**Exercise 1: Implementing the Singleton Pattern**

public class Logger {

    private static Logger singleInstance;

    private Logger() {

        System.out.println("Logger instance created.");

    }

    public static Logger getInstance() {

        if (singleInstance == null) {

            singleInstance = new Logger();

        }

        return singleInstance;

    }

    public void log(String message) {

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

    }

}

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");

        // To Check if both logger1 and logger2 are 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.");

        }

    }

}

Output

