**Design an abstract class named BankAccount to hold the following data for a bank**

**account:**

• Balance - private

• Number of deposits this month

• Number of withdrawals

• Annual interest rate

The class should have the following methods. It is up to you to decide which method

becomes abstract.

Constructor: the constructor should accept an argument for the balance and annual

interest rate

Deposit: A method that accepts an argument for the amount of the deposit. The method

should add the argument to the account balance. It should also increment the variable

holding the number of deposits.

Withdraw: A method that accepts an argument for the amount of the withdrawal. The

method should subtract the argument from the balance. It should also increment the

variable holding the number of withdrawals.

calcInterest: A method that updates the balance by calculating the monthly interest

earned by the account and adding this interest to the balance. This is performed by the

following formulas:

Monthly interest rate=(annual interest rate/12)

Monthly interst=balance\*monthly interest rate

Balance=balance + monthly interest

monthlyProcess: A method that subtracts the monthly service charges from the balance,

calls the calcInterest method and then sets the variables that hold the number of

withdrawals, number of deposits, and monthly service charges to zero.

**Next design a SavingsAccount class that extends the BankAccount class.**

The SavingAccount class should have a status field to represent an active or inactive

account. If the balance of a savings account falls below $25 it becomes inactive. ( the

status field could be a Boolean variable) No more withdrawals may be made until the

balance is raised above $25 at which time the account becomes active again. The savings account class should have the following methods:

withdraw: A method that determines whether the account is inactive before a

withdrawal is made. (No withdrawal will be allowed if the account is not active). A

withdrawal is then made by calling the superclass version of the method.

deposit: A method that determines whether the account is inactive before a deposit is

made. If the account is inactive and the deposit brings the balance above $25, the

account becomes active again. A deposit is then made by calling the superclass version

of the method.

monthlyProcess: Before the superclass method is called, this method checks the number

of withdrawals. If the number of withdrawals for the month is more than 4, a service

charge of $1 for each withdrawal above 4 is added to the superclass field that holds the

monthly service charges. (Don’t forget to check the account balance after the service

charge is taken. If the balance falls below $25 the account becomes inactive.)

**Design the Test class** and ask user to enter value of class variables through scanner

class. Create appropriate object of SavingsAccount class and call the method and print

the value of all variables.

Take reference of following sample output to print your output.

When you print information in output window display numeric value using two decimal

place. For example 200.50

Sample output: (this is the only one scenario, similar way you can check rest of the

condition)

Please enter your Account Balance

500

Please enter the Annual Interest Rate for the account

3

The balance after adding the Monthly Interest=625.00

Please enter the amount you want to withdraw

100

Please enter the amount you want to deposit

250

The savings account is currently activeBalance after withdrawal=525.00

Balance after deposit=775.00

Do you want to make any more withdrawals? If yes please enter 1 and if no please enter

0

1

Please enter the amount you want to withdraw

300

The savings account is currently active

Balance after withdrawing=475.00

Do you want to make any more withdrawals? If yes please enter 1 and if no please enter

0

1

Please enter the amount you want to withdraw

75

The savings account is currently active

Balance after withdrawing=400.00

Do you want to make any more withdrawals? If yes please enter 1 and if no please enter

0

0

Do you want to make any more deposits? If yes please enter 1 and if no please enter 0

1

Please enter the amount you want to deposit

50

Balance after depositing=450.00

Do you want to make any more deposits? If yes please enter 1 and if no please enter 0

1

Please enter the amount you want to deposit

50

Balance after depositing=500.00

Do you want to make any more deposits? If yes please enter 1 and if no please enter 0

0

The total number of deposits made = 3

The total number of withdrawals made =3

The total service charge of the month is 0

The savings account is currently active