Lateral Access

- Whether you're a student in college, a design professional, or an author of a book, you have all experienced the clutter of notes, reminders, memos, drawings, and documents scattered across the surface of your desk.

- To quickly find materials you can use: a binder, file folders with the colored tabs, paper clips, even a stapler. You grab the content, sort and filter as a means for organizing and making order.
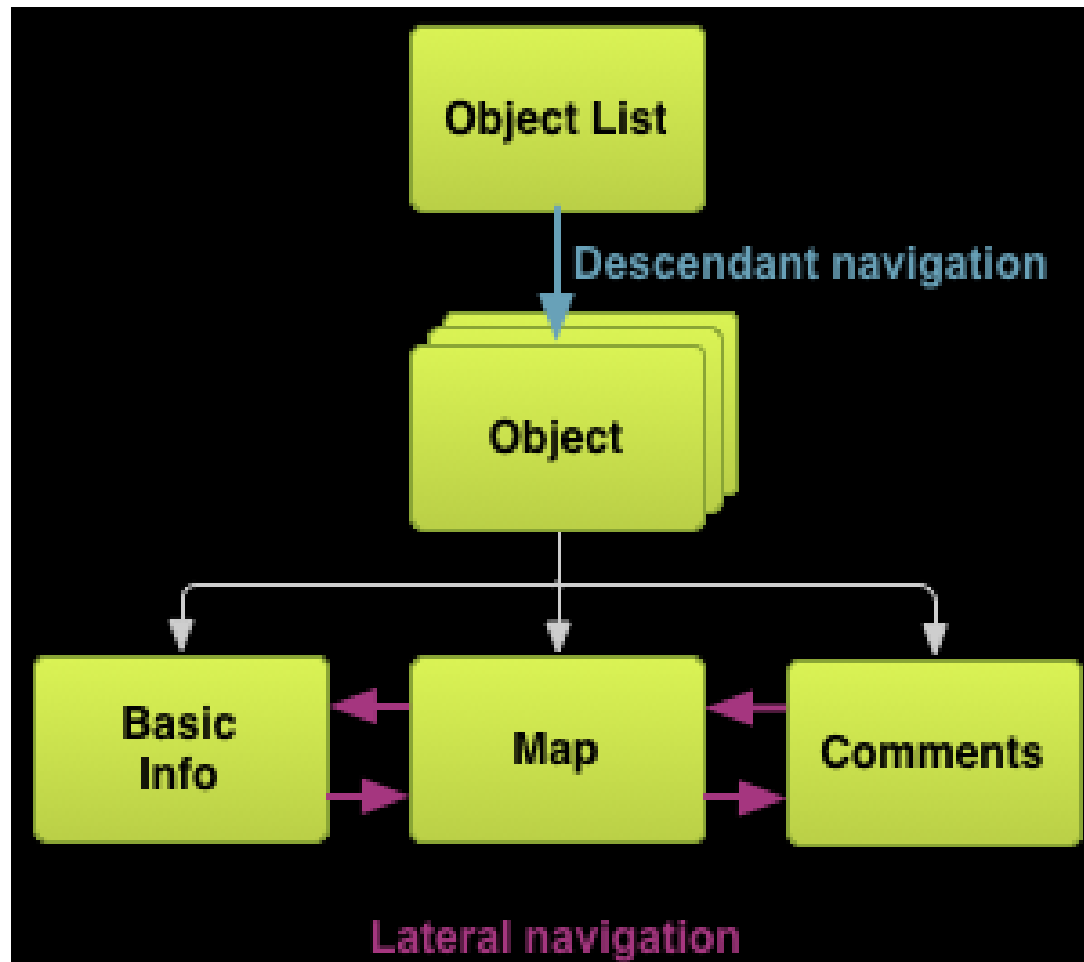
Lateral Access

- As you organize, you may classify the data by such lateral relationships as:

- Nominal
  - Using labels and names to categorize data
- Ordinal
  - Using numbers to order things in sequence
- Alphabetical
  - Using the order of the alphabet to organize nominal data

Lateral Access

- Geographical
  - Using location, such as city, state, and country, to organize data
- Topical
  - Organizing data by topic or subject
- Task
  - Organizing data based on processes, tasks, functions, and goals

Lateral Navigation

Lateral access pattern

- Using appropriate and consistent lateral access widgets will provide an alternative way to present and manipulate content serially.

- Within this chapter, the following patterns will be discussed, based on how the human mind organizes and navigates information:

- *Tabs*
  - Based on the concept of file folder tabs, and used to separate and clearly communicate sets of pages or features at the same level in the information architecture.

- *Peel Away*
  - An organic and animated representation of a page being flipped over to reveal a second page behind it.

Lateral Access

- *Simulated 3D Effects*
  - Display an alternate view to the content on the page using 3D graphics. When device gestures or viewer movements are used, the items affected will follow the presumed physics or correctly represent the space they occupy.

- *Pagination*
  - Serially displays a location within a set of pages, and offers the ability and function to navigate between pages easily and quickly.

- *Location Within*
  - Uses an indicator to show the current page location within a series of several screens of similar or continuous information. This is presented with an organic access method.

Tabs

- Tabs are a very common interactive method, and can be implemented on almost any device or platform.

    - Tabs are based on real life objects, the tab labels that stick up from file folders.
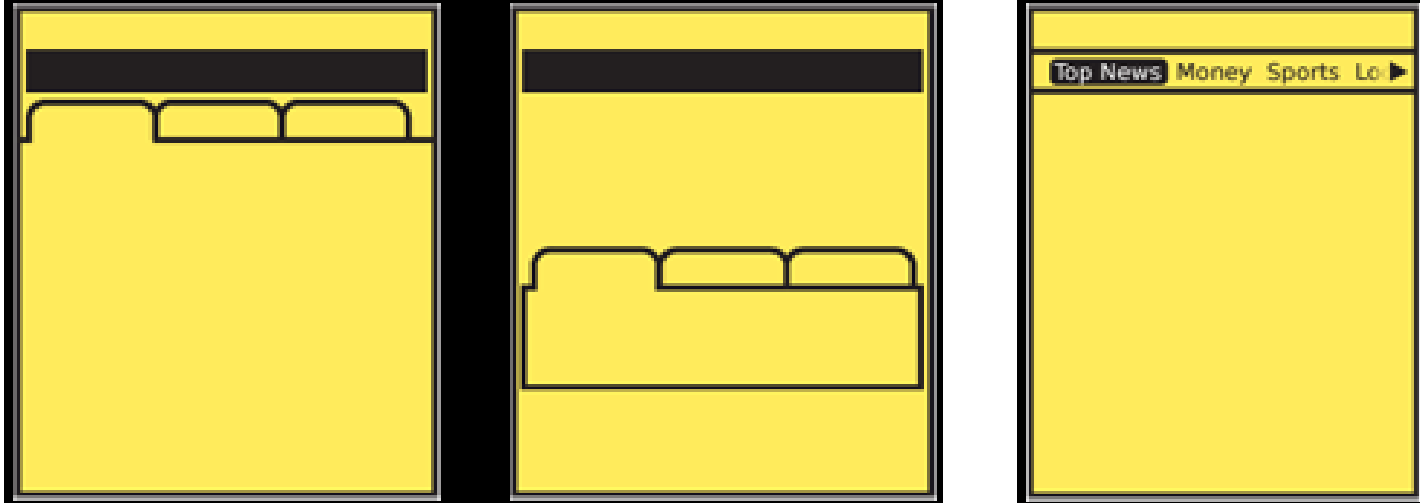
Tabs

- Tabs are based on real life objects, the tab labels that stick up from file folders. The folders contain information that takes up too much room to just leave on the desk.

- To make sure they work, follow the same principles as the paper and file cabinet:
  - Clearly label what is inside the item associated with each tab.
  - Indicate when you have the one you want selected, or open.
  - Make sure all tabs and labels are visible at once, or it is clear there are more to be seen if you scroll, or otherwise interact with the tab bar.
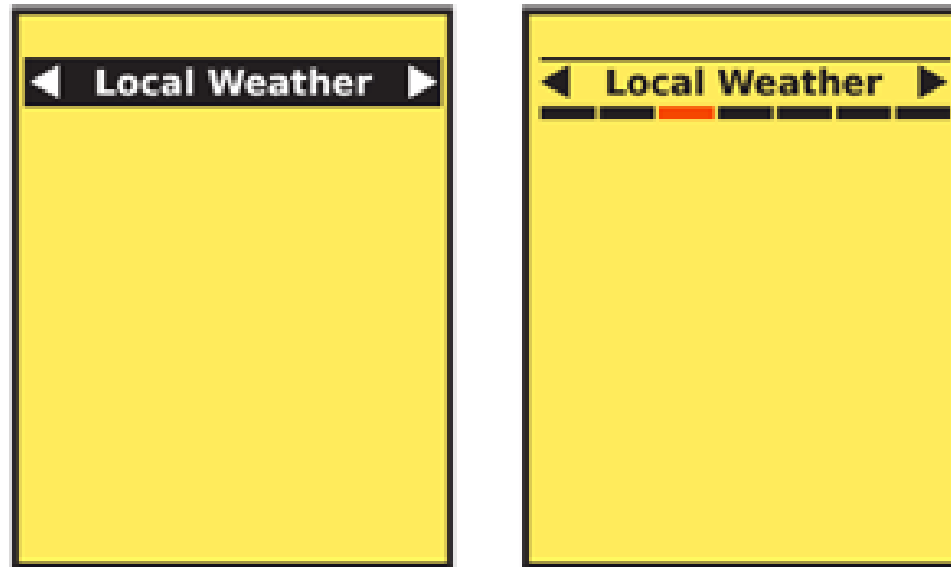
Tabs

- For scroll-and-select devices, tabs are most useful when the remaining content only requires vertical scrolling.

- In this case, pressing the Left or Right scroll keys anywhere on the page will switch focus to the current item in the tab bar, and subsequent presses will switch focus to the next item in line. Pressing OK/Enter will select the tab and switch to that page, section or function.

Tabs

- When using a tab bar to switch out content for a subsection of a page, sideways scrolling among those tabs will become available when vertical scrolling has brought the tab bar into focus.

- This works very much like it does for sub-scrolling of a textarea in a form. The current item will be in focus, and others may be focused in the usual manner. While in this tab row, any other tab rows may not be accessed.
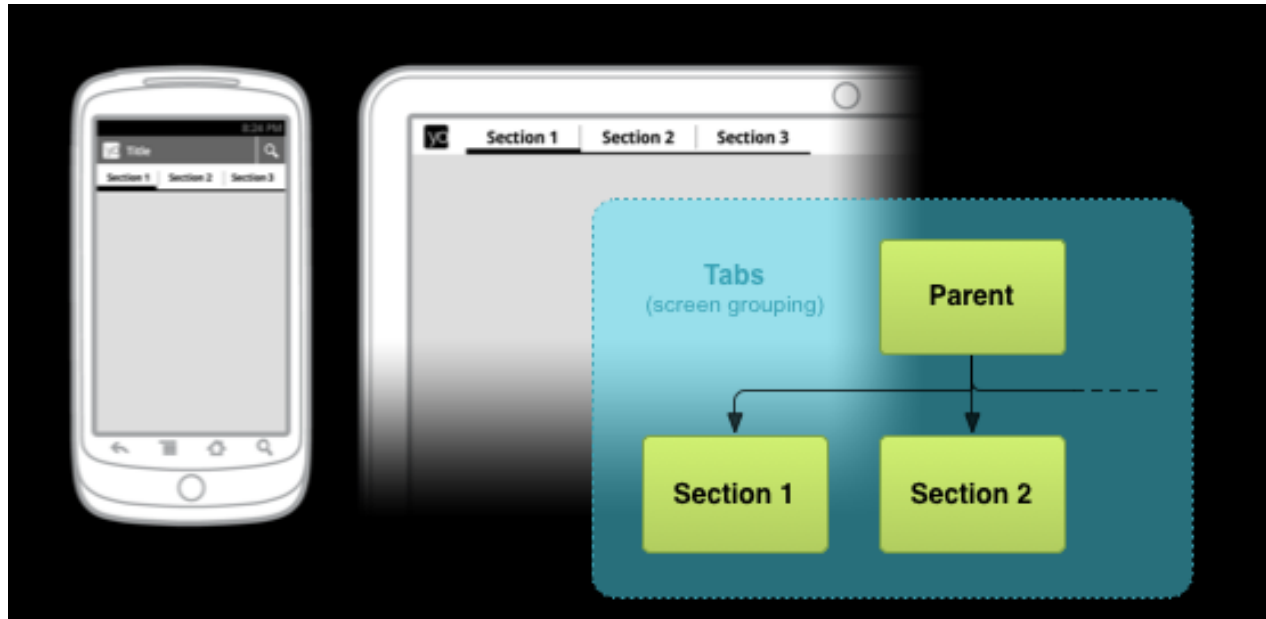
Tabs

Tabs

Tabs – Anti Pattern

- When only one or a few tabs are visible, assure the tab paradigm is clear, and it is obvious the tab is not just a page title, but is one option of many to be chosen from.

- Clever solutions for space rarely work, so follow best practices and existing working methods before attempting to develop your own solutions. A second row of tabs always is perceived as subsidiary to the top row, and is not read as a second row of text would be.

- Avoid using tabs for both high-level and in-page navigation, as two different rows. If needed, differentiate the two in some key way to express the hierarchical difference.

- When tabs are used within a page (such as providing a switch between overview, detailed specifications, and reviews), avoid refreshing the entire page. Logically, and by convention that users are familiar with now, this should only load the requested information, and leave the rest in place, without even flickering.

Peel Away

Peel Away requires notable graphics processing, full-screen display, and gestural interaction to work well.

The Peel Away pattern is like the Tabs, and many others in this chapter, in that it simulates a real world interaction. Here, you use simulated 3D effects to pretend the page is a piece of paper, and the user can peel or flip it back to view a second page behind it.

Peel Away
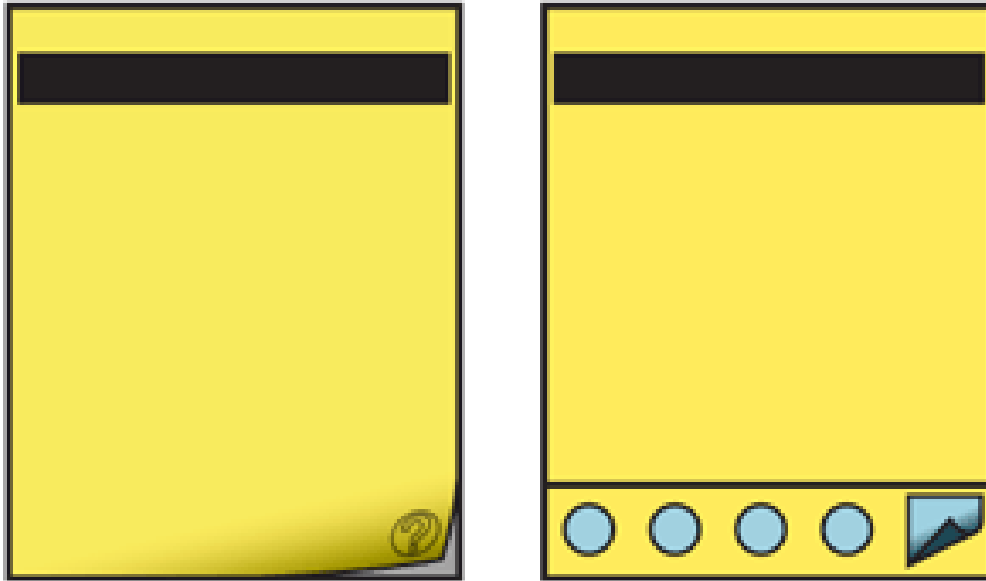
Peel Away – Anti Pattern

- Do not use the **Peel Away** pattern to display a second page of information that simply continues directly from the front page. Simply **Scroll** the page or use the conventional **Pagination** methods instead.

- Unless explicitly an "Easter egg" and intended to be hidden, always show the peeled back edge. Do not make users guess or ask friends how to get additional useful information. Delight only comes when self-discovery is easy.

- Do not mix interaction paradigms, only allowing dragging to open, and tapping to close, for example.

- Do not use this pattern if the entire front or back page scrolls.

Simulated 3D Effects

- Simulated 3D Effects do not always require a 3D display, but do generally require significant graphics processing power, and may require access to sensors (which browsers often cannot get).

- Individual elements on a screen, or the whole screen, can reveal related information -- or settings as shown here -- as a part of the element, instead of using convention but unrelated items like a Pop-Up.
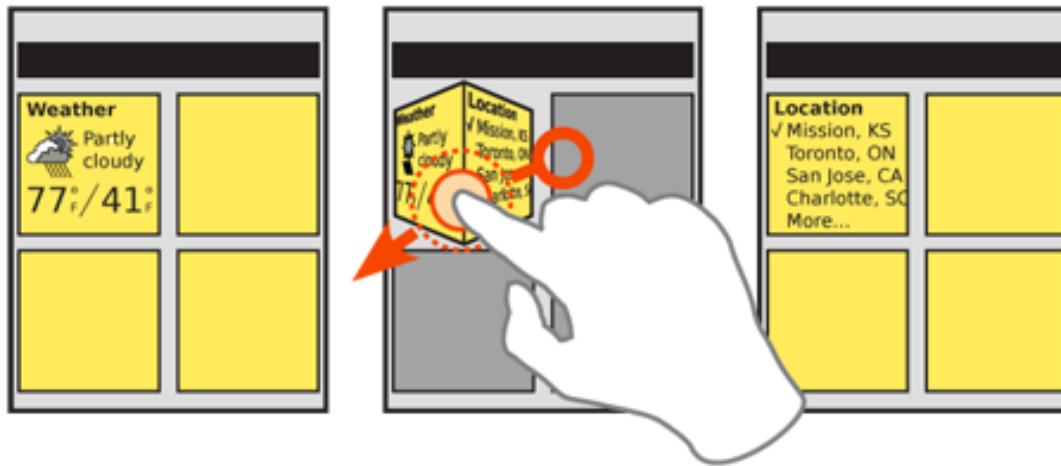
Simulated 3D Effects

- To use Simulated 3D Effects, you will pick one of three methods of interaction, and the associated methods:

- Screen gesture - Items, or the whole screen, will react to drag actions.
  - The selected item may be flipped to another side. Usually, these are represented as rectangular prisms, flipping 90° at a time.
  - The items may be moved around the screen.

Simulated 3D Effects

- Device gesture - The device senses position relative to the viewer, using accelerometers, machine vision (cameras) and other sensors.
  - The screen simulates an environment in which items live and are affected by movements of the device.

- Viewing point - Using machine vision, or a 3D display, when the user moves relative to the screen, items declared to be above others may simulate parallax and allow looking under them to other items or the background.

Simulated 3D Effects

Simulated 3D Effects

- When device gestures or viewer movements are used, any items affected will follow the presumed physics or correctly represent the space they occupy.

- Common uses are:
  – Seeing around or behind items in the front.
  – Observing the side of an item.
  – Revealing items off the side of the viewport, such as under the edge, or which themselves form the frame.

Simulated 3D Effects Anti Pattern

- 3D interfaces require commitment, and cannot be well-implemented with half measures.

  – Do not implement some 3D features if conventional layout elements will interfere with the illusion.

  – For example, if items move about the screen, then the typical grid of icons must also exist within the simulated space, and interact with the simulated physical world. The icons must not simply be painted onto the backdrop, act static, and be ignored by other objects.

- Avoid using secondary interactive methods such as menus to change the on-page elements.

Pagination

- Pagination control can be implemented very simply in any type of interface.

- The Pagination widget should be available wherever the user is most likely to need to change pages, or be aware of their location.

- Most often, the solution is to place the widget immediately above and below the content unique to the page.

- Another option is to anchor the widget (in the title bar, for example), so it is available at all points on the page. If the page does not scroll, a single fixed-location item logically becomes an anchored widget.

Pagination
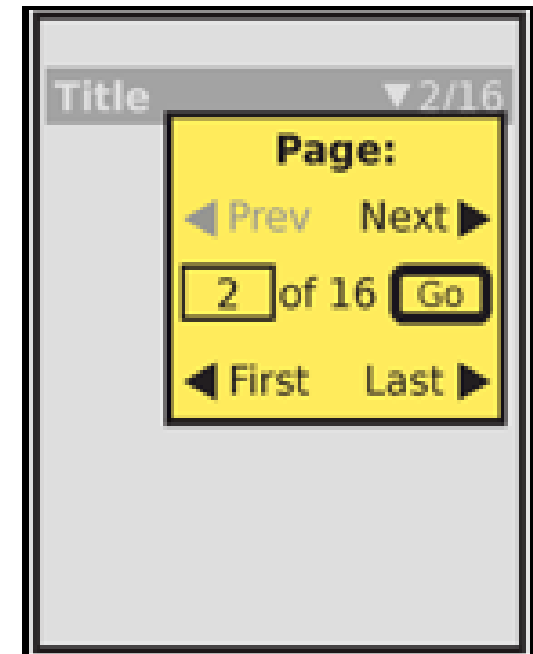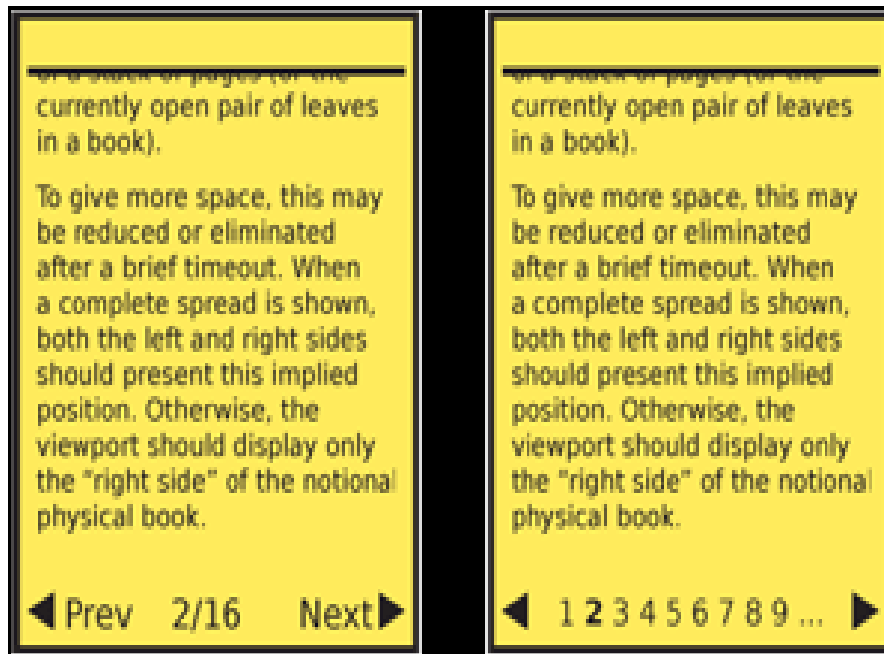
Pagination

- Three basic variations exist:
  - Widget-based
    - A section of the page is dedicated to the display and control of items concerning pagination.
  - Organic
    - Natural displays are becoming more common now, especially on touch and pen devices. These simulate "machine-era" presentation methods to imply the same information as the widget view. The display methods and interaction is integral with the design of the entire page, and is not in a specific location.
  - Hardware
    - On devices with hardware keys, you may map some to key page functions when inside an application. Certain devices designed around page content, such as eReaders, may have dedicated page control buttons.

Pagination Anti Pattern

- Pagination controls can easily get out of hand. In any reasonably complex system, it is easy to find justification for every method of page control.

- Avoid this, and attempt to only include the minimum set needed, so they can be placed on the page and be easy to find and use.

- Realistic representations of pages must accurately reflect the information.

- Avoid cumbersome entry or methods.

- Avoid overdoing mapping of shortcuts to keys.

Location Within

- Whether text or graphics, the **Location Within** can easily be implemented on any interface. Some OSs will have a built-in style for at least some cases, which should be used.

- When several screens of similar or continuous information are presented with an organic access method, an indicator is usually required so the user understands their position within the system. Two very common uses for this widget are to show position within a **Slideshow** or **Film Strip**. These each have the inter-frame interaction integrated with the basic pattern.

# Location Within
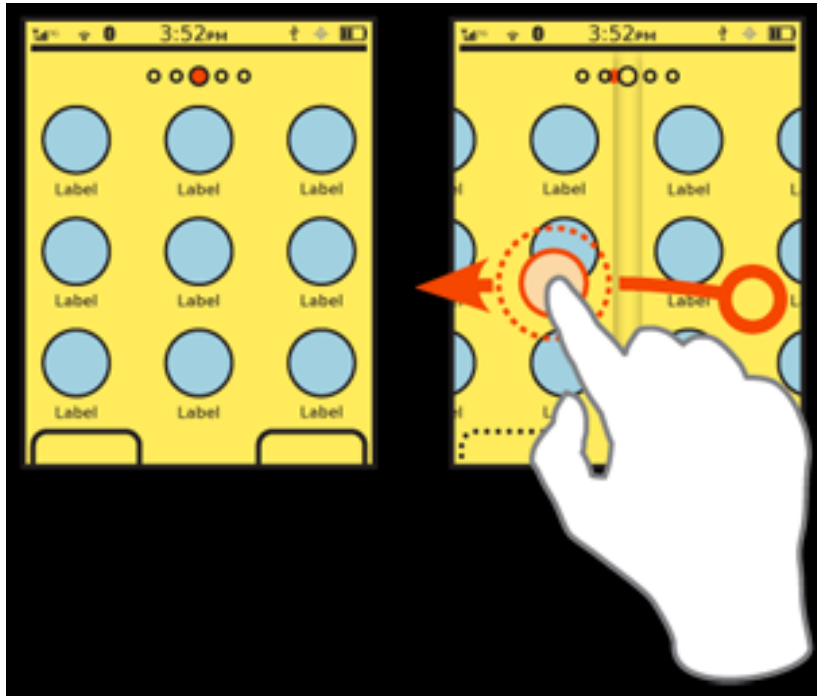
Location Within

- Location Within widgets are used to convey the specific context of a page within a series. The method used depends on the amount and type of information being presented.

- There are two basic types.
  - Text widgets list the current page, of a set of pages. "1 of 16,".
    - These are suitable for any number of screens; numbers are very space-efficient ways of displaying the information up to sets of hundreds or thousands of items.
  - Graphic widgets indicate the position as a single item among a field.
    - This may overlap with certain implementations of the Tabs pattern, but the entire set of pages must be visible on the page, and may not overflow. The dot and bar indicators to show position within the Home screens is a typical use for these indicators.

Navigation Drawer
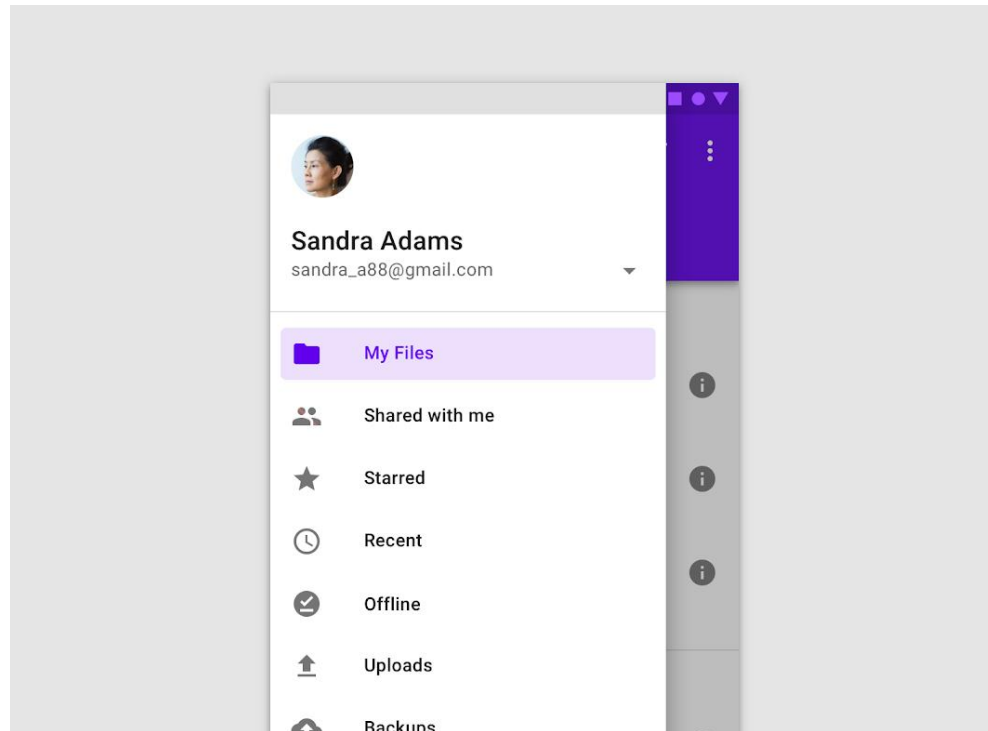
Drilldown Widget

Why to use Drilldown Widget

– They allow the user to access more specific related content.

– They provide the user with visual cues that more related content is available.

– They allow the user to immediately notice the hierarchical relationship of the content.

– They allow the user to gain additional information, or change the state of the device, without removing himself from the original context.

Drilldown Widget

Use of drilldown widgets affords the following benefits:

- They present immediate relevant information with a portal to access more specific content.

- They efficiently use valuable mobile screen real estate.

- They can allow for quick jumping to a specific section within the current page.

- They can provide additional surface information without removing the user from the context.

Widget

The word *widget* can mean a number of things, even within related Internet technologies.

The term may apply to bits of code, applets, engines, and GUI elements.

The functionalities of the widgets discussed are to:

- Display a small amount of directly related information
- Provide an alternative view of the same information, in an organic manner
- Provide access to related controls or settings
- Display information about the current state of the device
- Provide quick access to indexed information

Widget

- Widgets for Lateral Access
  - Whether your information architecture is organized hierarchically or laterally, its presentation and access are affected by the potentially small mobile display.

- Widgets for Drilldown
  - Using an information architecture that is structured hierarchically allows content to be laid out from general to specific while depending on parent-child relationships. This drilldown, top-down approach is effective in providing users with additional related content and commands within multiple information tiers.

Drilldown Pattern

- *Link*
- A selectable, content-only item that provides access to additional pages or content.

- *Button*
- A distinct, visual element, within any context, that enables the user to initiate an action, submit information, or carry out a state change.

- *Indicator*
- A visual representation—dual-coded with an image and text—that initiates an action and submits information similar to the actions of a link and button.

Drilldown Pattern

- *Icon*

- A clear and understood visual representation that easily provides the user access to a target destination or direct function.

- *Stack of Items*

- A stacked set of related, selectable items that can be dispersed to reveal the contents which provide further selection or access to each item.

- *Annotation*

- Reveals additional content details without entirely leaving the original display con- text. This additional content may also carry functionality.

Link
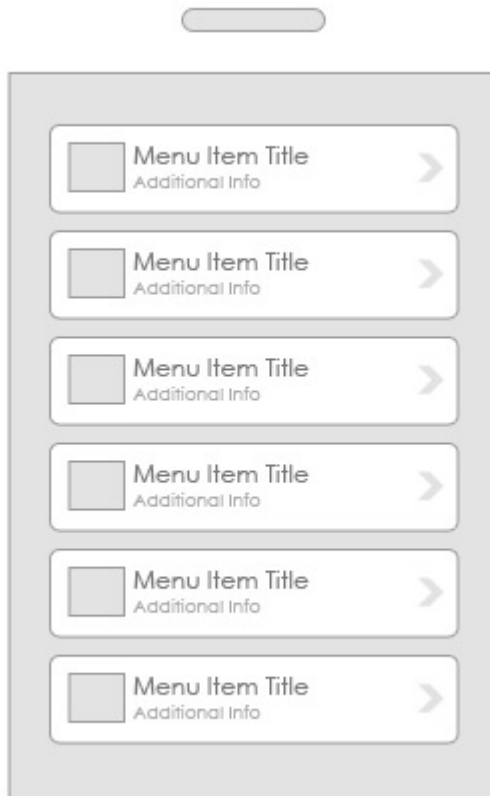
List menu / drill down navigation display content of menu in a list. Usually the list menu contain an icon or image, a title and sometimes with the additional description as well.

List menu / drill down navigation can be extremely useful and user-friendly, when your app contain large amount of content that organized in list over multiple levels.

Link

Inline links should always be a different colour from any styled text.

Whenever possible, they should also be underlined, but be sure to follow the OS standards.

Simply using colour can be confused with style and not perceived as a link.

SOMAIYA
VIDYAVIHAR UNIVERSITY
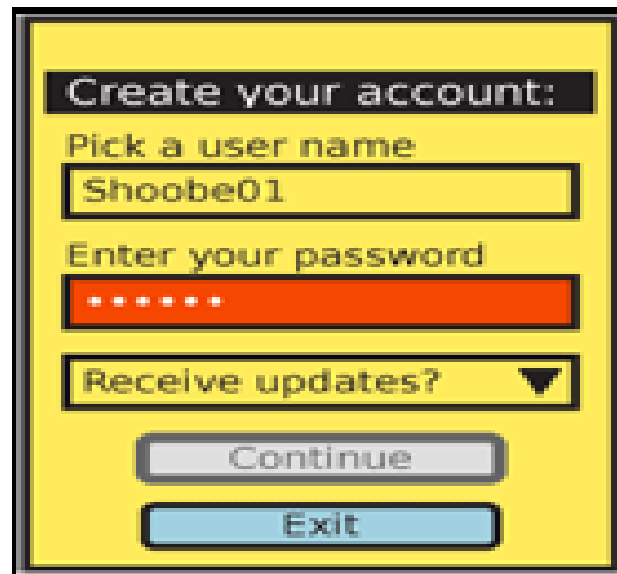K J Somaiya College of Engineering

Somaiya
TRUST
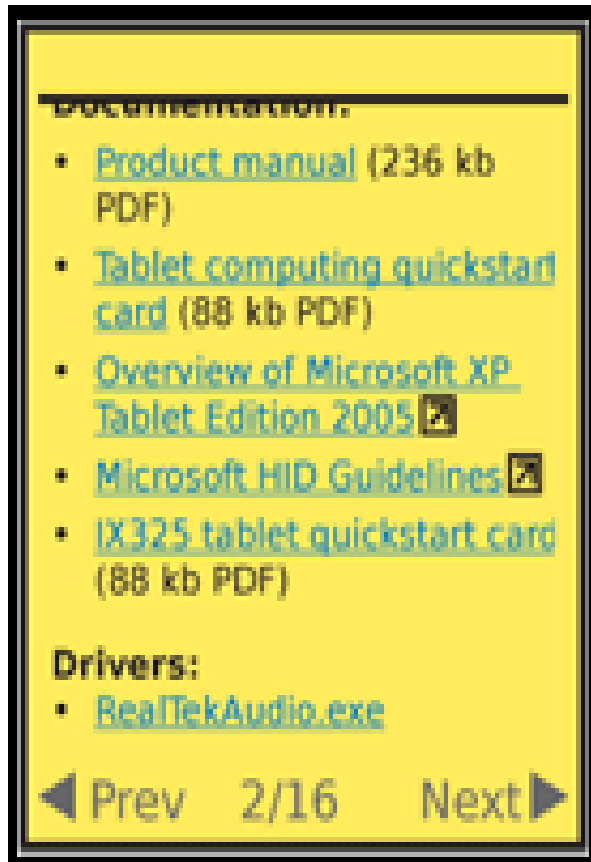
Link

- The Link pattern defines behaviours for the linked text only.

- Do not change the background for an entire row or other container in which a link occurs or this will become another type of pattern.

- Do not use links to activate functions.

- Avoid changing the type style for link condition changes, such as hover. Switching to bold, except for a small number of typefaces, will make the text wider, causing strange jumps, confusing the user and perhaps causing the page to reflow.
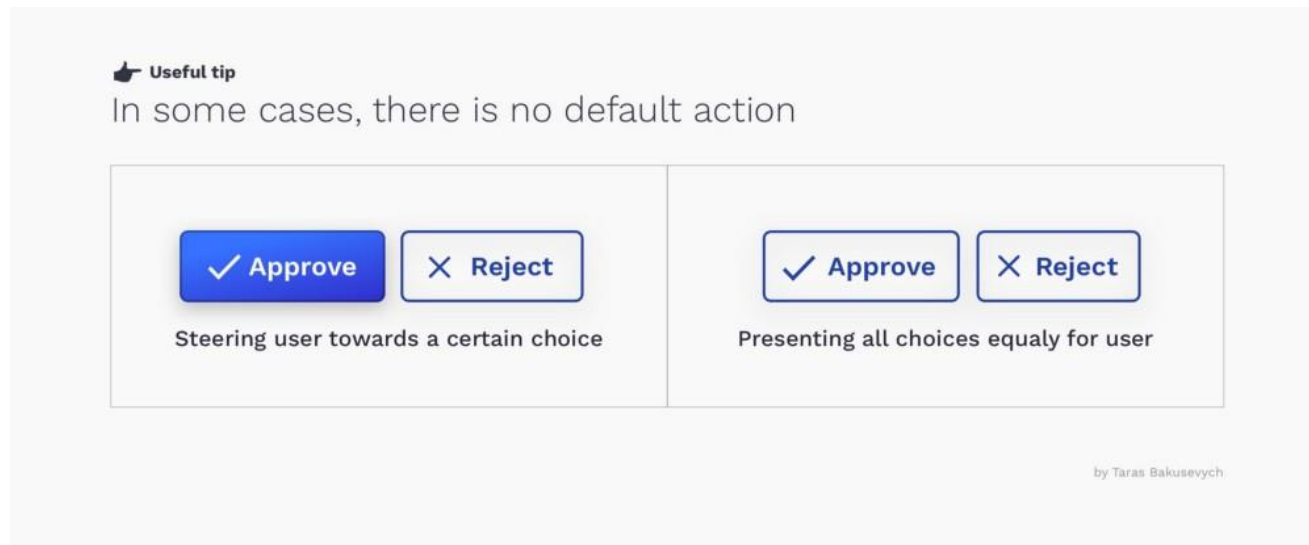
Button

- The **Button** is probably the most common element across all mobile devices, and is built into every platform.

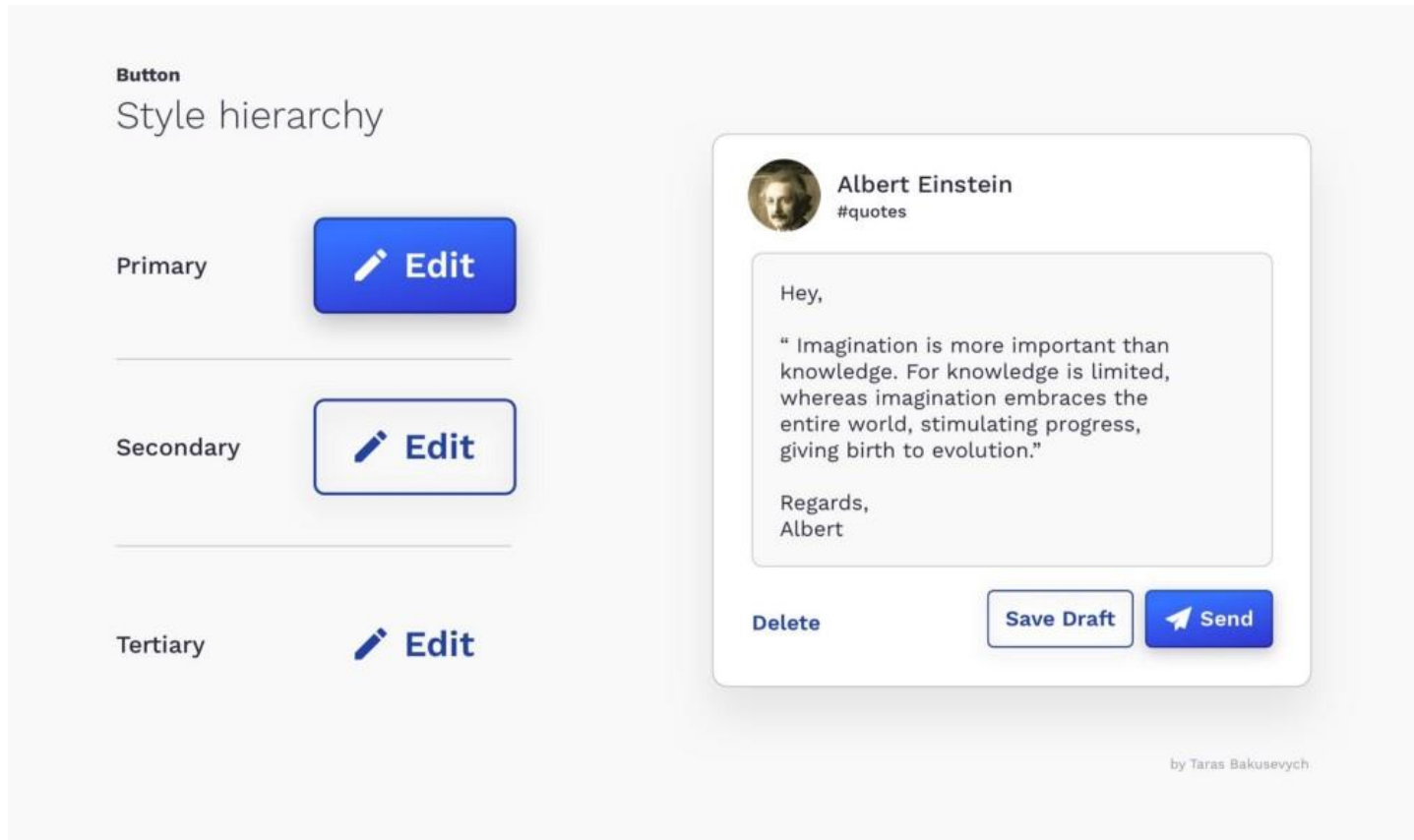- A button is are not simply a "more important" Link, and should not act as such.

Button

- **Standalone** Buttons will perform an action, or change modes immediately, and with no additional user input:
  - Switch from email list view to composing a new message.
  - Begin to synch email with a remote server. Click again to stop the process.

by Taras Bakusevych

Button

Button
Style hierarchy

Primary   ✏ Edit

Secondary   ✏ Edit

Tertiary   ✏ Edit

Albert Einstein
#quotes

Hey,

" Imagination is more important than knowledge. For knowledge is limited, whereas imagination embraces the entire world, stimulating progress, giving birth to evolution."

Regards,
Albert

Delete   Save Draft   ◢ Send

by Taras Bakusevych

Button Anti Pattern

- Avoid making the default button perform an unrecoverable, destructive action. Users must make deliberate choices instead.

- Avoid color schemes that can be misconstrued as being "grayed out," and inaccessible. Likewise, avoid "grayed out" states that are so well designed they look like they are just attractively gray buttons.
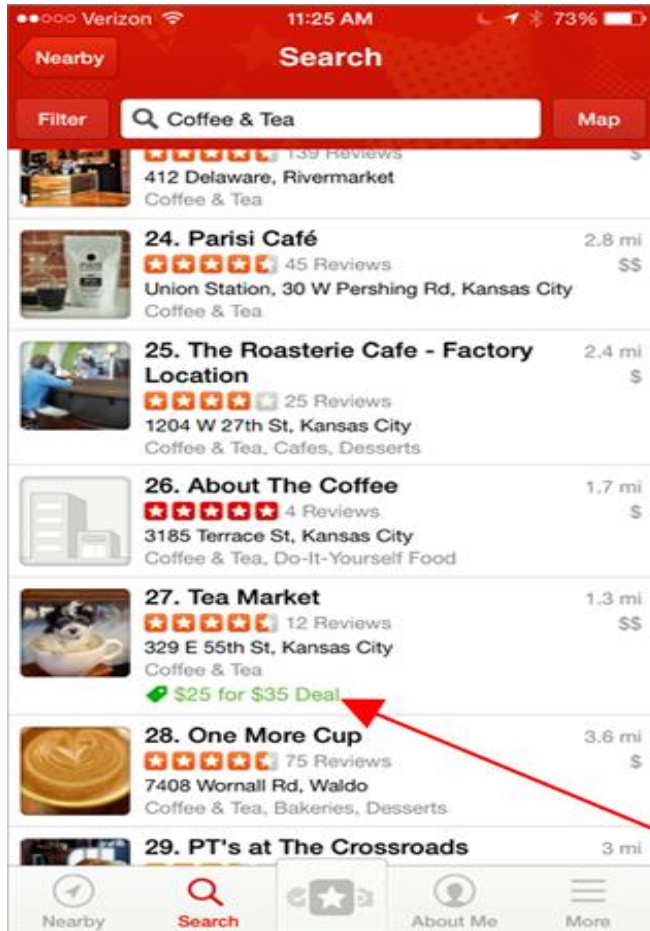
Indicator

- An **Indicator** is simply a link with an adjacent graphic (or text icon). They can be easily implemented on any platform.

- The Indicator pattern is a type of action initiator between a Link and a Button.

- Always use Indicators with text labels, and may perform any action: linking, state changes, and commit actions.

Indicator

- There are at least three possible ways of implementing indicators:

  – Oftentimes, but not always, indicators are implemented as **icons**. Easily recognizable icons can make very effective communication tools.

  – **Typographical** variations can also be used as indicators; examples include the common convention of boldfacing unread email messages or color-coding stock symbols in an investment account if their price has changed substantially.

  – Though less common, enlarged **size** or **animation** (e.g., vibration) can also be used to make certain items stand out from the crowd and thus serve as an indicator.

Indicator

Yelp used a green-tag indicator in the search results to indicate that Tea Market had a special deal running. This indicator communicated additional information about Tea Market.

Indicators

- **Characteristics of indicators:**
  - Indicators are contextual. They are associated with a UI element or with a piece of content, and should be shown in close proximity to that element.
  - Indicators are conditional— they are not always present, but appear or change depending on certain conditions
  - Indicators are **passive**. They do not require that a user take action, but are used as a communication tool to cue the user to something of note.
  -

Variations of Indicators

Indicators are expressed in a limited number of ways, but can indicate three different types of meaning.

- **Content beyond** - Explains what type of content will be loaded if the link is followed. This is typically an icon in front of the text label. Examples are the file type (e.g. Acrobat, Word) or types of objects to be viewed (e.g. photos, videos).

- **Type of action** - Describes the type of activity that will occur when the link is selected. This will usually reinforce the wording, instead of adding additional information, to assist with glanceability. For example, a "Refresh" label can be accompanied with a revolving icon indicating reload or refresh.

- **Manner of action** - Describes the way the action will be carried out. This is typically in addition to the label, so adds to the description. The icon should indicate that the action goes forward or backwards in the process, opens a **Pop-Up** or performs some other type of specific action.

Indicators Anti Pattern

- Avoid placing indicators above or below the text.

- Do not use an Icon or Indicator just to be consistent, or to add visual flair. Assure all indicators are accurate, truthful and clearly explain themselves.

- Do not use Indicators' with a clear meaning which they too not actually carry out.

Icon

- The word "icon" has been used to denote graphical representations of functions or destinations.

- Here, an **Icon** can be considered to represent an "Iconic **Link**," and differentiates itself from other related drilldown items such as the **Indicator** link pattern because the icon part is the most prominent item.
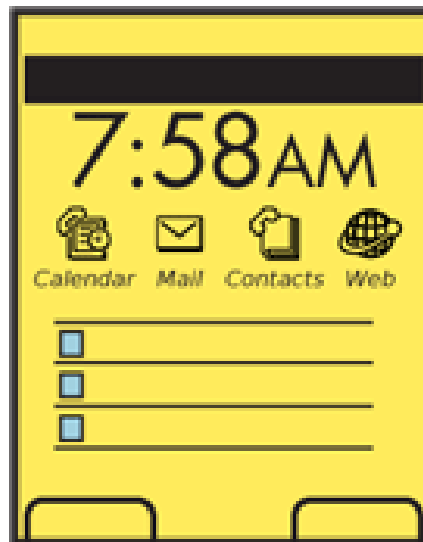
Icon

- There are several types of **Icons**, with varying degrees of interactivity:
  - **Fixed icons** are composed of an image of the function or target destination.
    - The icon must clearly explain the function or target and not be lost in background, other page elements, or easily confused with other icons.
  - **Status icons** change with the current conditions.
    - This may be the result of an external change such as the current weather, a system change like inbound messages, or a user-initiated state change such as switching from grid to list view.

Icon

Icon Anti Pattern

- Avoid automatic thumbnail for Icons.
  - One web page or person will look very much like another at thumbnail sizes, and a key part of icon design is the design of the outer bounding shape.

- Information in an icon that looks like data must be real data.

- Do not, for example, make an icon for a calendar or clock with fixed values for the date or time. Use the Status Icon style and indicate actual data, or use another icon style.

- Try to label each Icon, in all conditions.

Stack of Items

- A **Stack of Items** is a design pattern that is exactly as it sounds.

  - A set of thumbnails are arranged so they appear to be actual items such as a pile of photos stacked on top of each other.

  - Only the top one is completely visible, but to make the stack clear, others stick out the sides.

  - Selecting the top item opens the stack, revealing all the thumbnails, and providing further selection or access to each item.

Stack of Items

Stack of Items Anti Pattern

- Do not use this pattern if it cannot be built to operate smoothly and responsively on all the targeted devices.

- Do not use a generic icon/graphic to describe the stack, i,e. iphone grouping, be sure to indicate it's a folder very clearly.

- Do not present a "Stack of Items" that simply reloads the page as a Grid.
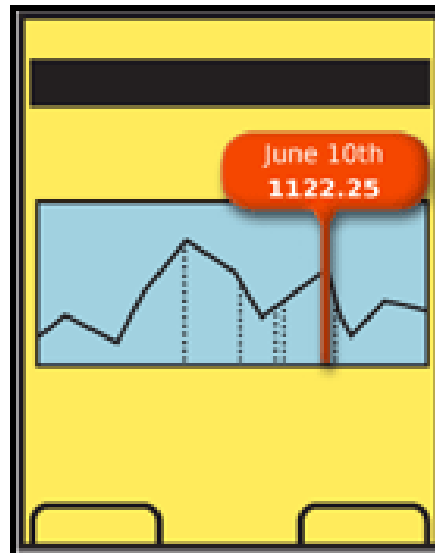
Annotations

Any interactive infographic that demands such additional information can generally support an **Annotation**.
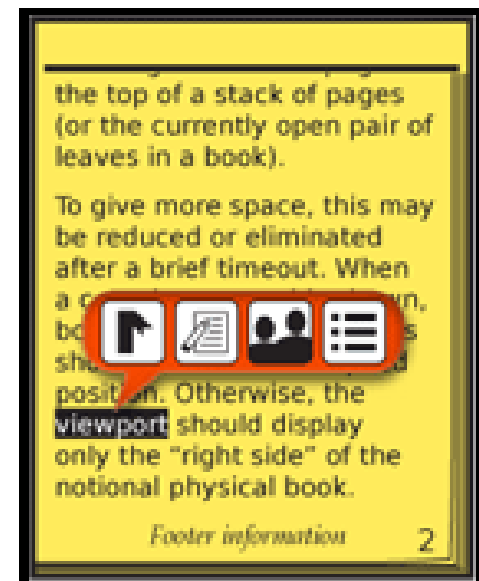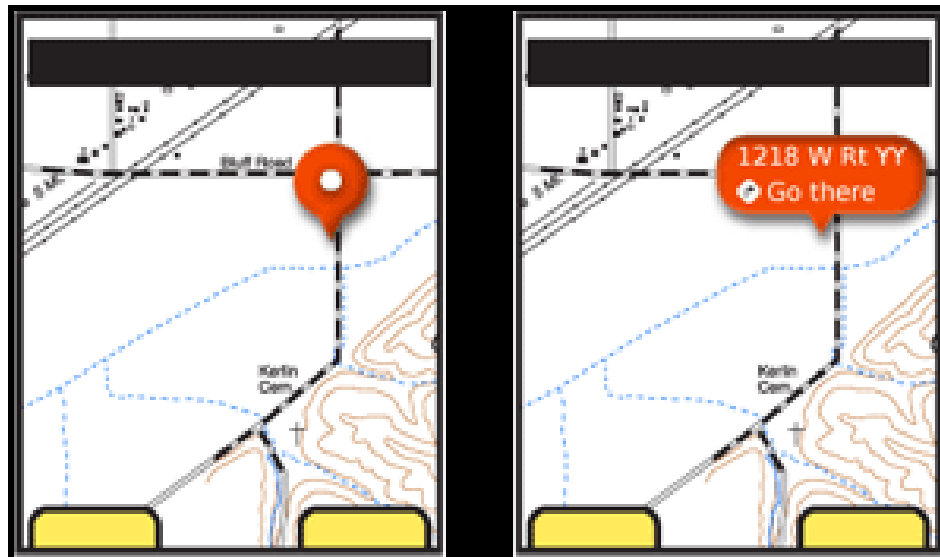
Annotations

- The pinpoint must clearly indicate the location in the data set referenced. Use appropriate selection methods:

  - Pointers for two-dimensional coordinates.
  - Lines for positions on one-dimensional graphs.
  - Highlights for text, or fields within charts.

Variations in Annotations

- **Fixed Label** - When an area is highlighted by the system, or selected by the user, a label bearing text and/or icons is displayed as a part of the graphic "pinpoint" indicator.

- **Reveal Label** - When originally selected, either by the user or the system, a small "pinpoint" indicator is placed.
  - This is usually generic, and often has no label, or a very simple one such as a shape, color or single letter. When the user selects the pinpoint again, it will expand to reveal a larger label. In this mode it is functionally identical to the Fixed Label.

Variations in Annotations

- Banner
  - A small "pinpoint" indicator is used to mark the location on the data array, as in the Reveal Label. At another location on the page, usually a strip anchored to the top or bottom of the viewport, is the label text, or graphics.

Patterns for Screen

- Mobile devices use a range of display technology. Some devices may use multiple types of hardware within a single device. Each technology can serve a unique purpose in functionality—backlight, primary display, and flashing indicators.

- Some common types of display technology:
  - LED
  - OLED
  - AMOLED
  - ePaper

Screen

- Display sizes vary with the type of mobile device. They are measured diagonally from the display's corners.

- Typically, smartphones have larger screen sizes than feature phones.

- A common misconception with mobile devices is that the screen size limits the user's ability to see the screen.
  - However, people automatically adjust the visual angle between the device and their eyes. Entirely aside from phones being handheld, they get moved to the right distance to see things correctly.

Screen

- Other factors that affect how we automatically adjust visual angle to see the screen include:
  - Vision impairments a person might have
  - The size of the display content, such as images, text, buttons, and indicators
  - The amount of light the device is giving off (illuminance)
  - The amount of light reflected from the light's surface (luminance)

Patterns for Screen, Light, Sensor

- ## *LED*
  - Notice of status should have a visual component that does not require use of the primary display.

- ## *Display Brightness Controls*
  - Displays are the most critical output on smartphones. A method to control the dis- play settings must be easy to access, be easy to use, and allow for manual adjustments.

Patterns for Screen, Light, Sensor

- *Orientation*
  - Devices must allow for orientation changes to display content in the manner most readable and comfortable to the user.

- *Location*

- Availability of a location-based service, and the actual location of the handset, must be easily and accurately communicated.

LED

- Every device has at least annunciator LED, used for power and other key status messaging. This light can be used by many applications, but not usually by web pages.

Display Brightness Controls

- Displays are the most critical output on modern smartphones, as well as a highly touted feature.
  - Even minor degradations in performance can render the display uncomfortable to use, unreadable, or reduce the perception of the quality of the display.
- This pattern focuses on higher quality color displays, with light sensors suitable for use setting automatic brightness.
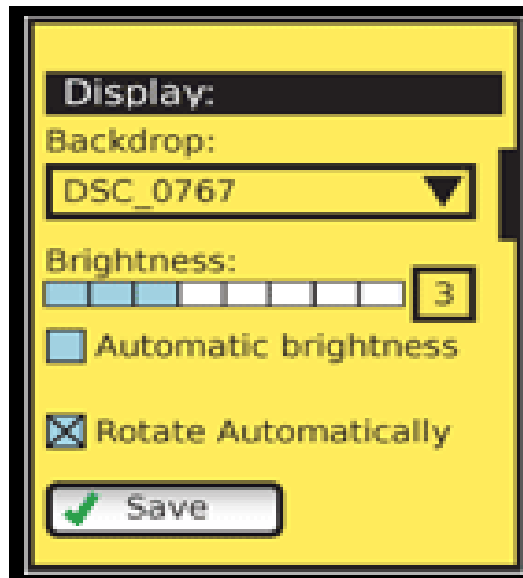
Orientation

- Mobile devices are small, portable and unlike desktop computers can therefore be manipulated and viewed in any manner. Naturally, users will rapidly face the screen the correct direction, but after this should be allowed to choose their preferred viewing **Orientation.** Content must be presented in a useful format in whichever orientation is chosen, modified to fit the screen, but without changing context, or modifying existing user entry.

Location

- Mobile devices have numerous methods of retrieving location information. These include:
  - Cell
  - Sector
  - Triangulation
  - GPS Telemetry
  - WAAS
  - AGPS
  - WLANs & PANs

Location

- Location service is often used as a background service, as a way to enable smarter ambient computing,.

- When directly referred to, it may only be momentarily switched to while other tasks occupy the remaining time.

- Therefore, both explicit and background indicators cases may be present not just in the same system, but at the same time.

Location

- **Explicit** - Location services are currently mostly used for explicit location applications, such as mapping, directions, local information and augmented reality. These explicit representations of location are discussed in detail below.

- **Background** - Location services can also be used as a trigger to initiate notifications, or change behaviors of the device. Geofencing, location-driven advertising and location based profile changes (e.g. silent when in a meeting room) have all been trialled, but are not widely adopted.