User Interfaces

Lecture 24

Usability and Visual Design

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Usability

“Usability really just means making sure that something works well: that a person of average (or even below average) ability and experience can use the thing - whether it’s a web site, remote control, or revolving door-for its intended purpose without getting hopelessly frustrated."

“Don’t make me think"

Steve Krug, usability expert

“A well-designed and humane interface does not need to be split into beginner and expert subsystems.”

Jef Raskin, designer of the first Macintosh

“It is far better to adapt the technology to the user than to force the user to adapt to the technology.”

Larry Marine

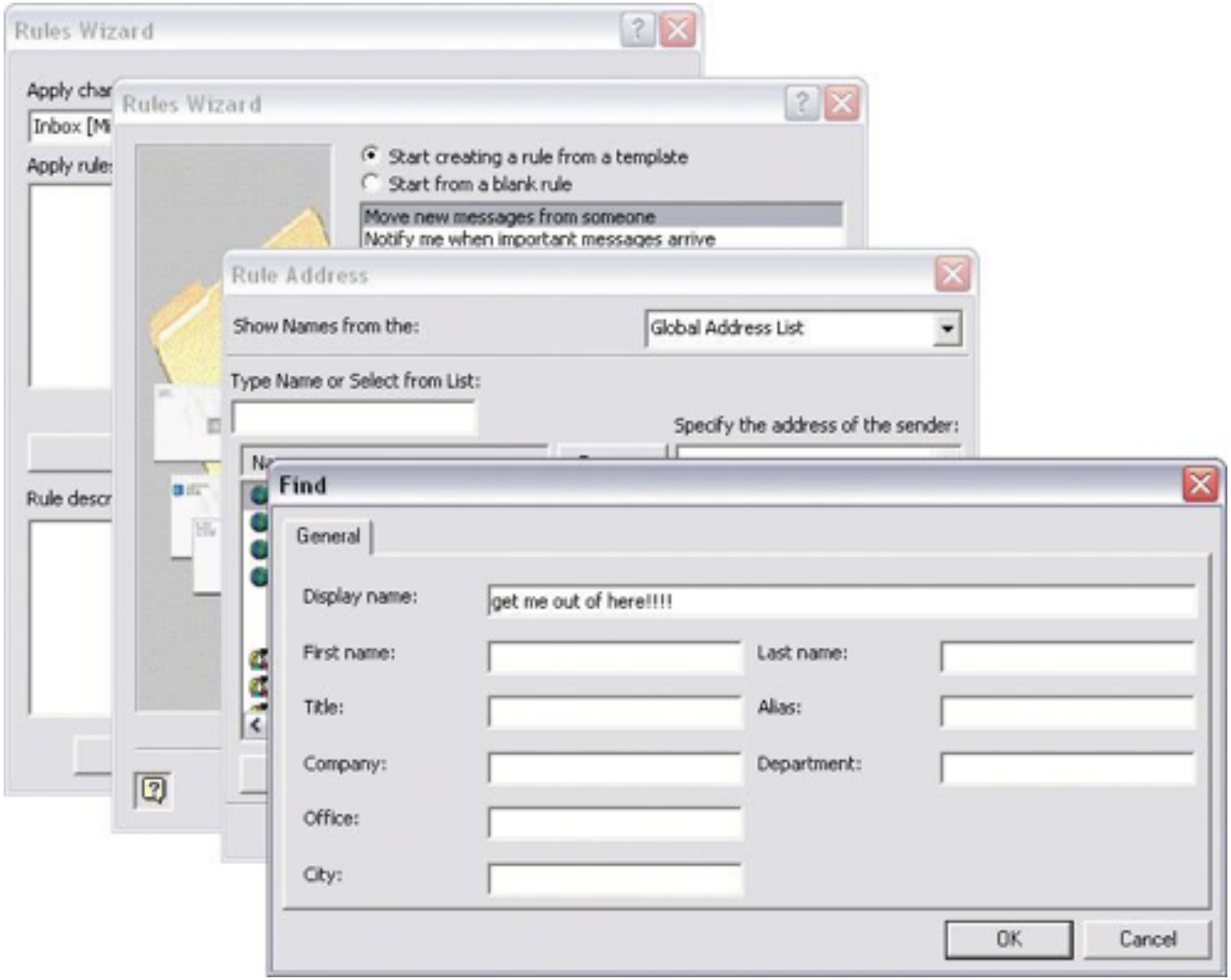
“No matter how good your backend systems are, the users will only remember your front end. Fail there and you will fail, period.”

Tristan Louis

Application Navigation

- Application navigation tells the user:
  - Where they are now (signposts: labels, other visual cues)
  - Where they can go next (environmental clues: buttons, controls)
  - How to get there from here (maps, help)
- Some general guidelines for navigation:
  - Keep navigation distance short: the 80% most used features should be at most one click away
  - Navigational controls often location sensitive: users expect back button in the upper left, the OK button on the lower right, etc.
  - Always provide back, escape or cancel navigation paths
- Applications are similar to web pages: user only sees one view at a time - many web design principles apply to apps.

Example of Long Navigation Distance

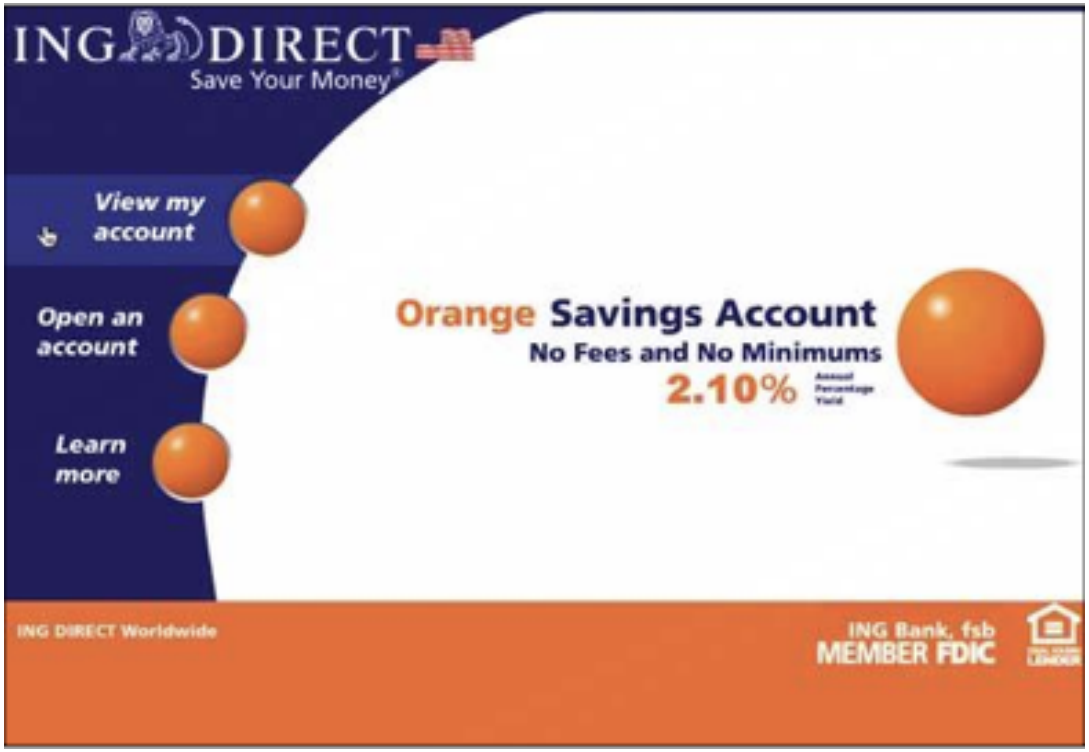


Navigation Patterns

- **Clear Entry Points** - few options on startup
- **Global Navigation** - repeated motif/toolbar on each window
- **Hub and Spoke** - organises discrete tasks from central hub
- **Pyramid** - use back/next/up to organise documents
- **Modal Panel** - dialog box that must be resolved now
- **Sequence Map** - “you are here” indicator in a sequence
- **Breadcrumbs** - for hierarchies, show parent pages
- **Annotated Scrollbar** - provide information in scrollbar
- **Colour-coded Sections** - use colour to identify locations
- **Animated Transition** - show next location by animation
- **Escape Hatch** - cancel current action

Navigation Patterns
Clear Entry Points

In applications designed for first-time, infrequent users, present only a few entry points



Name a search engine famous for its clear entry point?

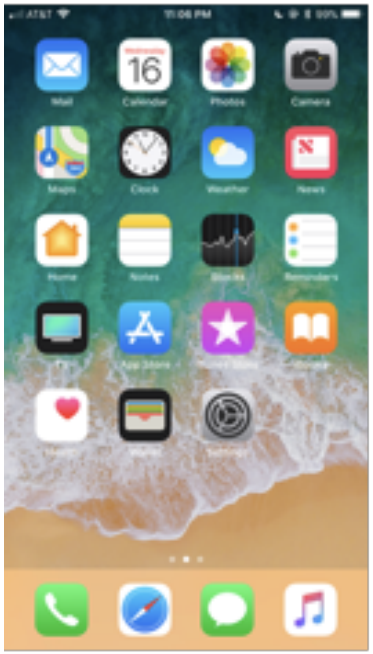
Navigation Patterns
Global Navigation

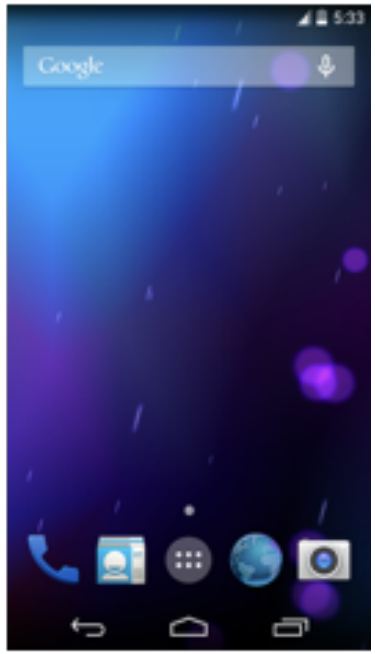
Use the same small section of every window to provide consistent navigation controls Common on the top of web pages

Hub and spoke is an alternative to this pattern for small screens, or self-contained tools

Navigation Patterns
Hub and Spoke

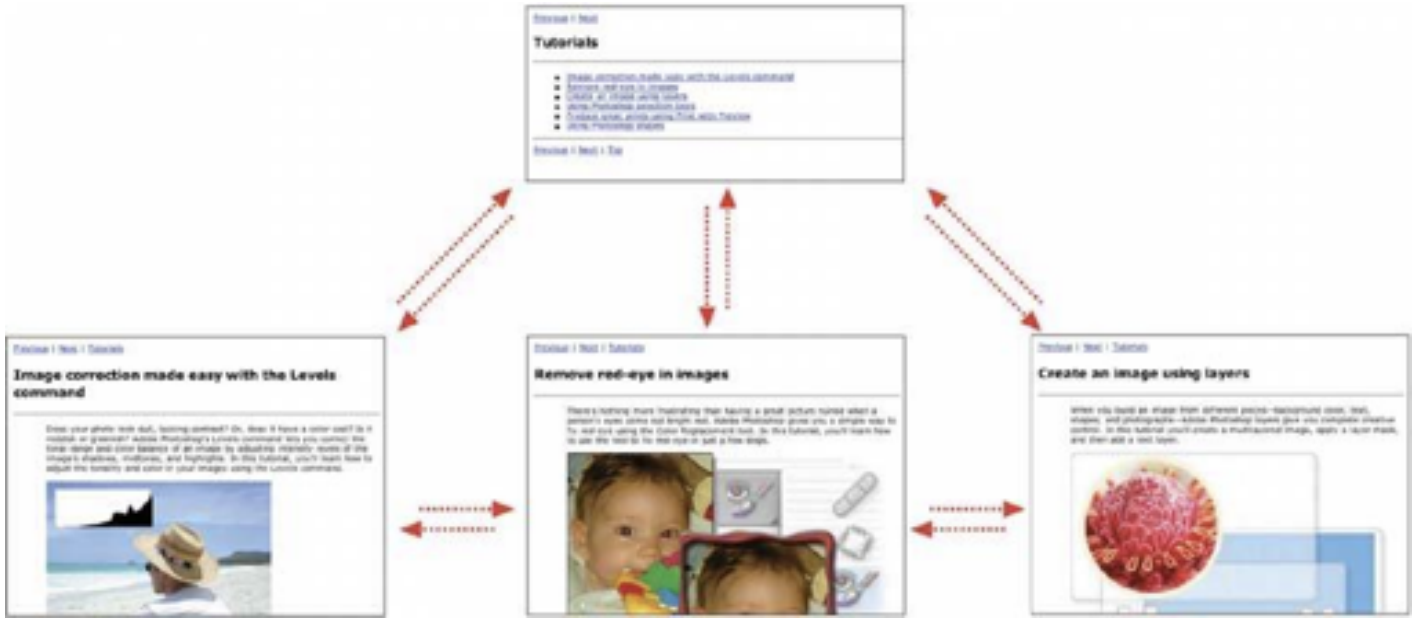
Isolate sections of application into mini-applications, each one click away from central hub Common in smartphone operating systems





Navigation Patterns
Pyramid

Link pages with back/next/up: form pyramid (Common in help browsers, webpages)



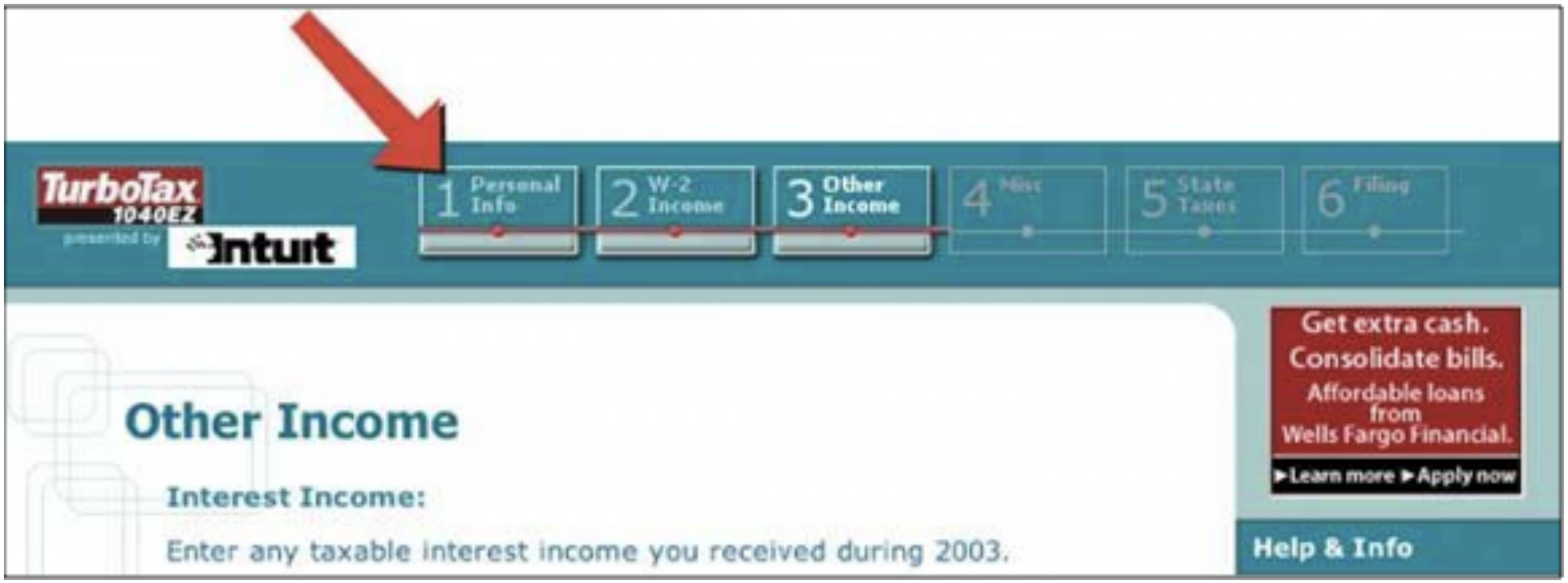
Another option here is the One-Window Drill-down pattern

Navigation Patterns
Modal Panel

Avoid dialogue boxes disrupting workflow

Navigation Patterns
Sequence Map

Show user progress in a linear sequence



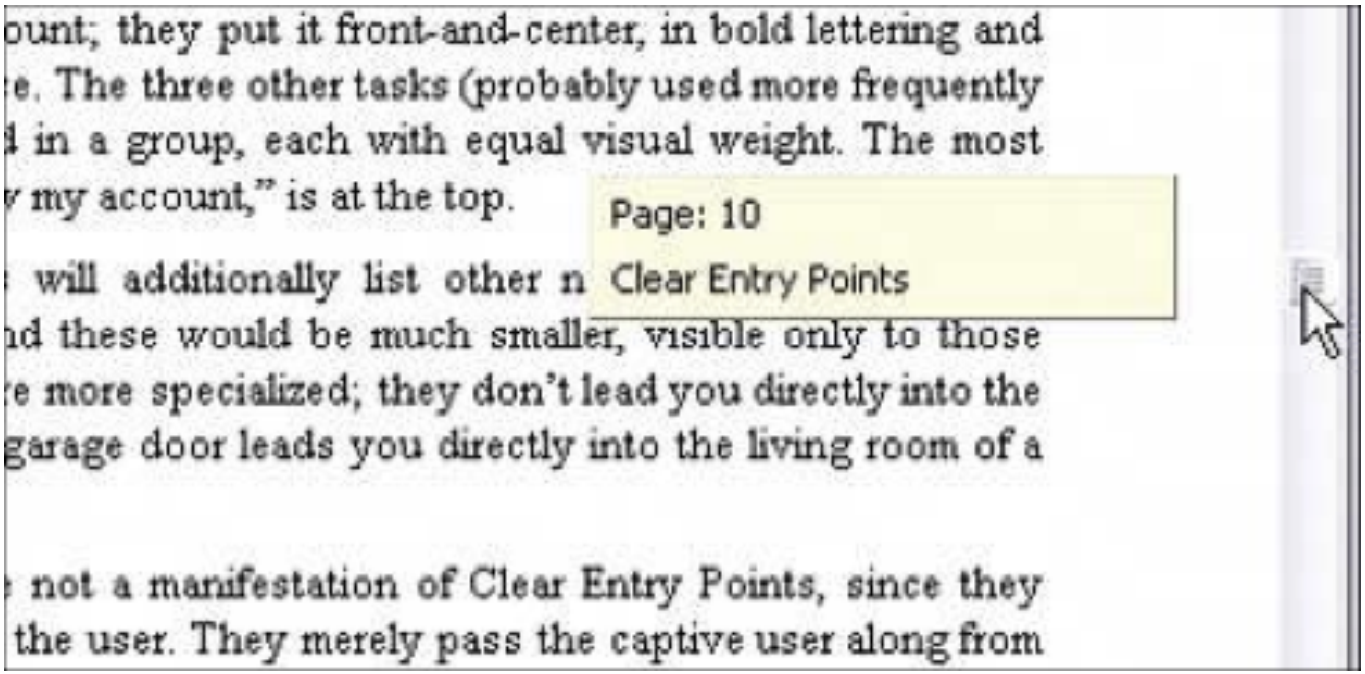
Even better: provide re-entrant “save and continue later”

Navigation Patterns
Breadcrumbs

Show a map of parent pages in a hierarchy

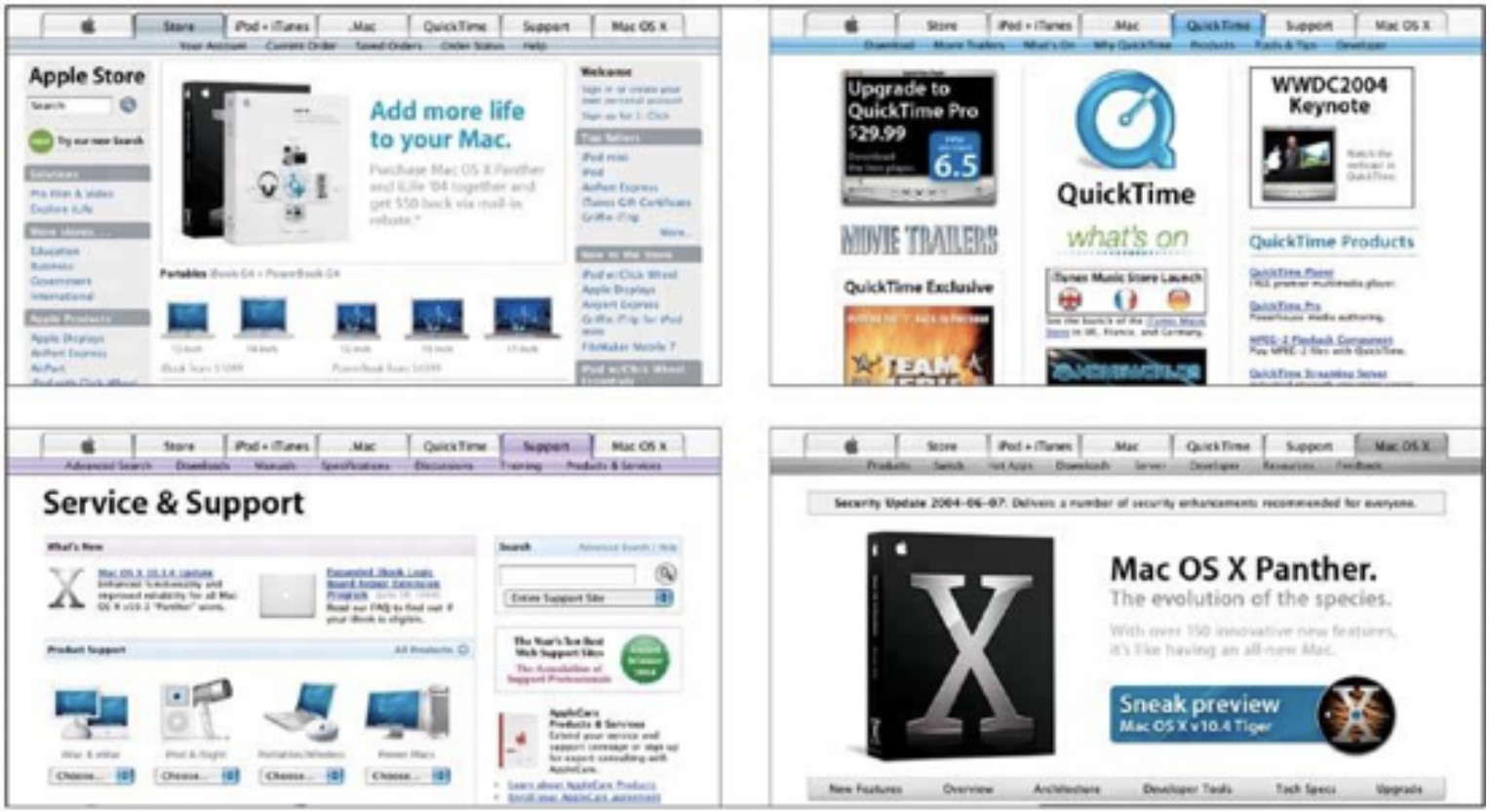
Navigation Patterns
Annotated Scrollbar

Use the scrollbar to provide extra information as the user moves through a document



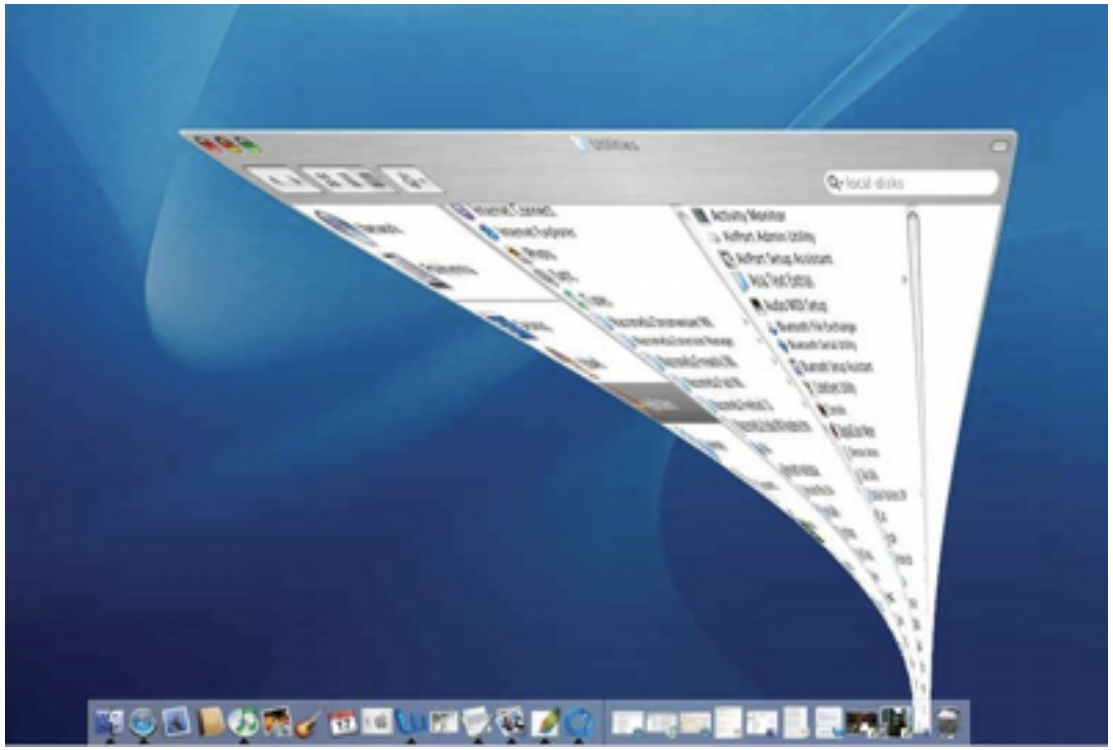
Navigation Patterns
Colour-Coded Sections

Colour code sections of an application or webpage according to user's location



Navigation Patterns
Animated Transitions

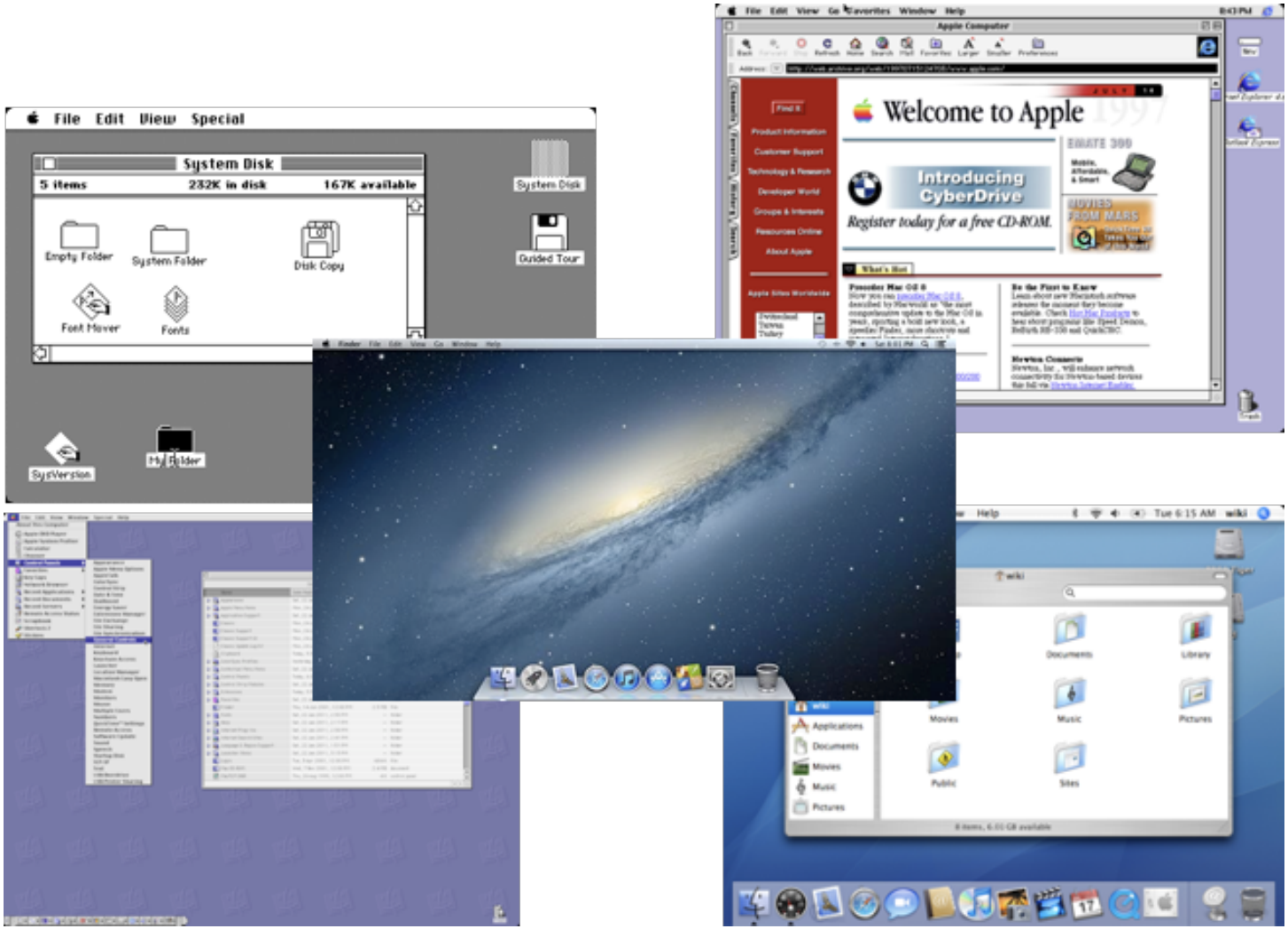
Capture attention to show what to do next or where to find something later Sheets for “save as", “minimise” feature in OS X



Navigation Patterns
Escape Hatch

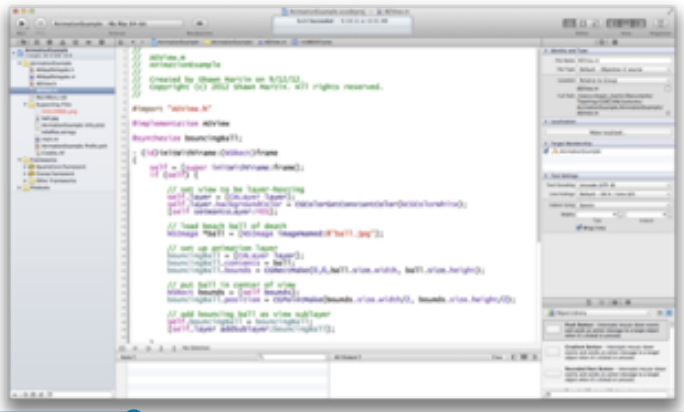
Always provide a way to back out of any action if you can If not indicated visually, use escape key

Visual Design



Page Layout

- Page layout is the art of manipulating the user's attention on a page to convey meaning, sequence, and points of interaction
  - **Visual Hierarchy**: size, whitespace, contrast, colour
  - **Visual Flow**: top-to-bottom, left-to-right, colour, shape
  - **Grouping and Alignment**: proximity, similarity, continuity, closure
  - **Dynamic Displays**: tabs, panels, extras on demand
- Where do your eyes end up when looking at Xcode?



Visual Hierarchy

The most important content should stand out the most and the least important the least Example with no visual hierarchy:

You're invited to Zelda's 30th Birthday Party! Please come dressed as your favorite Gilbert and Sullivan character. Children are welcome. Dinner will be served; if you'd like to bring food, call Stacy at 555-1212. When: October 20th, at 7:00 PM Where: Zelda's house. If you need directions, feel free to call Zelda and ask. Please RSVP to Stacy by October 10th. See you there!

Visual Hierarchy

Example with visual hierarchy using whitespace:

You're invited to

Zelda's 30th Birthday Party!

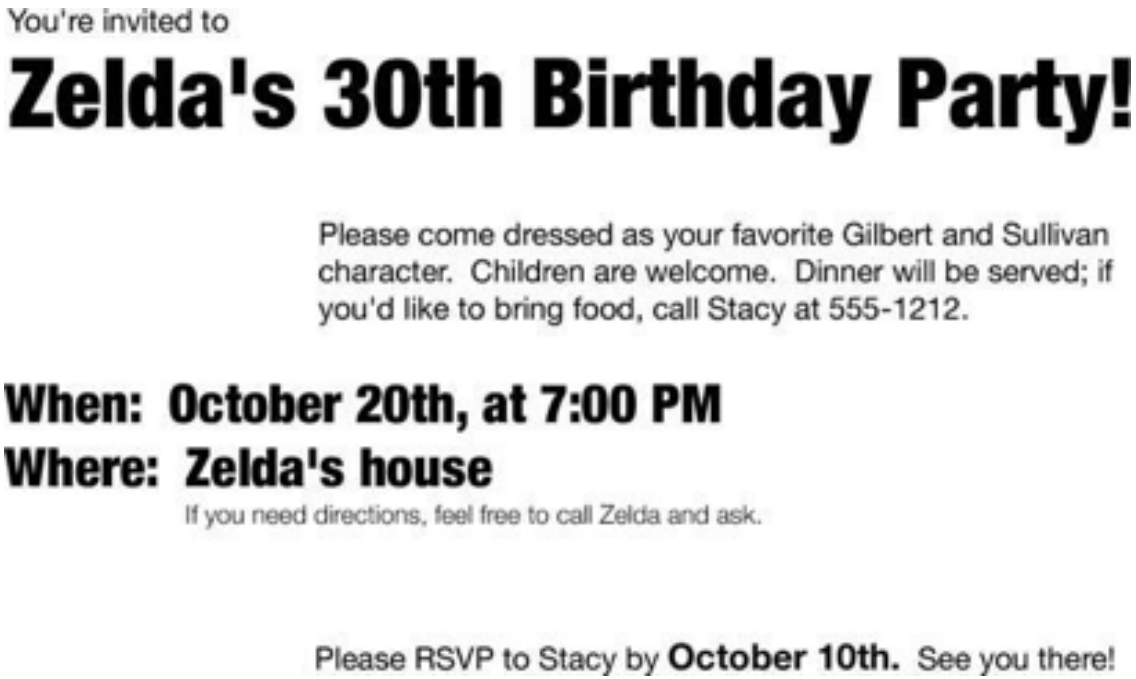
Please come dressed as your favorite Gilbert and Sullivan character. Children are welcome. Dinner will be served; if you'd like to bring food, call Stacy at 555-1212.

When: October 20th, at 7:00 PM
Where: Zelda's house. If you need directions, feel free to call Zelda and ask.

Please RSVP to Stacy by October 10th. See you there!

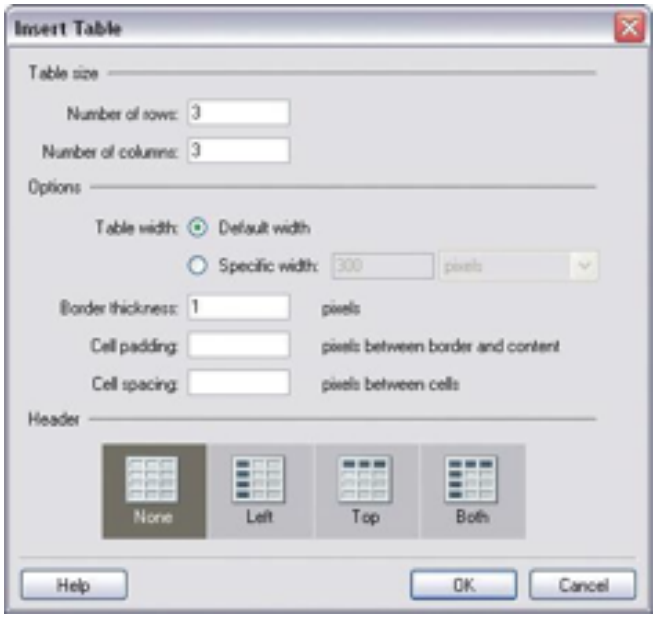
Visual Hierarchy

Example with visual hierarchy using whitespace, alignment, and typography:



Visual Flow

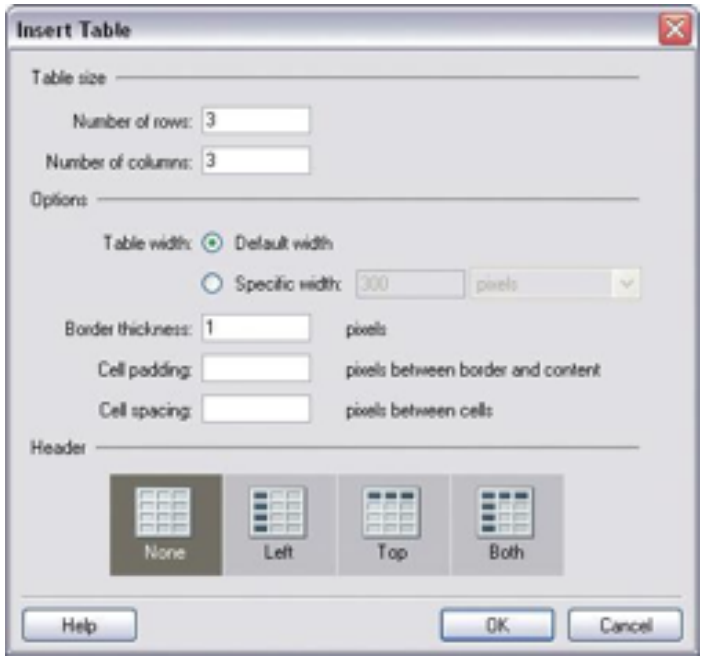
Visual flow refers to the path that your eyes follow when you look at a page



What is the visual flow of this dialog box?

Visual Flow

Visual flow is influenced by: Top-to-bottom, left-to-right (cultural changes?), Strong focal points, User's expectations, e.g., dialog boxes almost always end with OK button in lower right



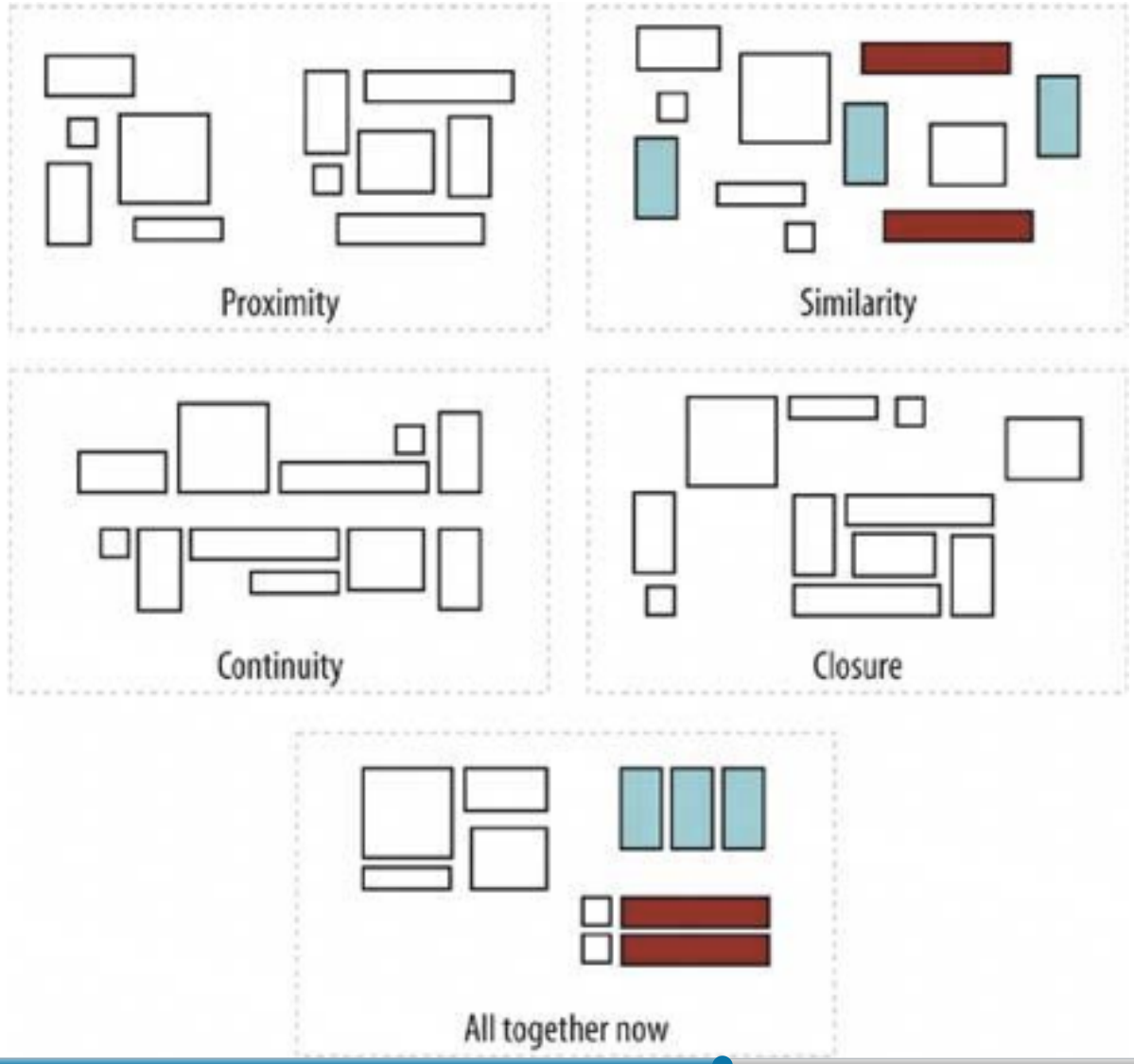
Visual Flow

tunnel 7
Standards Based Website Design
about
blog
podcast
portfolio
services
contact
Standards Based Website Design
Recent Blog Posts
Recent Podcast Episodes
Follow Me!
Why Web Standards?
Recent Projects

Grouping and Alignment

- Grouping things together visually implies that they are functionally related
- There are four Gestalt principles that describe how our visual system groups layouts:
  - **Proximity**: things close together are associated
  - **Similarity**: things of the same shape, size, colour, or orientation are associated
  - **Continuity**: things which together form lines and curves are associated
  - **Closure**: simple closed forms like rectangles or whitespace are associated - true even if the actual rectangles are not drawn

Grouping and Alignment



Layout design patterns

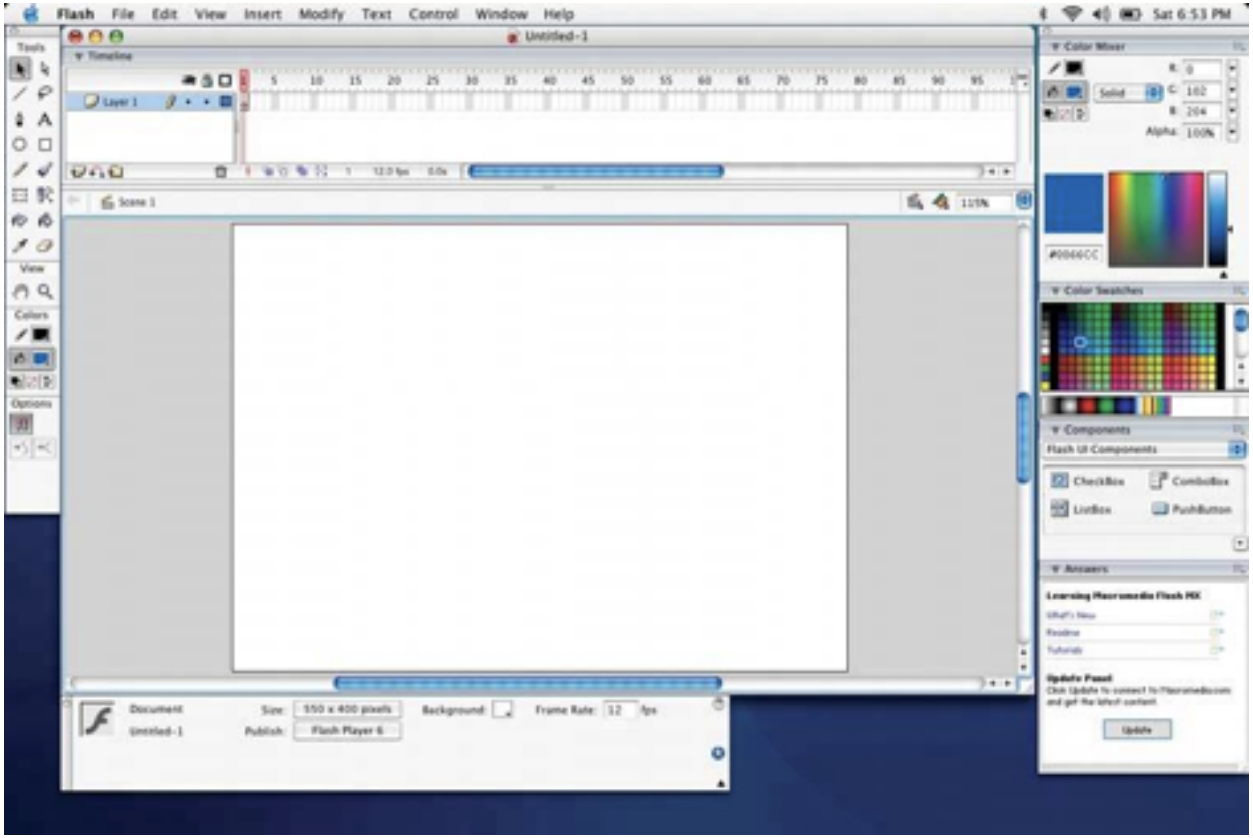
- **Visual Framework** - consistency between windows/dialogs in your application
- **Centre Stage** - make the most important window large
- **Titled Sections** - delineate categories with obvious titles
- **Card Stack** - use tabs to organise information
- **Closable Panels** - tabs that can dynamically resize
- **Movable Panels** - let user move panels around the window
- **Right/Left Alignment** - align columns to provide vertical lines
- **Diagonal Balance** - balance from top-left to bottom-right
- **Responsive Disclosure** - show only what needs to be shown
- **Responsive Enabling** - allow only relevant responses
- **Liquid Layout** - change window contents during resize

Layout design patterns
Visual Framework

- Decide on a consistent basic layout for each window/dialog box/web page, including:
  - Colour scheme, stylistic elements, fonts, margins
  - Navigation controls (back button, breadcrumbs, sequence maps)
  - Tabs, sections, etc.

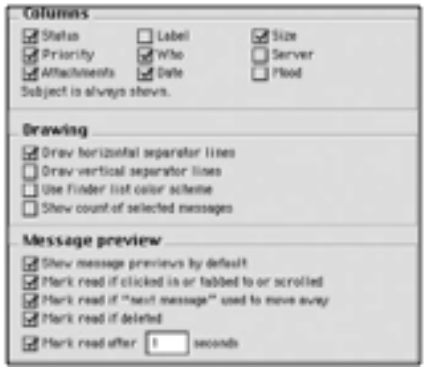
Layout design patterns
Centre Stage

Make the most important part of the UI large. Use size, colour, titles, etc.



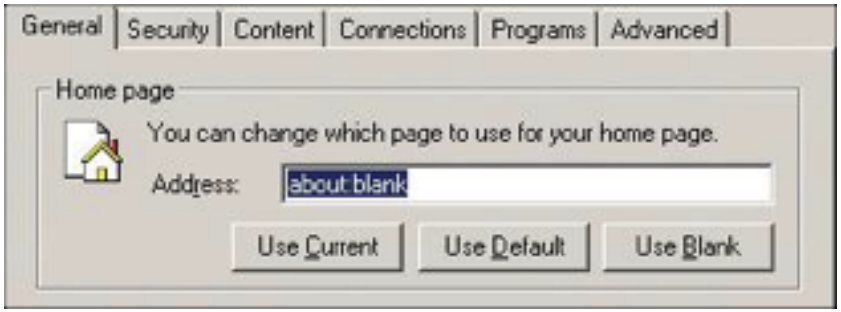
Layout design patterns
Titled Sections

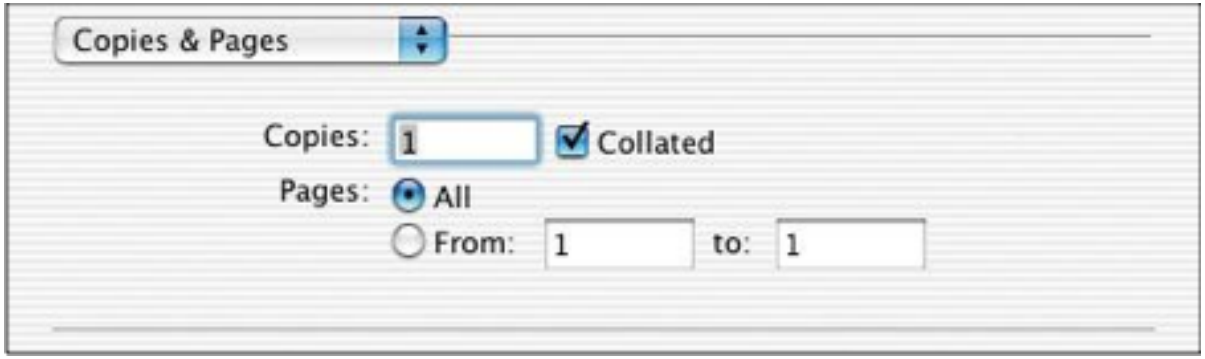
Define separate sections using obvious titles. Use font, colour, whitespace, highlighting, boxes to separate titles



Layout design patterns
Card Stack

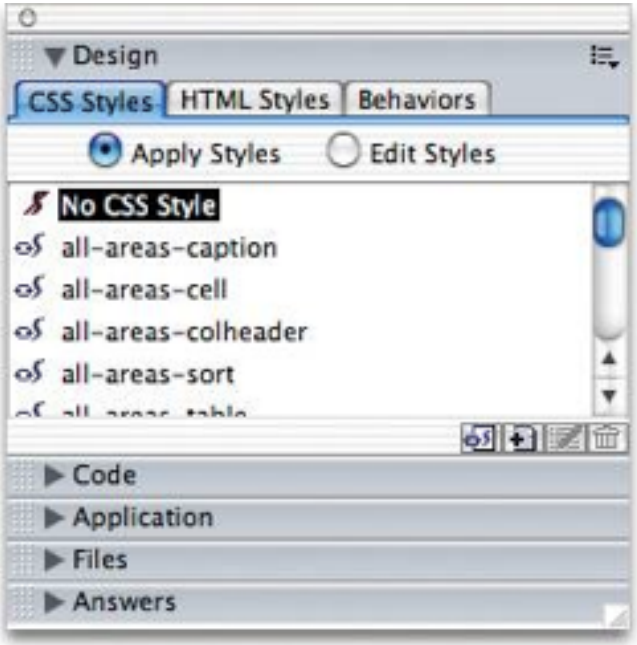
Use tabs/drop-downs to organise information





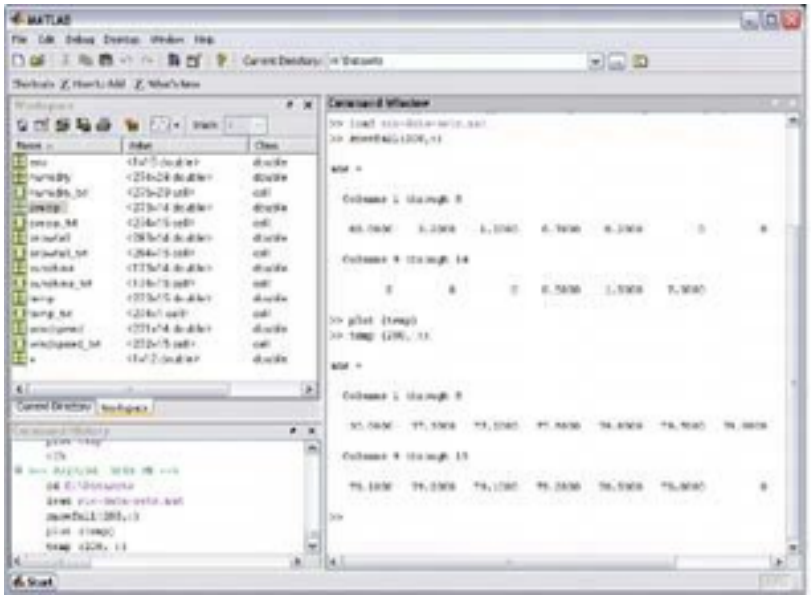
Layout design patterns
Closable Panels

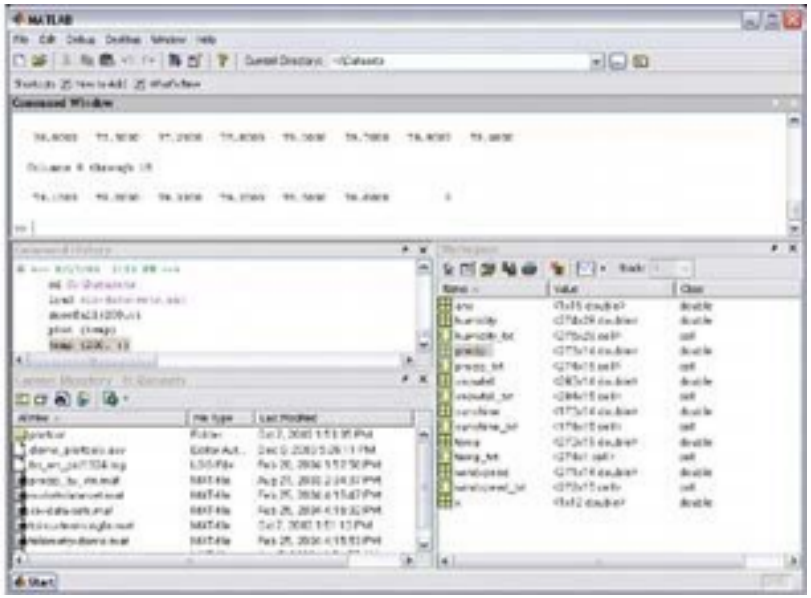
Too much stuff to present at once User may want to have a number of different things visible at a time



Layout design patterns
Movable Panels

Let the user reorganise the desktop by moving panels around

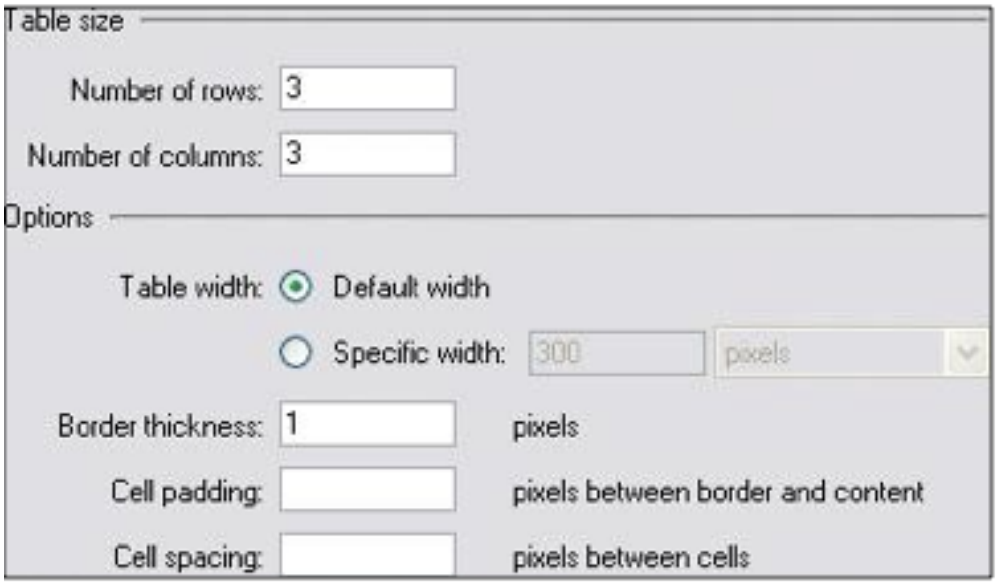




Be sure to have a “reset to defaults" option somewhere!

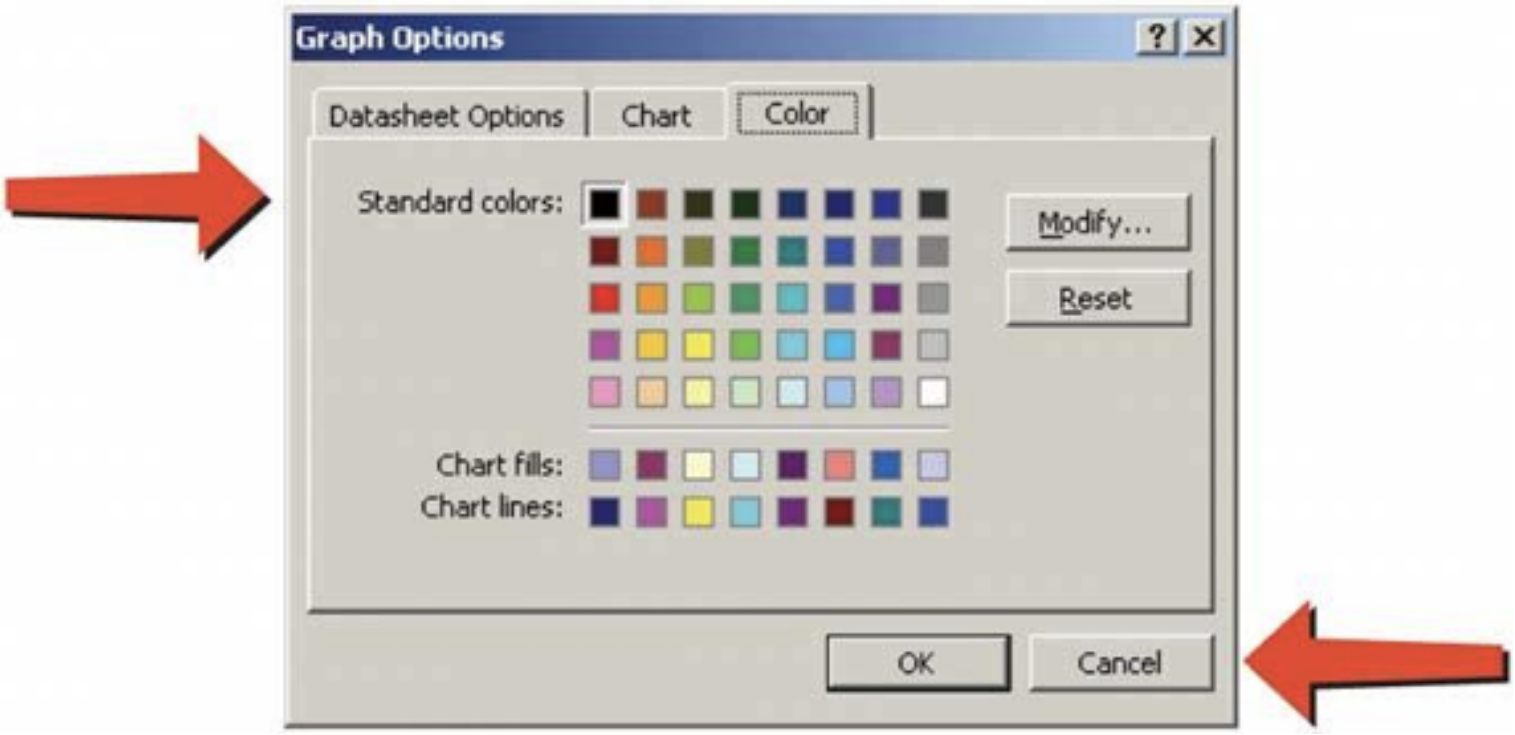
Layout design patterns
Right/Left Alignment

Forms and tables: use vertical alignment



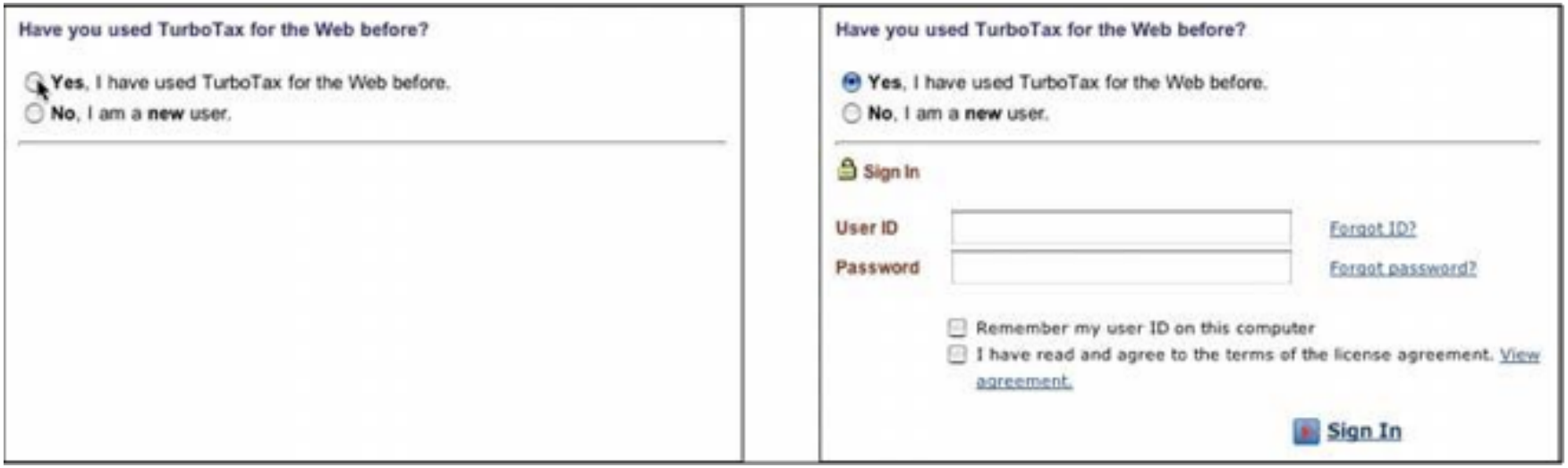
Layout design patterns
Diagonal Balance

Arrange page elements so that they are balanced around a diagonal line from top left to bottom right



Layout design patterns
Responsive Disclosure

Show only what user needs to know at the time Example: guide a user through a series of steps by showing more of the UI as each step is completed



Similar to a wizard, but user is not forced to follow a particular path

Layout design patterns
Responsive Enabling

Show all options always, but only enable relevant controls

What is the difference between responsive disclosure and responsive enabling?

Layout design patterns
Liquid Layout

Resize/rearrange window contents when user resizes window.
Commonly done in web browsers

User Interfaces on Film

from http://www.creativebloq.com

" . . . shifting images and screens around an enormous glass wall display"

- Futuristic in 2002;
- By now many multi-touch interfaces have appeared
- Gesture recognition in Microsoft Kinect and friends

User Interfaces on Film

from http://www.creativebloq.com

“ . . . interfacing via a hologrammatic display inside his helmet - even when he’s flying"

User Interfaces on Film

from http://www.creativebloq.com

"Touch screen and gesture technologies were front and centre throughout, portraying an exciting - if somewhat dark and depressing-future for user interface technology"

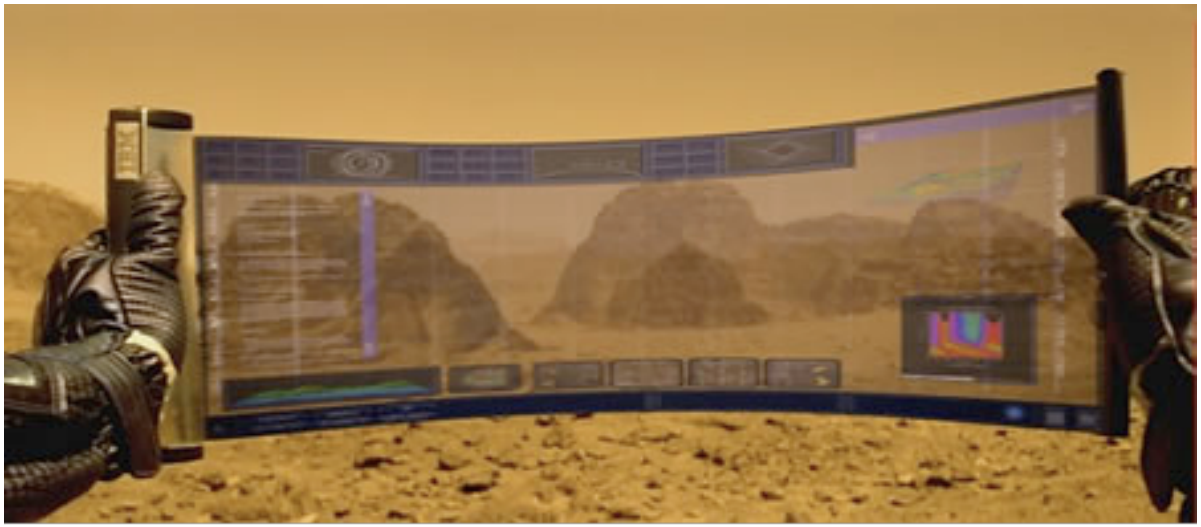
User Interfaces on Film

from http://www.creativebloq.com

“ . . . took . . . influences from coral reefs and abstract art to give an organic feel to their interface designs”

User Interfaces on Film

from http://www.creativebloq.com



User Interfaces
What is next?

- Input / output devices: radical changes within a generation . . . but still require context
- Google Glass and other HUD-like technology suddenly gain popularity?
- Speech comprehension breakthroughs? Direct mind reading? . . .