



IT-314: Software Engineering

Lab Assignment: 06

Title: Modeling Class Diagram and Activity Diagram (Point of Sale System)

Lab Group: G2

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Q1. Develop Use Case Textual Description for "Process Sale" and "Handle Return" use cases.

Ans.

I. Use case description

- Name: Process Sale
- Primary Actor: Cashier
- Stakeholders: Customer
- Precondition: Cashier must have logged in.
- Basic flow:
 - Customer arrives at POS counter to purchase the goods.
 - Cashier starts a new sale transaction.
 - Cashier scans the barcode of each good using barcode scanner. On scanning the good, the POS system retrieves its information from the catalog system.
 - The system calculates total prices of goods and taxes to provide the total amount to the cashier.
 - Customer pays the total amount and system handles the payment.
 - On successful payment, system provides receipt of the purchase and total amount.
 - The goods are handed to the customer. Customer also receives the gift coupon if eligible.
- Extensions:
 - 3a. In case of any problem related to scanning the good, the cashier will enter the barcode of the goods manually.
 - 3b. If the customer decides not to purchase a good, the cashier removes that good from the transaction.

4a. If the customer has any coupon, the cashier enters the coupon code to the system after which the system processes it/checks its eligibility and deduct amount according to the coupon.

5a. Customer decides to pay by cash. In this case, the cashier enters the amount given by customer.

- i. If the provided amount is more than the required amount, the system calculates the change that need to be paid to customer.

5b. Customer decides to pay by credit card.

5c. Customer decides to pay by check.

5d. Customer decides not to purchase any item due to certain reasons. In this case, the cashier cancels the whole sale transaction.

- Postconditions: On successful purchase/transaction, the POS system interact with the inventory system to deduce the stock of the purchased goods.

II. Use case description

- Name: Handle Returns
- Primary Actor: Cashier
- Stakeholders: Customer
- Precondition: Cahier must have logged in.
- Basic flow:
 - Customer arrives at POS counter to return the goods.
 - Cashier starts a return transaction.
 - Cahier enters the bill number and the system checks the eligibility of return according to the provided policy.

- Cashier checks the item whether its damaged and then scans the barcode of the item which retrieves the information of the item to check whether the item belongs to his/her store.
 - After successful verification, the system updates the previous transaction and recalculate the total amount.
 - Customer receives the deserved amount on return.
 - Return receipt is generated.
 - The goods are returned to the cashier. If all the goods are returned, the coupon is also returned if applied.
- Extensions:
 - 3a. If the customer has passed the return period, the system notifies the cashier that the product is not eligible for the return.
 - 4a. If the good is damaged or barcode is not present, then the item is returned back to the customer.
 - 6a. Customer had paid by cash. In this case, the cashier returns the deserved amount in cash.
 - 6b. Customer had paid by credit card/check. In this case, the amount is deposited directly to the bank account of the customer.
 - Postconditions: On successful return of goods, the POS system interact with the inventory system to add the returned items to their respective stock.

Q2. Identify Entity/Boundary Control Objects

Ans.

Process Sale

- Entity:
 - Customer
 - Cashier
- Boundary:
 - Scanner_Interface
 - Transaction_View
 - Payment_View
- Controller:
 - Catalog_System
 - Payment_Controller
 - Inventory_System
 - Coupon_Controller

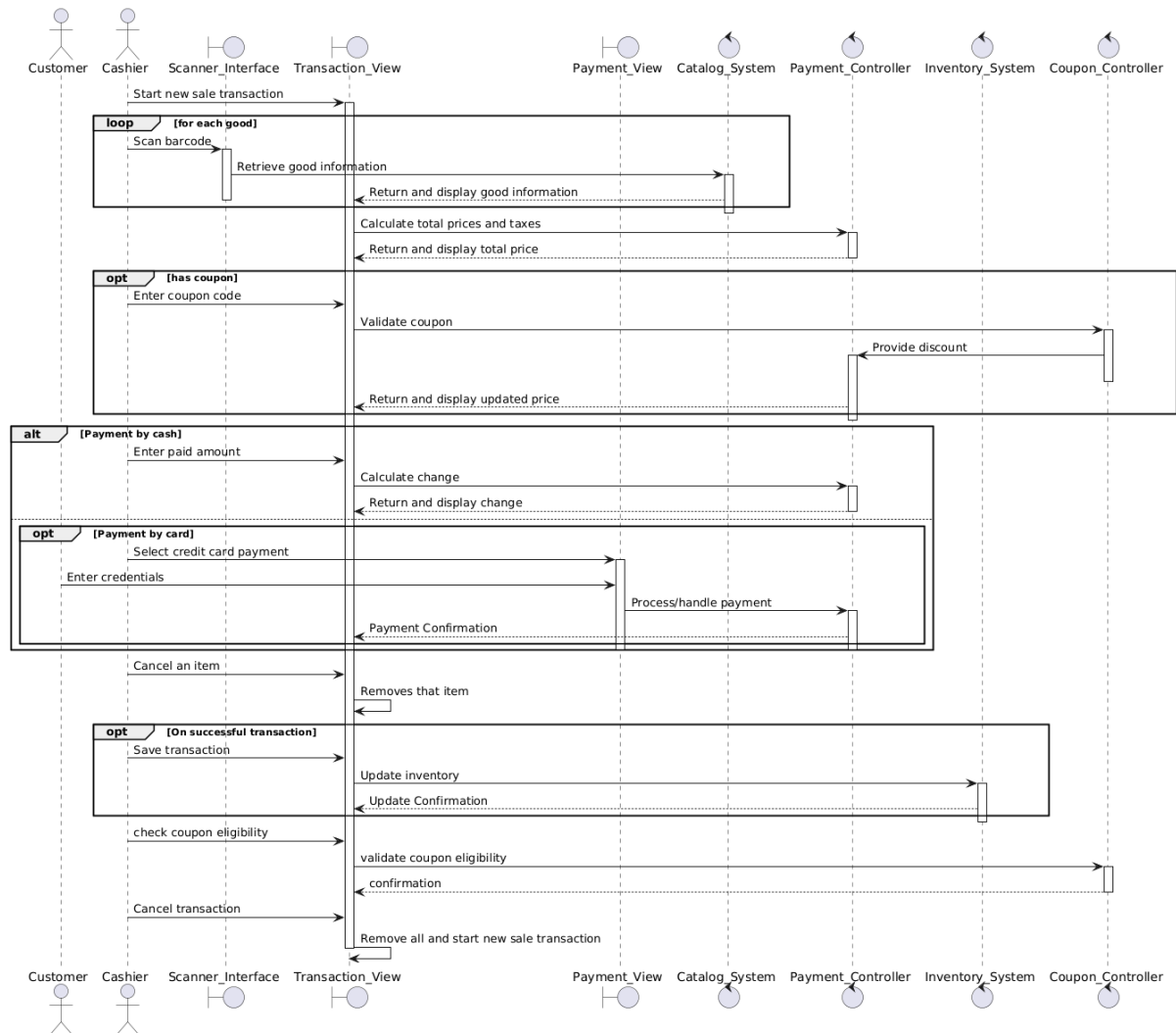
Handle Return

- Entity:
 - Cashier
- Boundary:
 - Return_View
- Controller:
 - Return_Controller
 - Catalog_System
 - Payment_Controller
 - Inventory_System
 - Coupon_Controller

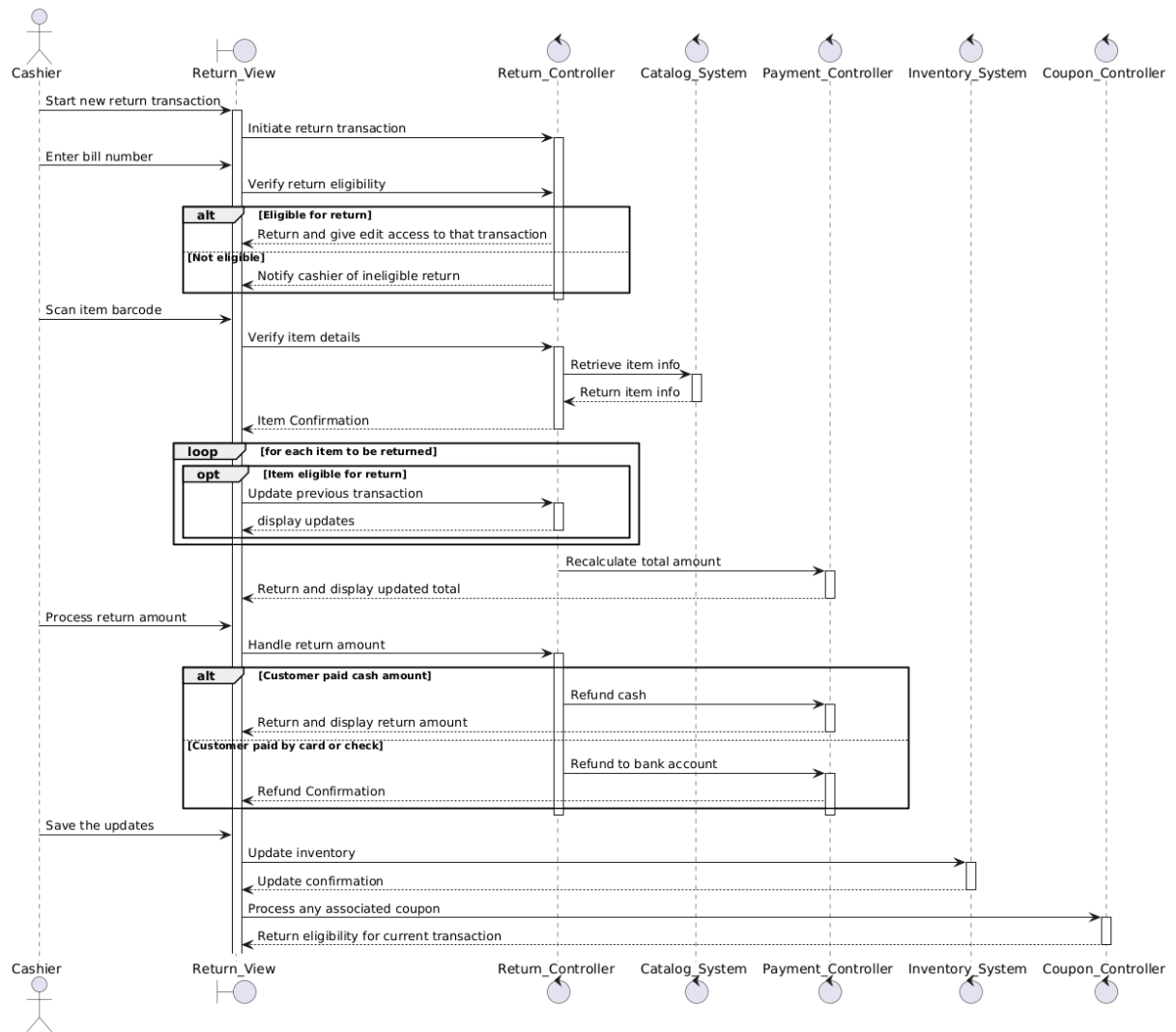
Q3. Develop Sequence Diagrams

Ans.

- Process Sale:

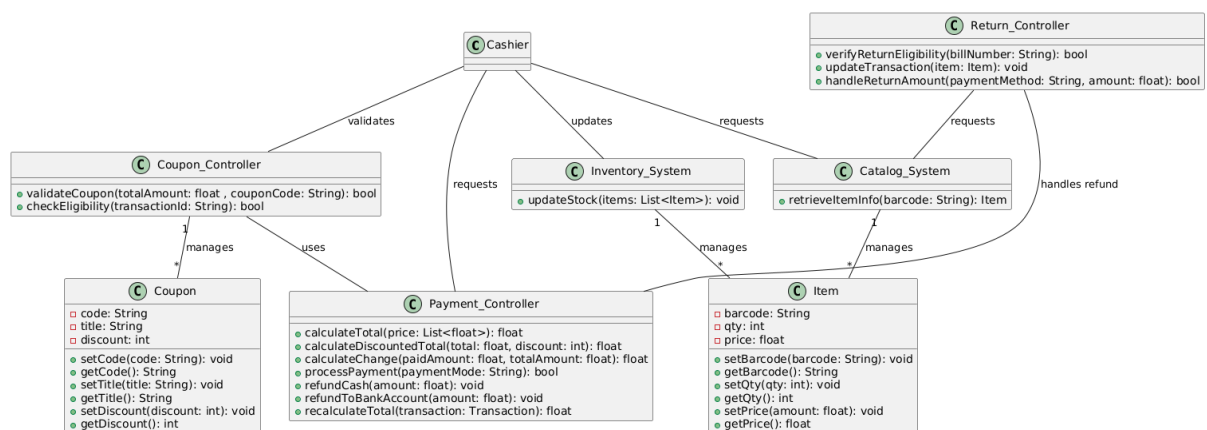


- Handle Returns:



Q4. Develop Analysis Domain Models

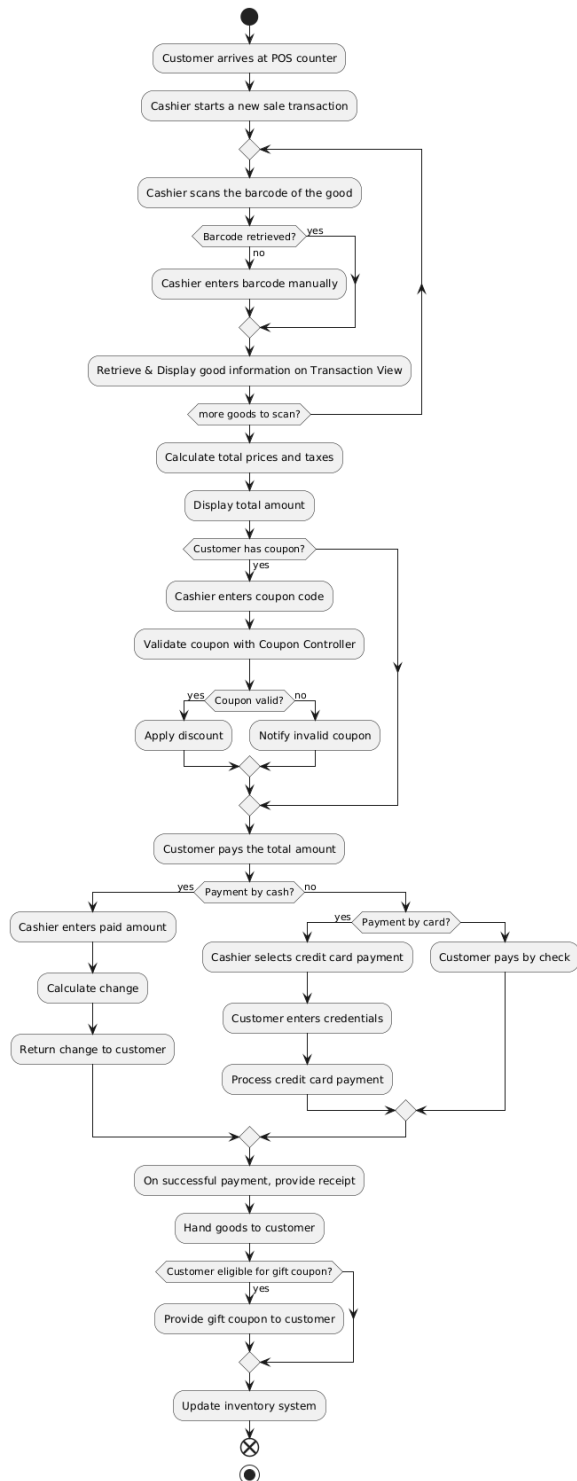
Ans.



Q5. Develop activity diagram for "Process Sale" and "Handle Return" use cases.

Ans.

- Process Sale:



- Handle Return:

