

* LAB - 1 ↴

- * Develop a Java program that prints all real solutions to the quadratic equation $ax^2+bx+c=0$. Read in a, b, c and use the quadratic formula. If the discriminant b^2-4ac is negative, display a message "NO real roots":

```
import java.util.*;
```

```
class Main {
```

```
    public static void main (String args[]) {
```

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

```
        System.out.println ("Enter the coefficients  
a, b and c");
```

```
        int s1, s2;
```

```
        int a = input.nextInt();
```

```
        int b = input.nextInt();
```

```
        int c = input.nextInt();
```

```
        if ((b*b) - 4*a*c < 0) {
```

```
            System.out.println ("No Real Roots  
available");
```

```
        else if ((b*b) - 4*a*c == 0) {
```

```
            System.out.println ("The Roots are equal");
```

```
            s1 = -b/(2*a);
```

```
            System.out.println ("Root value is ", +s1);
```

else if $(b^2 - 4ac > 0)$:

$$\text{1. } x_1 = \frac{-b + \sqrt{b^2 - 4ac}}{2a};$$

$$x_2 = \frac{-b - \sqrt{b^2 - 4ac}}{2a};$$

`System.out.println("It has two real and different roots\nthe roots are " +`

`+ x1 + " and " + x2);`

3

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→ Algorithm:

→ step 1: start

→ step 2: input a, b, and c [coefficients]

→ step 3: calculate discriminant,
 $b^2 - 4ac$.

→ step 4: check if $b^2 - 4ac < 0$, then
print No real roots.

→ step 5: if $b^2 - 4ac = 0$, then
print both roots are equal and real.

→ step 6: if $b^2 - 4ac > 0$, then print
roots are different and real, and
print the roots.

→ step 7: END.

* Output:

* Enter the co-efficients a, b, c :

- 4
- 8
- 4

→ The roots are equal and the value is = -4.0.

* Enter the co-efficients a, b, c:

- -1
- 1
- 2

→ The roots are imaginary.

* Enter the co-efficients a, b, c:

- 1
- -5
- 6

→ The roots are distinct and real and the value of roots are 3.0 and 2.0.

* LAB - 2

classmate

Date _____

Page _____

class student {

```
String usn;  
String name;  
float[] credits = new float[20];  
float[] marks = new float[20];  
float[] grade = new float[20];
```

Scanner in = new Scanner(System.in);

void input(int n) {

for (int i = 0; i < n; i++) {

System.out.println("Enter credits of
subject" + (i + 1));

credits[i] = in.nextFloat();

System.out.println("Enter marks for subject" +
(i + 1));

marks[i] = in.nextInt();

if (marks[i] >= 90 && marks[i] < 100)
{ grade[i] = 10; }

else if (marks[i] >= 80 && marks[i] < 90)
{ grade[i] = 9; }

else if (marks[i] >= 70 && marks[i] < 80)
{ grade[i] = 8; }

else if (marks[i] >= 60 && marks[i] < 70)
{ grade[i] = 7; }

else if (marks[i] >= 0 && marks[i] < 50) {
 (grade 6%)

else if (marks[i] < 40) {
 0
}

void output (float credits[], float grades[],
int n) {

float sum = 0; dec = 0, sgpa;

for (int i = 0; i < n; i++) {

sum = sum + (credits[i] *
 grades[i]);

dec = dec + credits[i];

}

sgpa = sum / dec;

System.out.println ("Name + " + name + "
 is " + sgpa);

}
}

```
class Main {
```

```
    public static void main (String args [ ] ) {
```

```
        Student s = new Student ();
```

```
        int n;
```

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

```
        System.out.println ("Enter name and roll  
of student");
```

```
s.name = input.nextLine();
```

```
s.roll = input.nextInt();
```

```
System.out.println ("Enter number of subjects");
```

```
n = input.nextInt();
```

```
s.input (n);
```

```
s.output (s.credits, s.gpa, n);
```

}

* LAB - 3 :

```
import java.util.*;
```

```
class Book {
```

```
    String B-name = new String();
```

```
    String B-AuthorName = new String();
```

```
    int price;
```

```
    int num-pages;
```

```
Scans classJNP = new Scanner(System.in);
```

```
void input() {
```

```
    System.out.print("Enter Name");
```

```
    B-name = classJNP.nextLine();
```

```
    System.out.print("Enter AuthorName");
```

```
    B-AuthorName = classJNP.nextLine();
```

```
    System.out.print("Price");
```

```
    Price = classJNP.nextInt();
```

```
    System.out.print("Pages");
```

```
    num-pages = classJNP.nextInt();
```

}

Not Today *

```
public String toString() {
```

```
    return ("BOOKNAME = " + B-name
```

```
        "\n Author = " + B-AuthorName
```

```
        "\n Price = " + price
```

```
        "\n Pages = " + num-pages);
```

}

}

class main {

 public static void main (String [] args) :

 Scanner mainInp = new Scanner (System.in);
 System.out.println ("Enter no. of Books");
 int n = mainInp.nextInt();

 BOOK BOOKS [] = new Book [n];

 for (int i=0; i < BOOK.length ; i++) {
 System.out.println ("details of BOOK" +
 (i+1));

 BOOKS [i] = new Book ();

 BOOKS [i].input();

}

 for (int i=0; i < BOOK.length ; i++) {

 System.out.println ("The details of BOOK" +
 (i+1) + " are
 displayed");

 System.out.println (BOOKS [i]);

*

3

* Digilogarithm :-

Step 1 : Start

Step 2 : Take the details of the books.

Step 3 : Display the details of the book.

Step 4 : End

~~* Week 7 Programs :]~~ Inheritance PracticeLAB - 4ARBA INHERITANCE

```
import java.util.*;
```

```
class Shape {  
    int s-length;  
    int s-breadth;
```

```
    void paintArea() {}
```

```
Scanner s-inp = new Scanner(System.in);  
}
```

```
class Rectangle extends Shape {
```

```
    void paintArea() {}
```

```
    System.out.println("Enter the length ");
```

```
    s-length = s-inp.nextInt();
```

```
    System.out.println("Enter the breadth ");
```

```
    s-breadth = s-inp.nextInt();
```

```
    System.out.println("The area of rectangle is : ")
```

```
    + (s-length * s-breadth);
```

```
}
```

```
>
```

class Triangle extends Shape {

void paintArea() {

System.out.println ("Prints the height");
S-length = S-inp.nextInt();

System.out.println ("Prints the Base");
S-breadth = S-inp.nextInt();

System.out.println ("The area of Triangle is "+
(0.5 * S-breadth * S-length));

3
3

class Circle extends Shape {

void paintArea() {

System.out.println ("Prints the radius");

S-length = S-inp.nextInt();

System.out.println ("The area of Circle is "+
(3.14 * S-length * S-length));

3
3

public class App {

public static void main(String args[]) {

 Rectangle R1 = new Rectangle(1);

 Triangle T1 = new Triangle(1);

 Circle C1 = new Circle(1);

 R1.printArea();

 T1.printArea();

 C1.printArea();

3

4

Output:

→ Enter the height and breadth

5

2

The Area of Rectangle is 10

→ Enter the height and base

2

4

The Area of Triangle is 4

→ Enter the Radius

2

The area of Circle is 12.572

* CDB - 5. :

import java.util.*;

class Bank {

Bank() { }

Scanner B-inp = new Scanner(System.in);

// Account class

class Accounts extends Bank {

int A-no;

String A-name = new String();

int A-acctype;

void getAccData() {

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

A-name = B-inp.nextLine();

System.out.println("Enter Acctype");

A-acctype = B-inp.nextInt();

System.out.println("Enter Account Number");

A-no = B-inp.nextInt();

}

}

1) Save Class

```
class SaveAcc extends Account {  
    double Bal;  
    int interest = 3;
```

```
void getDeposit(int Depo, SaveAcc ob) {
```

```
    ob.Bal = ob.Bal + Depo;
```

```
    System.out.println("The Balance amount  
    after deposition is : " + ob.Bal);
```

```
void getBal(SaveAcc ob)
```

```
if (ob.Bal >= 500)
```

```
    System.out.println("The balance amount is  
    " + ob.Bal);
```

```
else
```

```
    System.out.println("You don't have minimum Rs. 1");
```

```
    ob.Bal = ob.Bal - 50;
```

```
    System.out.println("Your Balance after deduction  
    of charges is " + ob.Bal);
```

```
    }
```

```
void getBalInterest(SaveAcc ob) {
```

```
    ob.Bal = ob.Bal + (0.03) * ob.Bal;
```

```
    System.out.println("The balance amount is " + ob.Bal);
```

```
    }
```

```
void getwidraw(SaveBank ob, int withdraw) {
```

```
    if (withdraw <= ob.Bal) {
```

```
        ob.Bal = ob.Bal - withdraw;
```

```
        System.out.println("Your current balance  
is " + ob.Bal);
```

```
    } else {
```

```
        System.out.println("Insufficient  
balance");
```

```
}
```

```
void GetAccInfo(SaveBank ob, String Name, int No) {
```

```
    System.out.println("Your Account Details are: ");
```

```
    System.out.println("Name: " + Name);
```

```
    System.out.println("A/C NO: " + No);
```

```
    System.out.println("Acctype: Savings  
Account");
```

```
    System.out.println("Current Balance: " + ob.Bal);
```

```
}
```

```
3
```

Our class

class CurAcc extends Account {
 double Bal;

void getDepos (int Depo, CurAcc ob) {

ob.Bal = ob.Bal + Depo;

System.out.println ("The Balance amount
after deposition is " + ob.Bal);

}

void getBal (CurAcc ob) {

if (ob.Bal >= 5000) {

System.out.println ("The balance
amount is " + ob.Bal);

}

else if (ob.Bal < 5000 && ob.Bal != 0) {

ob.Bal = ob.Bal - 20;

System.out.println ("you dont have
minimum Balance");

System.out.println ("the balance amount
after the charge deduction
is " + ob.Bal);

}

void getWithdraw (int withdraw, CurAcc ob) {

if (withdraw <= ob.Bal) {

ob.Bal = ob.Bal - withdraw;

System.out.println ("Your current Balance
after withdrawal is " + ob.Bal);

}

else {

System.out.println ("Insufficient Balance");

```
void getAllInfo (currAll ob, String Name,  
int bNo) {
```

```
    System.out.println ("Your Account Details are:  
    System.out.println ("Name" + Name);  
    System.out.println ("AcNo" + NO);  
    System.out.println ("BalType : " + currBal);  
    System.out.println ("Current Bal : " + ob.Bal);
```

```
}
```

```
Public class App {
```

```
    public static void main (String [] args) {  
        Scanner M-imp = new Scanner (System.in);  
        System.out.println ("Please Enter");  
        Account A1 = new Account ();  
        A1.getDetails ();  
        if (A1.A - acctype == 1) {  
            SavingAcc A1 = new SavingAcc ();  
            for (;;) {  
                System.out.println ("  
                    1. Deposit \n 2. Balance \n 3.  
                    Withdraw \n 4. Balance with Interest \n  
                    Show Info \n Any key to cont ");  
                int c = M-imp.nextInt ();  
                switch (c) {  
                    case 1: System.out.println ("Enter amount to be Deposited");  
                    int Depo = M-imp.nextInt ();  
                    S1.getDeposit (Depo, S1);  
                    break;
```

case 2: \$1. gebBal (\$1);
break;

case 3:

System.out.println ("Rente + want for
withdrawal");
int withdraw = M-imp.readInt();
\$1. getWomAndBal (\$1, withdraw);
break;

case 4: \$1. getBelIntBal (\$1);
break;

case 5:

\$1. getBACInfo (\$1, 01.R-Nam,
R-NO);
break;

default:

System.exit (0);
break;

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Output:

- Please enter the information below :

→ Enter Name :

→ Rocky

→ Enter the account type : (1. for Savings account
• 2 2. Current account)

• Savings account selected successfully.

→ Enter Account number

• 80X 8X0D X P9 X 1 D

→ Enter the corresponding option to proceed further:

1 Deposite

2 Balance

3 Wish Draft

4 Balance with interest

5 To get account info

Any other key to exit.

• 1 D

→ Enter the amount to be deposited.

• 5688

→ The Balance amount is : 5488.0