



University of Bahrain
College of Information Technology
Department of Computer Science
ITCS 389: Software Engineering I

Online Shopping System

Phase Number: 3

Phase Title: Object-Oriented Analysis

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3.1 Use Case Diagram

A UML (Unified Modeling Language) use case diagram visually represents the interactions between users (actors) and a system, illustrating the system's functionalities (use cases) and how users engage with them. It helps identify the requirements and scope of the system.

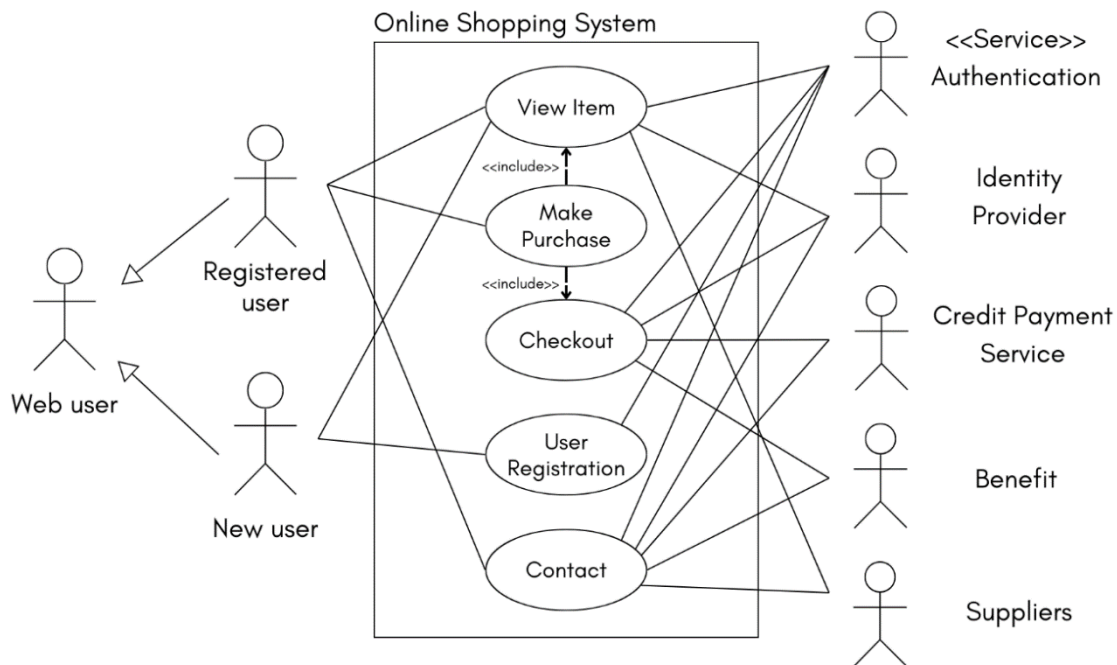


Figure 1: UML use case diagram

It represents the use case diagram of an online shopping system. It represents one of the main actors, the customer. A new customer can view items but if he wants to buy, he must register. A previously registered customer can browse items, add to cart, proceed to checkout and payment, and contact the concerned parties in case query or error.

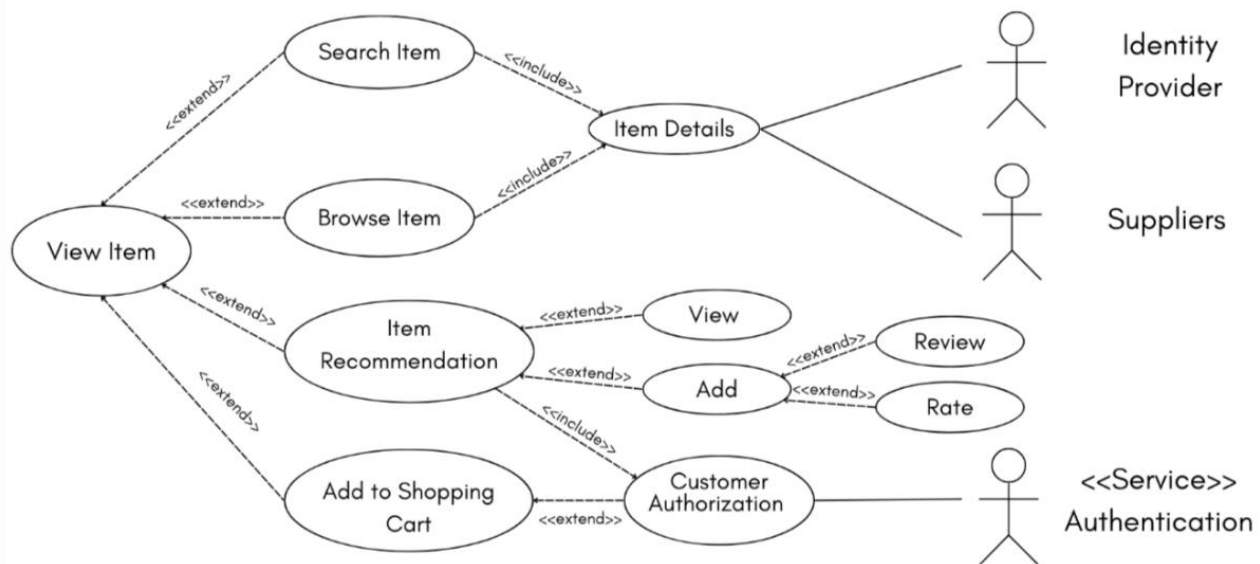


Figure 2: **View Item** Use Case

The figure shows that the customer can search or browse for an item, add a recommendation, view a previous recommendation, and add an item to the shopping cart.

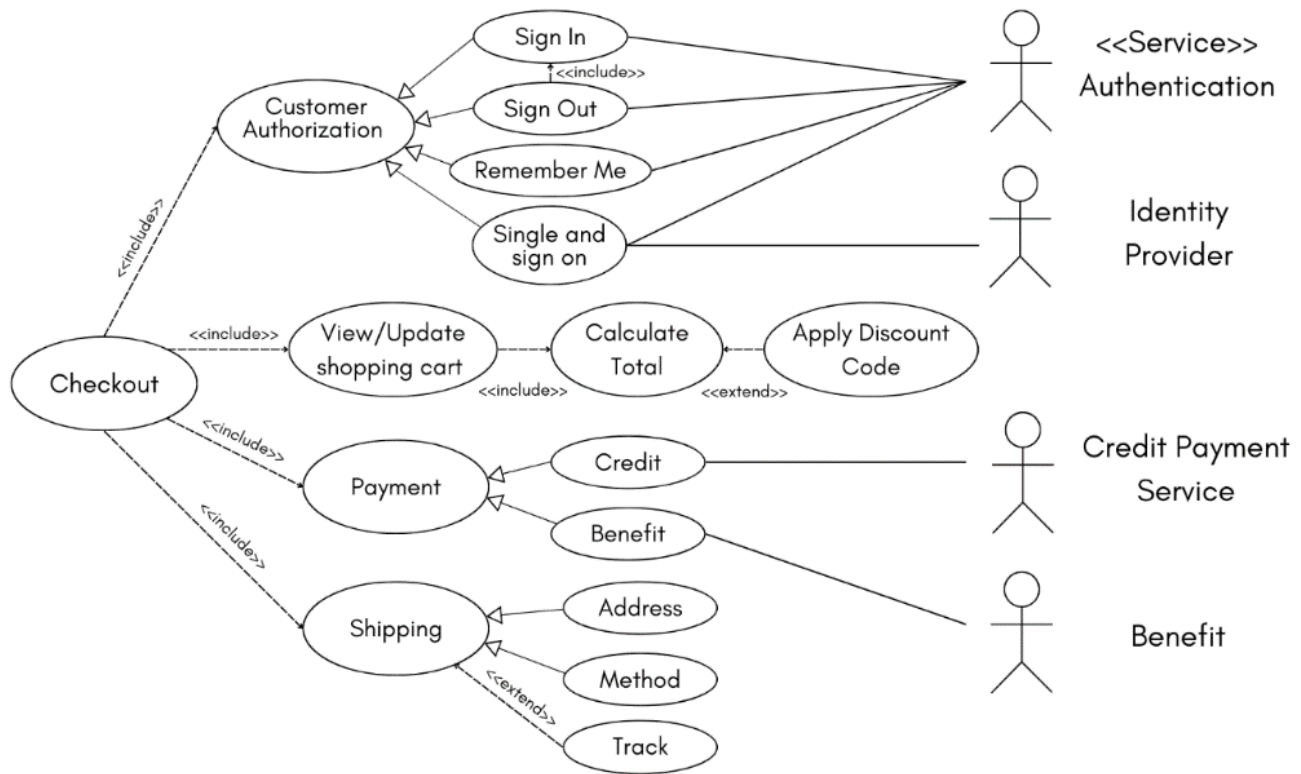


Figure 3: **Checkout** Use Case

The Figure shows that the customer should be registered to update the shopping cart and apply a discount code to calculate the total amount. Also, the customer can choose the payment and shipping method, and he can track his order.

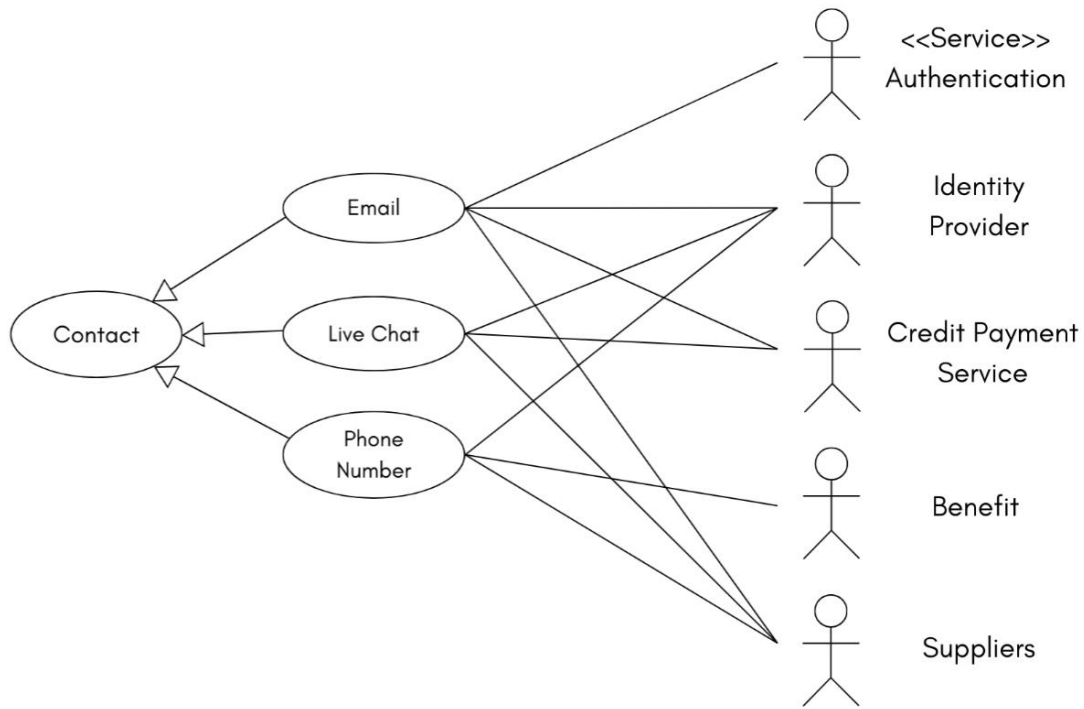


Figure 4: **Contact** Use Case

The figure shows that the customer can contact any of the parties concerned to get the necessary assistance and answers to inquiries.

3.2 State Transition Diagram (STD)

The diagram of the state machine is a behavior diagram that illustrates discrete behavior by finite state transformations of a portion of designed system.

3.2.1 STD for customers

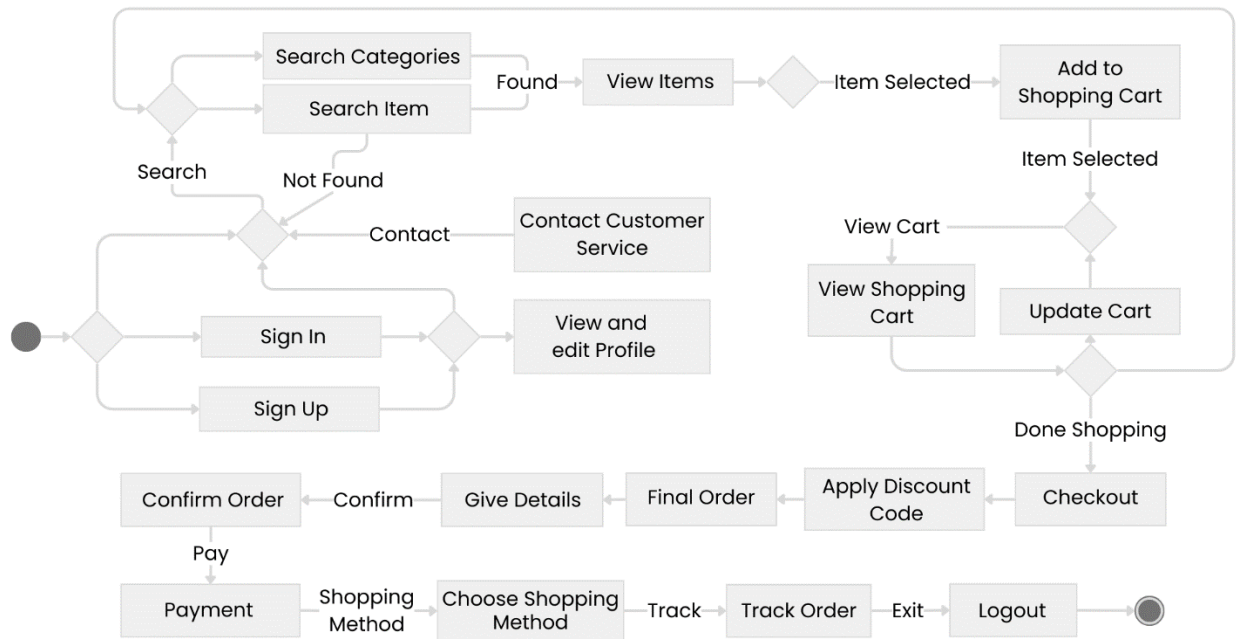


Figure 5: State transition diagram for customers

3.2.2 STD for admins

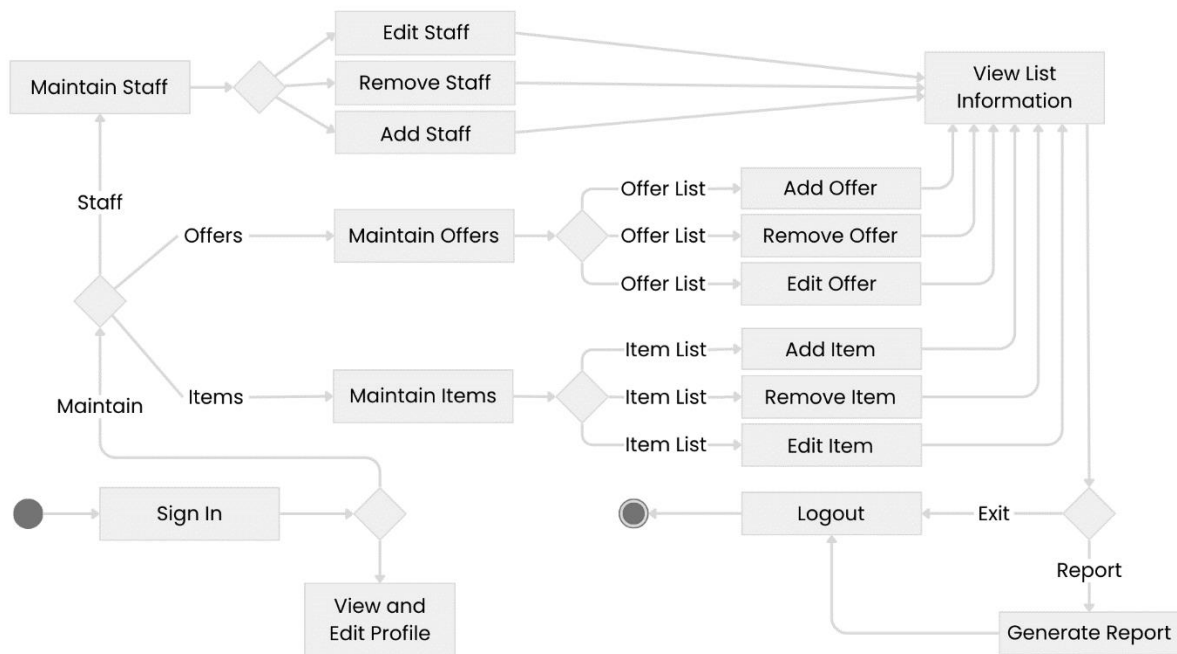


Figure 6: State transition diagram for admins

3.2.3 STD for vendors

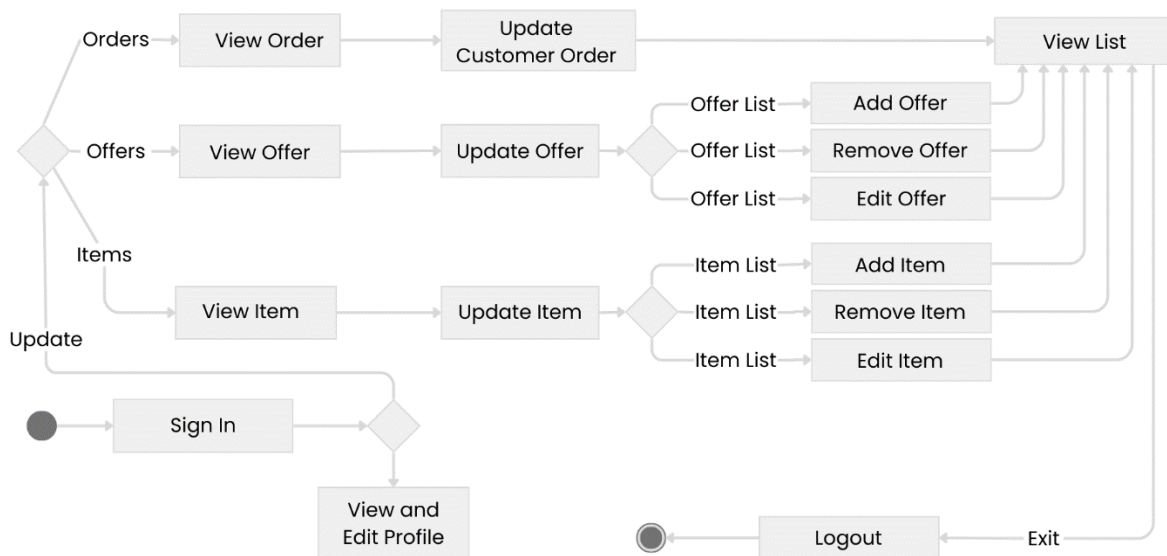


Figure 7: State transition diagram for vendors

3.3 Class Diagram

The system will follow an object-oriented design, this means that the primary drivers of the system functionalities will be objects constructed from classes.

The following class diagram (Figure 8) illustrates the structure of this system.

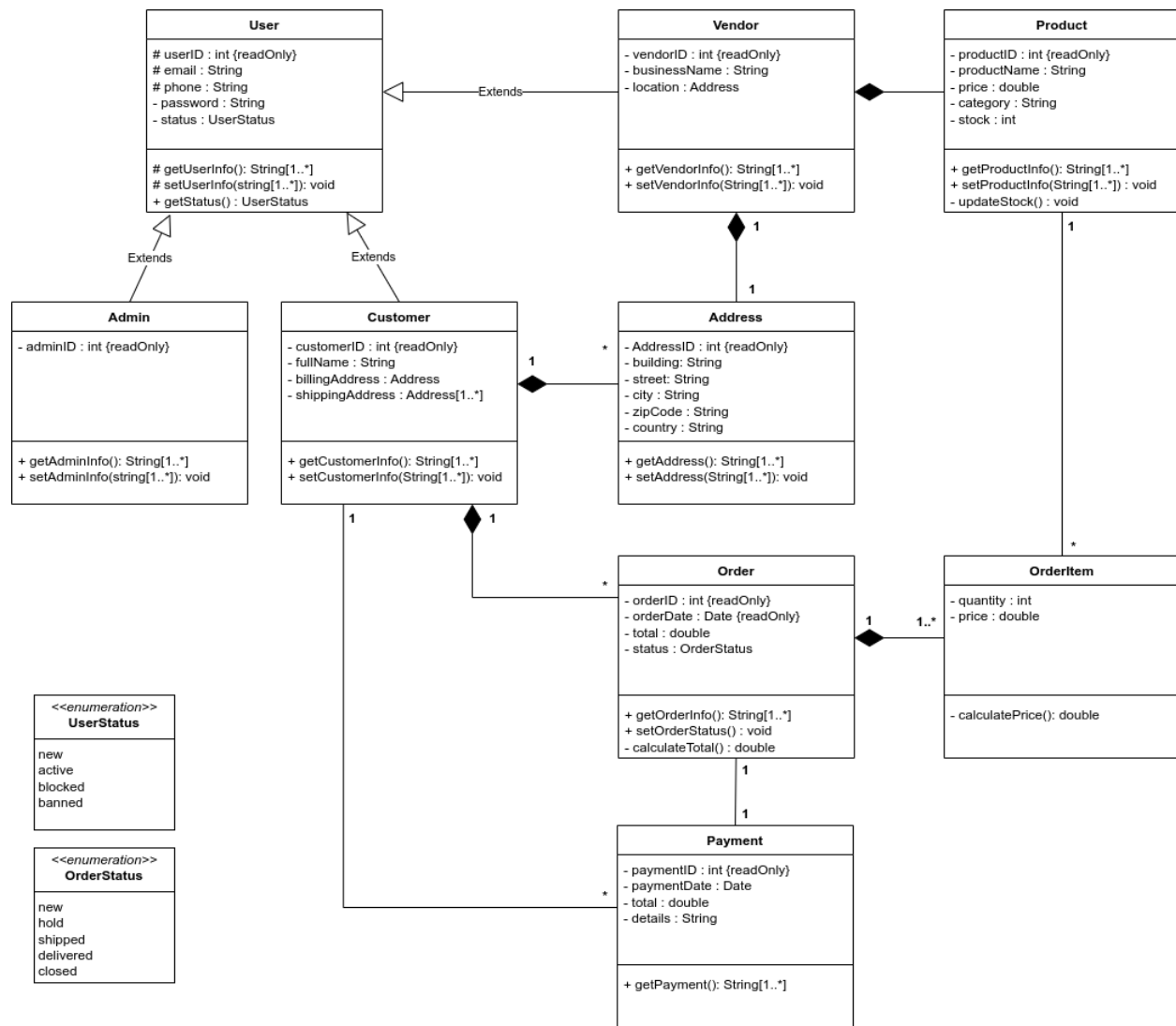


Figure 8: Class diagram of the system

3.4 Sequence Diagram

The sequence diagram is an interaction diagram that illustrates the sequence of messages between objects. It consists of a group of objects that are represented by lifelines, and the messages that they exchange over time during the interaction.

3.4.1 Customers Sequence Diagram

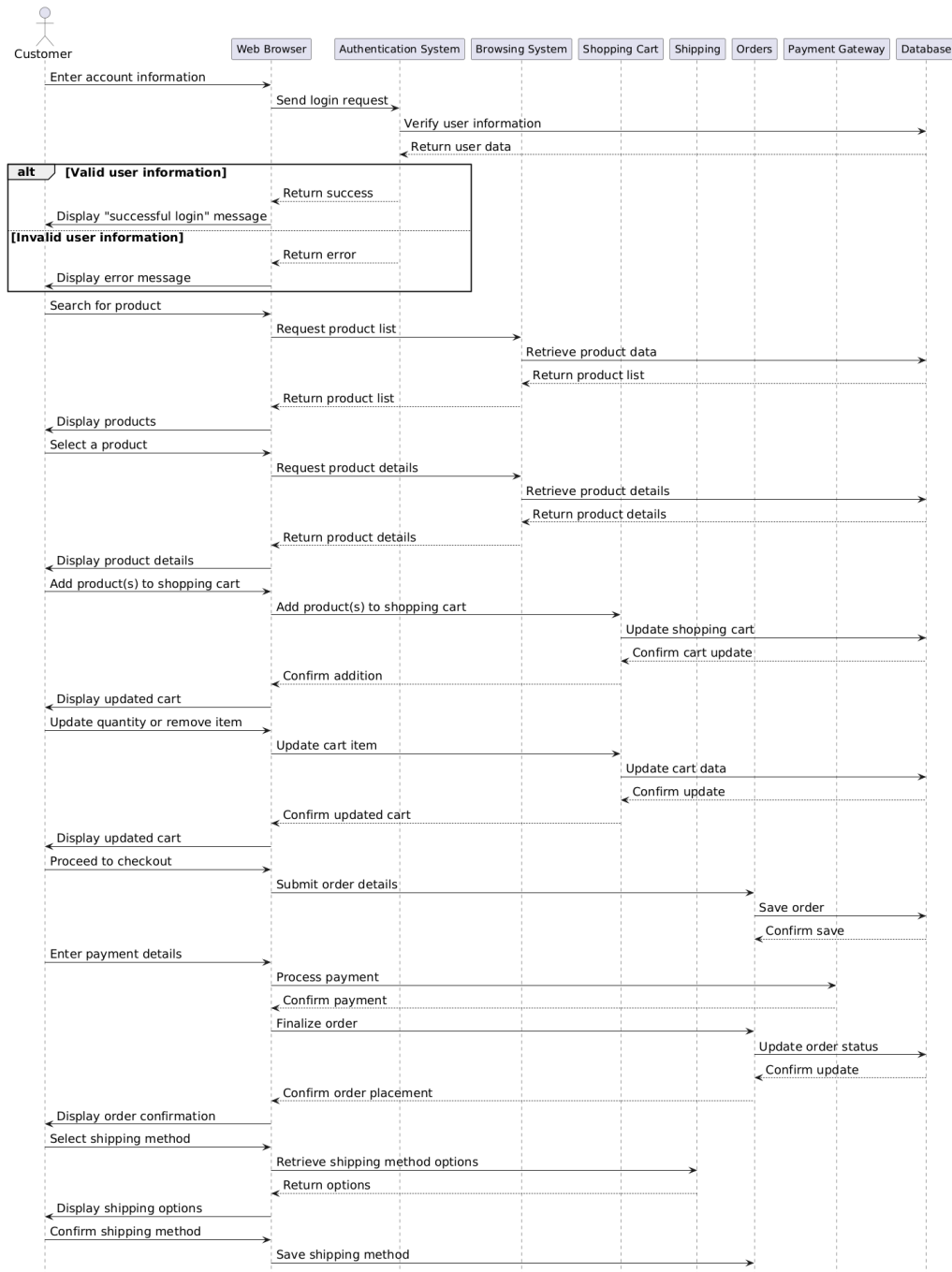


Figure 9: Sequence diagram for customer

3.4.2 Admins Sequence Diagram

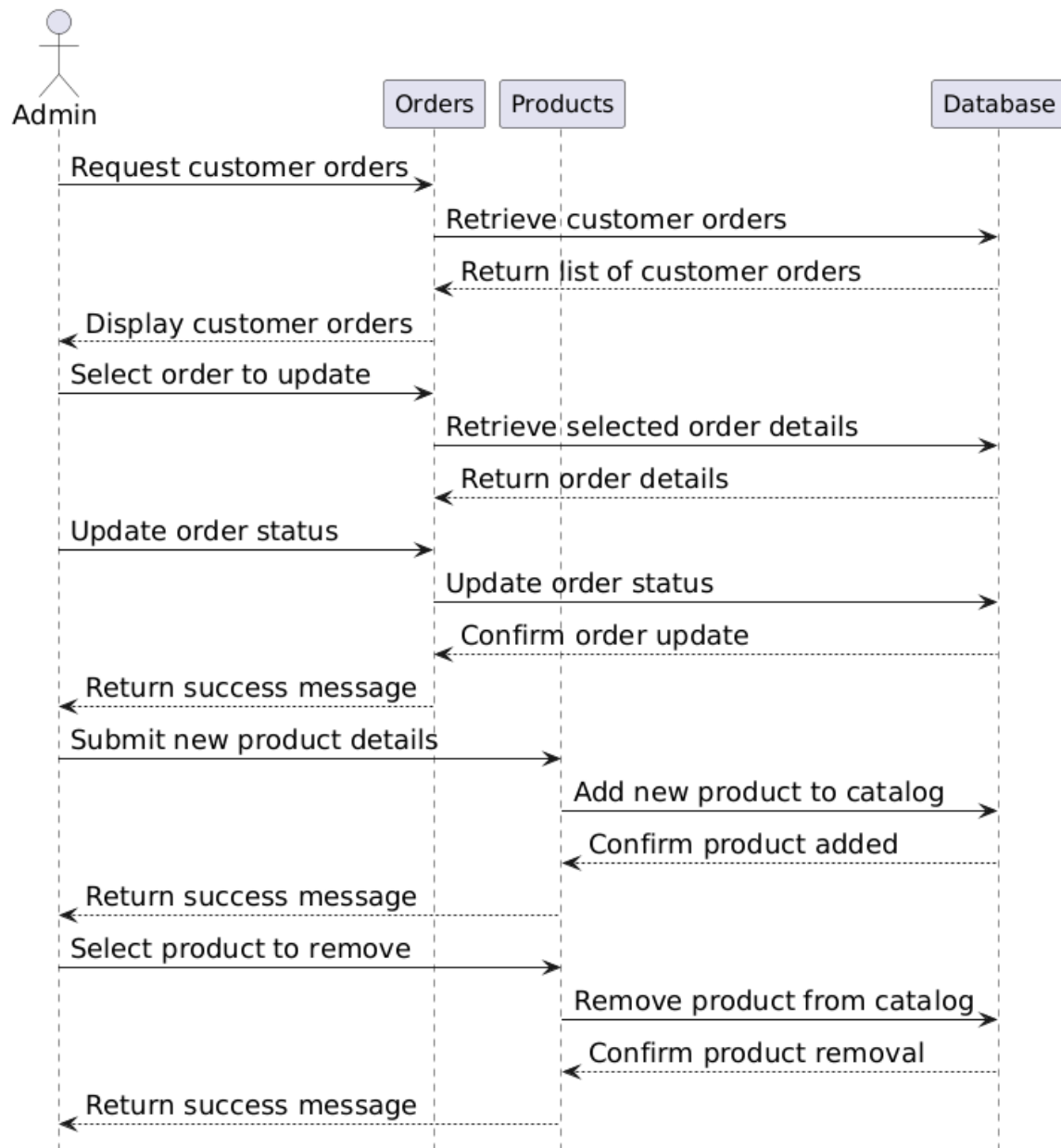


Figure 10: Sequence diagram for admin

3.4.1 Vendors Sequence Diagram

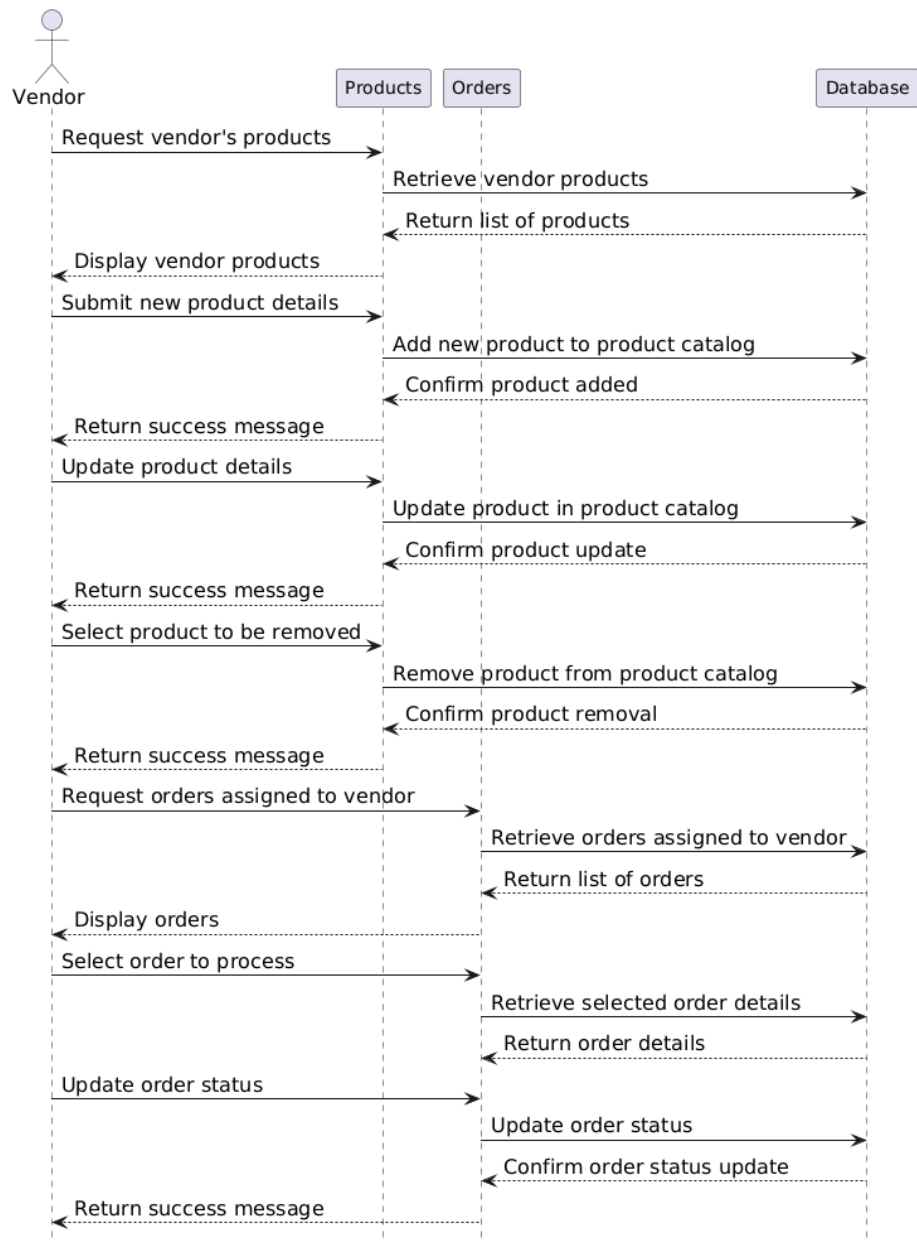


Figure 11: Sequence diagram for vendor

3.5 Activity Diagram

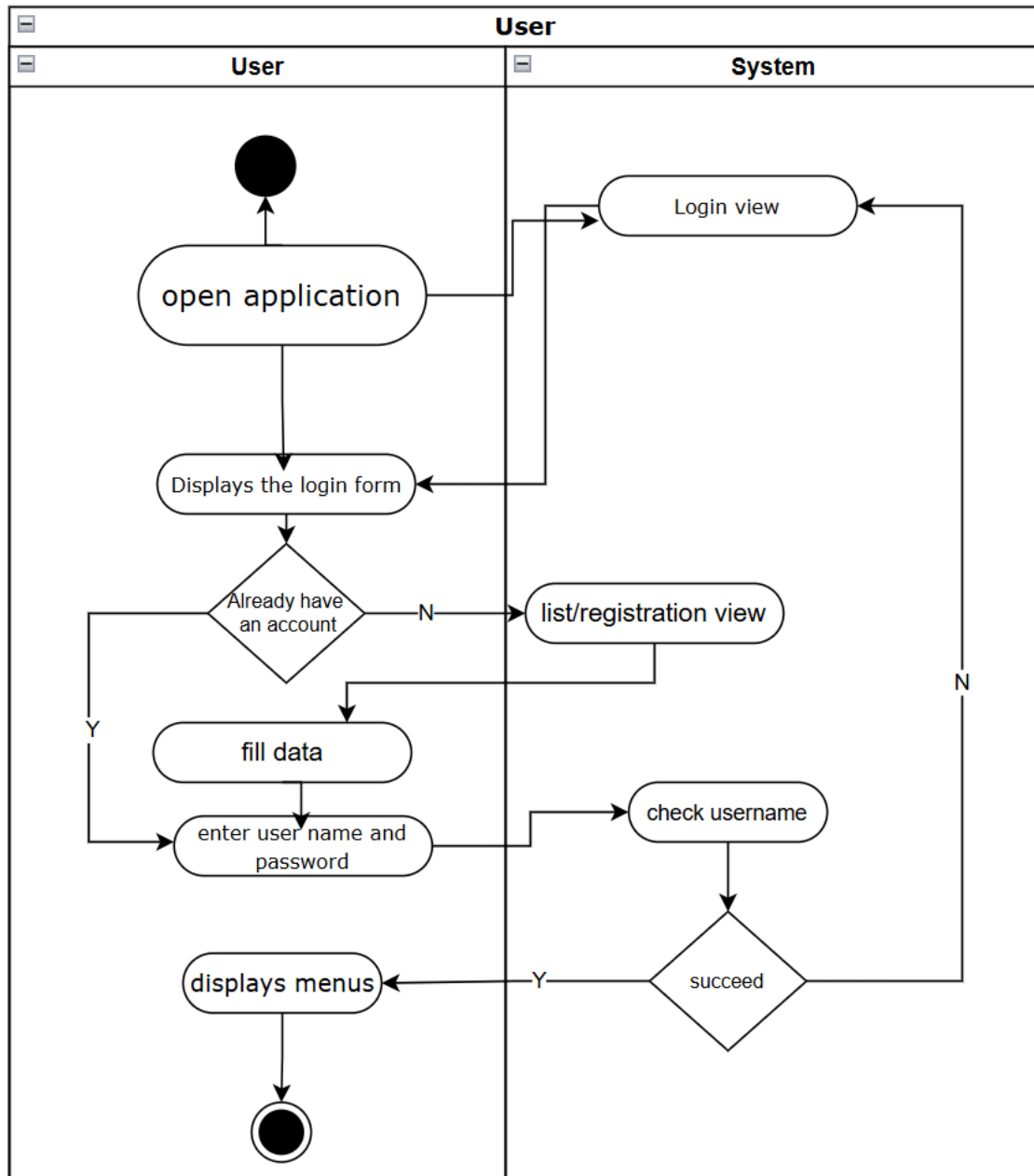


Figure 12: **User Registration** activity diagram

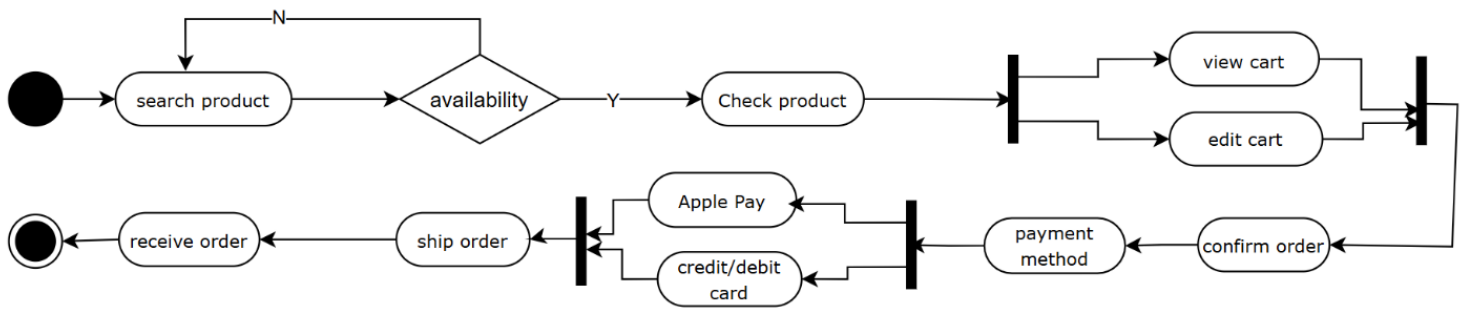


Figure 13: **Ordering** activity diagram