

# WEEK 1:- ENGINEERING CONCEPTS

## Design Patterns and Principles ---

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### 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.