

IT314: Software Engineering

LAB-6

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Point of Sale System

Modeling Class Diagram and Activity Diagram

Task 1:

Use Case Textual Descriptions for “Process Sale” and “Handle Return” Use Cases

Use Case 1 : Process Sale

❖ Actor(s) :

- Cashier
- Catalog System (external actor)
- Inventory System(external actor)

❖ Precondition :

- The cashier must be logged into the system.
- The items must exist in the catalog and inventory system.

❖ **Main Flow :**

- The cashier starts a new sale.
- The cashier scans the item.
- The system retrieves the item information from the inventory.
- The system deducts the stock of the item from the inventory.
- The cashier repeats the steps 1-4 for all items.
- The customer chooses a payment method.(cash,credit card or cheque)
- The system processes the payment.
- Once payment has been confirmed , the system generates a receipt.

❖ **Alternate Flow :**

- If an item is not found in the catalog, the cashier gets a notification.
- If there is insufficient stock , the cashier is notified to inform the customer.
- If the payment fails , the cashier retries the payment or cancels the sale.

❖ **Post condition :**

- The sale is completed and recorded in the system.
- The stock is updated in the inventory system.
- The receipt is printed for the customer.

Use Case 1 : Handle Returns

❖ **Actor(s) :**

- Cashier
- Inventory System(external actor)

❖ **Precondition :**

- The cashier must be logged into the system.
- The item to be returned must be a part of a previous sale.

❖ **Main Flow :**

- The cashier starts a new return transaction.
- The cashier scans the returned item(s) and verifies the original sale.
- The system retrieves the item information from the inventory.
- The cashier confirms that the return is within the return policy.
- The system updates the stock in the inventory by adding the item.
- The system issues a refund or a store credit to the customer.

❖ **Alternate Flow :**

- If the return period has expired, the system notifies the cashier to reject the return.
- If the item is damaged or missing, the return is rejected.

❖ **Post condition :**

- The return is processed and updated in the inventory system.
- The customer is compensated with appropriate refund or credit.

Task 2:

Identification of Entity, Boundary, and Control Objects

Entity Objects:

- Sale
- Product
- Payment
- Receipt
- Return

Boundary Objects:

- Cashier Interface
- Catalog System

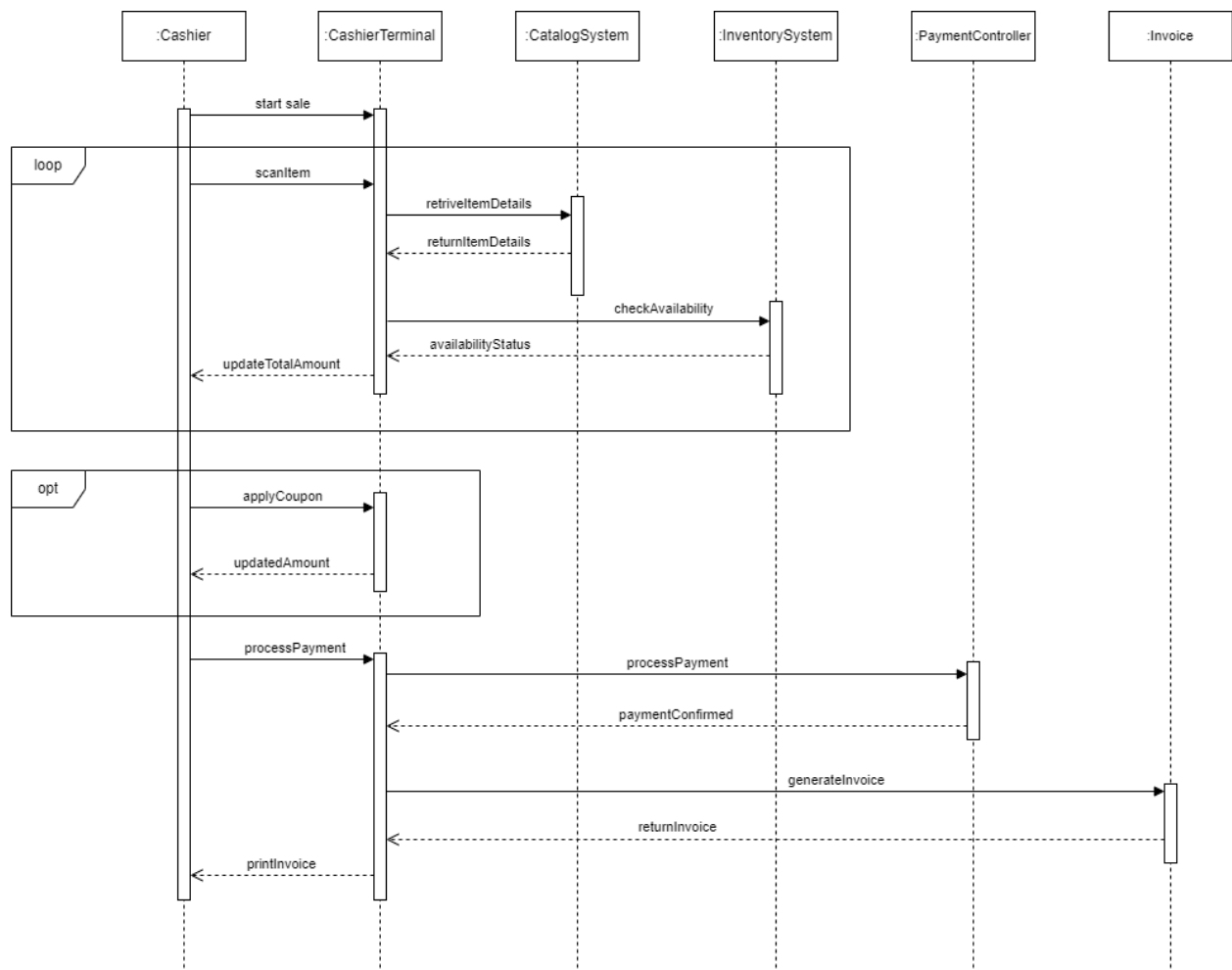
Inventory System Control Objects:

- Process Sale Controller
- Handle Payment Controller
- Handle Return
- Controller

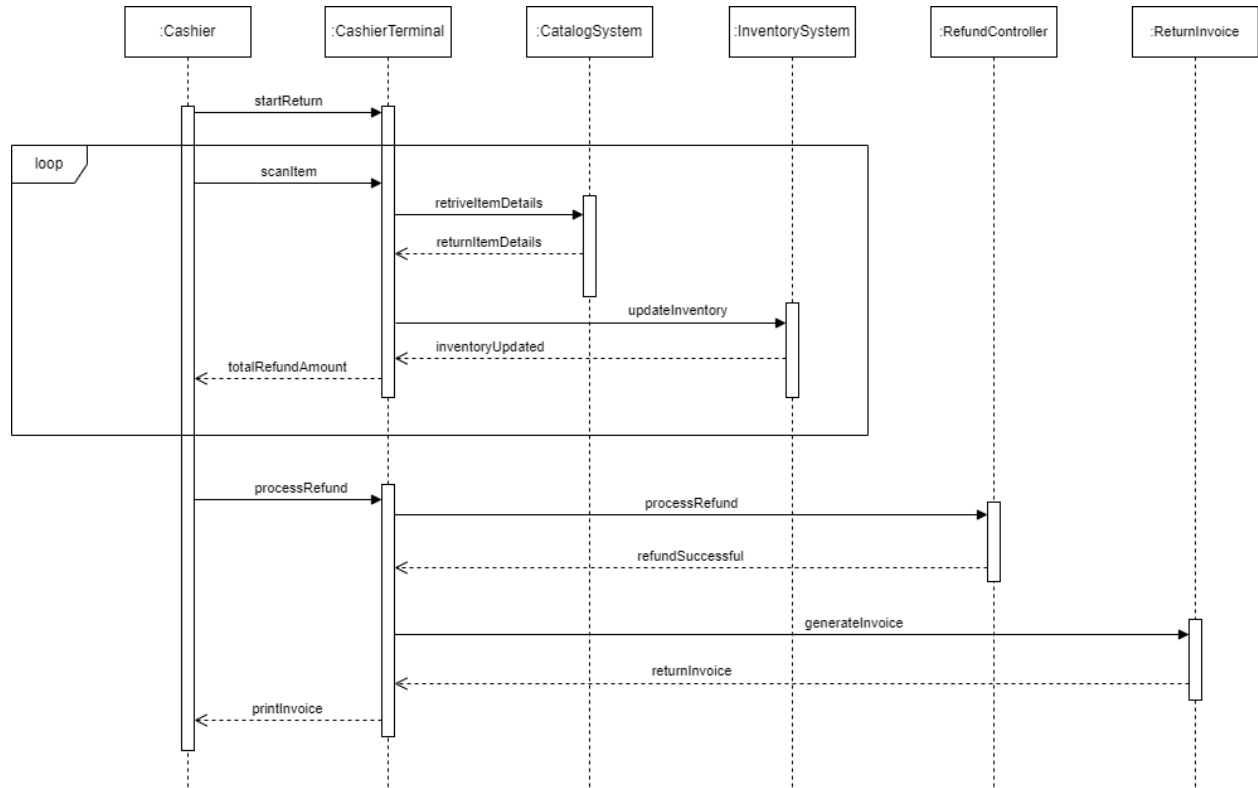
Task 3:

Develop Sequence Diagrams

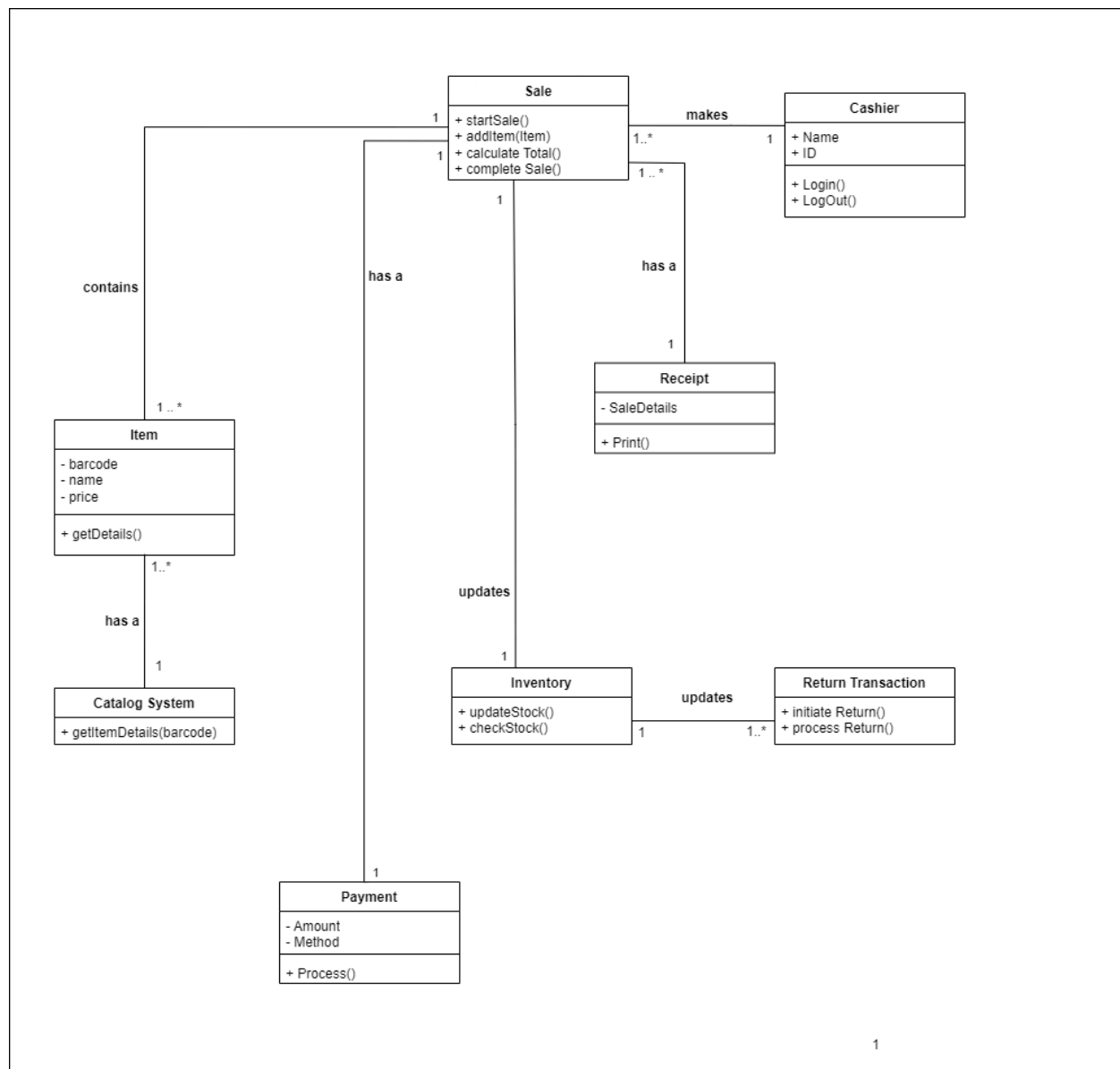
❖ Process Sale



❖ Handle Return

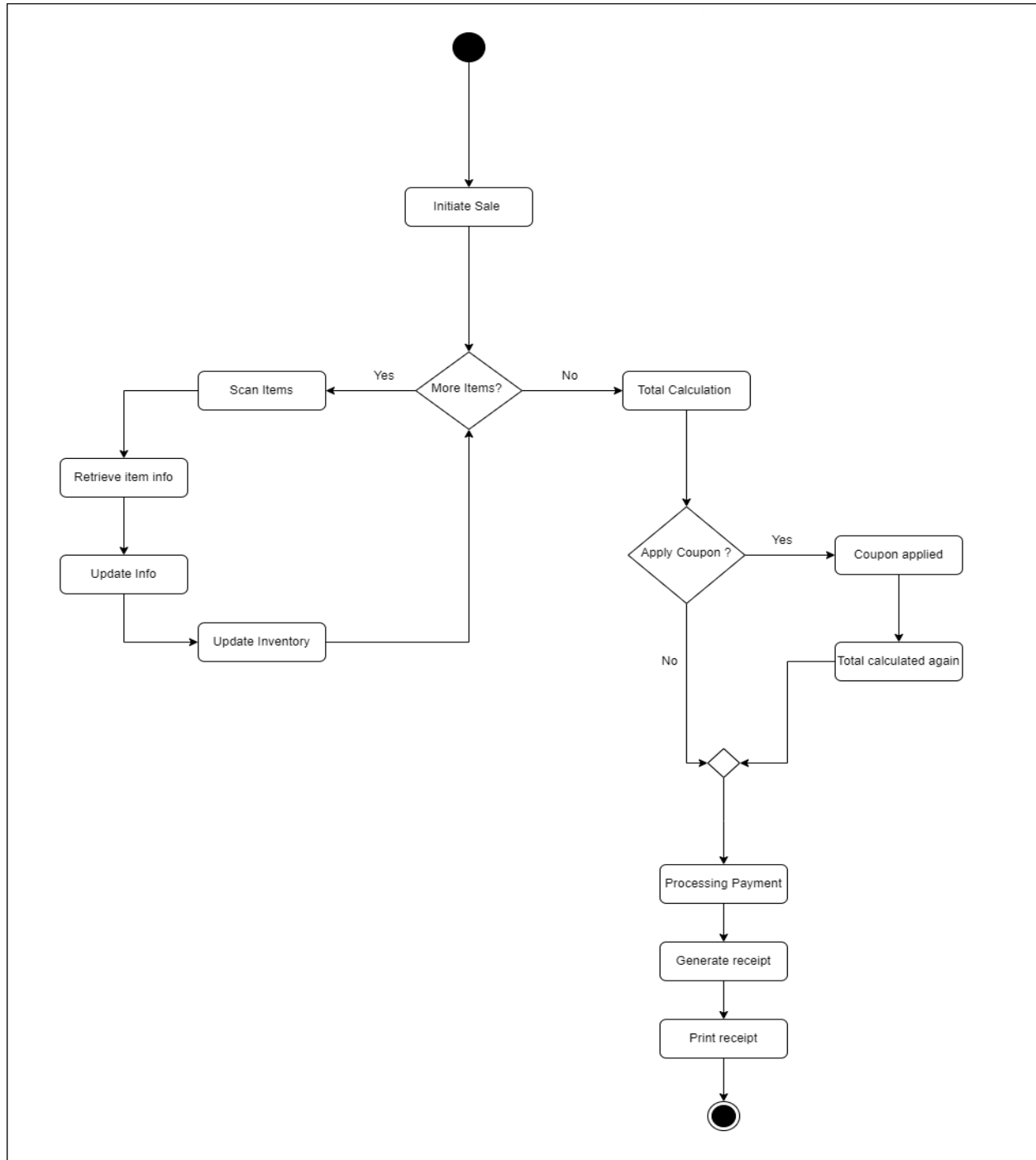


❖ Activity Domain Model (Class Diagram)



Activity Diagram

❖ Process Sale



❖ Handle Return

