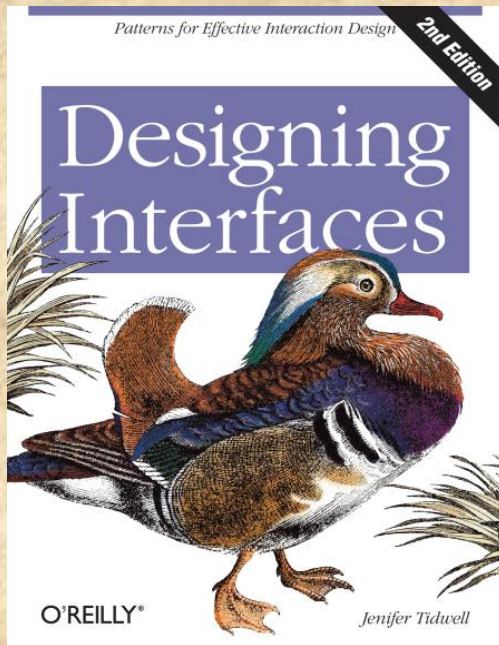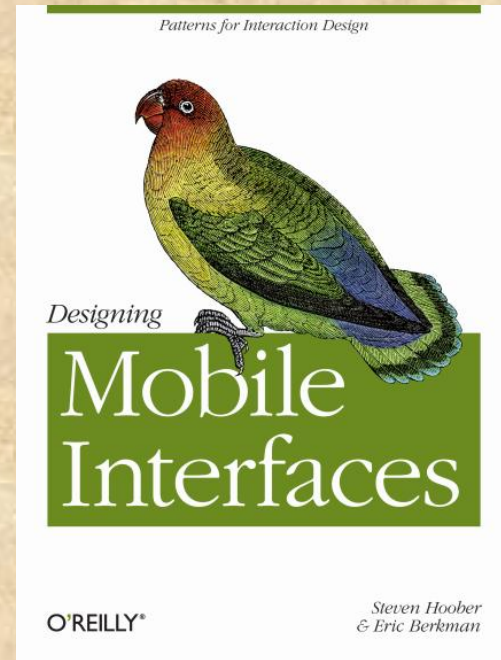# UI Design Interface
(UI Patterns)

References

Book 1:
"Designing Interfaces", Second Edition, by Jenifer Tidwell

Book 2:
"Designing Mobile Interfaces", by Steven Hoober, and Eric Berkman

General UI (User Interface) Patterns

Type 1
Navigation Models

- How do users know **where they** are **now**?

- where to **go next**?

- and how to get **there** from **here**? **(target page)**

Features to Help way Finding

1. **Good signage**:
   labels to tell what you're looking for and tell you where to go.

2. **Environmental clues**:
   icons and symbols with clear meanings, like (X) for closing.

3. **Maps**:
   global view/dictionary of applications **pages/functionalities**

Navigational Models/Patterns

- **1.1- Hub and spoke: نقطة مركزية وفروعها**
  - **(Home Screen and sub pages)**
  - **Most often found on mobile devices,**
  - **lists all the major parts of the site or app on the home screen, or "hub."**
  - **Each part has its own sub page "spoke"**
  - **The user clicks or taps through to them, does what she needs to do, and comes back to the hub to go somewhere else.**
  - **The "spoke" screens focus tightly on their jobs, making careful use of space**
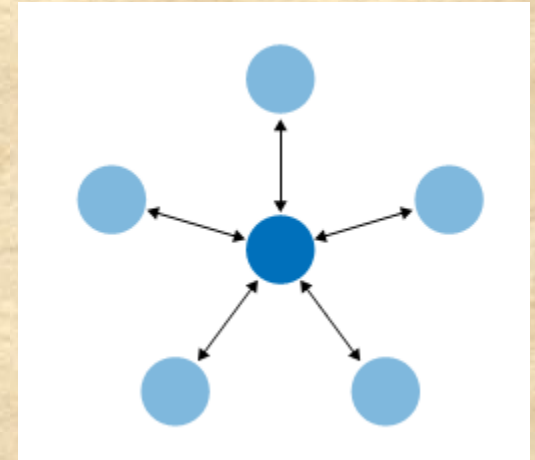
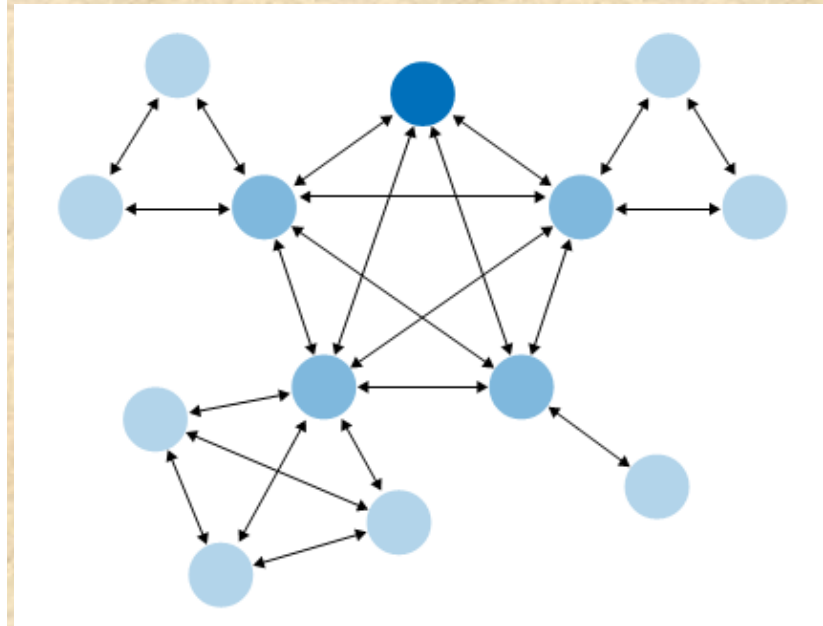# Navigational Models

- **1.2-Fully connected**
  - Many websites follow this model.
  - There's a home page or screen, but it and every other page link to all the others
  - They each have a global navigation feature, such as a top menu.
  - The global navigation may be:
    - a single level
    - or it might be deep and complex, with multiple levels and deeply buried content.
  - As long as the user can reach any page from any other with a single jump, it's fully connected.
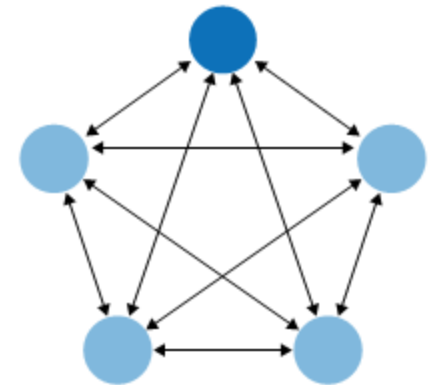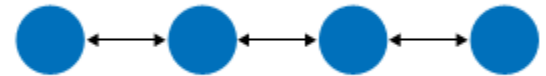
Navigational Models

- **1.3- Multi-level:**
  - This is also common among websites
  - The **main pages** are fully connected with each other,
  - but the **subpages** are only connected among themselves
  - Subpages can be connected usually to the other main pages, via global navigation (menu/icon)
  - It takes two or more jumps to get from one subpage to another.

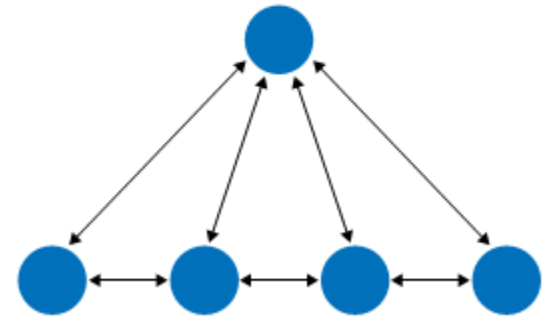# Navigational Models

- **1.4-Stepwise:**
  - Sequence of pages/process flows, and Wizards lead the user step by step
  - through the screens in a prescribed sequence تسلسل مسبق Back/Next links are available on the page.
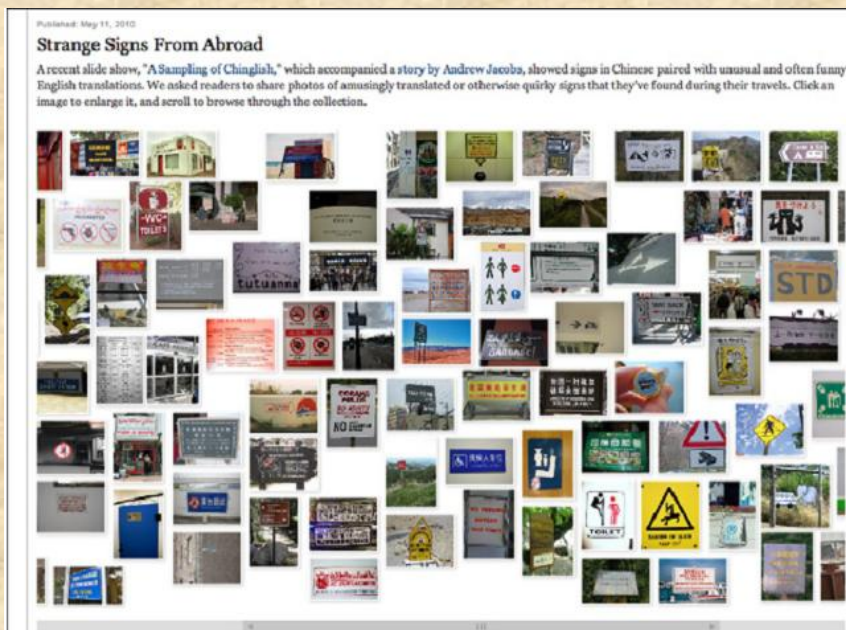
Navigational Models

- **1.5- Pyramid**
  - A variant on the stepwise/Hub-spoke models,
  - uses a hub page or menu page to list an entire sequence of items
  - The user picks out any item, jumps to it,
  - and then has the option to use Back/Next links to step through other items in order.
  - He can go back to the hub page anytime

Pyramid Example (New York Times)

Parent Page

Published: May 11, 2010

Strange Signs From Abroad

A recent slide show, "A Sampling of Chinglish," which accompanied a story by Andrew Jacobs, showed signs in Chinese paired with unusual and often funny English translations. We asked readers to share photos of amusingly translated or otherwise quirky signs that they've found during their travels. Click an image to enlarge it, and scroll to browse through the collection.

Child page

Published: May 11, 2010

Strange Signs From Abroad

A recent slide show, "A Sampling of Chinglish," which accompanied a stor English translations. We asked readers to share photos of amusingly tran image to enlarge it, and scroll to browse through the collection.

◄ 121 of 176 ►   CLOSE ✕

Paris, France

Intersection of the Boulevard du Montparnasse and the Boulevard Saint-Michel.

Taken by Daniel Gallagher

Pyramid Model

Description	1- Link together a sequence of pages with Back/Next links. 2-Create a parent page that links to all of the pages in this sequence
When to Use?	1- site or application contains a sequence of items that a user would **normally** view one after another (in order), 2- such as a slideshow, a wizard, chapters in a book, or a set of products. 3- **Some other users** would rather view them one at a time and **out of order**, and they need to be able to pick from a full list of the items
Why to Use?	-**reduces the number of clicks** it takes to get around. -and it expresses a **sequential relationship** among the pages

Navigational Models

- **1.6- Pan-and-zoom التحريك والتقريب**
  - Some information are best represented as single large spaces, not many small ones.
  - Examples:
    - Maps,
    - large images,
    - large text documents,
    - information graphics (InfoGraphic),
    - Time based media (sound and video)
  - Options:
    - **panning** (moving horizontally or vertically),
    - **zooming** in and out,
    - **resetting** to a known position and state
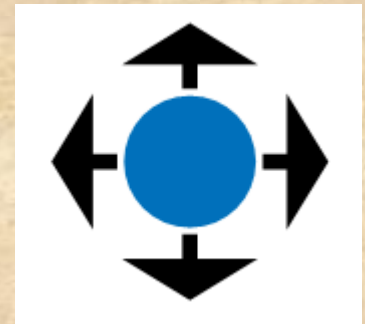
Navigational Models

- **1.7-Modal panel (Message Boxes)**
  - screen with no navigation options other than acknowledging its message, completing its form, or clicking the panel away (OK-Cancel)
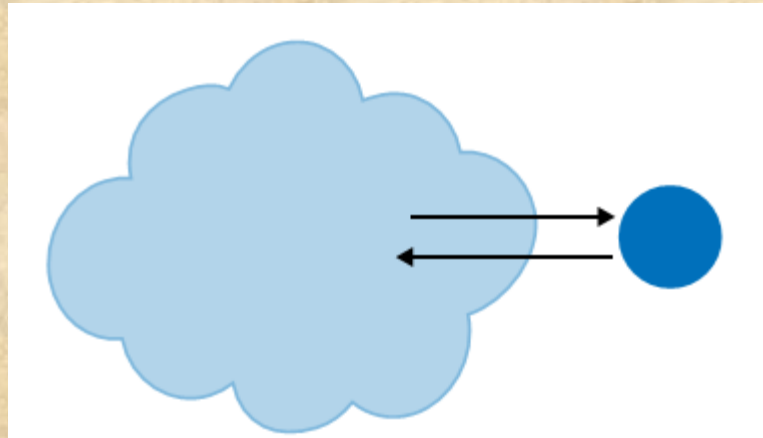
Example for Modal Pane (slideshare)

Example 2

Modal Pane

Description	1- Show only one page, with no other navigation options, **until the user finishes** the current **task**
When to Use?	**1- the application reached a state which it shouldn't or can't proceed without input from the user**
Why to Use?	- **Forces** User to take action and can't ignore it - When that's done, he gets sent back to where he was before.

Navigational Models

- **1.8-Flat navigation**
  - little or no navigation at all.
  - Example: Photoshop,Excel
  - Some Tools and functions are reached via menus, toolbars
  - Other Tools that don't act immediately upon the work may be accessible via Modal Panels (like:Save-open dialogs)
  - User may not easily find the tools he needs (User can get Lost).

Navigational Models

- **1.9- Clear entry points:**
  - Helps a user to start in a complex site or app
  - Shows where to go first
  - For first-time and infrequent users,
  - it removes some of the burden of learning the site.

  تفوت بعض الخطوات غير الأساسية للمستخدمين الجدد

Clear Entry Points

Description	**1- Present only a few main entry points into the interface;** **2-make them task-oriented and descriptive.**
When to Use?	**1- you have lot of first-time or infrequent users.** **2- Most of them needs :** **- reading a certain piece of introductory text,** **-doing an initialtask, or choosing from a very small number of frequently used options.** **3- note: Not suitable for Expert users.**
Why to Use?	**- Help new users** **- self-explanatory application تطبيق يشرح نفسه**

Clear Entry Point Example
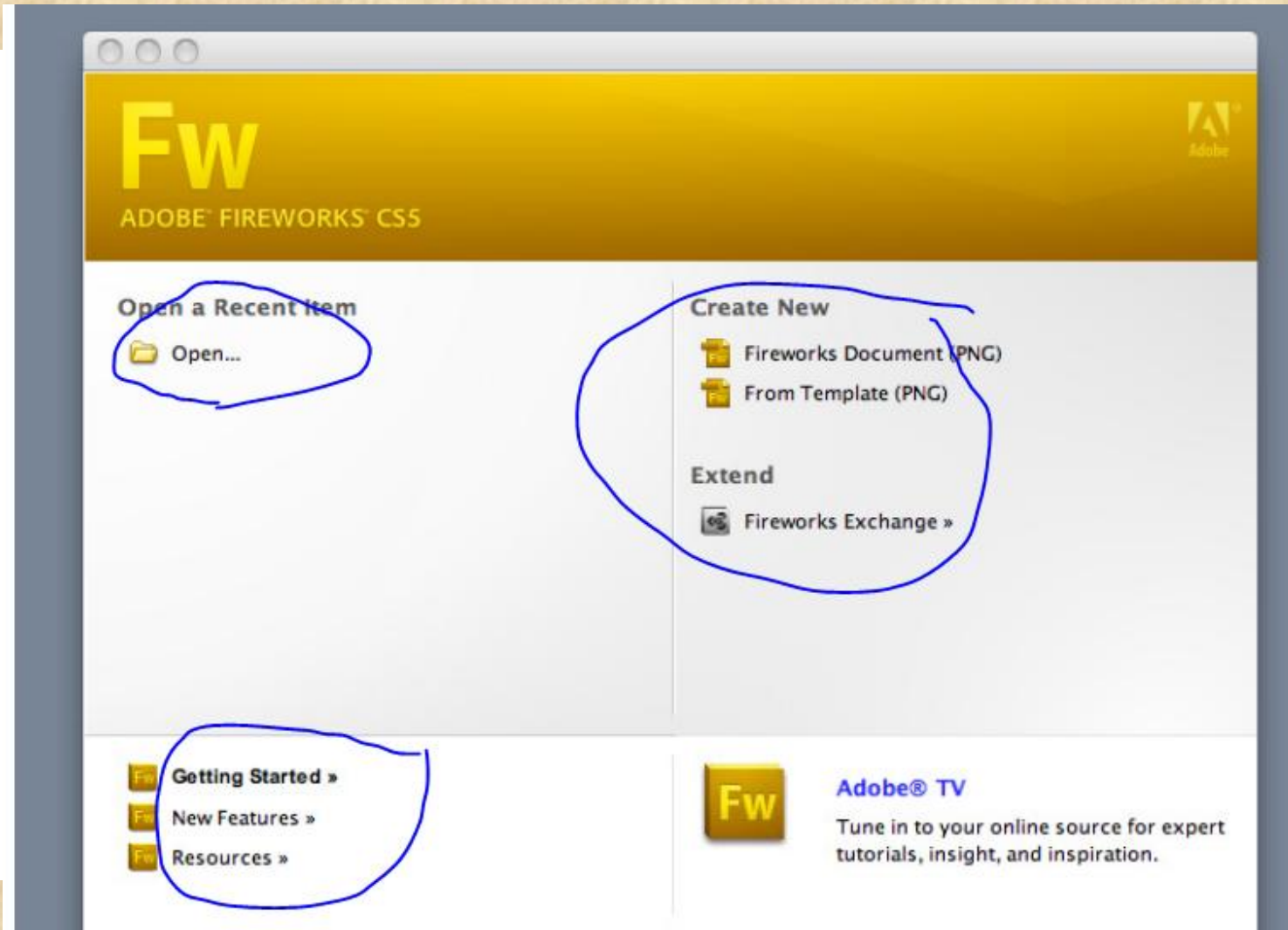
Navigational Models

- **1.10-Bookmarks/Deep Link:**
  - Examples: Bookmarks, saved links, and Deep-linked
  - Save Bookmarks by its URL address.
  - helps for a user to quick navigate to a point of his choice, anytime he wants, anywhere in the application
  - These give him a way to avoid traversing many links to get to a desired page or state.
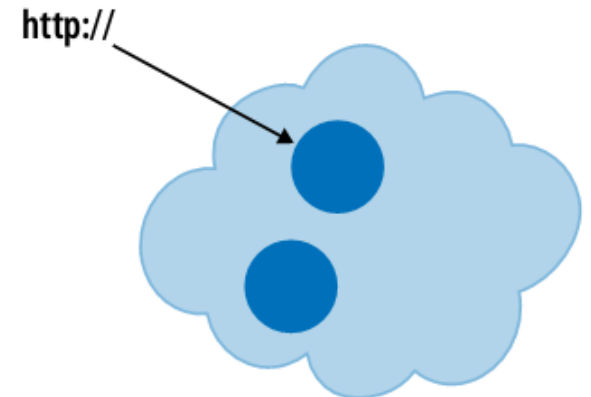
Bookmark Model

Description	Capture the **state** of a site or app in a **URL** that can be **saved** or **sent** to other people (shared).
When to Use?	**1- The site or app's content is something large and interactive, such as a map, book, video, or information graphic.** **2- A specific desired point or state might be hard to find,** **3- or it may take many steps to get there from a typical starting point.**
Why to Use?	**jump directly to a desired** point and application state, thus **saving time and work**

Bookmark Example – Google Books

Navigational Models

- **1.11- Escape hatch مخرج طوارئ**
  - When a user is hopelessly lost in an app, reaches an error state, or gets deep-linked into a page that he has no context for understanding,
  - he needs an escape/restore/restart point
  - Escape Hatch: a well-labeled link to get back to a known place.

1.12- Menu Page

education

Spanning five schools — architecture and planning; engineering; humanities, arts, and social sciences; management; and science — and more than 30 departments and programs, an education at MIT covers more than just science and technology.

Arts, business, foreign languages, health and more complete an education at MIT, and the Institute makes freely available its class lecture notes, exams and videos through MIT's OpenCourseWare

schools

School of Architecture and Planning

School of Engineering

School of Humanities, Arts, and Social Sciences

Sloan School of Management

School of Science

Whitaker College of Health Sciences and Technology

departments and programs

16	Aeronautics and Astronautics
21A	Anthropology
4	Architecture
20	Biological Engineering
7	Biology
9	Brain and Cognitive Sciences
15	Business
10	Chemical Engineering
5	Chemistry
1	Civil and Environmental Engineering
CMS	Comparative Media Studies
CSB	Computational and Systems Biology
CDO	Computation for Design and Optimization
12	Earth, Atmospheric and Planetary Sciences
14	Economics
6	Electrical Engineering and Computer Science
ESD	Engineering Systems Division
21F	Foreign Languages and Literatures
HST	Health Sciences and Technology
21H	History
24	Linguistics and Philosophy
21L	Literature
15	Management
3	Materials Science and Engineering
18	Mathematics
2	Mechanical Engineering
MAS	Media Arts and Sciences (Media Lab)
21M	Music and Theater Arts
22	Nuclear Science and Engineering
8	Physics
17	Political Science
STS	Science, Technology, and Society
11	Urban Studies and Planning
21W	Writing and Humanistic Studies

reference/resources

Academic calendar
Career development
Commencement
Course catalogue
Independent Activites Period (IAP)
Libraries
MIT International Science and Technology Initiatives (MISTI)
OpenCourseWare (OCW)
Resources for first-year students
Registrar's office
Stellar Course Management System
Subject listing and schedule
Student Information System (WebSIS)
Undergraduate Research Opportunities (UROP)
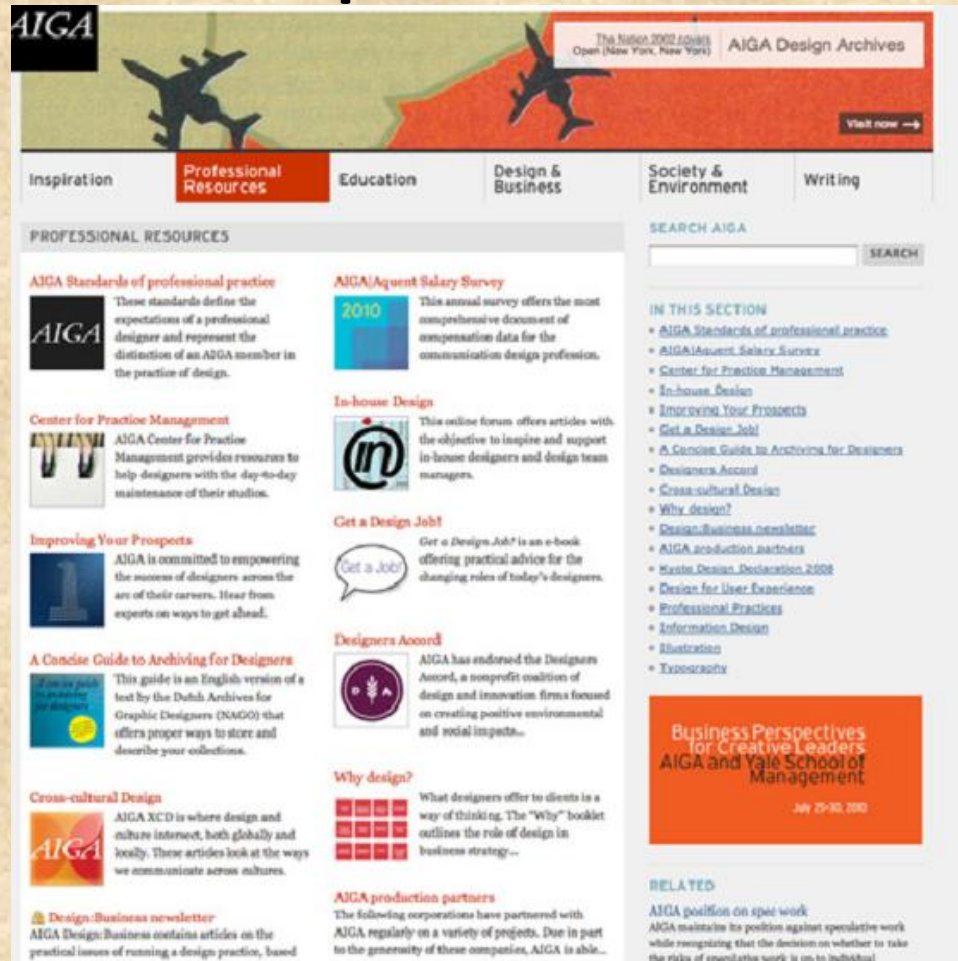Undergraduate Practice Opportunities (UPOP)

more information for

Prospective students
Current students
Undergraduates
Graduate students
International students
Postdoctoral scholars
Faculty
Parents
Professionals
High school students
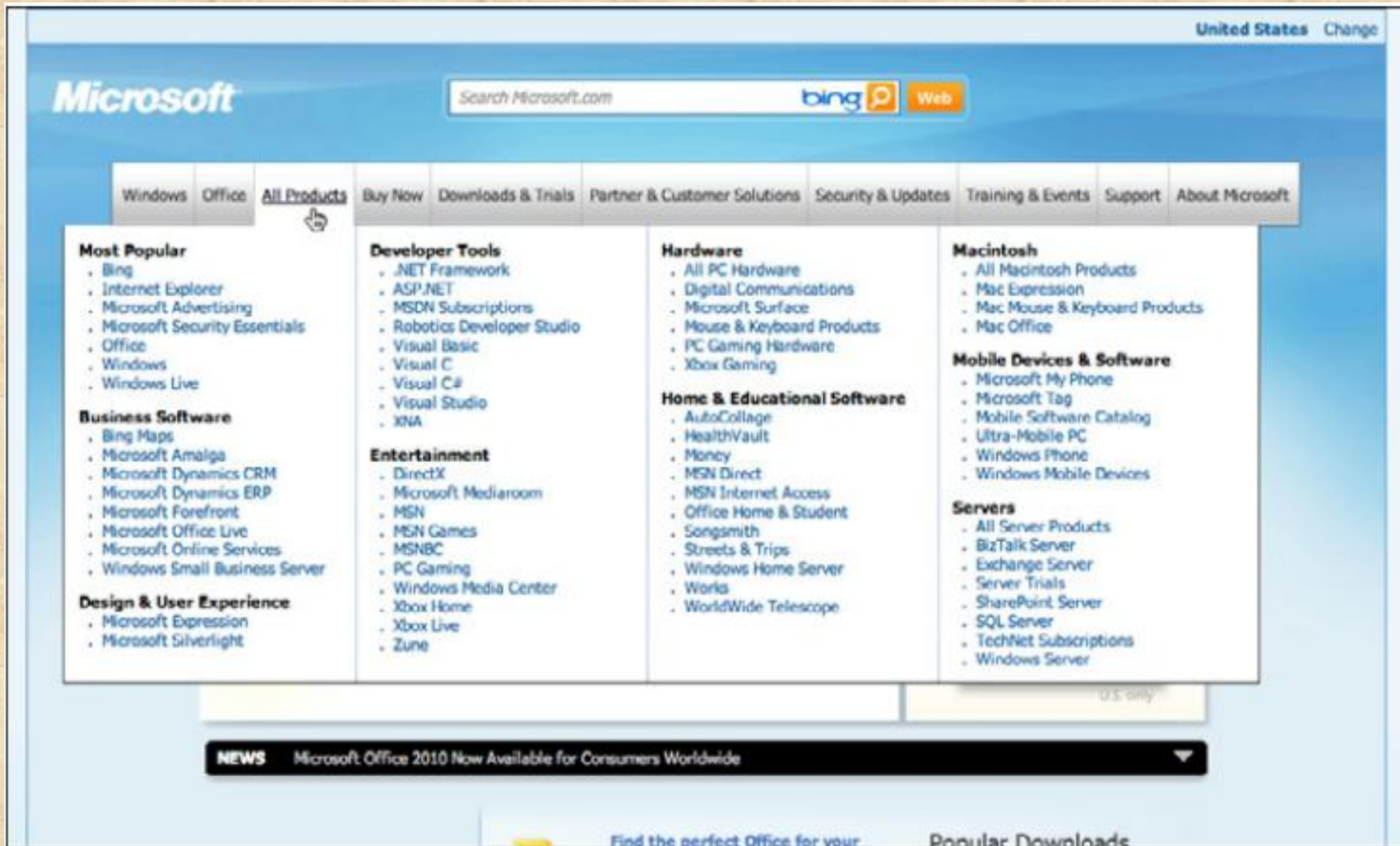K-12 students and teachers

Menu Page

Description	1- Fill the page with a **list of links** to other pages in your site or app. 2- Show enough information about each link to enable the user to choose well.
When to Use?	1-designing a **home page, starting screen** (Table of Content) فهرس 2-enable users to pick a link with **no distractions** 3- **Mobile apps** and sites especially need Menu Pagesto make the best use of their small screens 4- **in full screen**, you can **put Advertisements/Helping** messages to explain the **site value** to users 5-Visitors features خواص زوار الموقع: • Visitors **know** what the site or app is about. • They know **what they came** for and how to find it. • They **wouldn't be interested** in news, updates, or features
Why to Use?	**no distractions** for **expert** users

More examples on Menu Pages

1.13-Fat Menus

Fat Menu

Description	1- Display a **long list** of navigation options in drop-down or fly-out menus. 2-Organize them with care, using **well-chosen categories** or a natural sorting order, and spread them out horizontally.
When to Use?	1- The site or app **has many pages in many categories**, possibly in a **hierarchy** with three or more levels. 2- Your users are comfortable with **drop-down** menus (click to see them) or **fly-outs (roll over** them with the pointer).
Why to Use?	1- make a complex site more discoverable. 2- They expose many more navigation options to visitors than they might otherwise find.

Example 2

1.14 **Breadcrumbs**

On each page in a deep navigational hierarchy, show a list of all the parent pages, up to the main or home page.

MotheringDotCommunity Forums > Parenting > Ages and Stages > The Childhood Years
Birthday Party Food Ideas--Four Year Olds

Target : Kitchen : Kitchen Appliances : Stand Mixers : KitchenAid Artisan 5-qt. Stand Mixer - Cobalt Blue (KSM150)

‹‹ Previous Page

Similar Categories

KitchenAid Appliances
Mixers
Appliances
Cooking Appliances

**KitchenAid Ar
Stand Mixer -
(KSM150)**

★★★★★ (61 reviews)

When to use this pattern?

- application or site has a hierarchical structure with two or more levels.

- Global navigation alone isn't sufficient to show a "You are here" signpost, because the hierarchy is too deep or large.

- OR, The Application have categorized items (products) in a hierarchy hard for some users to guess.

1.15 Annotated Scrollbar

- Make the scrollbar do 2 things:
  - Scrolling.
  - as a map of the content, or as a "You are here" indicator.
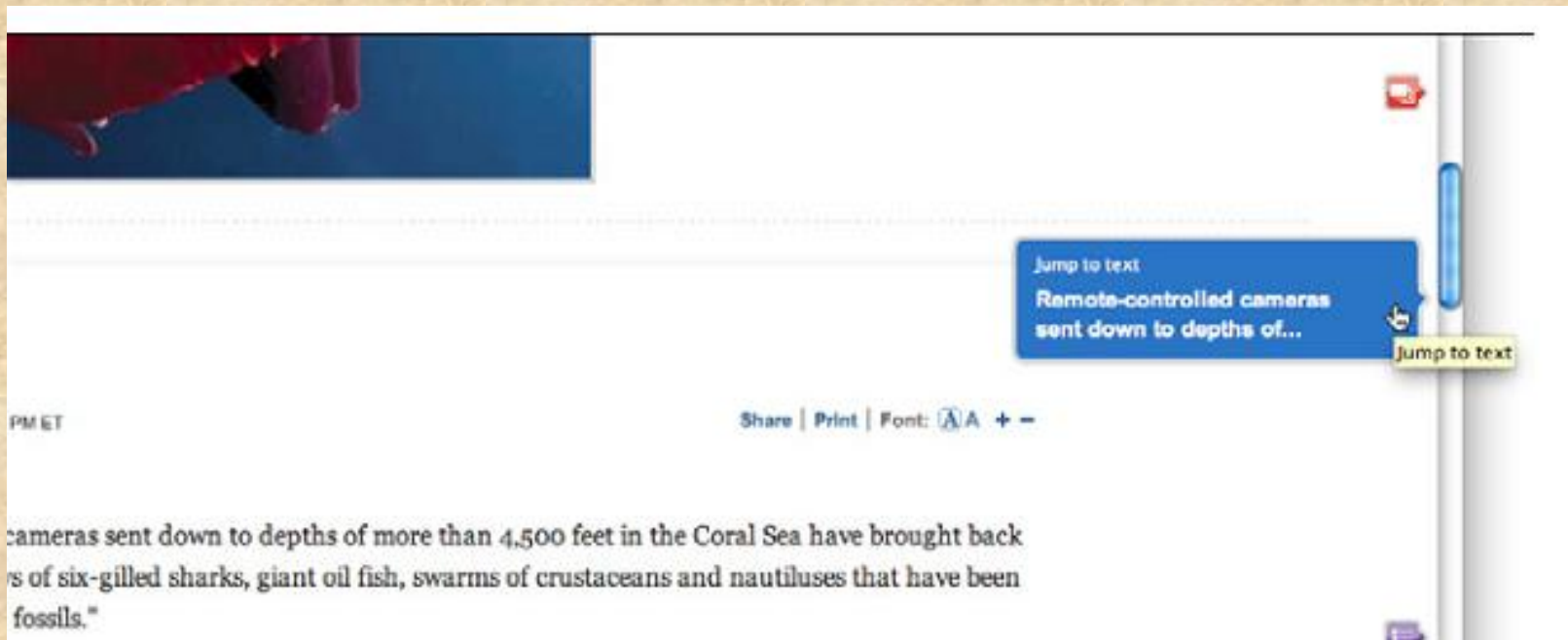
When to use this Pattern?

- a document-centric application or a pan-and-zoom interface (such as a map or large visualization).

- Users will scan this document or graphic for marked item, such as specific page numbers or landmarks.

- They might have trouble keeping track of where they are and where to go next as they scroll.

Type 2:
Models for Layout of Page Elements

Page layout is the **art** of **manipulating** the user's **attention** on a page to convey meaning, sequence, and points of interaction.

Page Layout

- Contains 3 Items:

  1. **<u>visual hierarchy:</u>**
     ترتيب العناصر لابراز العناصر المهمة أكثر من العناصر غير المهمة
     the most important content should stand out the most, and the least important should stand out the least

     -also, shows The relationships among themالارتباط بين العناصر

  2. **<u>visual flow:</u>**
     how to drag eye's attention to most important items in a
     track (order) توجيه العين لأهم الأشياء بترتيب معين

  3. **<u>dynamic displays:</u>**
     Changes/Animations on content during **time** (which can be based on user interactions or content dependencies).

How to make things look important

1. For short but large text(such as headlines and short phrases):
   - use font size, contrasting color, and visual weight
2. Blocks of smaller items(such as body text, links, or interactive tools)can be emphasized/ deemphasized with:
   - **Density**: A dense, heavy-looking block has stronger contrast with the surrounding page; an open look has less contrast.
   - **Background color**: Contrast draws attention. Black on white, or vice versa, is the strongest contrast possible.
   - **Position and size**: A medium or large text block, roughly in the center of the page, calls attention to it-self as the primary content (like an article or blog post). But a small strip of text at the bottom of the page says quietly, "I'm just a footer" and begs to be ignored!
   - **Rhythm**: Lists, grids, alternating elements such as headlines and summaries, and whitespace separation can create a strong visual rhythm that irresistibly draws the eye.

Examples
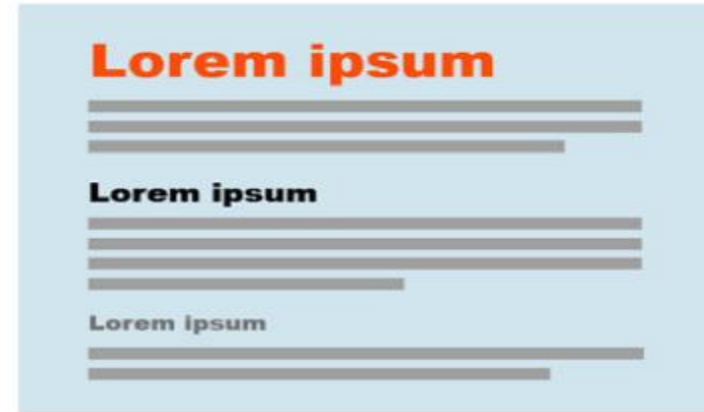
Figure 4-1. *Large text in a hierarchy*
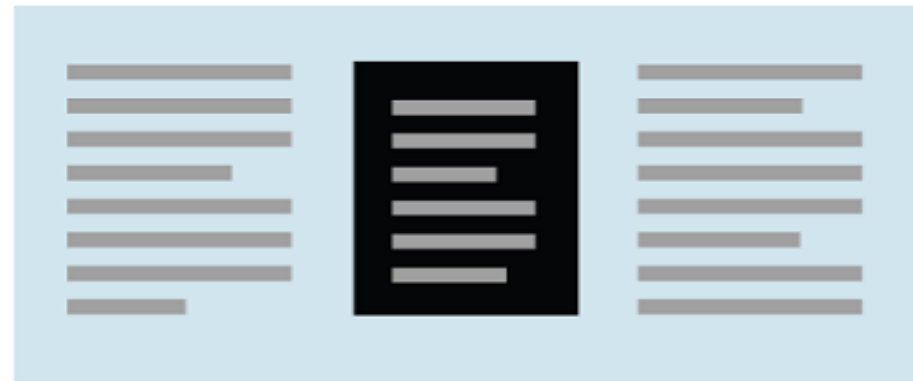
Figure 4-2. *Ways to emphasize blocks of text or small items (clockwise from upper left): density, background color, rhythm, and position and size*

How to show relationships among page elements

1. **Grouped items** look **related**.
2. **isolation** implies **distinction**
3. **Similar** items look like **peers:**

    If you have a few things "of a type" and you want viewers to see them as equally interesting alternatives, give them an identical (and distinctive) graphic treatment

4. **Special Item** that other item: Give it a slightly different treatment, such as <u>a contrasting background color</u>, but otherwise keep it consistent with the others

Examples

Figure 4-4. *Grouping related items*
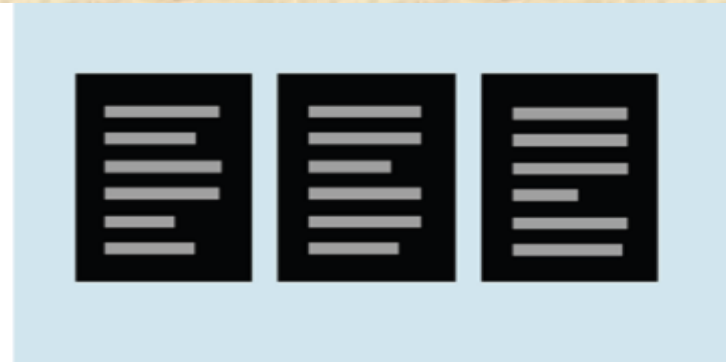
Figure 4-5. *Peer items*
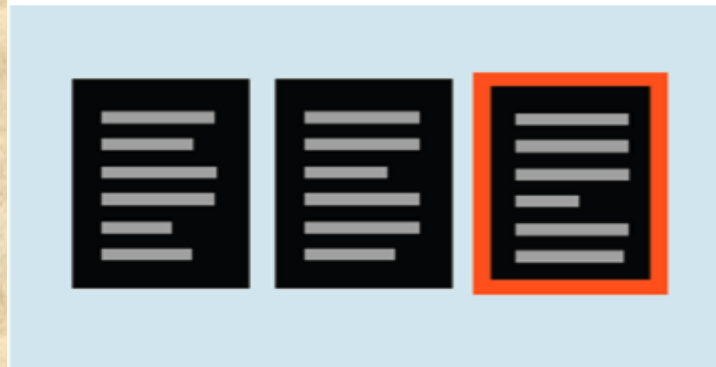
Figure 4-6. *Distinguishing one item among peers*

Figure 4-7. *Lists of items*

Figure 4-8. *Captions and comments*

Figure 4-9. *Containment*

Page Elements Patterns

- **2.1 Visual Framework:**

Design each page to use **the same basic layout**, **colors**, and **stylistic elements**, but give the design enough flexibility to handle **varying page content**.

When to use this Pattern?

- You're building a website with multiple pages, or a UI with multiple window

- You want it to have Similar Consistent look

- you want it to be easy to use and navigate.

2.2 Center Stage

- Put the **most important part** of the UI into the **largest subsection** of the page or window;
- cluster secondary tools and content around it in _smaller panels_.
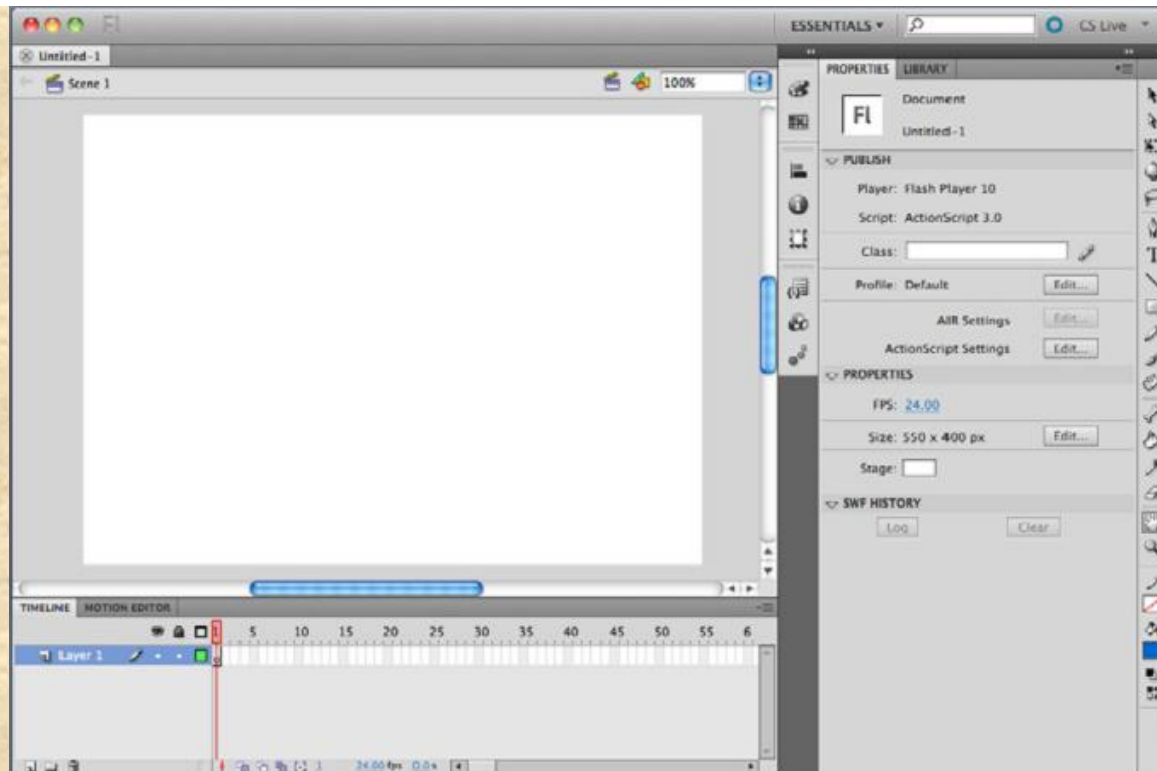
Example
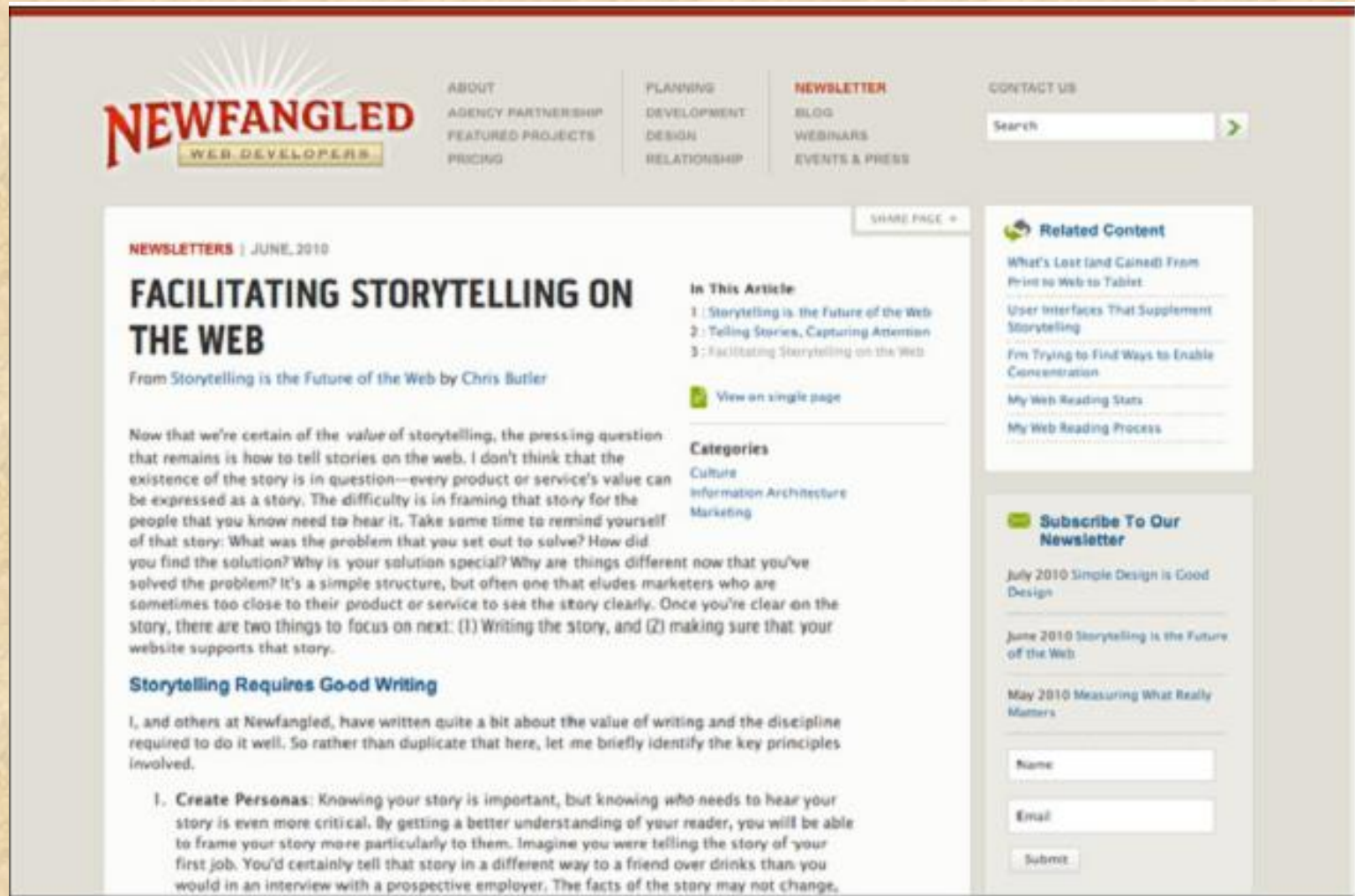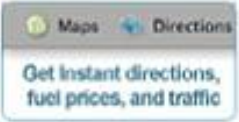
When to use this pattern?

- show a **single unit** of coherent information to the user:
  - let him edit a **document**,
  - or enable him to perform a **certain task**.
- **Other content** and functions are **secondary** to this one.

2.3 Grid of Equals

- Arrange content items in a **grid** or matrix. Each item should follow a **common template**, and each item's **visual weight /size** should be similar. Link to jump pages as necessary

Example - CNN

When to Use?

- The page contains many content items that have similar style and importance:
  - news articles,
  - blog posts,
  - products,
  - or subject areas.
- You want to present the viewer with rich opportunities to preview and select these items.

2.4 **Titled Sections** مناطق مستطيلة

- Define separate sections of content by giving each one a visually **strong title**,
- separating the sections visually,
- and arranging them on the page.

Example – Amazon Account page

YourAccount

Orders
See & Modify Recent Orders

View, Modify, Track or Cancel an Order

[Your orders ▶]

Search Orders

[Title, Department, Recipient...] [Go]

Order History
View Open Orders
View Your Digital Orders
View Used Item Pre-orders
View Your PayPhrase Orders

More Order Actions
Return Items or Gifts
Manage Subscribe & Save Items
Manage Magazine Subscriptions
Leave Seller Feedback
Leave Packaging Feedback
Manage Prime Membership
View Your E-mails with Sellers

Payment
Credit Cards & Gift Cards

Payment Methods
Manage Payment Options
Add a Credit Card
View Check Balance
Amazon Credit Cards
Manage PayPhrases

Gift Cards
View Gift Certificate/Card Balance
Apply a Gift Certificate/Card to Your Account
Manage Scheduled E-Mail Gift Cards
Manage Bulk Gift Card Orders
Purchase a Gift Card

Settings
Password, Prime & E-mail

Account Settings
Change Name, E-mail Address, or Password
Forgot Your Password?
1-Click Settings
Manage Prime Membership
Manage Amazon Student Membership

Address Book
Manage Address Book
Add New Address

E-mail from Amazon
E-mail Preferences & Notifications
Amazon Delivers E-mail Subscriptions
Product Availability Alerts
Special Occasion Reminders

E-mail Address
jtidwell@jtidwell.net

Password

[Sign In]
Forgot Your Password?

Your Other Accounts

Your Seller Account
Your Trade-In Account
Corporate Account
Web Services Account
Amazon Payments Account

[Sell Your Stuff ▶]

When to Use?

- You have a lot of content to show, but you want to make the page easy to scan and understand, with everything visible.

- You can group the content into task-based sections that make sense to the user.

2.5 **Accordion**

- Put modules of content into a **collinear stack** of panels that can be **closed** and **opened** independently of each other.

Example – CNN side bar

When to Use?

- You have a lot of heterogeneous content عناصر غير متماثلةto show on the page,
  - possibly including text blocks, lists, buttons, form controls, or images.
- You don't have room/space for everything
- Some modules are much taller or shorter than others, but they're all of similar width.
- Tool palettes
- You may want to preserve the linear order of the modules.

2.6 **Collapsible Panels**

- Put secondary or optional material into panels that can be opened and closed by the user.
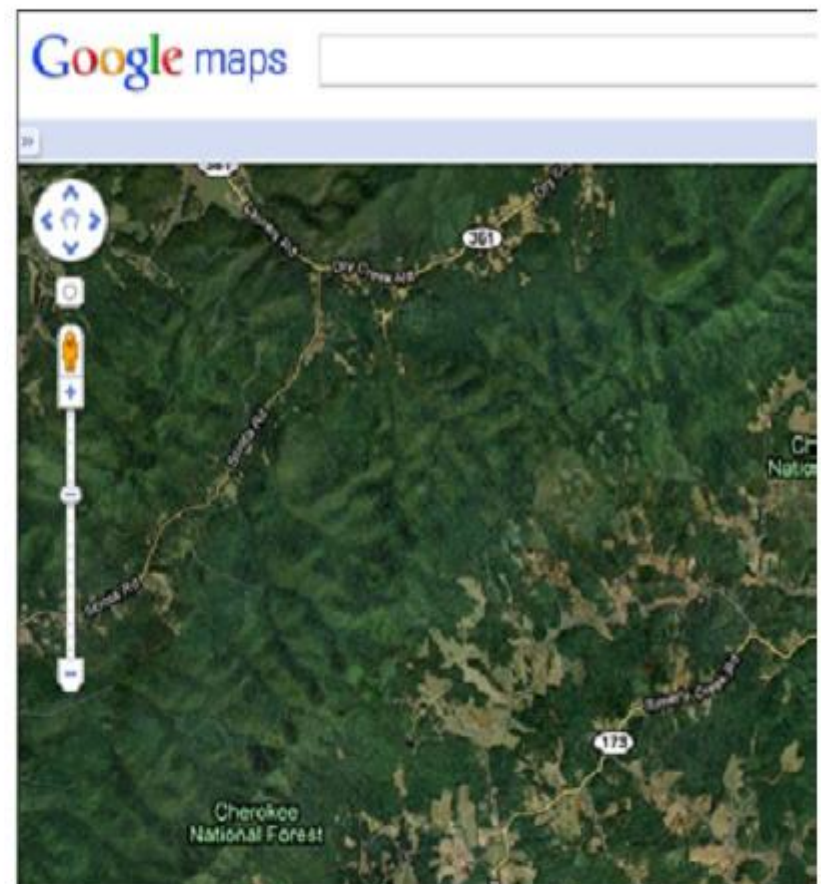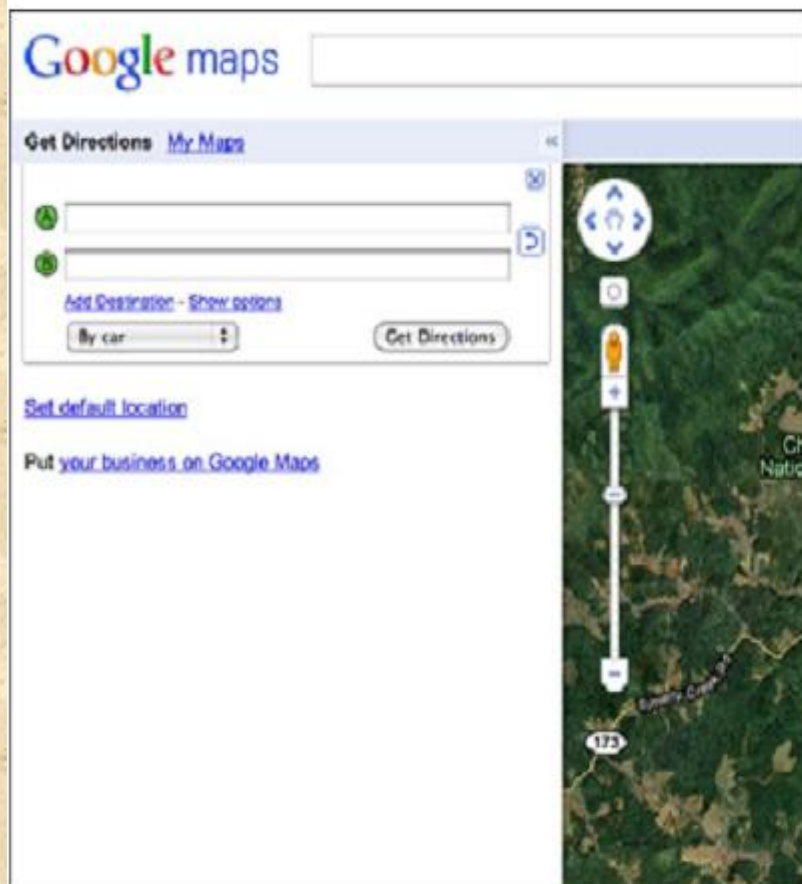
Example- Firefox bookmarks
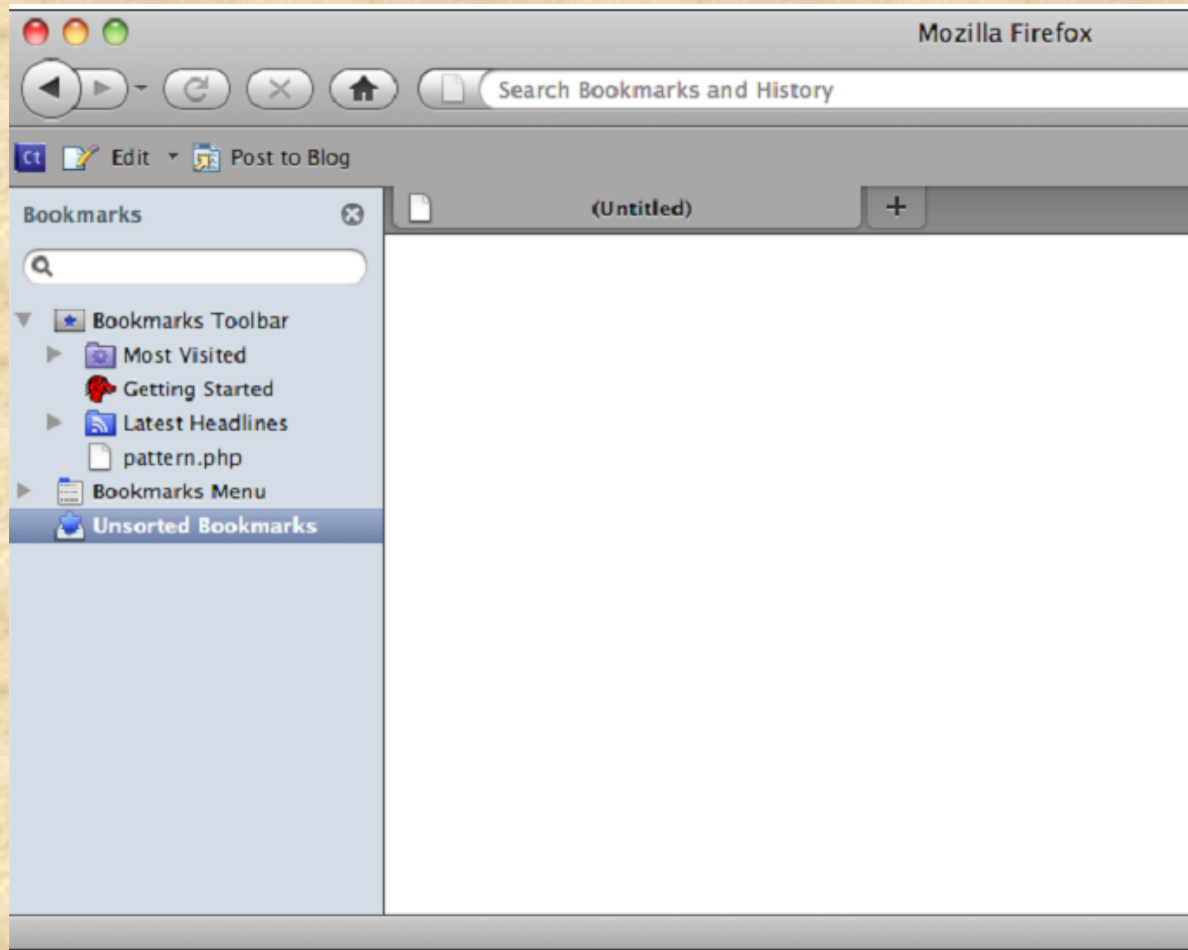
When to Use?

- heterogeneous content to show on the page,
  - possibly including text blocks, lists, buttons, form controls, or images.
- You don't have room for everything.

- But, You have Center Stage content that needs to take visual priority
- Some of the page content comes in groups

2.7 Right/Left Alignment

- When designing a **two-column form** or table, right-align the labels on the left and left-align the items on the right.
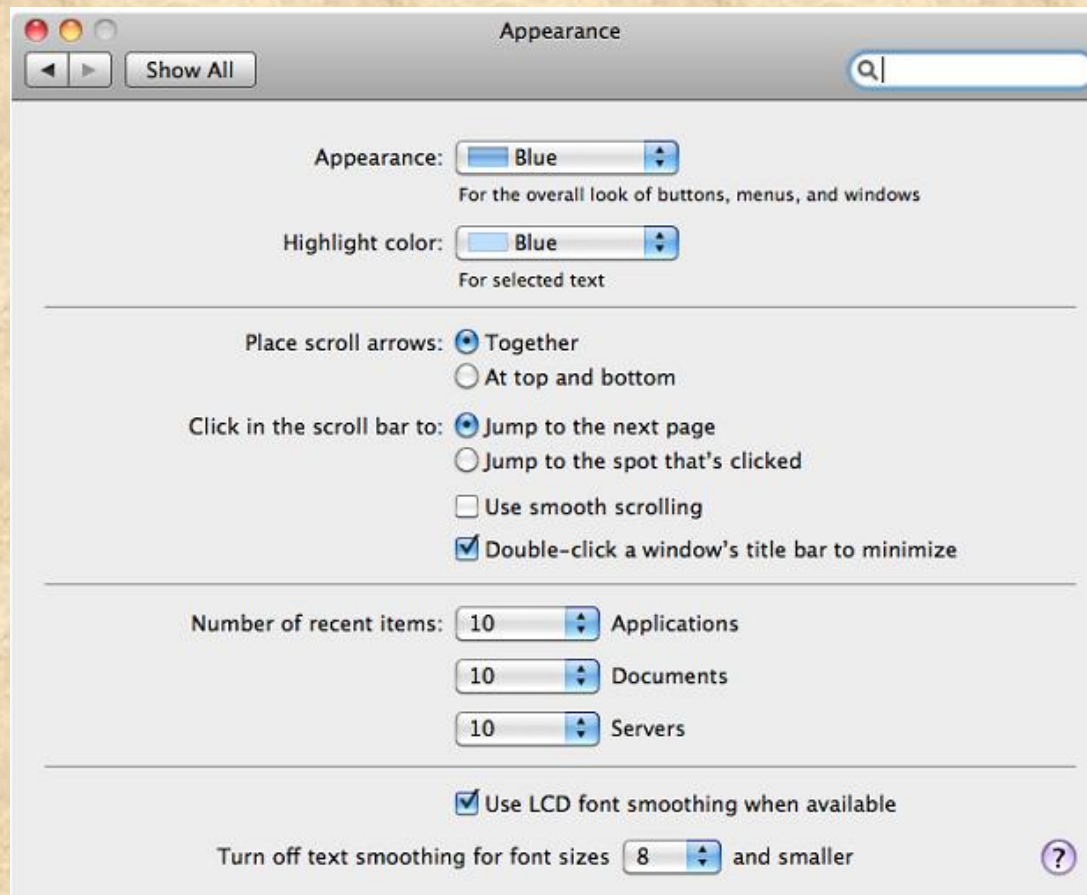
When to use?

- You're laying out a form or any other set of items that have text labels in front of them
- The labels come in many lengths
  - (some are short, some long, some line-wrapped.)
- And Left-aligning the labels would put some of them too far away from their associated fields,
- You don't want leaving a gap too large for users' eyes to span easily.

2.8 Diagonal Balance

- Arrange page elements in an asymmetric fashion,
- but balance it by **putting visual weight** into both the upper-left and lower-right **corners**.
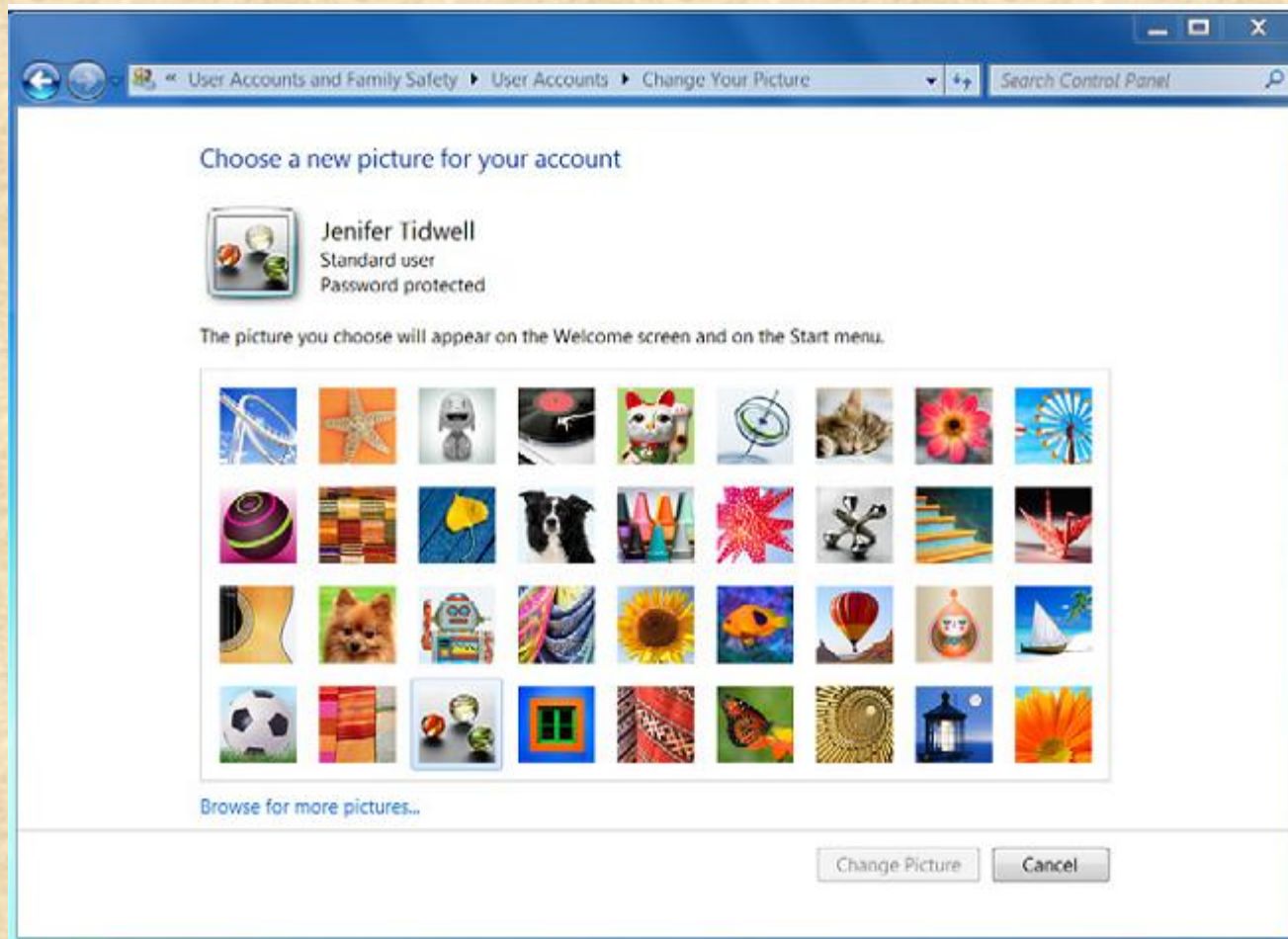
When to use?

- You have a title or header at the top,
- and some links or action buttons (such as OK/Cancel/ Submit/ Back/Next) at the bottom.
- The page is short enough to fit on the screen without scrolling.

2.9 Responsive Disclosure

- Starting with a very minimal UI, guide a user through a series of steps by showing more of the UI as he completes each step

When to use?

- The user should be walked through a complex task step by step,

- And You want to keep the whole interface on one single page.

- Or, branched tasks, with different types of information required depending on a user's earlier choices.

Type 3:
Lists of Things Patterns

3.1. Two-Panel Selector

- Put two side-by-side panels on the interface. In the first one, show a list of items that the user can select any item (categories); in the second one, show the content of the selected item.

Example- Email Client
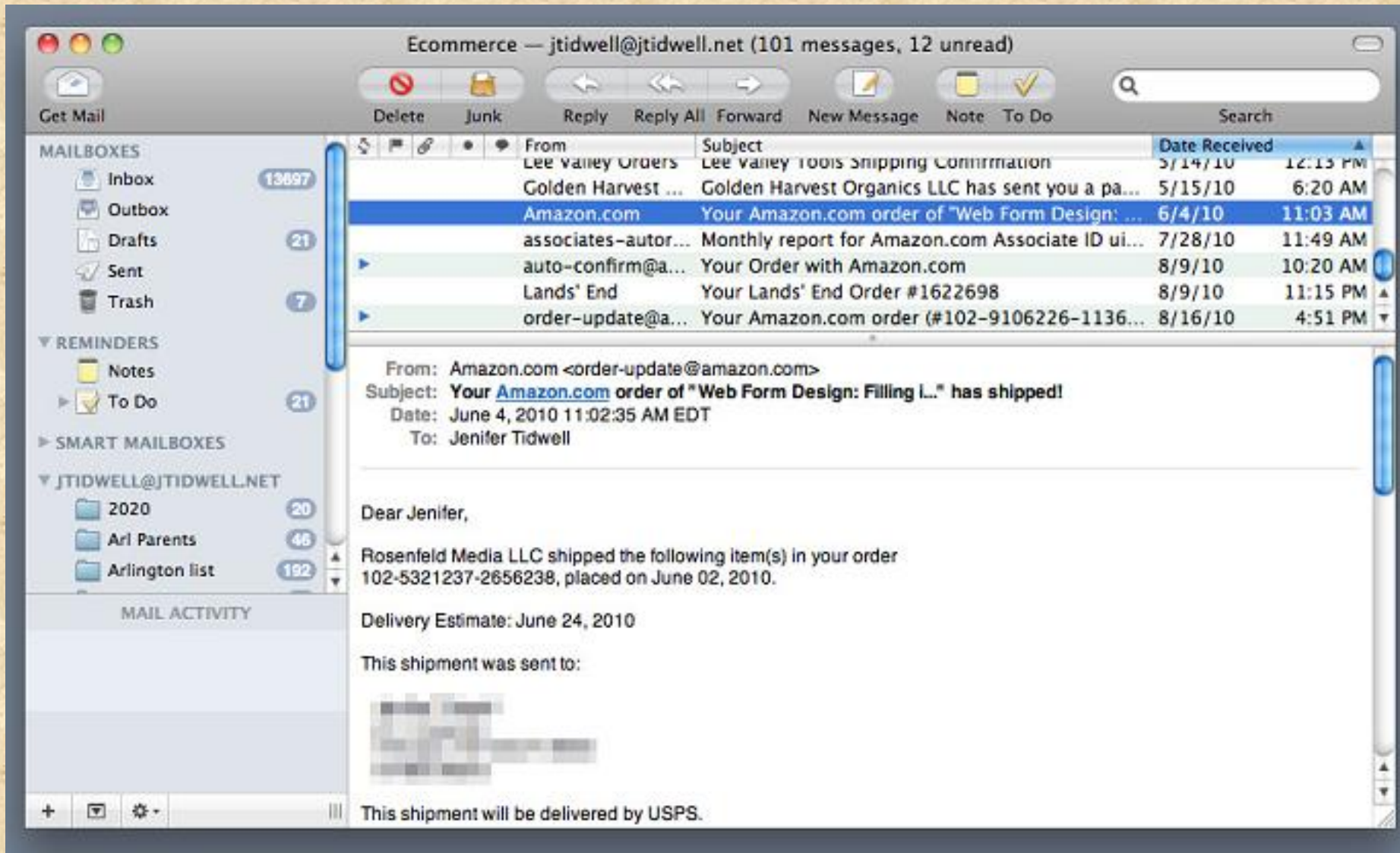
When to use this pattern?

- You want the user to see the overall structure of the list and keep that list in view all the time

- but you also want him to be able to browse through the items easily and quickly.

- People won't need to see the details or content of more than one item at a time.

Example 2- Picasa
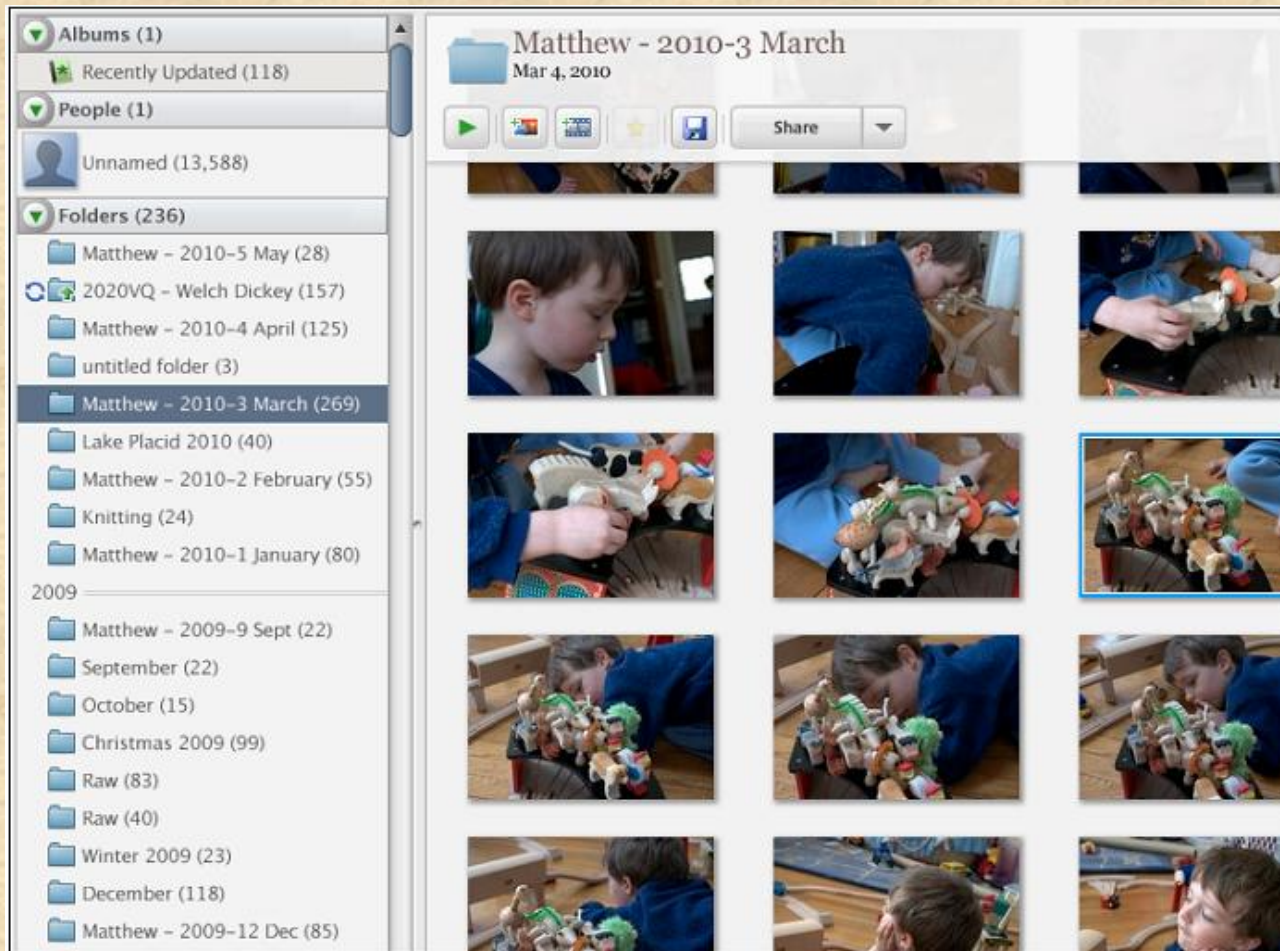
3.2. One-Window Drilldown

- Show a list or menu of items in a single window. When the user selects an item from the list, show the details or contents of that item in the window, replacing the list.
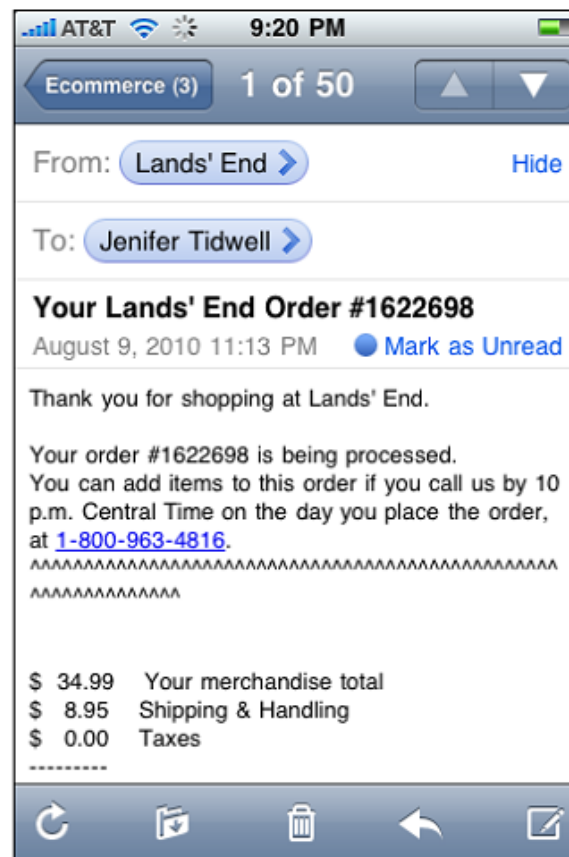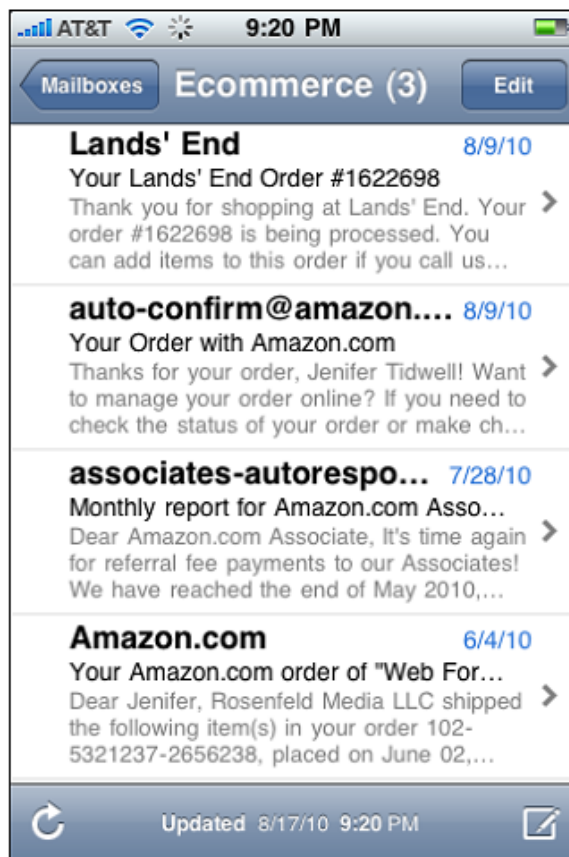
Example- picasa
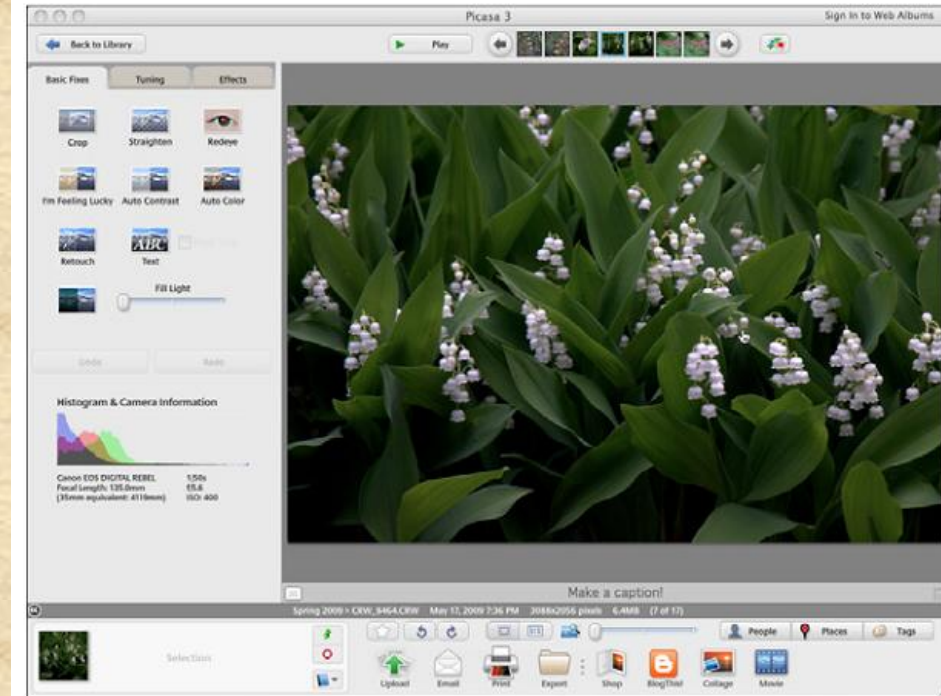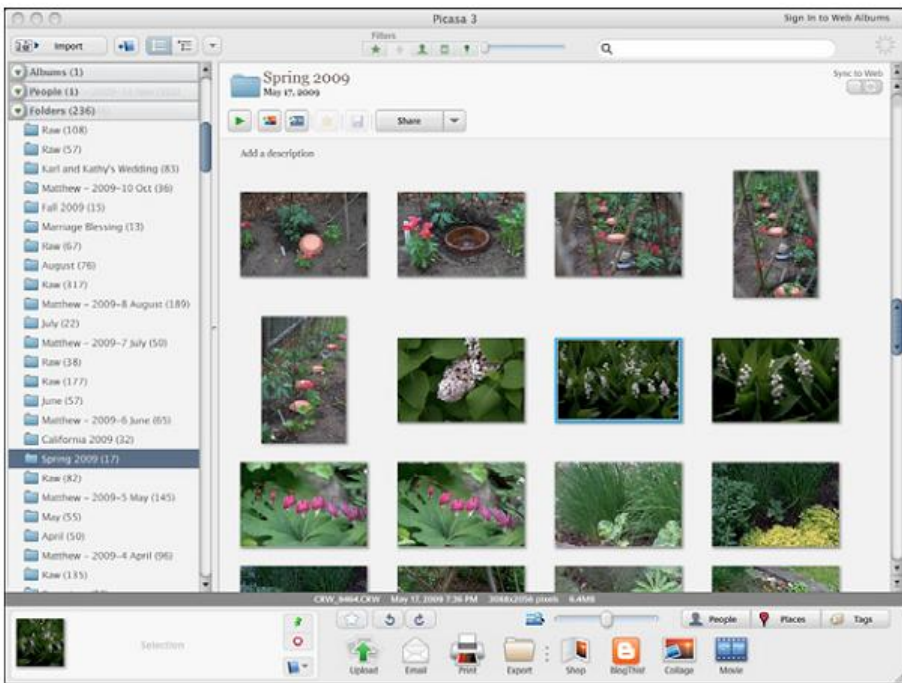
When to use?

- You have very little space to work with—not enough for a Two-Panel Selector or a List Inlay.

- Alternatively, the list items and contents might just be large.

- You might need the entire screen or window to show the list, and again to show the contents of an item.

3.3. List Inlay

- Show a list of items as rows in a column. When the user selects an item, open that item's details in place, within the list itself. Allow items to be opened and closed independently of each other.

Example-Google Reader

When to Use this Pattern?

- You have a list of items to show.

- Each item has interesting content associated with it (text of an email message, a long article, a full-size image, or details about a file's size or date)

- The item details doesn't need large amount of space, but they're not small that you can fit them all in the list itself

3.4 **Thumbnail Grid**

- Arrange a list of visually interesting items into a "small multiples" grid of thumbnail images صور مصغرة للمعاينة.
- Let the user select one or more thumbnails to view or manage those items.
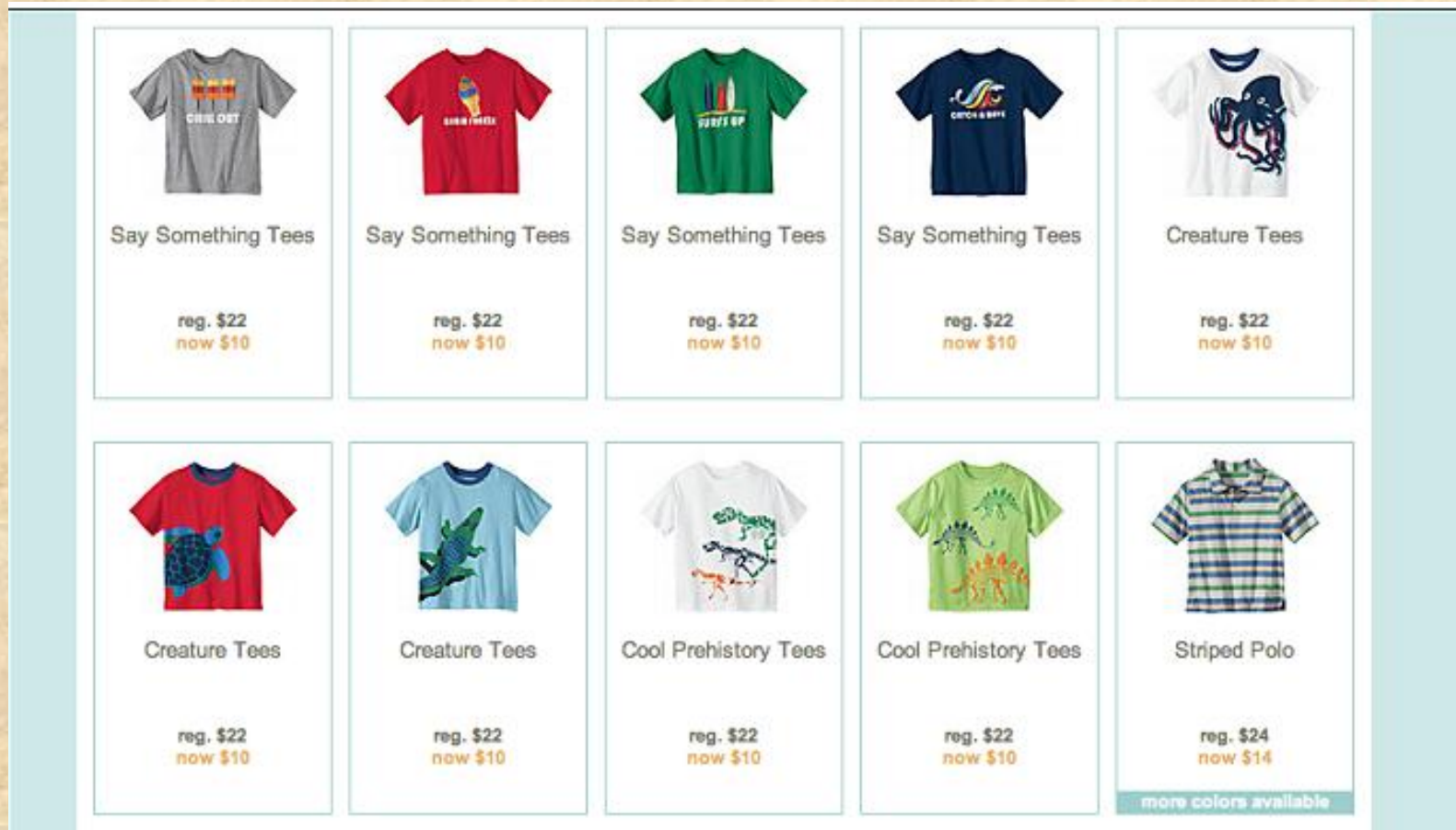
When to Use?

- A long List .

- The list items have small visual representations that uniquely identify them: (images, logos, screen captures, reduced photos, ...).

- These representations are similar in size and style.

Example

3.5 **Carousel**

- Arrange a list of visually interesting items into a horizontal strip شريطor arc قوس,

- and let the user scroll or swipe the image thumbnails back and forth to view them.

- Enlarge the center item, if possible.

When to Use?

- **Flat** Lists:
  (i.e., not divided into categories or containers).

- The list items have visual representations that uniquely identify them(images, logos, screen captures, reduced photos, and so forth)

- Items representations are similar in size and style.

- You want to show only a little amount of metadata (information about the item) (such as its name and date)

Example- Marriott website
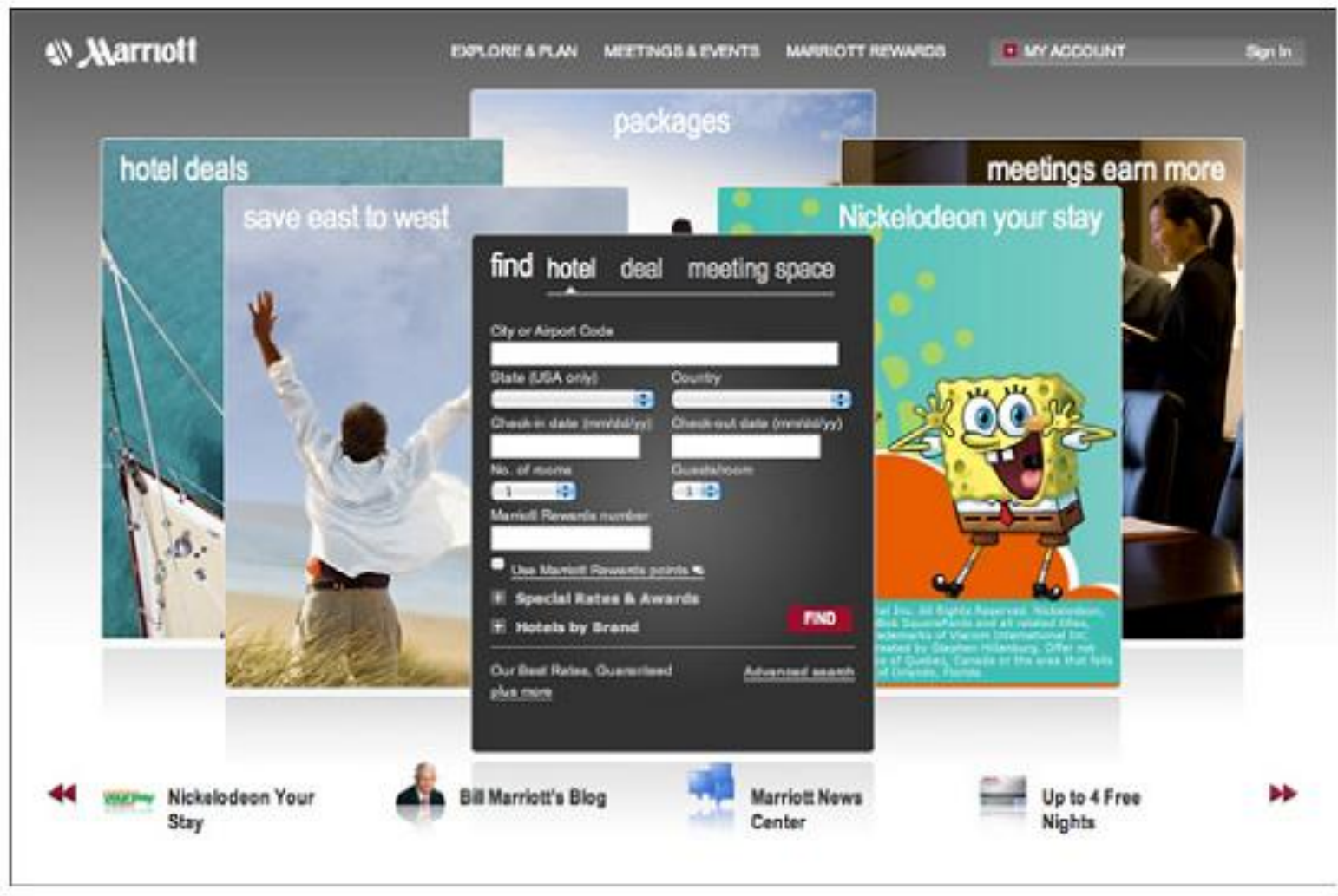
3.6 Row Striping

- Use two similar shades to alternately color the backgrounds of the table rows.
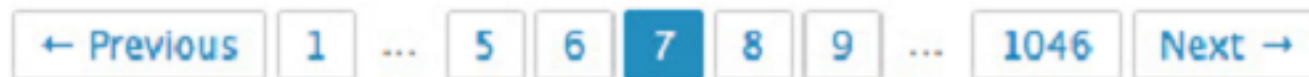
When to Use?

- Your interface presents data in a large multicolumn table,

- but the table's rows are difficult to separate visually.

- Users will need to look up specific data items in the table.

3.7 Pagination

- Break up a very long list into pages, and load them one at a time.
- Provide controls for the user to navigate the list—next, previous, first, and last pages.

← Previous | 1 | ... | 5 | 6 | 7 | 8 | 9 | ... | 1046 | Next →

When to Use?

- **Very long List**
- Users don't really want to see the entire list.
- The technology you're using doesn't support loading the entire list into a single page because of :
  - Loading the whole list would take too much time, and you don't want to make the user wait.
  - Rendering/drawing the list would take too much time.
  - The list is effectively "bottomless/endless" and implementing an Infinite List or a continuously
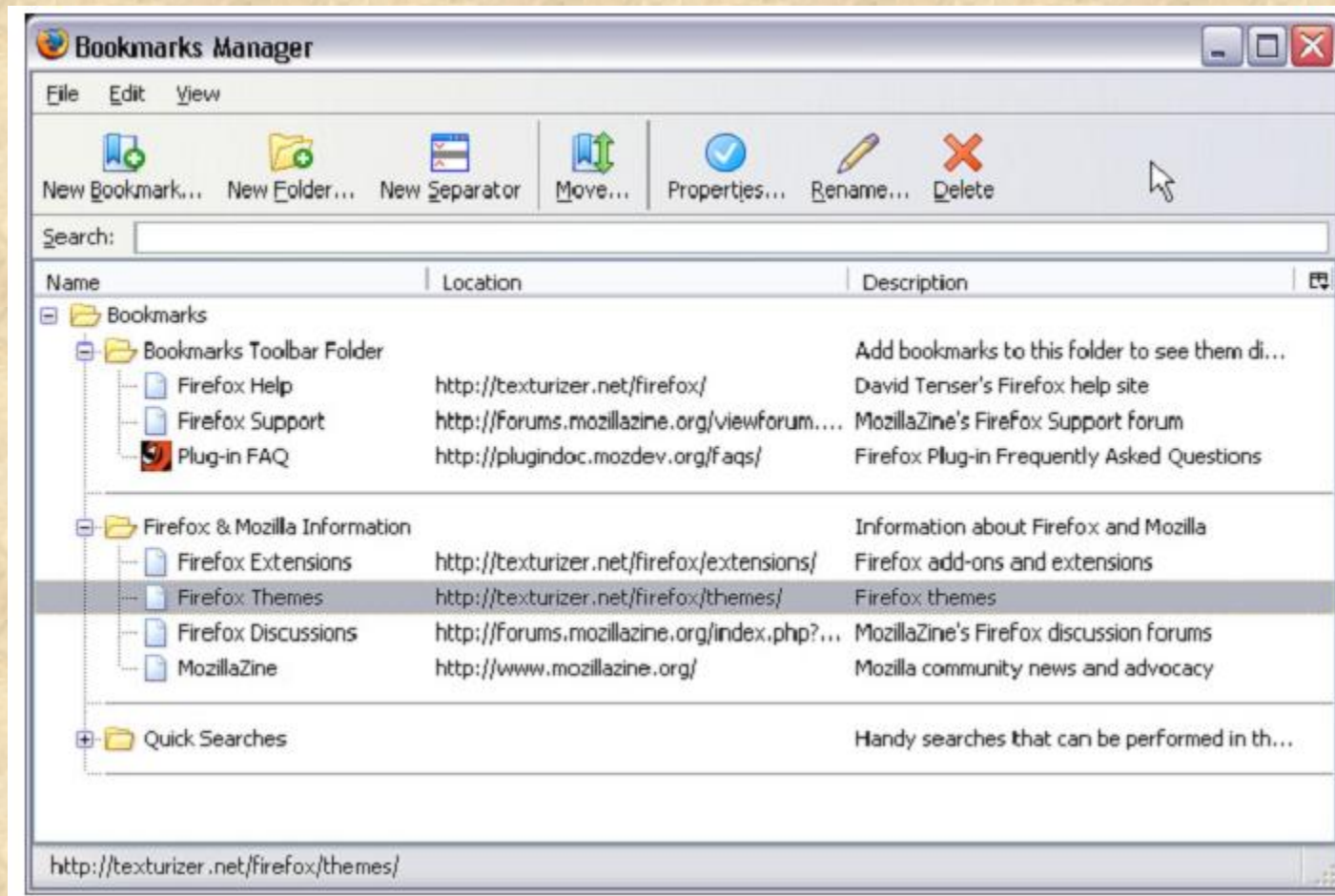
3.8 **Tree Table**

- Put item fields in table-like columns, but use an expandable outline structure in the first column to illustrate the tree structure.

When to Use?

- highly structured List items (many specific attributes that are of interest to users).

- You can show them in a multicolumn list or table.

- But the items are primarily organized as a hierarchy, so you also want a tree to display them most of the time

Example- Firebase Bookmark Manager

3.9 New-Item Row

- Use the last or first row in the list or table to create a new item in place.

When to Use?

- The interface contains a table, list, tree view, ...

- At some point, the user needs to add new items to it.

- But you don't have a lot of room on the UI for extra buttons or options

- Easy option for user

Type 4
Mobile UI patterns

- The Challenges of Mobile Design:
  - Small screen sizes
  - Variable screen widths
  - Touch screens
  - Difficulty of typing text
  - Challenging physical environments (surrounding light and noise)
  - Social influences and limited attention

4.1 Vertical Stack

- Order the mobile page's content in a vertical column, with little or no use of side-by-side elements.
- Let text elements line-wrap, and let the page scroll down past the bottom of most device screens.
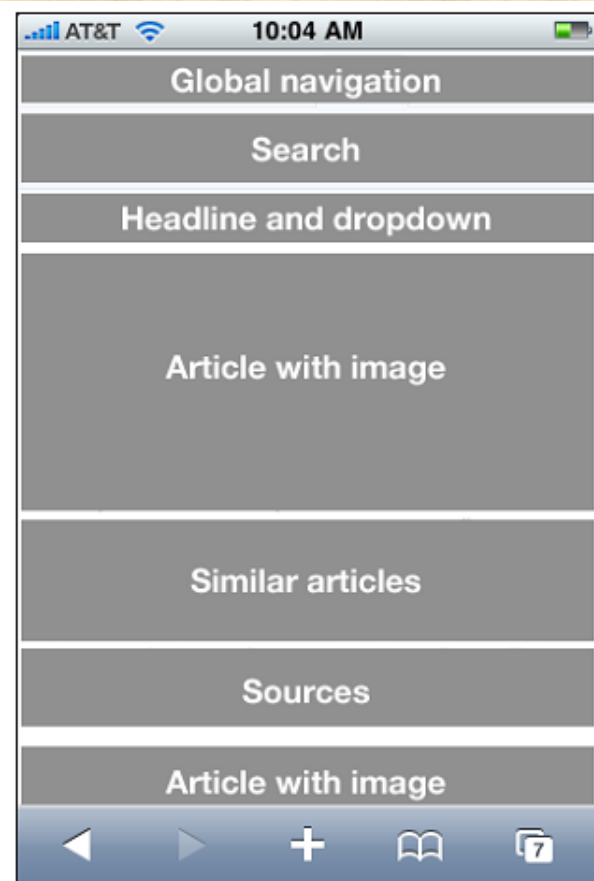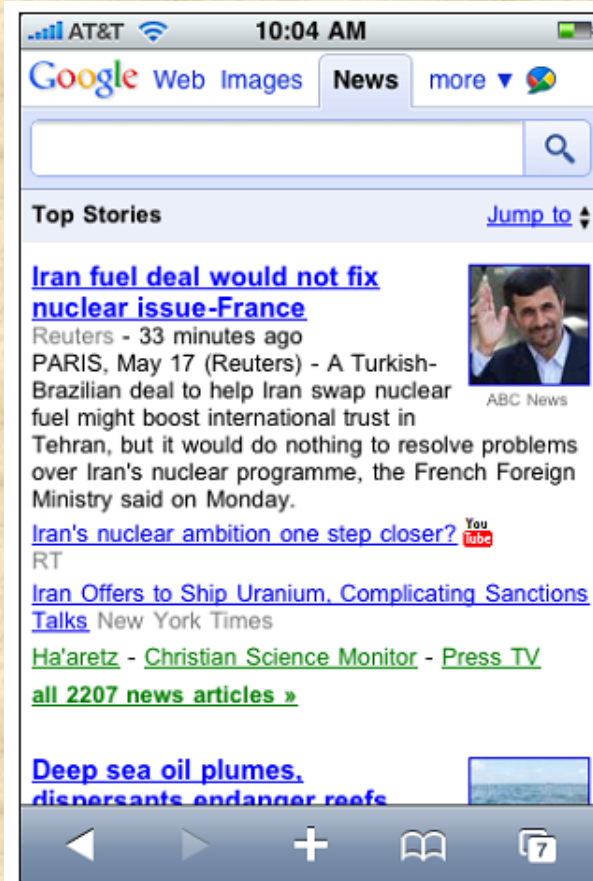
When to Use?

- Work on devices of different sizes should use this pat-tern,

- especially if they contain text-based content and forms.

4.2 Filmstrip

- Arrange top-level pages side by side, and let the user swipe them back and forth to view them one at a time.

When to Use?

- You have pages of content that are conceptually parallel
  - (such as the weather in different cities or the scores in different sports)
- Users is ready for swiping through these pages, going through several before reaching the one they're looking for, because they are all potentially interesting.

4.3 Touch Tools

- Show tools only in response to a touch or key press, and put them in a small, dynamic overlay at the top the content.
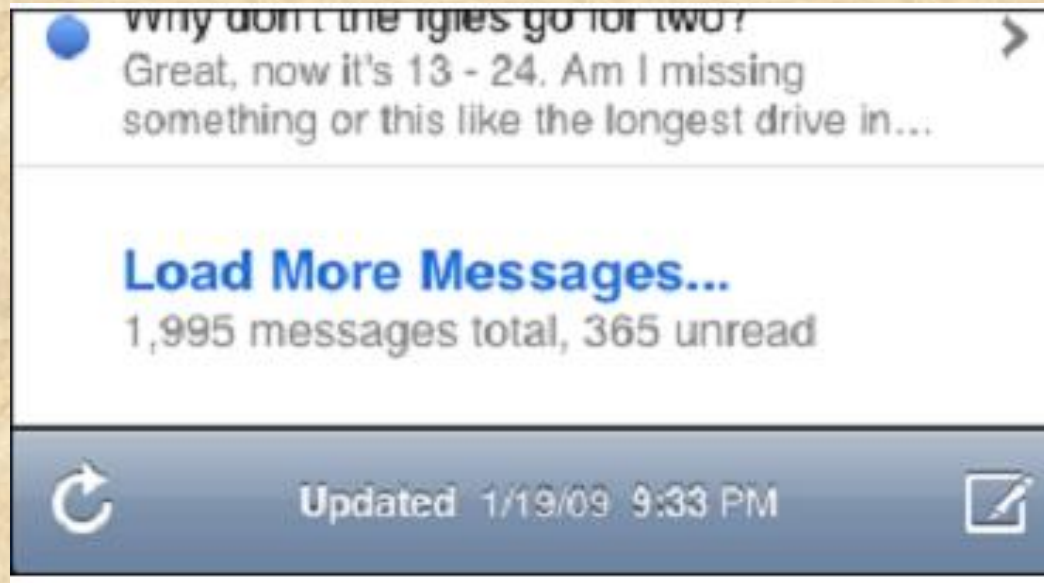
When to Use?

- You are designing a full-screen experience:
    - *(videos, photos, games, maps, or books).*

- To manage that experience, the user will sometimes need controls:
    - *(navigation tools, media player tools, information about the content, and so forth).*

- The tools require significant space, but are only needed sometimes.

4.4 Infinite List

- At the bottom of a long list, put a button that loads and appends more items to the list.

When to Use?

- You need to show long lists of :
    - email messages, search results, an archive of articles or blog posts, or anything else that is effectively "bottomless."
- Users are likely to find desired items near the top, but they sometimes need to search further.

More Patterns Resources

- http://welie.com/patterns/index.php
- http://designinginterfaces.com/patterns/
- http://ui-patterns.com/

Thanks