OOPL Assignment 11

Case Study

Name :- Atharva Kinikar

Div :- SE 10

Batch :- F 10

Roll No :- 23241

Code :-

/\*

Name :- Atharva Kinikar

Div :- SE 10

Batch :- F10

Roll No :- F101

\*/

import java.util.Scanner;

class Account { // parent class

    Scanner sc = new Scanner(System.in);

    // data members of Account class

    String name; // name of account holder

    int accno; // account number

    String type; // type of account

    double bal; // balance

    // method to get user details

    void Input() {

        System.out.println("Enter name::");

        name = sc.nextLine();

        System.out.println("Enter Account number:: ");

        accno = sc.nextInt();

        sc.nextLine();

        System.out.println("Enter type of account:: ");

        type = sc.nextLine();

        System.out.println("Enter Principal amount:: ");

        bal = sc.nextDouble();

    }

    // method to display user info

    void Display() {

        System.out.println("\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_");

        System.out.println("Name::          " + name);

        System.out.println("Account No::        " + accno);

        System.out.println("Type::          " + type);

        System.out.println("Balance::       " + bal);

        System.out.println("\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_");

    }

    // method to deposit money

    void Deposit() {

        double amt;

        System.out.println("Enter the amount to be depositedt:: ");

        amt = sc.nextDouble();

        bal = bal + amt; // balance will be added in principal amount

    }

}

class Savings extends Account { // Saving is subclass derived from Account

    double interest;

    void compInterest() { // method to calculate compound interest

        int time;

        double rate;

        System.out.println("Enter duration (in years):: "); // duration in year

        time = sc.nextInt();

        System.out.println("Enter annual interest rate:: "); // interest rate

        rate = sc.nextDouble();

        interest = bal \* Math.pow(1 + rate / 100, time) - bal; // compound interest formula

        System.out.println("The coumpount interest will be " + interest);

    }

    void withdrawal() { // method to withdraw money

        double amount;

        System.out.println("Enter the amount to be withdrawn:: ");

        amount = sc.nextDouble();

        if (bal >= amount) {

            bal = bal - amount; // balance will be reduced by money withdrawn

        } else {

            System.out.println("The amount cannot be withdrawn!!");

        }

    }

}

class Current extends Account { // Current is Subclass derived from Account

    double penalty;

    int minBal() {

        int ret1 = 1;

        if (bal <= 10000) {

            // if minimum balance in current account is less than 10,000 than penalty will

            // be imposed

            penalty = 2500;

            // penalty of 2,500 will be imposed for not maintaining minimum balance

            bal = bal - penalty;

            ret1 = 0;

        } else {

            System.out.println("No penalty imposed");

        }

        return ret1;

    }

    // method to withdraw money

    void withdrawal() {

        double amt;

        System.out.println("Enter the amount to withdraw");// withdrawl amount

        amt = sc.nextDouble();

        int k = minBal();

        if (k == 1) {

            if (bal >= amt)

                bal = bal - amt;

        } else {

            System.out.println("The amount cannot be withdrawn");

            // if balance is less than amount to be withdrawn

        }

    }

    // method to deposit check

    void deposit\_check() {

        System.out.println("Enter check amount");

        double check\_amt = sc.nextDouble();

        bal = bal + check\_amt;

        System.out.println("Your cheque has been deposited and current balance becomes: " + bal);

    }

}

public class BankCustomer {

    public static void main(String[] args) {

        // TODO Auto-generated method stub

        int ch1, ch2;

        Scanner s1 = new Scanner(System.in);

        System.out.println("---Enter the account type---");

        System.out.println("1. Savings\n2. Current");

        ch1 = s1.nextInt();

        if (ch1 == 1) {

            Savings s = new Savings(); // object creation of savings class

            s.Input();

            int x = 1;

            do {

                System.out.println("\_\_\_\_\_\_\_\_\_\_\_");

                System.out.println(

                        "1. Deposit\n2. Display Balance\n3. Calculate Compound interest\n4. Withdrawl\n5. Exit");

                System.out.println("\_\_\_\_\_\_\_\_\_\_\_\_");

                ch2 = s1.nextInt();

                switch (ch2) {

                    case 1:

                        // deposit method called

                        s.Deposit();

                        // display method called

                        s.Display();

                        break;

                    case 2:

                        // display method called

                        s.Display();

                        break;

                    case 3:

                        // interest calculate method called

                        s.compInterest();

                        break;

                    case 4:

                        // withdrawl method called

                        s.withdrawal();

                        s.Display();

                        break;

                    case 5:

                        x = 0;

                        break;

                    default:

                        System.out.println("Invalid choice");

                }

            } while (x == 1);

        } else if (ch1 == 2) {

            Current c = new Current();

            c.Input();

            int x = 1;

            do {

                System.out.println("\_\_\_\_\_\_\_\_\_\_");

                System.out.println("1. Deposit\n2. Display Balance\n3. Withdrawl\n4. Deposit Chequebook\n5. Exit");

                System.out.println("\_\_\_\_\_\_\_\_\_\_\_");

                ch2 = s1.nextInt();

                switch (ch2) {

                    case 1:

                        // deposit method called

                        c.Deposit();

                        c.Display();

                        break;

                    case 2:

                        // display method called

                        c.Display();

                        break;

                    case 3:

                        // withdrawl method called

                        c.withdrawal();

                        c.Display();

                        break;

                    case 4:

                        // deposit check method called

                        c.deposit\_check();

                        c.Display();

                        break;

                    case 5:

                        x = 0;

                        break;

                    default:

                        System.out.println("Invalid choice");

                }

            } while (x == 1);

        }

        else {

            System.out.println("Invalid choice");

        }

    }

}

Output :-

---Enter the account type---

1. Savings

2. Current

1

Enter name::

Atharva kinikar

Enter Account number::

12345678

Enter type of account::

savings

Enter Principal amount::

50000

\_\_\_\_\_\_\_\_\_\_\_

1. Deposit

2. Display Balance

3. Calculate Compound interest

4. Withdrawl

5. Exit

\_\_\_\_\_\_\_\_\_\_\_\_

1

Enter the amount to be depositedt::

10000

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Name:: Atharva kinikar

Account No:: 12345678

Type:: savings

Balance:: 60000.0

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_

1. Deposit

2. Display Balance

3. Calculate Compound interest

4. Withdrawl

5. Exit

\_\_\_\_\_\_\_\_\_\_\_\_

2

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Name:: Atharva kinikar

Account No:: 12345678

Type:: savings

Balance:: 60000.0

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_

1. Deposit

2. Display Balance

3. Calculate Compound interest

4. Withdrawl

5. Exit

\_\_\_\_\_\_\_\_\_\_\_\_

3

Enter duration (in years)::

5

Enter annual interest rate::

15

The coumpount interest will be 60681.431249999965

\_\_\_\_\_\_\_\_\_\_\_

1. Deposit

2. Display Balance

3. Calculate Compound interest

4. Withdrawl

5. Exit

\_\_\_\_\_\_\_\_\_\_\_\_

4

Enter the amount to be withdrawn::

5000

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Name:: Atharva kinikar

Account No:: 12345678

Type:: savings

Balance:: 55000.0

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_

1. Deposit

2. Display Balance

3. Calculate Compound interest

4. Withdrawl

5. Exit

\_\_\_\_\_\_\_\_\_\_\_\_

5