**SOFTWARE ENGINEERING**

**LAB 06**

**ID:202201020**

Use Case Textual Descriptions

Process Sale

Actor(s): Cashier  
Preconditions:  
Cashier is logged into the POS system.  
POS system is operational and connected to the backend systems (inventory, catalog, payment gateway).

Main Flow:  
Cashier starts a new sale transaction.  
Customer presents items for purchase.  
For each item:

Cashier scans the barcode. POS retrieves the item details (name, price) from the catalog system. POS updates inventory by reducing the stock for the item.  
Customer provides payment via cash, credit card, or check.  
POS processes the payment and confirms success.  
Receipt is printed and handed to the customer.

Alternative Flows:  
Invalid Barcode: If the barcode is not found, the system alerts the cashier. Cashier manually inputs item details or removes the item from the transaction.

Insufficient Stock: If stock is insufficient, the system notifies the cashier. Cashier informs the customer and removes the item or adjusts the quantity.

Handle Return

Actor(s): Cashier  
Preconditions:  
Customer provides proof of purchase (e.g., receipt).  
POS system is operational and connected to the backend systems.

Main Flow:  
Cashier starts a return transaction.  
Customer provides the item(s) to be returned.  
For each item: Cashier scans the barcode or enters item details. POS validates the item against the original sale transaction. POS updates inventory to reflect the returned item.  
Customer is refunded via cash, credit card, or store credit based on the original payment method.  
POS prints a return receipt, and it is handed to the customer.

Alternative Flows:  
No Proof of Purchase: If the customer does not have proof of purchase, the system denies the return or offers store credit at the cashier's discretion.

Damaged Item: If the item is damaged, the system may alert the cashier to follow a specific policy for processing the return.

**Process Sale**

**Control Objects**

Sale Controller manages the overall flow of the sale transaction. Inventory Controller updates and validates item stock levels. Payment Controller handles payment processing and verification.

**Boundary Objects**

POS Interface is the interface the cashier uses to interact with the system, such as a touch screen or keyboard. Barcode Scanner is the device for scanning item barcodes. Payment Terminal processes card payments or other non-cash methods. Receipt Printer prints the sales receipt for the customer.

**Entity Objects**

Item represents a purchasable product, including attributes such as barcode, name, price, and stock quantity. Transaction represents the current sale, including a list of purchased items, total price, and payment status. Payment represents payment details, including method (cash, card, check) and status.

### **Handle Return**

### **Control Objects**

Return Controller manages the flow of the return transaction. Inventory Controller updates inventory to reflect returned items. Refund Controller processes the refund based on the payment method.

**Boundary Objects**

POS Interface is the interface for the cashier to input return details. Barcode Scanner is the device for scanning returned item barcodes. Receipt Printer prints the return receipt for the customer.

**Entity Objects**

Item represents the returned product with attributes like barcode and condition. Transaction represents the original sale, used for validation during the return process. Return represents the return transaction, including returned items and refund details. Refund represents refund details, including the original payment method and refund amount.