1. Singleton Method Implementation

Code:

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);

    }

}

public class SingletonLogger {

    public static void main(String[] args) {

        Logger logger1 = Logger.getInstance();

        logger1.log("Starting application...");

        Logger logger2 = Logger.getInstance();

        logger2.log("Continuing application...");

        if (logger1 == logger2) {

            System.out.println("Both logger instances are the same.");

        } else {

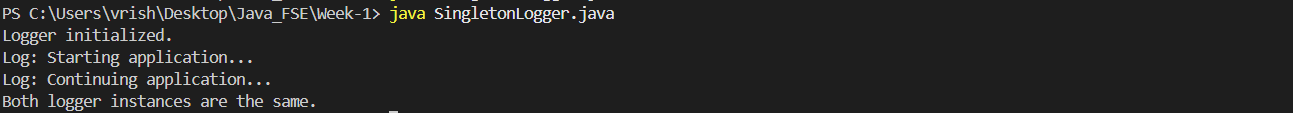
            System.out.println("Different logger instances.");

        }

    }

}

Output:



1. Factory Method Implementation

Code:

interface Document {

    void open();

}

class WordDocument implements Document {

    public void open() {

        System.out.println("Opening Word Document...");

    }

}

class PdfDocument implements Document {

    public void open() {

        System.out.println("Opening PDF Document...");

    }

}

class ExcelDocument implements Document {

    public void open() {

        System.out.println("Opening Excel Document...");

    }

}

abstract class DocumentFactory {

    public abstract Document createDocument();

}

class WordFactory extends DocumentFactory {

    public Document createDocument() {

        return new WordDocument();

    }

}

class PdfFactory extends DocumentFactory {

    public Document createDocument() {

        return new PdfDocument();

    }

}

class ExcelFactory extends DocumentFactory {

    public Document createDocument() {

        return new ExcelDocument();

    }

}

public class DocumentFactoryDemo {

    public static void main(String[] args) {

        DocumentFactory wordFactory = new WordFactory();

        Document doc1 = wordFactory.createDocument();

        doc1.open();

        DocumentFactory pdfFactory = new PdfFactory();

        Document doc2 = pdfFactory.createDocument();

        doc2.open();

        DocumentFactory excelFactory = new ExcelFactory();

        Document doc3 = excelFactory.createDocument();

        doc3.open();

    }

}

Output:

