Week - 3 (LAB-1)

1) Java program that prints all real solutions to quadratic equation $ax^2 + bx + c = 0$. If discriminate $b^2 - 4ac$ is negative, display a message saying there are no real solutions

→
```java
import java.util.Scanner;
public class RootsofQE{
        public static void main(String args[]){
            double Root1 = 0, Root2 = 0;
        Scanner sc = new Scanner(System.in);
        System.out.println(" Consider a quadratic equation");
        System.out.println(" Enter the value of a:");
        double a = sc.nextDouble();
        System.out.println(" Enter the value of c:");
        double c = sc.nextDouble();
        double determinant = (b*b) - (4*a*c);
        double sqrt = Math.sqrt(determinant);


        if(determinant >= 0){
        Root1 = (-b + sqrt)/(2*a);
        Root2 = (-b - sqrt)/(2*a);
        System.out.println(" Roots are real and distinct");

        System.out.println(" Roots are" + Root1 +
                    " and " + Root2);

        }
        if else(determinant == 0){
        Root1 = (-b)/(2*a);
        Root2 = Root1;
        System.out.println(" Roots are equal and Real");
```

```java
        System.out.println("Roots are" + Root1 + "and" + Root2);
    }
    else {
        System.out.println("There are no real solutions");
    }
}
```