LAB - 1

HEMANG SINGH
1BM19CS061

1) Develop a Java Program that prints all real solutions to the quadratic $ax^2 + bx + c = 0$. Read in a, b, c & 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 quad
{
    public static void main(String args[])
    {
      System.out.println("Enter the cofficients
                          a & b & c of quadratic equation
                          ax^2 +bx+c=0 & where a ≠ 0");

      Scanner sc = new Scanner(System.in);
      double a = sc.nextInt();
      if (a == 0)
      {
          System.out.println("a can't be zero");
      }
      else
      {
      double b = sc.nextInt();
      double c = sc.nextInt();
      double z = b*b - 4*a*c;
      Equation eq = new Equation();
```

```
        if (z<0)
        {
            System.out.println("There are no real
                                solutions");
        }
        else if(z==0)
        {
            System.out.println("The solutions are
                                real & equal");
            eq.check(a,b,c);
            eq.display();
        }
        else
        {
            System.out.println("The Solutions are
                                real and distinct");
            eq.check(a,b,c);
            eq.display();
        }
        }
    }
class Equation
{
    double a;
    double b;
    double c;
    double r1;
    double r2;
    void check(double a, double b, double c)
    {
```

```
        this.a = a;
        this.b = b;
        this.c = c;
        double z = Math.pow(b*b - 4*a*c, 0.5);

    r1 = (-b - z) / (2*a);
    r2 = (-b + z) / (2*a);
}
void display()
{
        System.out.println(r1);
        System.out.println(r2);
    }
}
```