

# Restaurant

## Management System

2023-S2-IT2080-ITP-Assignment1-ProjectProposal-05

ITP\_WD\_B04\_G05



**Sri Lanka Institute of Information Technology**

# Restaurant Management System

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## Introduction

A web-based program called a restaurant web app is made to assist restaurants in managing their daily operations, streamlining their procedures, and improving customer experience. Features like online ordering, table reservations, menu administration, client feedback, and analytics are frequently included in the program.

Online ordering eliminates the need for orders and cuts wait times by allowing customers to peruse the menu, place an order, and pay online. Customers can reserve tables in advance thanks to table reservation features, which can help restaurants better handle their seating arrangements and shorten patron wait times.

Restaurants can easily update and maintain their menus using menu management tools, which include adding new products, removing old ones, and changing prices. Customers can provide input on their dining experience through customer feedback features, assisting restaurants in identifying problem areas.

### Features

- Dine in
- Online reservation (VIP lounge)
- Online order and delivery
- Membership and loyalty card

## Problem Statement

- Food menu delay (waiter must serve several tables then create delay).
- Location issue (Such as reduce time wasting on road or in restaurant).
- Customer can't measure how many calories or nutrients include in their food portion.
- When customer order food and we can't provide it on time or customer cancel the order we must refund.

## Solutions

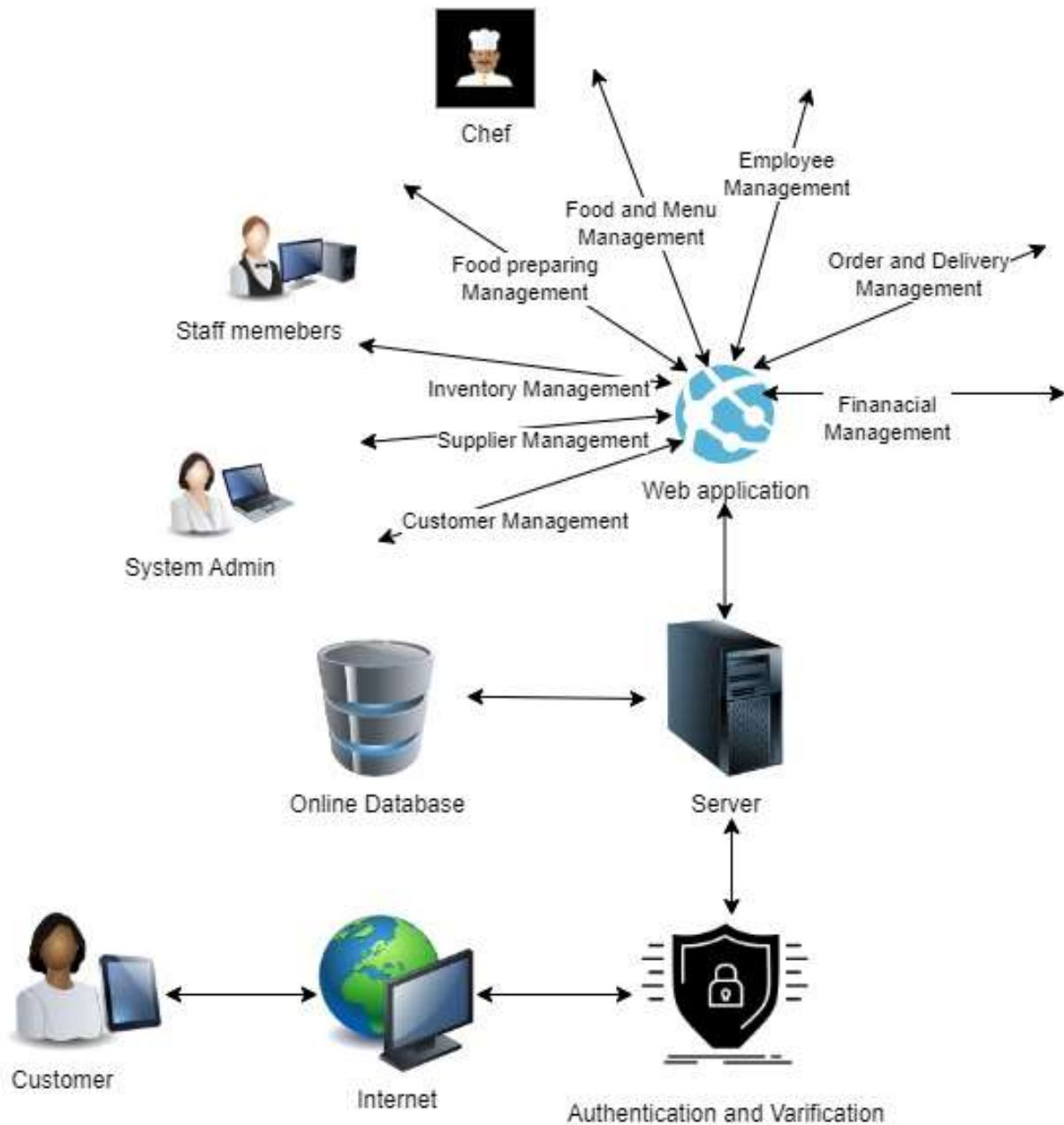
- Customer can prepare their menu plan before entering the restaurant.
- We can deliver foods to your doorstep.
- They can calculate their budget and measure calories.

## Benefits of proposed solution

Web application is a huge platform for the marketing of the product other than the manual system. Restaurant must work together with so many customers. This web application help to keep in touch with other parties and increase the effectiveness of sharing information. The solutions that we mention above, contribute a lot to the success of the Restaurant. Through this we can enhancing the market by attracting lot of customers. And also, it can reduce both time and cost by reducing required manpower. So, some of the benefits of the web application which has purpose as the solution for the problems, has mention below.

- User friendly.
- Reduce time waste.
- Can access anywhere any time.
- Management can get an idea about their financial state.
- Easy editing and reporting.
- Cost saving.

## System Overview



## System Functions

- **INVENTORY MANAGEMNT**

The process of monitoring and managing the stock of the food and supplies used in the eatery is known as inventory management in a restaurant web app. It entails tracking the ingredients used in menu items, keeping an eye on inventory amounts, and placing new supply orders as required.

By offering real-time inventory monitoring and automated ordering capabilities, a restaurant web app with inventory management features can aid in streamlining this procedure. Additionally, the app can assist in ensuring that the eatery always has the appropriate amount of inventory, preventing waste and cutting costs.

Tracking inventory levels, creating automated orders, setting par levels for ingredients and supplies, and receiving notifications when inventory levels are low are some of the key features of an inventory management system in a restaurant web app.

Functional requirement	Non-Functional requirement	Technical requirement
Inventory Management	Performance	Systematic inventory
Inventory Tracking	Scalability	Barcode scanning
Transfer Management	Security	Access Control
Purchasing	Reliability	Management
Shipping	Usability	
Reporting & Analytics	Maintainability.	
Deployment	Compliance	



- **FOOD PREPARING MANAGEMENT**

The process of managing the production of menu products in the kitchen is referred to as food preparation management in a restaurant web app. It entails keeping track of orders, controlling the cooking process, and making sure that the food is made quickly and to the highest standards possible.

Real-time order tracking and automated cooking directions are two features that a restaurant web app with food preparation management features can offer to help streamline the kitchen production process. Additionally, the app can ensure that orders are prepared accurately and promptly, cutting down on wait periods and improving the customer experience.

The ability to track orders, create automated cooking instructions, establish preparation times for menu items, and handle inventory are just a few of the key features of a food preparation management system in a restaurant web app.

Functional requirement	Non-Functional requirement	Technical requirement
Recipe and menu planning	Usability	Web application
Ingredient Management	Performance	Database management
Production Planning and scheduling	Scalability	Integration capability
Quality control and Assurance	Maintainability	Web application
Analytics and reporting	Security	Database management
Integration and interoperability		Integration capability

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Functional requirement	Non-Functional requirement	Technical requirement
Display	User Interface (UI) Design	Programming Language and Framework
Search and Filter	Performance	Database Management
Customization	Accessibility	APIs and Integrations
Ordering	Security	Server and Hosting Environment
Menu Management	Compatibility	User Authentication and Authorization
Data Analysis	Scalability	Testing and Quality Assurance

## •FINANCIAL MANAGEMENT

The process of managing the financial transactions and business processes of the restaurant is referred to as financial management in a restaurant web app. It entails keeping track of receipts and expenditures, controlling spending, and producing financial records.

By providing real-time monitoring of financial data, a restaurant web app with financial management features can facilitate the process of managing the restaurant's finances. The app can also assist eatery managers and owners in making well-informed choices regarding financial matters like pricing and inventory management.

The ability to track revenue and expenses, handle budgets, produce financial reports, and analyze financial data to spot trends and chances for improvement are some of the key features of a financial management system in a restaurant web app.

Functional requirement	Non-Functional requirement	Technical requirement
Need to login into system	Reliability	Web based system
Check customer transaction details	Security	Back end – Node JS
Add or remove supplier's payments and manage all payments	Easy to maintain	Front end – React
Analyze the monthly income and expenses	Scalability	Database - Mongo DB
Keep track on every monthly finance data	Responsible	
Calculate and get finance report	Data integrity	
Search financial records of former month	speed	

- ORDER AND DELIVERY MANAGEMENT

The process of managing customer orders and making sure they are delivered in a timely way to the appropriate spot is known as order and delivery management in a restaurant web app. It entails monitoring orders, controlling the delivery procedure, and giving customers up-to-the-minute updates on the state of their orders.

By offering real-time order monitoring, automated delivery instructions, and delivery tracking, a restaurant web app with order and delivery management features can aid in streamlining the order and delivery process. The customer experience can be improved by using the app to guarantee that orders are delivered quickly and to the highest standards.

A restaurant web app's order and delivery management system may have important functions like the ability to monitor.

Functional requirement	Non-Functional requirement	Technical requirement
Place an order	Security	Web application
Make the payment	Performance	Front-end react js
Choose payment options	Availability of 24/7	Back-end node js
Order tracking	Compatibility of various platforms	Database Mongo DB
Delivery	Maintainability	
Verify payment	User friendliness of the system	

- **EMPLOYEE MANAGEMENT**

Employee management in a restaurant web app refers to the process of managing the employees of the restaurant. It involves tracking employee information, managing schedules, monitoring performance, and providing training and support to employees.

A restaurant web app with employee management features can help simplify the process of managing employees by providing real-time tracking of employee data and automated scheduling and performance monitoring tools. The app can also help ensure that employees are properly trained and supported, leading to improved job satisfaction and performance.

Some key features of an employee management system in a restaurant web app may include the ability to track employee information, manage schedules and shifts, monitor employee performance, provide training, and support, and generate payroll reports.

With an effective employee management system in place, restaurants can optimize their staffing and scheduling processes, improve employee performance and job satisfaction, and reduce turnover rates. This can ultimately lead to increased efficiency, cost savings, and customer satisfaction.

Functional requirement	Non-Functional requirement	Technical requirement
Login into the system	security	Web based system
Manage employee details	reliability	Back end-node js
Calculate salary information	maintainability	Front end- react js
View employee details		Database-mongo DB
Calculate OT rate		
Generate attendance sheet		

## • CUSTOMER MANAGEMENT

Customer management in a restaurant web app refers to the process of managing the relationship between the restaurant and its customers. It involves tracking customer information, managing reservations and waitlists, and providing personalized services to customers.

A restaurant web app with customer management features can help enhance the customer experience by providing real-time tracking of customer data and personalized services. The app can also help restaurants build and maintain customer relationships, leading to increased loyalty and repeat business.

Some key features of a customer management system in a restaurant web app may include the ability to track customer information, manage reservations and waitlists, provide personalized services, and generate customer loyalty rewards. With an effective customer management system in place, restaurants can optimize their customer service operations, provide a seamless and personalized customer experience, and build long-lasting customer relationships. This can ultimately lead to increased customer satisfaction, loyalty, and business growth.

Functional requirement	Non-Functional requirement	Technical requirement
Admin able to manage the details of customer. (delete & update)	Reliability	Web application
Admin can add new customer details to the system.	Security	Front end React
Admin can identify the food items purchased by the customer for the order.	Data integrity	Back-end NodeJS
Admin can identify the select & purchased food, total amount of purchased food and order details from the system.	Responsible	Data base-MongoDB
Customer can login and check their personal details. (Name, phone number, address)		

Customer can know about their purchased food items details.		
Customer can contact the admin through chat box to know further details.		

- **SUPPLY MANAGEMENT**

Supply management in a restaurant web app refers to the process of managing the restaurant's supply chain operations. It involves tracking inventory levels, managing vendor relationships, and ensuring that the restaurant has the necessary supplies to operate efficiently.

A restaurant web app with supply management features can help simplify the process of managing the restaurant's supply chain by providing real-time tracking of inventory data, automated ordering tools, and vendor performance monitoring. The app can also help restaurants optimize their inventory levels and reduce waste, leading to cost savings.

Some key features of a supply management system in a restaurant web app may include the ability to track inventory levels, generate automated orders, manage vendor relationships, and generate supply chain performance reports.

With an effective supply management system in place, restaurants can optimize their supply chain operations, reduce costs, and improve operational efficiency. This can ultimately lead to increased profitability and business growth.

Functional requirement	Non-Functional requirement	Technical requirement
Login into the system	Performance	Web based system.
Show overview dashboard happens	Security	Back-End NodeJS
Analyze orders	Usability	Front-End React
Viewing order history	Reliability	Database-MongoDB
Generating Report	Scalability	
	Maintainability	



## Tools and Technologies

Visual studio code is the platform we use to develop the coding.



Source code management, team collaboration, and version control are managed using a GitHub.



MongoDB is the database program use for this web application.



MongoDB is the database program use for this web application.



## Project Management Plan

### Gantt Chart

TASK	FEB				MARCH				APRIL				MAY			
Analysis																
Requirement Gathering																
Requirement Analysis																
Preparing Charter Document																
SCRUM Activity																
Preparing Proposal Presentation																
Preparing Proposal Document																
Preparing SRS																
Proposal Evaluation																
Design																
Wireframe Drawing																
User Interface Design																
Database Design (ER)																
Database Development																
Document Design Specifications																
Develop System Modules																
Development																
Develop System Modules																
Integrate System Modules																
Perform Initial Testing																

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## Work breakdown structure

List of Functions Developed by the Group Members: Name with Initials		Brief Description of the Function
1.	Siriwardana A.P.G.D.P	<b>Order and Delivery Management</b> In this section, when customer ordering something the system stores some information like price, food type, if there any discounts etc. After getting them requests for payment option and after the customers confirmation, order is going to be placed. Also, customer can see the order status via the system. And then after the delivery, customer will get a delivery successful message via the system.
2.	Buddhima A.V.P	<b>Food and Menu Management</b> The Food and Menu section of a restaurant website should be easy to navigate and provide all necessary information about the dishes being served. Key features include dish descriptions, images, prices, Add to Cart and Order Now buttons, filtering and search options, and nutritional information. The section should be optimized for mobile devices and highlight any specials or promotions. By incorporating these features, the Food and Menu section can provide customers with an engaging overview of the establishment's offerings.
3.	Nayanathara R.M.C	<b>Financial Management</b> Specifically, this section generates all transactions made using our web application, including payments made by customers and salary administration for working staff members. Admin has access to create, update, delete and view any financial entry. When a customer transaction is completed, the person concerned will receive an email receipt and when their payment is returned, the transaction will be deleted from the database. Admin should create, update, or delete salaries when the salary of the staff members increases and decreases. Payment history information can be searched when using Custom ID or Employee ID and, in addition, the facility to generate summary transaction reports is provided for financial purposes.
4.	Kavishwara B.H.M.S	<b>Inventory Management</b> Commonly inventory mean all the items, goods, merchandise, and materials held by a business for selling in the market to earn a profit. In our case, What Is Considered Inventory in a restaurant service? Inventory for the restaurant management system includes all the physical items needed to provide service to your customers, including food, ingredient and other items like pots and pans and employee uniforms.

5.	Wijerathne G.A.R	<b>Employee Management</b> Manage all details about employee. Add new details of employees like employee name, employee id etc. If there is any change in the details of existing employees, updating the same. Also, if it is necessary to remove the information of the employees, deleting the information, preparing the employee attendance register and monthly report.
6.	Kokuhennadige C.K	<b>Customer Management</b> First, we collect customer's personal information like customer ID, customer name and phone number etc. Then we register them in our system. Then we build a profile for the customer. We collect information from the customer to access the system such as username, password and forgotten password. In this system customer name and address, type of food, available food and the cost of food should be included. Let them know about our promotions and value meals. Then take orders from them. In addition, we provide loyalty cards to the customer, and he can fill a form and get a card.
7.	Akmeemana T.D	<b>Food Preparing Management</b> Food preparation management refers to the various processes involved in the planning, organization, and execution of food preparation activities in a Restaurant. This includes tasks such as menu planning, storing ingredients, preparing food items according to standard recipes, plating and presentation, and maintaining an organized kitchen. In this process can update or delete menus by checking database of available food ingredients in the storage. Then can update food trends to the customer and can take customer preferences about the food.
8.	Gunasekara W.M.W.A.G.T.N.A	<b>Supplier Management</b> This is about managing all details about Suppliers. Add new supplier, that means include supplier details such as supplier name, ID, mobile numbers, item category. It can be making changes about supplier details if have some updates. Also, can delete supplier details once they needed to be removed, and show all supplier details. A report can be generated on all or a specific supplier and can be downloaded as a pdf file.

# References

[1]Menu references

[2]Offers

[3] Events references (at Happenings | The Original Denver in Denver, CO (theogdenver.com))

[4]Online order and delivery references (at <https://pereraandsons.com/stores/uber>,  
<https://pereraandsons.appigo.co/webstore>, <https://pereraandsons.com/stores/pickme>)

[5]Reservations