Open Source Design Pattern Library

Spreading Communities Thick: Open Source Communities of Practice

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Agenda

- The context: the Fluid Project
- Fluid components & UX Toolkit
- What is a pattern?
- Why use design patterns?
- User interface design patterns & libraries
- Building the Open Source Design Pattern Library & its community
- Getting involved!
What is the Fluid Project?

• “An open, collaborative project to improve the user experience of community source software”
• Cross-project collaboration:
  – Kuali Student, Moodle, Open Collection, Sakai, uPortal
• Combine both design and technology to create a living library of sharable user interface components & design tools
• Addressing issues of usability, accessibility, internationalization, security, flexibility & customization
• Open and distributed community
What are we building?

- Rich, flexible, reusable user interface components
- Lightweight JavaScript development tools
- User Experience Toolkit
- Great interaction designs
What is a Fluid component?

- **Client-side:**
  - HTML
  - Style sheets
  - JavaScript for behavioural logic
  - Accessibility metadata

- **And on the server-side:**
  - Binding conventions: markup with known, formal IDs
  - Ability to respond to RESTful requests
  - Ability to deliver the appropriate markup or data
Component composition

CSS
Style Sheets

HTML Markup

Keyboard Mappings

Fluid Component

Layout Handlers

XmlHttpRequest
Server Callbacks
The Reorderer

• A set of JavaScript objects
• Used to create rich, accessible user interfaces that allow users to directly move around and re-arrange content on the page

• Features
  – Supports mouse-based drag and drop as well as fully keyboard-accessible controls
  – Designed to be flexible and will handle a variety of markup and layout type
  – Clear extension points are provided to customize its behavior for new layouts, connection strategies, and markup binding strategies
The Lightbox

Gallery Collections
- Yorks (5)
- Wych Village (6)
- skyscrapers (9)
- New City (all) (27)
- Manhattan (11)

To create a collection, go to the "My Images" tool and create a folder collection in your "Image Collections" folder.

Lower Manhattan Collection

Start Slide Show

Sort order: Instructor default, Alphabetical

Images:
- wall street.jpg
- lower manhattan.jpg
- nyc building.jpg
- near city hall.jpg
- approaching wall street.jpg
- lower manhattan.jpg
- nyc building.jpg
- near city hall.jpg
- wtc what's left.jpg
- battery park.jpg
- wtc subway.jpg
Layout Customizer
Breaking down barriers, addressing cross-cutting needs

Sakai uPortal Moodle OpenCollection Kuali

CONTENT MANAGEMENT

- File Uploading
- Reworked, lightweight File Picking
- Tagging and Tag Clouds
- Smart folders, “playlists,” contextual filtering
- Favorites and Clipboard/File Basket
- Infrastructure: Accessible Thick Box, Tree, Sortable Tabs
- Drag and drop portlets
The Fluid approach to UX in Community Source

• UX is a challenge for all open source projects and all institutions
• Cross-project collaboration:
  – Share scarce UX resources across projects
  – Solve common challenges
  – Recognize recurring user interface idioms and needs
• Fluid is looking at common problems:
  – How do non-technical people get involved in OSS?
  – How can we help designers and developers speak the same language?
  – How do you do user testing in a distributed environment?
UX Toolkit

- User Research Tools
  - Contextual Inquiry
  - Persona development
- UI Design Patterns
  - Open Source Design Pattern Library
  - Shared design advice and guidance on using components
- UX Walkthroughs
  - Tools for assessing your user experience
- User testing techniques and guidelines
  - How to test your designs and talk to users
- User profile library
  - Understanding higher education users and beyond

- All the stuff you need to design great interfaces!
Some open questions...

- How can I incorporate Fluid components into my interface in a way that truly *improves* the user experience?
- How can I design *usable and understandable* user interfaces and interactions?
- How can I design user interfaces and interactions that reflect *best practices*?
- How can I create a user experience that will *delight* my users?
- How can I help create a *consistent* user experience for Sakai?
User interface design patterns
What is a pattern?

• A pattern is a **proven solution** to a **common problem** in a **specified context**
• There may be many different (physical) representations of each pattern
• “Each pattern is a three-part rule, which expresses a relation between a certain context, a problem, and a solution” [Christopher Alexander 1979].
Software Engineering Patterns

- **Organization**
  - Organizational Patterns (Coplien, 1998, Cockburn, 1997)
  - Business Reengineering Patterns (Beedle, 1997)

- **People**
  - Pedagogical Patterns (Manns, 1996)
  - Human-to-Human Communication Patterns (Cockburn, 1997)

- **Process**
  - Steps and Task Patterns (Ambler, 1998; Coplien, 1995)
  - Process Improvement Patterns (Appleton, 1997)

- **Product**
  - HCI Patterns (Tidwell, 1998)
  - Software Design Patterns (Gamma, 1995)

Why use design patterns?

• Make it easy to choose the best component or design solution for the job
• Document & share solutions that we *know* work
• Reserve innovation for situations where it’s really necessary
• Standardize interactions across application(s) where it makes sense
  – Makes it easier to predict what will happen (a.k.a. being “intuitive”)
  – Design “best practices” for Sakai, uPortal, etc.
• Patterns hold more complex design knowledge than guidelines because they describe context & rationale
  – Patterns allow designers to make choices about designs
  – Standards are more about following directions
UI Patterns and Techniques

Introduction

This web site is moving! The patterns have been updated to match the book, and you can find them at the following URL:

http://designinginterfaces.com

This site will stay up through part of 2006, but it will eventually be retired. Please change your links. Thanks!

"Designing Interfaces: Patterns for Effective Interaction Design" can now be ordered from Amazon. The book contains 90+ patterns (including updated versions of the ones you see here), over 300 full-color illustrations, and additional reference material and design advice.

There's nothing new here.

If you've done any Web or UI design, or even thought about it much, you should say, "Oh, right, I know what that is" to most of these patterns. But a few of them might be new to you, and some of the familiar ones may not be part of your usual design repertoire.

Each of these patterns (which are more general) and techniques (more specific) are intended to help you solve design problems. They're common problems, and there's no point in reinventing the wheel every time you need, say, a sortable table — plenty of folks have already done it, and learned how to do it well. Some of that knowledge is written up here, in an easily-digestible format.

By the way, when I say "UI," I mean Web sites, desktop applications, and everything in between (Web forms, Flash, applets, etc.). I believe that over the next few years, Web applications will become more richly interactive than they are now, and the smartest Web designers will use the desktop world's hard-earned knowledge of how to design good interactive software. Likewise, desktop applications will gradually look more like Web sites, with better graphic design and more Web-style navigation. I will make no assumptions about how or when they will converge — they may not, ultimately — but stylistically, there is some common ground already. Thus, you will see examples from both worlds in here.

These patterns are intended to be read by people who have some knowledge of UI design concepts and terminology: dialogs, selection, combo boxes, navigation bars, whitespace, branding, and so on. It does not identify many widely-accepted techniques such as copy-and-paste, as you probably already know what they are. But, at the risk of belaboring the obvious, some common techniques are described here to encourage their use in other contexts — for instance, desktop apps could make better use of Topleve Navigation — or to discuss them alongside alternative solutions.

(Many of these patterns were originally written by other people in the field. Where appropriate, authors are credited in the pattern descriptions.)

If you're running short on ideas, or hung up on a difficult design quandary, read over these and see if any of them are applicable. And don't take them as the gospel truth, either — what matters is whether your design works for your users.

If these are useful to you, please tell me. If not, or if you have anything to add, tell me that too.

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http://www.time-tripper.com/uipatterns/
UI Design Pattern Libraries - van Welie

UI Design Pattern Libraries - Yahoo!

Welcome
Welcome to the Yahoo! Design Pattern Library. We've just reorganized the navigation scheme for our patterns (see the link tree on the left side of this page), and we welcome feedback and other comments. The most recent pattern released is Vote to Promote.

We're thrilled to be sharing patterns and code with the web design and development community, hope it's useful, and look forward to your feedback.

What's a Pattern?
A pattern describes an optimal solution to a common problem within a specific context. more...

Recent Patterns see all...

Alphanumeric Filter Links
The user needs the ability to look up information alphabetically within a large data set.

Animate Transition
Designer needs to communicate that an object is changing its spatial relationship within the page.

Calendar Picker
User wants to find or submit a particular piece of information based on a date or between a date range.

Collapse Transition
The designer needs to communicate that an object is no longer of primary importance.

Drop Invitation
Designer needs to indicate valid candidate drop sites during a drag and drop operation.

Expand Transition
Designer needs to show the detail of an object in its context or reveal a previously collapsed object.

http://developer.yahoo.com/ypatterns/
Fluid Pattern - Drag & Drop - Layout Preview
# Fluid Pattern - Drag & Drop

<table>
<thead>
<tr>
<th>Interesting Moment</th>
<th>Example Visual Cue for Mouse</th>
<th>Example Visual Cue for Keyboard</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Page Loaded</strong></td>
<td>Items shown as a list, grid, or other arrangement. Provide some sort of graphic drag affordances or textual description that tell the user dragging is possible.</td>
<td>Same as for mouse.</td>
</tr>
<tr>
<td><strong>Mouse Hover</strong></td>
<td>Container border is highlighted and cursor changes from arrow to &quot;hand.&quot;</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Keyboard Select</strong></td>
<td>N/A</td>
<td>User tabs to the draggable section, and the first item is selected. This is equivalent to the mouse &quot;hover&quot; action. Provide the user with a stronger visual cue than the one used for mouse &quot;hover&quot; to indicate that an item is actually selected (e.g., container border is highlighted and object is in a gray frame).</td>
</tr>
<tr>
<td><strong>Mouse Down</strong></td>
<td>Enter &quot;drag&quot; mode. A visual indicator that the user is in a new mode may also be given (e.g. changing item to half-tone).</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Control-Key Down</strong></td>
<td>N/A</td>
<td>While the user is holding down the &quot;Control&quot; (CTRL) key, they are in &quot;drag&quot; mode. Item changes to half-tone to give the user a visual indicator that they are in a new mode.</td>
</tr>
<tr>
<td><strong>Mouse Up</strong></td>
<td>The user is no longer in drag mode. If the user was in the process of dragging an item, this completes the drag action.</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Control-Key Up</strong></td>
<td>N/A</td>
<td>The user is no longer in drag mode. If the user was in the process of dragging an item, this completes the drag action.</td>
</tr>
</tbody>
</table>
Upcoming Fluid Pattern - Page Navigation

Problem Summary

User needs a way of displaying a long list or table of items in manageable pages and view one page at a time.

Solution

Solution Image

<table>
<thead>
<tr>
<th>Name</th>
<th>User ID</th>
<th>Email Address</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ahn, Jason</td>
<td>15234314</td>
<td><a href="mailto:jahn@berkeley.edu">jahn@berkeley.edu</a></td>
<td>Student</td>
</tr>
<tr>
<td>Akerman, Krista</td>
<td>19269508</td>
<td><a href="mailto:kakerman@berkeley.edu">kakerman@berkeley.edu</a></td>
<td>Student</td>
</tr>
<tr>
<td>Almeida, Elaine</td>
<td>19435570</td>
<td><a href="mailto:ealmeida@berkeley.edu">ealmeida@berkeley.edu</a></td>
<td>Student</td>
</tr>
<tr>
<td>Azer, Tamer</td>
<td>19206726</td>
<td><a href="mailto:tazer@berkeley.edu">tazer@berkeley.edu</a></td>
<td>Student</td>
</tr>
<tr>
<td>Bandali, Salim</td>
<td>19206726</td>
<td><a href="mailto:sbandali@berkeley.edu">sbandali@berkeley.edu</a></td>
<td>Instructor</td>
</tr>
<tr>
<td>Baumgartner, Joe</td>
<td>16984247</td>
<td><a href="mailto:baumer12@berkeley.edu">baumer12@berkeley.edu</a></td>
<td>Student</td>
</tr>
<tr>
<td>Bellefuille, Eric</td>
<td>19286942</td>
<td><a href="mailto:ebell@berkeley.edu">ebell@berkeley.edu</a></td>
<td>Student</td>
</tr>
<tr>
<td>Braganza, Sherman</td>
<td>19446940</td>
<td><a href="mailto:sherman@berkeley.edu">sherman@berkeley.edu</a></td>
<td>Student</td>
</tr>
<tr>
<td>Calderon, Maurice</td>
<td>14644786</td>
<td><a href="mailto:mcalderon@berkeley.edu">mcalderon@berkeley.edu</a></td>
<td>Instructor</td>
</tr>
<tr>
<td>Campaign, Wesley</td>
<td>19283731</td>
<td><a href="mailto:wcampaign@berkeley.edu">wcampaign@berkeley.edu</a></td>
<td>Student</td>
</tr>
</tbody>
</table>

1-10 of 76 items
Upcoming Fluid Pattern - Inline Edit

Problem Summary

When a user wants to edit text within the context of their work, they have to enter into an "edit mode" which requires additional interaction on their part and forces them to tolerate processing and transaction times.

Typically, data edited tends to be brief, in keeping with the desire for rapid, little changes - thus cumbersome interactions or slow software responses are an issue.

Solution

Allow the user to quickly edit text within the context of their work.

Solution Image

{{ TODO: add screenshot of inline edit with explicit save button }}

Use When

- displaying editable data
- data to be edited is simple text
Patterns from Sakai UX Initiative - Portlets
Patterns from Sakai UX Initiative - Lightbox Overlay

[Image of a website interface showing the creation of a new site, with options for selecting whether the site is a course and providing a site name and description.]
Building the OSDPL in Drupal

• Open-source, complete content management system
• Provides flexibility in presentation and repurposing of content
• Hundreds of user-contributed modules
  – Tagging - tagadelic & community tags
  – Ratings - fivestar & voting api
  – Workflow & notifications - workflow & actions
  – Role-based permissions  - Drupal core
  – User profiles - Drupal core
  – Versioning - Drupal core
  – RSS feeds - Drupal core
  – Customizable views - cck & views
  – Auto-generated navigation - taxonomy menu
  – Re-sizing of images - image cache
  – WYSIWYG editor - tinymce

• Tour of http://uidesignpatterns.org
General pattern library issues

- What is the right granularity for a pattern?
- How many organizations can/should we serve?
- What is the relationship between design patterns & a style guide?
- How can we organize the information in the pattern library so users can easily find relevant patterns?
  - Hierarchy, search, tags
- How do we interact with/borrow from other pattern libraries?
  - Use mark-up language to facilitate reuse (e.g. PLML)?
Building a pattern library community

• How are patterns contributed, edited, and moderated?
  – Do we need a ‘staging area’ before releasing in process patterns?
• Should patterns be general and apply to everyone, or customized for each community?
• How can we encourage contributions and at the same time ensure the quality of the patterns remains high?
• How can we ensure the library grows, evolves, & lives on?
Possible future directions for OSDPL

- Encourage contributions!
- Limited moderation combined with mentoring of pattern authors
- User ratings drive pattern popularity
- Personal tags, allowing for customized organization of patterns
- Dynamic generation of pattern examples (e.g. Sakai) based on preferences in user profiles
Get involved with design patterns!

- Review, create, use and share design patterns - [http://uidesignpatterns.org](http://uidesignpatterns.org) (beta)
- Attend next Design Pattern working group meeting on Wed, July 16, 2pm EDT: [http://uidesignpatterns.org/meeting-7-16-08](http://uidesignpatterns.org/meeting-7-16-08)
  - Review of existing Fluid & Sakai patterns
  - Discussion of OSDPL community practices
  - Discussion of OSDPL architecture
  - Review of new patterns
  - Read more about design patterns: [http://wiki.fluidproject.org/display/fluid/Design+Patterns](http://wiki.fluidproject.org/display/fluid/Design+Patterns)
- Join our mailing list
  - fluid-talk@ for design patterns and other general discussion
Get involved with Fluid!

- Use the Fluid UX toolkit: http://wiki.fluidproject.org/display/fluid/UX+Toolkit
- Use & extend Fluid components in your applications: http://wiki.fluidproject.org/display/fluid/Components
- Join our mailing lists at http://www.fluidproject.org
  - fluid-work@ for community collaboration
- Come to the UX BOF at 1pm today to discuss UX in Sakai
- My contact info:
  - Allison Bloodworth, abloodworth@berkeley.edu