**Design Patterns and Principles**

**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.

**Code**:

**Document.java**

//Product Document

**interface** Documents {

//create the template for each documents

**void** type();

}

**WordDocument.java**

//Concrete document

**public** **class** WordDocument **implements** Documents {

**public** **void** type() {

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

System.out.println("FOLLOWS FACTORY METHOD");

}

}

**PdfDocument.java**

//Concrete document

**public** **class** PdfDocument **implements** Documents {

**public** **void** type() {

System.out.println("Opening Pdf Document");

System.out.println("FOLLOWS FACTORY METHOD");

}

}

**ExcelDocument.java**

//Concrete document

**public** **class** ExcelDocument **implements** Documents {

**public** **void** type() {

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

System.out.println("FOLLOWS FACTORY METHOD");

}

}

**Implement the Factory Method**

**DocumentFactory.java**

//Create interface for DocumentFactory with method

**public** **interface** DocumentFactory {

Documents CreateDocument();

}

**WordDocumentFactory.java**

//Concrete products

**public** **class** WordDocumentFactory **implements** DocumentFactory {

**public** Documents CreateDocument() {

**return** **new** WordDocument();

}

}

**PdfDocumentFactory.java**

//Concrete products

**public** **class** PdfDocumentFactory **implements** DocumentFactory {

**public** Documents CreateDocument() {

**return** **new** PdfDocument();

}

}

**ExcelDocumentFactory.java**

//Concrete products

**public** **class** ExcelDocumentFactory **implements** DocumentFactory {

**public** Documents CreateDocument() {

**return** **new** ExcelDocument();

}

}

**Main.java**

**public** **class** FactoryTest {

**public** **static** **void** main(String[] args) {

DocumentFactory factory1 = **new** WordDocumentFactory();

Documents doc1 = factory1.CreateDocument();

doc1.type(); // Word output

DocumentFactory factory2 = **new** PdfDocumentFactory();

Documents doc2 = factory2.CreateDocument();

doc2.type(); // PDF output

DocumentFactory factory3 = **new** ExcelDocumentFactory();

Documents doc3 = factory3.CreateDocument();

doc3.type();

}

}

**OUTPUT:**

