**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 design\_principles.exercise2;

import java.util.\*;

interface Document {

    String createDocument();

}

class WordDoc implements Document {

    public String createDocument() {

        return "Word Document Created";

    }

}

class PdfDoc implements Document{

    public String createDocument() {

        return "PDF Document Created";

    }

}

class ExcelDoc implements Document{

    public String createDocument(){

        return "Excel Document Created";

    }

}

abstract class DocumentFactory{

    abstract Document document();

}

class WordFactory extends DocumentFactory {

    public Document document() {

        return new WordDoc();

    }

}

class PDFfactory extends DocumentFactory{

    public Document document(){

        return new PdfDoc();

    }

}

class Excelfactory extends DocumentFactory{

    public Document document(){

        return new ExcelDoc();

    }

}

public class FactoryMethodPatternExample {

    public static void main(String[] args) {

        DocumentFactory d1=new WordFactory();

        Document doc1=d1.document();

        System.out.println(doc1.createDocument());

        DocumentFactory d2=new PDFfactory();

        Document doc2=d2.document();

        System.out.println(doc2.createDocument());

        DocumentFactory d3=new Excelfactory();

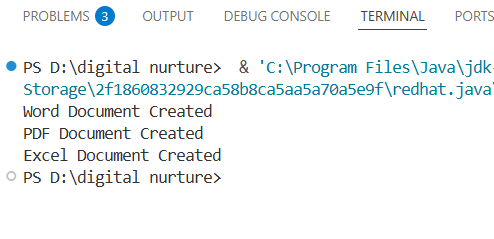
        Document doc3=d3.document();

        System.out.println(doc3.createDocument());

    }

}

**Output:-**

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