

User Interface Design

COMP1650

Design Patterns

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Design Patterns for User Interfaces

“A design pattern in architecture and computer science is a formal way of documenting a solution to a design problem in a particular field of expertise.... An organised collection of design patterns that relate to a particular field is called a pattern language.”

Ashrafi (2014)

A Pattern Language

Towns • Buildings • Construction



Christopher Alexander

Sara Ishikawa • Murray Silverstein

WITH

Max Jacobson • Ingrid Fiksdahl-King

Shlomo Angel

Design Patterns for User Interfaces

“In essence, patterns are structural and behavioural features that improve the ‘habitability’ of something – a user interface, a website, an object-oriented program, or a building. They make things easier to understand or more beautiful; they make tools more useful and usable.”

Jenifer Tidwell (Designing Interfaces, 2011)

Design Patterns are

- concrete – not general
- valid across different platforms
- possible solutions – not processes
- suggestions not requirements
- customised to each design context

The Anatomy of a Design Pattern

- What?
- Use when?
- Why?
- How?
- Examples of the pattern in action

Navigation Patterns: Feature, Search, and Browse

The screenshot shows the Amazon.co.uk homepage with several red arrows highlighting specific navigation elements:

- A vertical red arrow points down from the top left towards the "Shop by Department" dropdown menu.
- A horizontal red arrow points down from the top center towards the search bar area.
- A diagonal red arrow points from the top right towards the promotional banner for the Fire Phone.

The page features a prominent banner for the Fire Phone, advertising "THE ONLY SMARTPHONE WITH MAYDAY: FREE, LIVE, ON-DEVICE TECH SUPPORT" exclusively on O2. Below this, there's a section about a family business pursuing audio excellence, featuring a photo of a man and a woman holding headphones.

Key navigation elements visible include:

- Amazon logo and "amazon.co.uk" text.
- "Your Amazon.co.uk" link.
- "Today's Deals", "Gift Cards", "Sell", and "Help" links.
- "Shop by Department" dropdown menu.
- "Search" input field and "All" dropdown.
- "Go" button.
- "Hello. Sign in Your Account" link.
- "Try Prime" link.
- "Basket" with a count of 0.
- "Wish List" link.
- Top navigation links: "Amazon Mobile Apps", "AutoRip", "Instant Video", "Fire Phone", "Cloud Drive", "Appstore for Android", and "Audible Audiobooks".
- Cookie information: "Amazon uses cookies. What are cookies?"
- Advertisement sections for the "fire HD7" tablet and "Skullcandy AIR RAID" speakers.
- Footer links: "Amazon Family", "Trade-In", "A Sound Idea", "Amazon Prime", "Be a Smart Shopper", and "The Electronics Gift Guide".
- Text at the bottom: "One of thousands of small businesses thriving because of Amazon customers".

Example: Feature, Search, and Browse

The screenshot shows the eBay Fashion homepage. A vertical red arrow on the left points to the "Be Inspired" section, which includes links for "The Fashion Collective", "Trending Fashion Collections", "The Fashion Edit", and "Sell on eBay". Another red arrow points to the "Search..." input field at the top center. A third red arrow points to the "INTRODUCING THE FASHION COLLECTIVE" banner on the right, which features a couple in coats and text about the new collective.

ebay Shop by category ▾ Search... All Categories Advanced

eBay > Fashion Daily Deals newsletter - sign up

FASHION

Be Inspired

The Fashion Collective

Trending Fashion Collections

The Fashion Edit

Sell on eBay

Sales & Events

Fashion Deals

Shop By Category

Womens

Mens

Kids

Shoes

Handbags

Health & Beauty

FASHION

Womens Mens Kids Shoes Handbags Health & Beauty

INTRODUCING THE FASHION COLLECTIVE

Our new home for In Season Trends and Offers. Direct from trusted Sellers with a Money Back Guarantee

SHOP NOW

Example: Feature, Search, and Browse

Thomann

Guit/Bass Drums Keys Studio PA Lighting DJ Microphones Brass more

Help Contact About us Service Classified Ads Advanced Search Top Sellers Hot Deals

search term...

Welcome

Shopping Basket 0

Online Catalogue

- Guitars and Basses
- Drums + Percussion
- Keys
- Studio Equipment
- PA-Equipment
- Lighting and Stage
- DJ Equipment
- Microphones
- Effects + Signal Proc.
- Computer
- Wind Instruments
- Traditional
- Sheet , Books, DVDs
- Cases, Racks, Bags
- Cables + Plugs
- Accessories

Cyberstore Sitemap

- Home
- Search Engine
- Online Catalogue
- Hot Deals
- Top Sellers
- Product News
- Blow Outs
- Online Guides
- Links
- Classified Ads
- Customer Login
- Shopping Basket
- Wish List
- Company Info
- Helpdesk

Customer Comments

on 02.03.2012

Welcome to Thomann ...

where music is our passion. Musikhaus Thomann, voted best European online shop is Europe's largest music retailer. We sell all the high-end musical instruments, studio, lighting, and PA equipment you could wish for. There are also many affordable alternatives and free resources for all musicians.

Our products are covered by our **free 30-day money-back guarantee** and our **free 3-year warranty**. Delivery to the UK costs 10 € (approx. £7), however any order over 199 € (approx. £160) includes **free shipping** to mainland UK. All prices on this website **include 20% VAT**.

SAMSON C01U

58,-

News Ticker

Thomann X-Mas Song Contest 2014

Thomann rocks the Pre-Christmas Season with an International Song Contest! Enter our competition by composing and producing your own Christmas song and be in with the chance of winning a VIP trip to Musikhaus Thomann, Germany plus a 500€ gift voucher!

08.10.2014

Legendary Guild guitars on offer at a fantastic price

Get yourself a legendary Guild guitar (Made in USA) at an unbeatable price. Don't wait too long - this offer is only valid whilst stock last!

12.08.2014

Beat this for a Hot Deal! Roland HD-3 V-Drum Lite

Snare yourself a full complement of first-class electronic drums that fits into the smallest of rooms, featuring top V-Drum quality and with huge savings at an unbeatable 579.- Euro!

01.08.2014

Mobile solution for Laptop DJs: Exclusive

Navigation Patterns: Navigation Tabs

The image displays three distinct navigation patterns:

- Vimeo Main Page:** A horizontal navigation bar at the top of the page. It includes a "Join now" button, input fields for "First and last name" and "Email", a password field, and another "Join now" button.
- Vimeo Home:** The main content area features the Vimeo logo on the left. To the right, there is a large call-to-action: "People connecting through video." Below it, the text "Making video has never been easier. Now there is a home for the videos you make. **Join Vimeo or log in.**"
- Digg Profile:** A vertical navigation bar on the right side of the page. It lists various profile settings and options, such as "Privacy settings", "about me", "email settings", etc., along with a timestamp "set 2/04/2008".
- Horizontal Navigation Bar:** A dark blue horizontal bar with three tabs: "Videos we like", "Explore", and "Right now".

Navigation Patterns: Breadcrumb Navigation

A screenshot of the Apple Store website's navigation bar. It includes links for 'Store', 'Mac', 'iPod + iTunes', and 'iPhone'. Below the main menu, a breadcrumb trail shows the user's path: a home icon followed by 'Shop Mac', 'Accessories', and 'Airport & Wireless'.

[Design patterns](#) » [Techniques](#) » Module CSS Tabs

The IDEO website features a breadcrumb navigation at the top right of the header, linking to 'Design patterns', 'Techniques', and 'Module CSS Tabs'. The page content includes a 'NEWS' section with an RSS feed, a 'TOP PICKS' section, and a large headline about the N-Gage gaming platform for Nokia. A navigation bar below the headline includes 'IDEO', 'WORK', and 'CASE STUDIES'.

NEWS [RSS](#)

- + Roshi Givechi in *Fast Company*
- + John Rehm Presents at Spark09, Shanghai
- + *Metropolis* on Designing for Nonprofits
- + Ryan Jacoby Participates in PSFK Panel

TOP PICKS

- + WSJ on Value of Design + Management
- + David Kelley: Career Lessons Learned
- + Tim Brown Interviewed on BBC Radio
- + Reframing Recession: Moving Forward

IDEO WE ARE A GLOBAL DESIGN CONSULTANCY. WE CREATE IMPACT THROUGH DESIGN.

IDEO → WORK → CASE STUDIES

N-GAGE GAMING PLATFORM FOR NOKIA

Exploring the social side of mobile gaming

Nokia engaged IDEO to reinvent the gaming experience for their new line of Nseries smartphones. Building on the dedicated gaming device N-Gage, IDEO defined the Nseries next-gen interface to maximize user experience by creating an integrated

A photograph of a person holding a purple Nokia N-Gage smartphone, which is a dedicated gaming device. The phone has a trackball and a small screen.

Navigation Patterns: Sitemap Footer

Sign In 

Subscribe Place An Ad LAT Store Jobs Cars Real Estate Rentals More Classifieds

Los Angeles Times | ENTERTAINMENT



Voting starts MONDAY for the most Beautiful Baby!

LOCAL U.S. WORLD BUSINESS SPORTS ENTERTAINMENT HEALTH LIVING TRAVEL OPINION MORE

MOVIES TELEVISION MUSIC CELEBRITY ARTS & CULTURE COMPANY TOWN CALENDAR ENVELOPE BOOKS HOT LIST

IN THE NEWS: ABBY SUNDERLAND | FINANCIAL REFORM | GULF OIL SPILL | KELLOGG RECALL | SARAH PALIN | WORLD CUP

News	Entertainment	Living	Multimedia	Top Blogs	More
Local	Television	Travel	Video	L. A. Now	Corrections
U.S. & World	Movies	Health	Photos	Fabulous Forum	Readers' Rep
Business	Music	Food	Data Desk	Ministry of Gossip	Contact Us Help
Technology	Arts & Culture	Home	Your Scene	TV Show Tracker	About Us
Sports	Celebrity	Image	Times on Twitter	Company Town	Events
Opinion	Envelope	Magazine	Mobile	Politics	LATMG Media Kit
Columnists	Calendar	Books	Newsletters	Music	Print Edition
Obituaries	Company Town	Autos	Archives	Hero Complex	Subscribe
	TV Listings	Hot List	Kindle	Technology	Manage My Account
	Movie Listings	Horoscopes	E-edition	Movies	Site Map
	Tickets	Crosswords			

Los Angeles Times

Coastline Pilot | Daily Pilot | Huntington Beach Independent | Valley Sun | Burbank Leader | News Press | KTLA | Hoy | Brand X | LA, Los Angeles Times Magazine | ZAP2it |
Baltimore Sun | Chicago Tribune | Daily Press | Hartford Courant | Los Angeles Times | Orlando Sentinel | Sun Sentinel | The Morning Call |

STORES	CAREERS	PRODUCTS	BLOGS & PODCASTS	VALUES	COMPANY INFO
Find a Store	Search for Jobs	Quality Standards	Whole Story Blog	Our Core Values	History
Shopping Lists	Why Work Here?	The Whole Deal	CEO John Mackey's blog	Locally Grown	Board of Directors
Cooking Classes	Benefits	Whole Trade	Videos	Green Mission	Investor Relations
Catering	Careers FAQ	Food Safety	Whole Body Podcasts	Whole Planet Foundation	Press Room
Gift Cards		Locally Grown		Local Producer Loan Program	Customer Service

Navigation Patterns: Fat Menus

The screenshot shows the Starbucks website's navigation bar and a detailed view of the 'COFFEE' section.

Top Navigation:

- Sign In
- Customer Service
- Select Location (with a dropdown arrow)
- Find a Store
- Search keyword (with a magnifying glass icon)

Main Navigation (top row):

- COFFEE
- MENU
- COFFEEHOUSE
- RESPONSIBILITY
- CARD
- SHOP

COFFEE Sub-navigation (highlighted):

- Beans Blends Brewing (with a cursor icon pointing to it)
- Drinks Food Nutrition

COFFEE Content Area:

- Whole Bean Coffee**
 - Latin America
 - Africa/Arabia
 - Asia/Pacific
 - Multi-Region Blends
 - Dark & Specialty Roast
- Starbucks VIA® Instant Coffee**
 - Share Starbucks VIA®
 - Starbucks VIA® Mug Gallery
 - Find Starbucks VIA® Colombia
 - Italian Roast
 - Decaf Italian Roast
 - Decaf Italian Roast
 - Starbucks VIA® In Action
- Starbucks® Natural Fusions**
 - Vanilla
 - Caramel
 - Cinnamon
 - Savoring

Callout: Looking for Coffee Beverages? (with a dropdown arrow)

- Brewed Coffee
- Espresso Beverages
- Frappuccino® Blended Beverages

Right Side Content:

- 3 Region Blend**

An abundance of flavor and a journey for your palate.
- Radio Arte is on the air.
- Share a little, save a little.
- Express your love.
- "When you break, you're united."

Navigation Patterns: Fat Menus

United States Change



Search Microsoft.com



Web

Windows Office All Products



Buy Now Downloads & Trials

Partner & Customer Solutions

Security & Updates

Training & Events

Support

About Microsoft

Most Popular

- . Bing
- . Internet Explorer
- . Microsoft Advertising
- . Microsoft Security Essentials
- . Office
- . Windows
- . Windows Live

Business Software

- . Bing Maps
- . Microsoft Amalga
- . Microsoft Dynamics CRM
- . Microsoft Dynamics ERP
- . Microsoft Forefront
- . Microsoft Office Live
- . Microsoft Online Services
- . Windows Small Business Server

Design & User Experience

- . Microsoft Expression
- . Microsoft Silverlight

Developer Tools

- . .NET Framework
- . ASP.NET
- . MSDN Subscriptions
- . Robotics Developer Studio
- . Visual Basic
- . Visual C
- . Visual C#
- . Visual Studio
- . XNA

Entertainment

- . DirectX
- . Microsoft Mediaroom
- . MSN
- . MSN Games
- . MSNBC
- . PC Gaming
- . Windows Media Center
- . Xbox Home
- . Xbox Live
- . Zune

Hardware

- . All PC Hardware
- . Digital Communications
- . Microsoft Surface
- . Mouse & Keyboard Products
- . PC Gaming Hardware
- . Xbox Gaming

Home & Educational Software

- . AutoCollage
- . HealthVault
- . Money
- . MSN Direct
- . MSN Internet Access
- . Office Home & Student
- . Songsmith
- . Streets & Trips
- . Windows Home Server
- . Works
- . WorldWide Telescope

Macintosh

- . All Macintosh Products
- . Mac Expression
- . Mac Mouse & Keyboard Products
- . Mac Office

Mobile Devices & Software

- . Microsoft My Phone
- . Microsoft Tag
- . Mobile Software Catalog
- . Ultra-Mobile PC
- . Windows Phone
- . Windows Mobile Devices

Servers

- . All Server Products
- . BizTalk Server
- . Exchange Server
- . Server Trials
- . SharePoint Server
- . SQL Server
- . TechNet Subscriptions
- . Windows Server

U.S. only

NEWS

Microsoft Office 2010 Now Available for Consumers Worldwide

Find the perfect Office for your

Popular Downloads

Example: Feature, Search, and Browse

What

Put three elements on the main page of the site or app: a featured article or product, a search box, and a list of items or categories that can be browsed.

Use when

Your site offers users long lists of items—articles, products, videos, and so on—that can be browsed and searched. You want to engage incoming users immediately by giving them something interesting to read or watch.

Why

These three elements are found together on many, many successful sites. Once you are attuned to them, you can find them just about everywhere.

Searching and browsing go hand in hand as two ways to find desired items: some people will know what they're looking for and zero in on the search box, while others will do more open-ended browsing through the lists and categories you show them.

Featured items are how you “hook” the user. They’re far more interesting than just category lists and search boxes, especially when you use appealing images and headlines. A user who lands on your page now has something to read or experiment with, without doing any additional work at all—and he may find it more interesting than whatever he originally came for.

How

Place a search box in a prominent location, such as an upper corner, or in a banner across the middle top of the site. Demarcate it well from the rest of the site—use whitespace to set it off, and use a different surrounding background color if necessary.

Try to eliminate all other text fields above the fold (except the sign-in box, if you have one), to make sure users don’t confuse those with the search box. People looking for a search box tend to zero in on the first text field they come across. Make sure they find the right one!

Set aside [Center Stage](#) (see Chapter 4) for the featured article, product, or video. Very near it, and still above the fold, place an area for browsing the rest of the site’s content. Most sites show a list of topics or product categories. These might be links to pages devoted to those categories. Or they might change the current page’s content, replacing the feature with a list of items in that category; see the [Two-Panel Selector](#) pattern in Chapter 5.

If the category labels open in place to show subcategories, the list behaves like a tree. Some sites, such as Amazon, turn the category labels into menus: when the pointer rolls over the label, a menu of subcategories appears.

Accordion

Beta · Last modified October 5, 2009

An accordion (or accordion menu) is a grouped set of collapsible panels that provides access to a large number of links or other selectable items in a constrained space.

Each inlaid panel may be individually expanded (usually leaving the rest collapsed), generally by hovering on or clicking the title of (or an expand/collapse element on) the specific panel, to display a single subset of the options.

YAHOO! SPORTS EXPERTS

Another race, another excuse for Junior NASCAR	+
Dan Wetzel February 15, 2009	
Draft-pick compensation rules might bend MLB	+
Jeff Passan February 16, 2009	
Shaq is last rising Sun	-
Adrian Wojnarowski February 16, 2009	
Shaquille O'Neal's entertainment can't mask the bungled firing of Terry Porter and lingering trade talks. Read More	
View Adrian Wojnarowski Archive	
Happy Hour: Post-500 hangover NASCAR	+
Jay Hart February 17, 2009	
View All Yahoo! Sports Experts »	

[Delicious](#) [Bookmark this on Delicious](#)

What Problem Does This Solve?

When there are too many items to fit into a limited space or when the number of items, if displayed all at once, would overwhelm the user, then the question is how to give the user access to all of the items in digestible chunks and without requiring scrolling, which can remove the user from the context or page position they may prefer.

When to Use This Pattern

Use when the number of options is large, the space is constrained, and the list of items can be logically grouped into smaller, roughly equal sized chunks.

What's the Solution?

Present a two-tiered set of options.

- The top level is categories or groupings.
- The secondary level is the list of options that fall into each group.

UI Patterns

(ui-patterns.com)

Thumbnail

Design pattern

Problem summary

The user needs to get an overview of multiple pictures without having to download each of the full size images.

Example



From mac.com

Usage

- Use when you have a collection of images that you want to present to the user.
- Use when downloading full-size versions of all of the images you want to present to the user will both take up much bandwidth but will also take a long time for the user to download.
- Use when you want to allow the user to browse quickly through a collection of images.
- Use when you want to give the user an impression of an image, movie or page before he or she decides to download the original.

Solution

A thumbnail is a miniature version of a larger picture. The thumbnail can illustrate anything graphical: a picture, movie or even a screenshot of a webpage.

The dimensions (width and height) of multiple thumbnails appearing next to each other are the exact same. In order to preserve the same proportions in the thumbnail image as were found in the original image, both resizing and cropping is part of the image manipulation process.

Online Pattern Libraries

- UI Patterns
- Mailchimp
- Anna Debenham's bookmarks
- Patternry
- ...

Design Pattern Activity

- Research one or two of the pattern libraries from the previous page and identify three user interface design patterns that could be useful for your coursework design (15 minutes).
- Presentation and discussion of results

Additional Resources

- Tidwell, J. (2011) - Designing Interfaces

