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.

CODE:

```
import java.util.*;
import java.lang.String;
class equation
{
   public static void main(String args[]){
      double r1=0,r2=0;
      Scanner root =new Scanner(System.in);
      System.out.print("Enter the value of a in ax^2+bx+c=0:");
      double a=root.nextDouble();
      System.out.print("Enter the value of b of ax^2+bx+c=0:");
      double b=root.nextDouble();
      System.out.print("Enter the value of c ax^2+bx+c=0:");
      double c=root.nextDouble();
      double n=2*a;
      double D=(b*b)-4*a*c;
      if(D>0)
      {
         System.out.println("solutions real and distinct");
         r1=((-b+ Math.sqrt(D))/n);
         r2=((-b- Math.sqrt(D))/n);
         System.out.println("solutions are");
         System.out.println(r1);
```

```
            System.out.println(r2);
        }
        else if(D==0)
        {
            System.out.println("solution real and equal");
            r1=r2=-b/n;
            System.out.println("solutions are");
            System.out.println(r1);
            System.out.println(r2);
        }
        else
        {
            System.out.println("NO real solutions");
        }
    }
}
```

OUTPUT: