**Exercise 1: Implementing the Singleton Pattern**

**Logger.java:**

public class Logger {

    private static Logger instance;

    private Logger() {

        System.out.println("Logger Initialized");

    }

    public static Logger getInstance() {

        if (instance==null) {

            instance=new Logger();

        }

        return instance;

    }

    public void log(String message) {

        System.out.println("[LOG]: "+message);

    }

}

**TestLogger.java:**

public class TestLogger {

    public static void main(String[] args) {

        Logger logger1=Logger.getInstance();

        Logger logger2=Logger.getInstance();

        logger1.log("Message:Logger 1");

        logger2.log("Message:Logger 2");

        if (logger1==logger2) {

            System.out.println("Only one instance of Logger exists");

        } else {

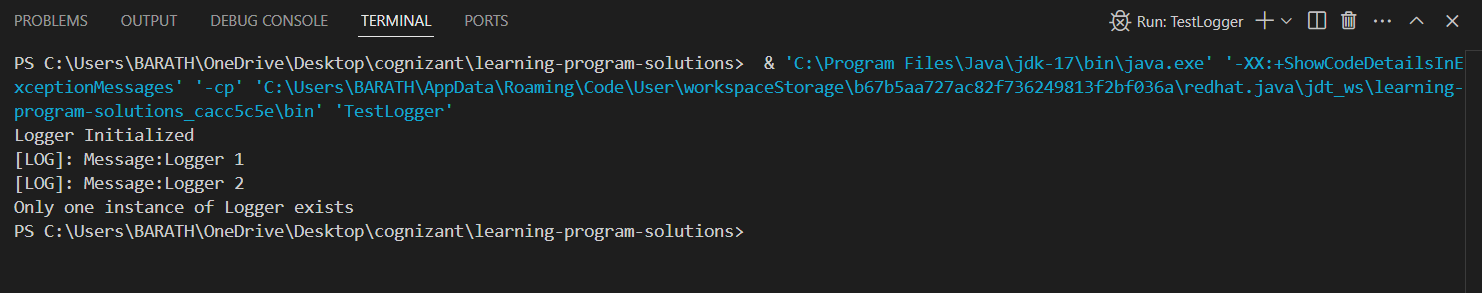
            System.out.println("Multiple instances of Logger exist");

        }

    }

}

**Output:**

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