
UX Design & Development



1-1.30 - Recap / Q&A

1.30-2.30 pm - Virtual Observation Research tour UIC Hospital

3-4pm - UX Design and Development

4-5pm - 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

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.

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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



Observation



Ideation



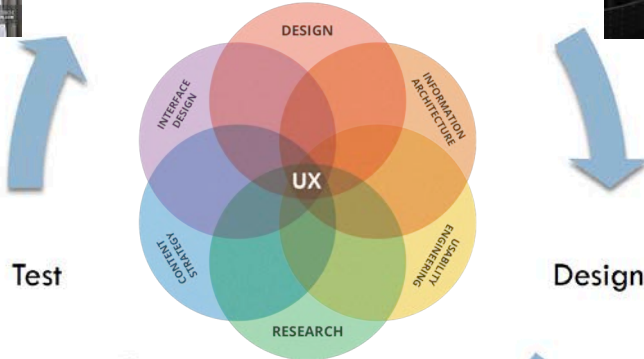
Design



Build



Test



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

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Research Process / Prototyping

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

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Research Process

Define research questions

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

Focus on understanding current practices

Define methods

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!

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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

Try to capture ~75 notes

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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

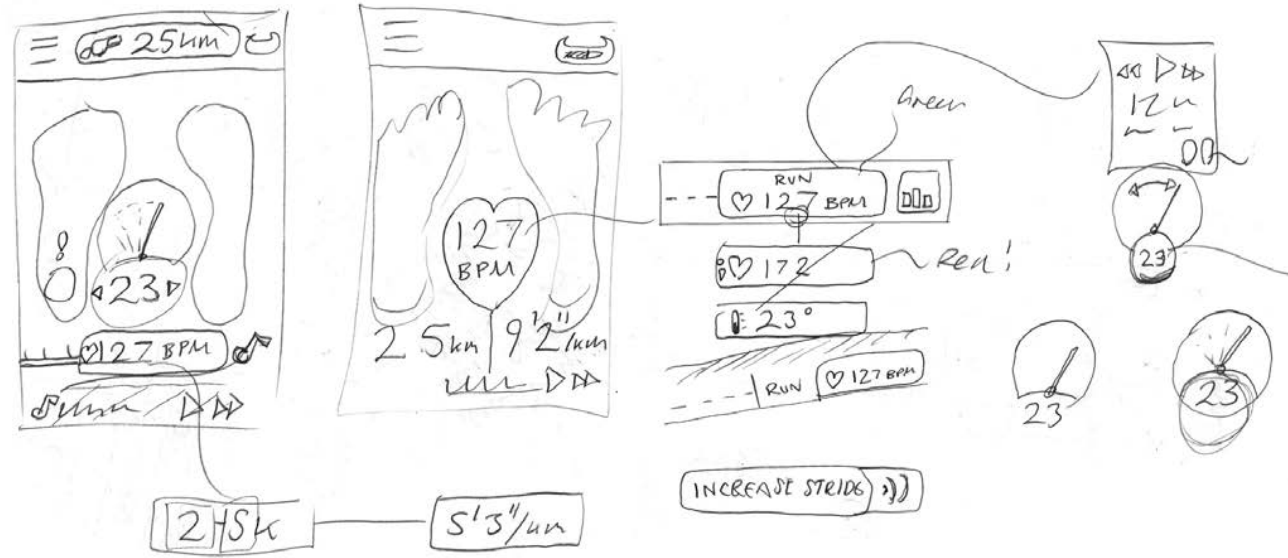
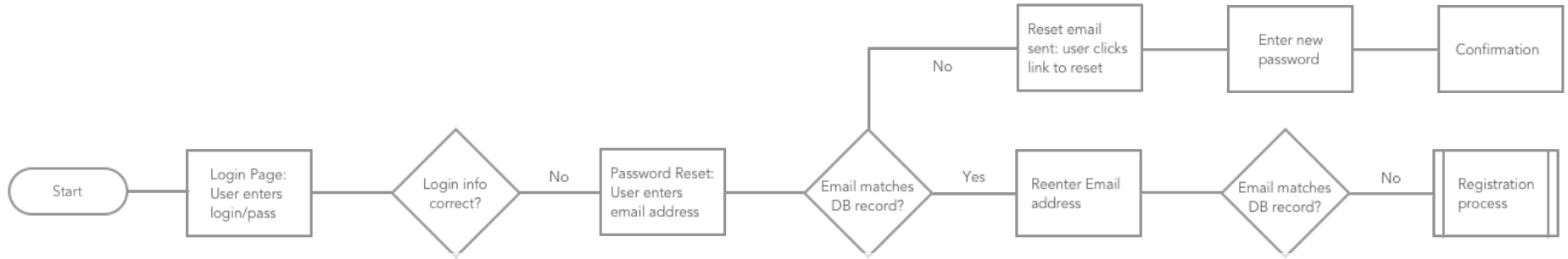


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Design doesn't just mean artistic expression. We are designing for user experience and process.

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

You are guiding behavior.

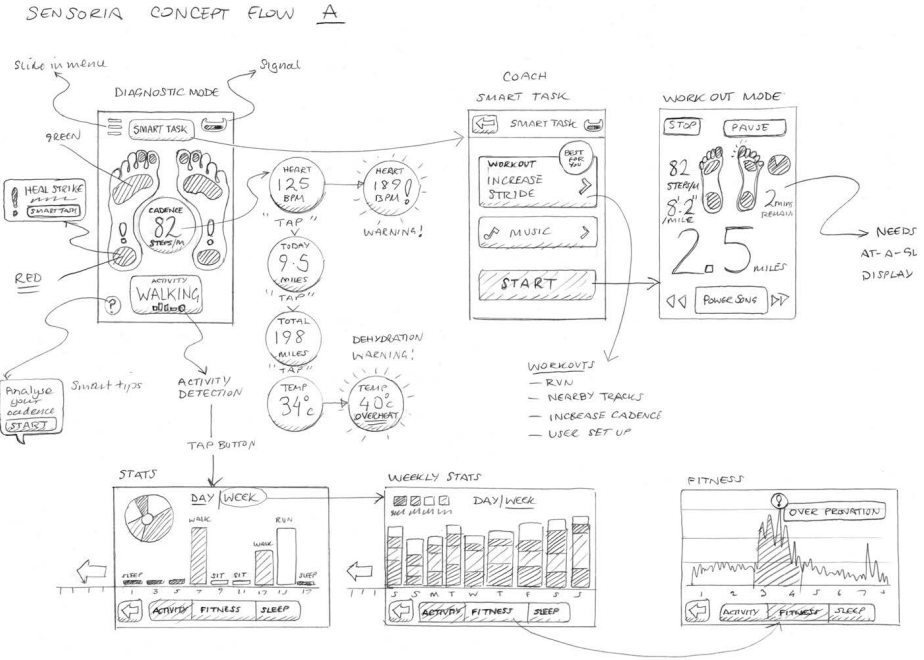
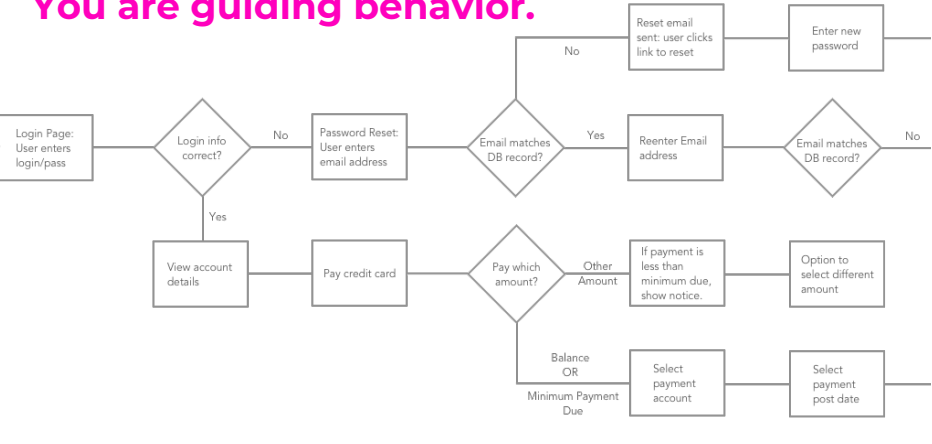


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Consider all functional elements needed to help the user achieve the app goal.

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

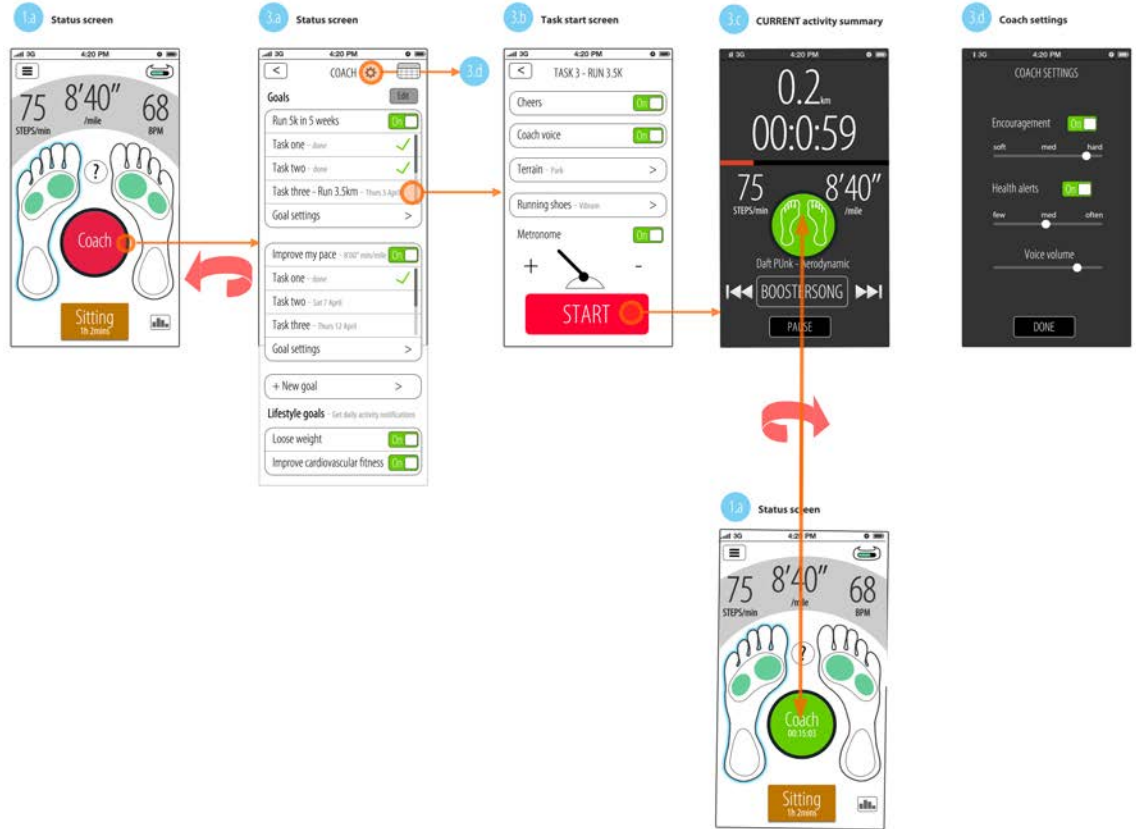
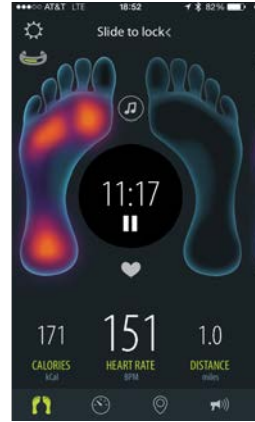
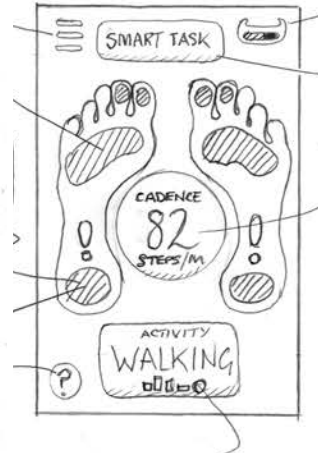


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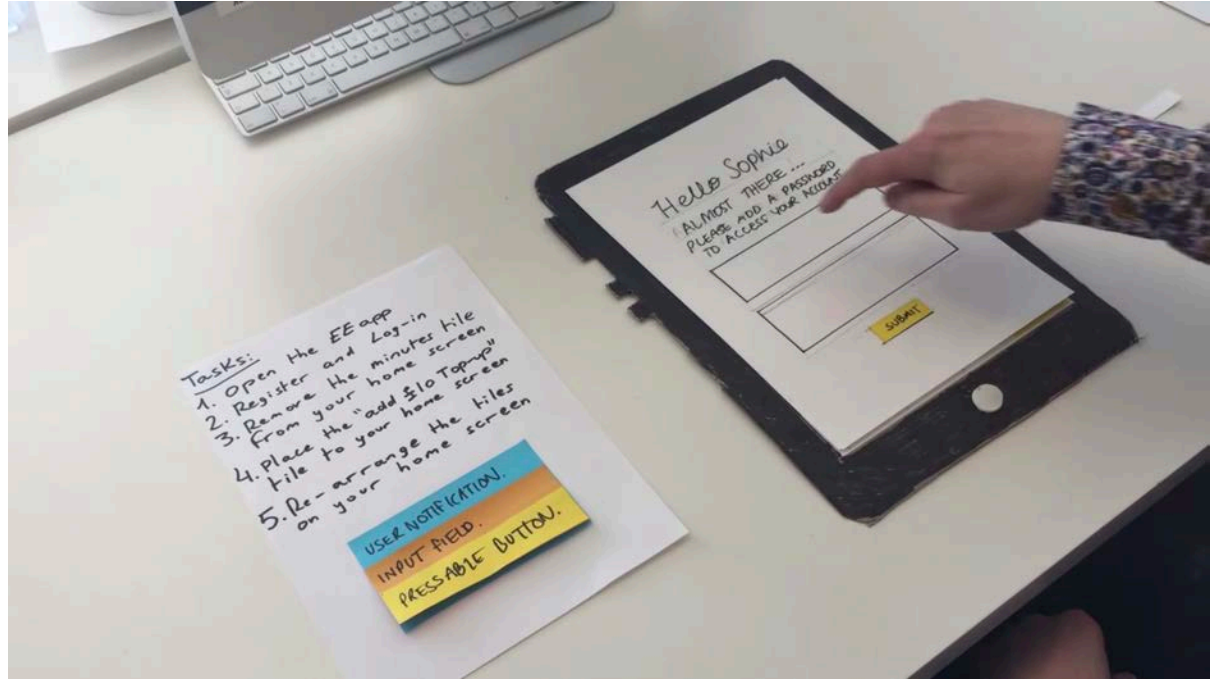
“Wireframing is the make or break part of any UX project. It’s where you want to fail fast, fail early, and fail cheap.” *Scott Childs, Senior Creative Director, Capital One*

Through all this —
Experience informs
visual design.



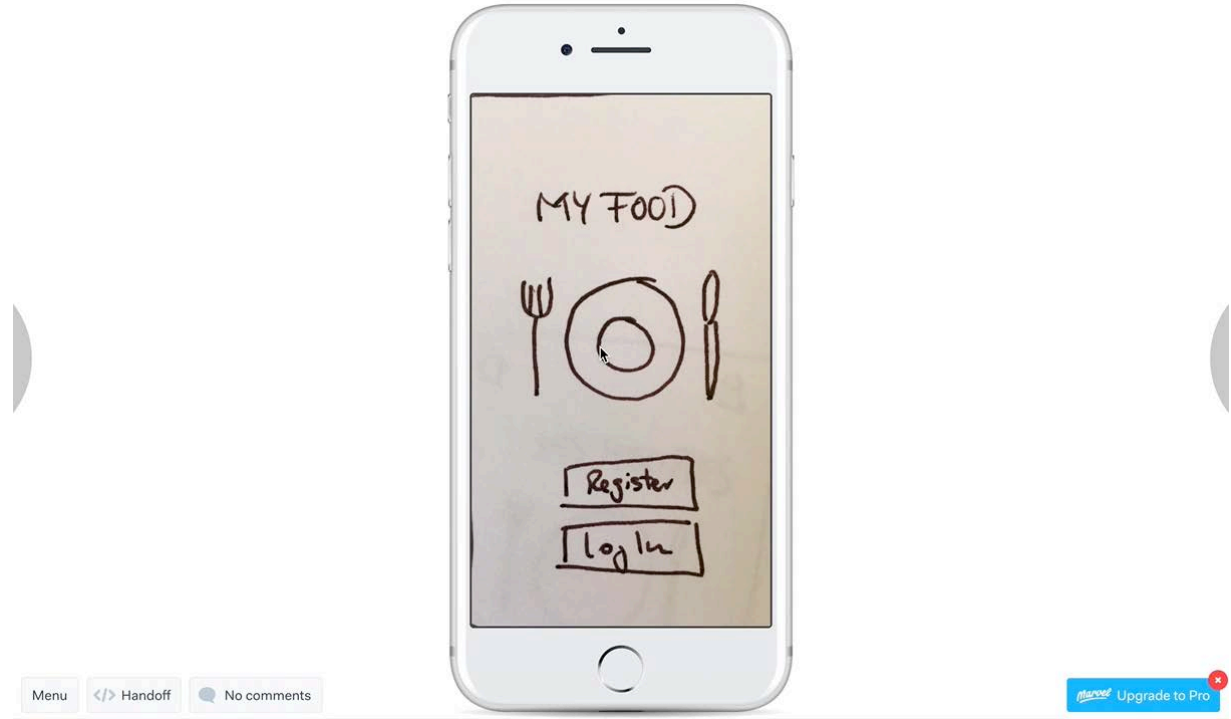
Creating a rough prototype can help quickly test the flow.

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 2018 for UX/UI Designers

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

Designing for Apple

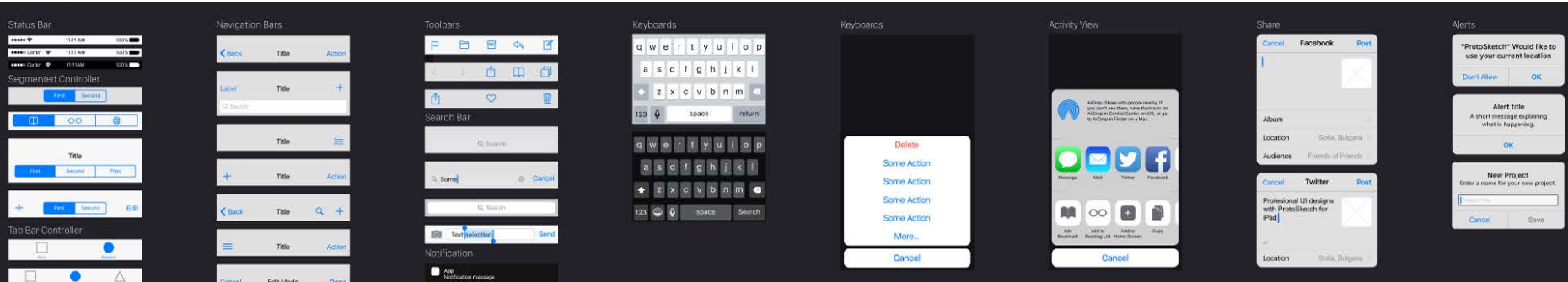
<https://developer.apple.com/design/>

Material Design

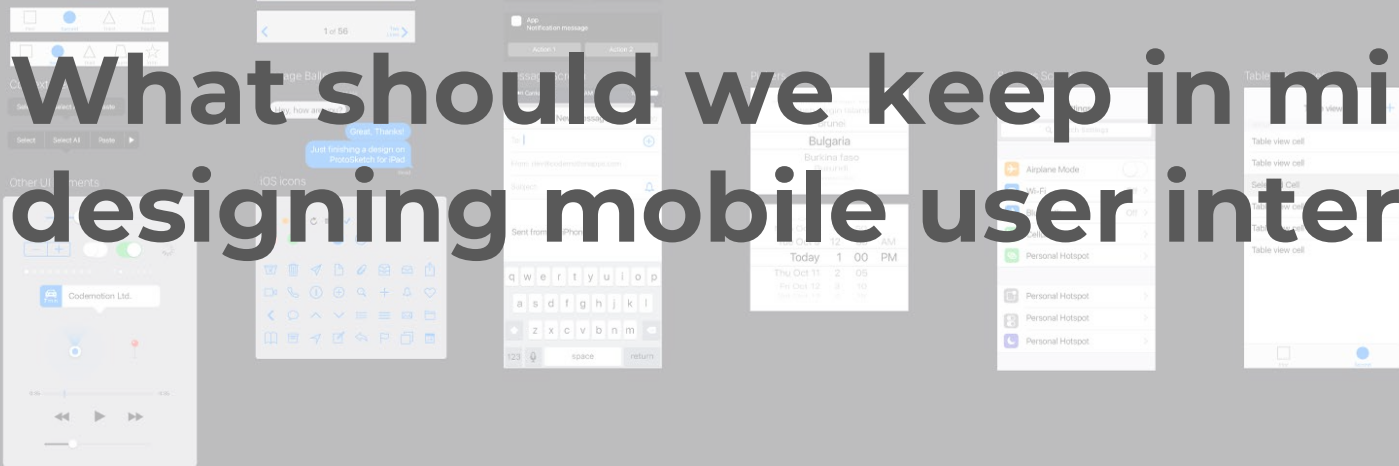
<https://material.io/design/introduction/>

User Experience:

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









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



Always consider most recent Resolution/Pixel Density

Device	Native Resolution (Pixels)	UIKit Size (Points)	Native Scale factor	UIKit Scale factor
iPhone X	1125 x 2436	375 x 812	3.0	3.0
iPhone 8 Plus	1080 x 1920	414 x 736	2.608	3.0
iPhone 8	750 x 1334	375 x 667	2.0	2.0
iPhone 7 Plus	1080 x 1920	414 x 736	2.608	3.0
iPhone 6s Plus	1080 x 1920	375 x 667	2.608	3.0
iPhone 6 Plus	1080 x 1920	375 x 667	2.608	3.0
iPhone 7	750 x 1334	375 x 667	2.0	2.0
iPhone 6s	750 x 1334	375 x 667	2.0	2.0
iPhone 6	750 x 1334	375 x 667	2.0	2.0
iPhone SE	640 x 1136	320 x 568	2.0	2.0
iPad Pro 12.9-inch (2nd generation)	2048 x 2732	1024 x 1366	2.0	2.0
iPad Pro 10.5-inch	2224 x 1668	1112 x 834	2.0	2.0
iPad Pro (12.9-inch)	2048 x 2732	1024 x 1366	2.0	2.0
iPad Pro (9.7-inch)	1536 x 2048	768 x 1024	2.0	2.0
iPad Air 2	1536 x 2048	768 x 1024	2.0	2.0
iPad Mini 4	1536 x 2048	768 x 1024	2.0	2.0

Rank	Manufacturer and model name	Year introduced	Screen size	Screen area	Resolution	Ratio
1.	Sony Xperia Z5 Premium	2015	5.5"	12.93 square inches (4.8"x2.7") 	3840x2160 UHD-1	16:9
2.	Samsung Galaxy S6	2015	5.1"	11.11 square inches (4.4"x2.5") 	2560x1440 QHD	16:9
3.	Samsung Galaxy S6 Edge	2015	5.1"	11.11 square inches (4.4"x2.5") 	2560x1440 QHD	16:9
4.	Samsung Galaxy S7	2016	5.1"	11.11 square inches (4.4"x2.5") 	2560x1440 QHD	16:9
5.	Samsung Galaxy S8	2017	5.8"	13.23 square inches (5.2"x2.5") 	2960x1440	37:18
6.	Samsung Galaxy S9	2018	5.8"	13.23 square inches (5.2"x2.5") 	2960x1440	37:18

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.

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Graphical Elements

Text Fields

Buttons

Bars

Tabs

Boxes

Scrolls

Navigational menus

Icons

etc.

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Should be

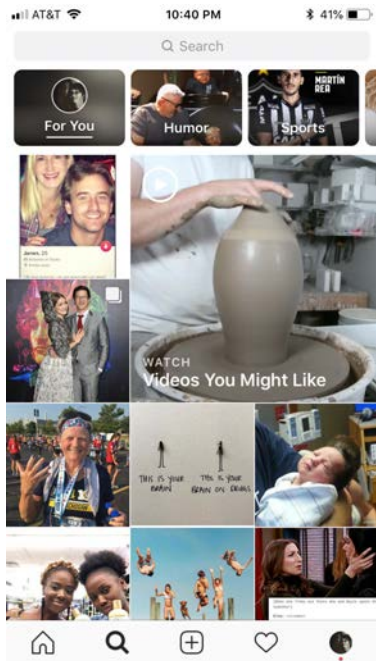
Simple
Easy to navigate
Clear
Concise
Responsive
Consistent
Attractive
Efficient

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

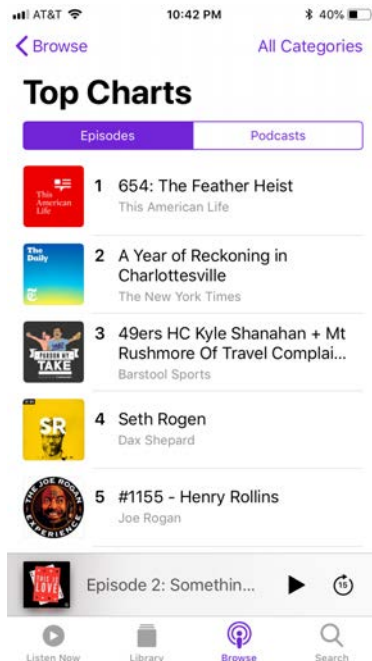
Use images with links For more visual impact



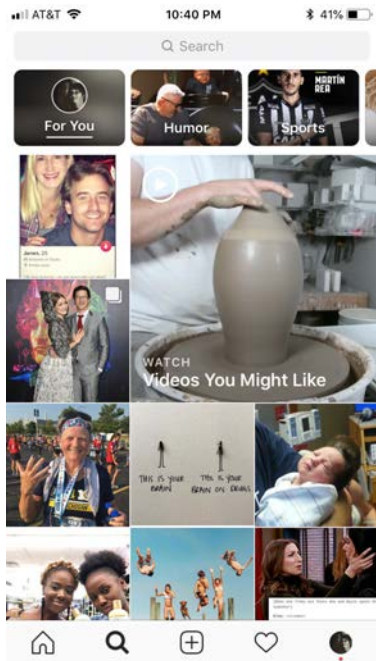
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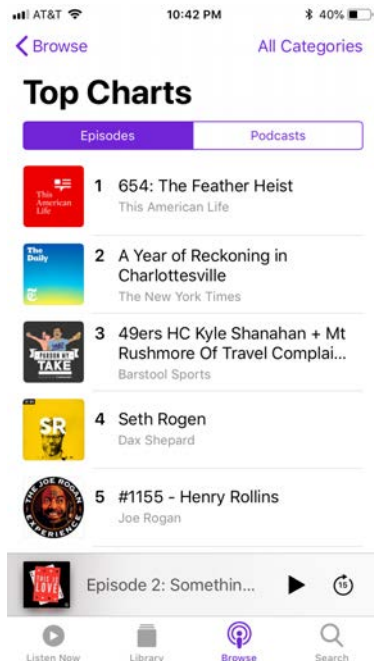
Show full headline for a stronger 'info scent'.



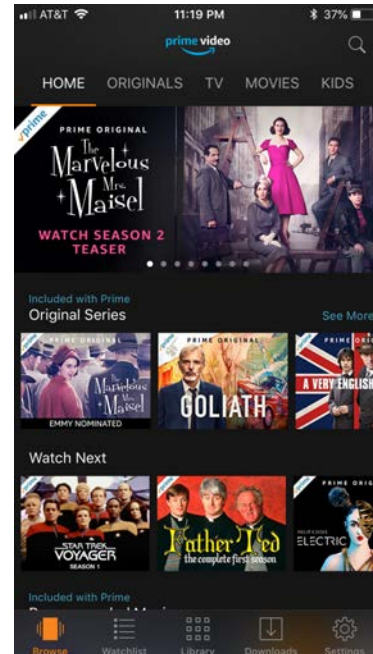
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Include big targets for touch for less precision need



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

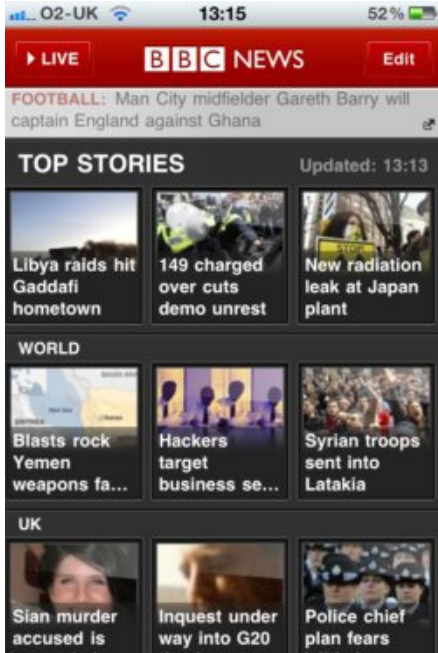
In the Android Material Design Guidelines it’s suggested that touch targets should be at least 48 x 48 dp*.

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.

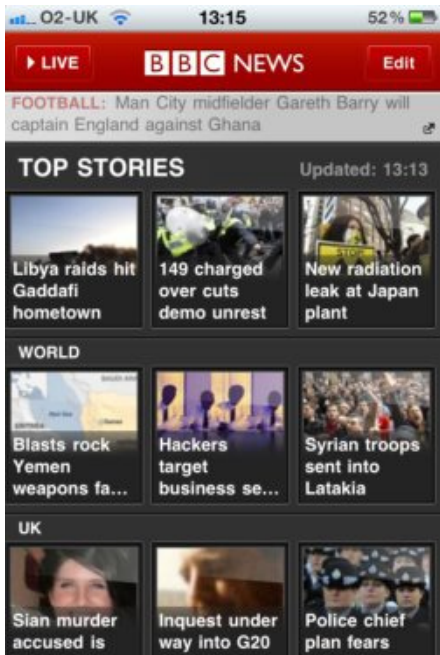
It may be appropriate to use larger touch targets to accommodate a larger spectrum of users, such as children with developing motor skills.

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

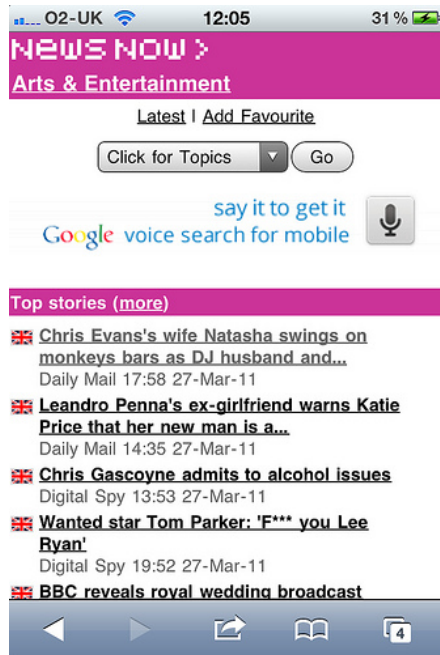
Spacing between navigation elements



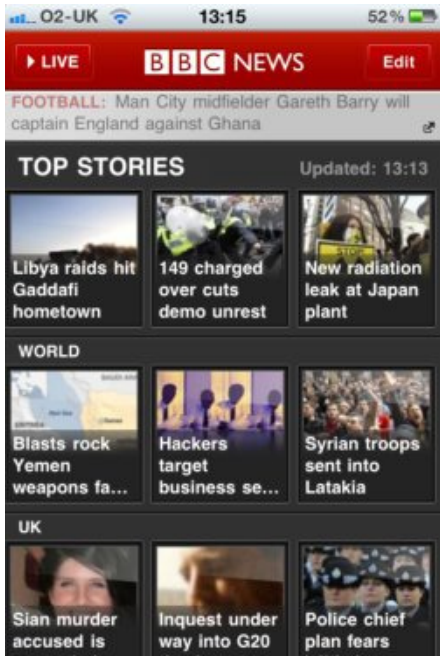
Spacing between navigation elements



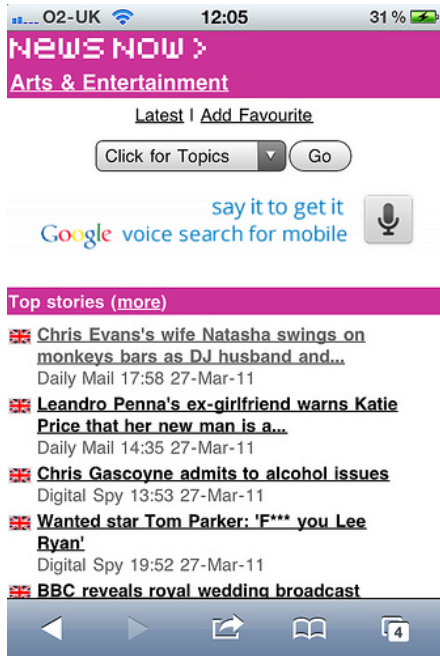
Think “Mobile First” for websites



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

- Consistent
- Grid
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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.

