IT314 SOFTWARE ENGINEERING

LAB – POINT OF SALE SYSTEM

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USE CASE TEXTUAL DESCRIPTION:

1) Use Case: Process Sale

Primary Actor:

- Cashier

Secondary Actor:

- Catalog System
- Inventory System

Preconditions:

- The cashier must be logged into the POS system.
- The POS system is connected to the Catalog and Inventory systems.

Postconditions:

- The sale is completed, and the stock levels in the inventory system are updated.
- A receipt is printed.
- The transaction is recorded in the POS system.

Normal Flow:

1. The cashier initiates a new sale transaction.
2. The cashier scans the barcode of each item.
    - The system retrieves the item details (name and price) from the Catalog System.
    - The system deducts the item from the Inventory System.
3. The cashier completes the sale when all items have been scanned.
4. The customer chooses a payment method (cash, credit card, or check).
5. The system processes the payment.
6. Upon successful payment, the system prints a receipt.
7. The sale transaction is recorded in the POS system.

Alternate Flow:

- **At step 2:** Cashier is not able to scan the barcode
    1. Cashier enters the details of product manually.
- **At step 4:** Payment with a Gift Coupon
    1. The customer presents a gift coupon.
    2. The cashier scans the coupon.
    3. The system applies the discount associated with the coupon.
    4. The cashier continues with the payment process as usual.
- **At step 4:** Payment Failure
    1. If the payment method fails (e.g., declined card), the system prompts the cashier.
    2. The cashier informs the customer and retries the payment or chooses an alternate method.
    3. If all payment methods fail, the transaction is voided.

Exception Flow:

At step 2: Product is Out of Stock

1. If an item is out of stock, the system alerts the cashier.
2. The cashier can either remove the item from the sale or place an order for the item.

2) Use Case: Handle Return

Primary Actor:

- Cashier

Secondary Actor:

- Inventory System

Precondition:

- The cashier must be logged into the POS system.

Postcondition:

- The item is returned, and the inventory is updated.
- The return transaction is recorded in the POS system.
- The customer is refunded or given store credit.

Normal Flow:

1. The customer presents the item to be returned along with the receipt.
2. The cashier initiates the return process in the POS system.
3. The cashier scans the item.
    - The system retrieves the original sale details.
4. The system processes the return:
    - Updates the inventory in the Inventory System.
    - Refunds the customer or provides store credit.
5. The return transaction is recorded in the POS system.

Exception Flow:

- **At step 1:** Fake Receipt Provided
    1. If no proof is provided, the return may be refused.
- **At step 3:** Item Not Eligible for Return
    1. If the item is not eligible for return (e.g., past return window, damaged), the system alerts the cashier.
    2. The cashier informs the customer and cancels the return process.
- **Exception Flow 2:** Inventory Discrepancy
    1. If there is a discrepancy in the inventory when processing the return, the system alerts the cashier.
    2. The cashier may need to manually adjust the inventory.

ENTITY OBJECTS :

1. User (cashier, administrator)
2. Payment
3. Gift Coupon
4. Product
5. Payment
6. Sale
7. Return

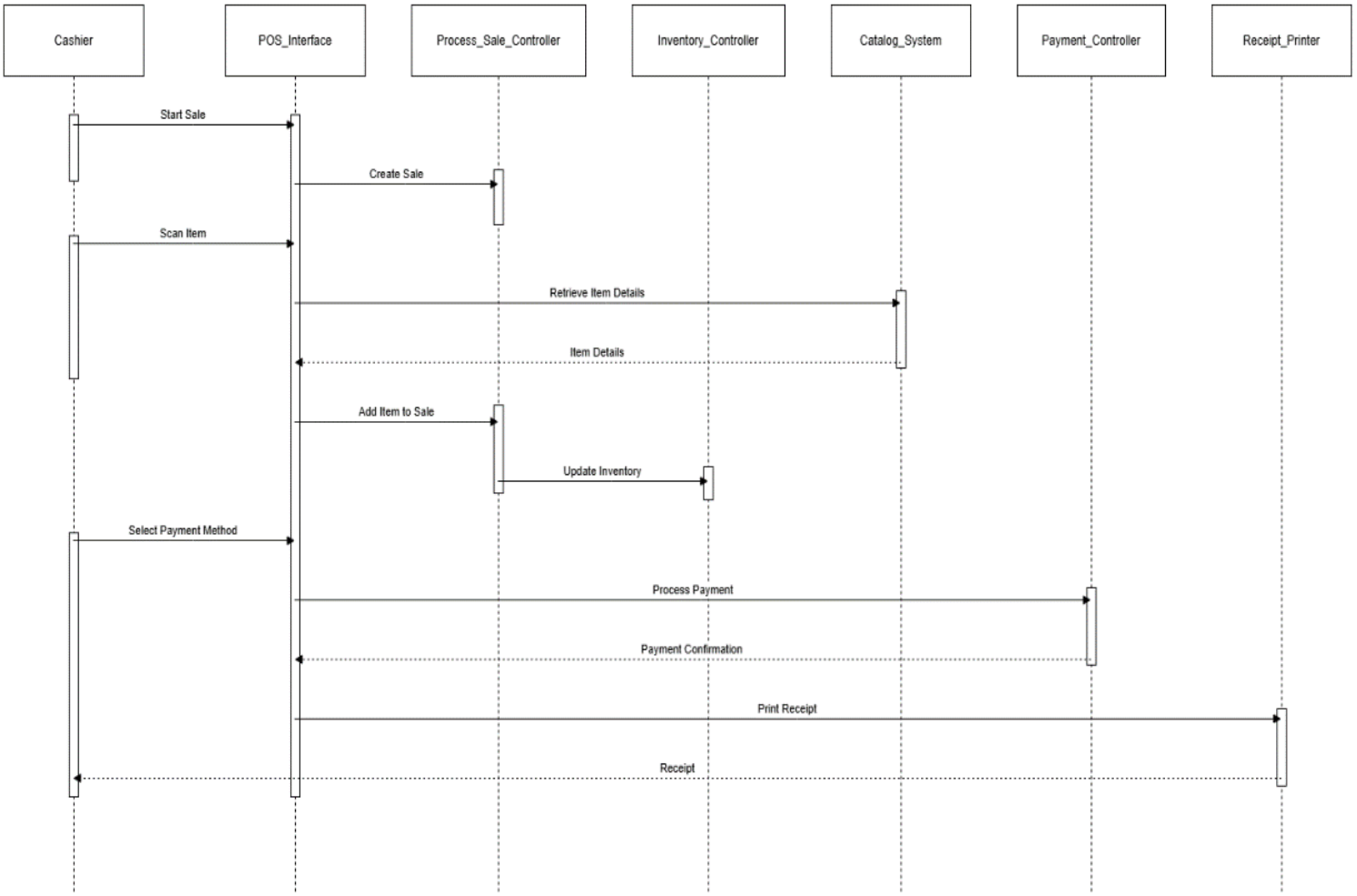
BOUNDARY OBJECTS:

1. POS interface
2. Catalog System Interface
3. Inventory System Interface
4. Payment Process Interface
5. Barcode Scanner
6. Printer

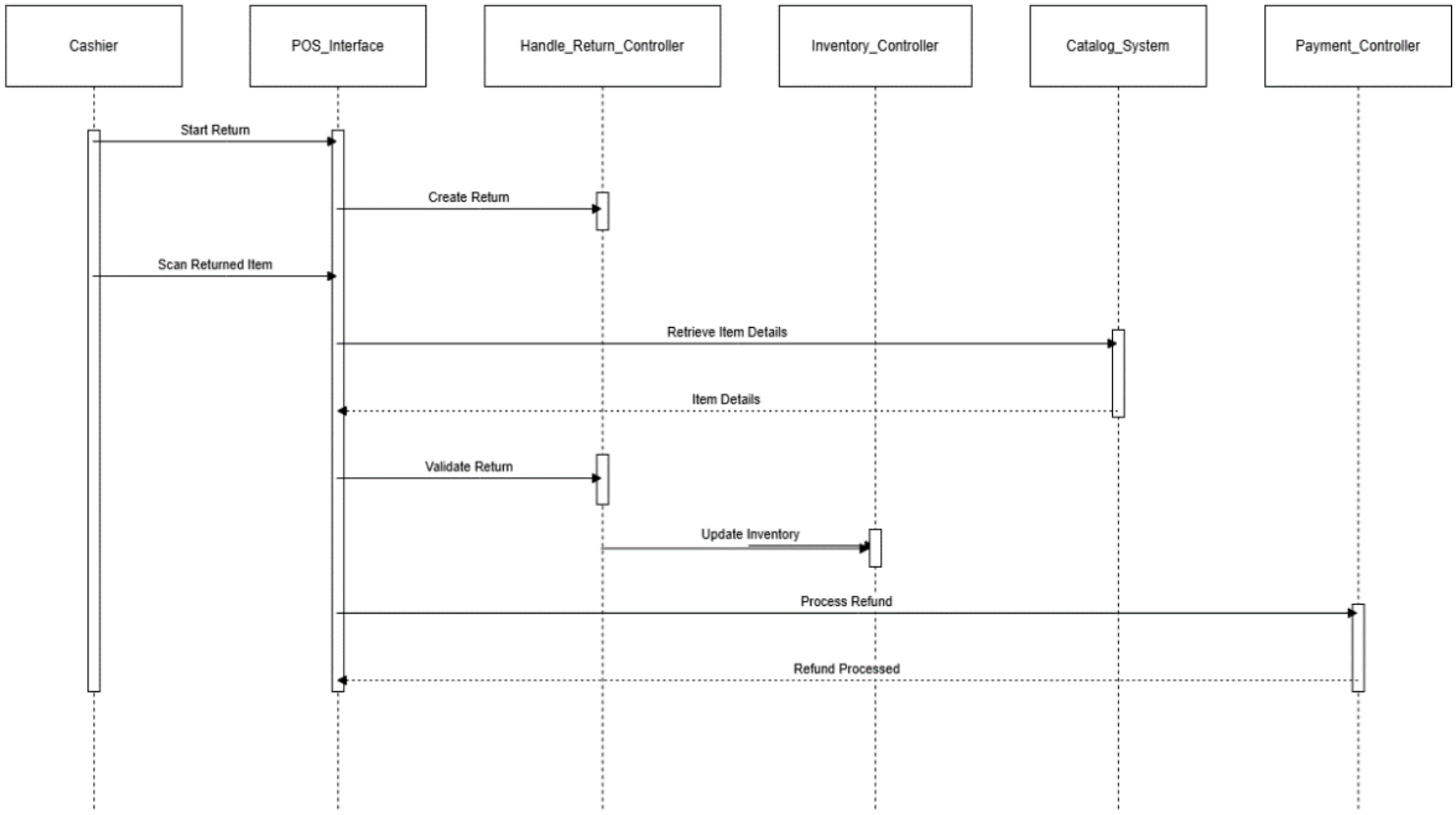
CONTROL OBJECTS:

1. User Controller
2. Inventory Controller
3. Payment Controller
4. Sale Controller
5. Return Controller

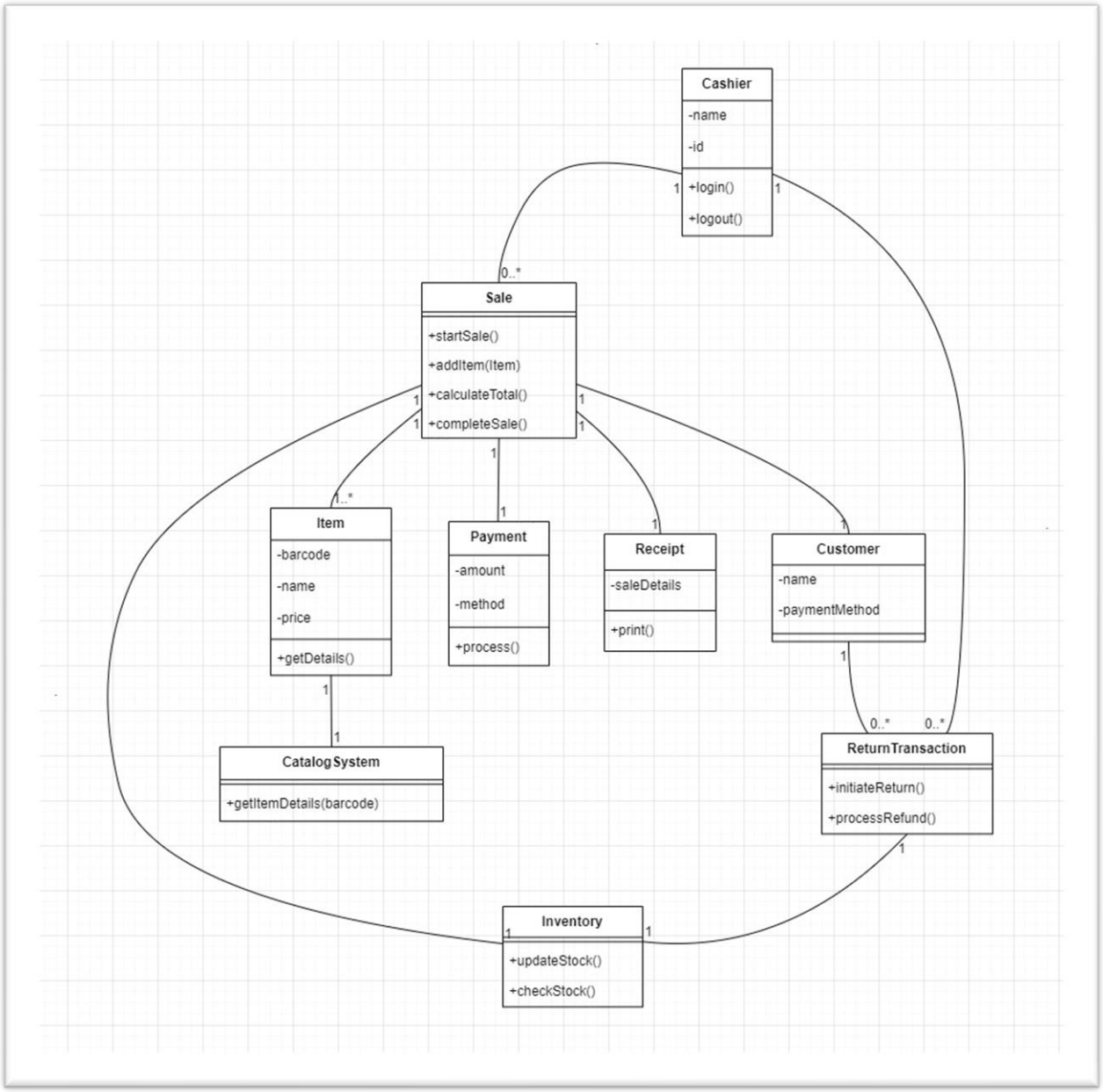
SEQUENCE DIAGRAM FOR : PROCESS SALE



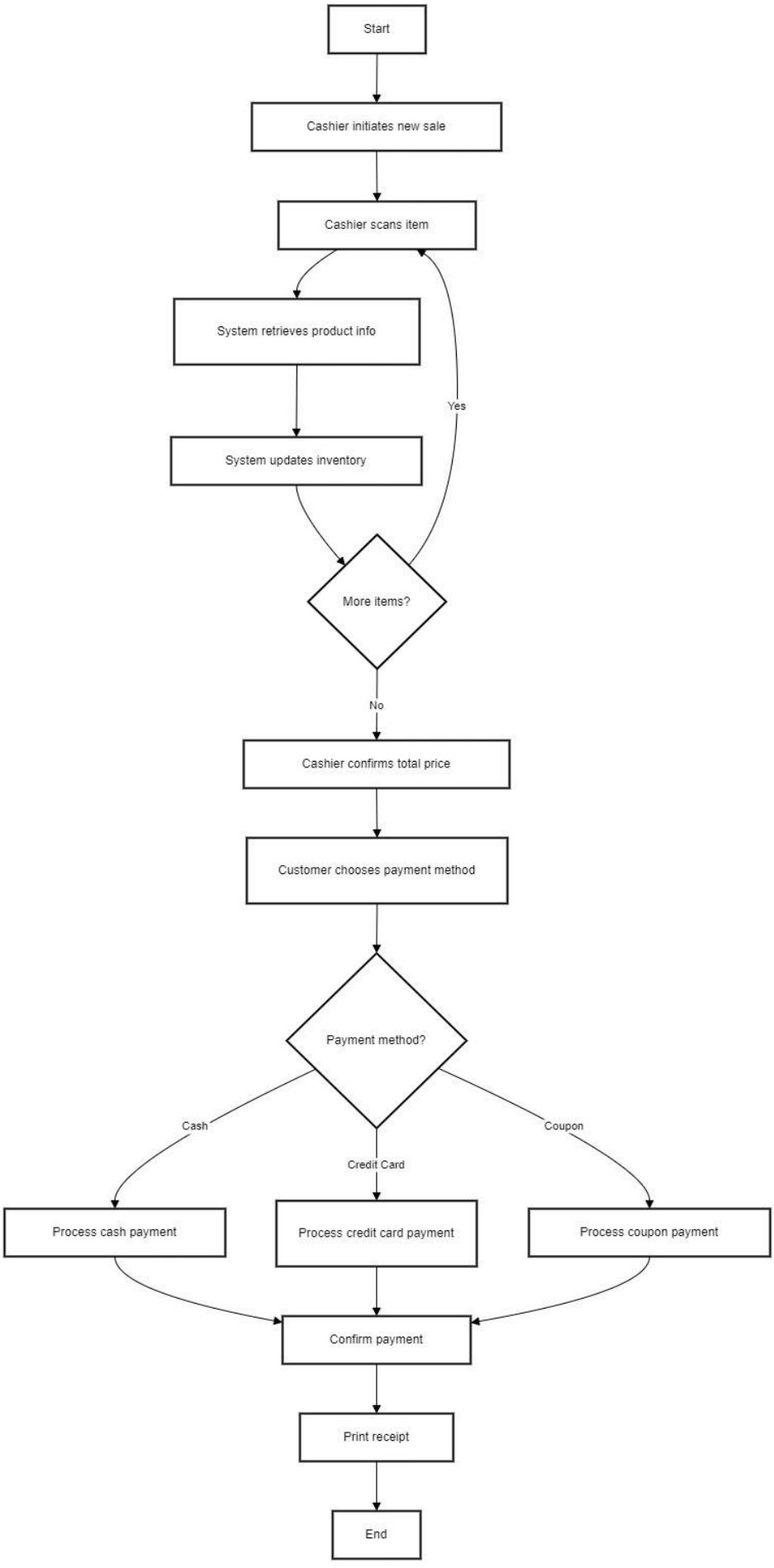
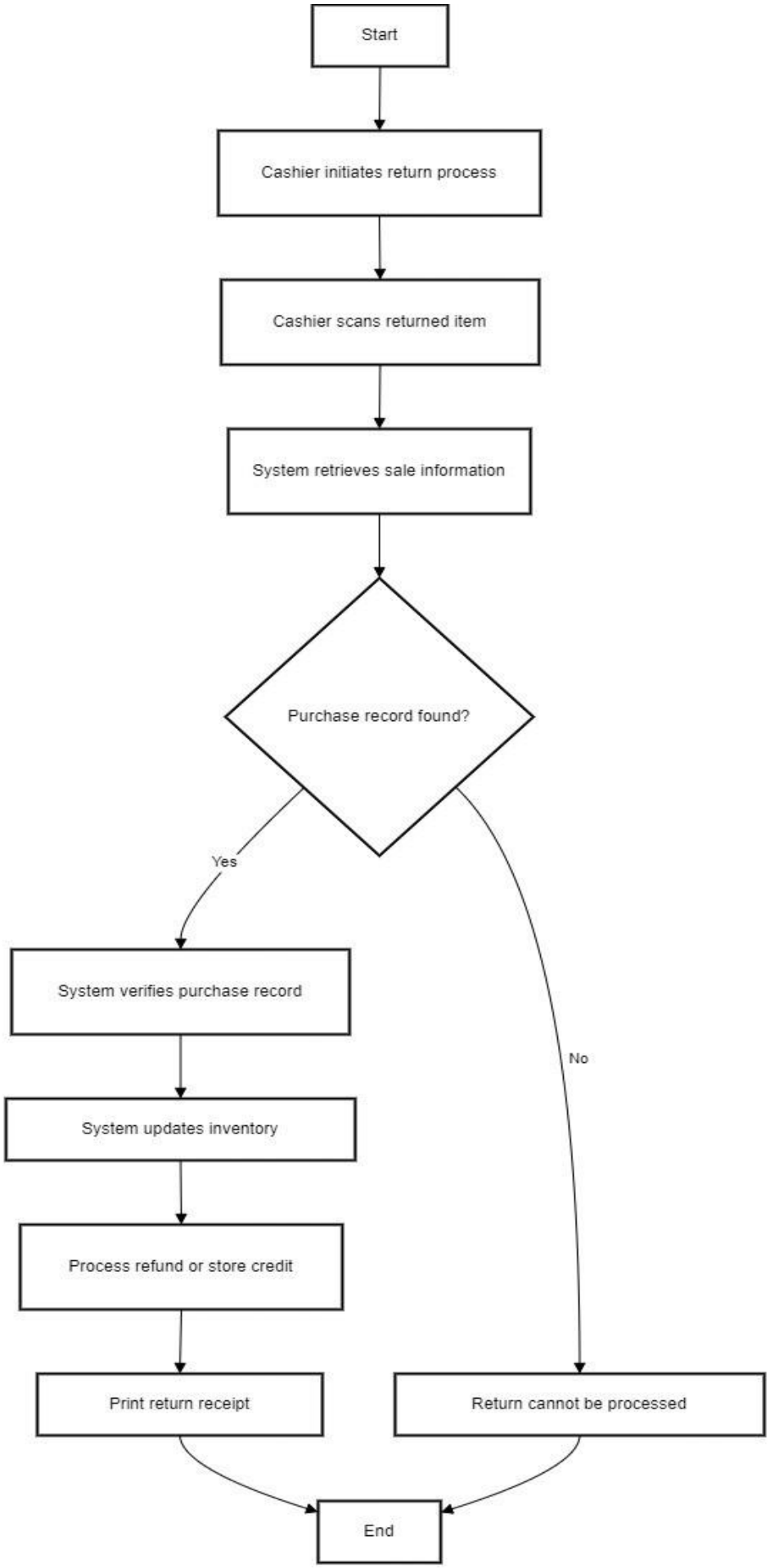
SEQUENCE DIAGRAM FOR : PROCESS RETURN



CLASS DIAGRAM



ACTIVITY DIAGRAM : PROCESS SALE



ACTIVITY DIAGRAM : PROCESS RETURN