LAB 1

Develop a Java program that prints all real solutions to the quadratic equation ax2 +bx+c = 0. Read in a, b, c and use the quadratic formula. If the discriminate b2-4ac is negative, 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 ax2+bx+c=0 and
where a is not 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 and 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);
   }
}
```