DOKUZ EYLÜL UNIVERSITY

ENGINEERING FACULTY

DEPARTMENT OF COMPUTER ENGINEERING

CME 2210

Object Oriented Analysis and Design

RESTAURANT MENANGMENT SYSTEM

by

2021510010 Çağrı AYDIN

CHAPTER ONE

INTRODUCTION

In a fast-food world where every customer seek for a quick service and best performance for their money a restourant menagment system is a crucial for restourants. Our restourant menagment system are designed to fulfill all needs for a restourant. From managing supplys to store al the information needed for a good restourant.

Table Management System

For our staff a good table management system is crucial for faster operations which is what we seek most. A better and readable inferface for staff willcut time off our service time and there will be no confision along the staff.

Ordering and Kitchen Communication

Activating and accurate order fulfilment require smooth communication between the front-of-residence workforce and kitchen groups. Our gadget supports efficient order-taking through customizable menus and modifiers, at the same time as also enabling smoother conversation between servers and kitchen workforce to reduce error and delay.

Menu Engineering and Analytics

The development and optimization of menus are equally vital to restaurant management. Our system is equipped with a menu engineering module that analyzes sales data, discovers top products and assists in optimizing menu services based on people’s preferences and profitability. This way, cafes and restaurants can make informed decisions to increase profits and client satisfaction.

Staff Training and Performance Management

Investing in staff schooling and improvement is vital to preserving high carrier requirements and worker satisfaction. Our system has features to set up schooling modules, track worker development, and conduct overall performance reviews . By providing the

body of workers with the skills and understand-how vital in bringing high carrier results, eating places can force a tradition of continuous improvement.

Inventory Optimization and Supplier Management

Finally, efficient projects control price or reduction in waste. Our system computerizes inventory management, supplies real-time reviews on stock degrees. To termination, the Complete Restaurant Management System provides a integrative basis to restaurant transactions, aggregate high capabilities with people-friendly interfaces to give unprecedented performance and purchaser pleasure whether playbook direction, menu scheduling, or entertains consumers .

CHAPTER TWO

REQUIREMENTS

Specific Requirements

2.1 External Interfaces

None.

2.2 Functions

1. Table Management: Allow staff to manage table reservations, assign tables to guests, and track table availability.

- Method: manageTableReservation

  - Parameters:

    - tableNumber (type: integer) - number of the table reserved

    - guestName (type: string) - name of the guest

    - guestCount (type: integer) - number of guests in the reservation

  - Return Value:

    - success (type: boolean) - indicates whether the reservation was successfully managed

2. Ordering and Kitchen Communication: Adding orders to the table and system, customization of orders, and communication between staff and kitchen teams.

- Method: placeOrder

- Parameters:

- orderID (type: integer) - unique identifier for the order

- tableNumber (type: integer) - number of the table where the order was placed

- items (type: list) - list of ordered items, each item containing name (type: string), quantity (type: integer), and special requests (type: string)

- Return Value:

- orderStatus (type: string) - current status of the order (e.g., "received", "in preparation", "ready")

3. Menu Engineering and Analytics: Provide tools for modification for customers and analysis of sales to the staff and boss.

- Method: analyzeSalesData

- Parameters:

- startDate (type: datetime) - start date for analyzing sales data

- endDate (type: datetime) - end date for analyzing sales data

- Return Value:

- menuOptimizationSuggestions (type: list) - list of suggestions for optimizing the menu based on sales data analysis

4. **Staff Performance Management:** The system will track of the employees progress, and conducting performance evaluations.

- Method: evaluateEmployeePerformance

- Parameters:

- employeeID (type: integer) - unique identifier for the employee

- performanceMetrics (type: dictionary) - dictionary containing performance metrics such as punctuality (type: float), customer satisfaction ratings (type: float), and sales performance (type: float)

- Return Value:

- performanceScore (type: float) - overall performance score calculated based on provided metrics

5. **Customer Engagement and Loyalty Programs:** Implement loyalty programs, personalized promotions, and targeted marketing campaigns to engage customers and drive repeat business.

- Method: enrollInLoyaltyProgram

- Parameters:

- customerID (type: integer) - unique identifier for the customer

- loyaltyPointsEarned (type: integer) - number of loyalty points earned by the customer

- Return Value:

- enrollmentStatus (type: boolean) - indicates whether the customer was successfully enrolled in the loyalty program

6. Inventory Optimization and Supplier Management: Automate inventory tracking and generate real-time reports on stock levels.

- Method: updateStockLevels

- Parameters:

- itemID (type: integer) - unique identifier for the item in inventory

- quantityAdded (type: integer) - quantity of items added to the inventory

- Return Value:

- inventoryStatus (type: string) - current status of the inventory after updating stock levels

7. Tableside Payment and Feedback: Support tableside payment processing and real-time feedback mechanisms for better customer experience.

- Method: processTablesidePayment

- Parameters:

- tableNumber (type: integer) - number of the table where payment is being processed

- totalAmount (type: float) - total amount to be paid by the customer

- Return Value:

- paymentStatus (type: string) - status of the payment transaction (e.g., "successful", "pending", "declined")

2.3 Performance Requirements

1. Response Time: The system shall respond to user actions within 5 seconds under normal load conditions.

2. Scalability: The system shall support a minimum of 30 concurrent users without degradation in performance.

3. Availability: The system shall have an uptime of at least 90% to ensure continuous availability for users.

2.4 Logical Database/File System Requirements

1. Relational Database: The system shall use a relational database management system (RDBMS) to store data related to orders, reservations, menus, and customer profiles.

2. File Storage: The system shall utilize file storage for storing multimedia content such as images and videos related to menu items and promotional materials.

2.5 Design Constraints

1. Compatibility: The system shall be compatible with all Windows Computers .

2.6 Software System Quality Attributes

1. Reliability: The system shall be highly reliable, with minimal downtime and error-free operation.

2. Usability: The system shall be readable for the staff and easy to use, requiring minimal training for restaurant staff and customers.

3. Performance: The system shall be responsive and performant, even under high load conditions, to make sure a better user experience.

2.7 Object Oriented Models

- 2.7.1 Analysis Class Model (Static Model)

The system shall include classes representing entities such as tables, orders, menu items, employees, and customers, along with their attributes and relationships.

- 2.7.2 Analysis Collaborations (Dynamic Model)

The system shall model interactions between classes to represent the flow of operations such as order placement, payment processing, and inventory management.