
UX Design & Development



1.00 pm - Recup / Q&A / Quiz

1.30 pm - A1 Market Research team presentations

3-pm - UX Design and Development

4-pm - work session (work on teams on hunt statement, concept research)

Image Sources: uxplanet.org/ux-glossary-task-flows-user-flows-flowcharts-and-some-new-ish-stuff-2321044d837d | grahamtodman.co.uk/blog/



User experience (UX)
encompasses all aspects of
the end-user's interaction
with the company, its
services, and its products.

Don Norman & Jakob Nielsen

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NN/g

Training & UX Certification ▾

Articles & Videos

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Reports & Books

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Browse by Topic

Accessibility

Agile

Application Design

B2B Websites

Content Strategy

Corporate Websites

Design Process

Ecommerce

Email

Eyetracking

Information Architecture

Interaction Design

International Users

Intranets

Managing UX Teams

Mobile & Tablet

Navigation

Non-Profit Websites

Research Methods

User Experience for Mobile Applications and Websites

5th edition

Topics: [Mobile & Tablet](#)

Summary

This report presents user-experience guidelines for designing applications and websites for mobile devices, as well as the findings from our user research with these devices. It is based on 19 in-person and 2 remote moderated usability studies with users in 8 countries (mostly in the USA, but also in Australia, Canada, China, Hong Kong, India, The Netherlands, Romania, and the UK). It presents a set of design recommendations intended to help designers create a good mobile user experience.

This **713-page** report offers **374 design guidelines** based on our usability research. Discussions and more than **1000 screenshot illustrations** supplement our findings.



Topics

- Activities commonly performed on mobile phones and types of content that mobile users expect
- Mobile limitations and strengths
- Relative advantages and disadvantages of mobile websites and web apps vs. mobile native apps
- Transitions to and from mobile channels
 - Access to your mobile site
 - Transitioning from web to app
 - Transitioning to full (desktop) site
- Logo and company name
- Making apps findable and discoverable
 - Advertising mobile apps on websites
 - Icons, names, and descriptions of mobile apps

User experience (UX)
encompasses all aspects of
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Don Norman & Jakob Nielsen

meet the exact needs of the customer (no fuss or bother)

simplicity and elegance (produce products that are a joy to own, a joy to use)

to achieve high-quality user experience there must be a seamless merging of the services of multiple disciplines, including engineering, marketing, graphical and industrial design, and interface design.

Image Sources: uxplanet.org/ux-glossary-task-flows-user-flows-flowcharts-and-some-new-ish-stuff-2321044d837d | grahamtodman.co.uk/blog/

Problem Understanding & Definition

- Client presentation
- In-context interviews
- Team analysis
- Hunt Statement

Visual Design Development & Refinement

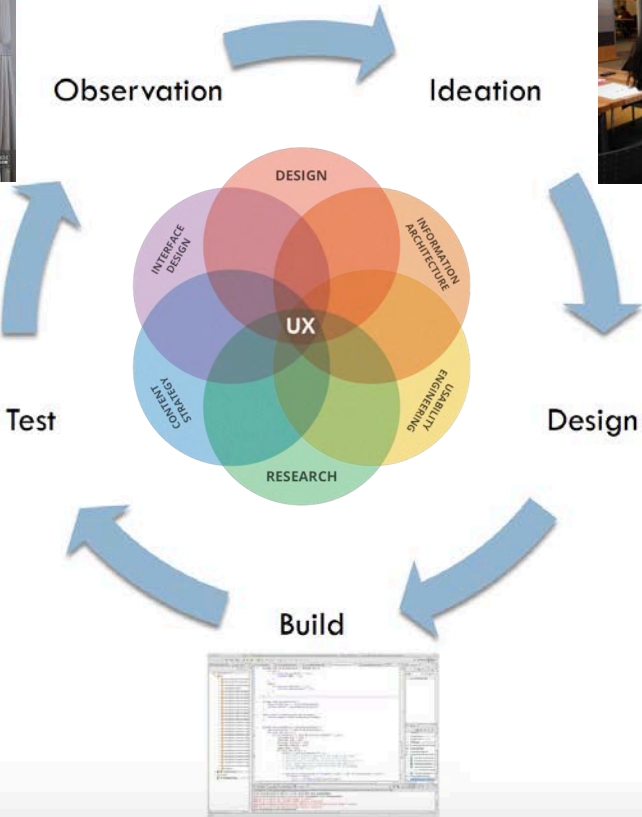
- Color
- Typography choice and sizes
- Imagery and photography
- Iconography
- Navigation tools/conventions
- Motion, sound, effects
- Interaction methods

Ideation & Story-telling

- Project boards
- Team discussions
- Scenario planning
- Concept drawings/Idea cards
- Flowcharts/diagrams
- Wireframes
- Storyboarding (keep refining)
- Client reviews/presentations

Evaluation & Design Resolution

- Storyboards
- High-fidelity prototypes
- User feedback
- Client feedback



Research Process

Learning from people

Design is a process from the beginning

In-situ observations of related practices

Ensure interaction flows for a user

Especially important on a small-screen mobile device!

Grounding new designs in real-world behavior

Design of a new application/service should be grounded in daily realities

Should work with how people think about each other, their environments, and the world

Need to get out into the world to learn this

Image Sources: uxplanet.org/ux-glossary-task-flows-user-flows-flowcharts-and-some-new-ish-stuff-2321044d837d | grahamtodman.co.uk/blog/

Research Process / Prototyping

- 1.ethnographic-style investigations in a new space of interest
- 2.concept generation and prioritization
- 3.initial prototype implementation
4. field test of new system
- 5.iterate
- 6.product decision
- 7.development

Image Sources: uxplanet.org/ux-glossary-task-flows-user-flows-flowcharts-and-some-new-ish-stuff-2321044d837d | grahamtodman.co.uk/blog/

Research Process

Define research questions (A1, A2)

What do you need to know to create your new app?

Focus on understanding current practices

Define methods

Research, observation, interviews, home tours, diary logging...

Recruit users (Students, classmates, family members, friends)

Generally 7-10 is sufficient, stop when you see repeat data

Conduct User Study (CS 524 Empirical Research Methods)

Analyze Data

Design!

Image Sources: uxplanet.org/ux-glossary-task-flows-user-flows-flowcharts-and-some-new-ish-stuff-2321044d837d | grahamtodman.co.uk/blog/

Semi-Structured Observation

Goal:

To develop understanding of area of interest – inspire design ideas for new applications

Process:

Focus on understanding current practice

Come up with a few research questions.

Observe people performing activities in your area of interest.

Ask questions about their use that help you understand answers to questions.

Write exact quotes or observations on post-it notes – a single idea to a note

capture notes

Image Sources: uxplanet.org/ux-glossary-task-flows-user-flows-flowcharts-and-some-new-ish-stuff-2321044d837d | grahamtodman.co.uk/blog/

1. Market Research (A1)

Overview of the relevant apps on the market

2. Research Studies (A1-2)

To develop an understanding of research partner domain

3. UX sketches/ design (A2)

4. Wireframes / Rough Prototyping / User studies (A3)

5. Team Wireframe presentations & Discussion (A4)

6. Client Wireframe Presentations` / Wireframe merge (A4)

7. Iconography (A5)

8. Hi fidelity design / Storyboard Design (A6)

Construction Companies in US : 729,345
Companies to be union bound, we
non-union companies

...we have 18234 companies.

40,175 opportunity

off site:
\$1000/day
+ \$1200 travel
day

Social Network
required?

Consider
difference
based on
(best fitness then
or length?

Bay speaker
George
pioneer or
diver?

Renae
Stratton

5000
CBA = 1 week
WVW

over 3 weeks

40% class
60% in 3m

60 ONLINE LECTIONS +
1 MONTH RESIDENCY

TRACTORS, BULLDOZERS, EXCAVATORS, etc.
(OLD & NEW MODELS)

OPERATOR BACKGROUND

<u>EMPLOYEE EMPLOYMENT</u>	
<u>Contract</u> - "Type of Work"	<u>Qualifications</u>
<ul style="list-style-type: none"> • Temporary • Full-time • Seasonal employees • Part-time employees 	<ul style="list-style-type: none"> • Generalist • Skills • Specialized skills • Professionalism • Industry network • Relationships • Knowledge

The background is a collage of various architectural and design-related images. It includes several yellow sticky notes with handwritten text, some of which are partially obscured by the main text. There are also faint sketches of buildings and structures. Two maps of the United States are visible in the lower right corner, one showing construction permits by state for May 2015, and another showing annual mean wage of construction laborers by state for May 2015. The overall aesthetic is that of a creative workspace or a design studio.

Working collaboratively — show early, share often, get feedback. YES, even “ugly” sketches!



**Include just enough detail
in your sketches to convey
an idea**

Go analog = Paper

**Forces you to think through
ideas and rework/expand**

Easier to get feedback

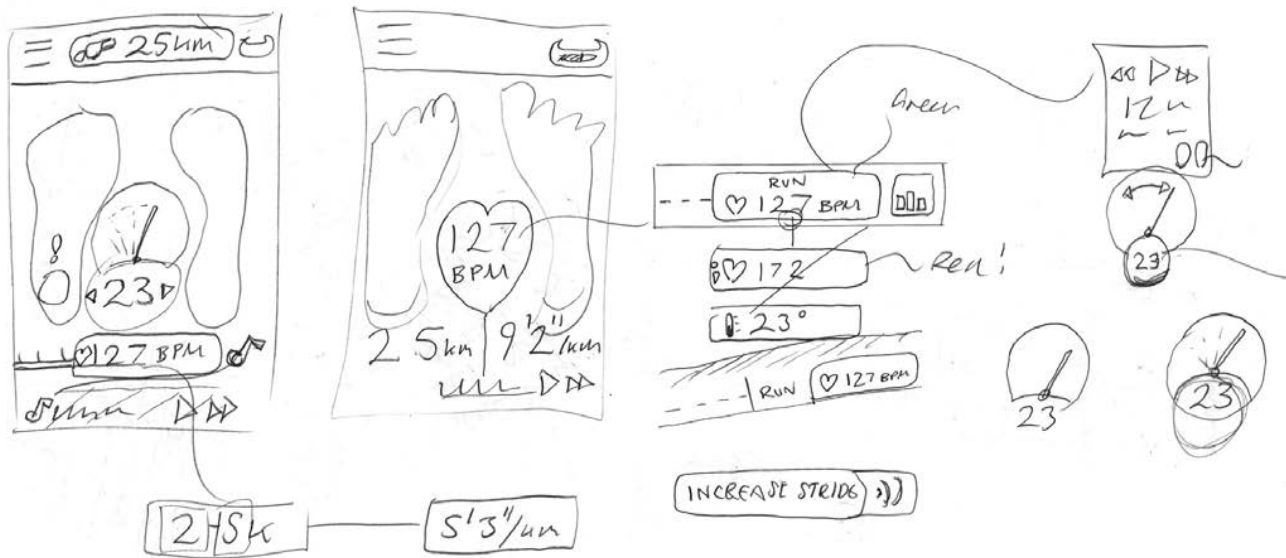
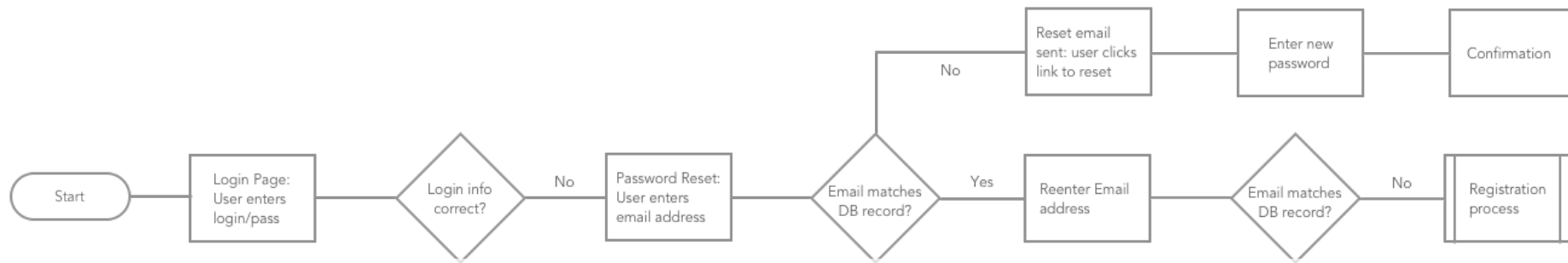


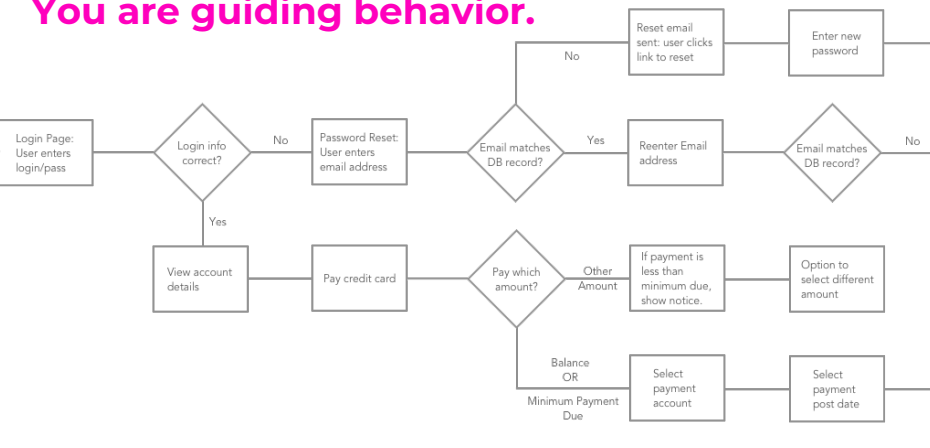
Image Source: grahamtodman.co.uk/blog/



Design doesn't just mean artistic expression. We are designing for user experience and process.

Scenario planning, think through the logic and flow a user will experience while navigating your app.

You are guiding behavior.



SENSORIA CONCEPT FLOW A

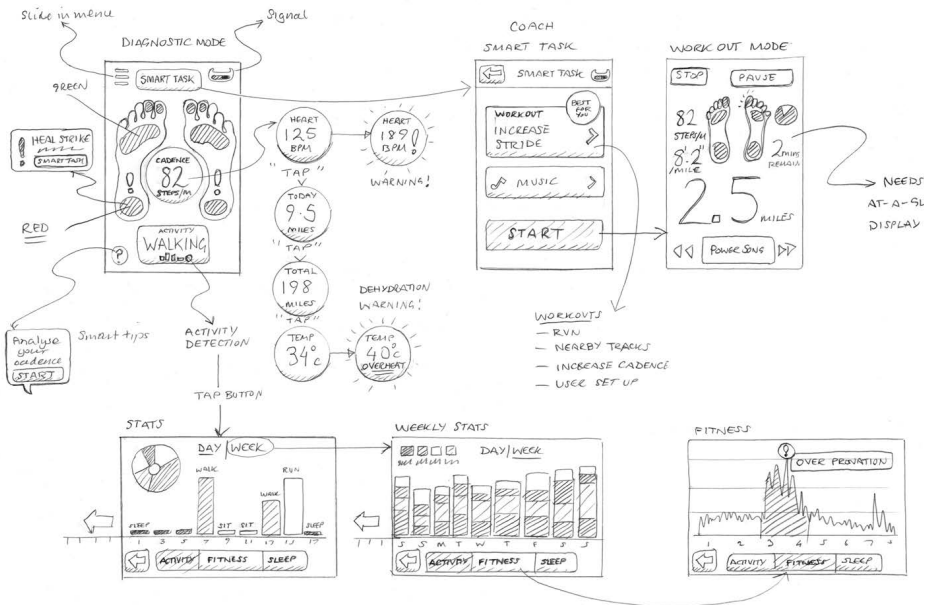


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Consider all functional elements needed to help the user achieve the app goal.

A Wireframe is a blue print, or skeletal framework for the app.

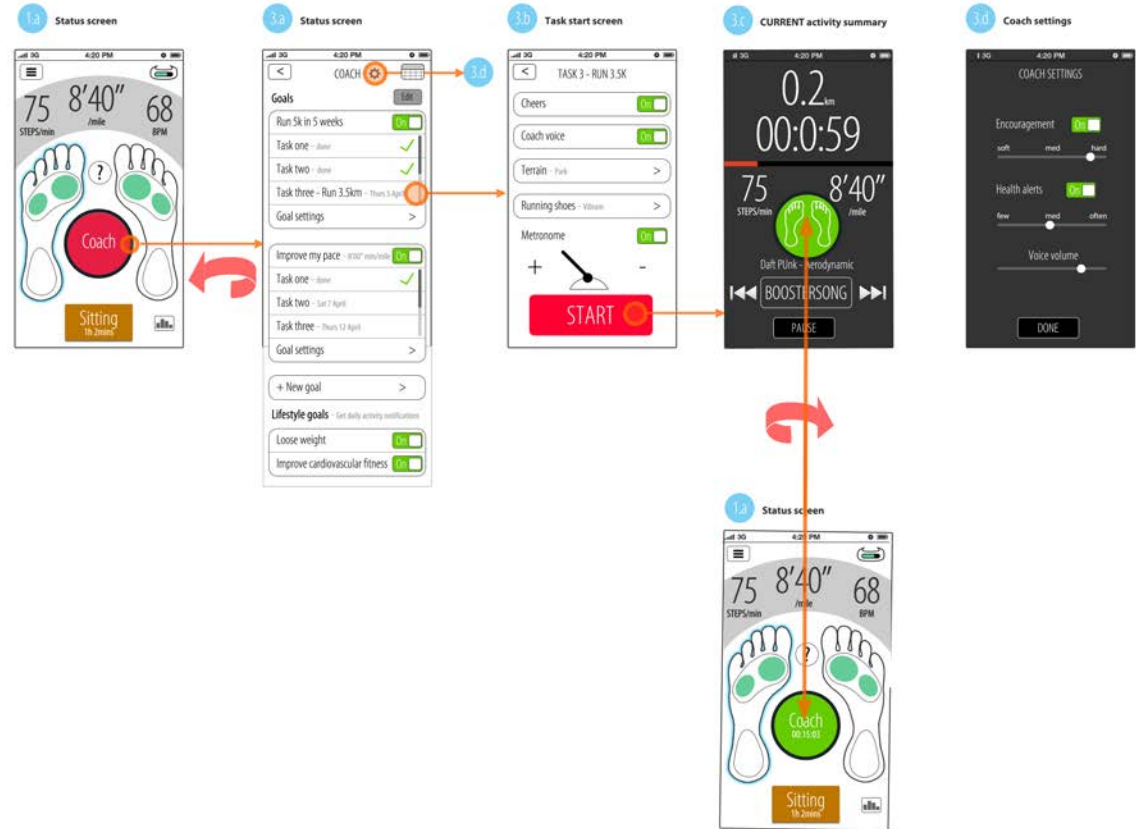


Image Sources: grahamtodman.co.uk/blog/

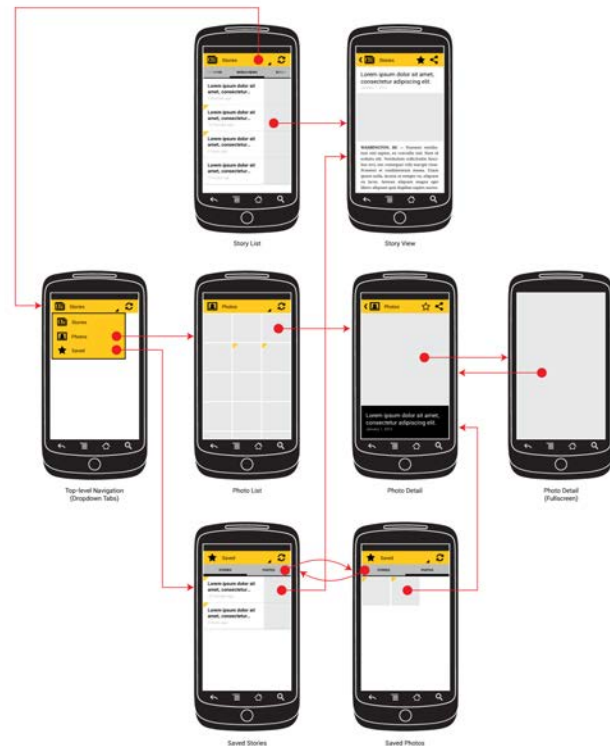
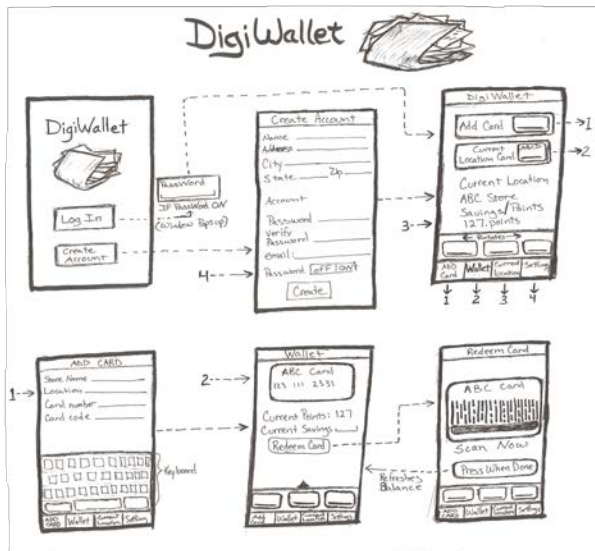
“Wireframing is the make or break part of any UX project. It’s where you want to fail fast, fail early, and fail cheap.” *Scott Childs, Senior Creative Director, Capital One*

Refine wireframes, flow chart and annotation to ensure all steps have been considered and accounted for.

Are you accomplishing the goal?

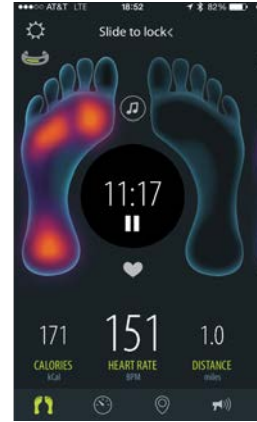
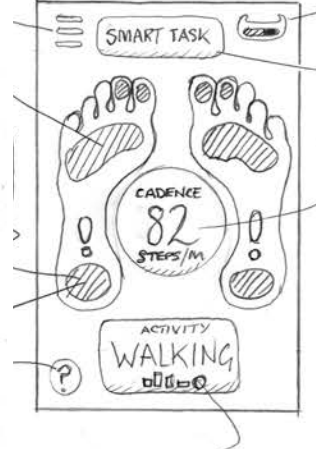
Confirm:

Organization
Direction
Interaction



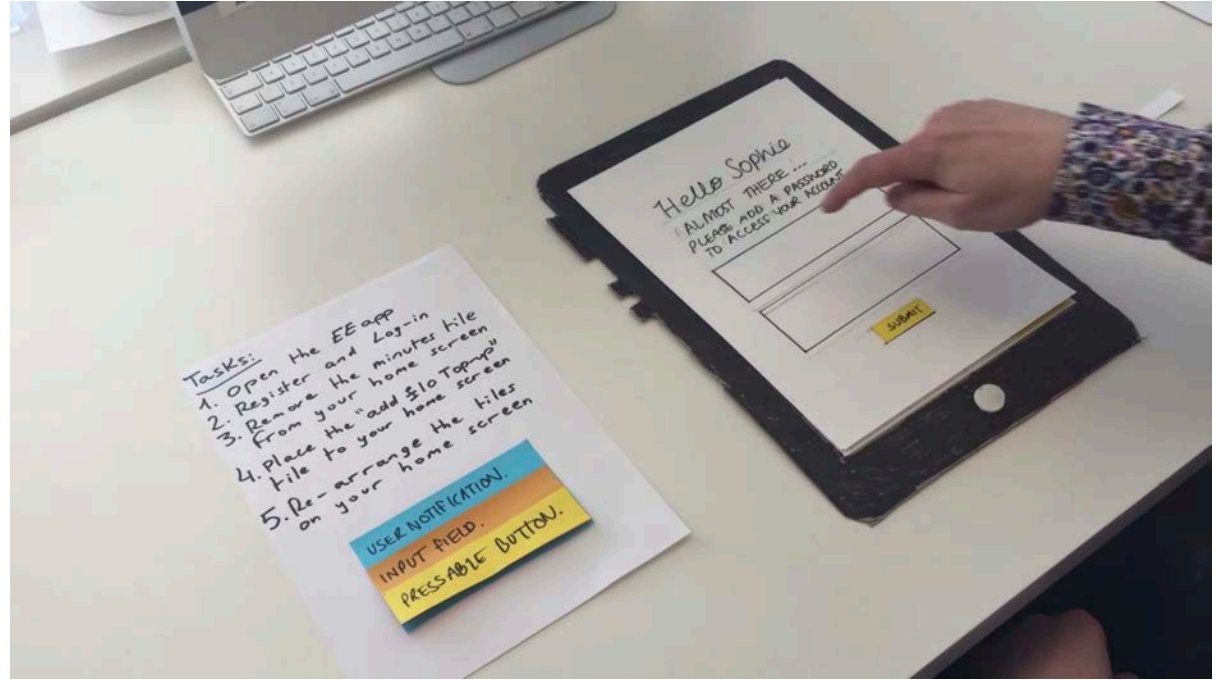
<https://developer.android.com/training/design-navigation/wireframing>

Through all this —
Experience informs
visual design.



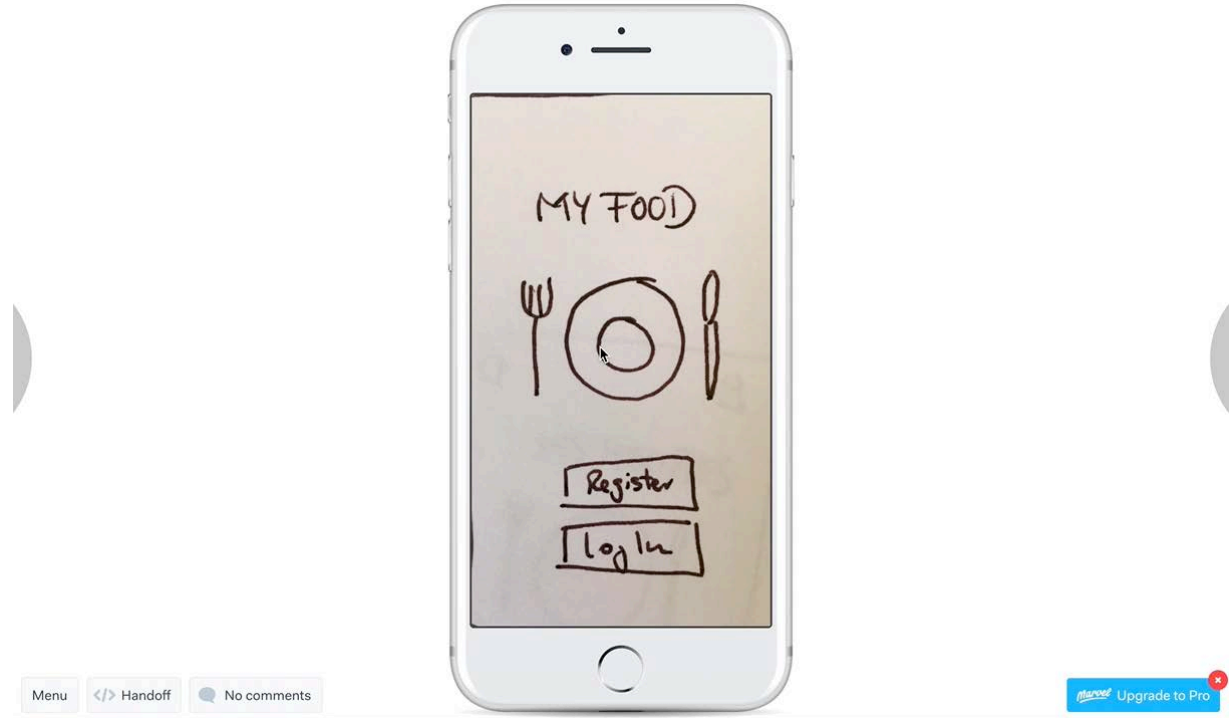
Creating a rough prototype can help quickly test the flow.

This could be extremely low fidelity or...



<https://www.youtube.com/watch?v=yafaGNFu8Eg>

...with an app



POP — Prototyping on Paper by marvelapp.com/



The Storyboard, combines everything in a clean, thought-out presentation for the client.

The 20 best wireframe tools — #9 Indesign & #10 Photoshop

<https://www.creativebloq.com/wireframes/top-wireframing-tools-11121302>

11 Best Website Wireframe Tools in for UX/UI Designers

<https://www.mockplus.com/blog/post/website-wireframe-tool>

Designing for Apple

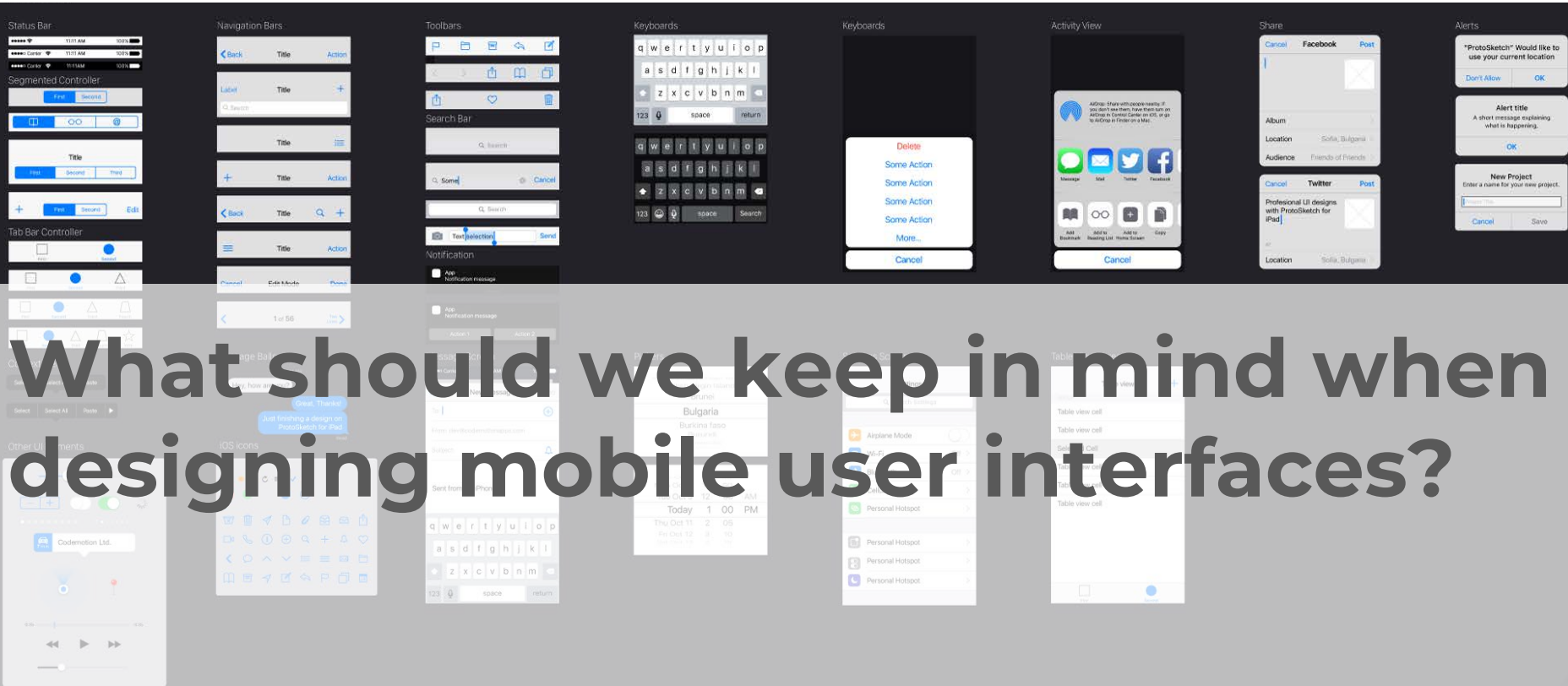
<https://developer.apple.com/design/>

Material Design

<https://material.io/design/introduction/>

User Experience:

<https://www.usability.gov/>



What should we keep in mind when designing mobile user interfaces?

Always consider most recent Display Resolution

Display properties of different types of iPhones			
iPhone Model	Resolution in pixels (Width x Height)	Resolution in points (Width x Height)	PPI
iPhone 15 Pro Max	1290 x 2796	430 x 932	460
iPhone 15 Plus			
iPhone 14 Pro Max			
iPhone 14 Plus	1284 x 2778	428 x 926	458
iPhone 13 Pro Max			
iPhone 12 Pro Max			
iPhone 11 Pro Max	1242 x 2688	414 x 896	
iPhone XS Max			
iPhone 15 Pro	1179 x 2556	393 x 852	
iPhone 15			
iPhone 14 Pro			
iPhone 14	1170 x 2532	390 x 844	460
iPhone 13			
iPhone 13 Pro			
iPhone 12			
iPhone 12 Pro			
iPhone 11 Pro	1125 x 2436	375 x 812	458
iPhone XS			
iPhone X			

GUI

Graphical User Interface, a type of computer screen display in which commands are entered and functions are selected by means of icons, menus, a mouse, etc.

GUI Graphical User Interface, a type of computer screen display in which commands are entered and functions are selected by means of icons, menus, a mouse, etc.	Graphical Elements Text Fields Buttons Bars Tabs Boxes Scrolls Navigational menus Icons etc.
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GUI

Graphical User Interface, a type of computer screen display in which commands are entered and functions are selected by means of icons, menus, a mouse, etc.

Graphical Elements

Text Fields
Buttons
Bars
Tabs
Boxes
Scrolls
Navigational menus
Icons
etc.

Should be

Simple
Easy to navigate
Clear
Concise
Responsive
Consistent
Attractive
Efficient

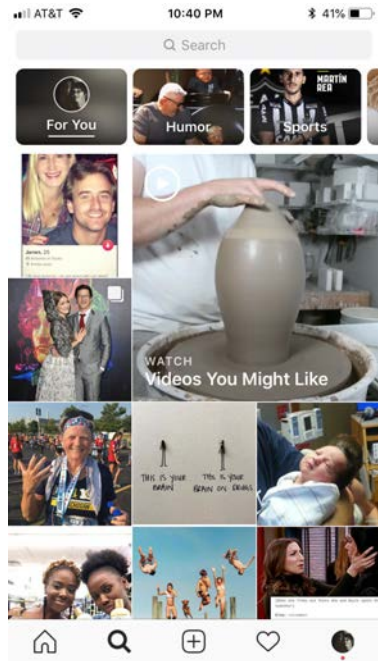
“Don’t annoy... What you think is really cool might only be cool the very first time.” *David Ho, Engineer, Wallstreet Journal Apps*

Use images with links

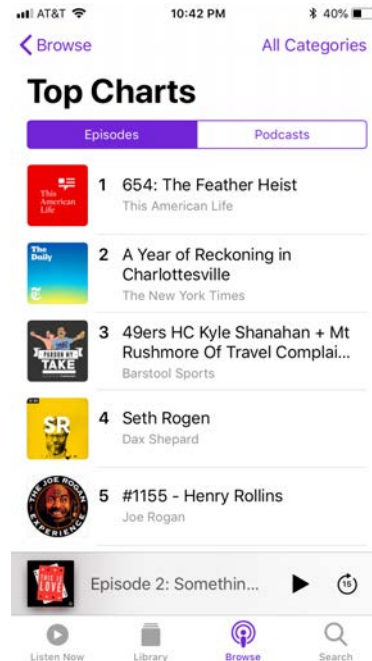
For more visual impact



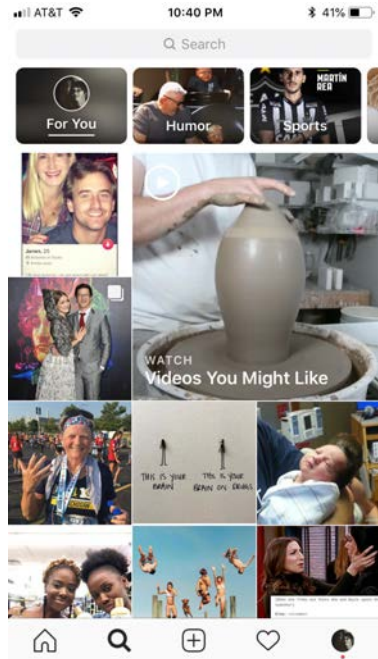
Use images with links For more visual impact



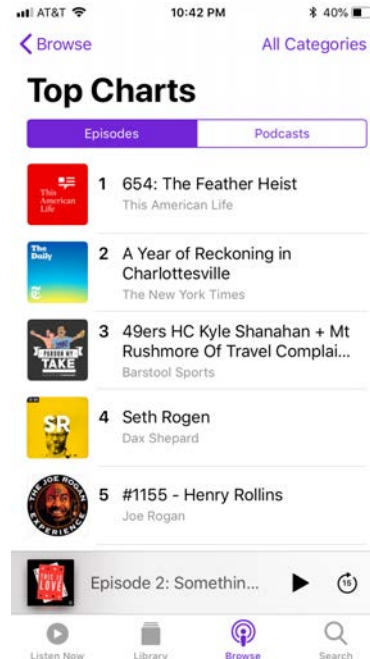
Show full headline for a stronger 'info scent'.



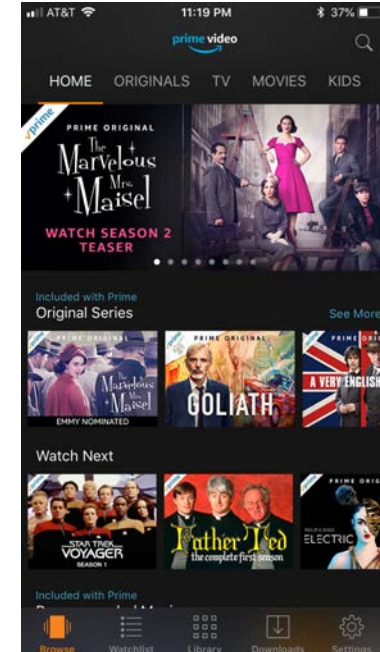
Use images with links For more visual impact



Show full headline for a stronger 'info scent'.



Include big targets for touch for less precision need



iOS Touch Targets

In the Human Interface Guidelines, Apple recommends a minimum target size of 44 pixels (px) wide 44 pixels tall.

This seems definitely a 'minimum size' and in practice this is still too small of an area to be trying to tap successfully.

It may be worth considering the physical limitation of an adult finger as a guide.

Android Touch Targets

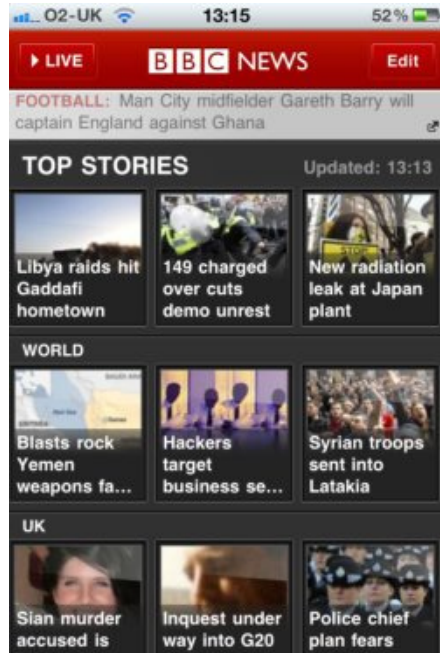
In the Android Material Design Guidelines it's suggested that touch targets should be at least 48 x 48 dp*.

A touch target of this size results in a physical size of about 9mm, regardless of screen size. The recommended target size for touchscreen elements is 7–10mm.

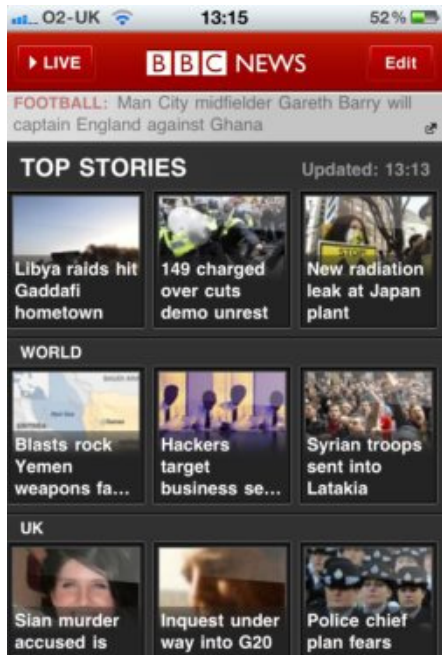
It may be appropriate to use larger touch targets to accommodate a larger spectrum of users, such as children with developing motor skills.

<https://medium.com/@zacdicko/size-matters-accessibility-and-touch-targets-56e942adc0cc>

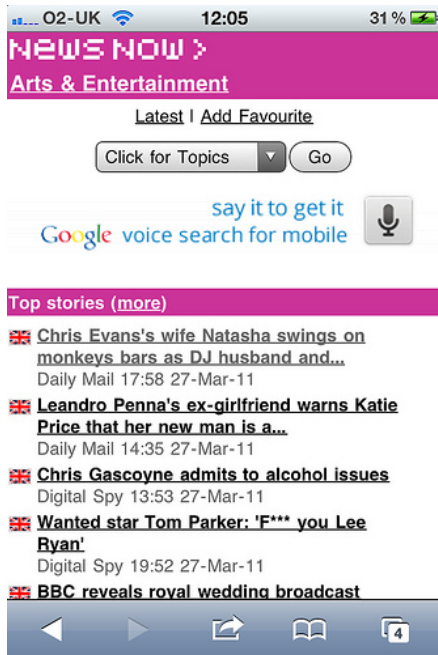
Spacing between navigation elements



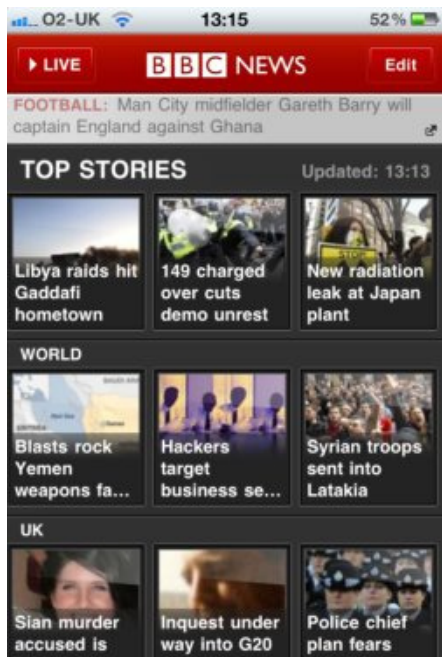
Spacing between navigation elements



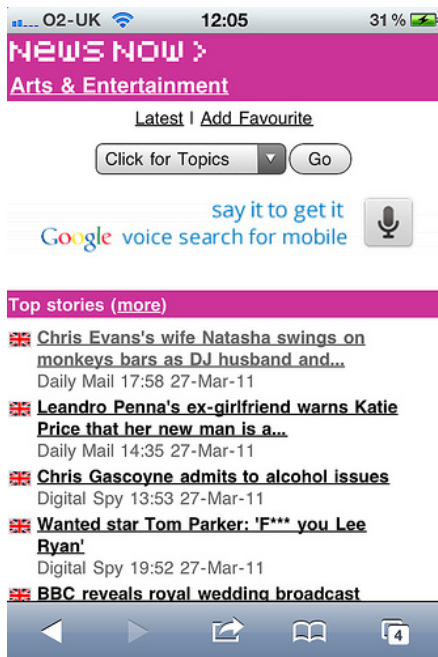
Think “Mobile First” for websites



Spacing between navigation elements



Think “Mobile First” for websites



Graphical Elements

Clear, simpler and appealing information presentation
Uses shades and hues of two or three main colors
Organized layout
Sufficient space between elements for touch display navigation
Moderate use of GUI elements (scrolls, tables, icons, etc.)

Alignment

Consistent alignment and spacing contributes to more efficient information access and positive user experience.

Position GUI elements in relation to each other and in the space they reside.

Consistent
Grid
Balance

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Spacing

Spacing allows information to appear more organized.

White Space is generally defined as the space between printed text or graphics.

Spacing border – consecutively equal and enough spacing given to GUI elements.

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Composition

Hierarchy

Variety

Unity

Balance

Contrast

Rhythm

Create. Refine. Test. Iterate.

