**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 :**

| **package week1.designpatterns;  public class FactoryMethodPatternExample {   interface Document {  void open();  }   static class WordDocument implements Document {  public void open() {  System.out.println("Opening Word Document");  }  }   static class PdfDocument implements Document {  public void open() {  System.out.println("Opening PDF Document");  }  }   static class ExcelDocument implements Document {  public void open() {  System.out.println("Opening Excel Document");  }  }   // Abstract Factory  abstract static class DocumentFactory {  public abstract Document createDocument();  }   // concrete factory classes  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();  }  }   public static void main(String[] args) {  DocumentFactory wordFactory = new WordDocumentFactory();  Document wordDoc = wordFactory.createDocument();  wordDoc.open();   DocumentFactory pdfFactory = new PdfDocumentFactory();  Document pdfDoc = pdfFactory.createDocument();  pdfDoc.open();   DocumentFactory excelFactory = new ExcelDocumentFactory();  Document excelDoc = excelFactory.createDocument();  excelDoc.open();  } }** |
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Output :

