

Credit Name: CSE 2nd Language Programming Credit  
Assignment Name: #11 QuadraticEquations Assignment

How has your program changed from planning to coding to now? Please explain?:

The plan was to ask the user for values of "a,b,c" and make the quadratic formula, But in coding, what changed was adding roots, and calculating the value.

```
public class QuadraticEquations {  
    public static void main(String[] args) {  
        Scanner scanner = new Scanner(System.in);  
  
        System.out.println("Quadratic Equation Solver");  
        System.out.println("=====");  
  
        // Input: Prompt the user for coefficients a, b, and c  
        System.out.print("Enter value for a: ");  
        double a = scanner.nextDouble();  
  
        System.out.print("Enter value for b: ");  
        double b = scanner.nextDouble();  
  
        System.out.print("Enter value for c: ");  
        double c = scanner.nextDouble();
```

First I need to ask the user for the values of a, b, and c and make a variable for each one.

```

// Calculate the roots
if (discriminant > 0) {
    // Two real and distinct roots
    double root1 = (-b + Math.sqrt(discriminant)) / (2 * a);
    double root2 = (-b - Math.sqrt(discriminant)) / (2 * a);

    System.out.println("The roots are " + root1 + " and " + root2);
} else if (discriminant == 0) {
    // One real root (double root)
    double root = -b / (2 * a);
    System.out.println("The root is " + root);
} else {
    // Complex roots
    double realPart = -b / (2 * a);
    double imaginaryPart = Math.sqrt(-discriminant) / (2 * a);

    System.out.println("The roots are " + realPart + " + " + imaginaryPart + "i" +
        " and " + realPart + " - " + imaginaryPart + "i");
}

scanner.close();

```

After receiving the values I have to calculate the roots from the equation and then prompt it to the user of what the two roots are.