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

**Document.java**

public interface Document {

void open();

void close();

void save();

}

**WordDocument.java**

public class WordDocument implements Document {

public void open() {

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

}

public void save(){

System.out.println("Saving the word document");

}

public void close(){

System.out.println("Closing the word document");

}

}

**PdfDocument.java**

public class PdfDocument implements Document {

public void open() {

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

}

public void save() {

System.out.println("Saving the PDF document");

}

public void close() {

System.out.println("Closing the PDF document");

}

}

**ExcelDocument.java**

public class ExcelDocument implements Document {

public void open() {

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

}

public void save() {

System.out.println("Saving the Excel document");

}

public void close() {

System.out.println("Closing the Excel document");

}

}

**DocumentFactory.java**

public abstract class DocumentFactory {

public abstract Document createDocument();

}

**WordDocument.java**

public class WordDocumentFactory extends DocumentFactory {

public Document createDocument() {

return new WordDocument();

}

}

**PdfDocumentFactory.java**

public class PdfDocumentFactory extends DocumentFactory {

public Document createDocument() {

return new PdfDocument();

}

}

**ExcelDocumentFactory.java**

public class ExcelDocumentFactory extends DocumentFactory {

public Document createDocument() {

return new ExcelDocument();

}

}

**Main.java**

public class Main {

public static void main(String[] args) {

DocumentFactory wordFactory = new WordDocumentFactory();

Document word = wordFactory.createDocument();

System.out.println("Word Document Operations\n");

word.open();

word.save();

word.close();

DocumentFactory pdfFactory = new PdfDocumentFactory();

Document pdf = pdfFactory.createDocument();

System.out.println("PDF Document Operations\n");

pdf.open();

pdf.save();

pdf.close();

DocumentFactory excelFactory = new ExcelDocumentFactory();

Document excel = excelFactory.createDocument();

System.out.println("Excel Document Operations\n");

excel.open();

excel.save();

excel.close();

}

}

**Output**

