Java Program Quadratic Equation

Code:

```
import java.util.Scanner;

public class quad {

    public static void main(String[] args) {

        System.out.println("Enter the cofficients a,b,c of quadratic equation");

        Scanner sc = new Scanner(System.in);

        double a=sc.nextInt();

        double b=sc.nextInt();

        double c=sc.nextInt();

        double root1, root2;


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


        // condition for real and different roots
        if(determinant > 0) {

            root1 = (-b + Math.sqrt(determinant)) / (2 * a);

            root2 = (-b - Math.sqrt(determinant)) / (2 * a);


            System.out.format("root1 = %.2f and root2 = %.2f", root1 , root2);

            System.out.println("\nReal and Different Roots");

        }
        // condition for real and equal roots
        else if(determinant == 0) {

            root1 = root2 = -b / (2 * a);
```
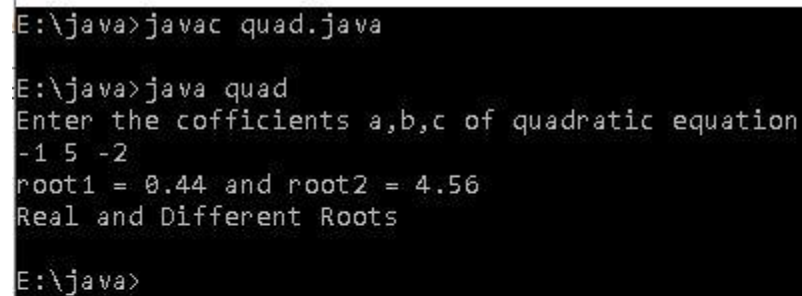
```java
        System.out.format("root1 = root2 = %.2f;", root1);

        System.out.println("\nReal and Equal Roots");

    }

    // if roots are not real

    else {

        double realPart = -b / (2 *a);

        double imaginaryPart = Math.sqrt(-determinant) / (2 * a);


        System.out.format("root1 = %.2f+%.2fi and root2 = %.2f-%.2fi", realPart, imaginaryPart, realPart, imaginaryPart);

        System.out.println("\nImaginary Roots");

    }

  }
}
```

Output:

```
E:\java>javac quad.java

E:\java>java quad
Enter the cofficients a,b,c of quadratic equation
-1 5 -2
root1 = 0.44 and root2 = 4.56
Real and Different Roots

E:\java>
```