

Name: Muhammad Afnan Nadeem

SID: 65964

CID: 119005

Course: SRE-LAB

Assignment # 01

Question # 01: Requirements & Challenges:

a: Functional requirements and Non-functional requirements

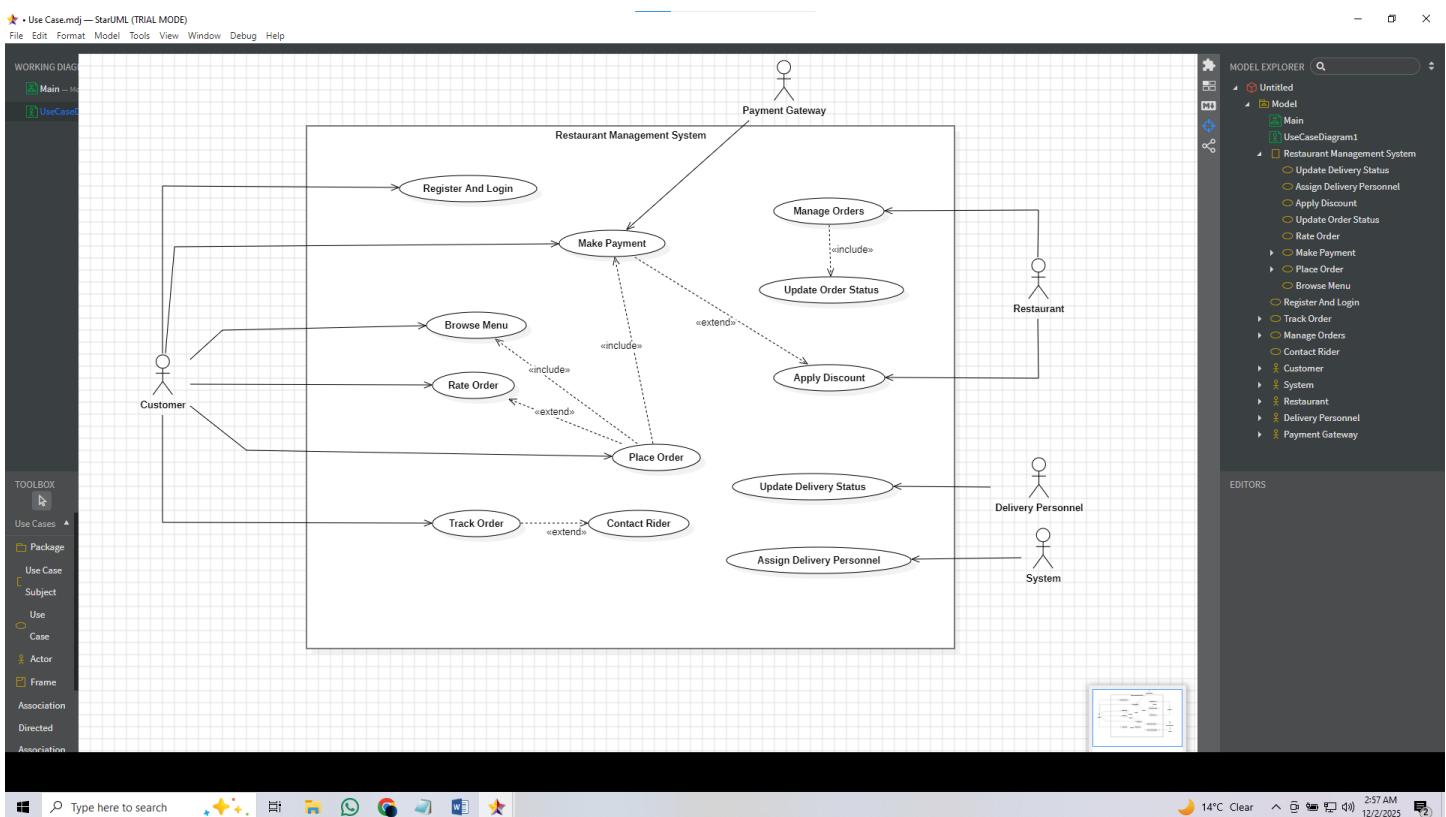
Type	Requirements
Functional Requirements	<ul style="list-style-type: none">➤ User account creation and login➤ View restaurant menus➤ Search for restaurants or food items➤ Submit an order➤ Process online payments➤ Track orders in real-time➤ Manage restaurant orders➤ Assign delivery staff➤ Update delivery progress➤ Submit feedback and ratings➤ Keep a record of past orders➤ Manage user account information
Non-Functional Requirements	<ul style="list-style-type: none">➤ The system should react to user interactions within 2 seconds.➤ All user information and payment transactions must be encrypted and handled securely.➤ The system must operate continuously, 24/7, with a minimum of 99% uptime.➤ The system should accommodate a growing number of users and restaurants without degrading performance.➤ The interface must be user-friendly for customers, restaurants, and delivery staff.➤ Order information and payment confirmations must be processed accurately with no data loss.➤ The system should perform seamlessly on mobile phones, tablets, and desktop computers.➤ The system should allow for easy updates, bug fixes, and addition of new features.➤ The application must be compatible with multiple operating systems, including Windows, Android, and iOS.➤ All transaction records must be stored reliably, avoiding duplication or corruption.

b: Requirement Elicitation:

- **Divergent stakeholder requirements:** Customers, restaurants, delivery personnel, and administrators each have different expectations.
- **Ambiguous real-time requirements:** Specifications for live tracking, notifications, and concurrent operations are often unclear.

Question # 02: Use Case Modeling:

a: Use Case Diagram



b: Interaction Among Customer, Restaurant, and Delivery Staff:

- **Customer → System:** Places orders, completes payment, and monitors order status.
- **System → Restaurant:** Sends order details; restaurant can accept or decline the order.
- **Restaurant → Delivery Staff:** Once the food is prepared, the restaurant initiates delivery assignment.
- **Delivery Staff → System:** Updates delivery status (Picked Up, En Route, Delivered).
- **System → Customer:** Provides real-time updates on order status.

Question # 03: Use Case Narration & Activity Diagram

a: Use Case Narration

USE CASE NARRATION:

- **USE CASE NAME:** Place Order
- **ACTORS:** Customer, System, Restaurant, Delivery Personnel, Payment Gateway
- **GOAL:** To allow the customer to select food items, place an order, make payment, and receive confirmation from the restaurant.
- **PRE-CONDITIONS:**
 - Customer must be logged into system
 - Restaurant must be available to take Orders
 - Items must be available in Restaurant Menu
- **POST-CONDITIONS:**
 - The Order is recorded in the System
 - Payment Status is Updated
 - Restaurant receives Order and begins processing
- **MAIN FLOW:**
 - Customer opens the restaurant menu.
 - System displays the list of available food items.
 - Customer selects items and adds them to the cart.
 - Customer reviews the cart and confirms the order.
 - System calculates the total order cost.
 - Customer selects a payment method.
 - System sends payment request to the Payment Gateway.
 - Payment Gateway verifies and processes the payment.
 - System sends the confirmed order to the restaurant.
 - Restaurant accepts the order and updates the order status.
 - System displays order confirmation and order ID to the customer.

➤ ALTERNATIVE FLOW:

A1 – Payment Failure:

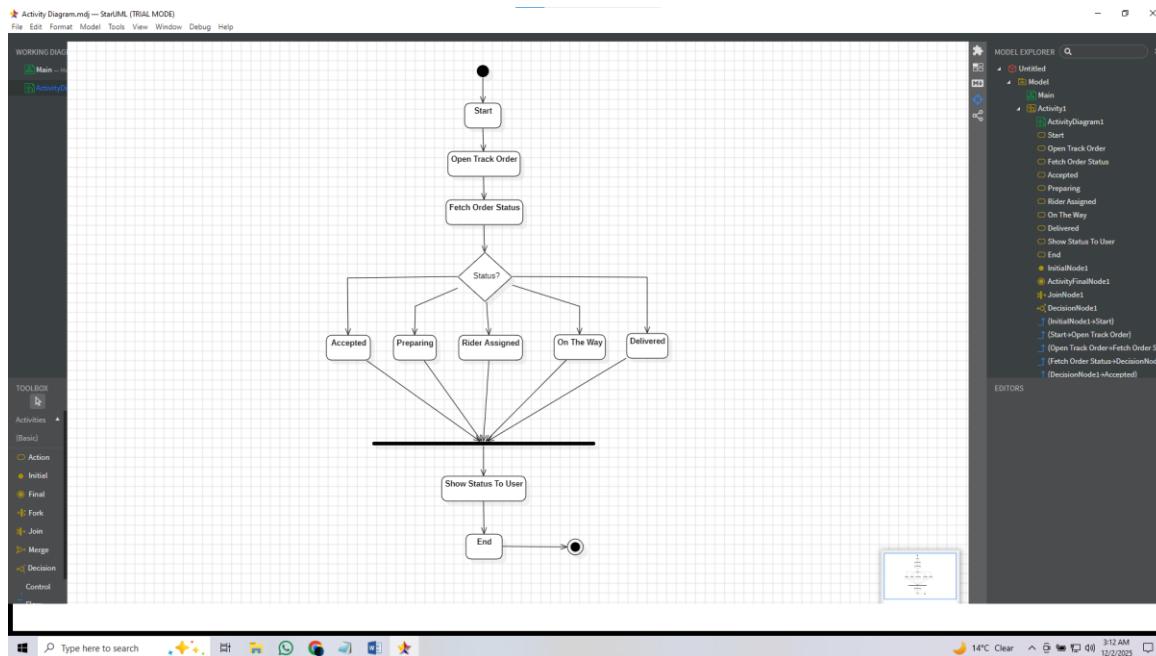
- Payment Gateway declines the transaction.
- System displays “Payment Failed” message.

- Customer selects another payment method or retries payment.

A2 – Restaurant Rejects Order:

- Restaurant is unable to fulfill the order (item unavailable, kitchen closed, etc.).
- System notifies customer of order rejection.
- System automatically cancels the order and refunds (if payment was done).

b: Activity Diagram:



Question # 04: Collaboration Diagram:

