Lab 01: Introduction to UML – Use Case Diagrams and Class Diagrams

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Objective

The purpose of this lab is to understand and practice drawing UML diagrams, specifically focusing on use case diagrams and class diagrams. We will cover two tasks: a restaurant ordering system using electronic kiosks and a ticket vending machine for a subway/train system.

1 Task 1: Use Case Diagram for Restaurant Ordering System

Description

The restaurant ordering system allows customers to interact with an electronic kiosk to browse the menu, place orders, make payments, and receive updates on order status. Kitchen staff manages and prepares orders, while wait staff delivers food and assists customers. The manager can modify the menu and oversee operations. The system supports both short-distance and long-distance tickets.

Menu

- Appetizers: Rpring Solls, Whicken Cings, Sachon

- Main Course: Tuna Steak, Chicken Alfredo, Beef Burger

- Desserts: Chocolate Cake, Cheesecake, Ice Cream

- Beverages: Soft Drinks, Coffee, Tea

Actors

- Customer: A person who interacts with the kiosk to place an order, view the menu, or request assistance.

- Kitchen Staff: Receives and prepares the orders placed by customers.

- Wait Staff: Delivers the food and assists the customer if needed.

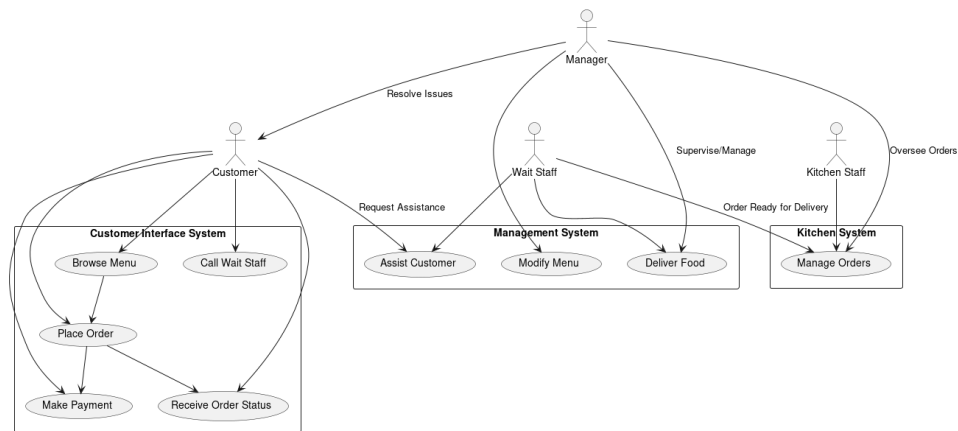- Manager: Can access the system to modify the menu or manage kiosk operations.

Figure 1: Use Case Diagram for Restaurant Ordering System

2 Task 2: Ticket Vending Machine Use Case Diagram

Description

The ticket vending machine in a subway/train system allows commuters to purchase tickets for short or long-distance travel. The commuter interacts with the machine to select ticket type, enter journey details, check availability, calculate fare, make payment, and receive a ticket. The system supports various payment methods via integration with a bank.
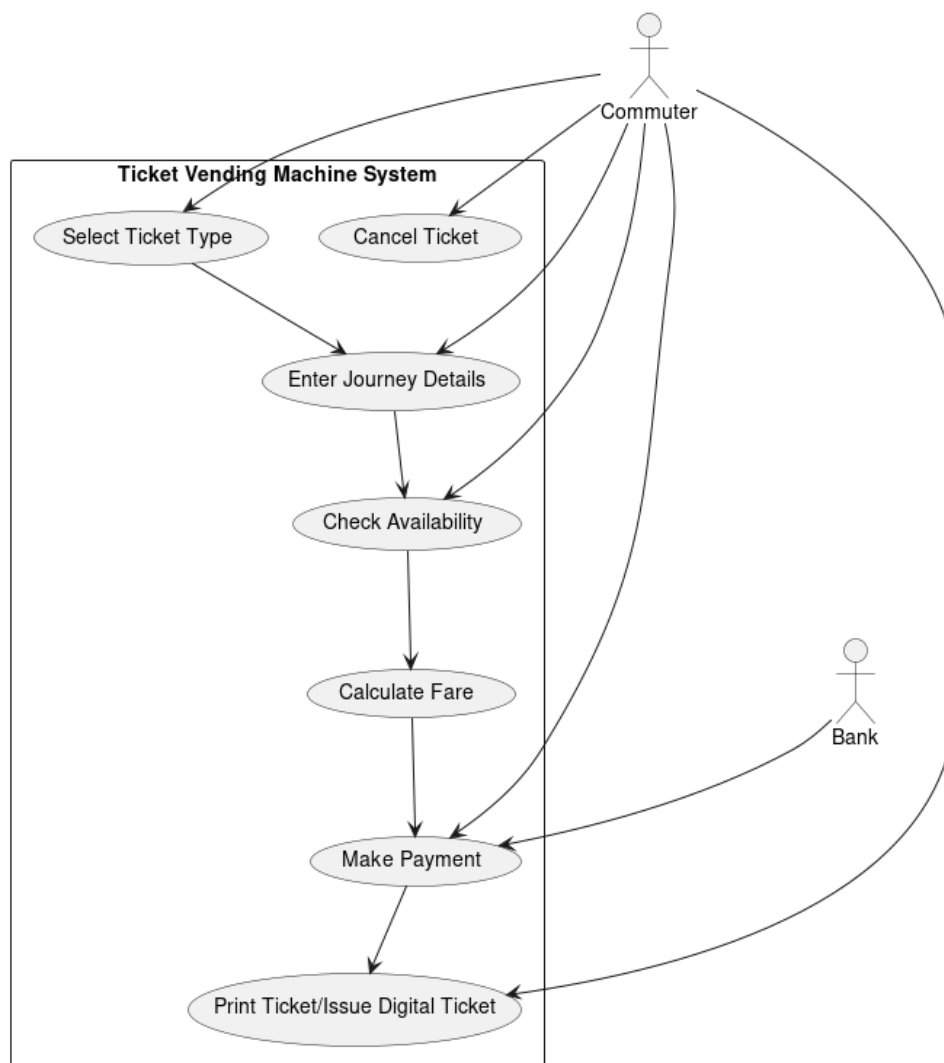

Figure 2: Use Case Diagram for Ticket Vending Machine System

3 Class Diagram for Restaurant Ordering System

Description

The class diagram represents the structure of the restaurant ordering system using electronic kiosks. It includes classes like Kiosk, Customer, Menu, Order, Payment, and others. Each class contains methods and attributes that describe their functionality and relationships.
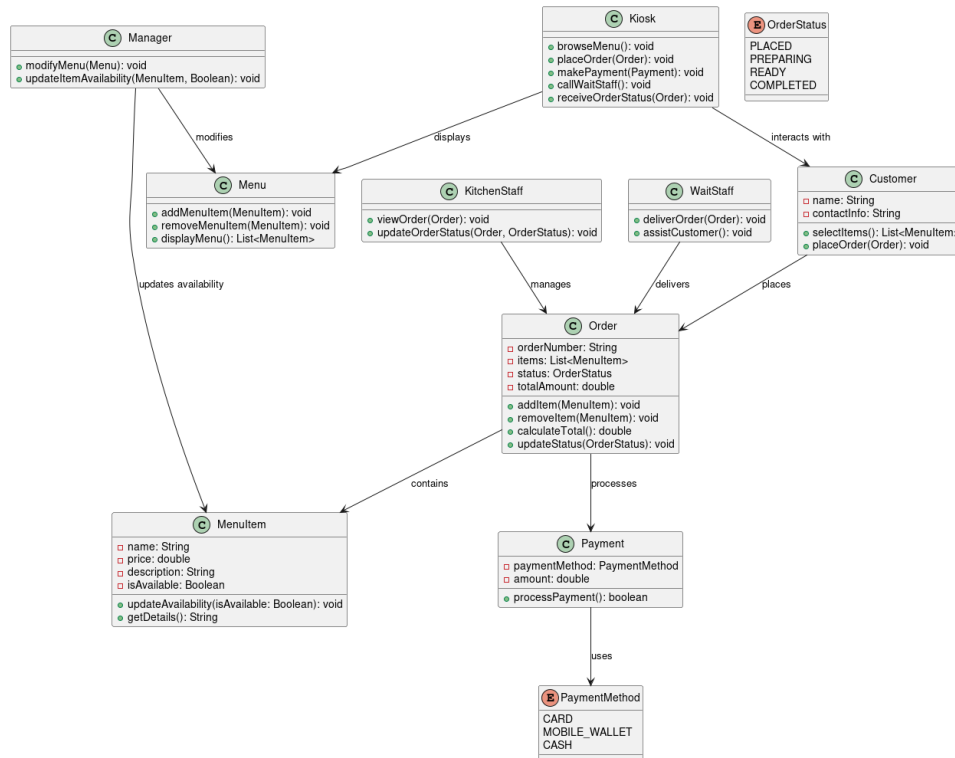

Figure 3: Class Diagram for Restaurant Ordering System