**Exercise 1: Implementing the Singleton Pattern**

**Logger.java**

public class Logger {

private static Logger instance;

private Logger() {

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

}

public static Logger getInstance() {

if (instance == null) {

instance = new Logger();

}

return instance;

}

public void log(String message) {

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

}

}

**SingletonTest.java**

public class SingletonTest {

public static void main(String[] args) {

Logger logger1 = Logger.getInstance();

logger1.log("First log message");

Logger logger2 = Logger.getInstance();

logger2.log("Second log message");

if (logger1 == logger2) {

System.out.println("Both logger1 and logger2 are the same instance");

} else {

System.out.println("Different instances created - Singleton failed");

}

}

}

**Output**

