IT 314

Software Engineering

lab_06

Vaghela Vivek : 202201197

To-Do list in this lab ::

- Develop Use Case Textual Description for "Process Sale" and "Handle Return" use cases.
- Identify Entity/Boundary Control Objects
- Develop Sequence Diagrams
- Develop Analysis Domain Models
- Develop activity diagram for "Process Sale" and "Handle Return" use cases.

1) Use Case for Process Sale :

Use Case Name : Process Sale

Description:
This use case describes the process that occurs when a customer arrives at the Point-of-Sale (POS) counter to purchase items. The cashier scans the items' barcodes, the system retrieves product details, updates inventory, and calculates the total. The customer can complete the transaction by paying via cash, credit card, or check. The system supports promotional discounts through gift coupons and, after successful payment, generates and prints a receipt for the customer.

Primary Actor : Cashier

Preconditions:
- The backend product catalog and inventory database are up-to-date and accessible.
- The cashier is logged into the POS system.

Main Flow :

1. The cashier starts a new sale transaction on the POS system.
2. The cashier scans the barcode of each item.

3. The system retrieves the name and price of each scanned item from the backend catalog.
4. The system adjusts the inventory by deducting the quantity of each item being purchased.
5. The system displays the running total of all items scanned.
6. (Optional) The customer presents a gift coupon, and the cashier enters the coupon details into the system.
7. The system applies any valid promotional discounts to eligible items.
8. The cashier finalizes the transaction, confirming all items have been scanned.
9. The customer selects a payment method (cash, credit card, or check).
10. The system processes the payment and confirms it has been successfully completed.
11. The system generates and prints a receipt for the customer.

Postconditions

- The inventory is updated to reflect the deducted stock of purchased items.
- The sale transaction is recorded in the system for reporting and auditing.

2) Identify Entity/Boundary Control Objects for Process Sale :

Entity Objects:

Cashier

Boundary Objects :

Cashier Terminal

Barcode Scanner

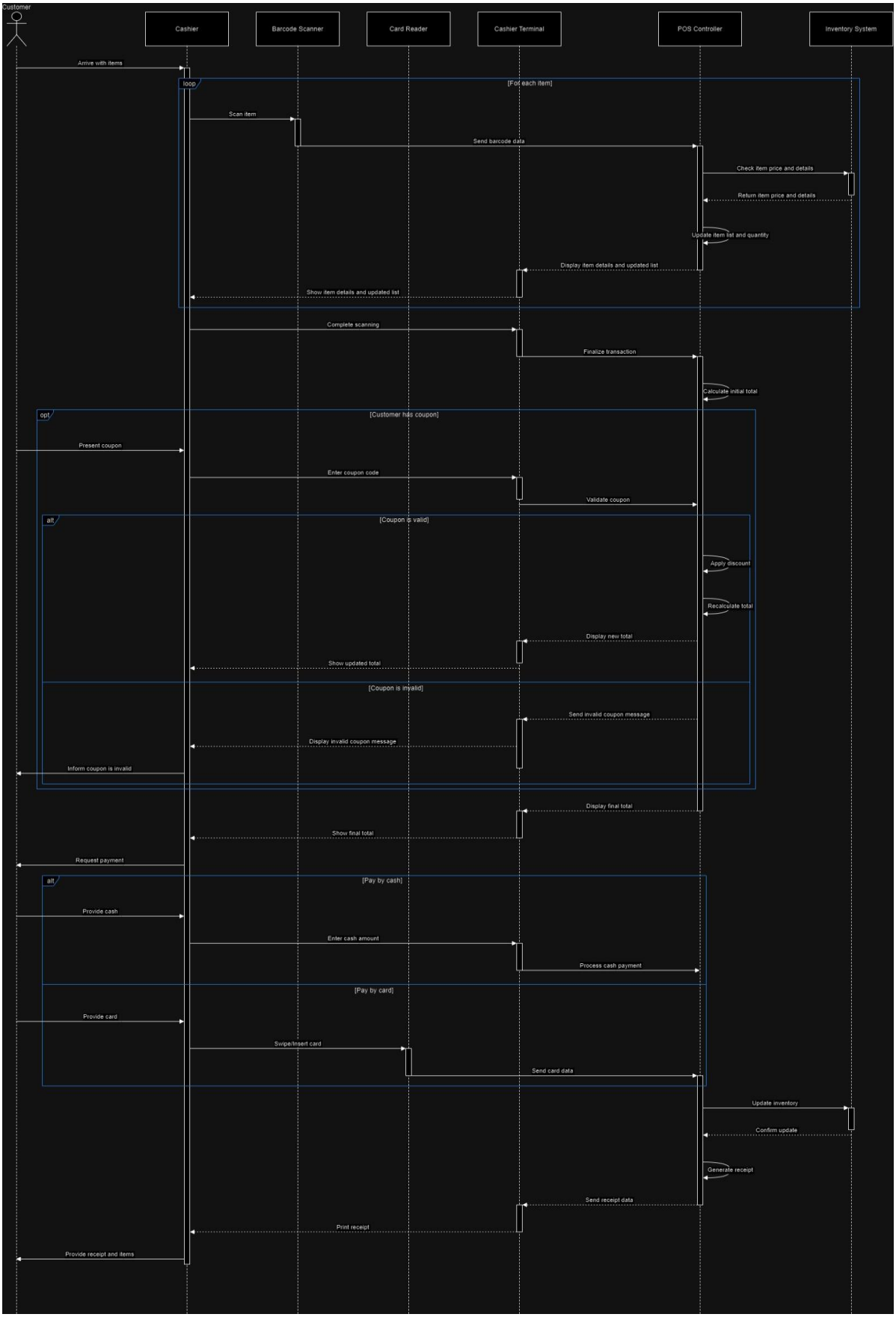
Card Reader

Control Objects :

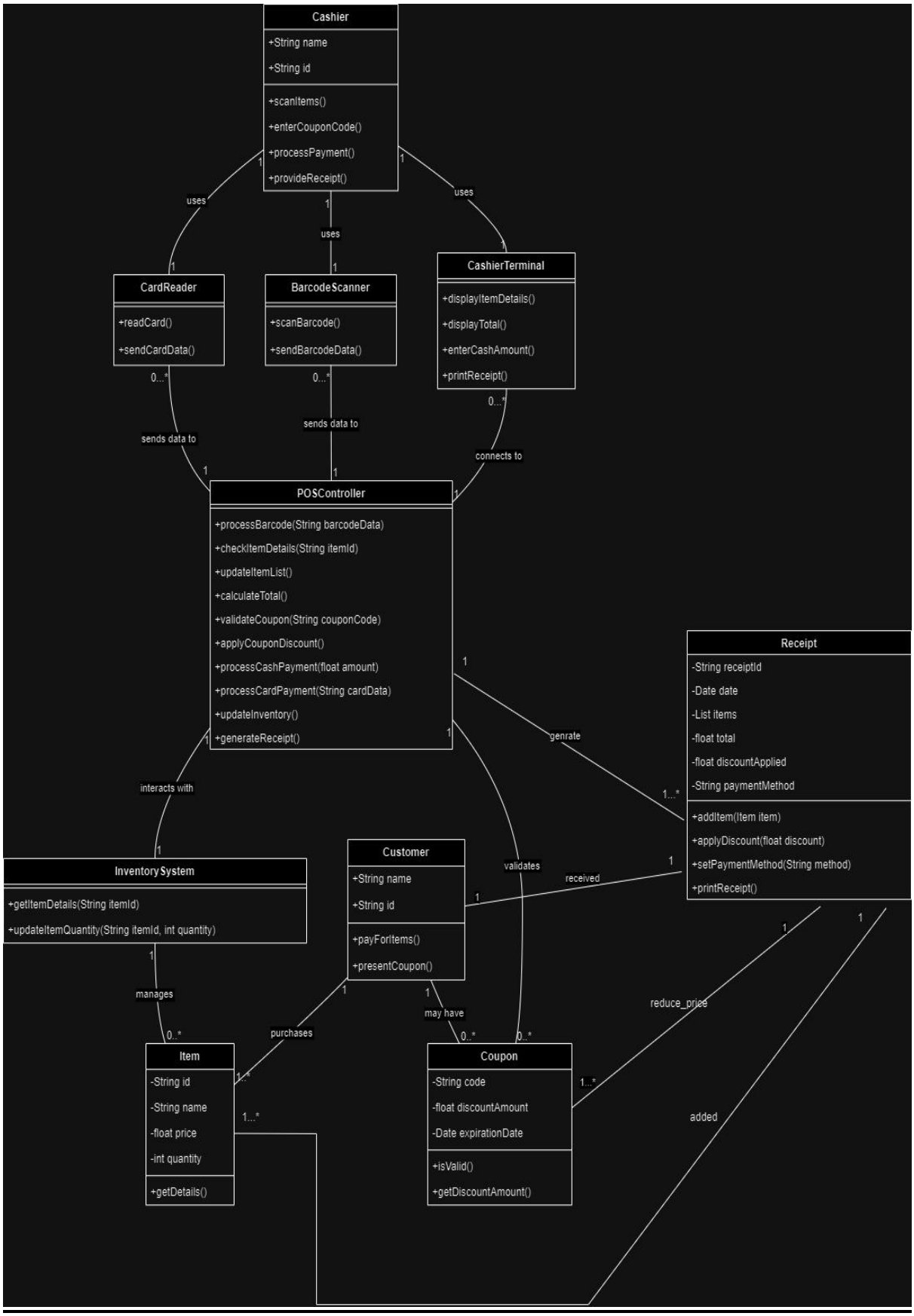
POS Controller

Inventory System

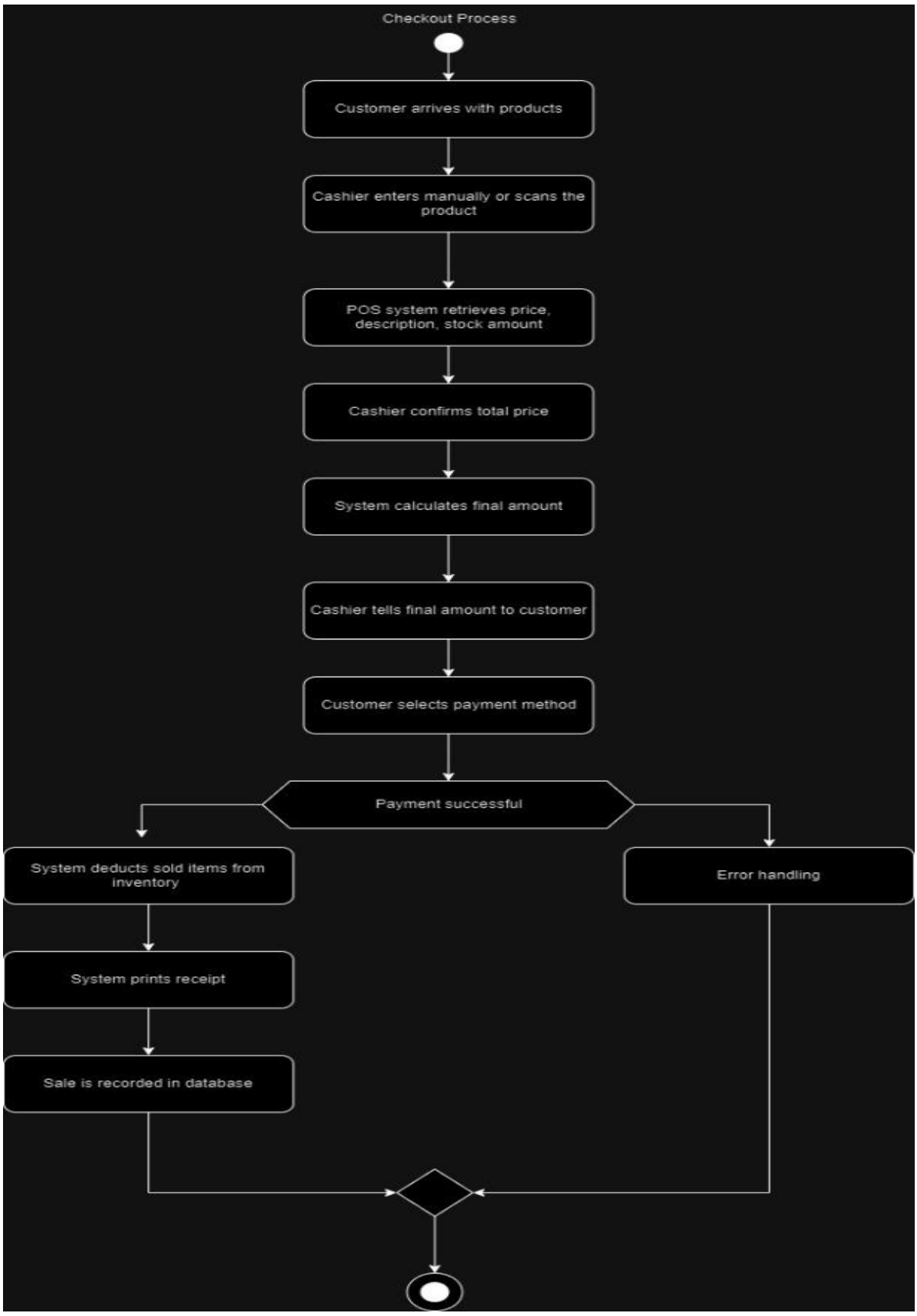
3) Develop Sequence Diagrams for "Process Sale":



4) Develop Analysis Domain Models for "Process Sale" :



5) Develop activity diagram for "Process Sale" :



1) Use Case for Handle Return:

Use Case Name :
Handle Customer Returns

Description :
This use case defines the steps involved when a customer returns a previously purchased item to the store. The cashier initiates the return process by verifying the item and the associated receipt or proof of purchase. The system checks the eligibility of the return (such as being within the return policy window and the item being in acceptable condition). Upon validation, the system restocks the item, adjusts the inventory, and processes the refund based on the original payment method (cash, credit card, or store credit). A return receipt is generated for the customer, and the transaction is logged for future reference.

Primary Actor : Cashier

Preconditions :
- The POS system is fully operational and connected to both the inventory and transaction history databases.
- The cashier is logged in to the system with the appropriate credentials.
- The item meets the store's return policy conditions (within the return period, in acceptable condition, etc.).

Main Flow :
1.The cashier selects the option to initiate a return in the POS system.
2.The cashier scans the barcode on the item and the receipt to retrieve the original purchase details from the system.

3.The system checks the date of purchase to ensure the return is within the allowed return period.
4. The system calculates the refund amount based on the original price, factoring in any applied discounts or promotions.
5. The system adds the returned item back into the inventory and adjusts stock levels accordingly.
6 .
- If the original payment was made in **cash**, the cashier refunds the amount in cash.
- If the original payment was made via **credit card**, the system processes a refund back to the card used in the transaction.
- If the customer chooses **store credit**, the system issues a store credit voucher or gift card for the refund amount.
7. The system generates a return receipt for the customer, detailing the refunded amount and the return details.
8. The cashier completes the return transaction, and the system logs the return in the transaction history for audit purposes.

Postconditions :
- The inventory is updated to reflect the restocked item.
- The return transaction is recorded and saved for future reporting or auditing.
- The customer receives a printed return receipt.

2) Identify Entity/Boundary Control Objects for Handle Return :

Entity Objects:

Cashier

Database

Boundary Objects :

Cashier Terminal

Control Objects :

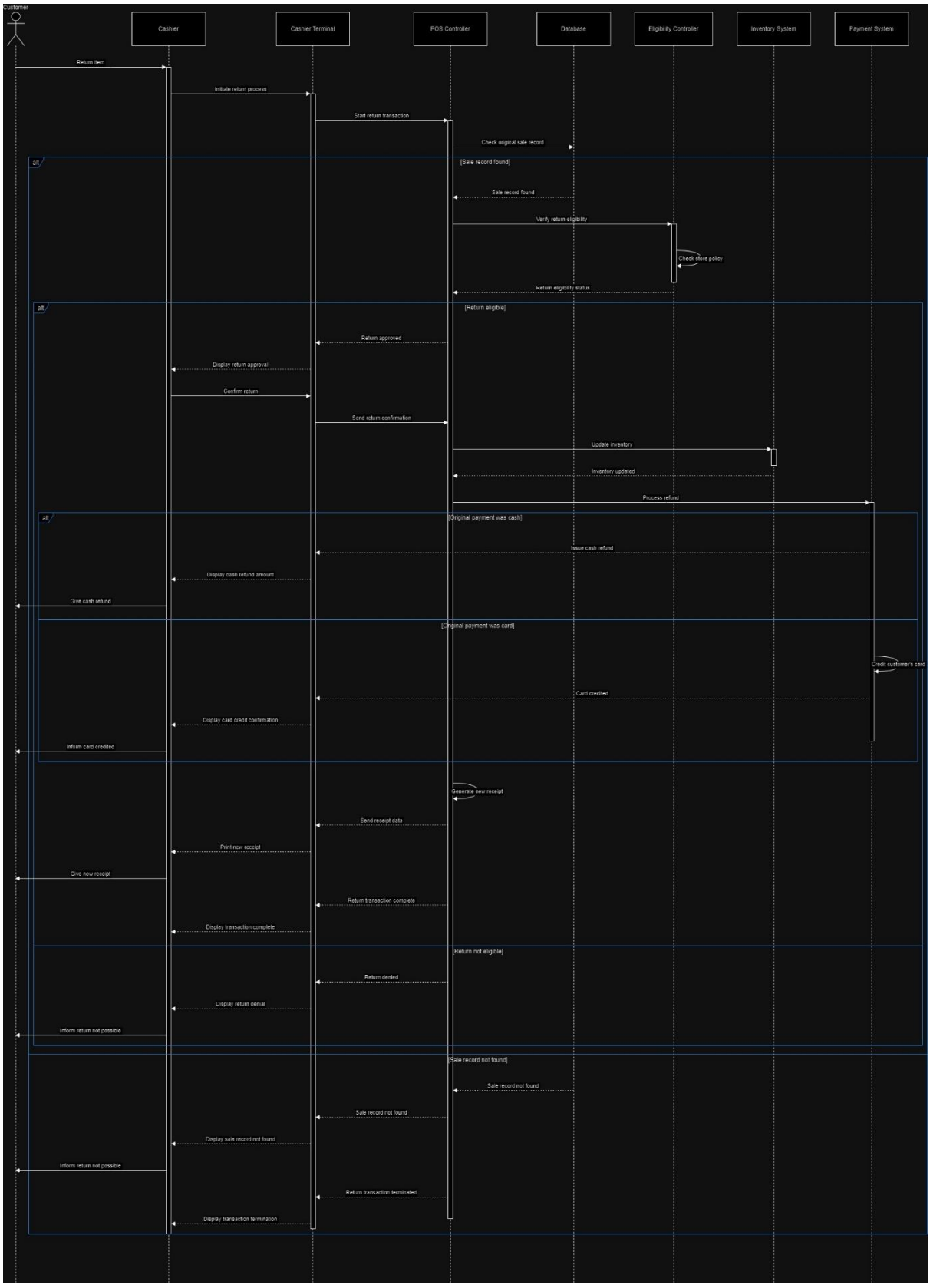
POS Controller

Inventory System

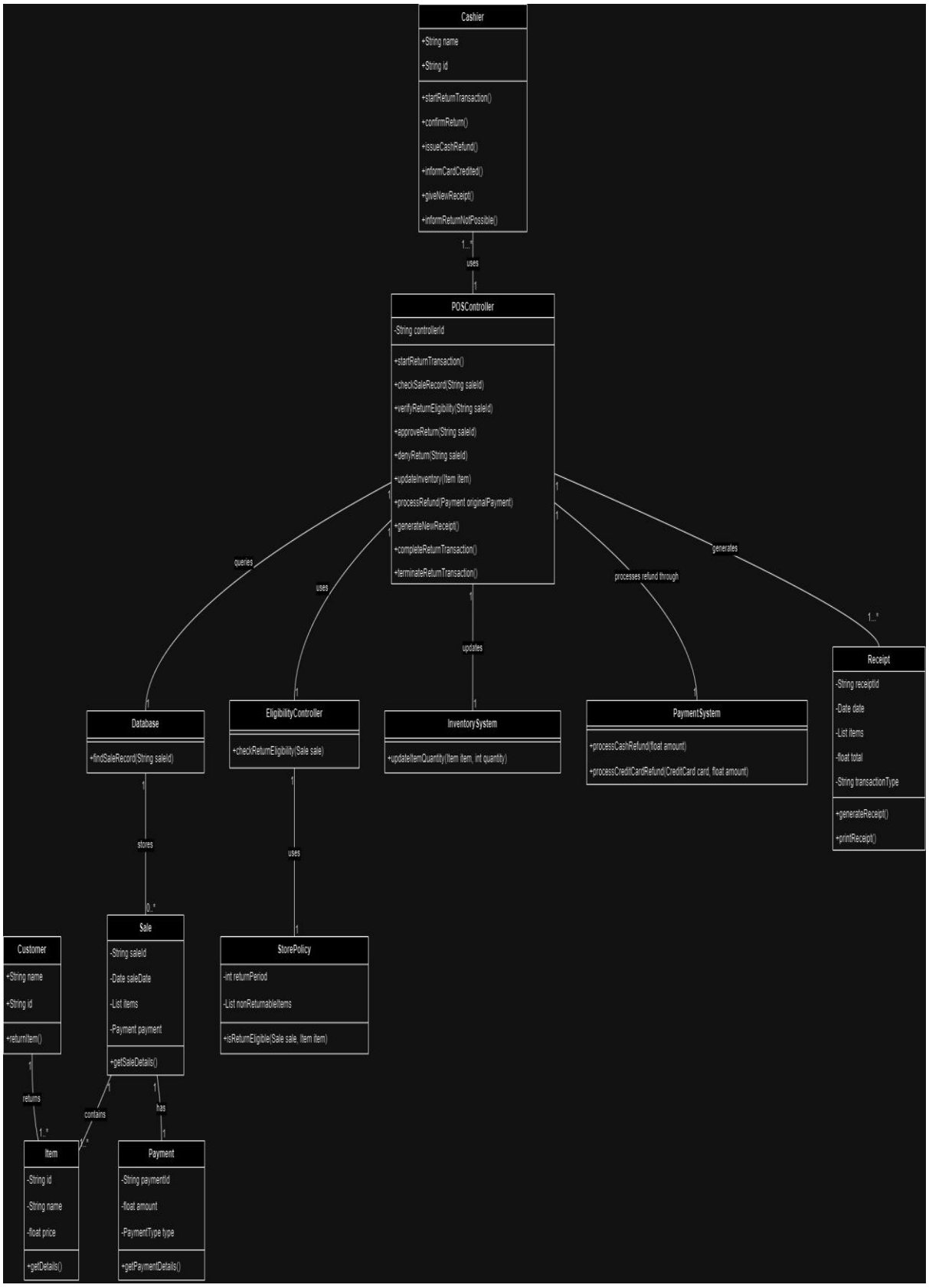
Eligibility Controller

Payment System

3) Develop Sequence Diagrams for " Handle Return " :



4) Develop Analysis Domain Models for " Handle Return " :



5) Develop activity diagram for " Handle Return " :