

Mobile Application Design

**Mobile Application
Development
*Session 2***

Mobile App Design

- Poorly designed desktop apps are *difficult* to use.
- Poorly designed mobile apps are more often than not *impossible* to use.
- To help us create mobile apps that users can use with ease, we need to work to:
 - A clear set of GUI design principles
 - A set of mobile specific design principles
 - Web standards

General GUI Design Principles

- The overarching principles for developing usable mobile apps are no different from those that guide development for desktop applications:
 - Navigability
 - Consistency
 - Readability
 - Accessibility
 - Visibility
 - Conformity (to web standards)
 - Etc.
- Because we are working in a mobile context, it does not mean we can abandon or water down these principles. If anything, we need to follow them with even greater rigour.

Mobile Specific Design Principles

- We also need to follow some guiding principles which are specific to the mobile context.
 - Simplify (Make the layout as simple as possible. Cut the content to the bare bones).
 - Prioritize (Allow the user to perform priority tasks without distraction).
 - Atomize (Divide tasks into self-contained units)
 - Remove (Take away any functionality or feature that is not fundamental to user needs).
 - Hide (Put out of sight any feature that is important, but not priority).
 - Displace (Move advanced features that are not suited to mobile to the desktop (but let your users know, of course)).
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Wikipedia



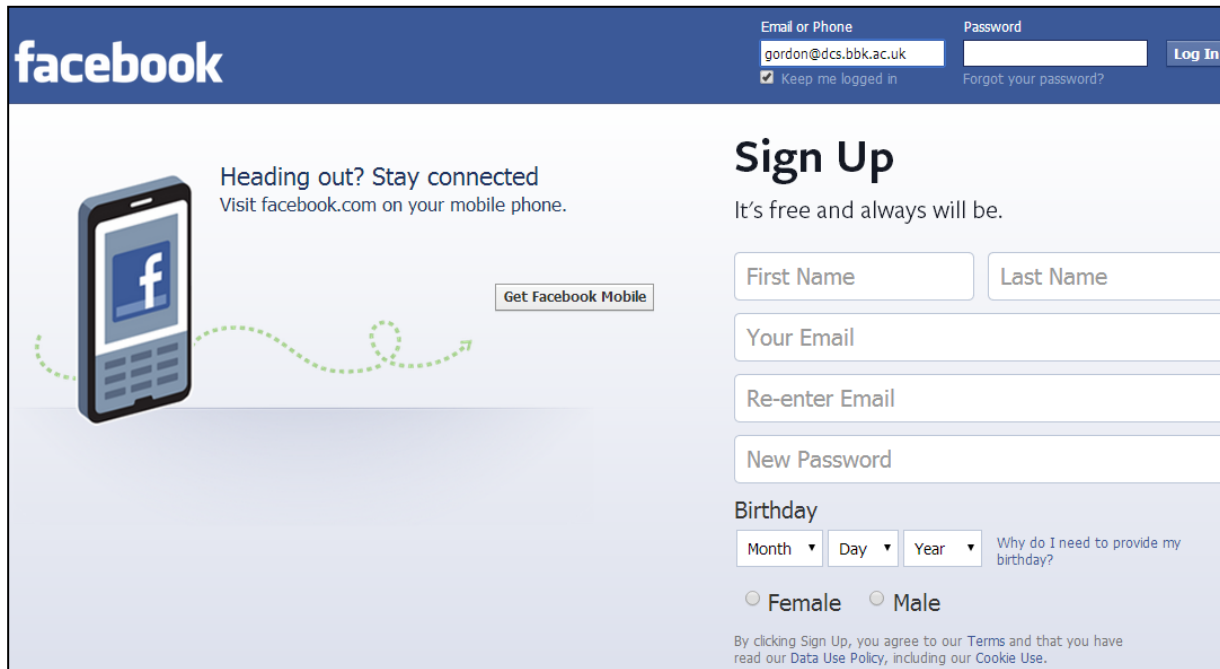
The screenshot shows the desktop version of the Wikipedia homepage. It features a top navigation bar with links like 'Main Page', 'Talk', 'Read', 'View source', 'View history', and a search box. Below this is a 'Welcome to Wikipedia' section with a link to 'the free encyclopedia that anyone can edit'. The main content area is divided into several sections: 'From today's featured article' (highlighting Jefferson Davis), 'In the news' (listing recent events like Telangana becoming the 29th state of India), 'On this day...' (celebrating Saint Charles Lwanga), and 'Did you know...' (mentioning nasal strips). A left sidebar contains various links for navigation and tools.



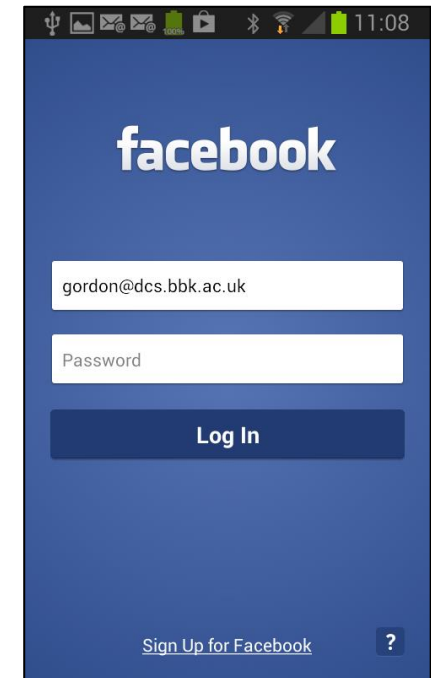
The screenshot shows the mobile version of the Wikipedia homepage. It has a simplified layout with a top search bar and a 'Main Page' section. Below this is a 'Today's featured article' section, which highlights Jefferson Davis. The mobile version removes many of the sidebar links and complex navigation elements found in the desktop version, focusing on the core content and search functionality.

- Search task prioritized
- Search task atomized
- Images removed
- Features removed
- Functionality removed
- Layout simplified
- Content simplified

Facebook



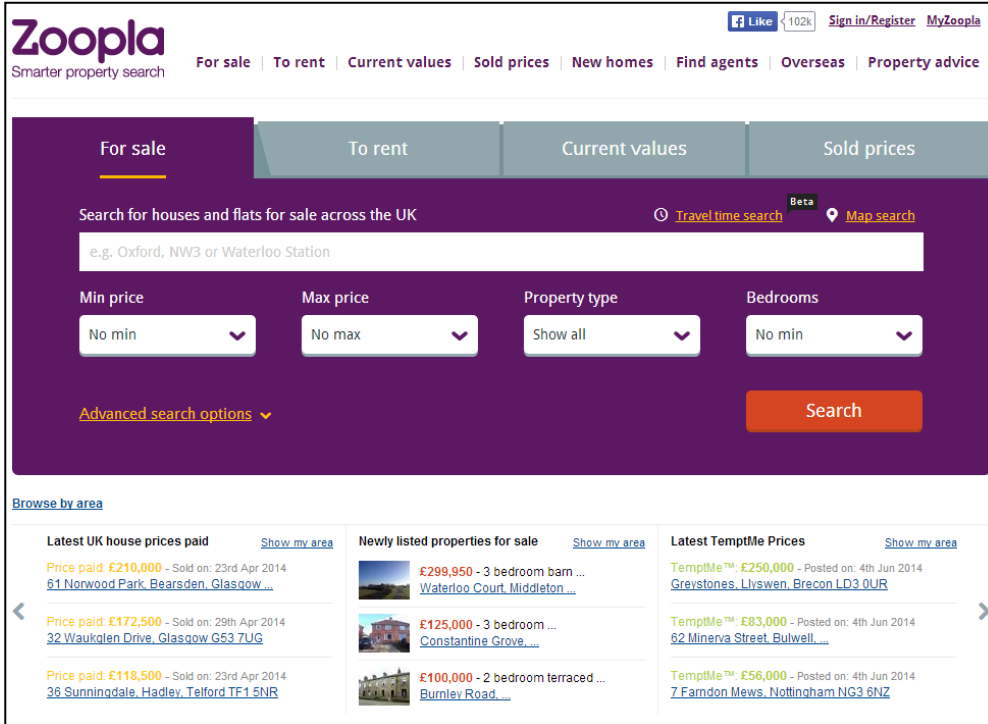
The desktop version of the Facebook login page features a blue header with the Facebook logo on the left. On the right, there are input fields for 'Email or Phone' (containing 'gordon@dcsl.bbk.ac.uk') and 'Password', a 'Log In' button, a 'Keep me logged in' checkbox, and a 'Forgot your password?' link. Below the header, the main content area is split. On the left, there's a promotional banner for 'Facebook Mobile' with an image of a smartphone and the text 'Heading out? Stay connected Visit facebook.com on your mobile phone.' and a 'Get Facebook Mobile' button. On the right, the 'Sign Up' section is titled 'Sign Up' with the tagline 'It's free and always will be.' It contains a form with fields for 'First Name', 'Last Name', 'Your Email', 'Re-enter Email', and 'New Password'. Below these is a 'Birthday' section with dropdowns for 'Month', 'Day', and 'Year', and radio buttons for 'Female' and 'Male'. At the bottom, a small disclaimer states: 'By clicking Sign Up, you agree to our Terms and that you have read our Data Use Policy, including our Cookie Use.'



The mobile version of the Facebook login page is shown within a smartphone frame. It has a blue background with the Facebook logo at the top. Below the logo is a 'Log In' section with input fields for 'Email or Phone' (containing 'gordon@dcsl.bbk.ac.uk') and 'Password', followed by a large blue 'Log In' button. At the bottom, there is a 'Sign Up for Facebook' link and a help icon (question mark). The status bar at the top of the phone frame shows various icons and the time '11:08'.

- Log in task prioritized
- Log in task atomized
- Secondary content removed
- Secondary features removed

Zoopla



Zoopla
Smarter property search

For sale | To rent | Current values | Sold prices | New homes | Find agents | Overseas | Property advice

For sale | To rent | Current values | Sold prices

Search for houses and flats for sale across the UK

e.g. Oxford, NW3 or Waterloo Station

Min price: No min | Max price: No max | Property type: Show all | Bedrooms: No min

Advanced search options | Search

Browse by area

Latest UK house prices paid | Show my area

Price paid: £210,000 - Sold on: 23rd Apr 2014
61 Norwood Park, Bearsden, Glasgow...

Price paid: £172,500 - Sold on: 29th Apr 2014
32 Waukaten Drive, Glasgow G53 7UG

Price paid: £118,500 - Sold on: 23rd Apr 2014
36 Sunningdale, Hadley, Telford TF1 5NR

Newly listed properties for sale | Show my area

£299,950 - 3 bedroom barn ...
Waterloo Court, Middleton...

£125,000 - 3 bedroom ...
Constantine Grove...

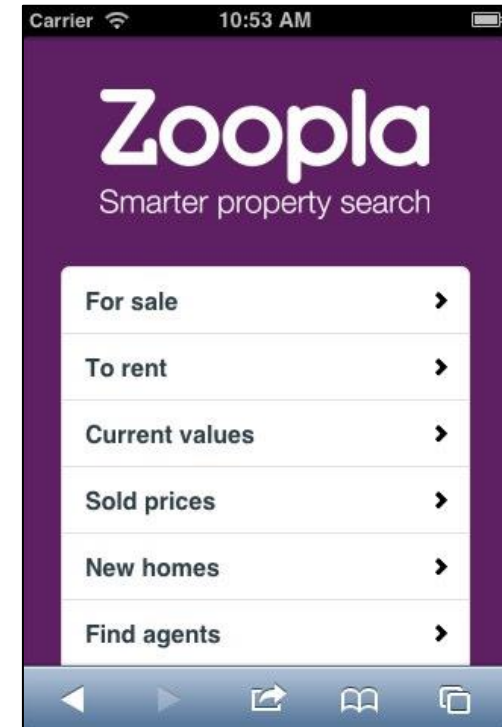
£100,000 - 2 bedroom terraced ...
Burnley Road...

Latest TemptMe Prices | Show my area

TemptMe™: £250,000 - Posted on: 4th Jun 2014
Greystones, Llyswen, Brecon LD3 0UR

TemptMe™: £83,000 - Posted on: 4th Jun 2014
62 Minerva Street, Bulwell...

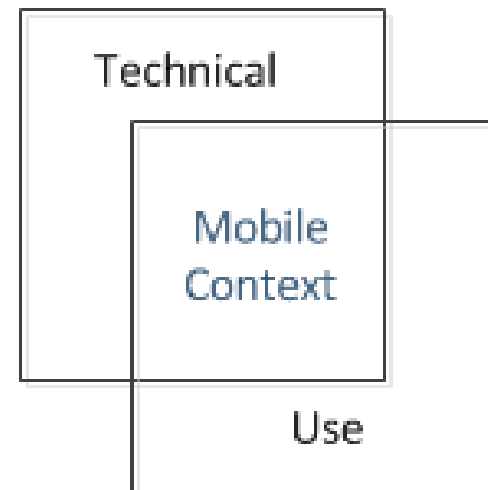
TemptMe™: £56,000 - Posted on: 4th Jun 2014
7 Farndon Mews, Nottingham NG3 6NZ



- Navigation prioritized
- Navigation atomized
- Functionality hidden
- Secondary features removed
- Secondary content removed

Design for Mobile

- Design for mobile needs to be significantly different than for desktop because the context in which mobiles are used is different than that in which desktops are used.
- The mobile context has two distinct elements:
 - The use context
 - The technical context



The Use Context

- The use context of mobile devices refers to the different areas of our lives in which mobile devices are used:
 - Work
 - Leisure
 - Travel
 - Within any of these contexts a user may be:
 - Mobile or stationary
 - Focused or distracted
 - Busy or relaxed
 - Or any combination of the above (e.g. mobile, distracted and busy).
-

The Use Context

- Designing an effective GUI for a user who is mobile, busy and distracted obviously presents a different set of challenges than designing for a user who sitting at a desktop, and is stationary, focused and/or relaxed.
- A busy, mobile user has no time to think about how to find something, or how to perform a task. He/she does not want to waste valuable seconds searching for a login page, or wondering if a transaction has been completed successfully.
- He/she needs his/her experience of an application to be as *simple* and *transparent* as possible.

The Technical Context

- The technical context of mobile use refers to the specific features of the hardware, software and communications capabilities of mobile computing devices
 - This includes:
 - Smaller display size
 - Non-traditional input methods (touch, stylus)
 - Slower connection speeds
 - Restricted storage
 - Slower CPUs
 - Each of these features places significant constraints on what we can achieve in terms of mobile app design, and we need to be fully aware of each one.
-

Display Size

- Average display sizes:

Desktop	23 inches
Notebook	17 inches
Tablet	8 inches (in landscape orientation)
Smartphone	4 inches (in landscape orientation)



Display Size and Orientation

- The difference in display size between desktop and mobile is clear, and it is clear we need different designs for these devices.
- However, we should also note the significant difference in display size between tablet and smartphone. This difference means that we will also often need different designs (or variations on the same design) for these devices too.
- In addition, we also need to be aware of the differences in screen width engendered by changes in device orientation in the same device, and factor this into our designs (e.g. 1024 (landscape) x 768 (portrait) in iPad).

Display Size

- Smartphone displays are an average of 480 x 320 pixels.
- These restrictions mean that when designing for smartphone displays, it is recommended that you:
 - Use a single column layout.
 - Have no need for horizontal scrolling.
 - Organise content vertically rather than horizontally (e.g. navigation).
 - Do not use tables.
 - Keep images to an absolute minimum, and size them for the context using appropriate, responsive web design methods.

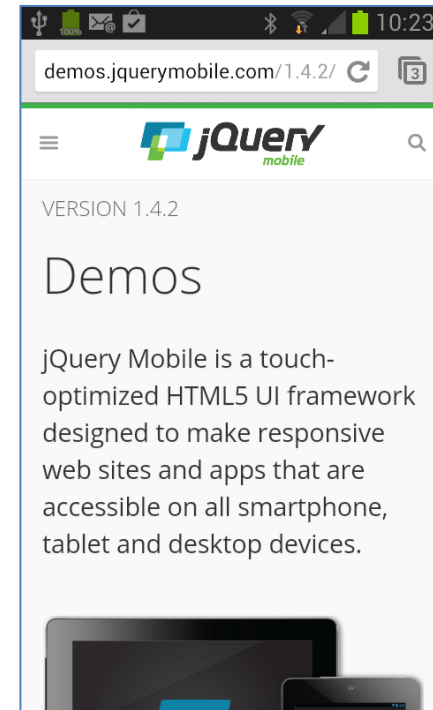
Display Size

- Tablet displays (e.g. 768 x 1024) offer more space in which to work than smartphone displays.
 - We can thus make some concessions to the more rigorous rules governing layout for smaller displays.
 - Multiple columns acceptable (usually two max).
 - More scope for horizontal organisation of content.
 - Tables acceptable (for data only).
 - Larger images possible.
 - Space for more images.
 - However, even with tablets, we still need to be mindful of the fact that portrait orientation is still significantly more narrow than notebook, or desktop displays, and design accordingly.
-

Display Size



Tablet (iPad)
2 Column

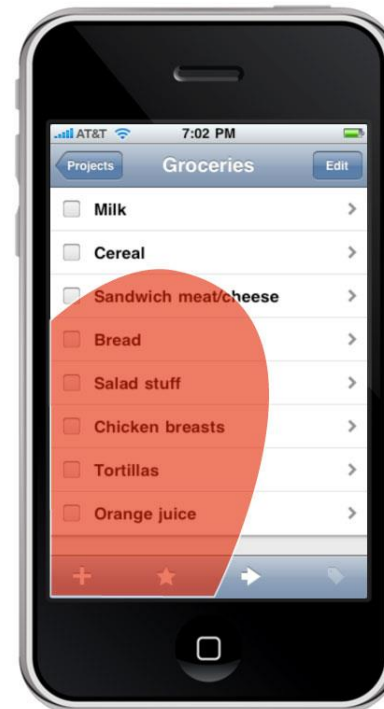


Smartphone (Android)
1 Column

Touch Screens

- Most (but not all) newer generation mobile devices employ touch screen input.
- Touch, however, is inherently less accurate than clicking with a mouse or touching with a stylus.
- To accommodate finger touch screens we need to:
 - Make buttons, links, or other *clickable* elements large enough to be hit accurately (Apple recommends min 44px x 44px for buttons).
 - Space clickable elements to avoid user hitting the wrong target (The closer clickable elements are to each other the larger they should be).
 - Position clickable elements in finger and thumb *hot zones*:

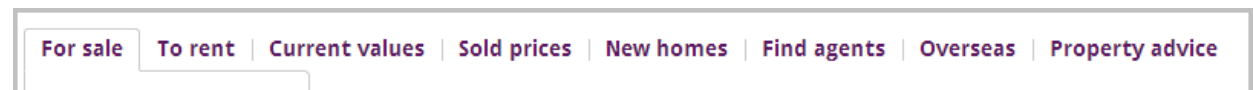
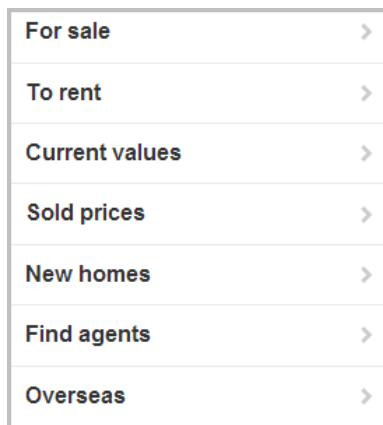
Touch Screens



Thumb hot zones on
iPhone and iPad

Navigation

- Mobile app navigation needs to be as simple and intuitive as possible, and ideally should not extend beyond two levels (primary & secondary).
- In smaller (phone) displays, primary navigation elements are much better organised vertically, rather than horizontally.
- In tablets, the navigation can be organised horizontally; however, this will depend on factors such as the complexity of the navigation schema, and the device orientation.

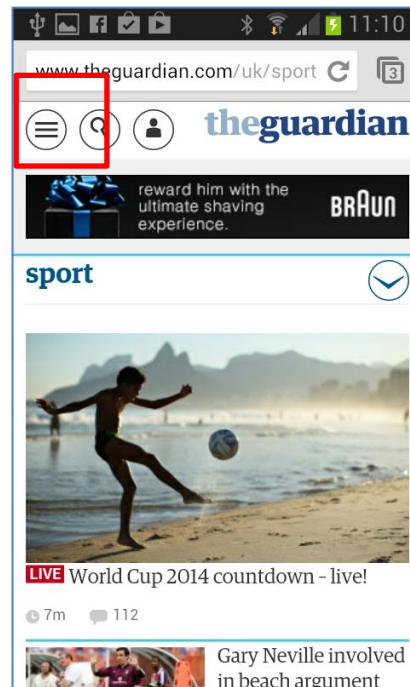


← Smartphone and tablet
in portrait mode

↑ Tablet in landscape,
notebook and desktop

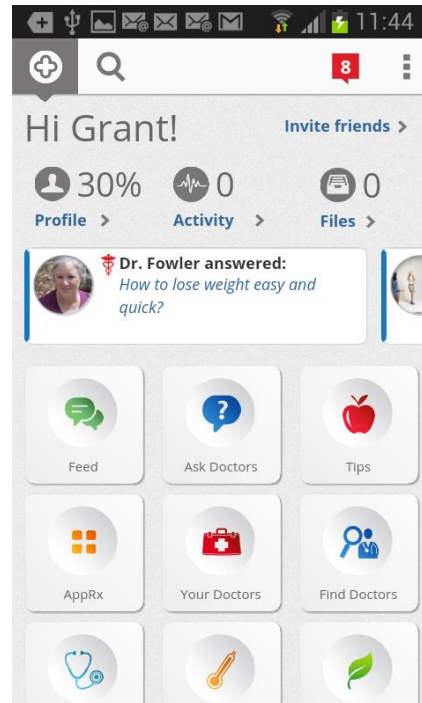
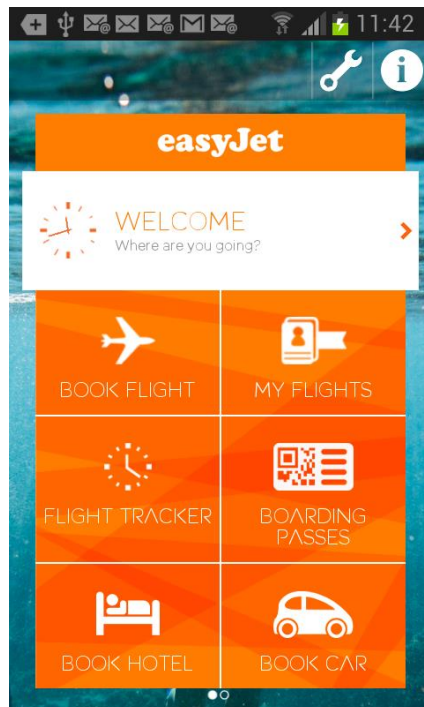
Navigation

- In smaller screens, complex navigation with many elements is difficult to present vertically without recourse to extensive scrolling.
- In such situations, many designers prefer to hide the navigation entirely using panels.



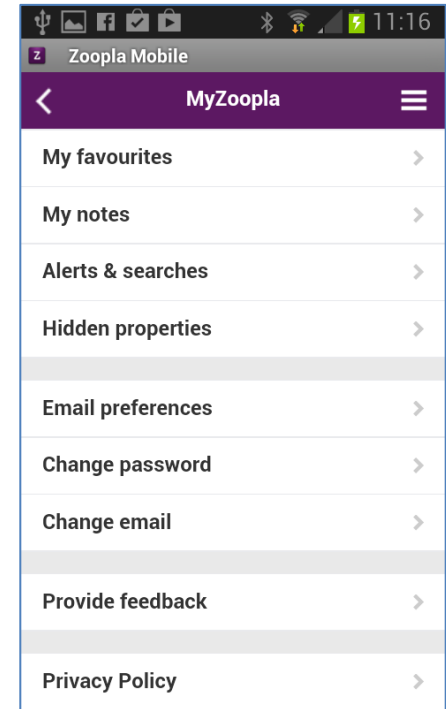
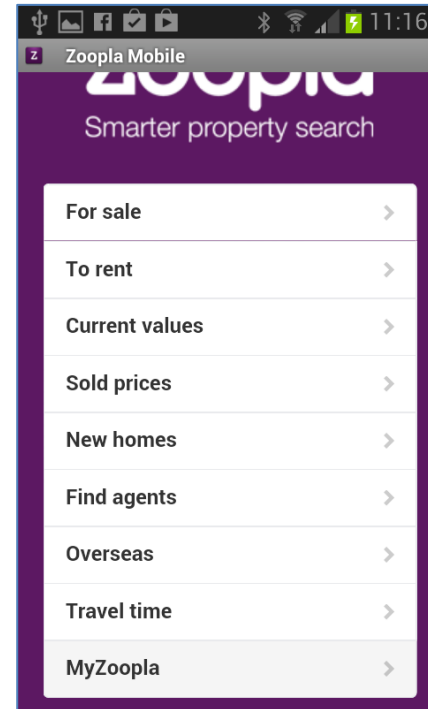
Navigation

- Where there are few navigation choices, and an app is functionality driven, a dashboard approach to navigation may be preferred.



Secondary Navigation

- On smaller screens, secondary navigation should be displaced to a separate page (e.g. Zoopla).
- Tertiary navigation is best avoided entirely. It is difficult to organise in small screens, and adds undue burden to the cognitive load of the user.



Content for Mobile

- Obviously, reading from smaller screens is more difficult than reading from larger screens.
 - Users can see less at any given time.
 - Users need to scroll more
- To compensate for this, we need to make several adjustments from existing desktop strategies for content.
 - Leave out anything unnecessary.
 - Defer secondary information to secondary screens.
 - Make extensive use of lists.
 - Optimize font sizes, line spacing, etc. for mobile friendly reading. Do not miniaturize fonts (e.g. use a smaller font size than you would for desktop).
 - Adhere to standards compliant semantic organisation guidelines.

Content for Mobile

Desktop	Mobile
<i>Welcome to WebPics</i>	<i>WebPics</i>
<i>Here are some people you might enjoy following.</i>	<i>Who to follow</i>
<i>There are several advantages of full membership: 25% discount; free downloads for 2 days per month; regular news bulletins, free image processing (e.g. cropping, resizing, effects, etc.).</i>	<i>Why Join?</i> <ul style="list-style-type: none">• <i>25% off</i>• <i>2 days free downloads</i>• <i>News bulletins</i>• <i>Free image processing</i>

Images

- Because of bandwidth constraints, images should be used only when absolutely necessary in mobile apps (e.g. No banners, wallpaper or anything else solely decorative).
- Users should not have to scroll to see parts of an image.
- Images should be included using responsive web design techniques (e.g. adaptive images). These techniques detect your visitor's screen size and automatically create, cache, and deliver device appropriate re-scaled versions of your images.

Icons

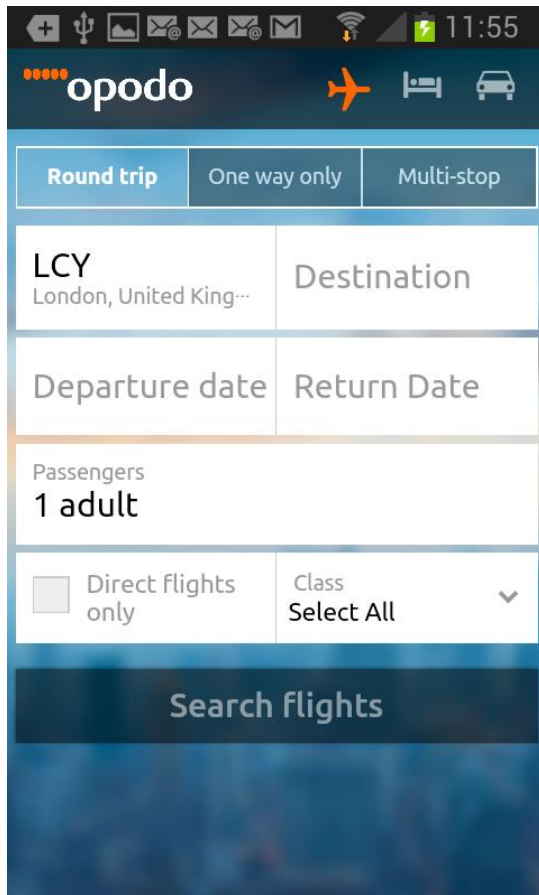
- An icon is a graphic that provides a quick, representation of an action, or a status,
- They allow users intuitive access to hidden elements.
- Android and IOS native apps have their own specific icon sets.
- However, a set of generic web apps, standard icons have emerged for common task and navigation choices.



Forms

- Smaller screens and smaller keyboards mean that is more difficult to fill out a form on a mobile.
- To facilitate the user experience, we need to make some adaptations from desktop practice.
 - Minimize the number of fields (Do you need *Title*?)
 - Avoid splitting fields (e.g. telephone number)
 - Do not require any extensive user input (e.g. textareas)
 - Organize forms vertically (for smaller screens)
 - Reposition labels above fields (or use contextual tips as an alternative)
 - Break down forms into manageable chunks
 - Allow users to select rather than type (e.g. dates)
 - Focus the user on one field at a time (e.g. [Expedia](#))
 - Use autofill

Forms



opodo

Round trip | One way only | Multi-stop

LCY
London, United King...

Destination

Departure date | Return Date

Passengers
1 adult

☐ Direct flights only | Class
Select All

Search flights



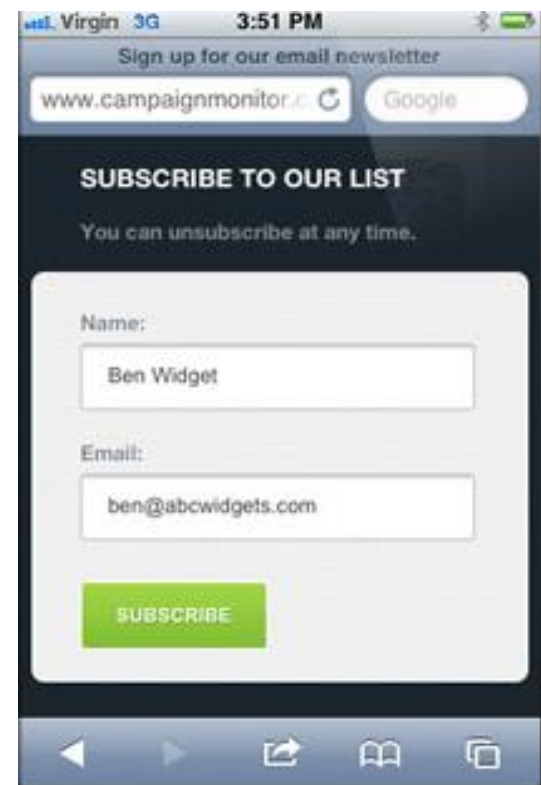
AT&T 9:23 PM

Enter personal profile information

Previous Birthday Next

Birthday Jan 1 1975

November	30	1973
December	31	1974
January	01	1975
February	02	1976
March	03	1977



Virgin 3G 3:51 PM

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Platform Specific Mobile App Design Guidelines

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