IT314 – SOFTWARE ENGINEERING

LAB – 6

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Questions :

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

Sol.

Process Sale :

a. *Name* : Process Sale

b. *Actors* : Cashier, Customers

c. *Pre-conditions* :

- The cashier must be logged into the system.
- The system must be connected to the inventory as well as catalog systems

d. *Trigger* :
When the customers arrive to the cashier along with the items to purchase.

e. Main Flow :

- The cashier will initiate a new transaction in the system.
- The cashier then scans the barcode on every product.
- The system will retrieve the product's information from inventory and deduct the purchased item from the inventory.
- Cashier may also apply any discount or valid coupon given by the customer.
- The system will calculate and display the final price due.
- Customer needs to select the payment method suitable.
- Cashier will then input all the necessary details and then the system processes the payment.
- When the payment is successful, the system generates a receipt and the sale is finalized.

f. Post-conditions :

- The inventory is updated once the payment is successful.
- A print of receipt is handed over to the customer.

g. *Alternative Flows* :

- If barcode is not recognized, the cashier should enter the details manually.
- If customer cannot pay full amount, the cashier cancels the transaction.
- If the payment methos fails, the cashier asks customer to try an alternative method.

Handle Return :

a. Name : Handle return

b. Actors : Customer, Cashier

c. Pre-conditions :

- The cashier must be logged in the system.
- The customer has a receipt of the items that needs to be returned.

d. Trigger :

The customer wants to return the purchased item.

e. Main Flow :

- The cashier will start a return transaction on the system as the customer provides the receipt.
- The cashier scans the barcode on returned items or enters the detail manually.
- The system verifies the items with the provided receipt.
- The inventory needs to be updated.
- The cashier asks customer for preferred return payment method and processes the refund in the system.
- When the refund is successful, the system prints the receipt and the transaction is completed.

f. Post-conditions :

- Update the inventory on successful refund.
- Give the customer a print of refund receipt.

g. Alternative Flow :

- The cashier informs the customer if in case the return period is over or item can’t be returned.
- If customer does not have the receipt the cashier handles the return manually according to store’s policy

2. Identify Entity/Boundary Control Objects

Sol.

a. *Entity objects :*

- Item :
  Represents the product being purchased or returned.
- Sale Transaction :
  Tracks the details of the transaction.
- Return Transaction :
  Records the details of the returned items.
- Coupon :
  Represents any discount during the sale.
- Receipt :
  Represents the printed proof of sale.

b. Boundary Objects :

- POS interface :
  The system interface with which the cashier interacts
- Barcode Scanner :
  Device used to scan barcode.
- Payment terminal :
  Hardware used in processing the payment methods.
- Printer :
  Device that prints receipts.

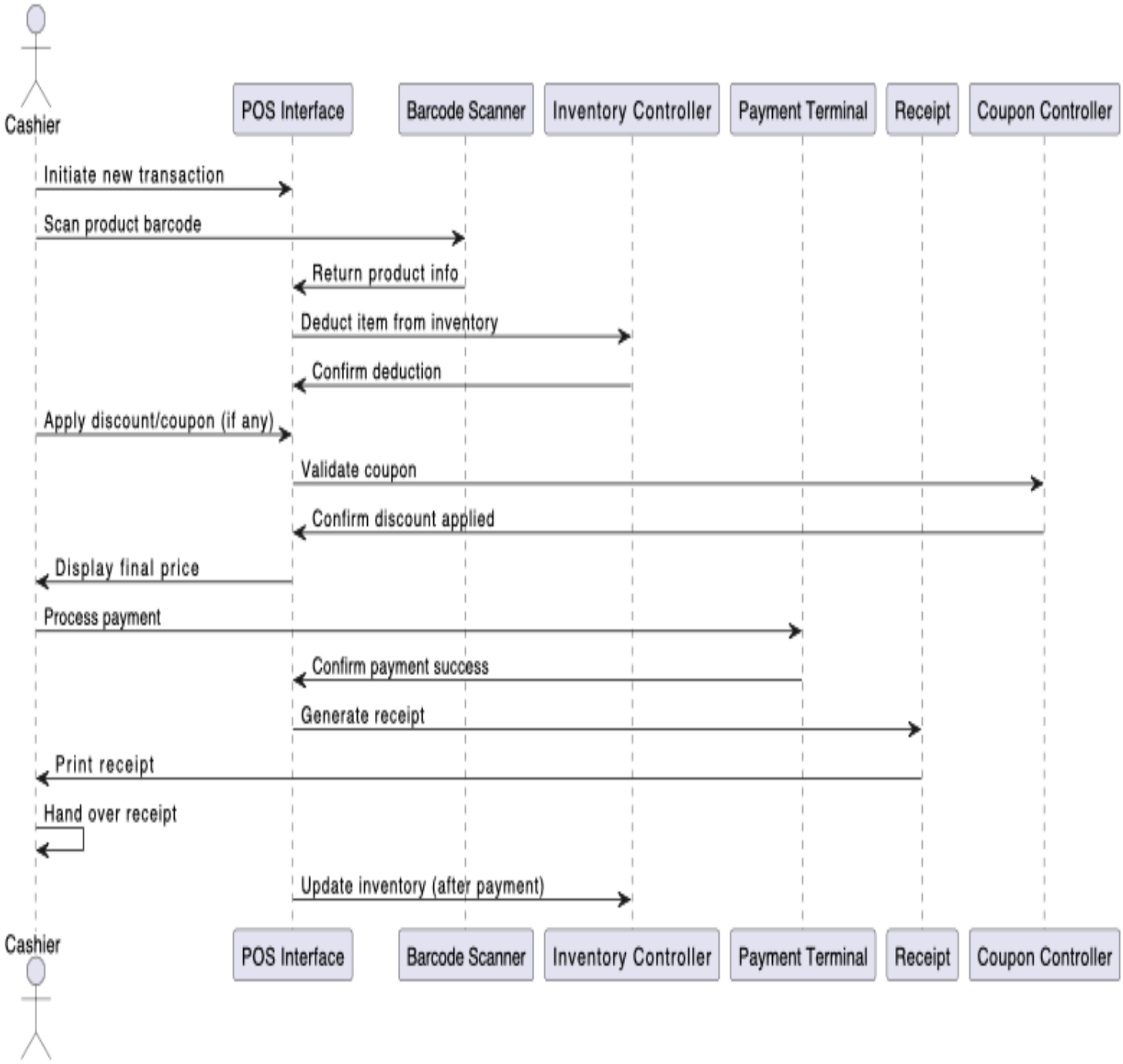
c. *Control Objects :*

- Sale Controller :
  Manages the sale process.
- Inventory Controller :
  Ensuring the inventory is updated correctly.
- Coupon Controller :
  Handles the validation and application of coupon discount during sale .
- Payment Controller :
  Responsible for handling payment transactions.
- Return Controller :
  Handles the return process by verifying returns.

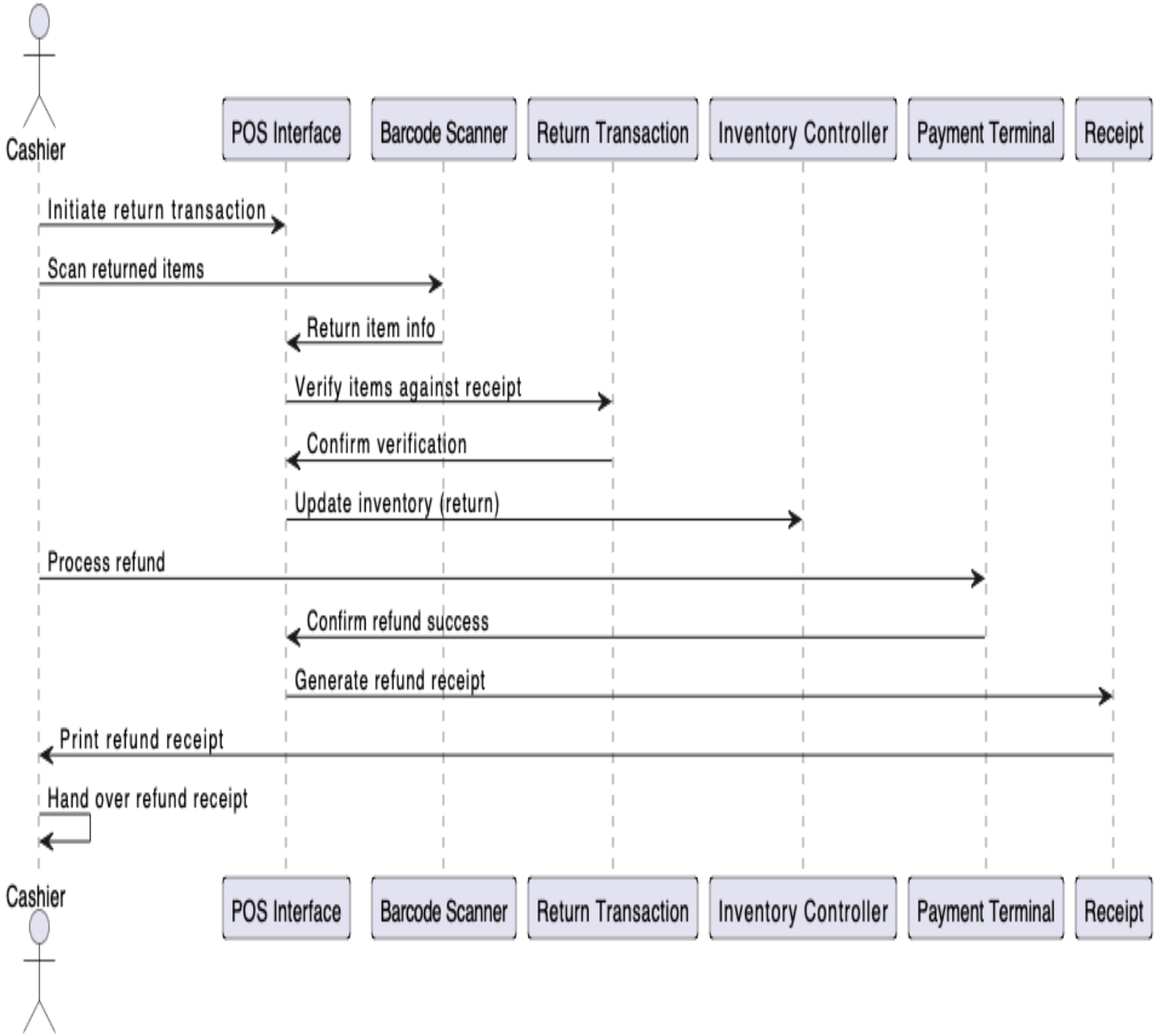
3. Develop Sequence Diagrams

Sol .

Process Sale :



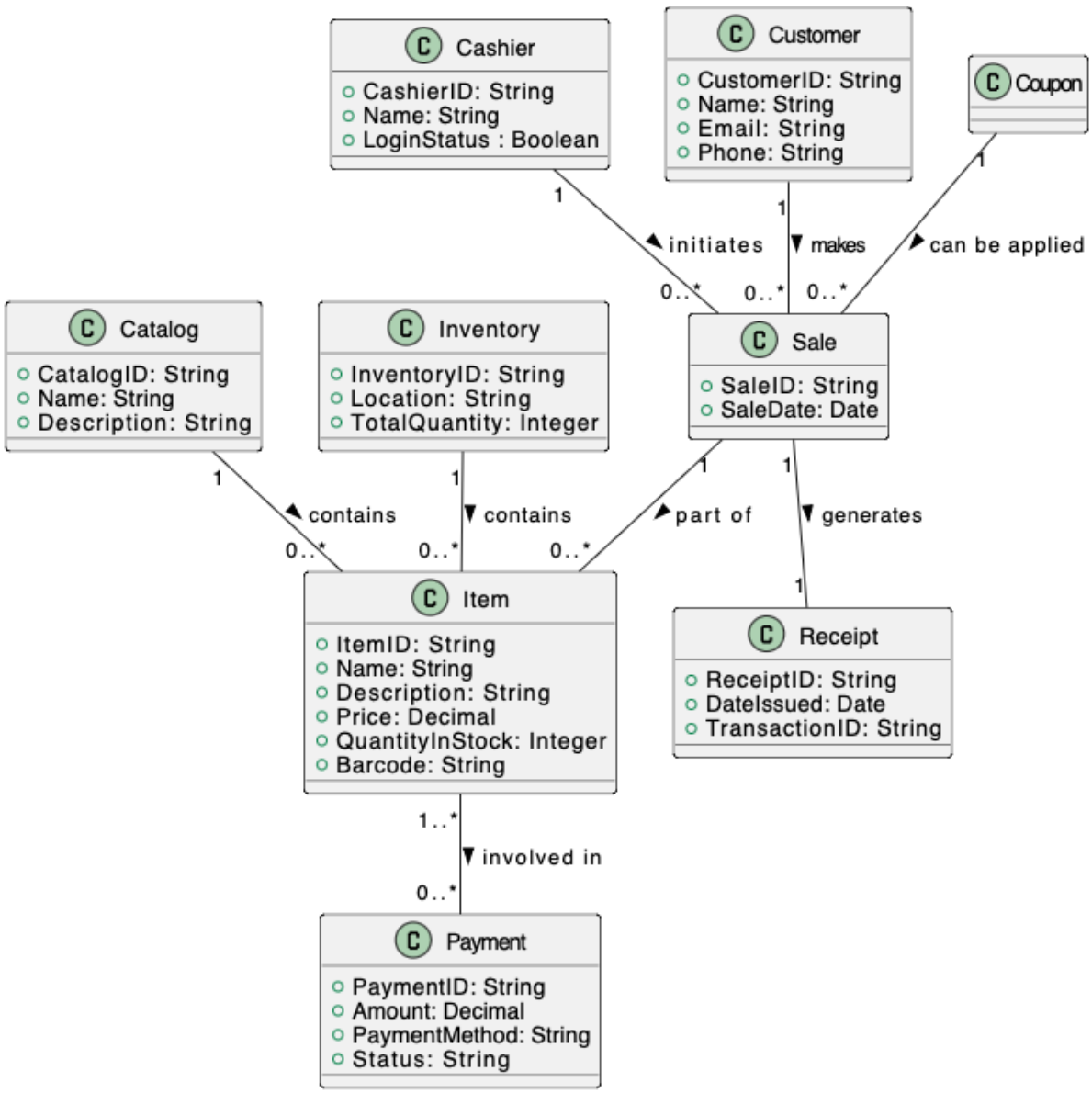
Handle Returns :



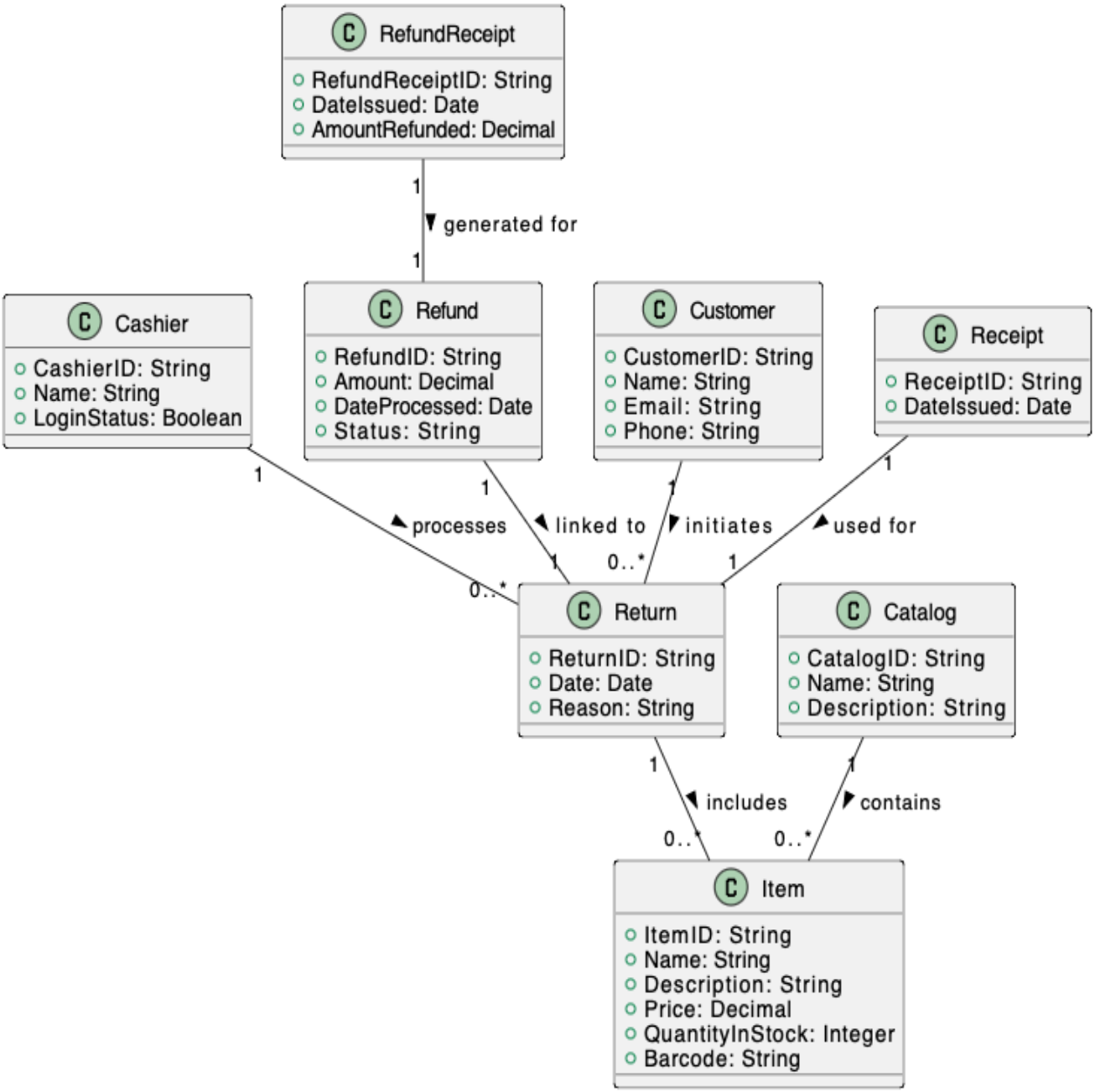
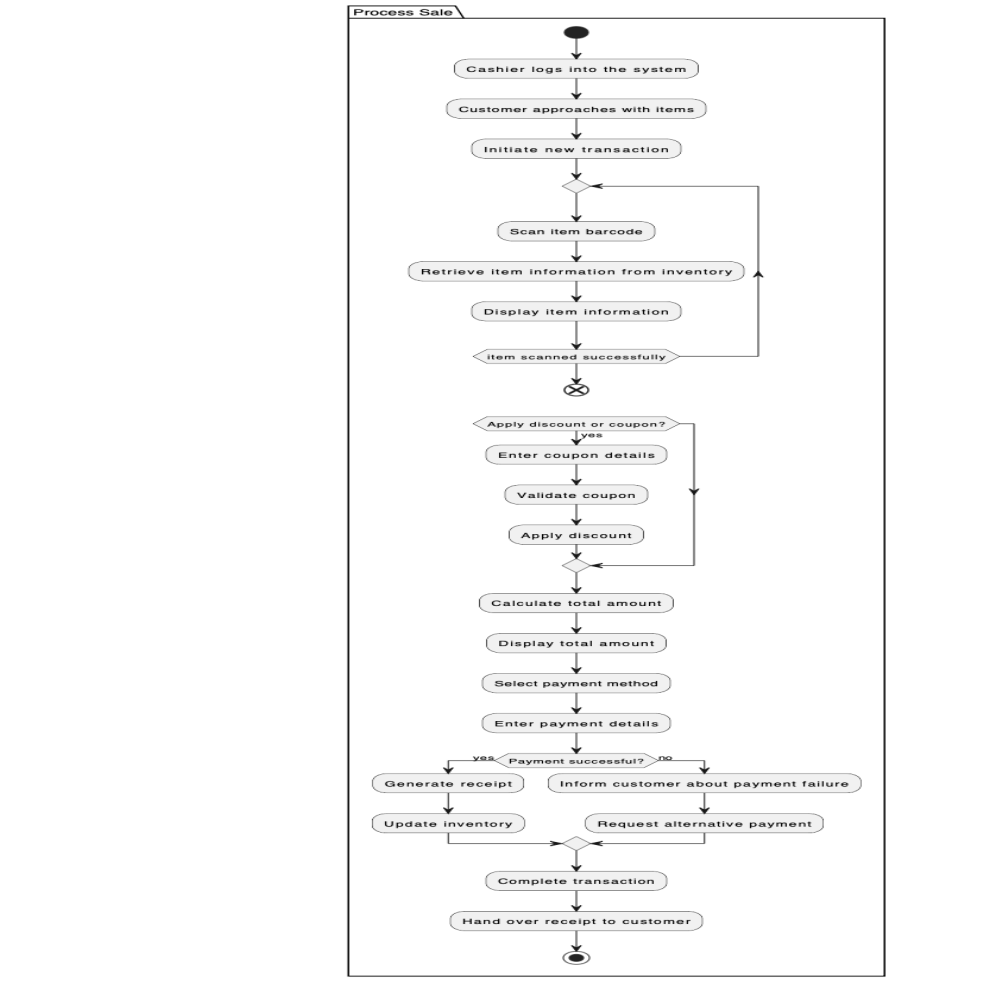
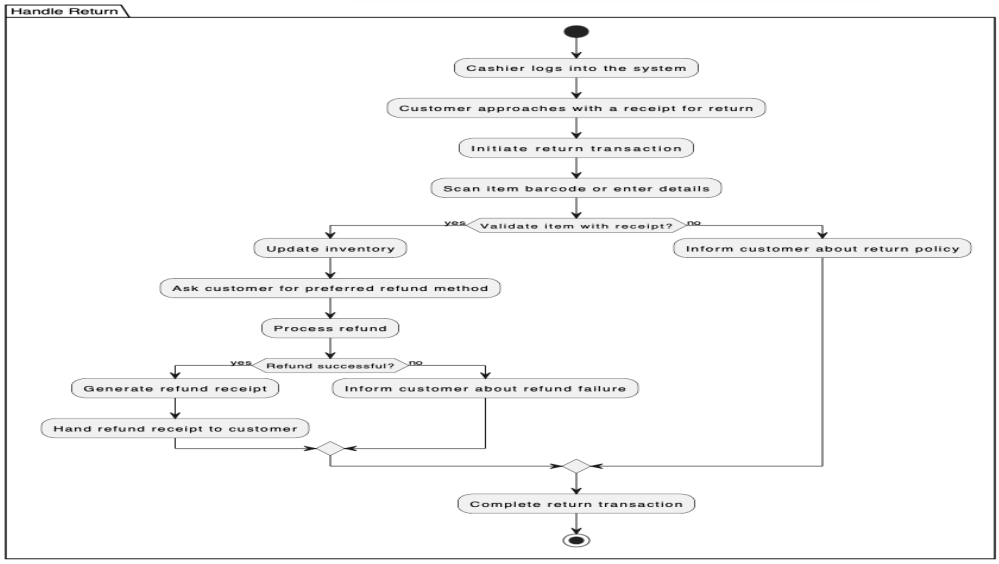
4. Develop Analysis Domain Models

Sol.

Process Sale :



Handle Returns :



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