

IN4MATX 231:

User Interface Design & Evaluation

Class 16:

Generalizable Design Principles

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Announcements

- Participatory design with Kurt on Thursday,
Human Performance with me next Tuesday
- What would you like to discuss in Week 10?
- Some ideas:
 - Interface development and software tools
 - HCD as a research method
 - HCD/HCI history
- Post other ideas on Slack, I'll do a poll at some point

Today's goals

By the end of today, you should be able to...

- Articulate some generalizable design patterns in web and mobile design
- Follow high-level guidelines for developing mobile interfaces
- Find and interpret platform-specific human interface guidelines
- Differentiate iOS and Android platform guidelines
- Articulate what makes a pattern “dark”

Design patterns

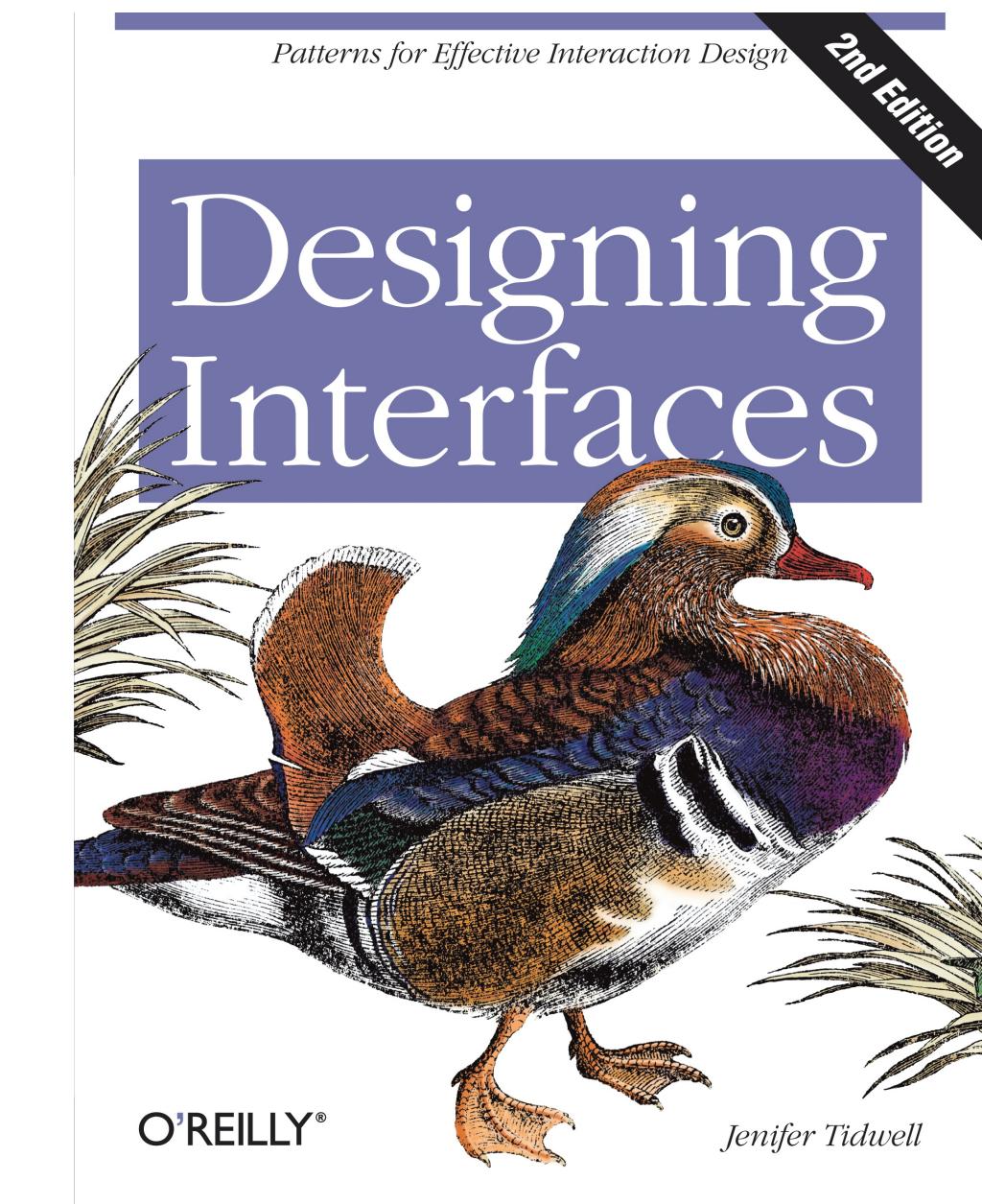
- “A general, reusable solution to a commonly occurring problem”
(from Wikipedia)
- Typically used in the context of software engineering
 - Example: if you want to ensure there is only one instance of a “thing”, use the **Singleton** pattern
 - But patterns can also be helpful in interface design

Interface design patterns

- Simplicity
- Familiarity
- Reduce implementation burden

Interface design patterns

- There are literally books of these
- We'll cover some overall principles, but there's always more to read
- Competitive analysis can help



What did you read about?



Grid-based layouts

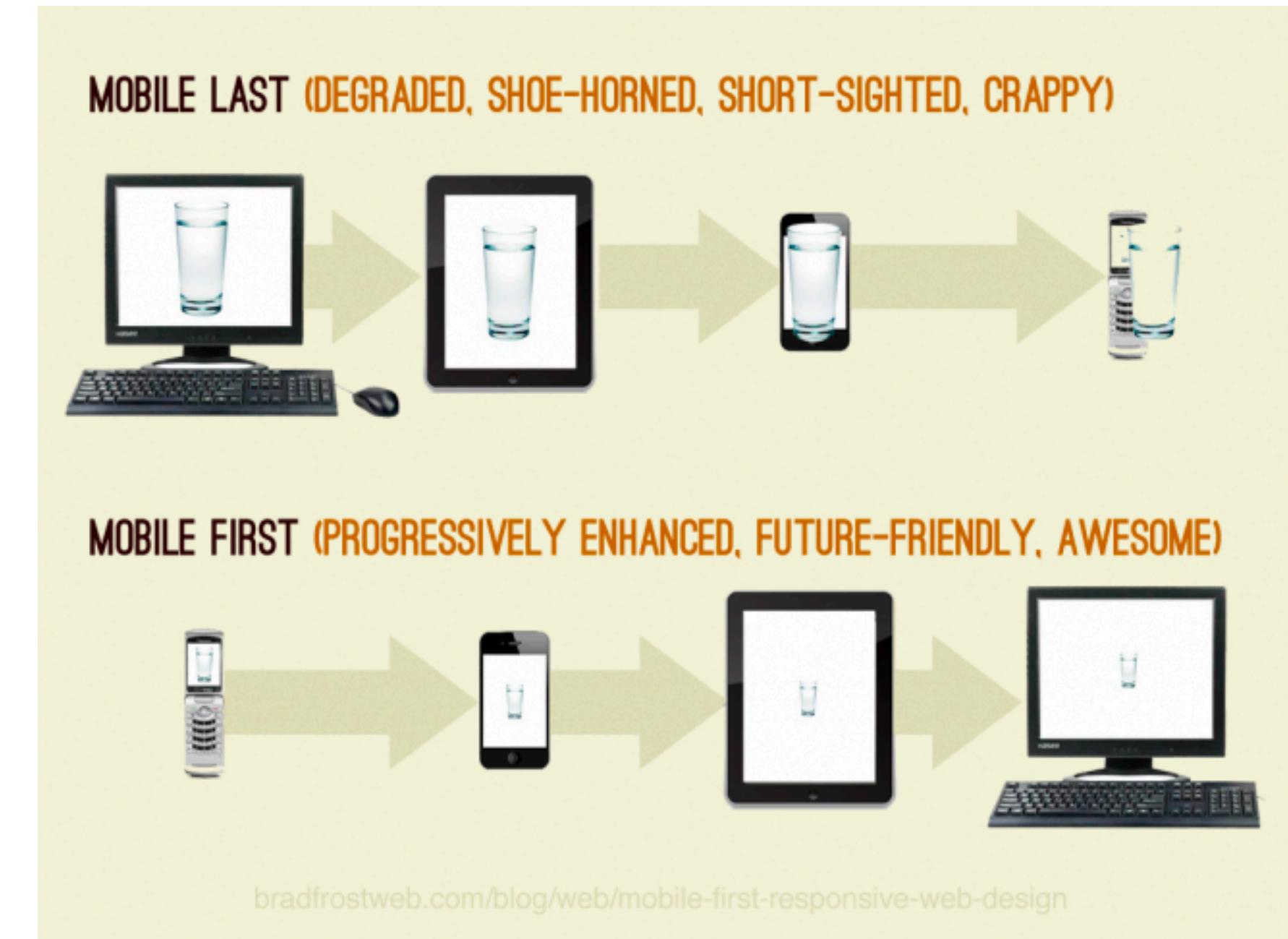
- Established tool for content arrangement
- Gridded content is familiar and easy to follow
- In general, it's good to target fewer lines
- But breaking that rule is important for creativity and attention-grabbing



<http://printingcode.runemadsen.com/lecture-grid/>

Mobile-first design

- “Graceful degradation” vs. “progressive enhancement”
- Plan your design for mobile
- Then make your app *better* with more real estate
 - Add more features
 - Make existing features easier to navigate



Mobile-first, not mobile-only

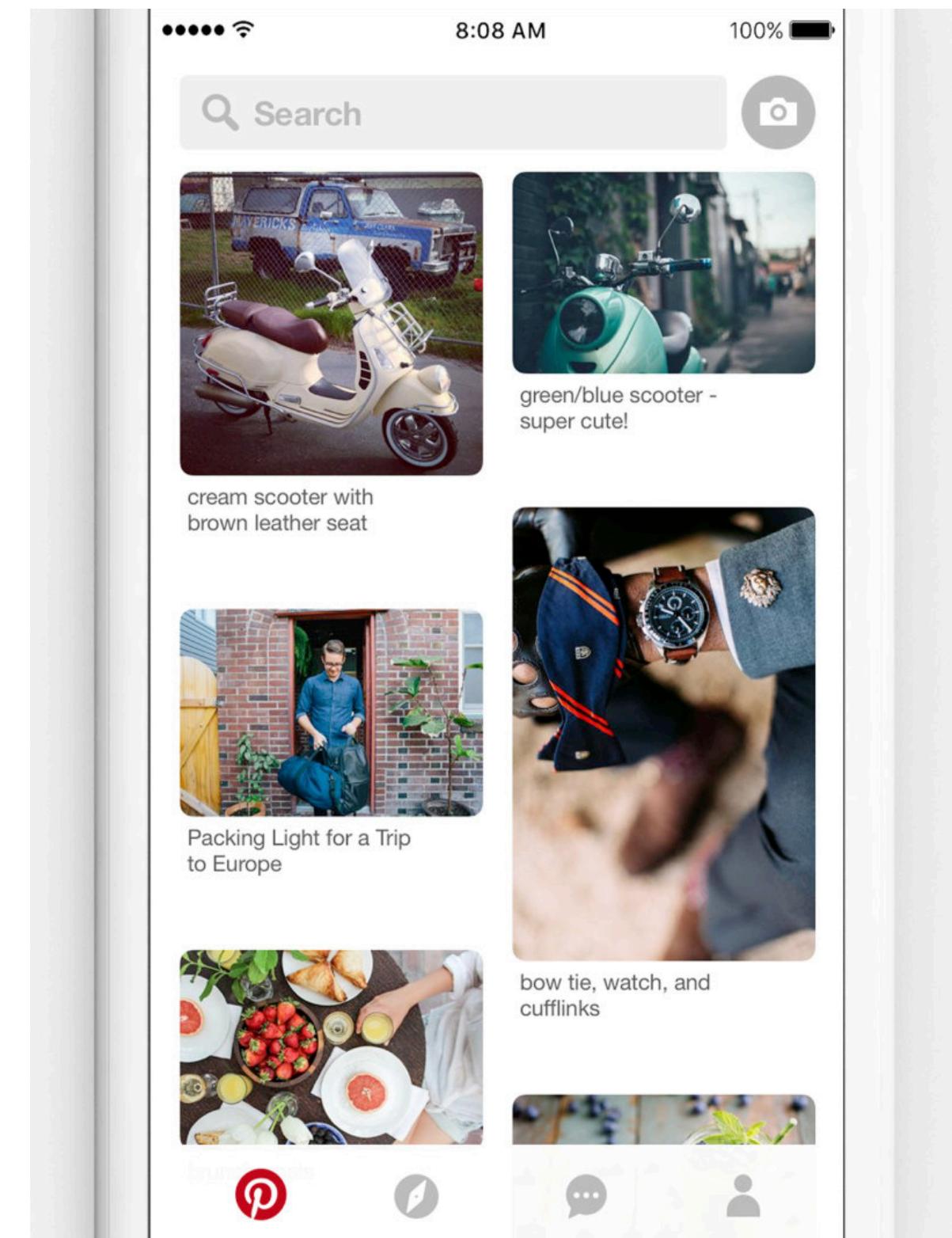
- Plan your design for mobile
- But consider how the experience should change on desktop, etc.
- Go beyond making everything bigger
 - *Enhance* your design
- I'll focus mostly on mobile principles today, but many generalize

A few principles of mobile design

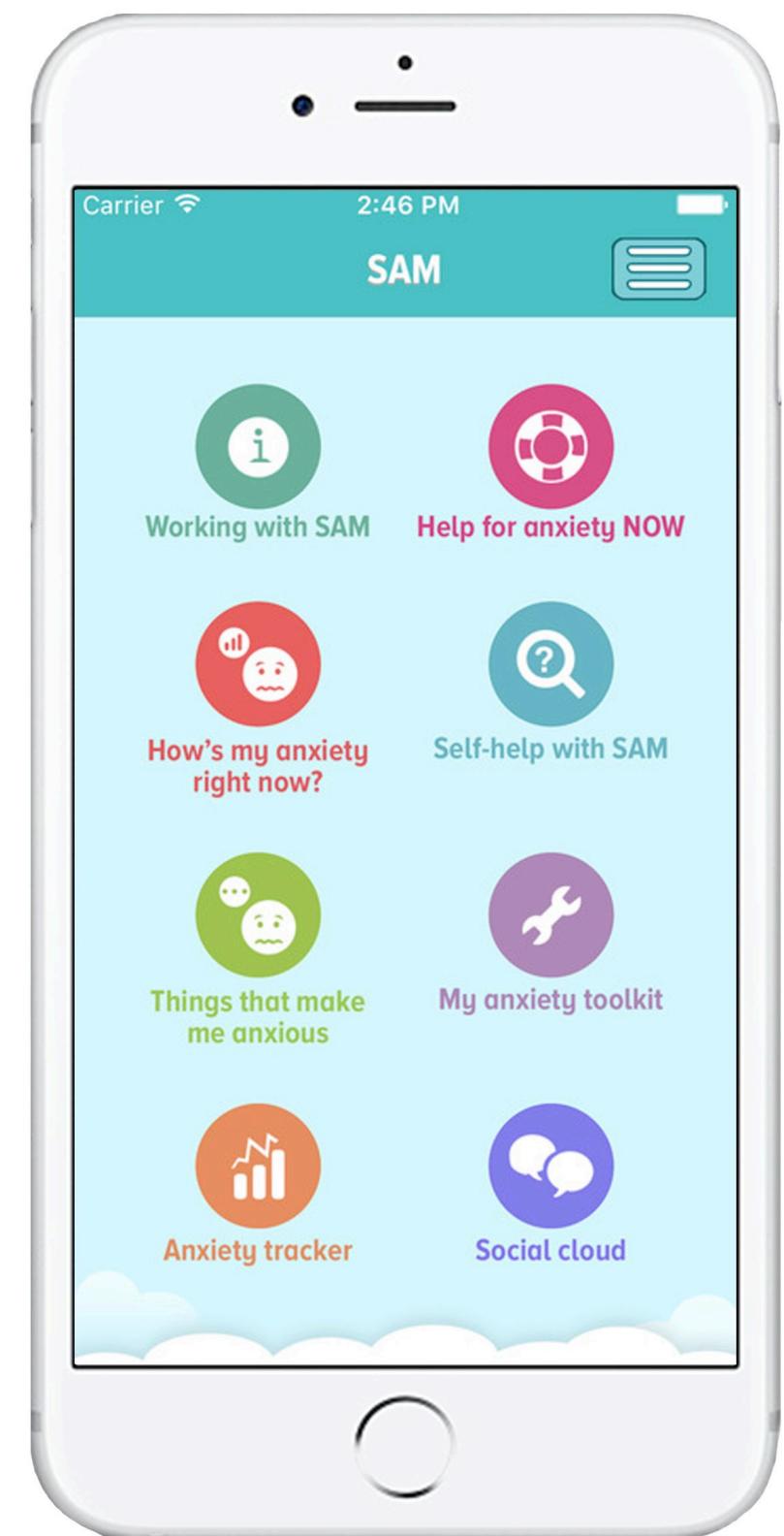
- A useful initial view
- The “uh-oh” button
- Error prevention
- Follow platform conventions

A useful initial view

- Give users clear calls to action
- Put useful content on the homepage
 - Pinterest's images
 - Put more than navigation buttons
- Make it easy to get back to the homepage
 - Bottom navbar, side navigation menu

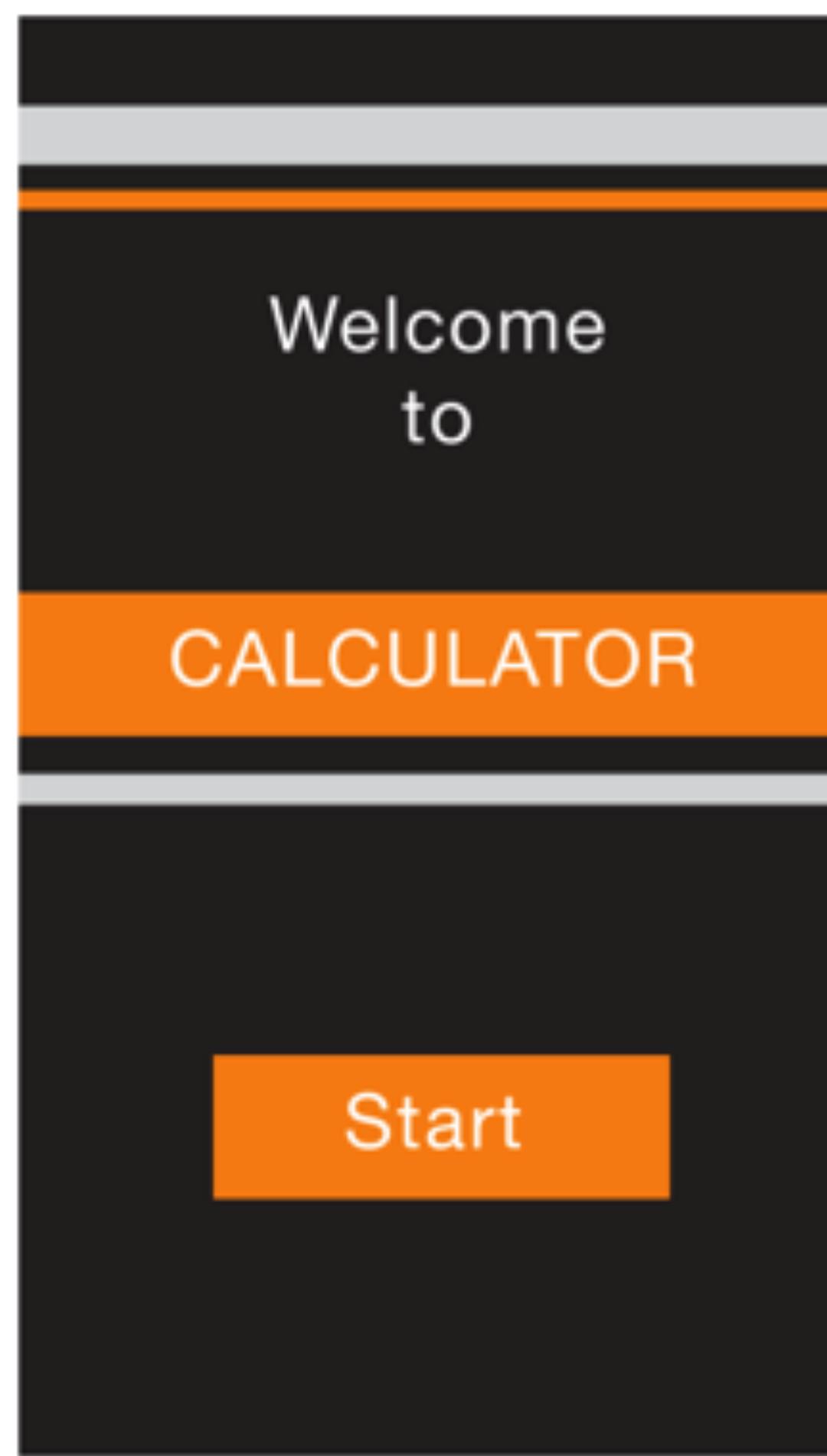
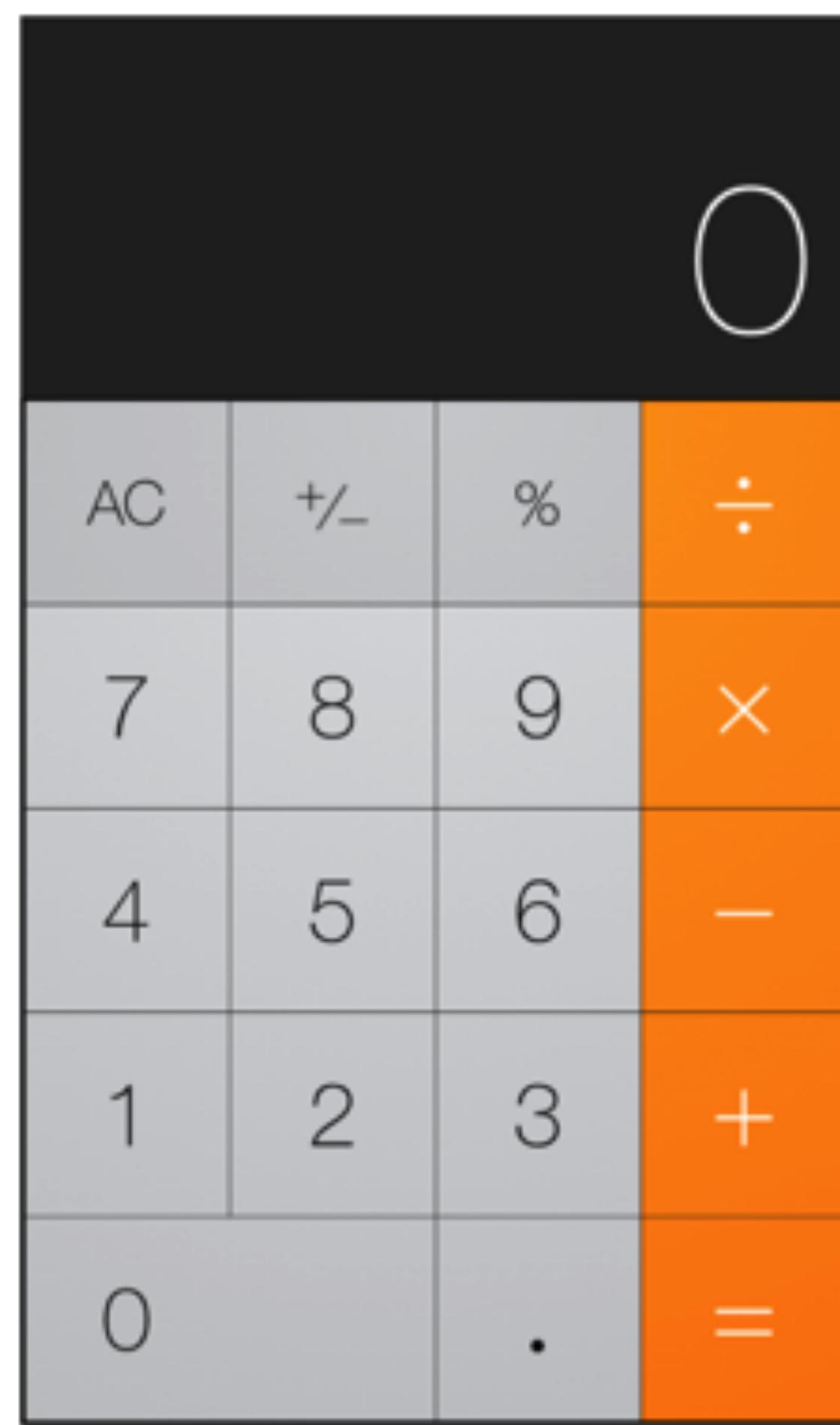


Pinterest



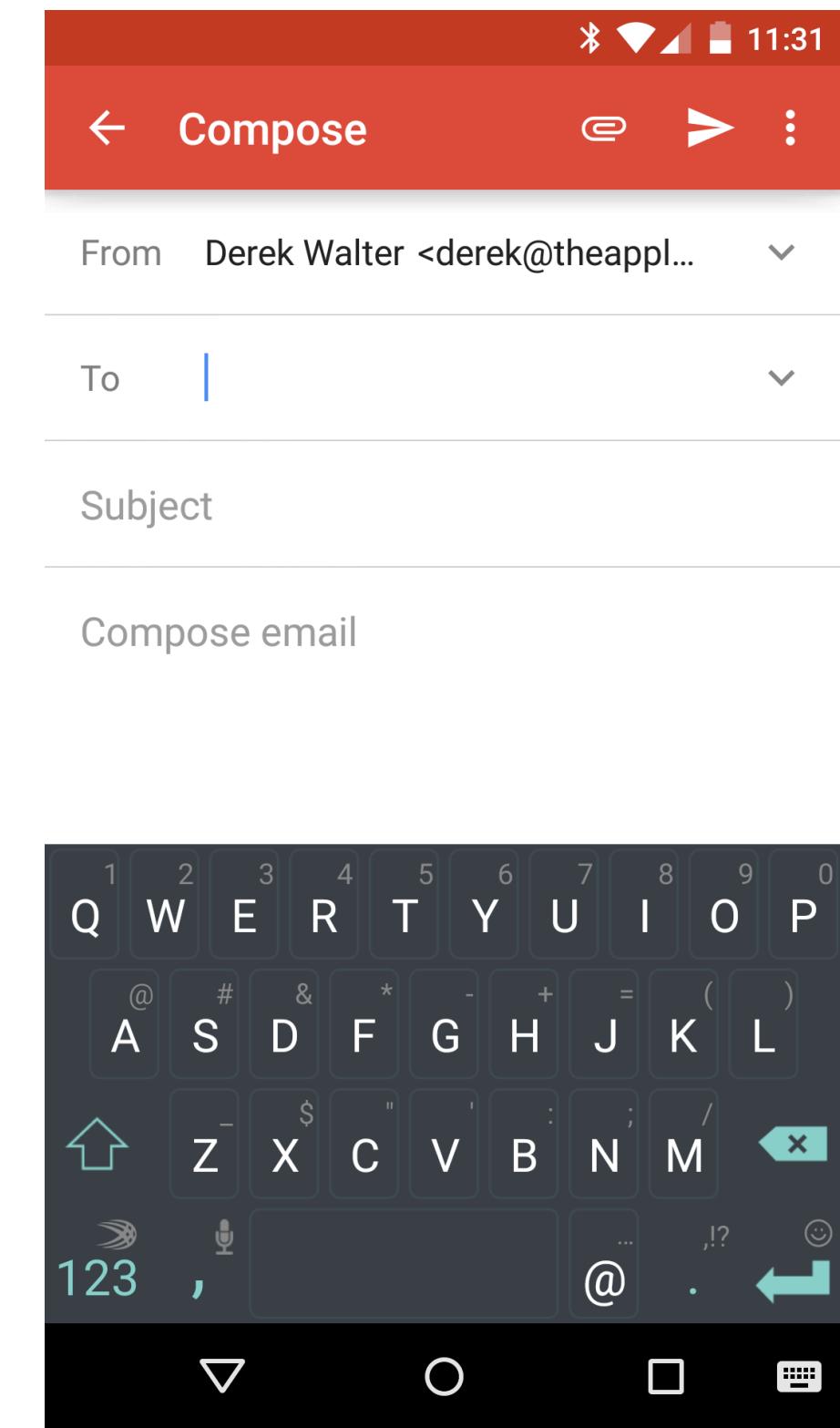
Anxiety management app

A useful initial view



The “uh-oh” button

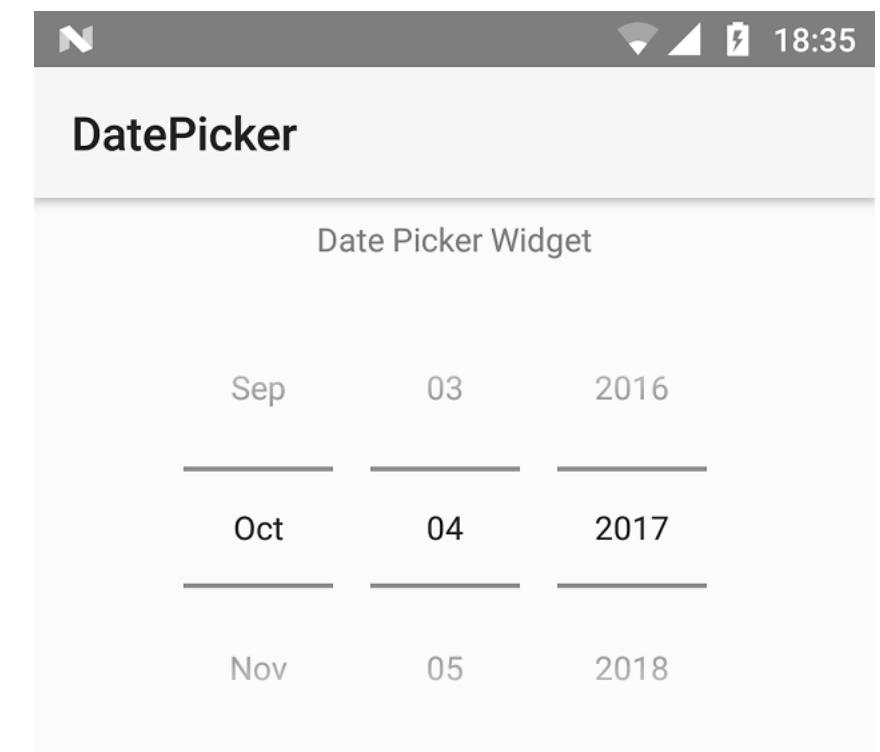
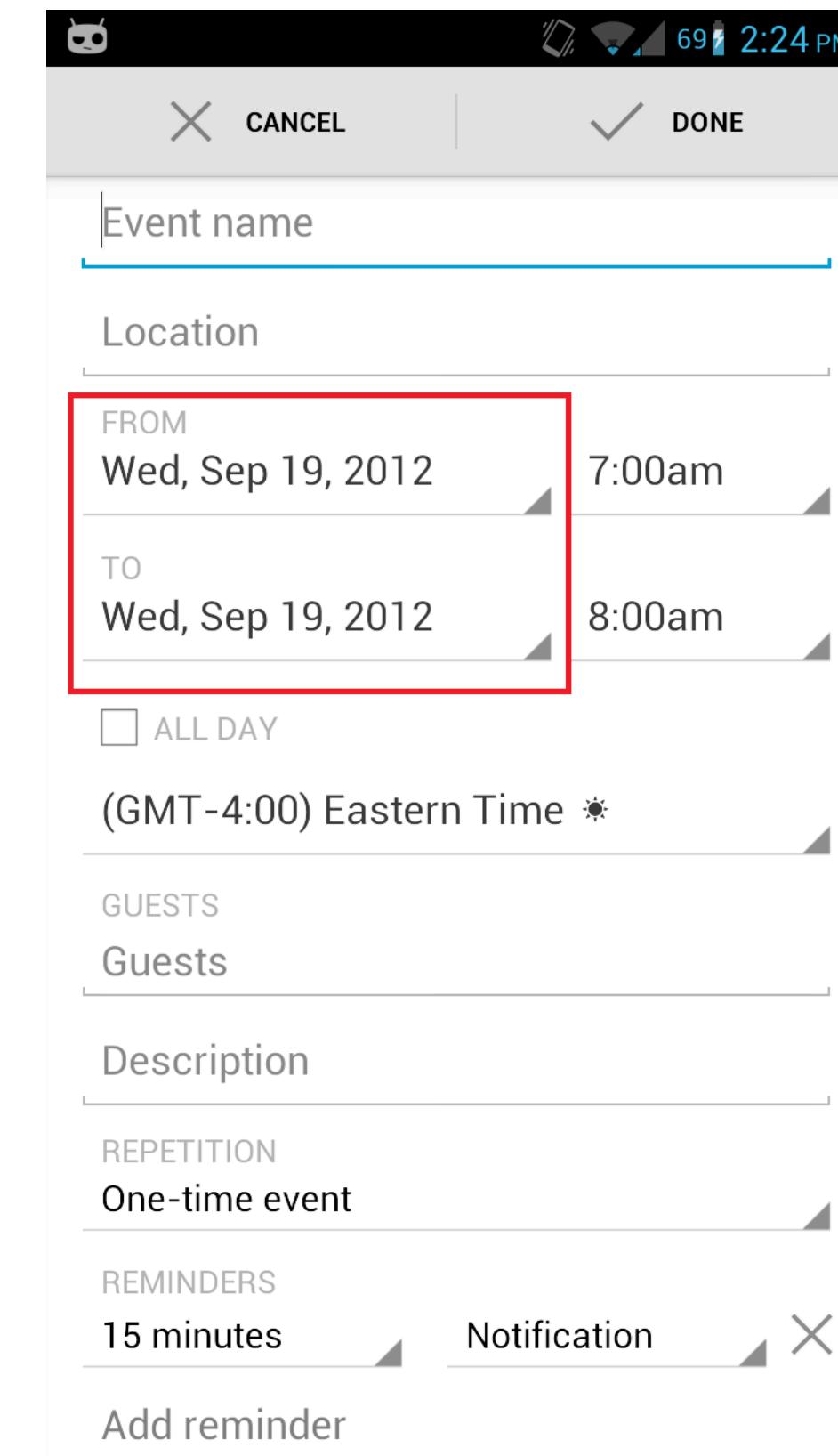
- Functions and buttons are often pressed by mistake
- Undo and redo should be easy
 - Gmail: “undo send”
- Navigating back a page should be easy
 - Breadcrumbs or back buttons (top left)



Gmail

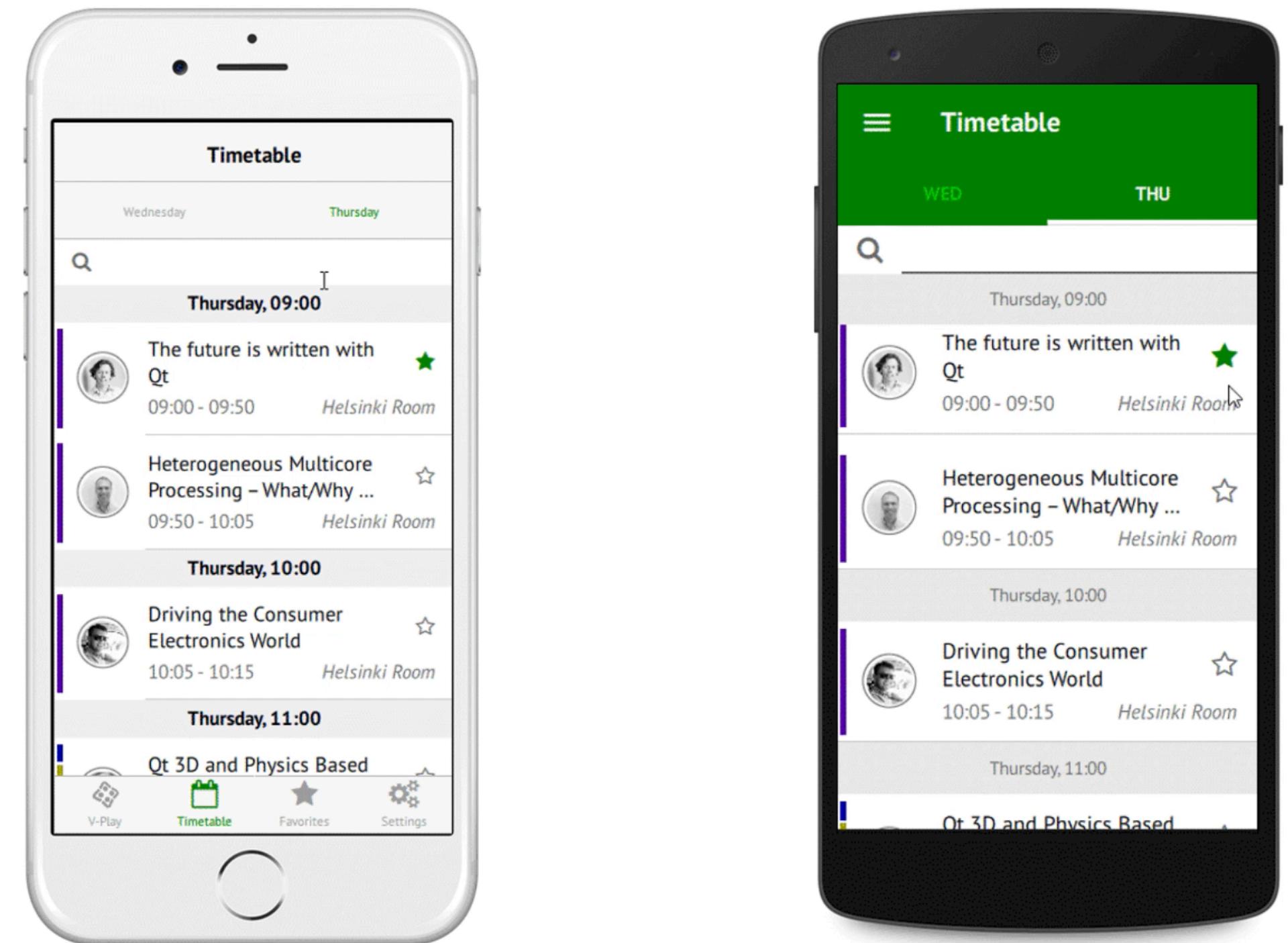
Error prevention

- Providing input with small devices is difficult
 - Add in as much assistance as possible to aid with input
- Add input checks
 - How many digits are in that phone number? Credit card number?
- Use appropriate widgets
 - Date/time spinner
 - Sliders



Follow platform conventions

- Users should not have to wonder whether different words, situations, icons, or actions mean the same thing
- Users should not have to remember app-specific navigation



iOS and Android platform conventions: Human Interface Guidelines

Human interface guidelines

- Created by web/mobile platform developers (Google, Apple)
- Key features:
 - Define rules for visual design and style
 - Specify interactions
 - Establish layout techniques
 - Provide consistency across the platform

Human interface guidelines

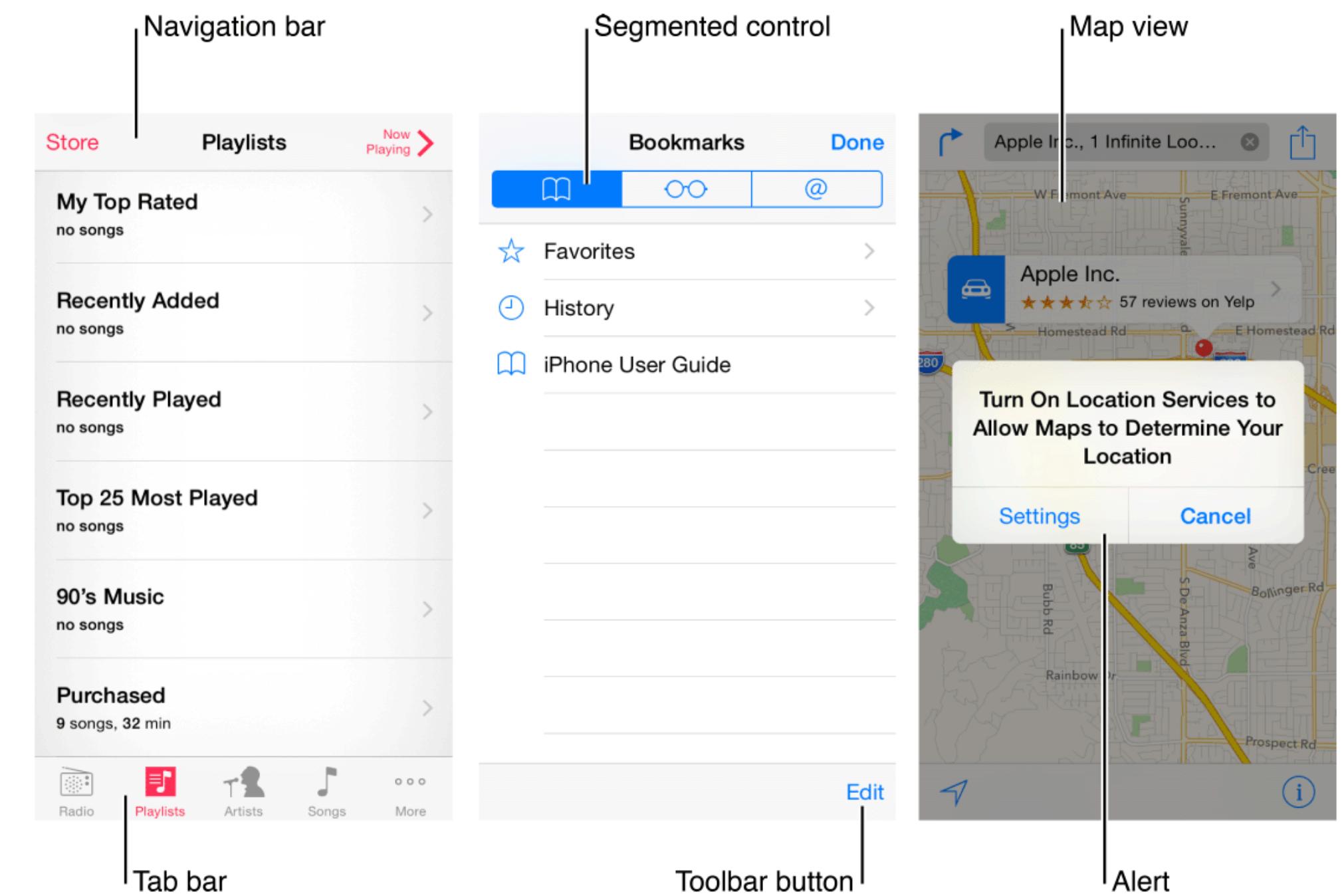
- HIGs are recommendations; you can choose to ignore them
 - The goal is to create an optimal experience for a device or platform
 - These guidelines most often follow best practices

iOS Human Interface Guidelines

- Content over UI
- Use the whole screen
- Single / simple colors
- Borderless buttons and widgets

Navigation

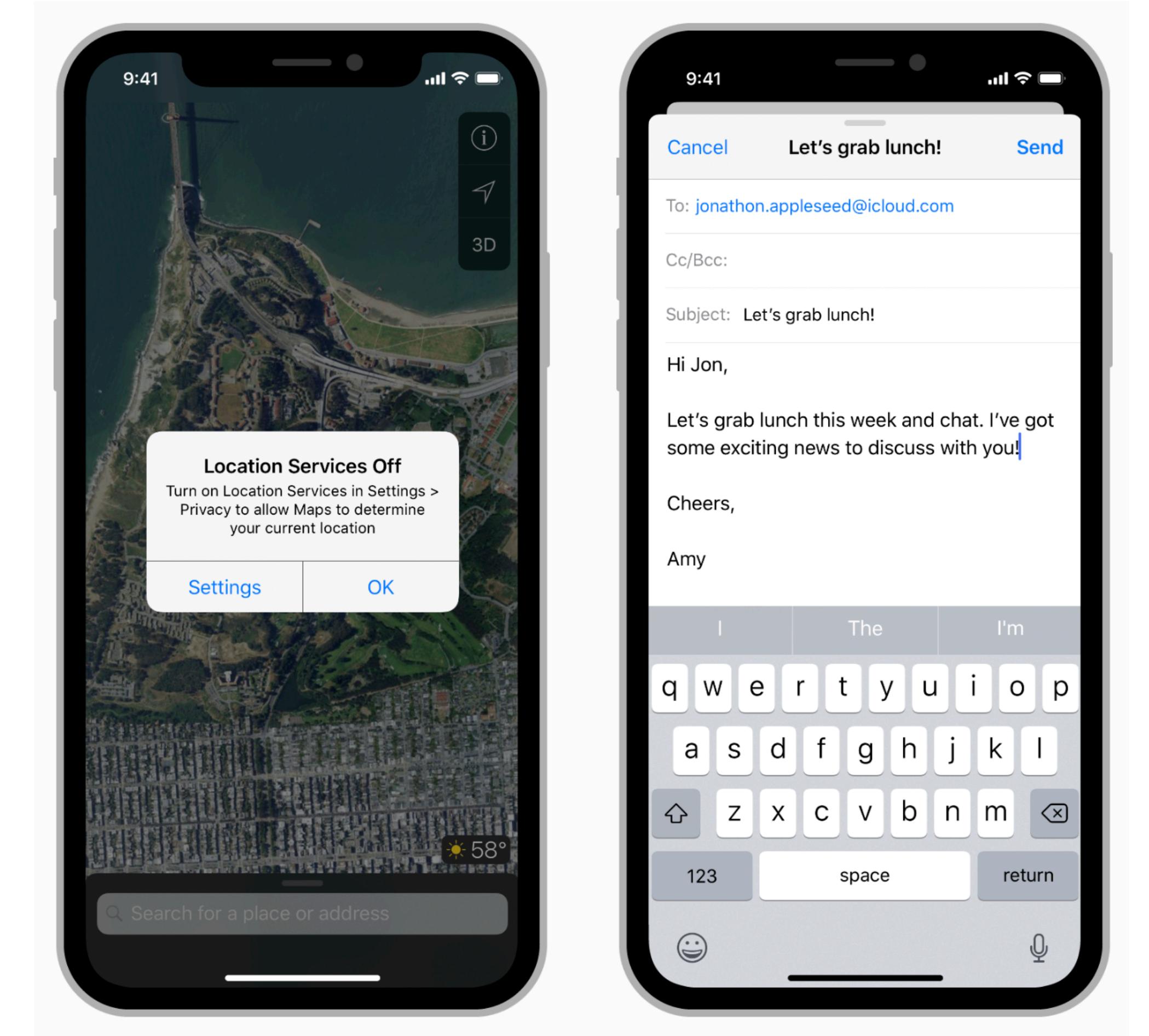
- Should be “natural”
- Use a navigation bar to traverse a hierarchy of data
- Use a tab bar for several peer categories
- Use a new page when that page is an instance of an item for another page



<https://developer.apple.com/design/human-interface-guidelines/ios/app-architecture/navigation/>

Modals

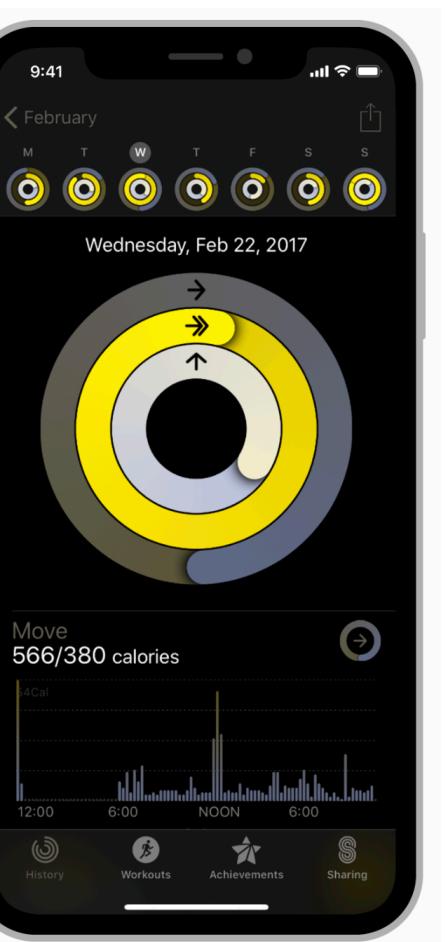
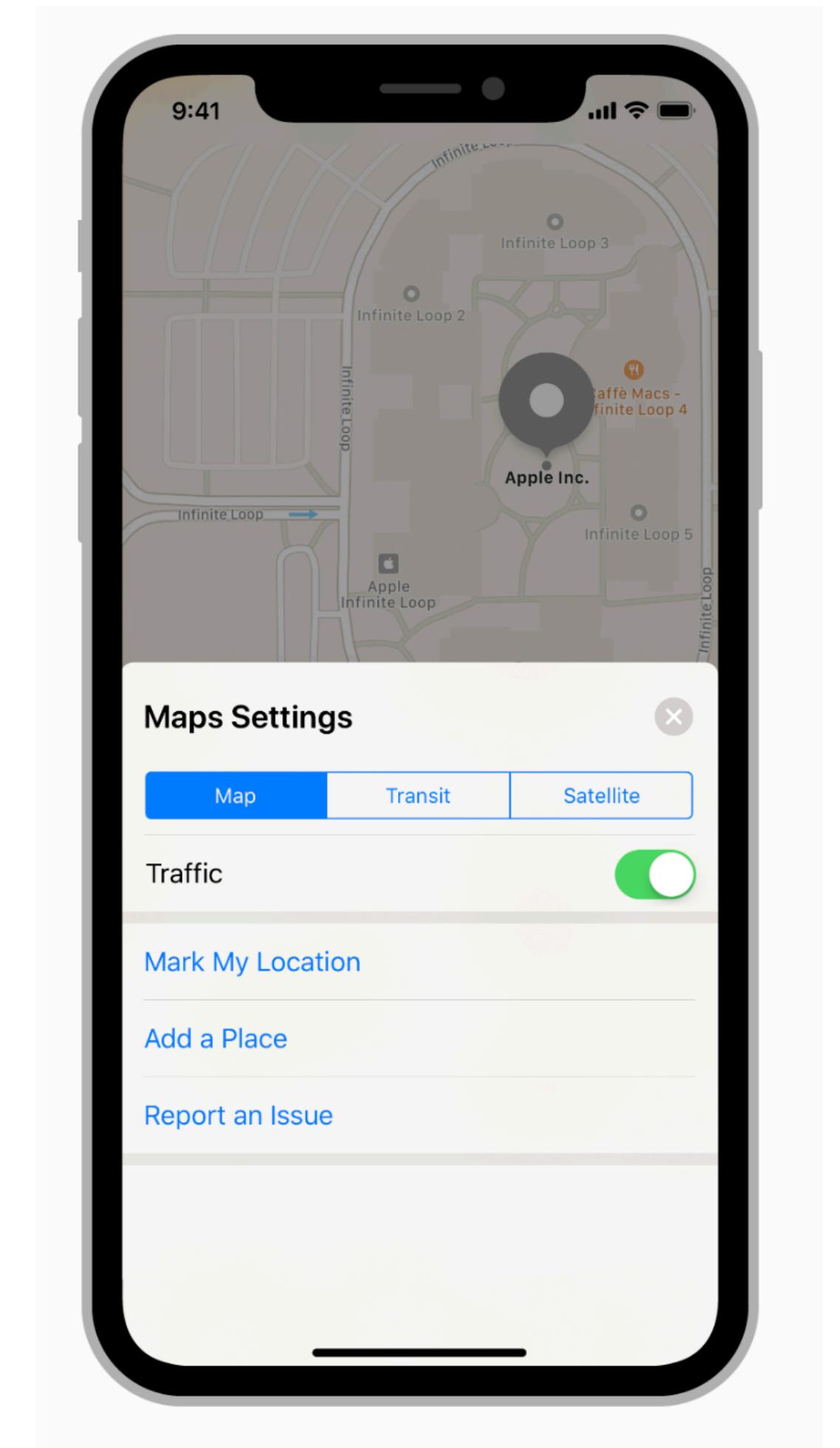
- Grab control of the experience until they are dismissed
- Meant to grab attention for doing one small, specific task
- Make sure the user can back out
- Respect notification wishes
- Use sparingly



<https://developer.apple.com/design/human-interface-guidelines/ios/app-architecture/modality/>

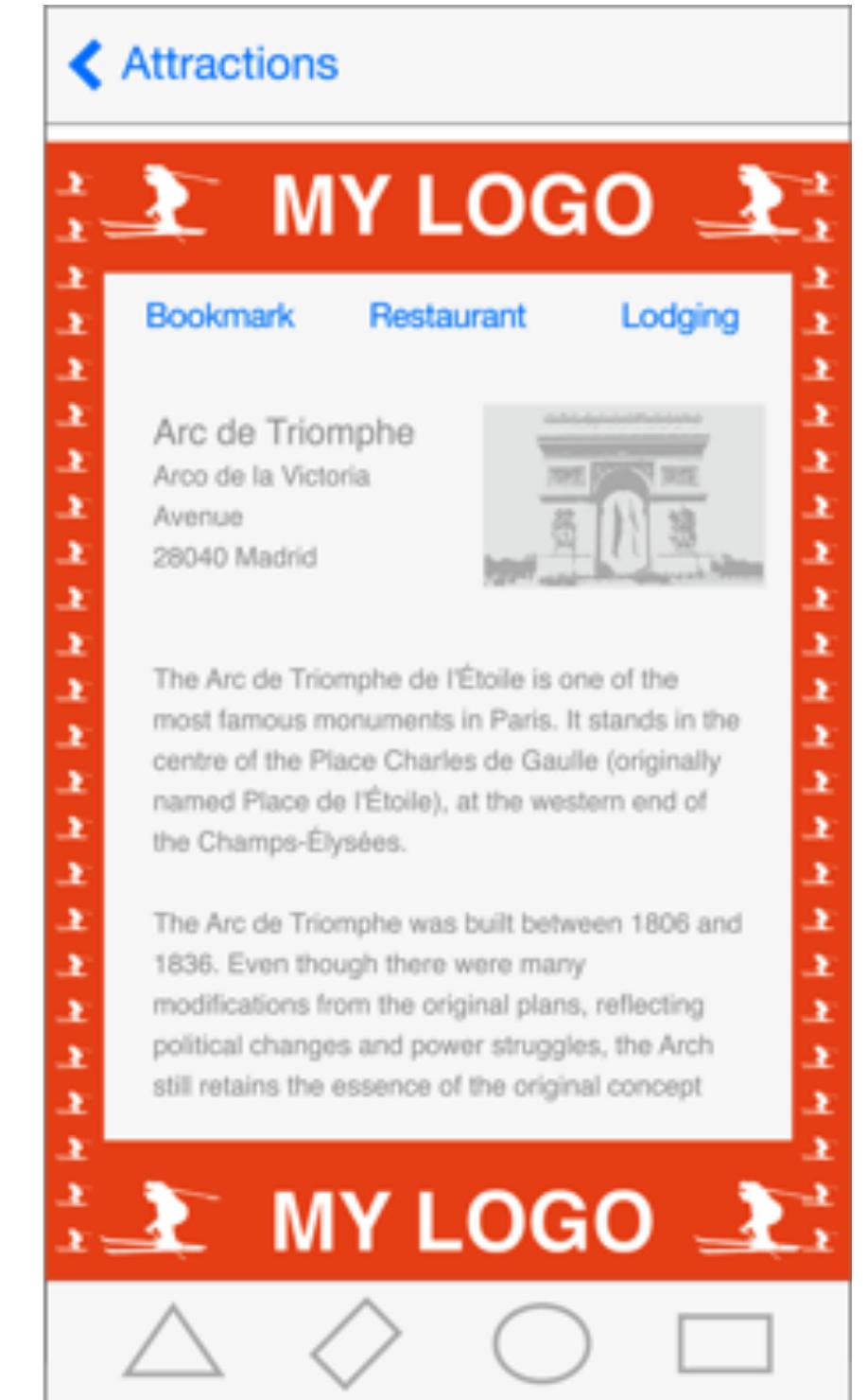
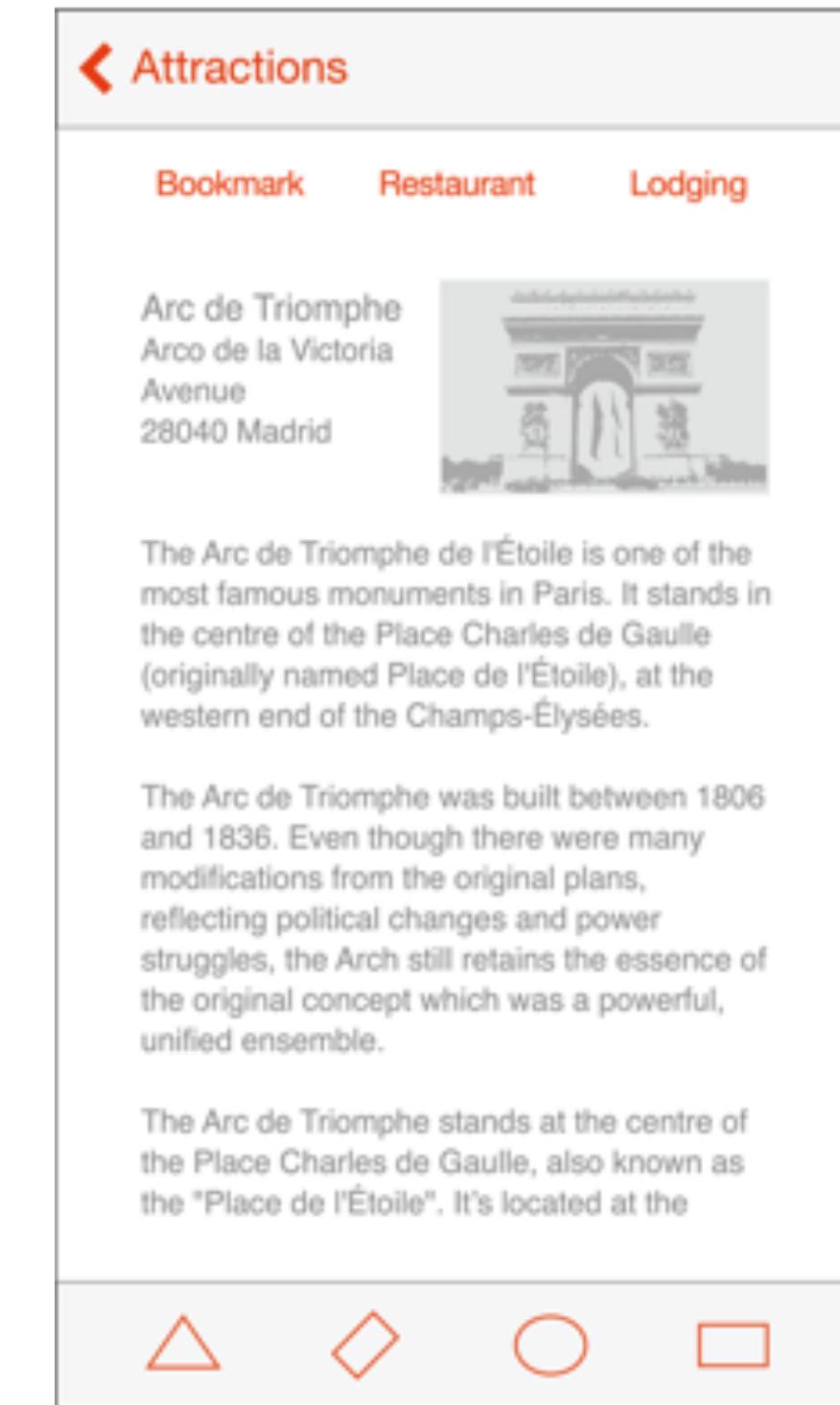
Interactivity

- Use a key color to denote interactive elements
- Denote “active” and “inactive” components differently
- Be aware of colorblindness



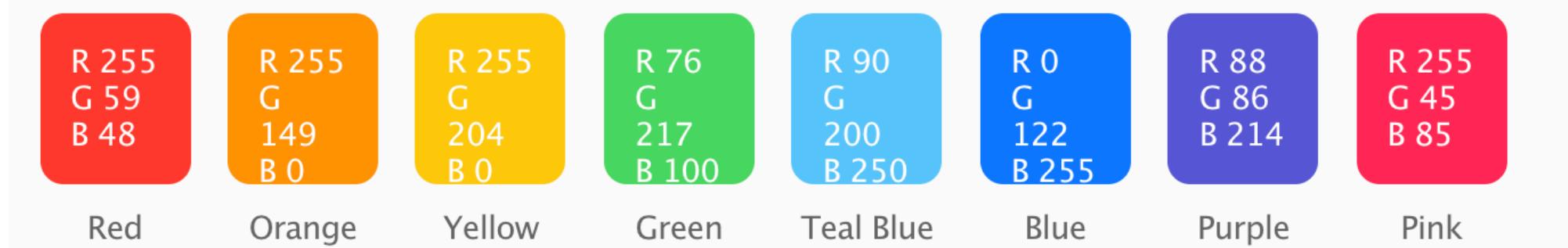
Branding

- It's important to be distinctive...
- But be careful not to pull a user out of the iOS experience
- Your app does not have to look like a default app, but...



Color and Typography

- Colors are great for grabbing attention, but can be overused



- Use complementary colors

- Palette definers like paletton.com

- Use a single typeface (font), if possible

- Built-in fonts are just fine
 - Use font size, and color and weight (bold) to highlight information

(23pt) John Appleseed
(22pt) John Appleseed
(21pt) John Appleseed
SF Pro Display (20pt) John Appleseed
SF Pro Text (19pt) John Appleseed

(18pt) John Appleseed
(17pt) John Appleseed
(16pt) John Appleseed

<https://developer.apple.com/design/human-interface-guidelines/ios/visual-design/color/>

Icons

- A good icon is important
- Keep background simple
- Only use words if they are essential or part of a logo
- Leave your icon out of the interface
- When appropriate, use system icons in the interface itself
 - Use as intended



Icon	Name	Meaning
↑	Action (Share)	Shows a modal view containing share extensions, action extensions, and tasks, such as Copy, Favorite, or Find, that are useful in the current context.
+	Add	Creates a new item.
📖	Bookmarks	Shows app-specific bookmarks.
📷	Camera	Takes a photo or video, or shows the Photo Library.
Cancel	Cancel	Closes the current view or ends edit mode without saving changes.
📝	Compose	Opens a new view in edit mode.
Done	Done	Saves the state and closes the current view, or exits edit mode.
Edit	Edit	Enters edit mode in the current context.
▶	Fast Forward	Fast-forwards through media playback or slides.

<https://developer.apple.com/design/human-interface-guidelines/ios/icons-and-images/app-icon/>

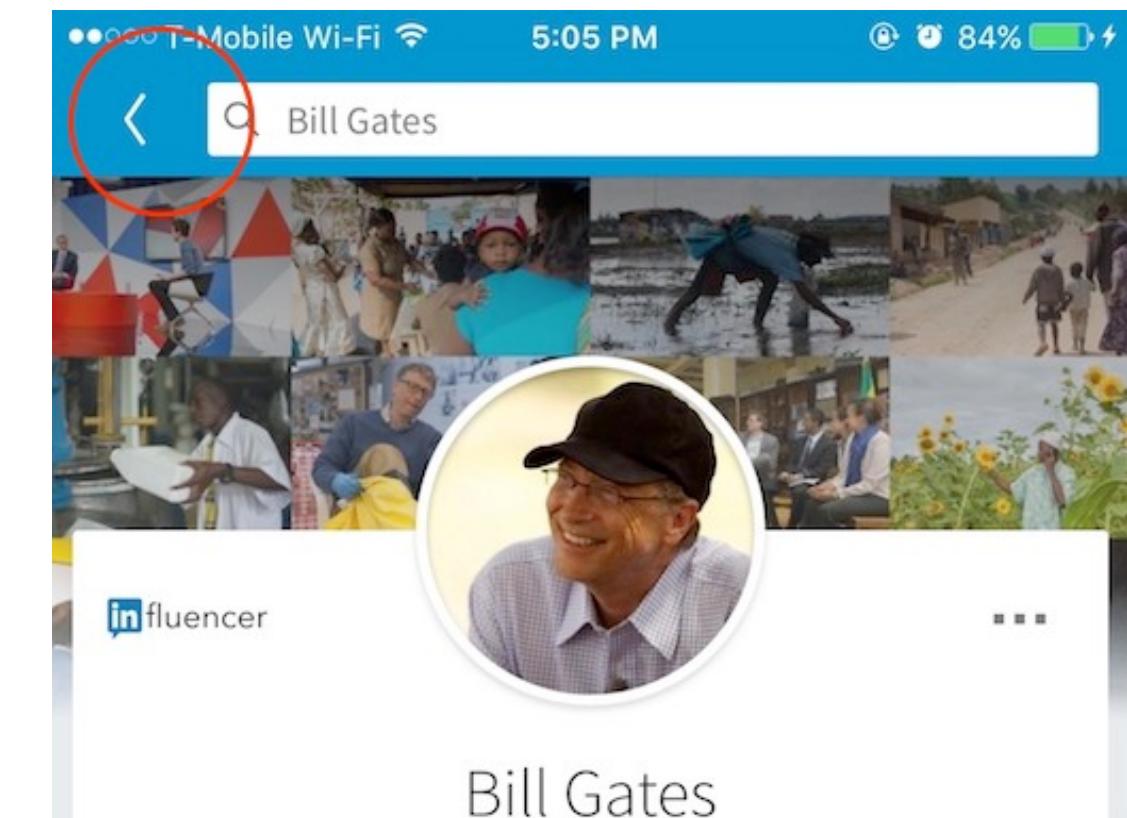
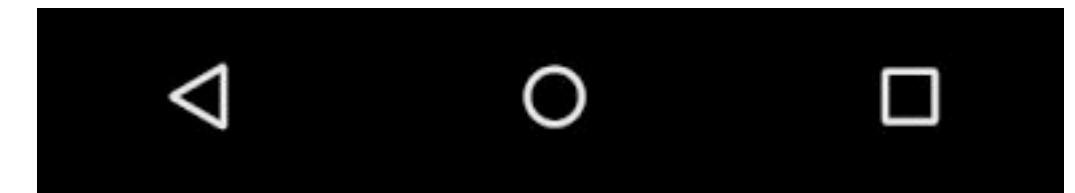
Google Material Design

- Philosophy: interface should look like layers on a sheet of paper
 - Have 3D depth and motion
- Follows many of the same patterns as iOS design in terms of interaction
 - Limited use of modals
 - Use color to emphasize content
 - Be subtle with branding
- But, there are a few key differences

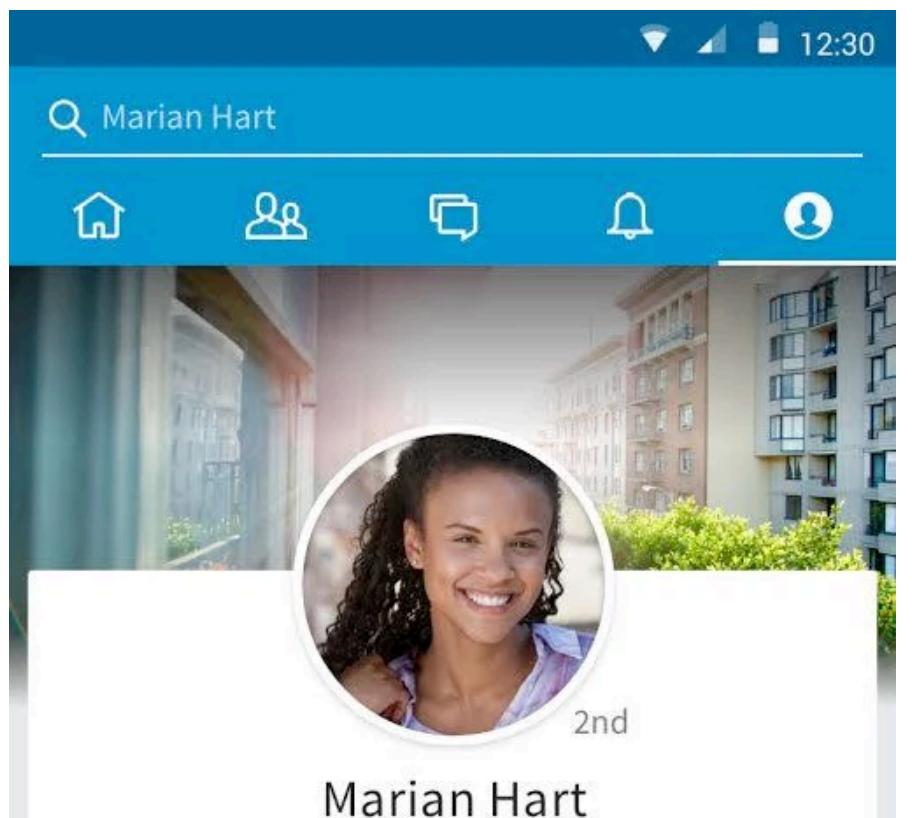
<https://material.io/design/>

Universal navigation bar

- Android has a navigation bar at the bottom of the screen
 - Sometimes it's a hardware button, sometimes done in software?
 - But it's always present
 - iOS implements “back” in-app



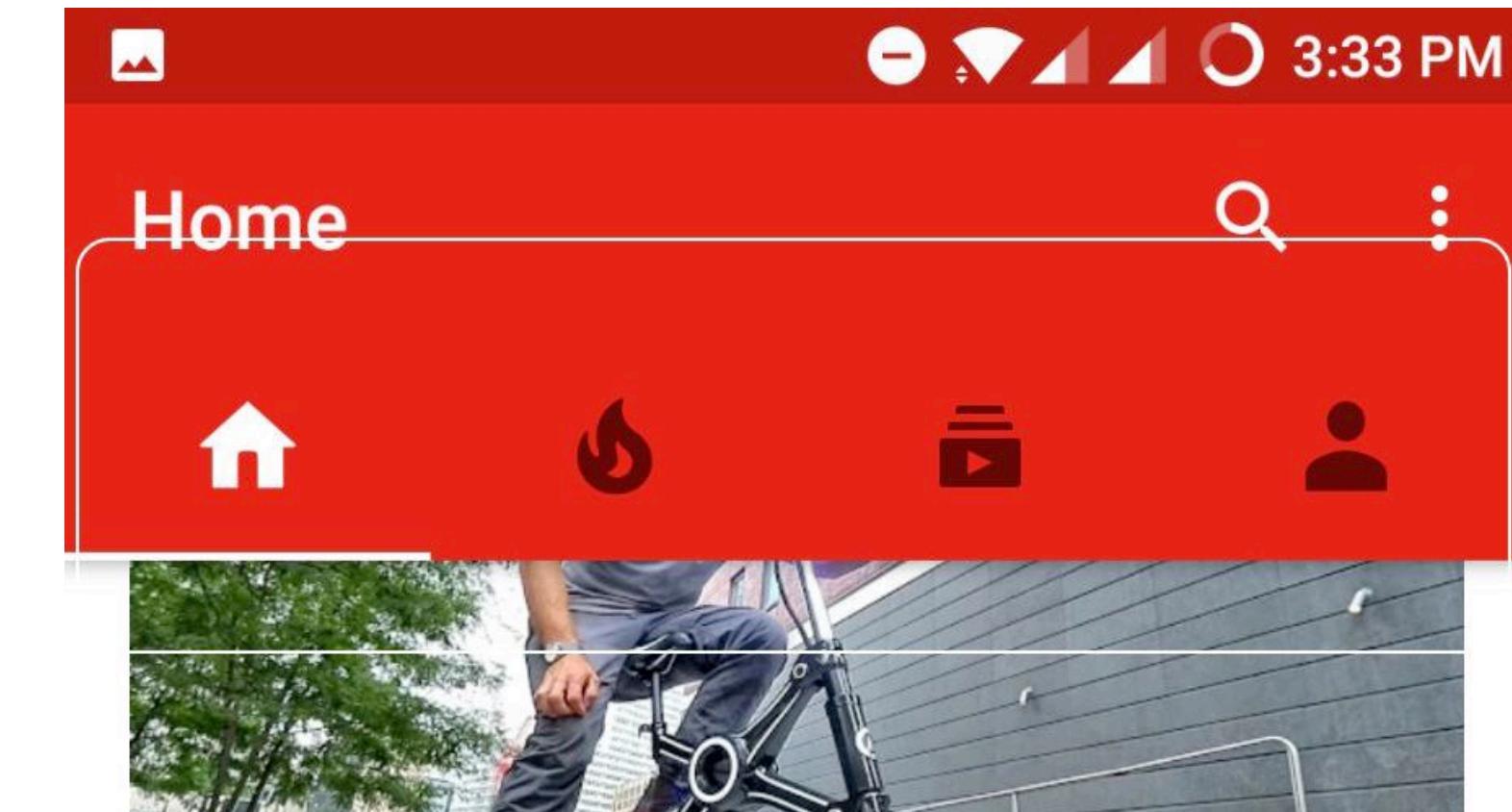
iOS



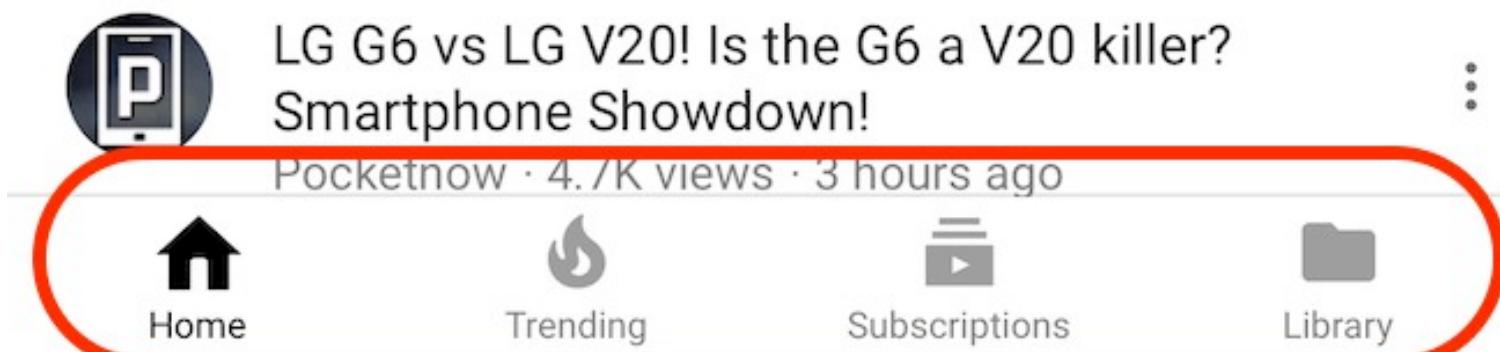
Android

In-app navigation

- On top in Android, on bottom in iOS
 - Why the difference?
- Android only shows icons
- iOS icons have labels



Android

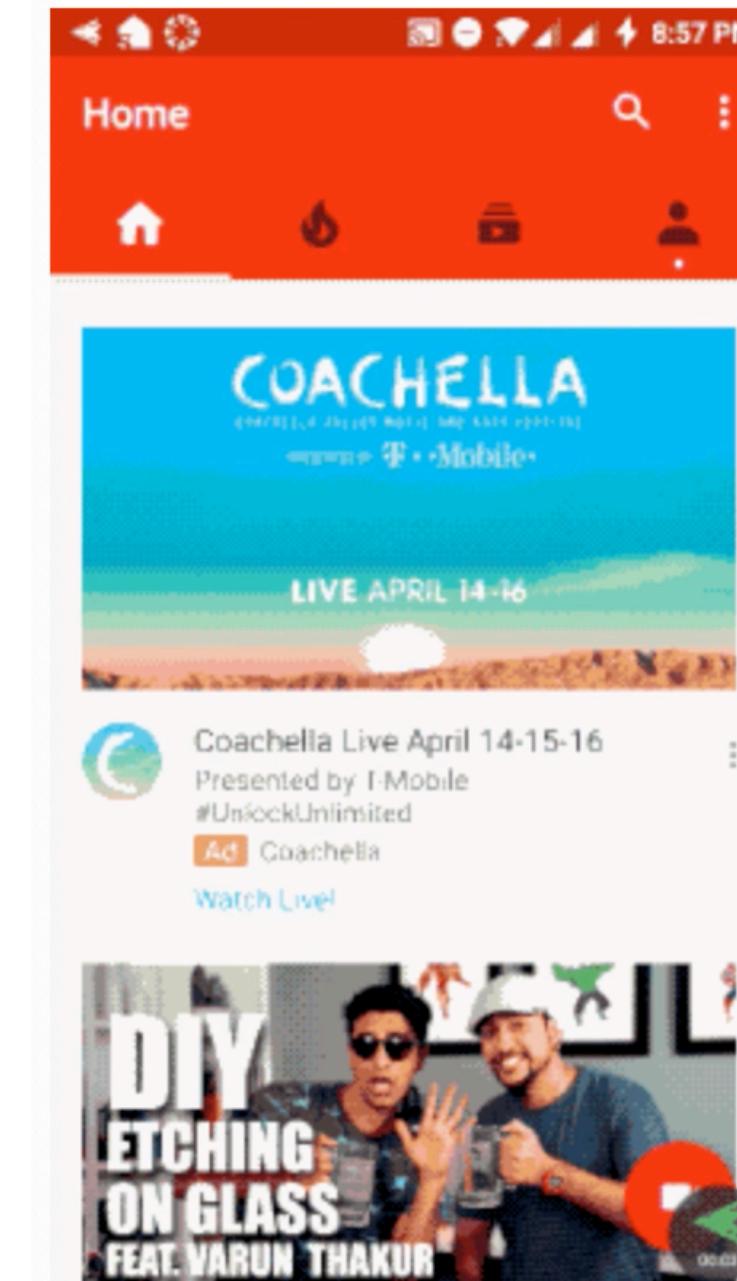


iOS

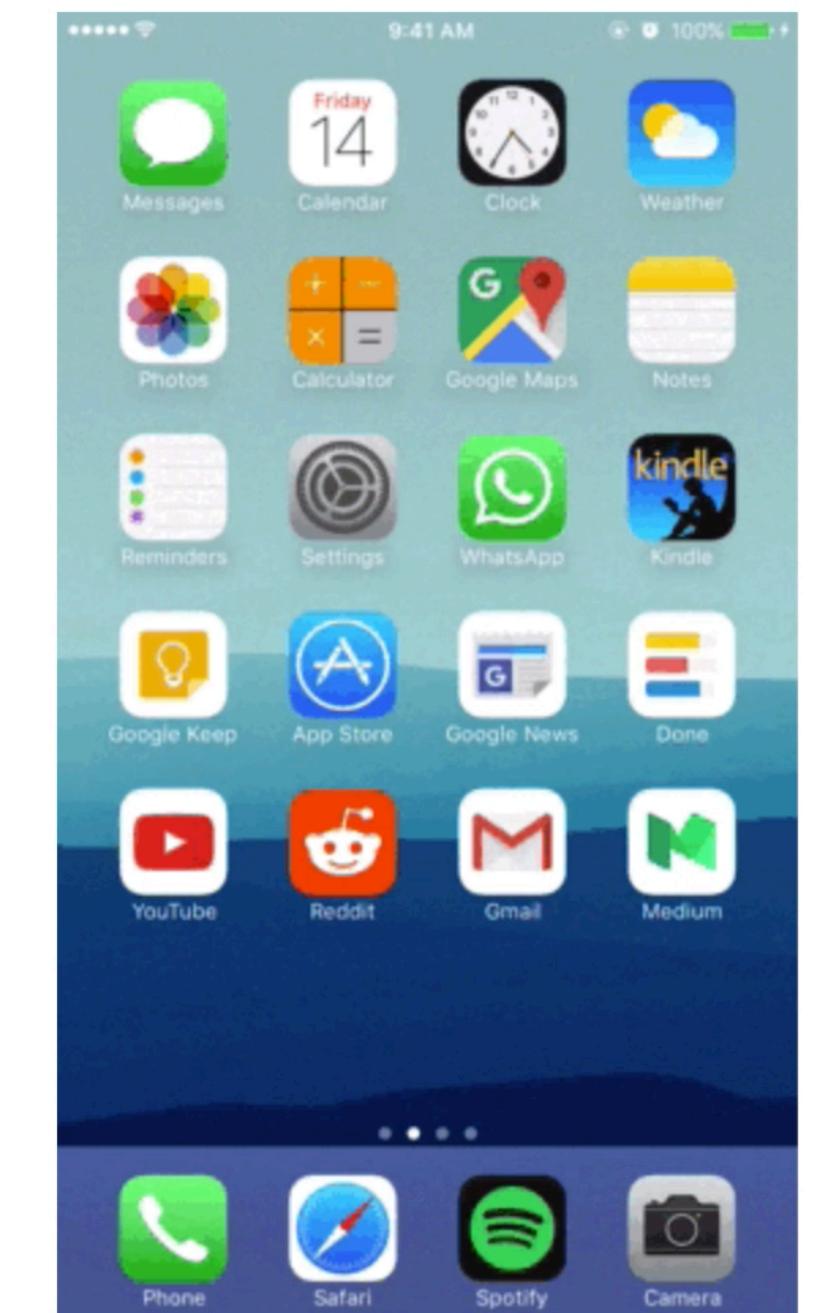
<https://medium.com/@vedantha/interaction-design-patterns-ios-vs-android-111055f8a9b7>

Swiping

- On Android, swiping moves the user between tabs
- On iOS, swiping takes the user back a screen
- Android's always-present back button allows this navigation



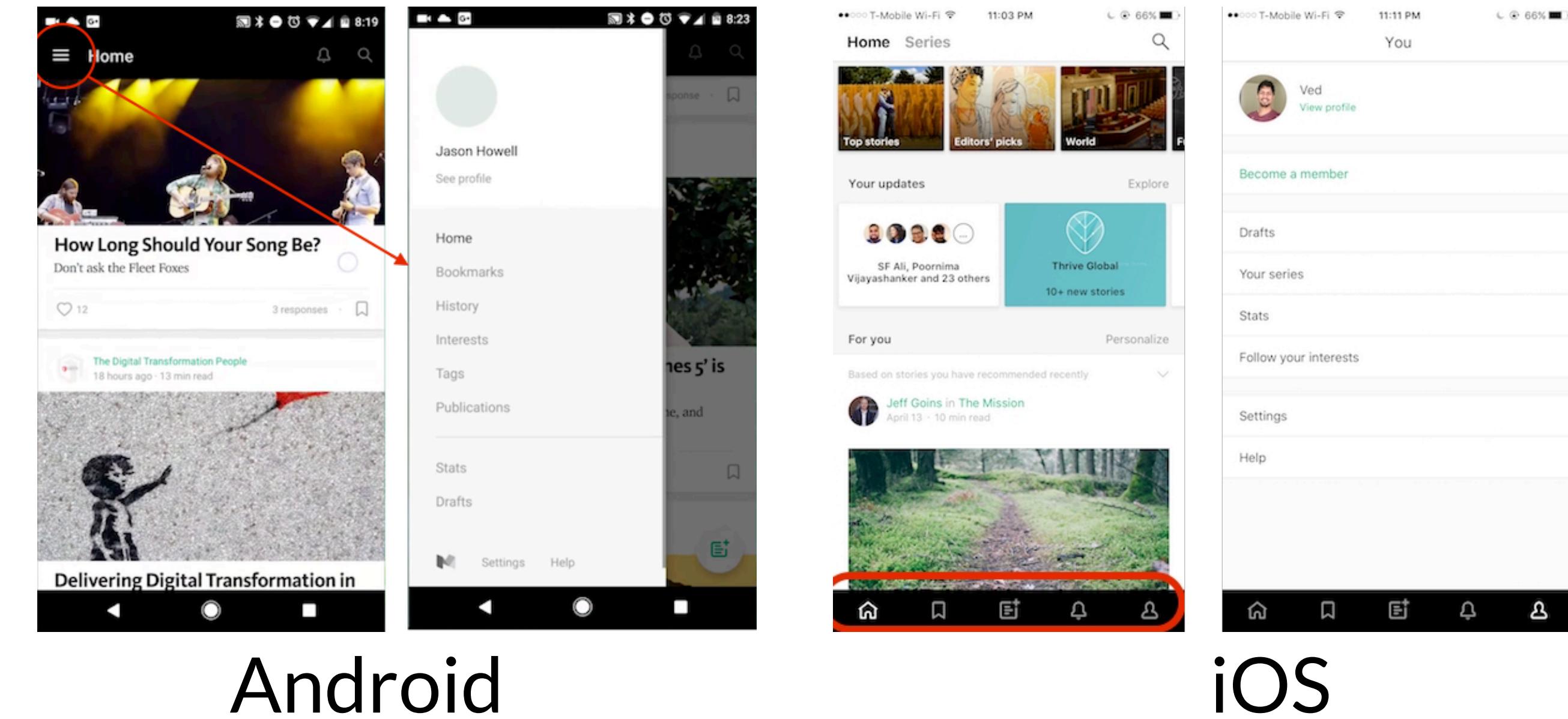
Android



iOS

App settings

- Android apps usually load settings from a “hamburger” button in the top left
- iOS typically have settings as an item on the navigation bar



Android

iOS

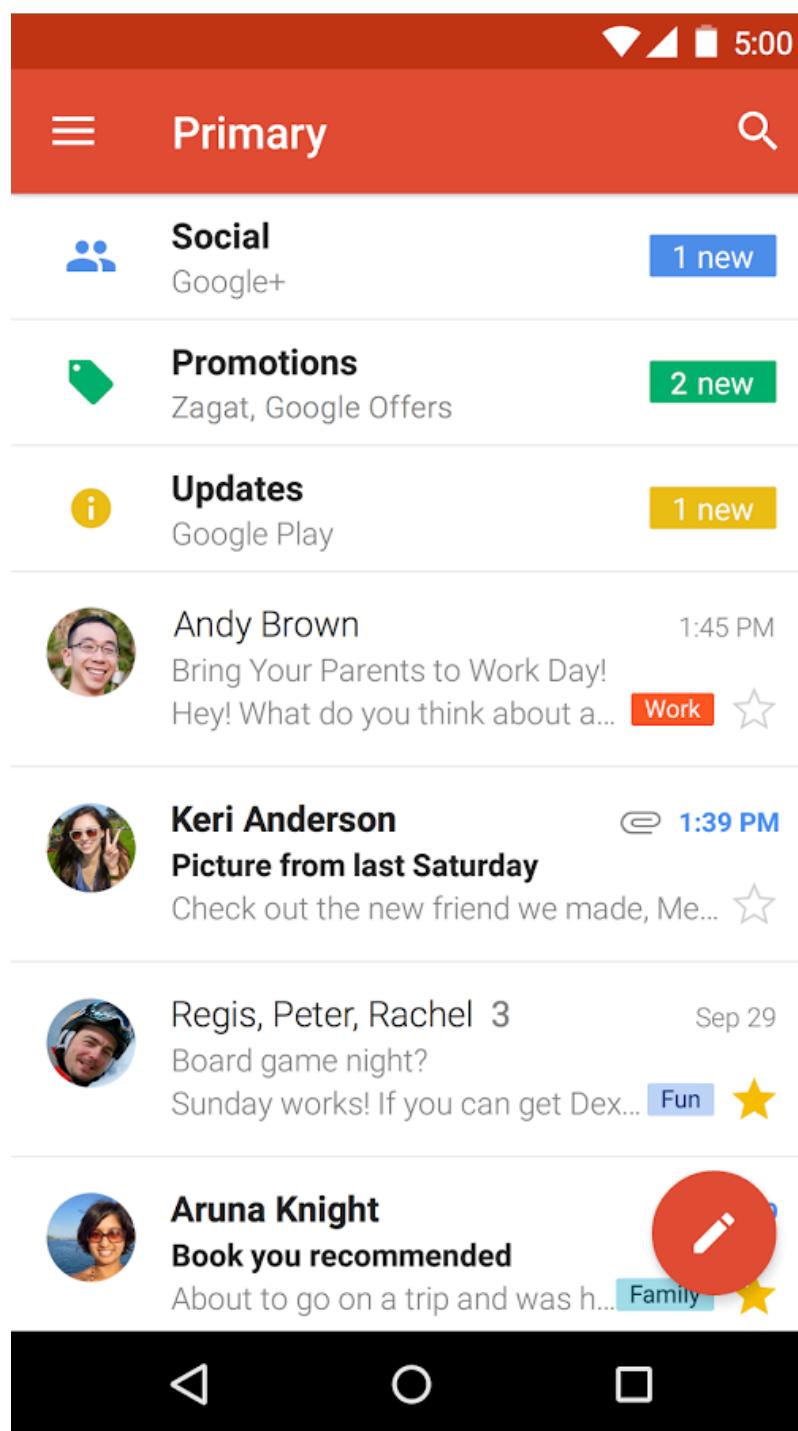
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Uniformity

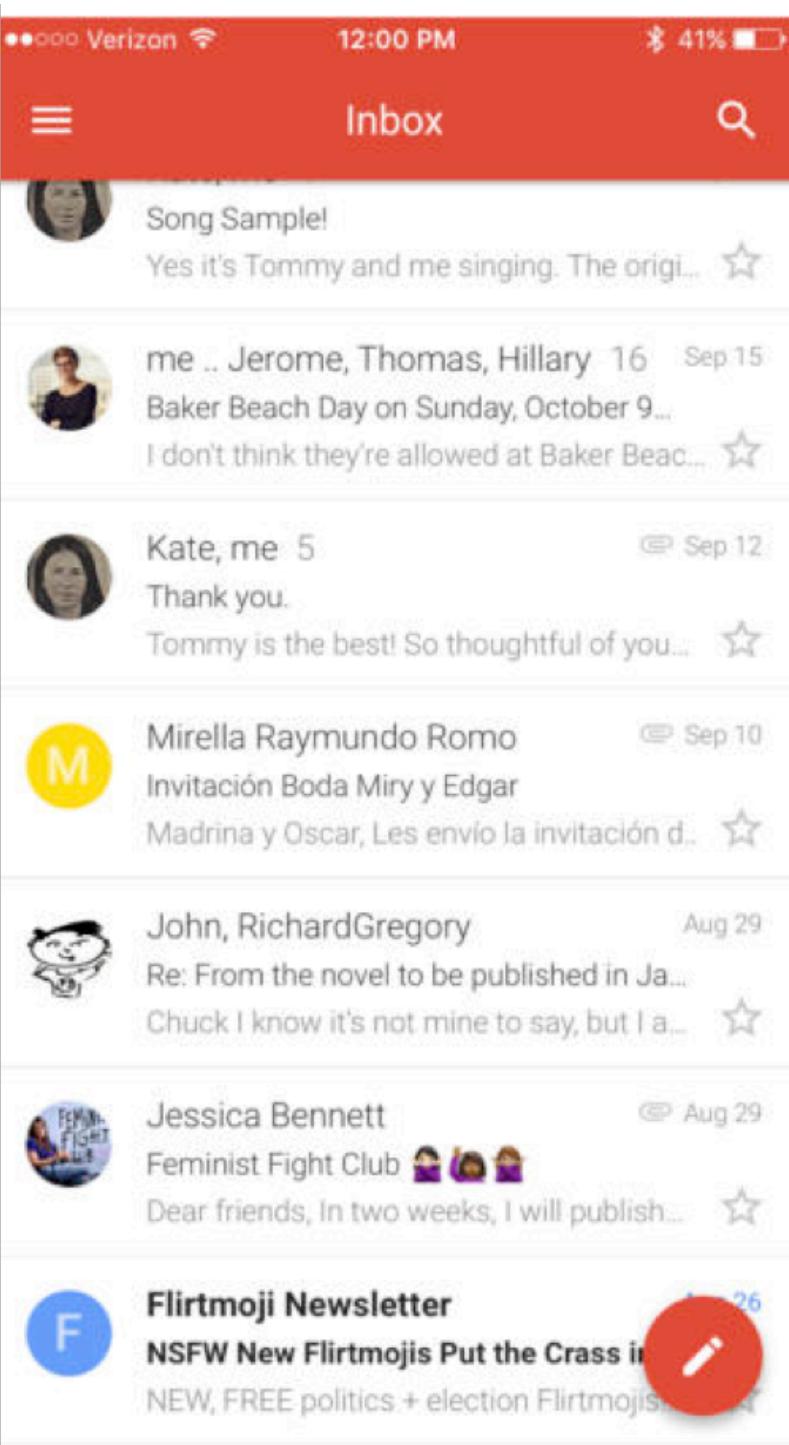
- There are always exceptions
- Not all apps vary the interaction and UI design patterns for each platform

<https://medium.com/@vedantha/interaction-design-patterns-ios-vs-android-111055f8a9b7>

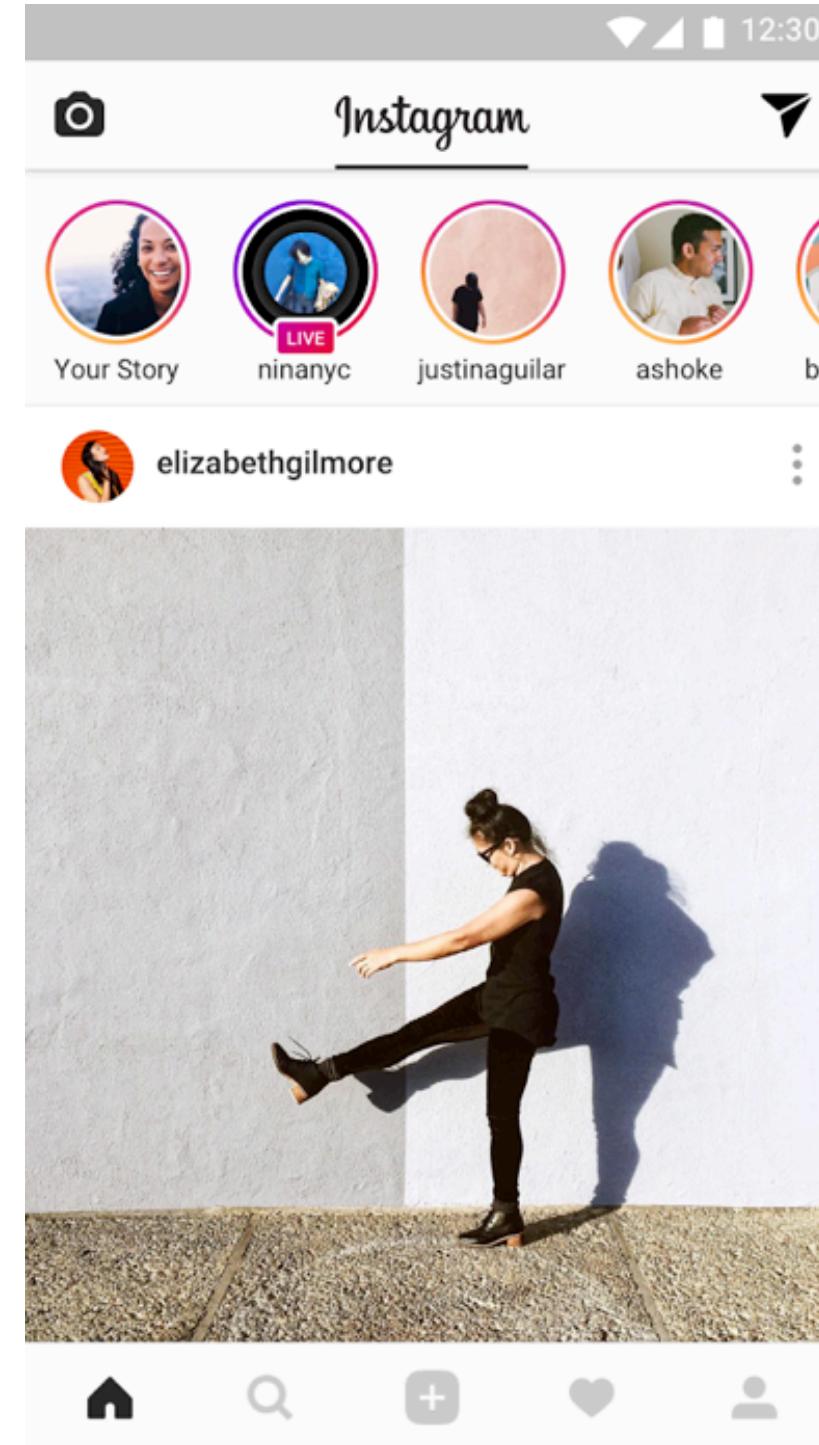
Uniformity



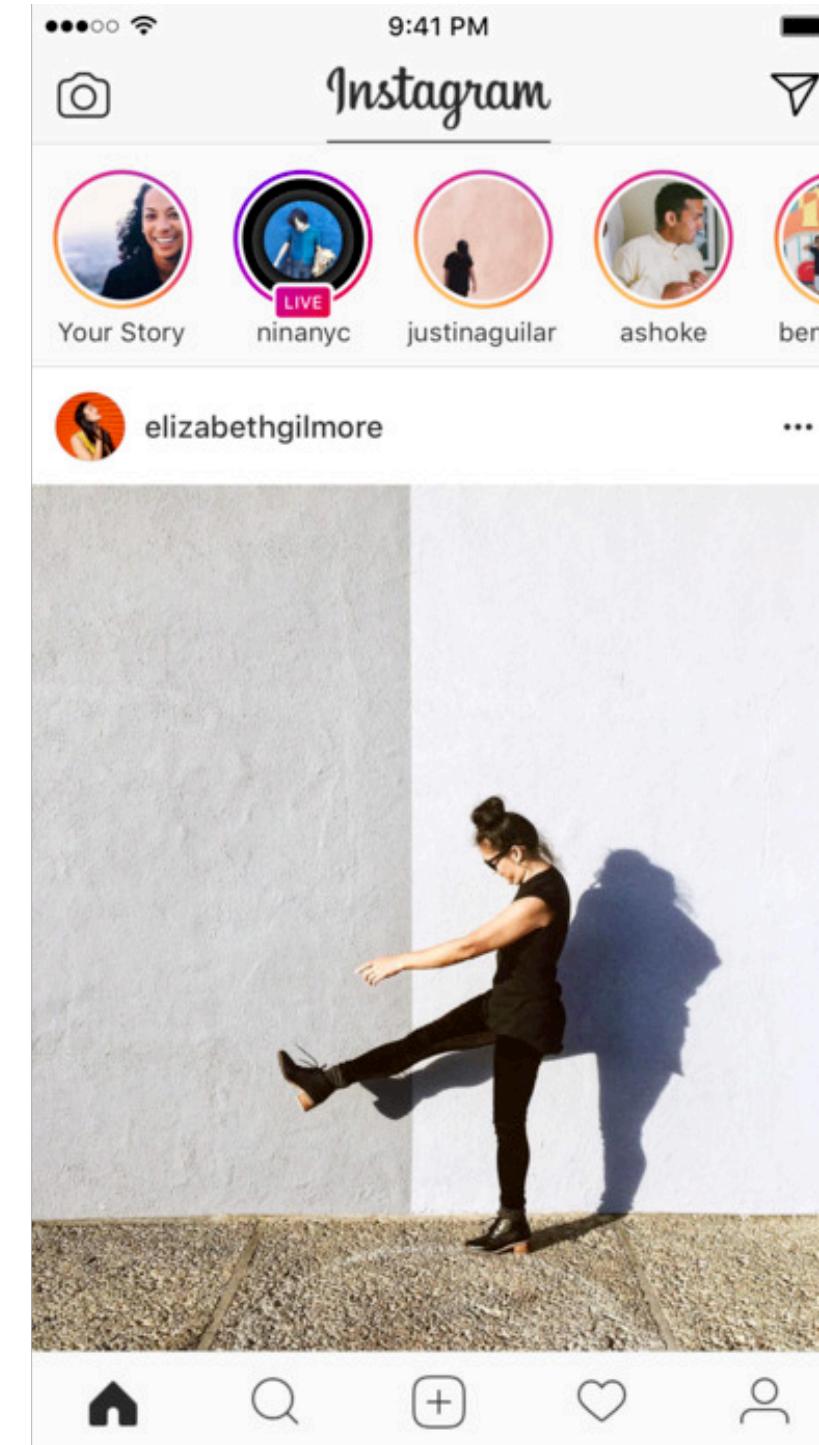
Android



iOS



Android

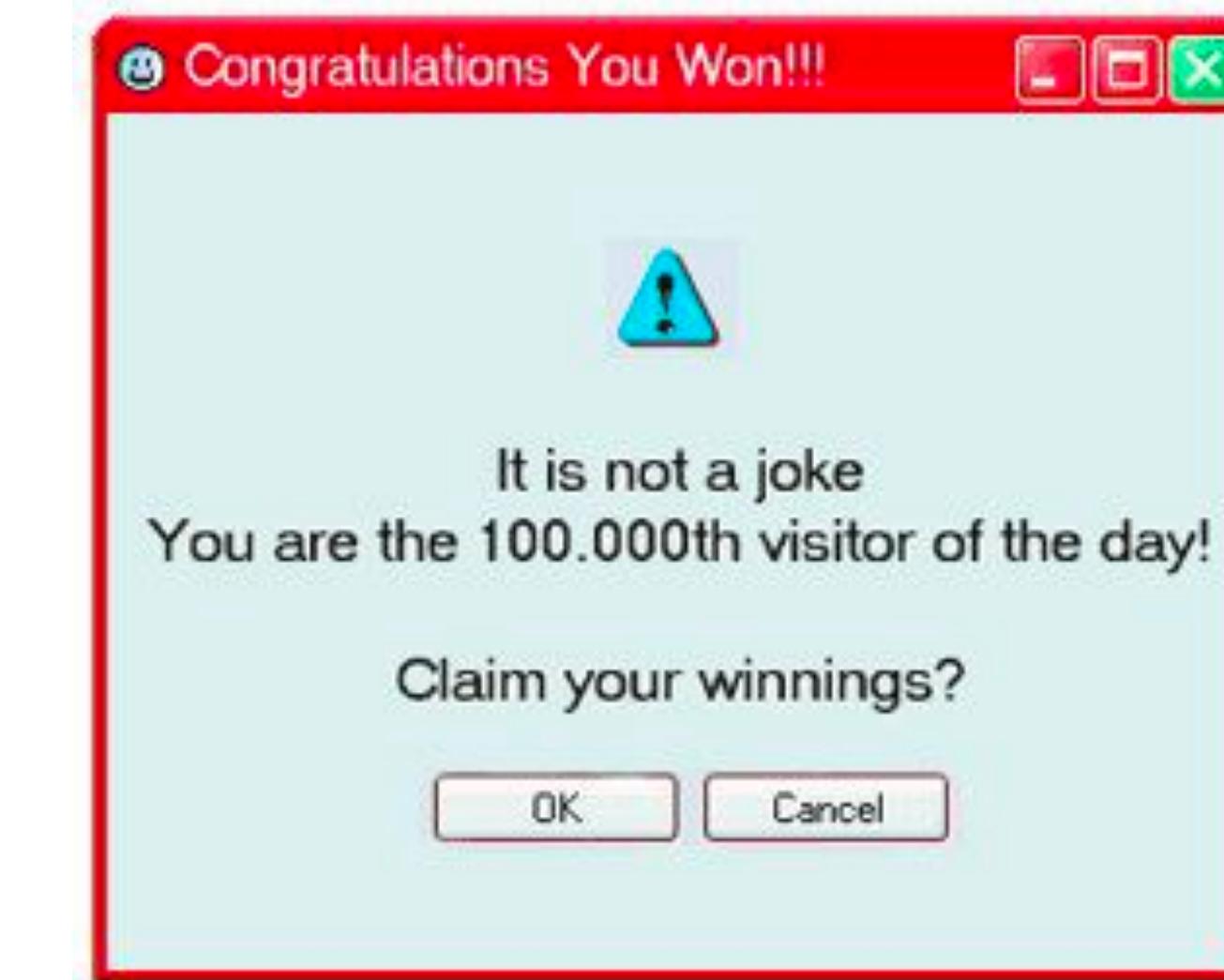


iOS

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“Dark” interface design patterns

- Patterns designed to mislead or trick people into doing something they don't want to do
- They have been around forever
- They have become more subtle and complex over time

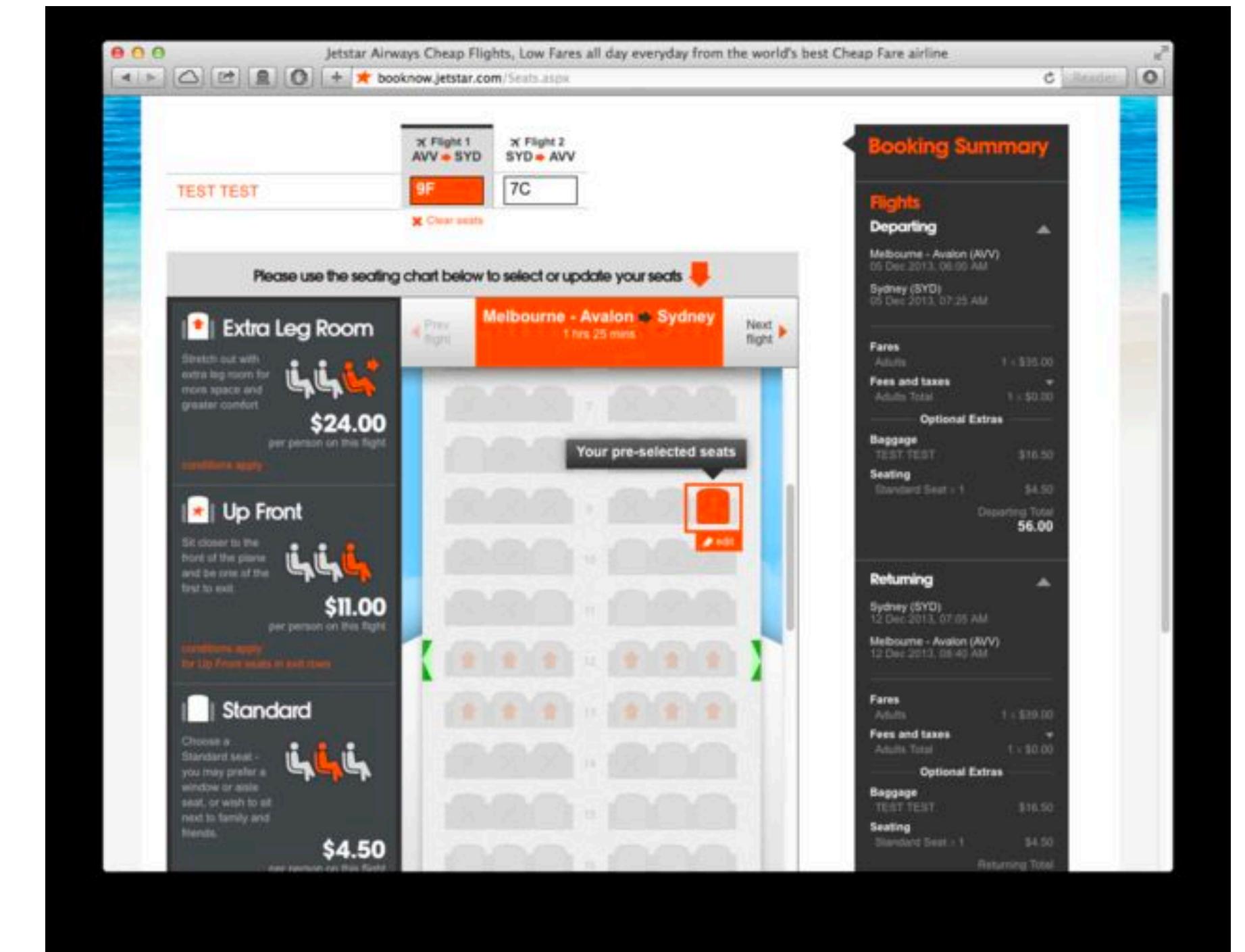


<https://uxdesign.cc/dark-patterns-in-ux-design-7009a83b233c>

“Dark” interface design patterns

Misdirection

- Interface focuses your attention on one thing to distract you from another
 - Making more expensive options larger or more colorful
- Generalizable technique used in a lot of other dark patterns



<https://uxdesign.cc/dark-patterns-in-ux-design-7009a83b233c>

“Dark” interface design patterns

Bait and switch

- Take a design pattern people know, and reverse the effect
 - The “X” button scheduled a Windows 10 upgrade anyways



<https://uxdesign.cc/dark-patterns-in-ux-design-7009a83b233c>

“Dark” interface design patterns

Trick questions

- Use unusual wording in questions to promote unintended actions
- “Required opt-out” (unchecked a box) is a more benign alternative

Please enter your details to reserve your item(s)

Title : Mr. ▾

First name * :

Last name * :

Email * :

Phone number * :

Please do not send me details of products and offers from Currys.co.uk

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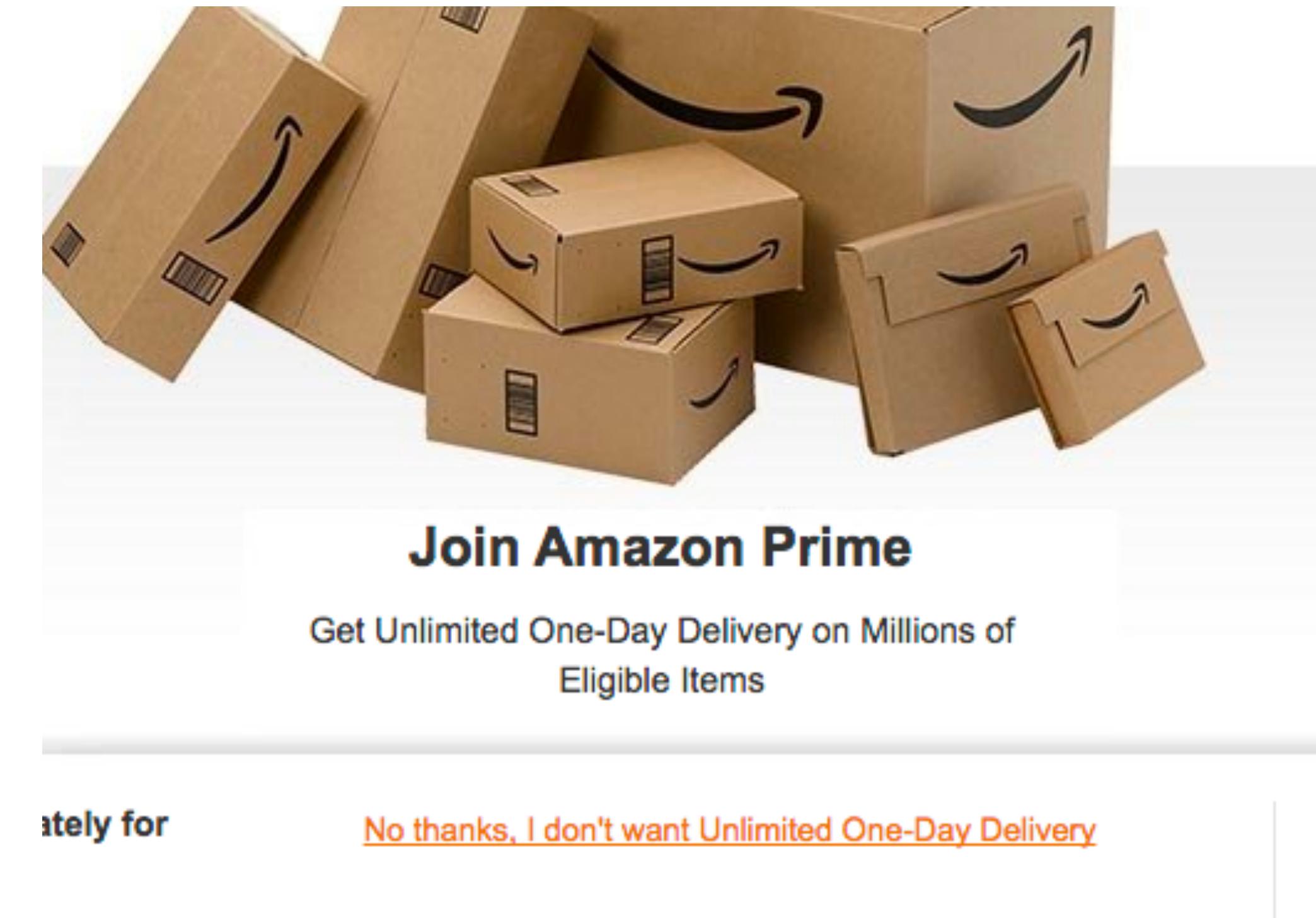
Reserve items

<https://uxdesign.cc/dark-patterns-in-ux-design-7009a83b233c>

“Dark” interface design patterns

Confirmshaming

- Guilt a person into opting in to something
- Usually done through wording



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