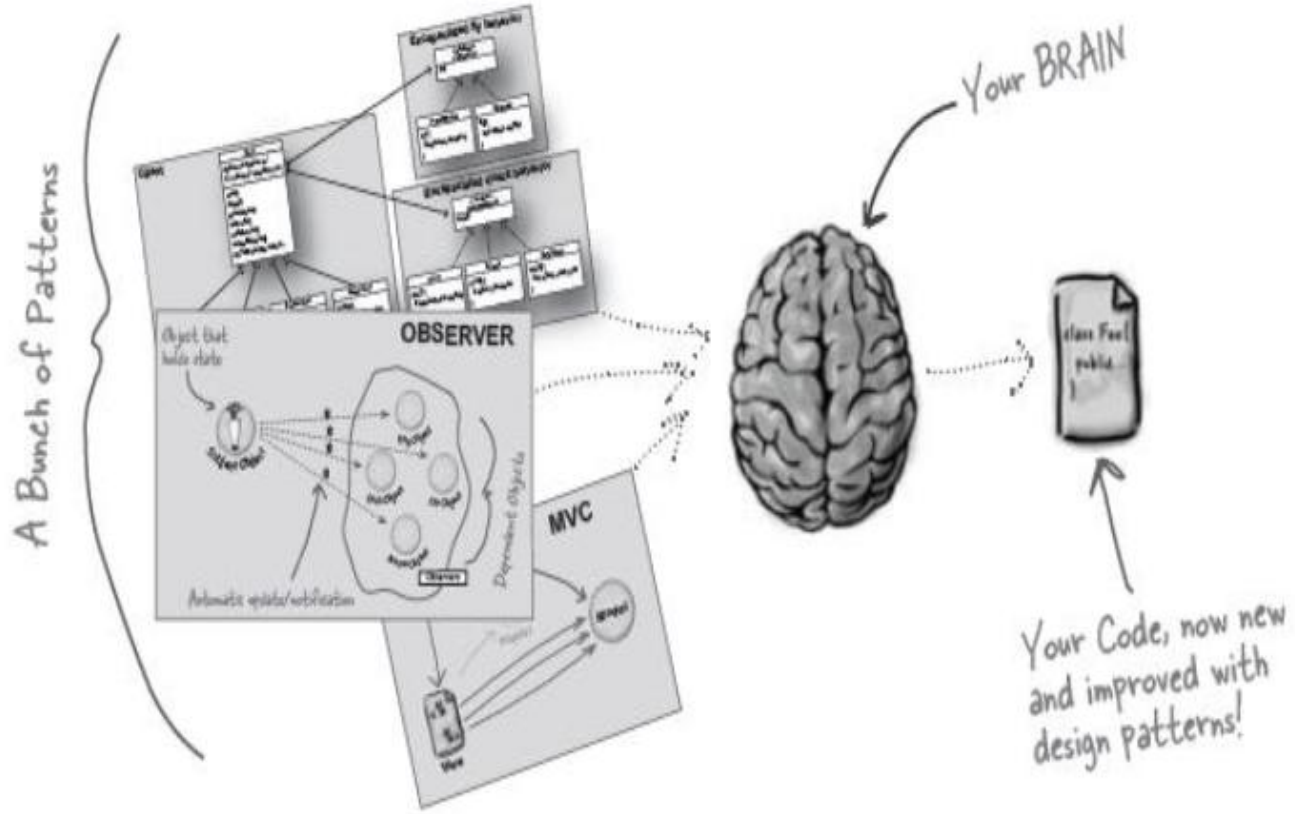
DESIGN PATTERNS

- Introducing design patterns
- Knowing how design patterns can help
- Extending object-oriented programming
- Taking a look at some specific design patterns

Just Find the Pattern that Fits

In other words, *design patterns are solutions to programming problems that automatically implement good design techniques.* Someone has already faced the issues you're facing, solved them, and is willing to show you what the best techniques are. All without a lot of memorization on your part; all you have to do is recognize which design pattern fits which situation and lock it into place.

Sweet.

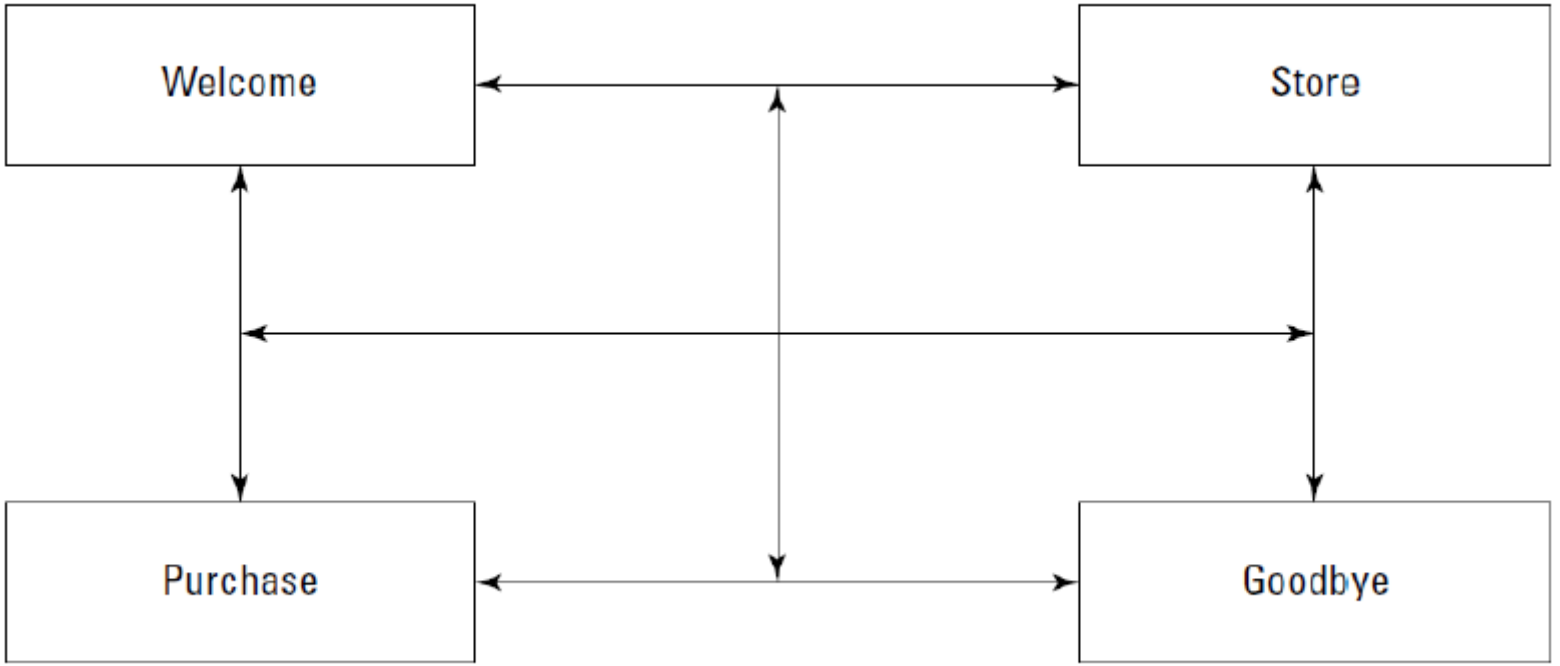

A Bunch of Patterns
OBSERVER
MVC
Your BRAIN
Your Code, now new and improved with design patterns!

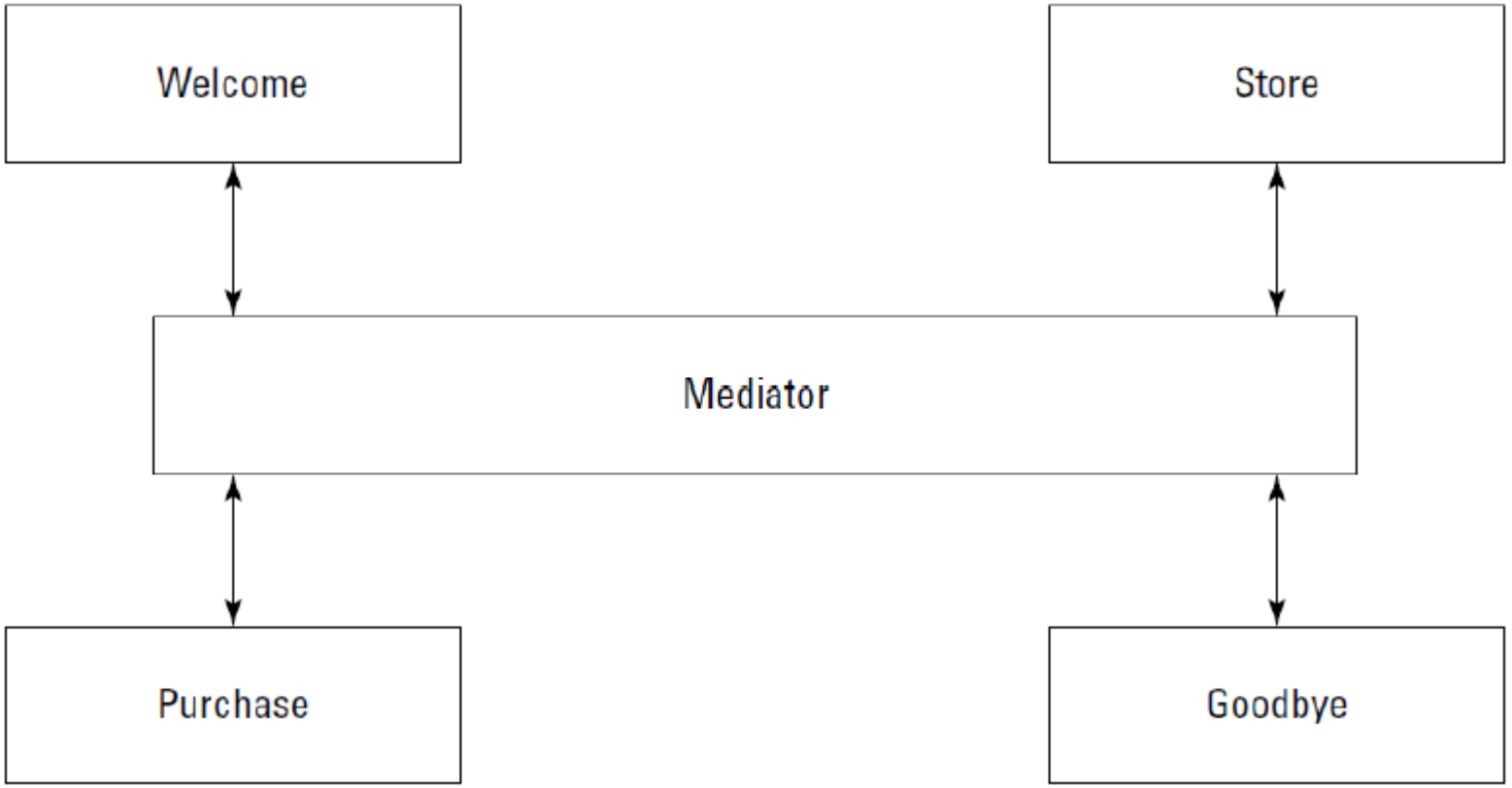
Gang of Four

The set of 23 standard design patterns was published by Erich Gamma, Richard Helm, Ralph Johnson, and John Vlissides in their seminal 1995 book *Design Patterns: Elements of Reusable Object-Oriented Software* (Pearson Education, Inc. Publishing as Pearson Addison Wesley). They've come to be known in programming circles as the Gang of Four, or, more popularly, GoF.

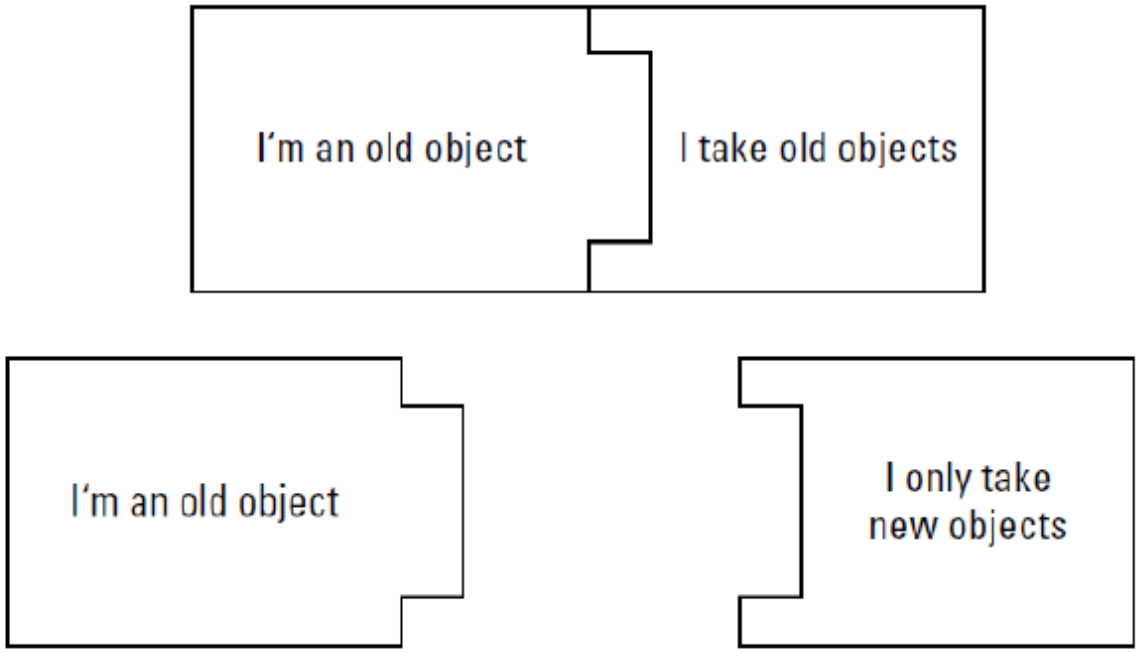
Getting Started: The Mediator Pattern

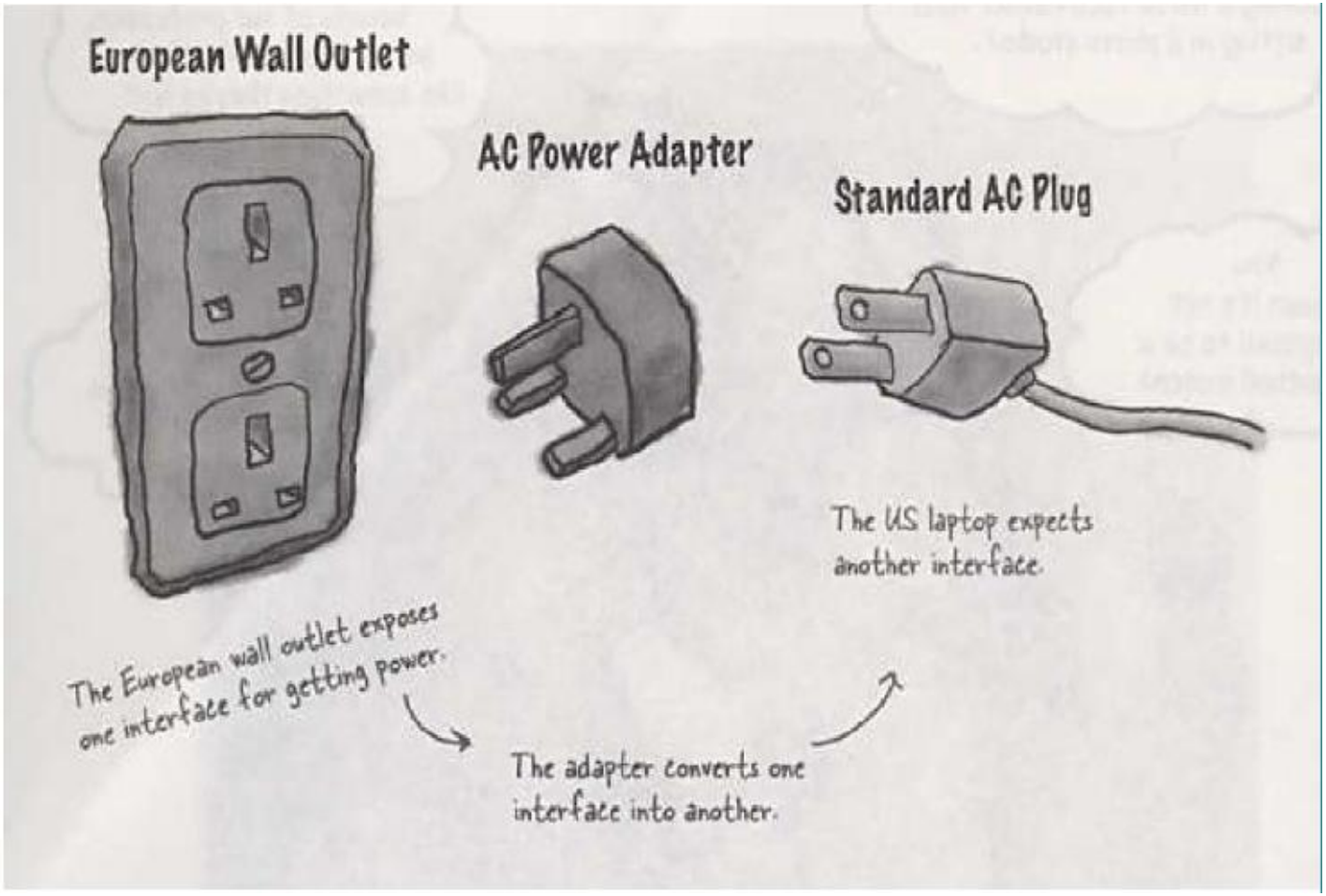
Say that you've got a four-page Web site that lets users browse a store and make purchases. As things stand, the user can move from page to page. But there's a problem — the code in each page has to know when to jump to a new page as well as how to activate the new page. You've got a lot of possible connections and a lot of duplicate code in the various pages.

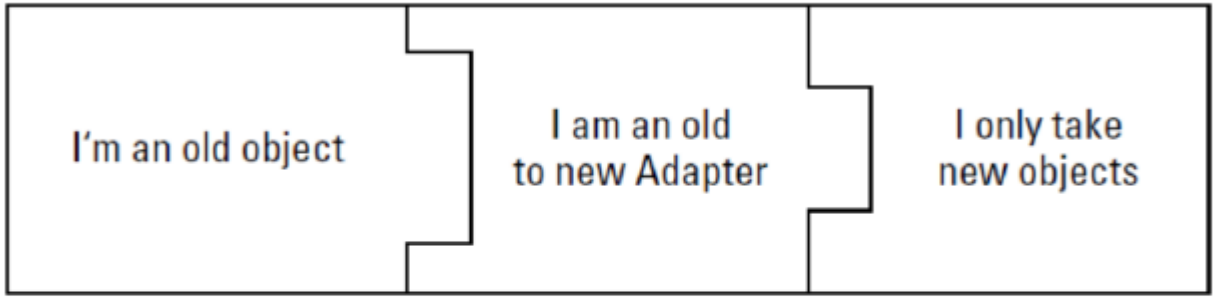

Welcome
Store
Purchase
Goodbye


Welcome
Store
Mediator
Purchase
Goodbye

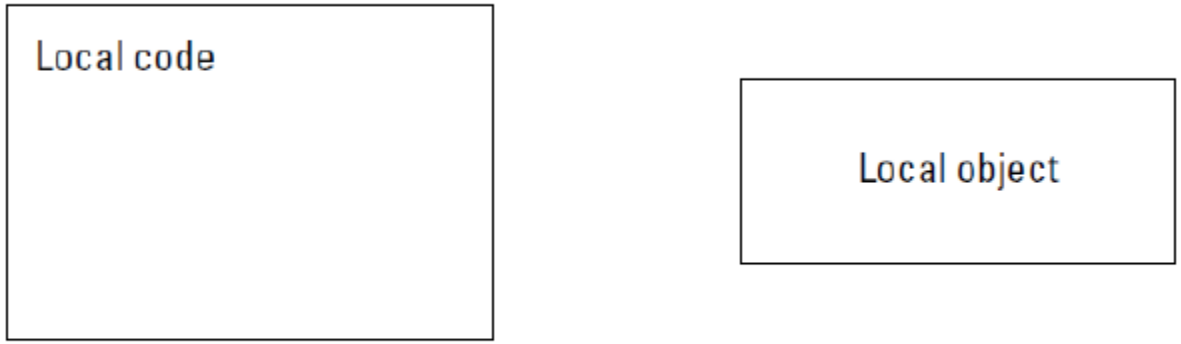
Adapting to the Adapter Pattern



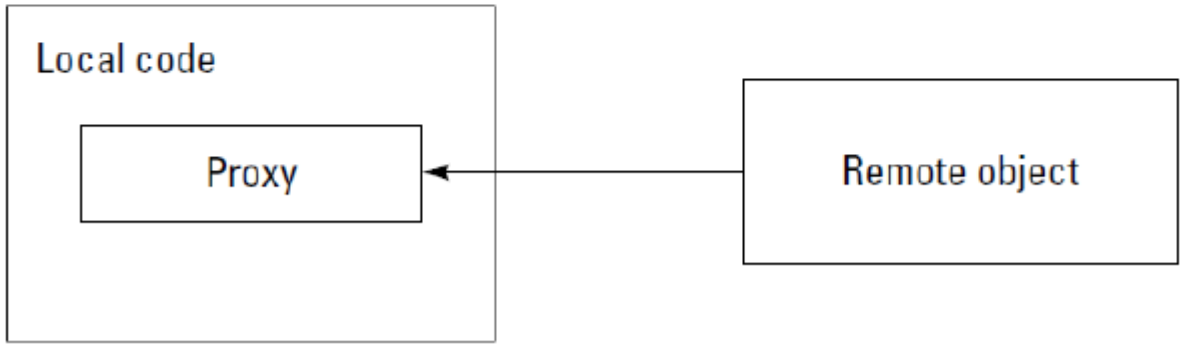

European Wall Outlet
AC Power Adapter
Standard AC Plug
The US laptop expects another interface.
The European wall outlet exposes one interface for getting power.
The adapter converts one interface into another.



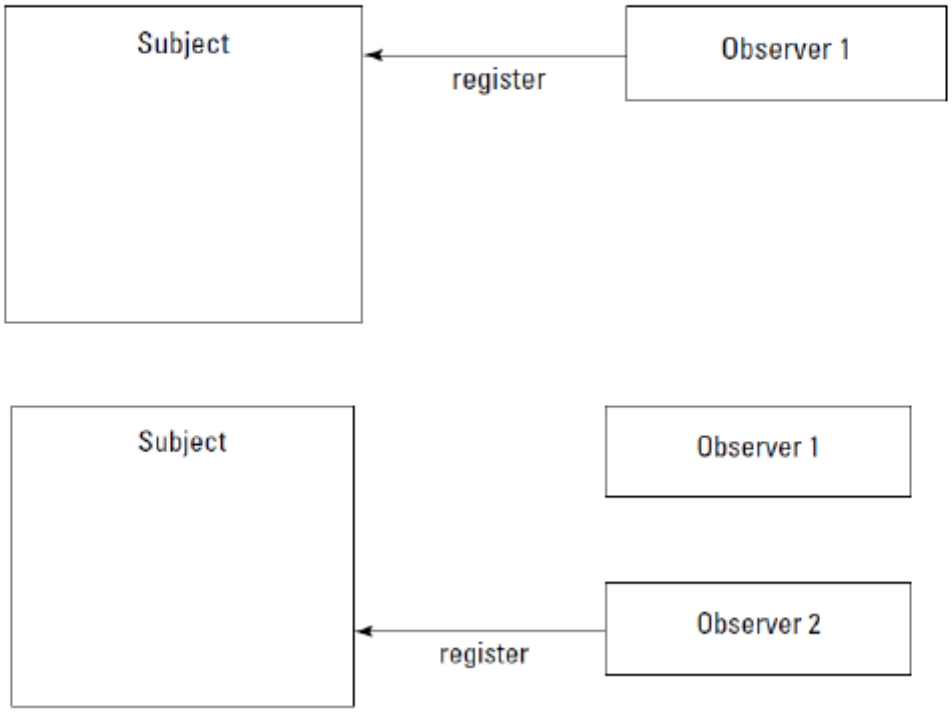
Problem solved. Who says design patterns are hard?

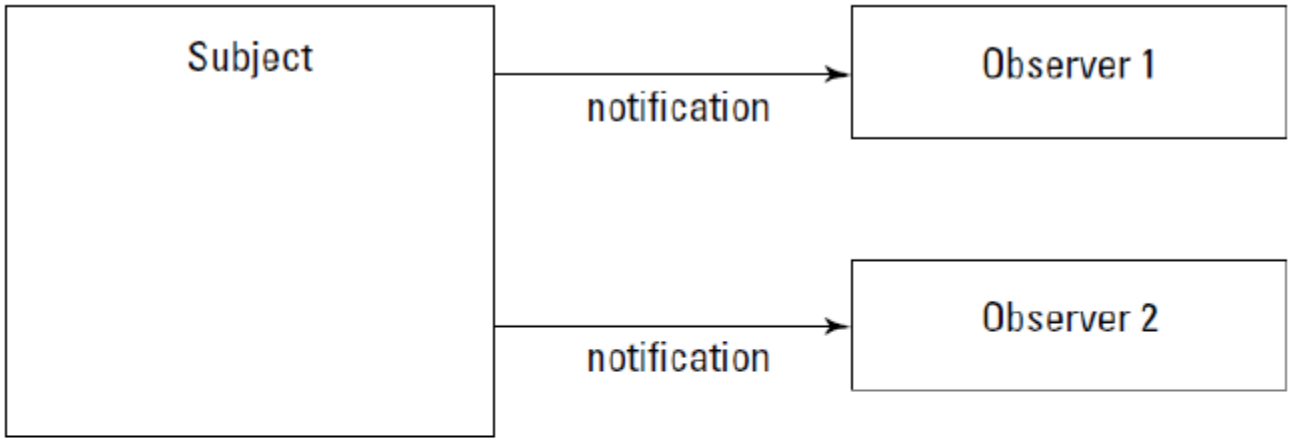

Local code
Local object

Standing In for Other Objects with the Proxy Pattern



Taking a Look at the Observer Pattern

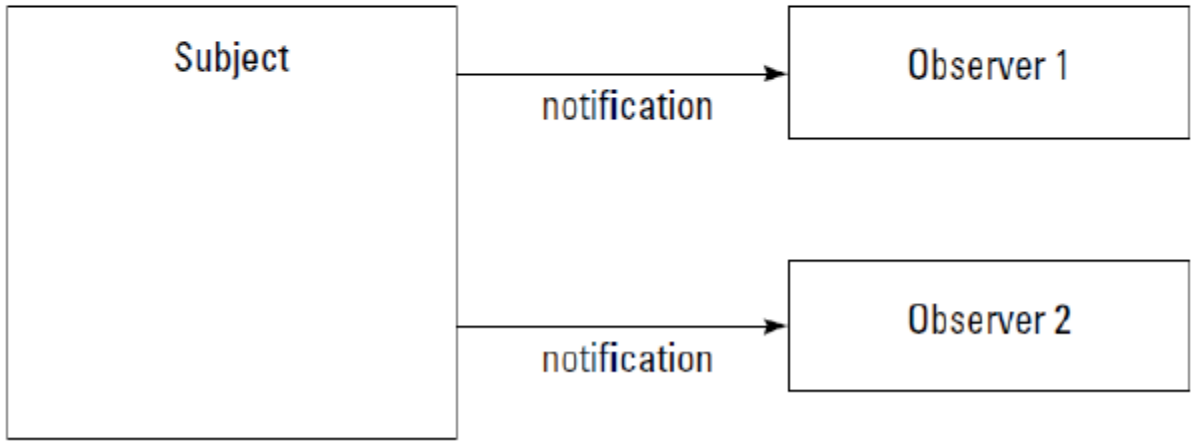




Does this sound familiar in Java? If Java event listeners came to mind, you'd be right. Event listeners can register with objects like push buttons or windows to be informed of any events that occur.

Using the Chain of Responsibility Pattern

The Observer pattern sends notifications to everyone at the same time.



The chain notifies one observer, which notifies another observer, . . .