

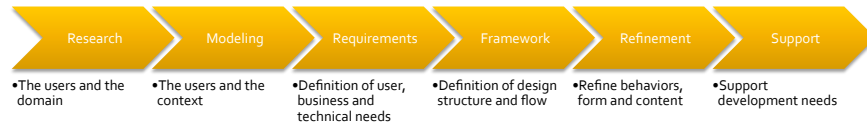
# Design Patterns

Lecture 6

## Context

- Focus on Design
  - Design as a process
  - Some methods
    - Interviewing
    - Personas
    - Affinity Diagramming

## Goal Directed Design Process

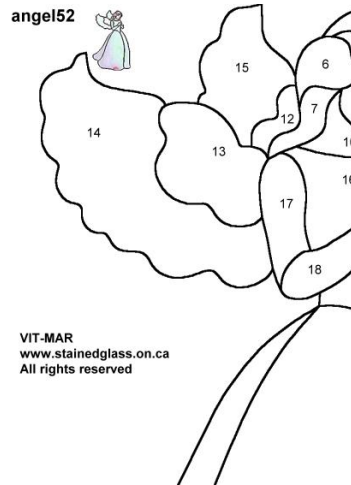


## Exploring Patterns

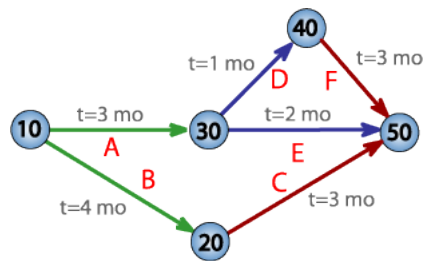
- What is a pattern?



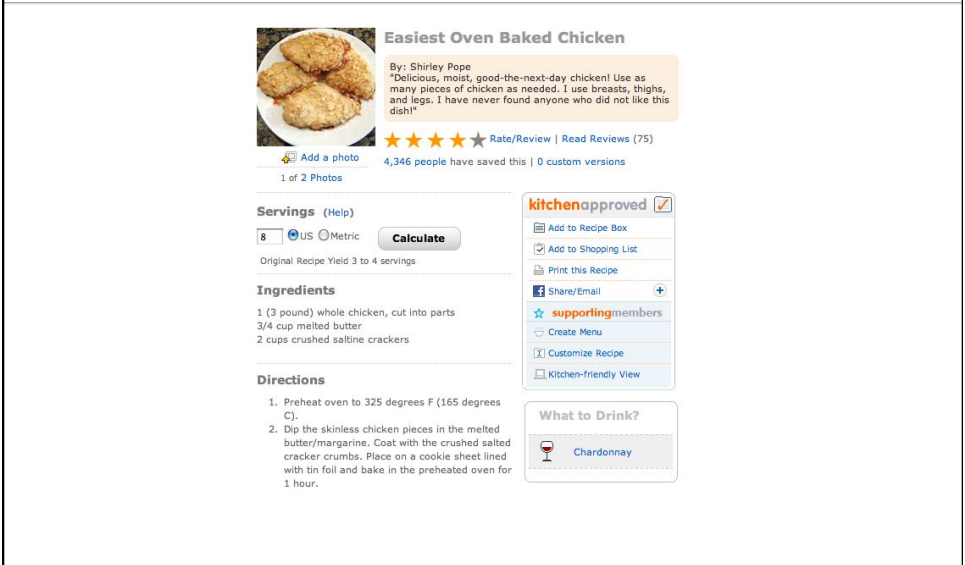
## Pattern or Not?



## Pattern or Not?



# Pattern or Not?



**Easiest Oven Baked Chicken**

By: Shirley Pope  
"Delicious, moist, good-the-next-day chicken! Use as many pieces of chicken as needed. I use breasts, thighs, and legs. I have never found anyone who did not like this dish!"

★ ★ ★ ★ ★ Rate/Review | Read Reviews (75)

Add a photo 4,346 people have saved this | 0 custom versions

1 of 2 Photos

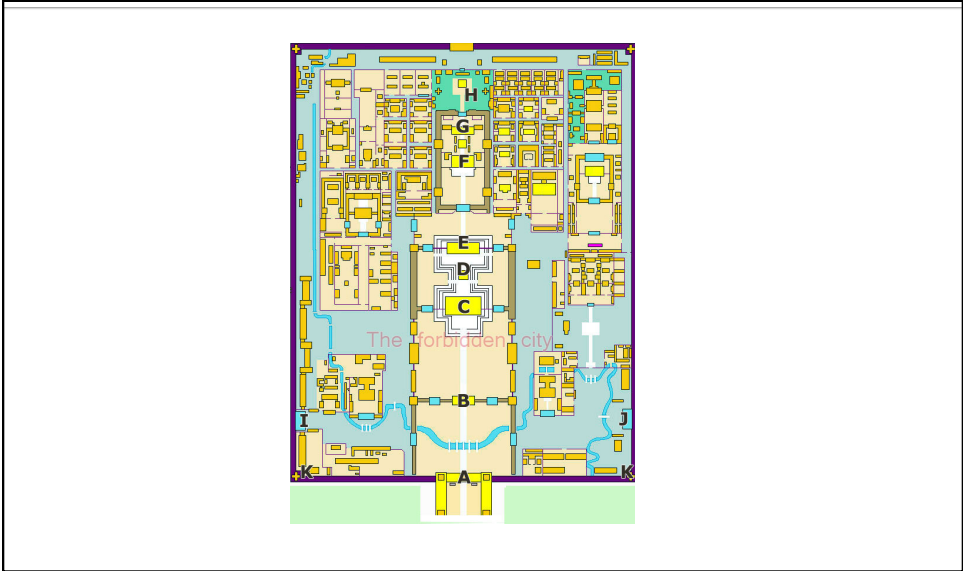
**Servings** (Help)  
8 US Metric Calculate  
Original Recipe Yield 3 to 4 servings

**Ingredients**  
1 (3 pound) whole chicken, cut into parts  
3/4 cup melted butter  
2 cups crushed saltine crackers

**Directions**  
1. Preheat oven to 325 degrees F (165 degrees C).  
2. Dip the skinless chicken pieces in the melted butter/margarine. Coat with the crushed salted cracker crumbs. Place on a cookie sheet lined with tin foil and bake in the preheated oven for 1 hour.

**What to Drink?**  
Chardonnay

# Pattern or Not?



## Pattern or Not?

### Iterator

#### Motivation

One of the most common data structures in software development is what is generic called a collection. A collection is just a grouping of some objects. They can have the same type or they can be all cast to a base type like object. A collection can be a list, an array, a tree and the examples can continue.

But what is more important is that a collection should provide a way to access its elements without exposing its internal structure. We should have a mechanism to traverse in the same way a list or an array. It doesn't matter how they are internally represented.

The idea of the iterator pattern is to take the responsibility of accessing and passing through the objects of the collection and put it in the iterator object. The iterator object will maintain the state of the iteration, keeping track of the current item and having a way of identifying what elements are next to be iterated.

#### Intent

Provide a way to access the elements of an aggregate object sequentially without exposing its underlying representation.

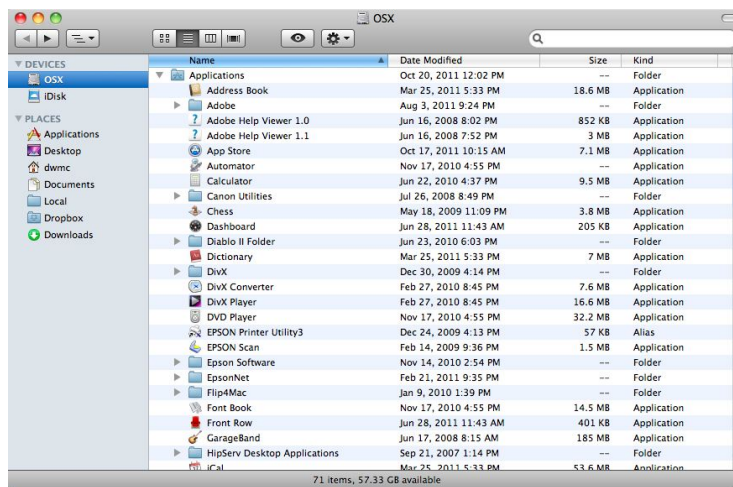
The abstraction provided by the iterator pattern allows you to modify the collection implementation without making any changes outside of collection. It enables you to create a general purpose GUI component that will be able to iterate through any collection of the application.

## Exercise

- Develop a “pattern” that solves the problem of “navigating information”
- Pair off
- With your partner
  - Brainstorm, discuss
  - Write or sketch
- Take 30 minutes



# Information Navigation



# Information Navigation



# Information Navigation



# Information Navigation

The screenshot shows the Amazon.com mobile app interface for the Games section. At the top, there's a navigation bar with 'amazon.com', a search bar, and links for 'Sign in', 'Today's Deals', 'Gifts & Wish Lists', and 'Gift Cards'. Below the navigation bar, there are tabs for 'Appstore for Android', 'Best Sellers', 'Code', 'New Releases', 'Test Drive Apps', 'Shop Android Phones', and 'Your Apps & Devices'. The main content area features a 'Games' section with a featured game 'Don't Let Om Nom Go Hungry' and a 'Top Rated Games' carousel. On the left, there's a 'Browse Games' sidebar with categories like Action, Adventure, Arcade, Board, Cards, Casino, Casual, Educational, Kids, Multiplayer, Music, Puzzles & Trivia, Racing, Role Playing, Sports, and Strategy. On the right, there are 'Get Star' and 'Best Sellers' sections.

# Information Navigation

The screenshot shows the GSA website's 'Per Diem Rates' page. The header includes the GSA logo and navigation links for 'WHAT GSA OFFERS', 'DOING BUSINESS WITH GSA', 'LEARN MORE', and 'BLOG'. The main content area is titled 'Per Diem Rates' and includes a search form for 'SEARCH BY CITY, STATE OR ZIP CODE' and a map of the United States showing rates by state. The page also features a sidebar with navigation links, a 'CONTACTS' section, and a 'TAX QUESTIONS?' section.

# Information Navigation

**GSA** U.S. General Services Administration Q Search This Site

WHAT GSA OFFERS | DOING BUSINESS WITH GSA | LEARN MORE | BLOG

Home > Policy & Resolutions > Travel, Transportation, & Relocation > Travel Management > Per Diem > Per Diem Rates > Per Diem Rates Overview

## FY 2012 Per Diem Rates for Washington

(October 2011 - September 2012)

SEARCH BY CITY, STATE OR ZIP CODE

Enter your city  OR Enter your ZIP Code

Washington

**ADDITIONAL PER DIEM TOPICS**

- Meals & Incidental Expenses Breakdown (M&IE)
- FAQs
- State Tax Exemption Forms
- Factors Influencing Lodging Rates
- FY 2012 Per Diem Highlights
- Fire Safe Hotels
- Have a Per Diem Question?
- Downloadable Per Diem Files

Cities not appearing below may be located within a county for which rates are listed. To determine what county a city is located in, visit the [National Association of Counties \(NACo\) website](#) (a non-federal website).

Primary Destination <sup>(1)</sup>	County (2, 3)	Max Lodging by Month (excluding taxes)												Meals & Inc. Exp.**		
		2011			2012											
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep			
Standard Rate	Applies for all locations without specified rates	77	77	77	77	77	77	77	77	77	77	77	77	77	77	46
Anacortes / Coupeville / Oak Harbor	Skagit, Island, San Juan	89	89	89	89	89	89	89	89	89	89	89	89	89	89	61
Everett / Lynnwood	Snohomish	96	96	96	96	96	96	96	96	96	96	96	96	96	96	61
Ocean Shores	Grays Harbor	97	97	97	97	97	97	97	97	97	97	117	117	97	97	51
Olympia / Tumwater	Thurston	88	88	88	88	88	88	88	88	88	88	88	88	88	88	61
Port Angeles / Port Townsend	Clallam and Jefferson	93	93	93	93	93	93	93	93	93	93	123	123	93	93	61
Richland	Benton	93	93	93	93	93	93	93	93	93	93	93	93	93	93	46

# Information Navigation

## Recovery.gov - Jobs Summary - National 608,203

**Top Agencies, as reported by recipients**

Agency Name	Jobs
Office of Elementary and Secondary Education	336,497.9
Office of Special Education and Rehabilitative Servic	51,668.3
Department of Education	34,820.2
Federal Highway Administration	26,397.8
Department of Labor	21,431.6

**Top Programs, as reported by recipients**

Program Name	Jobs
State Fiscal Stabilization Fund - Education Fund	132,781.50
Grants to States for the Education of Children with [	32,263.41
State Fiscal Stabilization Fund - Government Service	25,650.74
State Fiscal Stabilization Fund- Education Fund	25,310.50
State Fiscal Stabilization Fund-Education Fund	24,492.56

**Top Contracts, as reported by recipients**

Recipient Name	Jobs
SAVANNAH RIVER NUCLEAR SOLUTIONS, LLC	521.73
CH2M HILL PLATEAU REMEDIATION COMPANY	499.00
CH2M WIG IDAHO LLC	286.00
ENERGX TN, LLC	283.44
GRUNLEY CONSTRUCTION CO., INC.	255.36

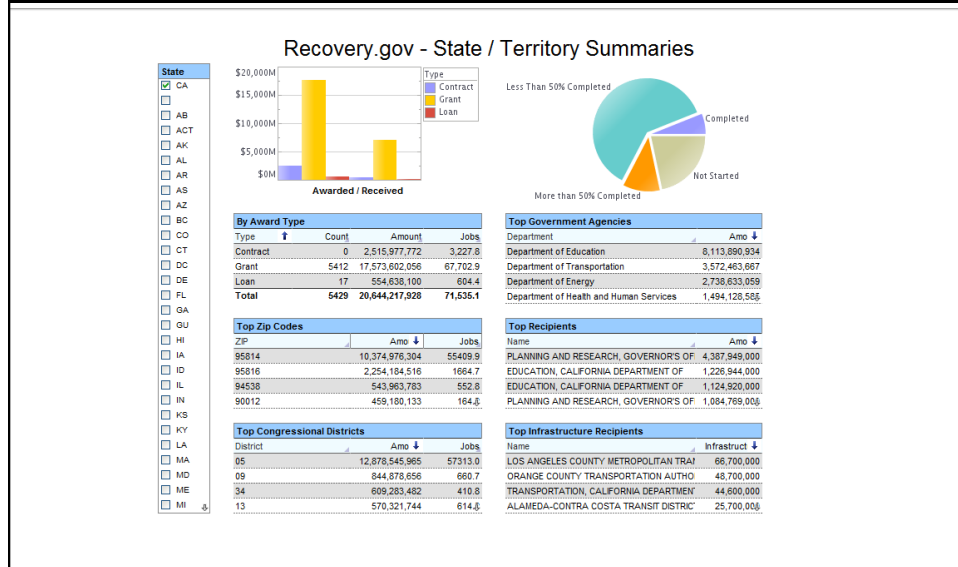
**Recipient Reported Jobs by Award Type**

Award Type	Jobs
Yellow	573,956
Blue	32,340
Purple	1,907

**Top Grants and Loans, as reported by recipients**

Recipient Name	Jobs
PLANNING AND RESEARCH, GOVERNOR'S (	36,870.79
NEW YORK, STATE OF	19,508.97
EXECUTIVE OFFICE OF THE GOVERNOR OF	18,046.89
GOVERNOR, TEXAS OFFICE OF THE	17,489.80
NEW JERSEY, STATE OF	15,047.56

# Information Navigation



## Discussion

- Briefly explain your pattern?
  - What problem does it solve?
  - Every aspect of navigation or only some?
  - How/why does this pattern work?
  - What are the pieces of this pattern?



## Patterns & Principles

- Principle
  - Guidelines for good design
  
- Pattern
  - Generalizable solutions to common design problems

## Principles

- Operate at different levels
  - Design Values
    - Overarching principles for design
  - Conceptual Principles
    - Define what the product is
  - Behavioral Principles
    - Define how the product behaves
  - Interface-level Principles
    - Define the information and interaction control presentation

## Pattern Languages

- The term coined by Christopher Alexander
  - "The Timeless Way of Building"
- Architecture
- Software Development

## Pattern Languages

- A pattern language
  - Vocabulary
  - Syntax
  - Grammar
- Patterns fit a specific context
  - Characterization of the problem to be solved
- Rationale
  - How and why they work