**Logger.java**

**package** SingletonPattern;

**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);

}

}

**Main.java**

**package** SingletonPattern;

**public** **class** Main {

**public** **static** **void** main(String[] args) {

Logger logger1 = Logger.*getInstance*();

logger1.log("This is the first log message.");

Logger logger2 = Logger.*getInstance*();

logger2.log("This is the second log message.");

**if** (logger1 == logger2) {

System.***out***.println("Both logger instances are the same. Singleton is working.");

} **else** {

System.***out***.println("Logger instances are different. Singleton failed.");

}

}

}

**LoggerTest.java**

**package** SingletonPattern;

**public** **class** LoggerTest {

**public** **static** **void** main(String[] args) {

Logger logger1 = Logger.*getInstance*();

Logger logger2 = Logger.*getInstance*();

Logger logger3 = Logger.*getInstance*();

logger1.log("First log message");

logger2.log("Second log message");

logger3.log("Third log message");

**if** (logger1 == logger2 && logger2 == logger3) {

System.***out***.println("Test Passed: All references point to the same instance.");

} **else** {

System.***out***.println("Test Failed: Different instances detected.");

}

}

}

