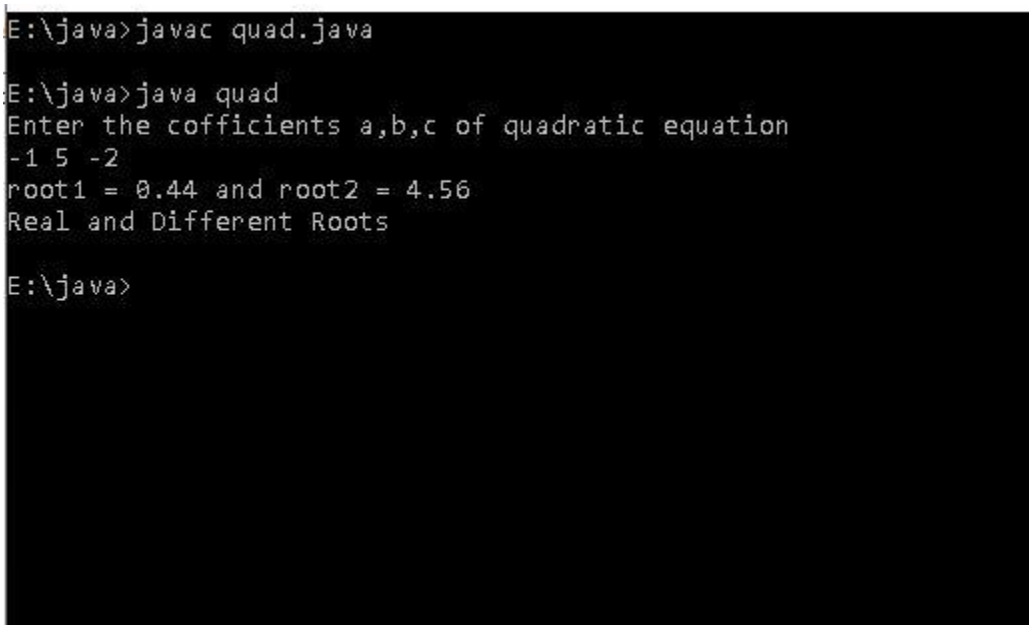
# Java Program Quadratic Equation

## 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);
```

```
            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:\>cd java

E:\java>javac quad.java

E:\java>java quad
Enter the cofficients a,b,c of quadratic equation
4 5 6
root1 = -0.63+1.05i and root2 = -0.63-1.05i
Imaginary Roots

E:\java>
```