Aston University
BIRMINGHAM UK

CS3ID Interaction Design

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UNIVERSITY OF THE YEAR 2020 The Guardian

learning outcomes…

- at the end of the two lectures on Design Patterns (together with additional reading), you should be able to:
  - recognise and describe different application structure patterns and be able to recommend and apply such patterns in UI design based on application characteristics
  - understand the basics of navigation and appreciate the costs of navigation
  - recognise and describe different navigational patterns and be able to recommend and apply navigational patterns in UI design based on application characteristics
  - recognise and describe different page layout patterns and be able to recommend and apply such patterns in UI design based on application characteristics
  - recognise and describe different action and command patterns and be able to recommend and apply such patterns in UI design based on application characteristics

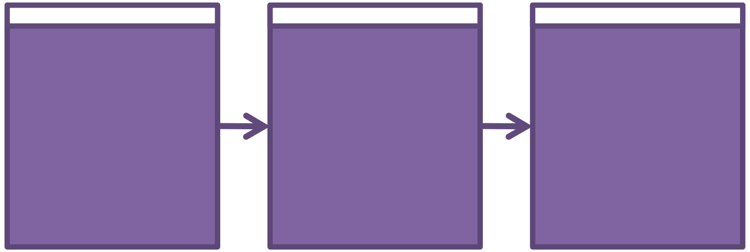
- **strongly recommended that you read the additional reading for this material to cover examples we won't have time for here!**

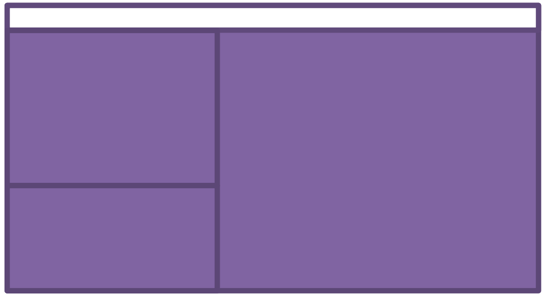
basics of information architecture…

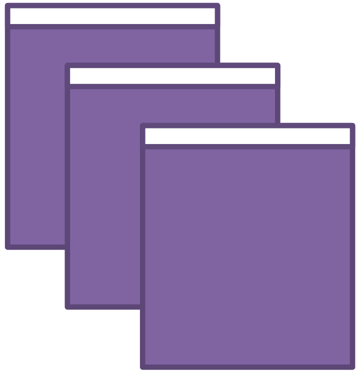
- figure out how to structure all your content and functionality
  - how to organise it, label it, and guide a user through the UI
- need to structure the UI so users know what to do next (or at least have a good idea where to look!)
- base decisions on:
  - nature and domain of the application
  - users' domain knowledge
  - users' comfort levels with computers
  - how closely your application needs to match the users' mental models of the domain

basics of physical structure…

- have to translate a design into a physical structure of windows, pages, and controls
- should an application use multiple windows, a single window with several tiled panes, or one window with swapping-out content?
- technology sometimes restricts options – e.g., mobile phones
- analyse tasks users will perform
  - do they need to work in 2+ areas at same time?

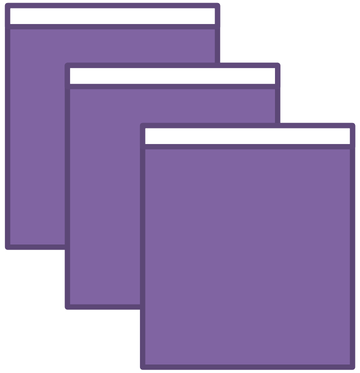

one-window paging


tiled panes


multiple windows

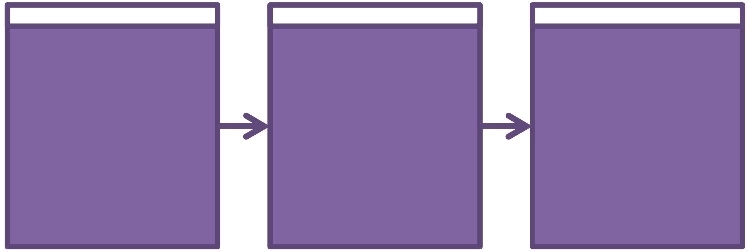
multiple windows…

- sometimes the right choice, but not often
  - work best in applications where users want to customise their screen
- users (especially infrequent users) tend to find multiple windows irritating or confusing
  - lose them if too many onscreen at once
- need to use multiple windows or tiled panes if users need to see 2+ windows in parallel



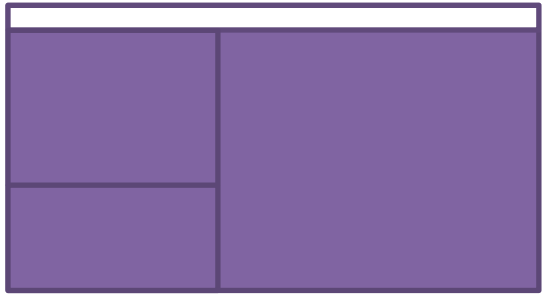
one-window paging…

- simple web applications work best with a single-window paging model – shows one page at a time
    - people are very familiar with this model
- conserves space
    - nothing onscreen to compete with window content
    - best choice for small devices



tiled panes…

- great for users who want to see a lot at once while expending little effort on window management
  - 2- and even 3-pane structures are common
- can take up a lot of screen space
- tiled panes and multiple windows = “open floor plan” concept
  - i.e., expose large number of features in one place
  - users are responsible for focussing their own attention to the right panel and right feature at the right time
  - best not to use these if you need to lead a user along a specified path
- choosing a physical structure is all about trade-offs!



application structure patterns…

- patterns known to work very well:
  - two-panel selector
  - canvas + palette
  - one-window drilldown
- patterns that focus on content in the abstract:
  - wizard (linearising a path through a task)
  - extras on demand* } additional ways to divide up content
  - intriguing branches* }
- ways to integrate help directly into an application:
  - multi-level help*

*** read Tidwell, J., (2005), Designing Interfaces, O'Reilly Media Inc. Chapter 2**

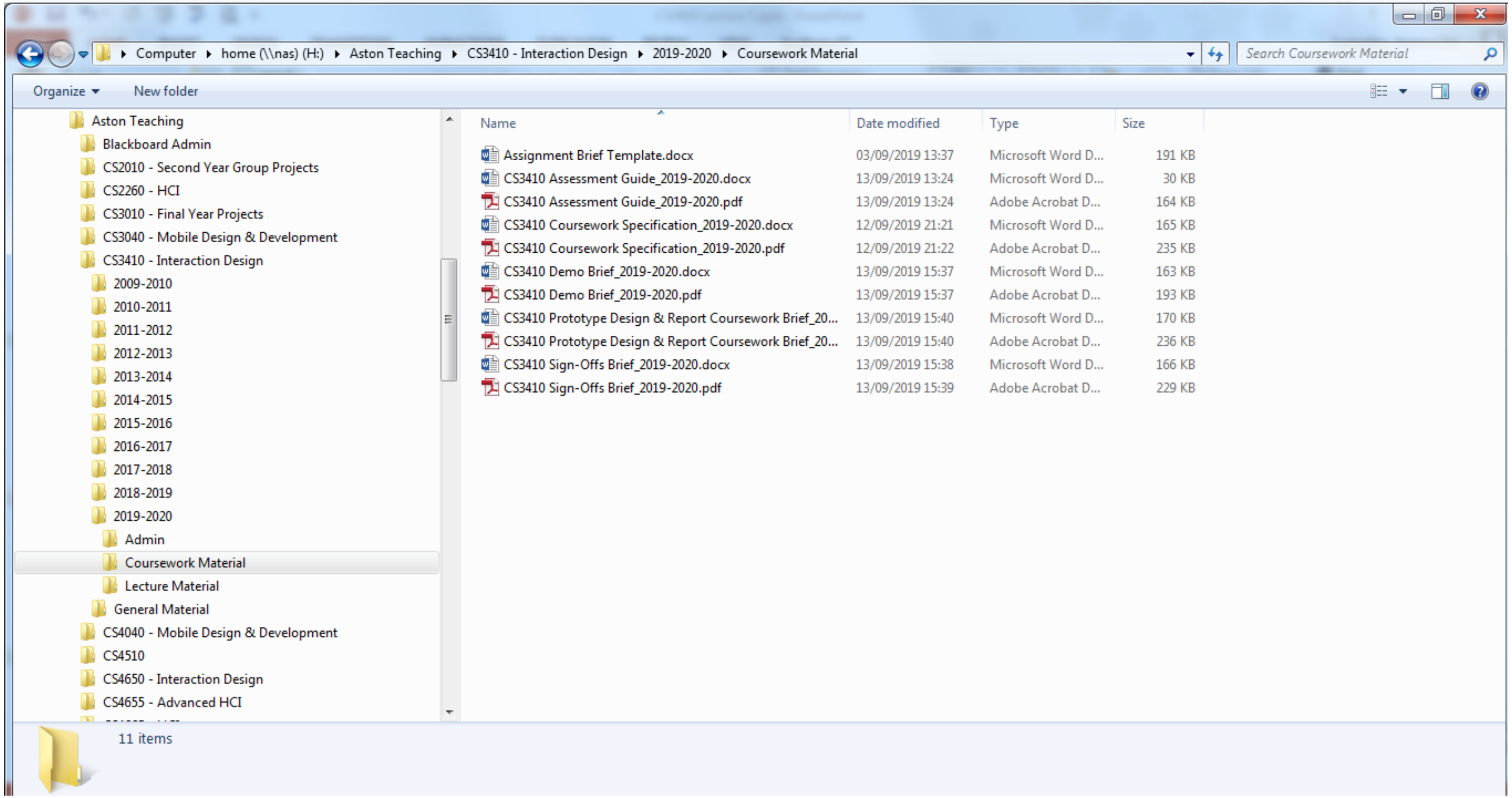
two-panel selector pattern…

- 2 side-by-side panels
  - one shows set of items user can select » other shows content of the selected item
- use when presenting a list of objects, categories, or actions
  - e.g., messages in a mailbox, images in a library, files, etc.
  - users should see structure of list but should be able to walk through the items at their own pace and in their chosen order
  - display you are working with has to be large enough to show separate panels at once (e.g., very small mobile phones can't cope with this)
- it is a learned convention but is common and powerful
  - users apply concept to applications that look similar to ones they are already familiar with (e.g., mail tool)

two-panel selector pattern contd…

- advantages:
  - users can quickly shift their attention between panels
  - reduces physical effort – visual focus is close and selection change only requires single mouse click/key press
  - reduces visual cognitive load – with other patterns user has to pay more attention to what he/she is looking at but when the window stays stable, the user can focus on the smaller area of the screen that changed
  - reduces memory load – information is constantly visible
- protocol:
  - place the selectable list at the top or left / place the details panel at the bottom or the right to take advantage of visual reading flow
  - when item is selected, immediately show the contents in the details panel
  - selection via single click (or key press)
  - make selected item visually obvious
  - use any of the list of objects models to display selectable list or other more complex structures (see Tidwell: Chapter 6 for more information on these)

two-panel selector example…



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11 items

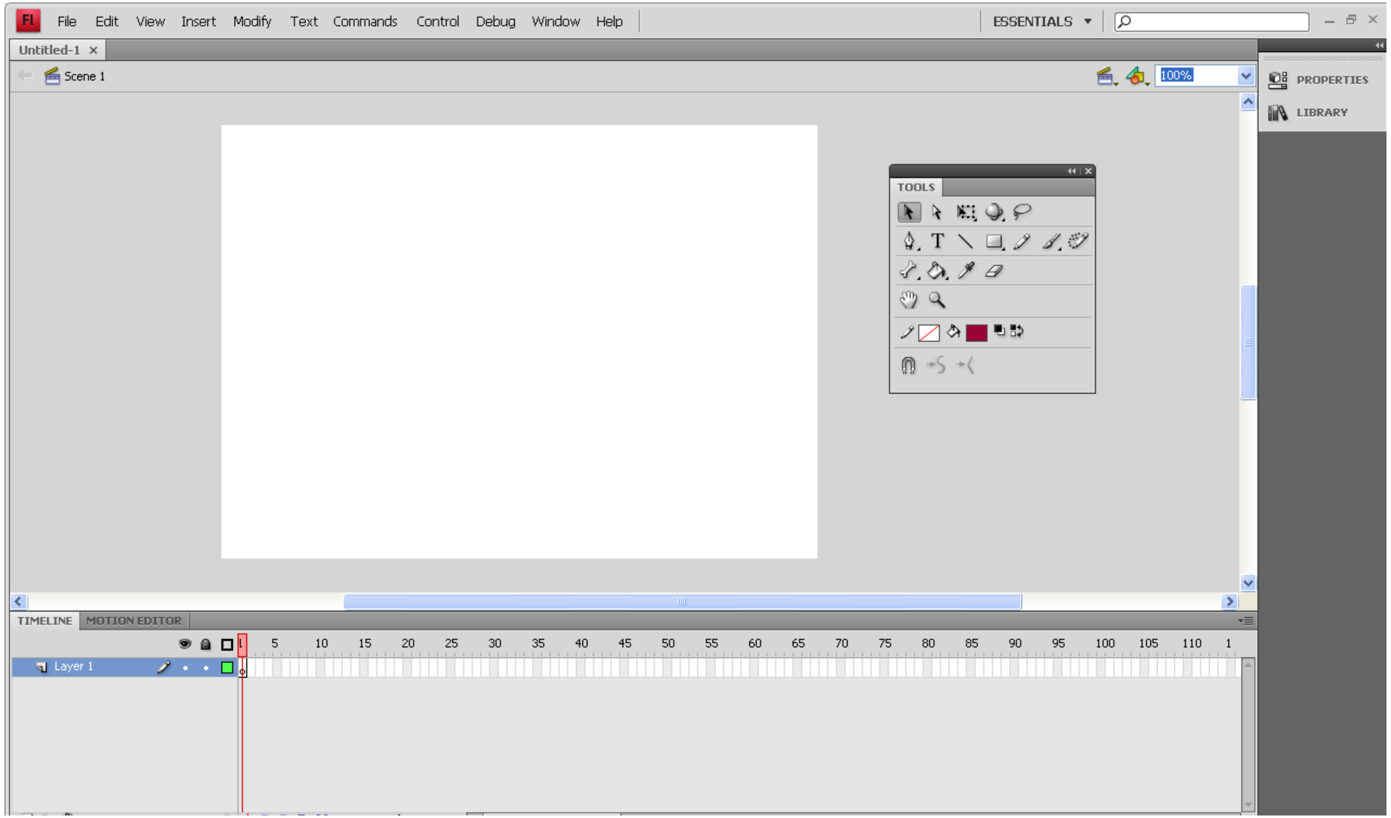
canvas + palette pattern…

- iconic palette next to a blank canvas
    - users click on the palette buttons to create objects on the canvas
- use when you are designing any kind of graphical editor
    - e.g., where use involves creating new objects and arranging them in some virtual space
- it is very common
    - natural mapping from familiar physical objects in the real world to the virtual, onscreen world
    - palette takes advantage of visual recognition (rather than recall)
    - often reuses iconic norms (e.g., paintbrush, hand, magnifying glass, etc.)

canvas + palette pattern contd…

- protocol:
  - present large, empty area as canvas
    - *might be in its own window, in a tiled window, or in a single pane with other tools*
    - *works as long as the user can view the canvas + palette simultaneously*
  - palette should be grid of iconic buttons (can include text if icons are too cryptic)
  - place palette to left or top of the canvas
    - *can divide into subgroups using a card stack (e.g., tabs) if necessary*
  - can use drag-and-drop to create the items on the canvas or can use a single click on the palette followed by a single click on the canvas

canvas + palette example…



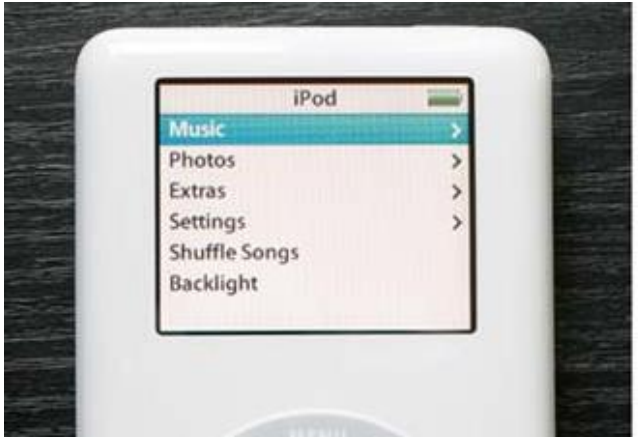
one-window drilldown pattern…

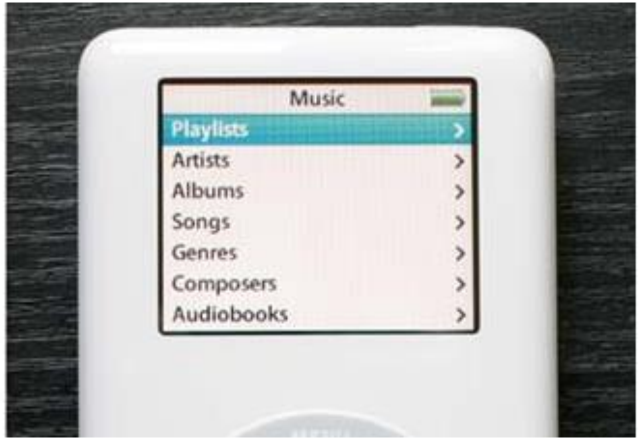
- show each of the application’s pages in a single window
    - as a user drills down through a menu of options or into an object’s details the window contents are completely replaced with the new content
- use when the application contains many pages of content which the user has to navigate through
    - e.g., address books, calendars, etc.
    - pages/content might be arranged linearly, in a hyperlinked network, in a menu hierarchy (most common)
    - use if you are building for devices with screen real estate restrictions or you have a complexity limit
- advantages of this pattern
    - keeps things simple – options at each stage are clear and users don’t need to focus attention anywhere else
    - common pattern (e.g., web browsers)

one-window drilldown pattern contd…

- protocol:
    - structure content into panels/windows that fit gracefully into the screen real estate
    - design obvious "doors" to other parts of the UI – e.g., buttons
    - when user clicks on button, replace the current panel with the appropriate new one
    - navigation either using back/forward buttons or a permanent toolbar
    - put "done" or "cancel" controls on panels where a user completes a task or activity
        - *sense of closure*
    - no graphical representation of application's structure – nor of location within that structure – so one-window drilldown forces users to rely on mental picture of how the content fits together
        - *simple linear or hierarchical structures work best*
        - *use breadcrumbs and sequence maps*

one-window drilldown example…





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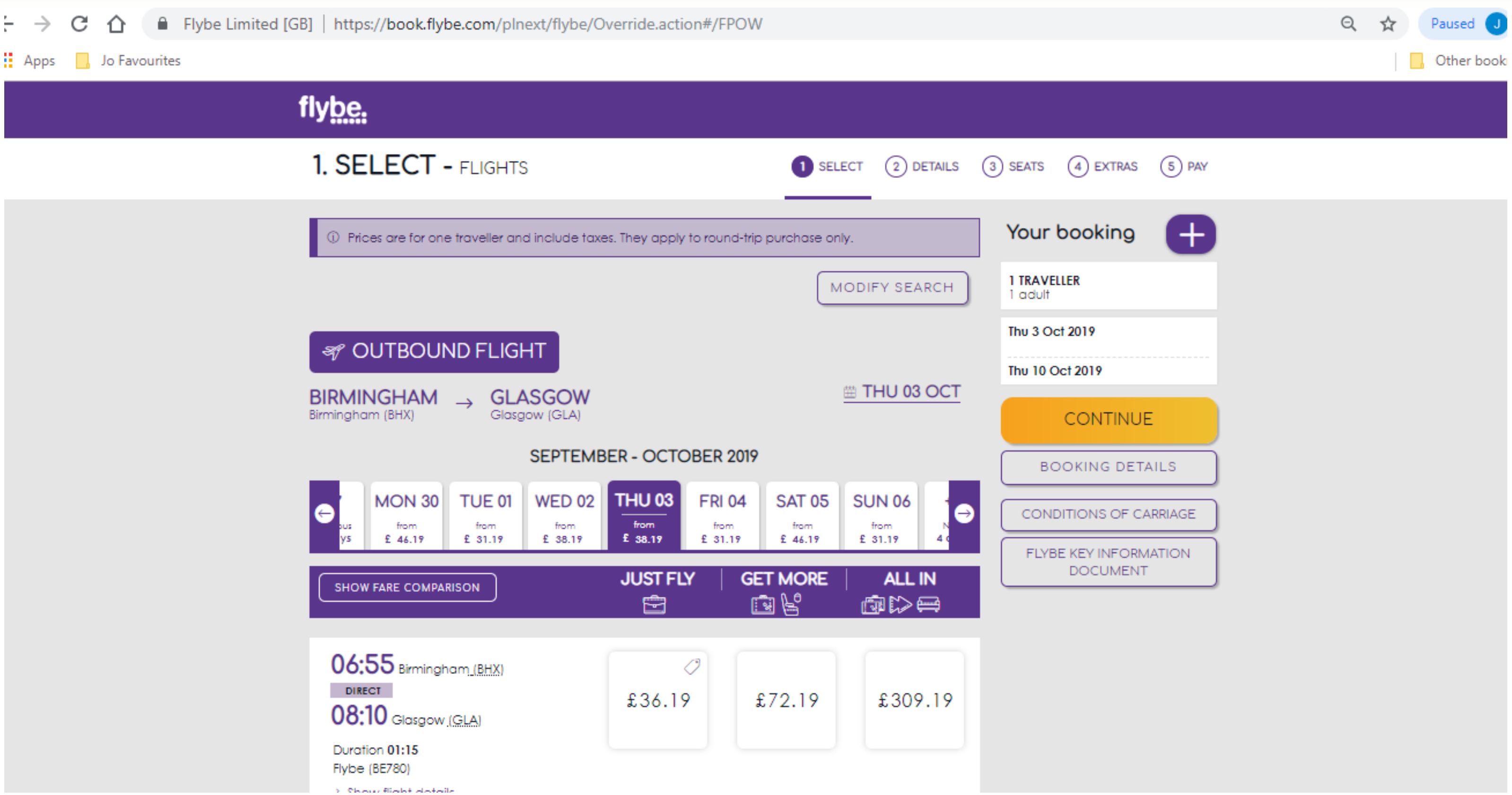
wizard pattern…

- leads the user through the UI step by step, doing tasks in a prescribed order
- use when the task is long or complicated or where the task is likely to be novel for the user
    - option where designers know more about the best way to get the task done than the user does
    - well-suited tasks include those with lots of user-made decisions that affect downstream choices
        - *user has to be willing to surrender control to the system*
        - *can be considered frustrating and inflexible*
- “divide and conquer”
    - chunking tasks to simplify process
    - save users effort of working out the task structure

wizard pattern contd…

- protocol:
  - chunk the task into groups of operations
    - *thematic breakdown*
    - *decision point-based breakdown*
  - hard to strike balance between too few and too many chunks
    - *each chunk shouldn’t be too large*
  - use one of the other patterns to display the chunks
    - *one-window drilldown is common*
    - *see layout patterns (Lecture 6 & additional reading)*
  - provide good/sensible defaults at each stage

wizard example…



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navigation…

- make the "commute" as short or non-existent as possible!
- **signposts** – help users figure out their surroundings
  - e.g., titles, tabs, selection indicators, etc.
- **wayfinding** – process of finding way to target/goal
- features that help users when wayfinding:
  - **good signage** – clear, unambiguous labels that anticipate what users are looking for
    - *should be where users expect them to be and decision point options should help guide users to their end goal*
  - **environmental cues** – norms/conventions for button placement etc.
  - **maps** – provide mental picture of the whole application space

navigation contd…

- opening up an application window incurs a cognitive cost
  - **context switch** as users are forced to refocus their attention and adjust to their new surroundings – to familiarise themselves with the application layout, contents, exits, and work out how they are going to do what they need to do with the application
  - even if a user is already familiar with the application, as he/she context switches from another environment/application there is still a small cost
  - goal is to minimize the cognitive cost associated with context switching
- keep distances short
  - challenge: design application to do the most common 80% of use cases with 0 or one context switches
    - *avoid too many levels of nesting*
    - *but don’t sacrifice simplicity to achieve this!*

navigation/orientation patterns…

- patterns that describe navigational structures (how sections link):
  - clear entry points
  - global navigation
  - hub and spoke
  - pyramid
- patterns that focus on signposting current position:
  - sequence map
  - breadcrumbs
  - annotated scrollbar*
  - colour-coded sections*
- others:
  - animated transition* (trick to preserve users' sense of orientation)
  - escape hatch*

read Tidwell, J., (2005), Designing Interfaces, O'Reilly Media Inc. Chapter 3

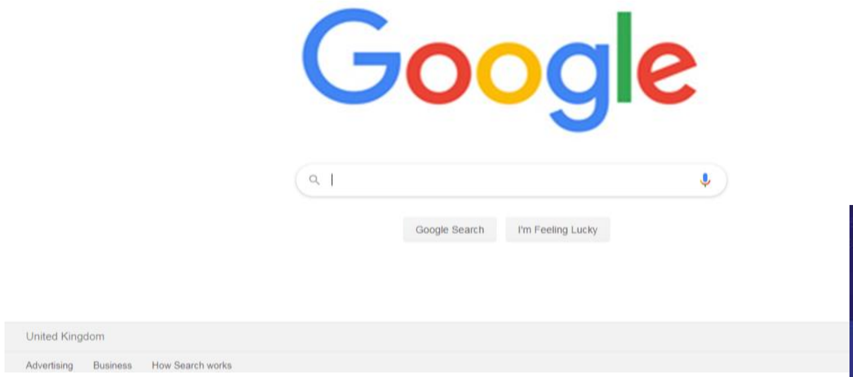
clear entry points pattern…

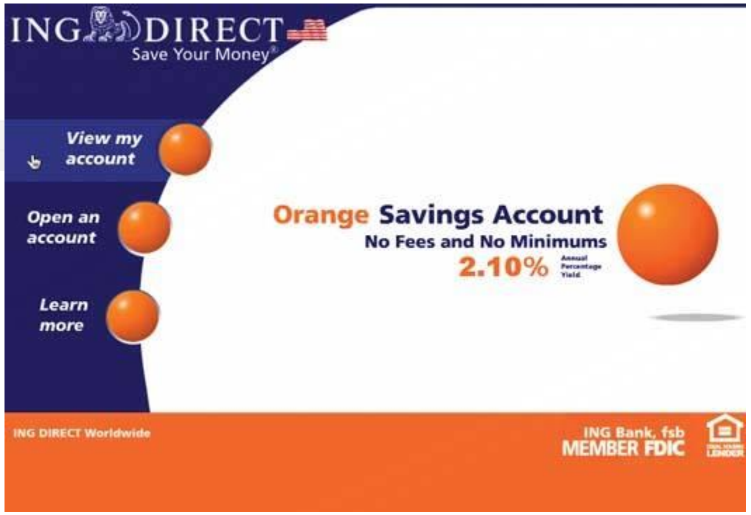
- present only a few task-oriented and descriptive entry points into the UI
- use when the application is task-based or is generally used by first-time/infrequent users
    - don’t use this pattern if the application’s purpose is obvious to everyone and if most users would be irritated by this additional step
- gives the user (especially novice) a clear idea of where to start
    - clearly delineates what the application does
    - make sure the available options match the users’ expectations

clear entry points pattern contd…

- protocol:
  - present entry points as “doors” into the system
    - *unambiguous guides into the application*
    - *help the user develop his/her own sense of context*
  - entry points should collectively cover most of the primary reasons for someone using the application/coming to the website
    - *could be one or two or many depending on application*
    - *label them appropriately for first-time users*
  - present entry points with emphasis proportional to importance
  - splash screens ≠ entry points because they don’t present a decision point to the user

clear entry points examples…





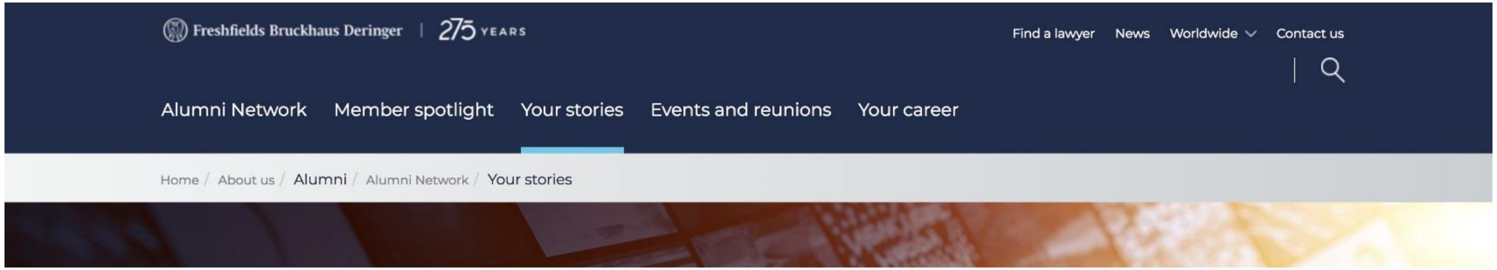
global navigation pattern…

- use a small section of each page to present consistent set of links/buttons that take users to key sections of application
- use when the application has lots of different sections or tools and/or when users are likely to want to move directly from one section to another
    - have to have plenty screen real estate to work with
    - the added elements will not overly clutter the UI
- set of links or buttons that reflect the UI’s highest-order structure makes the structure visible at all times
    - gives overview of the UI and helps users locate what is needed
    - facilitates exploration and easy, one-click transition
    - can add a “you are here” signpost to indicate what section is current

global navigation pattern contd…

- protocol:
  - determine organisational structure
    - *limit sections to what you can sensibly display and label well*
  - global navigation panel should look the same and be located in the same place on every page/window (not dialogue boxes)
  - to show user’s current location, make the current link/button appear different to the rest
  - not every user will use or notice a global navigation panel (so be prepared!)

global navigation examples…



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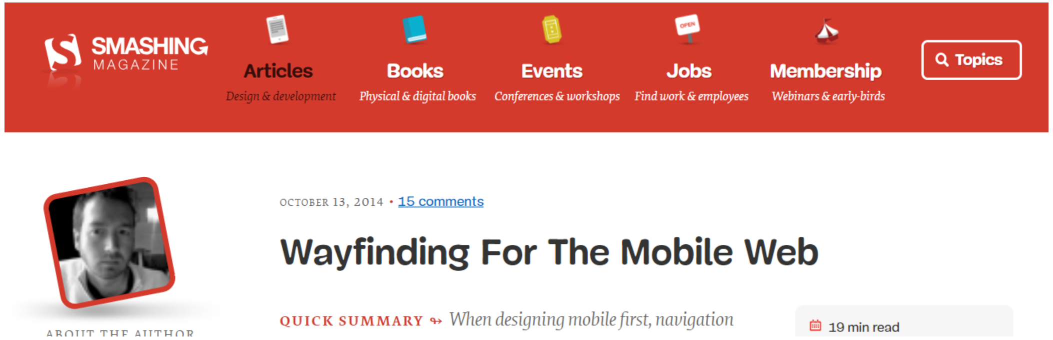

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QUICK SUMMARY ↬ When designing mobile first, navigation

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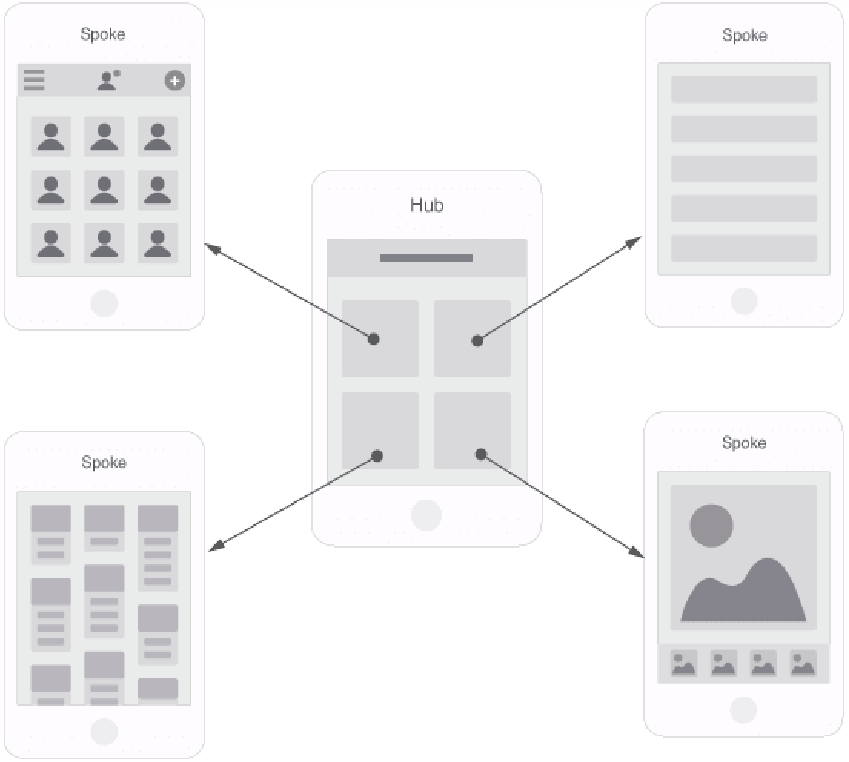
hub and spoke pattern…

- isolates sections of an application into mini-applications, each with one entry point (from the main page) and one way out (to the main page)
- use when the application contains several discrete tasks, sub-applications, etc. all of which can be accessed from one central control page/screen
  - use when you don’t want to connect each of the sub-applications directly to all the others to reinforce the separation, to restrict workflow (and force task completion), to avoid clutter, or due to screen real estate constraints
  - don’t use if you have good reason to allow a user to move directly from one sub-application to another
  - really well suited to small screen devices when used in conjunction with one-window drilldown pattern
- forces user to focus on one thing at a time
  - helps prevent errors (less chance of getting UI into inconsistent state)
  - tighter control over what the UI has to handle (simpler implementation)
  - scales well to handle additional functionality

hub and spoke pattern contd…

- protocol:
  - **spokes**: split content up into self-contained mini-applications (e.g., by task or tool)
  - **hub**: arrange access points/links to the spokes
  - remove all distracting navigational links from the spoke pages/windows and leave only pertinent actions (e.g., exits, help, back, etc.)
  - provide means for user to indicate completion or cancellation at the end of a spoke-based task
    - *these should return the user to the hub*

hub and spoke example…



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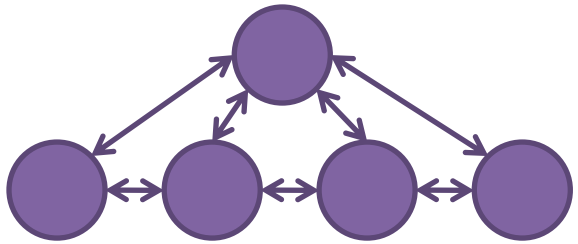
pyramid pattern…

- links a sequence of pages/windows with Back/Next links
  - often combined with a main page (jumping off point) that links to and from all the pages in the sequence
- use when the application comprises a sequence of pages/windows that a user normally views one after the other
  - e.g., chapters in a book
  - most often paired with one-window drilldown
- reduces number of clicks necessary to get around
  - improves navigation efficiency + highlights sequential relationship among pages
  - most effective if home/main page links included to prevent excessive back/forward button clicks

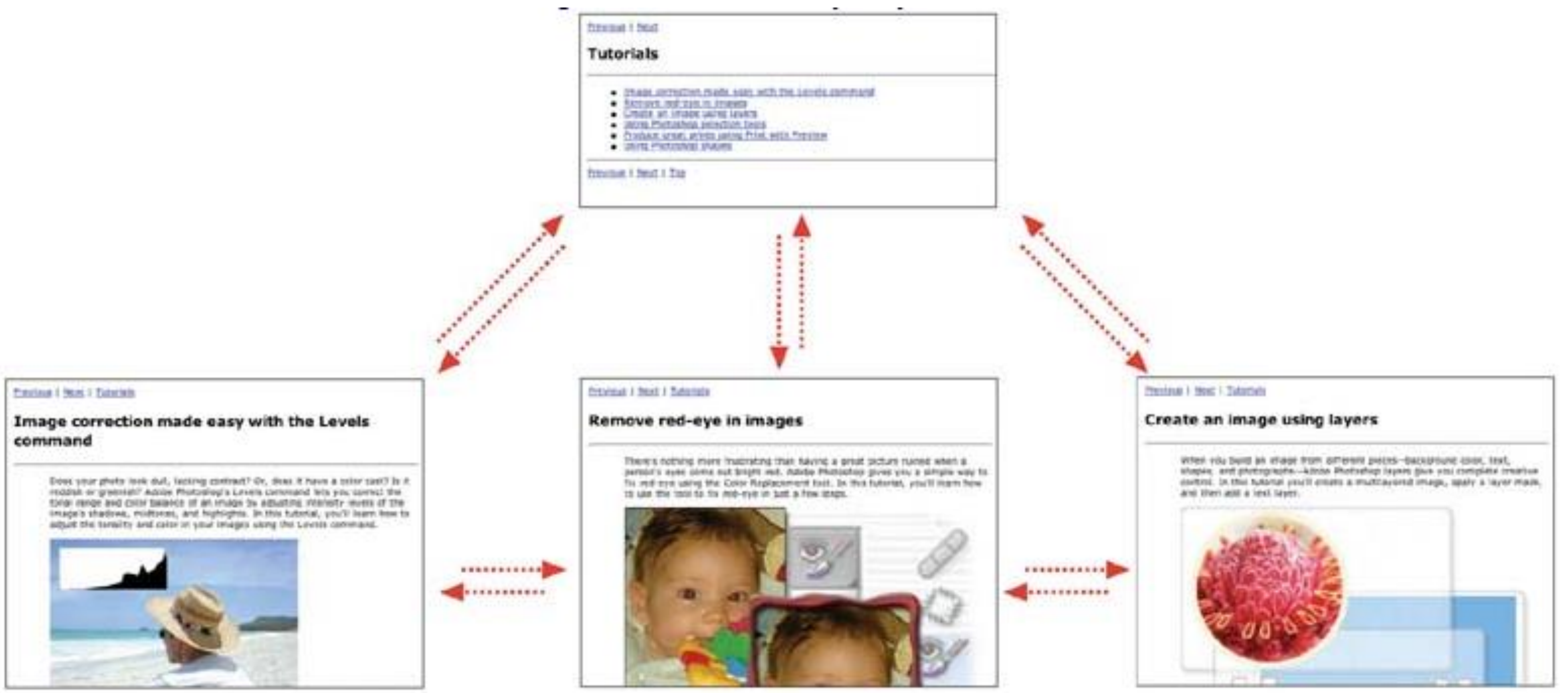
pyramid pattern contd…

- protocol:
  - put *back*, *next*, and *up* buttons or links on each page/window
    - *don‘t have to be labelled as back, next, or up*
  - put links/buttons to each sequence page/window on the main/home page



  - co-locating the links/buttons on screen is useful
    - *minimises mouse motion and establishes spatial memory*
  - if possible, put the next links/buttons in the same place on each page/window
  - can also use this navigational pattern to navigate amongst items within a list

pyramid example…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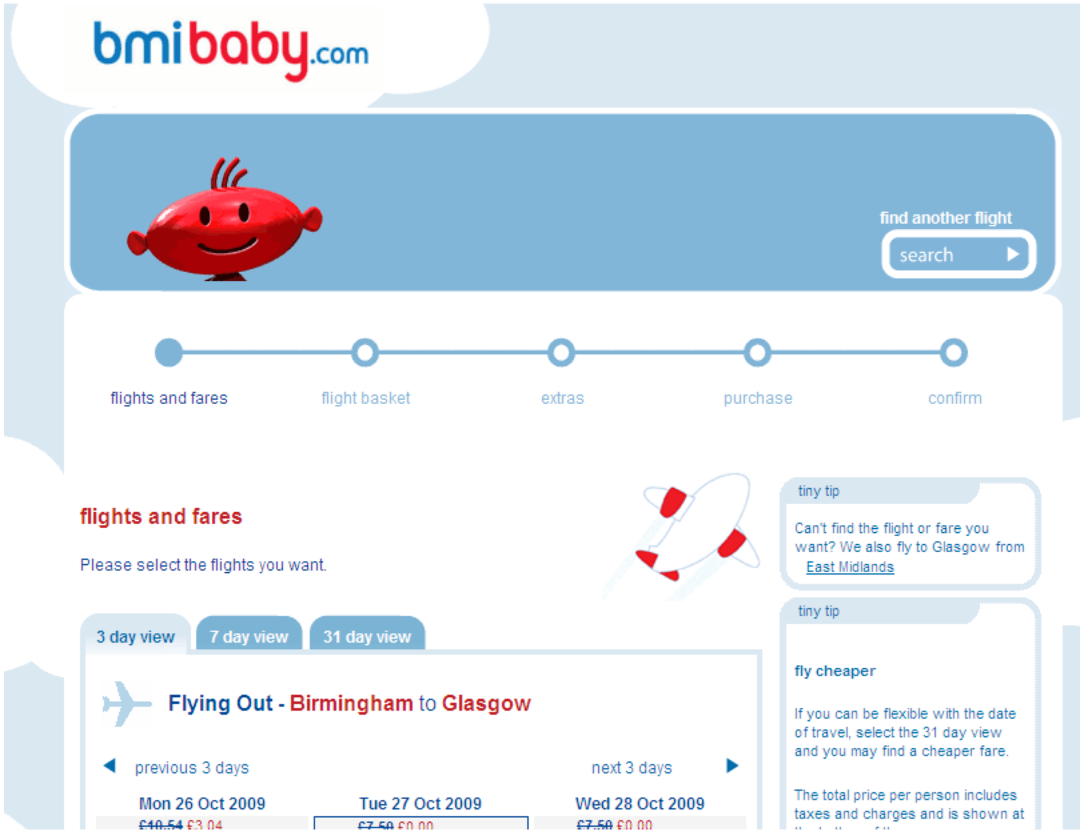
sequence map pattern…

- on each page in a sequence, show a map of all pages in order with a “you are here” indicator
- use for applications with a narrative or an enforced progression (typically linear)
- people do not want to waste time figuring out where they are
- lets people know how much further they have to go in a progression
    - gives indication of the past-present-future of activity

sequence map pattern contd…

- protocol:
  - place small map of pages in the sequence somewhere near the edge of the page/window (often along the top)
    - *keep it to one line or column if possible*
    - *clearly highlight the current location indicator*
  - use labels and/or step numbers to identify the pages/windows in the sequence map

sequence map example…



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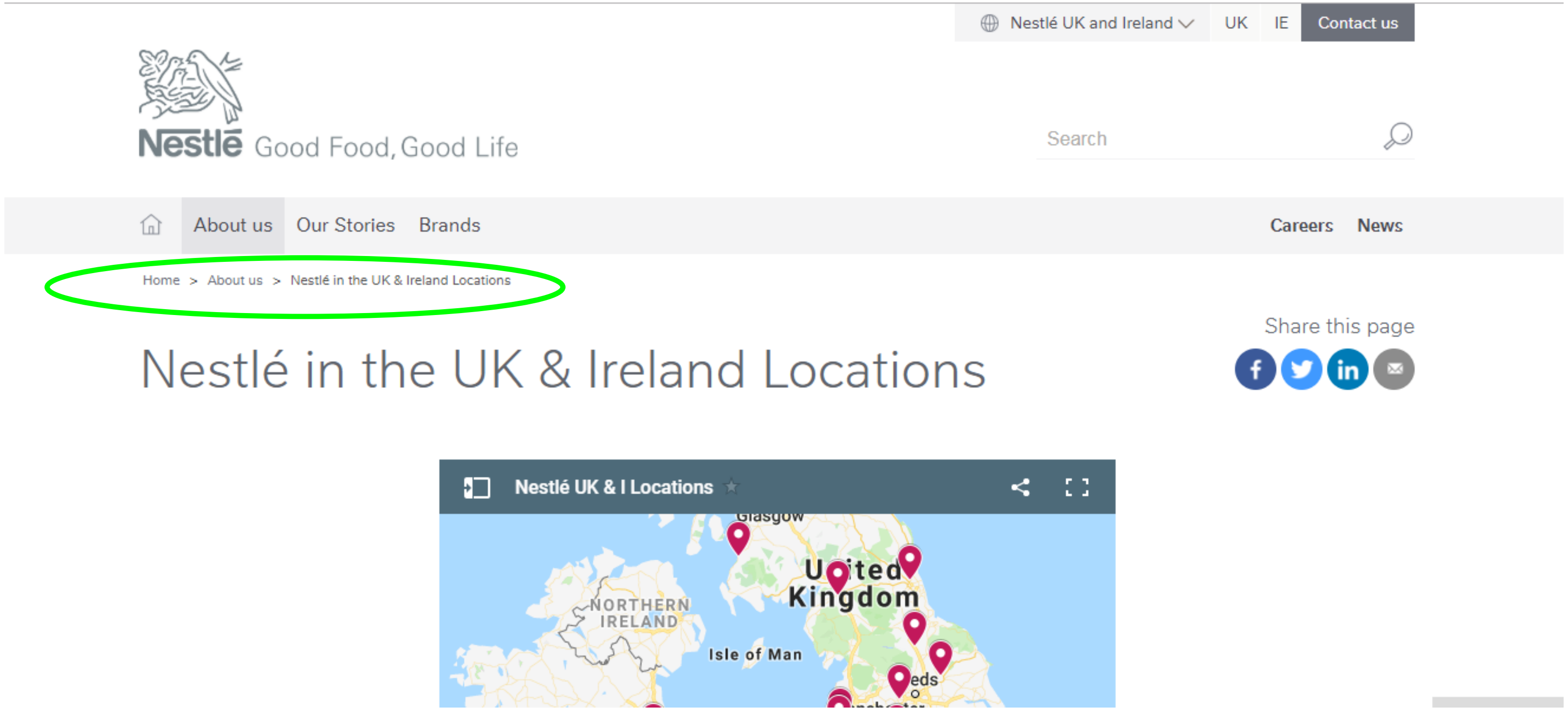
breadcrumbs pattern…

- on each page (in a hierarchical structure) show a map of all the parent pages, up to the main page
- use for applications with a basic tree or hierarchical structure
  - best if there aren’t too many links between tree elements
  - frequently used in applications with one-window drilldown structure
  - alternative to sequence maps where the sequence map would become too unwieldy
- show a path from root (main page) to current position via all the levels in the hierarchy
  - helps users determine where they are in the structure (especially if they have jumped several levels in one go due to a given course of action)
- breadcrumbs are about context not history
  - gives indication of the current location relative to overall structure NOT the path taken to get there
- since clickable, they are navigation tool in own right

breadcrumbs pattern contd…

- protocol:
    - near edge (usually top but can also be at the bottom) of the page, put a line of text or icons indicating the current level in the structural hierarchy reading from left to right
        - *between the icons put a graphic (e.g., an arrow) to indicate movement from one level to the next*
    - labels for each level indicator should be titles of corresponding page/window
        - *users should recognise them if they have already visited them*
        - *users should be able to guess at their content based on the label even if they are unfamiliar with them*

breadcrumbs example…



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page layout…

- the art of manipulating the users' attention on a page to convey meaning, sequence, and points of interaction
  - done to help users extract meaning
- 5 major elements of page layout:
  - **visual hierarchy** » most important content should stand out the most and vice versa & user should be able to work out the informational structure of the page from its layout (see Design Principles lectures)
  - **visual flow** » considers the track of users' gaze as they scan a page of information (see Design Principles lectures)
    - *well designed visual hierarchy establishes focal points on the page*
    - *visual flow leads the users' eyes from one focal point to another*
    - *should be able to design for visual flow such that you ensure people follow the right sequence – i.e., designer should set up the right sequence of focal points*
  - **grouping and alignment** (see Design Principles lectures)
  - **how to put the above three elements together**
  - **how to use dynamic displays**

page layout patterns…

- patterns that consider the visual hierarchy of the whole page:
  - visual framework
    - *consider early during design as it affects all the major windows/pages in a UI*
  - centre stage
- patterns that represent ways of chunking content:
  - tiled sections
  - card stack
  - closable panels*
  - movable panels*
- patterns that draw on concepts of visual flow, alignment, etc:
  - right/left alignment*
  - diagonal balance*

*** read Tidwell, J., (2005), Designing Interfaces, O’Reilly Media Inc. Chapter 4**

page layout patterns contd…

- miscellaneous:
  - property sheet*
    - *as much about content and interaction as it is about layout BUT when knowledgeable users recognise that a page has a property sheet, their expectations are strongly set*
- patterns that deal with dynamic aspects of content layout:
  - responsive disclosure*
  - responsive enabling*

  $\left.\begin{array}{l}\text{responsive disclosure*}\\ \text{responsive enabling*}\end{array}\right\}$ reveal/enable items in response to user actions/input
  - liquid layout* - resize window contents as user resizes window

*** read Tidwell, J., (2005), Designing Interfaces, O'Reilly Media Inc. Chapter 4**

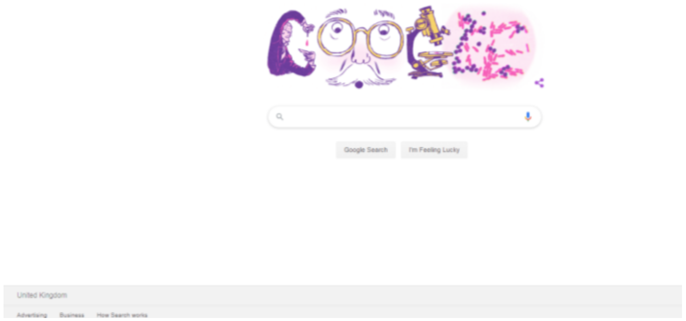
visual framework pattern…

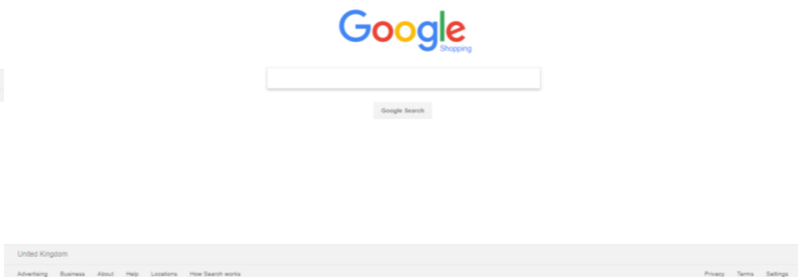
- design each page to use the same basic layout, colours, and stylistic aspects
  - give the design enough flexibility to handle varying page content
- use when the application has multiple windows/pages and you want it to appear as a cohesive unit
- gives the user a sense of familiarity when UI pages use consistent colour, font, and layout, and where signposts are in consistent locations
  - helps users know where they are and where to find things
  - reduces cost of context switch between pages
  - strong visual framework helps content stand out more – constant aspects are habituated

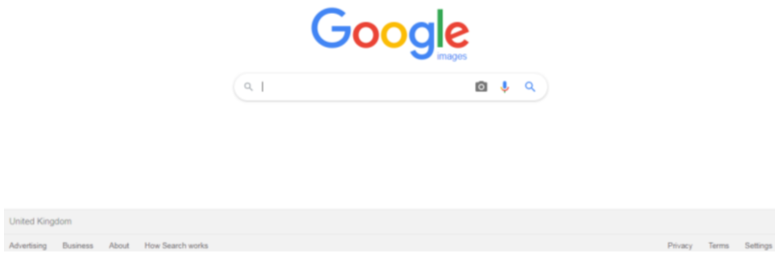
visual framework pattern contd…

- protocol:
  - decide on an overall “look-and-feel” for all pages
    - *home pages or main windows can be different but should share some characteristics with the rest of the application*
    - *consider: colour, fonts, writing style and grammar*
  - where applicable, all pages should share:
    - *signposts*
    - *navigational devices and navigational patterns*
    - *spacing and alignment*
    - *overall layout (grid)*
      - layout grid = structural template for the layout of a set of pages

visual framework example…







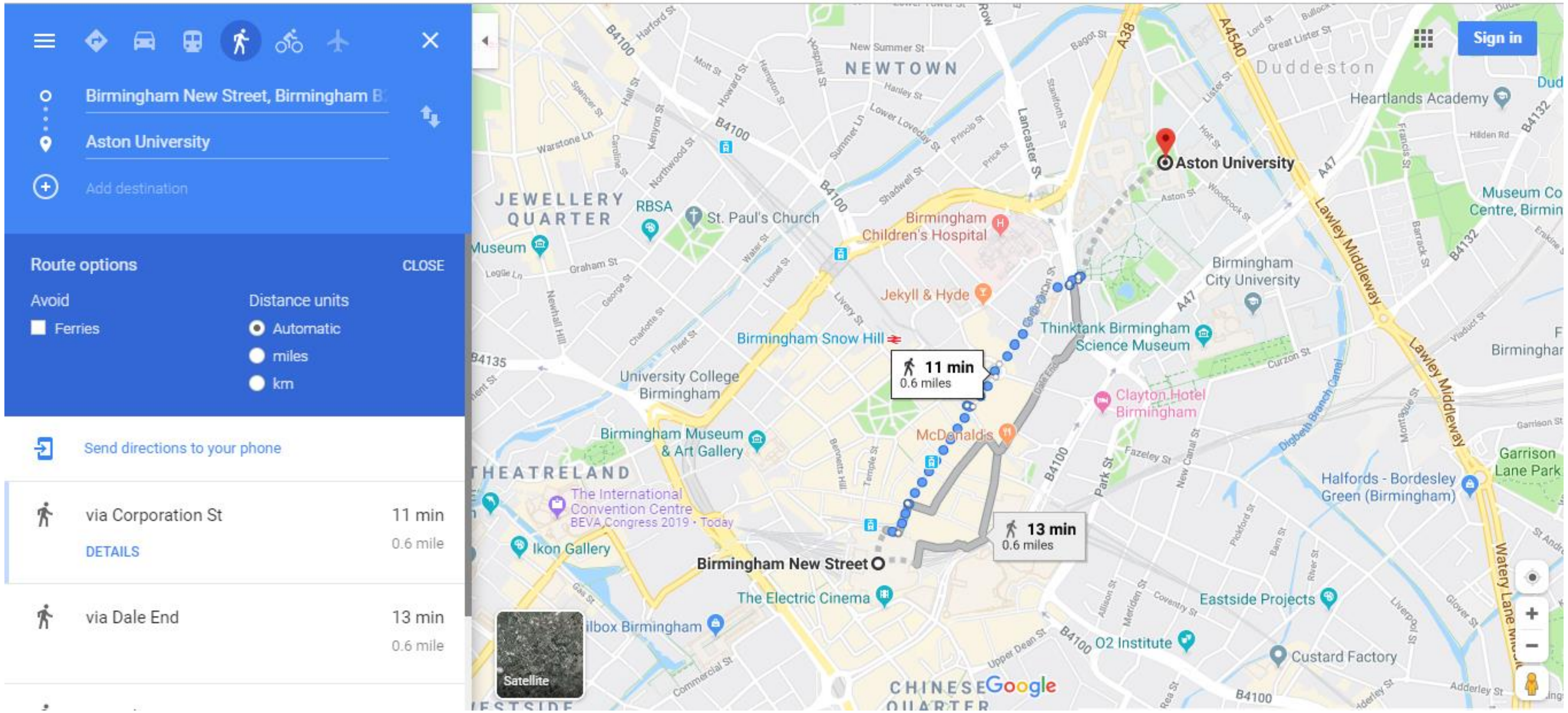
centre stage pattern…

- put the most important part of the UI into the largest part of the page/window
    - group secondary content around it in smaller panels
- use when the application has to show coherent information to the user to let him/her edit an object or perform a given task
    - e.g., graphics editors
- focuses the users' attention on the most important information (task)
    - unambiguous central object focuses users' attention
    - centre stage establishes the purpose of the page/UI
    - users will assess the peripheral items in terms of how they relate to the aspect which has centre stage

centre stage pattern contd…

- protocol:
  - set up a visual hierarchy with the centre stage dominating all else
  - consider:
    - **size**: centre stage should be at least double the width of the peripheral items in the left/right margins and double the height of its top and bottom margins (although this could be resized by the user)
    - **colour**: centre stage colour should contrast with the peripheral information/objects – white against grey often works well
    - **headlines**: big headlines = focal points which can draw users' attention to the top of the centre stage
    - **context**: fit with users' preconceptions in terms of what the users expect to see in centre stage
  - ironically, doesn't matter where you put the "centre" stage – can work in top, bottom, left, or right positions relative to the page as a whole – as it should dominate wherever it is placed on the page

centre stage example…



Birmingham New Street, Birmingham B

Aston University

Add destination

Route options CLOSE

Avoid

- [ ] Ferries

Distance units

- [✓ Automatic]
- miles
- km

Send directions to your phone

via Corporation St	11 min	0.6 mile
DETAILS		
via Dale End	13 min	0.6 mile

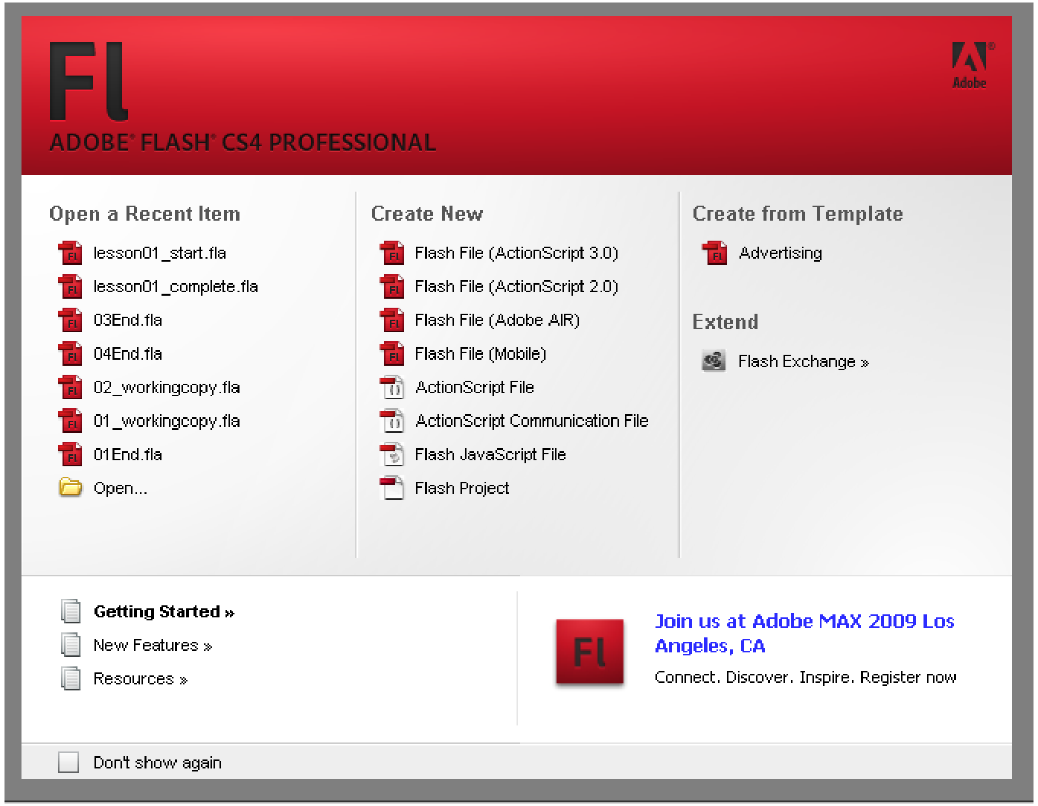
tiled sections pattern…

- identify separate sections of content by giving each a visually strong title and then laying them out together on the same page
- use when there is a lot of content to display on the page but you want to ensure that it is easy to scan the page and to find information
    - can use thematic or task-based grouping of content
- well thought out and labelled sections present the content in easy-to-manage chunks
    - makes information architecture obvious
    - guides user’s eye along the page content

tiled sections pattern contd…

- protocol:
    - carefully consider the information architecture – split content up into coherent chunks with clear names
        - *if you are struggling to find clear names, suggests that the content grouping in a section does not represent a meaningful chunk of the overall content*
    - present chunk titles in font that stands out from the rest of the content
    - use whitespace to visually separate chunks/sections
    - carefully use boxes etc. to add visual separation

tiled sections example…



Open a Recent Item

- lesson01_start.fla
- lesson01_complete.fla
- 03End.fla
- 04End.fla
- 02_workingcopy.fla
- 01_workingcopy.fla
- 01End.fla
- Open...

Create New

- Flash File (ActionScript 3.0)
- Flash File (ActionScript 2.0)
- Flash File (Adobe AIR)
- Flash File (Mobile)
- ActionScript File
- ActionScript Communication File
- Flash JavaScript File
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Don't show again

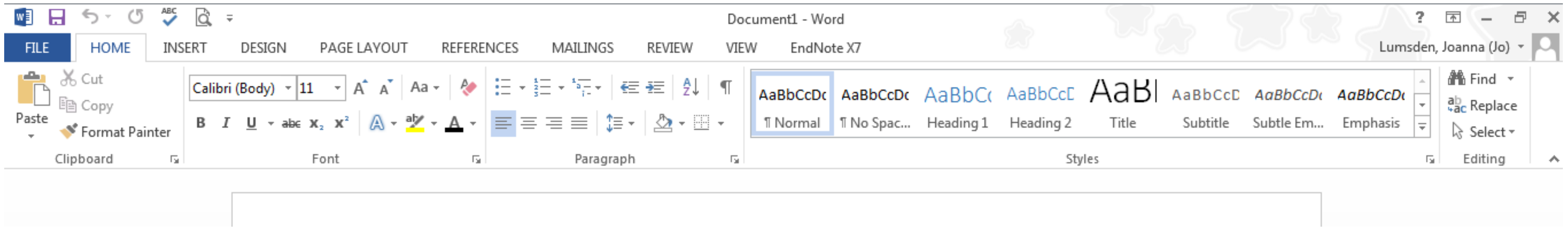
card stack pattern…

- allocate sections of content to separate panels or cards and stack them up so only one is visible at a time
  - use tabs to give users access to the hidden panels/cards
- use when there is too much material to present at the same time on a single page and where the users’ attention would become distracted by the extent of controls/text across a UI
  - often used when tiled sections would end up being too big to fit onto the page at the same time
- the labelled card structure separates content into easily digestible chunks
  - users are very familiar with tabs – the most common form of card stack

card stack pattern contd…

- protocol:
  - carefully consider the information architecture – split content up into coherent chunks with clear names
    - *if you get the split wrong, users will have to switch back and forth between different cards!*
  - choose a presentation:
    - *tabs are good for 6 or less cards – don't use double rows of tabs as these are never easy to use – and scroll horizontally if you can't fit them all into one row at once*
    - *vertical tabs allow you to utilise a tall space that can't accommodate normal tab pages*
    - *a left-hand column of names is also an option – can fit a lot of cards into a single column and allows you to organise cards into a hierarchy which is not possible with standard tabs*
      - becomes like the two-panel selector
    - *drop-down list takes up less space but at the expense of clarity and users might not recognise it as a navigational device as this is not its normal usage*

card stack example…



action and command patterns…

- patterns for presenting actions:
  - button groups
  - action panel
  - prominent “done” button
  - smart menu items*
- patterns for non-instantaneous actions:
  - preview*
  - progress indicator*
  - cancelability*
- patterns for sequences of actions (not easy to implement):
  - multi-level undo*
  - command history*
  - macros*

*** read Tidwell, J., (2005), Designing Interfaces, O’Reilly Media Inc. Chapter 5**

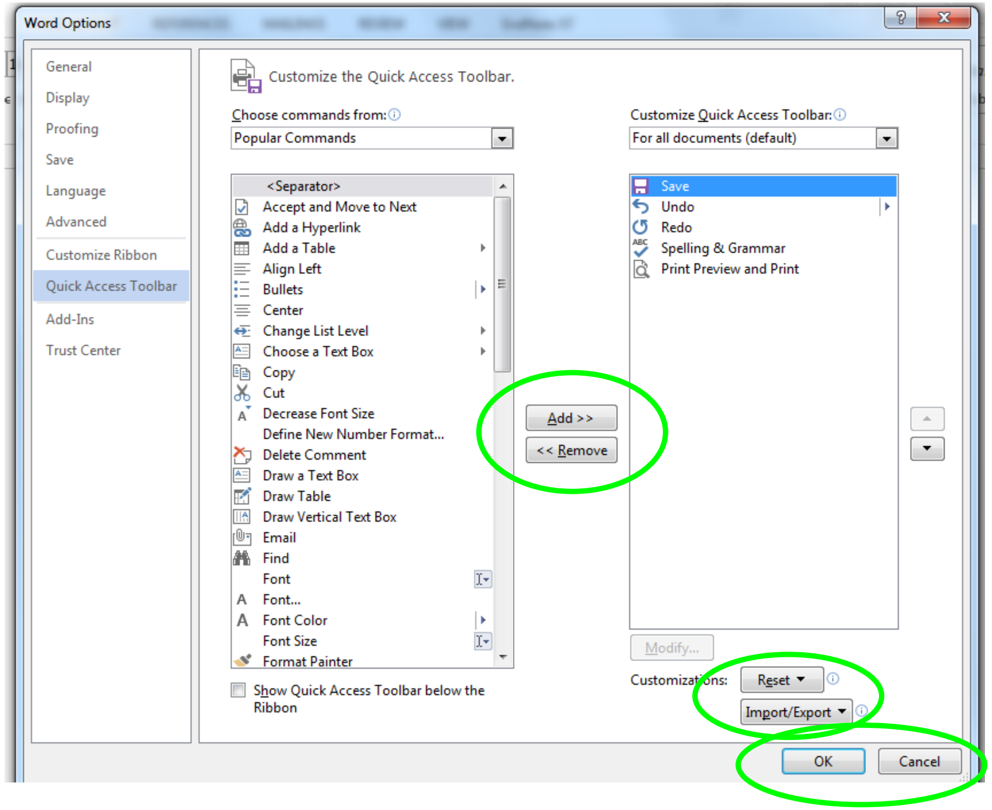
button groups pattern…

- present related actions as clusters of aligned buttons
- use when you present 2 – 5 related actions
    - e.g., OK, Cancel, Apply, Close
    - e.g., Move Up, Move Down, Delete
- help make interface self explanatory
    - well-defined clusters are easy to identify
    - Gestalt principles apply here
        - *proximity & visual similarity = relatedness*
        - *size and alignment = create large composite object = closure*

button groups pattern contd…

- protocol:
  - all buttons in group should be same width and height (unless label lengths vary considerably)
    - *try and stick to single columns or rows of buttons*
  - if buttons act on same object put the group to the right of the object
    - *users have "blind spot" at the bottom of complex UI elements*
  - if buttons apply to whole page/dialogue box – e.g., Close or OK – follow the style guide for the platform where users will be habituated to look for them

button groups example…



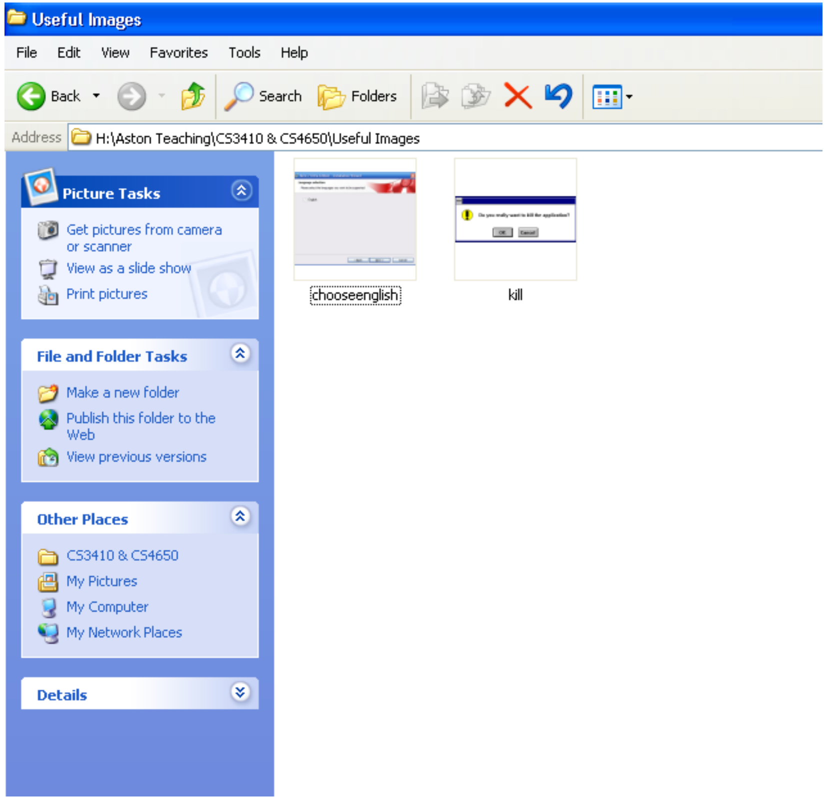
action panel pattern…

- instead of using menus, present large group of related actions on a UI panel that is always visible
- use when you have too many actions to use a button group
    - could put them in a menu but perhaps you don't have a menu bar in the UI or you simply want to make the actions more obvious
    - alternatively, the set of possible actions may be too complex even for a menu – cascading menus can be hard for users to manipulate
    - takes up a lot of screen real estate so not good for small devices
- ensures actions are visible and gives designer freedom of presentation
    - action panels are really just permanently displayed menus
    - makes interface functionality discoverable
    - familiarity via web page design

action panel pattern contd…

- protocol:
  - placing the panel on the UI
    - *place below or to the side of the target of the action (remember law of proximity)*
    - *if panel is closable, make it easy to reopen*
    - *let it be dynamic to reflect current state of the application*
  - structuring the actions – possible options:
    - *simple lists, multi-column lists, categorised lists (probably task-centred), tables or grids, closable panels, or any combinations of the above*
    - *present groups linearly – think about accessibility for screen reader*
  - labelling the actions
    - *use text, icons, or a combination of both to label actions*
    - *text labels can be longer here than a traditional toolbar or menu would allow*
    - *actions don't have to look like buttons (even if that is how they are implemented)*

action panel example…



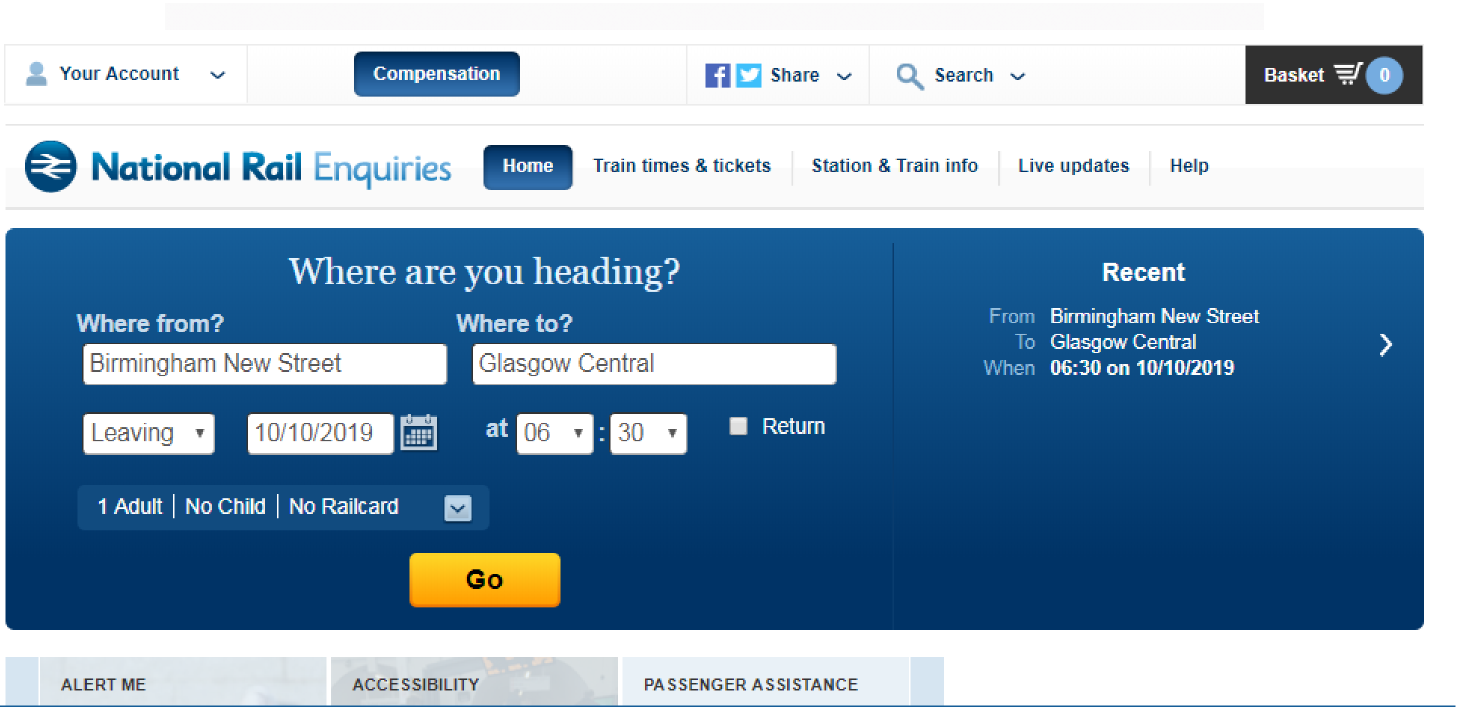
prominent ‘done’ button pattern…

- place button that concludes a transaction at the end of the visual flow and make it prominent
- use when you need a button like “done”, “submit” or “OK”
    - in general, anywhere where a button is required to conclude a transaction sequence
- well understood and obvious
    - sense of closure
    - draws on concepts of visual hierarchy, visual flow, grouping, and alignment to get this right

prominent ‘done’ button pattern contd…

- protocol:
  - make button look like a button not a link
    - *make sure it stands out on the page*
  - better to use textual labels than icons for this button
  - place the button where the user will most likely find it
    - *trace task flow to place the button just after the last step*
    - *usually at bottom right but observe standards*
  - make sure button is close to the last field or control on the page – if it is too far away users may not find it immediately upon finishing their work

prominent ‘done’ button example…



Where from? Birmingham New Street
Where to? Glasgow Central
Leaving 10/10/2019 at 06 : 30 Return
1 Adult | No Child | No Railcard

Recent
From Birmingham New Street
To Glasgow Central
When 06:30 on 10/10/2019

key points…

- essential to get the structure of an application and the content and navigation within that application right in order to maximise usability and effectiveness
- variety of application structure patterns to guide the physical structure of the UI design
- navigation is critical to use of an application and comes with associated costs
- variety of navigation/orientation patterns to guide the navigational elements of a UI design
- layout of page elements can be guided by design principles (lectures 7 & 8) and related page layout patterns

Individual Reading:

Tidwell, J., (2005), Designing Interfaces, O’Reilly Media Inc. Chapters 2 - 3