LAB - 1

Quadratic Equation

```
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");
        a = s.nextInt();
        b = s.nextInt();
        c = s.nextInt();
    }
    void compute()
    {
        while (a==0)
        {
            System.out.println("Not a quadratic eq");
            System.out.println("Enter a nonzero value:");
            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 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 & 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 = "+r2+"+i"+r2);
}
}

class Quadratic Main
{
    public static void main(String args[])
    {
        Quadratic q = new Quadratic();
        q.getd();
        q.compute();
        System.out.println("Shamanth
                           -1BM22CS251");
    }
}
```

Output:

Entu the coefficients of a, b, c
1
2
1

Roots are real and equal.
Root 1 = Root 2 = -1.0
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Entu coefficients of a, b, c.
1
3
2.
Roots are real and distict
Root 1 = -1.0 Root 2 = -2.0
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Entu coffiwents of a, b, c
2
1
3

Roots are imaginary
Root 1 = 0.1 + i 1.1985788088
Root 2 = 0.0 - i 1.1985788088
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