QUESTION::

Develop a Java program that prints all real solutions to the quadratic equation
ax2+bx+c = 0. Read in a, b, c and use the quadratic formula. If the
discriminate b2
-4ac is negative, display a message stating that there are no
real solutions.

SOURCE CODE::

```java
import java.util.Scanner;

class Quad{

public static void main(String xx[]){

    int a,b,c;
    Scanner s=new Scanner(System.in);
    System.out.println("Enter the coefficients a,b,c");
    a=s.nextInt();
    b=s.nextInt();
    c=s.nextInt();
    double des=(b*b)-(4*a*c);
    double root1,root2;
    if(a==0){
     System.out.println("The equation is not quadratic\n");
}
else if(des>0){

    root1=-b+Math.sqrt(des);
    root2=-b-Math.sqrt(des);

   System.out.println("The roots are real and distinct\nroot 1:    "+root1+"\nroot 2:    "+root2);
}
else if(des==0){
    root1=root2=-b/(2*a);
    System.out.println("The roots are real and equal\nRoot 1:  "+root1+"\nroot 2:    "+root2);
}
else   {
    root1=-b/(2*a);
    root2=Math.sqrt(Math.abs(des));

   System.out.println("The roots are imaginary\nRoot1 :    "+root1+"+i"+root2+"\nRoot 2:    "+root1+"-i"+root2);
   s.close();
      }

  }

}
```

OUTPUT::

```
PS C:\Users\Admin\Desktop\1BM21CS019\LAB 1> javac LAB1_JAVA.java
PS C:\Users\Admin\Desktop\1BM21CS019\LAB 1> java Quad
Enter the coefficients a,b,c
0 0 0
The equation is not quadratic

PS C:\Users\Admin\Desktop\1BM21CS019\LAB 1> java Quad
Enter the coefficients a,b,c
1 2 1
The roots are real and equal
Root 1:  -1.0
root 2:   -1.0
PS C:\Users\Admin\Desktop\1BM21CS019\LAB 1> java Quad
Enter the coefficients a,b,c
1 4 1
The roots are real and distinct
root 1:    -0.5358983848622456
root 2:   -7.464101615137754
PS C:\Users\Admin\Desktop\1BM21CS019\LAB 1> java Quad
Enter the coefficients a,b,c
1 1 1
The roots are imaginary
Root1 :   0.0+i1.7320508075688772
Root 2:   0.0-i1.7320508075688772
PS C:\Users\Admin\Desktop\1BM21CS019\LAB 1>
```