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DN-4.0 - Java FSE - Deep Skilling

Exercise 2: Implementing the Factory Method Pattern

Scenario:

You are developing a document management system that needs to create different types of documents (e.g., Word, PDF, Excel). Use the Factory Method Pattern to achieve this.

Steps:

1. Create a New Java Project:

- Create a new Java project named FactoryMethodPatternExample.

2. Define Document Classes:

- Create interfaces or abstract classes for different document types such as WordDocument, PdfDocument, and ExcelDocument.

3. Create Concrete Document Classes:

- Implement concrete classes for each document type that implements or extends the above interfaces or abstract classes.

4. Implement the Factory Method:

- Create an abstract class DocumentFactory with a method createDocument().
- Create concrete factory classes for each document type that extends DocumentFactory and implements the createDocument() method.

5. Test the Factory Method Implementation:

- Create a test class to demonstrate the creation of different document types using the factory method.

Solution:

Document.java

```
package factory;
```

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

WordDocument.java

```
package factory;

public class WordDocument implements Document {

    public void open() {

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

    }

}
```

PdfDocument.java

```
package factory;

public class PdfDocument implements Document {

    public void open() {

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

    }

}
```

ExcelDocument.java

```
package factory;

public class ExcelDocument implements Document {

    public void open() {

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

    }

}
```

DocumentFactory.java

```
package factory;

public abstract class DocumentFactory {

    public abstract Document createDocument();

}
```

```
}
```

WordFactory.java

```
package factory;
```

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

PdfFactory.java

```
package factory;
```

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

ExcelFactory.java

```
package factory;
```

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

Main.java (contains main() method)

```
package factory;
```

