**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.

Solution:

1st file: Document.java

public interface Document {

void open();

}

2nd file: WordDocument.java

public class WordDocument implements Document {

public void open() {

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

}

}

3rd file: PdfDocument.java

public class PdfDocument implements Document {

public void open() {

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

}

}

4th file: ExcelDocument.java

public class ExcelDocument implements Document {

public void open() {

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

}

}

5th file: DocumentFactory.java

public abstract class DocumentFactory {

public abstract Document createDocument(); }

6th file: WordFactory.java

public class WordFactory extends DocumentFactory {

public Document createDocument() {

return new WordDocument();

}

}

7th file: PdfFactory.java

public class PdfFactory extends DocumentFactory {

public Document createDocument() {

return new PdfDocument();

}

}

8th file: ExcelFactory.java

public class ExcelFactory extends DocumentFactory {

public Document createDocument() {

return new ExcelDocument();

}

}

Output:

A screen shot of a computer

AI-generated content may be incorrect.