**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:

Create a New Java Project:

Create a new Java project named FactoryMethodPatternExample.

Define Document Classes:

Create interfaces or abstract classes for different document types such as WordDocument, PdfDocument, and ExcelDocument.

Create Concrete Document Classes:

Implement concrete classes for each document type that implements or extends the above interfaces or abstract classes.

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.

Test the Factory Method Implementation:

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

**Program files:**

**Document.java**

public interface Document {

void open();

}

**WordDocument.java**

public class WordDocument implements Document {

public void open() {

System.out.println("You’re Opening Word document...");

}

}

**PdfDocument.java**

public class PdfDocument implements Document {

public void open() {

System.out.println("You’re Opening PDF document...");

}

}

**ExcelDocument.java**

public class ExcelDocument implements Document {

public void open() {

System.out.println("You’re Opening Excel document...");

}

}

**DocumentFactory.java**

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();

}}

**Main.java**

public class Main {

public static void main(String[] args) {

DocumentFactory wordFactory = new WordFactory();

Document word = wordFactory.createDocument();

word.open();

DocumentFactory pdfFactory = new PdfFactory();

Document pdf = pdfFactory.createDocument();

pdf.open();

DocumentFactory excelFactory = new ExcelFactory();

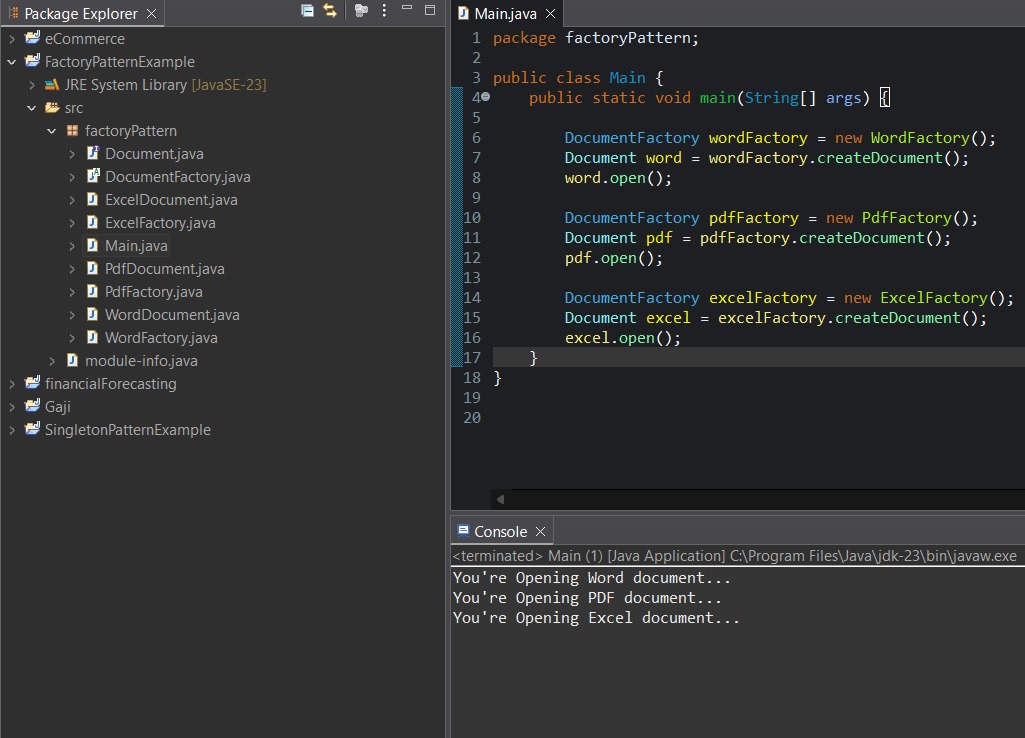
Document excel = excelFactory.createDocument();

excel.open();

}

}

**Output:**

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