## PROGARM 1:

Develop a Java program that prints all real solutions to the quadratic equation ax2

+bx+c = 0. Read in a, b, c and use

the quadratic formula. If the discriminate b2

-4ac is

negative, display a message stating that there are no real solutions.

```
import java.util.Scanner;

public class QuadraticSolver {
    public static void main(String[] args) {

        Scanner scanner = new Scanner(System.in);

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

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

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

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

```
if (discriminant < 0) {
          System.out.println("There are no real solutions.");
} else {

          double root1 = (-b + Math.sqrt(discriminant)) / (2 * a);
          double root2 = (-b - Math.sqrt(discriminant)) / (2 * a);

          if (discriminant == 0) {
                System.out.println("There is one real solution: " +

root1);
} else {
                System.out.println("The real solutions are: ");
                System.out.println("Root 1: " + root1);
                 System.out.println("Root 2: " + root2);
                }
}
scanner.close();
}</pre>
```

## OUTPUT

```
Enter coefficient a: 1
Enter coefficient b: -3
Enter coefficient c: 2
The real solutions are:
Root 1: 2.0
Root 2: 1.0

Enter coefficient a: 7
Enter coefficient b: 8
Enter coefficient c: 5
There are no real solutions.

Enter coefficient a: 2
Enter coefficient b: 4
Enter coefficient c: 2
There is one real solution: -1.0
```

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