



BSc (Hons) in Computer Science via GDSE
Module Code ITS1066
Professional Software Project in IT

PROJECT RESTAURANT MANAGEMENT SYSTEM

N.H.Kamesh Nethsara De Silva

241722037

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List of Abbreviation

IJSE - Institute of Java & Software Engineering

IT - Information Technology

SE - Software Engineer

QAE - Quality Assurance Engineer

SD - Software Developer

BCS - British Computer Society

HR - Human Resource

RMS - Restaurant Management System

Proposal content here

1.0 Introduction to business

This system shall be used in a restaurant in which fresh food, desserts, bakery/bakery products, and beverages are prepared. Hence, mostly inventory maintenance, customer order taking and processing, and recording of prepared items are managed in this system to facilitate smooth and efficient business operations. What is aimed at, therefore, is serving the best dining experience with optimized utilization of resources and minimizing their wastage.

1.2 Main business process

- Food freshness: preparation, desserts, and bakery items
- High food quality, hygiene, and customer service are key in food service
- Effective inventory and resource management to allow the minimum wastage and cost of resources involved
- Processing and managing the customer orders in real-time
- Providing an effortless journey through table management and proficient service

2.0 Overview of the proposed solution

The Restaurant Management System (RMS) is a type of software that focuses on facilitating restaurant operations by administration of basic business processes that include: stock management, order taking, employee task assignment, and home-table assignment. The system is specifically advanced to help in making optimum use of resources in terms of time and other costs, promote service provision with reduced drawbacks. Real time stock control, customer assessment, order management, and comprehensive reporting all forms the core business activities of the RMS system to enhance smooth daily operations. The solution includes the management of prepared item files and analytical reports to support business operations and goal achievement.

2.1 Why Request a Solution?

Today's restaurant business is characterised by speed which implies that multiple activities like stock keeping and order processing have to be done at once. If a restaurant school does not have a management solution, it is likely to encounter some inefficiencies including but not limited to overstocking or understocking, long wait times for customers, poor service delivery and poor management of employees. A tailored system such as the RMS can be effectively implemented in order to address the issues of manual and time-consuming procedures by streamlining key operations, enhancing efficiency among the departments as well as providing adequate information to the management for sound decision making.

2.2 Identify Issues:

1. **Manual Inventory and Stock Management:** Without real-time stock updates, there is a risk of ingredient shortages, overstocking, or wastage.
2. **Order Processing Delays:** A lack of integrated order management can lead to delays in processing customer orders, causing dissatisfaction, especially during peak hours.
3. **Lack of Data on Customer Preferences:** Not having a system to track order history or feedback may hinder the ability to provide personalized service and promotions.
4. **Inefficient Employee Management:** Manual tracking of employee schedules, salaries,

and performance can lead to errors, mismanagement, or underutilization of staff.

5. **Table and Seating Issues:** Without a system to monitor table availability, seating arrangements may become inefficient, increasing customer wait times.
6. **Limited Insights:** The absence of detailed reports on sales, order trends, and inventory usage means restaurant managers lack critical data for strategic decision-making.

2.3 Project Target Processes:

1. **Stock and Inventory Management:** Automatically track the usage of ingredients and supplies, adjust inventory levels, and generate alerts for reordering stock to prevent shortages.
2. **Customer Order Management:** Enable seamless processing of both in-house and take-out orders with real-time updates to the kitchen and bakery, minimizing errors and improving order fulfillment times.
3. **Employee Management:** Provide features to manage employee schedules, payroll, and performance evaluations, ensuring optimal staff utilization and reducing administrative work.
4. **Table Management:** Implement a system that monitors table availability, tracks customer seating preferences, and assigns service staff efficiently to reduce customer wait times.
5. **Pre-Made Item Management:** Ensure accurate tracking of pre-made goods such as bakery products and beverages, adjusting inventory levels based on sales to minimize wastage.
6. **Reporting and Analytics:** Generate detailed reports on sales, order trends, popular items, and inventory usage, allowing management to identify trends and make data-driven decisions to enhance operational efficiency.

2.4 Functional Requirement:

1. Stock and Inventory Management
2. Customer Order Management
3. Employee Management
4. Table Management
5. Pre-Made Item Management
6. Reporting and Analytics

2.5 Non-Functional Requirement:

1. Low internet usage
2. Low RAM usage
3. Security options
4. Resolution
5. Loading speed

3.0 Advantages of the Solution

1. Enhanced Operational Efficiency

- **Increased Operational Efficiency Automated Stock and Inventory Management:** Monitoring the level of stocks and ingredients as they are used ensures that there are no shortages of ingredients and that waste is reduced to the least possible levels.
- **Streamlined Order Processing:** The kitchen processes are fast due to incorporated management of orders, there is little or no misplacement of orders, and the waiting hours of clients are significantly reduced.
- **Employee Task Assignment:** Through the system, tasks and plans are assigned instantaneously leading for the efficient use of human resource by assigning the various task to the right person who will cope efficiently.

2. Improved Customer Experience

- **Better Order Filling Service Real-Time Order Updates:** There is better teamwork as there is effective partnership of front-of-house staff and kitchen personnel so that customers are served in the shortest time possible and their orders are also attended to without mistakes.
- **Personalized Service:** This can be done by keeping track of these statistics in order to better target them with special offers and personalizes their experience at the restaurant.
- **Efficient Table Management:** The system allows the status of the tables in the restaurant to be updated in real time whereby the waiting times for the customers are decreased since there are strategic seating arrangements.

3. Cost Reduction

- **Reduced Waste:** In addition, sales-driven permits enable inventory-monitoring which minimizes waste thus reducing ingredient and supply costs.
- **Optimized Labor Cost:** Proper scheduling and task management avoids needless overtimes or understaffing thereby making sure that employees' hours are used effectively.
- **Do not Order Too Much:** The elimination of inventory surplus due to automated alerts prevents restaurant storage costs, therefore reducing spoilage risks.

4. Data-Driven Decision Making

- **Customer Feedback Tracking:** The satiyaya device which gathers the feedback of the customers is used within the restaurant to identify the problems and provide satisfactory service.

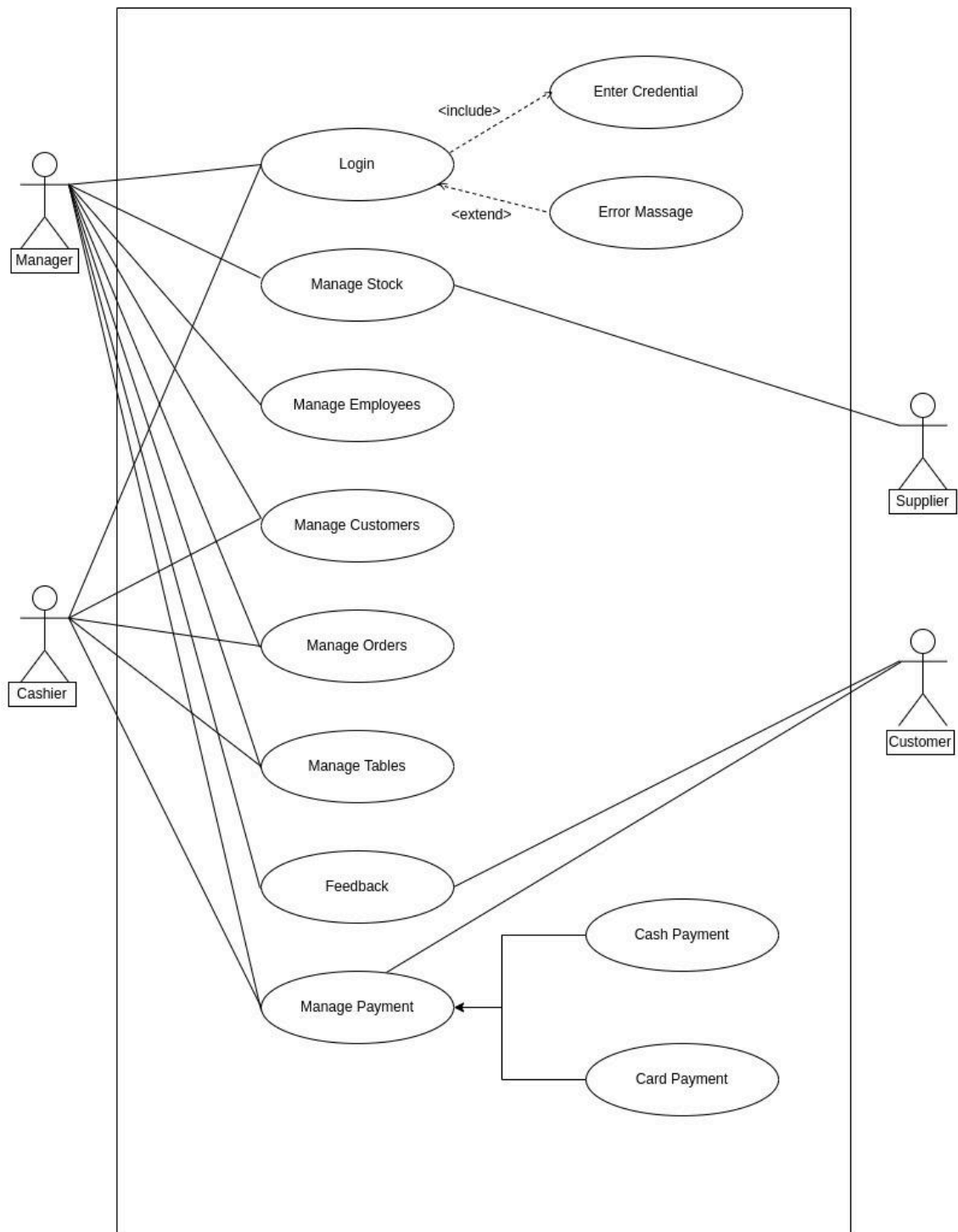
5. Increased Revenue Opportunities

- Quicker Table Turnaround: Quick table management allows for quicker turnover of tables, which means more customers can be served during peak period in the restaurant.
- Increased Customer Retention: The ability to target customers with promotions geared towards their tastes and past order patterns allows the restaurant to bring back those customers who have left.

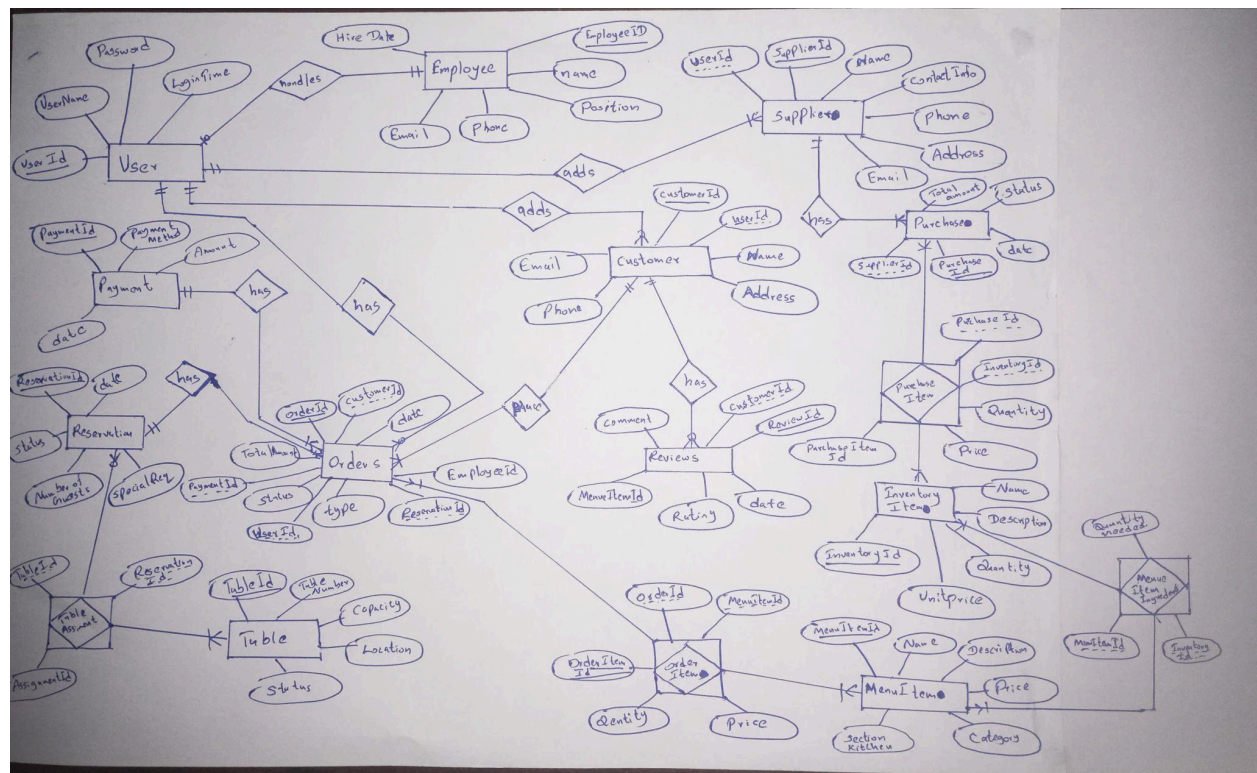
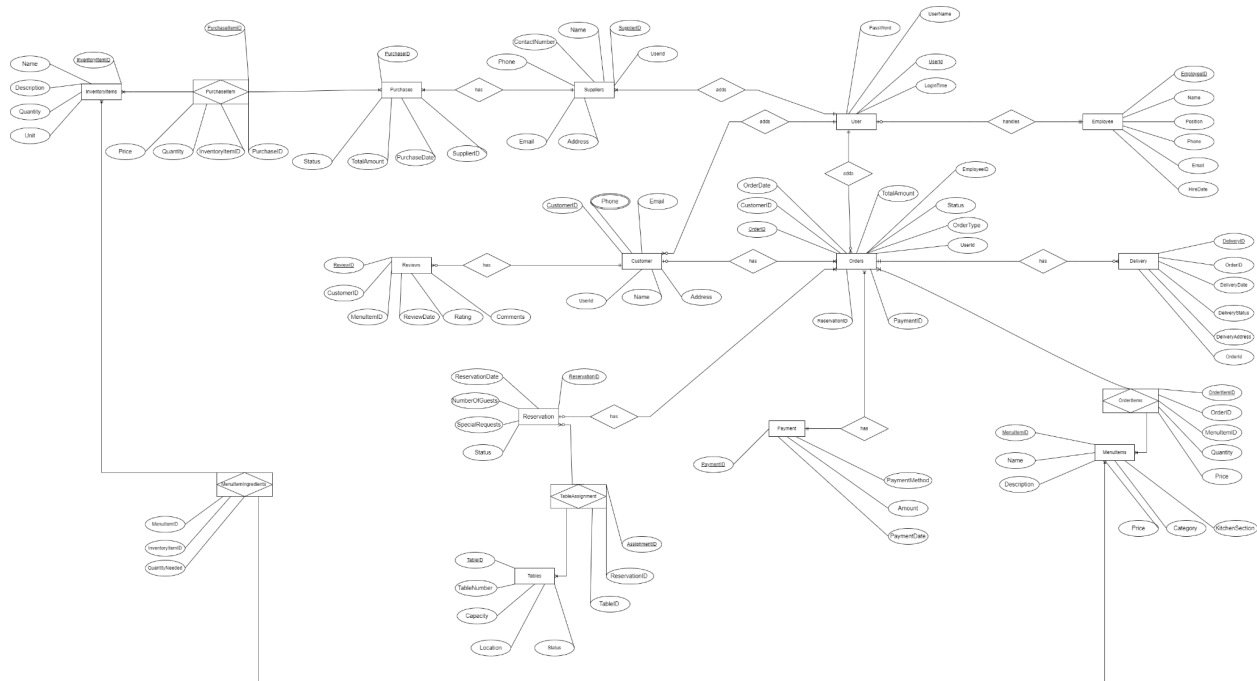
6. Scalability for Future Expansion

- The system has been developed in such a way that such growth can be met – more tables, more staff, more items on the menu without loss of effectiveness. This facility guarantees the viability of that system in the long term since the restaurant will be growing.

UseCase Diagram



Entity relationship diagram (ERD)



1.1 Employee Hierarchy

