

1. Develop a Java program that prints all real solutions to the quadratic equation $ax^2+bx+c = 0$. Read in a, b, c and use the quadratic formula. If the discriminate $b^2 - 4ac$ 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");
    }
}
}
```

```
Basanagoudas-MacBook-Air:~ basanagoudabasaraddi$ cd desktop
Basanagoudas-MacBook-Air:desktop basanagoudabasaraddi$ javac equation.java
Basanagoudas-MacBook-Air:desktop basanagoudabasaraddi$ java equation
Enter the value of a in  $ax^2+bx+c=0$ :3
Enter the value of b of  $ax^2+bx+c=0$ :2
Enter the value of c  $ax^2+bx+c=0$ :5
NO real solutions
Basanagoudas-MacBook-Air:desktop basanagoudabasaraddi$
```