BSc (Hons) in Computer Science via GDSE

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Professional Software Project in IT

Restaurant Management System (RMS)

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Content

No	Title	Page
1.0	Introduction of the Business	04
2.0	Overview of the Proposed Solution	06
3.0	Advantages of the Solution	07
4.0	Use Case Diagram	08
5.0	Entity Relationship Diagram (ERD)	09

List of Figures

No	Title	Page
Figure 1.1	Employee Hierarchy	10

List of Abbreviations

RMS - Restaurant Management System

IT - Information Technology

POS - Point of Sale

ERP - Enterprise Resource Planning

HR - Human Resource

SE - Software Engineer

DBMS - Database Management System

1.0 Business Introduction

The proposed system shall be developed for a modern restaurant serving varied customer needs with freshly prepared food items, desserts, bakery, and beverages. The objective of the restaurant will be the delivery of excellent service in dining while having a substantial impact on minimized resource wastage along with a minimal development of inventory. Business operational issues involve processing of customer orders, inventory management, employee management, and maintenance of pre-prepared food items like desserts and beverages.

This includes a manager, chefs, waiters, and a cashier. All these roles will be embedded in the proposed RMS system in order to smoothen daily operation processes, hence managing customer orders with ease, tracking inventories accurately.

1.1 Business Requirements

Functional Requirements

Inventory Management: Track the inventory of ingredients and consumables on a real-time basis.Send alerts for low consumables and ingredients.Maintain prep items such as desserts,bakery items, and drinks.

Table Management: Offer a strategic seating policy to reduce customers' waiting times. Store customer preferences with regard to table seating.Coordinate table seating with order processing for smooth service.

Order Taking/Processing and Management: Allow for the processing of orders to dine in and take out.Update the kitchen in real time on incoming orders.Integrate with the POS for billing and payment processing.

Customer Management: Maintain customer profiles, recording preference lists and order history.Store customer feedback for service improvement.Find out the best-seller ready-made items by customer ordering.

Employee Management: Record employee schedules and employee performance.
Create a task for the employee according to function and availability.

Reports and Analytics: Detailed reports on sales, inventory, and employee performance.
Insights into popular items and sales trends for informed decision making.

Non Functional Requirements

Performance: The system has to process the ordering in real time and notify the kitchen too.
The system should bear the peak hours with absolutely no delays or crashes.

Scalability: The RMS shall be able to scale when the restaurant expands or introduces new services.The RMS shall support the addition of more users, tables, and menu items without degradation in performance.

Usability: The interface of the system should be easy to use, considering employees with the least training are using it.Easy-to-use dashboard for viewing relevant information by managers and staff.

Security: Customer details, along with their payment information and preference data, should be stored and processed in a secure environment.Access to sensitive data, such as financial records and inventory levels, should be strictly provided only to the authorized users.

Reliability: The system should be available 99.9% of the time, which shall make it reliable during peak hours of business.Schedule regular backups to prevent losses of data.

Maintainability: The system should be modular, making updates and maintenance easier.
Documentation of the processes in order to ease future development or troubleshooting.

Compliance: The RMS shall follow laws on data protection like the GDPR for customer information.It shall comply with health and safety standards for food service provision.

2.0 Overview of Proposed Solution

RMS is built on an idea of integrating multiple modules of management to facilitate smooth customer service and proper back-end management of restaurants. The features of the system will include:

Stock Management: Tracking levels of ingredients, supplies, and pre-made items. Sending alerts when the level of stock reaches below the pre-set level

Table Management: Deals with seating arrangement and optimum utilization of tables. Stores customer preferences for seating to offer a better dining experience.

Order Management: It manages customer orders for Dine-in and Takeaway Services. It integrates at the POS for Billing and Order Payment. Sends runtime notifications of incoming orders to the kitchen.

Pre-Made Item Management: manages pre-made food and beverage items-desserts, bakery items, etc. It maintains a record of sales trends and offers items based on demand.

Reporting: Detailed reporting on Sales, Inventory usage, and performance of the employees. Information on Sales Trends and Popular Items: It will drive data-informed decisions on the most popular items sold and sales trends.

Customer Management: Keeps a record of customer preferences, feedback, and order history. Helps in viewing the trend of popular items in order to do efficient stock and menu planning.

Employee Management: Manages the roles of employees, their shifts, and performance tracking.Provides an overview of employee efficiency and ways of improvement.

3.0 Solution Benefits

The proposed RMS will be of huge benefit to the restaurant by raising operational efficiency and minimizing wastage, therefore offering a better customer experience. Some of the benefits accrued from it include:

Operational Efficiency: The solution will automate the process of tracking inventories and processing of orders, saving much human labor required to operate these activities. Freedom of staff to do customer service.
Table management is also integrated into the system to ensure maximum efficient seating, hence reducing waiting time for customers.

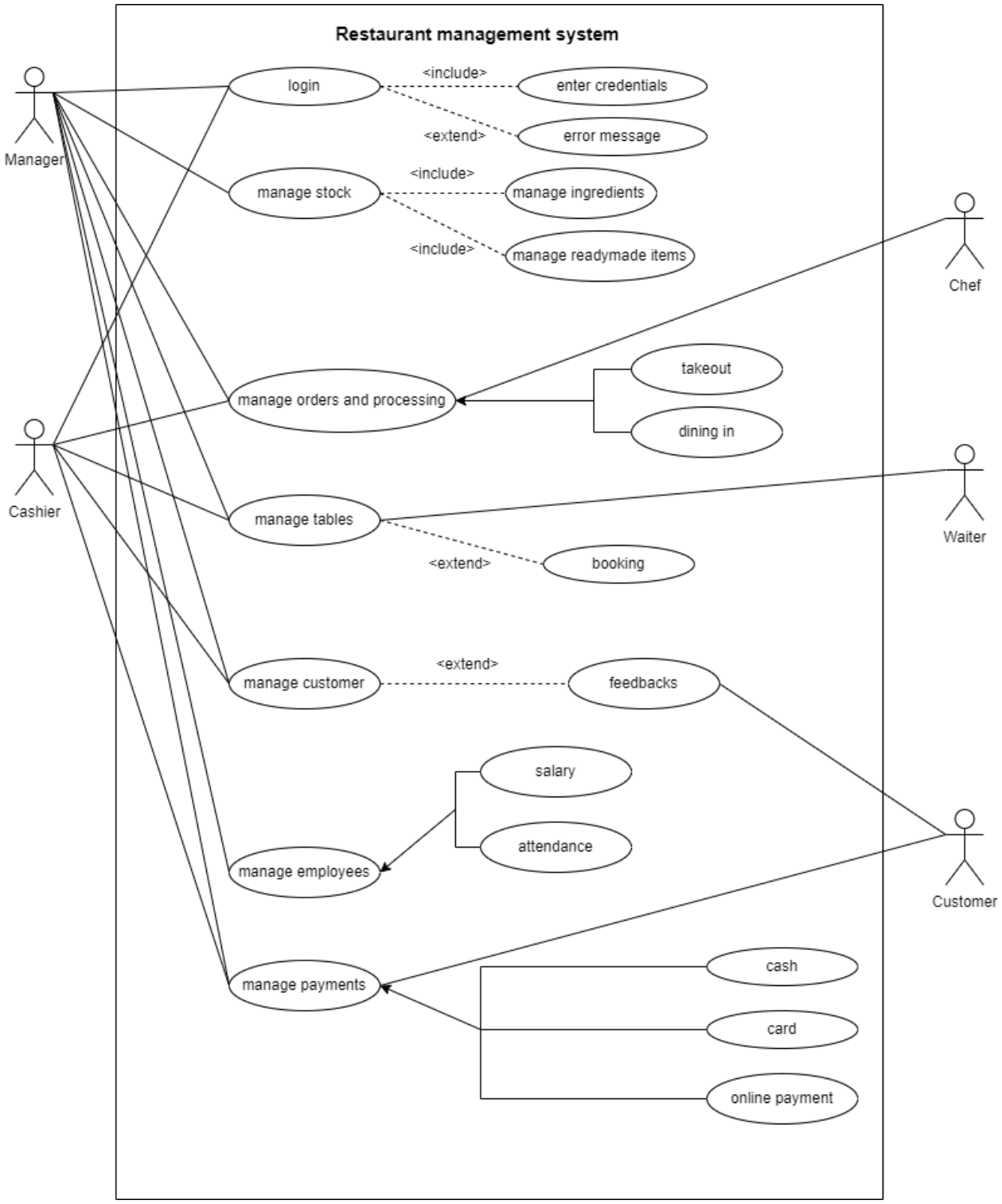
Better Inventory Management: It aids in inventory tracking in real time to ensure the proper amount of raw ingredients and pre-prepared items, reducing food waste.
Automated alerts to prevent stockouts maintain restaurant service without disruption.

Better Customer Satisfaction: Order modification right at the table; memorization of previous orders and customer preferences.
Efficient ordering reduces wait times of customers for dine-in and take-out orders.

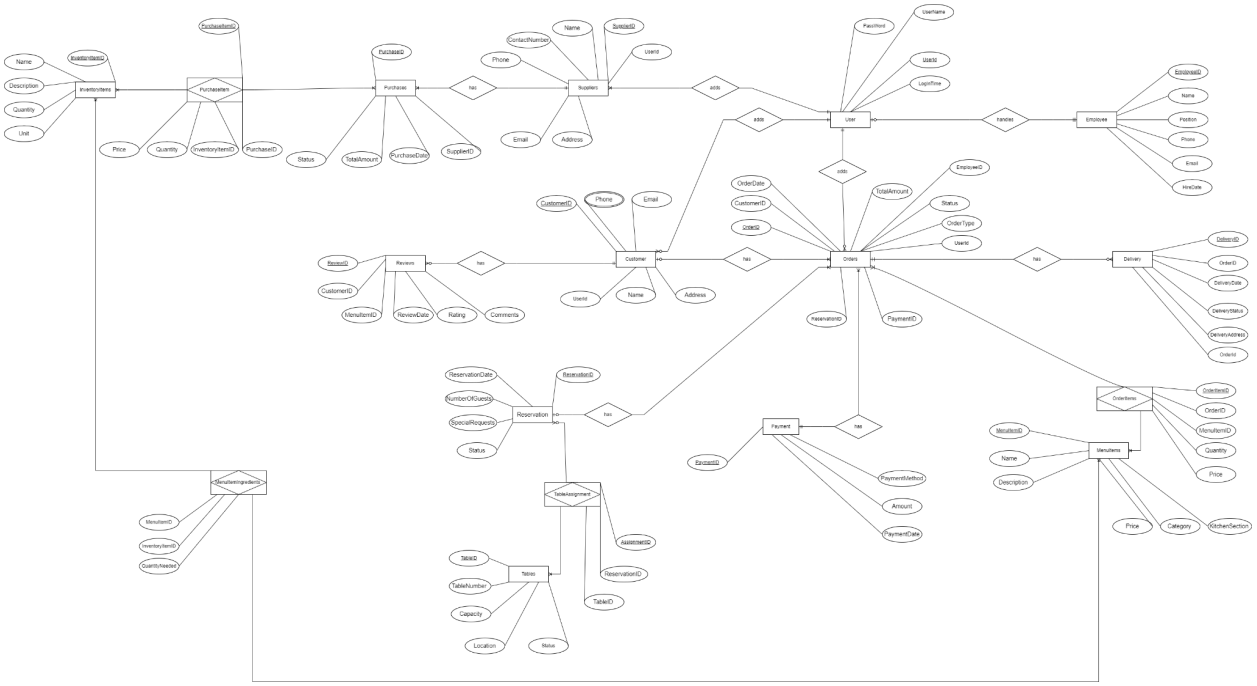
Control Costs and Maximize Profits: Detailed sales reports and trend analysis allow pinpointing of profitable items to inform menu adjustments to maximize revenue.
This saves on operational costs by managing the stock and resources efficiently.

Employee Productivity: Roles and availability will automate tasks, and workflow will increase while ensuring that an employee does his prime duty.
Performance tracking would enable the management to distinguish the strong and weak points.

4.0 Use Case Diagram



5.0 Entity Relationship Diagram (ERD)



1.1 Employee Hierarchy