

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 Cur_acct and Sav_acct to make them more specific to their requirements. Include the necessary methods in order to achieve the following tasks:

- a) Accept deposit from customer and update the balance.
- b) Display the balance.
- c) Compute and deposit interest
- d) Permit withdrawal and update the balance

Check for the minimum balance, impose penalty if necessary and update the balance.

CODE:

Date 9/12/22
Page 15

V 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 cur-acct and sav-acct to make them more specific to their requirements. Include the necessary methods in order to achieve the following tasks :

- a) Accept deposit from customer and update the balance
- b) Display the balance
- c) compute and deposit interest
- d) Permit withdrawal and update balance

Check for the minimum balance, impose penalty if necessary and update the balance.

```
import java.util.Scanner;
import java.lang.Math;
class Account
{
    String name, acc-type;
    int acc-no;
```

```
double bal, dep;  
Scanner ss = new Scanner (System.in);  
void setd()  
{  
    System.out.println ("Enter your name:");  
    name = ss.next();  
    System.out.println ("Enter your  
    account number:");  
    acc_no = ss.nextInt();  
    System.out.println ("Enter your  
    account type: (Savings / Current)");  
    acc_type = ss.next();  
    System.out.println ("Enter the Bank  
    Balance"); bal = ss.nextDouble();  
}
```

```
void disp() {  
    System.out.println ("Name: " + name);  
    System.out.println ("Account  
    Number: " + acc_no);  
    System.out.println ("Account type:  
    " + acc_type);  
    System.out.println ("Current  
    Balance is: " + bal);  
}
```

```
void deposit() {  
    System.out.println ("Enter the  
    amount to be deposited:");  
    dep = ss.nextDouble();  
    bal += dep;  
    System.out.println ("Balance  
    amount: " + bal);  
}
```

```
boolean acc (String acc-type)
{ if (acc-type == "Savings")
    return true;
else if (acc-type == "Current")
    return false;
else
    return true;
}
```

```
class Cur-acct extends Account
```

```
{
```

```
int penal()
{ double min, pen;
System.out.println ("\nEnter minimum
balance & penalty amount if met
followed:");
min = ss.nextDouble(); pen = ss.nextDouble();

if (bal < min)
{ bal -= pen;
System.out.println ("Penalty
imposed for having insufficient
balance"); }
else
    return 1;
}
```

```
void withdrawal()
```

```
{ double amt;
System.out.println ("Enter
amount to be withdrawn:");
amt = ss.nextDouble(); int a = penal();
if (a == 1)
{ if (bal >= amt)
```

```
{ bal -= amt;  
System.out.println ("Account  
Balance after withdrawal  
is : " + bal); }
```

{

else

```
System.out.println ("In Account Balance  
after withdrawal. The amount  
can't be withdrawn");
```

{

{.

class SavAcct extends Account

{

void calcInterest()

{

```
System.out.println ("Enter time and  
rate of interest");
```

```
double t = sc.nextDouble();
```

```
double r = ss.nextDouble();
```

```
double CI = bal * Math.pow((1+r)/100, t);
```

```
System.out.println ("Compound  
Interest is " + CI);
```

~~//bal += CI;~~

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

{

void withdrawal()

{ double amt;

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

```
amt = ss.nextDouble();
```

```
if (bal >= amt)
```

{ bal -= amt;

```
System.out.println ("Account  
Balance after withdrawal is :"  
+ bal); }  
}  
else  
System.out.println ("\n The  
amount can't be withdrawn");  
}  
}  
class Bank  
{  
public static void main (String args[])  
{  
Scanner ss = new Scanner (System.in);  
Account a1 = new Account();  
a1.setd();  
if (a1.acc(a1.acc-type) == true)  
{  
Sav-acct s1 = new Sav-acct();  
s1.name = a1.name; s1.acc-no =  
a1.acc-no; s1.acc-type = a1.acc-type;  
s1.bal = a1.bal;  
System.out.println ("Enter your  
choice: /n 1. Deposit /n 2. Calculate  
interest /n 3. withdrawal /n 4. Display  
/n 5. Exit "); int ch = ss.nextInt();  
switch(ch)  
{  
case 1: s1.deposit(); break;  
case 2: s1.calc-interest(); break;  
case 3: s1.withdrawal(); break;  
case 4: s1.disp(); break;  
case 5: exit(0); break;
```

```
default: System.out.println(  
    "Invalid Input");
```

}

}

else

{

```
cur-acct c1 = new cur-acct();
```

```
c1.name = al.name; c1.acc_no = al.acc_no;
```

```
c1.acc-type = al.acc-type; c1.bal = al.bal;
```

```
System.out.println("Enter your  
choice: /n 1. Deposit /n 2. Penalty check /n  
3. Withdraw /n 4. Display /n 5. Exit");
```

```
int ch = ss.nextInt();
```

```
switch(ch)
```

{

```
case 1: c1.deposit(); break;
```

```
case 2: c1.penalty(); break;
```

```
case 3: c1.withdrawal(); break;
```

```
case 4: c1.disp(); break;
```

```
case 5: c1.exit(); break;
```

```
default: System.out.println(
```

"Invalid input");

}

}

}

OUTPUT

① Enter your Name:

Dhiksha

Enter your Account Number:

123456

Enter your Account type: (Savings / Current)

Savings

Enter the Bank Balance:

30000

Enter your choice:

1. Deposit

2. Calculate interest

3. Withdraw

4. Display

5. Exit

1

Enter the amount to be deposited:

5000

Balance Amount: 35000.0

Enter your choice:

1. Deposit

2. Calculate interest

3. Withdraw

4. Display

5. Exit

3

Enter amount to be withdrawn:

5000

Account Balance after withdrawal is : 30000.0

Enter your choice:

1. Deposit

2. Calculate interest

3. Withdraw

4. Display

5. Exit

2.

Enter Time in years and Rate of interest

2 5.4

Account Balance after compounding interest:

33327.48

Enter your choice

1. Deposit

2. Calculate Interest

3. Withdraw

4. Display

5. Exit

4

Name : Dhiksha

Account Number : 123456

Account Type : Savings

Current Balance is : ₹33327.48

Enter your choice

1. Deposit

2. Calculate Interest

3. withdraw

4. Display

5. Exit

5

(2) Enter your name:

Dhiksha

Enter your Account Number:

123456

Enter your Account Type (Savings/Current)

Current

Enter the bank Balance:

30000

Enter your choice:

1. Deposit
2. Penalty Check
3. Withdraw
4. Display
5. Exit

1

Enter the amount to be deposited:

3000

Balance amount: 33000.0

Enter your choice

1. Deposit
2. Penalty Check
3. Withdraw
4. Display
5. Exit

2

Enter Minimum

No penalty

Date _____
Page _____

Enter your choice :

1. Deposit
2. Penalty Check
3. withdraw
4. Display
5. Exit

3

Enter amount to be withdrawn :

5000

No penalty

Account Balance after withdrawal is:

28000.0

Enter your choice

1. Deposit
2. Penalty Check
3. withdraw
4. Display
5. Exit

4

Name : Dinksha

Account Number : 123456

Account Type : Current

Current balance is : 28000

Enter your choice

1. Deposit
2. Penalty Check
3. withdraw
4. Display
5. Exit

5

OUTPUT:

```
cmd Command Prompt
Microsoft Windows [Version 10.0.22000.1219]
(c) Microsoft Corporation. All rights reserved.

C:\Users\dhiks>cd C:\Users\dhiks\Desktop

C:\Users\dhiks\Desktop>javac Lab5.java

C:\Users\dhiks\Desktop>java Bank
Enter your Name:
Dhiksha
Enter your Account Number:
123456
Enter your Account type: (Savings/Current)
Savings
Enter the Bank Balance:
30000
Enter your choice:
1.Deposit
2.Calculate interest
3.Withdraw
4.Display
5.Exit
1
Enter the amount to be deposited:
5000
Balance Amount: 35000.0
Enter your choice:
1.Deposit
2.Calculate interest
3.Withdraw
4.Display
5.Exit
3
Enter amount to be withdrawn:
5000
Account Balance after withdrawal is:30000.0
Enter your choice:
1.Deposit
2.Calculate interest
3.Withdraw
4.Display
5.Exit
2
Enter Time in years and Rate of interest
2 5.4
```

c:\ Command Prompt

Enter your choice:

1.Deposit

2.Calculate interest

3.Withdraw

4.Display

5.Exit

2

Enter Time in years and Rate of interest

2 5.4

Account Balance after compounding interest: 33327.48

Enter your choice:

1.Deposit

2.Calculate interest

3.Withdraw

4.Display

5.Exit

4

Name: Dhiksha

Account Number: 123456

Account Type: Savings

Current balance is: 33327.48

Enter your choice:

1.Deposit

2.Calculate interest

3.Withdraw

4.Display

5.Exit

5

C:\ Command Prompt

```
Microsoft Windows [Version 10.0.22000.1219]
(c) Microsoft Corporation. All rights reserved.

C:\Users\dhiks>cd C:\Users\dhiks\Desktop

C:\Users\dhiks\Desktop>javac Lab5_java.java

C:\Users\dhiks\Desktop>java Bank
Enter your Name:
Dhiksha
Enter your Account Number:
123456
Enter your Account type: (Savings/Current)
Current
Enter the Bank Balance:
30000
Enter your choice:
1.Deposit
2.Penalty Check
3.Withdraw
4.Display
5.Exit
1
Enter the amount to be deposited:
3000
Balance Amount: 33000.0
Enter your choice:
1.Deposit
2.Penalty Check
3.Withdraw
4.Display
5.Exit
2
No penalty
Enter your choice:
1.Deposit
2.Penalty Check
3.Withdraw
4.Display
5.Exit
3
Enter amount to be withdrawn:
5000
No penalty
Account Balance after withdrawal is:28000.0
```

C:\ Command Prompt

```
3.Withdraw
4.Display
5.Exit
1
Enter the amount to be deposited:
3000
Balance Amount: 33000.0
Enter your choice:
1.Deposit
2.Penalty Check
3.Withdraw
4.Display
5.Exit
2
No penalty
Enter your choice:
1.Deposit
2.Penalty Check
3.Withdraw
4.Display
5.Exit
3
Enter amount to be withdrawn:
5000
No penalty
Account Balance after withdrawal is:28000.0
Enter your choice:
1.Deposit
2.Penalty Check
3.Withdraw
4.Display
5.Exit
4
Name: Dhiksha
Account Number: 123456
Account Type: Current
Current balance is: 28000.0
Enter your choice:
1.Deposit
2.Penalty Check
3.Withdraw
4.Display
5.Exit
5
```