LAB PROGRAM – 5

Q. 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.

```
import java.util.Scanner;

import java.lang.Math;

class Account

{

String name, acc_type;

int acc_no;

double bal,dep;

Scanner scan= new Scanner(System.in);

void setd()

{

System.out.println("Enter your Name:");

name=scan.next();
```

```
System.out.println("Enter your Account Number:");
acc_no=scan.nextInt();
System.out.println("Enter your Account type: (Savings/Current)");
acc_type=scan.next();
System.out.println("Enter the Bank Balance:");
bal=scan.nextInt();
}
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=scan.nextInt();
bal+=dep;
System.out.println("BALANCE AMOUNT: "+bal);
}
/*boolean acc(String acc_type)
{
if(acc_type.equals("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("Enter Minimum balance & penalty amount if not followed:");
min=5000; pen=min*0.05;
if(bal<min)
{
bal-=pen;
System.out.println("Penalty imposed for having insufficient balance"); return 0;
}
else
   {System.out.println("No penalty");
   return 1;}
}
void withdrawal()
{
double amt;
System.out.println("Enter amount to be withdrawn:");
amt=scan.nextInt();
          int a= penal();
if(a==1)
{
if(bal>=amt)
             { bal=bal-amt;
System.out.println("Account Balance after withdrawal is:" +bal);}
}
else
```

```
            System.out.println("The amount can't be withdrawn");
    }
}
class Sav_acct extends Account
{
void calc_interest()
{
System.out.println("Enter Time in years and Rate of interest");
double t=scan.nextDouble(); double r=scan.nextDouble();
double CI = bal*Math.pow((1 + r/ 100), t);
System.out.println("ACCOUNT BALANCE and compounding interest: "+ bal);
}
void withdrawal()
{
double amt;
System.out.println("Enter amount to be withdrawn:");
amt=scan.nextInt();
if(bal>=amt)
            { bal=bal-amt;
System.out.println("Account Balance after withdrawal is:" +bal);}
else
            System.out.println("The amount can't be withdrawn");
    }
}
class Bank
{
  public static void main(String arg[])
  {
Scanner ss=new Scanner(System.in);
Account b1=new Account();
```

```
b1.setd();

if(b1.acc_type.equals("Savings"))

{

Sav_acct s1=new Sav_acct();

//s1=b1;

s1.name=b1.name; s1.acc_no=b1.acc_no; s1.acc_type=b1.acc_type; s1.bal=b1.bal;

while(true)

{

System.out.println("Enter your choice:\n1.Deposit\n2.Calculate
interest\n3.Withdraw\n4.Display\n5.Exit");

int choice=ss.nextInt();

switch(choice)

{

case 1: s1.deposit(); break;

case 2: s1.calc_interest(); break;

case 3: s1.withdrawal(); break;

case 4: s1.disp(); break;

case 5: System.exit(0);

default: System.out.println("Invalid input");

}

}

}

else if(b1.acc_type.equals("Current"))

{

Cur_acct c1=new Cur_acct();

c1.name=b1.name; c1.acc_no=b1.acc_no; c1.acc_type=b1.acc_type; c1.bal=b1.bal;

while(true)

{

System.out.println("Enter your choice:\n1.Deposit\n2.Penalty
Check\n3.Withdraw\n4.Display\n5.Exit");

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

```
switch(choice)
{
case 1: c1.deposit(); break;
case 2: c1.penal(); break;
case 3: c1.withdrawal(); break;
case 4: c1.disp(); break;
case 5: System.exit(0);
default: System.out.println("Invalid input");
}
}
}
else
  System.out.println("Invalid Account type");
   }
}
```

Lab-program: 5

Q. Develop a JAVA program to create a class Bank that maintains two kinds of account for its customer, one called savings account and the other current account. The saving 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.

~~Complete the observation and execution of both the above programs.~~

```
import java.util.Scanner;
import java.lang.Math;

class Account
{
String name, acc_type;
int acc_no;
double bal, dep;
Scanner scan = new Scanner (System.in)

void setd()
{
System.out.println("Enter your Name:");
name = Scan.next();
System.out.println("Enter your Account Number:");
acc_no = scan.nextInt();
System.out.println("Enter your Account type : (Savings/Current)");
acc_type = scan.next();
System.out.println("Enter the Bank Balance:");
Bal = scan.nextInt();
}

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 = scan.nextInt();
bal += dep;
System.out.println("Balance Amount :" + bal);
}
/* boolean acc(String acc_type)
{
if (acc_type.equals("Savings"))
return true;
else if (acc_type == "Current")
return false;
else
return true;
} */
}

class Cur_acct extends Amount
{
int penal()
{
double min, pen;
System.out.println("Enter Minimum balance & penalty
                    amount if not followed:");
min = 5000; pen = min * 0.05;
if (bal<min)
{
bal -= pen;
System.out.println("Penalty imposed for having insuffic
                    -ient balance");
return 0;
}
```

```
else
  { System.out.println("No penalty");
    return 1; }
}
void withdrawal()
{ double amt;
  System.out.println("Enter amount to be withdrawn:");
   amt = scan.nextInt();
   int a = penal();
if (a==1)
{
  if (bal>amt)
  { bal = bal-amt;
    System.out.println("Account Balance after withdrawal is :"+bal);}
}
else
 System.out.println("The amount can't be withdrawn");
}
}

class Sav_acct extends Account
{ void calc_interest()
 {System.out.println("Enter Time in years and Rate of interest");
  double t = scan.nextDouble(); double r=scan.nextDouble();
  double cl=bal*Math.pow((1+r/100), t);
  System.out.println("Account Balance and compounding interest:"+bal);
 }
void withdrawal()
{ double amt;
  System.out.println("Enter amount to be withdrawn:");
  amt=scan.nextInt()
  if(bal>=amt)
```

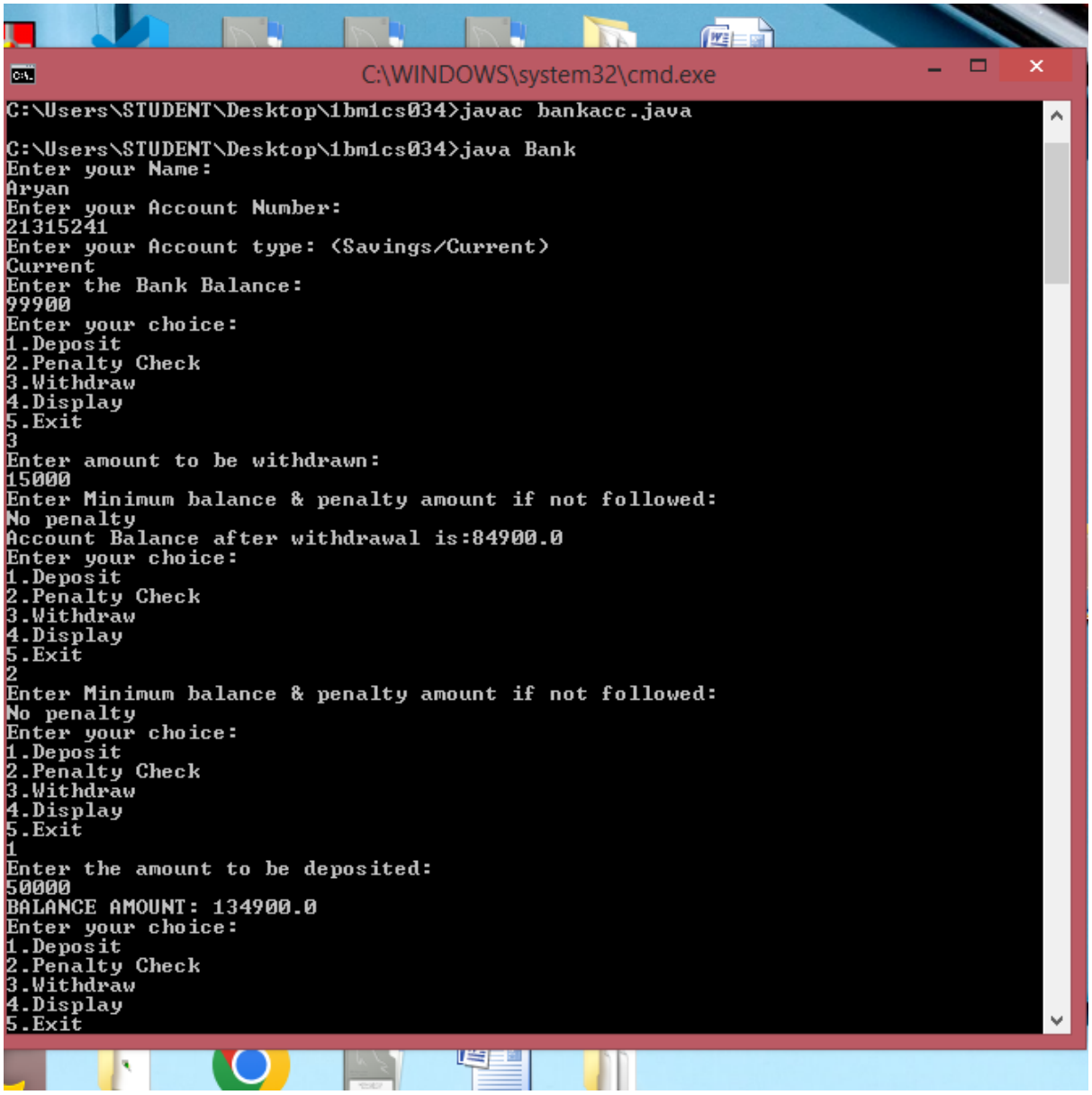
```
{ bal = bal-amt;
 System.out.println("Account Balance after withdrawal is: " + bal); }
else
 System.out.println("The amount can't be withdrawn"); }
}

Class Bank
{ public static void main (String arg[])
 { Scanner ss = new Scanner (System.in);
  Account b1 = new Account();
  b1.setd();
  if (b1.acc_type.equals ("Savings"))
  { Sav_acct s1 = new Sav_acct();
  s1.name=b1.name; s1.acc_no=b1.accno;
  s1.acc_type= b1.acc_type ; s1.bal = b1.bal;
  while (true)
  { System.out.println("Enter your choice: \n1. Deposit \n 2. Calculate
   interest \n3. Withdraw \n 4. Display \n 5. Exit");
  int choice =ss.nextInt();
  switch (choice)
  { case1 : s1.deposit(); break;
    case 2 :s1.cal_interest(); break;
    case3: s1. withdrawal(); break;
    case 4: s1.disp(); break; case5 : System. exit(0);
    default : System.out.println ("Invalid Input"); }
  } }
  else if (b1.acc_type. equals ("Current"))
  { Cur_acct c1 = new Cur_acct();
  c1.name=b1.name; c1.acc_no=b1.acc_no; c1.acc_type=b1.acc_type; c1.bal=b1.bal;
  while(true)
  { System.out.println("Enter your choice : \n 1. Deposit \n 2. Penalty \n Check
    \n 3. Withdraw \n 4. Display \n 5. Exit");
  int choice =ss.nextInt(); switch (choice)
  { case 1 : c1.deposit(); break; case 2: c1.penal(); break;
```

```
case 3: c1.withdrawal(); break; case 4: c1.disp(); break;
case 5: System.exit(0);
default: System.out.println("Invalid Input");
}}}
else
System.out.println("Invalid Account type");
}}.
```

Output

```
Enter your Name : Aryan
Enter your Account Number: 2131521
Enter your Account type : (savings/current) Current.
Enter the Bank Balance: 99900
Enter your choice:
1. Deposit
2. Penalty check
3. Withdraw
4. Display
5. Exit
3
Enter amount to be withdrawn : 15000
Enter minimum balance and penalty amount if not followed:
No penalty
Account Balance after withdrawal is: 84900.0
Enter your choice:
1. Deposit 2. Penaltycheck 3. Withdraw 4. Display 5. Exit
2
Enter Minimum balance & penalty amount if not followed: No penalty
Enter your choice:
1. Deposit 2. Penalty 3. Withdrawal 4. Display 5. Exit.
1.
Enter the amount to be deposited : 50000
Balance Amount : 134900.0
```


C:\WINDOWS\system32\cmd.exe
C:\Users\STUDENT\Desktop\1bm1cs034>javac bankacc.java
C:\Users\STUDENT\Desktop\1bm1cs034>java Bank
Enter your Name:
Aryan
Enter your Account Number:
21315241
Enter your Account type: (Savings/Current)
Current
Enter the Bank Balance:
99900
Enter your choice:
1.Deposit
2.Penalty Check
3.Withdraw
4.Display
5.Exit
3
Enter amount to be withdrawn:
15000
Enter Minimum balance & penalty amount if not followed:
No penalty
Account Balance after withdrawal is:84900.0
Enter your choice:
1.Deposit
2.Penalty Check
3.Withdraw
4.Display
5.Exit
2
Enter Minimum balance & penalty amount if not followed:
No penalty
Enter your choice:
1.Deposit
2.Penalty Check
3.Withdraw
4.Display
5.Exit
1
Enter the amount to be deposited:
50000
BALANCE AMOUNT: 134900.0
Enter your choice:
1.Deposit
2.Penalty Check
3.Withdraw
4.Display
5.Exit