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CSE 428

< Software requirements specification for Restaurant Reservation System >

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1. Introduction

1.1. Purpose

The Main purpose of our project is to create a Restaurant Reservation System designed especially for restaurants seeking to streamline their reservation process.

The system will enable customers to:

- Online reservations.
- Manage the booking (add or drop items from the menu).
- Create an account and log in to the website.

The system will enable restaurant staff to:

- management dashboard to oversee reservations, orders, and bills.
- View ratings
- View reports.
- Change the Menu list.

Using this system and automating the reservation process will enhance the customers' experience and optimize table management for restaurant managers.

1.2. Scope:

The system will be designed for a variety of restaurants. Every restaurant can adjust the system’s functionality or add any desired features to the base software.

The system also will have a user-friendly interface for both customers and restaurant staff.

Security measures can be added as much as needed to protect customer data and ensure a safe booking environment.

1.3. Actors:

There will be two main stakeholders involved in the system:

1.3.1. System Users:

The system has two main users:

- **Staff members:** Hosts /hostesses, managers, warehouse manager, and servers, who will have access to the management dashboard to oversee reservations and manage table assignments. They gain access and the allowed functionalities from the main admin.
- **Customers:** They are the end users of the system who will make reservations, view menus, and manage their bookings.

1.3.2. System Developers:

They are responsible for developing, designing, testing, and maintaining the system.

2. Overall Description

2.1. Product Perspective

The restaurant reservation application is a standalone system that operates as a website. It interacts with users through a web interface and communicates with a backend server to manage reservations, menus, orders, and payments.

2.2. Product Features

- **Table reservation:** Users can reserve tables for a specific time and date by accessing the website and choosing the available dates and tables.
- **Menu browsing:** Users can view the restaurant's menu items. The menu contains all foods and drinks that the restaurant provides and can be edited by the staff or admin.
- **Order placement**: Users can select items from the menu and place orders.
- **Payment processing:** Users can only see the bill

- **Review orders:** staff can access a dashboard that displays incoming orders, allowing them to review each order and prepare accordingly.

- **Table Status Updates:** Staff can update the status of tables in real time, indicating whether they are available, reserved, or currently occupied. This helps manage seating arrangements efficiently.

- **Modify and Managing Order:** Staff can manage orders, including placing new orders, modifying existing ones, and marking orders as complete once served.

- **View Order Details:** Staff can access detailed information about each customer's order, including specific items, special requests, and any modifications.

2.3. User Classes and Characteristics:

Customers:

Characteristics:
Individuals who want to make reservations, browse the menu, and place orders. **Actions:**

They interact with the restaurant system to view available reservation slots, explore the menu items, place orders, make payments, and provide feedback on their dining experience. **Needs:**

They seek convenience, ease of use, accurate information about menu items and availability, and a seamless ordering and payment process.

Admin (Manager):

Characteristics: Administrators responsible for managing reservations, updating the menu, and monitoring orders and giving access to staff members and give them specific functionalities. **Actions:**

They have access to administrative functionalities such as managing reservations, updating the menu items and prices, reviewing order statuses, assigning tasks to chefs and waiters, generating reports, and overseeing overall restaurant operations.

Staff member:

Characteristics: take the functionality and access from the admin(manager). **Actions:**

They can view orders from the system, review order details and see the reserved tables.

2.4. Design and Implementation Constraints

- The application must be designed to be responsive and accessible on various devices with different screen sizes.
- The system should be scalable to handle a large number of concurrent users during peak hours.

3. System Requirement Specification

3.1. Functional Requirements

- **REQ-1:** Users can register for an account with a unique username and password.
- **REQ-2:** Users can select a date, time, and number of guests for the reservation.
- **REQ-3:** The system presents the menu items in a clear and organized manner.
- **REQ-4:** Users can see descriptions and prices for each menu item.
- **REQ-5:** The system calculates the total cost of the order.
- **REQ-6:** staff can register for an account with a unique username and password.
- **REQ-7**: staff can see and review orders.

- **REQ-8:** staff have access to a feature allowing them to review their personal information, including details and allowed functionalities.
- **REQ-9:** Admin (Manager) has access to the website and can review all bookings.
- **REQ-10:** Admin (Manager) can edit the menu items.
- **REQ-11:** Admin (Manager) can view all employees' information.
- **REQ-12:** Admin (Manager) has access to feedback list from the customers.
- **REQ-13:** Admin (Manager) has access to see all bookings, all orders and all reserved tables.
- **REQ-14:** Admin (Manager) can give access to staff and specific functionality to each one of them.
- **REQ-15:** Users Can view their order before placing it.
- **REQ-16:** Users Can rate the restaurant.
- **REQ-17:** Users Can make a report regarding any problem.
- **REQ-18:** Any user Can sign out.
- **REQ-19:** Any staff member Can view their order before placing it.
- **REQ-**20: Users Can cancel their reservation anytime.

3.2. Nonfunctional Requirements

3.2.1. Performance Requirements

The application should respond to user actions within 2 seconds.

3.2.2. Safety Requirements

User data (e.g., personal information) should be encrypted to ensure data security.

3.2.3. Software Quality Attributes

- The application should be reliable and available 24/7 with minimal downtime.
- The system should be scalable to accommodate future growth in user traffic.
- Regular backups of data should be performed to prevent data loss.

3.3. External Interface Requirements

3.3.1. User Interfaces

The application will have a user-friendly web interface for both desktop and mobile devices.

3.3.2. Hardware Interfaces

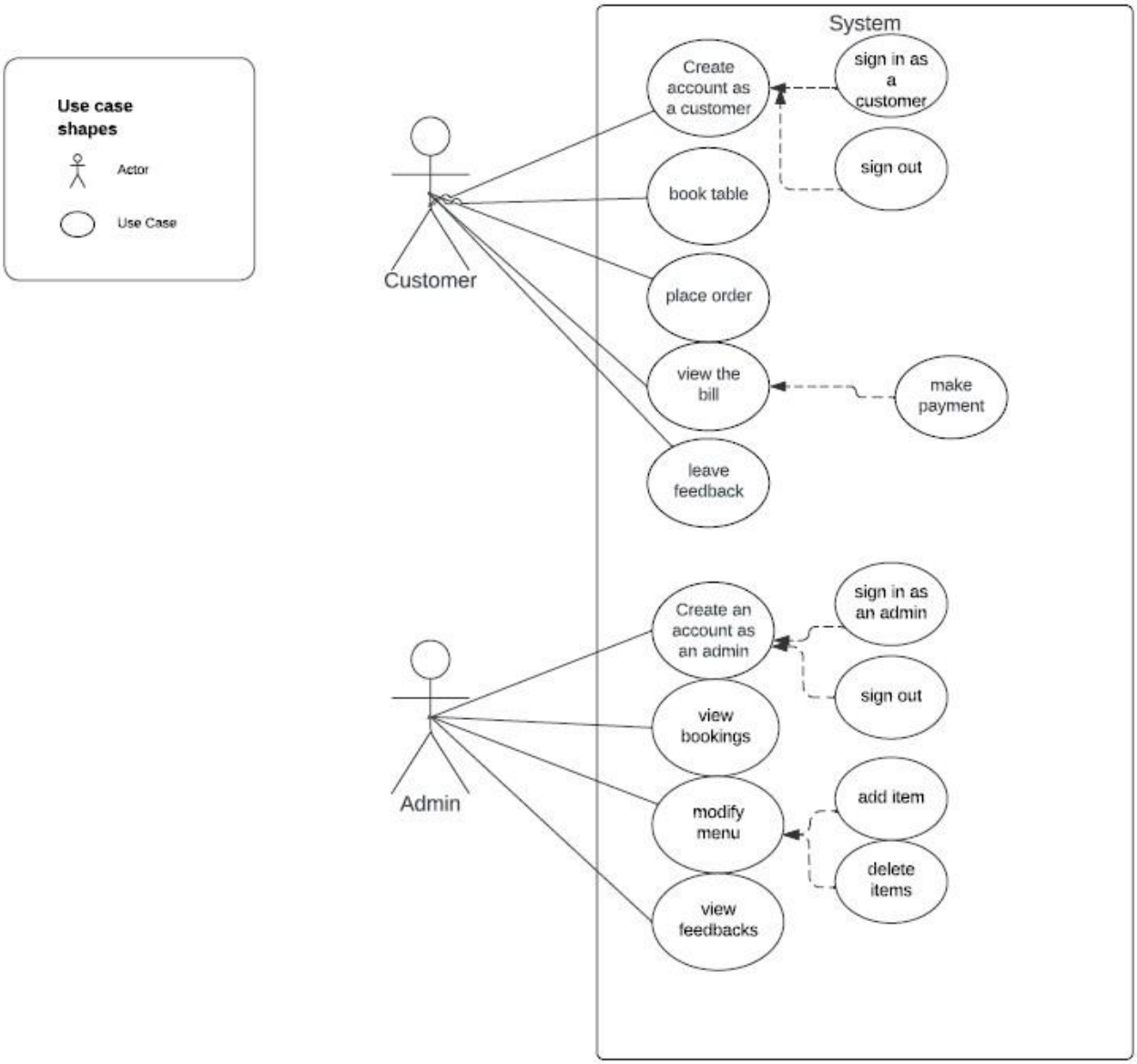
The application requires devices with internet connectivity to access the website.

3.3.3. Communications Interfaces

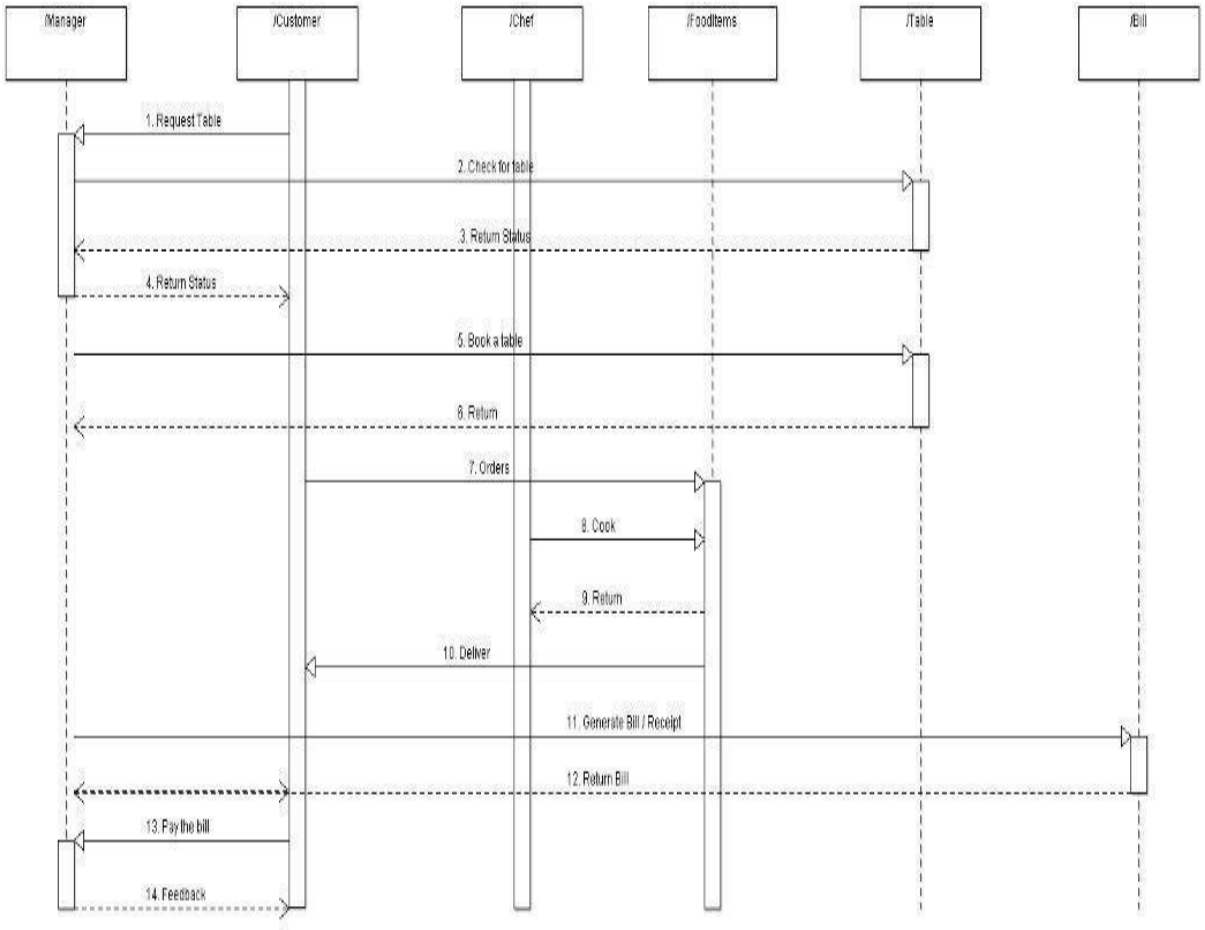
The application communicates with the backend server over HTTPS for data exchange.

4. System Design

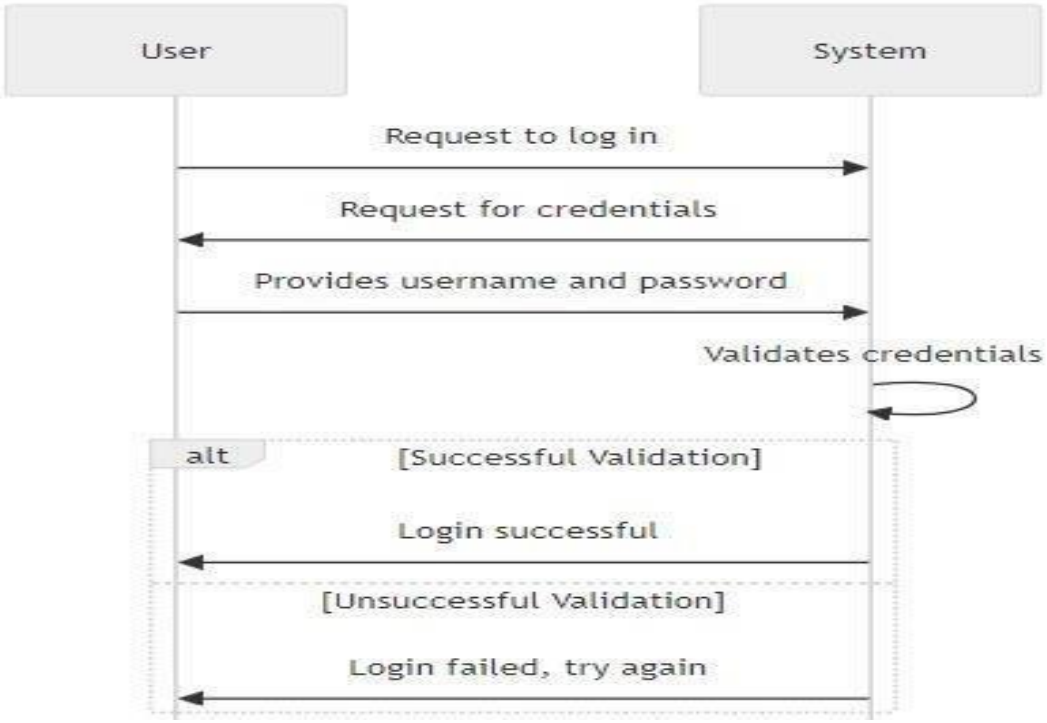
4.1. Use case diagram



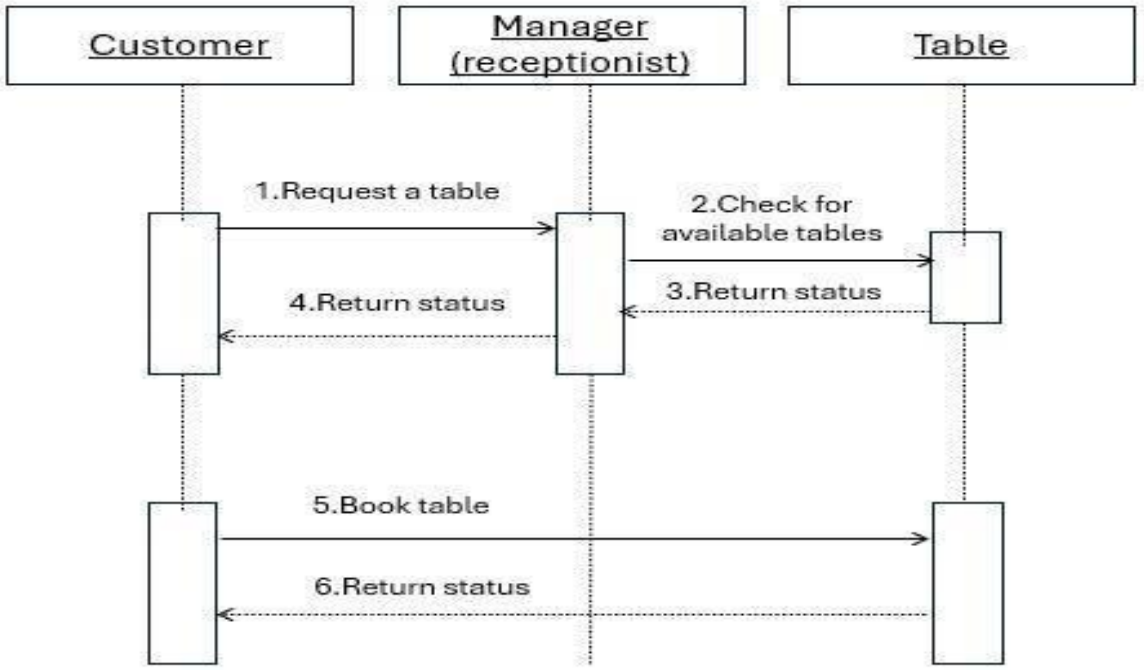
4.2. Sequence diagram.



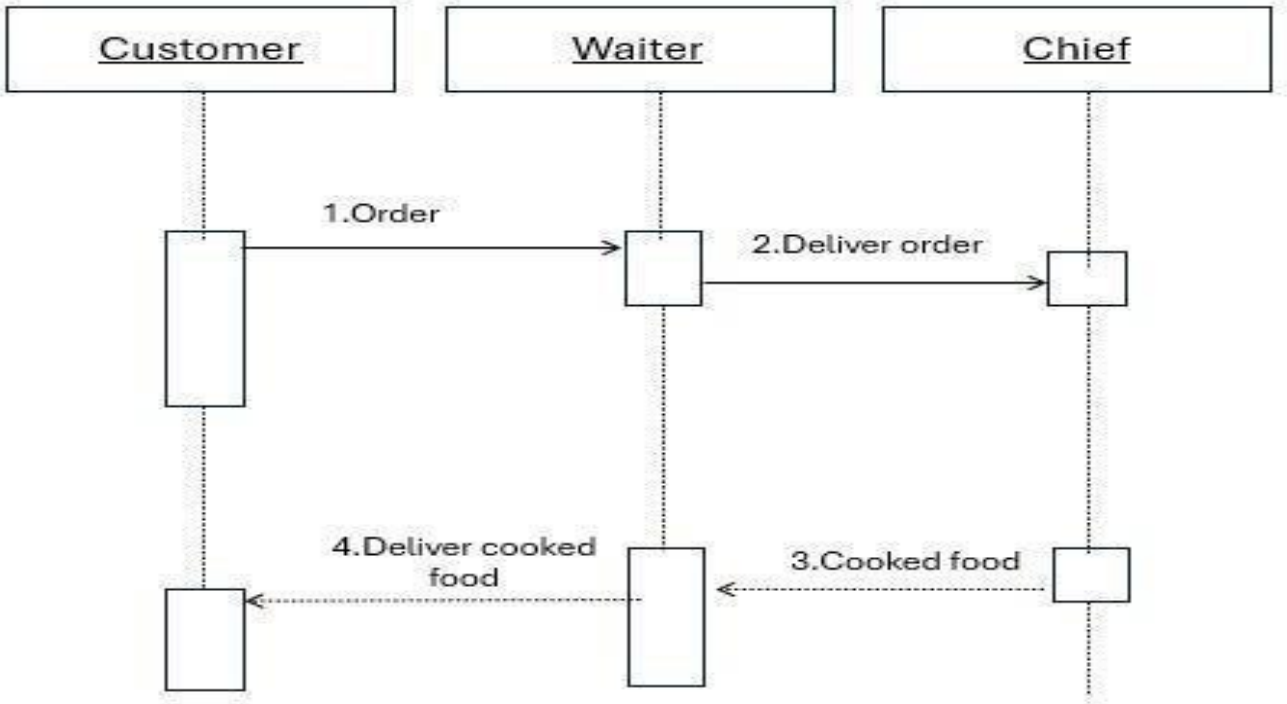
4.2.1. login



4.2.2. Reserve a Table

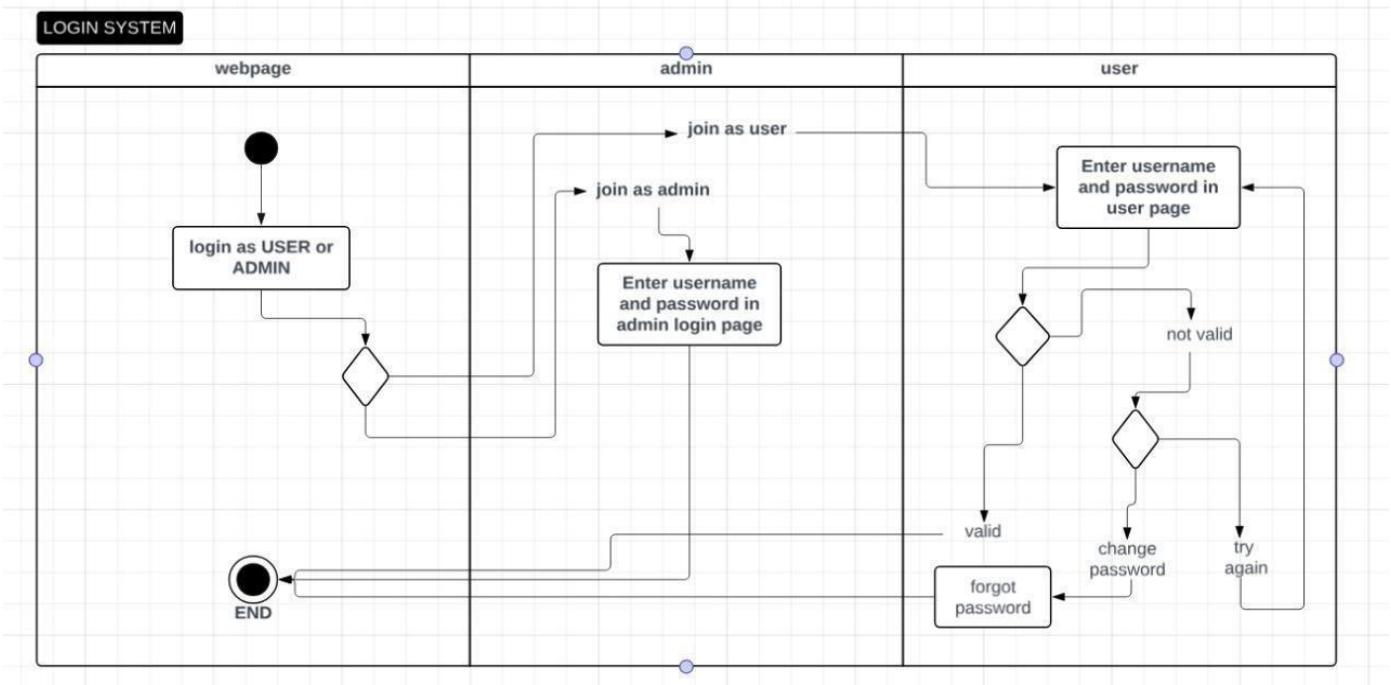


4.2.3. Order food.

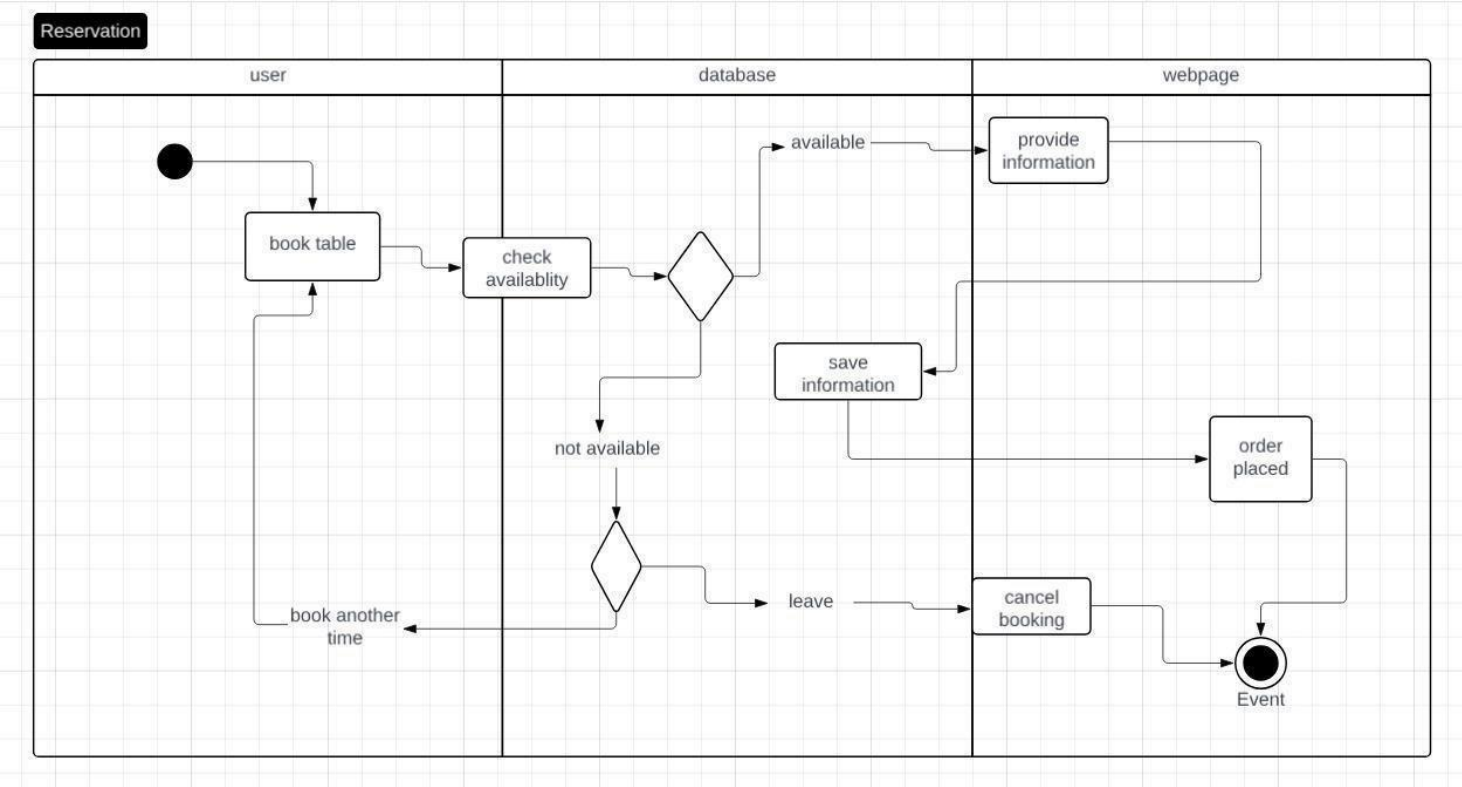


4.3. State and activity diagrams.

4.3.1. Login System

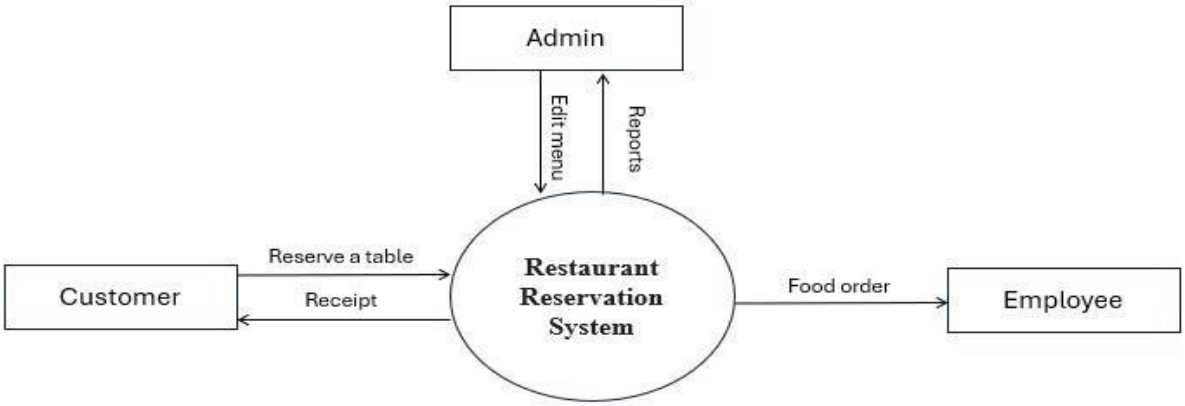


4.3.2. Reserve a table.

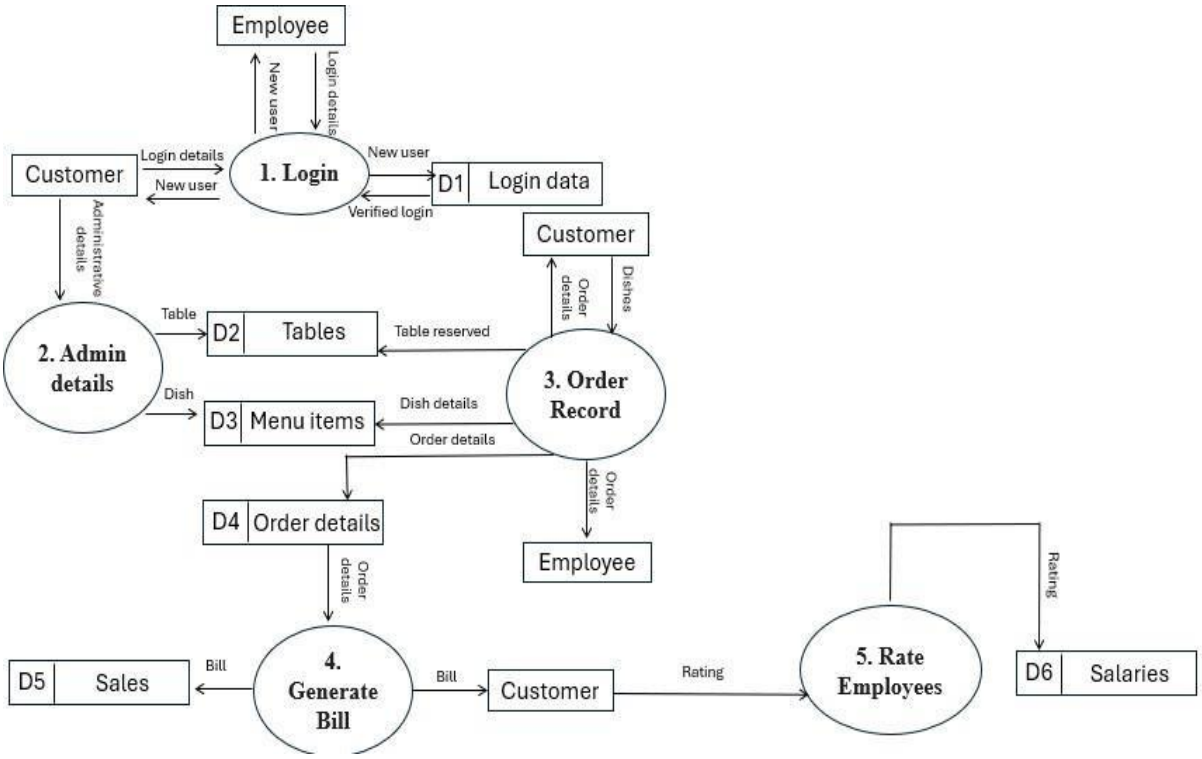


4.4. Data Flow Diagrams:

4.4.1. Level 0



4.4.2. Level 1



4.4.3. Level 2: