Scenario 1: Online Shopping Cart

Problem Statement: You are tasked with implementing an online shopping cart system in Java. Each shopping cart has items that can be added, removed, and updated. Each item has properties such as name, price, and quantity. Implement the shopping cart using an outer class for the cart itself and an inner class for managing items.

Requirements:

1. **ShoppingCart Class (Outer Class):**
   - Maintain a list of items in the shopping cart.
   - Provide methods to add an item, remove an item by name, update quantity of an item, and calculate the total price of items in the cart.
2. **Item Class (Inner Class):**
   - Define an inner class Item within ShoppingCart to represent each item in the cart.
   - Each Item should have properties like name, price, and quantity.
   - Implement methods in Item class to get and set these properties.
3. **Testing:**
   - Create instances of ShoppingCart in a main class.
   - Use methods of ShoppingCart to add items, update quantities, and calculate total price.
   - Demonstrate the use of inner class Item by accessing and modifying item properties.

Scenario 2: Bank Account Management

Problem Statement: You are developing a system to manage bank accounts in Java. Each bank account can have multiple transactions (deposits and withdrawals). Implement the bank account system using an outer class for the account and an inner class for transactions.

Requirements:

1. **BankAccount Class (Outer Class):**
   - Maintain account details like account number, holder name, and balance.
   - Provide methods to deposit money, withdraw money, and get current balance.
2. **Transaction Class (Inner Class):**
   - Define an inner class Transaction within BankAccount to represent each transaction.
   - Each Transaction should have properties like transaction ID, amount, and type (deposit or withdrawal).
   - Implement methods in Transaction class to record and retrieve transaction details.
3. **Testing:**
   - Create instances of BankAccount in a main class.
   - Use methods of BankAccount to perform transactions (deposit and withdraw).
   - Demonstrate the use of inner class Transaction by recording transactions and displaying transaction history.

Scenario 3: Employee Management System

Problem Statement: You are developing an Employee Management System in Java. Each employee has basic details such as name, age, and salary. Implement the system using an outer class for the company and an inner class for employees.

Requirements:

1. **Company Class (Outer Class):**
   - Maintain a list of employees in the company.
   - Provide methods to add an employee, remove an employee by name, and find an employee by name.
2. **Employee Class (Inner Class):**
   - Define an inner class Employee within Company to represent each employee.
   - Each Employee should have properties like name, age, salary, and any other relevant details.
   - Implement methods in Employee class to get and set these properties.
3. **Testing:**
   - Create instances of Company in a main class.
   - Use methods of Company to add employees, remove employees, and find employees by name.
   - Demonstrate the use of inner class Employee by accessing and modifying employee properties.