

## Step 1: Create a New Java Project

**Project Name:** SingletonPattern

## Step 2 & 3: Define and Implement Singleton Class

**File: Logger.java**

```
public class Logger {  
    // Private static instance of the same class  
    private static Logger instance;  
  
    // Private constructor to restrict instantiation  
    private Logger() {  
        System.out.println("Logger Initialized");  
    }  
  
    // Public method to provide access to the instance  
    public static Logger getInstance() {  
        if (instance == null) {  
            instance = new Logger(); // Lazy initialization  
        }  
        return instance;  
    }  
  
    // Logging method  
    public void log(String message) {  
        System.out.println("[LOG]: " + message);  
    }  
}
```

## Step 4: Test the Singleton Implementation

**File: Main.java**

```
public class Main {  
    public static void main(String[] args) {  
        Logger logger1 = Logger.getInstance();  
        logger1.log("First log message");  
  
        Logger logger2 = Logger.getInstance();  
        logger2.log("Second log message");  
  
        // Check if both logger1 and logger2 refer to the same instance  
        if (logger1 == logger2) {  
            System.out.println("Both logger1 and logger2 are the same instance.");  
        } else {  
            System.out.println("Different logger instances exist.");  
        }  
    }  
}
```

### Expected Output:

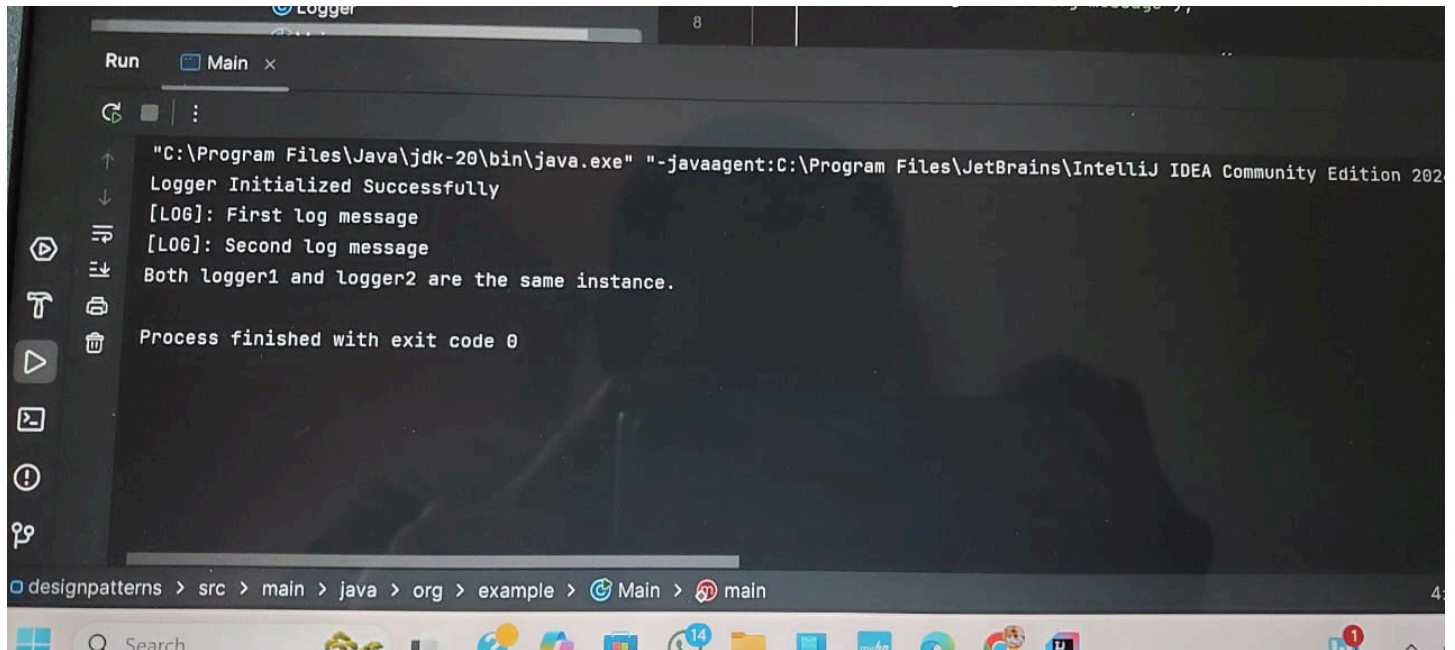
Logger Initialized

[LOG]: First log message

[LOG]: Second log message

Both logger1 and logger2 are the same instance.

### Final Output:



The screenshot shows the Run console in IntelliJ IDEA. The output is as follows:

```
"C:\Program Files\Java\jdk-20\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA Community Edition 2023.1\lib\idea_rt.jar" 8796
Logger Initialized Successfully
[LOG]: First log message
[LOG]: Second log message
Both logger1 and logger2 are the same instance.
Process finished with exit code 0
```

The breadcrumb at the bottom of the console window is: `designpatterns > src > main > java > org > example > Main > main`.