LAB 5

Develop a Java program to create a class Bank that maintains two kinds of account for its customers, one called savings account and the other current account. The savings account provides compound interest and withdrawal facilities but no cheque book facility. The current account provides cheque book facility but no interest. Current account holders should also maintain a minimum balance and if the balance falls below this level, a service charge is imposed. Create a class Account that stores customer name, account number and type of account. From this derive the classes Current-acct and Savings-acct to make them more specific to their requirements. Include the necessary methods in order to achieve the following tasks: a) Accept deposit from customer and update the balance. b) Display the balance. c) Compute and deposit interest d) Permit withdrawal and update the balance Check for the minimum balance, impose penalty if necessary and update the balance.

Program:

```
import
java.util.*;

                import java.lang.*;

                class Bank{

                        String name, abc;
                        int accNo;
                        char accType;
                        double balance = 0;
                        double deposit;
                        double chequeAmount;

                        Scanner in = new Scanner(System.in);

                        void inputData() {

                                System.out.println("Enter your account type
(Savings/Current):");
                                abc = in.nextLine();
                                accType = abc.charAt(0);
                        }
```

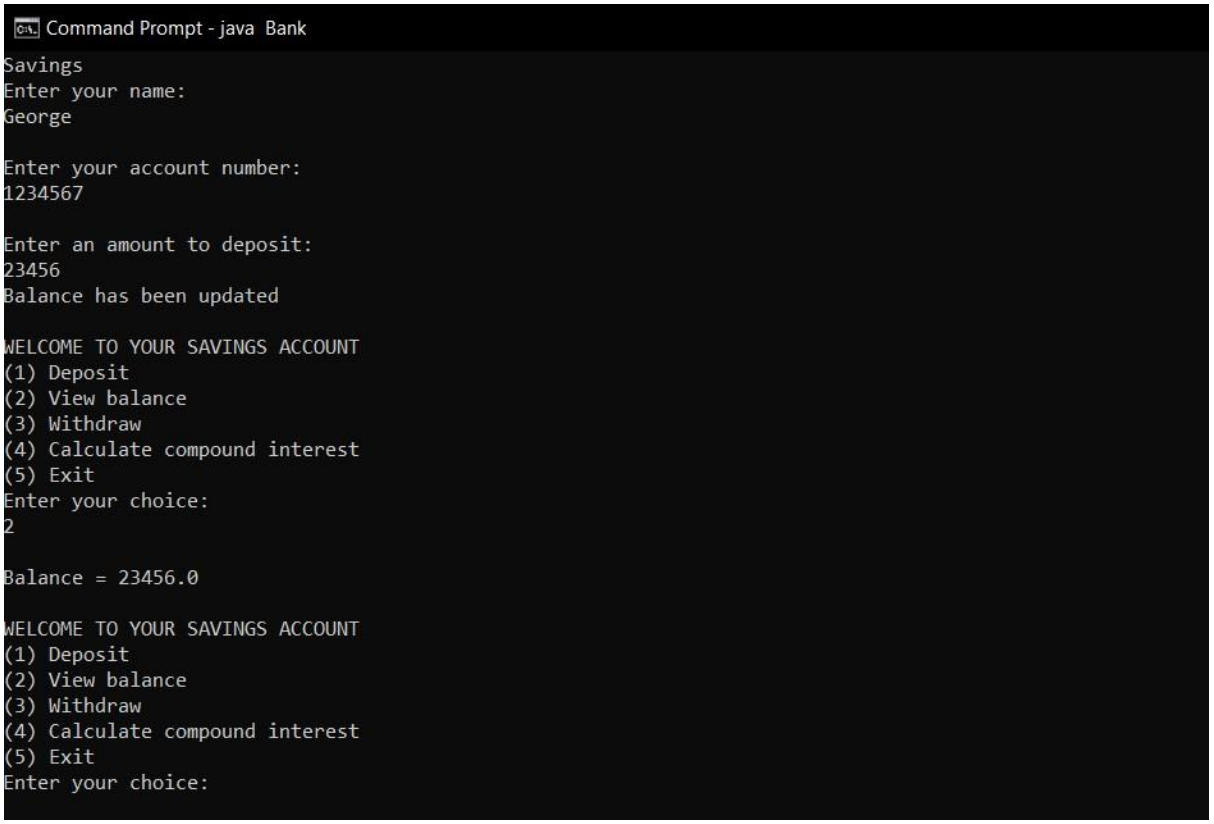
```
        void deposit() {

                System.out.println("Enter an amount to deposit: ");
                deposit = in.nextDouble();

                balance += deposit;
                System.out.println("Balance has been updated ");
                System.out.println("");

        }

        void viewBalance(){

                System.out.println("Balance = " + balance);
                System.out.println("");

        }

        public static void main(String[]args){

                Scanner s = new Scanner(System.in);
                int x;
                Bank a1 = new Bank();
                a1.inputData();

                if(a1.accType == 'C' || a1.accType == 'c'){

                        Current a2 = new Current();

                        do{

                                System.out.println("WELCOME TO
YOUR CURRENT ACCOUNT");
                                System.out.println("");
                                System.out.println("(1) Deposit ");
                                System.out.println("(2) Check balance ");
                                System.out.println("(3) Issue Cheque ");
                                System.out.println("(4) Exit");
                                System.out.println("Enter your choice: ");
                                x = s.nextInt();
                                System.out.println("");

                                switch(x){

                                        case 1: a2.deposit();
                                        break;
```

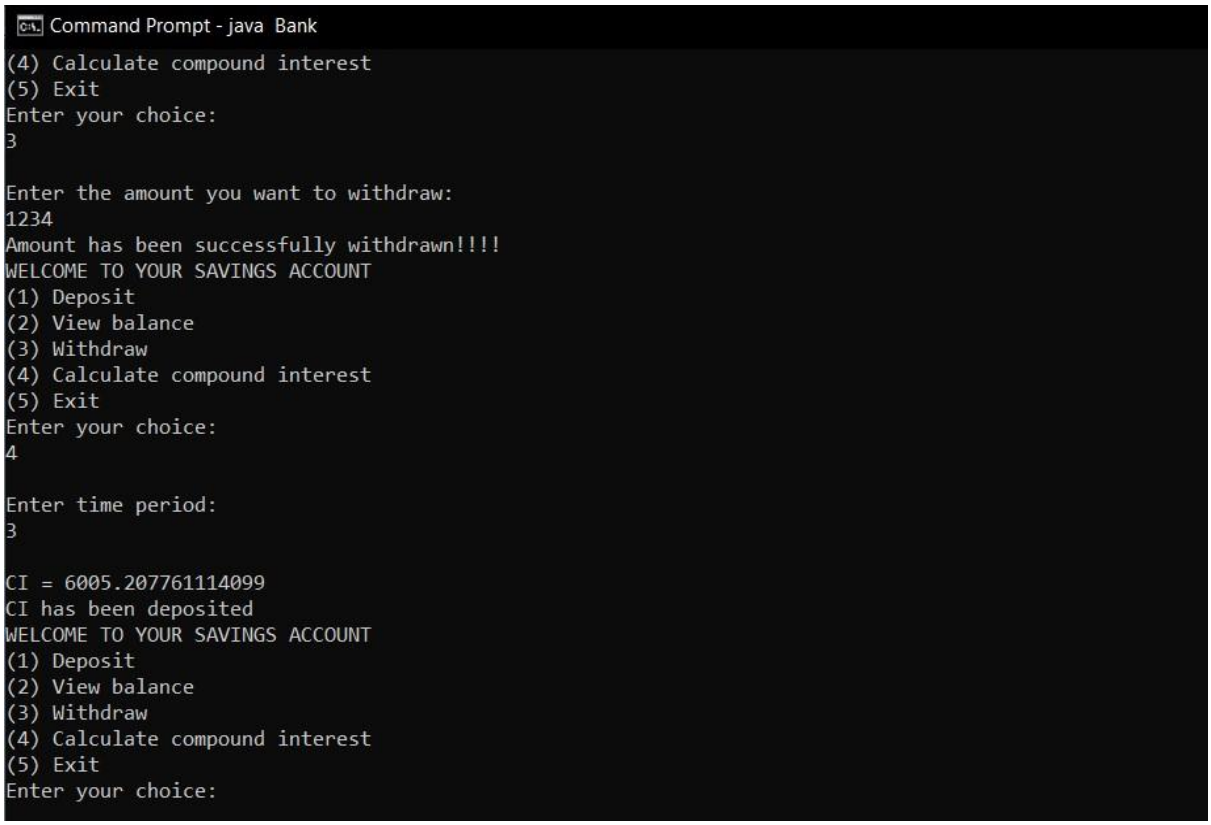
```
                                        case 2: a2.checkBalance();
                                        break;
                                        case 3: a2.issueCheque();
                                        break;
                                        case 4: System.exit(0);
                                        break;
                                        default:
System.out.println("ERROR. INVALID CHOICE.");

                                }

                        }

                        while(x <= 4 && x >= 1);

                }

                else if (a1.accType == 'S' || a1.accType == 's'){

                        Savings a3 = new Savings();

                        do{

                                System.out.println("WELCOME TO
YOUR SAVINGS ACCOUNT");
                                System.out.println("(1) Deposit");
                                System.out.println("(2) View balance");
                                System.out.println("(3) Withdraw ");
                                System.out.println("(4) Calculate
compound interest ");
                                System.out.println("(5) Exit ");
                                System.out.println("Enter your choice: ");
                                x = s.nextInt();
                                System.out.println("");

                                switch(x){

                                        case 1: a3.deposit();
                                        break;
                                        case 2: a3.viewBalance();
                                        break;
                                        case 3:
a3.balanceAfterWithdrawal();
                                        break;
                                        case 4: a3.computeCI();
                                        break;
```

```
                                        case 5: System.exit(0);
                                        break;
                                        default:
System.out.println("ERROR. INVALID CHOICE.");

                                }

                        }

                        while(x <= 5 && x >=1);

                }

                else System.out.println("INVALID ACCOUNT TYPE");

        }

}

class Current extends Bank {

        Current(){

                System.out.println("Enter your name: ");
                name = in.nextLine();
                System.out.println("");


                System.out.println("Enter your account number: ");
                accNo = in.nextInt();
                System.out.println("");

                deposit();
        }

        void issueCheque(){

                System.out.println("Enter amount for which cheque is
to be issued.");
                chequeAmount = in.nextDouble();
                System.out.println("");

                if(chequeAmount > balance){

                        System.out.println("ERROR! Insufficient
amount in your account.");
```

```
                }

                else{

                        balance -= chequeAmount;
                        System.out.println("Cheque has been issued
SUCCESSFULLY");
                        System.out.println("");

                }

        }

        void checkBalance(){

                if(balance < 1000){

                        System.out.println("Current available balance is
lesser than minimum required balance.");
                        balance -= 100;
                        System.out.println("Service charge of Rs.100
has been deducted from your balance.");

                }

                viewBalance();

        }

}

class Savings extends Bank{

        double CI, withdrawalAmount, time;

        Savings(){

                System.out.println("Enter your name: ");
                name = in.nextLine();
                System.out.println("");

                System.out.println("Enter your account number: ");
                accNo = in.nextInt();
                System.out.println("");
```

```
                deposit();
        }

        void computeCI() {

      System.out.println("Enter time period: ");
      time = in.nextInt();
      System.out.println("");

                CI = balance * Math.pow(1 + (0.08 / 12), 12 * time) -
balance;
      System.out.println("CI = " + CI);
      balance += CI;
      System.out.println("CI has been deposited");
   }

        void balanceAfterWithdrawal(){

                System.out.println("Enter the amount you want to
withdraw: ");
                withdrawalAmount = in.nextDouble();

                if(withdrawalAmount > balance){

                        System.out.println("ERROR! The entered
amount is greater than the available balance...");

                }

                else {

                        balance -= withdrawalAmount;
                        System.out.println("Amount has been
successfully withdrawn!!!!");

                }
        }

}
```


Command Prompt - java Bank
Savings
Enter your name:
George
Enter your account number:
1234567
Enter an amount to deposit:
23456
Balance has been updated
WELCOME TO YOUR SAVINGS ACCOUNT
(1) Deposit
(2) View balance
(3) Withdraw
(4) Calculate compound interest
(5) Exit
Enter your choice:
2
Balance = 23456.0
WELCOME TO YOUR SAVINGS ACCOUNT
(1) Deposit
(2) View balance
(3) Withdraw
(4) Calculate compound interest
(5) Exit
Enter your choice:


Command Prompt - java Bank
(4) Calculate compound interest
(5) Exit
Enter your choice:
3
Enter the amount you want to withdraw:
1234
Amount has been successfully withdrawn!!!!
WELCOME TO YOUR SAVINGS ACCOUNT
(1) Deposit
(2) View balance
(3) Withdraw
(4) Calculate compound interest
(5) Exit
Enter your choice:
4
Enter time period:
3
CI = 6005.207761114099
CI has been deposited
WELCOME TO YOUR SAVINGS ACCOUNT
(1) Deposit
(2) View balance
(3) Withdraw
(4) Calculate compound interest
(5) Exit
Enter your choice: