Exercise 2: Implementing the Factory Method Pattern

Document.java :

```java
package factoryMethodPatternExample;

public interface Document {

        void open();

}
```

WordDocument.java :

```java
package factoryMethodPatternExample;

public class WordDocument implements Document {

   public void open() {

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

   }

}
```

ExcelDocument.java :

```java
package factoryMethodPatternExample;

public class ExcelDocument implements Document {

   public void open() {

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

   }

}
```

PdfDocument.java :

```java
package factoryMethodPatternExample;

public class PdfDocument implements Document {

   public void open() {

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

   }
```

```
}
```

DocumentFactory.java :

```java
package factoryMethodPatternExample;

public abstract class DocumentFactory {

    public abstract Document createDocument();

}
```

WordDocumentFactory.java :

```java
package factoryMethodPatternExample;

public class WordDocumentFactory extends DocumentFactory {

    public Document createDocument() {

        return new WordDocument();

    }

}
```

ExcelDocumentFactory.java :

```java
package factoryMethodPatternExample;

public class ExcelDocumentFactory extends DocumentFactory {

    public Document createDocument() {

        return new ExcelDocument();

    }

}
```

PdfDocumentFactory.java :

```java
package factoryMethodPatternExample;

public class PdfDocumentFactory extends DocumentFactory {

    public Document createDocument() {

        return new PdfDocument();
```

```java
    }
}
```

Test.java :

```java
package factoryMethodPatternExample;

public class Test {

    public static void main(String[] args) {

        DocumentFactory wordFactory = new WordDocumentFactory();

        Document wordDoc = wordFactory.createDocument();

        wordDoc.open();


        DocumentFactory pdfFactory = new PdfDocumentFactory();

        Document pdfDoc = pdfFactory.createDocument();

        pdfDoc.open();


        DocumentFactory excelFactory = new ExcelDocumentFactory();

        Document excelDoc = excelFactory.createDocument();

        excelDoc.open();

    }

}
```

Output:

```java
package factoryMethodPatternExample;

public class Test {
    public static void main(String[] args) {
        DocumentFactory wordFactory = new WordDocumentFactory();
        Document wordDoc = wordFactory.createDocument();
        wordDoc.open();

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

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

Console

<terminated> Test (2) [Java Application] C:\Program Files\Java\jdk-21\bin\javaw.exe (22-Jun-2025, 3:01:53 pm – 3:01:53 pm) [pid: 1596

```
Opening Word Document
Opening PDF Document
Opening Excel Document
```