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**Week-1:**

**Exercise 2: Implementing the Factory Method Pattern**

**Input Code:**

interface Document {

    void open();

}

class WordDocument implements Document {

    public void open() {

        System.out.println("Opening a Word document.");

    }

}

class PdfDocument implements Document {

    public void open() {

        System.out.println("Opening a PDF document.");

    }

}

class ExcelDocument implements Document {

    public void open() {

        System.out.println("Opening an Excel document.");

    }

}

abstract class DocumentFactory {

    public abstract Document createDocument();

}

class WordDocumentFactory extends DocumentFactory {

    public Document createDocument() {

        return new WordDocument();

    }

}

class PdfDocumentFactory extends DocumentFactory {

    public Document createDocument() {

        return new PdfDocument();

    }

}

class ExcelDocumentFactory extends DocumentFactory {

    public Document createDocument() {

        return new ExcelDocument();

    }

}

public class FactoryMethodPatternExample {

    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:**

