Write a JAVA program to display default value of all primitive data type of JAVA

Source Code

```
public class DefaultValues {
    public static void main(String[] args) {
        // Declare variables of each primitive type
        byte byteValue = 0;
        short shortValue = 0;
        int intValue = 0;
        long longValue = 0L;
        float floatValue = 0.0f;
        double doubleValue = 0.0d;
        char charValue = '\u0000';
        boolean booleanValue = false;

        // Print the default values
        System.out.println("Default value of byte: " + byteValue);
        System.out.println("Default value of short: " + shortValue);
        System.out.println("Default value of int: " + intValue);
        System.out.println("Default value of long: " + longValue);
        System.out.println("Default value of float: " + floatValue);
        System.out.println("Default value of double: " + doubleValue);
        System.out.println("Default value of char: '" + charValue + "'");
        System.out.println("Default value of boolean: " + booleanValue);
    }
}
```

Output

```
Default value of byte: 0
Default value of short: 0
Default value of int: 0
Default value of long: 0
Default value of float: 0.0
Default value of double: 0.0
Default value of char: '
Default value of boolean: false
```

Write a java program that display the roots of a quadratic equation ax2+bx=0. Calculate the discriminate D and basing on value of D, describe the nature of root.

Source Code

```
import java.util.Scanner;
public class QuadraticEquationExample1
{
	public static void main(String[] Strings)
	{
		Scanner input = new Scanner(System.in);
		System.out.print("Enter the value of a: ");
		double a = input.nextDouble();
		System.out.print("Enter the value of b: ");
		double b = input.nextDouble();
		System.out.print("Enter the value of c: ");
		double c = input.nextDouble();
		double d= b * b - 4.0 * a * c;
		if (d> 0.0)
		{
			double r1 = (-b + Math.pow(d, 0.5)) / (2.0 * a);
			double r2 = (-b - Math.pow(d, 0.5)) / (2.0 * a);
			System.out.println("The roots are " + r1 + " and " + r2);
		}
		else if (d == 0.0)
		{
			double r1 = -b / (2.0 * a);
			System.out.println("The root is " + r1);
		}
		else
		{
			System.out.println("Roots are not real.");
		}
	}
}
```

Output

Enter the value of a:1

Enter the value of b:5

Enter the value of c:2

The roots are -0.4384471871911697 and -4.561552812808831

Enter the value of a:1

Enter the value of b:1

Enter the value of c:1

The roots are not equal.