IT – 314 | SE | LAB-6

(Harsh Gajjar – 202201140)

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

Use Case – "Process Sale"

Actor: Cashier

Preconditions:

1. The cashier has successfully signed into the Point-of-Sale (POS) system.
2. The POS system is connected to the product catalog and inventory databases without any errors.

Main Flow:

1. The cashier initiates a new sales transaction.
2. For each item being purchased:
   a. The cashier scans the item's barcode.
   b. The system fetches the item's name and price from the catalog database.
   c. The inventory levels are updated accordingly.
   d. The item is added to the current transaction.
3. The system calculates and displays the total amount for the transaction.
4. If the customer presents a discount voucher:
   a. The cashier applies the voucher to the transaction.
   b. The system recalculates the total amount after applying the discount.
5. The cashier communicates the final amount payable to the customer.

6. The customer chooses a preferred payment method (cash, credit/debit card, or check).
7. The cashier processes the chosen method of payment.
8. The system validates the payment information.
9. A receipt is generated and printed by the system.
10. The system closes and finalizes the transaction.

Alternative Flows:

4a. Invalid voucher scenario:

1. The system alerts the cashier that the voucher is not applicable.
2. The cashier informs the customer and continues with the transaction from step 5.

8a. Payment authorization failure:

1. The system notifies the cashier that the payment could not be validated.
2. The cashier asks the customer for an alternate payment method.
3. If the customer provides a different payment method, return to step 7. If not, the transaction is cancelled.

Postconditions:

1. The sales transaction is recorded in the system.
2. The inventory is updated to reflect the items sold.
3. The payment is successfully processed, and a receipt has been issued to the customer.

(PTO)

Use Case – "Handle Return"

Actor: Cashier

Preconditions:

1. The cashier is logged into the Point-of-Sale (POS) system.
2. The customer has a valid receipt for the items they wish to return.

Main Flow:

1. The cashier initiates a return transaction in the system.
2. The cashier scans the receipt or manually enters the receipt information.
3. The system retrieves the details of the original purchase.
4. For each item being returned:
    a. The cashier scans the item's barcode.
    b. The system verifies that the item corresponds with the original purchase.
    c. Inventory levels are adjusted to account for the returned item.
    d. The item is added to the current return transaction.
5. The system calculates the total refund amount.
6. The cashier reviews and confirms the return details with the customer.
7. The system processes the refund using the original payment method.
8. A return receipt is generated and printed by the system.
9. The system finalizes and closes the return transaction.

Alternative Flows:

2a. Receipt not found:

1. The system notifies the cashier that the receipt is invalid or missing.

2. The cashier informs the customer that the return cannot be processed and cancels the transaction.

4b. Item verification fails:

1. The system identifies that the item does not match the original purchase.
2. The cashier notifies the customer, and either moves to the next item or terminates the return.

7a. Original payment method unavailable:

1. The cashier selects an alternative refund option (e.g., store credit or cash).
2. The system processes the refund using the new method chosen.

Postconditions:

1. The return transaction is logged in the system.
2. The inventory is updated to reflect the returned items.
3. The refund is successfully processed and completed.
4. A return receipt is printed and handed to the customer.

(PTO)

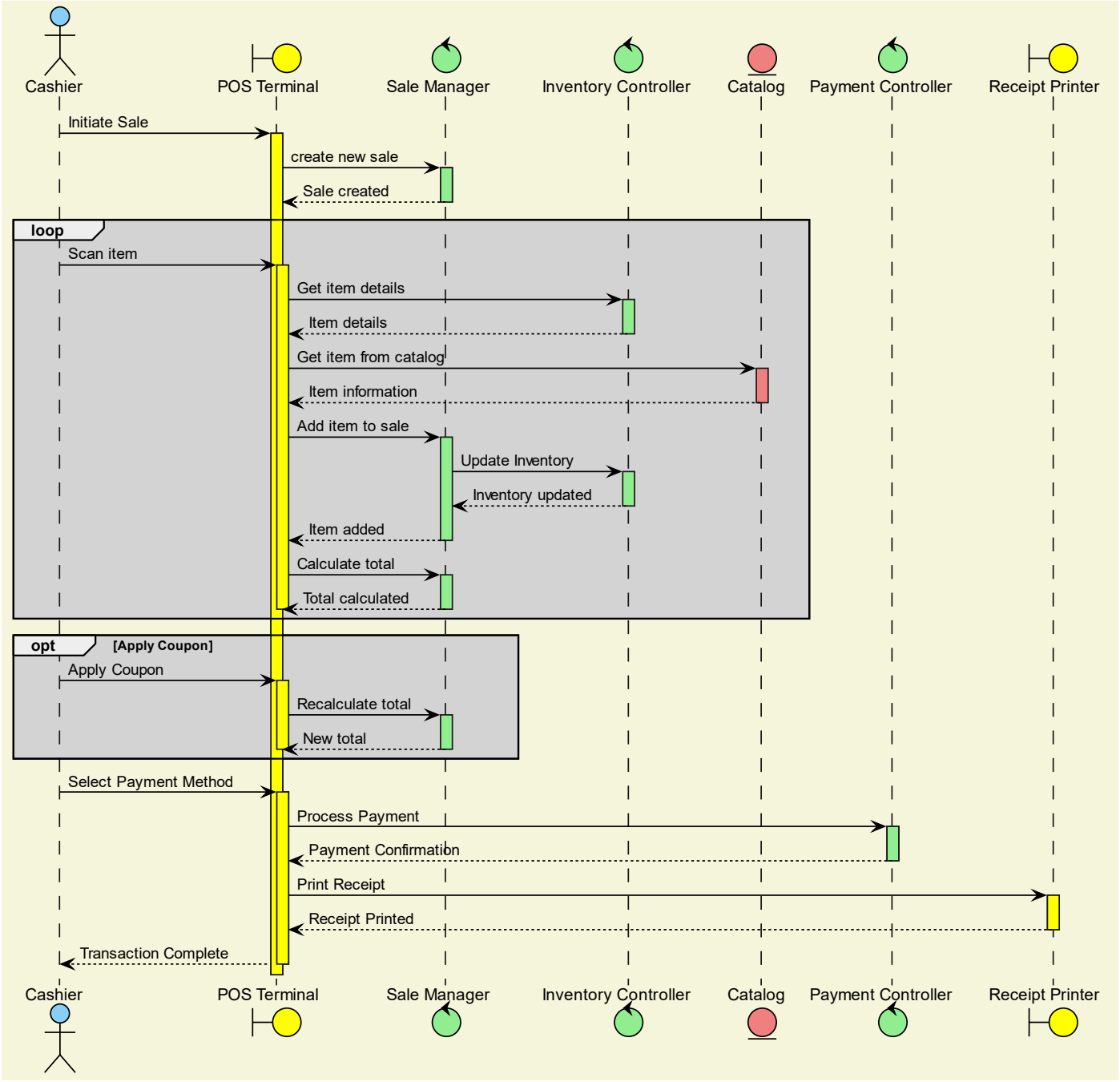
2. Identify Entity/Boundary Control Objects:

Entity Objects:	Boundary Objects:	Control Objects:
Item	POS Terminal Interface	Sale Manager
Inventory	Scanner Interface	Inventory Manager
Catalog	Payment Processing Interface	Catalog Manager
Payment	Receipt Printer Interface	Payment Manager
Payment Method		User Authentication Manager
Receipt		Return Manager
Coupon		
User (Cashier/Administrator)		
Return		
Transaction		

(PTO)

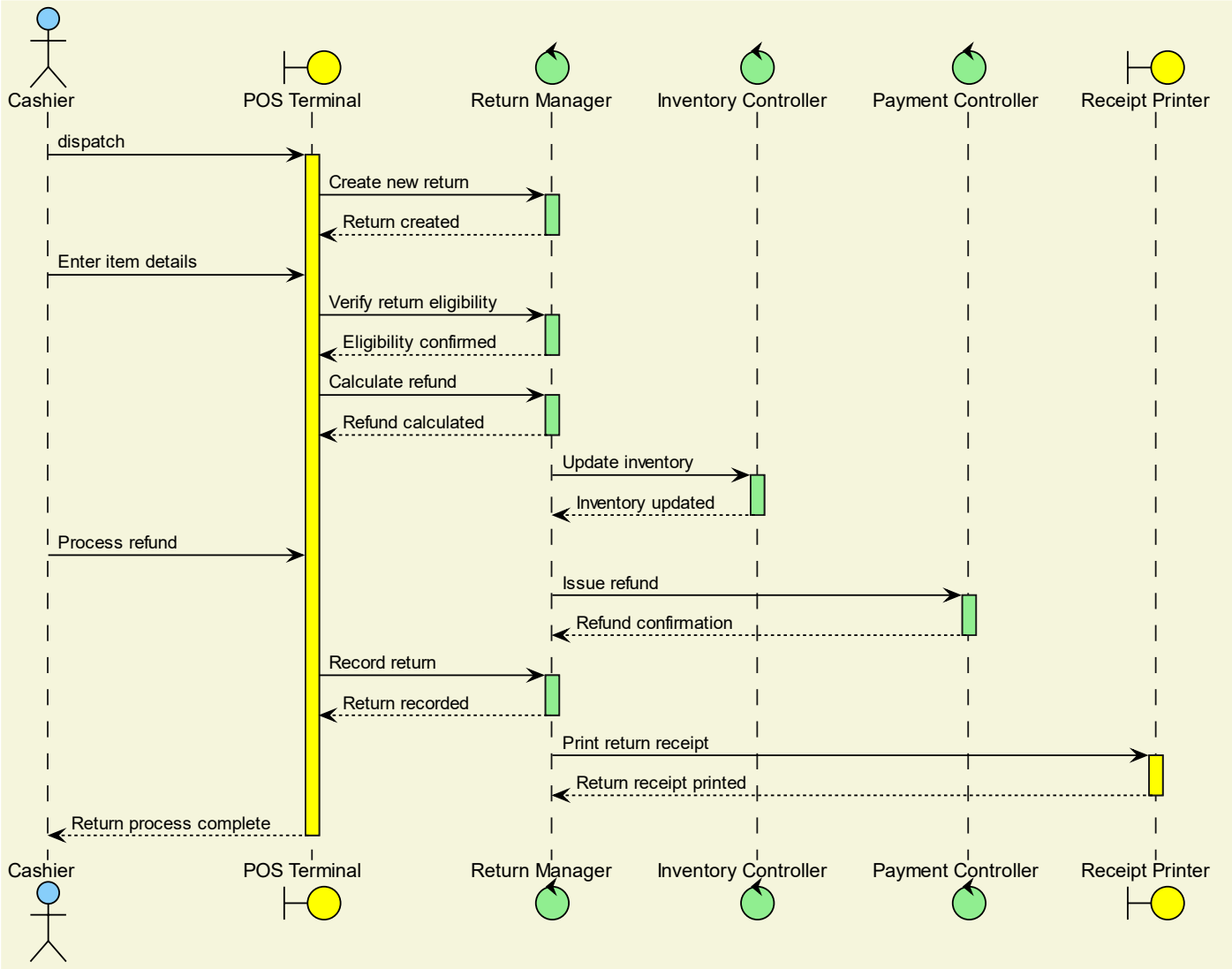
3. Develop Sequence Diagrams:

Sequence Diagram – "Process Sale"



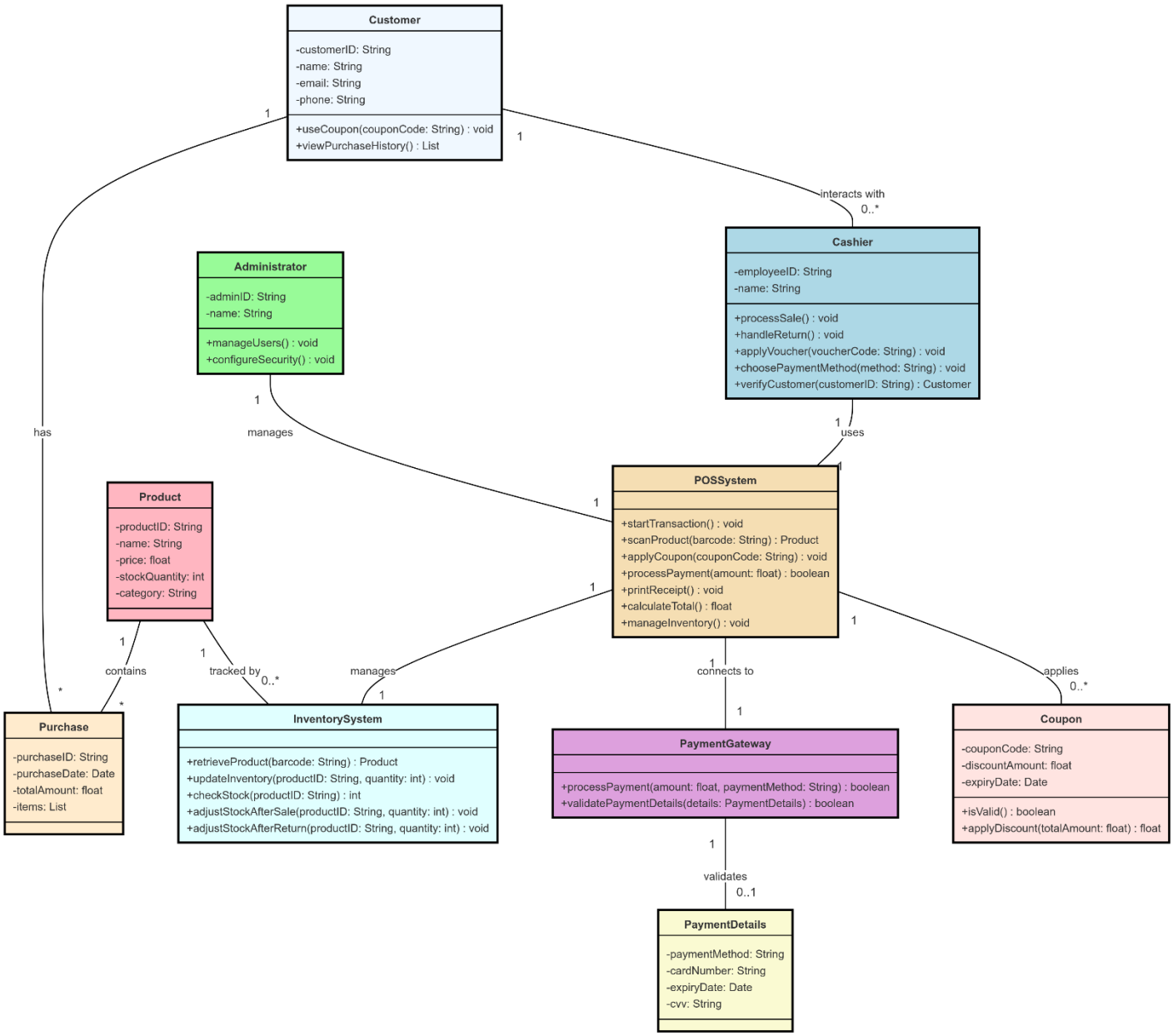
(PTO)

Sequence Diagram – "Handle Return"



(PTO)

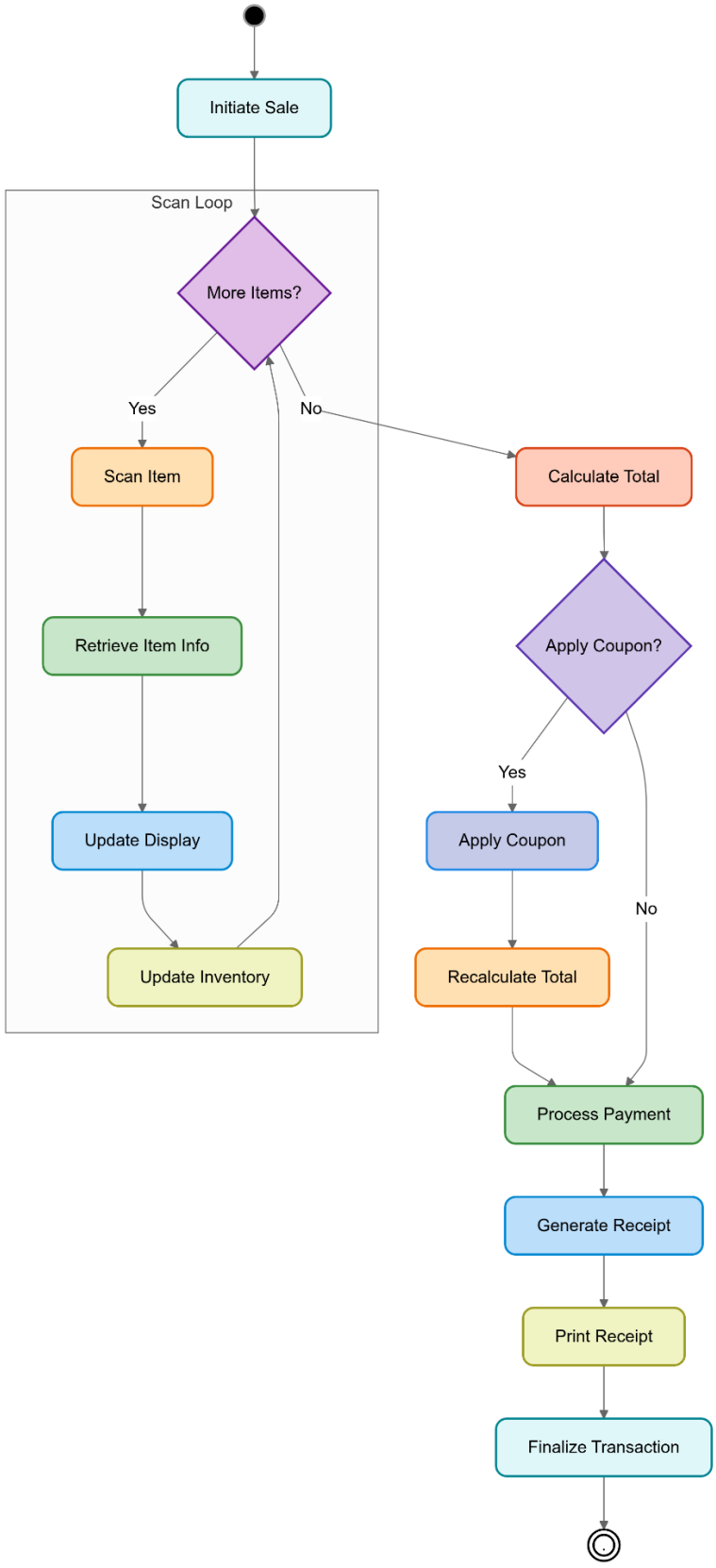
4. Develop Analysis Domain Models:



(PTO)

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

Activity Diagram – "Process Sale"



Activity Diagram – "Handle Return"