

IT314 Software Engineering

Lab 6: Modelling Class Diagram and Activity Diagram (POS System)

Name: Rit Rajendra Trambadia

Id: 202201424

➤ Use Case: Process Sale

✓ Actors:

- Cashier
- Customer
- Inventory System
- Payment System
- Catalog System

✓ Preconditions:

- The cashier must be logged into the POS system.
- The customer has goods to purchase.

✓ Basic Flow:

1. The cashier starts a new sale transaction in the POS system.
2. The cashier scans the barcode of each good.
3. For each scanned good, the POS system retrieves the name and price from the Catalog System.
4. The POS system interacts with the Inventory System to verify the stock availability and updates the quantity of the purchased items from inventory.
5. The POS system displays the total amount, including any applicable taxes, discounts, or promotions.
6. The customer provides payment (cash, credit card, check, or coupon).
7. The POS system communicates with the Payment System to process the payment and validate the transaction.
 - If the payment is successful, the transaction is finalized.
 - If the payment fails, the cashier can retry or allow the customer to choose an alternate payment method.
8. A receipt is printed by the POS system and handed to the customer.

✓ **Postconditions:**

- The sale transaction is recorded in the system.
- The inventory is updated.
- The customer receives a receipt and the purchased goods.

✓ **Alternate Flows:**

- If the customer uses a coupon, the discount is applied before calculating the total amount.
- If the payment method is declined, the customer can retry or use another payment option.

➤ **Use Case: Handle Return**

✓ **Actors:**

- Cashier
- Customer
- Inventory System
- Payment System

✓ **Preconditions:**

- The cashier must be logged into the POS system.
- The customer must provide the original receipt or transaction details.
- The goods being returned must be eligible for return as per store policies.

✓ **Basic Flow:**

1. The customer approaches the cashier with goods to return.
2. The cashier starts the return transaction in the POS system.
3. The cashier scans the receipt or enters the transaction details to retrieve the original purchase information.
4. The POS system validates that the goods are eligible for return (e.g., within the return period, in acceptable condition).
5. The cashier selects the items to be returned.
6. The cashier processes the refund or exchange based on store policy:
 - If a refund is issued, the payment System processes it (cash refund, credit card reversal, etc.).

- If the customer chooses an exchange, the process sale flow begins.

7. A receipt for the return is printed and given to the customer.

✓ **Postconditions:**

- The returned items are added back to inventory (if applicable).
- The refund or exchange is processed, and a receipt is generated.
- The return transaction is recorded in the system.

✓ **Alternate Flows:**

- If the goods are not eligible for return, the cashier informs the customer, and the transaction is voided.
- If the customer has lost the receipt, the cashier may retrieve the transaction using other identification methods (e.g., date, card used).
- If the customer opts for an exchange, the cashier can initiate a new sale after handling the return.

➤ **Entity Objects**

- Cashier
- Catalog System
- Inventory System
- Payment System

➤ **Boundary Objects**

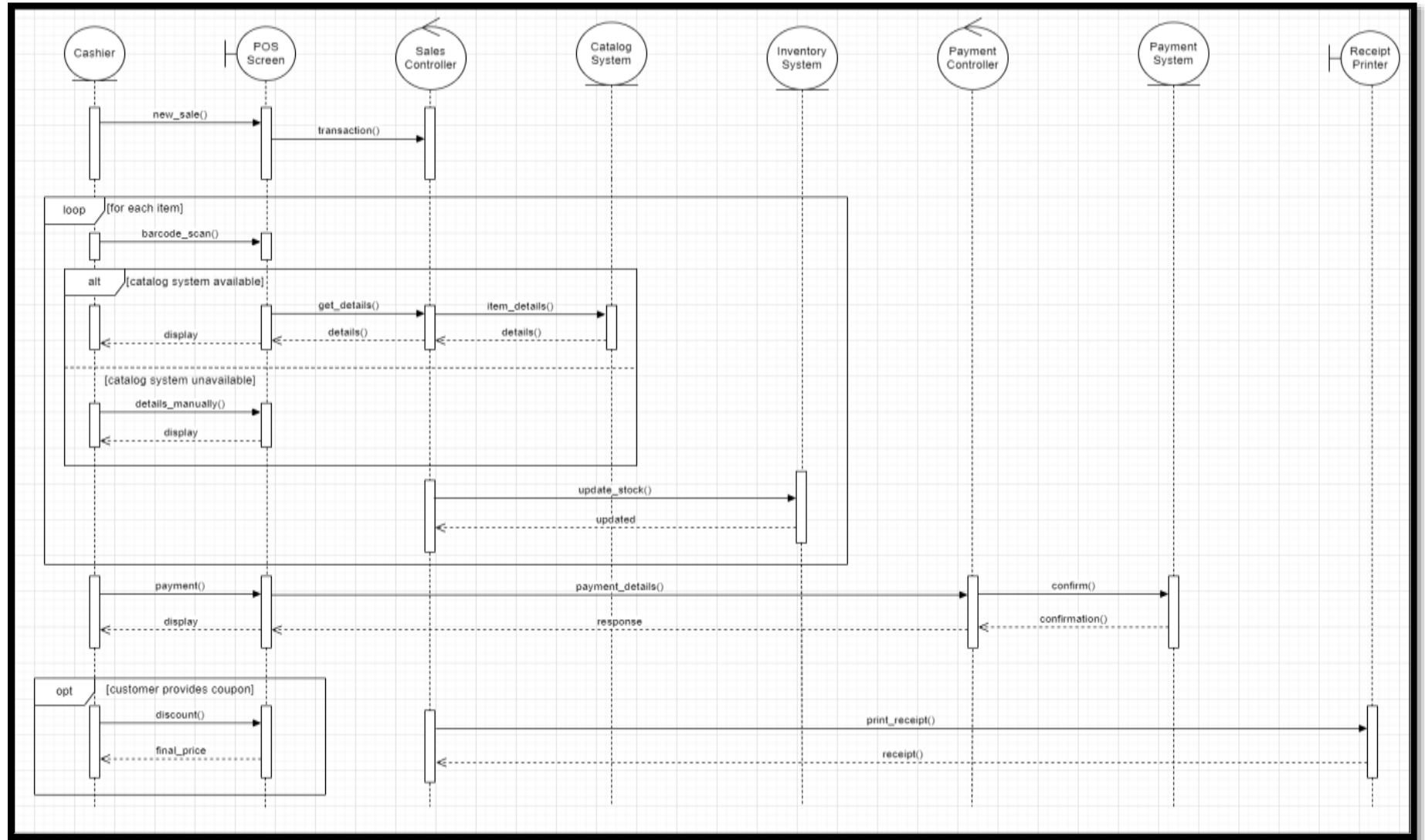
- POS Screen
- Receipt Printer

➤ **Control Objects**

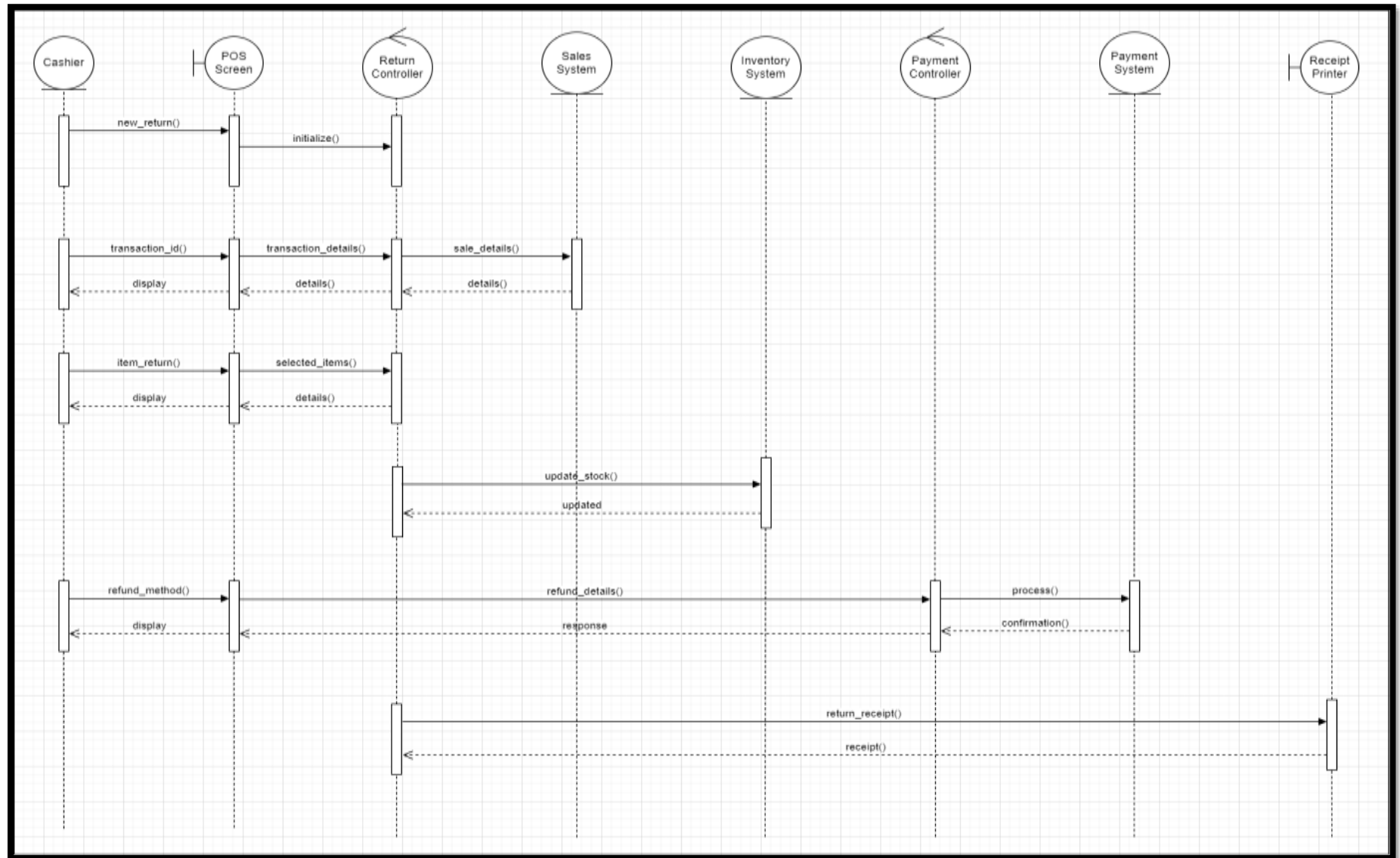
- Sales Controller
- Return Controller
- Payment Controller

➤ Sequence Diagram:

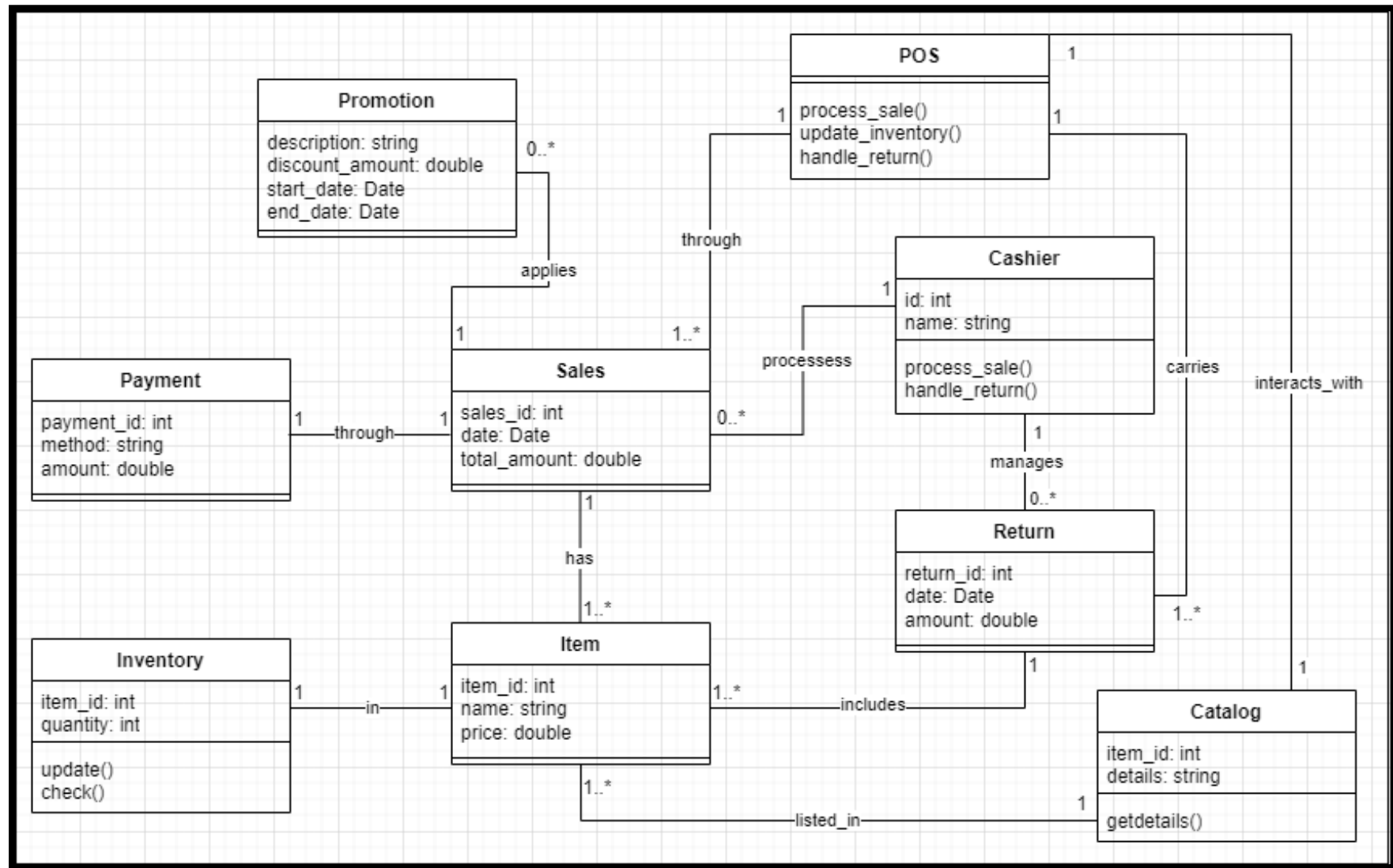
1. Handle Sales



2. Handle Returns

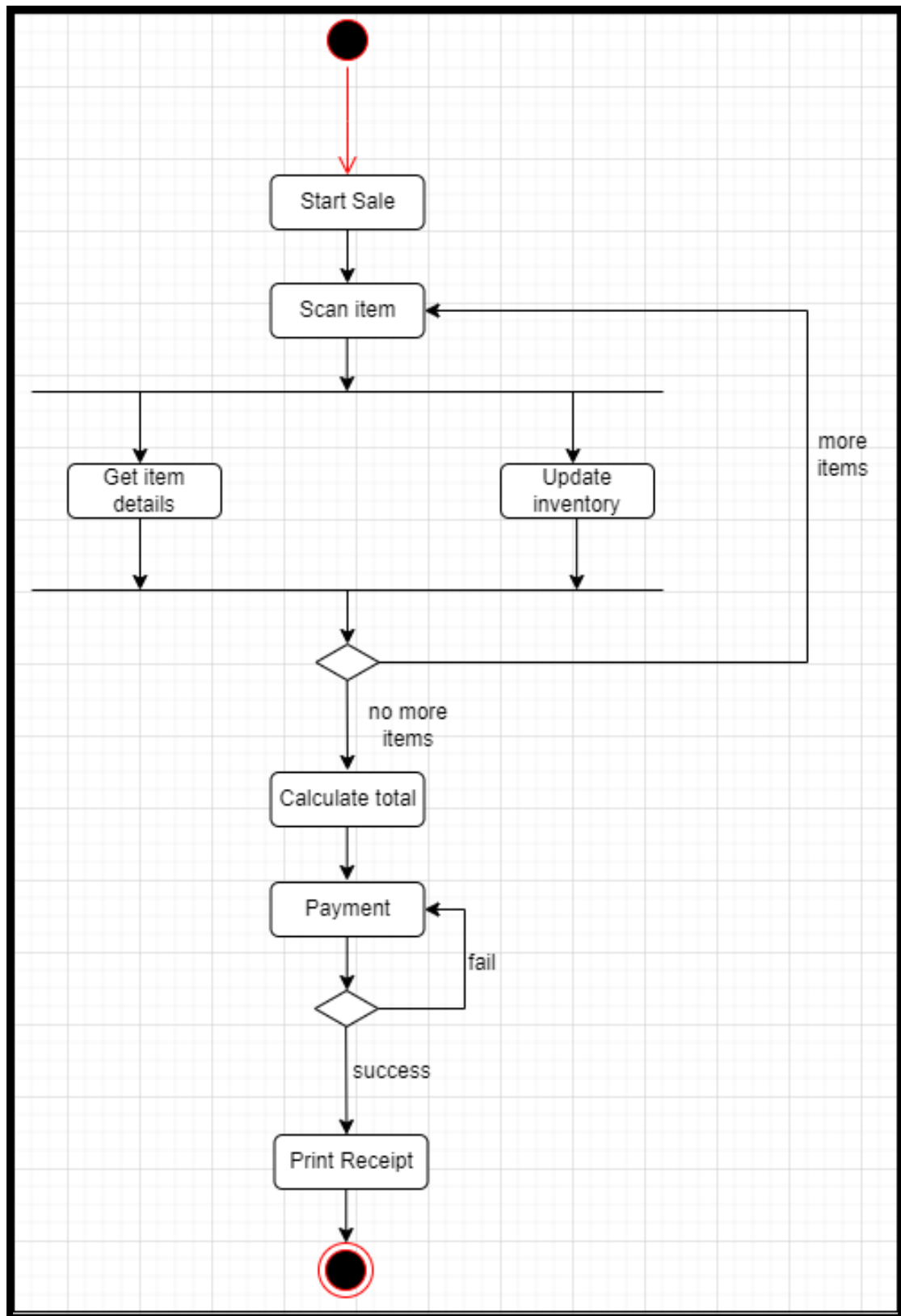


➤ Class Diagram:



➤ **Activity Diagram:**

1. Handle Sales



2. Handle Returns

