System Design

for

Restaurant Management System

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1. Introduction

1.1 Project Overview

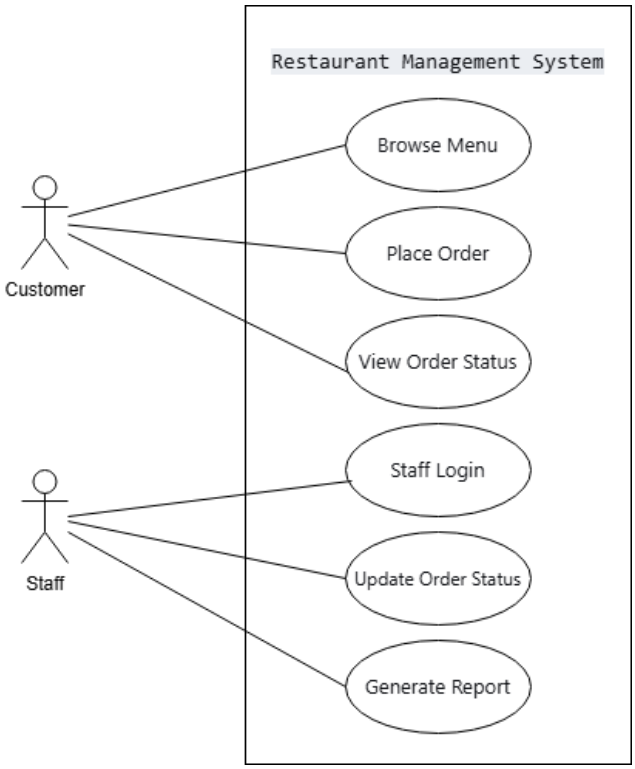
The Restaurant Management System (RMS) is a web-based software platform designed to order food online for customers and improve order management for restaurant staff. The system enables customers to browse menus, place orders, and track delivery status, while providing restaurant staff with a real-time dashboard to view and update orders.

1.2 Purpose of this Document

This System Design Document provides a detailed visual and structural representation of the RMS using Unified Modeling Language (UML) diagrams. It serves as a blueprint for developers, testers, and stakeholders to understand system behavior, interactions, and architecture before implementation.

2. Use Case Modeling

2.1 Use Case Diagram



2.2 Tabular Descriptions of Use Cases

2.2.1 UC-1: Browse Menu

Actors	**Customer**
Description	Customer views menu items with details and prices
Data	Menu categories, item names, description, prices, images, availability
Stimulus	Customer visits website
Response	System displays organized menu with all items
Comments	Menu data is fetched from the database.

2.2.2 UC-2: Place Order

Actors	**Customer**
Description	Customer selects menu items and submits order.
Data	Selected menu items, quantities, payment method.
Stimulus	Customer clicks “Place Order” after selecting items
Response	System confirms order, generates order number, and notifies stuff
Comments	Must validate item availability.

2.2.3 UC-3: View Order Status

Actors	**Customer**
Description	Customer monitors the current status and progress of their order.
Data	Order number, customer details, order status, estimated completion time
Stimulus	Customer logs in and views “My Orders”
Response	System displays current order status.
Comments	Status updates when staff changes order state.

2.2.4 UC-4: Staff Login

Field	Details
Actors	Staff
Description	Staff member authenticates using username and password to access the management dashboard.
Data	Username, password.
Stimulus	Staff clicks “Login” after entering credentials.
Response	If valid, system redirects to dashboard; otherwise shows error.
Comments	Passwords are stored securely.

2.2.5 UC-5: Update Order Status

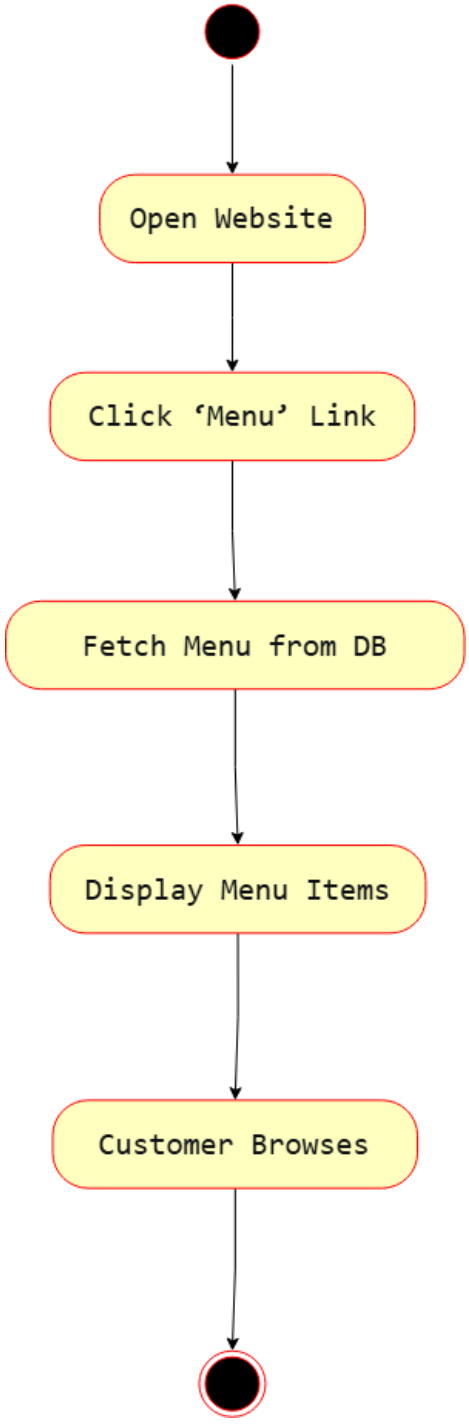
Field	Details
Actors	Staff
Description	Staff views new orders and updates their status through a dropdown.
Data	Order ID, status, timestamp, staff ID.
Stimulus	Staff selects a new status and clicks “Update”.
Response	Database is updated.
Comments	Only staff with proper permissions can update orders.

2.2.6 UC-6: Generate Sales Report

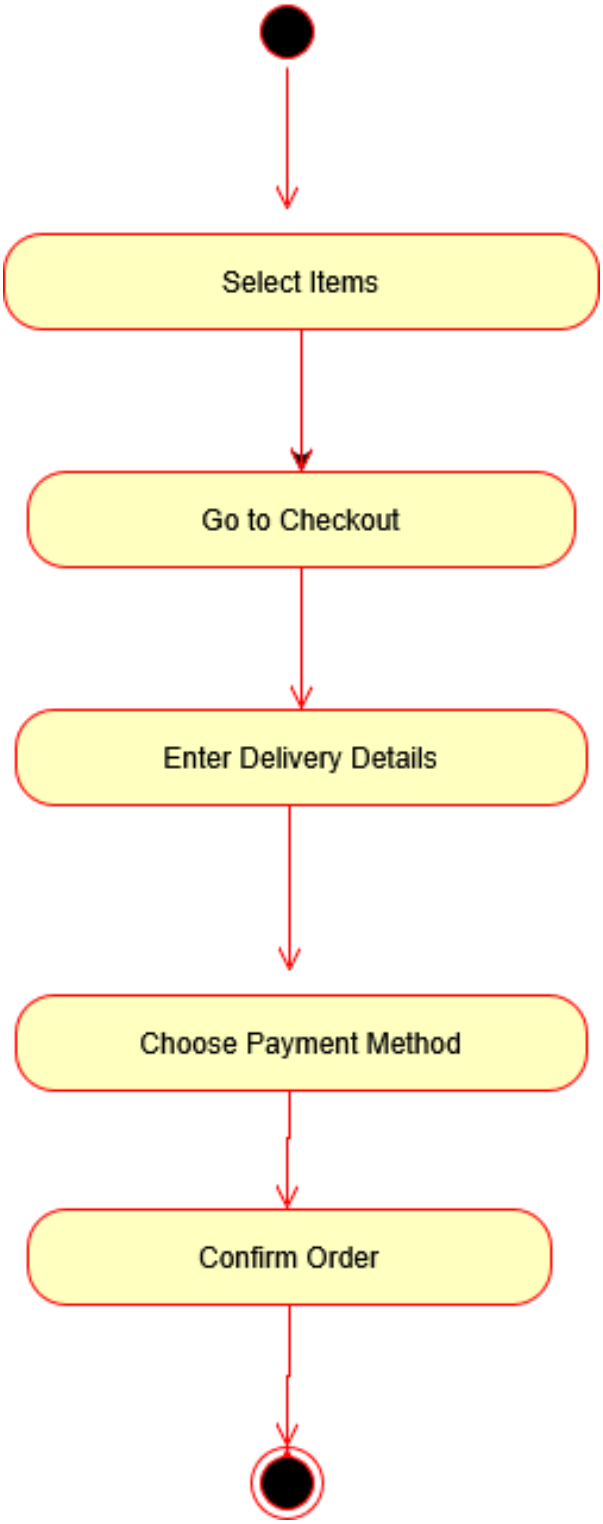
Field	Details
Actors	Staff
Description	Manager views a summary report of sales, popular items, and order trends.
Data	total sales, top items, number of orders.
Stimulus	Manager clicks “Generate Report”.
Response	System queries the database and displays the report.
Comments	Only managers can view reports.

2.3 Activity Diagrams for Each Use Case

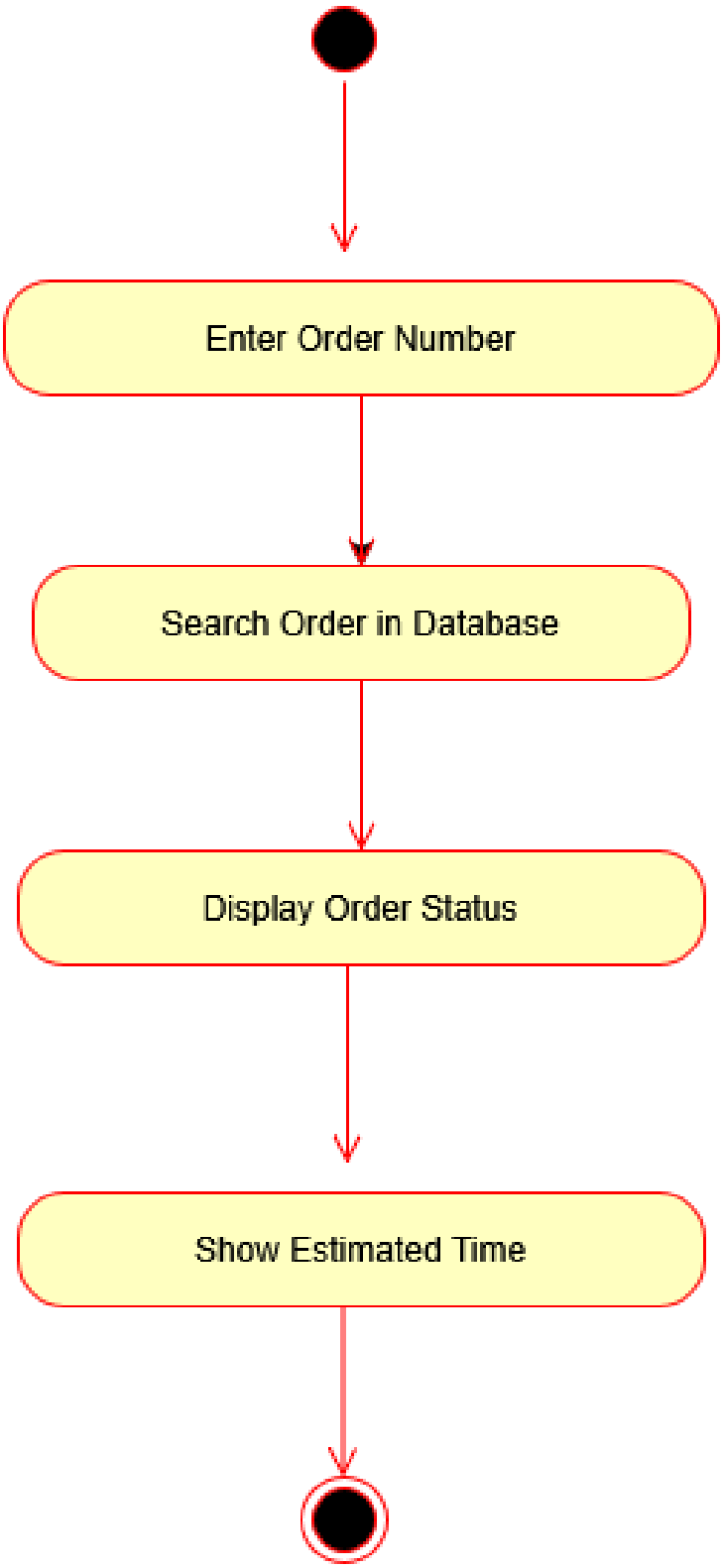
2.3.1 Activity Diagram: Browse Menu



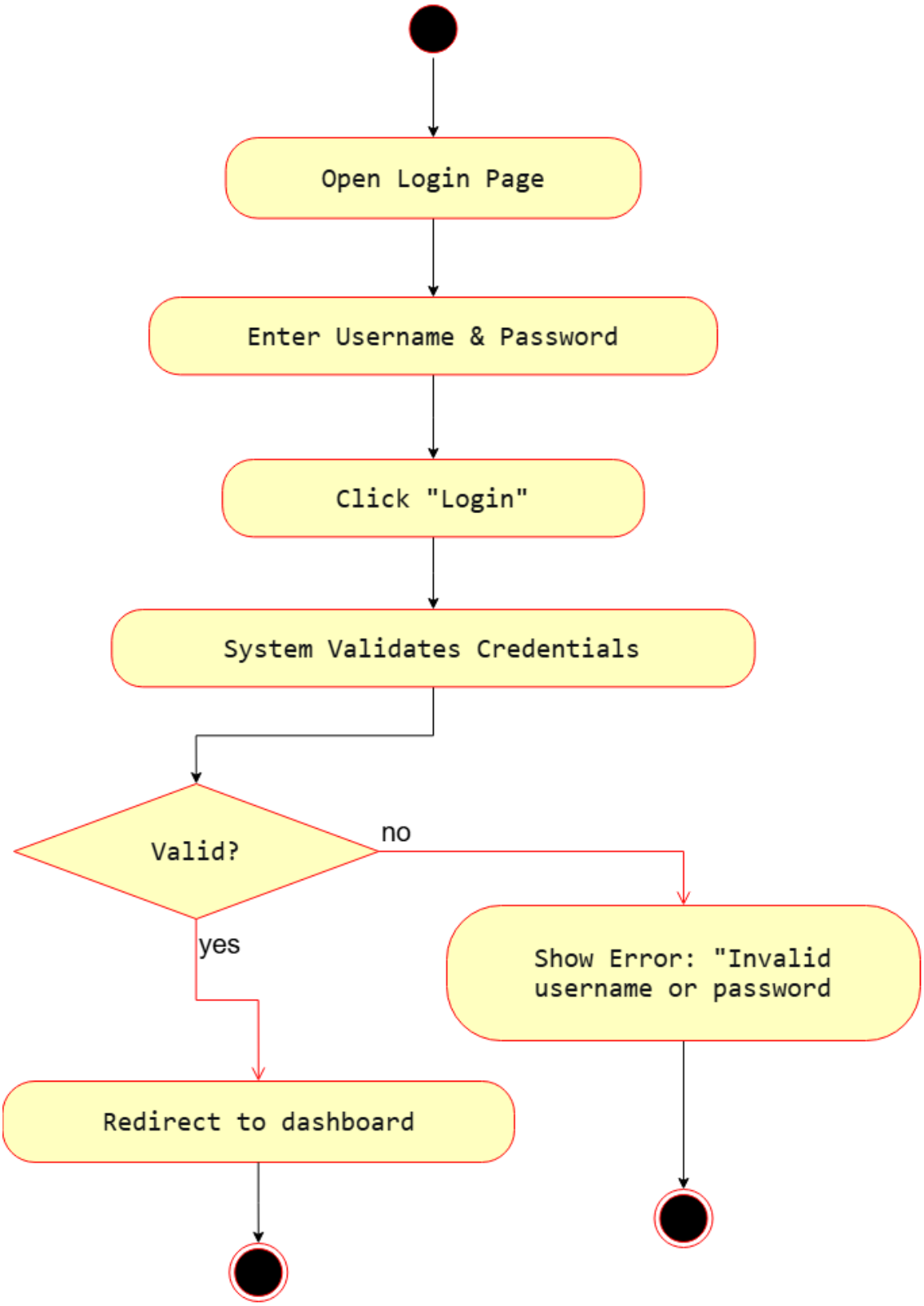
2.3.2 Activity Diagram: Place Order



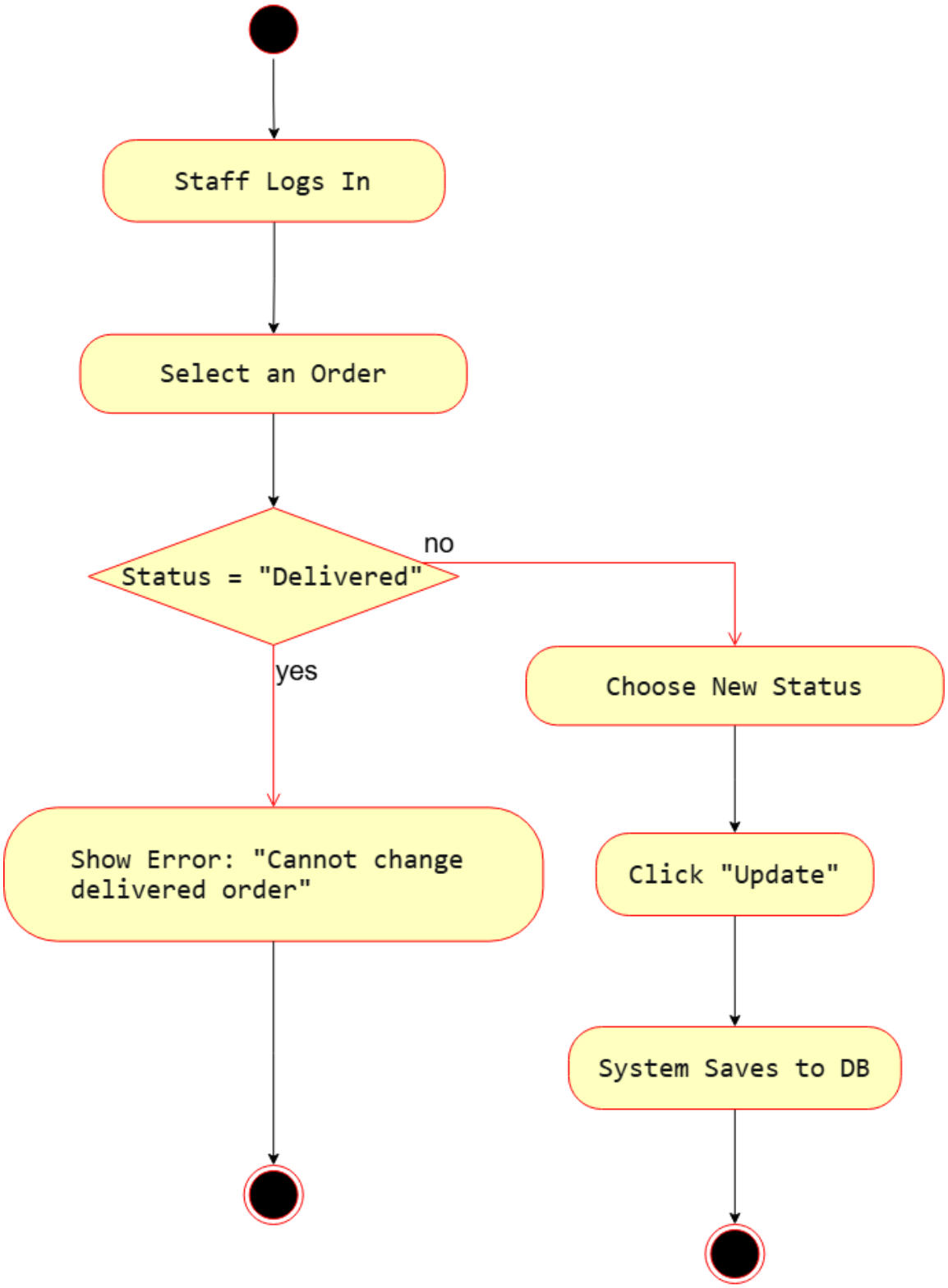
2.3.3 Activity Diagram: View Order Status



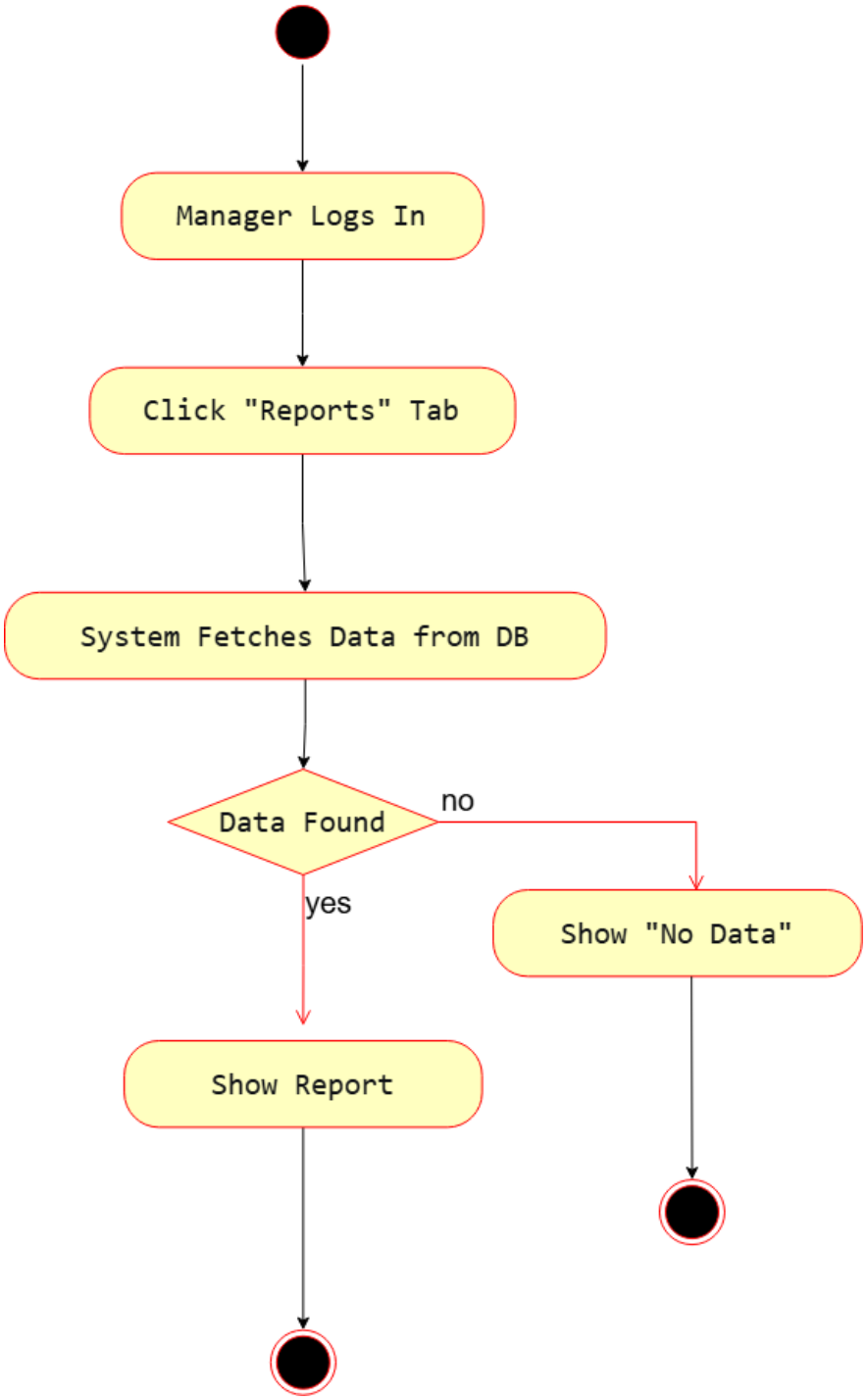
2.3.4 Activity Diagram: Staff Login



2.3.5 Activity Diagram: Update Order Status



2.3.6 Activity Diagram: Generate Sales Report

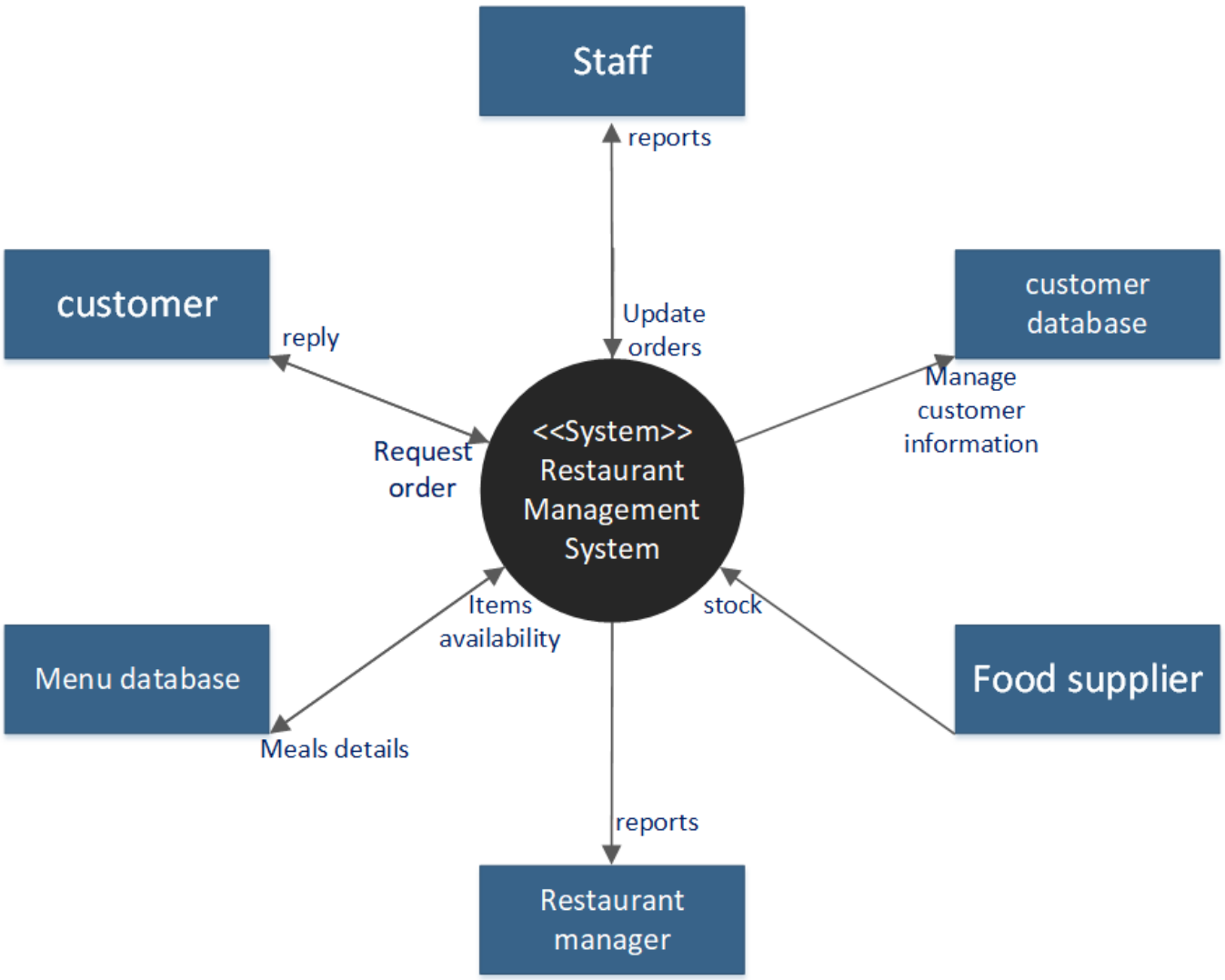


3. Context Diagram

3.1 Purpose of the Context Diagram

The Context Diagram defines the **system boundaries** and illustrates the external entities that interact with the Restaurant Management System. It helps identify what is inside the system and what lies outside, clarifying interfaces and dependencies.

3.2 Context UML Diagram

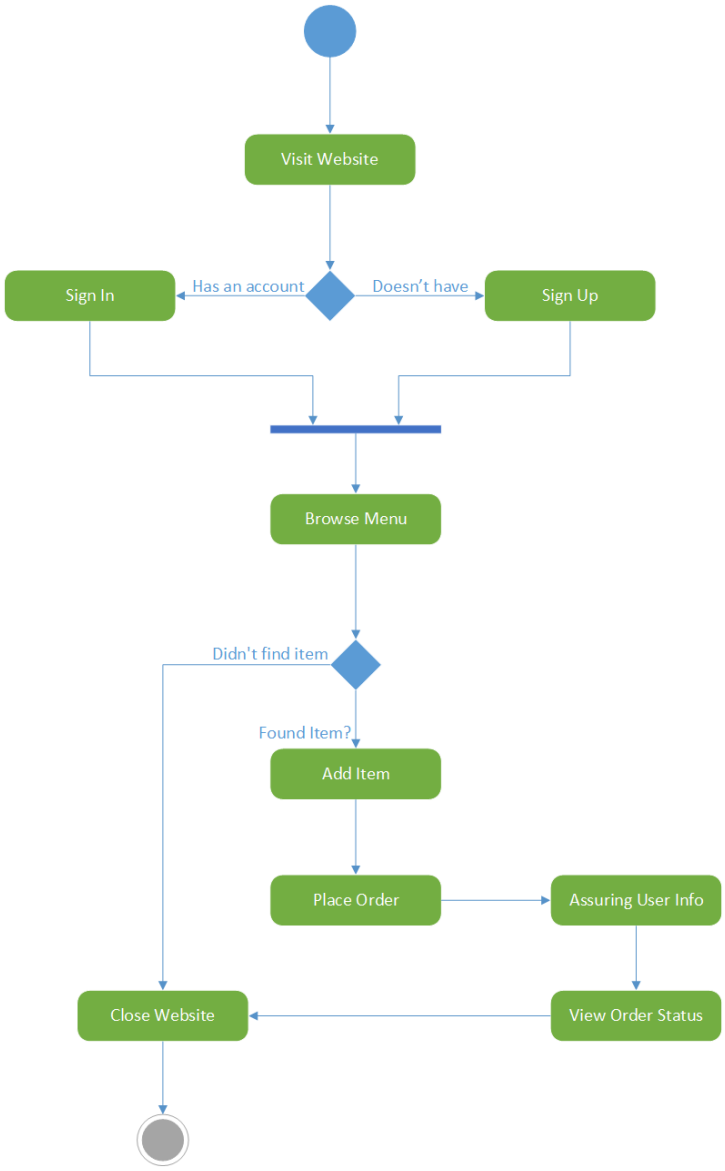


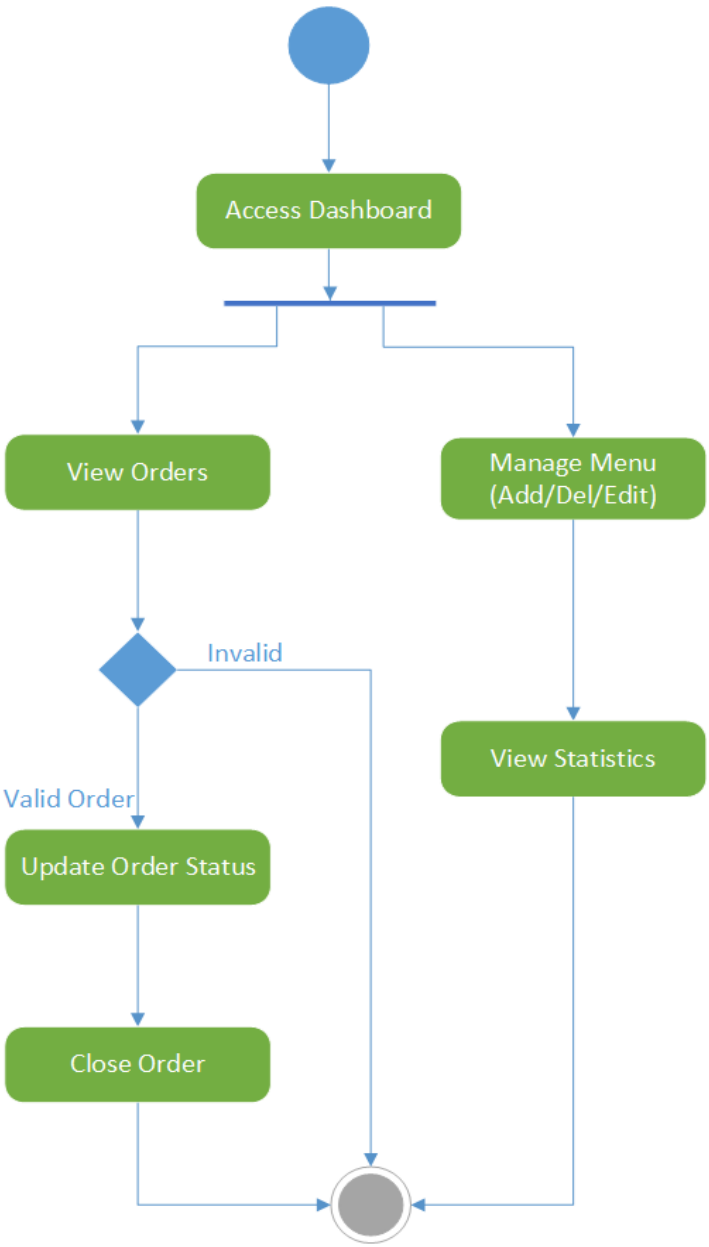
4. Process Model Online ordering

4.1 Purpose of the Process Model

The Process Model provides a high-level view of business workflows within the Restaurant Management System. Unlike context diagrams, which show static relationships, process models illustrate how the system is used within broader operational activities, emphasizing sequence, decision points, and parallel tasks.

4.2 UML Activity Diagram



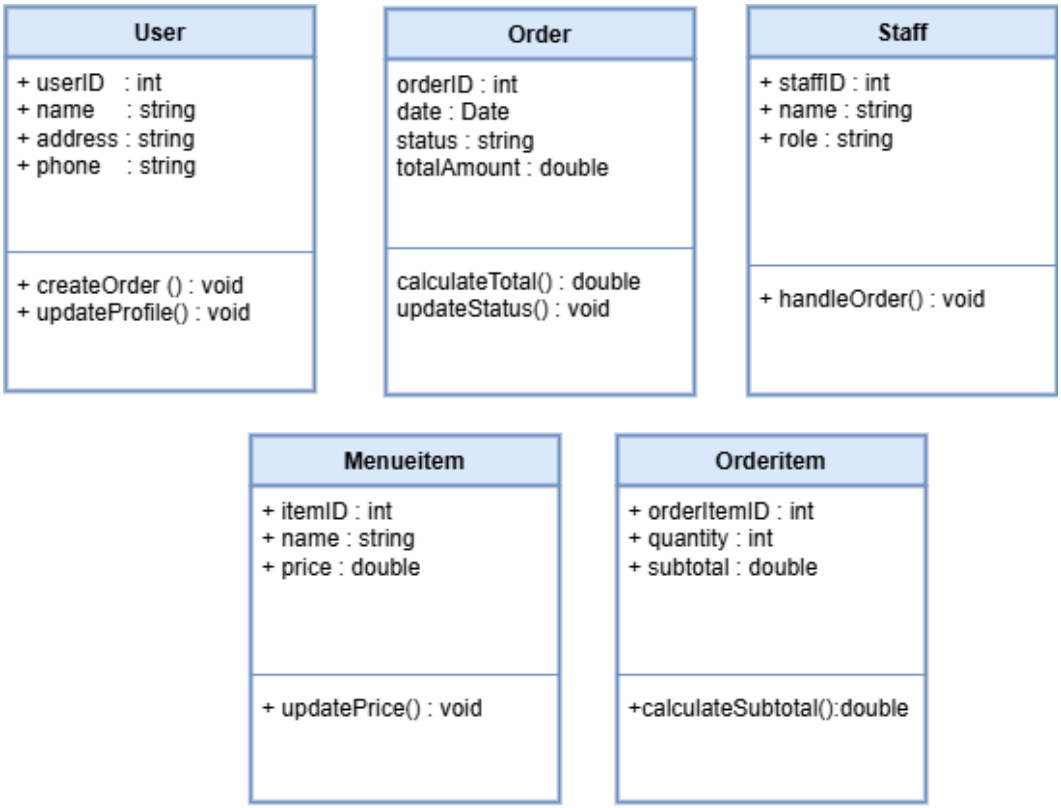


5. Structural Models

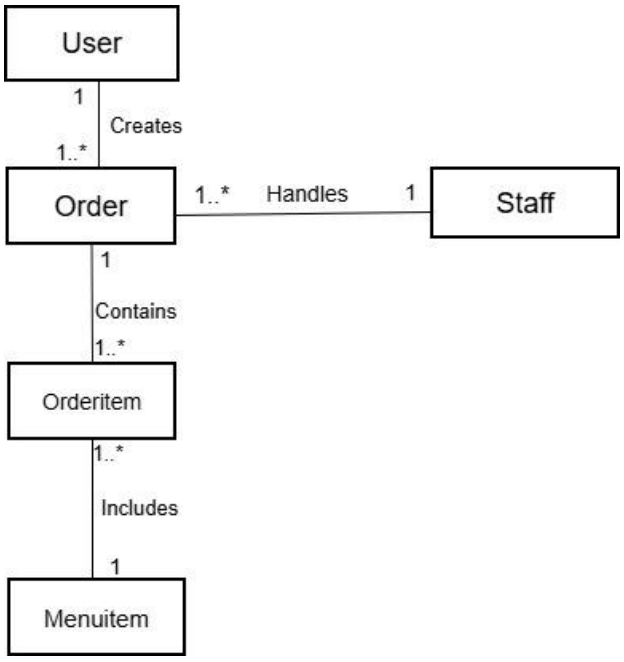
5.1 Purpose of Structural Models

Structural Models describe the static architecture of the system, focusing on data organization, class definitions, and relationships. These models provide the blueprint for database design and object-oriented implementation.

5.2 Class Diagram (UML)



5.3 Class Associations



5.4 Entity Relationship Diagram (ERD)