**Implementing the Singleton Pattern**

public class Logger {

private static Logger instance;

private Logger() {

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

}

public static Logger getInstance() {

if (instance == null) {

synchronized (Logger.class) {

if (instance == null) {

instance = new Logger();

}

}

}

return instance;

}

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public void log(String message) {

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

}

}

public class TestSingleton {

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 logger instances are the same (singleton works).");

} else {

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

}

}

}