PES University, Bengaluru

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Department of Computer Science & Engineering
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UE19CS353 – Object Oriented Analysis and Design with Java

Theory ISA (Mini Project)

Report on

Restaurant Billing System

By:

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6th Semester E
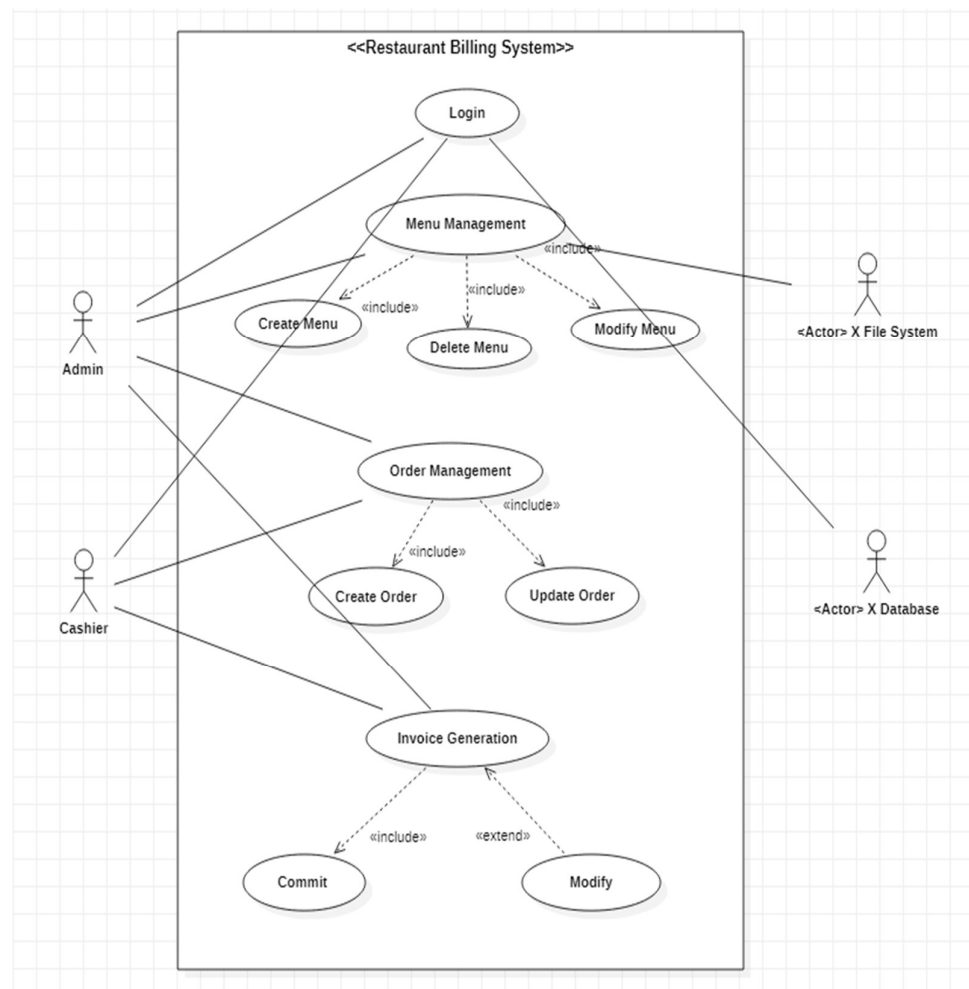
1. **Project Description**

    Restaurant Billing System is a computer-based billing system with user friendly interface which automatically manages the billing process of the customer very easily taking only a short period of time. This System would benefit for restaurant Staff for easy and automated generation of bills. The billing staff can update the order for a particular table and thus it eliminates the calculation errors.
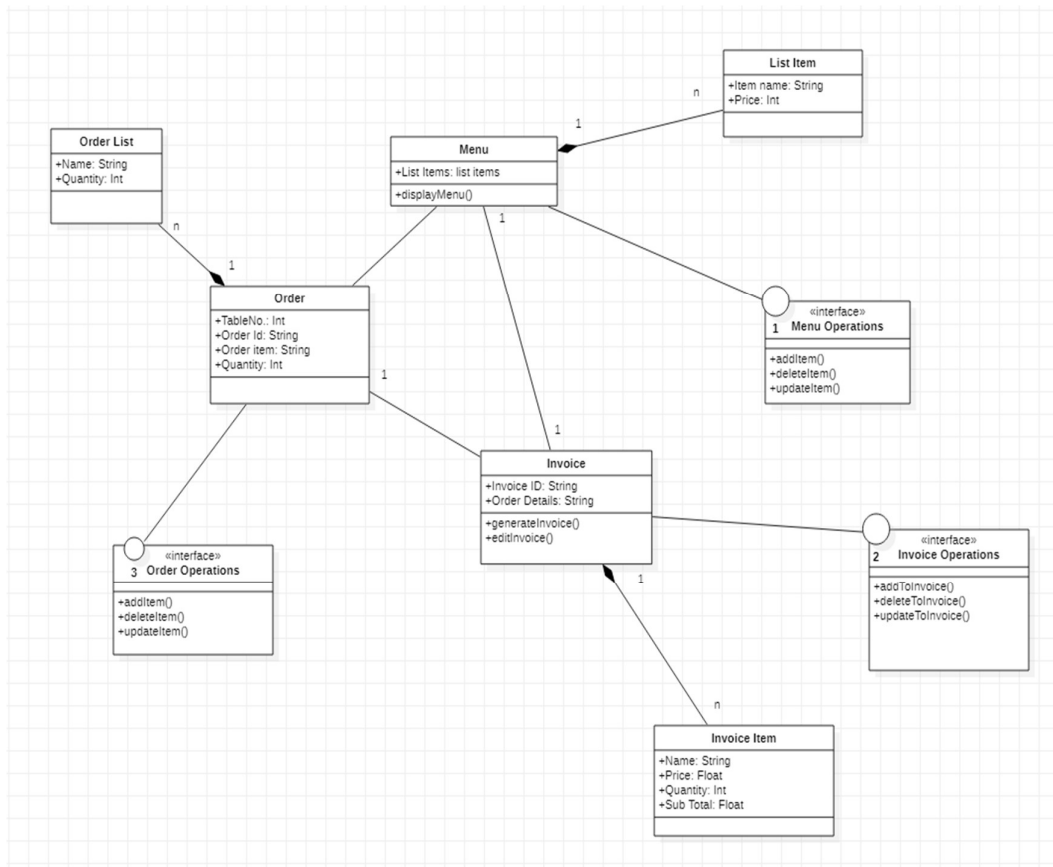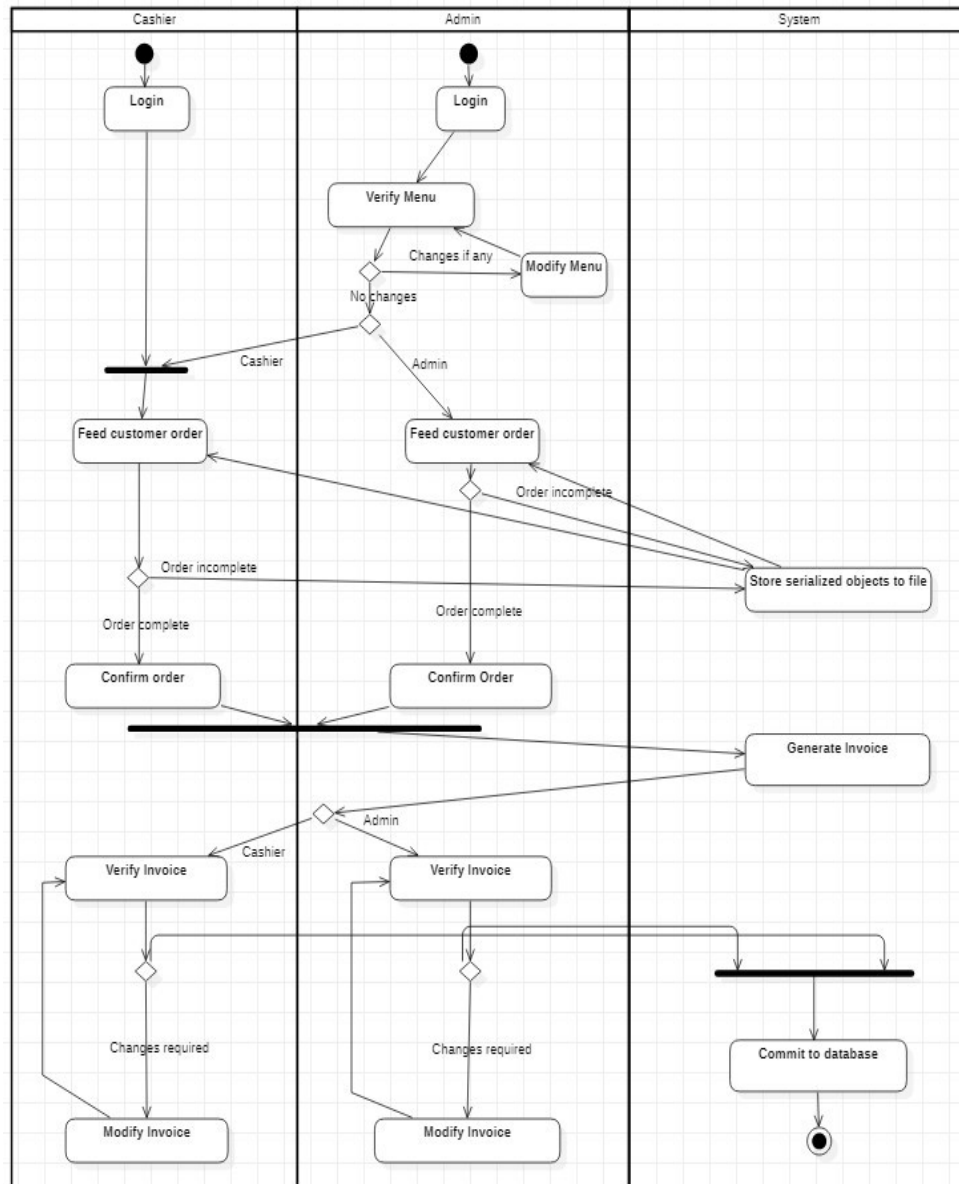
    a. Link to GitHub repo
       https://github.com/bhatrahuls/RestaurantBilling.git

2. **Analysis and Design Models**

    Use case

Class Diagram

List Item
+Item name: String
+Price: Int

Order List
+Name: String
+Quantity: Int

Menu
+List Items: list items

+displayMenu()

Order
+TableNo.: Int
+Order Id: String
+Order item: String
+Quantity: Int

«interface»
Menu Operations
+addItem()
+deleteItem()
+updateItem()

Invoice
+Invoice ID: String
+Order Details: String

+generateInvoice()
+editInvoice()

«interface»
Order Operations
+addItem()
+deleteItem()
+updateItem()

«interface»
Invoice Operations
+addToInvoice()
+deleteToInvoice()
+updateToInvoice()

Invoice Item
+Name: String
+Price: Float
+Quantity: Int
+Sub Total: Float

Activity Diagram

Cashier	Admin	System
●	●	
Login	Login	
	Verify Menu	
	◇ —Changes if any→ Modify Menu	
	No changes	
	◇	
═════ ←Cashier	Admin→	
Feed customer order	Feed customer order	
	◇ —Order incomplete→	
		Store serialized objects to file
◇ Order incomplete	Order complete	
Order complete		
Confirm order	Confirm Order	
═══════════════════════════		
		Generate Invoice
	◇ ←Admin	
Cashier→		
Verify Invoice	Verify Invoice	
		═══════════════
◇	◇	
Changes required	Changes required	Commit to database
Modify Invoice	Modify Invoice	◉

3. Tools and Frameworks Used
   a. Framework used - Java Swing
   b. IDE – NetBeans
   c. Language - Java Core
   d. Database used - MySQL

4. Design Principles and Design Patterns Applied
SOLID principles are a set of design principles that reduces the coupling between classes. This project follows the Single Class, Single Responsibility principle of the SOLID principles. For example, the Menu class in menu management is responsible only for modifications to menu. Open closed principle has also been used. Here, Login extends JFrame. Login class inherits properties from java.awt.Frame class.

Menu object is singleton. Use of framework adds factory pattern to the project. The onKeyRelease events used to validate inputs follows Observer pattern.

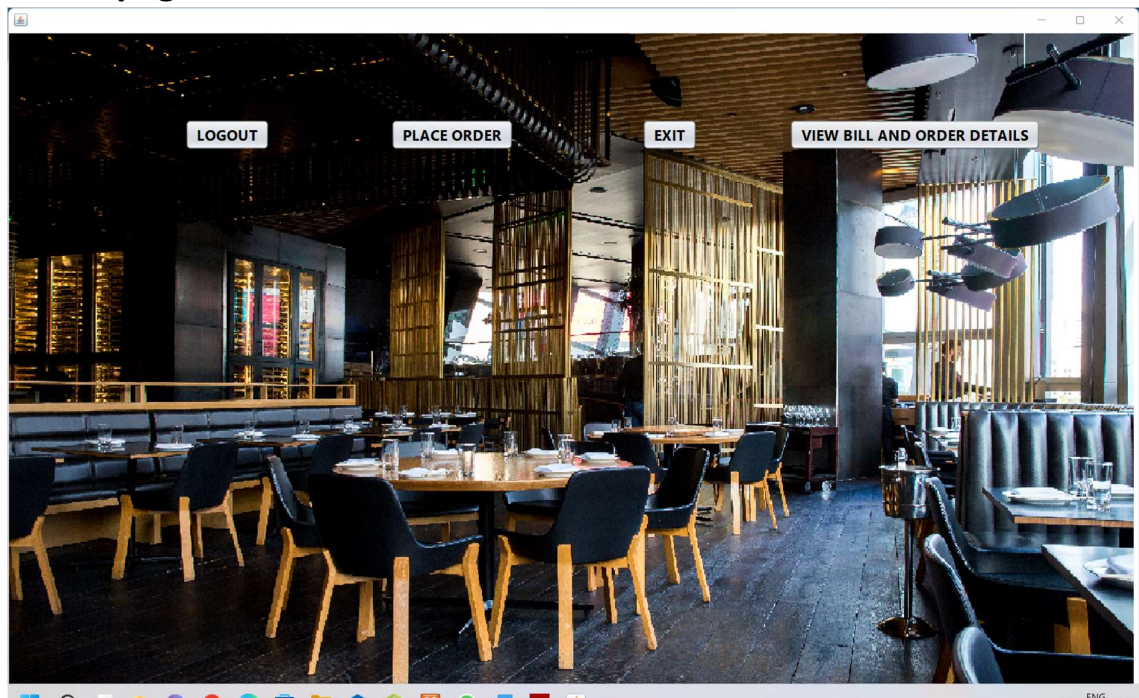## 5. Application Screenshots (3-4 important pages)
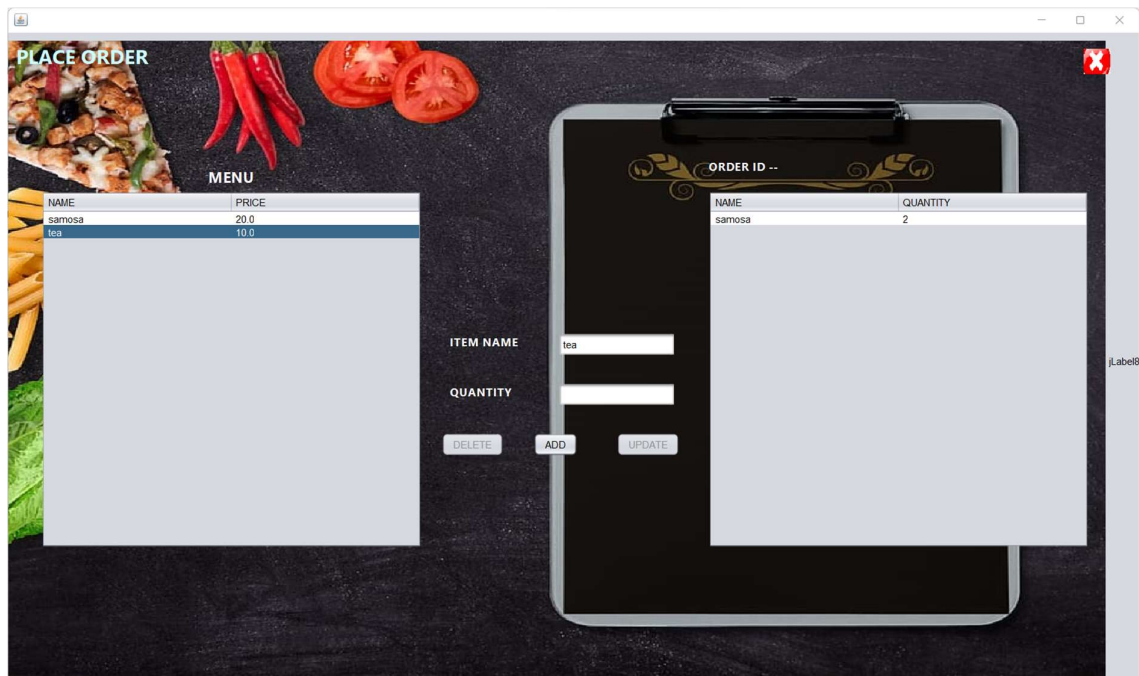
Login Page
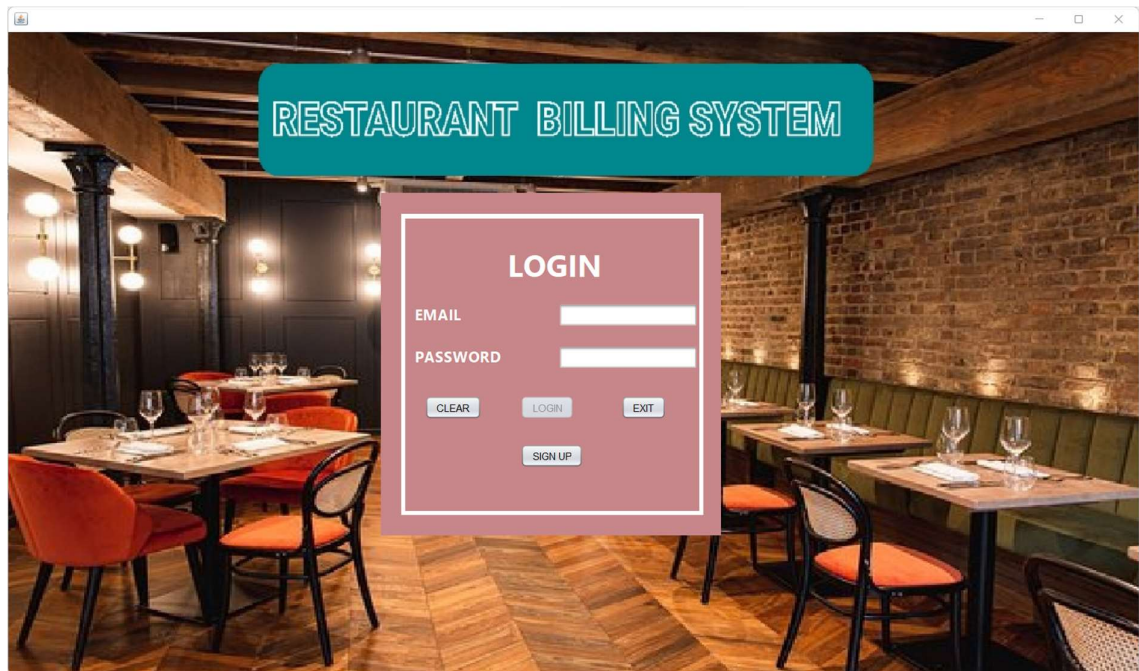
Home Page for Admin
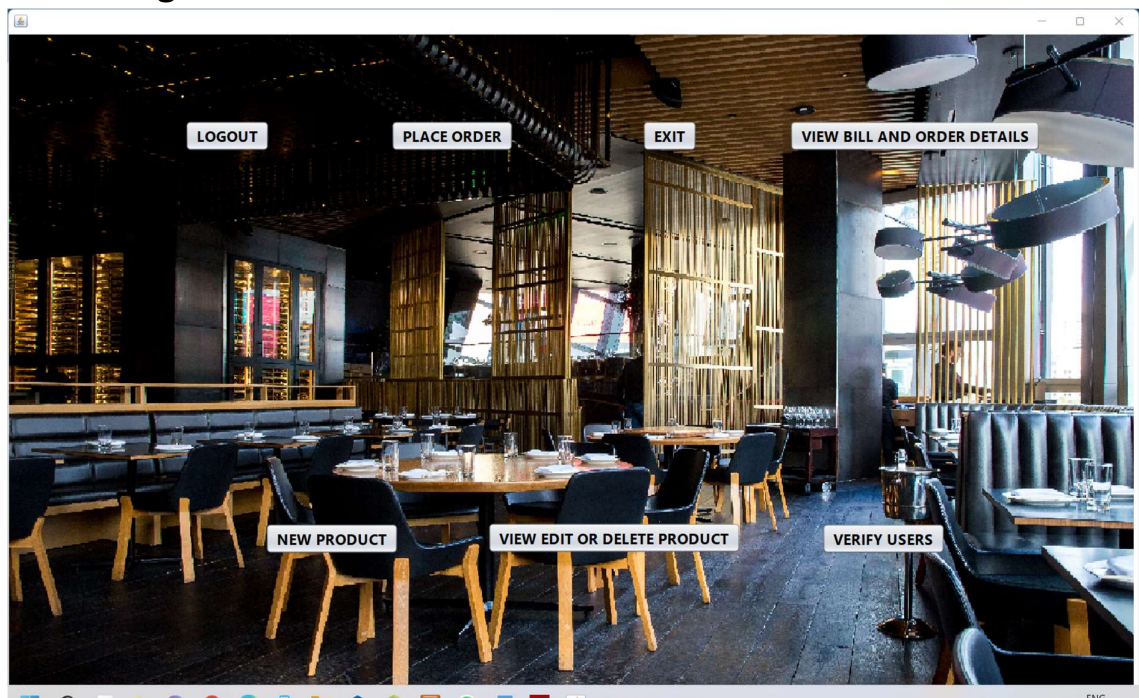
Home page for user

Order Generation

6. Team member contributions

Team Members	Tasks
Rahul S Bhat	Menu management, GUI
Phani Kumar Vedurumudi	Order Management, GUI
Pawan Prasad P	Invoice Management, Login System, GUI