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

```
import java.util.Scanner;
class Quadratic
{
    int a,b,c;
    double r1,r2,d;
    void getd()
    {
        Scanner s = new Scanner(System.in);
        System.out.println("Enter the coefficients of a,b,c");
        a = s.nextInt();
        b = s.nextInt();
        c = s.nextInt();
    }
    void compute()
    {
        while(a==0)
        {
            System.out.println("Not a quadratic equation");
            System.out.println("Enter a non zero value for a");
            Scanner s= new Scanner(System.in);
            a = s.nextInt();
        }
        d = b*b - 4*a*c;
        if(d==0)
        {
            r1 = (-b)/(2*a);
            System.out.println("Roots are real and equal");
            System.out.println("Root1 = Root2 =" +r1);
        }
```

```
        else if(d>0)
        {
            r1 = ((-b) + (Math.sqrt(d)))/(double)(2*a);
            r2 = ((-b) - (Math.sqrt(d)))/ (double)(2*a);
            System.out.println("Roots are real and distinct");
            System.out.println("Root1 =" + r1 +"Root2 = " + r2);
        }
        else if(d<0)
        {
            System.out.println("Roots are imaginary");
            r1 = (-b) /(2*a);
            r2 = Math.sqrt(-d) /(2*a);
            System.out.println("Root 1 = " +r1+" + i " +r2);
            System.out.println("Root1 = "+r1+" -i "+r2);
        }
    }
}
class QuadraticMain
{
    public static void main(String args[])
    {
        Quadratic q = new Quadratic();
        q.getd();
        q.compute();
    }
}
```

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Output:

Enter the coefficients of a,b,c:

1 2 1

Roots are real and equal

Root 1 = Root 2 = -1.0

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Enter the coefficients of a,b,c:

3 4 5

Roots are Imaginary

Root 1 = 0.0 + i1.1055415967 8

Root 2 = 0.0 - i1.1055415967 8

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Enter the coefficients of a,b,c:

1 3 2

Roots are real and Distinct

Root 1 = -1.0 Root 2 = -2.0

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