

Process Sale (Fully Dressed) Use case Description

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Unnumber: POS-US0001

Usecase name: Process Sale

Overview: Cashier process the sale of the items that customer wants to purchase or return via the POS machine

Primary actor: Cashier

Stakeholders and Interests:

- **Cashier:** Wants accurate, fast entry, and no payment errors, as cash drawer shortages are deducted from his/her salary
- **Salesperson:** Wants sales commission updated
- **Customer:** Wants purchase and fast service with minimal effort. Wants easily visible display of entered items and prices. Wants proof of purchase to support returns.
- **Company:** Wants to accurately record transactions and satisfy customer interests. Wants to ensure that Payment authorization service payment receivables are recorded. Wants some fault tolerance to allow sales capture even if server components (e.g., remote credit validation) are unavailable. Wants automatic and fast update of accounting and inventory
- **Manager:** Wants to be able to quickly perform override operations, and easily debug Cashier problems.
- **Government Tax Agencies:** Want to collect tax from every sale.
- **Payment Authorization Service:** Wants to receive digital authorization requests in the correct format and protocol. Wants to accurately account for their payables to the store
- **IT support:** Ensure system update, security, reliability
- **Inventory Manager:** Ensure stock is updated in the system.
- **Finance and market analysts:** Access sales data for learning customer preferences.
- **Bank:** Processes transactions and ensures secure payment, manages transactions between store and accounts.
- **Store Owner:** Keeps a check on sales and revenue and acts as needed in front of stakeholders.
- **Guard:** Checks if the customer leaving with the goods as mentioned in receipt.

Preconditions: Cashier is identified and authenticated

Postconditions: Sale is saved. Tax is correctly calculated. Accounting and inventory are updated. Commissions recorded. Receipt is generated. Payment authorizations approvals are recorded.

Main Flow:

1. Customer arrives at POS checkout with goods and/or services to purchase.
2. Cashier starts a new sale.
3. Cashier enters item identifier.
4. System records sales line item and presents item description, price, and running total. Price calculated from a set of price rules.
<Cashier repeats steps 3-4 until indicates done>
5. System presents total with taxes calculated.
6. Cashier tells Customer the total, requests payment.
7. Customer pays and System handles payment.
8. System logs completed sale and sends sale and payment information to the external Accounting System and Inventory System.
9. System presents receipt.

10. Customer leaves with receipt and goods (if any).

Alternate Flows:

*a. At any time, Manager requests an override operation:

1. System enters Manager-authorized mode
2. Manager or Cashier performs one Manager-mode operation, e. g., void a sale, resume suspended sale on another register, etc.
3. System reverts to Cashier-authorized mode

*b. At any time, System fails:

To support recovery and correct accounting, ensure all transaction sensitive state and events can be recovered from any step of the scenario.

1. Cashier restarts System, logs in, and requests recovery of prior state
2. System reconstructs prior state
 - 2a. System detects anomalies preventing recovery:
 1. System signals error to the Cashier, records the error, and enters a clean state
 2. Cashier starts a new sale

1a. Customer or Manager indicate to resume a suspended sale

1. Cashier performs resume operation, and enters the ID to retrieve the sale
2. System displays the state of the resumed sale, with subtotal
 - 2a. Sale not found.
 1. System signals error to the Cashier
 2. Cashier probably starts new sale and re-enters all items.

3. Cashier continues with sale (probably entering more items or handling payment).

3a. Invalid item (not found in system)

1. System signals error and rejects entry
2. Cashier responds to the error:
 - 2a. There is a human-readable item ID (e.g., a numeric UPC):
 1. Cashier manually enters the item ID
 2. System displays description and price
 - 2a. Invalid item ID: System signals error. Cashier tried alternate method
 - 2b. There is no item ID, but there is a price on the tag:
 1. Cashier asks Manager to perform an override operation
 2. Manager performs override
 3. Cashier indicates manual price entry, enters price, and requests standard taxation for this amount (because there is no product information, the tax engine can't other deduce how to tax it)
 - 2c. Cashier performs Find product help to obtain true item ID and price

3b. There are multiple of same item category and tracking unique item identity not important (e.g. 5 packages of chips)

1. Cashier can enter item category identifier and quantity

3-6a. Customer asks Cashier to remove (i.e., void) an item from the purchase

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3-6b. Customer asks Cashier to cancel the sale

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6a. Customer presents store credit after total has been calculated

1. Cashier checks the credit validity.

- 1a. If valid
 - 1. Cashier goes back to step 5
 - 2. reduces the credit amount from the total
 - 3. Generates and requests an updated total from the customer.
- 1b. If credit is invalid
 - 1. Cashier informs the customer about the invalidity of the credit.
 - 2. continues the process flow as needed.

6b. Payment request fails (eg. doesn't show QR)

9a. System fails to print a receipt

8a. Inventory doesn't get updated

- 1. Cashier updates the inventory manager about the update in stock.
- 2. Inventory manager manually update the stock.

7a. System crashes during payment

7b. Customer side issue in payment

Special Requirements:

- Touch screen UI on 14 inch flat panel monitor. Text must be visible from 1 meter
- Credit authorization response within 30 seconds of the request 95% of the time
- ...

Technology and Data Variations:

3a. Item identifier entered by bar code laser scanner (if bar code is present) or keypad

3b. Item identifier may be any UPC, ASIN, EAN, JAN, or SKU coding scheme

7a. Credit payment captured via tap or pin code entry or both depending on the amount

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