

Lab 06

IT314

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Modeling Class Diagram and Activity Diagram (Point of Sale System):

Develop Use Case Textual Description for "Process Sale" and "Handle Return" use cases.

1. Use Case: Process Sale

- **Primary Actor:** Cashier

- **Stakeholders:**
 - **Cashier**
 - **Customer**

- **Preconditions:**
 - The cashier is logged into the POS system.
 - The catalog and inventory systems are online and accessible.

- **Postconditions:**
 - The sale transaction is completed.
 - The inventory is updated to reflect the goods sold.
 - A receipt is printed for the customer.

- **Basic Flow:**
 - The cashier initiates a new sale transaction.
 - The cashier scans the barcode of each item.
 - The system retrieves the name and price of the item from the catalog system.
 - The system deducts the stock amount of each item from the inventory system.
 - The cashier confirms the total sale amount.
 - The customer chooses a payment method.
 - The system processes the payment.
 - The system prints a receipt for the customer.

- **Extensions:**
 - **3a. Item Not Found in Catalog:**
 - The system notifies the cashier that the item is not found, and the cashier manually enters the price or notifies the customer.
 - **6a. Insufficient Stock:**
 - The system notifies the cashier that an item is out of stock, and the cashier either cancels the transaction or removes the item from the sale.
 - **7a. Payment Fails:**
 - If the payment fails, the cashier asks the customer for an alternative payment method.
 - **7b. Gift Coupon Used:**
 - The cashier applies the gift coupon to the sale, reducing the total price.

2. Use Case: Handle Return

- **Primary Actor:** Cashier

- **Stakeholders:**
 - Cashier
 - Customer
 - Store

- **Preconditions:**
 - The cashier is logged into the POS system.
 - The original sale transaction exists and can be referenced.

- **Postconditions:**
 - The returned items are refunded or exchanged.
 - The stock is updated to reflect the returned goods.

- **Basic Flow:**
 - The customer initiates a return by presenting the receipt or details of the original purchase.
 - The cashier locates the original sale transaction in the system.
 - The cashier scans the item being returned.
 - The system verifies the items against the original sale and the return policy.
 - The cashier confirms the return amount with the customer.
 - The system processes the refund.
 - The stock is updated to reflect the returned item.
 - The system prints a return receipt for the customer.

- **Extensions:**
 - **3a. No Receipt Provided:**
 - The cashier asks the customer for additional information to locate the transaction. If the transaction cannot be found, the return is denied.
 - **4a. Item Not Eligible for Return:**
 - The system alerts the cashier if the item does not meet the return policy.
 - **6a. Partial Refund:**
 - If the item is eligible only for a partial refund, the system calculates the appropriate amount.

Identify Entity/Boundary Control Objects

Entity Objects:

Sale, Item, Inventory, Payment, Receipt, Gift Coupon, User, Return, Catalog

Boundary Objects:

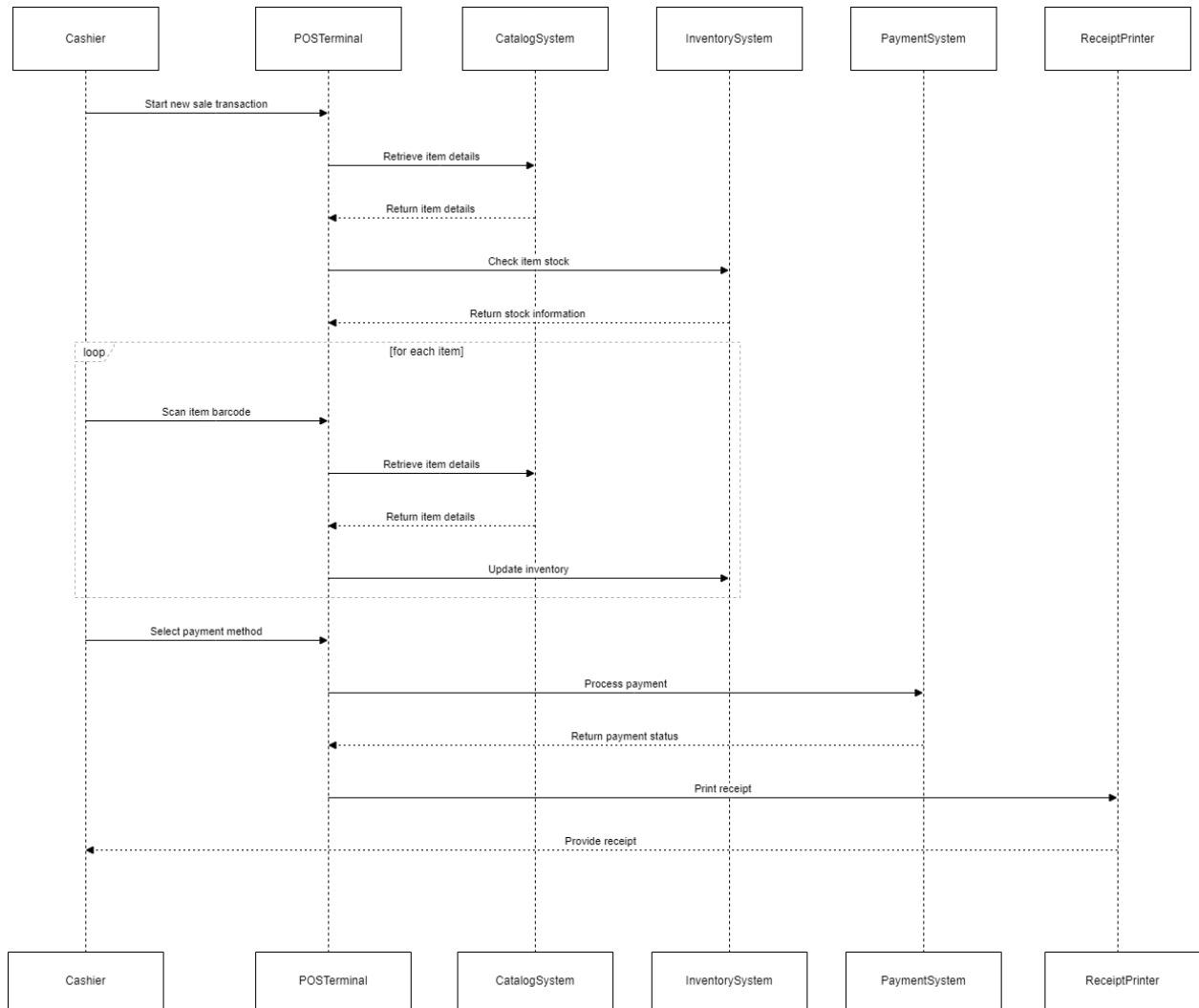
POS Interface, Payment Terminal, Receipt Printer, Barcode Scanner

Control Objects:

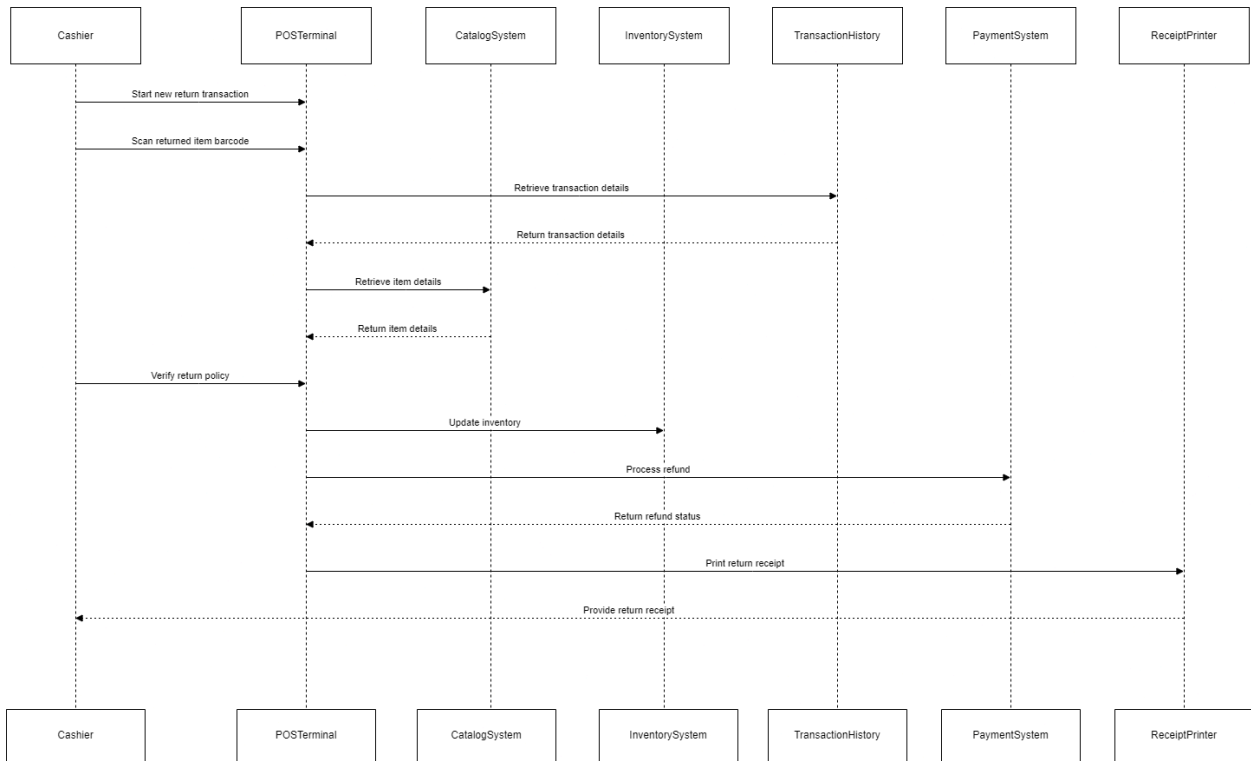
Process Sale Controller, Payment Controller, Return Controller, Inventory Controller, Catalog Controller, User Authentication Controller

Develop Sequence Diagrams

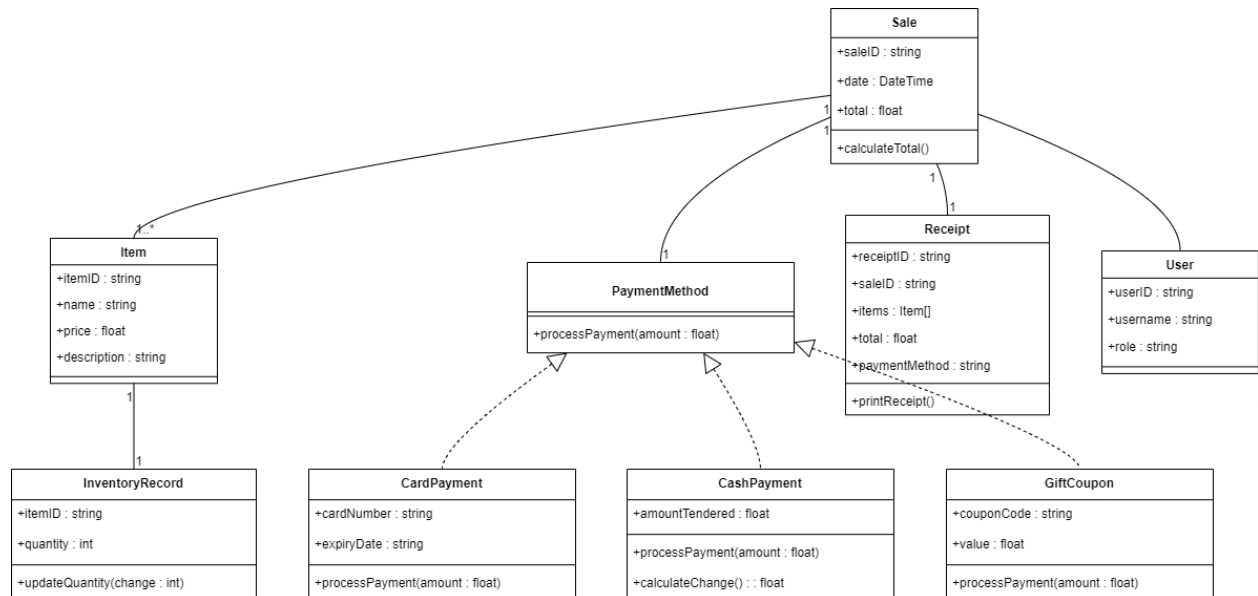
Process sale



Handle Return

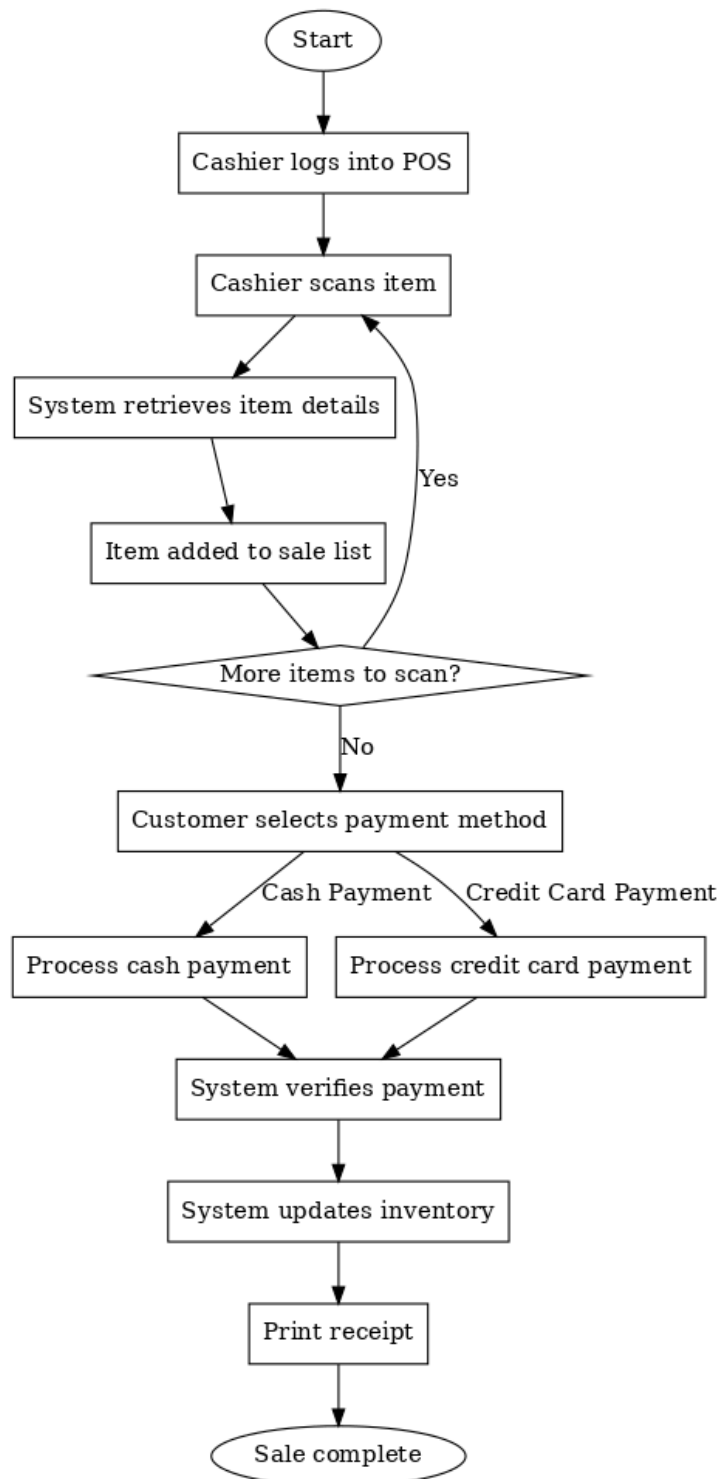


Develop Analysis Domain Models



Develop activity diagrams for "Process Sale" and "Handle Return" use cases.

Process Sales



Handle Return

