LAB PROGRAM-1

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 discriminant b2 -4ac is negative, display a message stating that there are no real solutions.

Program:

```
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: