LAB 12-12-23

12/12/23

1 Q uadratic code

```
import java.util.*;
public class quadratic
{
    public static void main (String args[])
    {
        Scanner SC = new Scanner (System.in);
        System.out.println("Prathem Ganapathy  1BM22CS206");
        int a,b,c;
        double r1,r2,d;

        System.out.println("Enter coefficients of a,b,c");
        a=SC.nextInt();
        b=SC.nextInt();
        c=SC.nextInt();

        while (a==0)
        {
            System.out.println("Not a quadratic equation");
            System.out.println("Enter a non zero value for a");
            a=SC.nextInt();
        }
        d=(b*b)-(4*a*c);
        if(d==0)
        {
            r1=(-b)/(2*a)
            System.out.println("Roots are real and equal");
            System.out.println("Root1 = Root2 = "+r1);
        }
        else if (d>0)
        {
            r1=((-b)+(Math.sqrt(d)))/(double)(2*a);
            r2=((-b)-(Math.sqrt(d)))/(double)(2*a);
```

Output:

```
            System.out.println("Roots are real and distinct");
            System.out.println("Root1 = "+r1+"  Root2 = "+r2);
        }
        else if (d<0)
        {
            System.out.println("Roots are imginary");
            r1 = (-b)/(2*a);
            r2 = Math.sqrt(-d)/(2*a);
            System.out.println("Root1 = "+r1+"+i"+r2+"  Root2 = "+r1+"-i"+r2);
        }
    }
}
```

Output:

Prathom Ganapathy IBM22CS206
Enter coefficients of a, b, c
4 5 6
Roots are ~~imag~~ imaginary
Root1 = 0.0+i1.0532687216470449
Root2 = 0.0-i1.0532687216470449

Prathom Ganapathy IBM22CS206
Enter coefficients of a, b, c
1 -2 1
Roots are ~~equal~~ real and equal
Root1 = Root2 = 1.0

Prathom Ganapathy IBM22CS206
Enter coefficients of a, b, c
1 -3 2
Roots are real and distinct
Root1 = 2.0 Root2 = 1.0