**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.

**Steps:**

1. **Create a New Java Project:**
   * Create a new Java project named **FactoryMethodPatternExample**.
2. **Define Document Classes:**
   * Create interfaces or abstract classes for different document types such as **WordDocument**, **PdfDocument**, and **ExcelDocument**.
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 **DocumentFactory** with a method **createDocument()**.
   * Create concrete factory classes for each document type that extends DocumentFactory and implements the **createDocument()** method.
5. **Test the Factory Method Implementation:**
   * Create a test class to demonstrate the creation of different document types using the factory method.

**Source Code :**

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| **package week1.designpatterns;**  **public class Factorymethod\_week1 {**  **interface Document {**  **void open();**  **}**  **static class WordDocument implements Document {**  **public void open() {**  **System.out.println("Launching Word Document");**  **}**  **}**  **static class PdfDocument implements Document {**  **public void open() {**  **System.out.println("Launching PDF Document");**  **}**  **}**  **static class ExcelDocument implements Document {**  **public void open() {**  **System.out.println("Launching Excel Document");**  **}**  **}**  **// Abstract Factory**  **abstract static class DocumentFactory {**  **public abstract Document createDocument();**  **}**  **// Concrete Factory Classes**  **static class WordDocFactory extends DocumentFactory {**  **public Document createDocument() {**  **return new WordDocument();**  **}**  **}**  **static class PdfDocFactory extends DocumentFactory {**  **public Document createDocument() {**  **return new PdfDocument();**  **}**  **}**  **static class ExcelDocFactory extends DocumentFactory {**  **public Document createDocument() {**  **return new ExcelDocument();**  **}**  **}**  **public static void main(String[] args) {**  **DocumentFactory factory1 = new WordDocFactory();**  **Document document1 = factory1.createDocument();**  **document1.open();**  **DocumentFactory factory2 = new PdfDocFactory();**  **Document document2 = factory2.createDocument();**  **document2.open();**  **DocumentFactory factory3 = new ExcelDocFactory();**  **Document document3 = factory3.createDocument();**  **document3.open();**  **}**  **}** |

Output :

