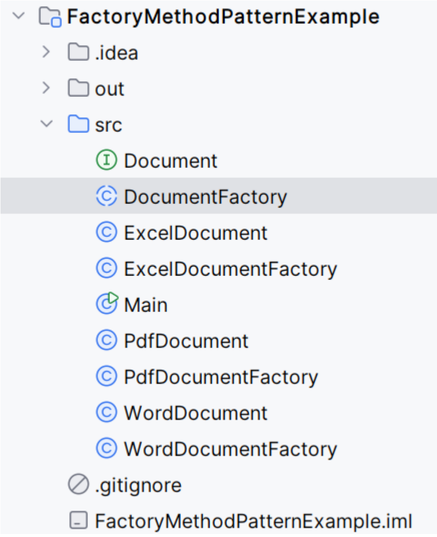
WEEK 1 : Design patterns and principles Handson

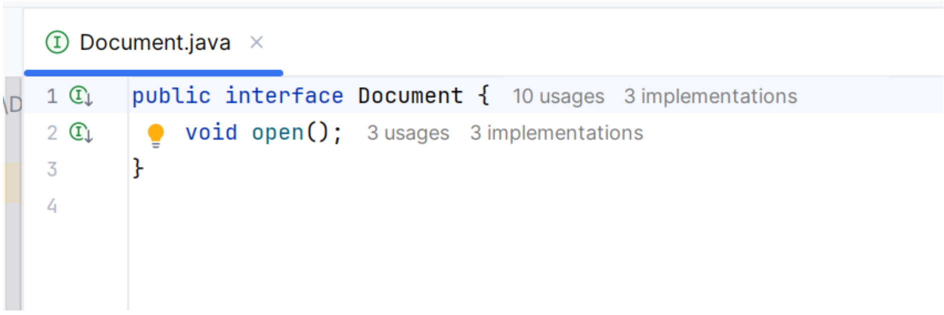
Exercise 2 : Factory pattern :

Folder Srtucture :

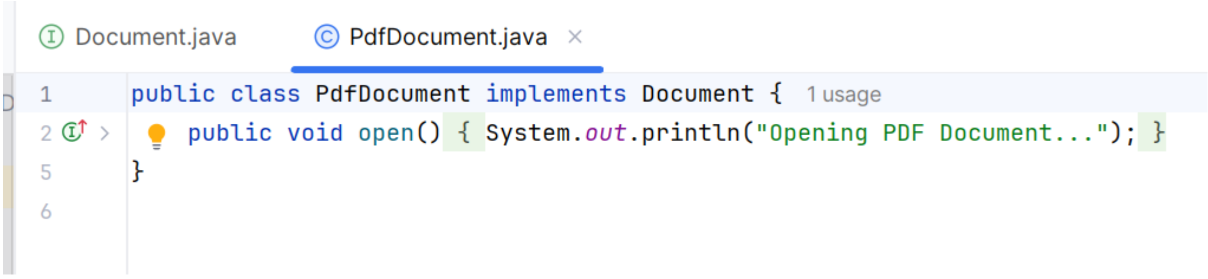


```
FactoryMethodPatternExample
    .idea
    out
    src
        Document
        DocumentFactory
        ExcelDocument
        ExcelDocumentFactory
        Main
        PdfDocument
        PdfDocumentFactory
        WordDocument
        WordDocumentFactory
    .gitignore
    FactoryMethodPatternExample.iml
```

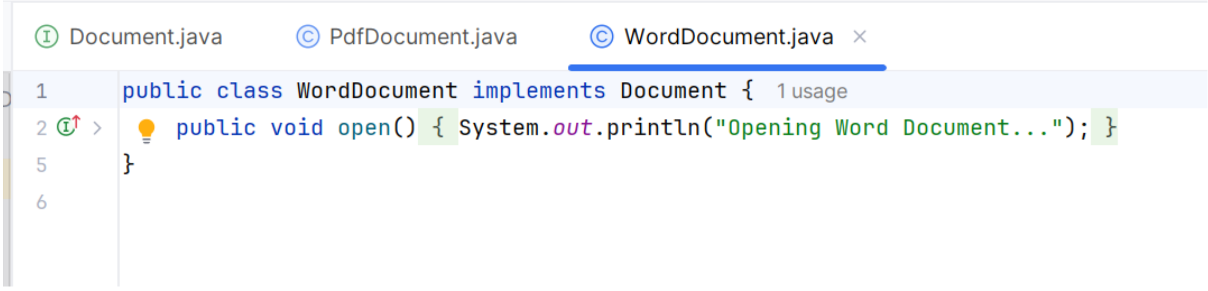
CODE :



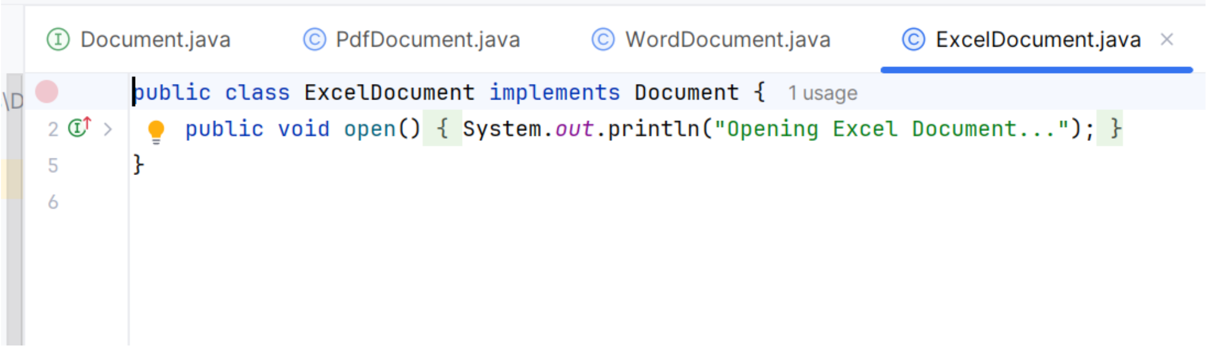
```java
public interface Document {
    void open();
}
```



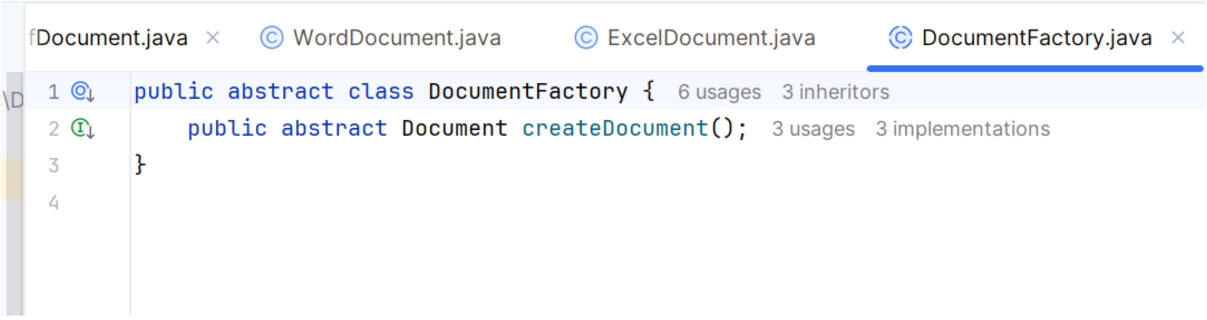
```java
public class PdfDocument implements Document {
    public void open() { System.out.println("Opening PDF Document..."); }
}
```



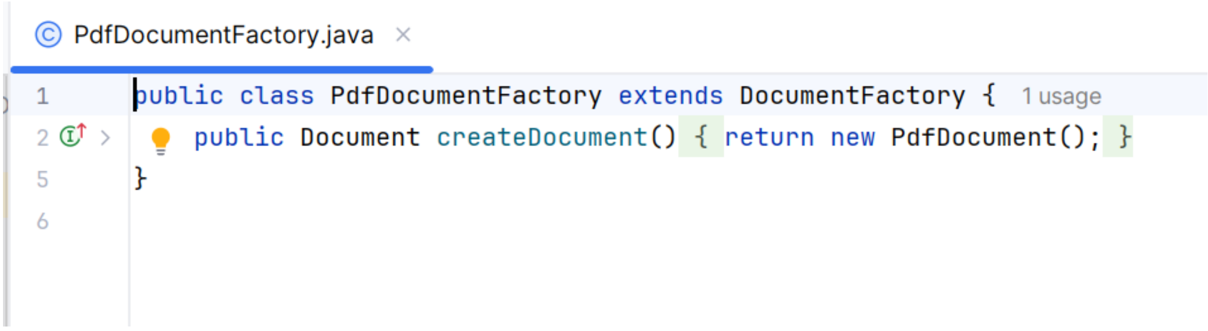
```java
public class WordDocument implements Document {
    public void open() { System.out.println("Opening Word Document..."); }
}
```



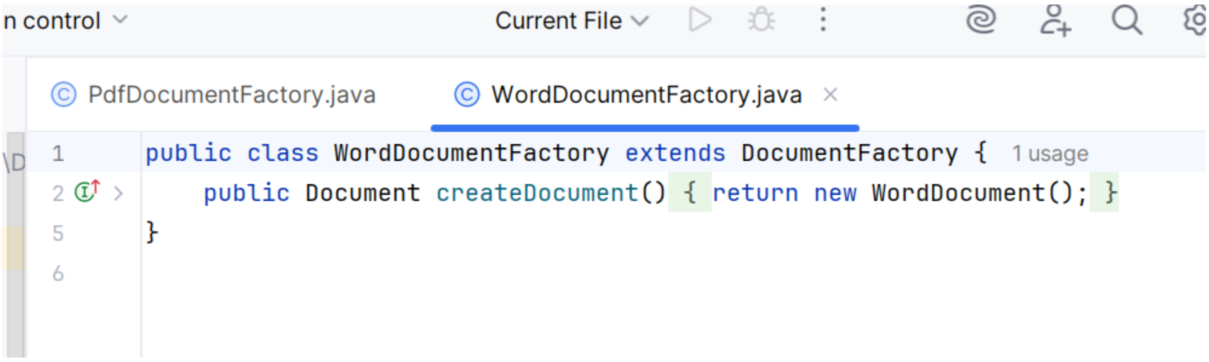
```java
public class ExcelDocument implements Document {
    public void open() { System.out.println("Opening Excel Document..."); }
}
```



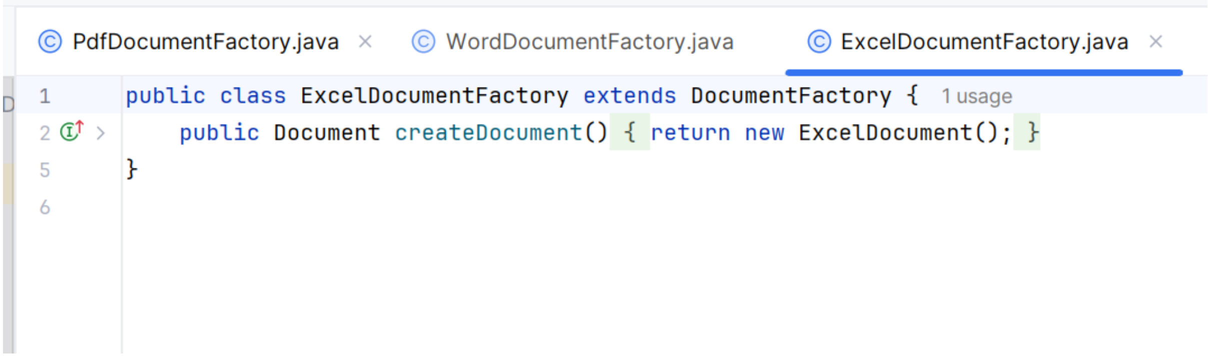
```java
public abstract class DocumentFactory {
    public abstract Document createDocument();
}
```



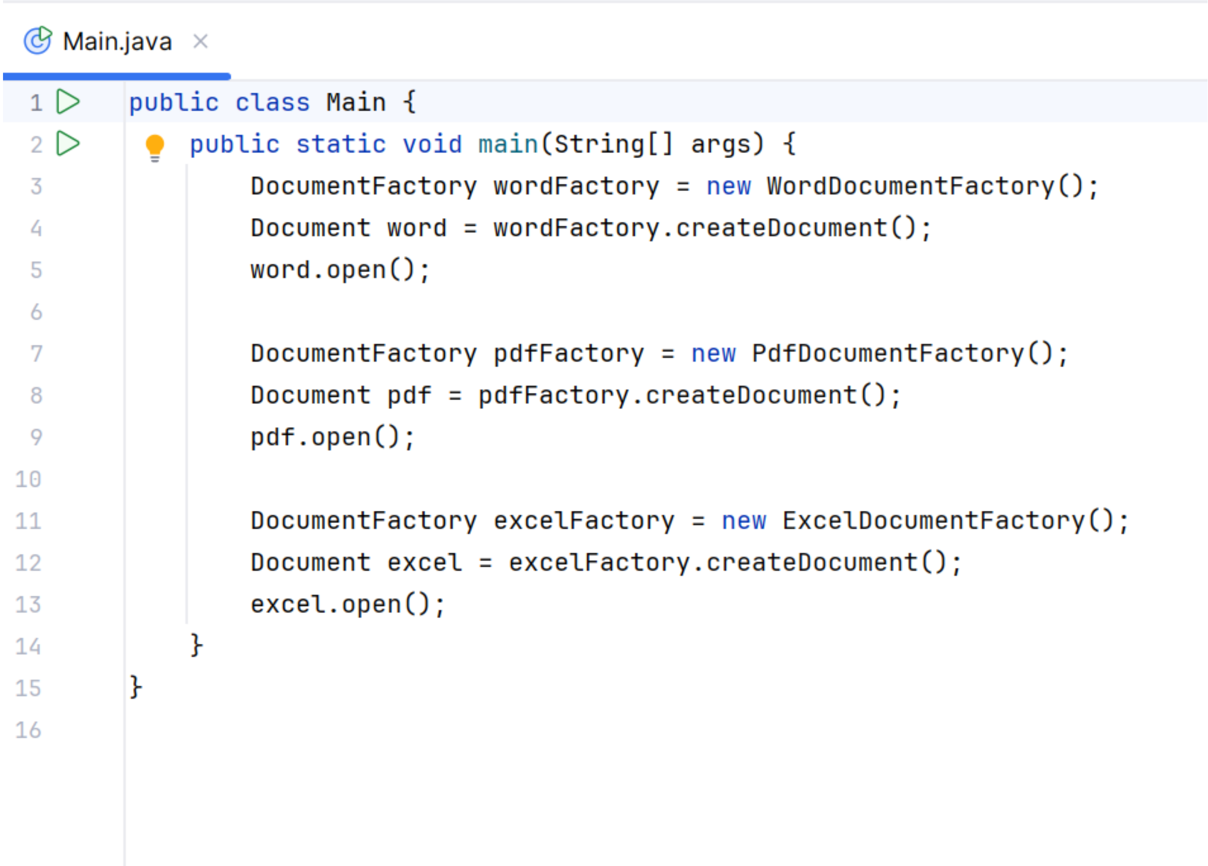
```java
public class PdfDocumentFactory extends DocumentFactory {
    public Document createDocument() { return new PdfDocument(); }
}
```



```java
public class WordDocumentFactory extends DocumentFactory {
    public Document createDocument() { return new WordDocument(); }
}
```



```java
public class ExcelDocumentFactory extends DocumentFactory {
    public Document createDocument() { return new ExcelDocument(); }
}
```

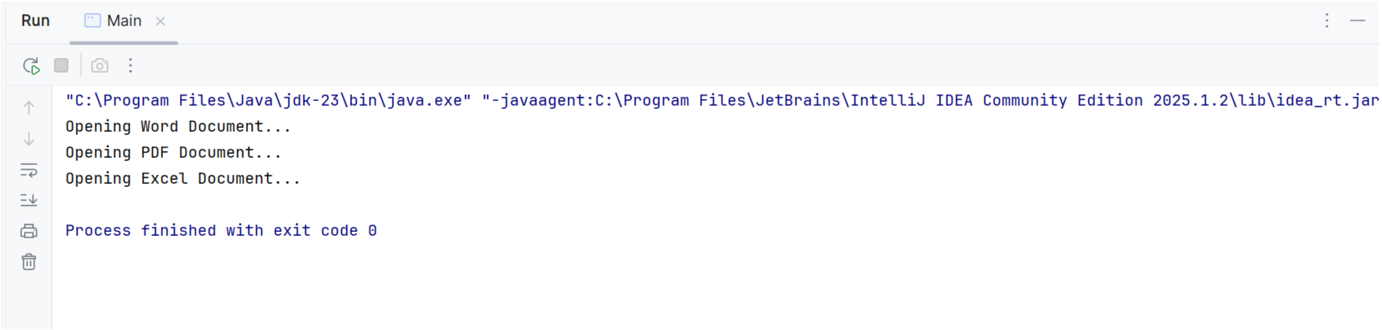


```java
public class Main {
    public static void main(String[] args) {
        DocumentFactory wordFactory = new WordDocumentFactory();
        Document word = wordFactory.createDocument();
        word.open();

        DocumentFactory pdfFactory = new PdfDocumentFactory();
        Document pdf = pdfFactory.createDocument();
        pdf.open();

        DocumentFactory excelFactory = new ExcelDocumentFactory();
        Document excel = excelFactory.createDocument();
        excel.open();
    }
}
```

OUTPUT :



```
"C:\Program Files\Java\jdk-23\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA Community Edition 2025.1.2\lib\idea_rt.jar
Opening Word Document...
Opening PDF Document...
Opening Excel Document...

Process finished with exit code 0
```