**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 Code:**

package Coding.FactoryPattern;

public interface Document {

  public void create();

}

public class WordDocument implements Document {

  public void create(){

    System.out.println("Creating Word Document");

  }

}

public class PDFDocument implements Document {

  public void create(){

    System.out.println("Creating PDF Document");

  }

}

public class ExcelDocument implements Document {

  public void create(){

    System.out.println("Creating Excel Document");

  }

}

public abstract class DocumentFactory {

  public abstract Document createDoc();

}

public class WordDocFactory extends DocumentFactory{

  public Document createDoc(){

    return new WordDocument();

  }

}

public class PDFDocFactory extends DocumentFactory{

  public Document createDoc(){

    return new PDFDocument();

  }

}

public class ExcelDocFactory extends DocumentFactory{

  public Document createDoc(){

    return new ExcelDocument();

  }

}

public class FactoryPatternExample{

  public static void main(String[] args) {

    DocumentFactory wordFactory=new WordDocFactory();

    Document wd=wordFactory.createDoc();

    wd.create();

    DocumentFactory pdfFactory=new PDFDocFactory();

    Document pf=pdfFactory.createDoc();

    pf.create();

    DocumentFactory excelFactory=new ExcelDocFactory();

    Document ef=excelFactory.createDoc();

    ef.create();

  }

}

**Output:**

A screenshot of a computer program

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