Lab Program

Develop a Java program that prints all real sol to the quadratic $ax^2 + bx + c = 0$. Read in a, b, c and use the quadratic formula If the discriminate $b^2 - 4ac$ is -ve, 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("Root 1 = Root 2 = "+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("Root = "+r1+" Root 2 = "+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("Root 1 = "+r1+" - i"
                        +r2);
}
}
class QuadraticMain
{
    public static void main(String args[])
    {
        Quadratic q = new Quadratic();
```

```
        q.getd();
        q.compute();
    }
}
```

Output

→ Enter the coefficients of a, b, c
1
2
1
Roots are ~~imaginary~~ real and equal
Roots 1 = Root 2 = -1.0

→ 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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