IT-314: SOFTWARE ENGINEERING

LAB-5

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Section: B

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❖ Lab Exercise:

➢ For “Process Sale” Use case:

1. Use case description for “Process Sale”.

Solution. Following is the use case description for the Process Sale system in POS.

➔ **Use Case:** To handle Sale Process Transaction.

➔ **Actors**:

- Cashier.
- Catalog System.
- Inventory System.

➔ **Precondition:**

- The cashier must be logged into the system.
- The products being purchased must have a barcode.
- There should be a sufficient amount of paper inside the printer for printing receipts.
- The Payment processing methods are functional and available.

➔ **Main Flow:**

- The customer after collecting all products comes to the cashier for bill payment and receipt.
- The cashier takes a product and scans the barcode with the help of a barcode scanner.
- With the help of a backend catalog system, the system will retrieve product name and its price.
- The cashier enters the quantity of product in the system.
- Further the system will deduct the scanned items from the inventory system.
- The system checks whether there are any gift coupons available.
- If available then it would add a discount to the total amount.
- The customer now performs payment from the given payment options such as cash,credit card and cheque from the system.
- Once the payment is successful, the system automatically prints the receipt.

➔ **Alternate Flow:**

- If a system is not able to scan the product then it prompts the cashier to manually write product ID information into the system.
- If the system is unable to process online payment, then it prompts customers to choose other payment options.

➔ **Postcondition:**

- The system updates the inventory system.
- The system prints the receipt and payment transaction details are stored.
- The user is notified for successful transactions, upon using online payment method.
- The system records all product and payment details into the database.
- The system is now ready for further transaction.

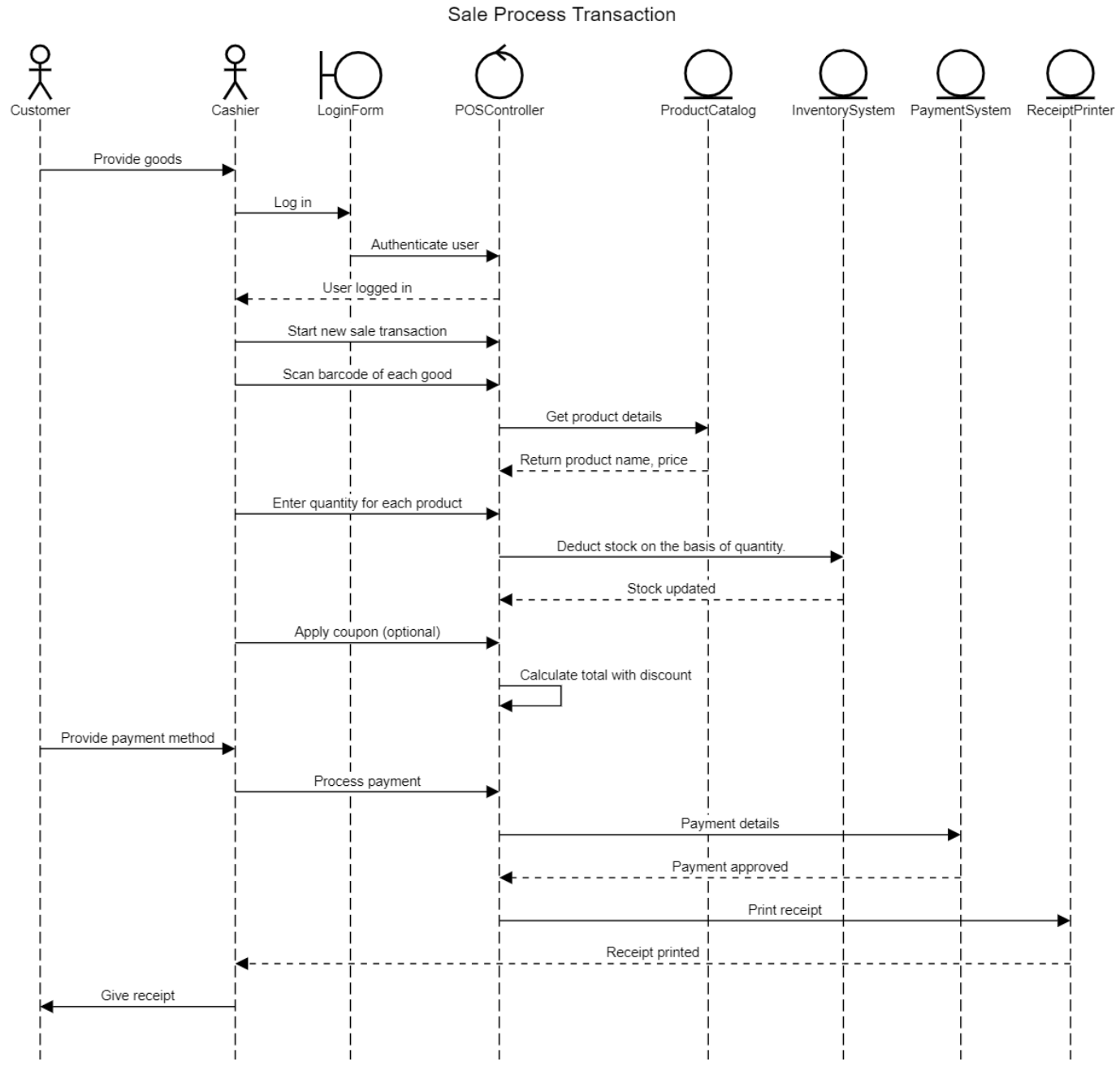
➔ **Exception:**

- System Failure: If the system fails during the time of sale processing transaction then the cashier should restart the system and again input the product's details.

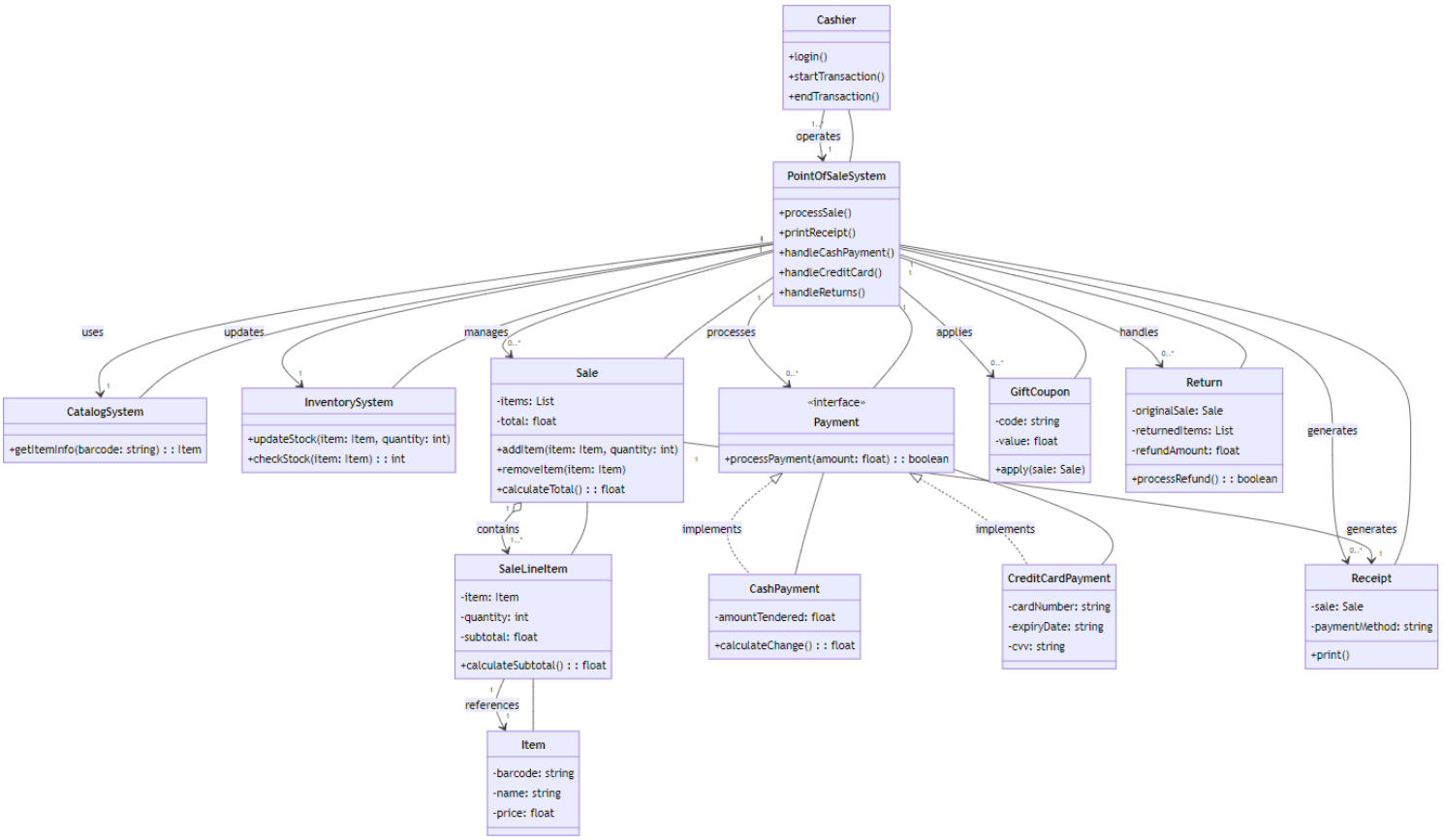
2. Identifying Entity, Boundary and Control Objects for “Process Sale “.
Solution.

1) **Entity Objects:** Catalog System, Inventory System, Payment Processing System, Receipt Printer.
2) **Boundary Objects:** LoginForm for cashier.
3) **Control Objects:** POSController

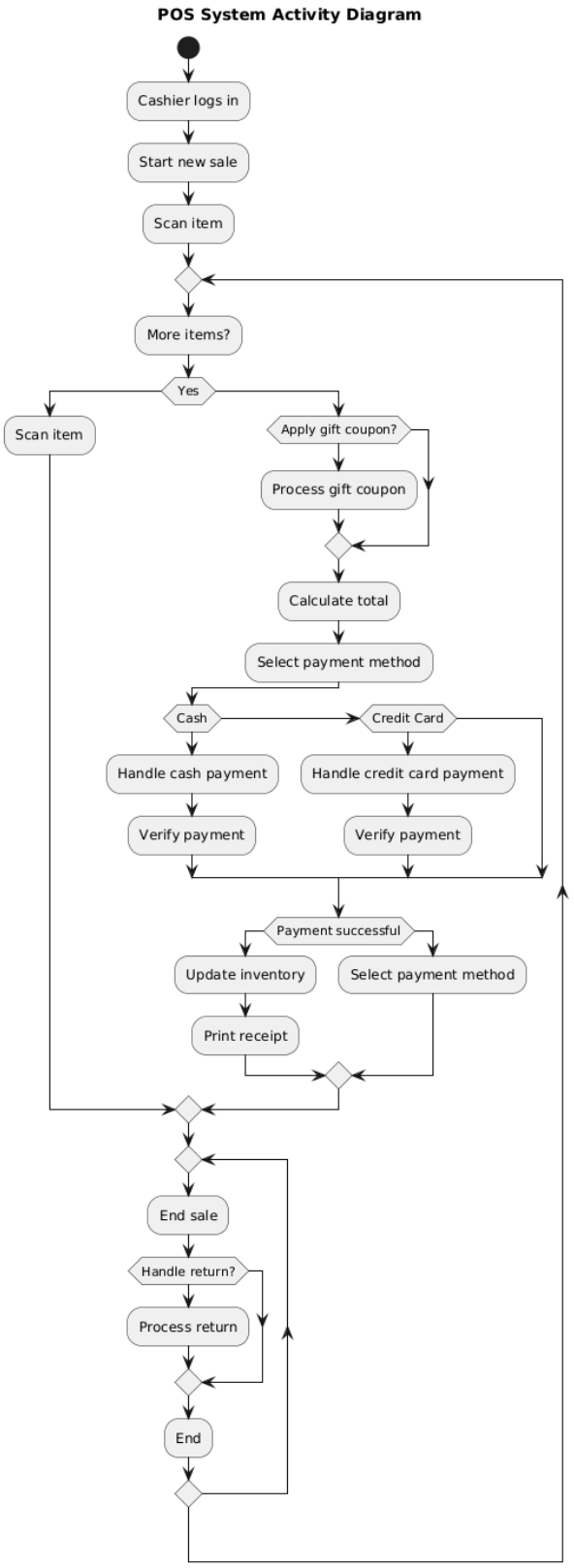
3. Develop Sequence Diagram for the “Process Sale”.
Solution.



4. Develop Analysis Domain Model for “Sale Process”.
Solution.



5. Develop activity diagram for "Process Sale" use case.
Solution.



➢ For “Handle Return” Use case:

1. Use case description for “Handle Return”.

Solution. Following is the use case description for the Handle Return system in POS.

➔ **Use Case:** To handle Process Return Transaction.

➔ **Actors:**

- Cashier.
- Customer.
- Catalog System.
- Inventory System.

➔ **Precondition:**

- The customer should have a valid receipt for the purchased item.
- The cashier is already logged in to the system.
- The item should be within the return period and meets the return policy statements.
- The system should be operational.

➔ **Main Flow:**

- The customer approaches the cashier to return an item with a receipt.
- The cashier checks the return condition such as receipts validity,item condition.
- The cashier scans the barcode of the item and selects the return into option.
- This results in an update in the inventory system.
- Now the cashier searches for the bill receipt from the receipt history of the system and erases the returned item.
- As a result, the system will refund the money of the returned item through any payment methods(either online or cash).
- For online payment, the system will take details such as account holder name, user id,etc of customer for initiating payment.
- Now the system will print the updated receipt and the cashier will give it to the customer.

➔ **Alternate Flow:**

- If the receipt is invalid, the cashier informs the customer, and the return process is aborted.
- If the item does not meet return policy conditions, the cashier informs the customer, and the return process is aborted.
- If the system is unable to process online payment, then it prompts the cashier to pay the required amount through cash from the drawer.

➔ **Postcondition:**

- The return process is successfully processed and a receipt for the return is generated.
- Inventory is updated to reflect the returned item.
- If applicable, a refund is processed back to the customer.

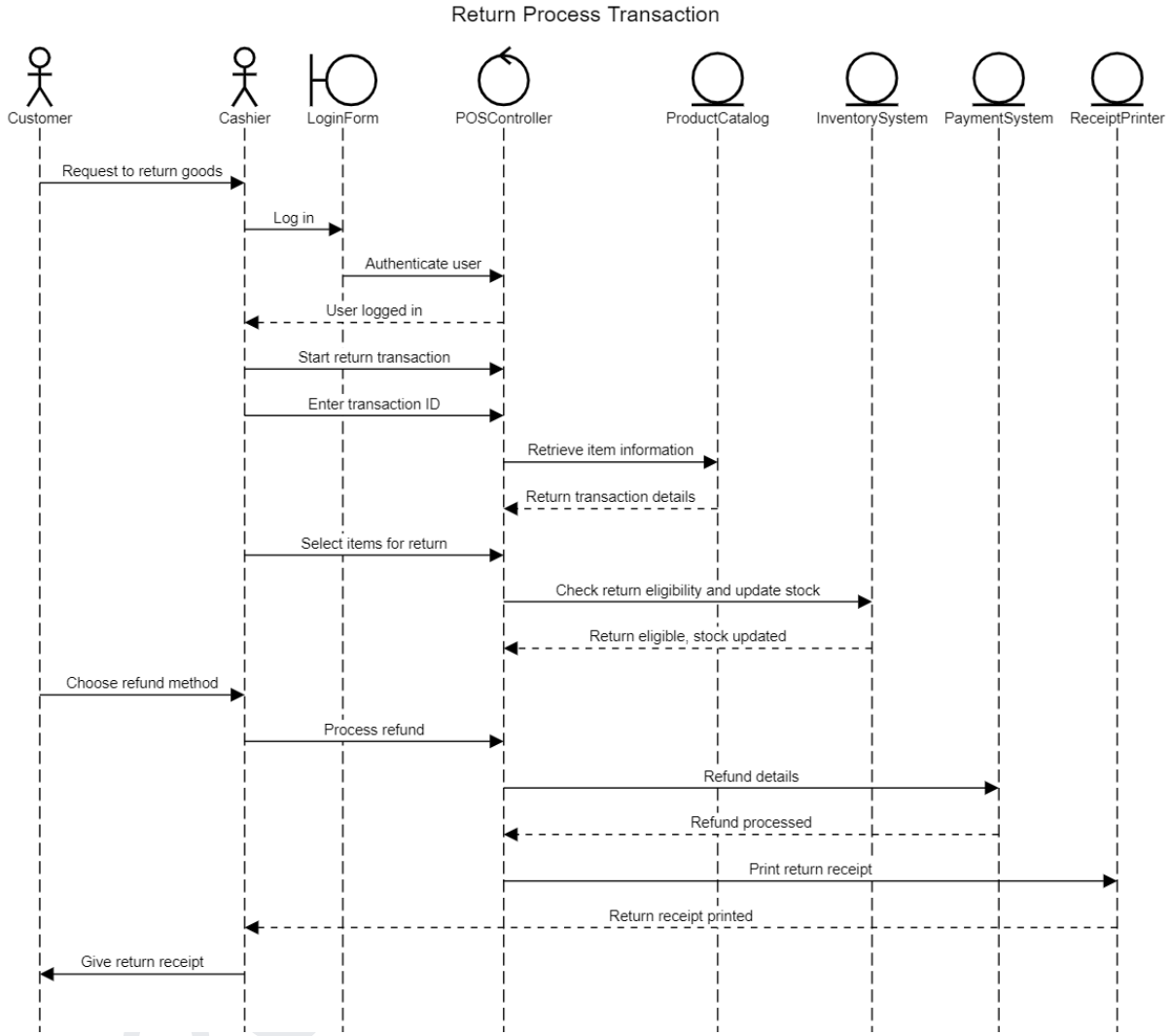
➔ **Exception:**

- System Failure: If the system fails during the time of refund processing transaction then the cashier should restart the system and again input the returned item’s details.

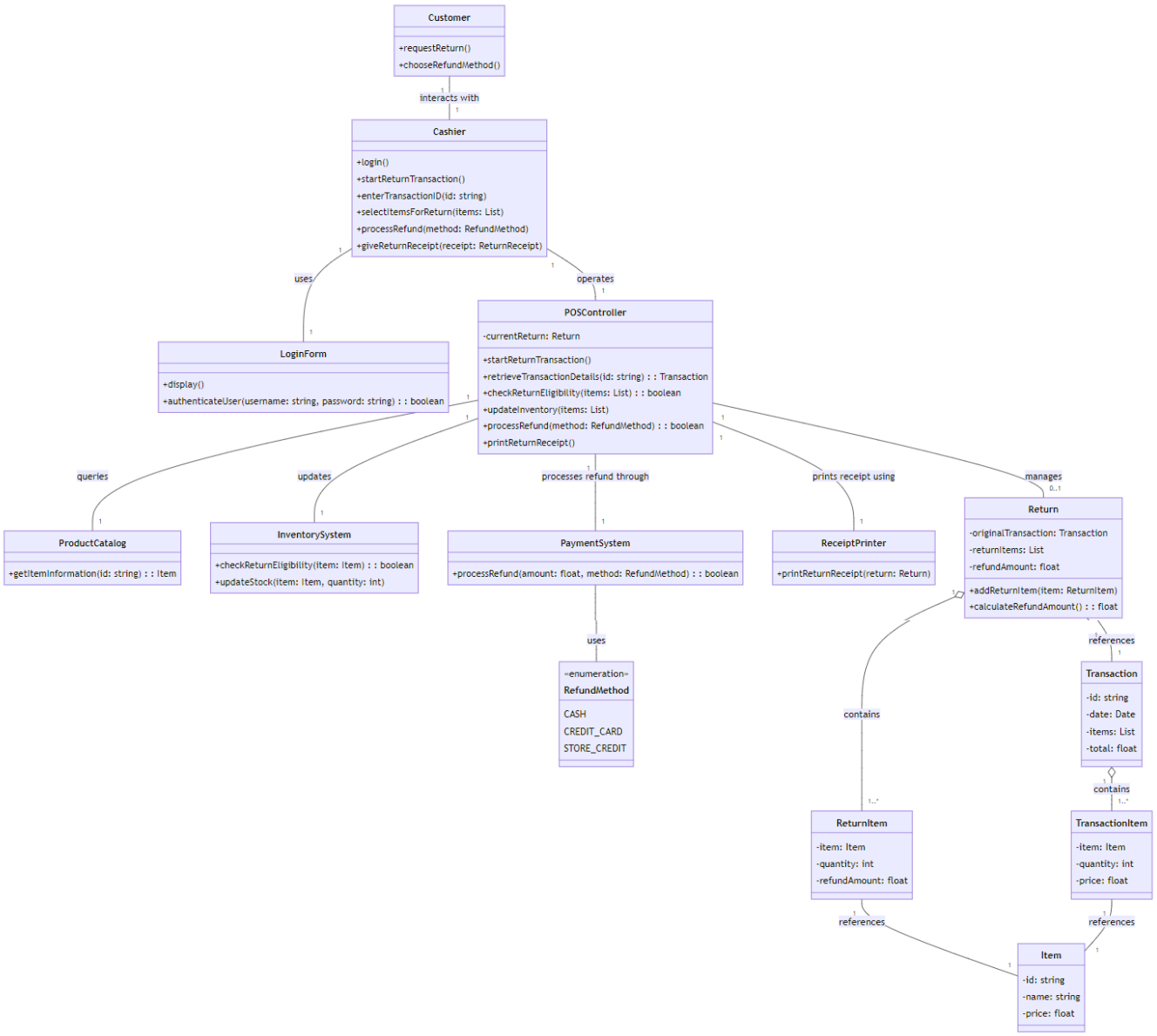
2. Identifying Entity, Boundary and Control Objects for “Handle Return “.
Solution.

1) **Entity Objects:** Catalog System, Inventory System, Payment Processing System, Receipt Printer.
2) **Boundary Objects:** POSSystem.
3) **Control Objects:** POSController.

3. Develop Sequence Diagram for the “Handle Return”.
Solution.



4. Develop Analysis Domain Model for “Handle Return”.
Solution.



5. Develop activity diagram for "Handle Return" use case.

Solution.