Program 1

```
import java.util.Scanner;


class QuadraticSolver {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);


        System.out.print("Enter the coefficient a: ");
        double a = scanner.nextDouble();
        System.out.print("Enter the coefficient b: ");
        double b = scanner.nextDouble();
        System.out.print("Enter the constant c: ");
        double c = scanner.nextDouble();


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


        if (discriminant > 0) {
            double root1 = (-b + Math.sqrt(discriminant)) / (2 * a);
            double root2 = (-b - Math.sqrt(discriminant)) / (2 * a);
            System.out.println("The equation has two distinct real roots:");
            System.out.println("Root 1: " + root1);
            System.out.println("Root 2: " + root2);
        } else if (discriminant == 0) {
            double root = -b / (2 * a);
            System.out.println("The equation has one real root:");
            System.out.println("Root: " + root);
        } else {
            System.out.println("The equation has no real solutions.");
        }


        scanner.close();
    }
}
```

Output

```
Enter the coefficient a: 1
Enter the coefficient b: -3
Enter the constant c: 2
The equation has two distinct real roots:
Root 1: 2.0
Root 2: 1.0
PS C:\Users\User\Documents\JAVA_LAB_PROGRAMS> java QuadraticSolver
Enter the coefficient a: 1
Enter the coefficient b: 2
Enter the constant c: 3
The equation has no real solutions.
```