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

**Sol:**

**File name:** DocumentFactory.cs

namespace FactoryMethodPatternExample

{

    public abstract class DocumentFactory

    {

        public abstract IDocument CreateDocument();

    }

}

**File name:** ExcelDocument.cs

namespace FactoryMethodPatternExample

{

    public class ExcelDocument : IDocument

    {

        public void Open()

        {

            Console.WriteLine("Opening Excel Document.");

        }

    }

}

**File name:** ExcelFactory.cs

namespace FactoryMethodPatternExample

{

    public class ExcelFactory : DocumentFactory

    {

        public override IDocument CreateDocument()

        {

*return* new ExcelDocument();

        }

    }

}

**File name:** IDocument.cs

namespace FactoryMethodPatternExample

{

    public interface IDocument

    {

        void Open();

    }

}

**File name:**PdfDocument.cs

namespace FactoryMethodPatternExample

{

    public class PdfDocument : IDocument

    {

        public void Open()

        {

            Console.WriteLine("Opening PDF Document.");

        }

    }

}

**File name:**PdfFactory.cs

namespace FactoryMethodPatternExample

{

    public class PdfFactory : DocumentFactory

    {

        public override IDocument CreateDocument()

        {

*return* new PdfDocument();

        }

    }

}

**File name:**Program.cs

using System;

namespace FactoryMethodPatternExample

{

    class Program

    {

        static void Main(string[] args)

        {

            DocumentFactory wordFactory = new WordFactory();

            IDocument word = wordFactory.CreateDocument();

            word.Open();

            DocumentFactory pdfFactory = new PdfFactory();

            IDocument pdf = pdfFactory.CreateDocument();

            pdf.Open();

            DocumentFactory excelFactory = new ExcelFactory();

            IDocument excel = excelFactory.CreateDocument();

            excel.Open();

        }

    }

}

**File name:**WordDocument.cs

using System;

namespace FactoryMethodPatternExample

{

    public class WordDocument : IDocument

    {

        public void Open()

        {

            Console.WriteLine("Opening Word Document.");

        }

    }

}

**File name:**WordFactory.cs

namespace FactoryMethodPatternExample

{

    public class WordFactory : DocumentFactory

    {

        public override IDocument CreateDocument()

        {

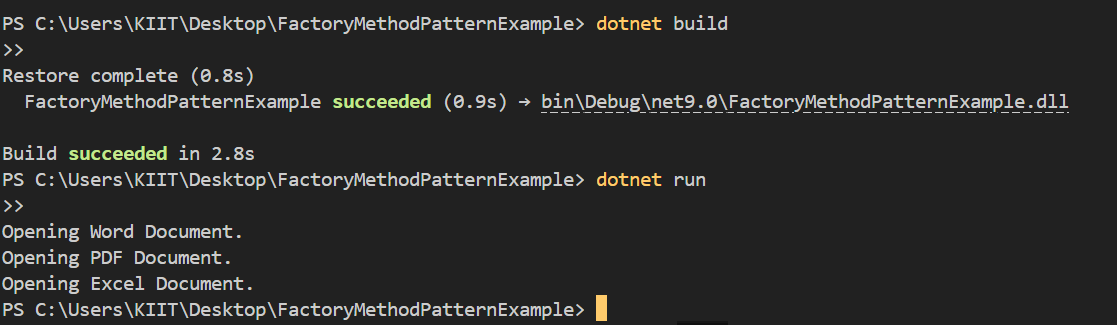
*return* new WordDocument();

        }

    }

}

**Output:**

****