~~Lab Program 1: Quadratic Equation~~

```
import java.util.Scanner;
class Quadratic
{
    int a, b, c;
    double r1, r2, d;
    void getData()
    {
        Scanner s = new Scanner(System.in);
        System.out.println("Enter the coefficients of a, b and 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) + (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.get();
        q.compute();
    }
}
```

OUTPUT:

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```
javac QuadraticMain.java
java QuadraticMain
Enter the coefficients of a, b, c
1 -7 10
Roots are real and distinct
Root1 = 5.0 Root2 = 2.0
```

classmate
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```
java Quadratic Main
Enter the coefficients of a, b, c
0 6 7
Not a Quadratic equation
Enter a non Zero value for a
3
Roots are imaginary
Root 1 = -1.0 + i 1.1547005383792515
Root 2 = -1.0 + i 1.1547005383792515

java QuadraticMain
Enter the coefficients of a, b, c
25 -20 4
Roots are real and equal
Root 1 = Root 2 = 0.0

java QuadraticMain
Enter the coefficients of a, b, c
1 -6 9
Roots are real and equal
Root 1 = Root 2 = 3.0
```

Ans

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