Project: Factory Method Pattern in Java

Project: Implementing the Factory Method Pattern in Java

Objective:

To design a document management system that can create different types of documents (Word, PDF, Excel) using the Factory Method Design Pattern. This approach promotes flexibility and scalability by decoupling the creation logic from the client code.

Steps Implemented:

1. Java Project Setup: Created a new project 'FactoryMethodPatternExample'.
2. Document Interfaces: Defined a common interface 'Document' and created types: WordDocument, PdfDocument, and ExcelDocument.
3. Concrete Document Classes: Each class implements the Document interface.
4. Factory Classes: Created an abstract class 'DocumentFactory' and specific factories like WordFactory, PdfFactory, ExcelFactory.
5. Testing: A test class demonstrates usage of the factory method to create various document types.

# Document.java (Interface)

public interface Document { void open();

}

# WordDocument.java

public class WordDocument implements Document { public void open() {

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

}

}

# PdfDocument.java

public class PdfDocument implements Document { public void open() {

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

}

}

# ExcelDocument.java

public class ExcelDocument implements Document { public void open() {

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

}

}

# DocumentFactory.java (Abstract)

public abstract class DocumentFactory {

public abstract Document createDocument();

}

# WordFactory.java

public class WordFactory extends DocumentFactory { public Document createDocument() {

return new WordDocument();

}

}

# PdfFactory.java

public class PdfFactory extends DocumentFactory { public Document createDocument() {

return new PdfDocument();

}

}

# ExcelFactory.java

public class ExcelFactory extends DocumentFactory { public Document createDocument() {

return new ExcelDocument();

}

}

# TestFactoryMethod.java

public class TestFactoryMethod {

public static void main(String[] args) { DocumentFactory factory;

factory = new WordFactory();

Document doc1 = factory.createDocument(); doc1.open();

factory = new PdfFactory();

Document doc2 = factory.createDocument(); doc2.open();

factory = new ExcelFactory();

Document doc3 = factory.createDocument(); doc3.open();

}

}

**Output Screenshot:**

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