**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., Text, PDF, Spreadsheet).  
Use the **Factory Method Pattern** to achieve this.

**Steps:**

1. **Create a New Java Project:**
   * Create a new Java project named **DocumentFactoryDemo**.
2. **Define Document Classes:**
   * Create interfaces or abstract classes for different document types such as **TextFile , PdfFile ,** and **SpreadsheetFile** .
3. **Create Concrete Document Classes:**
   * Implement concrete classes for each document type that implements or extends the above interfaces or abstract classes.
4. **Implement the Factory Method:**
   * Create an abstract class **FileFactory** with a method **createFile().**
   * Create factory classes like TextFileFactory, PdfFileFactory, and SpreadsheetFileFactory.
5. **Test the Factory Method Implementation:**
   * Create a test class (DocumentFactoryDemo) to demonstrate the creation of different file types using their respective factories.

**Source Code :**

package week1.designpatterns;  
  
public class DocumentFactoryDemo  
{  
  
 interface File  
 {  
 void open();  
 }  
  
 static class TextFile implements File  
 {  
 public void open()  
 {  
 System.out.println("Opening Text File");  
 }  
 }  
  
 static class PdfFile implements File  
 {  
 public void open()  
 {  
 System.out.println("Opening PDF File");  
 }  
 }  
  
 static class SpreadsheetFile implements File  
 {  
 public void open()  
 {  
 System.out.println("Opening Spreadsheet File");  
 }  
 }  
  
 abstract static class FileFactory  
 {  
 public abstract File createFile();  
 }  
  
 static class TextFileFactory extends FileFactory  
 {  
 public File createFile()  
 {  
 return new TextFile();  
 }  
 }  
  
 static class PdfFileFactory extends FileFactory  
 {  
 public File createFile()  
 {  
 return new PdfFile();  
 }  
 }  
  
 static class SpreadsheetFileFactory extends FileFactory  
 {  
 public File createFile()  
 {  
 return new SpreadsheetFile();  
 }  
 }  
  
 public static void main(String[] args)  
 {  
 FileFactory textFactory = new TextFileFactory();  
 File textFile = textFactory.createFile();  
 textFile.open();  
  
 FileFactory pdfFactory = new PdfFileFactory();  
 File pdfFile = pdfFactory.createFile();  
 pdfFile.open();  
  
 FileFactory spreadsheetFactory = new SpreadsheetFileFactory();  
 File spreadsheetFile = spreadsheetFactory.createFile();  
 spreadsheetFile.open();  
 }  
}

Output :

Opening Word Document

Opening PDF Document

Opening Excel Document