LAB-2

1. Develop a Java program that prints all real solutions to the quadratic equation.

→
```
import java.util.Scanner;
import java.lang.Math;

class quadratic {
    int a,b,c;
    double d, r1, r2;
    void getInput(){
        Scanner s = new Scanner(System.in);
        System.out.println("Enter values
                of a, b and c:");
        a=s.nextInt();
        b=s.nextInt();
        c=s.nextInt();
        while (a==0){
            System.out.println("Not a
        quadratic equation.\n
        Enter new value for a:");
        a=s.nextInt();
    }
    d = b*b - 4*a*c;
    if (d==0){
        r1 = (double)((-b)/(2*a));
        System.out.println
            ("Roots are real
            and equal\n" +
        "Roots are: " + r1 +
            " " + r1);
    }
    else if (d<
```

```
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\n" + "Roots
                are: " + r1 + ", " +
                    r2);
    }

else {
        r1 = (-b)/(2*a);
        r2 = Math.sqrt(-d)/(2*a);
        System.out.println("Roots are
            imaginary\n Roots : " + r1 +
            " + i" + r2);
        System.out.println(r1 + "-i" +
                    r2);
    }

}
}

class hello{
    public static void main (String
                [] args) {
        System.out.println("Anjana
                Mangj");
        System.out.println("1BM23CS0
                38");
        quadratic q = new quadratic();
        q.getInput();
} }
```

Output:

```
Enter values of a, b and c:
0
1
2
Not a quadratic equation.
Enter new value for a:
1
Roots are imaginary
Roots: 0.0 + i1.3228756555954
0.0 - i1.3228756555954
Enter values of a, b and c:
1
2
1
Roots are real and equal
Roots are: -1.0, -1.0
Enter values of a, b and c:
1
-5
6
Roots are real
Roots are: 3.0, 2.0
```

7-10-24