Lab 5

Develop a Java Program to create a class Bank that maintains two kinds of accounts for its customers, one called savings account (provides compound interest but no check book) and other called current account (has check book and minimum balance requirement which if not met, a service charge is imposed).

Create class Account which stores name, number and type. From this derive two classes each having specific requirements. Include methods for

a) Accept deposit & update balance
b) Display balance
c) Compute & deposit interest
d) Permit withdrawal
e) Check minimum bank balance and impose penalty

```
import java.util.*;
import java.lang.Math;

abstract class Bank {
        abstract void withdraw(double amt);
        abstract void deposit(double amt);
        abstract void display();
        abstract void menudisp();
}

class Account extends Bank {
    String name;
    int acc_num;
    String type;
```

```
double bal;
String menu = " ";

Account (String name, int acc_num, String type,
  double bal, String menu) {
    this.name = name;
    this.acc_num = acc_num;
    this.type = type;
    this.bal = bal;
    this.menu = menu;
}
public void withdraw (double amt){
    if (amt > bal) {
        System.out.println (" Withdraw declined");
    }
    else {
        bal -= amt;
        System.out.println (" Updated bal is:"
          + bal );
    }
}
public void deposit (double amt ){
    bal += amt;
    System.out.println ("Updated bal is: " +
      amt );
}
public void display () {
    System.out.println (" Acc.no : " + acc_no);
    System.out.println (" Acc. name = " + name);
    System.out.println (" Acc type = " + type);
    System.out.println (" Acc. bal = " + bal);
}
public void menudisp( ) {
    menu = " ------ MENU ------ \n
    1. Deposit \n 2. Withdraw \n 3. Display "
}
```

```
}
class Savings extends Account {
    double interest;
    Savings (String name, int acc_num, String type,
    double bal, String menu, double interest)
        super (name, acc_num, type, bal, menu);
        this.interest = interest;
    }
    public double interest (int time) {
        double comp;
        comp = bal + Math.pow ((bal *
        (1+(interest/100))), time);
        return comp;
    }
    public void menudisp() {
        Super.menudisp();
        menu += "\n 4. Compute Interest
            \n 5. Exit";
    }
}

class Current extends Account {
    double minbal = 10000;
    int overdraftlimit = -100;
    Current (String name, int acc_num, String
    type, double bal, String menu) {
        super(name, acc_num, type, bal
        menu);
    public void menudisp() {
        menu += "\n 4. Chequebook
            \n 5. Exit"
    }
```

```
public void withdraw(double amt){
    if(amt > bal){
        System.out.println("Withdraw declined !");
    else{
        bal -= amt;
        if(bal < minbal){
            bal -= 0.1 * bal;
            System.out.println("Balance is lower than minimum balance. 10% service charge imposed ! New balance is: " + bal);
        }
        System.out.println("Updated balance is: " + bal);
    }
}

public void chequebook(double amt){
    if(amt <= bal && (bal - amt) >= overdraftlimit){
        bal -= amt;
        System.out.println("Cheque issued successfully. Current balance: " + bal);
    }
    else{
        System.out.println("Insufficient funds");
    }
}
}
```

Date: YOUVA

```
class Bank {
public static void main (String args[]) {
    Scanner s = new Scanner (System.in);
    String name;
    String menu = " ";
    int acc_num;
    String type;
    double bal = 0;
    double interest;
    int choice;
    int time;
    double money;
    System.out.println ("Enter customer name:");
    name = s.next();
    System.out.println ("Enter account number:");
    acc_num = s.nextInt();
    System.out.println ("----- Account Type---
    \n 1. Savings Account \n 2. Current Account
    \n Please select account: ");
    type = s.next();

    if (type.equals ("savings")) {
        System.out.println ("Enter interest amount:");
        interest = s.nextDouble();
        Savings accs = new Savings (name,
            acc_num, type, bal, menu, interest);
        do {
            accs.menudisp();
            System.out.println (accs.menu);
            System.out.println ("Enter choice");
            choice = s.nextInt();
            switch (choice) {
                case 1:
                System.out.println ("Enter
                amt to be deposited
```

```
                money = s.nextDouble();
                acc.deposit(money);
                break;
            case 2:
                System.out.println("Enter amt
                to be withdrawn :");
                money = s.nextDouble();
                acc.withdraw(money);
                break;
            case 3:
                acc.display();
                break;
            case 4:
                System.out.println("Enter
                time :");
                time = s.nextInt();
                money = acc.interest(time);
                System.out.println("Compound
                interest is :" + money);
                break;
            case 5:
                break;
            }
        } while(choice != 5);
    }
    else if(type.equals("Current")){
        Current acc = new Current(name, acc_num,
            type, bal, menu);
        do{
            acc.menudisp();
            System.out.println(acc.menu);
            System.out.println("Enter choice:");
            choice = s.nextInt();
            switch(choice){
```

```
case 1:
    System.out.println("Enter
    amount to be deposited:");
    money = s.nextDouble();
    acc.deposit(money);
    break;
case 2:
    System.out.println("Enter
    amount to be withdrawn:");
    money = s.nextDouble();
    acc.withdraw(money);
    break;
case 3:
    acc.display();
    break;
case 4:
    System.out.println("Enter
    amount of cheque:");
    money = s.nextInt();
    acc.checkbook(money);
    break;
case 5:
    break;
}
}while(choice != 5);
}
else{
    System.out.println("Wrong type choice!");
}
}
}
```

Output:

Enter customer name : Sam
Enter acc. number : 1

---- Account Type ----
1. Savings account
2. Current account
Please select account Savings

---- MENU ----
1. Deposit
2. Withdraw
3. Display
4. Compute Interest
5. Exit
Enter choice : 1
Enter amt. : 1000.0
Updated bal : 1000
Enter choice : 2
Enter amt. : 300
Updated bal : 700.0
Enter choice : 3
Acc. no : 1
Acc. name : Sam
Acc. type : savings
Acc bal : 700
Enter choice : 4
Enter time : 3
Compound Interest :
Enter choice : 5

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Enter customer name : Sam
Enter acc no : 2

---- Account Type ----
1. Savings Account
2. Current Account
Please select accounts : Current

---- MENU ----
1. Deposit
2. Withdraw
3. Display
4. Cheque book
5. Exit
Enter choice : ~~10000~~
Enter amount : 10000
Updated bal : 10000
Enter choice : 2
Enter amount : 1900
Balance is lower than minimum . 10% service charge imposed !
Updated balance : 8100
Enter choice : 4
Enter amt : 100
Cheque successfully issued . Updated bal : 8000
Enter choice : 5

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