Name: Akram

USN: 1BM21CS013

Class: 3A

Lab 2 Question: 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.

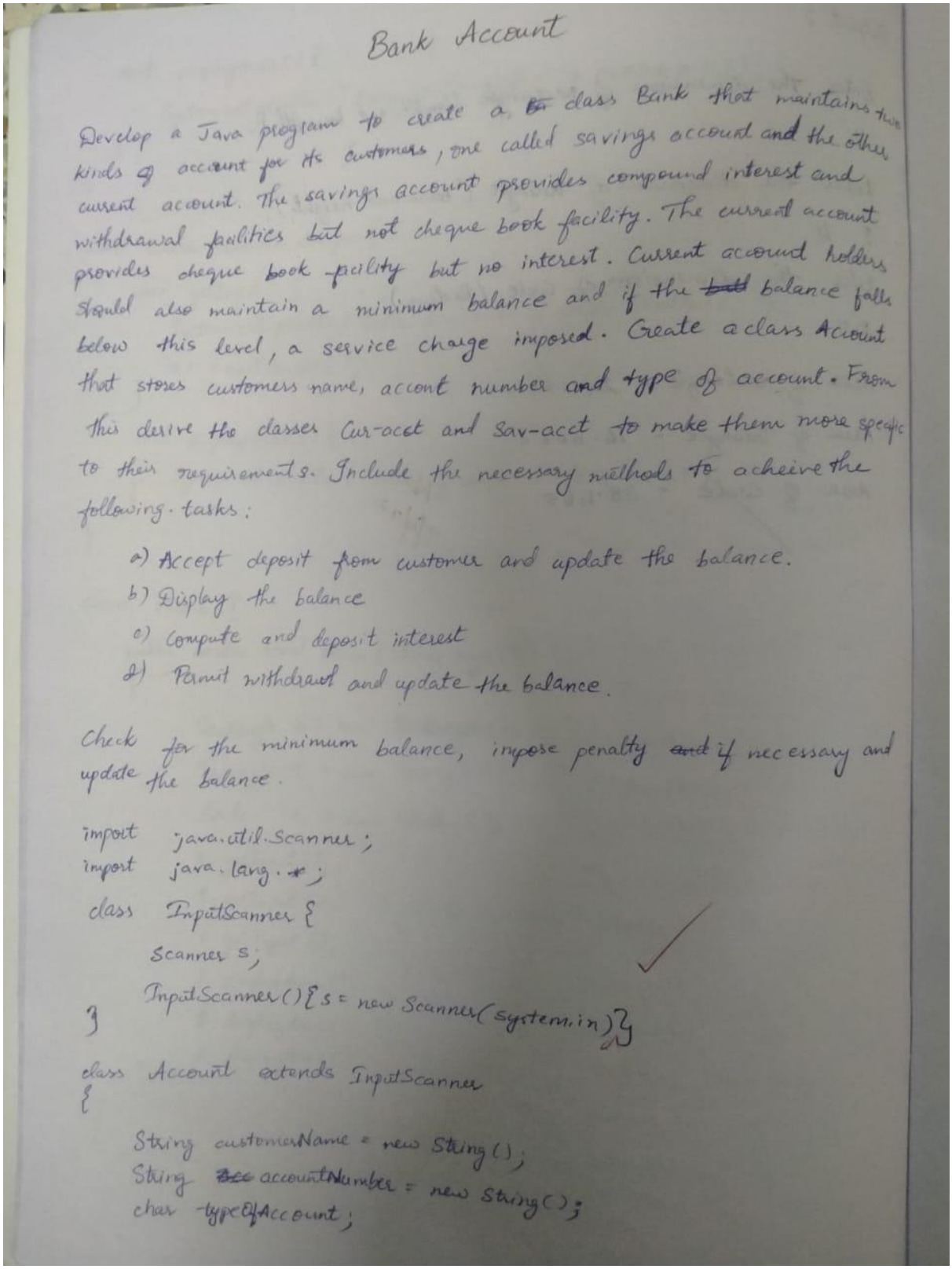
b) Display the balance.

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.

Program:



Bank Account

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 not 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 imposed. Create a class Account that stores customers name, accont 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 to acheive 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.*;
class InputScanner {
    Scanner s;
    InputScanner(){s = new Scanner(System.in);}
}
class Account extends InputScanner
{
    String customerName = new String();
    String accountNumber = new String();
    char typeOfAccount;
```

```
void getInput (char ch) {
    System.out.print ("Enter customer name: ");
    customerName = s.next();
    System.out.print ("Enter account Number: ");
    accountNumber = s.next();
    typeOfAccount = ch;
}
void displayDetails () {
    System.out.println ("\n Customer name: " + customerName);
    System.out.println ("Account number: " + accountNumber);
    if (typeOfAccount == 's')
        System.out.println ("Type of Account: Savings account");
    else
        System.out.println ("Type of Account: Current account");
}
class Sav_acct extends Account
{
    double balance;
    void deposit() {
      double depositAmount;
      System.out.println ("Enter the deposit amount: ");
      deposit = s.nextInt(); s.nextDouble();
      balance += depositAmount;
    }
    void withdraw ()
    {
      double withdrawal;
      System.out.println ("Enter the withdrawal amount: ");
      withdrawal = s.nextInt(); s.nextDouble();
      balance -= withdrawal;
    }
```

```
void computeCompoundInterest()
{
    int t;
    System.out.println("Enter the time period: ");
    t = s.nextInt();
    for (int i=0; i<t; i++)
        balance += (balance * 0.02);
}
void displayDetails() {
    super.displayDetails();
    System.out.println("Balance: " + balance + "\n");
}

class Curr_acct extends Account {
    static int minBalance;
    double balance;
    double penalty;
    static
    {
        minBalance = 500;
    }
    void deposit()
    {
        double depAmt;
        System.out.println("Enter the deposit amount: ");
        depAmt = s.nextDouble();  ---> balance += depAmt;
        if (balance + penalty >= minBalance)
            balance += penalty;
    }
    void withdraw()
    {
        double withdrawal;
        int choice;
        System.out.println("Enter the withdrawal Amount: ");
        withdrawal = s.nextDouble();
```

```
if (balance - withdrawal < 500)
{
    System.out.println("Withdrawing an amount " + withdrawal +
                       " will reduce the balance beyound min balance");
    System.out.println("Enter 1 to continue withdrawal with penalty
                        imposed");
    System.out.println("Enter 0 to cancel withdrawal");
    choice = s.nextInt();
    if (choice == 1)
    {
        balance -= withdrawal;
        penalty = -(minBal * 0.1);
    }
}
}

void displayDetails () {
    super.displayDetails();
    System.out.println("balance = " + balance + "\n");
}
}

class Main {

    public static void main (String args[])
    {
        Scanner ss = new Scanner (System.in);
        Sav_acct savingsAcctHolder = new Sav_acct();
        Curr_acct currentAcctHolder = new Curr_acct();
        savingsAcctHolder.getInput('s');
        currentAcctHolder.getInput('c');
        while (true)
        {
            char c;
            int choice;
```

```
System.out.println("------ MENU ------");
System.out.println("1. Deposit ");
System.out.println("2. Withdraw");
System.out.println("3. Compute interest for SavingsAccount");
System.out.println("4. Display account details");
System.out.println("5. Exit ");
System.out.println("Enter your choice: ");
choice = ss.next().charAt(0); ss.nextInt();
if (c == 's');
switch (choice)
{
    case 1 :
        System.out.println("Enter the type of Account : ");
        c = ss.next().charAt(0);
        if (c=='s')
            savingsAcctHolder.deposit();
        else
            currentAcctHolder.deposit();
        break;
    case 2:
        System.out.println("Enter the type of account: ");
        c = ss.next().charA(0);
        if (c=='s')
            savingsAcctHolder.withdraw();
        else
            currentAcctHolder.withdraw();
        break;
    case 3:
        savingsAcctHolder.computeCompoundInterest();
        break;
```

```
        case 4:
            System.out.print("Enter the type of account : ");
            c= ss.next().charAt(0);
            if(c=='s')
                savingsAcctHolder.displayDetails();
            else
                savingsCurrHolder.displayDetails();
            break;
        case 5:
            System.exit(0);
        default:
            System.out.println("Enter a valid choice");
    }
   }
  }
}
```

Output:

```
Enter customer name: Akram
Enter account number : 12345678
Enter customer name : 34567865 Vinay
Enter account number : 34567865

----MENU-----
1. Deposit
2. Withdraw
3. Compute Compound Interest for Savings Account
4. Display account details
5. Exit
Enter your choice: 1
Enter type of account : s
Enter the deposit amount : 3000
```

----MENU----

1. Deposit
2. Withdraw
3. Compute Compound interest for Savings Account
4. Display account details
5. Exit

Enter your choice: 1
Enter type of account: c
Enter the deposit amount: 4000

----MENU----

_____ " _____
_____ " _____
_____ " _____

Enter your choice: 4
Enter type of account: s

Customer name: Akram
Account number: 12345789
Type of Account: Savings Account
balance = 3000.0

----MENU----

_____ " _____

Enter your choice: 4
Enter type of account: c

Customer name: Vinay
Account number: 34567865 7
Type of account: Current Account
balance = 4000.0

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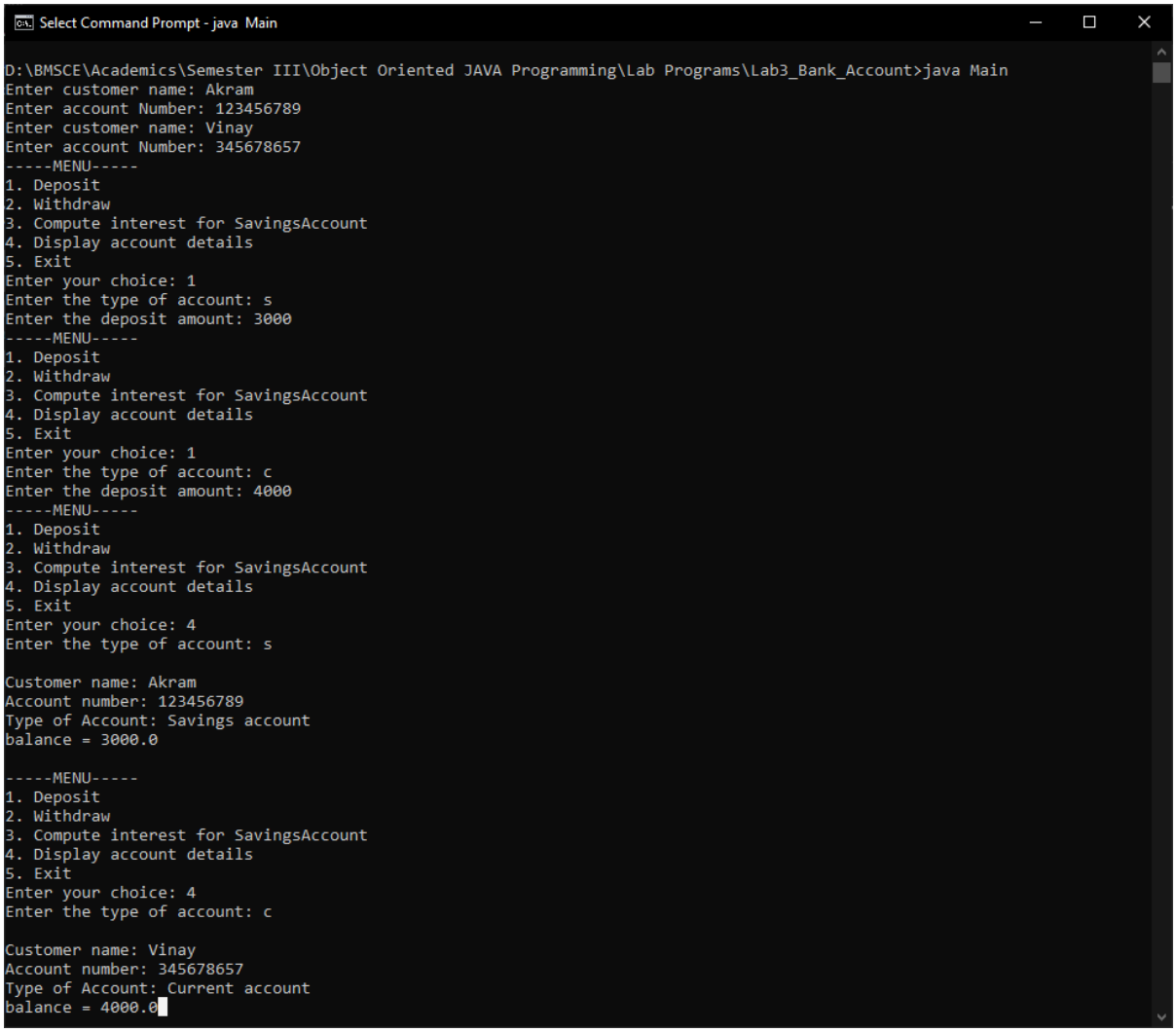
Output:


Select Command Prompt - java Main
D:\BMSCE\Academics\Semester III\Object Oriented JAVA Programming\Lab Programs\Lab3_Bank_Account>java Main
Enter customer name: Akram
Enter account Number: 123456789
Enter customer name: Vinay
Enter account Number: 345678657
-----MENU-----
1. Deposit
2. Withdraw
3. Compute interest for SavingsAccount
4. Display account details
5. Exit
Enter your choice: 1
Enter the type of account: s
Enter the deposit amount: 3000
-----MENU-----
1. Deposit
2. Withdraw
3. Compute interest for SavingsAccount
4. Display account details
5. Exit
Enter your choice: 1
Enter the type of account: c
Enter the deposit amount: 4000
-----MENU-----
1. Deposit
2. Withdraw
3. Compute interest for SavingsAccount
4. Display account details
5. Exit
Enter your choice: 4
Enter the type of account: s
Customer name: Akram
Account number: 123456789
Type of Account: Savings account
balance = 3000.0
-----MENU-----
1. Deposit
2. Withdraw
3. Compute interest for SavingsAccount
4. Display account details
5. Exit
Enter your choice: 4
Enter the type of account: c
Customer name: Vinay
Account number: 345678657
Type of Account: Current account
balance = 4000.0