

LAB PROGRAM

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 discriminate b^2-4ac is negative, display a message stating that there are no real solutions.

CODE:

CODE:

```
quadratic - Notepad
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import java.util.*;
import java.math.*;
public class quadratic
{
    public static void main(String args[])
    {
        Scanner in= new Scanner(System.in);
        System.out.println("enter the value of a,b,c");
        double a=in.nextDouble();
        double b=in.nextDouble();
        double c=in.nextDouble();

        if(a!=0)
        {
            double d=b*b-(4*a*c);
            if(d>0.0)
            {
                double r1=(-b+Math.pow(d,0.5))/(2.0*a);
                double r2=(-b-Math.pow(d,0.5))/(2.0*a);
                System.out.println("the roots are real and distinct");
                System.out.println("The roots are" +r1+ "and" +r2);
            }
            else if(d==0.0)
            { double r1=-b/(2.0*a);
              System.out.println("the roots are real and equal");
              System.out.println("the roots is" +r1);
            }
            else
            {
                System.out.println("the roots are imaginary");
            }
        }
        else
        {
            System.out.println("invalid input");
        }
    }
}
```

OUTPUT:

```
C:\Users\bmsce\Desktop\1bm21cs062>java quadratic
enter the value of a,b,c
1 2 3
the roots are imaginary
```

```
C:\Users\bmsce\Desktop\1bm21cs062>java quadratic
enter the value of a,b,c
1 2 1
the roots are real and equal
the roots is-1.0
```

```
C:\Users\bmsce\Desktop\1bm21cs062>java quadratic
enter the value of a,b,c
3 2 1
the roots are imaginary
```

```
C:\Users\bmsce\Desktop\1bm21cs062>java quadratic
enter the value of a,b,c
4 6 2
the roots are real and distinct
The roots are-5.75and-6.25
```