## 

Mubeen Khalid

SP21-BSE-015

Design Patterns Lab

## Example 1:

Connection.java:

package Example1;

public class Connection {

    private static Connection instance;

    private Connection() {

    }

    public static Connection getInstance() {

        if (instance == null) {

            instance = new Connection();

        }

        return instance;

    }

    public void getData() {

        System.out.println("This is the data retrieved from the DB");

    }

}

Demo.java:

package Example1;

public class Demo {

    public static void main(String[] args) {

        Connection c = Connection.getInstance();

        c.getData();

    }

}

Output:

A black background with many small colored letters

Description automatically generated with medium confidence

## Example 2:

Converted to ThreadSafe:

import java.io.File;

import java.io.FileInputStream;

import java.io.FileNotFoundException;

import java.io.IOException;

import java.util.Enumeration;

import java.util.Properties;

import java.util.concurrent.ConcurrentHashMap;

public class ThreadSafe {

    private static ThreadSafe instance;

    private ConcurrentHashMap<String, String> config = new ConcurrentHashMap<>();

    private ThreadSafe() {

        try {

            File file = new File("config.properties");

            FileInputStream fileInput = new FileInputStream(file);

            Properties properties = new Properties();

            properties.load(fileInput);

            fileInput.close();

            Enumeration<Object> enuKeys = properties.keys();

            while (enuKeys.hasMoreElements()) {

                String key = (String) enuKeys.nextElement();

                String value = properties.getProperty(key);

                config.put(key, value);

            }

        } catch (FileNotFoundException e) {

            e.printStackTrace();

        } catch (IOException e) {

            e.printStackTrace();

        }

    }

    public String getValue(String key) {

        String value = null;

        if (config.containsKey(key)) {

            value = config.get(key);

        }

        return value;

    }

    public static ThreadSafe getInstance() {

        if (instance == null)

            instance = new ThreadSafe();

        return instance;

    }

}

DemoThreadSafe:

public class DemoThreadSafe {

    public static void main(String[] args) {

        ThreadSafe config = ThreadSafe.getInstance();

        System.out.println(config.getValue("mode"));

        System.out.println(config.getValue("font-size"));

        System.out.println(config.getValue("font-type"));

    }

}

Config.properties:

mode=dark

font-type=times

font-size=20

Output:

A black background with text

Description automatically generated

## Wikipedia Example Java:

public class Singleton {

    private static volatile Singleton instance = null;

    private Singleton() {}

    public static Singleton getInstance() {

        if (instance == null) {

            synchronized(Singleton.class) {

                if (instance == null) {

                    instance = new Singleton();

                }

            }

        }

        return instance;

    }

}

Demo:

public class Demo {

    public static void main(String[] args) {

        Singleton c = Singleton.getInstance();

        c.getData();

    }

}

Output:

