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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 Cur Acct & Savacct 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 & Cuact.
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 Cuact, create a methods to withdraw money if min balance is present and apply a service charge if balance goes below minbalance.
6) Create ob1 of Savact class and call the methods to get deposit, Cal_Interest.
7) Create ob2 of Cuact class and call methods withdraw.
* Compound Interest = amount $\frac{(1 + \text{interest rate})^{nt}}{nt}$
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 = 0.0; }

    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 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+InRate/100), amount) - balance;
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 Curact extends Account {
  double minBalance;
  double serviceCh;

  public Curact (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)
    {
        Saving ob1 = New Saving ("Nikhi", 123456, ac
        ob1. deposit (1000);
        ob1. CalInt (1000, 5);
        ob1. displayBalance ();
        ob1. withdraw (500);

        Current ob2 = new Current ("Sneha", 57829,
                                   1000.0, 60)
        ob2. deposit (2000);
        ob2. withdraw (1500);
        ob2 withdraw (500);
    }
```

Deposited
Balance R : 1000.0
Ankaitcha V R, 1BM22CS001
Balance R : 1338.225
Deducted : 500
New Balance R : 838.225
Deposited
Money cant be withdrawn to maintain min balance
Pay servicecharge : 60.0
Balance R : 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);
    }
```

```
Deposited
Balance is : 1000.0
Ankanksha V R, IBM22CS001
Balance is : 1338.225
Deducted : 500
New Balance is : 838.225
Deposited
Money cant be withdrawn to maintain min balance
Pay servicecharge : 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
```