**Exercise 1: Implementing the Singleton Pattern**

**CODE:**

**Logger.java**

public class Logger {  
 private static Logger *singleInstance*;  
 private Logger() {  
 System.*out*.println("Logger Initialized");  
 }  
 public static Logger getInstance() {  
 if (*singleInstance* == null) {  
 *singleInstance* = new Logger();  
 }  
 return *singleInstance*;  
 }  
 public void log(String message) {  
 System.*out*.println("Log: " + message);  
 }  
}

**Main.java**

public class Main {  
 public static void main(String[] args) {  
 Logger logger1 = Logger.*getInstance*();  
 Logger logger2 = Logger.*getInstance*();  
 logger1.log("First message");  
 logger2.log("Second message");  
 if (logger1 == logger2) {  
 System.*out*.println("Both are the same instance.");  
 } else {  
 System.*out*.println("Different instances.");  
 }  
 }  
}

**OUTPUT:**

