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## Program - 5

Develop a Java program to create a class Bank that maintains two kinds of account for its customers, one called savings account & other is current account. The savings account provides compound interest & withdrawal facilities but no cheque book facility. The current account provides cheque book facility but no interest. Current account holders should maintain a min balance & if balance falls below this level, service charge is imposed.

Create a class Account that stores customer name, account no & type of account. From this derive the classes CurAct & SavAct to make them more specific to their requirements. Include necessary methods

- a) Accept deposits from customer & update balance.
  - b) display balance
  - c) Compute deposit interest
  - d) Permit withdrawal & update balance.
- Check for min balance, impose penalty.

### Algorithm

Start

- 1) Create class Account and declare instance variable cname, accno, acctype, balance.
  - 2) Create two subclasses of Account SavAct & CurAct.
  - 3) Methods for depositing and displaying balances
  - 4) In class SavAct, create a methods to calculate compound interest and to withdraw money.
  - 5) In class CurAct, create a methods to withdraw money if min balance is present and apply a service charge if balance goes below minbalance.
  - 6) Create obj of SavAct class and call the methods to get deposit, CalInterest.
  - 7) Create obj of CurAct class and call methods withdraw.
- Compound Interest =  $\text{amount} \left(1 + \frac{\text{interestRate}}{100}\right)^n$
- 8) Stop



```
import java.util.Scanner;
class Account {
```

```
    String cname;
    int accno;
    String acctype;
    double balance;
```

```
    public Account (String cname, int accno, String acctype)
    {
        this.cname = cname;
        this.accno = accno;
        this.acctype = acctype;
        this.balance = 0;
    }
```

```
    public void deposit (int amount)
    {
        balance += amount;
        System.out.println("Deposited");
    }
```

```
    public void displayBalance()
    {
        System.out.println("Balance is: " + balance);
    }
}
```

```
class Savact extends Account
{
    double IntRate;
```

```
    public void Savact (String cname, int accno, double IntRate)
    {
        super (cname, accno, "Savings");
        this.cname = cname;
        this.accno = accno;
        this.IntRate = IntRate;
    }
```

```
    public void CalInterest (int amount, int term)
    {
        double Interest = balance * IntRate;
        System.out.println("The Interest is " + Interest);
    }
```



double compInt = ~~balance~~ Math.pow((1 + IntRate, tax))  
 amount - balance; amount  
 balance + = compInt;

deposit (-Interest);  
 System.out.println ("Balance is: " + balance);

```
public void withdraw (int amount)
{
    if (amount < balance)
    {
        System.out.println ("Amount deducted: " + amount);
        balance -= amount;
        System.out.println ("Now balance is: " + balance);
    }
    else
    {
        System.out.println ("Balance is low");
    }
}
```

```
class Current extends Account {
    double minBalance;
    double servicech;
```

```
public Current (String cname, int accno, double
                minBalance, double servicech)
{
    super (cname, accno) "Current";
    this.minBalance = minBalance;
    this.servicech = servicech;
```

```
public void withdraw (int amount)
{
    if ((balance - amount) > minBalance)
    {
        balance -= amount;
        System.out.println ("Balance is " + balance);
    }
    else
    {
        System.out.println ("Money cant be withdrawn
                            as bal to maintain
                            minbalance");
        System.out.println ("Pay servicecharge: " + servicech);
    }
}
```

class Bank {

public static void main (String[] args)

{

Account ob1 = new Account ("Neha", 198156, 0.0);

ob1. deposit (1000);

ob1. CalInt (1000, 5);

ob1. displayBalance ();

ob1. withdraw (500);

Account ob2 = new Account ("Sneha", 57829, 1000.0, 60);

ob2. deposit (2000);

ob2. withdraw (1500);

ob2. withdraw (500);

}

Pro- w  
all

Deposited

Balance ₹ : 1000.0

Ankusha V R, 18M92CS001

Balance ₹ : 1338.225

Deducted : 500

New Balance ₹ : 838.225

Deposited

Money cant be withdrawn to maintain min balance

Pay servicecharge : 60.0

Balance ₹ : 1500.0

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```
class Bank {
    public static void main (String[] args)
```

```
    {
        Savact ob1 = New Savact ("Neha", 123456, 0.0);
        ob1. deposit (1000);
        ob1. CalInt (1000, 5);
        ob1. displayBalance ();
        ob1. withdraw (500);
```

```
        Curact ob2 = new Curact ("Sneha", 57829,
                                   1000.0, 60)
```

```
        ob2. deposit (2000);
        ob2. withdraw (1500);
        ob2. withdraw (500);
    }
```

Preced  
all

Deposited

Balance ₹ : 1000.0

Aakanksha V R, IBM22CS001

Balance ₹ : 1338.225

Deducted : 500

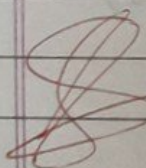
New Balance ₹ : 838.225

Deposited

Money cant be withdrawn to maintain min balance

Pay service charge : 60.0

Balance is : 1500.0

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```
C:\Users\skc\Desktop\ooj p>java Bank01
Aakanksha V R,1BM22CS001
Choose account type:
1. Current
2. Savings
Enter choice (1 or 2): 1
Enter customer name: AB
Enter account number: 5
Enter initial balance: $1200
Enter withdrawal amount: $500
Withdrawal successful. Current Balance: $700.0
Account Number: 5
Customer Name: AB
Account Type: Current
Balance: $700.0
```

```
C:\Users\skc\Desktop\ooj p>java Bank01
```

```
Aakanksha V R,1BM22CS001
```

```
Choose account type:
```

```
1. Current
```

```
2. Savings
```

```
Enter choice (1 or 2): 2
```

```
Enter customer name: CD
```

```
Enter account number: 6
```

```
Enter initial balance: $1500
```

```
Enter withdrawal amount: $1100
```

```
Withdrawal successful. Current Balance: $400.0
```

```
Enter interest rate: 5
```

```
Account Number: 6
```

```
Customer Name: CD
```

```
Account Type: Savings
```

```
Balance: $400.0
```

```
Enter term (in years) for compound interest calculation: 2
```

```
Compound Interest deposited. Current Balance: Rs.52900.0
```

```
Account Number: 6
```

```
Customer Name: CD
```

```
Account Type: Savings
```

```
Balance: $52900.0
```