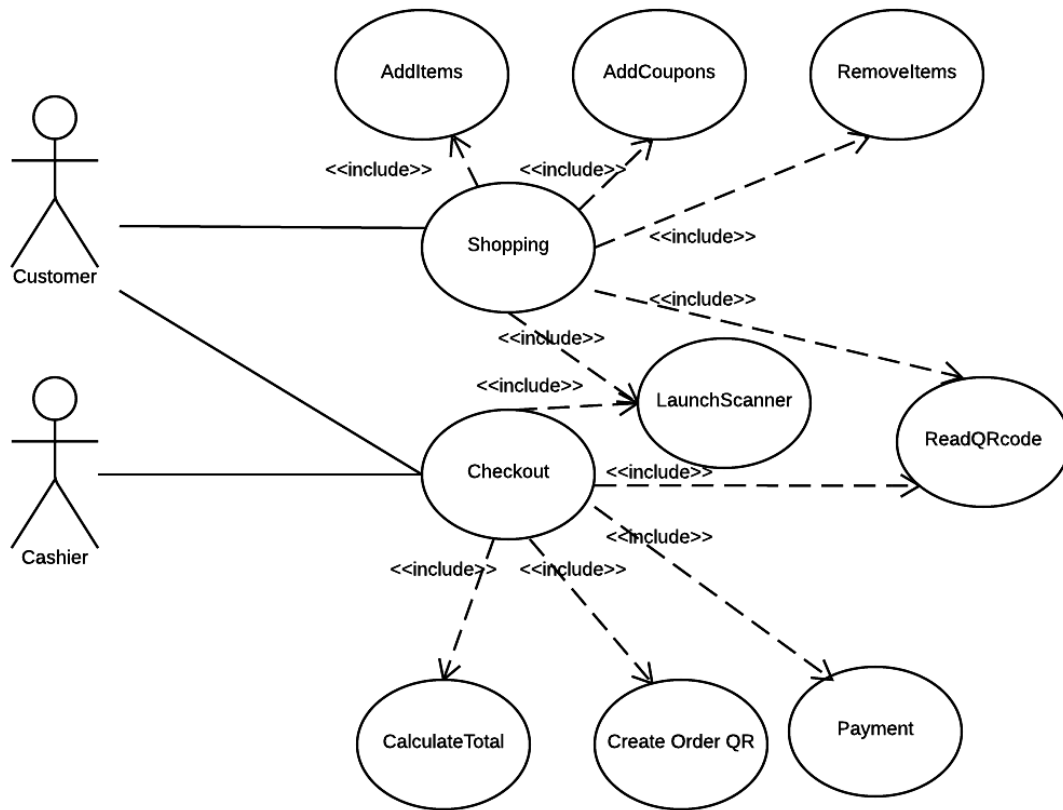


Use Case Model

Author: Xin Wang

1 Use Case Diagram



2 Use Case Descriptions

2.1 Shopping

- Requirements: The Shopping use case allows the customer to enter shopping mode, add/remove items and add coupons to the shopping cart.

- Pre-conditions:

- The customer is registered at the grocery store and has a customer's card with a QR code encoding his/her personal information such as name, zip code and email address.
- The store items are labeled with a QR code encoding its ID and price. Alcoholic beverages' IDs start with an "AB" prefix.
- The store coupons are labeled with a QR code encoding the discounted

item's ID and the discount.

- Post-conditions:

- The customer's, item's and coupon's information should be correctly retrieved by the APP.
- The customer should be able to add all the items he/she wants to purchase.
- The customer should be able to add all the coupons he/she wishes to use.
- The customer should be able to remove all the unwanted items.

- Scenarios:

- The customer launches the EZshop APP and presents his/her customer's card.
- The APP launches the QR code scanner to read customer's QR code.
- If customer's information is found, the APP initializes his/her personal information and initializes an empty shopping cart. Otherwise, the APP displays "QR code information unfound! Please check with a store staff" and prompts the customer to check with the store staff.
- APP enters the shopping mode to allow customer to start shopping.
- If customer presses "+" button, the APP allows the customer to scan an item or a coupon's QR code. If the item and coupon's information is found, the customer can add them to the item list and coupon list respectively. Otherwise, the APP displays "QR code information unfound! Please check with a store staff" and prompts the customer to check the item/coupon information with store staff.
- If the customer presses "-" button, the APP allows the customer to scan an item's QR code he/she wants to remove. If the item exists in the current item list, the customer can now remove its entry. Otherwise, the APP shows an error message "The item is not yet in the shopping cart".
- If the customer has one or more items in the cart and presses the "pay" button, the APP exits shopping mode (use case ends).
- If the customer decides to buy nothing, he/she presses the "Quit" button to log out of the APP (use case ends).

2.2 Checkout

- Requirements: The Checkout use case allows the customer to pay the total value of the cart, and allows the cashier to verify the purchase and to email the customer his/her receipt.

- Pre-conditions:

- The cart contains one or more items added in the Shopping use case.
- The customer presses the "Pay" button.

- The payment system has secure connections to banks.
- The cashier has cash for changes in case the customer pays in cash.

- Post-conditions:

- The total value of the cart is correctly calculated by the APP, taking into account of the items and the coupons in the cart. If an item is alcoholic beverage, a special tax is applied.
- The APP generates a QR code, which encodes customer's information, the items and coupons list and the total value of the cart, for cashier to scan and verify.
- The payment system processes the transaction and emails the receipt to the customer.

- Scenarios:

- The APP calculates the total value of the cart, computed taking into account the items, the coupons and taxes. If an item's ID starts with "AB", a special tax is applied to the item.
- The APP generates a QR code encoding customer's information, the items and coupons list and the total value of the cart.
- The customer presents the QR code and the physical shopping cart to cashier.
- The cashier logs in to the payment system if he/she has not done so.
- The cashier scans the order QR code and double-checks the order details with the items in the cart.
- If the items physically in the cart match with the order information, the cashier continues to select payment method step. Otherwise, the cashier discusses with the customer to correct any mistakes.
- The payment system prompts the customer to choose a payment method.
- If the customer pays in cash, the cashier collects the correct amount.
- If the customer pays in credit cards, the payment system processes the transactions with the customer's bank and the store's bank. The cashier requests customer's signature.
- If the customer pays in debit cards, the cashier prompts the pin. If password is correct, the payment system processes the transactions with the customer's bank and the store's bank.
- If the payment is successful, the payment system sends an email to the customer with their receipt.
- If the transaction fails, the payment system asks the customer to try again or select another payment method. If transaction continues to fail, the customer can cancel the order if he/she wants.
- The customer quits the APP (use case ends).