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# Restaurant Management System

**CSI1007 – Software Engineering Principles Laboratory**

23MIC0025

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# Restaurant Management System

**Project Description**

- The Restaurant Management System (RMS) is a software solution designed to streamline restaurant operations by digitalizing table management, menu handling, order processing, and financial tracking. The system provides an intuitive interface for restaurant staff to efficiently manage orders and assign them to tables, ensuring accurate billing and improved customer service. Additionally, it features a dashboard for tracking daily, weekly, and monthly earnings, offering insights into restaurant performance.

**Scope of the Project**

The aim of this project is to streamline restaurant operations by:

- Providing secure access to the system through login functionality.
- Simplifying earnings tracking with detailed reports.
- Allowing full control over the restaurant profile, tables, and menu.
- Providing a straightforward order management system linked to tables, ensuring precise billing and efficient table clearance.

**Impact of the Project**

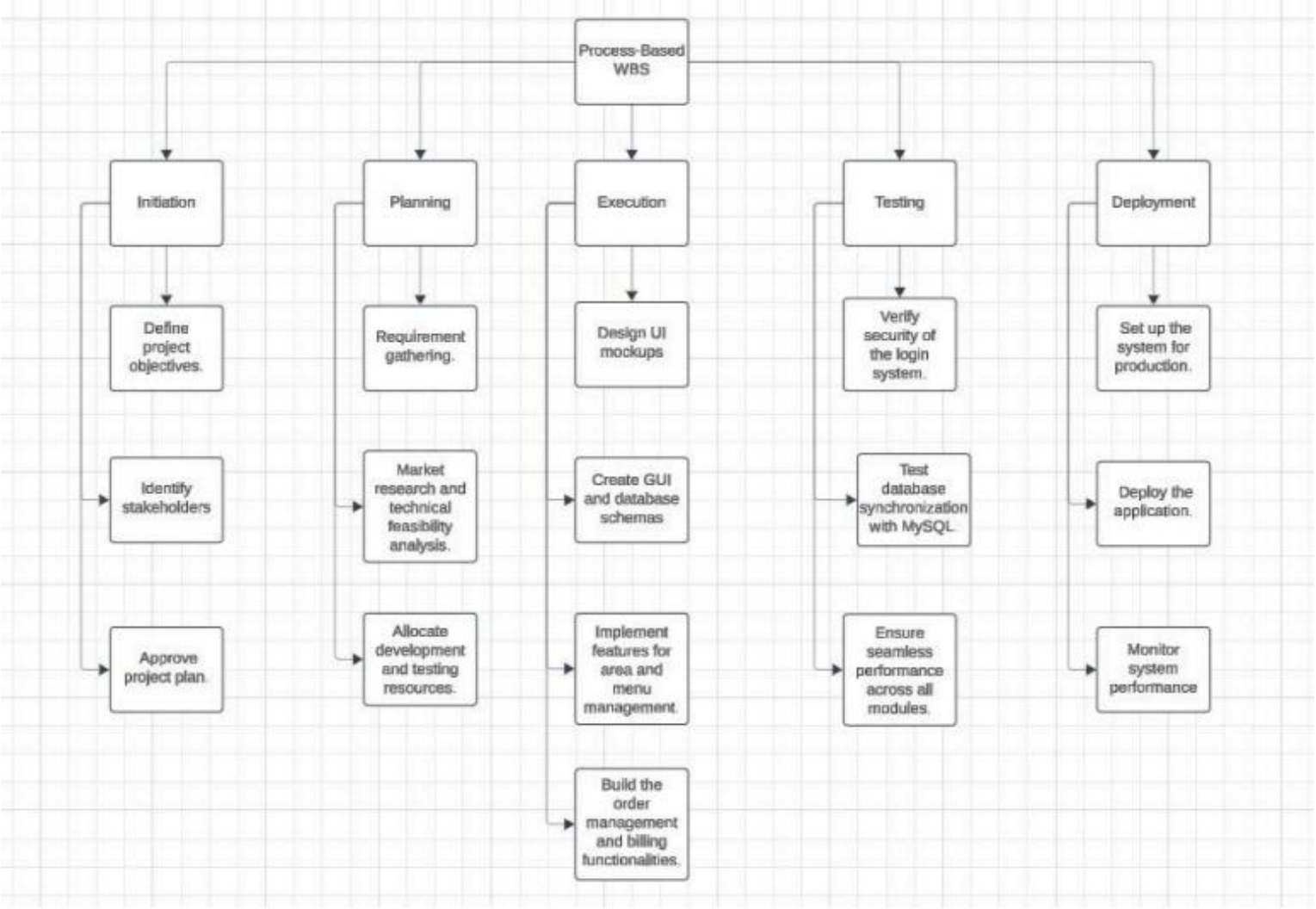
- Economic: Enhances operational efficiency and reduces costs associated with manual processes.
- Social: Improves customer satisfaction with faster billing and accurate orders.
- Technological: Introduces a user friendly interface along with seamless database integration for centralized and scalable data storage.
- Environmental: Encourages paperless operations through digital storage of transaction and order data.

# Work Breakdown Structure

- Process-Based

Work

Breakdown Structure

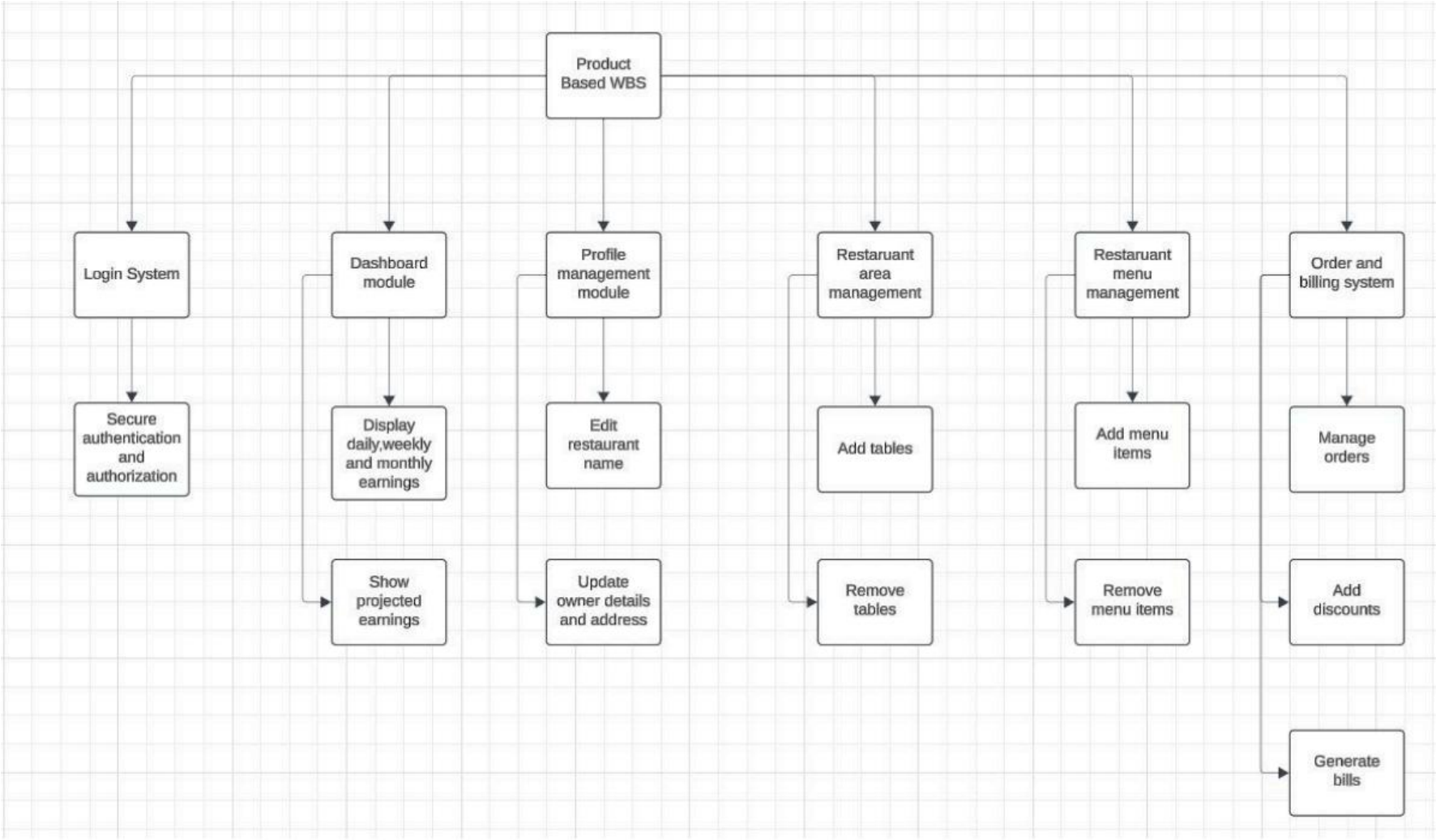


# Work Breakdown Structure

- Product-Based

Work

Breakdown Structure



# SRS Document

**Functional Requirements:**

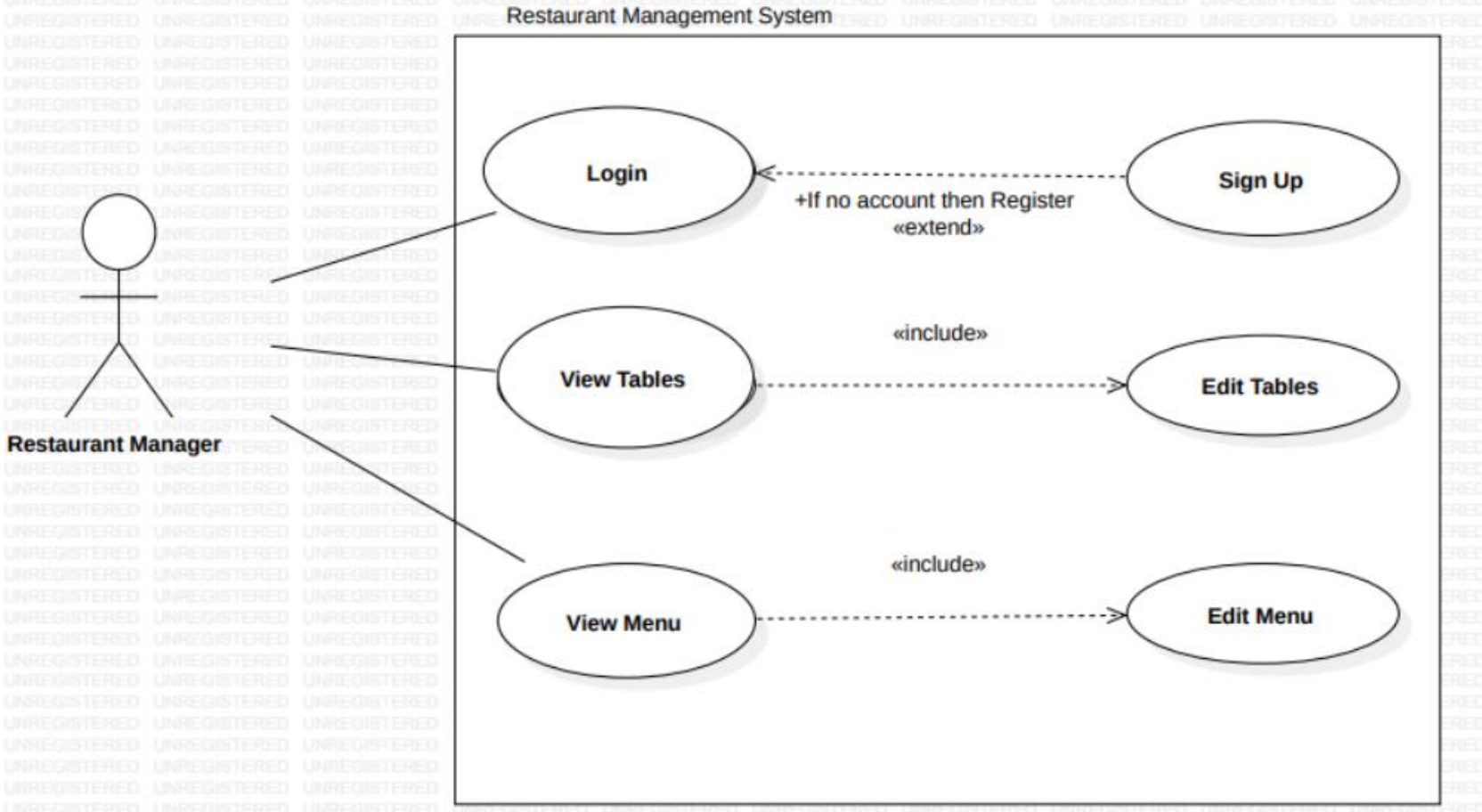
1. **User Authentication:** The system must allow restaurant managers and staff to log in securely using a username and password.
2. **Table Management:** The system should enable adding, updating, and removing tables, ensuring orders are correctly assigned.
3. **Menu Management:** Restaurant managers should be able to add, modify, and remove menu items along with their prices.
4. **Bill Processing:** The system must allow staff to take orders, assign them to tables, and generate bills within the software.
5. **Financial Tracking:** The system should provide daily, weekly, and monthly earnings reports through the dashboard.

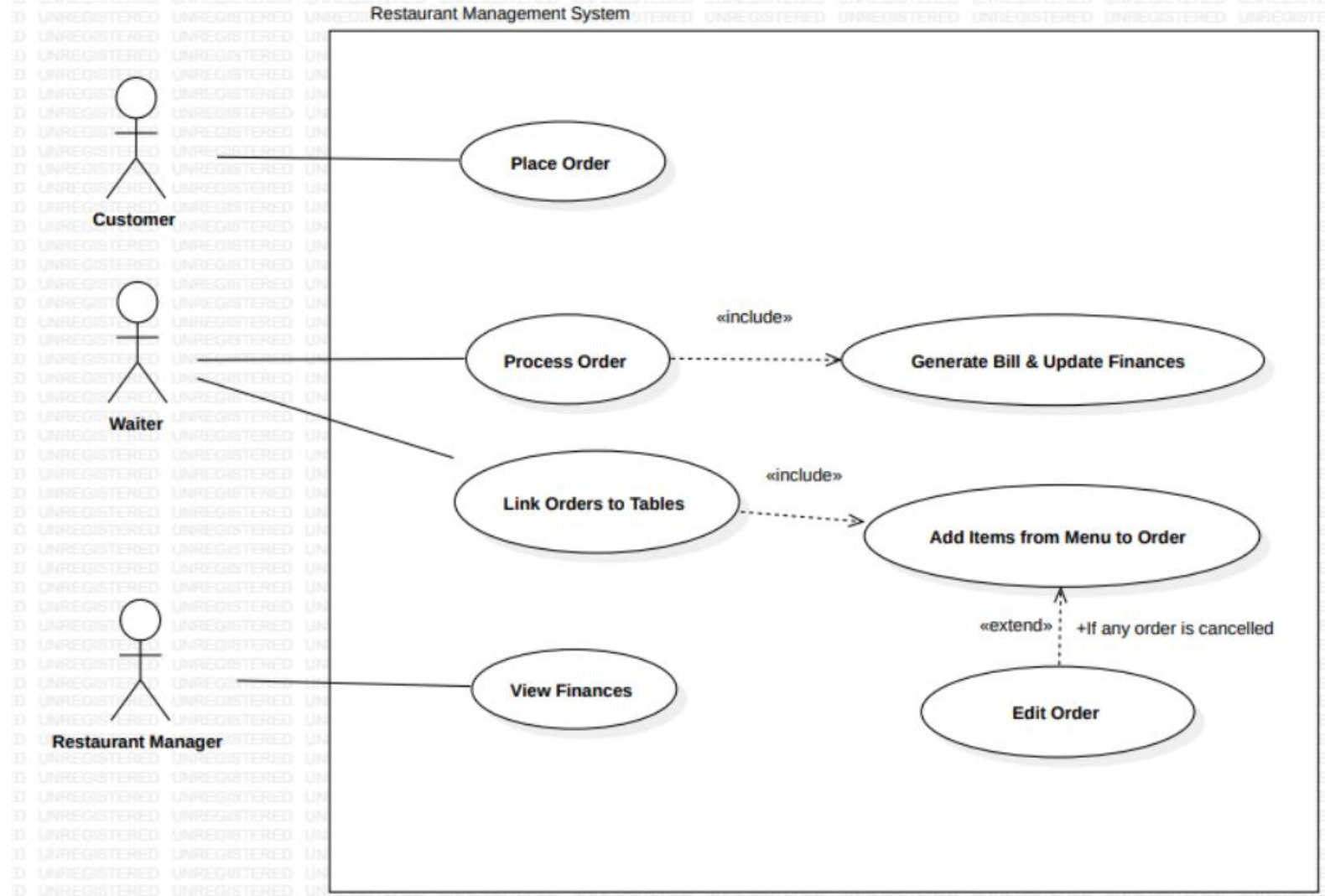
## Non-Functional Requirements:

1. **Performance:** The system should handle multiple concurrent users without significant delays.
2. **Security:** All user data, including login credentials and transactions, must be encrypted and secured.
3. **Usability:** The system should have an intuitive and user-friendly interface for easy navigation.
4. **Reliability:** The system must ensure accurate order and billing data storage, preventing loss due to system crashes.
5. **Scalability:** The system should allow future expansion, including cloud integration for multi-branch restaurants.

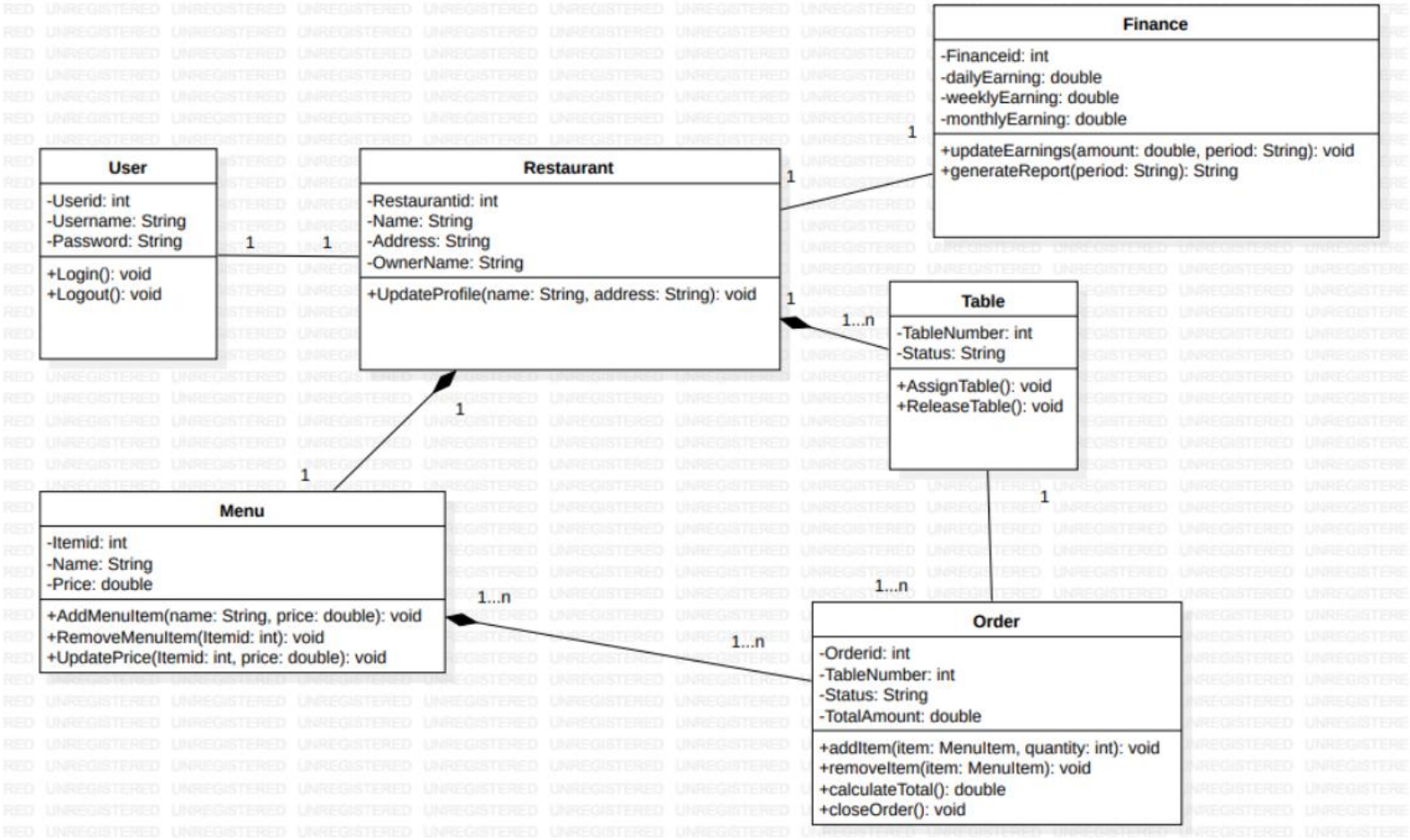
# UML - Diagrams

- Use Case Diagram

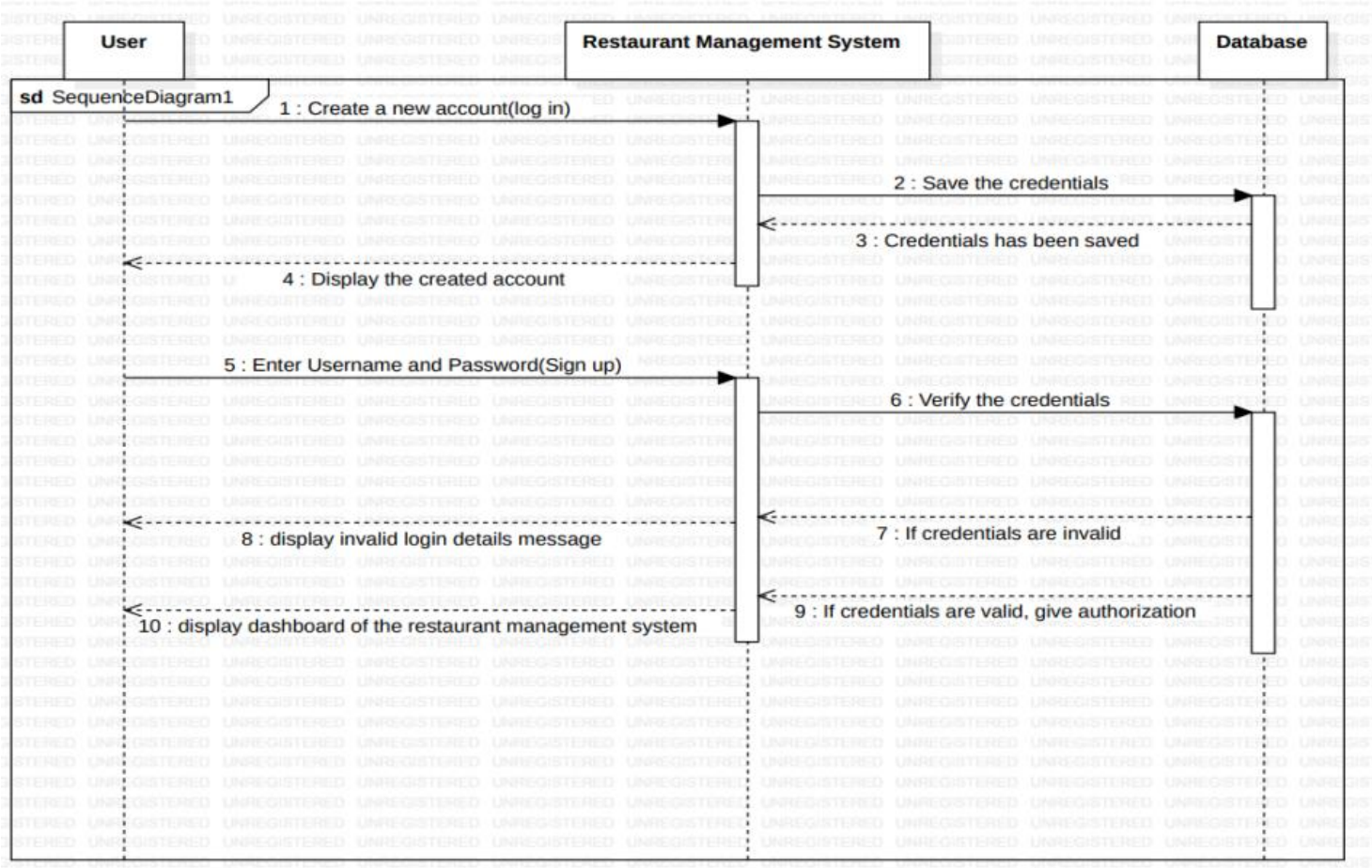


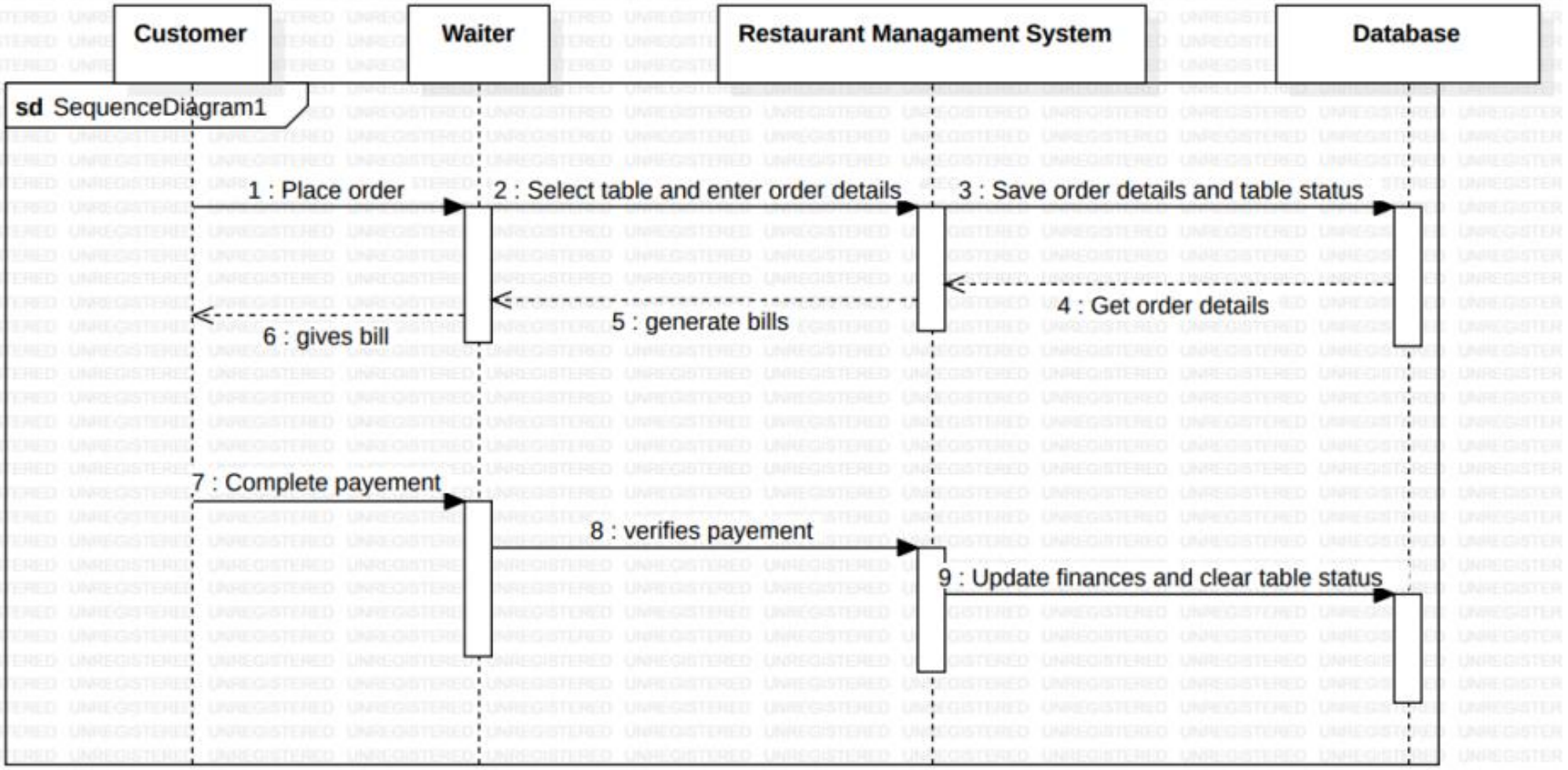

Restaurant Management System
Customer
Waiter
Restaurant Manager
Place Order
Process Order
«include»
Generate Bill & Update Finances
Link Orders to Tables
«include»
Add Items from Menu to Order
«extend»
+If any order is cancelled
View Finances
Edit Order

# Class Diagram



# Sequence Diagram




Customer
Waiter
Restaurant Managament System
Database
sd SequenceDiagram1
1 : Place order
2 : Select table and enter order details
3 : Save order details and table status
4 : Get order details
5 : generate bills
6 : gives bill
7 : Complete payement
8 : verifies payement
9 : Update finances and clear table status

# Testing

- **Test Case ID:** TC001
- **Test Scenario:** Verify login functionality with valid and invalid credentials.
- **Test Case Description:** Ensure that the login system allows authorized users and prevents unauthorized access.
- **Test Steps:**
    1. Open the login page.
    2. Enter the username.
    3. Enter the password.
    4. Click the "Login" button.
- **Test Data:**
    - Valid Case: Username: admin123, Password: Secure@123
    - Invalid Case: Username: wronguser, Password: wrongpass

**Test Expected Result:**

- If valid credentials are entered, the user should be redirected to the dashboard.
- If invalid credentials are entered, an error message "Invalid Username or Password" should appear.

**Actual Result:**

- Valid credentials: Redirected to dashboard.
- Invalid credentials: Got error message.

**Pass/Fail: Pass**

- **Test Case ID:** TC002
- **Test Scenario:** Verify that waiters can place customer orders correctly.
- **Test Case Description:** Ensure that orders are assigned to tables and menu items are added accurately.
- **Test Steps:**
    1. Log in as a waiter.
    2. Select a table.
    3. Add menu items to the order.
    4. Confirm the order.
- **Test Data:**
    - Valid Case: Table Number: T5, Menu Items: Burger (x2), Fries (x1), Coke (x2)
    - Invalid Case: No table selected, No items added

**Test Expected Result:**

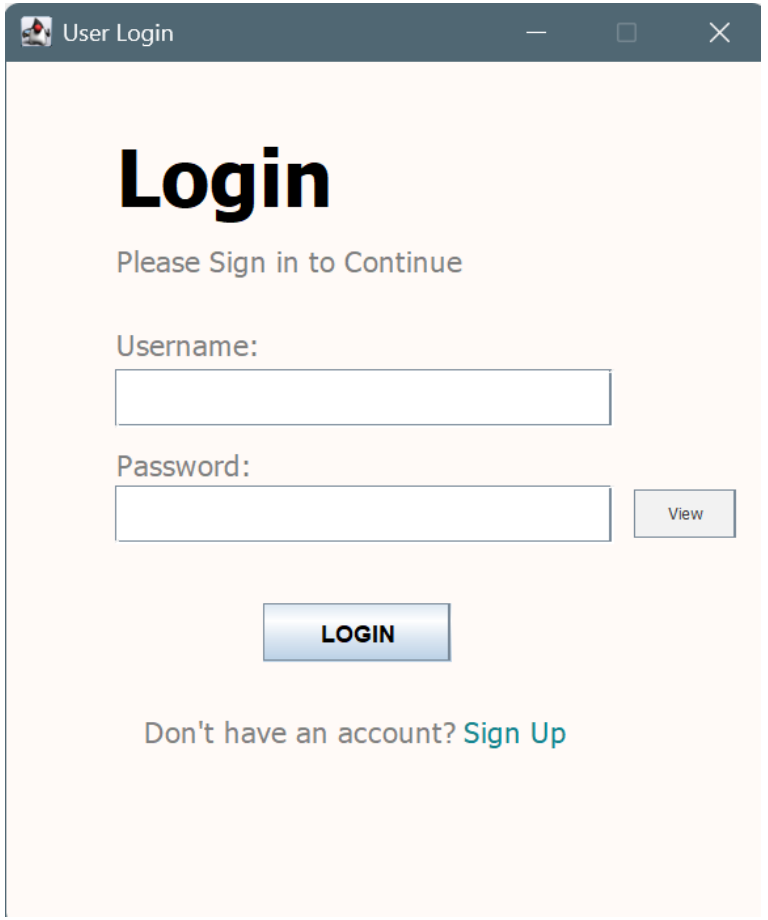
- If valid data is entered, the system should create an order and assign it to the selected table.
- If no table is selected, an error "Please select a table" should appear.
- If no items are added, an error "Order must contain at least one item" should appear.

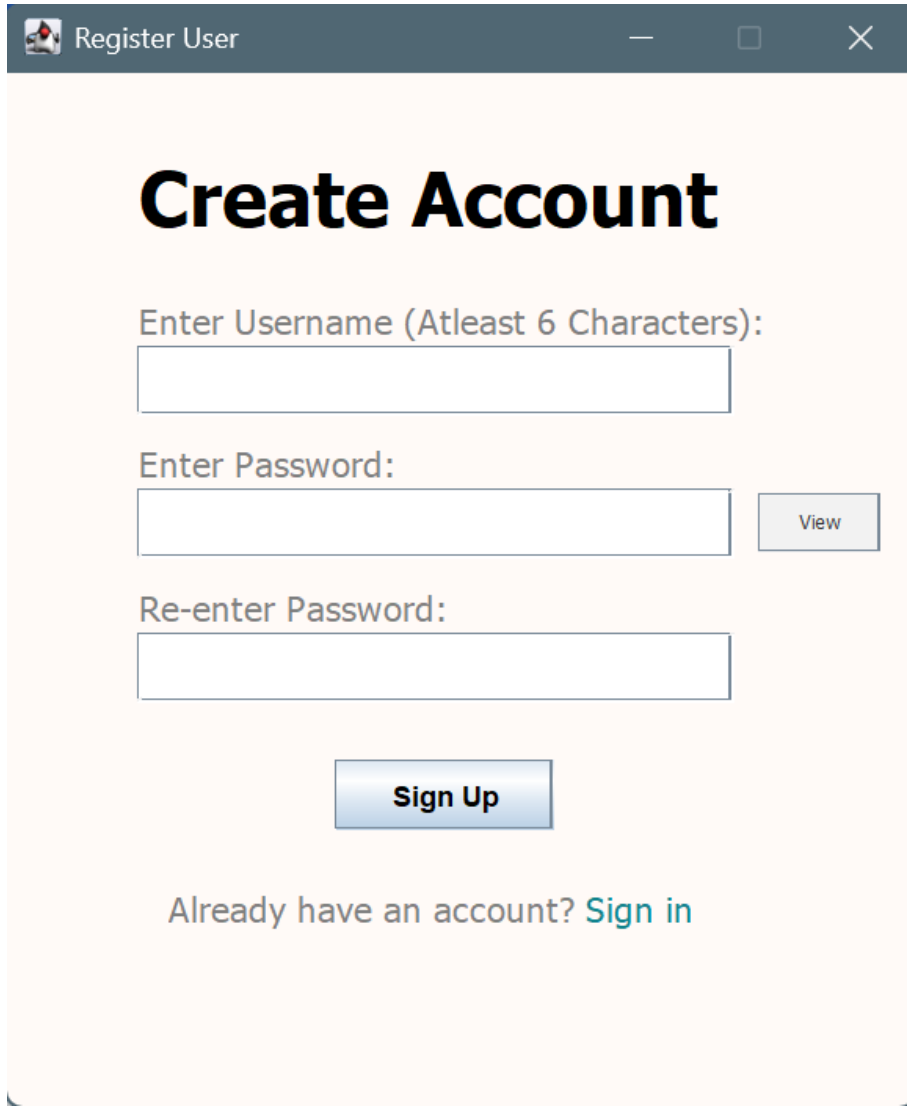
**Actual Result:**

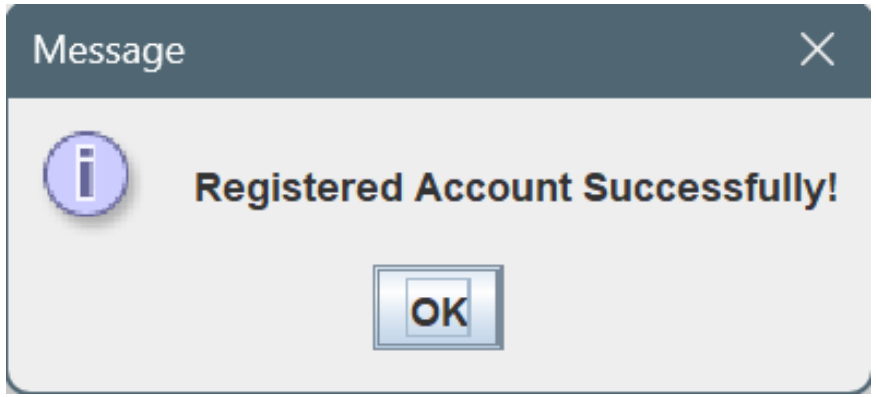
- Order created successfully and assigned to table.
- Error messages displayed correctly for invalid cases.

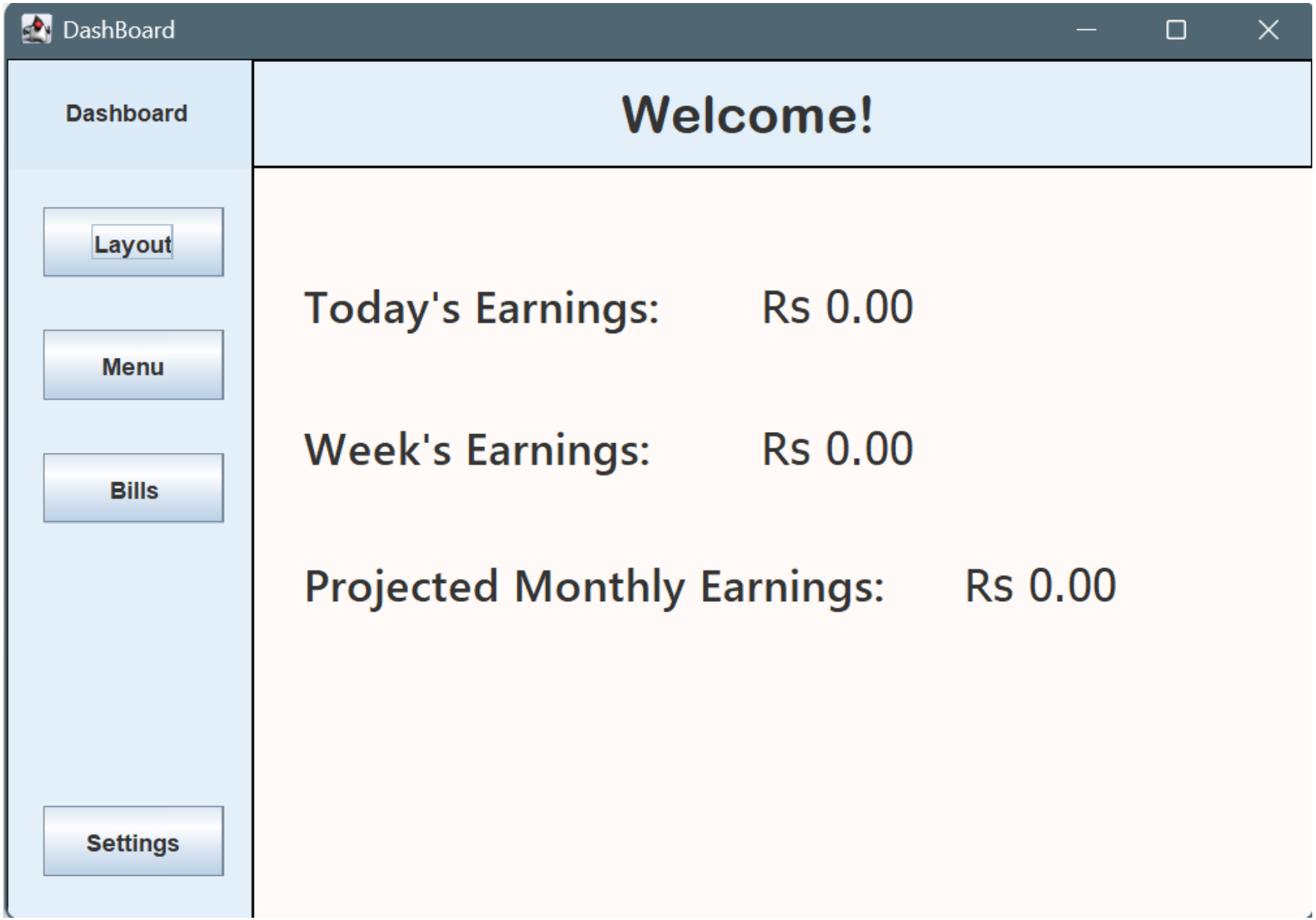
**Pass/Fail:** Pass

# Project – UI Screenshots

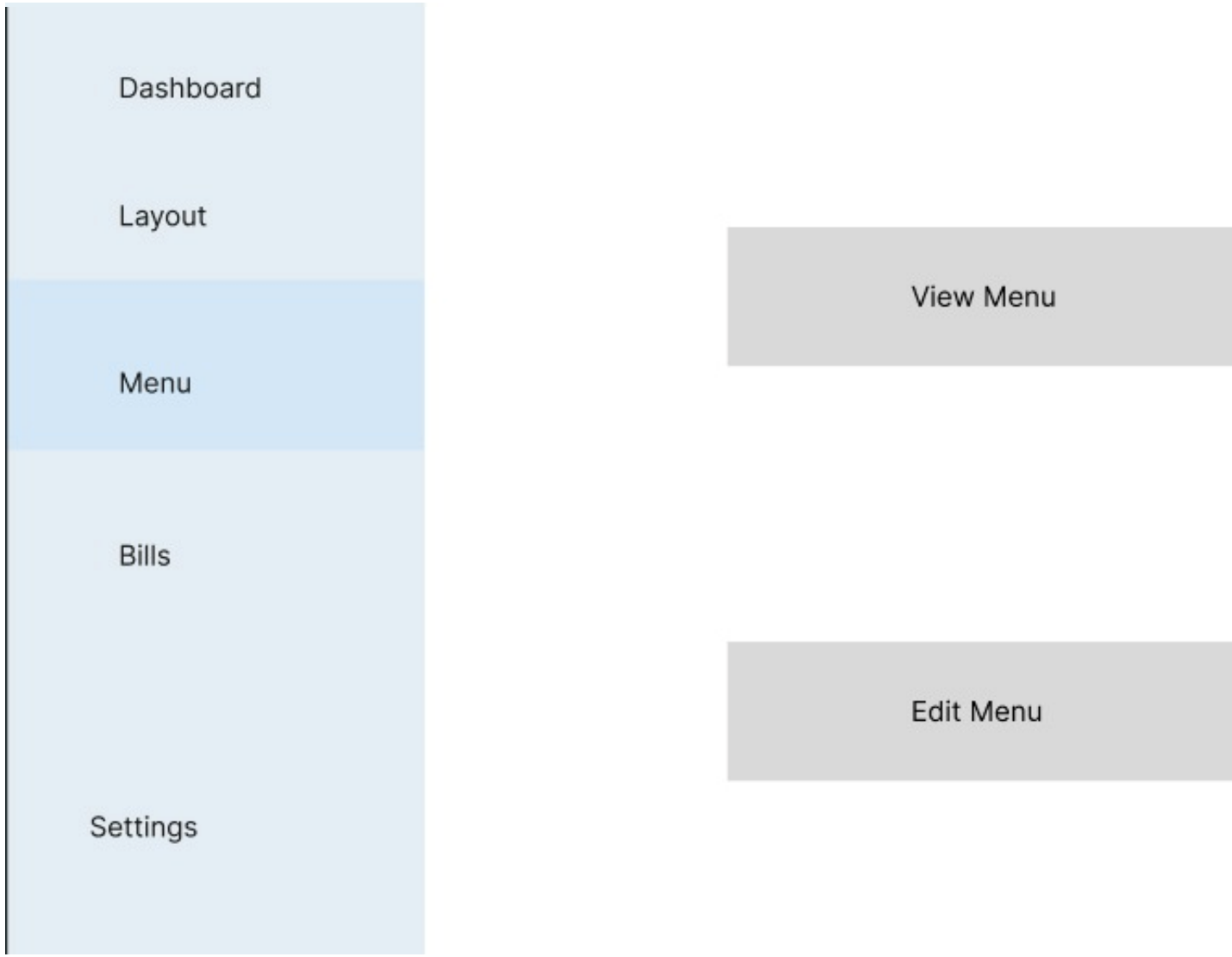


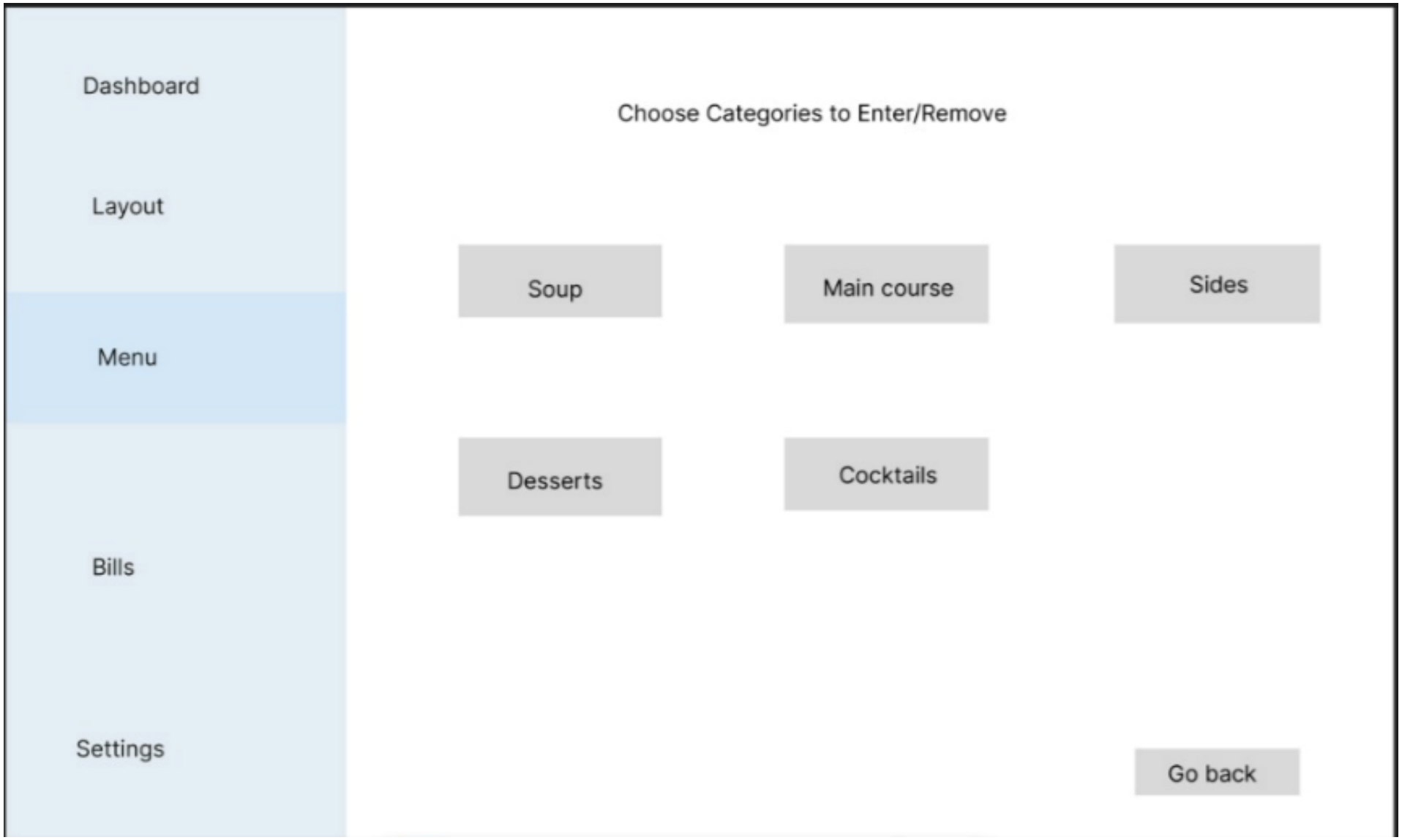

Register User
Create Account
Enter Username (Atleast 6 Characters):
Enter Password:
View
Re-enter Password:
Sign Up
Already have an account? Sign in

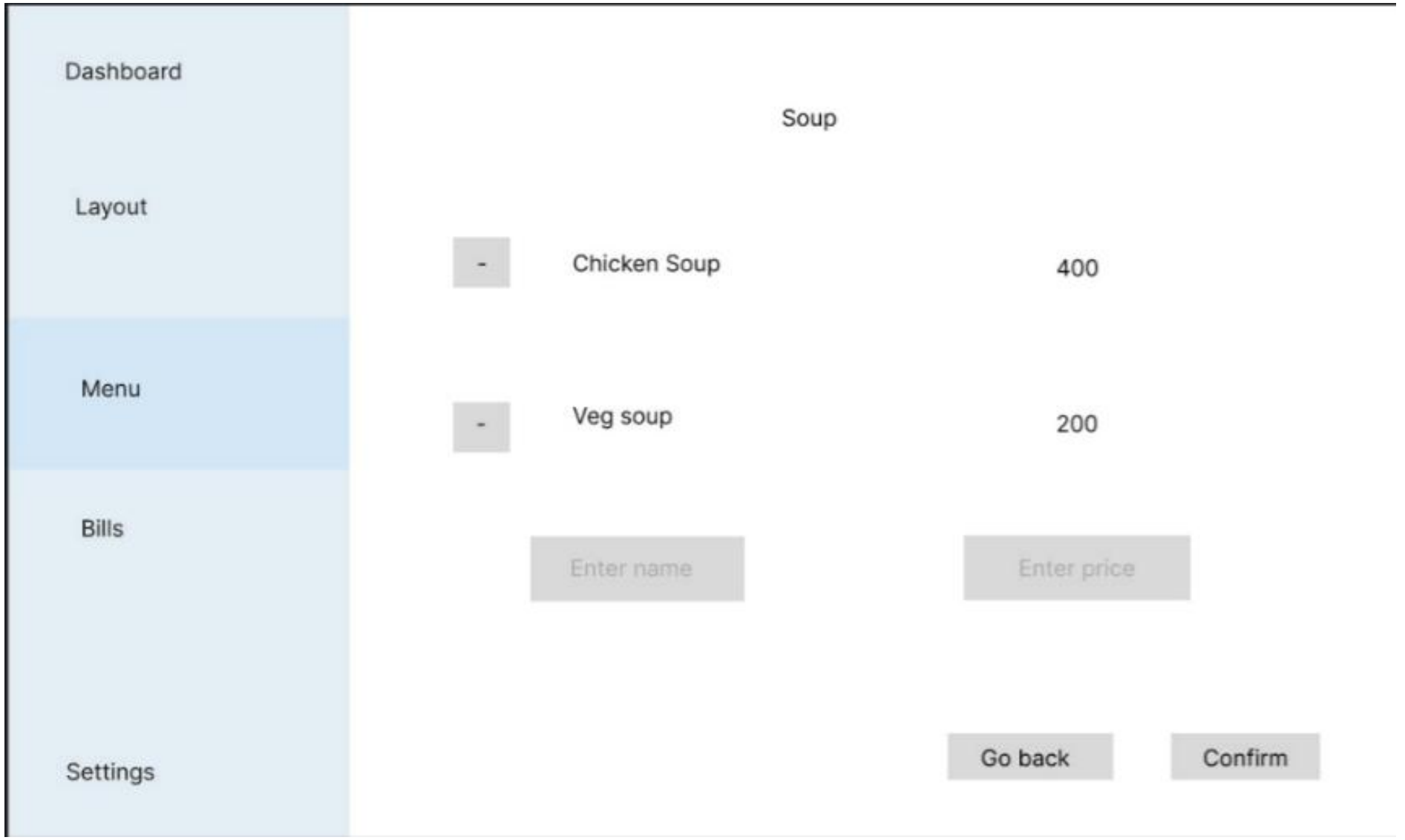

Message
Registered Account Successfully!
OK

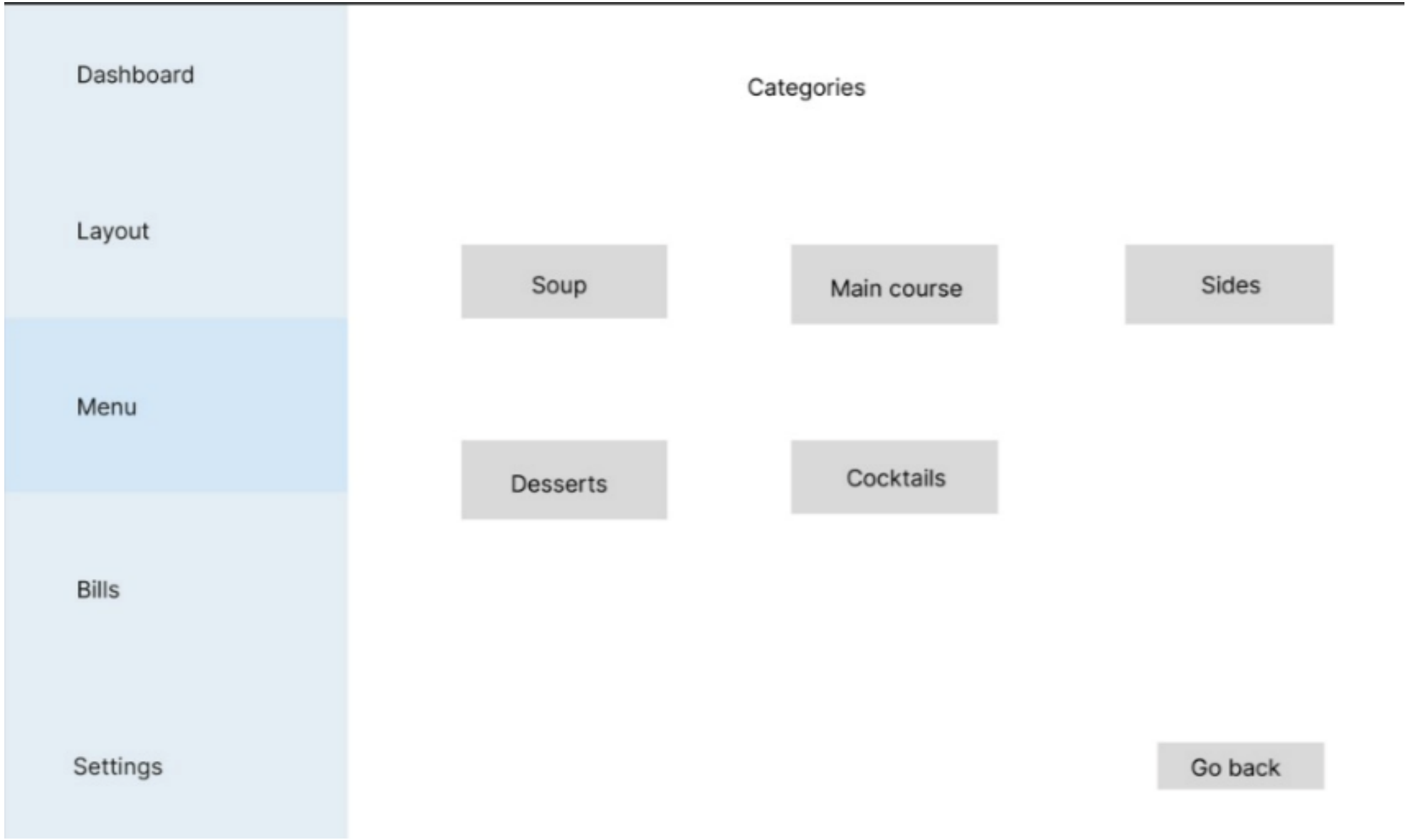

DashBoard
Dashboard
Layout
Menu
Bills
Settings
Welcome!
Today's Earnings: Rs 0.00
Week's Earnings: Rs 0.00
Projected Monthly Earnings: Rs 0.00

Dashboard
Layout
Menu
Bills
Settings
-
Add Tables
+
T1
T2
T3

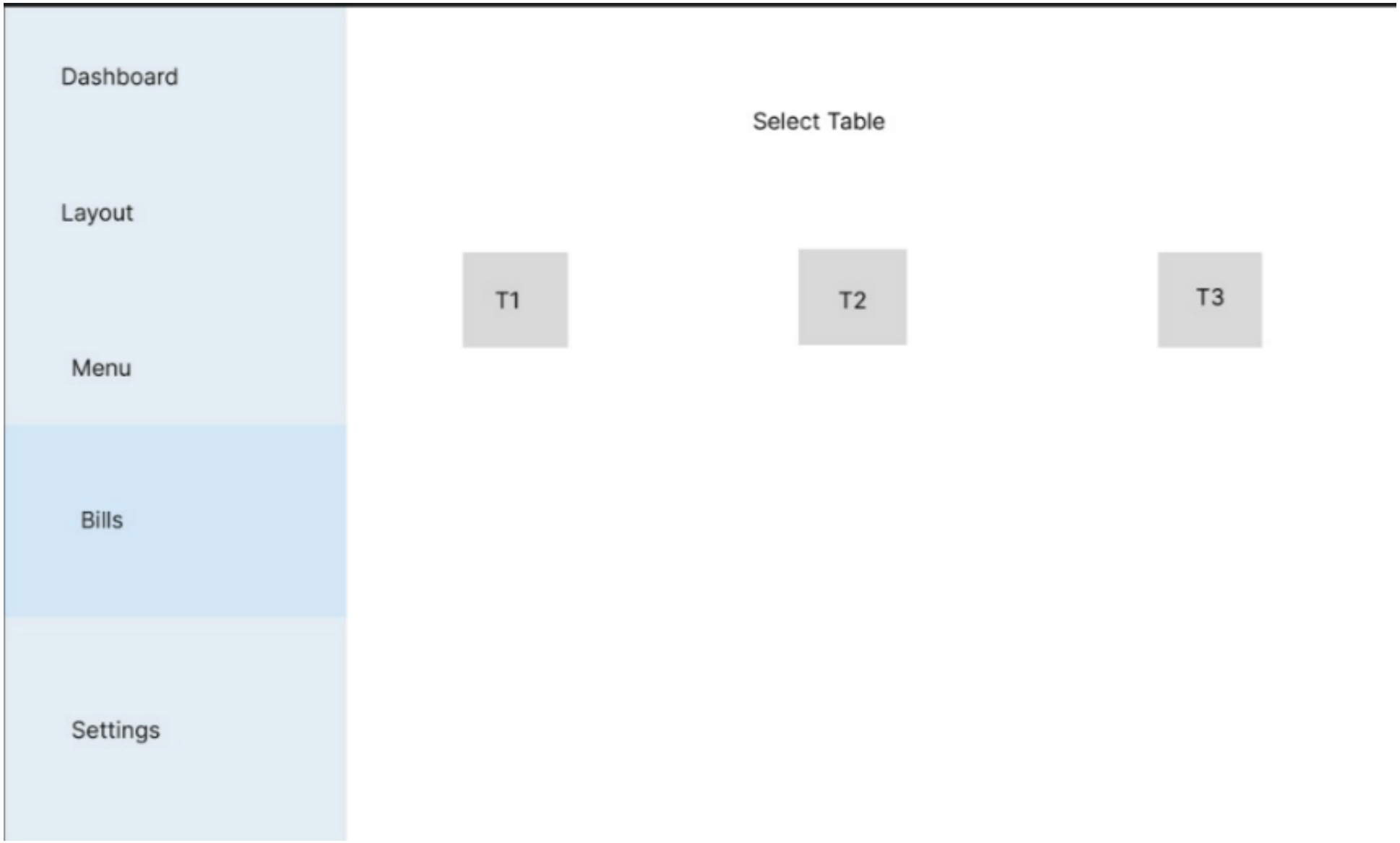

Dashboard
Layout
Menu
Bills
Settings
View Menu
Edit Menu

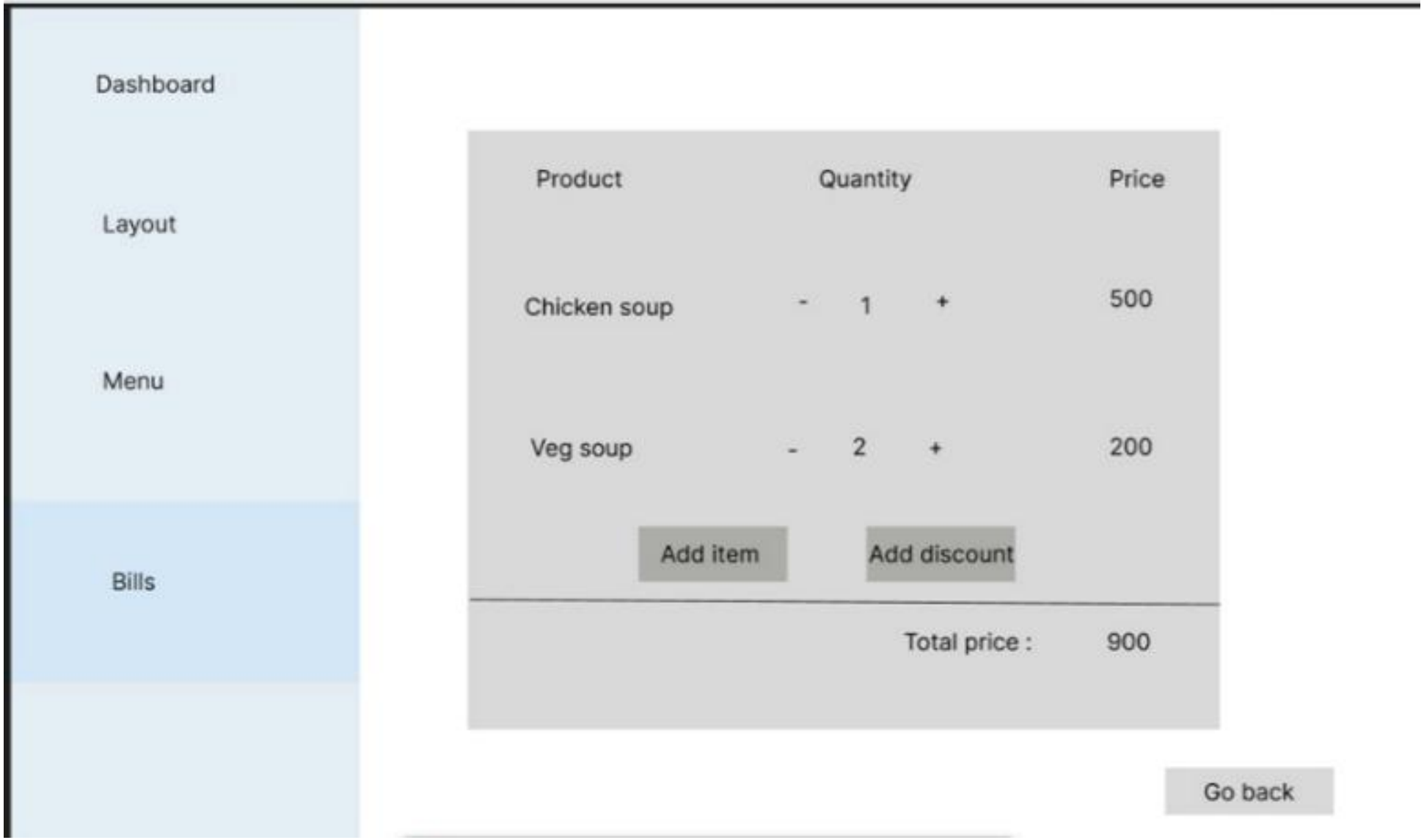

Dashboard
Layout
Menu
Bills
Settings
Choose Categories to Enter/Remove
Soup
Main course
Sides
Desserts
Cocktails
Go back

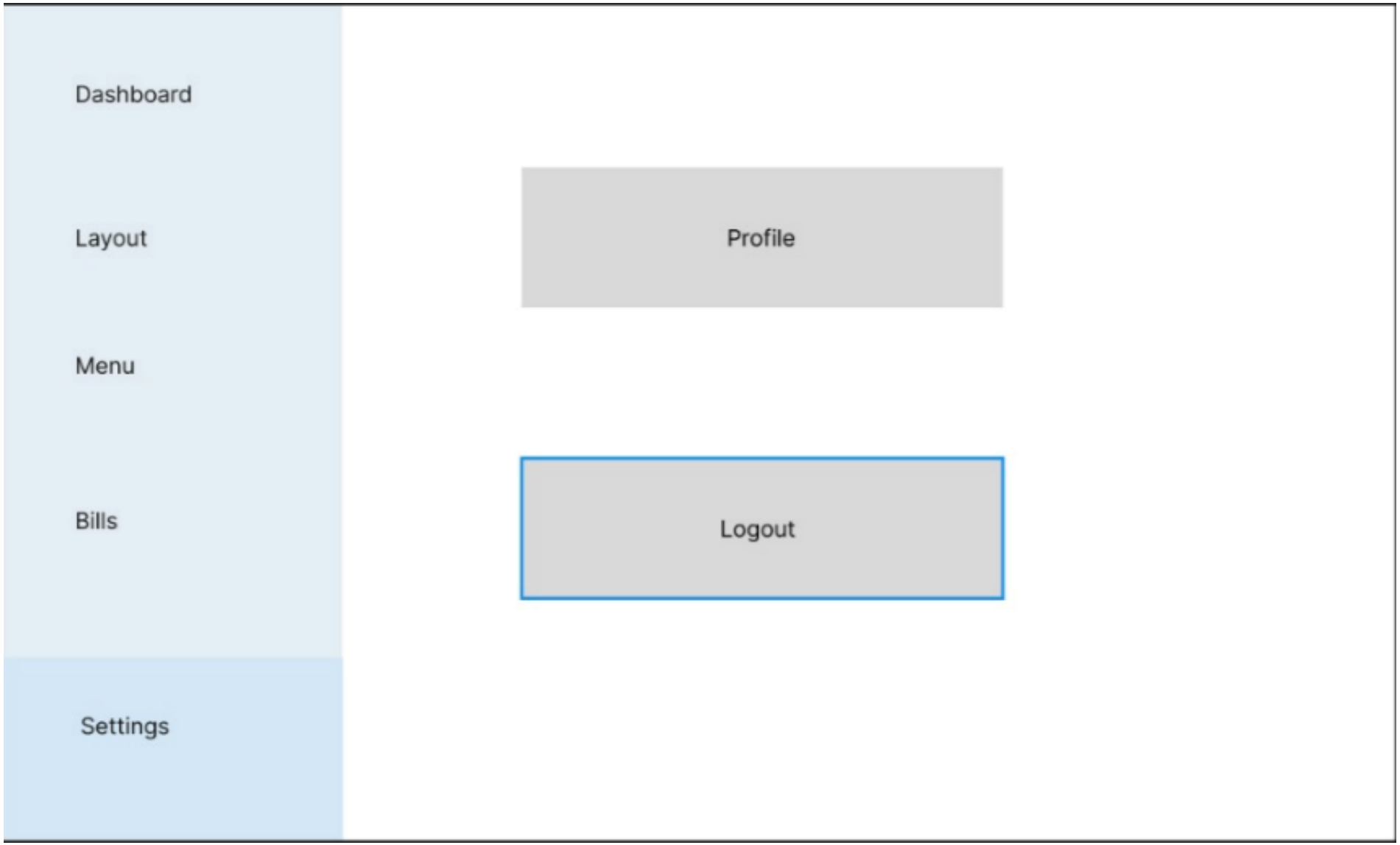

Dashboard
Layout
Menu
Bills
Settings
Soup
-
Chicken Soup
400
-
Veg soup
200
Enter name
Enter price
Go back
Confirm


Dashboard
Layout
Menu
Bills
Settings
Categories
Soup
Main course
Sides
Desserts
Cocktails
Go back

Dashboard
Layout
Menu
Bills
Settings
Soup
Chicken Soup
400
Veg soup
200
Go back


Dashboard
Layout
Menu
Bills
Settings
Select Table
T1
T2
T3


Dashboard
Layout
Menu
Bills
Product
Quantity
Price
Chicken soup
-
1
+
500
Veg soup
-
2
+
200
Add item
Add discount
Total price :
900
Go back


Dashboard
Layout
Menu
Bills
Settings
Profile
Logout