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

```
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="+r1+"Root2="+r2);
        }
```

```
        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("Root1 = "+r1+"+i"+r2);
            System.out.println("Root2 = "+r1+"-i"+r2);
        }
    }
}
class QuadraticMain
{
    public static void main(String args[])
    {
        Quadratic q = new Quadratic();
        q.getd();
        q.computee();
        System.out.println("Shreyas Rao M - 1BM22CS222");
    }
}
```

Output

Enter the coefficients of a,b,c

1

2

1

Roots are real and equal

Root1 = Root2 = -1.0

Shreyas Rao M - 1BM22CS272

Enter the coefficients of a,b,c

1

3

2

Roots are real and distinct

Root1 = -1.0 Root2 = -2.0

Shreyas Rao M - 1BM22CS272

10

Sun 12/12/23

Enter the coefficients of a,b,c

2

1

3

Roots are imaginary

Root1 = 0.0 + i1.1989578808281798

Root2 = 0.0 - i1.1989578808281798

Shreyas Rao M - 1BM22CS272