DESIGN PATTERNS

Clean Code:
Principles, Patterns, and Practices for Better Code

WHAT ARE DESIGN PATTERNS?

"Each pattern describes a problem which occurs over and over again in our environment, and then describes the core of the solution to the problem, in such a way that you can use this solution a million times over, without ever doing it the same way twice."

-- Christopher Alexander

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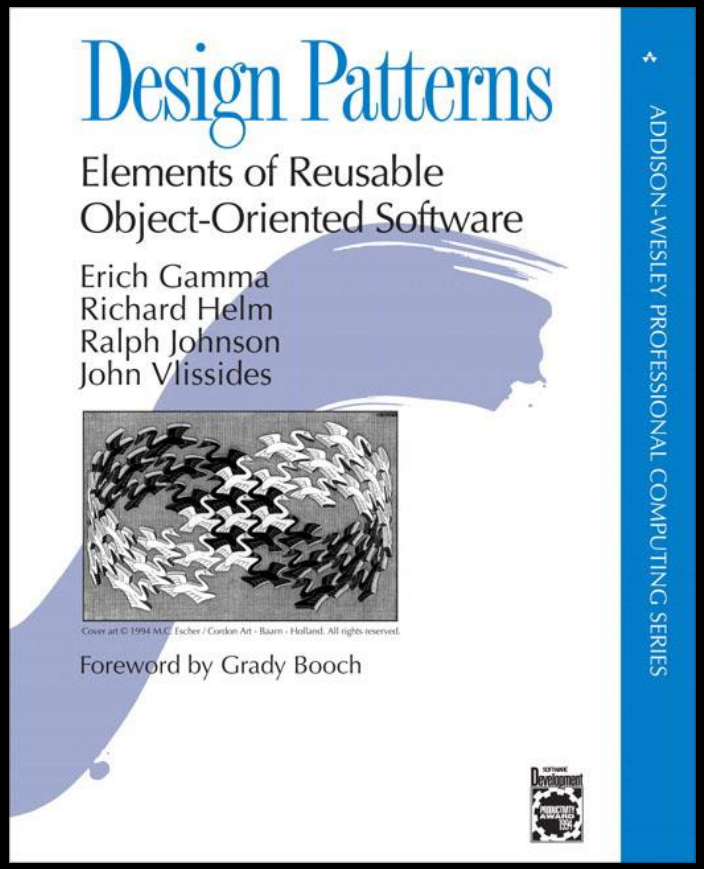
THE GANG OF FOUR (GOF)

- Design Patterns: Elements of Reusable Object-Oriented Software
  - Erich Gamma
  - Richard Helm
  - Ralph Johnson
  - John Vlissides



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ANATOMY OF A DESIGN PATTERN

- Pattern Name
- Problem
- Solution
- Consequences

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THE GOF PATTERNS

- Abstract Factory
- Builder
- Factory Method
- Prototype
- Singleton
- Adapter
- Bridge
- Composite
- Decorator
- Facade
- Flyweight
- Proxy
- Chain of Responsibility
- Command
- Interpreter
- Iterator
- Mediator
- Memento
- Observer
- State
- Strategy
- Template Method
- Visitor

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LOTS OF OTHER PATTERNS

- Model-View-* (MV*)
  - MVC, MVP, MVVM
- Repository
  - CRUD (Create, Read, Update, Delete)
  - CQRS (Command Query Responsibility Separation)
- Inversion of Control (IoC)
- Data Mapper
- Data Transfer Object (DTO)

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WHY SHOULD WE CARE?

- Well described solutions
- Shared vocabulary
- Concise language
- Think in design rather than implementation
- Encourage other developers to learn patterns

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OBSERVER

GoF Description:

"Define a one-to-many dependency between objects so that when one object changes state, all its dependents are notified and updated automatically."

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REAL WORLD OBSERVER

- Twitter

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CHAIN OF RESPONSIBILITY

GoF Description:

"Avoid coupling the sender of a request to its receiver by giving more than one object a chance to handle the request. Chain the receiving objects and pass the request along the chain until an object handles it."

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REAL WORLD CHAIN OF RESPONSIBILITY

- Tech Support

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NEW TO PATTERNS? START HERE

- Head First Design Patterns
  - Eric Freeman
  - Elisabeth Freeman
- Covers 12 GoF Patterns

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Next Up: Design Principles