**Five use cases:**

Process sales

Process rental

Handle Return

User management

System startup and down

(extra) have credit in their account

**Fully dressed cases:**

**Use Case Name: Process Sales**

**Primary Actor:** Cashier

**Stakeholders and Interests:**

1. Cashier: Wants accurate, fast entry, and correct payment, as cash drawer shortages are deducted from his/her salary.

2. Salesperson: Wants all sales commissions to be recorded.

3. Customer: Wants to put minimal effort to purchase the goods as fast as possible and has the proof of return.

4. Company: Wants to please customers and record the transactions correctly.

Wants to account for every transaction accurately. Wants updates on those account records including inventory and sales in time and some mistakes are allowed

5. Government Tax Agencies: Want to collect tax from every sale

6. Payment Authorization Service: Wants to receive digital authorization requests in the correct format and protocol. Wants to accurately record all payables to the store.

**Preconditions:** Cashier is authorized.

**Success Guarantee (Post conditions):** Sale is saved. Tax is correctly calculated.

Accounting and Inventory are updated. Commissions recorded. Invoice is generated.

Payment authorization approvals are recorded.

**Main Success Scenario (or Basic Flow):**

1. Customer gets to POS checkout with goods and/or services to purchase.

2. Cashier starts a new sale.

3. Cashier enters item identifier.

4. System records sale line item and displays item description, price, and subtotal on the screen. Keeping doing step 3-4 till there is no item left.

5. System displays total price with taxes calculated.

6. Cashier tells Customer the total, and asks for payment.

7. Customer pays (if cash, adds deposit) and System handles payment.

8. System logs completed sale and sends sale and payment information to the external accounting system (for accounting and commissions) and Inventory system (to update inventory).

9. System presents receipt.

10. Customer leaves with receipt and goods.

**Extensions (or Alternative Flows):**

a. System crashes at any time:

1. Cashier restarts the system, and the system recovers the prior transaction.

2. System reconstructs itself

2a. system detects errors in recovery

1. system reports error to cashier, records the error, and restart to clean state

2. Cashier starts a new transaction.

3a. invalid identifier:

1. System signals error and rejects entry

2. Cashier enters the entry manually

3-6a. customer asks for removing some item

1. Cashier removes the item by identifier

2. System recalculates the total amount

3-6b. customer asks for cancelling the sale

1. Cashier cancels the sale

4a. the price of item shown on the system is not consistent with shown on the item

1. Cashier asks manager

2. Manager confirms the price and corrects the price

3. System or the item presents a new price

5a. system is not able to calculate the tax

1. System signals error

2. Cashier calculates tax manually or cancel the sale

5b. customer claims that they are eligible for a discount

1. Cashier enters the customer id

2. System displays the discount amount under rules

5c. customer claims that they have credit in their account, to apply to the sale:

1. Cashier enter the customer id

2. System calculates the total after credit applied and present the new total and credit balance

6a. customer intends to pay by cash but does not have enough cash

1. Customer uses an alternate payment method.

2. Customer wants to cancel the sale and cashier does so

7a. Customer pay by cash:

1. Cashier enters the cash amount

2. System presents the total amount and releases the cash drawer

3. Cashier deposits the cash tendered and return the balance to customer

4. System records the transaction.

7b. Customer pay by credit:

1. Customer swipes the credit card

2. System send the authorization request to remote service system

2a. system fails to send the request

1. Cashier asks for alternate payment method.

3. The system receives the approval of the request and presents it to the cashier

3a. the system receives the denial of the request

1. Cashier asks for alternative payment method.

4. System presents the credit payment and the signature box

5. Cashier asks customer for signature.

7c. customer pay by check

1. Customer presents the check

2. Cashier takes the check, put it in the drawer and the system records the transaction

2a. check is invalid

1. Cashier asks for alternate payment method.

7d. customer pay by debit

1. Customer swipes the debit card

2. System send the authorization request to remote service system

2a. system fails to send the request

1. Cashier asks for alternate payment method.

3. The system receives the approval of the request and presents it to the cashier

3a. the system receives the denial of the request

1. Cashier asks for alternative payment method.

4. System presents the credit payment and the signature box

5. Cashier asks customer for signature.

7e. Customer presents coupons

1. Before payment, Cashier scans each coupon and System adjusts total balance as appropriate. System also records the used coupons

1a. Coupon is not for any purchased item

1. System signals error to Cashier

1b. Coupon is invalid

1. System signals error to Cashier

2. Cashier tells Customer and throws coupon away

9a. there are product rebates:

1. System presents the rebate form and receipt

9b. customer requests gift receipt

1. Cashier requests gift receipt and system presents it

9c. printer runs out of paper

1. System detects the fault and signals the problem

2. Cashier replaces paper

3. Printer prints another receipt

9d. printer runs out of ink

1. System detects the fault and signals the problem

2. Cashier replaces ink box

3. Printer prints another receipt

**Special Requirements:**

1. Touch screen Ul on a large flat panel monitor. Text must be visible from 1 meter.

2. Credit authorization response under 30 secs.

3. Fast recovery from remote system failing.

4. Language internationalization on the text displayed.

**Technology and Data Variations List:**

1. Item identifier entered by bar code laser scanner or keyboard.

2. Item identifier may be any UPC, EAN, JAN, or SKU coding scheme.

3. Credit account information entered by card reader or keyboard.

4. Credit payment signature captured on paper receipt and will soon captured digitally.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Use Case Name: Process Rental**

**Primary Actor:** Cashier

**Stakeholders and Interests:**

1. Cashier: Wants accurate, fast entry, and correct payment.

2. Salesperson: Wants all sales recorded for commission.

3. Customer: Wants to put minimal effort to rent goods quickly, receive receipt for return.

4. Company: Wants to please customers and record the transactions correctly. Wants updates on those account records including inventory and sales in time and some mistakes are allowed

5. Government: Want to collect tax from every sale

6. Payment Authorization Service: Wants to receive digital authorization requests in the correct format and protocol. Wants to accurately record all payables to the store.

**Preconditions:** Cashier is authorized.

**Success Guarantee (Postconditions):** Rental is logged and saved correctly. Inventory updated and timetable for rentals updated. Commissions for salespeople recorded. Invoice is generated.

Payment authorization approvals are recorded.

**Main Success Scenario (or Basic Flow):**

1. Customer gets to POS checkout with goods/service to rent.

2. Cashier starts a new rental.

3. Cashier enters item identifier.

4. Customer specifies length of time for rental.

5. System records rental line item and time and displays item description, price, and subtotal on the screen. Repeat 3-4 until no item left.

6. System displays total price with taxes calculated.

7. Cashier tells Customer the total, and asks for payment.

8. Customer pays and System handles payment.

9. System logs completed rental and sends inventory, payment, and time information to the external accounting system (for accounting and commissions) and Inventory system (to update inventory).

10. System presents receipt with return date listed.

11. Customer leaves with receipt and goods.

**Extensions (or Alternative Flows):**

a. System crashes:

1. Cashier restarts the system, and the system recovers the prior transaction.

2. System reconstructs itself

2a. system detects errors in recovery

1. system reports error to cashier, records the error, and restart to clean state

2. Cashier starts a new transaction.

3a. invalid identifier:

1. System signals error and rejects entry

2. Cashier enters the entry manually

3-6a. customer requests item removed some item

1. Cashier removes the item by identifier

2. System recalculates the total amount

3-6b. customer asks for cancelling the sale

1. Cashier cancels the sale

4a. the price of item shown on the system is not consistent with shown on the item

1. Cashier asks manager

2. Manager confirms the price and corrects the price

3. System or the item presents a new price

5a. system is not able to calculate the tax

1. System signals error

2. Cashier calculates tax manually or cancel the sale

5b. customer claims that they are eligible for a discount

1. Cashier enters the customer id

2. System displays the discount amount under rules

5c. customer claims that they have credit in their account, to apply to the sale:

1. Cashier enter the customer id

2. System calculates the total after credit applied and present the new total and credit balance

6a. customer intends to pay by cash but does not have enough cash

1. Customer uses an alternate payment method.

2. Customer wants to cancel the sale and cashier does so

7a. Customer pay by cash:

1. Cashier enters the cash amount

2. System presents the total amount and releases the cash drawer

3. Cashier deposits the cash tendered and return the balance to customer

4. System records the transaction.

7b. Customer pay by credit:

1. Customer swipes the credit card

2. System send the authorization request to remote service system

2a. system fails to send the request

1. Cashier asks for alternate payment method.

3. The system receives the approval of the request and presents it to the cashier

3a. the system receives the denial of the request

1. Cashier asks for alternative payment method.

4. System presents the credit payment and the signature box

5. Cashier asks customer for signature.

7c. customer pay by check

1. Customer presents the check

2. Cashier takes the check, put it in the drawer and the system records the transaction

2a. check is invalid

1. Cashier asks for alternate payment method.

7d. customer pay by debit

1. Customer swipes the debit card

2. System send the authorization request to remote service system

2a. system fails to send the request

1. Cashier asks for alternate payment method.

3. The system receives the approval of the request and presents it to the cashier

3a. the system receives the denial of the request

1. Cashier asks for alternative payment method.

4. System presents the credit payment and the signature box

5. Cashier asks customer for signature.

7e. Customer presents coupons

1. Before payment, Cashier scans each coupon and System adjusts total balance as appropriate. System also records the used coupons

1a. Coupon is not for any purchased item

1. System signals error to Cashier

1b. Coupon is invalid

1. System signals error to Cashier

2. Cashier tells Customer and throws coupon away

8a. Customer does not return rental

1. System charges Customer if paid by credit
2. System updates accounting with cash deposit from Customer

9a. there are product rebates:

1. System presents the rebate form and receipt

9b. customer requests gift receipt

1. Cashier requests gift receipt and system presents it

9c. printer runs out of paper

1. System detects the fault and signals the problem

2. Cashier replaces paper

3. Printer prints another receipt

9d. printer runs out of ink

1. System detects the fault and signals the problem

2. Cashier replaces ink box

3. Printer prints another receipt

**Special Requirements:**

1. Touch screen Ul on a large flat panel monitor. Text must be visible from 1 meter.

2. Credit authorization response under 30 secs.

3. Fast recovery from remote system failing.

4. Language internationalization on the text displayed.

**Technology and Data Variations List:**

1. Item identifier entered by bar code laser scanner or keyboard.

2. Item identifier may be any UPC, EAN, JAN, or SKU coding scheme.

3. Credit account information entered by card reader or keyboard.

4. Credit payment signature captured on paper receipt and will soon captured digitally.

Brief Cases:

**System startup and down**

Cashier startup the system at the beginning of their shift, log in to their account by entering their ID and password. System connects to the database for inventory checking. When cashier finishes their shift, system performs all outstanding actions, creates a log of sales report and count cash in the machine. Cashier logs out of the system, and shuts down the computer.

**Process Return**

A customer arrives with items to return. The cashier, using the Point of Sale system, records each returned item by their identifier. After all the items have been returned and recorded, the system presents a confirmation receipt to the customer. Customer leaves with the receipt.

**User Management**

System administrator logs in to the system by user id and password. If there is information about existing users to be modified, system administrator finds the user by entering user id and processes changes. If there are new user profiles to be added, system administrator creates new profile, enters information, and saves the profile. If there is profile to be deleted, system administrator finds the user by entering user id and deletes the profile. After modification, system administrator saves all the changes and logs out of the system.

**Customer Says They Have Credit in Their Account**

Customer arrives at point of sale checkout with goods and/or services to purchase. Cashier starts a new sale. Cashier records every purchased item and afterwards presents a running total to the Customer. Customer informs the Cashier that he has credit in his account, to apply to the sale. Cashier signals credit request. Cashier enters Customer identification. System applies credits up to running total equals to 0, and reduces the remaining credit in the Customer’s account. If necessary, the Customer pays the rest with one of the choices of payment available. Customer leaves with receipt and goods (if any).