

Chapter 7

Exercises

Exercise 3 (1/2)

A hotel wants to develop an online information system. Below are the requirements needed for this information system.

Actors: Guest (Customer), Hotel Staff (Receptionist, Manager), System Administrator (Manages users, settings)

Use Cases:

Guest Functions: Register an account, Login, Make a reservation, Cancel reservation, Check room availability, Update profile, Make payment

Hotel Staff Functions: Manage bookings, Check guest details, Process check-in/check-out, Generate invoices

System Administrator Functions: Manage user accounts, Update room availability, Generate reports

Exercise 3 (2/2)

Tasks:

1. Draw a **Use Case Diagram** representing the interactions between the actors and the system.
2. Clearly label the actors, use cases, and relationships (associations, include, extend).

Exercise 4 (1/4)

An ATM information system is to be created. Below are the requirements needed for this information system.

- The system starts when the operator turns it on, enters the cash amount, and connects to the bank.
- The system shuts down after ensuring no customers are using it, disconnecting from the bank, and allowing maintenance tasks.
- A session begins when a customer inserts their ATM card, enters a PIN, and performs transactions until they choose to end the session.
- The customer can abort the session by pressing the Cancel key during PIN entry or transaction selection.
- A transaction starts when the customer selects a type, enters details, and submits it to the bank for approval.
- If the bank approves, the transaction is completed, a receipt is printed, and the customer may choose another transaction.

Exercise 4 (2/4)

- If the bank rejects a PIN, the customer must re-enter it; if entered incorrectly multiple times, the card is retained, and the session ends.
- If a transaction fails for any reason other than repeated invalid PINs, the customer is informed and can attempt another.
- The customer can cancel a transaction anytime before confirming it using the Cancel key.
- All interactions between the ATM and the bank are recorded in the ATM's log.
- For withdrawals, the customer selects an account and amount, and the ATM verifies cash availability before processing.
- A withdrawal can be canceled anytime before selecting the dollar amount.

Exercise 4 (3/4)

- For deposits, the customer selects an account, enters an amount, and submits an envelope before the bank verifies the transaction.
- A deposit is canceled if the customer does not insert the envelope within a given time.
- For transfers, the customer selects accounts and enters an amount, which is processed upon bank approval.
- A transfer can be canceled anytime before entering the amount.
- For inquiries, the customer selects an account, and upon approval, the ATM displays the balance and prints a receipt.
- An inquiry can be canceled before selecting the account.
- If a PIN is invalid, the customer must retry, and after three failures, the card is retained, and the session ends.
- If the customer cancels instead of re-entering a PIN, the transaction is canceled.

Exercise 4 (4/4)

Tasks:

1. Identify the **actors** of the system.
2. Draw a **Use Case Diagram** representing the interactions between the actors and the system.
3. Clearly label the actors, use cases, and relationships (associations, include, extend).