

# Lab Programs

Develop a Java program that prints all real solutions to the quadratic equations  $ax^2 + bx + c = 0$ . Read  $a, b, c$  and use the quadratic formula. If the discriminant  $b^2 - 4ac$  is negative, display a message stating there are no real solns.

```
import java.util.Scanner;
public class Main {
    public static void main(String[] args) {
        Scanner s = new Scanner(System.in);
        // for
        System.out.println("Enter num 1:");
        // int a = s.nextInt();
        double a = s.nextDouble();
        System.out.println("Enter num 2:");
        double b = s.nextDouble();
        System.out.println("Enter num 3:");
        double c = s.nextDouble();
        double y = ((b * b) - (4 * a * c));
        double z = Math.sqrt(y);
        if (y > 0)
            System.out.println("Given equation has 2 real
                real solutions and they are: ");
        double d = ((-b + z) / (2 * a));
        double e = ((-b - z) / (2 * a));
        System.out.println(" " + d + " and " + e);
    }
}
```

else if ( $y == 0$ )

{ double f = - b / (2 \* a);

System.out.println("Given equation has only one  
real solution and that is " + f);

}

else if ( $y < 0$ )

{

System.out.println("Given equation does not have  
any real solution");

}

}

}

```
C:\Users\bmsce\Desktop\1BM22CS028_AKASH>JAVA quad
Enter num 1 :
1
Enter num 2 :
-5
Enter num 3 :
-6
Given equation has 2 real solutions and they are :
6.0 and -1.0
Akash ks 1BM22CS028
```

```
C:\Users\bmsce\Desktop\1BM22CS028_AKASH>javac quad.java
```

```
C:\Users\bmsce\Desktop\1BM22CS028_AKASH>java quad
Enter num 1 :
2
Enter num 2 :
-4
Enter num 3 :
2
Given equation has 1 real solution and that is : 1.0
Akash ks 1BM22CS028
```

```
C:\Users\bmsce\Desktop\1BM22CS028_AKASH>javac quad.java
```

```
C:\Users\bmsce\Desktop\1BM22CS028_AKASH>java quad
Enter num 1 :
2
Enter num 2 :
4
Enter num 3 :
5
Given equation does not have any real solutons
Akash ks 1BM22CS028
```

## Lab-2

Develop a Java program to create a class student with members USN, name and an array Credits and an array marks. Include methods to accept & display details and a method to calculate SGN of a student.

### Program

import java.util.Scanner

class student

{

Scanner s = new Scanner (System.in);

String USN;

String name;

int [ ] credits = { 4, 4, 3, 3, 3, 1, 1, 3};

int [ ] marks = new int [8];

public void enterdet()

{

// System.out.print();

System.out.print("Enter your USN : ");

USN = s.next();

System.out.print("Enter your name : ");

name = s.next();

for (int j=0 ; j<8 ; j++)

{

System.out.print("Enter marks for subject " + (j+1) + " : ");

marks[j] = s.nextInt();

y

3

public void displaydet()

{

System.out.println("Your USN is : " + usn);

System.out.println("Your name is : " + name);

for (int j = 0; j < 8; j++)

{

System.out.println("Your marks for  
subject " + (j + 1) + " is : " +  
marks[j]);

{}

public void Sgpa()

{

~~float g = 0;~~

~~for (int k = 0; k < 8; k++)~~

{}

int v = 0;

v = credits[k] \* ((marks[k] / 10) + 1);

g = g + v;

{}

System.out.println("Your sgpa is : "  
+ (g / 20));

{}

{}

public class Main

{

public static void main(String[] args) {

~~Student p = new Student();~~

~~p.enterdet();~~

~~p.displaydet();~~

~~p.Sgpa();~~

{}

{}

D:\akashks\study\1BM22CS028\_AKASH>javac sgpathing.java

D:\akashks\study\1BM22CS028\_AKASH>java sgpathing

Enter your usn : 1BM22CS028

Enter your name : AKASH

Enter your marks for subject 1 : 89

Enter your marks for subject 2 : 79

Enter your marks for subject 3 : 85

Enter your marks for subject 4 : 86

Enter your marks for subject 5 : 87

Enter your marks for subject 6 : 92

Enter your marks for subject 7 : 93

Enter your marks for subject 8 : 94

Your usn is : 1BM22CS028

Your name is : AKASH

Your marks for subject 1 : 89

Your marks for subject 2 : 79

Your marks for subject 3 : 85

Your marks for subject 4 : 86

Your marks for subject 5 : 87

Your marks for subject 6 : 92

Your marks for subject 7 : 93

Your marks for subject 8 : 94

Your sgpa is : 8

3) wap to create class Book which contains  
four members : name, author, Price, num-of-pages.  
Include a constructor to set the values  
for members to set or get details  
of objects. Include a toString()  
method that could display the  
complete details of the book.

import java.util.Scanner;  
public class Books

/private

String name;

String author;

int price;

int num-of-pages;

public void (String name, String author, int price,  
int num-of-pages)

{

Name = "abc", author = "xyz";

author = "x";

price = 100;

num-of-pages = 3;

public void setName (String p)  
{  
 name = p;  
}

public ~~void~~ String getName ()  
{  
 return name;  
}

public void setAuthor (String w)  
{  
 Author = w;  
}

public ~~void~~ String getAuthor ()  
{  
 return Author;  
}

public void setPrice (int x)  
{  
 price = x;  
}

public ~~void~~ int getPrice ()  
{  
 return price;  
}

public void setNumOfPages (int s)  
{  
 //return Num\_of\_pages;  
 Num\_of\_pages = s;  
}

public int getNumOfPages ()

{  
    return num\_of\_pages;

}

public String toString () {

    return "Book details : \n Name : " + name + "\n Author : " + author + "\n Price : " + price + "\n Number of pages : " + num\_of\_pages;

}

/public static void

public class Main {

public static void main (String [] args)

{

    int n = 2;

    // Book[] book

    Book [] b; new Book [n];

    // for (int

        b[0] = new Book ("LOTR",

            "JRR Tolkein", "500", "1500")

        b[1] = new Book ("PJO", "RICK")

            "200", "500");

Date.

~~1/ b [0]~~.

~~1/ good (int o = 0, i <~~

b [0]. toString () ;

b [1]. toString () ;

```
C:\Users\bmsce\Desktop\1BM22CS028_AKASH>javac javaa.java
```

```
C:\Users\bmsce\Desktop\1BM22CS028_AKASH>java javaa
Book name=LOTR, author=JRR Tolkien, price=500, num_of_pages=1500
Book name=PJO, author=RICK, price=200, num_of_pages=500
```

4  
WAP to create abstract class ~~shape~~ name  
shape that contains two integers  
area in abstract method name ~~pointArea~~  
paralle 3 class names rectangle  
triangle, and circle such that they  
are subclasses of abstract class  
shape. Each one of the class  
contains only another point area.  
(1) three points are given  
shape

import java.util.Scanner;  
abstract class Shape {

double

~~a, b;~~

~~abstract void pointArea();~~

}

Class rectangle extends shape

void pointArea();

{

System.out.println ("The area of  
rectangle is : " + (a\*b));

}

Class triangle extends shape

void pointArea();

{

System.out.println ("The area of triangle  
is : " + ((a+b)/2));

}

class Circle extends Shape

{  
    void printArea()  
    {

        System.out.println("The area of  
        circle is : "+(3.14\*a\*a));

3

3  
public class Main {

    public static void main (String [] args) {

        Scanner s = new Scanner (System.in);

        rectangle r1 = new Rectangle ();

        triangle t = new Triangle ();

        Circle c = new Circle ();

~~System.out.println ("Enter sides of rectangle : ");~~

        r1.a = s.nextDouble();

        r1.b = s.nextDouble();

        r1.printArea();

~~System.out.println ("Enter sides of triangle : ");~~

        t.a = s.nextDouble();

        t.b = s.nextDouble();

        t.printArea();

~~System.out.println ("Enter radius of circle : ");~~

        c.r = s.nextDouble();

        c.printArea();

3  
3

```
C:\Users\bmsce\Desktop\1BM22CS028_AKASH>javac main.java
```

```
C:\Users\bmsce\Desktop\1BM22CS028_AKASH>java main
```

```
Enter sides for rectangle :
```

```
5
```

```
5
```

```
The area is : 25.0
```

```
Enter values for Triangle :
```

```
5
```

```
5
```

```
The area is : 12.5
```

```
Enter radius for Circle :
```

```
5
```

```
The area is : 78.5
```

WAP :

Develop a program for class Bankic that maintains  
2 saving account b/w 10 numbers, one called Saving Ac  
and other current account b/w 10 numbers.  
Saving ac provides comp interest and with  
no cheque book facility but no interest. Current  
account holders also should maintain a min  
balance and if the balance falls below, service  
charge is levied. (use constructor, Include methods  
but

(a) Accept deposit from user

(b) Display bal

```
import java.util.Scanner;  
class Account
```

{

(c) Compute & deposit interest

(d) Permit withdrawl and

& update balance,

check min bal &

impose penalty

```
String custname;
```

```
int accnum;
```

```
String acctype;
```

```
double bal = 5000;
```

}

Class Savacct extends account

{

```
public Savacct(String e, int f, String g)
```

{

```
custname = e;
```

```
accnum = f;
```

```
acctype = g;
```

```
System.out.println("Customer details : ");
```

```
System.out.println("Customer name : " + custname);
```

```
System.out.println("Customer account number : " + accnum);
```

```
System.out.println("Customer acctype : " + acctype);
```

}

Scanner s1 = new Scanner (System.in)

public void deposit (int z)

{

    bal = bal + z;

    System.out.println ("Your balance is: " + bal);

}

public void withdraw ()

{

    System.out.println ("Enter amount to withdraw: ");

    double q1 = s1.nextDouble ();

    if (q1 > bal)

{

        System.out.println ("Not enough balance!!");

}

else

{

    System.out.println ("You have withdrawn: " + q1);

    bal = bal - q1;

    System.out.println ("Current balance is: " + bal);

}

public void compinterest ()

{

    double w = bal \* (1 + (0.05 / 12)) - bal;

    System.out.println ("Current interest is: " + w);

}

class current extends account

{

    public void read (String e1, int b1, String g1)

{

        username = e1;

        accnum = b1;

```
Acetylene = g1;
System.out.println("Customer details : ");
System.out.println("Customer name : " + custname);
System.out.println("Customer account num : " + accnum);
System.out.println("Customer acetylene : " + Acetylene);
```

{}

double e;

Scanner s2 = new Scanner (System.in)

public void deposit(int y)

{

bal = bal + y;

System.out.println ("Your balance is : " + bal);

{

public void withdrawl()

{

System.out.println("Enter the amount to be withdrawn:");

double q12 = s2.nextDouble();

if (q12 &gt; bal)

{

System.out.println ("Not enough amount!!");

{

else

{

System.out.println ("You have withdrawn " + q12);

bal = bal - q12;

System.out.println ("Current balance : " + bal);

if (bal &lt; 3000)

{

bal = bal - 100;

System.out.println ("Your balance is too low!!");

A penalty has been  
applied ");

System.out.println("Current balance is : " + bal);

{

{

{

public void getChq()

{

System.out.println("Enter the amount for which cheque  
has to be issued : ");

e = sc.nextInt();

{

public void cashChq()

{

if (e > bal)

{

System.out.println("Cheque bounced !!");

{

else

{

System.out.println("Via cashing a cheque you have  
withdrawn : " + e);

bal = bal - e;

System.out.println("Current balance is : " + bal);

if (bal < 3000)

{

bal = bal - 100;

System.out.println("Your balance is below  
required balance !! , a  
penalty has been  
applied !!");

System.out.println("Current balance is :  
" + bal);

{

```
public class Bank  
{  
    public static void main (String [ ] args)  
    {  
        Scanner s3 = new Scanner (System.in);  
        System.out.println ("Enter Customer name : ");  
        int a1;  
        String a1 = s3.nextLine();  
        System.out.println ("Enter Customer account : ");  
        int a2 = s3.nextInt();  
        System.out.println ("Enter Customer account type : ");  
        String a3 = s3.nextLine();  
        Savacct sav = new Savacct (a1, a2, a3);  
  
        System.out.println ("Enter customer name : ");  
        String b1 = s3.nextLine();  
        System.out.println ("Enter Customer account type : ");  
        int b2 = s3.nextInt();  
        System.out.println ("Enter Customer account type : ");  
        String b3 = s3.nextLine();  
        Curracct cur = new Curracct (b1, b2, b3);  
  
        Sav.deposit (1000);  
        Sav.compinterest()  
        Sav.withdrawl()
```

```
D:\akashks\study\1BM22CS028_AKASH>javac bank.java
D:\akashks\study\1BM22CS028_AKASH>java bank
Enter customer name :
EDWARD
Enter customer acc num :
1133
Enter customer type :
sav
Customer details :
Customer name : EDWARD
Customer account number : 1133
Customer account type : sav
Your Current balance is : 6000.0
Current interest in : 25.0
Enter the amount to be withdrawn :
2000
You have withdrawn 2000.0
Current balance is : 4000.0
There is no cheque facility
Enter customer name :
KENWAY
Enter customer acc num :
4477
Enter customer account type :
cur
Customer details :
Customer name : KENWAY
Customer account number : 4477
Customer account type : cur
Your Current balance is : 8000.0
Enter the amount to be withdrawn :
4000
You have withdrawn 4000.0
Current balance is : 4000.0
Cheque facility available
```

## Program - 6

Package CIF

import java.util.\*

public class Student

{

    public int Sem;

    public int USN;

    public String Name;

    public void accept()

{

        Scanner s = new Scanner (System.in);

        System.out.println("Enter Details : ");

        USN = s.nextInt();

        Name = s.next();

        Sem = s.nextInt();

}

}

Package CIF:

public class Internals

{

    public int arr[] = new int [5];

}

```

package SEE;
import CIE.Student;
public class External extends Student
{
    public int sm[] = new int[5];
}

```

~~import java.util.\*;~~

~~import SEE.\*;~~

~~import CIE.\*;~~

~~public class Framework~~

~~{~~

~~public static void main (String args [])~~

~~{~~

~~int fm = new int [5];~~

~~Scanner sc = new Scanner (System.in);~~

~~System.out.println ("Enter value of n : ");~~

~~int n = sc.nextInt();~~

~~SEE.External st [] = new SEE.External ();~~

~~CIE.Internal s [] = new CIE.Internal ();~~

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

~~{~~

~~st[i] = new SEE.External();~~

~~s[i] = new CIE.Internal();~~

~~System.out.println ("Enter details " +(i+1));~~

~~st[i].accept ()~~

~~for (int j=0; j<5; j++)~~

~~{~~

~~System.out.print (" Enter 'm' and "~~

~~sm q sub "+ (j+1))~~

$$\cdot S[i] \cdot im[j] = Sc \cdot nextInt(w)$$

$$St[i] \cdot Sm[j] = Sc \cdot nextInt(w)$$

$$\left. \begin{array}{l} \\ \\ \end{array} \right\} fm[ij] = S[i] \cdot im[j] + St[i] \cdot im[j]$$

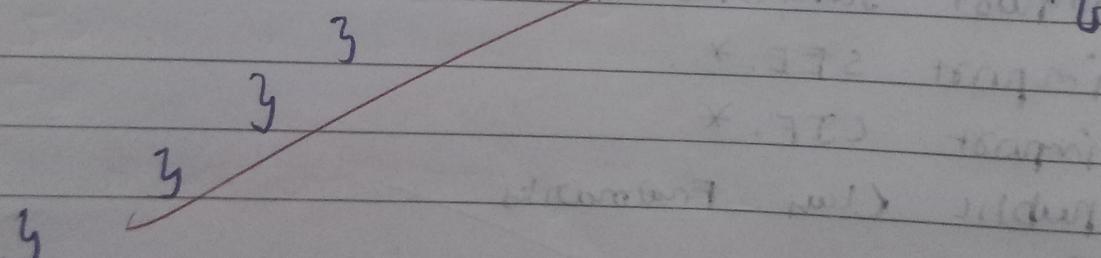
System.out.println("First instance of "+

$St[i] \cdot name[j]$

$\left. \begin{array}{l} \\ \\ \end{array} \right\} \text{for } (int k=0; i < j; i++)$

System.out.println("Course " + (k+1) +

" " + Sm[k])



PS C:\Users\bmsce\Desktop\1BM22CS028\_AKASH\package> **java** Finalmarks

Enter n:

1

Enter details 1

Enter the details :

1BM22CS028

AKASH

3

Enter im and sm of sub 1

50

50

Enter im and sm of sub 2

50

50

Enter im and sm of sub 3

50

50

Enter im and sm of sub 4

50

50

Enter im and sm of sub 5

50

50

Final marks of AKASH

Course 1 = 100

Course 2 = 100

Course 3 = 100

Course 4 = 100

Course 5 = 100

# \* Program - 7

?

import java.util.Scanner;

Class WrongAgeException extends Exception {

public WrongAgeException (String message) {

super (message);

}

}

Class Father {

int d-age;

public Father (int a) throws WrongAgeException {

if (a < 0)

{

throw new WrongAgeException ("Age is lesser

than zero !!");

}

d-age = a;

}

}

Class Son extends Father

{

int s-age

public Son (int d-age, int s) throws WrongAgeException {

{

super (d-age);

if (d-age < s)

1 Start

2 public class main

{

public static void main (String[] args)

{

int x, y

Scanner s = new Scanner (System.in)

System.out.println ("Enter father age: ");

x = s.nextInt();

System.out.println ("Enter son age: ");

y = s.nextInt();

try

{

father f1 = new father (x);

}

catch (WrongAgeException e)

{

System.out.println ("Exception: " + e.getMessage());

}

try

{

Son s1 = new Son (x, y);

}

catch (WrongAgeException e)

{

System.out.println ("Exception: " + e.getMessage());

}

}

```
C:\Users\bmsce\Desktop\1BM22C5028_AKASH>java father1
Enter father age
-1
Enter son age
50
Exception: Age is less than zero!!
```

```
C:\Users\bmsce\Desktop\1BM22CS028_AKASH>java father1
Enter father age
40
Enter son age
50
Exception: father age can't be less than son!!
```

## Program - 8

7

Class A implements Runnable

{

public void run()

{

for (int i = 0; i < 5; i++)  
try {

System.out.println("BMS College of Engineering")

}



Thread.sleep(10000)

}

catch (Exception e)

{

System.out.println(e.printStackTrace())

}

Class B implements Runnable

{

public void run()

try {

for (int i = 0; i < 5; i++)

{

System.out.println("CSE");

3

try

Thread.sleep(2000)

3

catch

{}

System.out.println("e.printStackTrace")

3

3

3

public class main

{

public static void main (String args)

A a1 = new A();

B b1 = new B();

Thread t1 = new Thread(a1);

Thread t2 = new Thread(b1);

t1.start(); t2.start();

3

3

```
C:\Users\bmsce\Desktop\1BM22CS028_AKASH>javac threads.java
```

```
C:\Users\bmsce\Desktop\1BM22CS028_AKASH>java threads
```

BMS COLLEGE OF ENGINEERING

CSE

CSE

CSE

CSE

CSE

BMS COLLEGE OF ENGINEERING

BMS COLLEGE OF ENGINEERING

BMS COLLEGE OF ENGINEERING

BMS COLLEGE OF ENGINEERING

## Program - 9

```
import javax.swing.*;  
import java.awt.*;  
import java.awt.event.*;  
  
public class Just  
{  
    public static void main()  
    {  
        JFrame jfrm = new JFrame ("Divider app");  
        jfrm.setSize (275, 150);  
        jfrm.setLayout (new FlowLayout());  
        jfrm.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);  
  
        JLabel jlab = new JLabel ("Enter divisor  
        and dividend");  
        JTextField a+jb = new JTextField (8);  
        JTextField b+jb = new JTextField (8);  
        JButton button = new JButton ("calculate");  
        JLabel err = new JLabel ();  
        JLabel alab = new JLabel ();  
        JLabel blab = new JLabel ();  
        JLabel ansLab = new JLabel ();  
        jfrm.add (err);  
        jfrm.add (jlab);  
        jfrm.add (a+jb);  
        jfrm.add (b+jb);  
    }  
}
```

jlab.addActionListener(button);

jlab.addActionListener(cab);

jlab.addActionListener(blabs);

jlab.addActionListener(analabs);

ActionListeners l = new ActionListener() {

public void actionPerformed(ActionEvent evt)

{

System.out.println("Action event from a  
text field")

}

}

atjb.addActionListener(l);

btjb.addActionListener(l);

button.addActionListener(new ActionListener()

{

public void actionPerformed(ActionEvent evt)

{

try

{

int a = Integer.parseInt(atjb.getText());

int b = Integer.parseInt(btjb.getText());

int ans = a/b;

alab.setText("\nA = " + a);

blab.setText("\nB = " + b);

anslab.setText("\nAns = " + ans);

}

catch (NumberFormatException e)

{

alab.setText(" "));

blab.setText(" "));

anslab.setText(" "));

err.setText("B should be non zero");

}

3  
33;  
3 168

J68m · setVisible(true);

public static void main (String [ ] args)

```
SwingUtilities.invokeLater(new Runnable() {  
    public void run() {  
        // do something  
    }  
});
```

Public void sync

2 writing submitted after consultation +  
3 new plust( )

... (SAC 0 hours) + 1 week work

3. ist mit jedem P

3. Answered now thoughts were thoughts



# Divider App



Enter the divider and divident

calculate

A = 500 B = 5 Ans = 100