Step 1: Create a New Java Project

Create a new Java project named FactoryMethodPatternExample.

Step 2: Define Document Classes

Create interfaces or abstract classes for different document types:

public interface Document {

void display();

}

public abstract class WordDocument implements Document {

public abstract void display();

}

public abstract class PdfDocument implements Document {

public abstract void display();

}

public abstract class ExcelDocument implements Document {

public abstract void display();

}

Step 3: Create Concrete Document Classes

Implement concrete classes for each document type:

public class WordDocxDocument extends WordDocument {

public void display() {

System.out.println("Displaying Word Docx document...");

}

}

public class PdfA4Document extends PdfDocument {

public void display() {

System.out.println("Displaying PDF A4 document...");

}

}

public class ExcelXlsxDocument extends ExcelDocument {

public void display() {

System.out.println("Displaying Excel Xlsx document...");

}

}

Step 4: Implement the Factory Method

Create an abstract class DocumentFactory with a method createDocument():

public abstract class DocumentFactory {

public abstract Document createDocument();

}

Create concrete factory classes for each document type that extends DocumentFactory and implements the createDocument() method:

public class WordDocxFactory extends DocumentFactory {

public Document createDocument() {

return new WordDocxDocument();

}

}

public class PdfA4Factory extends DocumentFactory {

public Document createDocument() {

return new PdfA4Document();

}

}

public class ExcelXlsxFactory extends DocumentFactory {

public Document createDocument() {

return new ExcelXlsxDocument();

}

}

Step 5: Test the Factory Method Implementation

Create a test class to demonstrate the creation of different document types using the factory method:

public class FactoryMethodTest {

public static void main(String[] args) {

DocumentFactory factory;

factory = new WordDocxFactory();

Document document = factory.createDocument();

document.display();

factory = new PdfA4Factory();

document = factory.createDocument();

document.display();

factory = new ExcelXlsxFactory();

document = factory.createDocument();

document.display();

}

}

OUTPUT

Displaying Word Docx document...

Displaying PDF A4 document...

Displaying Excel Xlsx document...