Canteen Management System

A Project Report

Submitted in partial fulfilment of the

Requirements for the award of the Degree of

BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)

By

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(Affiliated to University of Mumbai)

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CERTIFICATE

This is to certify that this is a bonafide Project Report on

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carried out by the following student of final year

B.Sc. (I.T.), Semester VI

Bachelors of Science in Information Technology

Submitted by

Name of the Student ***: -*** ***Pratham Mehta***

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In partial fulfilment of the award of degree of **B.Sc.(I.T.)** from the **University of Mumbai** and is a bonafide record of the work done during the Academic Year 2022–2023.

Internal Examiner	***External Examiner***
Name:	***Name:***
Date:	***Date:***
Course Co-ordinator	**Principal**

PROFORMA FOR THE APPROVAL PROJECT PROPOSAL

PNR No.: ……. Roll no: _____

1. Name of the Student

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2. Title of the Project

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3. Name of the Guide

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4. Teaching experience of the Guide

_____

5. Is this your first submission? Yes ☐ No ☐

Signature of the Student Signature of the Guide

Date: …… Date: …….

Signature of the Coordinator

Date: ……

ABSTRACT

The purpose of this project was to build a Canteen management system which is designed for automating any canteen.

Nowadays people don’t have much time to spend in the canteen just there and waiting for the waiter to take their order. Many customers visit the canteen in their lunch break and recess, so they have limited time to eat and return to their respective colleges and offices. So this will help them to save time and order food whenever they want without calling the waiter again andagain.

This Automated Canteen Food Ordering System enables the end users to register online, read and select the food from e-menu card and order food online by just selecting the food that the user wants to have using a website. The results after selecting the food from the E-menu card will appear directly on thescreen near the Chef who is going to cook the food for you.

ACKNOWLEDGEMENT

I am happy to present my Project **"Canteen Management System"** and take this opportunity to express my gratitude to all those whose helped in completion of this project and contributed to its success. I appreciate the college's outstanding facilities, which made it easier for me to finish and present this assignment. Additionally, I want to express my gratitude to the entire staff and lab assistants for their assistance and willingness to assist when needed.

I want to express my sincere gratitude to the project's guide,**Dr. Manisha Divate**, for her insightful and timely advice throughout the project's many phases. Additionally, I want to thank her for supporting me as the project guide and providing me with all necessary resources. I also want to thank her for her encouragement, patience, and belief in my abilities, as well as for being flexible with my working and reporting hours. For their gracious assistance in seeing this project through to completion, I would like to thank **Dr. Mrs. Anju Kapoor** and **Prof. Mrs. Smruti Nanavaty** the principal and vice-principal of Usha Pravin Gandhi College of Arts, Science, and Commerce, respectively.

Additionally, I want to thank **Dr. Swapnali Lotlikar**, the IT Coordinator of Usha Pravin Gandhi College of Arts, Science, and Commerce, for her unwavering encouragement, support, and advise during the course of my project work. Finally, I would like to thank everyone who helped directly or indirectly in the project.

DECLARATION

I hereby declare that the project entitled, "**Canteen Management System**" done at **Mumbai where the project is done**, has not been in any case duplicated to submit to any other university for the award of any degree. To the best of my knowledge, no one has submitted to any other university. The project is done in partial fulfillment of the requirements for the award of degree of **BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)** to be submitted as final semester project as part of our curriculum.

Pratham Mehta

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Chapter 1

Introduction

1.1 Background

In the existing system, the main objective of the Canteen food ordering system is a manual system that simply takes orders from students and provides order but this way it increases the risk of the current pandemic situation which is not practically possible for now. Also, it takes too much time to take orders from students and then process the order and provide students with the order after some time which consumes more time for students so that we have created a website for an online canteen order management system that provides more functionality. Also, there are many websites and applications available which offer students the chance to place their order, but it requires a student is present at the canteen which also increases the risk of COVID-19 and consume time.

1.2 Objective

- The main objective of the Canteen Management System is to manage the details of Canteen, Employee, Customer, Sales, Item Category.
- It manages all the information about Canteen, Stock, Item Category, Canteen.
- The project is totally built at administrative end and thus only the administrator is guaranteed access.
- The purpose of the project is to build an application program to reduce the manual work for managing the Canteen, Employee, Stock, Customer.
- It tracks all the details about Customer Sales, Item Category.

1.3 Purpose, Scope, and Applicability

1.3.1 Purpose

Canteen order Management system is the process of ordering food from a website The main objective of the Canteen order Management system is to automate the existing manual system with the help of an advanced computerized website so, that valuable data can be stored for a longer period with easy access and manipulation of the same. The registered Students can access the account with valid credentials. Students can surf the Food Menu items according to categories, Cart and online payment options are available to the student. Students can track their orders with the food details. Also, Students can set Pick time for their order so that they received an order on their specified time and reduce time wastage and also reduce chances to spread of Covid-19.In Canteen order Management system Admin can handle the functionalities like add new food items in Menu, edit/delete food items from Menu, Enable/Disable the food items according to the season, and availability from Menu. Admin has the authority to view order details and update the delivery status of the food order. The payment transaction and details are also viewable to admin. Also, there is canteen staff is available which also helps admin to manage all orders and update the status of food after food is prepared or cooked, deliver, etc.

1.3.2 Scope

This system can automate the existing manual system with the help of an advanced computerized website that offers Advance facilities to both students and admin. So they both can maintain minimum distance and place orders online and take away at pickup time which reduces time wastage also reduces the chances of the current pandemic situation of COVID-19 too.

- **MODULES**

  The modules used in this system are as follows:

Admin (Canteen owner):

Admin can add food items details like name, Photo, Description/ Ingredients, Price, Category, etc. in Menu. Admin can view, edit the Menu food items details as well as Enable/Disable food items according to season or availability., Admin can track Live orders and Status Update for food delivery. Admin can view the student's details that are given during registration.

Staff (Canteen Staff):

Canteen staff can see new order details which were laced by the student and confirmed by the admin. Update the status of order food like food is prepared, cooked, or order completed.

Student:

Students must register with essential details for the Canteen management System. Students must log in with their credentials to access the Canteen order System. Different food items with respective categories of viewable students. Students can view food items in details and buy the product by placing order. Students can view their cart details, delete food items from the cart, update quantity, etc. Students can keep track of the status of their orders. Also, students can set pick up time for their order to pick up whenever they want.

1.3.3 Applicability

- In this project there are mainly three types of user characteristics available.

1 Student

2 Admin (Canteen Owner)

3 Canteen Staff

These three have their different roles which allow them to use websites in a proper way.

- **Student:**

- Students can Register and login into Website.
- Students can see Food menu items.
- Placed Order and track order.
- Set pick up Time for order.

- **Admin (Canteen owner):**

- Admin can manage food items in Menu.
- Admin confirm or cancel order.
- Enable/Disable food items according to season or availability.
- Admin can track Live orders and Update Status.

- **Staff (Canteen Staff):**

- Staff can show order detail.
- Staff can Update Status of order.

1.4 Achievements

During the requirement analysis and designing the base model of the application, many obstacles were cleared such as last-minute changes in the design and new module approach from the client which made the implementation of the said website delay. The initial model of web application was no supported by the client and eventually development of new model had to be made catering the features listed and mentioned. With rigorous process such as managing and coordinating with client on daily basis and improve my JavaScript Skills to develop the website and made it more user friendly.

1.5 Organization of Report

Chapter 1: In this chapter, we have described the aims, objectives and purpose of us project. We have also the assumed scope and applicability of our project.

Chapter 2: In this chapter, we have described functionalities of our application. Requirements of the project were defined using a questionnaire. It talks about the technologies available to make the project and which of the technologies we will be using to create our project for front end, back end and for database with the justification. for selecting these technologies.

Chapter 3: In this chapter, problem definition is derived along with the requirements that are needed to complete the project. It also consists of a plan and schedule that we have made to complete this project in the given timeframe.

Chapter 4: This chapter consists of the basic modules of our project and has the data design that applies to this project. It also includes the basic user interface. It basically includes the Data Designing, User Interface Design and Test Cases Design.

Chapter 5: This chapter consists of the implementation and testing of the project, how. the project has been tested and implemented. Testing of application is done using. different testing approaches like unit testing and integration testing and provide. test case and test results.

Chapter 6: This chapter will be discussing the result aspect of the test run by the team. The test report and summary along with the user documentation of the various part of the system is mentioned in this chapter.

Chapter 7: This chapter concludes the future enhancement and limitation of the project. Also, the conclusion of the project will be covered here.

Chapter 2

Survey of Technologies

2.1 Technologies used in this Project.

1. HTML:

HTML is the standard markup language for creating Web pages.HTML stands for **Hyper Text Markup Language**

HTML describes the structure of Web pages using markup.

HTML elements are the building blocks of HTML pages HTML elements are represented by tags.

HTML tags label pieces of content such as "heading", "paragraph","table", and so on. Browsers do not display the HTML tags but use them to render thecontent of the page.

What is HTML file?

- HTML is a HyperText Markup Language file format used as the basis of aweb page.
- HTML is a file extension used interchangeably with HTM.
- HTML consists of tags surrounded by angle brackets.
- The HTML tags can be used to define headings, paragraphs, lists, links, quotes, and interactive forms.

2. CSS: CSS stands for **Cascading Style Sheets**

- CSS describes how HTML elements are displayed on screen, paper,or in other media.
- CSS saves a lot of work. It can control the layout of multiple web pages all at once.
- External stylesheets are stored in CSS files.

What can CSS do?

- CSS is the language for describing the presentation of Web pages,including colors, layout, and fonts.
- It allows one to adapt the presentation to different types of devices, suchas large screens, small screens, or printers.
- CSS is independent of HTML and can be used with any XML-based markuplanguage.

What is a CSS file?

- CSS is a plain text file format used for formatting content on web pages.
- CSS stands for Cascading Style Sheet and is used by web pages to help keep information in the proper display format.
- CSS files can help define font, size, color, spacing, border and location of HTML information on a web page, and can also be used to create a continuous look throughout multiple pages of a website.

3. BOOSTRAP:

Bootstrap can be boiled down to three main files:

- bootstrap.css - a CSS framework
- bootstrap.js - a JavaScript/jQuery framework
- glyphicons - a font (an icon font set)

Additionally, Bootstrap requires jQuery to function. jQuery is an extremelypopular and widely used JavaScript library, that both simplifies and adds cross browser compatibility to JavaScript.

Why is a Framework important?

You absolutely don't need to use a framework - I recently wrote an article called You Don't Need a Framework: Understanding the Fundamentals of Responsive Design, which I would recommend reading if you want to learn more about responsive design. However, frameworks are very popular and have many benefits, so it's important to learn how to work with them.

Generally, every web project you work on will need to be responsive and work properly on all the major browsers, and likely have some fallbacks for older browsers. Bootstrap has a huge open-source community that works on covering this

so you don't have to. Additionally, when multiple developers all know the same system, they can work in better harmony - and it also makes it easier fornewcomers on a project to get up to speed.

4. JAVASCRIPT: JavaScript is a lightweight, interpreted programming language. It is designed for creating network-centric applications. It is complimentary to and integrated with Java. JavaScript is very easy to implement because it is integrated with HTML. It is open and cross-platform.

What can JavaScript do?

- JavaScript is most used as a client-side scripting language.
- This means that JavaScript code is written into an HTML page.
- When a user requests an HTML page with JavaScript in it, the script is sentto the browser and it's up to the browser to do something with it.

5. PHP: Hypertext Preprocessor (or simply **PHP**) is a server-side scripting language designed for Web development, but also used as a general-purpose programming language. PHP originally stood for *Personal Home Page*, but it now stands for the recursive acronym *PHP:Hypertext Preprocessor*. PHP is free software released under the PHP License, which stipulates that:

PHP code may be embedded into HTML code, or it can be used in combination with various web template systems, web content management systems, and web frameworks. The web server combines the results of the interpreted and executed PHP code, which may be any type of data, including images, with the generated webpage. PHP code may also be executed with a command-line interface (CLI)and can be used to implement standalone graphical applications.

What is a PHP File?

- PHP files can contain text, HTML, CSS, JavaScript, and PHP code
- PHP codes are executed on the server, and the result is returned to thebrowser as plain HTML

6. MySQL

MySQL is the most popular Open-Source Relational SQL Database Management System. MySQL is one of the best RDBMS used for developing various web-based software applications. MySQL is developed, marketed and supported by MySQL AB, which is a Swedish company.

What is a Database?

A database is a separate application that stores a collection of data. Each database has one or more distinct APIs for creating, accessing, managing, searching and replicating the data it holds. Other kinds of data stores can also be used, such as files on the file system or large hash tables in memory but data fetching and writing would not be so fast and easy with those types of systems. Nowadays, we use relational database management systems (RDBMS) to store and manage huge volume of data. This is called relational database because all the data is stored on different tables and relations are established using primary keys or other keys known as **Foreign Keys**.

A **Relational Database Management System (RDBMS)** is a software that −

- Enables you to implement a database with tables, columns, and indexes.
- Guarantees the Referential Integrity between rows of various tables.
- Updates the indexes automatically.
- Interprets an SQL query and combines information from various tables.

MySQL Database

MySQL is a fast, easy-to-use RDBMS being used for many small and big businesses. MySQL is developed, marketed and supported by MySQL AB, which is a Swedish company. MySQL is becoming so popular because of many good reasons −

- MySQL is released under an open-source license. So you have nothing to pay to use it.
- MySQL is a very powerful program in its own right. It handles a large subset of the functionality of the most expensive and powerful database packages.

Chapter 3

Requirements and Analysis

3.1 Problem Definition

Many Canteens are storing all their data in a manual way. Changing or adding new food items in re-printing of the entire menu. Theyhave huge number of customers daily. So, because of the large number of customers, they need their help of some features so they can maintain and stores the records accurately. For managers it is difficult to view tables, orders, kitchen, reception,and the counter simultaneously. They need full-fledged website to maintain their day-to-day orders and also regular update on records, customers' feedbacks, etc. In the existing system all the details are done manually, it is taking lots of time and there are chances for mistakes.

3.2 Requirements Specification: Proposed

The Software Requirements Specification is produced at culmination of the analysis. task.

- In this project there are mainly three types of user characteristics available.
  Student
  Admin (Canteen Owner)
  Canteen Staff
- These three have their different roles which allow them to use websites in a proper way.

- **Student:**

- Students can Register and login into Website.
- Students can see Food menu items.
- Placed Order and track order.
- Set pick up Time for order.

- **Admin (Canteen owner):**

- Admin can manage food items in Menu.
- Admin confirm or cancel order.
- Enable/Disable food items according to season or availability.
- Admin can track Live orders and Update Status.

- **Staff (Canteen Staff):**

- Staff can show order detail.
- Staff can Update Status of order.

Functional Requirements (Describe each module and its functionalities)

Student: -

- Students can register with essential details for the Canteen management System.
- Students must log in with their credentials to access the Canteen order System.
- Students can view food items in detail and buy the product by placing order.
- Students can view their cart details, delete food items from the cart, update quantity, etc.
- Students can keep track of the status of their orders.
- Students can set pick up time for their order to pick up whenever they want.

Admin: -

- Admin can make necessary changes with Food Menu Items.
- Admin can get notification new order placed by Student.
- Admin can Confirmed or cancel order.
- Admin can Update Order status.
- Admin can manage all order details and payment details.

Staff: -

- Staff only see new order detail.
- Staff can Update Status of order.

Non-Functional Requirements

1. Performance - Initial load time should not exceed one second .

2. Scalability - The increasing number of users should not affect the performance of the application

3. Extensibility - New features shall be easy to implement with separation of concern

4. Security

a) Confidentiality - Traffic confidentiality shall be protected, all operations performed by users must be preserved

b) Integrity - The integrity of all operations performed by users must be preserved

c) Availability - No single point of failure shall be tolerated

3.3 Planning and Scheduling

3.3.1 Gant Chart

A Gantt chart is a project management tool assisting in the planning and scheduling of projects of all sizes, although they are particularly useful for simplifying complex projects. Project management timelines and tasks are converted into a horizontal bar chart, showing start and end dates, as well as dependencies, scheduling and deadlines, including how much of the task is completed per stage and who is the task owner. This is useful to keep tasks on track when there is a large team and multiple stakeholders when the scope changes. As it's in a bar chart format it is possible to check on progress with a quick glance. You can easily see a visual display of the whole project, timelines and deadlines of all tasks, relationships and dependencies between the various activities, project phases.

KEY TAKEAWAYS

- A Gantt chart is a visualization that helps in scheduling, managing, and monitoring specific tasks and resources in a project.
- It consists of a list of tasks and bars depicting each task's progress.
- The horizontal bars of different lengths represent the project timeline, which can include task sequences, duration, and the start and end dates for each task
- It's the most widely used chart in project management.
- Gantt charts are used in heavy industries for projects like building dams, bridges, and highways, as well as software development and building out of other goods and services.

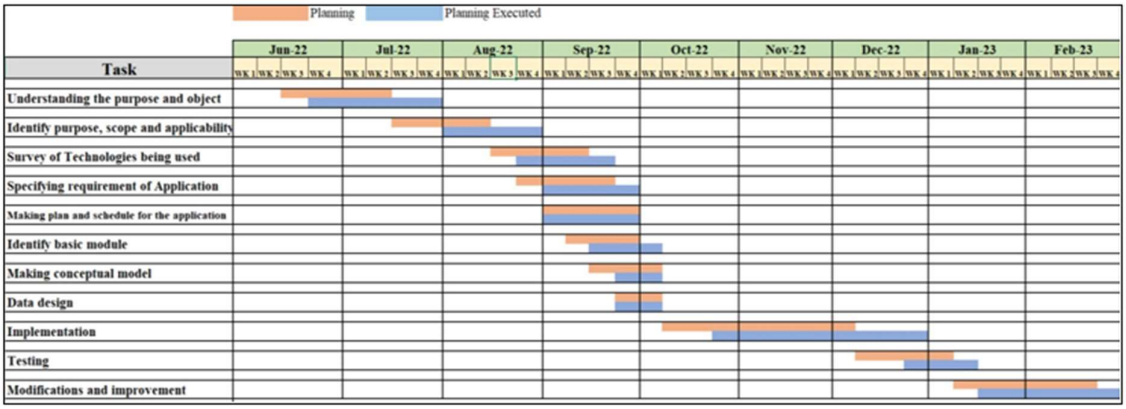

Figure 3.1: Gant Chart

3.3.2 PERT CHART

What Is a Program Evaluation Review Technique (PERT) Chart?

A program evaluation review technique (PERT) chart is a graphical representation of a project's timeline that displays all the individual tasks necessary to complete the project. As a project management tool, the PERT chart is often preferred to the Gantt chart because it identifies task dependencies. However, a PERT chart can be more difficult to interpret.

KEY TAKEAWAYS

- PERT charts were first created by the U.S. Navy's Special Projects Office in the 1950s to guide the Polaris nuclear submarine project.1
- A PERT chart uses circles or rectangles called nodes to represent project events or milestones. These nodes are linked by vectors, or lines, that represent various tasks and their dependencies.1
- A PERT chart allows managers to evaluate the time and resources necessary to manage a project.

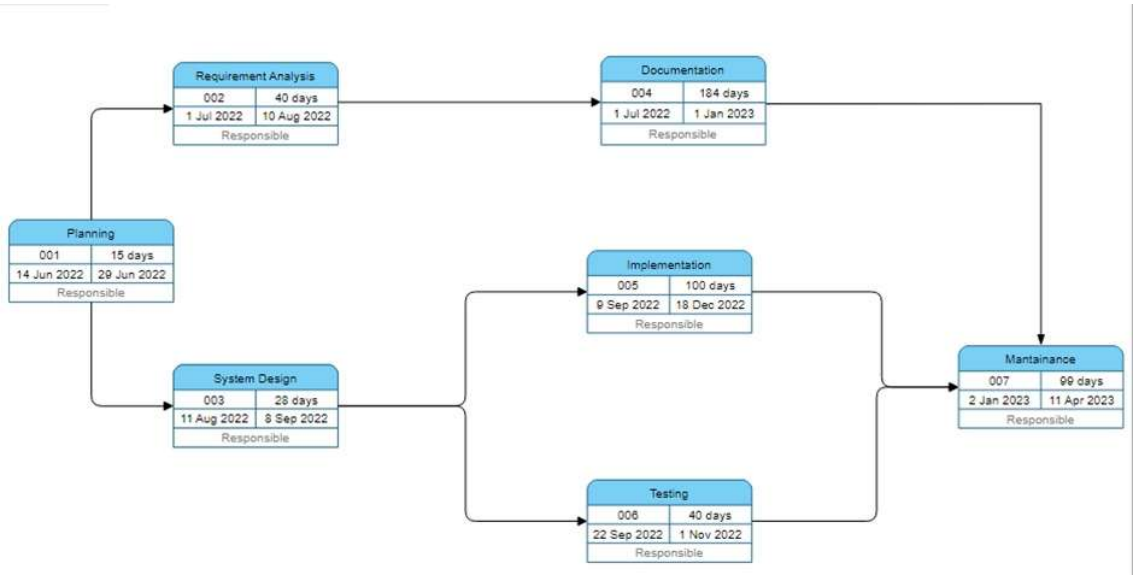

Figure 3.2 Pert Chart

3.4 Software and Hardware Requirements

3.4.1 Hardware Requirements

- Processor: i3 Processor Based Computer or higher
- RAM: 1 GB RAM
- Hard Drive: 50 GB
- Monitor
- Internet Connection

3.4.2 Software Requirements

- Language Used: PHP
- Database: My SQL
- User Interface Design: HTML, CSS, BOOSTRAP , JAVASCRIPT
- Web Browser: Google Chrome, etc
- Software: XAMPP Server

3.5 Preliminary Product Description

Preliminary Product Description is to identify he requirements and objectives of the new system and to define the functions and operation of the application.

The main objective of the website is to automate the existing system of manually maintain records of the customers details. Food storage, selling, and bill generation. The main part is to provide a way to the user to store data digitally. It helps for better screening of records and improves the efficiency of work.

➢ The system generates the type of information that can be used for various purposes.

➢ Simplifies the work with improved efficiency.

➢ Easy to understand by the user and operator.

➢ It should satisfy the user requirement.

3.6 Conceptual Models

3.6.1. System Flow Chart

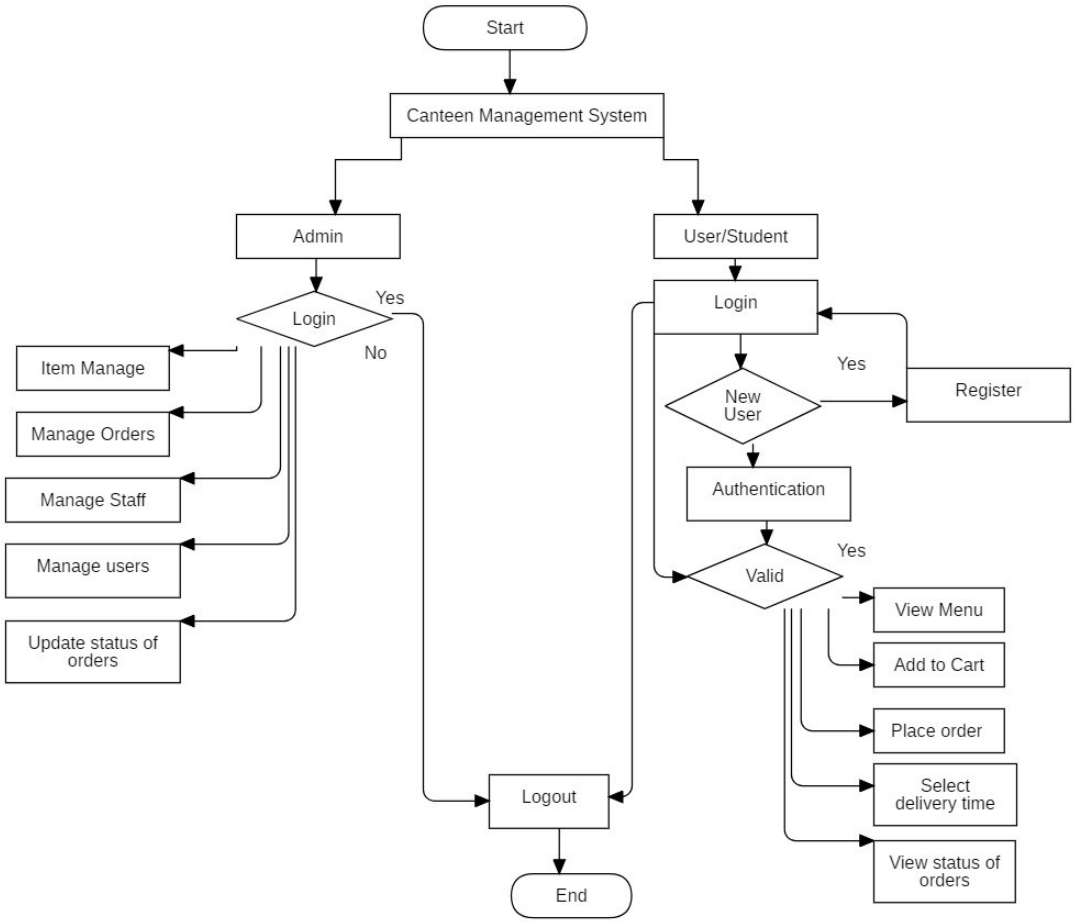

Figure 3.3: System Flow Chart

3.6.2 ER Diagram

An entity–relationship model (or ER model) describes interrelated things of interest in a specific domain of knowledge. A basic ER model is composed of entity types (which classify the things of interest) and specifies relationships that can exist between entities (instances of those entity types). A relationship is how the data is shared between entities. There are three types of relationships between entities. By defining the entities, their attributes, and showing the relationships between them, an ER diagram illustrates the logical structure of databases. ER diagrams are used to sketch out the design of a database.

Limitations: -

- Limited relationship representation: ER model represents limited relationship as compared to another data models like relational model etc.
- No representation of data manipulation: It is difficult to show data manipulation in ER model.

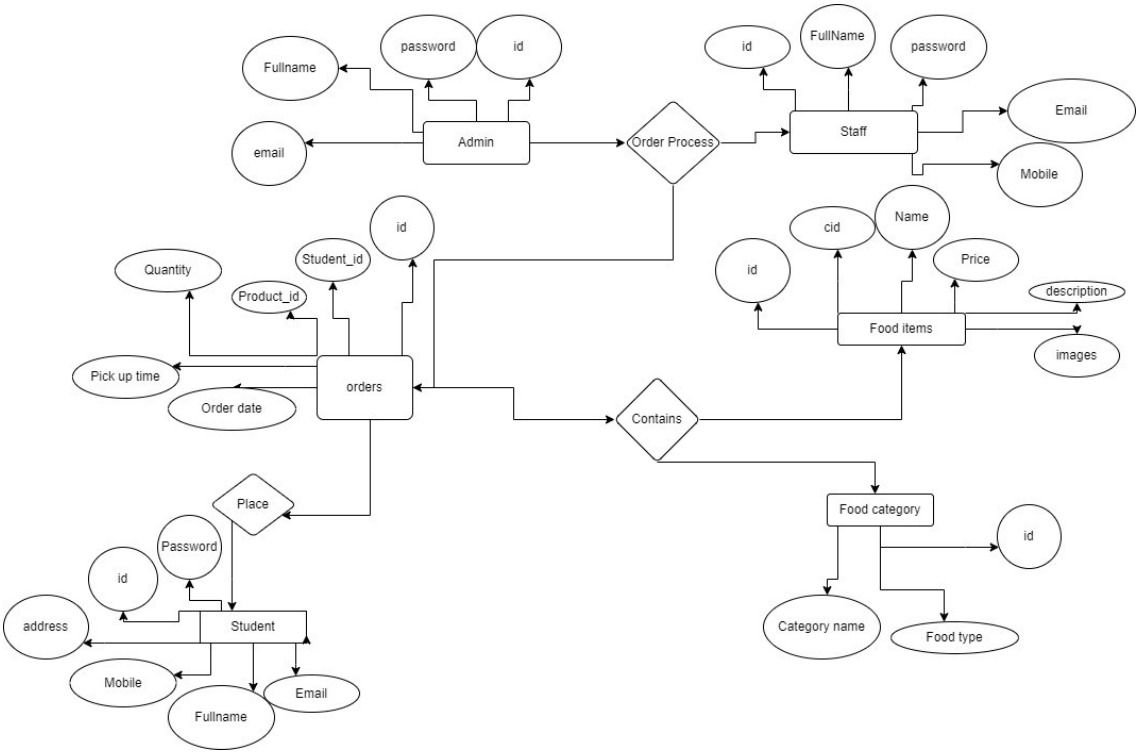

Figure 3.4:ER Diagram

3.6.3 Data Flow Diagram

A data flow diagram (DFD) maps out the flow of information for any process or system. It uses defined symbols like rectangles, circles and arrows, plus short text labels, to show data inputs, outputs, storage points and the routes between each destination. Data flowcharts can range from simple, even hand-drawn process overviews, to in-depth, multi-level DFDs that dig progressively deeper into how the data is handled. They can be used to analyze an existing system or model a new one. Like all the best diagrams and charts, a DFD can often visually "say" things that would be hard to explain in words, and they work for both technical and nontechnical audiences, from developer to CEO. That's why DFDs remain so popular after all these years. While they work well for data flow software and systems, they are less applicable nowadays to visualizing interactive, real-time, or database-oriented software or systems.

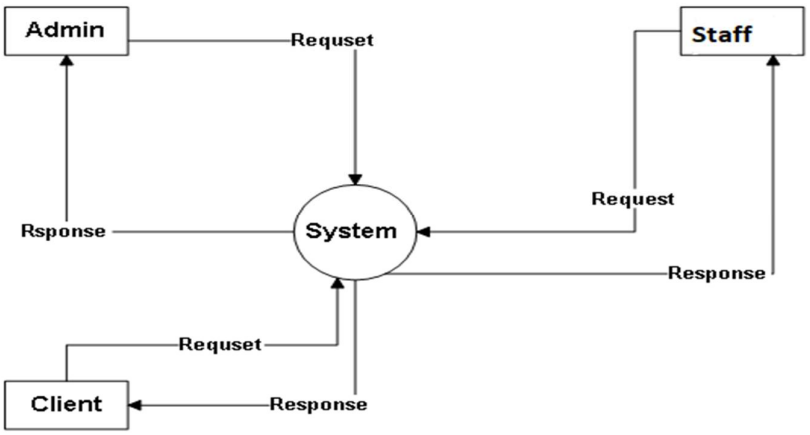

Figure 3.5: DFD Level 0

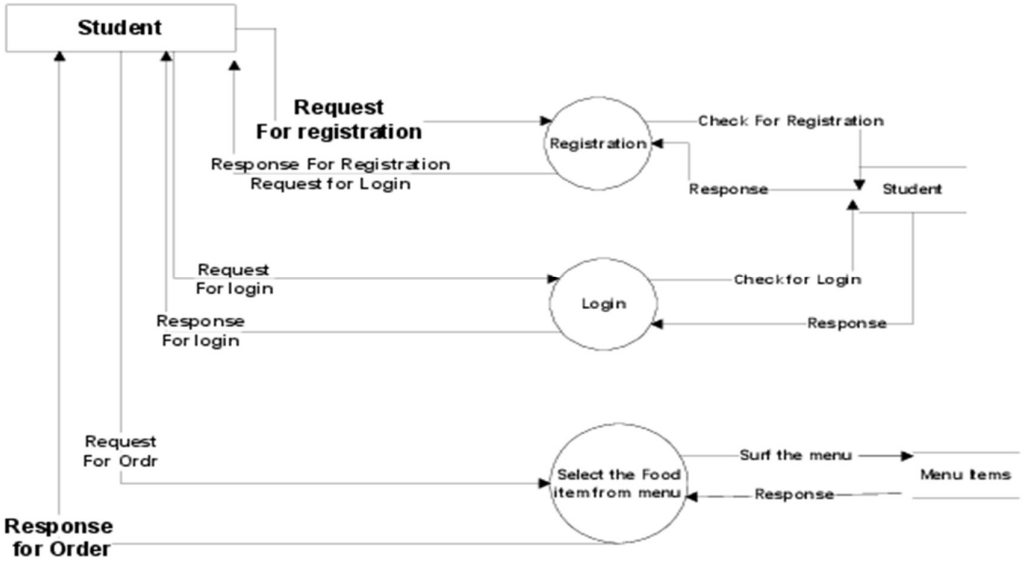

Figure 3.6: DFD Level 1(Student)

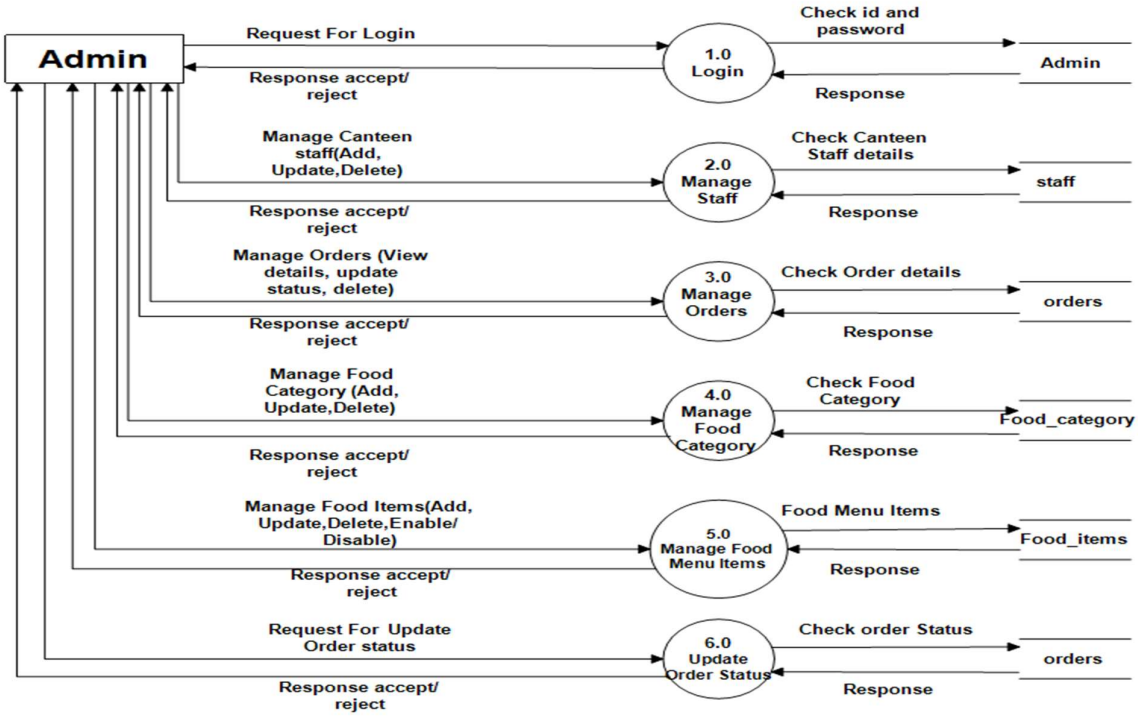

Figure 3.7: DFD Level 1(Admin)

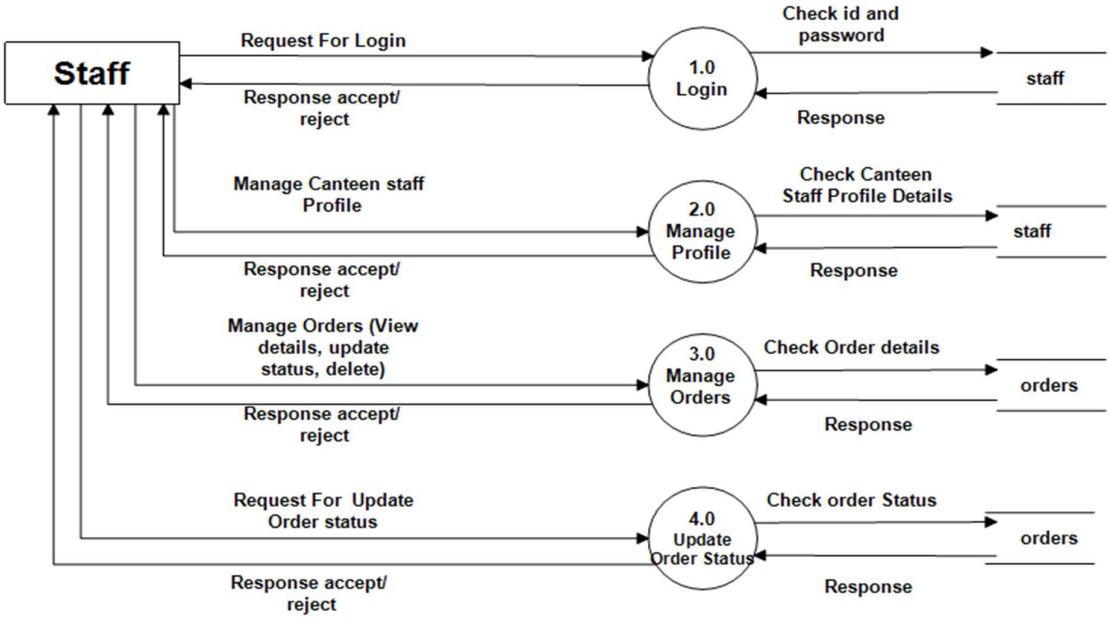

Figure 3.8: DFD Level 1(staff)

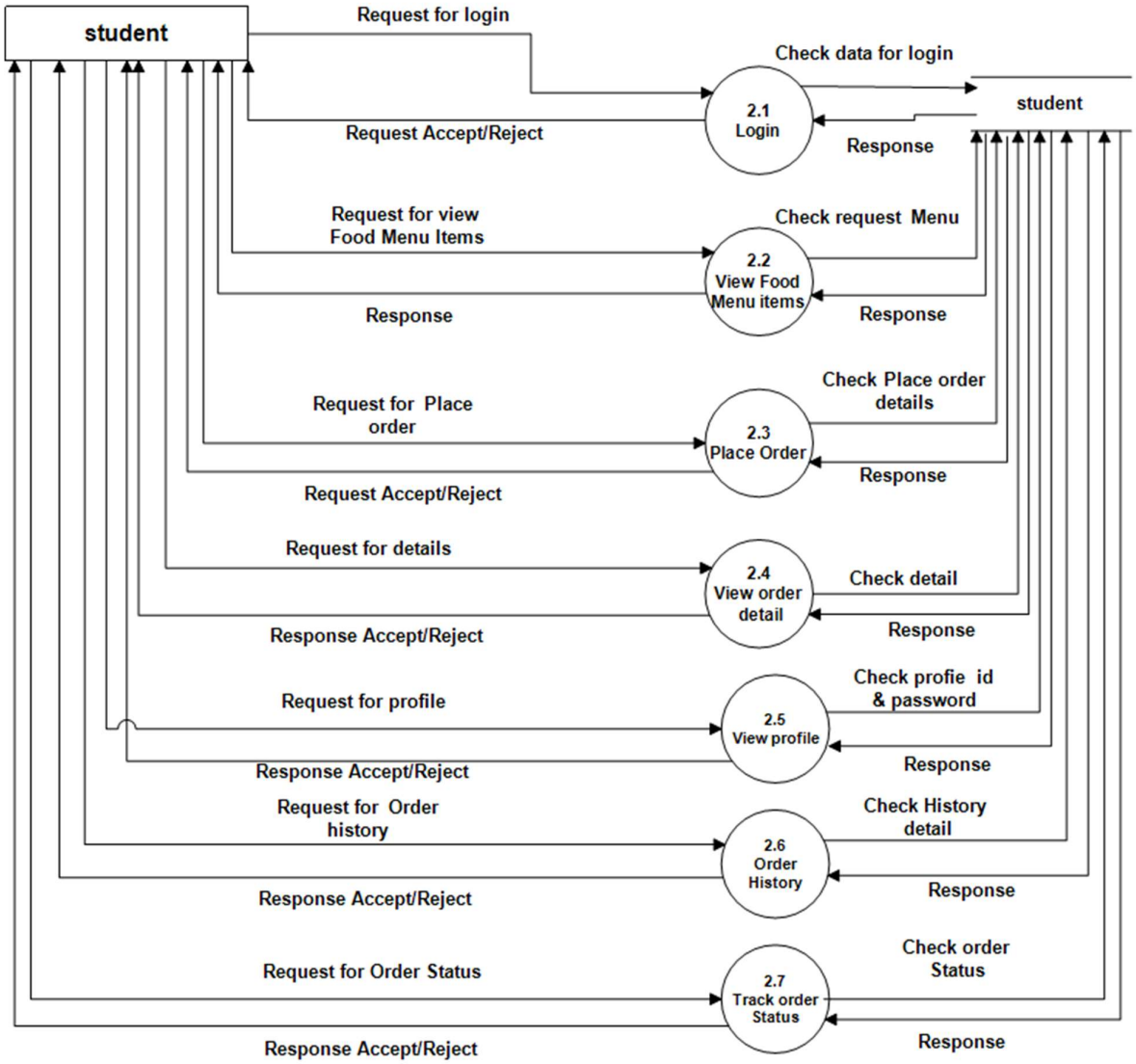

Figure 3.9: DFD Level 2(Admin)

3.6.4 Use Case Diagrams

1.Admin Use Case

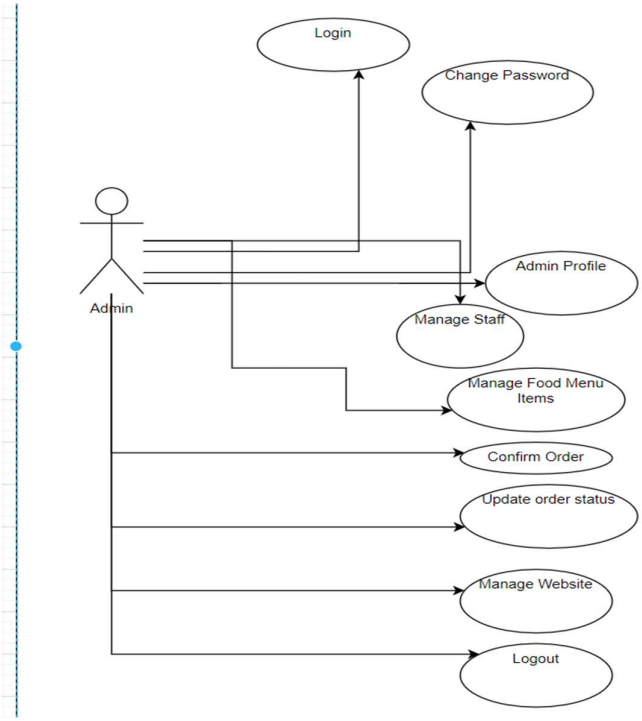

Figure 3.10: Admin Use Case

2.Canteen Staff Use Case

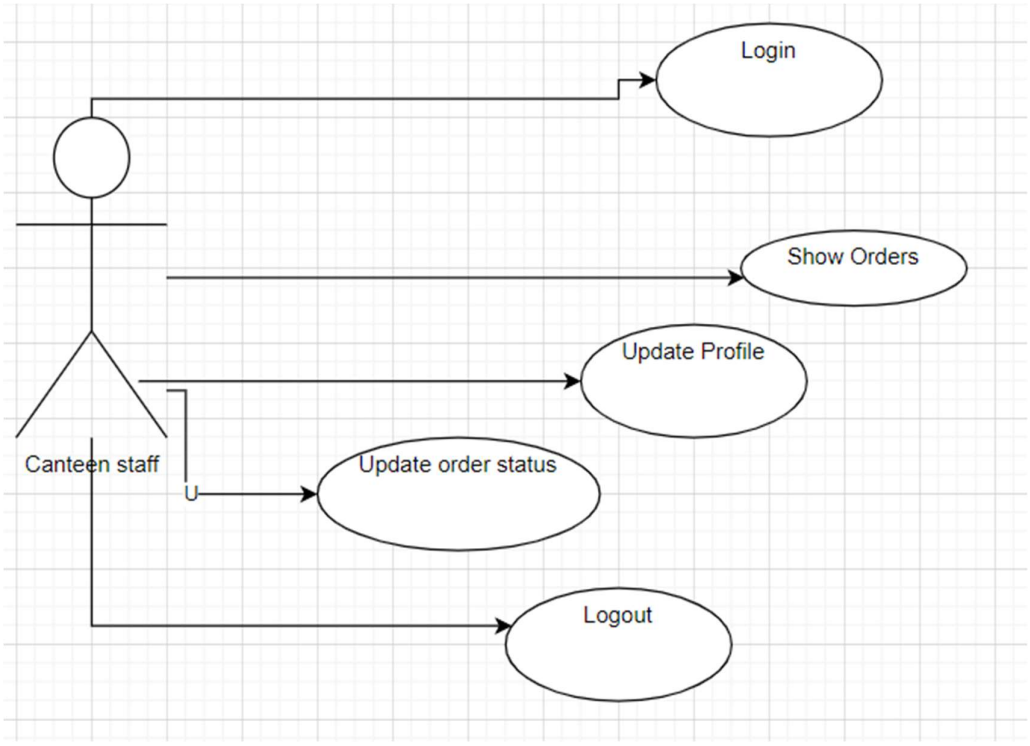

Figure 3.11: Canteen Staff Use Case

3.Student

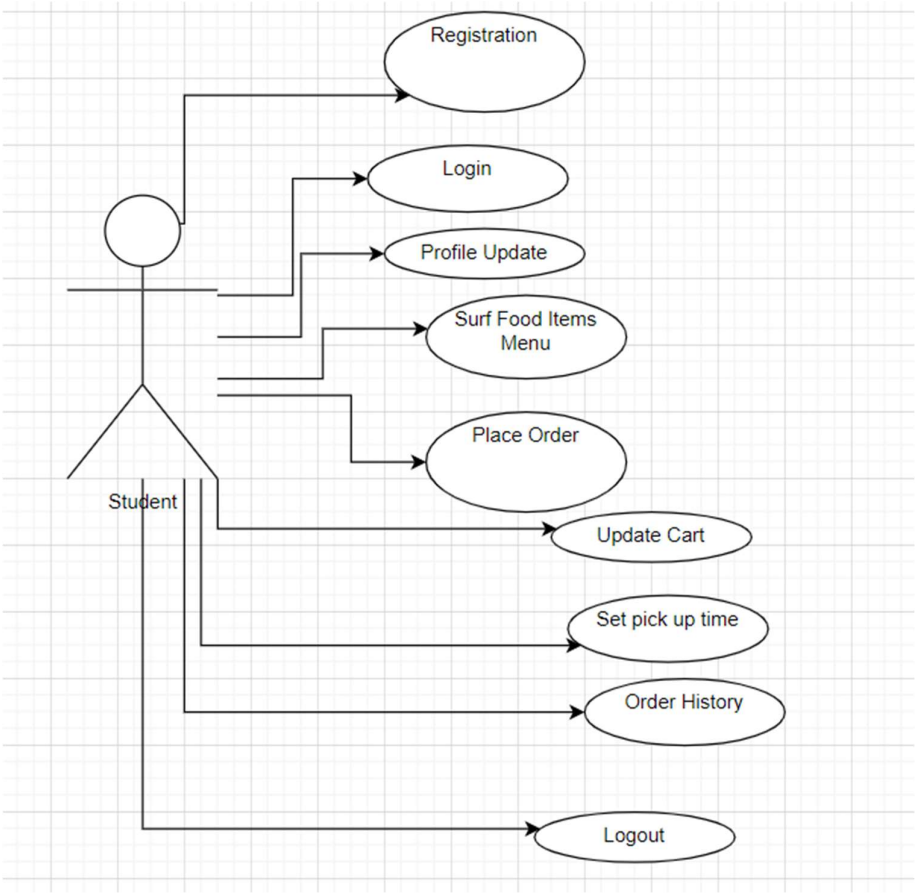

Figure 3.12: Student Use Case

Chapter 4

System Design

4.1 Basic Modules

Two user authentications: - Admin and Customer. These users will have their own domain to work in and will have different levels of access based on the role of the system. Admin has the highest level of control on the system, as he can view the details of the other employee, can add users in the system and delete other users from the system at any time. Admin can also view orders, view the details of the food available at the food court, can add new dishes to the menu i.e., can update the menu and have access to the payment invoice. Customer will place the order from the website. Having to build Modules listed below and creating dependencies between them to create a fully functioning web application. Different modules in this project are:

Student: -

- Students can register with essential details for the Canteen management System.
- Students must log in with their credentials to access the Canteen order System.
- Students can view food items in detail and buy the product by placing order.
- Students can view their cart details, delete food items from the cart, update quantity, etc.
- Students can keep track of the status of their orders.
- Students can set pick up time for their order to pick up whenever they want.

Admin: -

- Admin can make necessary changes with Food Menu Items.
- Admin can get notification new order placed by Student.
- Admin can Confirmed or cancel order.
- Admin can Update Order status.
- Admin can manage all order details and payment details.

Staff: -

- Staff only see new order details.
- Staff can Update Status of order.

4.2 Data Design

Data Integrity and Constraints

1) **admin**

Table 4.1: Admin

Column Name	Data Type(size)	Constraint
adm_id	int (11)	Primary key
username	Varchar (35)	Not Null
password	Varchar (16)	Not Null
Email	Varchar (222)	Not Null
Date	Timestamp	current_timestamp()

2) students/Users

Table 4.2: Student/Users

Column Name	Data Type(size)	Constraint
id	int (11)	Primary key
roll_no	Varchar(222)	Not Null
student_name	Varchar(222)	Not Null
Email	Varchar(222)	Not Null
password	Varchar(222)	Not Null
Phone	Varchar(50)	Not Null
Status	int(1)	Not Null
Date	Timestamp	Not Null

3) staff

Table *4.3*: Staff

Column Name	Data Type(size)	Constraint
id	int (11)	Primary key
fullname	Varchar(50)	Not Null
email	Varchar(50)	Not Null
password	Varchar(50)	Not Null
mobile	Varchar(50)	Not Null
Red_date	Timestamp	Not Null

4) food_ items

Table *4.4*: food_items

Column Name	Data Type(size)	Constraint
id	int (11)	Primary key
cid	Varchar(150)	Foreign key
name	Varchar(150)	Not Null
price	Varchar(50)	Not null
description	varchar(200)	Not Null
images_path	varchar(200)	Not Null
options	varchar(20)	Not Null

5) orders

Table *4.5*: Orders

Column Name	Data Type(size)	Constraint
o_id	int	Primary key
u_id	int	Foreign key
title	Varchar(100)	Not Null
quantity	int(30)	Not Null
price	decimal(10,2)	Not Null
status	int(1)	Not Null
pick_time	varchar(200)	Not Null
date	Timestamp	Not Null

6) food_category

Table *4.6*: Food Category

Column Name	Data Type(size)	Constraint
id	int (11)	Primary key
category_name	Varchar(50)	Not Null
food_type	Varchar(16)	Not null

4.3 User Interface

Home Page:

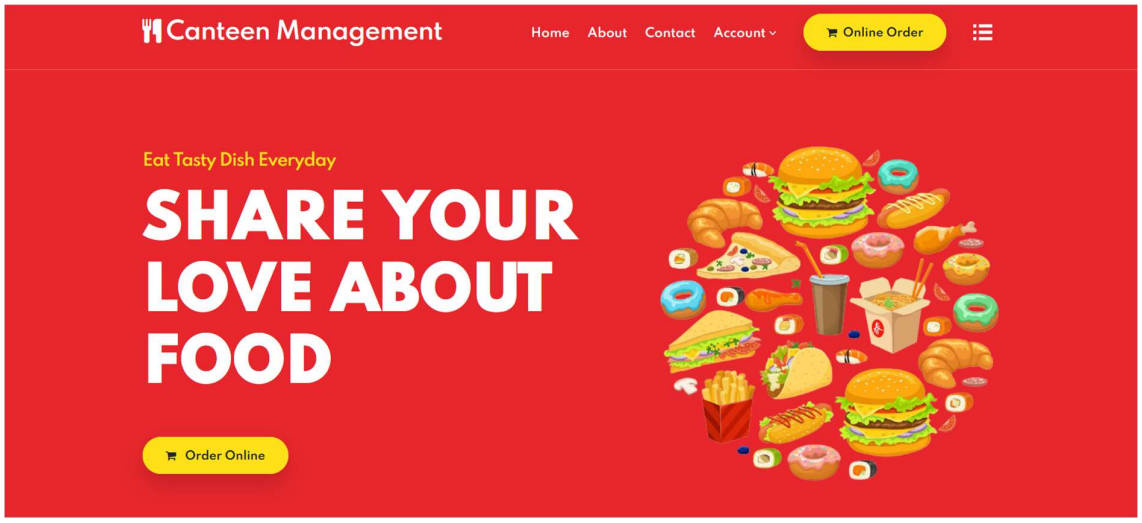

Figure 4.1: Home page

Admin Login:

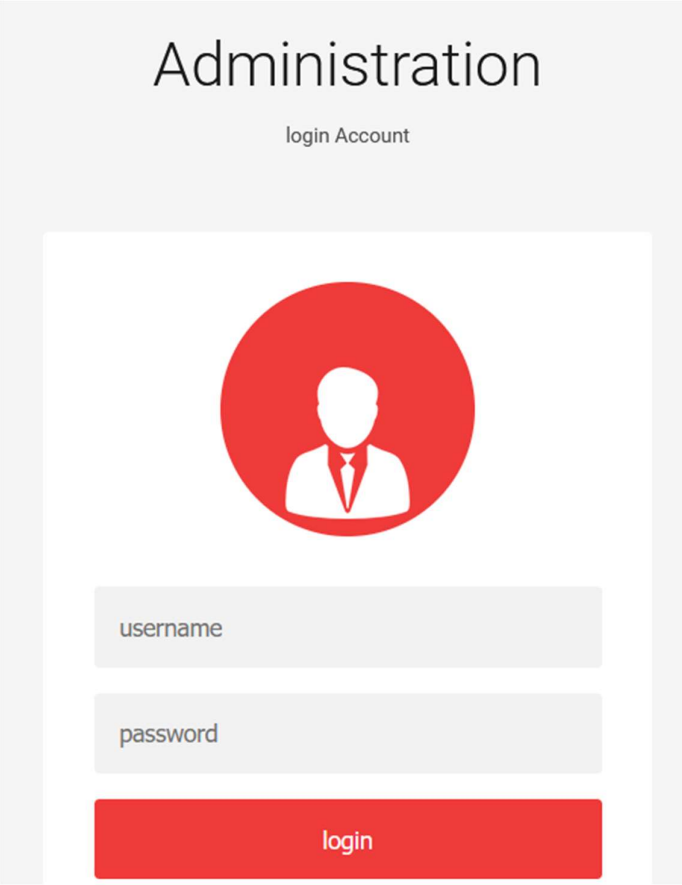

Figure 4.2: Admin Page

Student Registration:

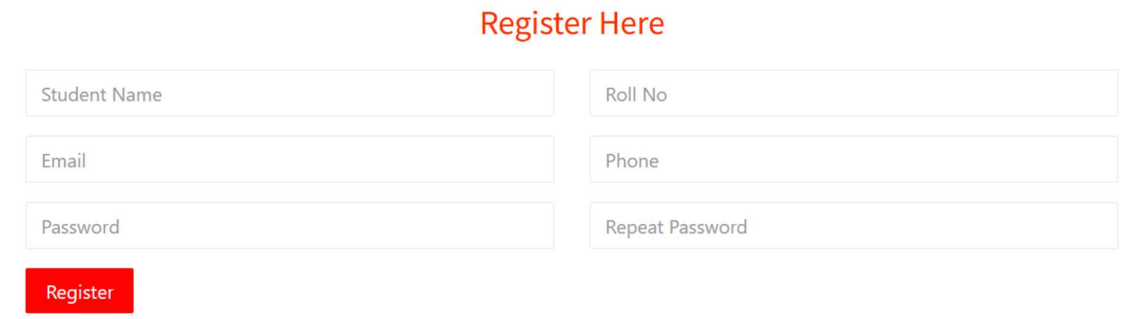

Figure 4.3: Student Registration

Admin Profile:

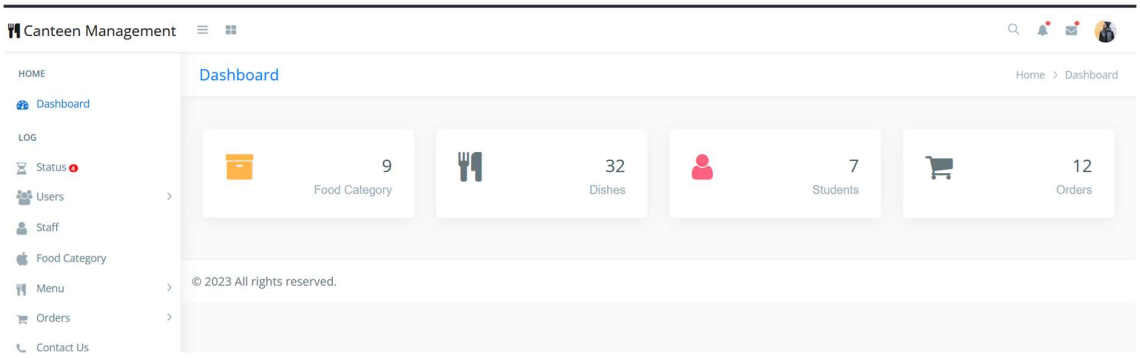

Figure 4.4: Admin Profile

Student Records:

All Registered users

Show 10 entries Search:

SR.No	Student Name	Roll No	Email	Phone	Reg-Date	Action
1	Kanav	c013	kanav@gmail.com	9876541235	2023-03-18 15:22:04	
2	Janeel	c012	janeelm@gmail.com	9876543215	2023-03-18 12:23:14	
3	Harsh	12345	harsh@gmail.com	1234567892	2023-03-17 12:06:07	
4	Bhavya	123	bhavya@gmail.com	1234567891	2023-03-17 12:02:53	
5	Pratham	1	prathamm313@gmail.com	8850959535	2023-03-16 16:27:55	
6	Test Student	123456789	test2@gmail.com	1234567894	2021-08-30 12:29:02	
7	Test	12345678	Test@gmail.com	2563147895	2021-08-30 11:52:05	

Showing 1 to 7 of 7 entries Previous 1 Next

Figure 4.5: Student Records

Student Login:

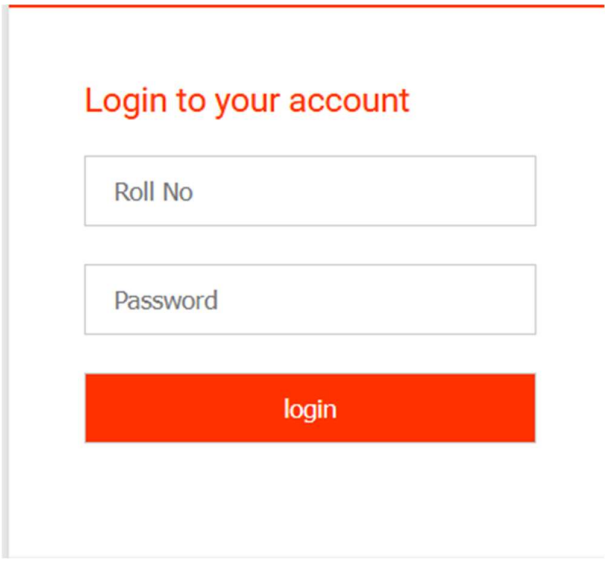

Figure 4.6: Student Login

Student Profile:

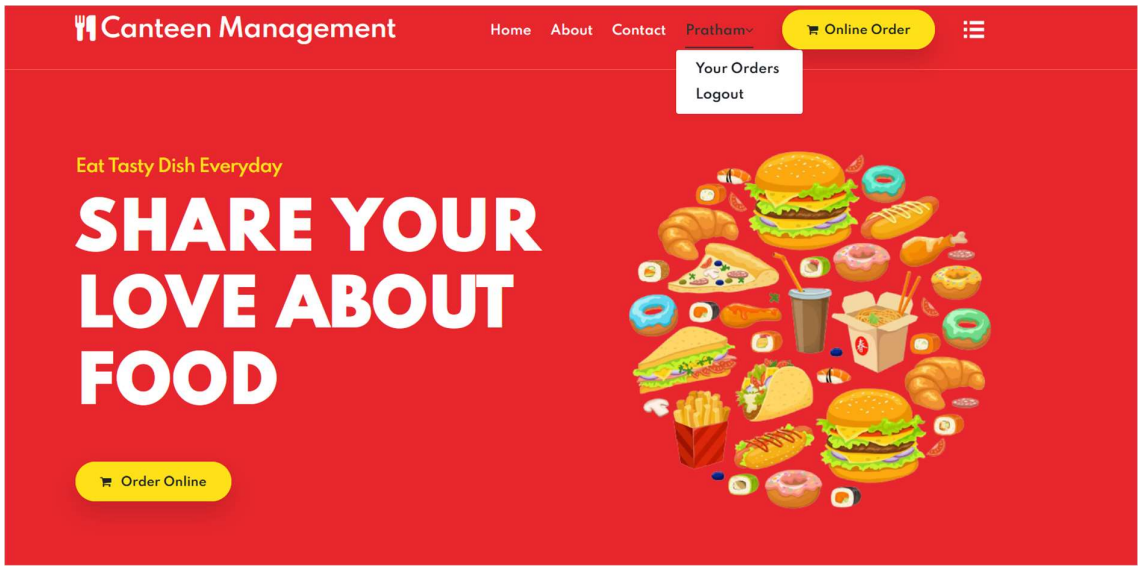

Figure 4.7: Student Profile

Add Food Item:

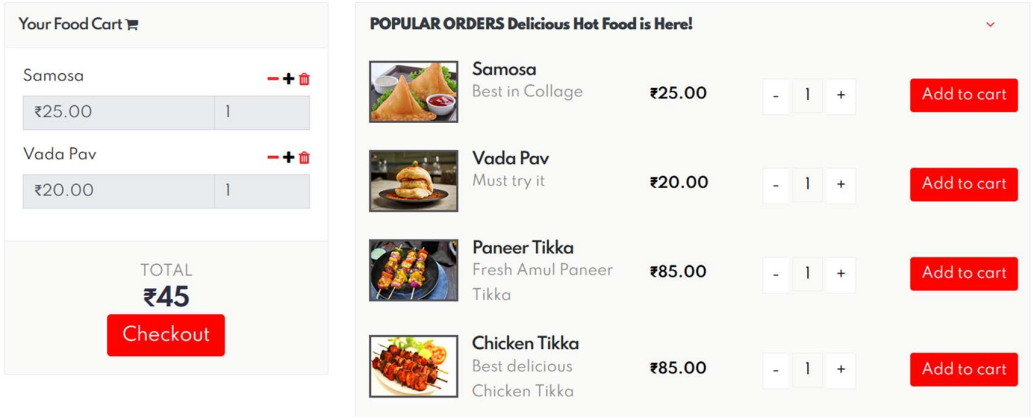

Figure 4.8: Add Food Item

View Food:

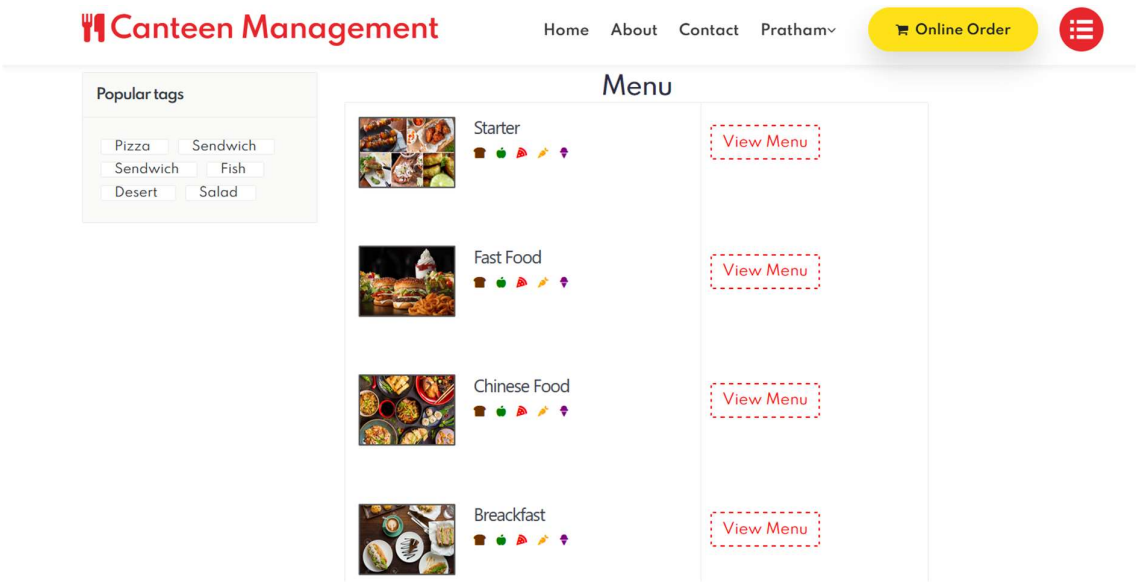

Figure 4.9: View Food

4.4 Security Issues

The implementation of this website requires various technical solutions to ensure accurate management and booking is done, secrecy of the accounts and security. When designing any security architecture of any service provider, they should consider the insecurity of the communication medium.

The four main threats are:

1. Viruses or Malicious Software

There is a threat of introducing any malicious software onto the internet service booking server, by any communication link or email and if huge number of PCs (personal computers) connected to the internet service booking server, then any PC which is infected with virus, there might be a greater number of chances to spread the viruses to the service booking server. The insecurity of the browser setup or operating system, at the user end may easily lead to install the malicious software, and which may change the confidentiality and integrity of the getting services booked or even the customer may face number of issues and face lot of problems due to it.

2.Hacking

If the links of the service booking system is changed or hacked then the customer may face difficulty in booking his/her services, which may create issues for them and not getting issues solved immediately which may create problem for them later.

3.Data and identity theft

Data generated by unprotected gadgets and smart appliances provides cyber attackers with an ample amount of targeted personal information that can lead to fraudulent transactions and identity theft.

4. Denial of Service Attacks (DOS)

This is a threat when the customer books the services online and if the hacker overloads the web server, then that may lead to preventing the customer from booking his/her services.

This type of attack is known as denial-of-service attack.

Here Are Some of the Ways to Build a Completely Secure the Website:

1. Try to Write a Secure Code

Code is the most vulnerable feature of any website, which can be exploited easily by hackers. Hence, it is essential that you write a highly secure code. According to research, about 11.6 million devices are being affected by malicious code.

The hackers can reverse and engineer your code to use it in a bad way, so try to build a hard code that is not so easy to break and follow agile development so that you can patch and update your code easily from time-to-time. Some of the other best practices are code hardening and signing to develop the best quality of code.

2. Encrypt the Data

Encryption is the way to convert the data transmitting into such a form that it cannot be read by anyone else without decryption. This is an efficient way to save the data from being used in a malicious way.

So, even if the data is stolen, the hackers cannot decrypt it, and it is of no use to them. Try to develop an app in such a way that all the data included is encrypted very well — this is one of the practices.

3. Be Careful While Using Libraries

Oftentimes, the website code needs third party libraries for the code building. Do not trust any library for your app building, as most of them are not secure. When you have used various kinds of libraries, always try to test the code.

The flaws in the library can allow the attackers to use malicious code and crash the system.

4. Use Authorized API

Always remember to use authorized APIs in your code. It always gives hackers the privilege to use your information. For example, authorization information caches can be used by hackers to gain authentication on the system.

Experts recommend having a central authorization for the entire API to gain maximum security in the mobile applications.

5. Use High-Level Authentication

Authentication mechanisms are the most crucial part of mobile application security. Weak authentication is one of the top vulnerabilities in mobile apps. As a developer and a user, authentication should be considered important from a security point-of-view.

One of the most common modes of authentication is through password.

Multi-factor authentication is one more method to make your app more secure. This can be achieved by means of OTP login or authentication code on emails — this can be even more secure through biometrics.

6. Develop Tamper Detection Techniques for Your App

This method is to get alerts when your code is being modified or changed. Often, it is essential to have a log of code changes of your website so that a malicious programmer does not inject bad code inside. Try to have triggers designed for your website to keep logs of activities.

7. Provide Least Privileges

The principle of least privilege is often necessary for your website code security. It is preferable to give access to the code to only those who are intended to receive them, and the rest should not be given the privileges, keeping it minimum. Try to keep the network as little as possible.

4.5 Test Cases Design

Table 4.7: Test cases Design

Project Name: Canteen Management System			
SR.NO	**Action**	**Inputs**	**Expected Output**
1.	Valid User Id and password	User = example@gmail.com Password= pass123	Successfully login
2.	Invalid Username and password	User = exampl@gmail.com Password= pass124	Unsuccessful Login
3.	Valid Username and Invalid Password	User = example@gmail.com Password= pass143	Enter valid password
4.	Invalid Username and Valid Password	User = exampe@gmail.com Password= pass123	Enter valid Username
5	Registration	Click on Registration	Redirect to registration page

Chapter 5

System Design

5.1 Implementation Approaches:

Agile is a software development approach that emphasizes flexibility and collaboration between cross-functional teams. It involves iterative and incremental development, where requirements and solutions evolve through the collaborative effort of self-organizing and cross-functional teams.

Here are the key principles of the Agile methodology:

➢ Individuals and interactions over processes and tools: Agile emphasizes the importance of communication and collaboration between team members over rigid processes and tools.

➢ Working software over comprehensive documentation: Agile values working software over extensive documentation, although the team still documents essential aspects of the software.

➢ Responding to change over following a plan: Agile acknowledges that requirements and priorities may change over time, so it prioritizes the ability to adapt to change.

➢ Responding to change over following a plan: Agile acknowledges that requirements and priorities may change over time, so it prioritizes the ability to adapt to change. Agile development involves breaking the development process into small iterations or sprints. During each sprint, the team works on a small set of features, and at the end of each sprint, they deliver a working increment of the software. This allows the team to continuously review and adjust the software's requirements and features based on feedback from stakeholders and customers.

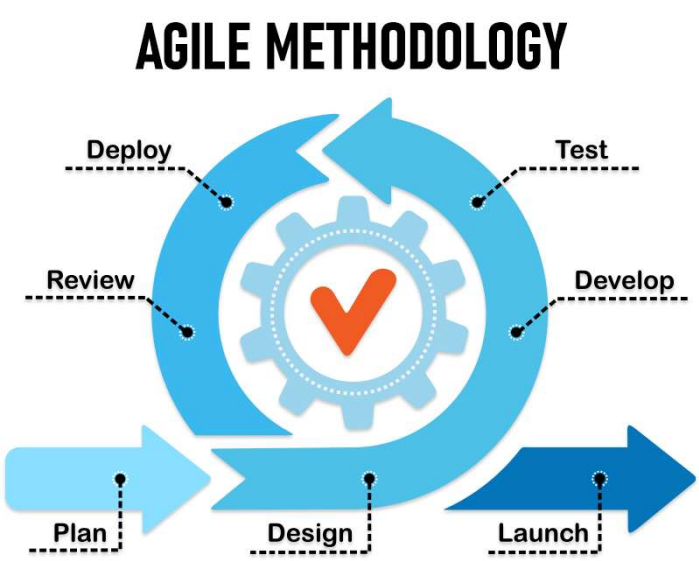

Figure 5.1: Agile Methodology

Scrum Methodology

Scrum is an agile development methodology used in the development of Software based on an iterative and incremental processes. Scrum is adaptable, fast, flexible, and effective agile framework that is designed to deliver value to the customer throughout the development of the project. The primary objective of Scrum is to satisfy the customer's need through an environment of transparency in communication, collective responsibility, and continuous progress. The development starts from a general idea of what needs to be built, elaborating a list of characteristics ordered by priority (product backlog) that the owner of the product wants to obtain.

Some advantages of using Scrum methodology include:

- Increased flexibility: Scrum allows for changes to be made mid-project, making it easier to adjust to changes in business requirements, market conditions, or customer needs.
- Better team collaboration: Scrum emphasizes communication, collaboration, and teamwork. The daily stand-up meetings, sprint reviews, and retrospectives help to foster better communication and collaboration among team members.
- Higher quality output: Scrum's focus on continuous improvement and iterative development can lead to a higher quality output. By testing and refining the product

at every sprint, teams can identify and address issues early on, reducing the risk of costly errors or defects.

- Increased customer satisfaction: Scrum is designed to deliver value to the customer early and often, which can improve customer satisfaction. By involving the customer in the development process and incorporating feedback at every sprint, the product can be tailored to meet the customer's needs and expectations.

Overall, Scrum methodology can lead to a more collaborative, flexible, and efficient development process, resulting in higher quality output, improved customer satisfaction, and faster time-to-market.

5.2 Coding Details and Efficiency

CODING DETAILS:

Registration Page: - User needs to register itself to the system for first time for authorization purpose. After the registration process user can login into the system by giving valid user roll-No and password.

Registration Page Code: -

```
<!DOCTYPE html>
<html lang="en">
<?php
session_start();
error_reporting(0);
include("connection/connect.php");
if(isset($_POST['submit'] ))
{
   if(empty($_POST['rollNo']) || empty($_POST['studentName']) ||empty($_POS
T['email']) ||  empty($_POST['phone'])||empty($_POST['password'])||empty($_
POST['cpassword']))
   {
         $message = "All fields must be Required!";
   }
   else
   {

      $check_RollNo= mysqli_query($db, "SELECT roll_no FROM users where rol
l_no = '".$_POST['rollNo']."' ");
      $check_email = mysqli_query($db, "SELECT email FROM users where email
 = '".$_POST['email']."' ");

      if($_POST['password'] != $_POST['cpassword'])
      {
            $message = "Password not match";
      }
      elseif(strlen($_POST['password']) < 6)
      {
         $message = "Password Must be greater than six digits";
      }
```

```
      elseif(strlen($_POST['phone']) < 10)
      {
         $message = "invalid phone number!";
      }
      elseif (!filter_var($_POST['email'], FILTER_VALIDATE_EMAIL))
      {
            $message = "Invalid email address please type a valid email!";
      }
      elseif(mysqli_num_rows($check_RollNo) > 0)
         $message = 'Roll No Already exists!';
      }
      elseif(mysqli_num_rows($check_email) > 0)
      {
         $message = 'Email Already exists!';
      }
      else
      {

         $mql = "INSERT INTO users(roll_no,student_name,email,phone,passwor
d)
      VALUES('".$_POST['rollNo']."','".$_POST['studentName']."','".$_POST['
email ']."','".$_POST['phone']."','".md5($_POST['password'])."')";
         mysqli_query($db, $mql);
         $success = "Account Created successfully! <p>You will be redirecte
d in <span id='counter'>5</span> second(s).</p>
                    <script type='text/javascript'>
                     function countdown() {
                     var i = document.getElementById('counter');
                       if (parseInt(i.innerHTML)<=0) {
                                location.href = 'login.php';
                            }
                       i.innerHTML = parseInt(i.innerHTML)-1;
                             }
                          setInterval(function(){ countdown(); },1000);
                  </script>'";

         header("refresh:5;url=login.php");
      }
   }

}
```

```
?>

<head>
    <meta charset="utf-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-
scale=1, shrink-to-fit=no">
    <meta name="description" content="">
    <meta name="author" content="">
    <title>Starter Template for Bootstrap</title>
    <link href="css/bootstrap.min.css" rel="stylesheet">
    <link href="css/font-awesome.min.css" rel="stylesheet">
    <link href="css/animsition.min.css" rel="stylesheet">
    <link href="css/animate.css" rel="stylesheet">
    <link href="css/style.css" rel="stylesheet"> </head>
<body style="background-color:#e9e9e9; padding-left:225px;padding-
top:115px;">

         <div class="page-wrapper">
            <section class="contact-page inner-page">
               <div class="container">
                  <div class="row">
                     <div class="col-md-8" style="width: 80% !important;">
                        <div class="widget" style="background-
color: white !important;">
                           <div class="widget-
body">
                            <form action="" method="post">
                              <div class="row">
                                   <div class="form-group col-sm-12">
                                       <h3 style="color: #f30;"><center>Reg
ister Here</center></h3>
                                   </div>
                                   <div class="container">
                                       <ul>
                                          <li>
                                             <a href="#" class="active">
                                                <span style="color:red;"><?
php echo $message; ?></span>
                                                <span style="color:green;">
<?php echo $success; ?></span>
```

```
                                        </a>
                                    </li>
                                </ul>
                            </div>
                            <div class="form-group col-sm-6">
                                <input class="form-control"
type="text" name="studentName" id="example-text-
input" placeholder="Student Name">
                            </div>
                            <div class="form-group col-sm-6">
                                <input class="form-
control" type="text" name="rollNo" id="example-text-
input" placeholder="Roll No">
                            </div>
                            <div class="form-group col-sm-6">
                                <input type="text" class="form-
control" name="email" id="exampleInputEmail1" aria-
describedby="emailHelp" placeholder="Email">
                            </div>
                            <div class="form-group col-sm-6">
                                <input class="form-
control" type="text" name="phone" id="example-tel-input-
3" placeholder="Phone">
                            </div>
                            <div class="form-group col-sm-6">
                                <input type="password" class="form-
control" name="password" id="exampleInputPassword1" placeholder="Password">

                            </div>
                            <div class="form-group col-sm-6">
                                <input type="password" class="form-
control" name="cpassword" id="exampleInputPassword2" placeholder="Repeat Pa
ssword">
                            </div>
                        </div>
                        <div class="row">
                            <div class="col-sm-4">
                                <p> <input type="submit" value="Regi
ster" name="submit" class="btn theme-btn"> </p>
                            </div>
                        </div>
```

```
                                </form>
                            </div>
                        </div>
                    </div>
                </div>
            </section>
        </div>
    <script src="js/jquery.min.js"></script>
    <script src="js/tether.min.js"></script>
    <script src="js/bootstrap.min.js"></script>
    <script src="js/animsition.min.js"></script>
    <script src="js/bootstrap-slider.min.js"></script>
    <script src="js/jquery.isotope.min.js"></script>
    <script src="js/headroom.js"></script>
    <script src="js/foodpicky.min.js"></script>
</body>
</html>
```

Login Page: - After registration process users can work with system using valid user roll-no and password provide during registration process.

Home Page: - This is the main page of the created website an everybody can see this page. This page provides basic information about systems and services.

Admin:

Index.php:

```
<!DOCTYPE html>

<html lang="en" >

<?php

include("../connection/connect.php");

error_reporting(0);

session_start();

if(isset($_POST['submit']))

{

      $username = $_POST['username'];

      $password = $_POST['password'];
```

```
       if(!empty($_POST["submit"]))
      {
            $loginquery ="SELECT * FROM admin WHERE username='$username' &&
password='".md5($password)."'";
            $result=mysqli_query($db, $loginquery);
            $row=mysqli_fetch_array($result);

           if(is_array($row))
            {
            $_SESSION["adm_id"] = $row['adm_id'];
                  header("refresh:1;url=dashboard.php");
           }
            else
            {
                  $message = "Invalid Username or Password!";
            }
       }
}
if(isset($_POST['submit1'] ))
{
     if(empty($_POST['cr_user']) ||
          empty($_POST['cr_email'])||
            empty($_POST['cr_pass']) ||
            empty($_POST['cr_cpass']) ||
            empty($_POST['code']))
            {
                  $message = "ALL fields must be fill";
```

```
            }
      else
      {
      $check_username= mysqli_query($db, "SELECT username FROM admin where
username = '".$_POST['cr_user']."' ");

      $check_email = mysqli_query($db, "SELECT email FROM admin where email
= '".$_POST['cr_email']."' ");
        $check_code = mysqli_query($db, "SELECT adm_id FROM admin where
code = '".$_POST['code']."' ");
      if($_POST['cr_pass'] != $_POST['cr_cpass']){
            $message = "Password not match";
    }
    elseif (!filter_var($_POST['cr_email'], FILTER_VALIDATE_EMAIL)) //
Validate email address
    {
            $message = "Invalid email address please type a valid email!";
    }
      elseif(mysqli_num_rows($check_username) > 0)
     {
      $message = 'username Already exists!';
     }
      elseif(mysqli_num_rows($check_email) > 0)
     {
      $message = 'Email Already exists!';
     }
       if(mysqli_num_rows($check_code) > 0)           // if code already
exist
             {
                  $message = "Unique Code Already Redeem!";
```

```
            }
      else{
       $result = mysqli_query($db,"SELECT id FROM admin_codes WHERE codes =
'".$_POST['code']."'");  //query to select the id of the valid code enter
by user!


                    if(mysqli_num_rows($result) == 0)     //if code is not
valid
           {
                           // row not found, do stuff...
                                  $message = "invalid code!";
                       }
                    else                                  //if code is
valid
$mql = "INSERT INTO admin (username,password,email,code) VALUES
('".$_POST['cr_user']."','".md5($_POST['cr_pass'])."','".$_POST['cr_email']
."','".$_POST['code']."')";
mysqli_query($db, $mql);
$success = "AdminAdded successfully!";
                               }
        }
      }
}
?>
<head>
  <meta charset="UTF-8">
  <title>Admin Login Form</title>
    <link rel="stylesheet"
href="https://cdnjs.cloudflare.com/ajax/libs/meyer-
reset/2.0/reset.min.css">
```

```
  <link rel='stylesheet prefetch'
href='https://fonts.googleapis.com/css?family=Roboto:400,100,300,500,700,90
0'>

<link rel='stylesheet prefetch'
href='https://fonts.googleapis.com/css?family=Montserrat:400,700'>

<link rel='stylesheet prefetch' href='https://maxcdn.bootstrapcdn.com/font-
awesome/4.3.0/css/font-awesome.min.css'>

      <link rel="stylesheet" href="css/login.css">

</head>

<body>

<div class="container">

  <div class="info">

    <h1>Administration </h1><span> login Account</span>

  </div>

</div>

<div class="form">

  <div class="thumbnail"><img src="images/manager.png"/></div>

  <form class="register-form" action="index.php" method="post">

    <input type="text" placeholder="username" name="cr_user"/>

    <input type="text" placeholder="email address"  name="cr_email"/>

       <input type="password" placeholder="password"  name="cr_pass"/>

        <input type="password" placeholder="Confirm password"
name="cr_cpass"/>

        <input type="password" placeholder="Unique-Code"  name="code"/>

   <input type="submit"  name="submit1" value="Create" />

    <p class="message">Already registered? <a href="#">Sign In</a></p>

  </form>


  <span style="color:red;"><?php echo $message; ?></span>

   <span style="color:green;"><?php echo $success; ?></span>
```

```
  <form class="login-form" action="index.php" method="post">
    <input type="text" placeholder="username" name="username"/>
    <input type="password" placeholder="password" name="password"/>
    <input type="submit"  name="submit" value="login" />
  </form>
</div>
  <script
src='http://cdnjs.cloudflare.com/ajax/libs/jquery/2.1.3/jquery.min.js'></sc
ript>
  <script src='js/index.js'></script>
</body>
</html>
```

AllOrders.php:

```
<!DOCTYPE html>

<html lang="en">

<?php

include("../connection/connect.php");

error_reporting(0);

session_start();

?>

<?php include_once('header.php');?>

<div class="row page-titles">

                <div class="col-md-5 align-self-center">

                    <h3 class="text-primary">All Orders</h3> </div>

                <div class="col-md-7 align-self-center">

                    <ol class="breadcrumb">

                        <li class="breadcrumb-item"><a
href="javascript:void(0)">Home</a></li>

                        <li class="breadcrumb-item active">All Orders</li>

                    </ol>

                </div>

            </div>

            <div class="container-fluid">

                <!-- Start Page Content -->

                <div class="row">

                    <div class="col-12">

                        <div class="card">

                            <div class="card-body">

                                <h4 class="card-title">All user Orders</h4>
```

```
                                <!-- <h6 class="card-subtitle">Export data
to Copy, CSV, Excel, PDF & Print</h6> -->
                                <div class="table-responsive m-t-40">
                                    <table id="myTable" class="table table-
bordered table-striped">
                                        <thead>
                                            <tr>
                                                <th>SR.No</th>
                                                <th>Student Name</th>

                                                <th>Dish Name</th>
                                                <th>Quantity</th>
                                                <th>Price</th>
                                                <th>Status</th>
                                                <th>Pickup Time</th>
                                                <th>Reg-Date</th>
                                                <th>Action</th>

                                            </tr>
                                        </thead>
                                        <tbody>

      <?php

      $sql="SELECT users.*, users_orders.* FROM users INNER JOIN
users_orders ON users.u_id=users_orders.u_id order by o_id desc ";
                                        $query=mysqli_query($db,$sql);
                                              if(!mysqli_num_rows($query) > 0 )
                                                          {

                  echo '<td colspan="8"><center>No Orders-
Data!</center></td

                        }
```

```
      else
            {
                  $i=1;
                  while($rows=mysqli_fetch_array($query))
                  {
                        ?>
                        <?php
                              echo ' <tr>
                                                                  <td>'.$i.'</td>

<td>'.$rows['student_name'].'</td>
      <td>'.$rows['title'].'</td>
            <td>'.$rows['quantity'].'</td>
                        <td>₹'.$rows['price'].'</td>';
                        <?php

$status=$rows['status'];

if($status==""$status=="NULL")
                                                            {
                                                                  ?>

<td> <button type="button" class="btn btn-primary"> <i class="fa fa-spinner
fa-pulse"></i> <span></span>Pending</button></td>

<?php
                                                             }

if($status=="in process")
                                                            {
                                          ?>
<td> <button type="button" class="btn btn-warning"><span class="fa fa-cog
fa-spin"  aria-hidden="true" ></span> <span></span>Preparing!</button></td>
```

```
<?php

}

if($status=="closed")

{

  ?>

 <td> <button type="button" class="btn btn-success"> <i class="fa fa-check-
circle"></i> <span></span>Delivered</button></td>

<?php

}

?>

<?php

if($status=="rejected")

{

?>

<td> <button type="button" class="btn btn-danger"> <i class="fa fa-times-
circle"></i> <span></span>Cancelled</button></td>

<?php

}

?>

<?php

if($status=="confirm")

{

?>

<td>  <button type="button" class="btn btn-info"> <i class="fa fa-
check"></i> <span></span>Accepted</button></td>

<?php

}

if($status=="prepared")

{
```

```
  ?>
 <td><button type="button" class="btn btn-info" style="background-color:
green !important;border-color:green;"> <i class="fa fa-shopping-bag"></i>
<span></span>Prepared</button></td>
  <?php
   }
  ?>
<?php
echo '      <td>'.$rows['pick_time'].'</td>';

echo '      <td>'.$rows['date'].'</td>';

<td>
 <a href="delete_orders.php?order_del=<?php echo $rows['o_id'];?>"
onclick="return confirm('Are you sure?');" class="btn btn-danger btn-flat
btn-addon btn-xs m-b-10"><i class="fa fa-trash-o" style="font-
size:16px"></i></a>
<?php
echo '<a href="view_order.php?user_upd='.$rows['o_id'].'" " class="btn btn-
info btn-flat btn-addon btn-sm m-b-10 m-l-5"><i class="ti-
settings"></i></a>
</td>
</tr>';
  $i++;

}
}
?>
</tbody>
 </table>
</div>
```

```
</div>

</div>

</div>

</div>

</div>

</div>

                </div>

                <!-- End PAge Content -->

            </div>

            <!-- End Container fluid  -->

    <script src="js/lib/datatables/datatables.min.js"></script>

    <script
src="js/lib/datatables/cdn.datatables.net/buttons/1.2.2/js/dataTables.butto
ns.min.js"></script>

    <script
src="js/lib/datatables/cdn.datatables.net/buttons/1.2.2/js/buttons.flash.mi
n.js"></script>

    <script
src="js/lib/datatables/cdnjs.cloudflare.com/ajax/libs/jszip/2.5.0/jszip.min
.js"></script>

    <script
src="js/lib/datatables/cdn.rawgit.com/bpampuch/pdfmake/0.1.18/build/pdfmake
.min.js"></script>

    <script
src="js/lib/datatables/cdn.rawgit.com/bpampuch/pdfmake/0.1.18/build/vfs_fon
ts.js"></script>

    <script
src="js/lib/datatables/cdn.datatables.net/buttons/1.2.2/js/buttons.html5.mi
n.js"></script>

    <script
src="js/lib/datatables/cdn.datatables.net/buttons/1.2.2/js/buttons.print.mi
n.js"></script>
```

```
<script src="js/lib/datatables/datatables-init.js"></script>

<?php include_once('footer.php');?>
```

5.2.1 Code Efficiency

Code efficiency is a broad term used to depict the reliability, speed and programming methodology used in developing codes for an application. Code efficiency is directly linked with algorithmic efficiency and the speed of runtime execution for software. It is the key element in ensuring high performance. The goal of code efficiency is to reduce resource consumption and completion time as much as possible with minimal risk to the business or operating environment. Code efficiency plays a significant role in applications in a high-execution-speed environment where performance and scalability are paramount. Code efficiency refers to how effectively and efficiently a piece of code performs the intended task. Code is considered efficient if it performs the desired function using the least amount of resources (such as memory, CPU cycles, or network bandwidth) and completes the task in an acceptable time. Efficient code has several advantages, including:

- Faster execution: Efficient code generally runs faster than inefficient code. This means the program can process more data or handle more user requests at the same time, resulting in a better user experience and higher system throughput.
- Reduced resource usage: Efficient code uses fewer system resources, such as memory and CPU cycles. This reduces overall system resource usage, which improves scalability and lowers operating costs.
- Improved maintainability: Efficient code tends to be more readable, modular and well-structured, and easier to maintain and extend over time.

Developers can use a variety of techniques to write efficient code. These include:

- Algorithm optimization: By optimizing an algorithm, developers can reduce the number of operations required to accomplish a task, resulting in faster and more efficient code.
- Memory Management: Efficient code should use memory efficiently and avoid unnecessary memory allocations and deallocations. This can be achieved through techniques such as object pooling and garbage collection.
- Parallelism: By breaking tasks into smaller chunks and running them in parallel, developers can take advantage of multiple processors or cores, resulting in faster and more efficient code.

- Code Profiling: Developers can use tools to analyze the performance of their code and identify areas that are consuming too many resources. This helps developers optimize their code for more efficiency.

In general, writing efficient code is an important consideration for software developers because it leads to better performance, lower costs and a better user experience.

Code efficiency in this Project: -

- Removed unnecessary code or code that goes to redundant processing.
- Made use of optimal memory and non-volatile storage.
- It has used reusable components wherever possible.
- Made use of error and exception handling in all modules of web application, such as the database connectivity, user interface.
- Ensured data integrity and consistency.
- Optimize the use of data access and data management practices.
- Use the best keywords, data types and variables.

5.3. Modifications and Improvement

- Tables in the database were being updated with more than one entry for a single user.
- The user can directly access the homepage without signing up to the website. So the user can browse and signup when the user wants to order something.
- The seller can have selling access by requesting the admin for seller access.

5.4. Testing Approach

5.4.1 Unit testing

- Unit testing is a software testing technique that focuses on testing individual units or components of a software application in isolation.
- It is typically performed by developers and tests the functionality of each unit of code, such as a function or method.
- Unit testing verifies that the individual units of code work as expected and meet the requirements, and it's done before integrating the units of code.

Unit testing provides several advantages in software development, including:

- Early bug detection: Unit testing can help catch bugs early in the development process before they become more difficult and expensive to fix.
- Better code quality: Unit testing encourages developers to write code that is modular, maintainable, and easy to test, leading to higher-quality code.
- Easier debugging: Unit tests can make it easier to isolate and debug issues in code, as the tests focus on individual units of code and can help pinpoint the location of errors.
- Facilitating change: Unit tests provide a safety net for developers making changes to code, allowing them to make changes with confidence that they won't break existing functionality.

5.4.2 Integration Testing

- Integration testing is a software testing technique that focuses on testing the interaction between different units or components of a software application.
- It is typically performed by testers and tests the interfaces and communication between different modules or subsystems.
- Integration testing verifies that the different units of code work correctly when integrated with each other and meet the requirements, and it's done after unit testing.

Integration testing provides several advantages in software development, including:

- Detecting integration issues: Integration testing helps to identify issues that arise from the interaction between different components or subsystems of a software application.
- Improving system reliability: Integration testing ensures that the different components or subsystems of a software application work together as expected, leading to a more reliable system.

- Facilitating change: Integration testing provides a safety net for developers making changes to the system, allowing them to make changes with confidence that they won't break existing functionality.
- Improving code quality: Integration testing encourages developers to write code that is modular, maintainable, and easy to integrate, leading to higher-quality code.
- Improved documentation: Integration testing serves as documentation of the expected behaviour of the system, making it easier for developers to understand and modify the code in the future.

5.5 Test Cases

Table 5.1: Test Cases

SR.NO	Action	Inputs	Resulted Output
1.	Valid Roll no and password	roll no = 1 Password= 123456789	Successfully login
2.	Invalid Username and password	User = exampl@gmail.com Password= pass124	Unsuccessful Login
3.	Valid Username and Invalid Password	User = example@gmail.com Password= pass143	Enter valid password
4.	Invalid Username and Valid Password	User = exampe@gmail.com Password= pass123	Enter valid Username
5	Registration	Click on Registration	Redirect to registration page

Chapter 6

Results and Discussion

6.1 Test Report

A test report is a document that presents the results of testing activities performed during a project. It provides detailed information on the testing process, including the testing objectives, methodologies, and outcomes.

Table 6.1: Test Report

Feature/ Component	Test Planed	%Test Passed	Deferred/ Blocked	Status	Remarks
Login with Already Sign up	7	100%	0	PASS	Users can correctly log in with the right credentials
New users sign up	2	100%	0	PASS	New users can sign up with an active email ID
Username Validation	2	100%	0	PASS	Different usernames were entered to check the validation
Passwords validation	2	100%	0	PASS	Wrong passwords were entered to check validations
Order Placement	4	100%	0	PASS	Multiple orders can place
Product display	2	100%	0	PASS	Users can view the product as they click the product box

6.2. User Documentation

Registration of user:

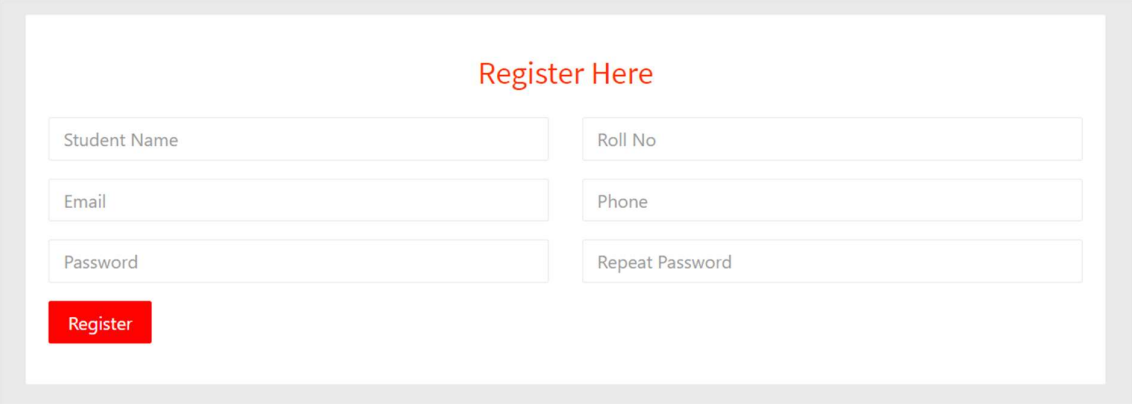

Figure 6.1: Registration of User

Login of User:

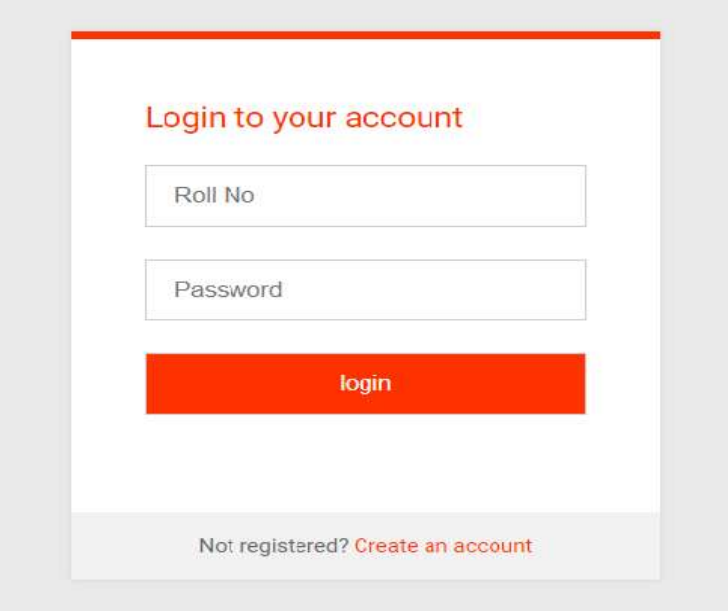

Figure 6.2: Login of User

Homepage:

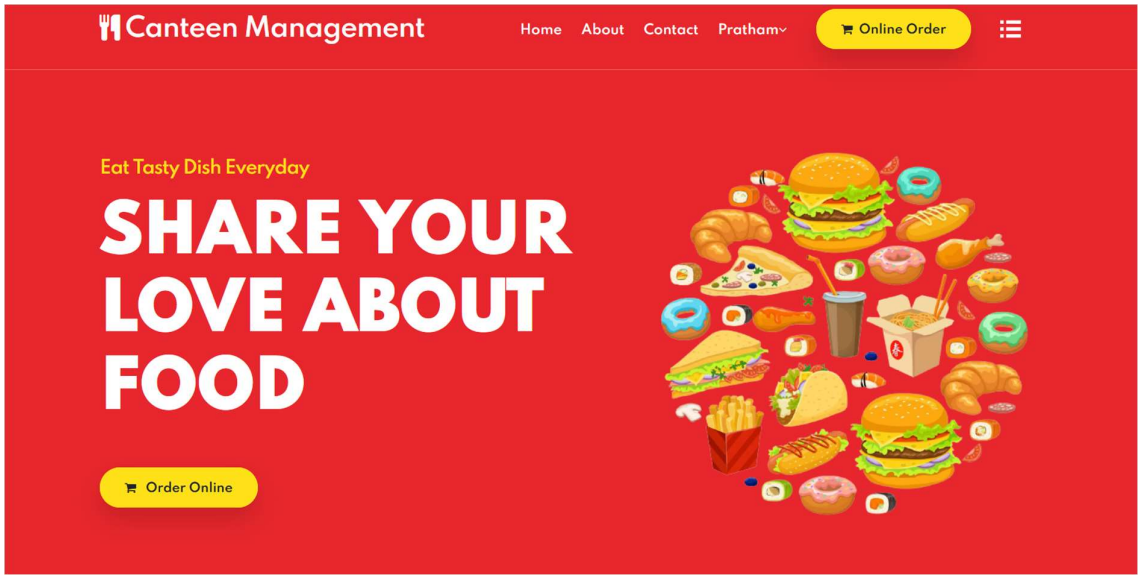

Figure 6.3: Home Page

Menu:

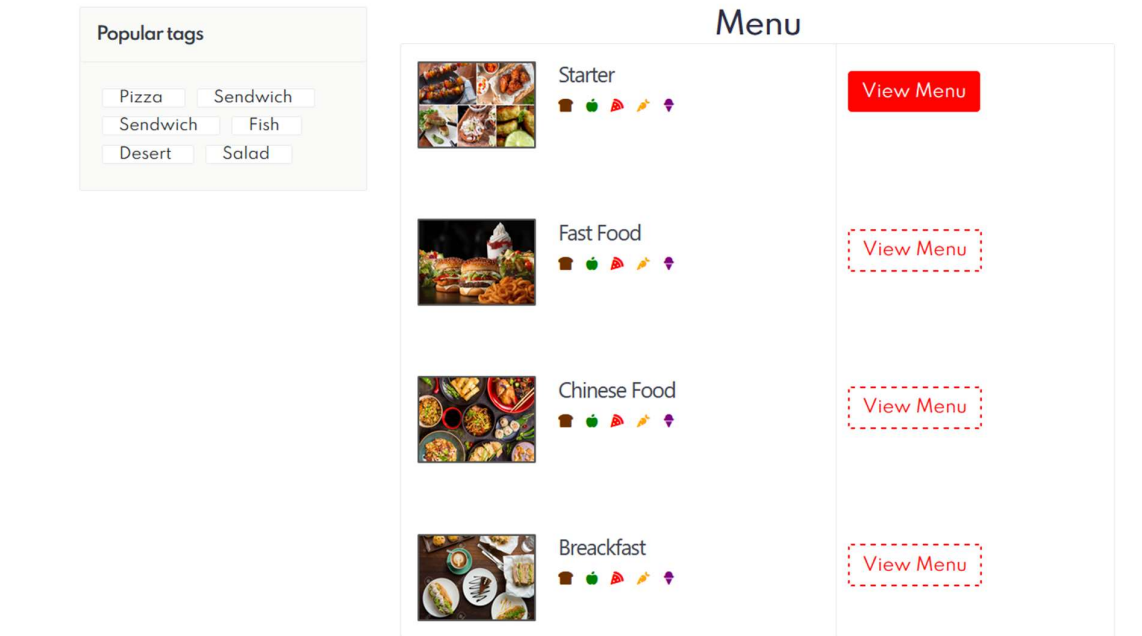

Figure 6.4: Menu

Add to cart:

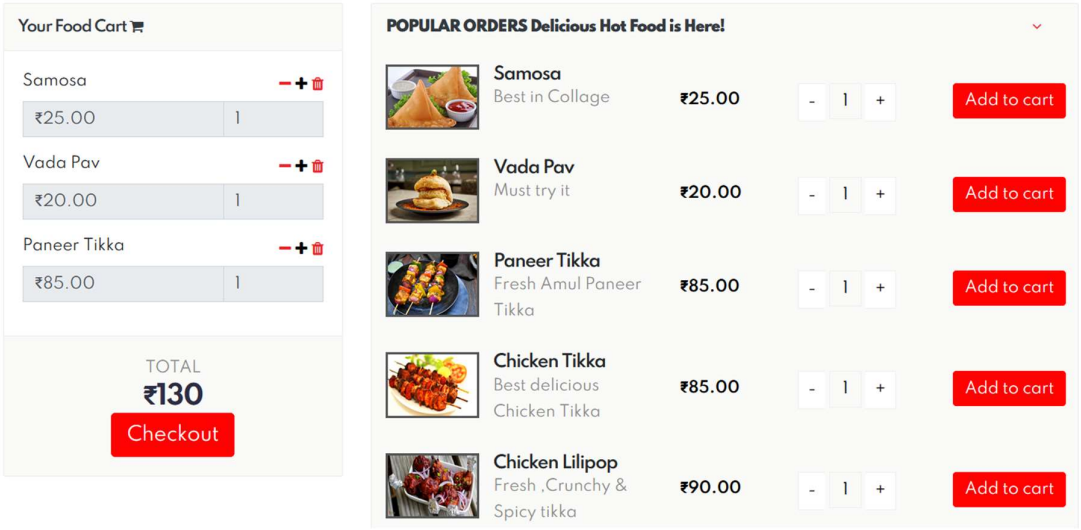

Figure 6.5: Add to Cart

Place Order:

Item	Quantity	price	status	Date	Pick Time	Action
Paneer Tikka	1	₹85.00	Pending	2023-03-22 02:51:31	03:15	✖Cancel Order ?
Vada Pav	1	₹20.00	Pending	2023-03-22 02:51:31	03:15	✖Cancel Order ?
Samosa	1	₹25.00	Pending	2023-03-22 02:51:31	03:15	✖Cancel Order ?
Samosa	1	₹25.00	Pending	2023-03-16 16:29:35	17:29	✖Cancel Order ?

Figure 6.6: Placing Order

Admin Login:

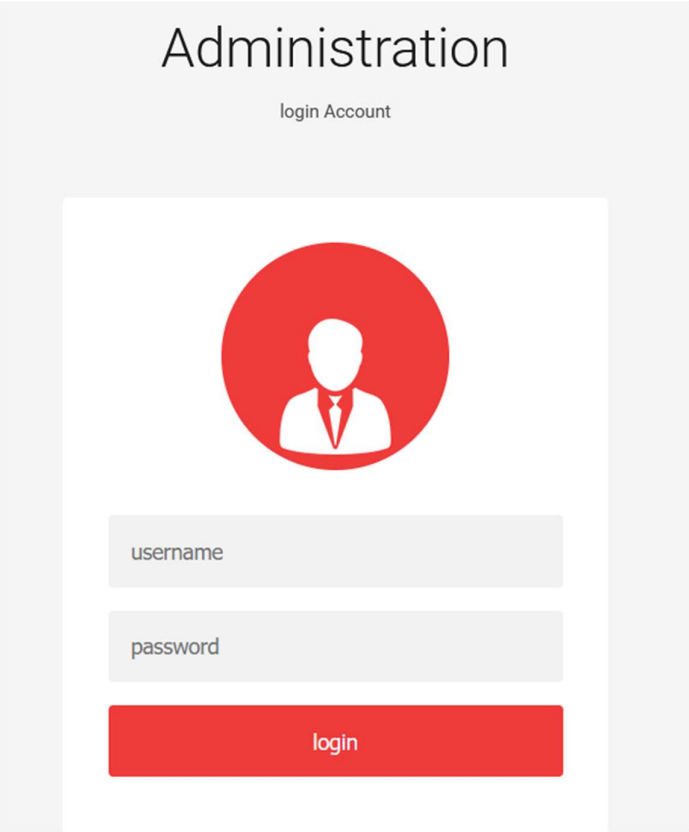

Figure 6.7: Admin Login

Dashboard:

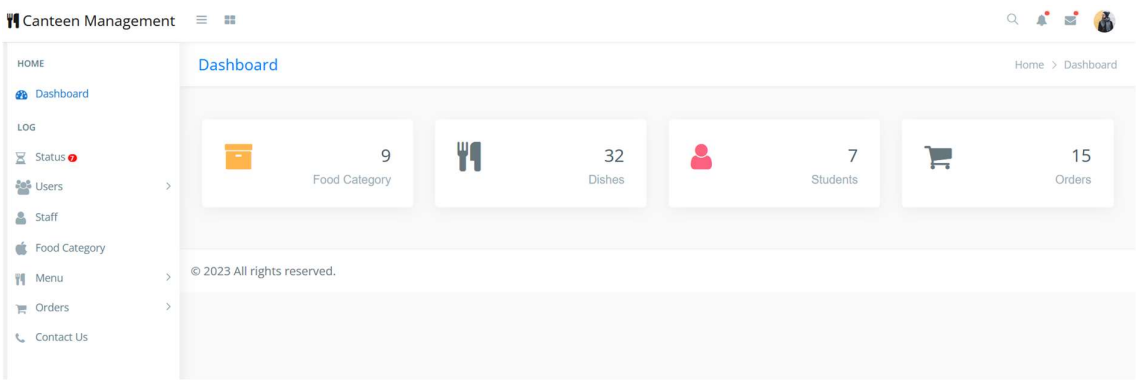

Figure 6.8: Admin dashboard

Manage users:

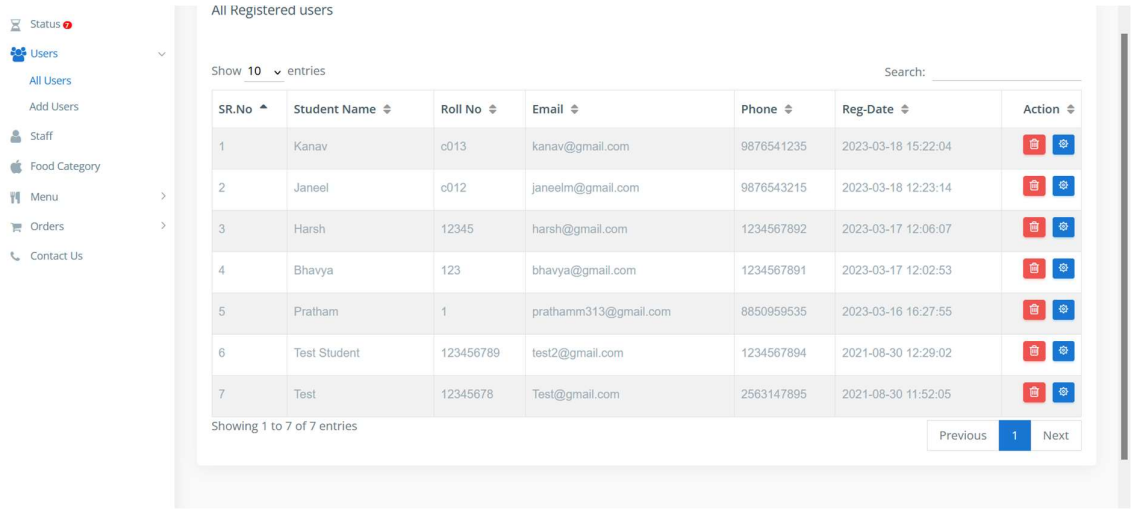

Figure 6.9: Manage Users (Admin)

Manage Staff:

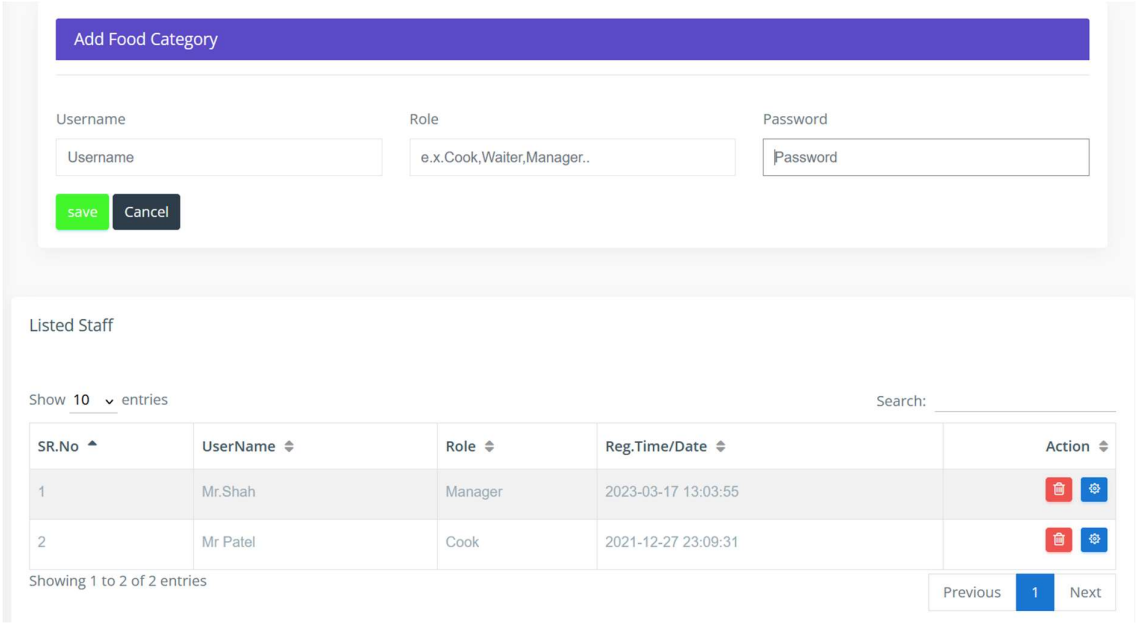

Figure 6.10: Manage Staff(admin)

Manage Orders:

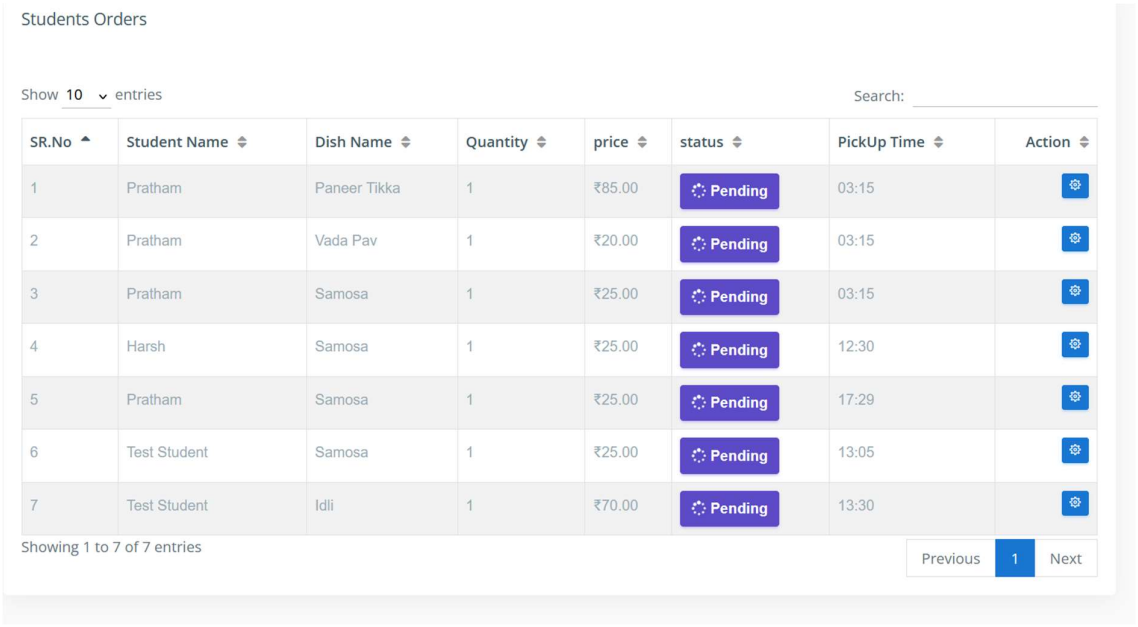

Figure 6.11: Manage Orders (Admin)

Chapter 7

Conclusion

7.1 Conclusion

The proposed system in the website that deals with computerization of the existing system which is manually handled. The proposed system is the upgradation of all the functionalities the existing system. The proposed system deals with keeping records of customers, customer details, payment details, details of food information, searching for particular record, bill generation, etc. In this system complaints are recorded is important and it stores information about the customer and their order details. It also helps for better screening of records and improves the efficiency of work. The system provides a user-friendly interface for managing various aspects of the canteen, including inventory management, order tracking, and reporting. With the help of this system, canteen administrators can easily manage the daily operations of the canteen, reduce the waiting time of customers, and ensure that the canteen runs smoothly. In conclusion, the project report has outlined the key features and functionality of the canteen management system that we have developed.

Advantages of proposed system:

- Eliminates the maintenance of large paperwork.
- Simplifies the work with improved efficiency.
- The front end provides user friendly environment to interact with the system which increase the speed of work.
- Faster capability to interact with the database.
- Provides security to the database and prevents database conjunction.
- Provides better screening of records and faster record searching functionality from the database.

7.2 Limitations of the system

- The transactions are executed in offline mode, hence on-line data for Canteen, Sales capture and modification is not possible.
- Off-line reports of Canteen, Orders, Products cannot be generated due to batch mode execution.
- If canteens are located in multiple locations, total usage needs to be determined.
- Requires an active internet connection.
- Users cannot change the themes according to their system settings.
- We have tried to implement almost every feature to give users a smooth canteen management system experience, but these are some limitations of the project.

7.3 Future Scope

This system can automate the existing manual system with the help of an advanced computerized website that offers Advance facilities to both students and admin. So they both can maintain minimum distance and place orders online and take away at pickup time which reduces time wastage also reduces the chances of the current pandemic situation of COVID-19 too. Nothing can be ended in a single step. It is the fact that nothing is permanent in this world. So, this project also has some future enhancements in the evergreen and booming IT industries. Further enhancement of the software will have the following features:

- Alert the customer when coupons are added, and bill is generated via SMS and email.
- Also, will be having reminder alerts for admin with receive order.
- Add payment gateway i.e., Paytm, credit and debit card.
- Also, apps for mobiles will be developed making things portable.

References

➢ Books:

- Robin Nixon:- Learning PHP, MySQL & JavaScript: With jQuery, CSS & HTML5 (Learning PHP, MYSQL, JavaScript, CSS & HTML5).
- MG Martin :- Programming for Beginners
  6 Books in 1 - Swift+PHP+Java+Javascript+Html+CSS: Basic Fundamental Guide for Beginners

➢ Websites:

- **https://www.starlinkindia.com/blog/canteen-management-system-a-paradigm-shift-in-business-process/**
- **https://www.draw.io/**
- **https://www.visual-paradigm.com/**
- **https://www.lucidchart.com/blog/types-of-UML-diagrams**
- **https://www.tutorialspoint.com/uml/uml_standard_diagrams.htm**
- **https://www.visual-paradigm.com/project-management/gantt-chart-vs-pert-chart/**
- **https://www.techtarget.com/searchdatamanagement/definition/data-flow-diagram-DFD#:~:text=A%20data%20flow%20diagram%20(DFD)%20is%20a%20graphical%20or%20visual,and%20Design%20Method%20(SSADM).**
- https://www.w3schools.com/
- https://www.matrixaccesscontrol.com/
- https://universityerp.net/canteen-management-system/
- https://en.wikipedia.org/wiki/Cafeteria