Design Defects and Restructuring

LECTURE 06

SAT, SEP 28, 2019

Design Patterns – GoF

There are 23 design patterns mentioned in the book

These patterns are grouped as
◦ Creational Patterns
◦ Structural Patterns
◦ Behavioral Patterns

Design Patterns

A design pattern is a general reusable solution to a commonly occurring problem in software design

Design Patterns

A design pattern is not a finished design that can be transformed directly into code

It is a description or template for how to solve a problem that can be used in many different situations

Design Patterns

Not all software patterns are design patterns

For instance, algorithms solve computational problems rather than software design problems

Creational Patterns

Abstract Factory

Builder

Factory Method

Prototype

Singleton

Abstract Factory

Intent
- ◦ Provide an interface for creating families of related or dependent objects without specifying their concrete classes

Applicability
- ◦ A system should be independent of how its products are created, composed, and represented
- ◦ A system should be configured with one of multiple families of products
- ◦ A family of related product objects is designed to be used together, and you need to enforce this constraint
- ◦ You want to provide a class library of products, and you want to reveal just their interfaces, not their implementations

Abstract Factory
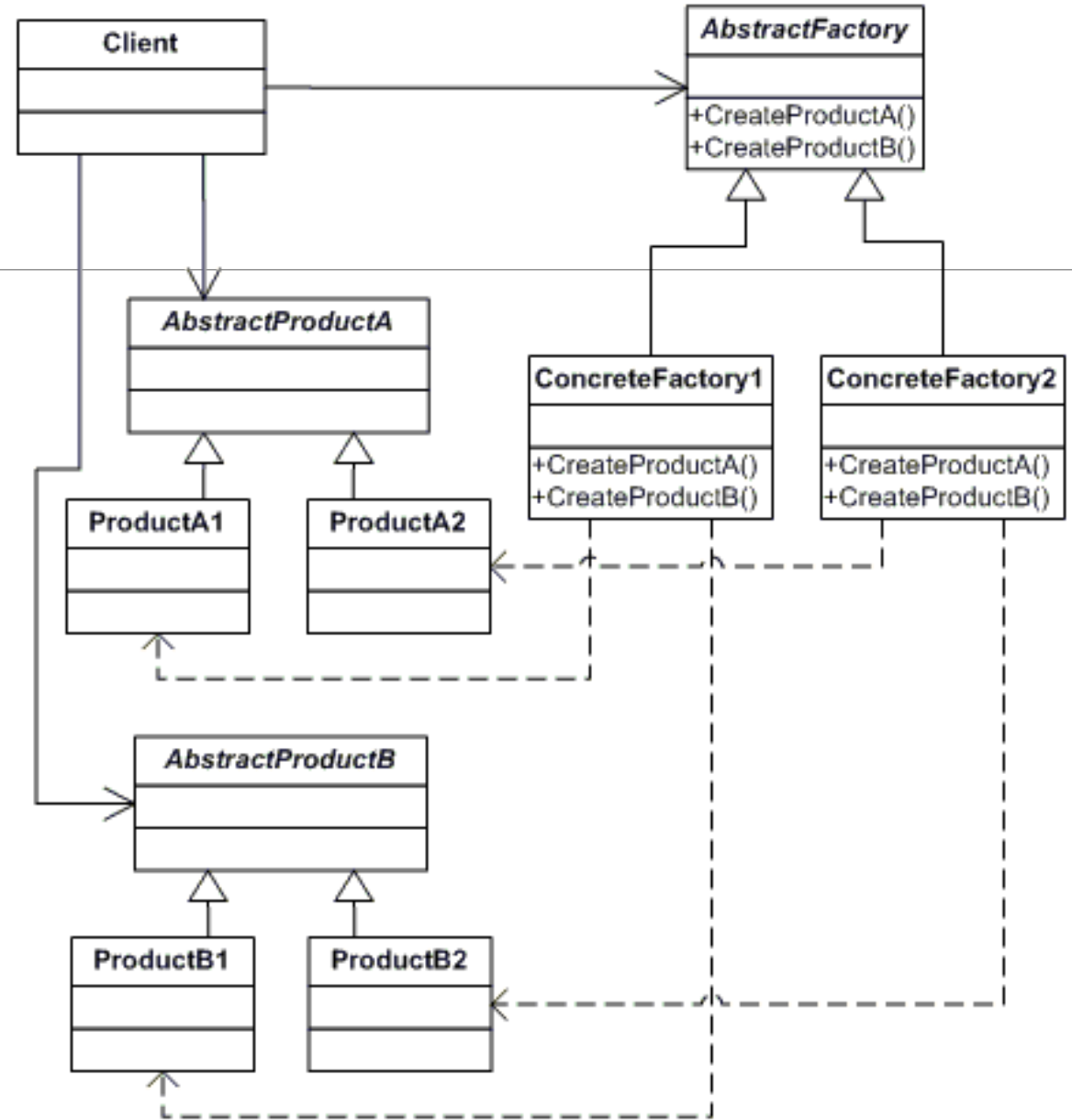
Builder

Intent
◦ Separate the construction of a complex object from its representation so that the same construction process can create different representations

Applicability
◦ The algorithm for creating a complex object should be independent of the parts that make up the object and how they are assembled
◦ The construction process must allow different representations for the object that is constructed

Builder