**Exercise 1: Implementing the Singleton Pattern**

Logger.java

A screenshot of a computer program

AI-generated content may be incorrect.

Main.java

A screen shot of a computer code

AI-generated content may be incorrect.

Output

A computer screen shot of words

AI-generated content may be incorrect.

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

public class FactoryMethodExample {

    // Document Interface

    interface Document {

        void open();

    }

    // Concrete Documents

    static class WordDocument implements Document {

        public void open() {

            System.out.println("Opening a Word document.");

        }

    }

    static class PdfDocument implements Document {

        public void open() {

            System.out.println("Opening a PDF document.");

        }

    }

    static class ExcelDocument implements Document {

        public void open() {

            System.out.println("Opening an Excel document.");

        }

    }

    // Abstract Factory

    static abstract class DocumentFactory {

        public abstract Document createDocument();

    }

    // Concrete Factories

    static class WordDocumentFactory extends DocumentFactory {

        public Document createDocument() {

            return new WordDocument();

        }

    }

    static class PdfDocumentFactory extends DocumentFactory {

        public Document createDocument() {

            return new PdfDocument();

        }

    }

    static class ExcelDocumentFactory extends DocumentFactory {

        public Document createDocument() {

            return new ExcelDocument();

        }

    }

    // Main Method to test

    public static void main(String[] args) {

        DocumentFactory wordFactory = new WordDocumentFactory();

        Document word = wordFactory.createDocument();

        word.open();

        DocumentFactory pdfFactory = new PdfDocumentFactory();

        Document pdf = pdfFactory.createDocument();

        pdf.open();

        DocumentFactory excelFactory = new ExcelDocumentFactory();

        Document excel = excelFactory.createDocument();

        excel.open();

    }

}

Output:

A close-up of a text

AI-generated content may be incorrect.