Lab Program 5

9/12/22.

Program5 : 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 ~~poso~~ provides compound interest and withdrawal facilities but no check 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 :-

a) Accept deposit from customer and update the balance

b) Display the balance.

c) Compute ~~of~~ and update the balance

d) Permit withdrawal and update the balance.

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

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

class Account
{
  String cname, accNo;
  int typeOfAcc;
  Double balance = 0, depo, withdraw;
  void set()
  {
    Scanner ss = new Scanner(System.in);
    System.out.println("Enter your name,
    account number");
    cname = ss.nextLine();
    accNo  = ss.next();
    System.out.println("Enter the balance");
    balance = ss.nextDouble();
    System.out.println("The balance in the
    account is " + balance);
  }
  void check()
  {
    Scanner ss = new Scanner(System.in);
    System.out.println("Choose the account
    type 1 for savings account, 2 for current
    account");
    typeOfAcc = ss.nextInt();
  }
}
```

```
class Cur_acct extends Account
{
Double minBal, penalty;
Cur_acct()
{
 minBal = 1000;
}

void Penalty()
{
    penalty = ~~200~~ 0.20 * minBal;
    Scanner sc = new Scanner(System.in);
    if (balance < minBal)
    {
      int n;
      System.out.println("A service charge of"
      + penalty + " will be charged as the
      balance will become less than
      min balance In Do you want to proceed?");
      System.out.println("1. Yes In 2. No ");
      n = sc.nextInt();
      if (n == 1)
          balance = balance - penalty;
      else
          system.out.println("Withdraw cancelled");
    }
}

void deposit()
{
  Scanner sc = new Scanner(System.in);
  system.out.println("Enter the amount you want
```

```
to deposit ");
depo = sc.nextDouble();
balance += depo;
display();
}

void withdraw()
{
  Scanner sss = new Scanner(System.in);
  System.out.println("Enter the amount you want
  to withdraw");
  withdraw = sss.nextDouble();
  if (withdraw < balance)
  {
    balance = balance - withdraw;
  }
  else
  System.out.println("Insufficient balance");
  display();
}

void display()
{
  Penalty();
  System.out.println("Name :" + cname + "account
  number :" + accNo);
  System.out.println("The balance in the account
  is " + balance);
}
}
```

```
class Sav-acct extends Account
{
  void interest()
  {
    double r, n, t;
    Scanner sss = new Scanner(System.in);
    System.out.println("Enter the rate of interest");
    r = sss.nextDouble();
    System.out.println("Enter the number of times
    interest is compounded per year");
    n = sss.nextDouble();
    System.out.println("Enter the time in years");
    t = sss.nextDouble();
    balance = balance * Math.pow(1+r/n, (n*t));
    System.out.println("A compound interest was
    added");
    display();
  }

  void deposit()
  {
    Scanner sc = new Scanner(System.in);
    System.out.println("Enter the amount you want to
    deposit");
    depo = sc.nextDouble();
    balance += depo;
    display();
  }

void withdrawal()
{
  Scanner sss = new Scanner(System.in);
```

```
System.out.println("Enter the amount you want
to withdraw ");
withdraw = sss.nextDouble();
if (withdraw < balance)
{
  balance = balance - withdraw;
}
else
{
  System.out.println("Insufficient balance");
}
display();
}

void display()
{
  System.out.println("Name : "+cname+"
  Account number : "+accNo);
  System.out.println("The balance in the amount
  is "+balance);
}
}

class Bank
{
  public static void main(String args[])
  {
    Scanner ss = new Scanner(System.in);
    int op;
    Account a = new Account();
    a.check();
    Sav_acct s = new Sav_acct();
```

```
cur_acct c = new cur_acct();
System.out.println("The balance in the account is
"+a.balance);
if(a.typeOfAcc==1)
{
 a.set();
 while(true)
 {
  System.out.print("Enter the choice: \n1. Display
  \n2. Deposit \n3. Withdraw \n4. Update Compound
  Interest \n5. Exit \n");
  op=ss.nextInt();
  switch(op)
  {
   case 1: a.display();
           break;
   case 2: a.deposit();
           break;
   case 3: a.withdrawal();
           break;
   case 4: System.exit(0);
   default: System.out.println("Wrong choice");
  }
 }

 case 4: s.interest();
         break;

 case 5: System.exit(0);
 default: System.out.println("Wrong choice");
 }
}
```

```
else if (a.typeOfAcc == 2)
{
  c.set();
  while (true)
  {
    System.out.print("Enter the choice : \n1. Display
    \n2. Deposit Check \n 3. Withdraw Check \n
    4. Exit \n");
    op=ss.nextInt();
    switch(op)
    {
      case 1 : c.display();
               break;
      case 2 : c.deposit();
               break;
      case 3 : c.withdraw();
               break;
      case 4 : System.exit(0);
      default : System.out.println("Wrong choice");
    }
  }
  else {
    System.out.println("Wrong choice");
  }
}
}
```

Output:-

Choose the account type 1 for savings account. 2 for current account.

1

The balance in the account is 0.0

Enter your name, account number.

Deeksha

1211

Enter the balance

2000

The balance in the account is 2000.0

Enter the choice:

1. Display
2. Deposit
3. Withdraw
4. Compound Interest
5. Exit

2

Enter the amount you want to deposit

1000

Name: Deeksha Account number: 1211

The balance in the account is 3000.0

Enter the choice:

1. Display
2. Deposit
3. Withdraw
4. Compound Interest
5. Exit

3

Enter the amount you want to withdraw

2000

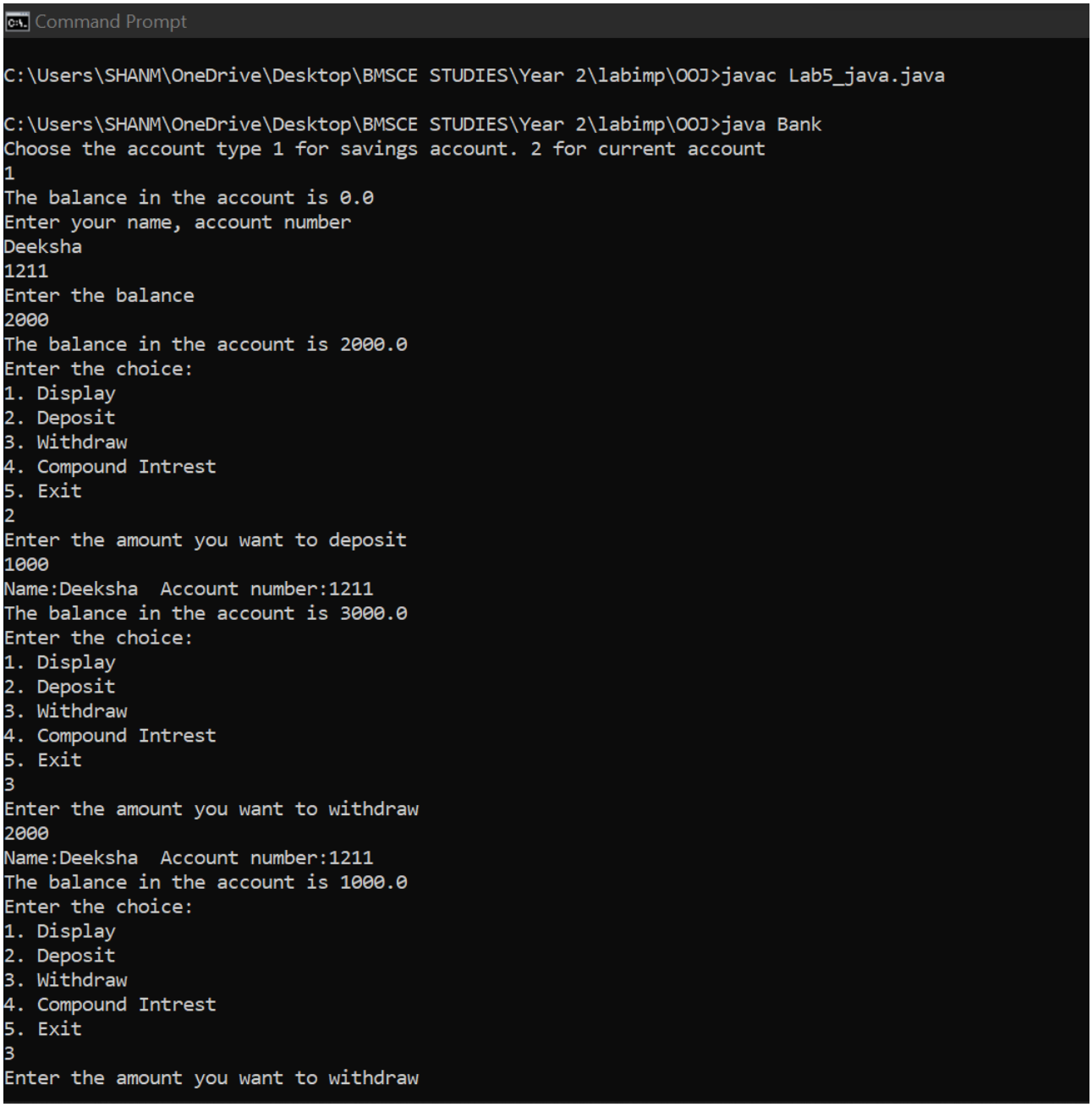
Name: Deeksha Account number. 1211

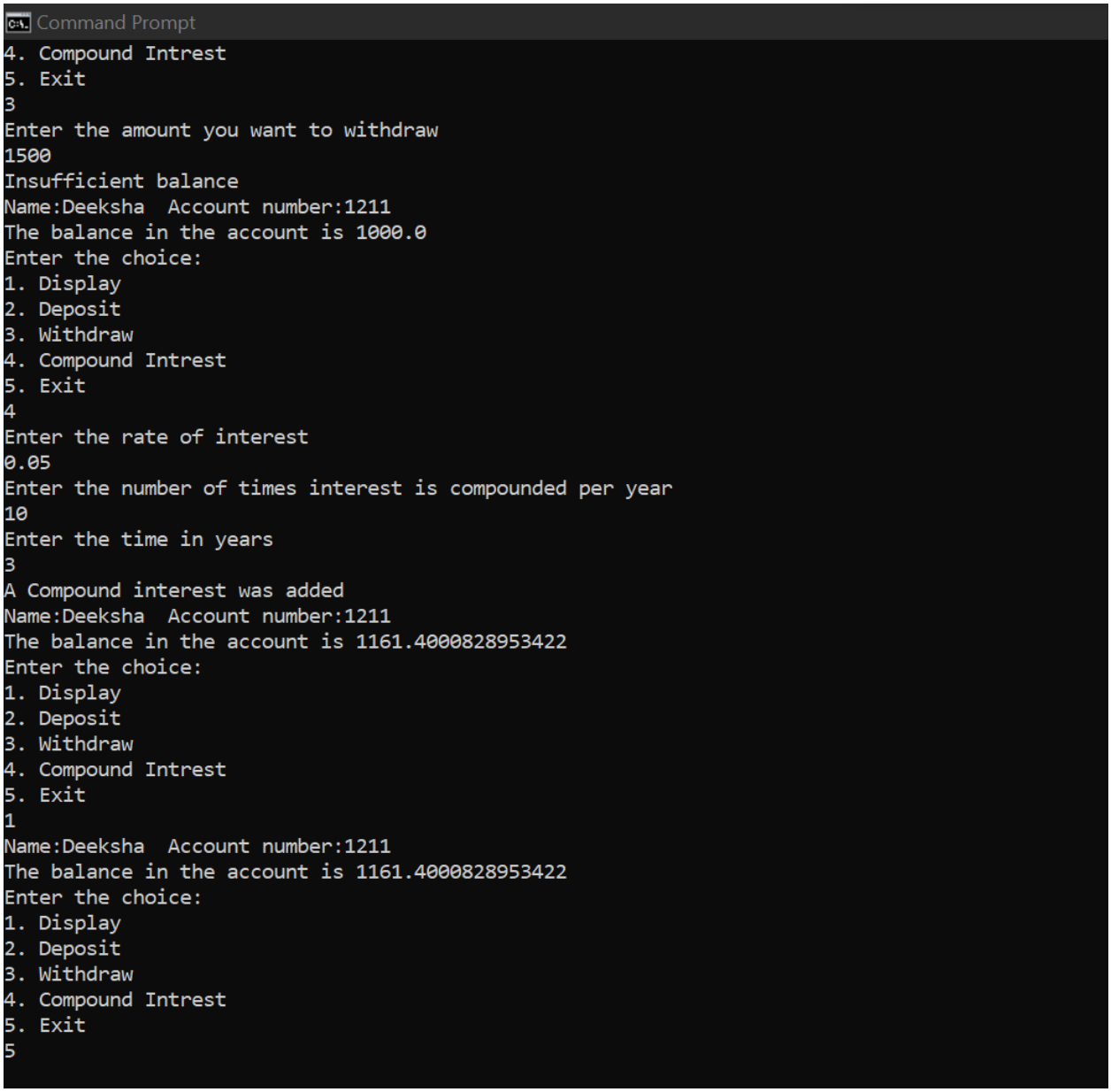
The balance in the account is 1000.0
Enter the choice:
1. Display
2. Deposit
3. Withdraw
4. Compound Interest
5. Exit
4
Enter the rate of interest
0.05
Enter the number of times interest is compounded per year
10
Enter the time in years
3
A compound interest was added
Name: Deeksha Account number: 1211
The balance in the account is 1161.4000828953422

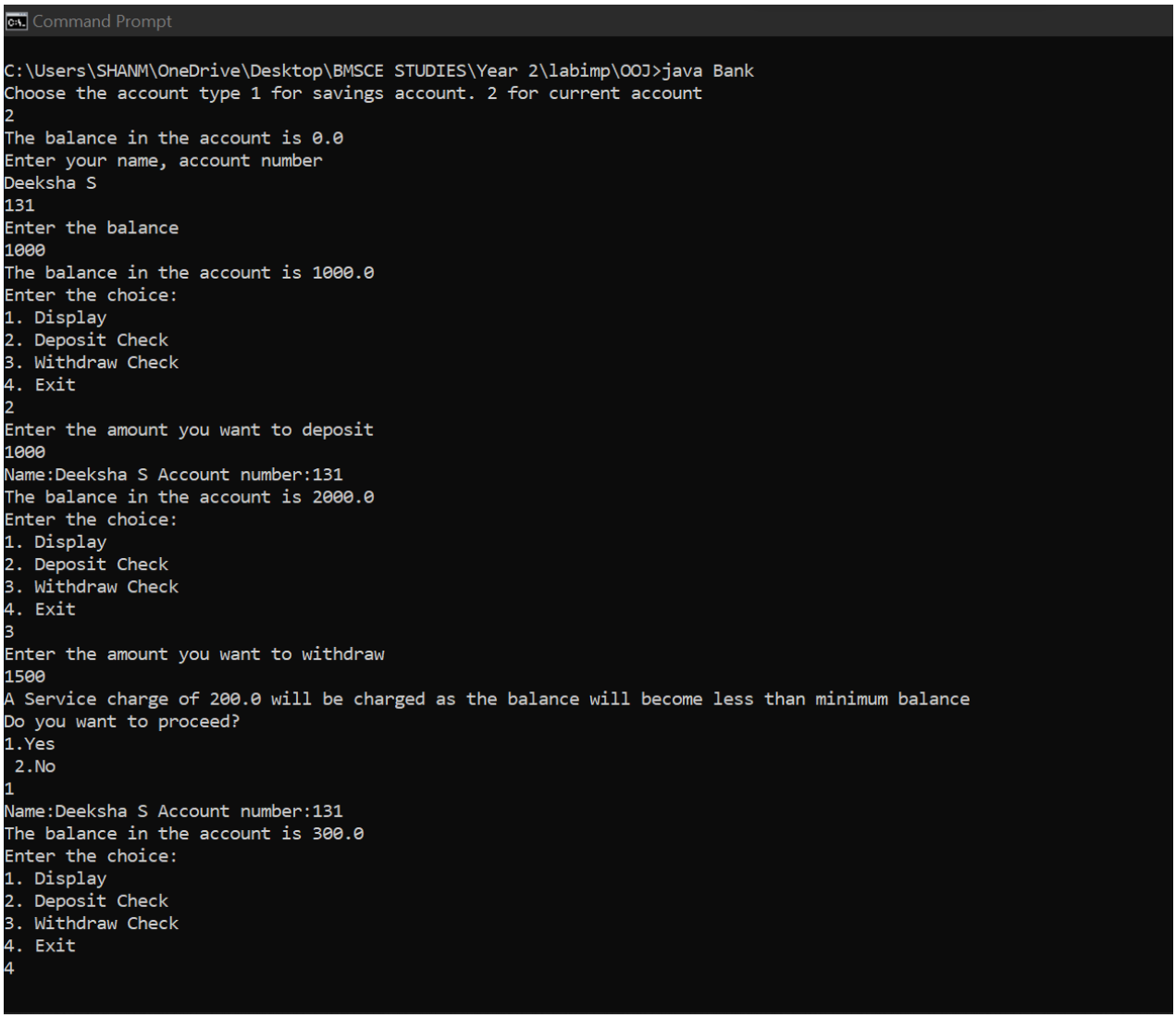
Choose the account type 1 for savings account.
2 for current account.
2
The balance in the account is 0.0
Enter your name, account number
Deeksha S
131
Enter the balance
1000
The balance in the account is 1000.0
Enter the choice:
1. Display

2. Deposit Check
3. Withdraw Check
4. Exit
2
Enter the amount you want to deposit.
1000
Name : Deeksha S Account number : 131
The balance in the account is 2000.0
Enter the choice :
1. Display
2. Deposit Check
3. Withdraw Check
4. Exit
3
Enter the amount you want to withdraw
1500
A service charge ~~will~~ of 200.0 will be charged as the balance will become less than minimum balance.
Do you want to proceed?
1. Yes
2. No
1
Name : Deeksha S Account number : 131
The balance in the account is 300.0

OUTPUT:


Command Prompt
C:\Users\SHANM\OneDrive\Desktop\BMSCE STUDIES\Year 2\labimp\OOJ>javac Lab5_java.java
C:\Users\SHANM\OneDrive\Desktop\BMSCE STUDIES\Year 2\labimp\OOJ>java Bank
Choose the account type 1 for savings account. 2 for current account
1
The balance in the account is 0.0
Enter your name, account number
Deeksha
1211
Enter the balance
2000
The balance in the account is 2000.0
Enter the choice:
1. Display
2. Deposit
3. Withdraw
4. Compound Intrest
5. Exit
2
Enter the amount you want to deposit
1000
Name:Deeksha Account number:1211
The balance in the account is 3000.0
Enter the choice:
1. Display
2. Deposit
3. Withdraw
4. Compound Intrest
5. Exit
3
Enter the amount you want to withdraw
2000
Name:Deeksha Account number:1211
The balance in the account is 1000.0
Enter the choice:
1. Display
2. Deposit
3. Withdraw
4. Compound Intrest
5. Exit
3
Enter the amount you want to withdraw


Command Prompt
4. Compound Intrest
5. Exit
3
Enter the amount you want to withdraw
1500
Insufficient balance
Name:Deeksha Account number:1211
The balance in the account is 1000.0
Enter the choice:
1. Display
2. Deposit
3. Withdraw
4. Compound Intrest
5. Exit
4
Enter the rate of interest
0.05
Enter the number of times interest is compounded per year
10
Enter the time in years
3
A Compound interest was added
Name:Deeksha Account number:1211
The balance in the account is 1161.4000828953422
Enter the choice:
1. Display
2. Deposit
3. Withdraw
4. Compound Intrest
5. Exit
1
Name:Deeksha Account number:1211
The balance in the account is 1161.4000828953422
Enter the choice:
1. Display
2. Deposit
3. Withdraw
4. Compound Intrest
5. Exit
5


Command Prompt
C:\Users\SHANM\OneDrive\Desktop\BMSCE STUDIES\Year 2\labimp\OOJ>java Bank
Choose the account type 1 for savings account. 2 for current account
2
The balance in the account is 0.0
Enter your name, account number
Deeksha S
131
Enter the balance
1000
The balance in the account is 1000.0
Enter the choice:
1. Display
2. Deposit Check
3. Withdraw Check
4. Exit
2
Enter the amount you want to deposit
1000
Name:Deeksha S Account number:131
The balance in the account is 2000.0
Enter the choice:
1. Display
2. Deposit Check
3. Withdraw Check
4. Exit
3
Enter the amount you want to withdraw
1500
A Service charge of 200.0 will be charged as the balance will become less than minimum balance
Do you want to proceed?
1.Yes
2.No
1
Name:Deeksha S Account number:131
The balance in the account is 300.0
Enter the choice:
1. Display
2. Deposit Check
3. Withdraw Check
4. Exit
4