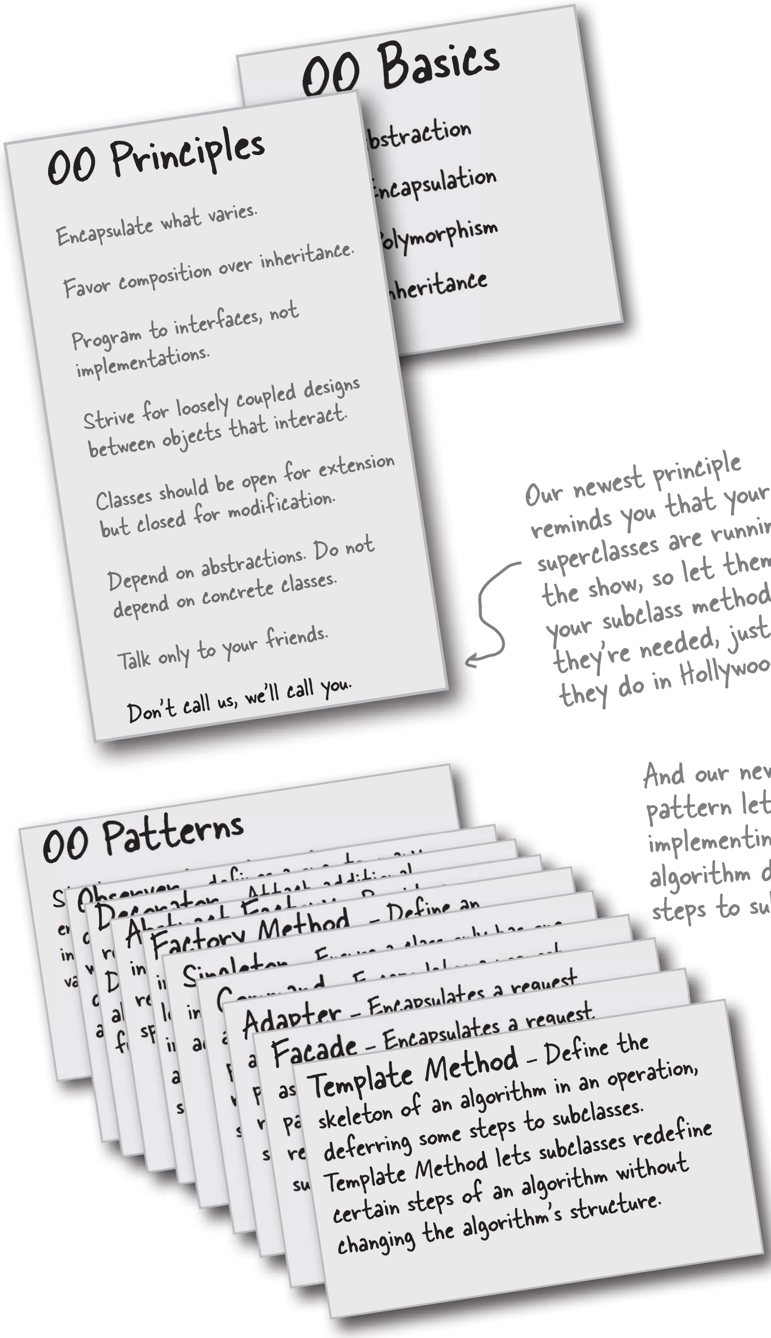
Tools for your Design Toolbox

We've added Template Method to your toolbox. With Template Method, you can reuse code like a pro while keeping control of your algorithms.



OO Basics

Abstraction

Encapsulation

Polymorphism

Inheritance

OO Principles

Encapsulate what varies.

Favor composition over inheritance.

Program to interfaces, not implementations.

Strive for loosely coupled designs between objects that interact.

Classes should be open for extension but closed for modification.

Depend on abstractions. Do not depend on concrete classes.

Talk only to your friends.

Don't call us, we'll call you.

OO Patterns

Observer

Decorator

Abstract Factory

Factory Method – Define an

Singleton

Command

Adapter – Encapsulates a request.

Facade – Encapsulates a request.

Template Method – Define the skeleton of an algorithm in an operation, deferring some steps to subclasses. Template Method lets subclasses redefine certain steps of an algorithm without changing the algorithm's structure.

Our newest principle reminds you that your superclasses are running the show, so let them call your subclass methods when they're needed, just like they do in Hollywood.

And our newest pattern lets classes implementing an algorithm defer some steps to subclasses.

BULLET POINTS

- A template method defines the steps of an algorithm, deferring to subclasses for the implementation of those steps.
- The Template Method Pattern gives us an important technique for code reuse.
- The template method's abstract class may define concrete methods, abstract methods, and hooks.
- Abstract methods are implemented by subclasses.
- Hooks are methods that do nothing or default behavior in the abstract class, but may be overridden in the subclass.
- To prevent subclasses from changing the algorithm in the template method, declare the template method as final.
- The Hollywood Principle guides us to put decision making in high-level modules that can decide how and when to call low-level modules.
- You'll see lots of uses of the Template Method Pattern in real-world code, but (as with any pattern) don't expect it all to be designed "by the book."
- The Strategy and Template Method Patterns both encapsulate algorithms, the first by composition and the other by inheritance.
- Factory Method is a specialization of Template Method.