Design Patterns that Matter

Design Patterns aren’t just for architects – they’re for real people, too.

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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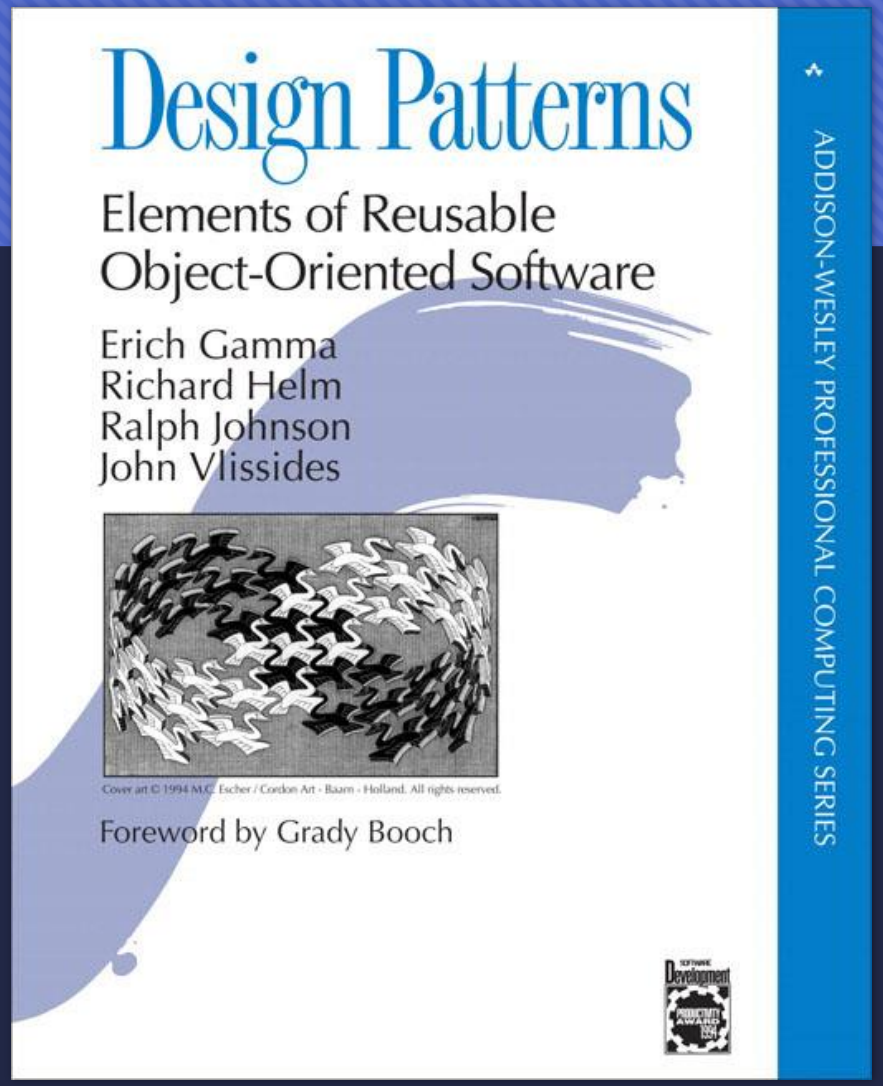
Gang of Four

- Erich Gamma
- Richard Helm
- Ralph Johnson
- John Vlissides



Anatomy of a Design Pattern

- Pattern Name
- Problem
- Solution
- Consequences

Gang of Four 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

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)
  - Constructor Injection
  - Service Locator
- Data Mapper
- Data Transfer Object (DTO)

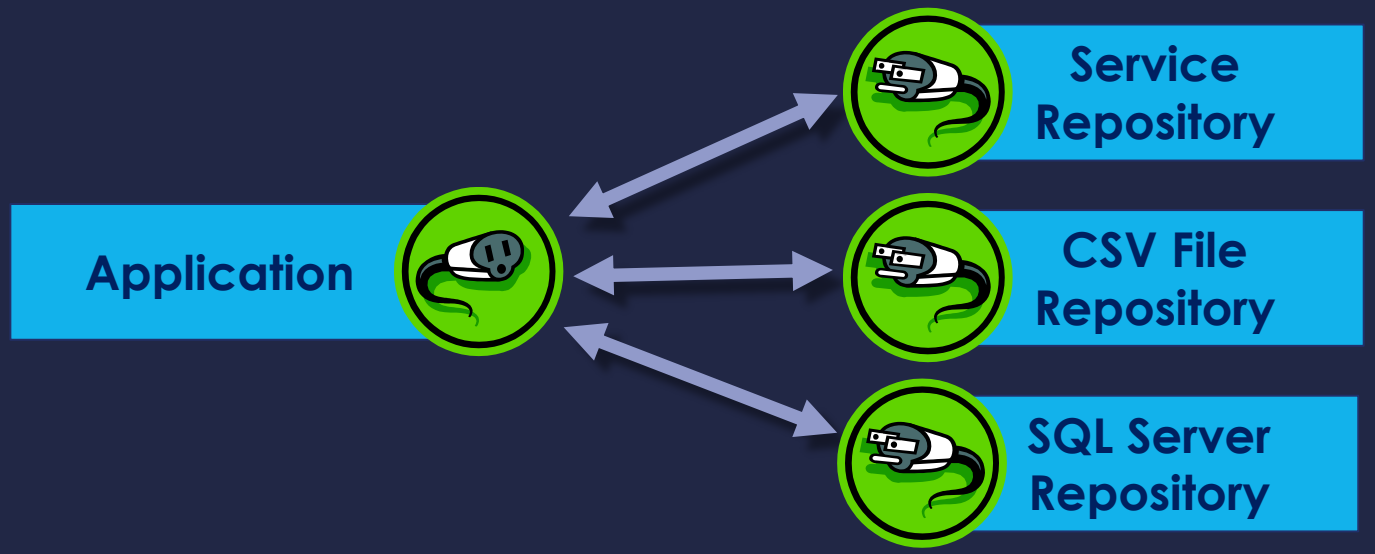
Why Do We Care?

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

Factory Method

"Define an interface for creating an object, but let subclasses decide which class to instantiate. Factory Method lets a class defer instantiation to subclasses."

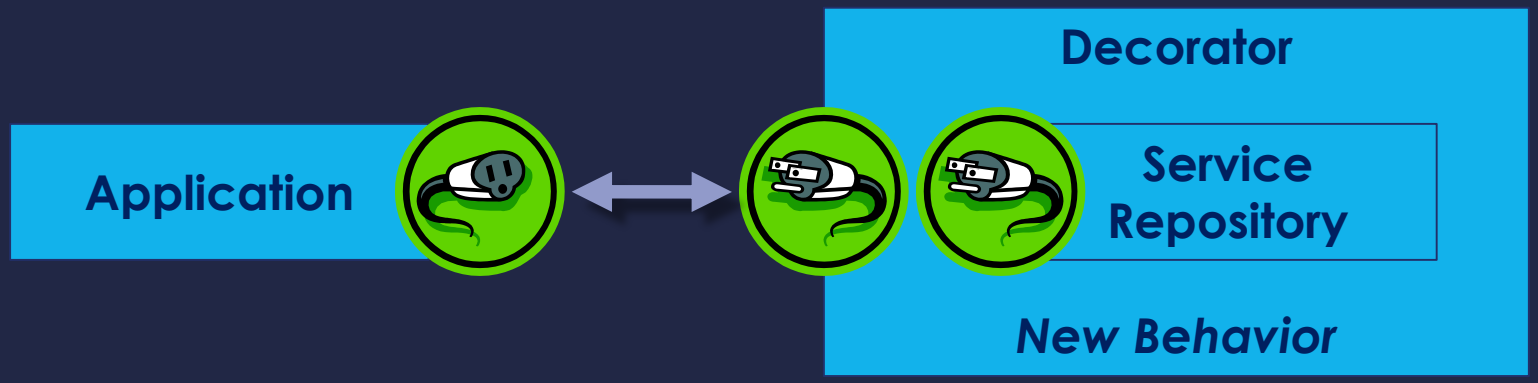
Pluggable Repository



Decorator

"Attach additional responsibilities to an object dynamically. Decorators provide a flexible alternative to subclassing for extending functionality."

Decorating an Object



New to Patterns?

- Head First Design Patterns
  - Eric Freeman
  - Elisabeth Freeman

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- http://www.amazon.com/First-Design-Patterns-Elisabeth-Freeman/dp/0596007124
  - Head First Design Patterns by Eric Freeman and Elisabeth Freeman
  - Approachable description of 12 GoF patterns
- http://www.amazon.com/Design-Patterns-Elements-Reusable-Object-Oriented/dp/0201633612
  - Design Patterns: Elements of Reusable Object-Oriented Software by Eric Gamma, et al.
  - The classic Gang of Four book

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