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

CODE:

import java.awt.Desktop;

import java.io.File;

import java.io.IOException;

import java.util.\*;

interface Document {

void open();

}

class WordDocument implements Document {

public void open() {

openFile("sample.docx");

}

private void openFile(String path) {

try {

File file = new File(path);

if (file.exists()) {

Desktop.*getDesktop*().open(file);

System.*out*.println("Opened Word document.");

} else {

System.*out*.println("Word file not found.");

}

} catch (IOException e) {

e.printStackTrace();

}

}

}

class PdfDocument implements Document {

public void open() {

openFile("sample.pdf");

}

private void openFile(String path) {

try {

File file = new File(path);

if (file.exists()) {

Desktop.*getDesktop*().open(file);

System.*out*.println("Opened PDF document.");

} else {

System.*out*.println("PDF file not found.");

}

} catch (IOException e) {

e.printStackTrace();

}

}

}

class ExcelDocument implements Document {

public void open() {

openFile("sample.xlsx");

}

private void openFile(String path) {

try {

File file = new File(path);

if (file.exists()) {

Desktop.*getDesktop*().open(file);

System.*out*.println("Opened Excel document.");

} else {

System.*out*.println("Excel file not found.");

}

} catch (IOException e) {

e.printStackTrace();

}

}

}

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) {

Scanner sc=new Scanner(System.*in*);

while(true) {

System.*out*.println("Select:");

System.*out*.println("1.Open Word Document");

System.*out*.println("2.Open PDF Document");

System.*out*.println("3.Open Excel Document");

int x=sc.nextInt();

switch(x) {

case 1:

DocumentFactory word= new WordDocumentFactory();

Document wordDoc = word.createDocument();

wordDoc.open();

break;

case 2:

DocumentFactory pdf = new PdfDocumentFactory();

Document pdfDoc = pdf.createDocument();

pdfDoc.open();

break;

case 3:

DocumentFactory excel = new ExcelDocumentFactory();

Document excelDoc = excel.createDocument();

excelDoc.open();

break;

}

}

}

}

OUTPUT:











