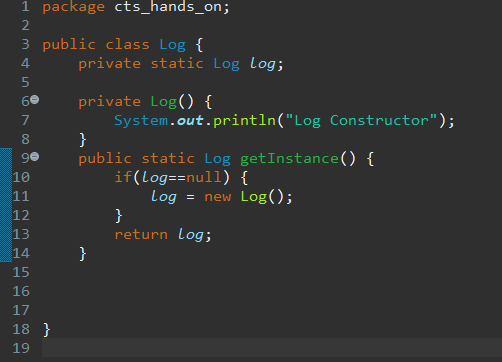
**Design Patterns and Principles Hands On**

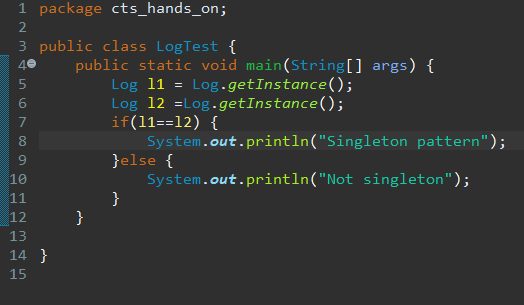
**Exercise 1: Implementing the Singleton Pattern**

**Scenario:**

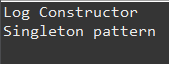
You need to ensure that a logging utility class in your application has only one instance throughout the application lifecycle to ensure consistent logging.

PROGRAM:





OUTPUT:

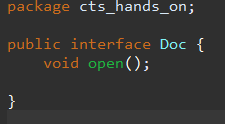


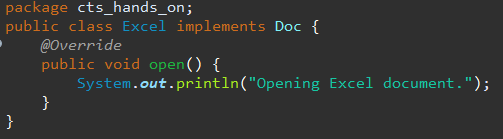
**Exercise 2: Implementing the Factory Method Pattern**

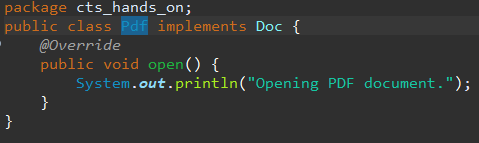
**Scenario:**

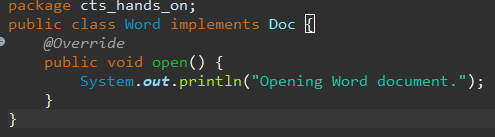
You are developing a document management system that needs to create different types of documents (e.g., Word, PDF, Excel). Use the Factory Method Pattern to achieve this.

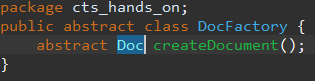
PROGRAM:

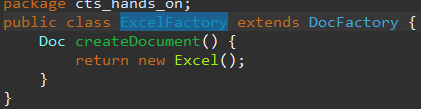


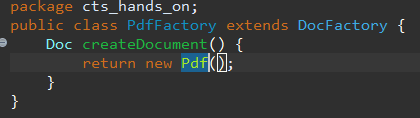
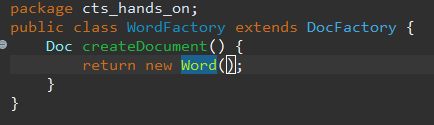


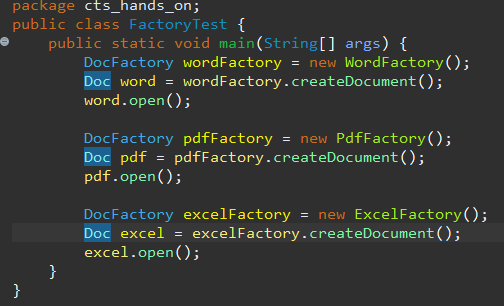












OUTPUT:

