

Program-1

Develop a java program that prints all solutions to the quadratic equation $ax^2+bx+c=0$. Read in a, b, c and use the quadratic formula.

Code:

```
import java.util.Scanner;

class labprog1{

    public static void main(String args[]) {

        Scanner ss=new Scanner(System.in);

        double a,b,c;

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

        a=ss.nextDouble();

        b=ss.nextDouble();

        c=ss.nextDouble();

        double dis=b*b-4*a*c;

        double r1=-b/(2*a);

        double r2=(Math.sqrt(Math.abs(dis)))/(2*a);

        if(dis>0)

        {

            System.out.println("Roots are real and distinct.");

            System.out.println("Solution 1="+String.format("%.2f",(r1+r2)));

            System.out.println("Solution 2="+String.format("%.2f",(r1-r2)));

        }

        else if(dis==0)

        {

            System.out.println("Roots are real and equal.");

            System.out.println("Solution="+r1);

        }

        else

        {
```

```
System.out.println("No real solutions exist.");
```

```
System.out.println("Imaginary solution 1="+r1+"+i"+String.format("%.2f",r2));
```

```
System.out.println("Imaginary solution 2="+r1+"-i"+String.format("%.2f",r2));
```

```
}
```

```
}
```

```
}
```

Output:

```
C:\Users\BMSCECSE\Desktop\BM21CS225>javac labprog1.java

C:\Users\BMSCECSE\Desktop\BM21CS225>java labprog1
Enter the coefficients a, b and c:
20 1 1
No real solutions exist.
Imaginary solution 1=-0.025+i0.22220486043288973
Imaginary solution 2=-0.025-i0.22220486043288973

C:\Users\BMSCECSE\Desktop\BM21CS225>java labprog1
Enter the coefficients a, b and c:
1 2 1
Roots are real and equal.
Solution=-1.0

C:\Users\BMSCECSE\Desktop\BM21CS225>java labprog1
Enter the coefficients a, b and c:
1 20 1
Roots are real and distinct.
Solution 1=-0.05012562893380057
Solution 2=-19.9498743710662

C:\Users\BMSCECSE\Desktop\BM21CS225>
```

Activate Windows
Go to Settings to activate Windows.

27°C
Mostly sunny

15:08
17-11-2022