

LAB PROGRAM-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 Curr-acct and Sav-acct to make them more specific to their requirements. Include the necessary methods in order to achieve the following tasks: • Accept deposit from customer and update the balance. • Display the balance. • Compute and deposit interest • Permit withdrawal and update the balance • Check for the minimum balance, impose penalty if necessary and update the balance.

Program:

```
import java.util.Scanner;  
abstract class Account  
{  
  String cust_name;  
  long acc_no;  
  String acc_type;  
  double balance;  
  double min_bal = 1000.0;  
  Account (String cust_name, long acc_no,String acc_type,double balance)  
  {  
    this.cust_name=cust_name;  
    this.acc_no=acc_no;  
    this.acc_type=acc_type;  
    this.balance=balance;  
  
  }  
  abstract void deposit(double amount);  
  abstract void display();  
  abstract void withdrawal(double amount);  
}  
class Curr_acct extends Account  
{  
  double penalty=100.0;  
  Curr_acct(String cust_name, long acc_no,String acc_type,double
```

```

balance)
{
    super(cust_name,acc_no,acc_type,balance);
    System.out.println("Name of the customer: "+cust_name);
    System.out.println("Account Number accno: "+acc_no);
    System.out.println("Account type: "+acc_type);
    System.out.println("Balance: "+balance);
}
void deposit(double amount)
{
    this.balance = this.balance+amount;
}

void withdrawal(double amount)
{
    this.balance = this.balance-amount;
    imposepenalty();
    System.out.println("The current balance is "+balance);
}
void imposepenalty()
{
    if(this.balance<min_bal)
    {
        this.balance=this.balance-penalty;
        System.out.println("The balance amount is insufficient, the
penalty imposed = 100Rs");
    }
}
void display()
{
    System.out.println("Balance is: " + this.balance);
}
}
class Sav_acct extends Account
{
    Sav_acct(String cust_name, long acc_no,String acc_type,double
balance)
    {
        super(cust_name,acc_no,acc_type,balance);
        System.out.println("Name of the customer: "+cust_name);
        System.out.println("Account Number accno: "+acc_no);
        System.out.println("Account type: "+acc_type);
        System.out.println("Balance: "+balance);
    }
}

```

```

void deposit(double amount)
{
this.balance = this.balance+amount;
interest();
}
void interest()
{
int rate=10,time=1;
float ci=(float)(this.balance*Math.pow(1+rate/100.0,time)-
this.balance);
System.out.println("The interest amount added to balance is "+ci);
this.balance=this.balance+ci;
}

```

```

void withdrawal(double amount)
{
this.balance=this.balance-amount;
System.out.println("The current balance is "+balance);
}
void display()
{
System.out.println("Balance is: " +this.balance);
}
}

```

```

class AccountMain
{
public static void main(String[] args)
{
Scanner xx = new Scanner(System.in);
Double amount;
int flag = 0;
while( flag == 0)
{
System.out.println("Enter the type of Account:\n1:Current
account\n2:Savings account");
int choice=xx.nextInt();
switch(choice)
{
case 1:System.out.println("\nCurrent account:\n");
System.out.println("Enter the name of account holder");
String f=xx.next();
System.out.println("Enter the account number");
long g=xx.nextLong();
System.out.println("Enter the balance amount");

```

```

double h=xx.nextDouble();
Curr_acct c = new Curr_acct(f,g,"current",h);
int flag1 = 0;
while( flag1 == 0)
{
    System.out.println("Enter your choice\n1:Deposit
amount\n2:DisplayBalance\n3:Withdraw");
    int choice1= xx.nextInt();
    switch (choice1)
    {
        case 1:
            System.out.println("Enter amount to be deposited:");
            amount = xx.nextDouble();
            c.deposit(amount);
            break;
        case 2:
            c.display();
            break;

        case 3:
            System.out.println("Enter amount you want to
withdraw:");
            amount = xx.nextDouble();
            c.withdrawal(amount);
            break;
        default:
            flag1 = 1;
    }
}
break;
case 2: System.out.println("\nSavings account:\n");
System.out.println("Enter the name of account holder");
String p=xx.next();
System.out.println("Enter the account number");
long q=xx.nextLong();
System.out.println("Enter the balance amount");
double r=xx.nextDouble();
Sav_acct s = new Sav_acct(p,q,"Savings".r);
int flag2 = 0;
while(flag2 == 0)
{
    System.out.println("Enter your choice\n1:Deposit
amount\n2:DisplayBalance\n3:Withdraw");
    int choice2 = xx.nextInt();

```

```
switch (choice2)  
{  
case 1: System.out.println("Enter amount to be deposited:");  
amount = xx.nextDouble();  
s.deposit(amount);  
break;  
case 2:  
s.display();  
break;  
case 3:  
System.out.println("Enter amount you want to withdraw:");  
amount = xx.nextDouble();  
s.withdrawal(amount);  
break;  
default:  
flag2 =1;  
}  
}  
break;  
default: flag=1;  
}  
}  
}  
}
```

OUTPUT:

```
C:\Users\Divyanshu\java>javac bank_main.java

C:\Users\Divyanshu\java>java bank_main
Enter the bank details
Enter your Name
Divyanshu
Enter the Account Number
1800019
Choose the account type:
1.savings account
2.current account
1
SAVINGS ACCOUNT
Enter the Amount to be placed in your Savings Account
67000
balance= 67000.0
Do you want to calculate Interest or not:
If yes press 1 else 0
1

**Calculating Compound Interest**
Enter annual interest rate: 6
Enter time in years: 3
Enter principle: 4500
The Compound Interest is: 885.06146
balance= 67000.0
Enter the amount to be withdrawn
1500
balance= 65500.0

C:\Users\Divyanshu\java>
```