LAB program 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

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code:

```
import java.util.Scanner;
public class first {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter coefficient a: ");
        double a = sc.nextDouble();
        System.out.println("Enter coefficient b: ");
        double b = sc.nextDouble();
        System.out.println("Enter coefficient c: ");
        double c = sc.nextDouble();
        double discriminant = b * b - 4 * a * c;
        if (discriminant > 0) {
            double root1 = (-b + Math.sgrt(discriminant)) / (2 * a);
            double root2 = (-b - Math.sqrt(discriminant)) / (2 * a);
            System.out.println("The roots are real and distinct.");
            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 roots are real and equal.");
            System.out.println("Root = " + root);
        } else {
            System.out.println("There are no real solutions.");
```

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```
sc.close();
}
```

//output:

```
Enter coefficient a:
Enter coefficient b:
-5
Enter coefficient c:
The roots are real and distinct.
Root 1 = 3.0
Root 2 = 2.0
PS E:\java lab>
Enter coefficient a:
Enter coefficient b:
-4
Enter coefficient c:
The roots are real and equal.
Root = 2.0
PS E:\java lab>
Enter coefficient a:
Enter coefficient b:
Enter coefficient c:
There are no real solutions.
PS E:\java lab>
```

Observation:

LAB program 1

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8) Develop Java program that prints all su
                          solutions to and the +c =0. Read in as b
                          & use quadratic formula. If discriming b'-4 ac is negative. Display message stating that there are no real solution
 quadratic Equation
Emport java, util. Scanners
                Quadratio Equation 2
public class
      public statio void main (string [] augo) ¿
             Scanner sc= new Scanner (System. Pn);
             System. out. prendln (" Enter Cofficient a: ").
             double a = sc. next Double ();
             System out. printh ("Enter coefficient b: ");
            double b = Sc. next Double ();
            System.out. printh ("Enter coefficient c:");
            double C = Sc next Double ();
           double diseriminant = bx b-4 * axc;
         if (discriminant, 0) &
             double root1 = (-b+ Math. sgst (discriminant)),
            double root2 = (-b - Math. syrt(discriminant))
            sout ("Roots are real and distinct");
            Sout ("Root 1=" + root1):
            Sout (" Root2 = " + roota);
       else if (discriminant = =0) 1
             double root = - b/(2+a);
             Sout ("Roots one real and equal");
             Sout (" Rout = " + rout):
```

was the elsek in wars trained Sout C'There we no real solutions.") 6c. close (); Ç 11 output 1 Pat [] Marches; Enter the coefficient a: Enter the coefficient b: Enter the coefficient coefficient coefficient The equation has two real and distinct noots. Root 1: 3.0 pour sudmure sudmis ") de 32 Root 2: 1 ? Julianus = adaptul & am Enter the coefficient a: enter the coefficient b: Enter the rofficient c: There are no real solutions to the equation. atos a struction to se. mouthlil = schuttet 0;