

Week - 3

Java :- Roots of a quadratic eqⁿ

~~File~~ Solⁿ :-

```
import java.util.*;
```

```
public class Main
```

```
{
```

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

```
{
```

```
    double root 1, root 2;
```

```
    Scanner in = new Scanner (System.in);
```

```
    System.out.println ("Enter value for a:");
```

```
    double a = in.nextFloat();
```

```
    System.out.println ("Enter value for b:");
```

```
    double b = in.nextFloat();
```

```
    System.out.println ("Enter value for c:");
```

```
    double c = in.nextFloat();
```

```
    double determinant = b*b - 4*a*c;
```

```
    if (determinant > 0)
```

```
{
```

```
        root 1 = (-b + Math.sqrt (determinant)) / (2*a);
```

```
        root 2 = (-b - Math.sqrt (determinant)) / (2*a);
```

```
system.out.format("root 1 = %.2f and root 2 = %.2f\n",  
    root 1, root 2);  
}
```

```
else if (determinant == 0)
```

```
{  
    root 1 = root 2 = -b / (2 * a);
```

```
system.out.format("root 1 = root 2 = %.2f\n",  
    root 1);
```

```
}
```

```
else
```

```
{  
    double real part = -b / (2 * a);
```

```
    double imaginary part = Math.sqrt(-determinant)  
        / (2 * a);
```

```
System.out.format("root 1 = %.2f + %.2fi  
and root 2 = %.2f - %.2fi",
```

```
    real part, imaginary part, real part,  
    imaginary part);
```

```
system.
```

```
out.println(" — — This quadratic equation  
has no real roots — ");
```