

# Design Defects and Restructuring

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LECTURE 07

SAT, OCT 17, 2020

# Design Patterns – GoF

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There are 23 design patterns mentioned in the book

These patterns are grouped as

- Creational Patterns
- Structural Patterns
- Behavioral Patterns

# Design Patterns

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

# Design Patterns

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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

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Not all software patterns are design patterns

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

# Creational Patterns

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Abstract Factory

Builder

Factory Method

Prototype

Singleton

# Abstract Factory

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## 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

