Use Case1: ATM Machine

```
package com.example.busticket;

import java.util.Scanner;

public class ATM {
    private static final int INITIAL_BALANCE = 10000;
    private static final int INITIAL_CASH_IN_MACHINE = 50000;
    private static final int INITIAL_PIN = 1234;

    private static int userBalance = INITIAL_BALANCE;
    private static int machineCash = INITIAL_CASH_IN_MACHINE;
    private static int userPIN = INITIAL_PIN;

    public static void main(String[] args) {
        run();
    }

    public static void run() {
        Scanner scanner = new Scanner(System.in);
        while (true) {
            System.out.print("Enter your PIN: ");
            int enteredPIN = scanner.nextInt();

            if (verifyPIN(enteredPIN)) {
                displayMenu();
                int choice = scanner.nextInt();

                switch (choice) {
                    case 1:
                        balanceEnquiry();
                        break;
                    case 2:
                        deposit(scanner);
                        break;
                    case 3:
                        withdraw(scanner);
                        break;
                    case 4:
                        changePIN(scanner);
                        break;
                    default:
                        System.out.println("Invalid choice. Please try again.");
                }
```

```
            String continueChoice = scanner.next();
            if (!continueChoice.equalsIgnoreCase("yes")) {
                System.out.println("Thank you for using the ATM. Goodbye!");
                break;
            }
        } else {
            System.out.println("Incorrect PIN. Please try again.");
        }
    }
    scanner.close();
}

private static boolean verifyPIN(int enteredPIN) {
    return enteredPIN == userPIN;
}

private static void displayMenu() {
    System.out.println("Select an option:");
    System.out.println("1. Balance Enquiry");
    System.out.println("2. Deposit");
    System.out.println("3. Withdraw");
    System.out.println("4. PIN change");
}

private static void balanceEnquiry() {
    System.out.println("Your current balance is: Rs." + userBalance);
}

private static void deposit(Scanner scanner) {
    System.out.print("Enter the amount to deposit: ");
    int amount = scanner.nextInt();
    if (amount > 0) {
        userBalance += amount;
        machineCash += amount;
        System.out.println("Deposit successful. Your updated balance is: Rs." + userBalance);
    } else {
        System.out.println("Invalid amount. Please try again.");
    }
}
```

```
    private static void withdraw(Scanner scanner) {
        System.out.print("Enter the amount to withdraw: ");
        int amount = scanner.nextInt();
        if (amount > 0 && amount <= userBalance && amount <= machineCash) {
            userBalance -= amount;
            machineCash -= amount;
            System.out.println("Withdrawal successful. Your updated balance is: Rs." + userBalance);
        } else {
            System.out.println("Invalid amount or insufficient funds. Please try again.");
        }
    }

    private static void changePIN(Scanner scanner) {
        System.out.print("Enter your current PIN: ");
        int oldPIN = scanner.nextInt();

        if (verifyPIN(oldPIN)) {
            System.out.print("Enter your new PIN: ");
            int newPIN1 = scanner.nextInt();
            System.out.print("Re-enter your new PIN: ");
            int newPIN2 = scanner.nextInt();

            if (newPIN1 == newPIN2) {
                userPIN = newPIN1;
                System.out.println("PIN change successful.");
            } else {
                System.out.println("PINs do not match. Please try again.");
            }
        } else {
            System.out.println("Incorrect current PIN. Please try again.");
        }
    }
}
```

Output:

```
Enter your PIN: 1234
Select an option:
1. Balance Enquiry
2. Deposit
3. Withdraw
4. PIN change
1
Your current balance is: Rs.10000
Do you want to continue? (yes/no): yes
Enter your PIN: 1234
Select an option:
1. Balance Enquiry
2. Deposit
3. Withdraw
4. PIN change
2
Enter the amount to deposit: 50000
Deposit successful. Your updated balance is: Rs.60000
Do you want to continue? (yes/no): yes
Enter your PIN: 1234
Select an option:
1. Balance Enquiry
2. Deposit
3. Withdraw
4. PIN change
3
Enter the amount to withdraw: 15000
Withdrawal successful. Your updated balance is: Rs.45000
Do you want to continue? (yes/no): yes
Enter your PIN: 1234
Select an option:
1. Balance Enquiry
2. Deposit
3. Withdraw
4. PIN change
4
Enter your current PIN: 1234
Enter your new PIN: 2024
Re-enter your new PIN: 2024
PIN change successful.
Do you want to continue? (yes/no): no
Thank you for using the ATM. Goodbye!
```

Use Case2: Bus Ticket vending Machine

```java
package com.example.busticket;

import java.util.Scanner;

public class busticket1 {
    private static final int INITIAL_TICKETS_SOLD = 0;
    private static final int INITIAL_AMOUNT_COLLECTED = 0;
    private static final int INITIAL_PIN = 1234;

    private static int ticketsSold = INITIAL_TICKETS_SOLD;
    private static int amountCollected = INITIAL_AMOUNT_COLLECTED;
    private static int userPIN = INITIAL_PIN;

    public static void main(String[] args) {
        run();
    }

    public static void run() {
        Scanner scanner = new Scanner(System.in);
        while (true) {
            System.out.print("Enter your PIN: ");
            int enteredPIN = scanner.nextInt();

            if (verifyPIN(enteredPIN)) {
                displayMenu();
                int choice = scanner.nextInt();

                switch (choice) {
                    case 1:
                        issueTicket(scanner);
                        break;
                    case 2:
                        displayBalanceCollected();
                        break;
                    case 3:
                        displayTicketsSold();
                        break;
                    case 4:
                        changePIN(scanner);
                        break;
                    default:
                        System.out.println("Invalid choice. Please try again.");
                }
```

```
            System.out.print("Do you want to continue? (yes/no): ");
            String continueChoice = scanner.next();
            if (!continueChoice.equalsIgnoreCase("yes")) {
                System.out.println("Thank you for using the Bus Ticket Vending Machine. Goodbye!");
                break;
            }
        } else {
            System.out.println("Incorrect PIN. Please try again.");
        }
    }
    scanner.close();
}

private static boolean verifyPIN(int enteredPIN) {
    return enteredPIN == userPIN;
}

private static void displayMenu() {
    System.out.println("Select an option:");
    System.out.println("1. Ticket issue");
    System.out.println("2. Balance collected");
    System.out.println("3. Number of tickets sold");
    System.out.println("4. PIN change");
}

private static void issueTicket(Scanner scanner) {
    System.out.print("Enter the number of tickets to purchase: ");
    int numTickets = scanner.nextInt();
    if (numTickets > 0) {
        int ticketPrice = 100;
        int discount = 0;
        if (numTickets >= 5) {
            discount = 10; // 10% discount for bulk purchase of 5 or more tickets
        }
        int totalAmount = numTickets * ticketPrice * (100 - discount) / 100;
        amountCollected += totalAmount;
        ticketsSold += numTickets;
        System.out.println("Tickets issued successfully. Total amount: Rs." + totalAmount);
    } else {
        System.out.println("Invalid number of tickets. Please try again.");
    }
```

```
    }

    private static void displayBalanceCollected() {
        System.out.println("Total amount collected: Rs." + amountCollected);
    }

    private static void displayTicketsSold() {
        System.out.println("Total number of tickets sold: " + ticketsSold);
    }

    private static void changePIN(Scanner scanner) {
        System.out.print("Enter your current PIN: ");
        int oldPIN = scanner.nextInt();

        if (verifyPIN(oldPIN)) {
            System.out.print("Enter your new PIN: ");
            int newPIN1 = scanner.nextInt();
            System.out.print("Re-enter your new PIN: ");
            int newPIN2 = scanner.nextInt();

            if (newPIN1 == newPIN2) {
                userPIN = newPIN1;
                System.out.println("PIN change successful.");
            } else {
                System.out.println("PINs do not match. Please try again.");
            }
        } else {
            System.out.println("Incorrect current PIN. Please try again.");
        }
    }
}
```

Output:

```
Enter your PIN: 1234
Select an option:
1. Ticket issue
2. Balance collected
3. Number of tickets sold
4. PIN change
1
Enter the number of tickets to purchase: 2000
Tickets issued successfully. Total amount: Rs.180000
Do you want to continue? (yes/no): yes
Enter your PIN: 1234
Select an option:
1. Ticket issue
2. Balance collected
3. Number of tickets sold
4. PIN change
2
Total amount collected: Rs.180000
Do you want to continue? (yes/no): yes
Enter your PIN: 1234
Select an option:
1. Ticket issue
2. Balance collected
3. Number of tickets sold
4. PIN change
3
Total number of tickets sold: 2000
Do you want to continue? (yes/no): yes
Enter your PIN: 1234
Select an option:
1. Ticket issue
2. Balance collected
3. Number of tickets sold
4. PIN change
4
Enter your current PIN: 1234
Enter your new PIN: 2024
Re-enter your new PIN: 2024
PIN change successful.
Do you want to continue? (yes/no): no
Thank you for using the Bus Ticket Vending Machine. Goodbye!
```