

SDA Project Phase - 2 (Use Case Descriptions)

Project:

- Point of Sales System

Group Members:

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Hamza Nazakat

1. Process Sales Transaction

Identifier	UC-31
Name	Process Sales Transaction
Purpose	This use case describes the procedure for a Cashier to select items, apply all relevant discounts and promotions, finalize the order, and proceed to payment.
Priority	High
Actors	Cashier (Primary), Customer, Inventory System, Loyalty System
Pre-conditions	1. The Cashier must be authenticated (UC-39 completed). 2. The POS system is operational. 3. Inventory data is current and accessible.
Post-conditions	1. A final sales order is created and saved. 2. The transaction is ready for payment processing (UC-34). 3. Inventory is automatically updated (UC-43).

Typical Course of Action

Sr#	Actor Action	Sr#	System Response
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1	Cashier scans or enters Item ID for item.	1.a	System displays Item details and description.
		1.b	System displays the current price.
2	Cashier adds item to the cart (UC-35).	2.a	System displays updated line item in the cart.
		2.b	System displays the running subtotal.
3	Repeat step 1-2 until all items are added.	3.a	System applies any automatic promotions (UC-36, UC-40).
4	Cashier indicates transaction is complete and selects "Finalize Sale".	4.a	System calculates and displays the final total including tax and discounts.
		4.b	System prompts for Customer Loyalty ID.
5	Cashier enters Customer Loyalty ID or skips.	5.a	System retrieves and applies loyalty points/discounts (UC-36).
6	Cashier selects "Proceed to Payment".	6.a	System initiates the Process Payment Use Case (UC-34).

Alternative Course of Action

Sr#	Alternative Actor Action	Sr#	System Response
2	Cashier removes or edits a cart item (UC-35).	2.a	System recalculates subtotal and redisplay the cart.
5	Cashier applies a manual discount or voids an item (requires Manager approval, UC-04).	5	System prompts for Manager approval/credentials and updates the total upon approval.

Exceptions

Exception Name	Description
Item Not Found	System displays an error message; Cashier is prompted to re-scan

	or manually search.
Out-of-Stock	The system automatically invokes UC-33 (Restrict Out-of-Stock Sale) and prevents the item from being added.
System Timeout	If the system cannot communicate with the Inventory or Loyalty systems, the transaction is temporarily suspended until the system is operational.

2. Process Refund

Identifier	UC-32
Name	Process Refund
Purpose	To process the return of previously sold items, calculate the refund amount, and return funds to the customer via the original payment method.
Priority	High
Actors	Cashier (Primary), Customer, Manager, Inventory System, Bank System
Pre-conditions	1. Cashier is logged in. 2. A valid receipt or transaction ID is provided. 3. Refund policy criteria are met (e.g., within 30 days).
Post-conditions	1. Refund transaction is successfully recorded. 2. Inventory is adjusted to reflect returned stock (UC-43). 3. Funds are successfully returned to the customer.

Typical Course of Action

Sr#	Actor Action	Sr#	System Response
1	Cashier selects "Process Refund" and enters the original Transaction ID.	1.a	System retrieves the original sales order details.
		1.b	System validates the return eligibility (e.g., policy, time limit).
2	Cashier scans or selects the items being returned.	2.a	System calculates the total refund amount.

3	Cashier selects "Initiate Refund".	3.a	System sends a refund request to the Payment Gateway/Bank System via the original payment method.
4	Payment Gateway confirms the refund is processed.	4.a	System records the refund transaction and updates statuses.
		4.b	System prints a refund receipt for the customer.

Alternative Course of Action

Sr #	Alternative Actor Action	Sr#	System Response
1	Transaction ID is outside the refund period or requires Manager approval.	1.a	System prompts for Manager credentials (UC-04) before proceeding.
2	Customer accepts a Store Credit instead of cash/card refund.	2.a	System generates a unique store credit code for the refund amount.

Exceptions

Exception Name	Description
Refund Declined	Bank/Payment Gateway declines the refund (e.g., original account closed). System displays "Refund Failed." Cashier is prompted to offer an alternative refund method (e.g., store credit).
Invalid Transaction ID	System displays an error if the ID is not found or is for a transaction that was already fully refunded.

3. Restrict Out-of-Stock Sale

Field	Value
Identifier	UC-33

Name	Restrict Out-of-Stock Sale
Purpose	To check inventory levels during item addition and prevent the sale of items that are unavailable or below the minimum safety stock level.
Priority	High
Actors	Inventory System (Primary), Cashier
Pre-conditions	1. An item addition attempt is made during UC-31. 2. Real-time Inventory data is available.
Post-conditions	1. If available, the sale proceeds. 2. If restricted, the Cashier is informed and the item is not added or the quantity is adjusted.

Typical Course of Action

Sr#	Actor Action	Sr#	System Response
1	System receives a request to add Item X (Quantity Q).	1.a	System queries the Inventory System for the current available stock ().
2	Inventory System returns available stock .	2.a	System allows the addition and proceeds with UC-35 flow.

Alternative Course of Action

Sr#	Alternative Actor Action	Sr#	System Response
2	Inventory System returns available stock but .	2.a	System displays a warning: "Only available." System automatically sets the quantity to .

Exceptions

Exception Name	Description
Stock is Zero	System displays a critical error message: "Item X is out of stock and cannot be added." The item addition is blocked.
Inventory System Unresponsive	If the Inventory System does not respond, the system defaults to assuming adequate stock but logs a warning to be audited by a Manager later.

4. Process Payment

Field	Value
Identifier	UC-34
Name	Process Payment
Purpose	To securely process and record the customer's payment against a finalized sales transaction.
Priority	High
Actors	Cashier (Primary), Customer, Payment Gateway, Bank System
Pre-conditions	1. The Sales Transaction (UC-31) is finalized and awaiting payment. 2. Payment Gateway and Bank System are operational.
Post-conditions	1. Payment is confirmed and recorded. 2. A digital or printed receipt is issued to the Customer. 3. The transaction status is updated to "Paid".

Typical Course of Action

Sr#	Actor Action	Sr#	System Response
1	Cashier selects the payment type (e.g., Credit Card).	1.a	System sends the total amount to the Payment Gateway.
2	Customer inserts/taps card or provides payment details.	2.a	System relays payment data to the Bank System for authorization.
3	Payment Gateway receives authorization confirmation.	3.a	System records the authorization ID and payment details.
		3.b	System updates the transaction status to "Payment Confirmed".
4	Cashier finalizes the transaction.	4.a	System prepares the receipt data for printing/sending.
		4.b	System prints or digitally sends the receipt to the Customer.

Alternative Course of Action

Sr#	Alternative Actor Action	Sr#	System Response
1.a	Cashier selects Split Payment (UC-37).	1.a	System calculates the first portion and initiates a sub-payment flow.
1.b	Cashier selects Cash Payment .	1.b	System displays change due after Cashier enters the amount received.

Exceptions

Exception Name	Description
Payment Failure	System displays "Payment Declined." Cashier is prompted to retry, select an alternative payment method, or Reverse Payments (UC-41) to clear the current payment attempt.
Gateway Timeout	If no response is received from the Payment Gateway within 30 seconds, the system advises the Cashier to attempt the payment again.
Insufficient Funds	Bank System returns a specific error code. System displays "Insufficient Funds," prompting the Customer for another card or payment type.

5. Add/Edit Item to Cart

Field	Value
Identifier	UC-35
Name	Add/Edit Item to Cart
Purpose	To allow the Cashier to add, remove, or modify the quantity of items within an active sales transaction.
Priority	High
Actors	Cashier (Primary), Inventory System
Pre-conditions	1. A sales transaction (UC-31) is active. 2. The item exists in the Inventory System.
Post-conditions	1. The Cart is updated with the modified item list. 2. The running subtotal is recalculated.

Typical Course of Action (Primary Flow)

Sr#	Actor Action	Sr#	System Response
1	Cashier scans an Item barcode.	1.a	System queries Inventory System for item details.
		1.b	System retrieves the current price.
2	System verifies stock availability (UC-33).	2.a	System adds the item (quantity 1) to the cart data structure.
		2.b	System updates the user interface to display the added item.
3	Cashier scans the next item.	3.a	System increments the quantity of the existing item and updates the running total.

Alternative Course of Action

Sr#	Alternative Actor Action	Sr#	System Response
3.b	Cashier manually selects an item line in the cart and clicks "Remove Item".	3.b	System removes the item and recalculates the subtotal.
3.c	Cashier manually selects an item line and clicks "Change Quantity", entering a new value.	3.c	System updates the quantity (if it doesn't violate UC-33) and recalculates the subtotal.

Exceptions

Exception Name	Description
Quantity Exceeds Stock	If the requested quantity is greater than available stock, UC-33 is triggered, and the system limits the quantity to the available amount.
Item Data Error	If the Inventory System returns incomplete or corrupted data, the system displays an error and asks the Cashier to try manual entry.

6. Apply Discounts/Points

Field	Value
Identifier	UC-36
Name	Apply Discounts/Points
Purpose	To apply customer loyalty points, member discounts, or calculated tier-based discounts to a pending sales transaction.
Priority	Medium
Actors	Cashier (Primary), Customer, Loyalty System
Pre-conditions	1. A sales transaction (UC-31) is active with items in the cart. 2. The Customer is identified via a Loyalty ID.
Post-conditions	1. The total payable amount reflects the applied discount/point redemption. 2. Loyalty points are debited from the customer's account (if redeemed).

Typical Course of Action (Primary Flow)

Sr#	Actor Action	Sr#	System Response
1	Cashier enters Customer's Loyalty ID.	1.a	System queries the Loyalty System for applicable discounts.
		1.b	System queries the Loyalty System for available points balance.
2	System automatically applies any pre-set member discounts (e.g., 10% off for Gold Tier).	2.a	System updates the cart display with applied member discounts.
		2.b	System displays the available points for redemption and the potential monetary saving.
3	Cashier asks the Customer if they wish to redeem points and enters the desired redemption amount.	3.a	System calculates the point-to-cash equivalent and reduces the total sale amount.

Alternative Course of Action

Sr#	Alternative Actor Action	Sr#	System Response
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3.b	Cashier attempts to apply a manual, non-loyalty discount.	3.b	System requires Manager Approval (UC-04).
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Exceptions

Exception Name	Description
Invalid Loyalty ID	System displays "Loyalty ID not found." Cashier is prompted to re-enter or enroll the Customer.
Insufficient Points	Cashier attempts to redeem more points than available. System displays "Insufficient Points." Redemption amount is automatically reset to the maximum available.

7. Handle Split Payment

Field	Value
Identifier	UC-37
Name	Handle Split Payment
Purpose	To allow the customer to pay for a single transaction using two or more distinct payment methods (e.g., cash and credit card).
Priority	Medium
Actors	Cashier (Primary), Customer, Payment Gateway
Pre-conditions	1. A sales transaction (UC-31) is finalized and awaiting payment (UC-34).
Post-conditions	1. All payment portions are successfully processed. 2. The total payments equal the total transaction amount.

Typical Course of Action (Primary Flow)

Sr#	Actor Action	Sr#	System Response
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1	Cashier selects "Split Payment" during UC-34.	1.a	System displays the total amount due.
		1.b	System prompts the Cashier for the first payment amount and type.
2	Cashier enters the first payment amount (e.g., \$20) and selects the type (e.g., Cash).	2.a	System processes the first payment.
3	System displays the remaining balance due.	3.a	System prompts for the second payment amount and type.
4	Cashier enters the remaining balance and selects the second payment type (e.g., Credit Card).	4.a	System processes the final payment via the Payment Gateway.

Alternative Course of Action

Sr#	Alternative Actor Action	Sr#	System Response
4.b	The remaining balance is split into a third payment.	4.b	System repeats steps 2-3 until the remaining balance is zero.

Exceptions

Exception Name	Description
Partial Payment Failure	If any payment segment fails, the entire Split Payment process is halted. System reverses any successful partial payments (UC-41) and prompts the Cashier to restart the payment process.

8. Generate Inventory Report

Field	Value
Identifier	UC-38
Name	Generate Inventory Report
Purpose	To retrieve and format critical data on current stock levels, low-stock items,

	and inventory valuation for managerial review.
Priority	Medium
Actors	Manager (Primary), Inventory System
Pre-conditions	1. Manager is successfully authenticated (UC-39). 2. Inventory System is accessible.
Post-conditions	1. A readable report (e.g., PDF, CSV) is generated and displayed/exported.

Typical Course of Action (Primary Flow)

Sr#	Actor Action	Sr#	System Response
1	Manager selects "Inventory Report" from the back-office menu.	1.a	System displays report configuration options (e.g., by category, low stock only, date range).
2	Manager selects filters (e.g., "Low Stock Only") and clicks "Generate Report".	2.a	System queries the Inventory System based on the selected criteria.
3	Inventory System returns the raw data.	3.a	System formats the data into a report table and displays it on the screen.

Alternative Course of Action

Sr#	Alternative Actor Action	Sr#	System Response
3.b	Manager selects "Export to CSV" after generation.	3.b	System exports the report data into a downloadable CSV file.

Exceptions

Exception Name	Description
Data Retrieval Error	If the Inventory System fails to return data, the system displays "Inventory Data Unavailable. Try again later."

9. Authenticate User (here it is for role based access)

Field	Value
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Identifier	UC-39
Name	Authenticate User (Role-Based Access)
Purpose	To verify a user's identity and determine their assigned role (Cashier, Manager, Admin) to grant appropriate system access and permissions.
Priority	High
Actors	User (Cashier, Manager, Admin) (Primary), Authentication System
Pre-conditions	1. The User is at the POS terminal or back-office login screen. 2. User accounts and roles are pre-configured in the Authentication System.
Post-conditions	1. The User is successfully logged in. 2. The POS interface is initialized according to the User's role (e.g., only Managers can see reporting functions).

Typical Course of Action (Primary Flow)

Sr#	Actor Action	Sr#	System Response
1	User enters unique Employee ID or Username.	1.a	System validates the format of the input.
2	User enters Password or scans security badge.	2.a	System sends credentials to the Authentication System.
3	Authentication System verifies credentials and returns the User's assigned Role.	3.a	System logs the User in and grants access.
		3.b	System displays a welcome message and the User's role.
		3.c	System initializes the POS interface according to the User's role permissions.

Alternative Course of Action

Sr#	Alternative Actor Action	Sr#	System Response
1.b	User selects "Forgot Password".	1.b	System redirects to a password reset utility (external to this UC).

Exceptions

Exception Name	Description
Invalid Credentials	If the combination of ID/Password is incorrect, the system displays "Invalid Credentials. Please try again." after the third failed attempt, the account is temporarily locked.
Role Not Defined	If the credentials are correct but no role is assigned, the system denies access and logs an error for the administrator.
System Down	If the Authentication System is unavailable, the POS allows emergency login with a predefined, restricted Guest role.

10. Apply Promo Codes

Field	Value
Identifier	UC-40
Name	Apply Promo Codes
Purpose	To validate a textual promo code against predefined rules and apply the associated discount or benefit to the sales transaction.
Priority	Medium
Actors	Cashier (Primary), System
Pre-conditions	1. A sales transaction (UC-31) is active. 2. The Customer provides a valid promo code.
Post-conditions	1. The total payable amount is reduced by the value of the promo code. 2. The promo code is flagged as 'used' in the database (if single-use).

Typical Course of Action (Primary Flow)

Sr#	Actor Action	Sr#	System Response
1	Cashier selects "Apply Promo Code" and enters the alphanumeric code.	1.a	System sends the code to the Promo Code Database for validation (existence, expiry, minimum purchase).

2	Promo Code Database confirms validity and benefit.	2.a	System applies the discount (e.g., 15% off, \$10 off).
		2.b	System updates the transaction total in the cart display.

Alternative Course of Action

Sr#	Alternative Actor Action	Sr#	System Response
2.b	Promo code requires a certain minimum purchase (e.g., "\$50 minimum").	2.b	System displays "Promo Code requires minimum purchase of \$X" and holds the application until the criteria are met.

Exceptions

Exception Name	Description
Invalid/Expired Code	System displays "Invalid or Expired Promo Code." Cashier is prompted to check the code or contact the Manager.
Usage Limit Exceeded	If the code is single-use and already consumed, the System displays "Code already used or daily limit reached."

11. Reverse Payments

Field	Value
Identifier	UC-41
Name	Reverse Payments
Purpose	To reverse or void a payment that was previously authorized or completed, typically due to a payment failure, customer cancellation, or system error, before the entire sales transaction is finalized.
Priority	High
Actors	Cashier (Primary), Payment Gateway, Bank System
Pre-conditions	1. A payment attempt (UC-34 or UC-37) has been initiated and recorded

	(Authorized or Pending Settlement). 2. The main transaction (UC-31) has NOT been finalized.
Post-conditions	1. The payment record is voided or reversed in the POS. 2. A reversal request is sent to the Payment Gateway/Bank System. 3. The transaction status is reset to "Awaiting Payment."

Typical Course of Action (Primary Flow)

Sr#	Actor Action	Sr#	System Response
1	Cashier selects "Reverse Last Payment" during UC-34 exception handling.	1.a	System retrieves the last successful payment record's authorization ID.
2	System sends a VOID or REVERSE request to the Payment Gateway using the ID.	2.a	Payment Gateway confirms the reversal.
3	System logs the reversal and removes the payment from the transaction history.	3.a	System updates the transaction status to "Awaiting Payment."
		3.b	System displays the full, unreduced amount due to the Cashier.

Alternative Course of Action

Sr#	Alternative Actor Action	Sr#	System Response
1.b	Cashier requests reversal of a payment that has already settled (post-finalization).	1.b	System informs Cashier this requires a full Refund (UC-32) and cannot be reversed.

Exceptions

Exception Name	Description
Reversal Failure	Payment Gateway returns an error (e.g., VOID time limit expired). System displays "Reversal Failed." Cashier must call the Manager and note the failure for manual settlement.

12. Generate Customer Analytics

Field	Value
Identifier	UC-42
Name	Generate Customer Analytics
Purpose	To process historical sales data and loyalty information to provide insights on customer purchasing trends, top customers, and loyalty program performance.
Priority	Low
Actors	Manager (Primary), Analytics Subsystem
Pre-conditions	1. Manager is successfully authenticated (UC-39). 2. Historical transaction and loyalty data are available.
Post-conditions	1. Visual dashboards or summarized data reports are generated and displayed.

Typical Course of Action (Primary Flow)

Sr#	Actor Action	Sr#	System Response
1	Manager selects "Customer Analytics" from the back-office menu.	1.a	System loads the pre-configured analytics dashboard.
2	Manager selects a specific metric (e.g., "Top 10 Customers by Revenue") and a date range.	2.a	System queries the Analytics Subsystem and generates the requested visual (chart or graph).
3	Manager reviews the data and selects a different metric.	3.a	System updates the display with the new metric visualization.

Alternative Course of Action

Sr#	Alternative Actor Action	Sr#	System Response
2.b	Manager requests a drill-down into a customer's specific purchase history.	2.b	System displays a detailed list of transactions for that customer.

Exceptions

Exception Name	Description
Analytics System Offline	System displays "Analytics Engine Unavailable." Manager is advised to try again later.

13. Auto-Update Inventory

Field	Value
Identifier	UC-43
Name	Auto-Update Inventory
Purpose	To automatically adjust stock levels in the Inventory System immediately following the successful completion of a sales or refund transaction.
Priority	High
Actors	System (Primary), Inventory System
Pre-conditions	1. A sales transaction (UC-31) is paid and finalized OR a refund transaction (UC-32) is processed.
Post-conditions	1. Inventory levels in the Inventory System are accurately adjusted. 2. A log entry is created detailing the inventory change.

Typical Course of Action (Primary Flow)

Sr#	Actor Action	Sr#	System Response
1	Sales Transaction (UC-31) successfully completes. System identifies items sold (X) and their quantities (Q).	1.a	System sends an inventory DECREMENT request for X by Q to the Inventory System.
2	Inventory System processes the request.	2.a	Inventory System confirms the successful adjustment to the POS

			system.
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Alternative Course of Action

Sr#	Alternative Actor Action	Sr#	System Response
1.b	Refund Transaction (UC-32) successfully completes. System identifies items returned (Y) and their quantities (R).	1.b	System sends an inventory INCREMENT request for Y by R to the Inventory System.
2.b	Inventory System processes the request.	2.b	Inventory System confirms the successful adjustment to the POS system.

Exceptions

Exception Name	Description
Update Conflict/Failure	Inventory System returns a database error (e.g., record lock or integrity violation). System retries the update a maximum of three times, then creates a critical manual adjustment alert for the Manager.

Participant 4(Hamza Nazakat):

1. Process Sales Transaction

Identifier	UC-31
Name	Process Sales Transaction
Purpose	This use case describes the procedure for a Cashier to select items, apply all relevant discounts and promotions, finalize the order, and proceed to payment.
Priority	High

Actors	Cashier (Primary), Customer, Inventory System, Loyalty System
Pre-conditions	1. The Cashier must be authenticated (UC-39 completed). 2. The POS system is operational. 3. Inventory data is current and accessible.
Post-conditions	1. A final sales order is created and saved. 2. The transaction is ready for payment processing (UC-34). 3. Inventory is automatically updated (UC-43).

Typical Course of Action

Sr#	Actor Action	Sr#	System Response
1	Cashier scans or enters Item ID for item.	1.a	System displays Item details and description.
		1.b	System displays the current price.
2	Cashier adds item to the cart (UC-35).	2.a	System displays updated line item in the cart.
		2.b	System displays the running subtotal.
3	Repeat step 1-2 until all items are added.	3.a	System applies any automatic promotions (UC-36, UC-40).
4	Cashier indicates transaction is complete and selects "Finalize Sale".	4.a	System calculates and displays the final total including tax and discounts.
		4.b	System prompts for Customer Loyalty ID.
5	Cashier enters Customer Loyalty ID or skips.	5.a	System retrieves and applies loyalty points/discounts (UC-36).
6	Cashier selects "Proceed to Payment".	6.a	System initiates the Process Payment Use Case (UC-34).

Alternative Course of Action

Sr#	Alternative Actor Action	Sr#	System Response
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2	Cashier removes or edits a cart item (UC-35).	2.a	System recalculates subtotal and redisplay the cart.
5	Cashier applies a manual discount or voids an item (requires Manager approval, UC-04).	5	System prompts for Manager approval/credentials and updates the total upon approval.

Exceptions

Exception Name	Description
Item Not Found	System displays an error message; Cashier is prompted to re-scan or manually search.
Out-of-Stock	The system automatically invokes UC-33 (Restrict Out-of-Stock Sale) and prevents the item from being added.
System Timeout	If the system cannot communicate with the Inventory or Loyalty systems, the transaction is temporarily suspended until the system is operational.

2. Process Refund

Identifier	UC-32
Name	Process Refund
Purpose	To process the return of previously sold items, calculate the refund amount, and return funds to the customer via the original payment method.
Priority	High
Actors	Cashier (Primary), Customer, Manager, Inventory System, Bank System
Pre-conditions	1. Cashier is logged in. 2. A valid receipt or transaction ID is provided. 3. Refund policy criteria are met (e.g., within 30 days).
Post-conditions	1. Refund transaction is successfully recorded. 2. Inventory is adjusted to reflect returned stock (UC-43). 3. Funds are successfully returned to the customer.

Typical Course of Action

Sr#	Actor Action	Sr#	System Response
1	Cashier selects "Process Refund" and enters the original Transaction ID.	1.a	System retrieves the original sales order details.
		1.b	System validates the return eligibility (e.g., policy, time limit).
2	Cashier scans or selects the items being returned.	2.a	System calculates the total refund amount.
3	Cashier selects "Initiate Refund".	3.a	System sends a refund request to the Payment Gateway/Bank System via the original payment method.
4	Payment Gateway confirms the refund is processed.	4.a	System records the refund transaction and updates statuses.
		4.b	System prints a refund receipt for the customer.

Alternative Course of Action

Sr #	Alternative Actor Action	Sr#	System Response
1	Transaction ID is outside the refund period or requires Manager approval.	1.a	System prompts for Manager credentials (UC-04) before proceeding.
2	Customer accepts a Store Credit instead of cash/card refund.	2.a	System generates a unique store credit code for the refund amount.

Exceptions

Exception Name	Description
Refund Declined	Bank/Payment Gateway declines the refund (e.g., original account closed). System displays "Refund Failed." Cashier is prompted to offer an alternative refund method (e.g., store credit).
Invalid Transaction ID	System displays an error if the ID is not found or is for a transaction that was already fully refunded.

3. Restrict Out-of-Stock Sale

Field	Value
Identifier	UC-33
Name	Restrict Out-of-Stock Sale
Purpose	To check inventory levels during item addition and prevent the sale of items that are unavailable or below the minimum safety stock level.
Priority	High
Actors	Inventory System (Primary), Cashier
Pre-conditions	1. An item addition attempt is made during UC-31. 2. Real-time Inventory data is available.
Post-conditions	1. If available, the sale proceeds. 2. If restricted, the Cashier is informed and the item is not added or the quantity is adjusted.

Typical Course of Action

Sr#	Actor Action	Sr#	System Response
1	System receives a request to add Item X (Quantity Q).	1.a	System queries the Inventory System for the current available stock ().
2	Inventory System returns available stock .	2.a	System allows the addition and proceeds with UC-35 flow.

Alternative Course of Action

Sr#	Alternative Actor Action	Sr#	System Response
2	Inventory System returns available stock but .	2.a	System displays a warning: "Only available." System automatically sets the quantity to .

Exceptions

Exception Name	Description
Stock is Zero	System displays a critical error message: "Item X is out of stock and cannot be added." The item addition is blocked.
Inventory System Unresponsive	If the Inventory System does not respond, the system defaults to assuming adequate stock but logs a warning to be audited by a Manager later.

4. Process Payment

Field	Value
Identifier	UC-34
Name	Process Payment
Purpose	To securely process and record the customer's payment against a finalized sales transaction.
Priority	High
Actors	Cashier (Primary), Customer, Payment Gateway, Bank System
Pre-conditions	1. The Sales Transaction (UC-31) is finalized and awaiting payment. 2. Payment Gateway and Bank System are operational.
Post-conditions	1. Payment is confirmed and recorded. 2. A digital or printed receipt is issued to the Customer. 3. The transaction status is updated to "Paid".

Typical Course of Action

Sr#	Actor Action	Sr#	System Response
1	Cashier selects the payment type (e.g., Credit Card).	1.a	System sends the total amount to the Payment Gateway.
2	Customer inserts/taps card or provides payment details.	2.a	System relays payment data to the Bank System for authorization.
3	Payment Gateway receives	3.a	System records the authorization ID

	authorization confirmation.		and payment details.
		3.b	System updates the transaction status to "Payment Confirmed".
4	Cashier finalizes the transaction.	4.a	System prepares the receipt data for printing/sending.
		4.b	System prints or digitally sends the receipt to the Customer.

Alternative Course of Action

Sr#	Alternative Actor Action	Sr#	System Response
1.a	Cashier selects Split Payment (UC-37).	1.a	System calculates the first portion and initiates a sub-payment flow.
1.b	Cashier selects Cash Payment .	1.b	System displays change due after Cashier enters the amount received.

Exceptions

Exception Name	Description
Payment Failure	System displays "Payment Declined." Cashier is prompted to retry, select an alternative payment method, or Reverse Payments (UC-41) to clear the current payment attempt.
Gateway Timeout	If no response is received from the Payment Gateway within 30 seconds, the system advises the Cashier to attempt the payment again.
Insufficient Funds	Bank System returns a specific error code. System displays "Insufficient Funds," prompting the Customer for another card or payment type.

5. Add/Edit Item to Cart

Field	Value
Identifier	UC-35

Name	Add/Edit Item to Cart
Purpose	To allow the Cashier to add, remove, or modify the quantity of items within an active sales transaction.
Priority	High
Actors	Cashier (Primary), Inventory System
Pre-conditions	1. A sales transaction (UC-31) is active. 2. The item exists in the Inventory System.
Post-conditions	1. The Cart is updated with the modified item list. 2. The running subtotal is recalculated.

Typical Course of Action (Primary Flow)

Sr#	Actor Action	Sr#	System Response
1	Cashier scans an Item barcode.	1.a	System queries Inventory System for item details.
		1.b	System retrieves the current price.
2	System verifies stock availability (UC-33).	2.a	System adds the item (quantity 1) to the cart data structure.
		2.b	System updates the user interface to display the added item.
3	Cashier scans the next item.	3.a	System increments the quantity of the existing item and updates the running total.

Alternative Course of Action

Sr#	Alternative Actor Action	Sr#	System Response
3.b	Cashier manually selects an item line in the cart and clicks "Remove Item".	3.b	System removes the item and recalculates the subtotal.
3.c	Cashier manually selects an item line and clicks "Change Quantity", entering a new value.	3.c	System updates the quantity (if it doesn't violate UC-33) and recalculates the subtotal.

Exceptions

Exception Name	Description
Quantity Exceeds Stock	If the requested quantity is greater than available stock, UC-33 is triggered, and the system limits the quantity to the available amount.
Item Data Error	If the Inventory System returns incomplete or corrupted data, the system displays an error and asks the Cashier to try manual entry.

6. Apply Discounts/Points

Field	Value
Identifier	UC-36
Name	Apply Discounts/Points
Purpose	To apply customer loyalty points, member discounts, or calculated tier-based discounts to a pending sales transaction.
Priority	Medium
Actors	Cashier (Primary), Customer, Loyalty System
Pre-conditions	1. A sales transaction (UC-31) is active with items in the cart. 2. The Customer is identified via a Loyalty ID.
Post-conditions	1. The total payable amount reflects the applied discount/point redemption. 2. Loyalty points are debited from the customer's account (if redeemed).

Typical Course of Action (Primary Flow)

Sr#	Actor Action	Sr#	System Response
1	Cashier enters Customer's Loyalty ID.	1.a	System queries the Loyalty System for applicable discounts.
		1.b	System queries the Loyalty System for available points balance.
2	System automatically applies any pre-set member discounts (e.g., 10% off	2.a	System updates the cart display with applied member discounts.

	for Gold Tier).		
		2.b	System displays the available points for redemption and the potential monetary saving.
3	Cashier asks the Customer if they wish to redeem points and enters the desired redemption amount.	3.a	System calculates the point-to-cash equivalent and reduces the total sale amount.

Alternative Course of Action

Sr#	Alternative Actor Action	Sr#	System Response
3.b	Cashier attempts to apply a manual, non-loyalty discount.	3.b	System requires Manager Approval (UC-04).

Exceptions

Exception Name	Description
Invalid Loyalty ID	System displays "Loyalty ID not found." Cashier is prompted to re-enter or enroll the Customer.
Insufficient Points	Cashier attempts to redeem more points than available. System displays "Insufficient Points." Redemption amount is automatically reset to the maximum available.

7. Handle Split Payment

Field	Value
Identifier	UC-37
Name	Handle Split Payment
Purpose	To allow the customer to pay for a single transaction using two or more distinct payment methods (e.g., cash and credit card).

Priority	Medium
Actors	Cashier (Primary), Customer, Payment Gateway
Pre-conditions	1. A sales transaction (UC-31) is finalized and awaiting payment (UC-34).
Post-conditions	1. All payment portions are successfully processed. 2. The total payments equal the total transaction amount.

Typical Course of Action (Primary Flow)

Sr#	Actor Action	Sr#	System Response
1	Cashier selects "Split Payment" during UC-34.	1.a	System displays the total amount due.
		1.b	System prompts the Cashier for the first payment amount and type.
2	Cashier enters the first payment amount (e.g., \$20) and selects the type (e.g., Cash).	2.a	System processes the first payment.
3	System displays the remaining balance due.	3.a	System prompts for the second payment amount and type.
4	Cashier enters the remaining balance and selects the second payment type (e.g., Credit Card).	4.a	System processes the final payment via the Payment Gateway.

Alternative Course of Action

Sr#	Alternative Actor Action	Sr#	System Response
4.b	The remaining balance is split into a third payment.	4.b	System repeats steps 2-3 until the remaining balance is zero.

Exceptions

Exception Name	Description
Partial Payment Failure	If any payment segment fails, the entire Split Payment process is halted. System reverses any successful partial payments (UC-41) and prompts the Cashier to restart the payment process.

8. Generate Inventory Report

Field	Value
Identifier	UC-38
Name	Generate Inventory Report
Purpose	To retrieve and format critical data on current stock levels, low-stock items, and inventory valuation for managerial review.
Priority	Medium
Actors	Manager (Primary), Inventory System
Pre-conditions	1. Manager is successfully authenticated (UC-39). 2. Inventory System is accessible.
Post-conditions	1. A readable report (e.g., PDF, CSV) is generated and displayed/exported.

Typical Course of Action (Primary Flow)

Sr#	Actor Action	Sr#	System Response
1	Manager selects "Inventory Report" from the back-office menu.	1.a	System displays report configuration options (e.g., by category, low stock only, date range).
2	Manager selects filters (e.g., "Low Stock Only") and clicks "Generate Report".	2.a	System queries the Inventory System based on the selected criteria.
3	Inventory System returns the raw data.	3.a	System formats the data into a report table and displays it on the screen.

Alternative Course of Action

Sr#	Alternative Actor Action	Sr#	System Response
3.b	Manager selects "Export to CSV" after generation.	3.b	System exports the report data into a downloadable CSV file.

Exceptions

Exception Name	Description
Data Retrieval Error	If the Inventory System fails to return data, the system displays "Inventory Data Unavailable. Try again later."

9. Authenticate User (here it is for role based access)

Field	Value
Identifier	UC-39
Name	Authenticate User (Role-Based Access)
Purpose	To verify a user's identity and determine their assigned role (Cashier, Manager, Admin) to grant appropriate system access and permissions.
Priority	High
Actors	User (Cashier, Manager, Admin) (Primary), Authentication System
Pre-conditions	1. The User is at the POS terminal or back-office login screen. 2. User accounts and roles are pre-configured in the Authentication System.
Post-conditions	1. The User is successfully logged in. 2. The POS interface is initialized according to the User's role (e.g., only Managers can see reporting functions).

Typical Course of Action (Primary Flow)

Sr#	Actor Action	Sr#	System Response
1	User enters unique Employee ID or Username.	1.a	System validates the format of the input.
2	User enters Password or scans security badge.	2.a	System sends credentials to the Authentication System.
3	Authentication System verifies credentials and returns the User's assigned Role.	3.a	System logs the User in and grants access.
		3.b	System displays a welcome message and the User's role.
		3.c	System initializes the POS interface

			according to the User's role permissions.
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Alternative Course of Action

Sr#	Alternative Actor Action	Sr#	System Response
1.b	User selects "Forgot Password".	1.b	System redirects to a password reset utility (external to this UC).

Exceptions

Exception Name	Description
Invalid Credentials	If the combination of ID/Password is incorrect, the system displays "Invalid Credentials. Please try again." after the third failed attempt, the account is temporarily locked.
Role Not Defined	If the credentials are correct but no role is assigned, the system denies access and logs an error for the administrator.
System Down	If the Authentication System is unavailable, the POS allows emergency login with a predefined, restricted Guest role.

10. Apply Promo Codes

Field	Value
Identifier	UC-40
Name	Apply Promo Codes
Purpose	To validate a textual promo code against predefined rules and apply the associated discount or benefit to the sales transaction.
Priority	Medium
Actors	Cashier (Primary), System
Pre-conditions	1. A sales transaction (UC-31) is active. 2. The Customer provides a valid promo code.

Post-conditions	1. The total payable amount is reduced by the value of the promo code. 2. The promo code is flagged as 'used' in the database (if single-use).
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Typical Course of Action (Primary Flow)

Sr#	Actor Action	Sr#	System Response
1	Cashier selects "Apply Promo Code" and enters the alphanumeric code.	1.a	System sends the code to the Promo Code Database for validation (existence, expiry, minimum purchase).
2	Promo Code Database confirms validity and benefit.	2.a	System applies the discount (e.g., 15% off, \$10 off).
		2.b	System updates the transaction total in the cart display.

Alternative Course of Action

Sr#	Alternative Actor Action	Sr#	System Response
2.b	Promo code requires a certain minimum purchase (e.g., "\$50 minimum").	2.b	System displays "Promo Code requires minimum purchase of \$X" and holds the application until the criteria are met.

Exceptions

Exception Name	Description
Invalid/Expired Code	System displays "Invalid or Expired Promo Code." Cashier is prompted to check the code or contact the Manager.
Usage Limit Exceeded	If the code is single-use and already consumed, the System displays "Code already used or daily limit reached."

11. Reverse Payments

Field	Value
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Identifier	UC-41
Name	Reverse Payments
Purpose	To reverse or void a payment that was previously authorized or completed, typically due to a payment failure, customer cancellation, or system error, before the entire sales transaction is finalized.
Priority	High
Actors	Cashier (Primary), Payment Gateway, Bank System
Pre-conditions	1. A payment attempt (UC-34 or UC-37) has been initiated and recorded (Authorized or Pending Settlement). 2. The main transaction (UC-31) has NOT been finalized.
Post-conditions	1. The payment record is voided or reversed in the POS. 2. A reversal request is sent to the Payment Gateway/Bank System. 3. The transaction status is reset to "Awaiting Payment."

Typical Course of Action (Primary Flow)

Sr#	Actor Action	Sr#	System Response
1	Cashier selects "Reverse Last Payment" during UC-34 exception handling.	1.a	System retrieves the last successful payment record's authorization ID.
2	System sends a VOID or REVERSE request to the Payment Gateway using the ID.	2.a	Payment Gateway confirms the reversal.
3	System logs the reversal and removes the payment from the transaction history.	3.a	System updates the transaction status to "Awaiting Payment."
		3.b	System displays the full, unreduced amount due to the Cashier.

Alternative Course of Action

Sr#	Alternative Actor Action	Sr#	System Response
1.b	Cashier requests reversal of a payment that has already settled	1.b	System informs Cashier this requires a full Refund (UC-32) and cannot be

	(post-finalization).		reversed.
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Exceptions

Exception Name	Description
Reversal Failure	Payment Gateway returns an error (e.g., VOID time limit expired). System displays "Reversal Failed." Cashier must call the Manager and note the failure for manual settlement.

12. Generate Customer Analytics

Field	Value
Identifier	UC-42
Name	Generate Customer Analytics
Purpose	To process historical sales data and loyalty information to provide insights on customer purchasing trends, top customers, and loyalty program performance.
Priority	Low
Actors	Manager (Primary), Analytics Subsystem
Pre-conditions	1. Manager is successfully authenticated (UC-39). 2. Historical transaction and loyalty data are available.
Post-conditions	1. Visual dashboards or summarized data reports are generated and displayed.

Typical Course of Action (Primary Flow)

Sr#	Actor Action	Sr#	System Response
1	Manager selects "Customer	1.a	System loads the pre-configured

	Analytics" from the back-office menu.		analytics dashboard.
2	Manager selects a specific metric (e.g., "Top 10 Customers by Revenue") and a date range.	2.a	System queries the Analytics Subsystem and generates the requested visual (chart or graph).
3	Manager reviews the data and selects a different metric.	3.a	System updates the display with the new metric visualization.

Alternative Course of Action

Sr#	Alternative Actor Action	Sr#	System Response
2.b	Manager requests a drill-down into a customer's specific purchase history.	2.b	System displays a detailed list of transactions for that customer.

Exceptions

Exception Name	Description
Analytics System Offline	System displays "Analytics Engine Unavailable." Manager is advised to try again later.

13. Auto-Update Inventory

Field	Value
Identifier	UC-43
Name	Auto-Update Inventory
Purpose	To automatically adjust stock levels in the Inventory System immediately following the successful completion of a sales or refund transaction.
Priority	High
Actors	System (Primary), Inventory System

Pre-conditions	1. A sales transaction (UC-31) is paid and finalized OR a refund transaction (UC-32) is processed.
Post-conditions	1. Inventory levels in the Inventory System are accurately adjusted. 2. A log entry is created detailing the inventory change.

Typical Course of Action (Primary Flow)

Sr#	Actor Action	Sr#	System Response
1	Sales Transaction (UC-31) successfully completes. System identifies items sold (X) and their quantities (Q).	1.a	System sends an inventory DECREMENT request for X by Q to the Inventory System.
2	Inventory System processes the request.	2.a	Inventory System confirms the successful adjustment to the POS system.

Alternative Course of Action

Sr#	Alternative Actor Action	Sr#	System Response
1.b	Refund Transaction (UC-32) successfully completes. System identifies items returned (Y) and their quantities (R).	1.b	System sends an inventory INCREMENT request for Y by R to the Inventory System.
2.b	Inventory System processes the request.	2.b	Inventory System confirms the successful adjustment to the POS system.

Exceptions

Exception Name	Description
Update Conflict/Failure	Inventory System returns a database error (e.g., record lock or integrity violation). System retries the update a maximum of three times, then creates a critical manual adjustment alert for the Manager.

Abdullah Ihtasham

Identifier		AI-1
Name		Generate Tax & Financial Report
Description		Manager generates a summary of sales, taxes, and revenue for a specific period.
Priority		High
Actors		Staff
Pre-condition(s)		The Staff member is logged-in to the system
Post-condition(s)		A financial report is displayed/printed.
Typical Course of Action		
S#	Actor Action	System Response
1	User clicks on the “Reports” Tab.	System displays Report Dashboard
2	User clicks on “Financial Reports” button.	System shows a preview of total sales and tax for the period.
3	User selects start date in date selector.	Start date gets selected. Report gets updated accordingly.
4	User selects end date in date selector.	End date gets selected. Report gets updated accordingly.
5	User clicks on “Generate Report” button.	System processes data creates a detailed report and displays it with options to "Print" as a PDF.
Alternate Course(s) of Action		
4a	User selects date range that has no sales data.	System displays “No data found” message.
5a		System may unexpectedly fail to process or generate report and show an error screen.

Identifier	AI-2
Name	Generate Sales Report
Description	Manager creates a summary of sales performance for a selected time period.
Priority	High

Actors		Staff
Pre-condition(s)		The Staff member is logged-in to the system
Post-condition(s)		A sales report is displayed/printed.
Typical Course of Action		
S#	Actor Action	System Response
1	User clicks on the “Reports” Tab.	System displays Report Dashboard
2	User clicks on “Sales Reports” button.	System shows a preview of total sales for the period.
3	User selects start date in date selector.	Start date gets selected. Report gets updated accordingly.
4	User selects end date in date selector.	End date gets selected. Report gets updated accordingly.
5	User clicks on “Generate Report” button.	System processes data creates a detailed report and displays it with options to "Print" as a PDF.
Alternate Course(s) of Action		
4a	User selects date range that has no sales data.	System displays “No data found” message.
5a		System may unexpectedly fail to process or generate report and show an error screen.

Identifier	AI-3	
Name	Generate Employee Performance Report	
Description	Manager generates a report showing sales performance and metrics for employees.	
Priority	Medium	
Actors	Staff	
Pre-condition(s)	The Staff member is logged-in to the system	
Post-condition(s)	A financial report is displayed/printed of the specific employee.	
Typical Course of Action		
S#	Actor Action	System Response
1	User clicks on the “Reports” Tab.	System displays Report Dashboard
2	User clicks on “Employees Performance” button.	System shows list of employees ranked by sales.

3	User selects an Employee.	The selected Employee's Information is displayed.
4	User selects start date in date selector.	Start date gets selected. Report gets updated accordingly.
5	User selects end date in date selector.	End date gets selected. Report gets updated accordingly.
6	User clicks on "Generate Report" button.	System processes data creates a detailed report and displays it with options to "Print" as a PDF.
Alternate Course(s) of Action		
2a		System shows No Employees Message.
4a		System displays "No data found" message.
6a		System may unexpectedly fail to process or generate report and show an error screen.

Identifier	AI-4	
Name	Approve Discount/Void	
Description	Cashier applies a discount to a sale or voids the entire transaction for a customer.	
Priority	High	
Actors	Staff or Cashier	
Pre-condition(s)	The Staff member or Cashier is logged-in to the system. System must have an active transaction being created.	
Post-condition(s)	A transaction gets discount applied or voided	
Typical Course of Action		
S#	Actor Action	System Response
1	User clicks on the “Check for Discounts” Button on the Transaction screen.	System asks with a dialog box having list of apply-able discounts on active transaction and asking user to enter a discount code if required or click on Finish.
2	User enters code clicks on “Finish”	If code is valid the corresponding discount is added to the list. The list of apply-able discounts with “Apply” “Void” buttons are displayed.

3	User clicks on “Apply” for a discount.	Transaction details get updated by adding discount in.
Alternate Course(s) of Action		
2a	The User enters invalid code	System shows a invalid code message and goes back to the enter code dialog box.
3a	User clicks on “Void Discount” button.	System removes that discount from the list

Identifier	AI-5	
Name	Reconcile Cash Drawer	
Description	The system automatically keeps track of the current amount of physical cash in the drawer.	
Priority	Medium	
Actors	System	
Pre-condition(s)	A transaction is made.	
Post-condition(s)	After any transaction, cash amount is updated.	
Typical Course of Action		
S#	Actor Action	System Response
1		System checks the details of the transaction just made (payment method, cash given, change given back).
2		System updates the Cash Amount accordingly.
Alternate Course(s) of Action		
2a		If there is some mismatch between the transaction and Cash present in system at the time of transaction, the System prompts the cashier to manually enter the correct amount of cash present if they want to keep performing this usecase effectively.

Identifier	AI-6
Name	Generate End-of-Day Report

Description		Manager or cashier generates a summary of the day's financial activity to close out the business day.
Priority		High
Actors		Staff or Cashier
Pre-condition(s)		The Staff member or Cashier is logged-in to the system
Post-condition(s)		A end-of-day report is displayed/printed.
Typical Course of Action		
S#	Actor Action	System Response
1	User clicks on the “Reports” Tab.	System displays Report Dashboard
2	User clicks on “End of Day Report” button.	System shows a detailed report of all day’s information like transactions, discounts added/removed, members added/removed, stock status. With a “Print as PDF” button.
Alternate Course(s) of Action		
3a	User clicks on “Print as PDF” button	System displays Printing dialog box of the Operating System.

Identifier	AI-7	
Name	Manage User Roles	
Description	Administrator assigns or updates system access permissions for employees.	
Priority	Medium	
Actors	Admin	
Pre-condition(s)	The Admin is logged-in to the system	
Post-condition(s)	Selected Member’s Role gets updated to the selected Role.	
Typical Course of Action		
S#	Actor Action	System Response
1	User clicks on the “User Management” Tab.	System displays Users Dashboard with list of all employees.
2	User clicks on Selects an employee from the list	System shows a list of Roles.
3	User selects a role.	System shows a “Confirm” button.
4	User clicks on “Confirm” button.	System updates the User’s Role.

Alternate Course(s) of Action		

Identifier	AI-8
Name	Generate Cashier Performance Report
Description	Staff member generates a report showing sales performance and metrics for a Cashier.
Priority	Medium
Actors	Staff
Pre-condition(s)	The Staff member is logged-in to the system
Post-condition(s)	A financial report of a specific Cashier is displayed/printed.

Typical Course of Action		
S#	Actor Action	System Response
1	User clicks on the “Reports” Tab.	System displays Report Dashboard
2	User clicks on “Employees Performance” button.	System shows list of employees ranked by sales.
3	User selects a Cashier.	The selected Cashier’s Information is displayed.
4	User selects start date in date selector.	Start date gets selected. Report gets updated accordingly.
5	User selects end date in date selector.	End date gets selected. Report gets updated accordingly.
6	User clicks on “Generate Report” button.	System processes data creates a detailed report and displays it with options to "Print" as a PDF.

Alternate Course(s) of Action		
2a		System shows No Employees Message.
4a		System displays “No data found” message.
6a		System may unexpectedly fail to process or generate report and show an error screen.

Identifier	AI-9
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Name		Generate Product Performance Report
Description		Manager generates a report analyzing the sales performance of products.
Priority		High
Actors		Staff
Pre-condition(s)		The Staff member is logged-in to the system
Post-condition(s)		A financial report of a specific Product is displayed/printed.
Typical Course of Action		
S#	Actor Action	System Response
1	User clicks on the “Reports” Tab.	System displays Report Dashboard
2	User clicks on “Products” button.	System shows list of Products.
3	User selects a Product.	The selected Product’s Information is displayed.
4	User selects start date in date selector.	Start date gets selected. Report gets updated accordingly.
5	User selects end date in date selector.	End date gets selected. Report gets updated accordingly.
6	User clicks on “Generate Report” button.	System processes data creates a detailed report and displays it with options to "Print" as a PDF.
Alternate Course(s) of Action		
2a		System shows No Products Message.
4a		System displays “No data found” message.
6a		System may unexpectedly fail to process or generate report and show an error screen.

Identifier	AI-10
Name	Notify Low Stock
Description	The system automatically alerts the manager when product inventory falls below a set threshold.
Priority	High
Actors	System
Pre-condition(s)	Products have a defined low-stock amount and system is running

Post-condition(s)		A low-stock item alert is generated
Typical Course of Action		
S#	Actor Action	System Response
1		System checks products quantities in inventory for low stock products after any inventory related action.
2		System generates alert for all low-stock items.
Alternate Course(s) of Action		
2a		All products are present above low-stock amount so System does nothing.

Maryam Amanat

Register Customer Profile

Identifier	UC-21
Description	Allows cashier or user to create a new customer profile by entering name, contact number, and email.
Priority	High
Actors	Cashier / System User
Pre-conditions	User should be logged into the POS system.
Post-conditions	Customer profile successfully created and stored.

Typical Course of Action:

S#	Actor Action	System Response
1	Click 'Register Customer'.	Form is displayed.
2	Enter name, contact, and email.	System validates fields.
3	Press Save.	System stores data and confirms success.

Alternate Course of Action:

S#	Actor Action	System Response
1a	Missing required field	System shows 'Field missing'.
2a	Invalid email	System shows 'Enter valid email'.

Update Customer Profile

Identifier	UC-22
Description	Allows cashier to update existing customer details like contact number or address.
Priority	Medium
Actors	Cashier / System User
Pre-conditions	Customer must exist in the system.
Post-conditions	Updated information is saved successfully.

Typical Course of Action:

S#	Actor Action	System Response
1	Search customer by name or contact.	Matching record displayed.
2	Edit details and click 'Save Changes'.	System updates information.

Alternate Course of Action:

S#	Actor Action	System Response
1a	No record found	'Customer not found'.
2a	Invalid input	'Invalid data'.

Track Purchase History

Identifier	UC-23
Description	Allows user to view a customer's previous transactions for reference or service purposes.
Priority	Medium
Actors	Cashier / Manager
Pre-conditions	Customer must be registered.
Post-conditions	Purchase history displayed.

Typical Course of Action:

S#	Actor Action	System Response
1	Open 'Purchase History'.	System prompts for ID.
2	Enter customer ID or contact.	System retrieves history.
3	View details.	System displays all purchases.

Alternate Course of Action:

S#	Actor Action	System Response
1a	No records found	'No history available'.

Track Loyalty Program

Identifier	UC-24
Description	Allows user to view customer's loyalty points and redemption history.
Priority	Medium
Actors	Cashier / Manager
Pre-conditions	Customer must be enrolled in loyalty program.
Post-conditions	Loyalty program details displayed.

Typical Course of Action:

S#	Actor Action	System Response
1	Open 'Loyalty Program'.	System prompts for search.
2	Enter customer ID.	System retrieves loyalty data.

Alternate Course of Action:

S#	Actor Action	System Response
1a	Customer not enrolled	'Not part of program'.

Redeem Loyalty Points

Identifier	UC-25
Description	Allows cashier to redeem customer's loyalty points for discounts or rewards.
Priority	High
Actors	Cashier
Pre-conditions	Customer must have sufficient points.
Post-conditions	Points redeemed and updated.

Typical Course of Action:

S#	Actor Action	System Response
1	Open 'Redeem Points'.	System shows available points.
2	Enter redemption amount.	System validates points.
3	Confirm redemption.	System applies discount.

Alternate Course of Action:

S#	Actor Action	System Response
1a	Insufficient points	'Not enough points'.
2a	Cancelled	No change.

Start/End Shift

Identifier	UC-26
Description	Allows cashier to start or end their shift with timestamps for reports.
Priority	High
Actors	Cashier
Pre-conditions	User must be logged in.
Post-conditions	Shift data saved and summarized.

Typical Course of Action:

S#	Actor Action	System Response
1	Select 'Start Shift'.	System records start time.
2	Perform transactions.	System logs activities.
3	Select 'End Shift'.	System generates shift summary.

Alternate Course of Action:

S#	Actor Action	System Response
1a	Log fail	'Unable to start shift'.
2a	Connection lost	System retries.

Log User Activity

Identifier	UC-27
Description	Logs all cashier actions for accountability and security purposes.
Priority	High
Actors	System
Pre-conditions	User is logged in and performing operations.
Post-conditions	Activity recorded successfully.

Typical Course of Action:

S#	Actor Action	System Response
1	Cashier performs an action.	System records timestamp and user ID.
2	Manager views activity log.	System displays records.

Alternate Course of Action:

S#	Actor Action	System Response
1a	Log storage full	'Clear log space'.

Scan Barcode

Identifier	UC-28
Description	Allows cashier to scan product barcode to identify product instantly during checkout.
Priority	High
Actors	Cashier
Pre-conditions	Scanner must be connected and functional.
Post-conditions	Item details appear in cart automatically.

Typical Course of Action:

S#	Actor Action	System Response
1	Scan barcode.	System reads and verifies code.
2	System fetches product info.	Price and details displayed.

Alternate Course of Action:

S#	Actor Action	System Response
1a	Invalid barcode	'Item not found'.
2a	Scanner error	'Scanner not responding'.

Generate Digital Receipt

Identifier	UC-29
Description	Allows system to generate and send a digital receipt to customer via email or SMS after purchase.
Priority	High
Actors	System / Cashier
Pre-conditions	Transaction must be completed successfully.
Post-conditions	Digital receipt generated and sent.

Typical Course of Action:

S#	Actor Action	System Response
1	Complete checkout process.	System generates receipt.
2	Select 'Send via Email/SMS'.	Receipt delivered digitally.

Alternate Course of Action:

S#	Actor Action	System Response
1a	Email/SMS not configured	'Unable to send receipt'.

Add Receipt

Identifier	UC-30
Description	Allows cashier to manually add or attach a receipt to a specific transaction record.
Priority	Medium
Actors	Cashier
Pre-conditions	Transaction record exists in the system.
Post-conditions	Receipt attached successfully.

Typical Course of Action:

S#	Actor Action	System Response
1	Open transaction details.	System displays options.
2	Upload or attach receipt.	System validates and saves.

Alternate Course of Action:

S#	Actor Action	System Response
1a	Invalid file format	'Upload failed'.

Ahsan Naveed

Participant 2:(ahsan)

Check Stock Availability

Identifier	UC-11
Actors	Cashier, Store Manager, Inventory Manager
Purpose	To verify the current stock level of a product before processing a sale or placing an order
Priority	High
Pre-conditions	Authenticate User Scan Barcode Auto-Update Inventory
Post-conditions	Restrict Out-of-Stock Sale Log User Activity Notify Low Stock

Typical Course of Action

Actor

1. User selects "Check Stock" option
2. User enters product ID or scans barcode

System

- 1.a System displays stock inquiry interface
- 2.a System validates product ID
- 2.b System retrieves stock quantity from database
- 2.c System displays stock level and location
- 3.a System logs stock check activity

Alternative Course of Action

Actor

- 2.a User adds invalid productID
- 2.b User enters product name instead
- 2.c User selects product from list

System

- 2.a.1 System finds no matching product
- 2.a.2 System displays "Product not found" error
- 2.b.1 System searches by name
- 2.b.2 System displays list of matching products
- 2.c.1 System loads selected product details
- 2.c.2 System displays stock information

Exceptions

- E1: Database connection failure - System displays error message and suggests retry
- E2: User lacks permission - System denies access and displays authorization error

Backup & Restore Data

Identifier

UC-12

Actors

System Administrator, Database Manager

Purpose	To create backup copies of system data and restore data from backups when needed
Priority	Critical
Pre-conditions	Authenticate User Manage User Roles
Post-conditions	Generate End-of-Day Report Log User Activity

Typical Course of Action

Actor	System
1. Administrator selects "Backup & Restore" option	1.a System displays backup interface
2. Administrator clicks "Create Backup" button	2.a System checks available storage space 2.b System initiates backup process 2.c System backs up database and files 2.d System generates timestamped backup file 2.e System displays success message
3. Administrator confirms completion	3.a System logs backup operation

Alternative Course of Action

Actor	System
2.a Administrator clicks "Restore Data" button	2.a.1 System displays available backup files
2.b Administrator selects backup file	2.b.1 System validates file integrity 2.b.2 System displays confirmation warning
2.c Administrator confirms restore	2.c.1 System restores data from backup 2.c.2 System verifies restored data 2.c.3 System displays completion message

Exceptions

E1: Insufficient storage space - System displays error and suggests cleanup or external storage

E2: Backup file corrupted during restore - System displays error and suggests alternate backup

E3: Restore operation interrupted - System rolls back to previous state

Audit Trail Management

Identifier	UC-13
Actors	System Administrator, Auditor, Manager
Purpose	To track and review all system activities and user actions for security and compliance purposes
Priority	High
Pre-conditions	Authenticate User Manage User Roles
Post-conditions	Generate Employee Performance report Generate Customer Analytics Log User Activity

Typical Course of Action

Actor	System
1. User selects "Audit Trail" option	1.a System opens audit interface
2. User enters search criteria	2.a System validates search parameters
3. User clicks "Search" button	3.a System queries audit database 3.b System retrieves matching records 3.c System displays audit log entries
4. User reviews audit information	4.a System logs audit access

Alternative Course of Action

Actor	System
4.a User clicks on specific entry	4.a.1 System displays detailed record
4.b User clicks "Export" button	4.b.1 System displays format options
4.c User selects export format	4.c.1 System generates export file 4.c.2 System provides download link

Exceptions

E1: No records found for specified criteria - System displays "No records found" message

E2: Export file generation fails - System displays error and suggests retry

E3: Audit log database inaccessible - System displays error message

Link Sale to Restocking

Identifier	UC-14
Actors	System (automated), Inventory Manager
Purpose	To automatically trigger restocking process when sales reduce inventory below reorder point
Priority	Medium
Pre-conditions	Auto-Update Inventory Process Sales Transaction Notify Low Stock
Post-conditions	Generate Inventory Report Notify Low Stock Auto-Update Inventory

Typical Course of Action

Actor	System
-------	--------

- | | |
|--|--|
| 1. System detects completed sale transaction | 1.a System updates inventory quantities

1.b System checks reorder thresholds

1.c System identifies low-stock items

1.d System generates restocking alert

1.e System notifies Inventory Manager |
| 2. Inventory Manager reviews alert | 2.a System displays alert details |

Alternative Course ofAction

Actor	System
1.b System to check reorder Thresholds	1.b.1 System finds no items below threshold
1.c system to identify a Low stock item	1.b.2 System completes inventory update only 1.c.1 System detects automatic ordering enabled 1.c.2 System creates supplier order automatically 1.c.3 System sends confirmation to manager

Exceptions

- E1: Supplier information not available - System flags alert for manual review
- E2: Multiple concurrent sales - System queues inventory updates and processes sequentially
- E3: Notification delivery fails - System retries and logs failure

Search Customer

Identifier	UC-15
Actors	Cashier, Store Manager, Customer Service Representative

Purpose	To find customer information using various search criteria for processing transactions or viewing purchase history
Priority	High
Pre-conditions	Authenticate User Register Customer Profile
Post-conditions	Update Customer Profile Track Purchase History Track Loyalty Program

Typical Course of Action

Actor	System
1. User selects "Search Customer" option	1.a System displays customer search interface
2. User enters search criteria	2.a System validates input format
3. User clicks "Search" button	3.a System queries customer database 3.b System retrieves matching customers 3.c System displays customer results
4. User selects customer	4.a System loads full customer profile 4.b System logs search activity

Alternative Course of Action

Actor	System
3.a Requesting system to access a customer database info	3.a.1 System finds no matching customers 3.a.2 System displays "No customers found"
3.b User enters partial name	3.b.1 System performs fuzzy search 3.b.2 System displays multiple matches
4.a User scans loyalty card	4.a.1 System retrieves customer by card ID

4.a.2 System displays customer profile

Exceptions

E1: Database connection error - System displays error and suggests retry

E2: Invalid search format - System highlights incorrect field and shows format example

E3: Multiple exact matches - System displays all matches for user selection

Configure System Setting

Identifier	UC-16
Actors	System Administrator
Purpose	To modify system-wide settings and configurations for POS operations
Priority	Medium
Pre-conditions	Authenticate User Manage User Roles
Post-conditions	Log User Activity Generate End-of-Day Report

Typical Course of Action

Actor	System
1. Administrator selects "System Settings"	1.a System verifies admin privileges 1.b System displays settings interface
2. Administrator selects category	2.a System loads category settings
3. Administrator modifies values	3.a System validates input values
4. Administrator clicks "Save"	4.a System updates configuration 4.b System logs changes 4.c System displays success message

Alternative Course of Action

Actor

4.c Requesting system and system displays a success message

System

4.c.1 System detects restart required

4.c.2 System prompts for restart

4.a Administrator clicks "Restart Now"

4.a.1 System restarts with new settings

4.b Administrator clicks "Cancel"

4.b.1 System discards unsaved changes

Exceptions

E1: Invalid setting value - System displays validation error with acceptable range

E2: Configuration file corrupted - System loads backup configuration

E3: Insufficient permissions - System denies access to restricted settings

Manage Supplier Returns

Identifier UC-17

Actors Inventory Manager, Store Manager

Purpose To process return of defective or excess inventory to suppliers

Priority Medium

Pre-conditions Authenticate User
Process Refund
Auto-Update Inventory

Post-conditions Generate Inventory Report
Reverse Payments
Notify Low Stock
.

Typical Course of Action

Actor

1. User selects "Supplier Returns" option

System

1.a System displays return form

- | | |
|---|---|
| 2. User enters purchase order number | 2.a System validates PO exists |
| | 2.b System retrieves PO details |
| 3. User selects items to return | 3.a System validates items are returnable |
| 4. User enters return quantities and reason | 4.a System validates quantities |
| 5. User clicks "Process Return" | 5.a System generates RMA number |
| | 5.b System updates inventory |
| | 5.c System notifies supplier |
| | 5.d System displays confirmation |

Alternative Course of Action

Actor

System

- | | |
|--|--|
| 4.a requesting system to validate quantities | 4.a.1 System detects quantity exceeds received |
| | 4.a.2 System displays error message |
| 5.a User clicks "Save as Draft" | 5.a.1 System saves return as draft |
| | 5.a.2 System does not update inventory |

Exceptions

E1: Supplier does not accept returns - System displays policy restriction and suggests contact

E2: Return window expired - System displays expiration notice and requires manager approval

E3: Items cannot be located in inventory - System flags discrepancy for investigation

Place Supplier Order

Identifier UC-18

Actors Inventory Manager, Store Manager, Purchasing Officer

Purpose To create and submit purchase orders to suppliers for inventory restocking

Priority High

Pre-conditions Authenticate User
Auto-Update Inventory
Generate Inventory Report

Post-conditions Notify Low Stock
Generate Product Performance Report

Typical Course of Action

Actor	System
1. User selects "Place Supplier Order"	1.a System displays order form
2. User selects supplier	2.a System loads supplier catalog 2.b System displays available products
3. User selects products and quantities	3.a System validates minimum order quantity 3.b System calculates order total
4. User enters delivery date	4.a System validates future date
5. User clicks "Submit Order"	5.a System generates PO number 5.b System sends order to supplier 5.c System updates expected inventory 5.d System displays order confirmation

Alternative Course of Action

Actor	System
3.a User clicks "Add from Template"	3.a.1 System displays saved order templates
3.b User selects template	3.b.1 System populates order from template
5.a User clicks "Save as Draft"	5.a.1 System saves order without submitting

Exceptions

E1: Supplier unavailable - System displays error and suggests alternative supplier

E2: Order below minimum - System displays minimum order requirement

E3: Invalid delivery date - System displays acceptable date range

Receive Goods/ Stock In

Identifier	UC-19
Actors	Receiving Clerk, Inventory Manager, Warehouse Staff
Purpose	To record receipt of goods from suppliers and update inventory accordingly
Priority	High
Pre-conditions	Authenticate User Auto-Update Inventory
Post-conditions	Generate Inventory Report Notify Low Stock Log User Activity

Typical Course of Action

Actor	System
1. User selects "Receive Goods" option	1.a System displays receiving interface
2. User enters purchase order number	2.a System retrieves PO details 2.b System displays expected items
3. User scans or enters received items	3.a System matches items to PO
4. User enters received quantities	4.a System validates quantities 4.b System flags discrepancies
5. User confirms receipt	5.a System updates inventory levels 5.b System updates PO status 5.c System generates receipt document

5.d System logs receiving activity

Alternative Course of Action

Actor

4.b User requests system flags discrepancies

4.a User enters reason for discrepancy

5.a User marks items as damaged

System

4.b.1 System detects quantity mismatch

4.b.2 System highlights discrepancy

4.a.1 System records discrepancy note

5.a.1 System creates quality issue report

5.a.2 System adjusts usable inventory

Exceptions

E1: PO not found - System displays error and suggests verification

E2: Items not on PO - System requires manager approval to receive

E3: Duplicate receipt attempt - System displays warning and previous receipt details

Receive Promotions / Offers

Identifier UC-20

Actors Customer, Cashier, Marketing System

Purpose To allow customers to receive and view available promotional offers and deals

Priority Medium

Pre-conditions Register Customer Profile
Track Loyalty Program
Apply Promo Codes

Post-conditions Redeem Loyalty Points
Update Customer Profile

Track Purchase History

Typical Course of Action

Actor

1. Customer provides phone or email
2. Customer opts in for promotions
3. Customer views offers

System

- 1.a System validates contact information
- 1.b System retrieves active promotions
- 1.c System checks customer eligibility
- 2.a System records customer preference
- 2.b System sends current promotions
- 2.c System displays promotion details
- 3.a System logs promotion view

Alternative Course of Action

Actor

- 1.c User requests system to check customer eligibility
- 2.a Cashier scans loyalty card
- 3.a Customer selects specific offer

System

- 1.c.1 System finds personalized offers
- 1.c.2 System prioritizes targeted promotions
- 2.a.1 System retrieves customer profile
- 2.a.2 System displays applicable offers
- 3.a.1 System marks offer for redemption
- 3.a.2 System applies discount code

Exceptions

E1: No active promotions available - System displays "No current offers" message

E2: Customer already received promotion - System displays "Offer already sent"

E3: Invalid contact information - System requests correct details