Q5) 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

```java
import java.util.Scanner;


class Account{

        String name;

        int accountNo;

        String accountType;

        double balance;

        Account(String name,int accountNo,String accountType,double balance){

                this.name = name;

                this.accountNo = accountNo;

                this.accountType = accountType;

                this.balance = balance;

        }

        void DisplayStatus() {

                System.out.println("**"+this.accountType+"***");

                System.out.println("Name: "+this.name);

                System.out.println("Account no.:  "+this.accountNo);

                System.out.println("Account Type:  "+this.accountType);

                System.out.println("Balance: "+this.balance);

        }

}
```

```java
class SavAcct extends Account{

        double depositAmount;

        double Withdrawmount;

        SavAcct(String name,int accountNo,String accountType,double balance){

                super(name,accountNo,accountType,balance);

        }

        static Scanner input = new Scanner(System.in);

        private void checkBalance() {

                if(balance<0) {

                        System.out.println("Transaction is not possible. Balance becomes less than zero");

                        balance+=Withdrawmount;

                        Withdrawmount=0;

                        Withdraw();

                }

        }

        void CalInterest(){

                System.out.println("Interest To Be added");

                System.out.println("Annual rate of interest: 4%");

                System.out.println("Enter the tenure in terms of year");

                int tenure = input.nextInt();

                balance = balance*Math.pow(1.04, tenure);

        }

        void Deposit() {

                System.out.println("Enter the Deposit amount");

                depositAmount = input.nextDouble();

                balance+=depositAmount;

        }

        void Withdraw() {

                System.out.println("Enter the Withdrawal amount");

                Withdrawmount = input.nextDouble();
```

```java
                balance-=Withdrawmount;

                checkBalance();

                System.out.println("Withdraw amount = "+Withdrawmount);

        }

}


class CurrAcct extends Account{

        double minBalance = 1000;

        double depositAmount;

        double Withdrawmount;

        static Scanner input = new Scanner(System.in);

        CurrAcct(String name,int accountNo,String accountType,double balance){

                super(name,accountNo,accountType,balance);

        }

        private void checkBalance() {

                if(balance<minBalance) {

                        System.out.println("Transaction is not possible. Balance becomes less than minimum
balance.");

                        balance+=Withdrawmount;

                        System.out.println("Do u still want to do the transaction with added service charges");

                        String ans = input.next();

                        if(ans.toLowerCase().equals("yes")) {

                                balance-=(Withdrawmount+(0.05*Withdrawmount)+1000);

                                System.out.println("ALERT: Negative balance.\nService Charge added:
"+(0.05*Withdrawmount));

                        }else {

                                Withdrawmount = 0;

                        }

                }

        }

        void Deposit() {
```

```java
        System.out.println("Enter the Deposit amount");

        depositAmount = input.nextDouble();

        balance+=depositAmount;

    }

    void Withdraw() {

        System.out.println("Enter the Withdrawal amount");

        Withdrawmount = input.nextDouble();

        balance-=Withdrawmount;

        checkBalance();

        System.out.println("withdraw amount = "+Withdrawmount);

    }

}


public class Bank {


    public static void main(String[] args) {

        Scanner in = new Scanner(System.in);

        System.out.println("Enter the name");

        String name = in.next();

        System.out.println("Enter the account no.");

        int num = in.nextInt();

        int i=0;

        while(i<2) {

        System.out.println("Enter the account type\ncurr-current acc.\nsav-savings acct.");

        String type = in.next();

        if(type.equals("curr")) {

                double bal = in.nextInt();

                CurrAcct c1 = new CurrAcct(name,num,"Current Account",bal);

                c1.DisplayStatus();

                c1.Deposit();
```

```java
            c1.DisplayStatus();

            c1.Withdraw();

            c1.DisplayStatus();

    }else if(type.toLowerCase().equals("sav")){

            double bal = in.nextInt();

            SavAcct s1 = new SavAcct(name,num,"Savings Account",bal);

            s1.DisplayStatus();

            s1.Deposit();

            s1.DisplayStatus();

            s1.Withdraw();

            s1.DisplayStatus();

            s1.CalInterest();

            s1.DisplayStatus();

    }

    i++;

    }

    in.close();

    }

}
```

Result

```
Enter the name
Ravi
Enter the account no.
123456789
Enter the account type
curr-current acc.
sav-savings acct.
curr
12302
**Current Account***

Name: RaviAccount no.:  123456789
Account Type:  Current Account
Balance: 12302.0
Enter the Deposit amount
12345
**Current Account***
Name: Ravi
Account no.:  123456789
Account Type:  Current Account
Balance: 135758.0
Enter the Withdrawal amount
456892
Transaction is not possible. Balance becomes less than minimum balance.
Do u still want to do the transaction with added service charges
yes
ALERT: Negative balance.
Service Charge added: 22844.600000000002
withdraw amount = 456892.0
**Current Account***
Name: Ravi
Account no.:  123456789
Account Type:  Current Account
Balance: -344978.6
Enter the account type
curr-current acc.
sav-savings acct.
```