Lab 6 - 202201256

Ayush Pandita

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

Process Sale:

Use Case ID	UC-01
Actors	Cashier, Customer
Preconditions:	● The cashier is logged into the POS system. ● The store has sufficient stock of the goods being sold. ●
Postconditions:	● A sale transaction is completed. ● Payment is processed successfully. ● A receipt is printed and given to the customer.

Main Flow:	The cashier initiates a new sale transaction in the POS system.
	
	● The cashier scans the barcode of each item the customer wishes to purchase.
	● The POS system retrieves the item details (name, price) from the backend catalog.
	● The inventory is updated to reflect the new stock level for each item.
	● The system displays the current sale summary, including item names, quantities, prices, and total amount.
	● The cashier checks for any applicable promotions or gift coupons.
	● If a coupon is applied, the system updates the total amount accordingly.
	● The cashier presents payment options to the customer (cash, credit card, check).
	● The customer selects a payment method and provides the necessary payment information.
	● The POS system processes the payment:
	  ○ For cash, it verifies the amount and updates the cash register.
	  ○ For credit card, it interacts with the payment processor to complete the transaction.
	  ○ For checks, it verifies the check information.
	● Once payment is confirmed, the system marks the transaction as complete.
	● A receipt is generated and printed.

Alternative Flows:	● If the item does not meet the return criteria, the system notifies the cashier and provides the reason (e.g., past return period, damaged item). ● If the refund cannot be processed, the system informs the cashier and provides options for resolution.

Handle Return :

Use Case ID:	UC-02
Actors	Cashier, Customer
Preconditions:	● The cashier is logged into the POS system. ● The customer has the receipt for the item they wish to return.
Postconditions:	● The return transaction is completed. ● Inventory is updated to reflect the returned item. ● A return receipt is printed.

Main Flow:	● The cashier initiates a return process in the POS system. ● The cashier inputs the receipt details into the POS system to verify the transaction. ● The cashier scans the barcode of the item being returned. ● The system retrieves the item details and verifies if the item is eligible for return. ● The system displays the return summary, including item details and any applicable return policies . ● The cashier confirms with the customer how they would like to receive the refund . ● The system processes the refund: ○ For cash, the amount is given back to the customer from the cash register. ○ For credit card, the system processes a refund to the original card. ● The system updates the inventory to reflect the returned item. ● A return receipt is generated .
Alternative Flows:	● If the item does not meet the return criteria, the system notifies the cashier and provides the reason (e.g., past return period, damaged item). ● If the refund cannot be processed, the system informs the cashier and provides options for resolution.

- Identify Entity/Boundary Control Objects

Entity Objects

1. **Product**
    - Responsibilities: Represents items available for sale.
2. **Customer**
    - Responsibilities: Represents customers, including their purchase history and preferences.
3. **Transaction**
    - Responsibilities: Represents a sale transaction, including the items purchased and payment details.
4. **Coupon**
    - Responsibilities: Represents discount coupons that can be applied to transactions.
5. **Return**
    - Responsibilities: Represents items returned by customers, including details about the original transaction.
6. **User**
    - Responsibilities: Represents employees using the POS system, including cashiers and administrators.

Boundary Objects

1. **POS User Interface**
    - Responsibilities: Provides the user interface for cashiers and administrators to interact with the system, including input forms and display screens for transactions.
2. **Receipt Printer**
    - Responsibilities: Interface for printing receipts for customers after transactions are completed.
3. **Payment Gateway**
    - Responsibilities: Interface to process credit card and electronic payments securely.

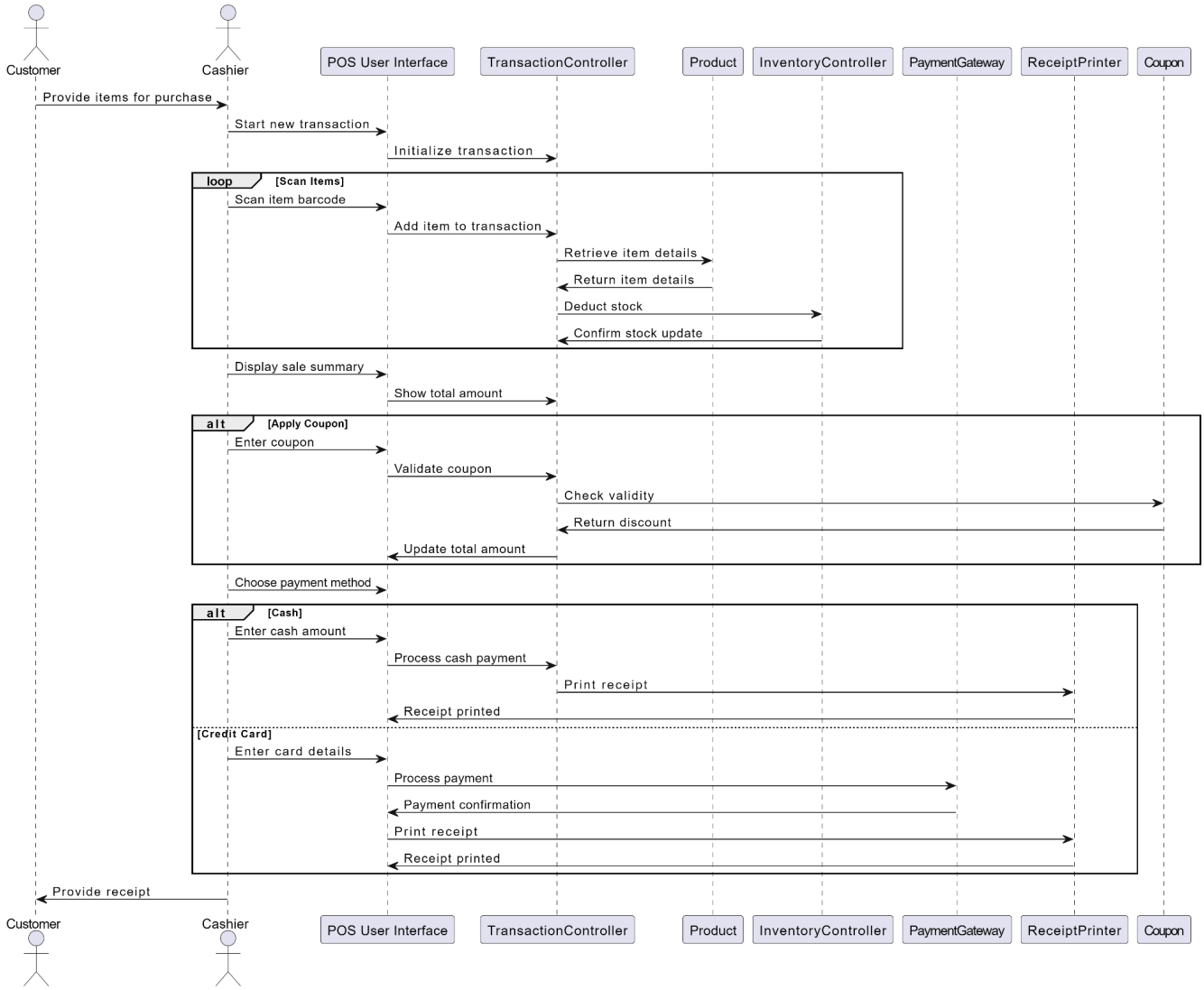
Control Objects

1. **TransactionController**
    - Responsibilities: Manages the flow of processing a sale transaction, including item scanning, payment processing, and receipt generation.
2. **ReturnController**

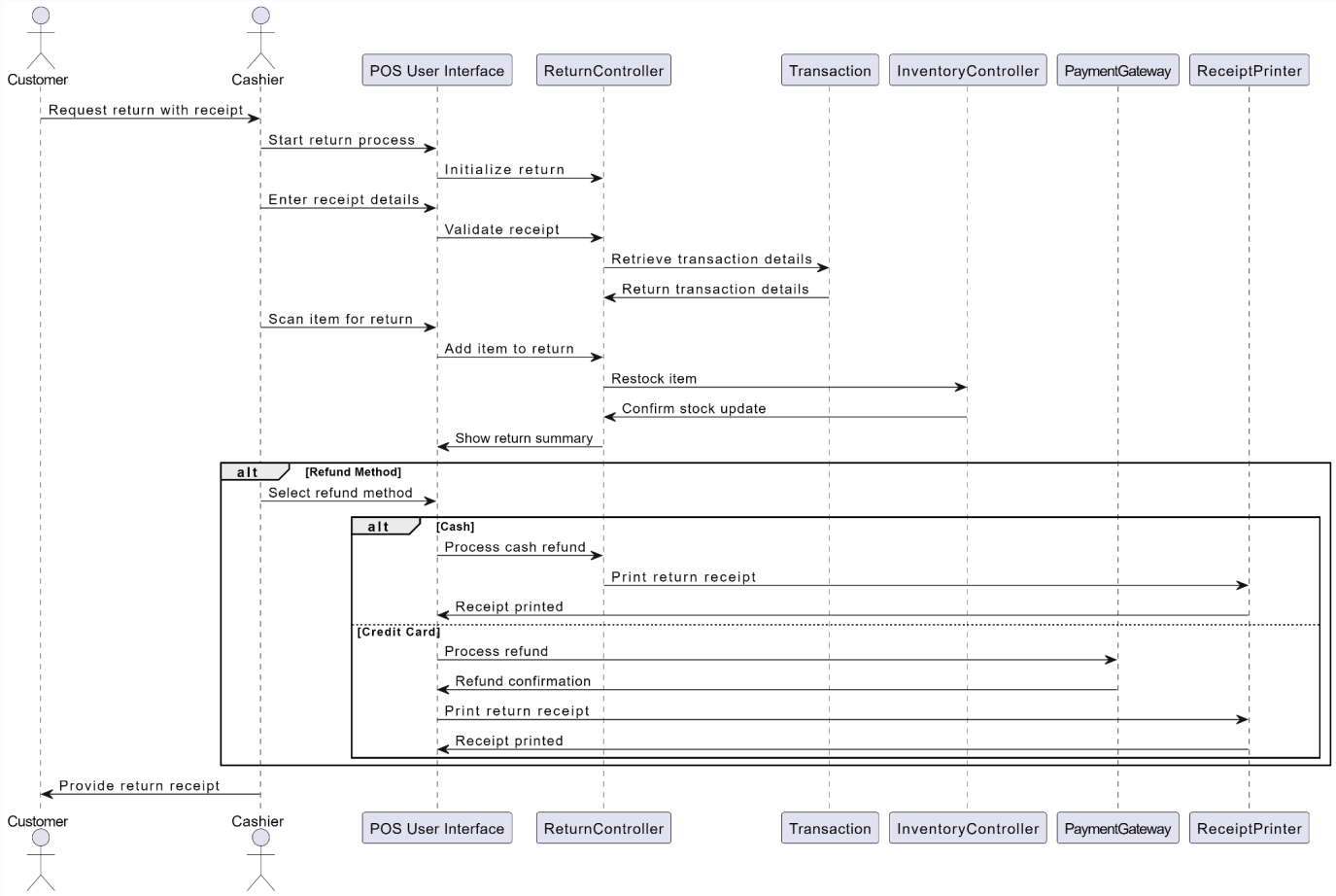
    - Responsibilities: Manages the flow of handling return transactions, including verifying receipts, processing refunds, and updating inventory.
3. **InventoryController**
    - Responsibilities: Manages stock levels and updates inventory when items are sold or returned.
4. **UserController**
    - Responsibilities: Handles user authentication, role management, and access control for the POS system.
5. **CouponController**
    - Responsibilities: Manages coupon validation and application during transactions.

- Develop Sequence Diagrams

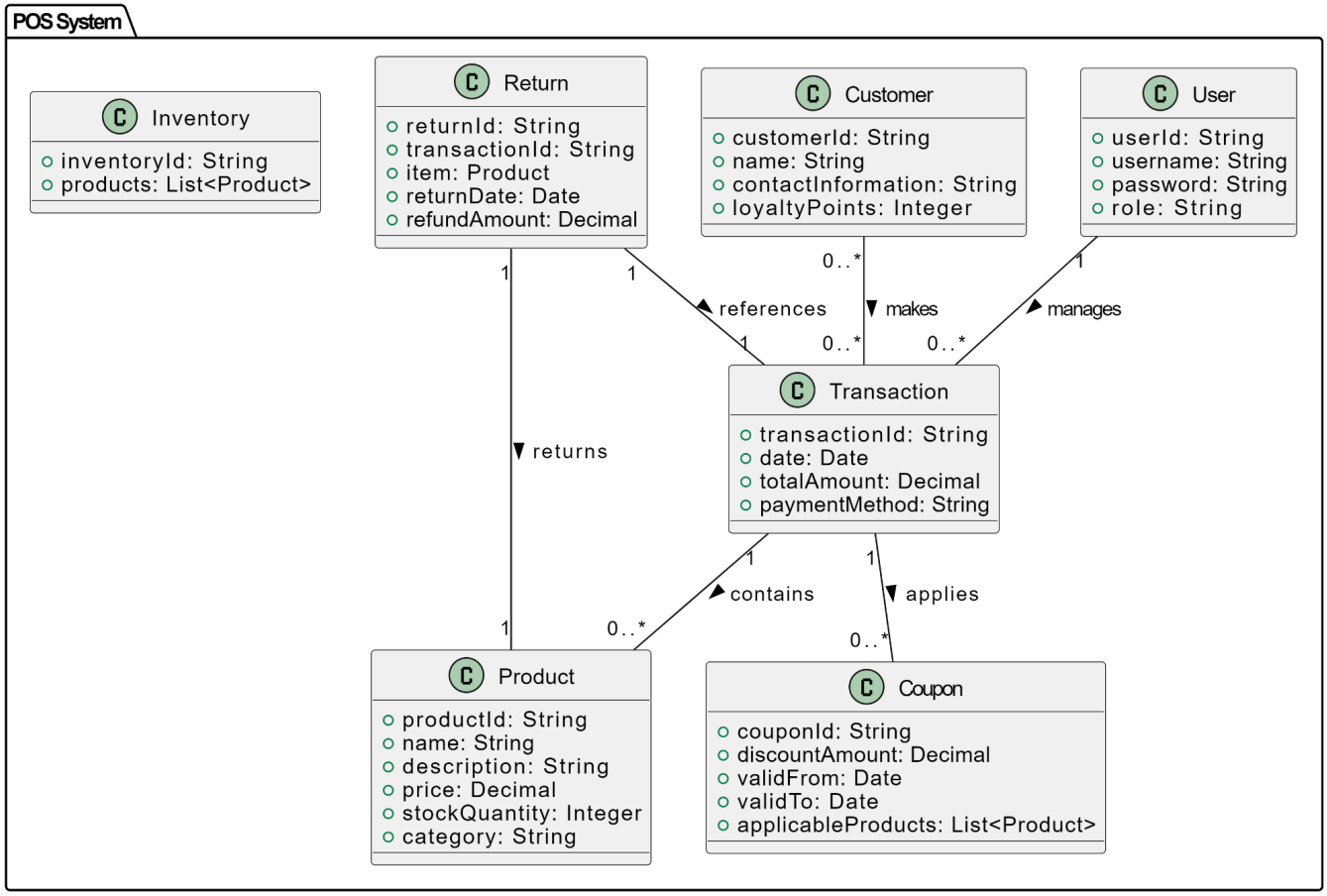
Process Sale:



Handle Return:

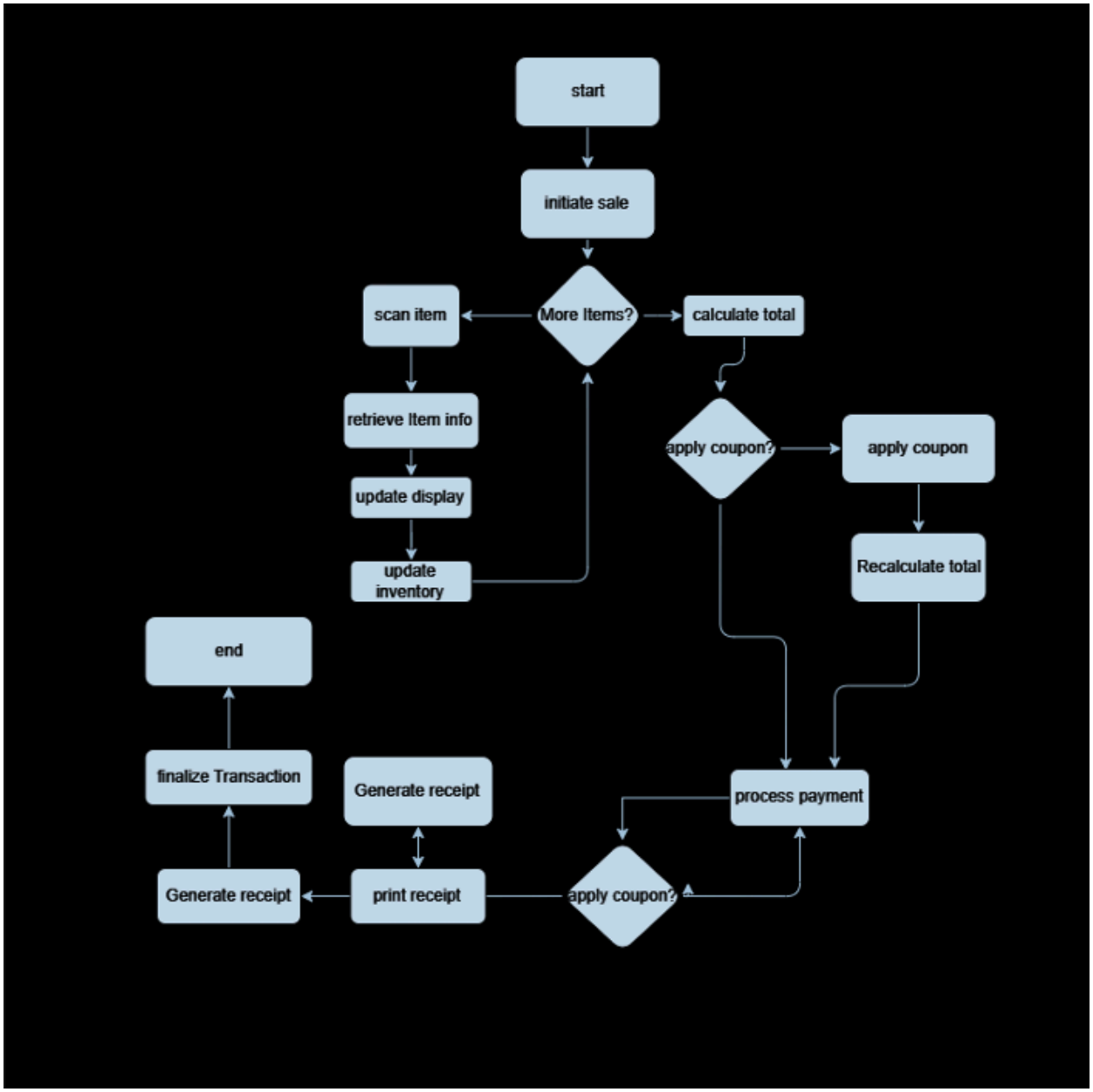
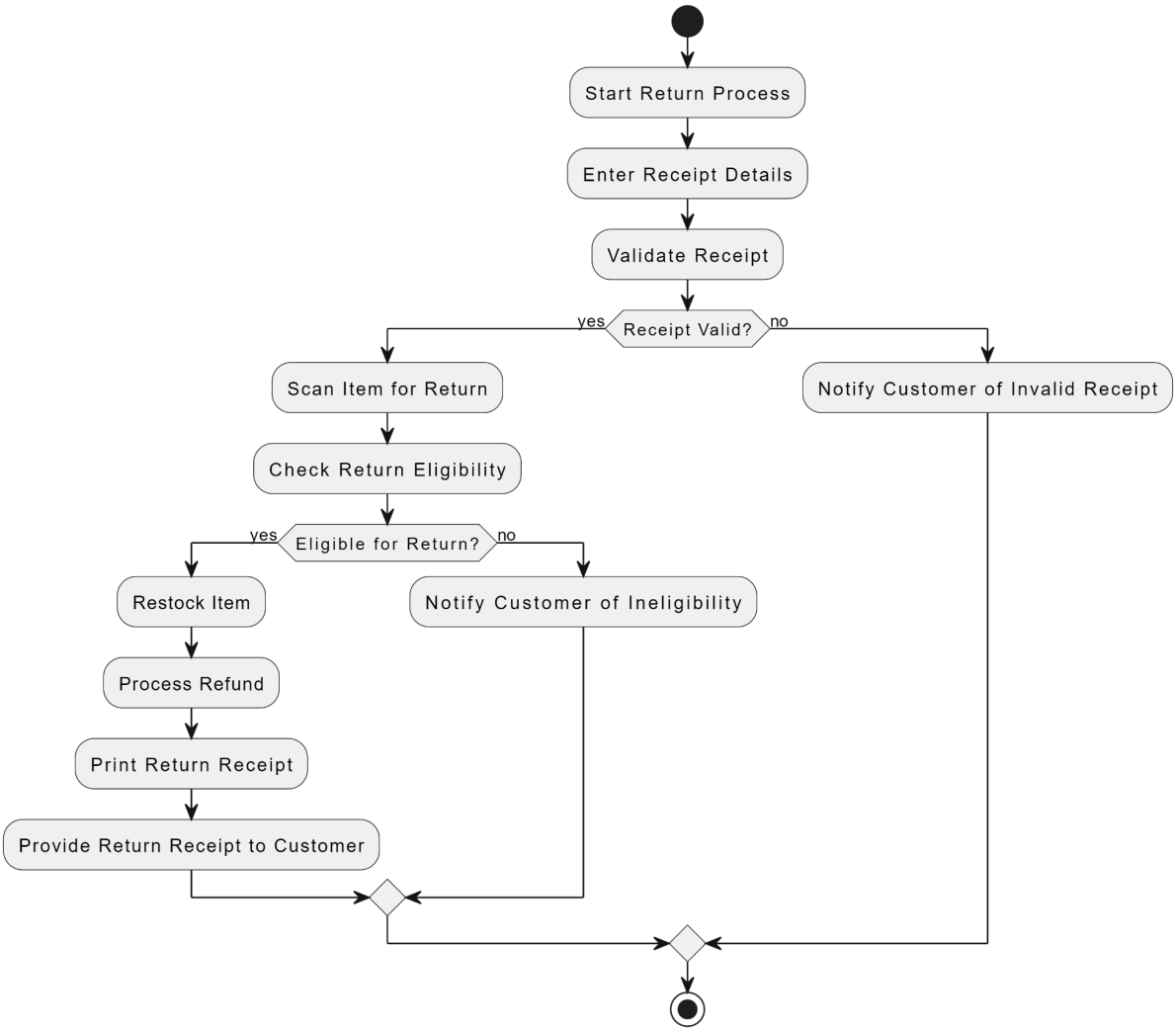


- Develop Analysis Domain Models



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

Process Sale:



Handle Return: