

12/12/21

UPT-12-12-23

```
import java.util.Scanner;
class Quadratic {
    int a, b, c;
    double r1, r2, d;
    void getd() {
        Scanner s = new Scanner(System.in);
        System.out.println("Enter the coefficients of 'a, b, c'");
        a = s.nextInt();
        b = s.nextInt();
        c = s.nextInt();
    }
    void compute() {
        while(a == 0) {
            System.out.println("Not a quadratic equation");
            System.out.println("Enter a non zero value for a");
            Scanner s = new Scanner(System.in);
            a = s.nextInt();
        }
        d = b*b - 4*a*c;
        if(a == 0) {
            r1 = (-b)/(2*a);
            System.out.println("Roots are real and equal");
            System.out.println("Root 1 and Root 2 = " + r1);
        }
        else if (d > 0) {
            r1 = ((-b) + (Math.sqrt(d)))/(double)(2*a);
            r2 = ((-b) - (Math.sqrt(d)))/(double)(2*a);
            System.out.println("Roots are real and distinct");
            System.out.println("Root 1 = " + r1 + " Root 2 = " + r2);
        }
    }
}
```



```
else if (d < 0) {
```

```
    System.out.println("Roots are imaginary");
```

```
    r1 = (-b) / (2 * a);
```

```
    r2 = Math.sqrt(-d) / (2 * a);
```

```
    System.out.println("Root1 = " + r1 + " - i " + r2); }
```

```
}}
```

```
class Quadratic Main {
```

```
    public static void main(String args[]) {
```

```
        public static void main(String args[]) {
```

```
            Quadratic q = new Quadratic();
```

```
            System.out.println("USN = 2023BMS02586 Name  
                                = Santhosh S");
```

```
            q.getD();
```

```
            q.compute();
```

```
        }
```

output :-

Enter the coefficients a, b and c:

0

1

2

roots are imaginary

Root1 = ~~0.0 + i 0.0~~ - 12 + i 84852

Root2 = -12 + i 84852

USN = 2023BM S02586 Name = Santhosh S

Enter the coefficients a, b and c:

1

-3

2

roots are real and distinct

Root1 = 2.0 and Root2 = 1.0

Enter the coefficients of a, b and c

0

1

2

Not a quadratic value

Enter a ~~for~~ non-zero value for a;

2

Roots are imaginary

$$\text{Root 1} = 0.0$$

$$\text{Root 2} = 0.96824583$$

Enter the coefficients of a, b and c

2

3

4

Roots are imaginary

$$\text{Root 1} = 0.0$$

$$\text{Root 2} = 1.19895788 \dots$$