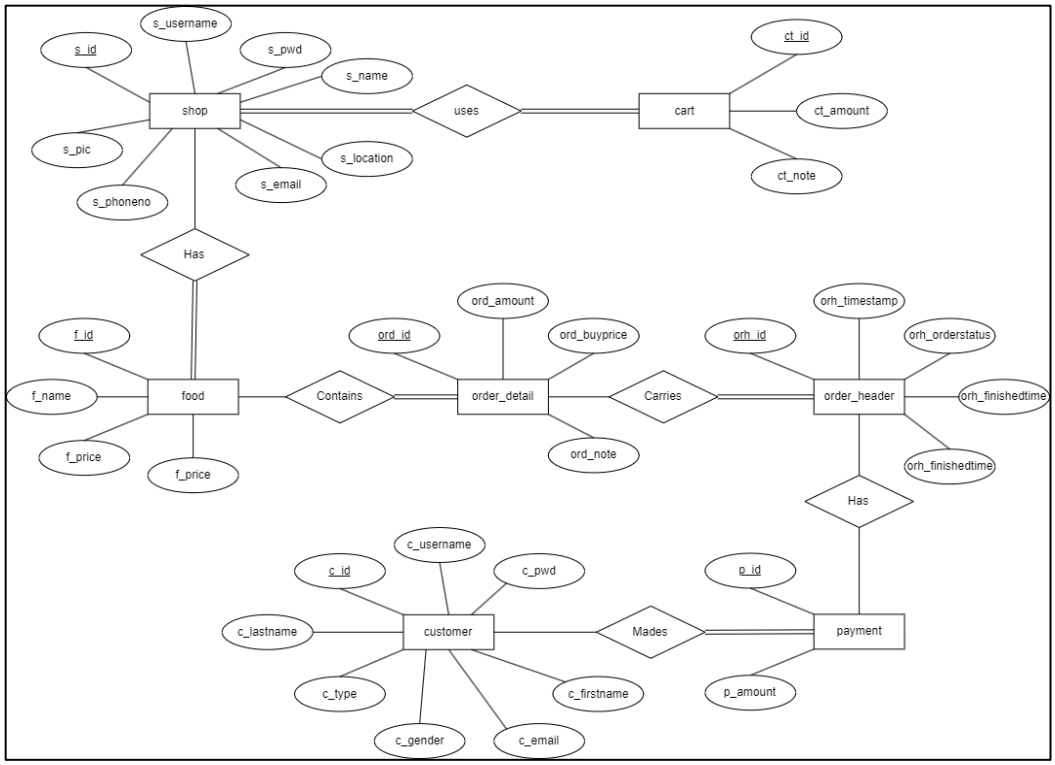


Figure 3.4: ER-Diagram for Online Cafeteria Food Ordering System

3.1.4 Process Modeling

Process modeling is a technique used to represent and analyze the flow of activities, data, and decisions within a system or organization. It aims to provide a visual representation of how a process works, enabling stakeholders to understand, analyze and improve the process. It helps in optimizing processes, reducing errors, improving communication, and facilitating process automation initiatives. So, the process modeling of our project is given below:

- **Zero Level DFD:** A Zero Level Data Flow Diagram (DFD), also known as a Context Diagram, is the highest-level view of a system's functional components and the interactions between them. It provides an overall picture of how data flows within a system without delving into the finer details. In a Zero Level DFD, you typically represent the entire system as a single process, or a bubble surrounded by external entities.

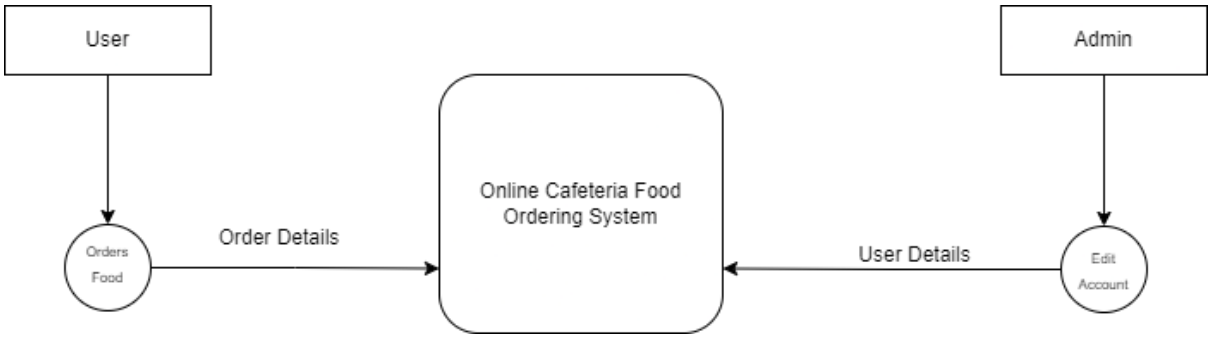


Figure 3.5: Level 0 DFD for Online Cafeteria Food Ordering System

- **First Level DFD:** A First Level Data Flow Diagram (DFD), also known as a Level 1 DFD, provides a more detailed view of a system's processes compared to the Zero Level DFD (Context Diagram). It breaks down the central process from the Zero Level DFD into more specific sub processes, showing how data flows between them.

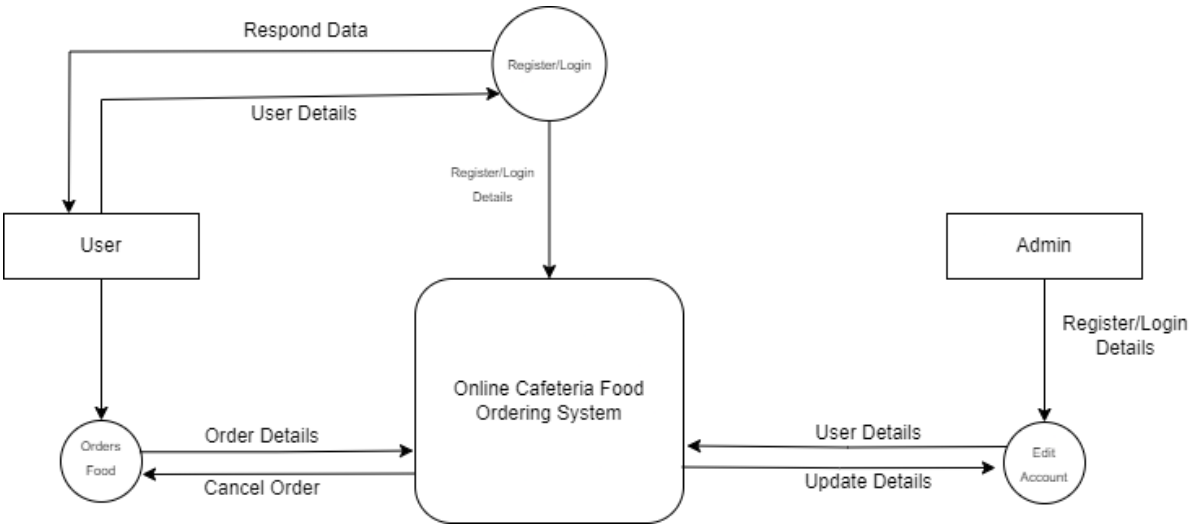


Figure 3.6: Level 1 DFD for Online Cafeteria Food Ordering System

Second Level DFD: A Second Level Data Flow Diagram (DFD) provides even more detailed information about a specific sub process or function within a system compared to the First Level DFD. It breaks down one of the processes from the First Level DFD into its constituent sub processes, data stores, and data flows. This Second Level DFD provides a more granular view of how the "By Keyword" sub process works within the system. Depending on the complexity of the system and the sub process, you can further break down each element into additional levels of DFDs if necessary to capture more detailed processes and data flows.

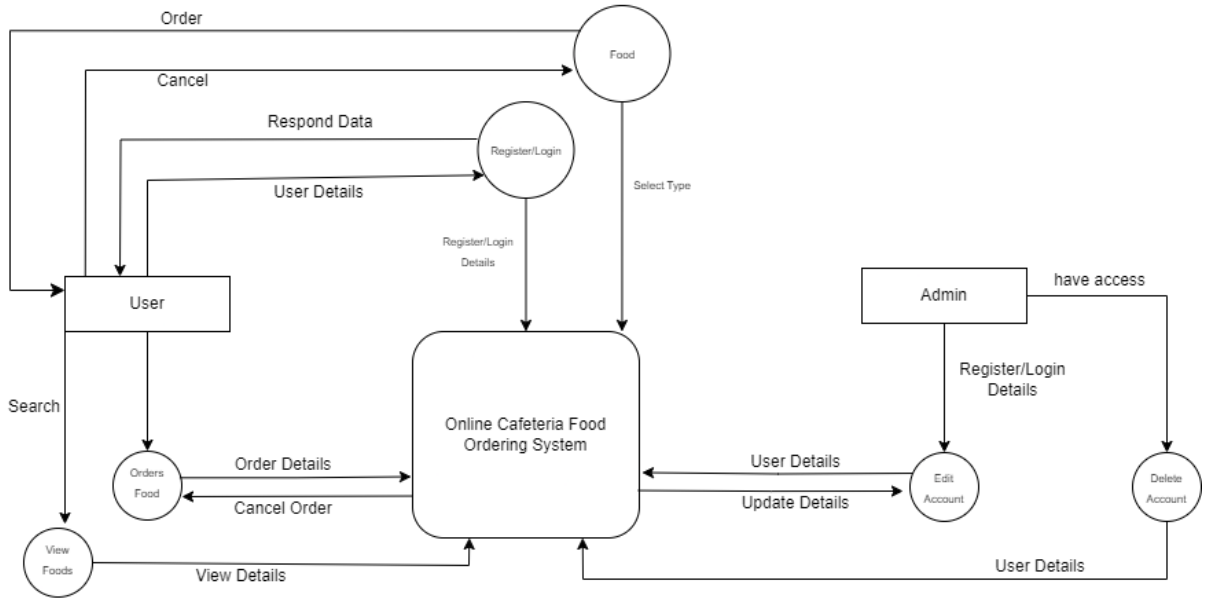


Figure 3.7: Level 2 DFD for Online Cafeteria Food Ordering System

3.2 System Design:

System design is the phase in software development where a detailed blueprint is created for a software system, encompassing architecture, component interactions, data structures, interfaces, and performance considerations. System Design is defined as a process of creating an architecture for different components, interfaces, and modules of the system and providing corresponding data helpful in implementing such elements in systems. It involves breaking down the system into manageable components, defining their relationships, and designing the database schema. User interface design, security measures, error handling, scalability, and testing strategies are also considered. The outcome of system design is a comprehensive plan that guides the development and deployment of a software system, ensuring it meets requirements, performs efficiently, and is secure and maintainable. It refers to the process of defining the architecture, modules, interfaces, and data for a system to satisfy specified requirements. It is a multi-disciplinary field that involves trade-off analysis, balancing conflicting requirements, and making decisions about design choices that will impact the overall system.

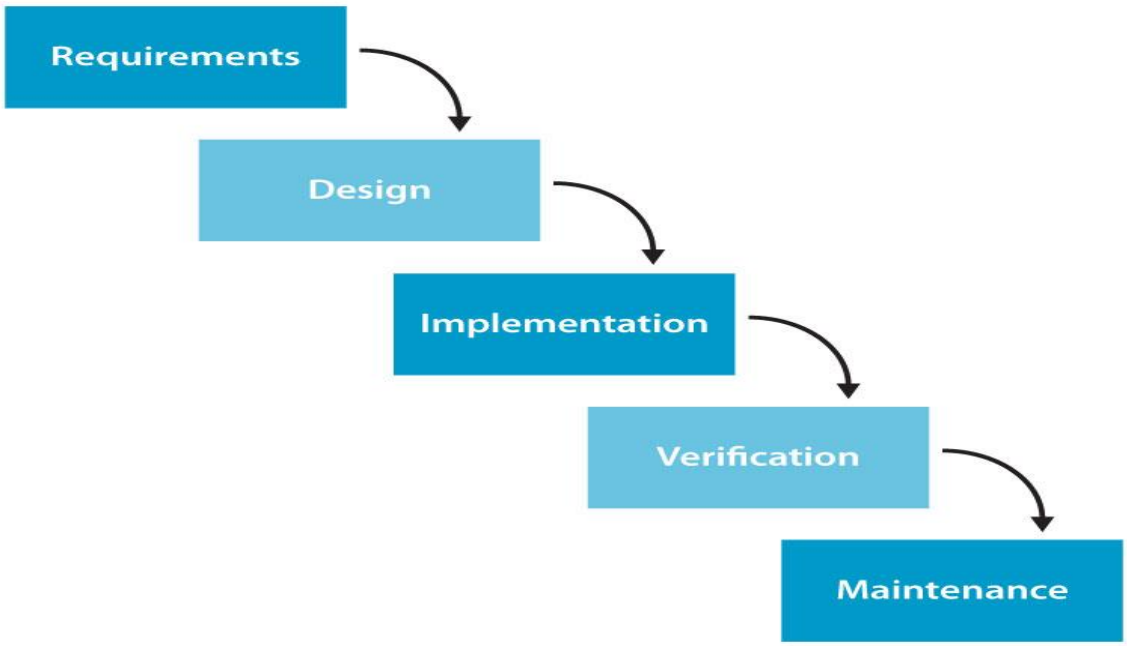


Figure 3.8: Waterfall Model for Online Cafeteria Food Ordering System

3.2.1 Architectural Design

Architectural design involves defining the overall structure, components, and interactions of the system. It determines how the different software and hardware elements will be organized and integrated to meet the functional and non-functional requirements of the system. The architectural design servers as a blueprint for the development and implementation of the system. The architectural design of a project provides a high-level overview of the system's structure and guides the development and implementation process. It ensures that the system meets the functional and non-functional requirements while considering scalability, performance, security, and extensibility.

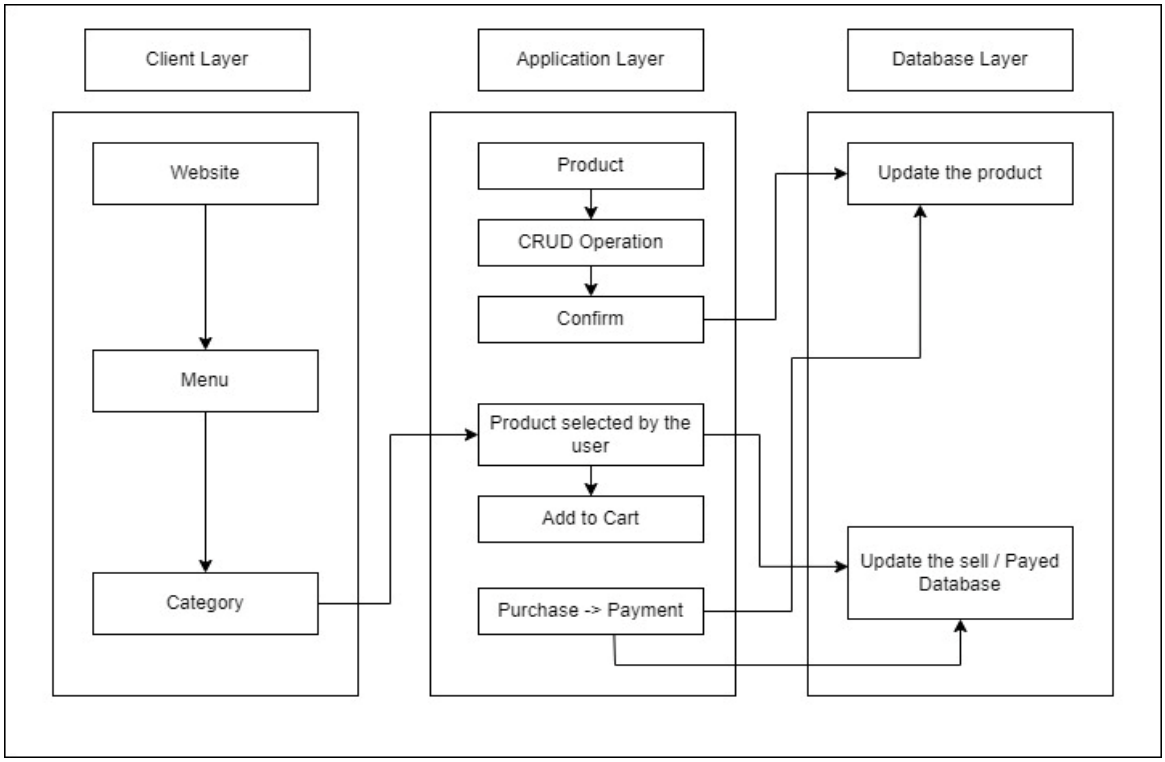


Figure 3.9: Architectural Design for Online Cafeteria Food Ordering System

3.2.2 System Flowchart

The figure below is the flowchart of **Online Cafeteria Food Ordering System** applicants and user loginthe system and if user is not registered then they have to register first. After login success, it directs to dashboard of the system and user view the product category and add the productto the cart they want. The admin does not need to register they can directly login the system and after login success it redirects to dashboard of admin and admin can manage categories, and all the details of users. The admin approves the order from the users, and they go for place order and use different ways for payment method.

For Admin

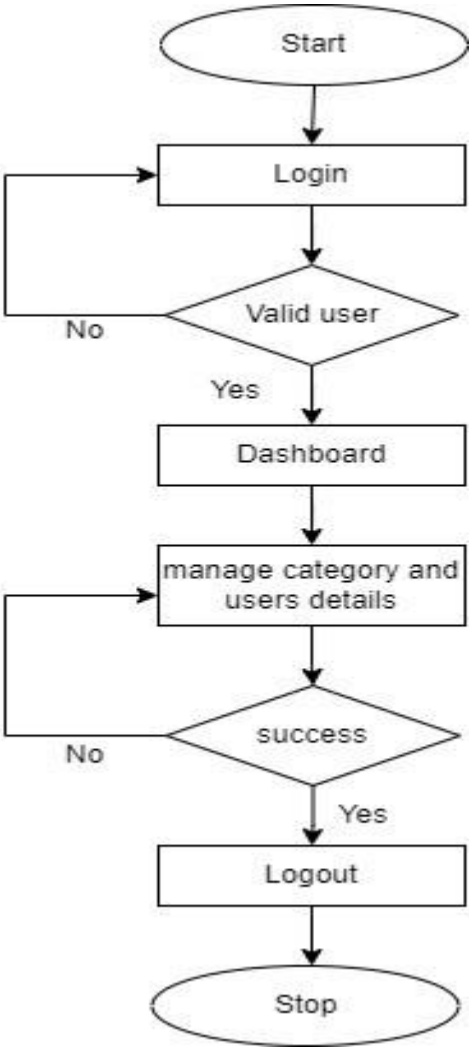


Figure 3.10: Flowchart of Online Cafeteria Food Ordering System

For User

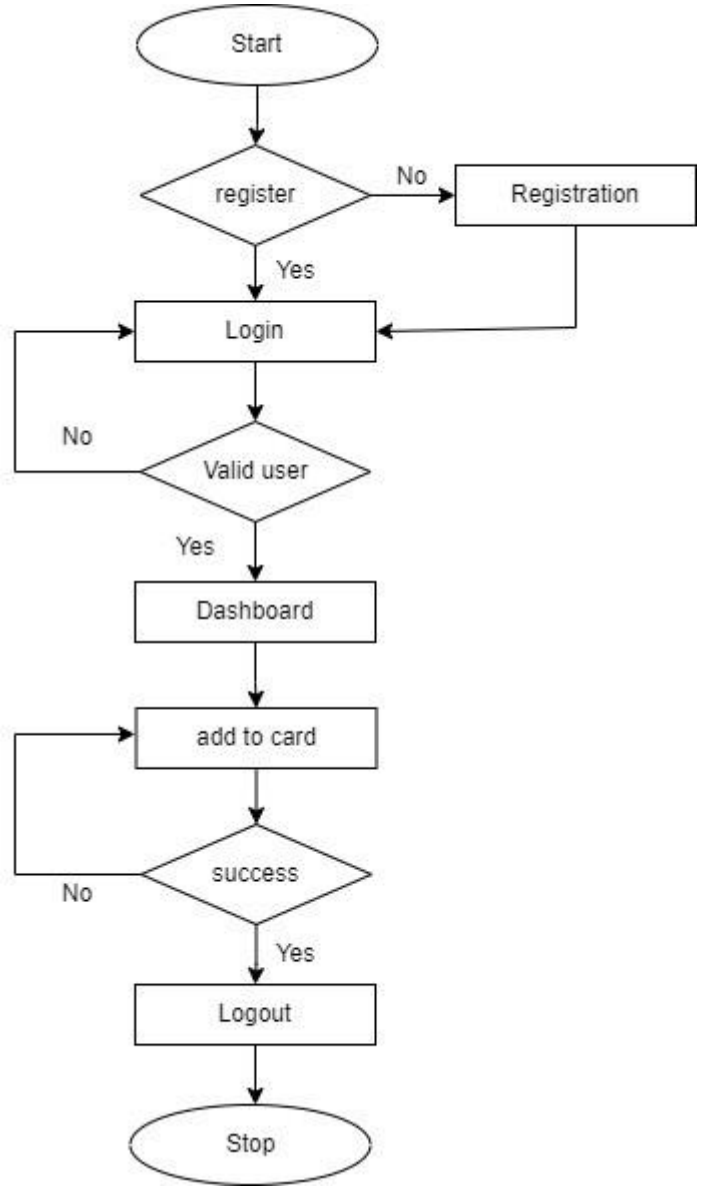


Figure 3.11: Flowchart of Online Cafeteria Food Ordering System

3.2.3 Database Schema Design

A database schema represents the logical configuration of all part of a relational database. It can exist both as a visual representation and a set of formulas known as integrity constraints that govern a database. Below here is the database schema of our project:

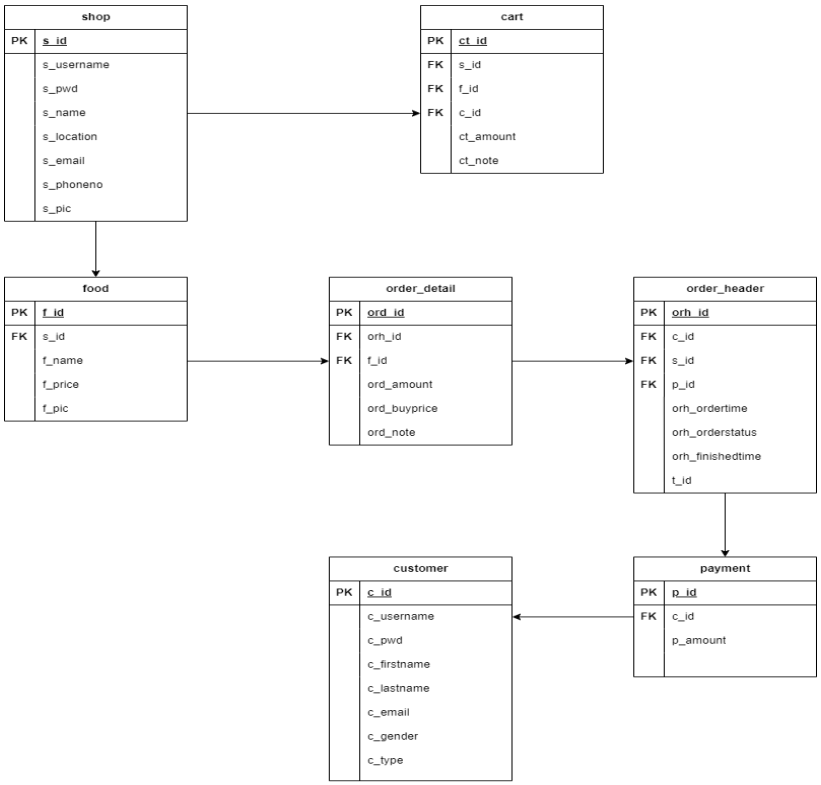


Figure 3.12: Database Schema Design for Online Cafeteria Food Ordering System

3.2.3 Interface Design

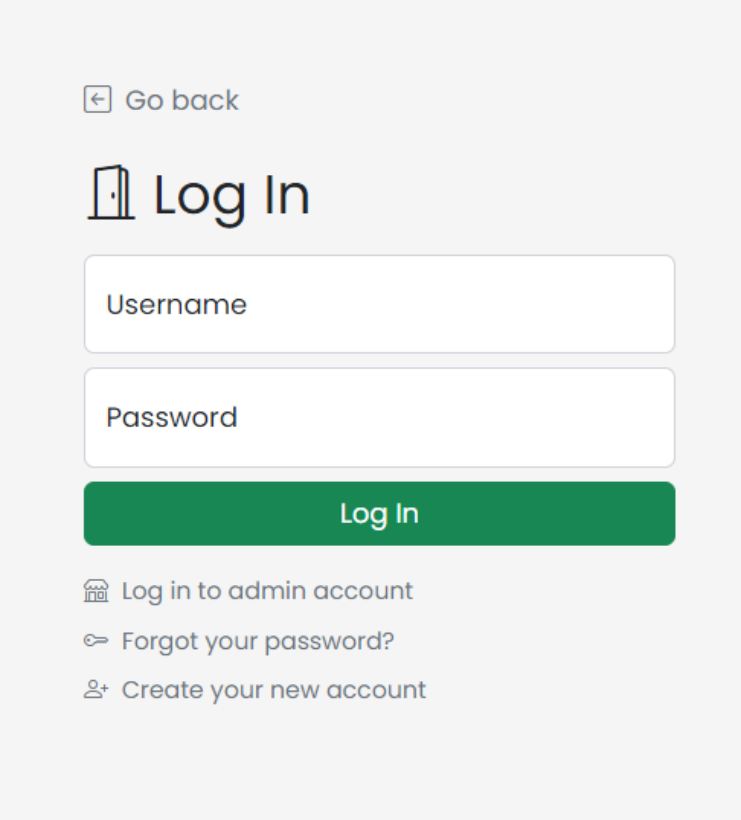


Figure 3.13: User Login Page for Online Cafeteria Food Ordering System

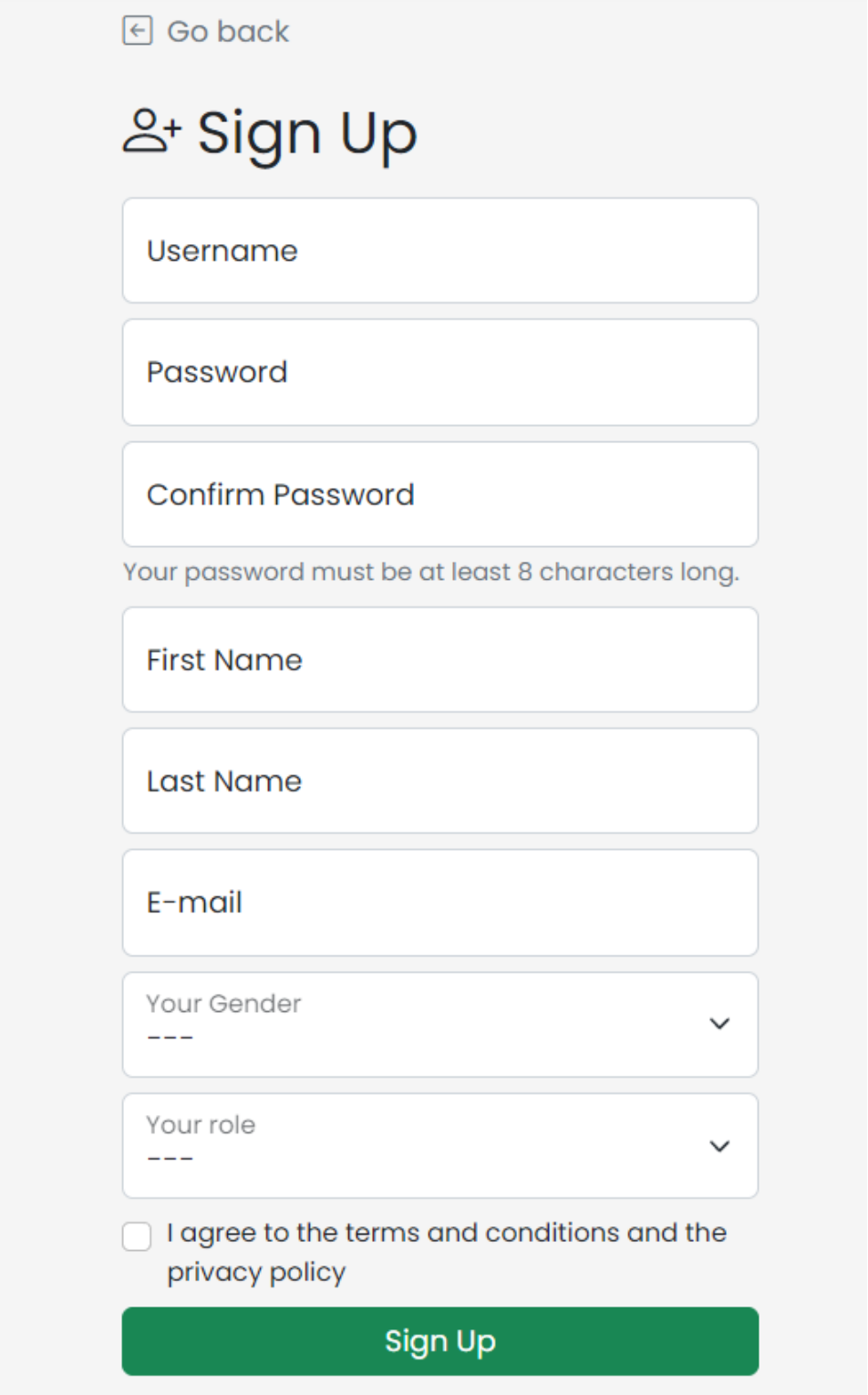


Figure 3.14: Sign Up Page for Online Cafeteria Food Ordering System

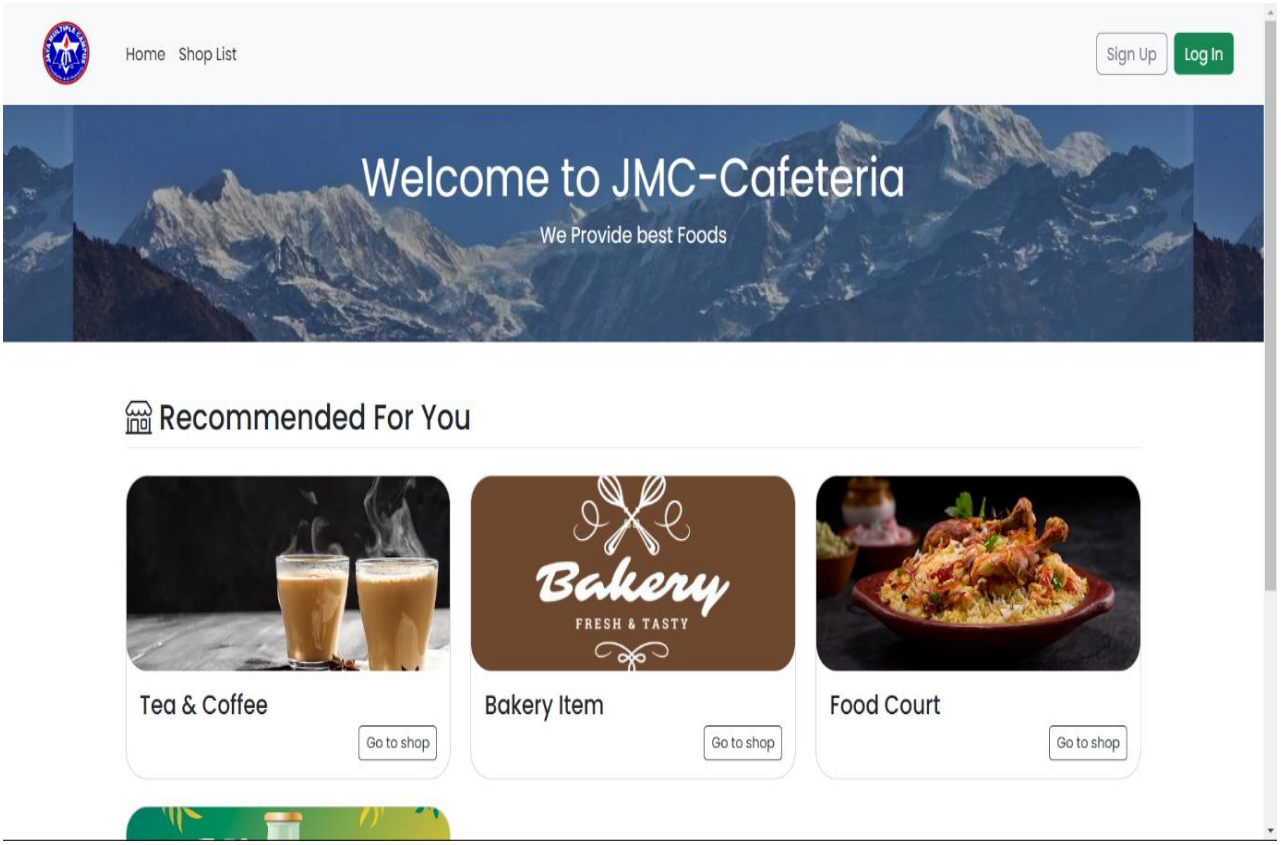


Figure 3.15: Main Page for Online Cafeteria Food Ordering System

CHAPTER: 4

IMPLEMENTATION AND TESTING

4.1 IMPLEMENTATION

4.1.1 Tools Used

Different tools, applications and technologies have been used in this project. And all of themare discussed below:

i. Microsoft Visual Studio Code:

Microsoft Visual Studio Code is an Integrated Development Environment (IDE) developed by Microsoft to develop GUI (Graphical user interface), console, web application, web apps, mobile apps, cloud, and wed server, etc. It uses the various platforms of Microsoft Software development software like windows store, Microsoft Silverlight, and Windows API, etc. Itis not a language- specific IDE as you can use this to write code in c#, c++, VB (Visual Basic), Python, JavaScript, and many more languages. It provides support for 36 differentprogramming languages.

ii. XAMPP:

XAMPP is one of the most widely used cross-platform web servers, which helps developers to create and test their programs on a local webserver. It was developed by the Apache Friends, and its native source code can be revised or modified by the audiences. It consistsof Apache HTTP Serves, MariaDB, and interpreter for the different programming languages like PHP and Perl. XAMPP is used to symbolize the classification of solutions for different technologies. It provides a base for testing projects based on different technologies through a personal server. XAMPP is an abbreviation from each alphabet representing each of its major components.

iii.Web Browser:

A web browser, or simply “browser,” is an application used to access and view websites. Common web browsers include Microsoft Internet Explorer, Google Chromes, Mozilla Firefox, and Apple Safari. Each time a browser loads a web page, it processes HTML, which may include text, links, and references to images and other items, such as CSS (Cascading Style Sheets) and JavaScript functions. The browser processes these items, then rendering them in the browser window. To build the Gym & Fitness Club: Membership and Product Hub web page various programming languages and tools are used which are described below:

Front End Tools

- **HTML:**

HTML stands for Hyper Text Markup Language in which it is the set of markup symbols or codes inserted into a file intended for displaying on the internet. The markup tells the web browser how to display a web page's word and images. Each individual piece's markup code (which would fall between "<" and ">") is referred to as an element, though many people also refer to it as a tag. Some elements come in pairs that indicate when some displayeffect is to begin and when it is to end. Hyper Text Markup Language (HTML) is the basic scripting language used by web browsers to render pages on the World Wide Web. Hypertext allows a user to click a link and be redirected to a new page referencing be that link. HTML is a computer language that facilitates website creation. The language, which has code words and syntax just like any other language, is relatively easy to comprehend and, as time goes on, increasingly powerful in what it allows someone to create.

- **CSS:**

CSS stands for a Cascading Style Sheet. Cascading style sheets are used to format the layout of Web Pages. They can be used to define text style, table sizes, and other aspects of web pages that previously could only be defined in a page's HTML. CSS helps Web developers create a uniform look across several pages of a Web site. Instead of defining the style of each table and each block of text within a page's HTML, commonly used style needs to be defined only once in a CSS document. While CSS is great for creating text styles, it is helpful formatting other aspects of Web page layout as well. For example, CSS can be used to define the cell padding of the table cells, the style, thickness, and color of the table's border, and the padding around images or other objects. CSS gives Wed developer more exact control over how Web pages will look then HTML does. This is why most Web pages today incorporate cascading style sheets.

- **JavaScript:**

JavaScript is a programming language commonly used in web development, it was originally developed by NetScape as a means to add dynamic and interactive elements to websites. While JavaScript is influenced by java, the syntax is more similar to C and is based on ECMAScript, a scripting language developed by Sun Micro systems. JavaScript is a Client-Side Scripting language, which means the source code is processed by the

client's web browser rather than on the web server. This means JavaScript functions can run after a web page has loaded without Communicating with the server. JavaScript function can be called within <script> tags or when specification events take places. Examples include onClick, onMouseDown, onMouseUp, onKeyDown, onKeyUp, onFocus, onBlur, onSubmit and many others. While standard JavaScript is still used for performing basic Client-Side functions, many web developers now prefer to use JavaScript libraries like Jquery to add more advanced dynamic elements to websites.

Back End Tools

- **PHP:**

PHP stands for Hyper Pre-Processor (it is a recursive acronym, if you can understand what that means.) PHP is an HTML-embedded Web Scripting language. This means PHP code can be inserted into the HTML of a Web pages. When a PHP page is accessed, the PHP code is read or "parsed" by the server the page resides on. The output forms the PHP functions on the page resides on. The output forms of the PHP functions on the page are typically returned as HTML code, which can be read by the browser. Because the PHP code is transformed into HTML before the page is loaded, user cannot view the PHP code on a page. This makes PHP pages secure enough to access databases and other secure information.

Database

MySQL:

MySQL is a relational database management system based on SQL (Structured Query Language). This application is used for a wide range of purposes, including data warehousing, e-commerce, and logging applications. The most commonly used for MySQL, however, is for the purpose of a web database. It can be used to store anything for a singlerecord of information to an entire inventory of available product for an online store. MySQL provides an implementation of a SQL database very well suited for small to medium web pages. The database is free and open sources with the commercial license available. MySQL had one major advantage, since it is free, it is usually available on shearing hosting packages and can be easily set up in a Linux, UNIX, and Windows environment. In association with a scripting language such as PHP or Perl it is possible to create websites which will interact in real-time with a MySQL database to rapidly display categorized and searchable information to a website user.

4.1.2 Implementation Details of Modules

The "**Online Cafeteria Food Ordering System**" system is designed to streamline and enhance the management of food ordering facilities and their services. It begins with robust modules for food order management, order scheduling, food management, and food ordering. These modules handle the secure storage of user information, real-time food ordering, and food management for Cafeteria's Foods. User authentication and access control are critical components, ensuring data privacy and security. A user-friendly interface with customizable options and accessibility features caters to diverse user needs, providing a seamless and intuitive experience.

To ensure the system's effectiveness and reliability, comprehensive security measures, rigorous testing, and quality assurance are implemented. Analytics and reporting tools offer insights into user engagement and system performance, aiding in continuous improvement. The deployment strategy focuses on scalability and efficient hosting, with regular updates and maintenance planned. Additionally, user order and support resources facilitate easy adoption, while strategic marketing efforts promote the system to potential users. The system also adheres to data protection laws and copyright agreements, ensuring compliance and regulatory standards are met.

4.2 TESTING

4.2.1 Purpose of Testing

The purpose of testing in the "**Online Cafeteria Food Ordering System**" is to ensure that the software application meets both business and user requirements effectively. Key objectives of software testing include:

- To verify that the software meets the requirements and functions as expected.
- To identify and document any defects in the software before the end-users encounter them.
- To ensure that identified defects are addressed and corrected by developers.
- To implement strategies that prevent defects from occurring in the first place.
- To build confidence in the software's quality and reliability, ensuring it is fit for deployment and use by the intended audience.

4.2.2 Test Case for Unit Testing

A) Test Case 1: Admin

A.1 Admin Login Page

Table 4.1: Admin Login of Online Cafeteria Food Ordering System

Objective	Login into the web pages.
Action	Entering login credentials i.e. email address andpassword.
Expected Results	To enter dashboard by signing in with user type Admin credentials.
Actual Results	Entered admin panel by signing in to the application with admin Credentials.
Conclusion	Test Successful

A.2 Insert or Adding

Table 4.2: Insert or Adding of Online Cafeteria Food Ordering System

Objective	Modify the data of member.
Action	By entering the update button on admin panel.
Expected Results	Entering update button there should be update button in user details.
Actual Results	The details are entered according to the user registration with the update button.
Conclusion	Test Successful.

A.3 Delete or Removing

Table 4.3: Deletion, Removing of Online Cafeteria Food Ordering System

Objective	Delete the account into database.
Action	Deleting the old data or existing data from database.
Expected Results	Clicking “Delete” button to delete all the record of similar unique id from the database.
Actual Results	Clicking the “Delete” button to delete the records from the database.
Conclusion	Test Successful.

B) Test Case 1: User

B.1 User Page

Table 4.4: User Page of Online Cafeteria Food Ordering System

Objective	Just to see the home page of the web app.
Action	Click the profile icon in the top right corner.
Expected Results	To see user login detail with logout option.
Actual Results	Clicking the profile icon there is user email and logout button.
Conclusion	Test Successful

B.2 Cart Food Increment and Deletion

Table 4.5: Cart Product Increment and Deletion of Online Cafeteria Food Ordering System

Objective	To add food in cart and increase the number and delete the food from cart and decrease the number.
Action	To click on “Add to cart” to increase and click on “Delete” to decrease.
Excepted Results	Clicking the “Add to cart” the number in the nav bar should increases by 1 & by clicking the “Delete” the number in the nav bar should decrease by 1.
Actual Results	Clicking the “Add to cart” the number in the nav bar is being increases by 1 & by clicking the “Delete” the number in the nav bar is being decrease by 1.
Conclusion	Test Successful.

B.3 Registration

Table 4.6: Registration of Online Cafeteria Food Ordering System

Objective	To see registration page.
Action	By clicking the “Sign Up” button.
Expected Results	To redirect/link to other page.
Actual Results	Clicking on Sign Up button to get Registered.
Conclusion	Test Successful.

B.4 Order

Table 4.7: Order Food of Online Cafeteria Food Ordering System

Objective	To order the Food.
Action	To click on Proceed with Payment.
Expected Results	Clicking the proceed with payment the food selected by the user should be ordered.
Actual Results	Clicking on the Submit the conformation will pop up and the order is placed.
Conclusion	Test Successful.

B.5 Track Order

Table 4.8: Track Order Food of Online Cafeteria Food Ordering System

Objective	To track the order of Food.
Action	To click on “Order History” button.
Expected Results	Clicking the button Order History by the user should be shown along with order details.
Actual Results	Clicking on the button the conformation will pop up and the order is shown.
Conclusion	Test Successful.

CHATER: 5
CONCLUSION AND FUTURE

RECOMMENDATIONS

5.1 Lesson Learn:

While making this project I have learnt many things. And they are listed down below:

- Learn about PHP, HTML, JavaScript, JSON, and MySQL server.
- Learn how to connect all the things.
- Learn about how to do research in the current market.
- Learn how to solve problems related to codes.
- Learn to implement a crud operation in a system.
- Learn how to completely workable project**.**

5.2 Conclusion

In conclusion, the concept of an "**Online Cafeteria Food Ordering System**" represents a transformative shift in how cafeteria services and food products are accessed and utilized. This digital evolution has not only enhanced the convenience and accessibility of ordering meals but also revolutionized the way cafeterias operate, interact with customers, and manage their offerings. With robust management systems and user-friendly interfaces, the "**Online Cafeteria Food Ordering System**" has made meal planning and ordering more dynamic and inclusive.

Moreover, the advent of digital food ordering systems has democratized access to cafeteria resources, breaking down geographical barriers and providing a wealth of services to users worldwide. The inclusion of accessibility features ensures that individuals with diverse needs can equally benefit from this digital transformation, fostering a more inclusive dining environment.

However, it's important to recognize that the implementation and maintenance of such systems come with challenges, including data security, user privacy, and the need for continuous updates and improvements. Despite these challenges, the system concept remains a powerful tool for both customers and cafeteria operators seeking to enhance service delivery and foster a culture of convenience and efficiency. As technology continues to advance, the role and impact of digital food ordering systems are poised to evolve further, promising an exciting future for online cafeteria service engagement.

5.3 Future Recommendation:

The future of the "Online Cafeteria Food Ordering System" holds significant potential for innovation and enhancement. Here are some recommendations for future developments in this field:

Enhanced Interactivity: Expand the interactive capabilities of the platform by incorporating multimedia elements, virtual menu previews, interactive meal customization options, and augmented reality (AR) to create engaging and immersive food ordering experiences.

Personalization Algorithms: Develop advanced recommendation algorithms that consider individual dietary preferences, past orders, and nutritional needs, enabling the platform to suggest personalized meal options and cafeteria products tailored to each user's unique tastes and health goals.

Collaborative Features: Integrate collaborative tools within the platform to facilitate group orders, virtual food challenges, and community discussions, promoting collaborative dining experiences and peer engagement.

AI-Powered Assistants: Implement AI-powered virtual assistants within the platform to assist users in tracking their dietary habits, setting nutritional goals, providing meal suggestions, and offering context-aware recommendations for cafeteria products and services.

Blockchain for Payments and Loyalty Programs: Explore the use of blockchain technology to securely manage payments, loyalty points, and rewards, ensuring transparency and security in transactions and customer data management.

Sustainability Practices: Implement sustainable practices in the management of the platform, considering energy-efficient data storage, eco-friendly initiatives, and promoting sustainable food options to reduce the environmental footprint.

User Feedback Integration: Actively seek and incorporate user feedback to drive ongoing improvements in the platform's functionality, usability, and content selection, ensuring the platform continues to meet the evolving needs of its customers.

By implementing these recommendations, the "Online Cafeteria Food Ordering System" can further enhance its offerings, providing a more personalized, engaging, and sustainable dining experience for its users.

REFERENCES

[1] “The Evolution of Online Food Ordering System” | [ONLINE] | Available: https://wwwfooddeliverysystems.com/blog/evolution-of-online-food-ordering/ |

[2] "Top Online Food Ordering Platforms" | [ONLINE] | Available: https://www.g2.com/categories/online-food-ordering / |

[3] "The Challenges of Managing Online Food Orders" | [ONLINE] | Available: https://www.foodmanagement.com/blog/the-challenges-of-managing-online-food-orders / | [Accessed 2023]

[4] "ChatGPT by OpenAI" | [ONLINE] | Available: https://www.openai.com/chatgpt / | [Accessed 2023]

[5] "Online Food Ordering System Software: A Comprehensive Guide" | [ONLINE] | Available: https://www.softwareadvice.com/resources/online-food-ordering-system-software / | [Accessed 2023]

[6] "The Role of Technology in Modern Food Ordering" | [ONLINE] | Available: https://www.foodtech.com/technology/role-technology-modern-food-ordering / | [Accessed 2023]

[7] "How to Choose the Right Online Food Ordering Sytem" | [ONLINE] | Available: https://www.fooddeliverysystems.com/blog/choose-the-right-online-food-ordering-system / | [Accessed 2023]

[8] "Enhancing Customer Experience through Online Food Ordering" | [ONLINE] | Available: https://www.foodservice.com/blog/enhancing-customer-experience / | [Accessed 2023]

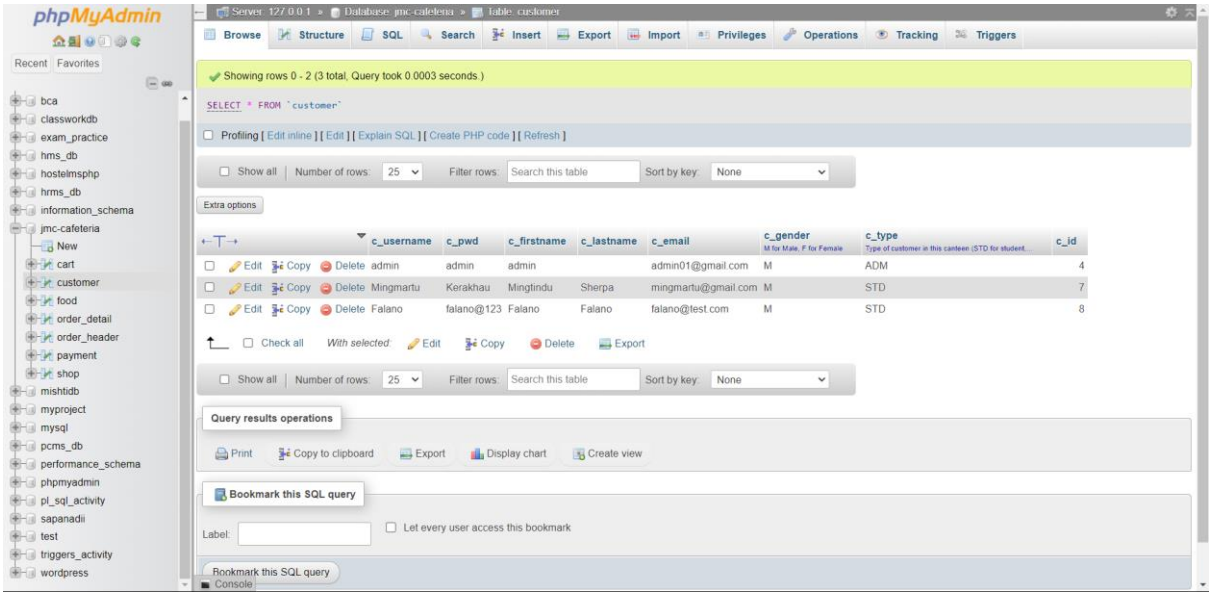
[9] "A Guide to Online Food Ordering Automation" | [ONLINE] | Available: https://www.ordermanagement.com/blog/a-guide-to-online-food-ordering-automation / | [Accessed 2023]

[10] "Impact of Digital Tools on Food Order Management" | [ONLINE] | Available: https://www.foodsolutionmagazine.com/2021/03/impact-of-digital-tools-on-food-ordering-management / | [Accessed 2023]

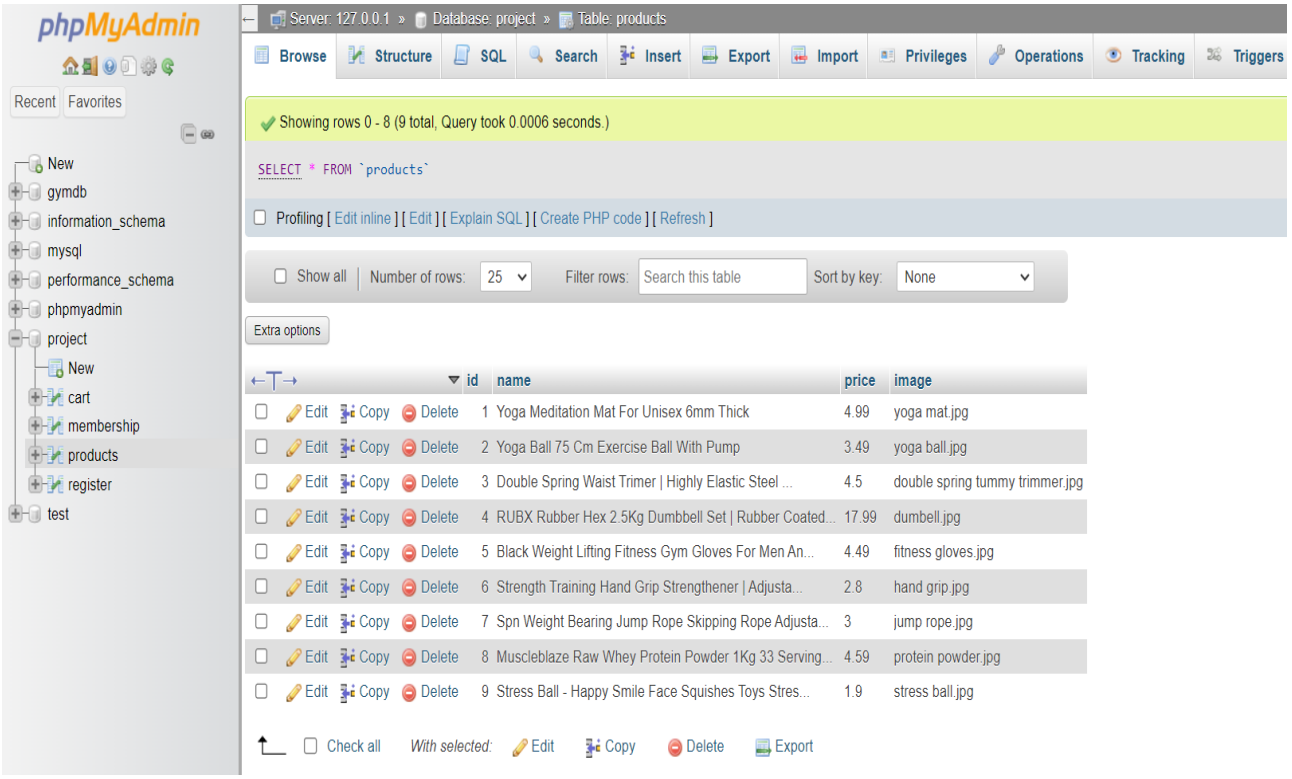
APPENDIX: SYSTEM SCREENSHOTS

➢ Database overview

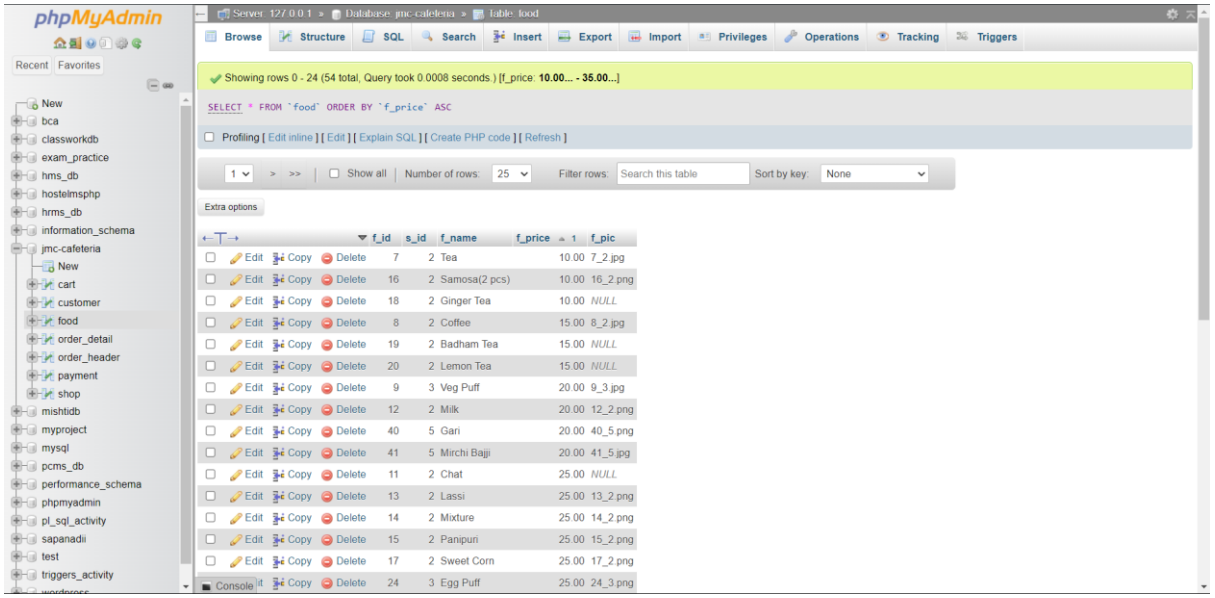
- **User database**



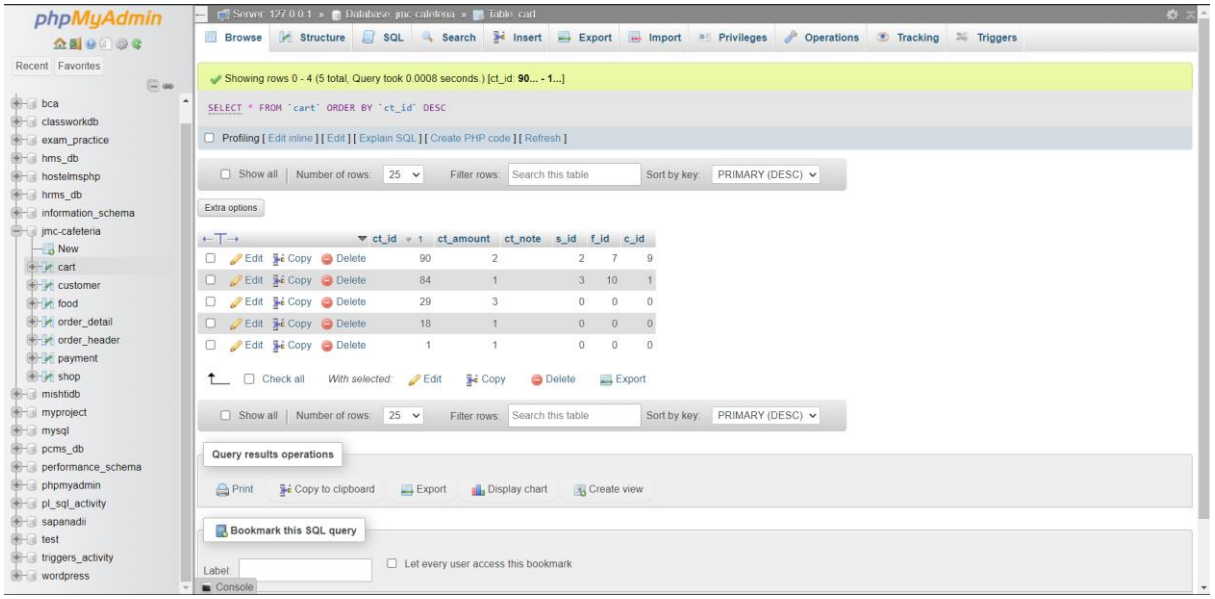
- **Shop database**



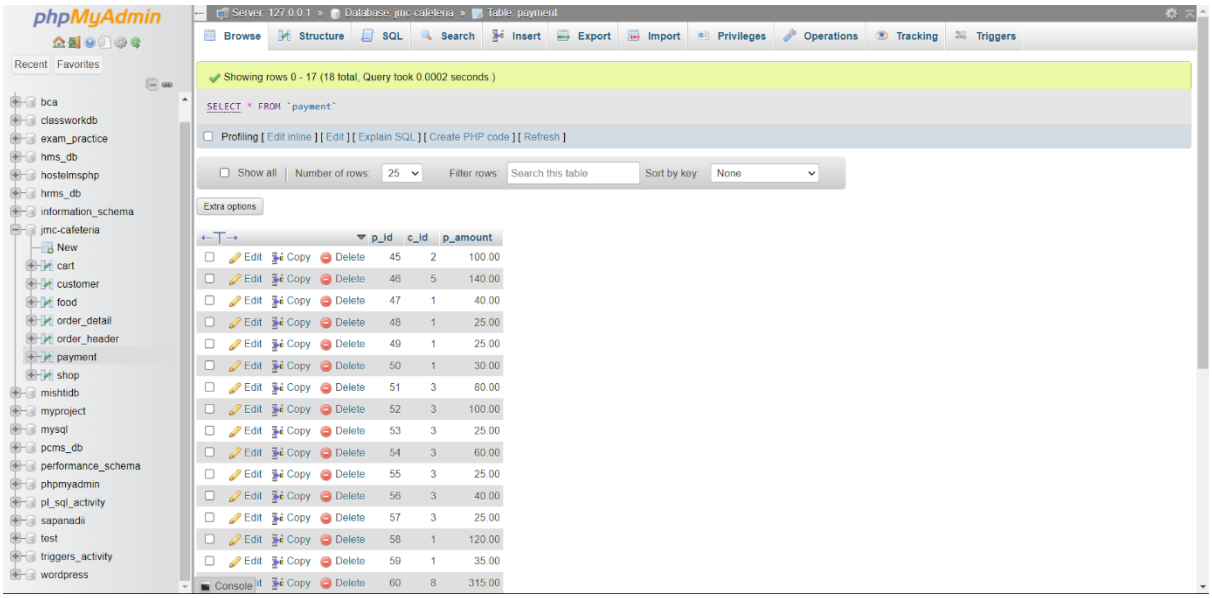
- **Food database.**



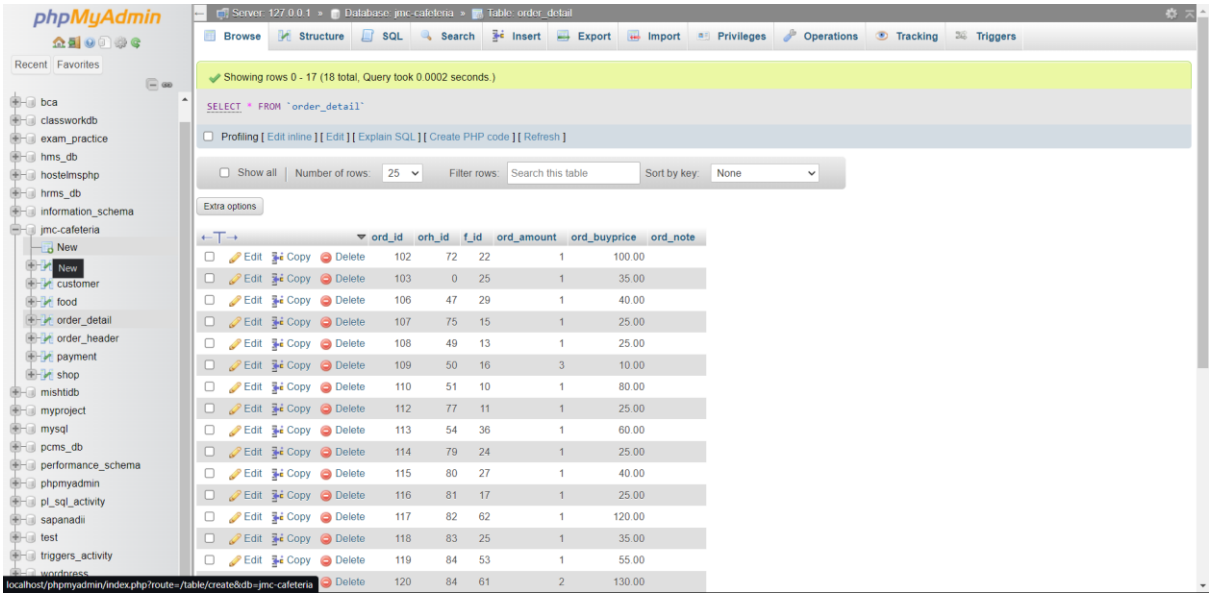
- **Cart database**



- **Payment database**

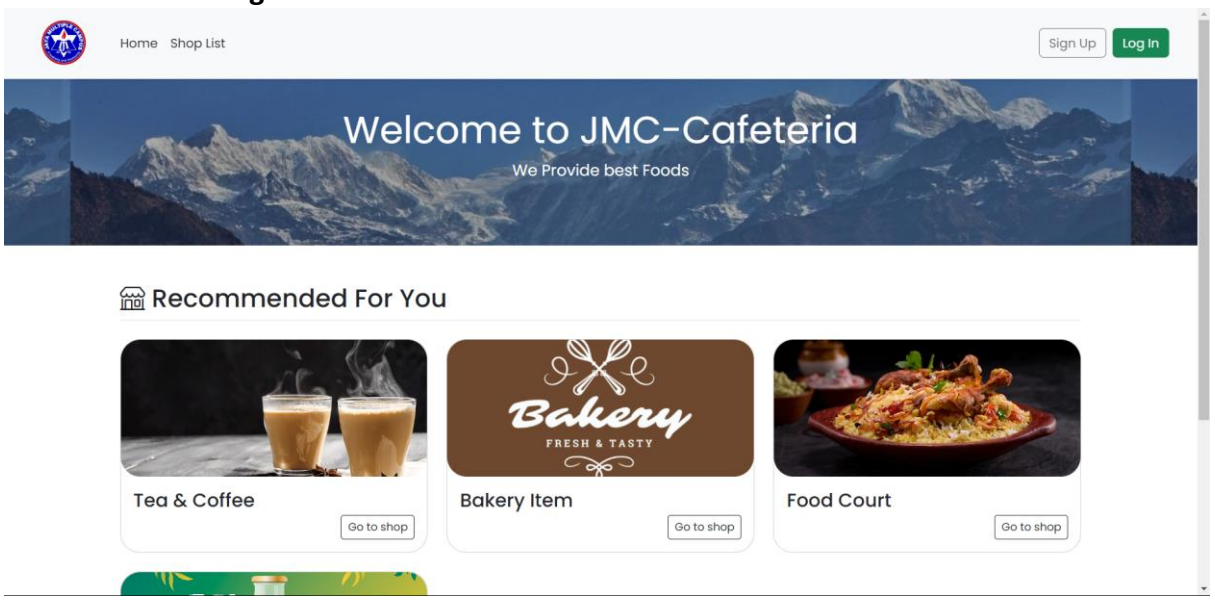


- **order_detail database**

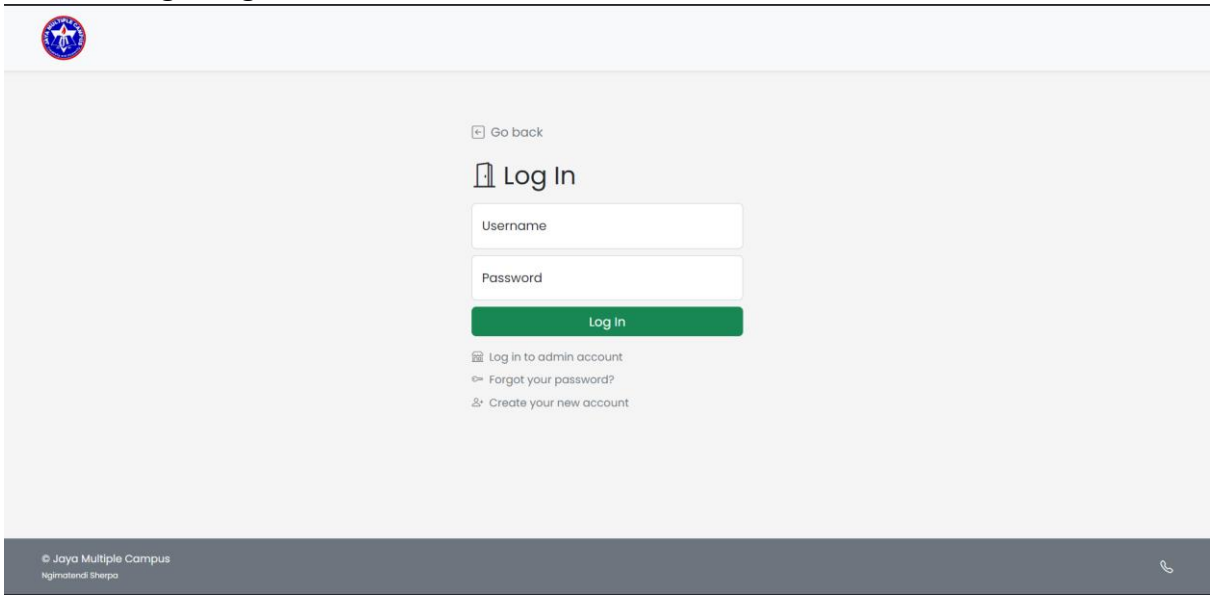


➢ Frontend Overview

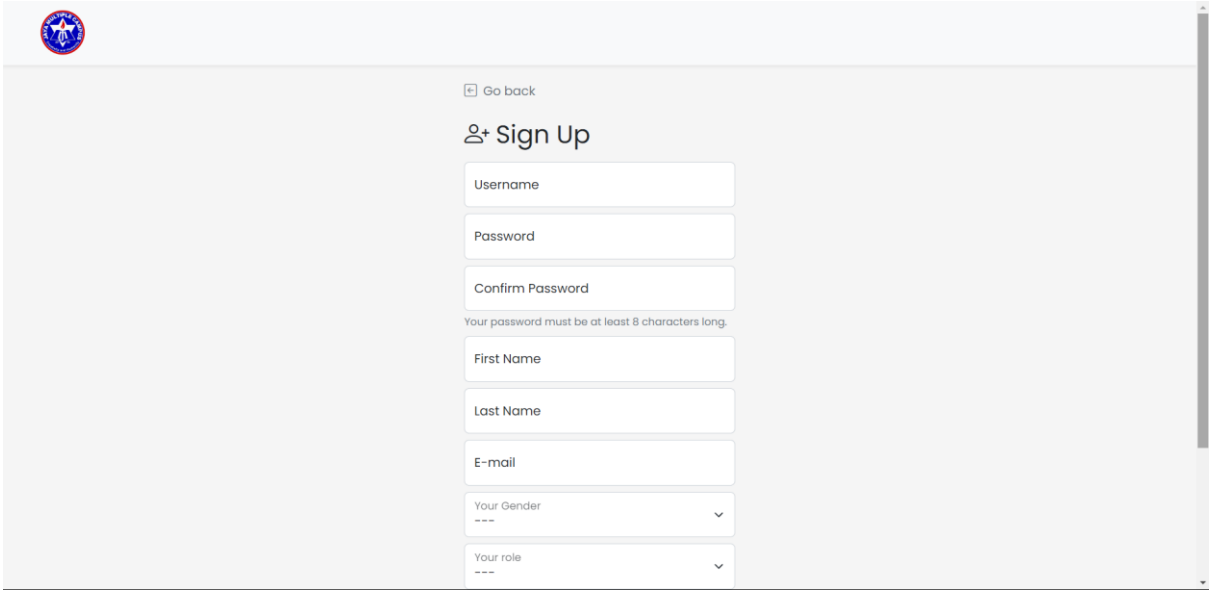
- **Home Page**



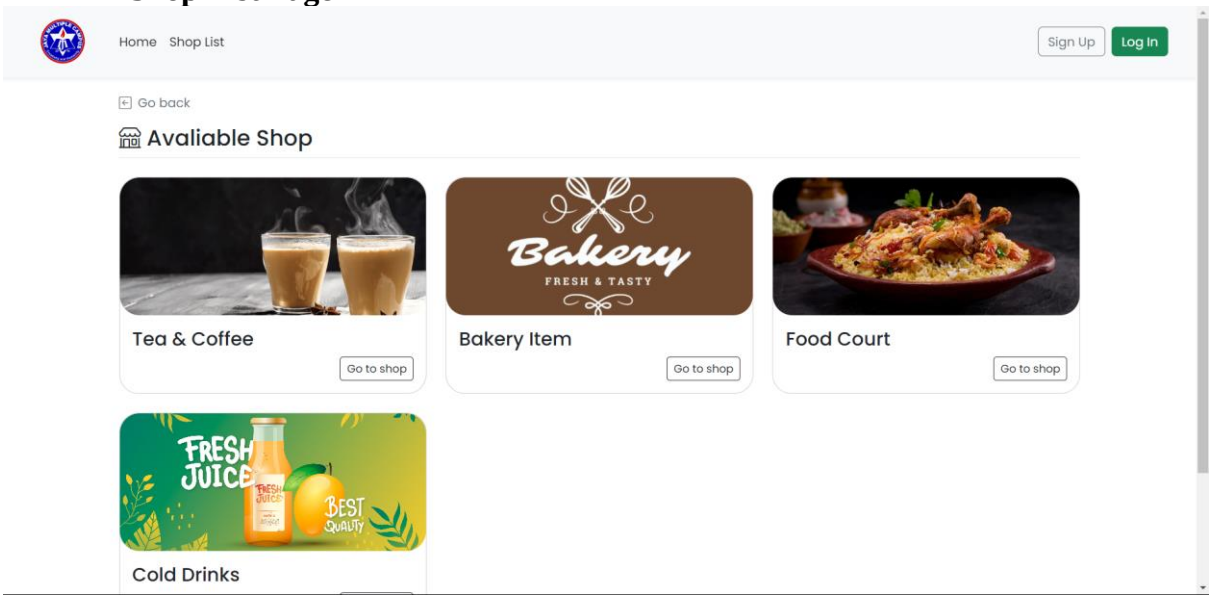
- **Login Page**



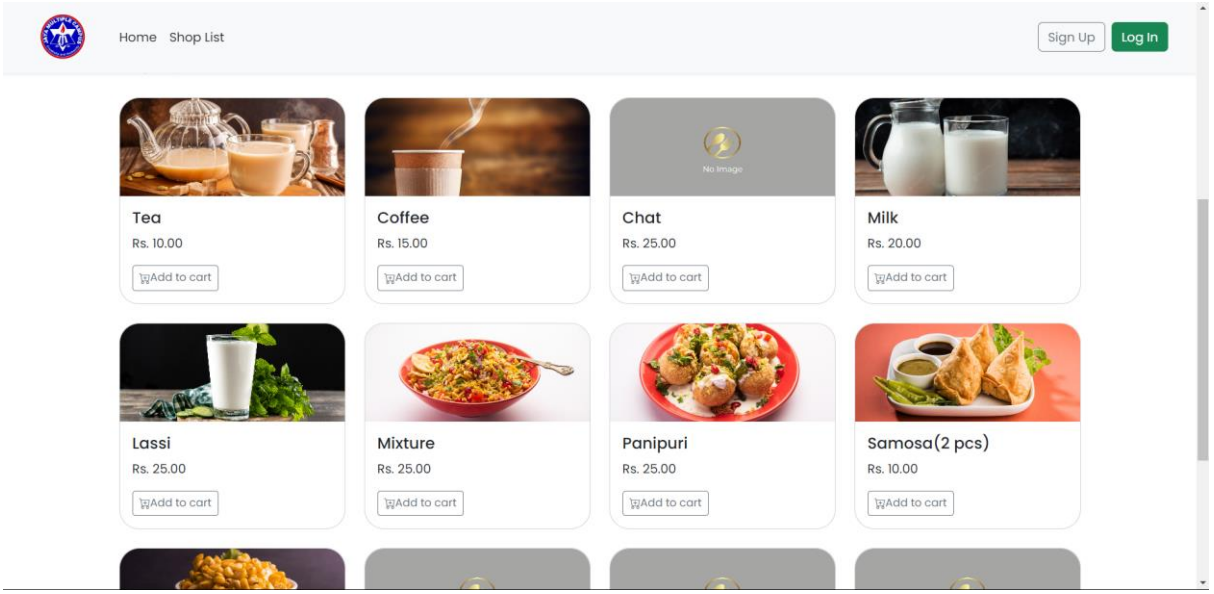
- **Register Page**



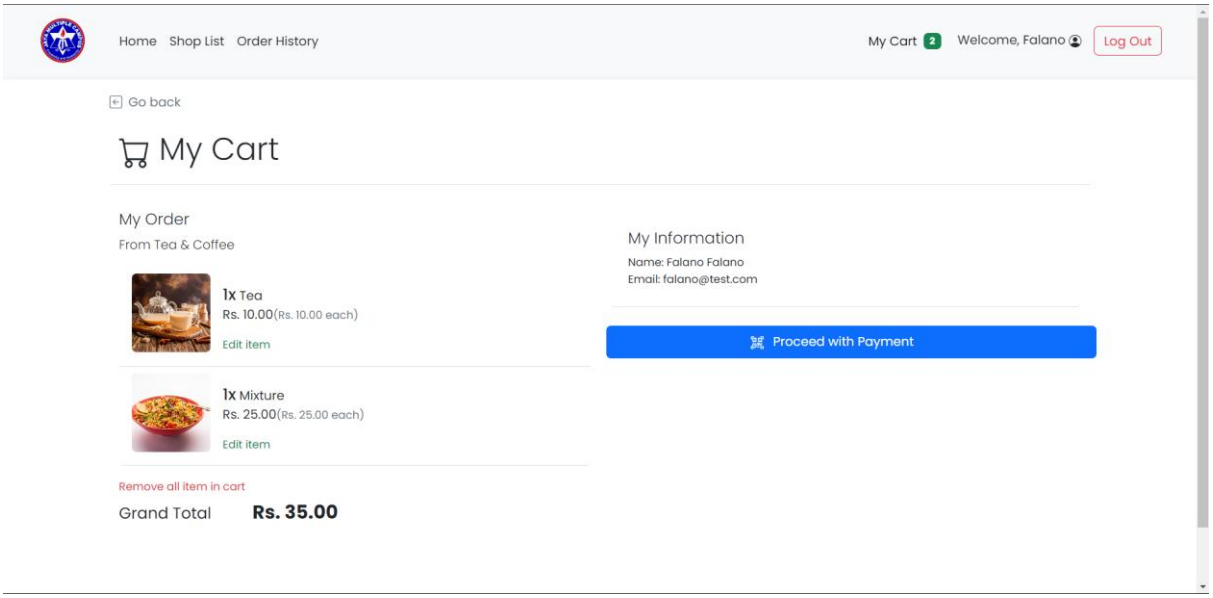
- **Shop List Page**



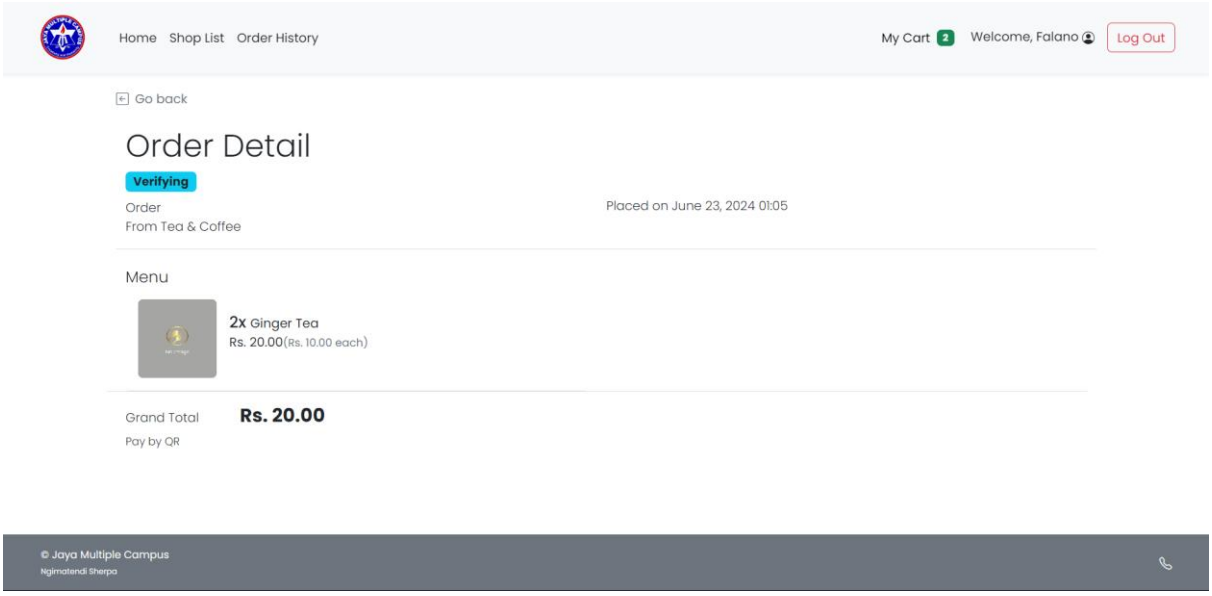
- **Food List on Shop**



- **Cart**

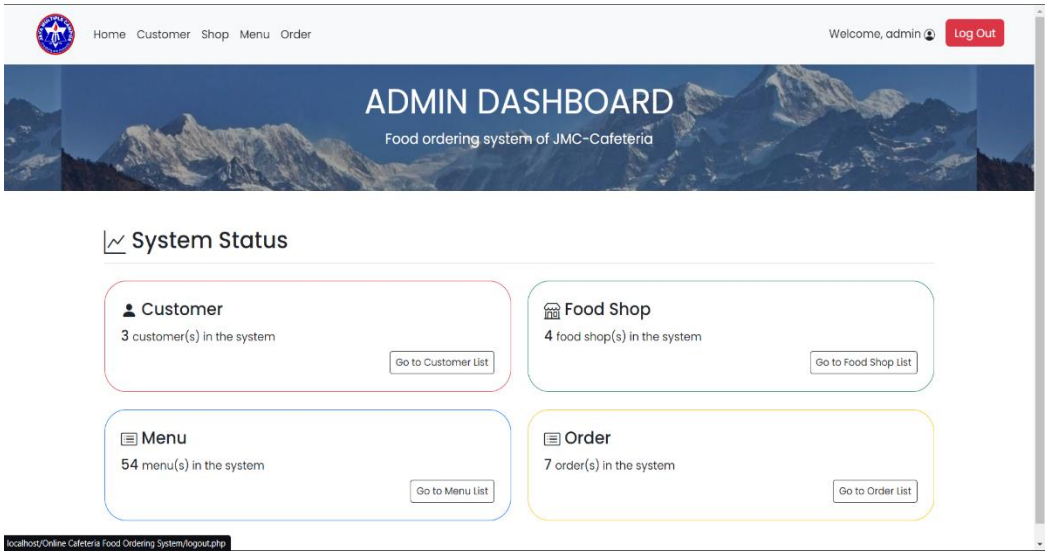


- **Track Order**

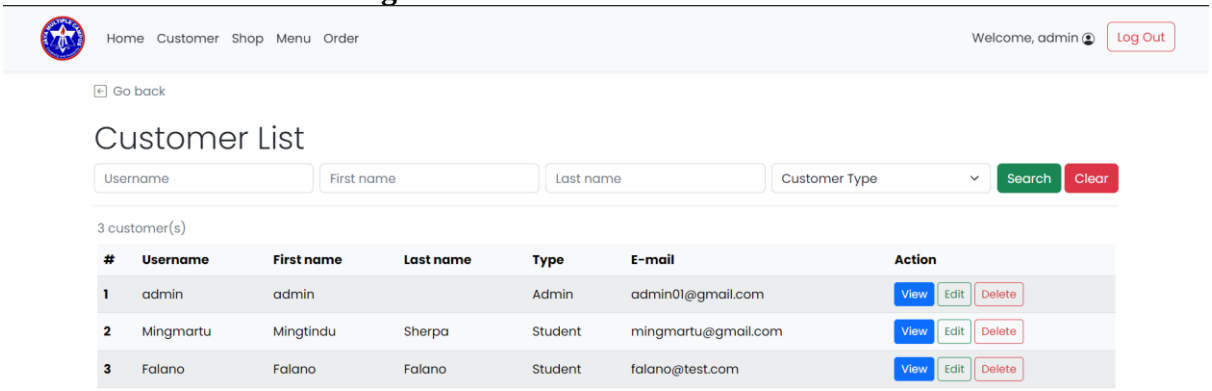


➢ **Admin Panel Overview**

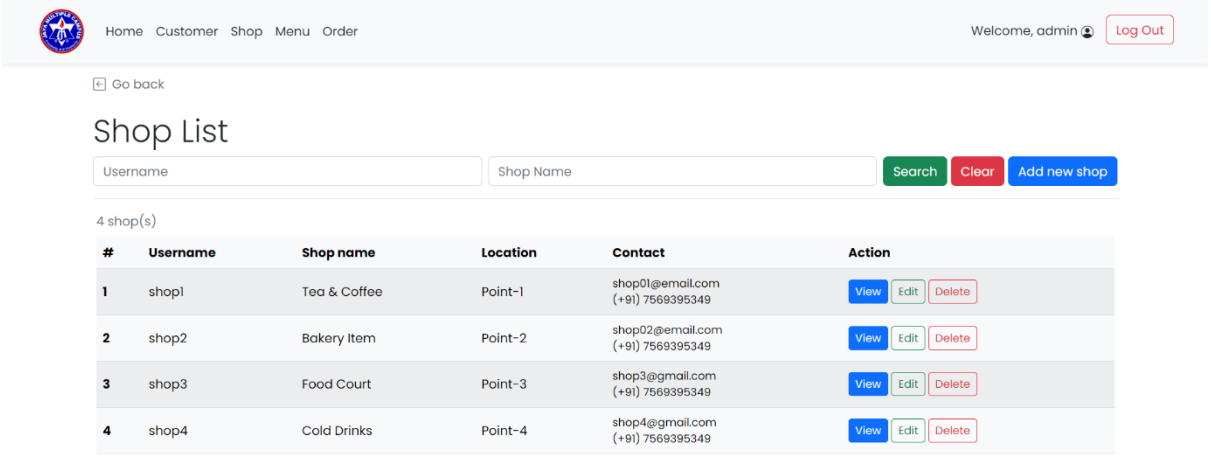
- **Dashboard**



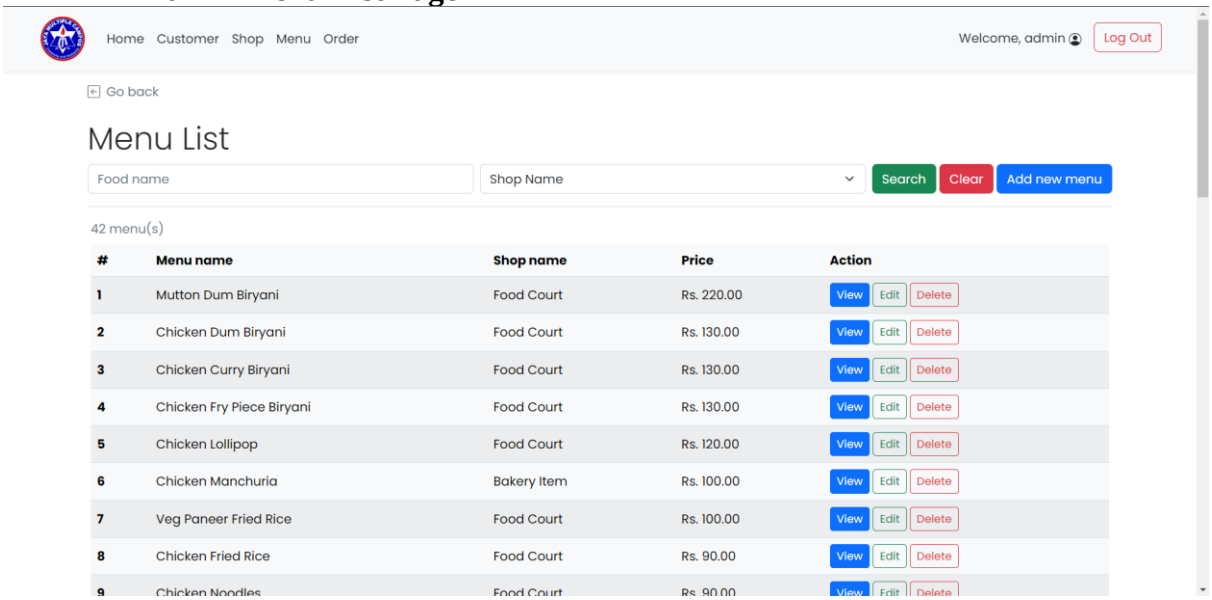
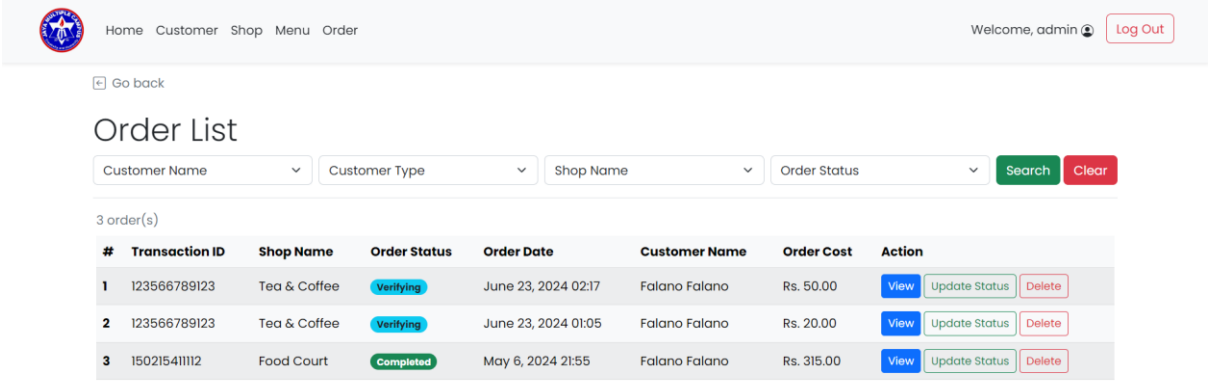
- **Customer List Page.**



- **Admin Food Shop Page**



- **Admin Menu List Page**



- **Order List Page**