**Independent University** **Bangladesh (IUB)**

**IUB Academic Repository**

Internship Reports Autumn 2022

2023-01-19

# An Undergraduate Internship/Project on Restaurant Management System

Chakraborty, Sourav

Independent University, Bangladesh

https://ar.iub.edu.bd/handle/11348/738

*Downloaded from IUB Academic Repository*

# An Undergraduate Internship/Project on

# Restaurant Management System

By

**Sourav Chakraborty**

Student ID: **1821411**

**Autumn, 2022**

Supervisor:

**Mr. Sanzar Adnan Alam**

Lecturer

Department of Computer Science & Engineering

Independent University, Bangladesh

**January 19, 2023**

Dissertation submitted in partial fulfillment for the degree of Bachelor of Science in Computer Engineering

Department of Computer Science & Engineering

**Independent University, Bangladesh**

## Attestation

I certify that this report contains the project Restaurant Management System of Royal Restaurant, Chittagong is fully done by me and other interns of our company during my internship period. It was completed under the supervision of my faculty, Mr. Sanzar Adnan Alam. I also certify that my work is genuinely based on the requirements provided by my work place and based on what I have learned and implemented during my internship.

Sourav Chakraborty — Signature

24.01.23 — Date

Sourav Chakraborty

Name

# Acknowledgment

Letter of Transmittal

19th January, 2023
Mr. Sanzar Adnan Alam
Lecturer
Department of Computer Science and Engineering, Independent University, Bangladesh.

Subject: Submission of Internship Report Autumn, 2022.

Dear Sir,

This is to inform you with due honor and respect that I am Sourav Chakraborty from the Internship Course of Autumn 2022, I would like to submit my internship report on the Restaurant Management System of Royal Restaurant.

I would like to express my gratitude to you and thank you for supporting and supervising me in every step of my internship project. Without your support and help, the internship project would have been incomplete. My internship has enlightened me with some new experiences and changed my point of view toward the corporate world.

I hope that this report meets all the requirements and criteria and fulfills your expectations. I would also apologize if I made any mistake in this report and consideration for any mistake would mean the world to me.

Sincerely,
Sourav Chakraborty
ID: 1821411
Department of Computer Science & Engineering, Independent University, Bangladesh

## Evaluation Committee

.....

Signature

.....

Name

Ajmiri Khan

Panel Member-1

.....

Signature

Sarwar Shahid.

Name

.....

Panel Member-2

.....

Signature

Mr. Sanzar Adnan Alam

Name

.....

Supervisor of the Intern

.....

Signature

.....

Name

.....

Head, Department of Computer Science & Engineering

# Abstract

I have worked as an intern at The Recreation IT as a Trainee Developer Intern. During my internship,I was assigned a project to make a Web application “Restaurant Management System of Royal Restaurant”. The application is going to create a digital solution for Royal Restaurant to simplify the food management system. The Registered User and RRMS employees can access, view items, add items to the cart, and check out their food requisition. I discussed the project’s goals, its scope, as well as the details of the project management plan in detail in this report. The report also contains a literature review, project management, and financing, methodology, result and analysis, and future works.

# Introduction

## 1.1 Overview/Background of the Work

Our Organization, The Recreation IT take a task to create a Restaurant Management Website for their Clients. As a web developer intern with a Computer Engineering background, my objectives and tasks are to construct a platform for the clients to develop a web application for the Restaurant management system which now I am working on.

We will be using PHP application development services to assist us to get the best web application possible. PHP is an open-source server-side scripting language that many devs use for web development. It is also a general-purpose language that you can use to make lots of projects, including Graphical User Interfaces (GUIs). There will primarily be two categories of authenticated users in this web application. One is Customer who will be able to access their individual accounts via the system and another is Admin, The admin site administered by the Clients authority.

## 1.2 Objectives

The primary goal of my work to create a Digital solution for our client to simplify their Restaurant Management Website

- There will be two end users: (i) Customer or the Viewer, (ii) Admin panel controlled by authority.
- Users can view the catering menu with different categories and place orders from their own computers, which will be controlled dynamically.
- Each User also can see the Gallery and see the food price.
- New User can create a New Account.
- The Admin can view or delete the product from the Database and also modify the Food Category when needed
- The system will generate an invoice after preparing an actual bill including products and services.

- The requisition/advice and orders are subject to change at the last moment. The system will record the change and produce the bill of items and services in accordance with the current time.

## 1.3 Scopes

- After logging in, products will be displayed on a user's homepage and organized by category.
- Products can be seen in detail, with sizes and colors, in a well-organized and detailed manner.
- Products can be added by representatives/staff.
- Authenticated users can look for their desired products, check details, and add to the cart.
- If users are not authenticated, they must first log in to be authenticated.
- Users can check out and place an order from the page, and the system will generate an invoice automatically.
- Orders and requisitions that change at the last minute will be recorded and adjusted with the billing.

# Chapter 2

# Literature Review

## 2.1 Relationship with Undergraduate Studies

In my under-graduation studies, I acquired a lot of theories about programming and developing an application from start to finish. Most of the courses include both theoretical and lab work. I learned how to operate in a group in lab sessions, which will benefit me in real-world scenarios where I will have to collaborate with my colleagues to complete and deliver a project. It's very similar to working on projects in a group in lab class and working on projects in the office with colleagues.

Some of the academic courses that were beneficial to my professional experience include:

**CSE 203 Data Structure and CSE 211 Algorithms:**

I want to keep these courses together as they are closely related, and one depends on another. From these courses, I learned the fundamental topics about arrays, linked lists, pointers, stack, and queues, BST, and Graph theory. Learning time and space complexity is helping to create faster working and smoother applications and providing the user a great experience. During these courses, I began to solve some competitive programming problems from practice problems and various websites, where I applied my data structures and algorithms knowledge to solve critical problems, which is now greatly helping me in solving logical and functional problems in the corporate world.

**CSE 213 Object-Oriented Programming:**

In this course, I have learned how the format of my code should look like using classes and objects. In real applications, all my work is related to classes, objects, and functions. Without knowing the core concepts of object-oriented programming, I would not be able to understand how my code is working, and fixing bugs would be impossible.

**CSE303 Database Management:**

This was also one of the most crucial courses I had ever encountered. I learned how to design databases using UML class diagrams, making a rich picture, and six-element analysis here. Designing databases is critical and crucial because it is the core foundation of every project. Learning how to take client requirements, translate them to a database, and then create a project out of them was one of the most significant things I learned during my undergraduate studies.

**CSE 309 Web Applications and Internet and CSE 464 Mobile Application Development:** From these courses I learned a lot starting from HTML, CSS, Bootstrap for front-end designing including how the applications in web server's work, learning about http requests like get, post, put, delete, and update requests helped me a lot to learn the framework that I am using in my assigned project. I learned to collaborate and develop applications in a team environment was also taught in these courses.

# Chapter 3

# Methodology

A methodology is a collection of problem-solving approaches, practices, processes, techniques, procedures, and standards. They're well-defined processes that show us exactly what to do next, why each step is important in the entire software development life cycle, and how to complete a project stage.

For this project, we are following Iterative and Incremental Development Process. Iterative and incremental development is a method for combining iterative design and incremental development. The incremental method divides the software development process into small, manageable chunks called increments. Each increment builds on the previous version, allowing for gradual development and Iterative software development refers to the process of repeating software development operations in cycles known as iterations. After each iteration, a new version of the program is created until the best product is found. Iterative and incremental software development starts with planning and continues through iterative development cycles that include continuous user feedback and incremental feature additions, concluding in the deployment of finished software at the end of each cycle.

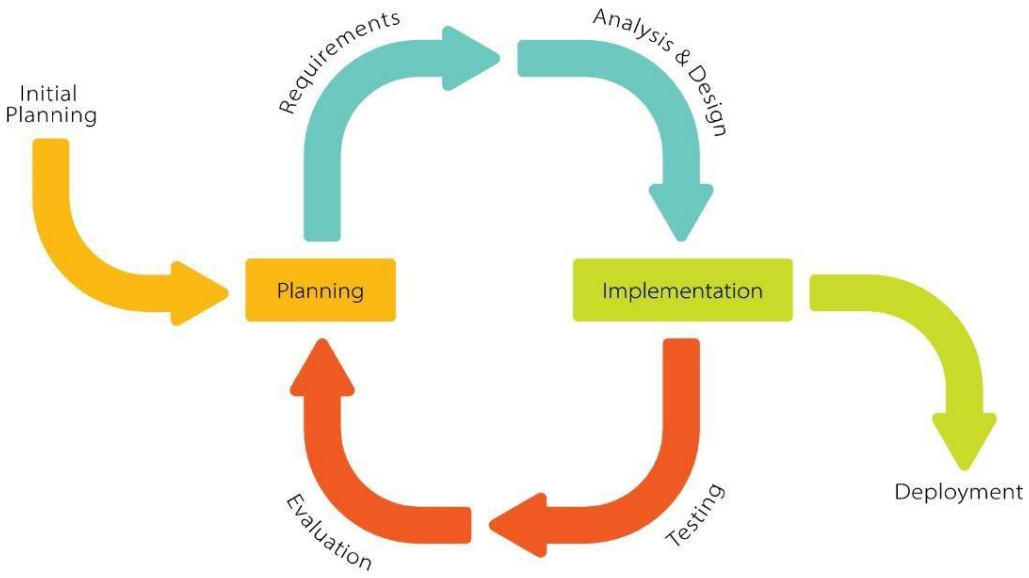



Figure 3. 1 Iterative and Incremental Development Process

**Planning Phase:** I have discussed the project with my organizational supervisor about the project and gathered all the requirements for the various functionalities that will be included in the web application. I will begin designing the application after I have written down and clarified all the requirements and doubt that I had.

**Analysis & Design Phase:** I will have to design the entire program in Adobe Illustrator, starting from the beginning to end. I need to demonstrate it to my client and my organizational supervisor when I have finished designing. After the design was accepted, I went straight into the development phase.

**Development Phase:** As I previously mentioned, the whole application will be developed using PHP Web Application, which will make all the static pages dynamic and fully functional. As we know These views will be dynamic with PHP custom admin site interacting with MySQL database. This phase may take the longest. Besides, we must provide proper authentication and authorization of all the users to maintain the proper security of the application.

**Testing Phase:** The testing phase is an interesting phase as more and more weird bugs came into action. In this phase, I found out that with big databases, the software would not respond that well. So here I had to rewrite some of my code and had to keep algorithms time and space complexity to improve the speed of the application.

**Evaluation Phase:** This phase will help us to identify the lacking and problems of the system from a client's perspective. After getting the feedback, the web application can be updated and made more sustainable.

We can see that these approaches reduce overall risk and help the project respond quickly to changes, can quickly and easily adapt to any given change, can achieve transparency and total alignment in the development and testing phases, delivers overall higher quality products, and creates customer satisfaction from the above discussion of how to use each step of the methodology. For these reasons, I have decided to employ the Iterative and Incrementaltechnique to complete my project.

# Chapter 4

# Project Management and financing

## 4.1 Work Breakdown Structure

The work breakdown structure divides the work into smaller parts so that it may be managed and approached more easily. WBS is a vital tool for projects since it incorporates scope, cost, and schedule baselines all by itself, guaranteeing that project plans are in sync. A work breakdown structure's organizational chart depicts all a project's processes, making it an important project management tool for planning and scheduling. There are two types of WBS one is Deliverable-based, and another is phase-based. We are going to implement a phase-based WBS for this Project.

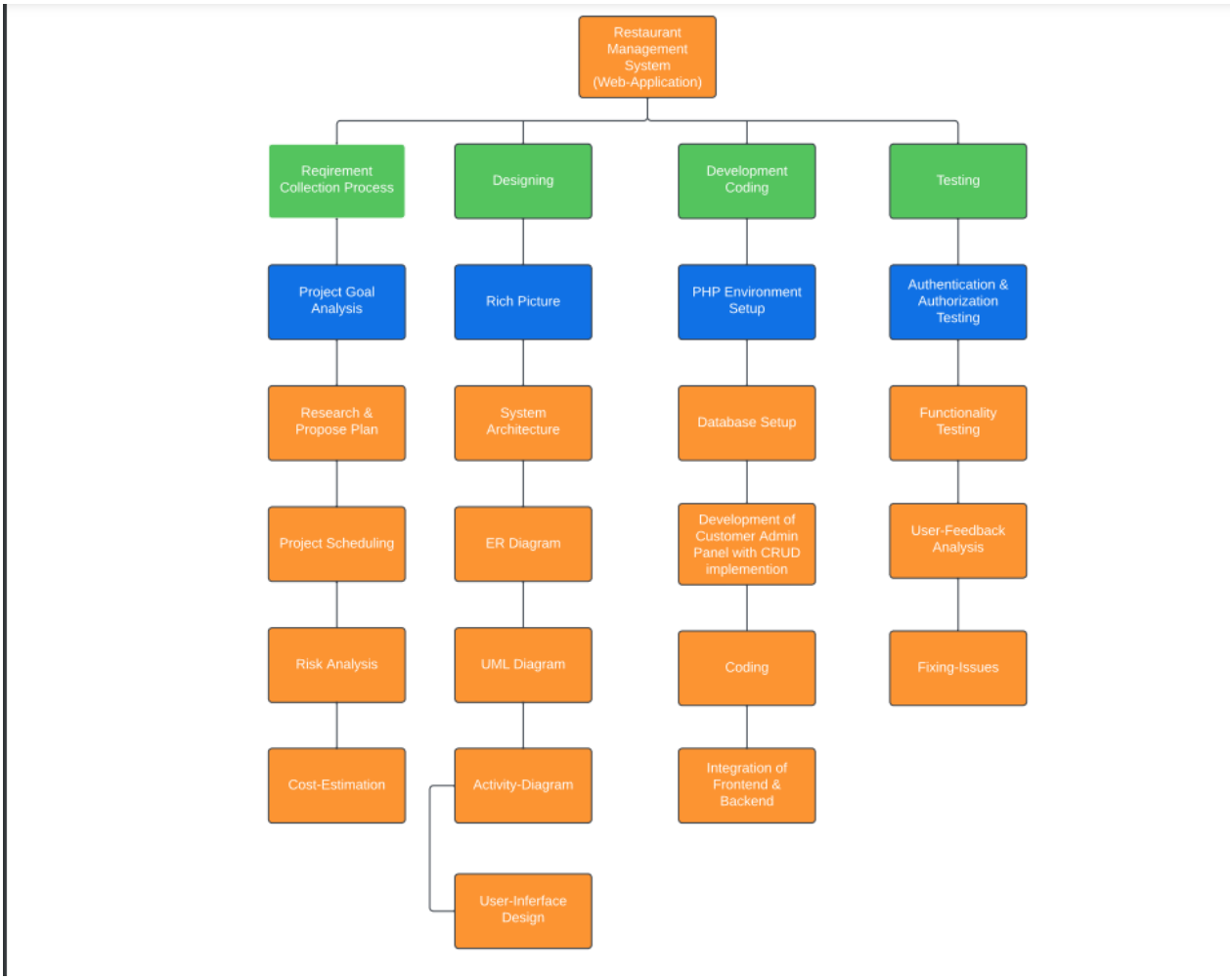



Figure 4. 1 Diagram of WBS

In the above diagram Level 1 has six elements. Each of these elements are the phases of the project. The Level 2 Elements are the unique deliverables in every phase. All the lower-level

components are deliverables. The project's primary steps include collecting requirements, designing, developing, testing, and deploying. The child tasks are the tasks that must be done to finish the current phase and go to the next phase. We have also made the cost calculation, resource allocation, and risk assessment, all of which are important for WBS and help us gain a better understanding of the project. A WBS also helps to avoid common project issues including missed deadlines, scope creep, and cost overruns, among others. When built as thoroughly as feasible, the WBS serves as a blueprint for completing what looks to be a difficult undertaking. However, when the project is broken down using a WBS, it becomes far more viable and approachable.

## 4.2 Process/Activity wise Time Distribution

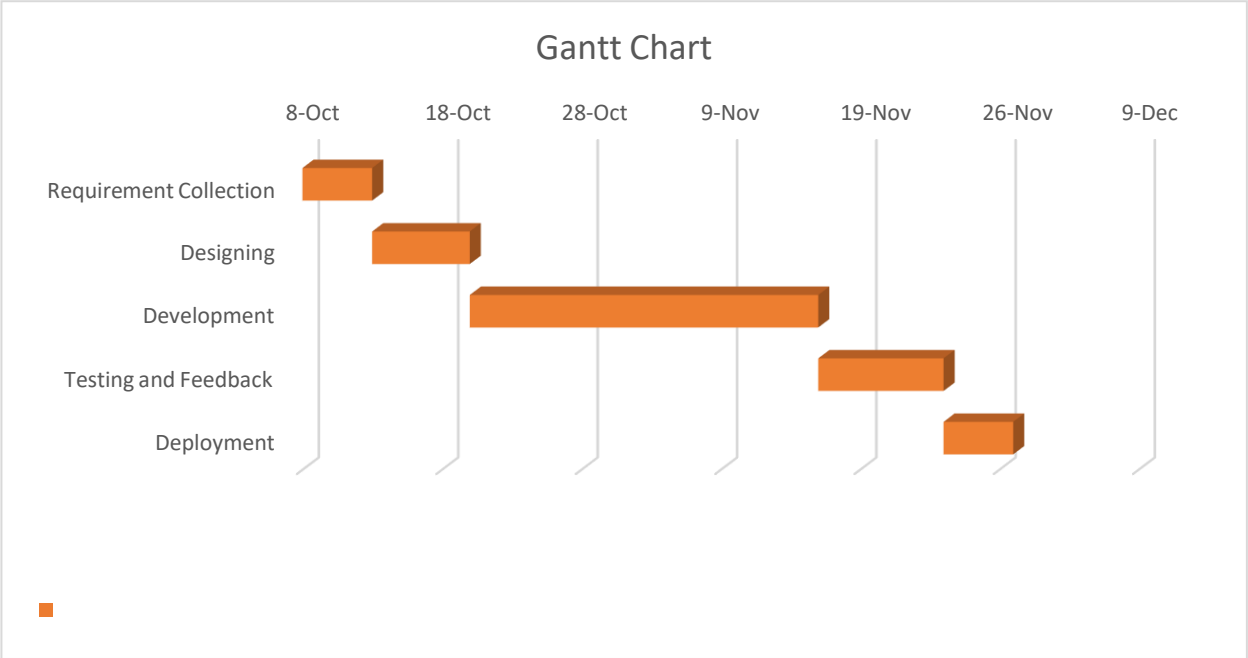
| Activity Name | Duration (Days) | Work Percentage |
|---|---|---|
| Requirement Collection | 5 | 11 |
| Designing | 7 | 15 |
| Development | 25 | 48 |
| Testing and Feedback | 9 | 17 |
| Deployment | 5 | 9 |
| Total | 51 | 100 |

Table 4. 1 Task wise time allocation

It is very important to accurately estimate the overall time required to accomplish the project depending on the activities to be completed. It is also important to create priorities and set goals to complete a successful project. The development phase is by far the most important because it takes the longest to complete. Because we are working in order, if one task is delayed, the rest of the tasks will be delayed as well. As a result, it is important to complete tasks according to the estimated schedule.

## 4.3 Gantt Chart

A Gantt chart, which is often used in project management, is one of the most popular and useful ways of showing activities of asks or events in relation to time. A list of the activities is on the left side of the chart, and a suitable time scale is along the top. Each activity is represented by a bar, whose position and length indicate the activity's start, duration, and end dates. A Gantt chart helps us visualize a project's timetable and offers us a clearer picture of what's going on. Below is a Gantt chart based on project activities and their distributed time.




| | Deployment | Testing and Feedback | Development | Designing | Requirement Collection |
|---|---|---|---|---|---|
| Start Date | 24-Nov | 15-Nov | 20-Oct | 13-Oct | 8-Oct |
| Days to Complete | 5 | 9 | 25 | 7 | 5 |

Figure 4. 2 Gantt Chart

## 4.4 Process/Activity wise Resource Allocation

The process of allocating and planning available resources in the most efficient and effective way possible is called resource allocation. Projects will always require resources, even though they can be scarce at times. Therefore, the project manager is responsible for the proper timing and allocation of these resources during the project schedule. Therefore, resource allocation is about managing the project and delegating resources to ensure that it runs as smoothly and efficiently as possible. The table below shows how resources are allocated.

| Task | Resource Allocation |
|---|---|
| Requirement Collection | 10% |
| Designing | 20% |
| Development | 45% |
| Testing and Feedback | 15% |
| Deployment | 10% |
| Total | 100% |

Table 4. 2 Process wise resource allocation

## 4.5 Estimated Costing

Cost estimation is one of the most important aspects of project planning and management. It is based on the number of resources, budget and time required for the scope of the project. Since cost estimates are for cost estimates and not actual costs, the pie chart shows the details below.

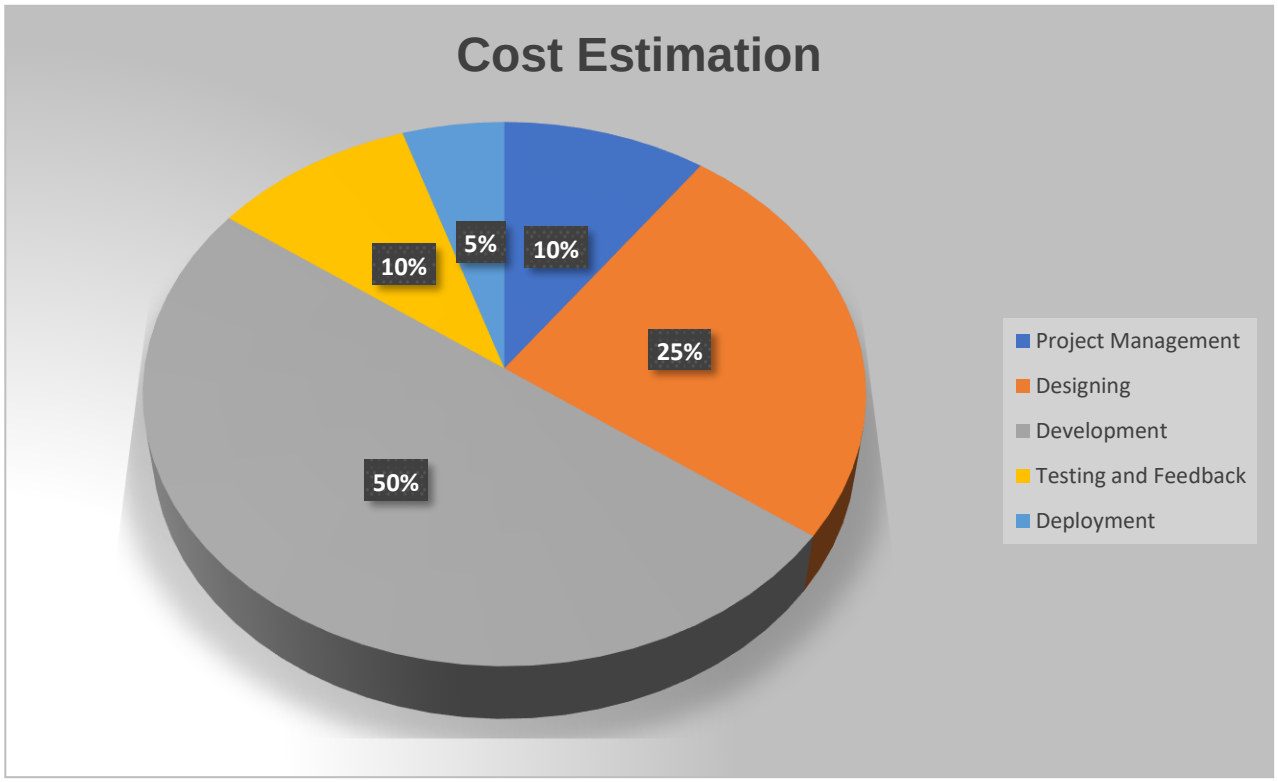



Figure 4. 3 Pie chart of Estimated costing

# Chapter 5

## Body of the Project

## 5.1 Work Description

The Restaurant Management system" is a web based application. This application will be used by the Customer or the Viewer and the Admin Panel Controlled by the authority.

In this System, User will visit into a specific URL and will be able to find universal homepage. There will be Log in and Register option for specific user authentication. For this website we have 3 types of User one is Visitor, Client and another one is Admin. In the Visitor Panel Visitor can be see the all food items along with prices and information. To become a Client of this website, the visitor must be the member of the website. User authentication is required for the Client of this website. After Authentication Client can placing the orders, they can check their orders in the cart option. They can review and finalize their order there. After placing the button an invoice will be generated automatically. The Authorities controller staff of RRMS will follow the advice and order list and submit the demand sheet for catering preparation to the concerned section. The requisition and orders can be changed at the last moment. Which will be redirected to the LMC (Last Moment Change) Button.

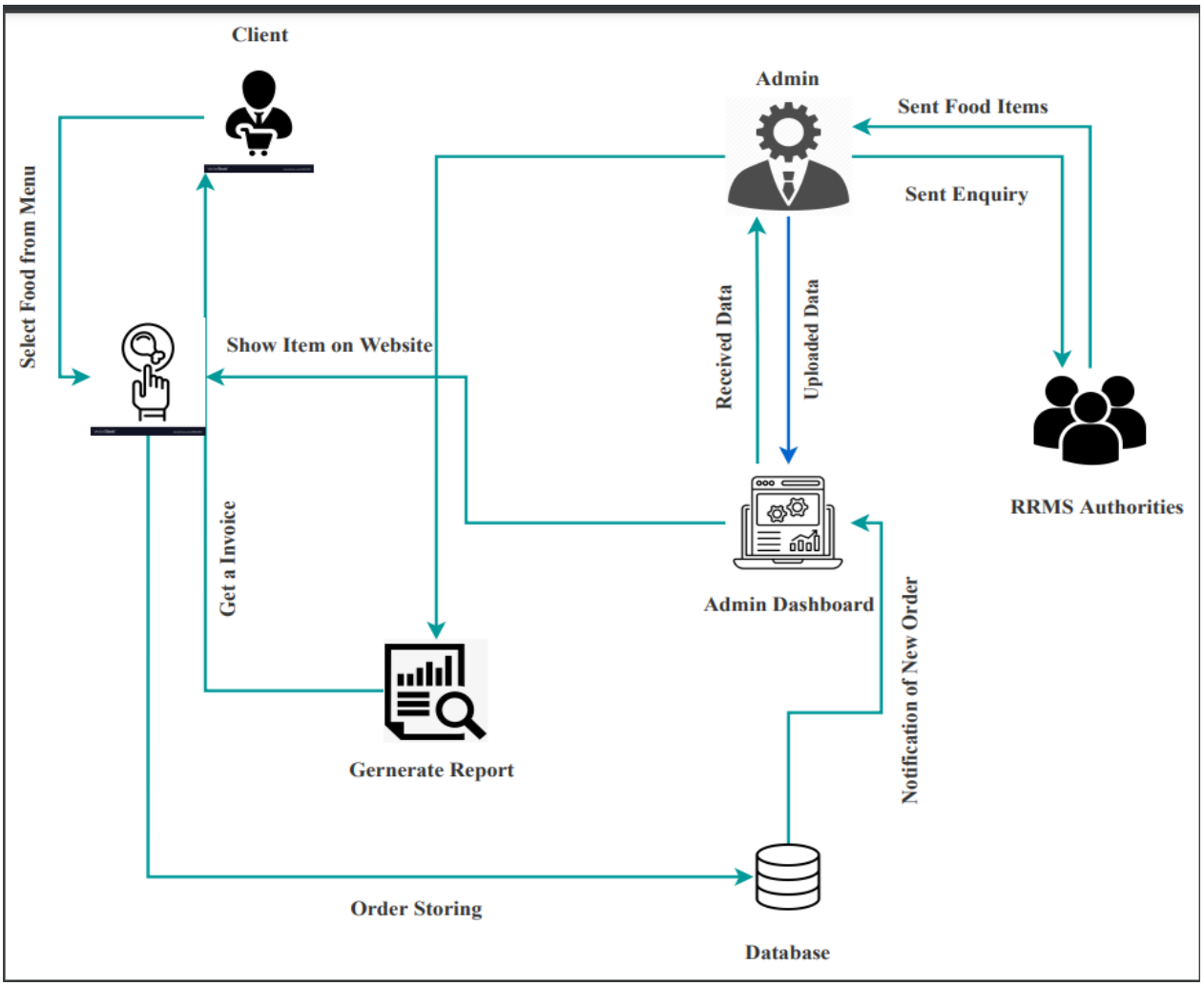
All available meals in RRMS will be viewed and controlled dynamically by a custom admin

panel which is created using PHP & MySQL database. The admin login section will be redirected through a secret URL which will bring the user to the admin home page. After successful admin login, Admin can add different products and can be able to make significant changes like update, delete, active or inactive any products through their specific home page. Any changes made by the admin will be visualized on the home page of users.

The application will be handled by PHP 8.1.1 as both backend and frontend.

## 5.2 Requirement Analysis

### 5.2.1 Rich Picture




The rich picture illustrates the visual representation of the Royal Restaurant Management System's (RRMS) Web application. We can see how the overall system workflow works in this Rich picture, fromthe user making an order through the admin's response to the order.

## 5.2.2 Functional and Non-functional requirement

Functional requirements are product features that developers must implement to enable users to accomplish their tasks. A non-functional requirement is a requirement that specifies criteria that can be used to judge the operation of a system, rather than specific behaviors. They are contrasted with functional requirements that define specific behavior or functions. The functional and non-functional requirements of this system are stated below.

**Functional Requirements:**

1. When a user registers the database will store the data.
2. When a user tries to login, it will validate if the email and the password is correct or not.
3. A user profile will be created when a new registration happens.
4. User will be redirected into the specific homepage after registration.
5. Users can search for their desired product from the item table.
6. User can add their desired products to cart.
7. User can edit the quantity of a cart item.
8. User can review and delete a cart item.
9. Product should be arranged by categories on the homepage.
10. Products can be added dynamically.
11. All the categories should be shown on the homepage.
12. Users can leave a short note in the contact page.
13. Messages can be handled in the admin dashboard.
14. If a server error/ network error occurs at checkout, the user should be notified immediately.
15. Users have to login before checkout if they are not logged in.
16. Users (RRMS) can view their orders in the orderlist.
17. Authentication system for login and registration.

**Non-Functional Requirements:**

1. Usability – The application will be user-friendly and intuitive for the easy access of the users.
2. Maintainability – The application will be maintained regularly so that, it doesn't become slow or any bug fixes.
3. Reliability – A system is most preferable when it is reliable, that is, the availability of the system is important. Therefore, the application will be built to make it as much

reliable as possible.

4. Scalability–The system can be accessed from devices like smartphones and an aesthetically similar web Application for computers will be developed.
5. Security – The system will be secured and personal information like the user's phone numbers, the email address will be safe.

## 5.3 System Analysis

### 5.3.1 Six System Analysis

| Process | System Roles | | | | | |
|---|---|---|---|---|---|---|
| | Human | Non-Computing Hardware | Computing Hardware | System | Database | Network & Communication |
| Registration | User ( Client ) | N/A | Computer (Laptop/ Desktop) & Smartphone (Via web browser) | 1. Operating system<br>2. Web browser | 1. MySQL | Internet Connectivity (Broadband/Mobile Data) |
| Login | User (Client & Admin ) | N/A | Computer (Laptop/ Desktop) & Smartphone (Via web browser) | 1. Operating system<br>2. Web browser | 1. MySQL | Internet Connectivity (Broadband/Mobile Data) |
| View (Food Menu List) | User (Customer or View) | N/A | Computer (Laptop/ Desktop) & Smartphone (Via web browser) | 1. Operating system<br>2. Web browser | 1. MySQL | Internet Connectivity (Broadband/Mobile Data) |

| | | | | | | |
|---|---|---|---|---|---|---|
| View item details | User (Customer or Viewer) | N/A | Computer (Laptop/ Desktop) & Smartphone (Via web browser) | 1. Operating system<br>2. Web browser | 1. MySQL | Internet Connectivity (Broadband/Mobile Data) |
| Search | User (RRMS) | N/A | Computer (Laptop/ Desktop) | 1. Operating system | 1. MySQL | Internet Connectivity (Broadband/Mobile Data) |
| | | | & Smartphone (Via web browser) | 2. Web browser | | |
| Add to cart | User (Client or Member) | N/A | Computer (Laptop/ Desktop) & Smartphone (Via web browser) | 1. Operating system<br>2. Web browser | 1. MySQL | Internet Connectivity (Broadband/Mobile Data) |
| Last Moment change | User (RRMS staff) | N/A | Computer (Laptop/ Desktop) & Smartphone (Via web browser) | 1. Operating system<br>2. Web browser | 1. MySQL | Internet Connectivity (Broadband/Mobile Data) |
| Showing all orders and status | User (Customer or Client) | N/A | Computer (Laptop/ Desktop) & Smartphone (Via web browser) | 1. Operating system<br>2. Web browser | 1. MySQL | Internet Connectivity (Broadband/Mobile Data) |

| | | | | | | |
|---|---|---|---|---|---|---|
| Check out and Confirmation | User (Customer or Client) | N/A | Computer (Laptop/ Desktop) & Smartphone (Via web browser) | 1. Operating system<br>2. Web browser | 1. MySQL | Internet Connectivity (Broadband/Mobile Data) |

## 5.3.2 Feasibility Analysis

We need to do a feasibility analysis after obtaining all the necessary information and before the beginning of the development phase, which will take the most time. i.e. a measurement for evaluating a software product in terms of how practical product development will be for the company. Feasibility studies are carried out for a variety of reasons, including establishing. Whether a software product is suitable in terms of development, implementation, and project value to the company.

This Web's feasibility study is primarily concerned with three elements. These are discussed below:

1. **Technical Feasibility:** The software, hardware, and other technical requirements of the proposed system are evaluated for technical feasibility. It must be determined whether the required software and hardware are available. This mobile application is built with PHP 8.1.1 which is open source and hence free, and the backend is built with PHP, for database support, we are going to use MySQL, which is also free. Because laptops, computers, and mobile phones may be used to develop and test the output, we can conclude that it is technically possible.

2. **Operational Feasibility:** The "Restaurant Management System" would be a comprehensive solution for our client operations. The application's users will be I the admin, who will administer theapplication's data via the admin panel, (ii) Restaurant Management Staff, and As a result, we can confidently state that this application is operationally possible.

3. **Economic Feasibility:** We can find out the costs and advantages of Economic Feasibility and determine whether the final product is economically feasible or not. This would take both development and production expenses into account. Because the users/customers will benefit from this application by saving time and energy, the finished product will be a worthwhile investment. This app will eventually evolve into a business, which will reduce the cost of renting an actual store, thus we may conclude that this app is economically feasible.

## 5.3.3 Problem Solution Analysis

1. **Technical Vulnerabilities**

Challenges: We have faced some challenges in fixing technological vulnerabilities and resolving them would surely "infiltrate" our web app during the development process, such as cross-site scripting, SQL injection, and so on. As a result, we are-

i. Creating a shield against all key security vulnerabilities with the help of PHP.

ii. The codebase has been inspected and monitored on a regular basis.

2. **Authentication and Authorization System**

Challenges: To prevent unauthorized users from accessing our app's resources/critical data, we need to develop secure user permission and authentication mechanism. PHP provides us with everything we need to develop a secure login and authorization system right out of the box.

1. **URL Routing configuration**

To begin, we need to specify a clean and straightforward URL routing so that the application can comprehend the user's intent, exactly which page he or she wants to see, and we can find all our PHP routes in the app/HTTP/routes.php file.

## 5.3.4 Effect and Constraints Analysis

Users will log in or register to place their catering order through the web application by adding products to their individual carts. According to the agreement with the Royal Restaurant Management System catering center, catering lists will be shown, and Restaurant agents will be able to place orders based on other criteria. The Restaurant Management Authorities will notify the Restaurant Management staff of the returnable item in accordance with the rules and restrictions. Then, whenmeal preparation is automated, send a notification to the controller of operations. The RMMS authority can provide excellent customer service to the customer by using thisapplication.

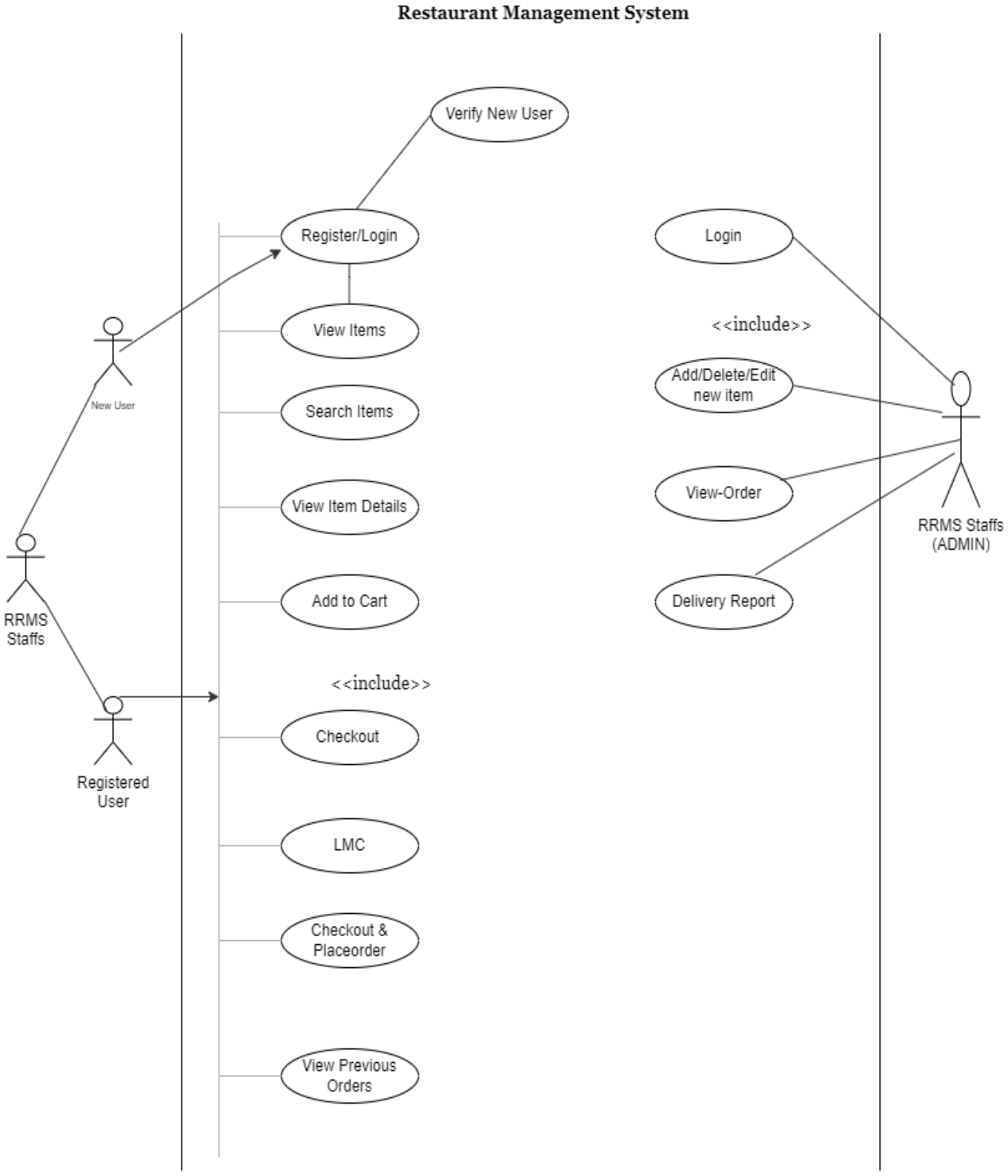
## 5.3.5 Effect and Constraints Analysis

Users will log in or register to place their catering order through the web application by adding products to their individual carts. According to the agreement with the Royal Restaurant Management System catering center, catering lists will be shown, and Restaurant agents will be able to place orders based on other criteria. The Restaurant Management Authorities will notify the Restaurant Management staff of the returnable item in accordance with the rules and restrictions. Then, whenmeal preparation is automated, send a notification to the controller of operations. The RMMS authority can provide excellent customer service to the customer by using this application.

## 5.4 System Design

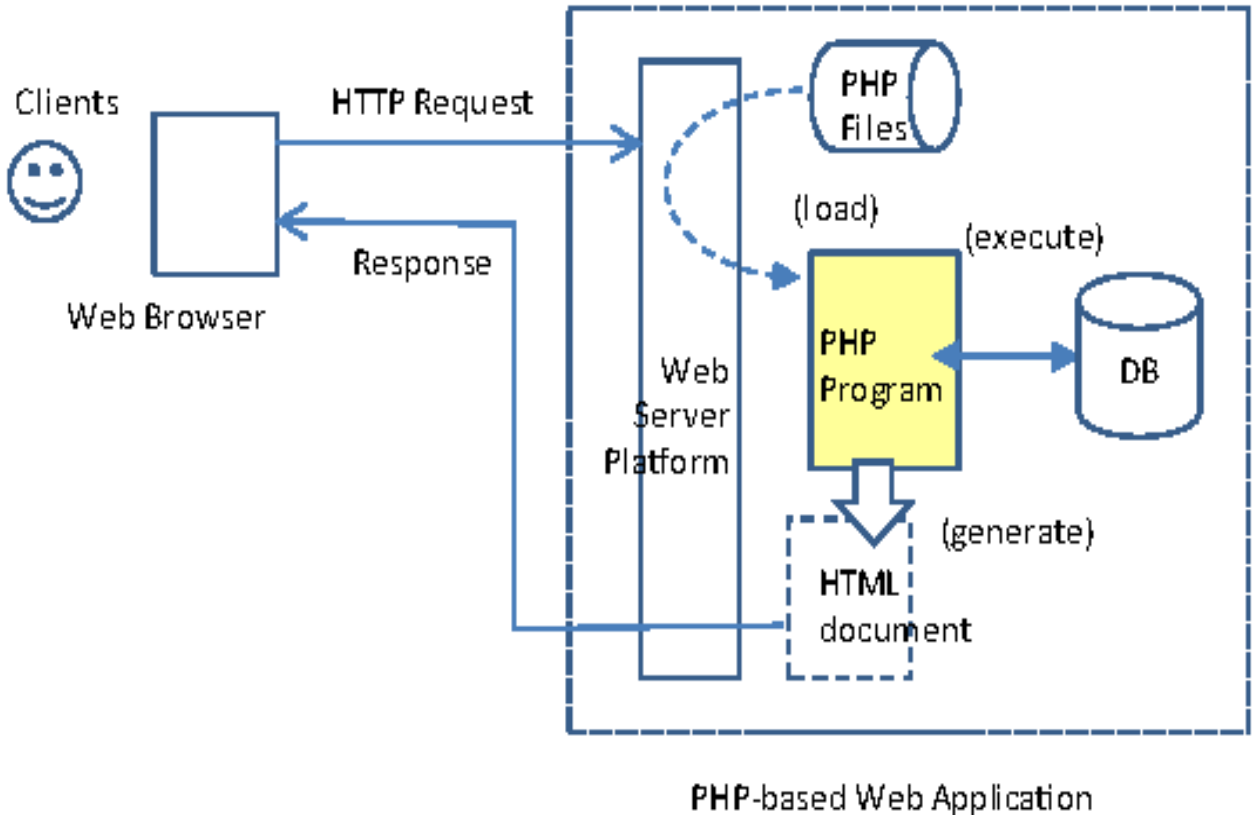
### 5.4.1 UML Diagrams

A UML diagram is a visual representation of a system created using the Unified Modeling Language (UML). In the realm of software engineering, the Unified Modeling Language is a developmental modeling language that provides a standardized approach to depict the system architecture. This section shows a Use case and Activity diagram for our project, which is one of several types of UML diagrams.



**Use-case Diagram:** A use case diagram is a type of behavior diagram that depicts the system's visible interactions with actors (users). This use-case diagram displays and connects the entire system of Restaurant management system, as well as important use cases and actors.

### 5.4.2 Architecture



## 5.5 Implementation

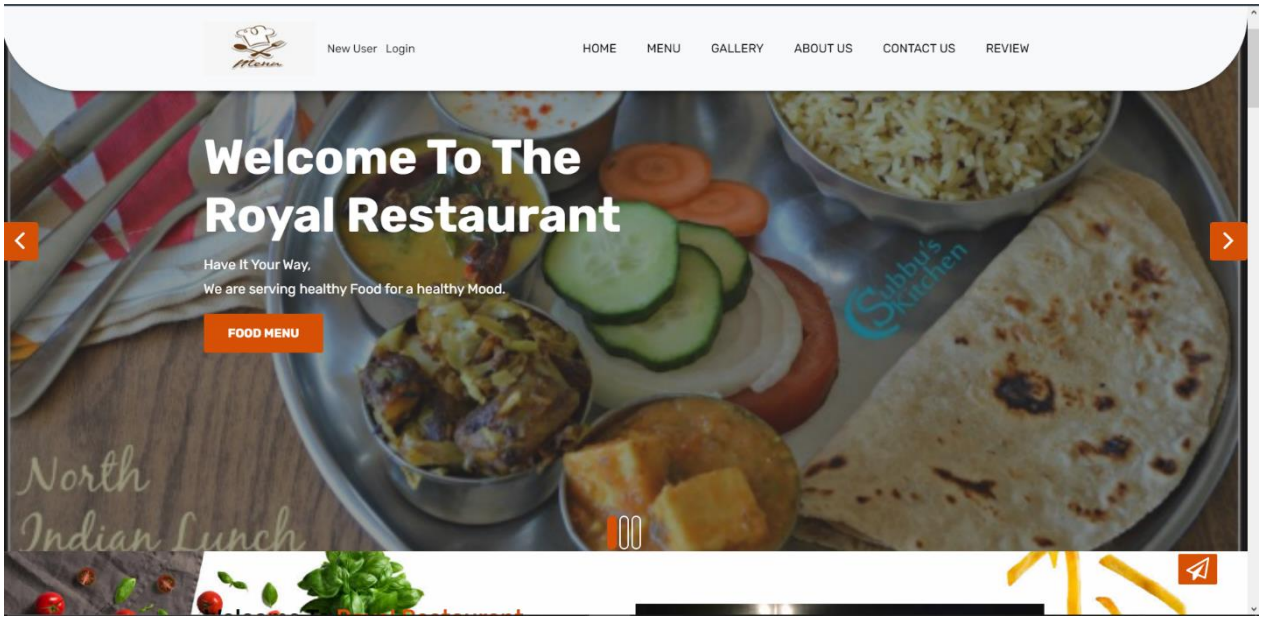



Figure 5. 5 Homepage

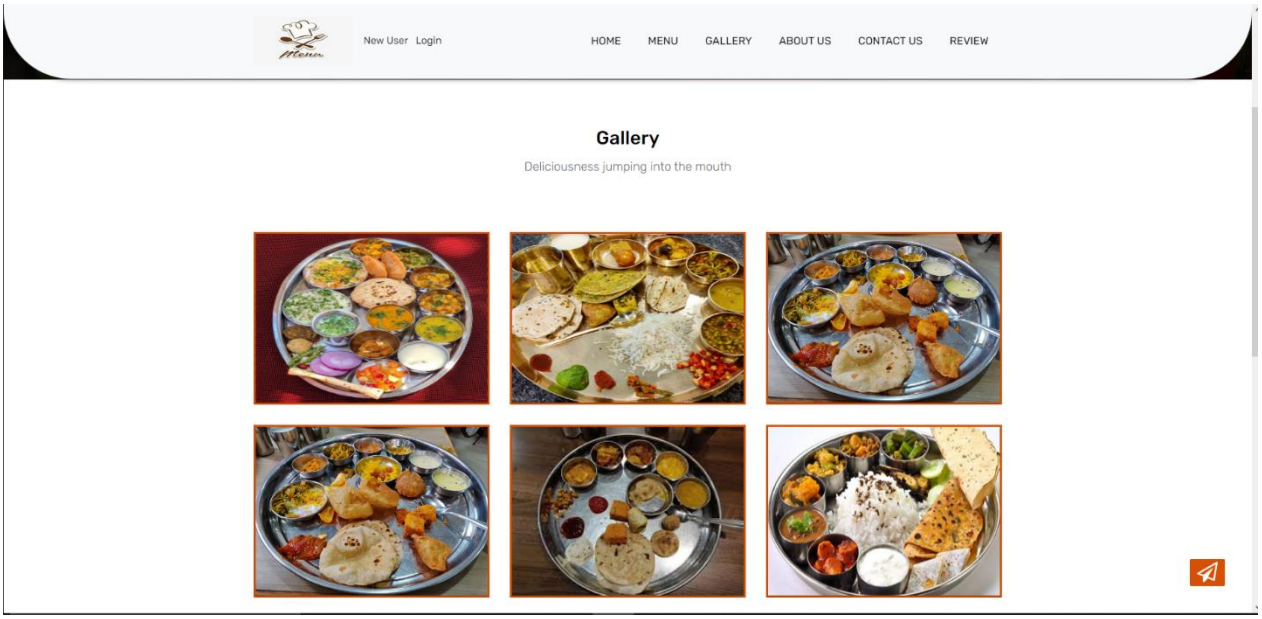



Figure 5. 6 Gallery

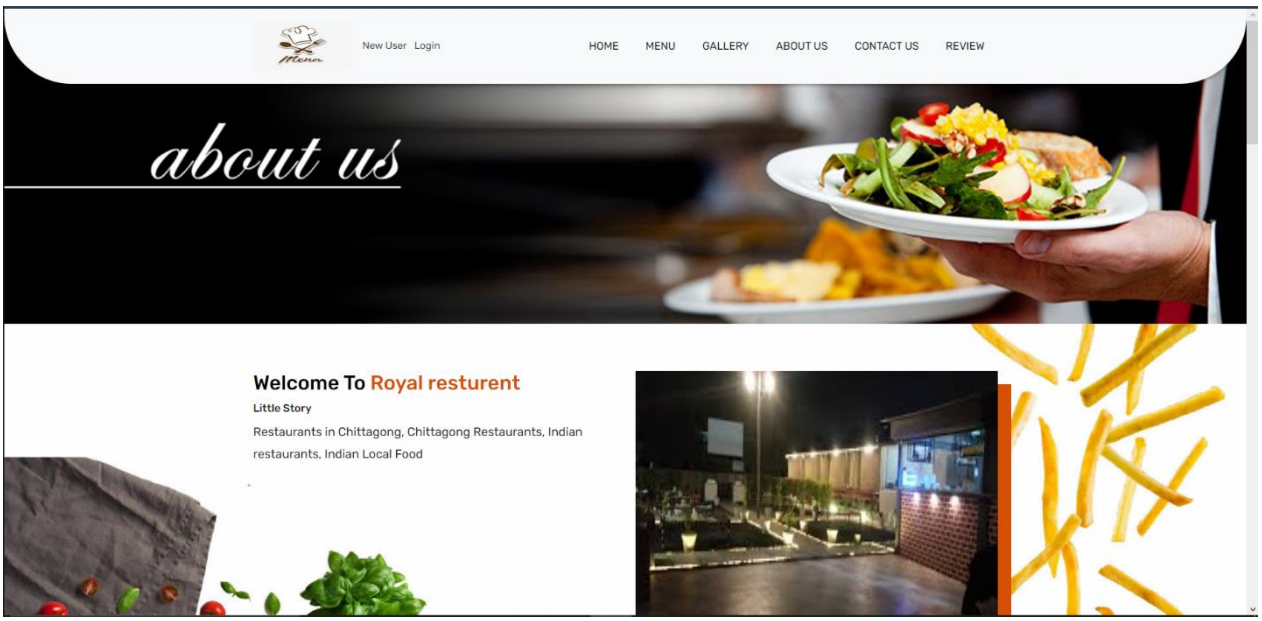



Figure 5.7 About Us

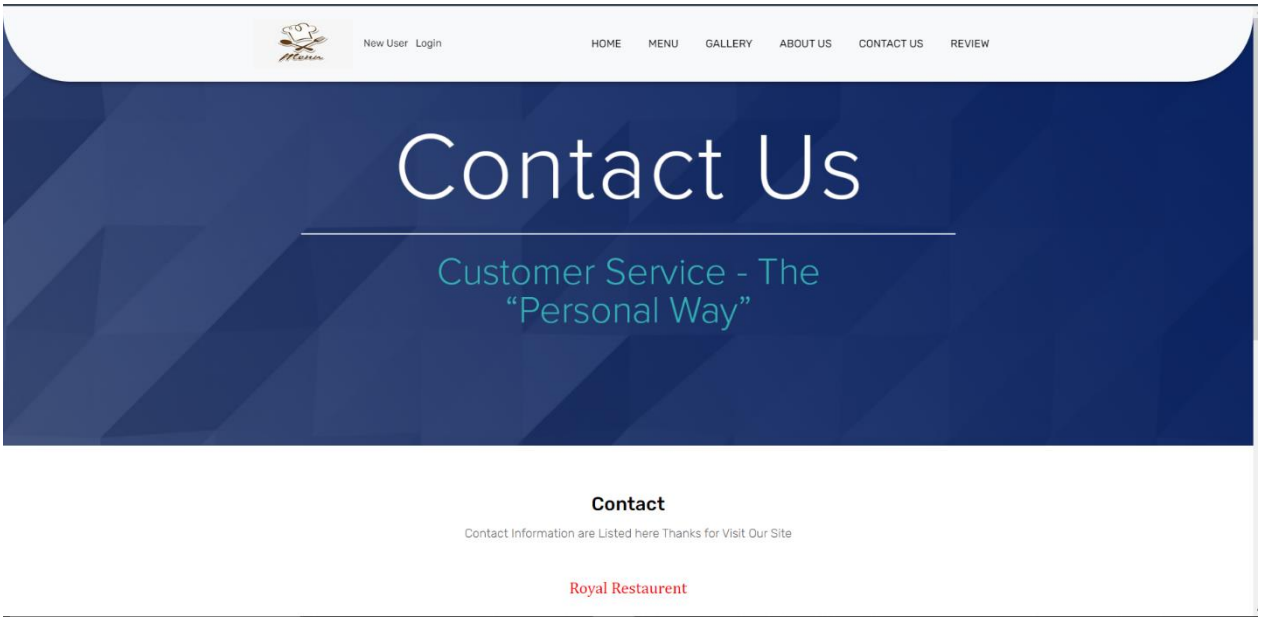



Figure 5.8 Contact Us

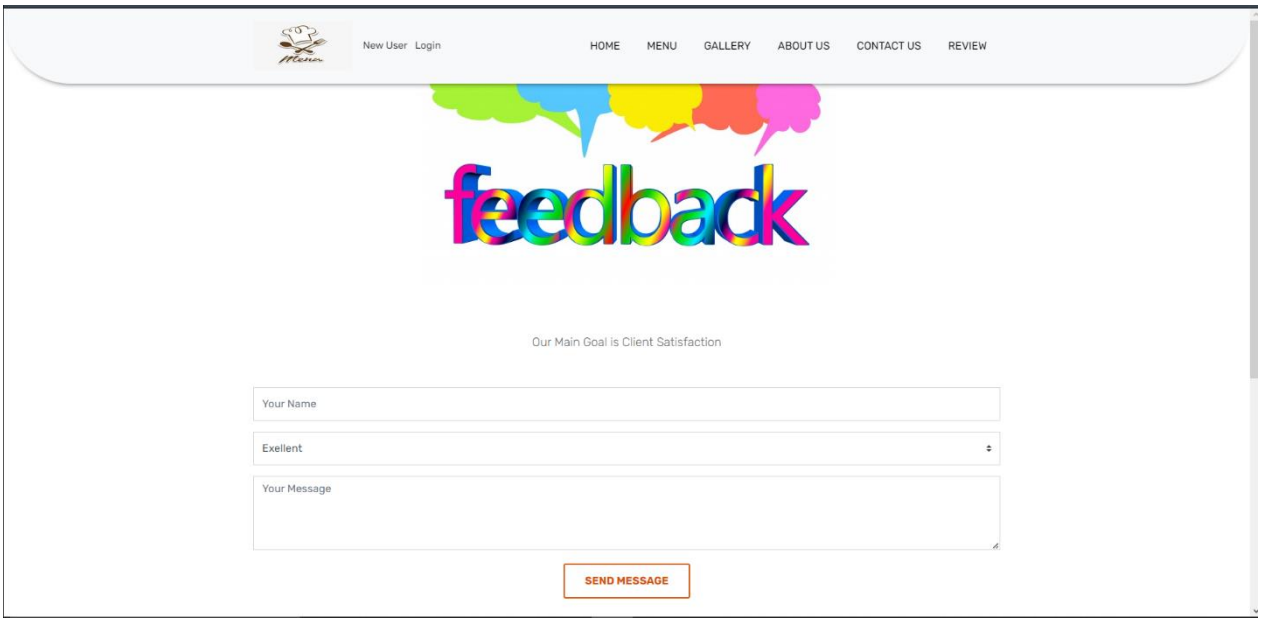



Figure 5. 9 Feedback

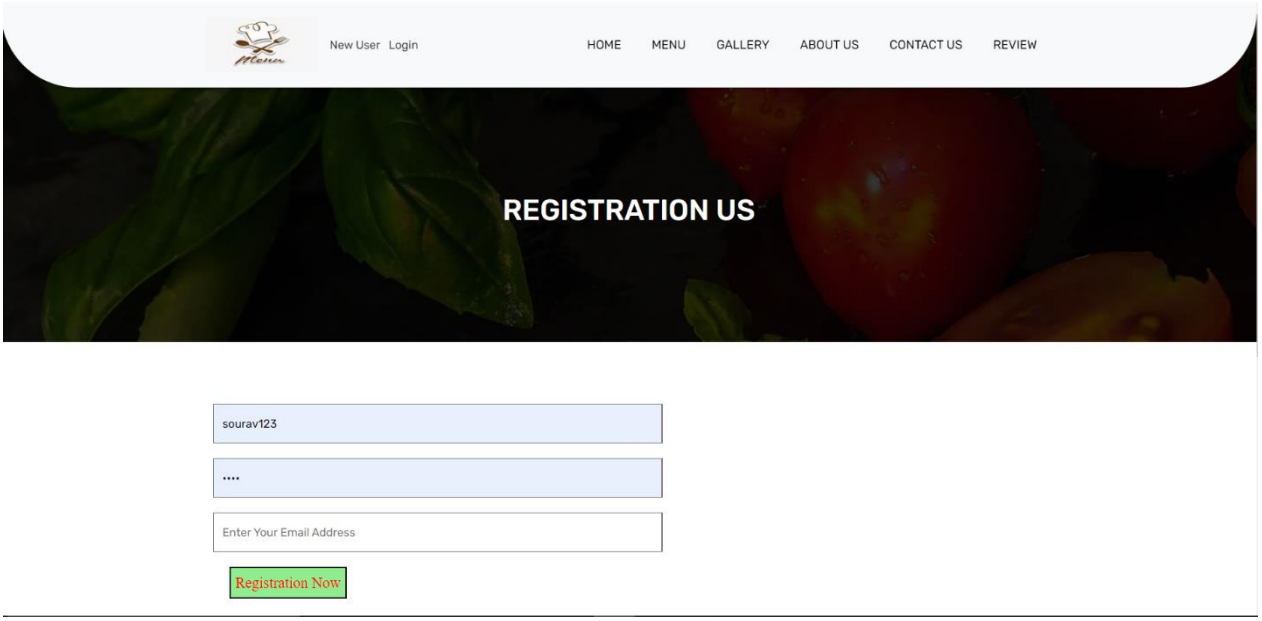



Figure 6. 0 Registration Us

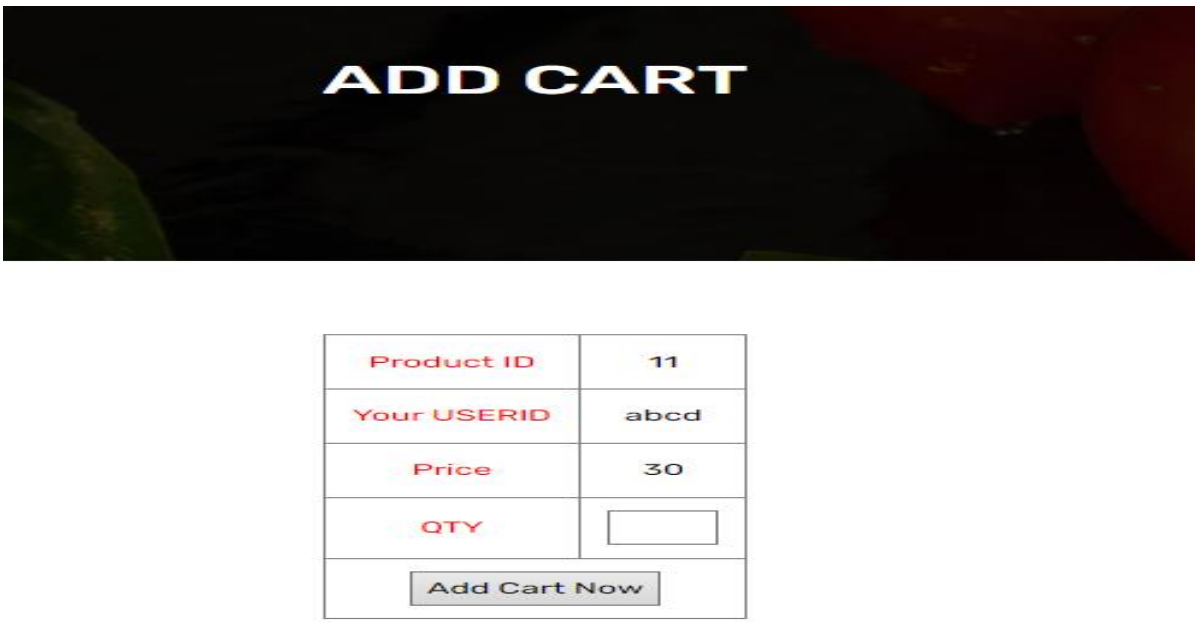



Figure 6. 1 Add Cart

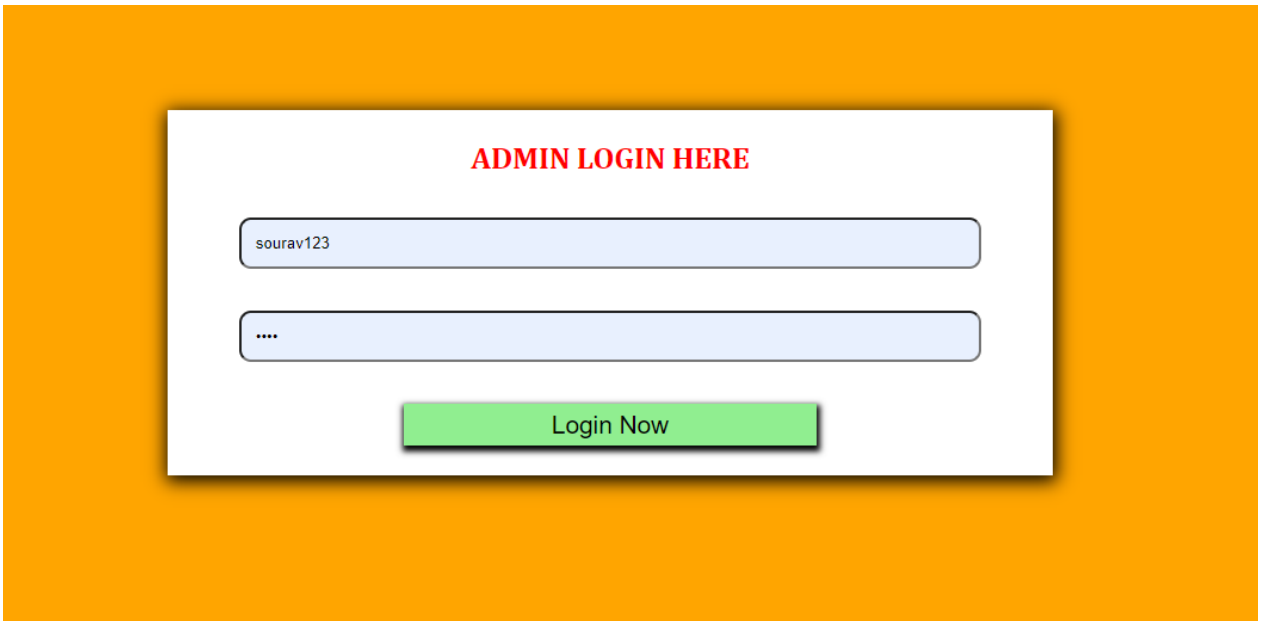
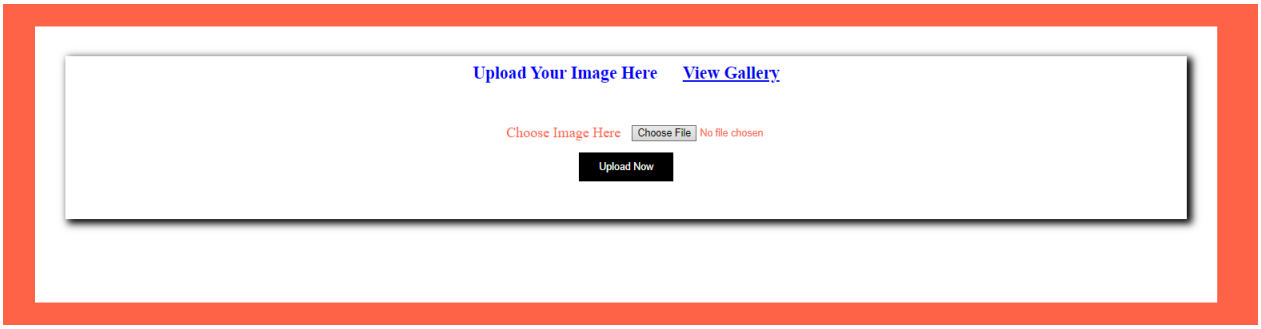
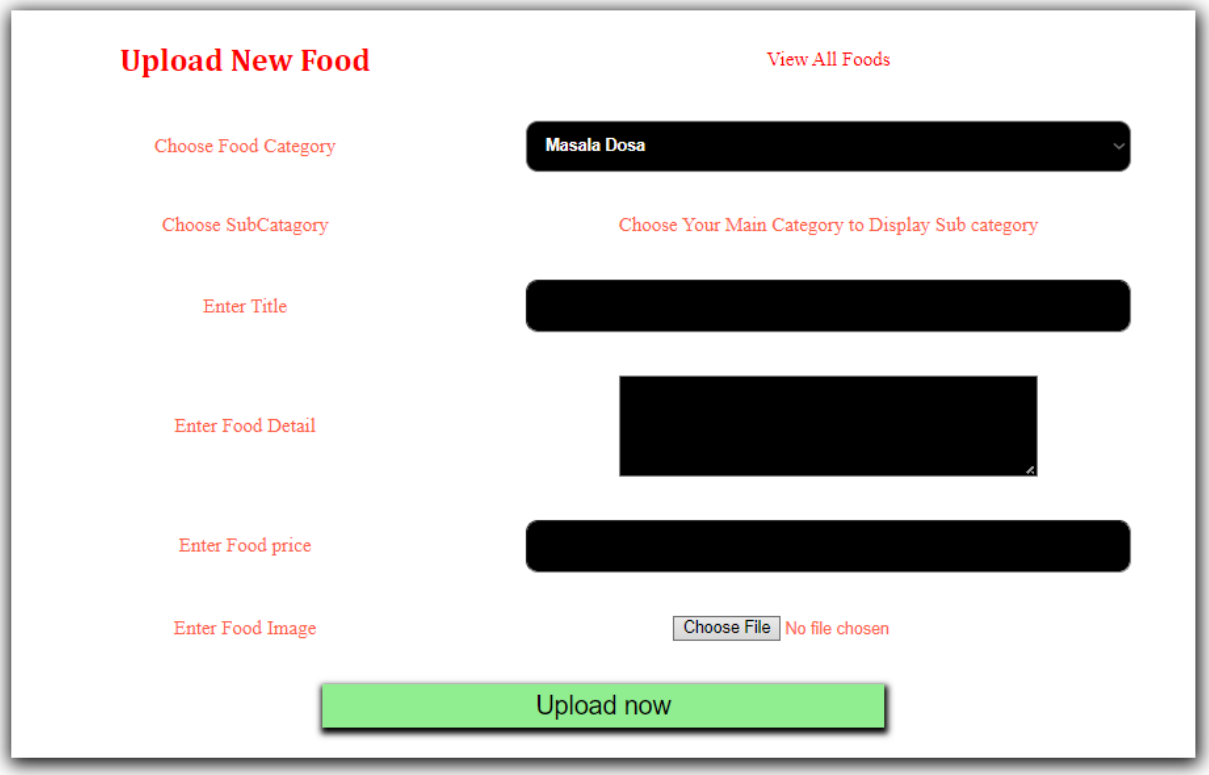
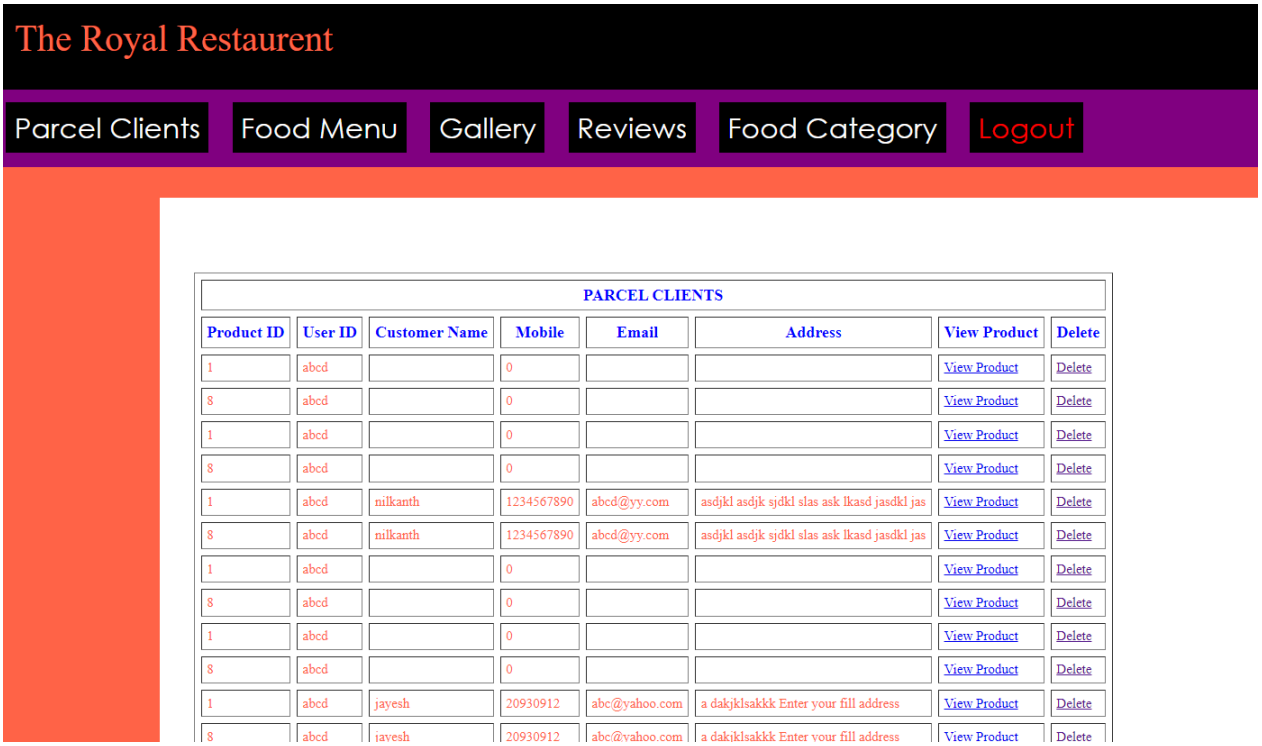



Figure 6. 2 Add Cart


Upload Your Image Here
View Gallery
Choose Image Here
Choose File
No file chosen
Upload Now


Upload New Food
View All Foods
Choose Food Category
Masala Dosa
Choose SubCatagory
Choose Your Main Category to Display Sub category
Enter Title
Enter Food Detail
Enter Food price
Enter Food Image
Choose File
No file chosen
Upload now




## 5.6 Testing

| Test Case No. | Scenario | Test Steps | Test Data | Expected Results | Actual Result |
|---|---|---|---|---|---|
| T-01 | Registration | Enter full name, email, phone number, and password and press register button. | Name, email, phone number and password | Redirect to login screen | As expected |
| T-02 | Login | Enter Valid Email and password in input field and press the login button. | Email and password | Redirect to user dashboard | Successfully logged in |

| | | | | | |
|---|---|---|---|---|---|
| T-03 | View and add item to cart | Scrolling down the cursor in the user dashboard. Search the desired product and press add to cart button. | Desired product name | Redirected to the dashboard for further selection. | As expected |
| T-04 | Last Moment Change | View cart and make required changes and save. | N/A | Redirected into user dashboard. | As expected |
| T-05 | Checkout | Go to the cart page click on the checkout button. | N/A | Redirected to user dashboard and invoice generation takes place. | As expected |
| T-06 | Logout | Press the logout button. | N/A | Redirected to the universal homepage. | Successfully log out |

# Chapter 6

## Result & Analysis

After performing all the test cases, I came up with the following outcomes, which indicate how the app performs in various situations. To avoid bugs when the application is in live mode, proper and thorough testing is important. Approval is the process of ensuring that the developed system meets all the requirements. The main goal of software testing is to find defects in the application. Testing methodologies were used to justify all test cases. The results of a few tests are shown below.

**Registration with empty field:** If any of the registration fields were left blank, it will ask you to complete that field if it is required. It will also notify you that the email format is invalid if the email is invalid.

**Login with the wrong credentials:** If the email is invalid, it will notify you that the email format is incorrect. If both the email and the password are entered, but one of them does not match the database, it will show a message that "Something went wrong, the credentials do not match our record." If all the provided credentials are correct, it will redirect to the specific user's dashboard.

**Product showcase:** After successful login, the user dashboard will appear for each specific user as follows, showing the product (in our case food products). Users can add them to their shopping carts to do business with RRMS.

**Product details page:** The user dashboard displays all the available products which are managed dynamically from the admin panel. By clicking on each individual product, the user will be taken to the product's specific details page. They can also add the item from the details page.

**Cart and product selection:** When a user selects a product and clicks the "Add to cart" button, it will appear in the cart section. Once you've completed the selections, you'll be able to check out and place an order. An invoice will be generated according to the food products requested when the order is placed.

**Admin section for dynamic product and order management:** We will create a custom admin portal for dynamically managing different catering items from the backend. A secret URL will redirect to the admin login page before that. If the login credentials do not match, the page remains unchanged with the message "Username or password is invalid." After a successful admin login, the user will be redirected to the admin's dashboard, where they can make any necessary changes to the catering lists, such as creating, updating, deleting, and managing orders.

# Chapter 7

## Project as Engineering Problem Analysis

## 7.1 Sustainability of the Project/Work

In the project profession, sustainability is a business approach that balances the environmental, social, and economic components of project-based work to meet present stakeholder needs without compromising or overburdening future generations. Project sustainability was one of

the main focuses when the Restaurant Management System was planned. Each files its own food requisitions and advises on its flights, and RRMS keepstrack of everything manually. Which is very time-consuming. Informing all departments by hand is also an issue. The main goal was to endure all these tasks of the users with a productthat would fulfill all their requirements.

## 7.2 Social and Environmental Effects and Analysis

Catering services can be difficult to provide at times. Timely suggestions for everyday are a difficult task to keep, from collecting food requisitions to uplifting products to RRMS staff, including LMC (Last Moment Change), Monitoring, and informing all departments about any updates. This is also time-consuming and might be inconvenient for the Catering Center's workers as well as the RRMS staff. This application will save a lot of time, and employees will be able to manage and monitor their work from anywhere. They would have a lot of free time to do other things. As a result, their social interactions with friends and family would increase getting more time to build strong relationships.

If we think about the environmental effects, the catering staffs will not have to collect the demand sheets manually which is very much time consuming. When food will be ordered by customer with the help of the website, they can view all the existing items and can make their demand sheets according to their requirement which will make the order process faster and smoother. It will also create a bridge in between both the employee by creating communication in between

## 7.3 Addressing Ethics and Ethical Issues

Customers are so reliant on their computers and mobile phones these days that an application can acquire a massive amount of internal and external data about them. While developing and launching an application, there are certain laws and ethics that must be followed. Some of them are as follows:

**Collecting only relevant user data:**

Only the most pertinent user data is collected for the purposes of company security and report generation. The information would be retained and preserved solely in databases, ensuring that it would not fall into the wrong hands.

**Managing database security:**

The database and backend server are both highly secure. The server's primary cPanel allows someone up to three attempts to log in; if they do not log in during those three attempts, their IP address will be permanently blocked. The database's credentials are managed by the firm itself.

# Chapter 8

# Lesson Learned

## 8.1 Problems Faced During this Period

**Through my process of making this application I faced a lot of problems.**

Understanding the Project Requirement and Office Environment

Understanding the initial requirement was difficult for me because, as a new member of the team, I needed to first learn how and what they were working on. The folder structure they used and how they wrote their code.

**Adapting to New Technologies**

They had preferred frameworks, so I had to study some of them before I could start working.

**Keeping up to Speed**

As it was my first time, learning new technologies and putting them to use was a slow process for me initially.

**Identifying and Fixing Bugs**

It was difficult to identify a bug at first because the frameworks were unfamiliar to me. however, some bugs take a long time to identify and fix.

## 8.2 Solution of those Problem

**Understanding the Project Requirement and Office Environment**

I learnt how to properly structure code, write the model, view, and controllers, which coding pattern to use, and how to write less code to accomplish the same amount of work.

**Adapting to New Technologies**

After my office hours were over, I went home every day and learned PHP technology at night in order to keep up with my internship work. This project would not have been completedif I hadn't put in those extra hours.

**Keeping up to Speed**

My work speed was slow because I was learning new technologies and applying them to a real-world project. I was able to enhance my speed with regular effort.

**Identifying and Fixing Bugs**

I learnt how to properly debug as well as some quick and easy debugging techniques from the

# Chapter 9

# Future Work & Conclusion

## 9.1 Future Works

This are the list of features that could be added in the application:

**Mobile Application**

We could also develop a mobile application for Android/iOS. It will make the work more convenient and easier for everyone.

**Chat System**

Users would benefit from a live chatting system since they could contact immediately with the support personnel without having to wait.

**Multi-vendor Functionalities**

In the future app could enable multi-vendor that means any other can sign up for their requisition. This function would be great for the growth of the application.

## 9.2 Conclusion

I have discussed all the aspects of this web application but to give a brief summary about some technical terms is that this project (Web Application) is completely made using the PHP framework. Only the Registered User can access, view items, and order food.

I could never have imagined working as a full-time software developer before my undergraduate studies. I continued to learn new things from each of my respected faculty members, which is why I am here now. I would not be in the position I am in now if it weren't for them. I truly appreciate all of the faculty's efforts, as they attended classes early in the morning, late in the evening, and even ate lunch late to attend our classes. Our teachers, who had led us here, are the actual heroes. Thank you to all of my professors; being a software engineer would be a dream without them.

# Bibliography


[1] Siami-Irdemoosa, E., Dindarloo, S.R. and Sharifzadeh, M., 2015. Work breakdown structure (WBS) development for underground construction. *Automation in construction*, *58*, pp.85-94.

[2] W. b. J. Elliott, “Resource allocation: 5 step guide for project managers,” Aug 2020.

[3] Despa, M.L., 2014. Comparative study on software development methodologies. *Database Systems Journal*, *5*(3), pp.37-56.

[4] Wrike.com. 2022. *What is Iterative and Incremental Development? | Wrike*. [online] Available at: <https://www.wrike.com/project-management-guide/faq/what-is-iterative-incremental-development/>.

[5] K. E. Kendall and J. E. Kendall, Systems analysis and design, vol. 2013. Pearson Prentice Hall Upper Saddle River, NJ, 2011.

[6] Paech, B., Dutoit, A.H., Kerkow, D. and Von Knethen, A., 2002. Functional requirements, non-functional requirements, and architecture should not be separated-A position paper. *REFSQ, Essen, Germany (September 2002)*.

[7] Adam, S.I. and Andolo, S., 2019, August. A new PHP web application development framework based on MVC architectural pattern and ajax technology. In *2019 1st International Conference on Cybernetics and Intelligent System (ICORIS)* (Vol. 1, pp. 45-50). IEEE.

[8] Silvius, G., SChIPPER, R.O.N. and Planko, J., 2012. *Sustainability in project management*. Gower Publishing, Ltd..

# An Undergraduate Internship/Project on Restaurant Management System

By

**Sourav Chakraborty**

Student ID: **1821411**

**Autumn, 2022**

## Consent from Supervisor

The student modified the internship final report as per the recommendations made by his/her academic supervisor and/or panel members during and/or before final viva, and the department can use this version for archiving as well as the OBE course material for CSE499.

(Signature of the Supervisor)

Sanzar Adnan Alam

Department of Computer Science & Engineering

Independent University, Bangladesh