

Design patterns for mobile apps

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Gran Sasso Science Institute

Roadmap

Navigation

Forms

Search, sort & filter

Tools

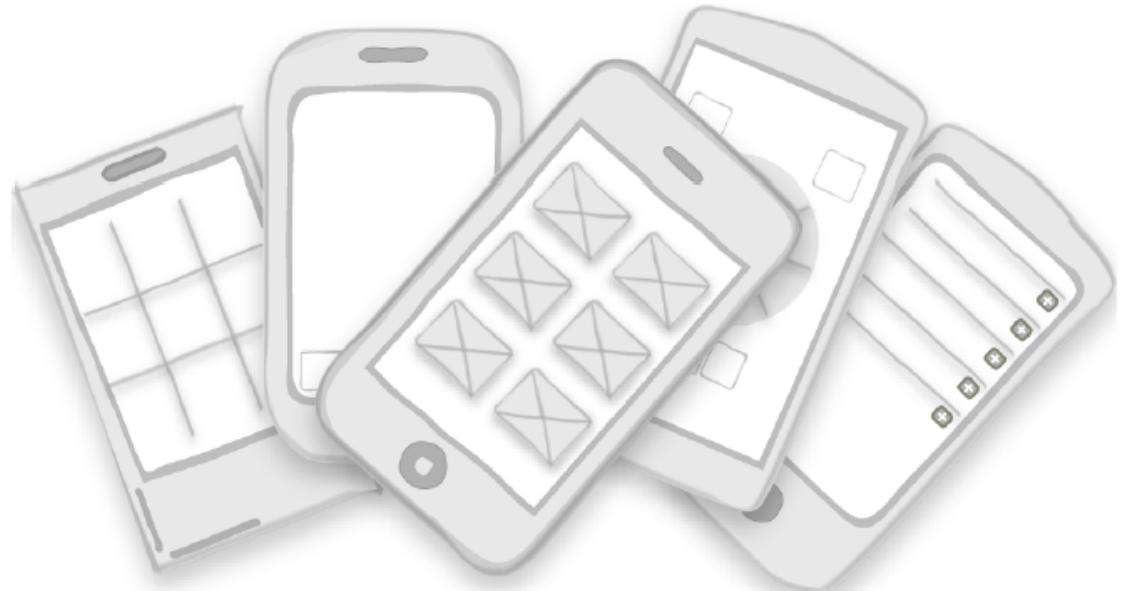
Invitations

Feedback & Affordance

Anti-Patterns

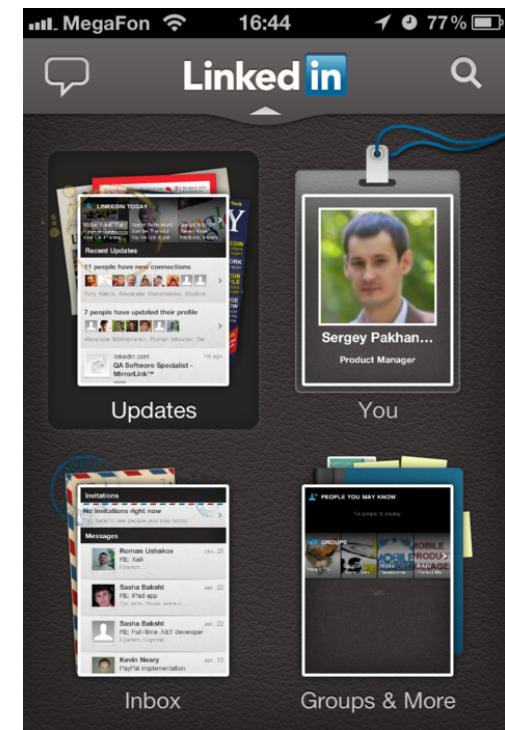
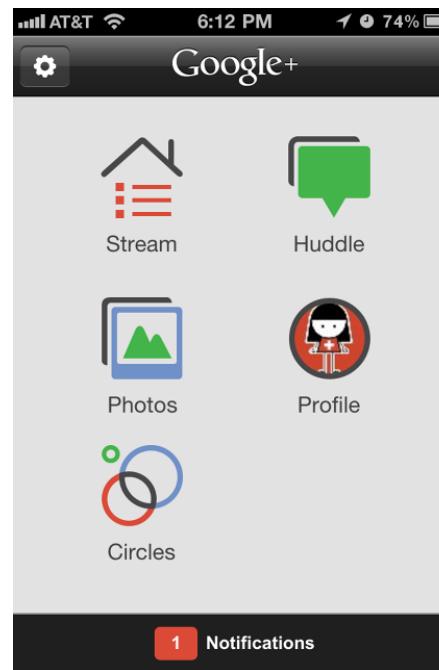
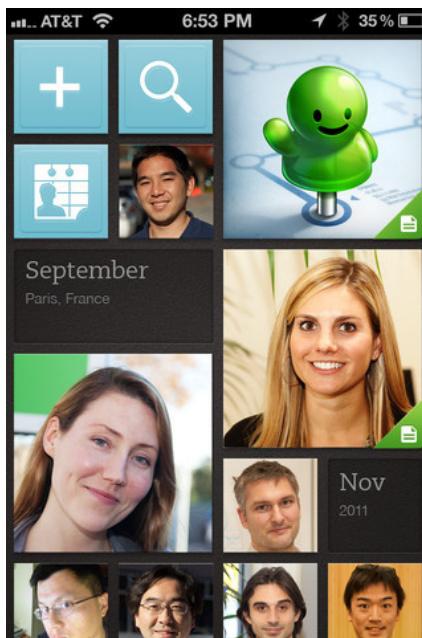
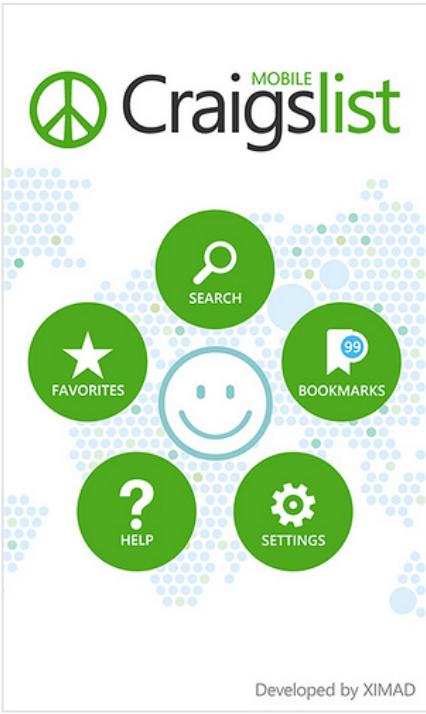
Navigation

- How users move through the views
 - Springboard
 - Lists (Vertical, Infinite)
 - Cards
 - Tabs
 - Gallery (Grid)
 - Dashboard
 - Metaphor
 - Page Carousel
 - Image Carousel
 - Expanding Lists
 - Infinite Area



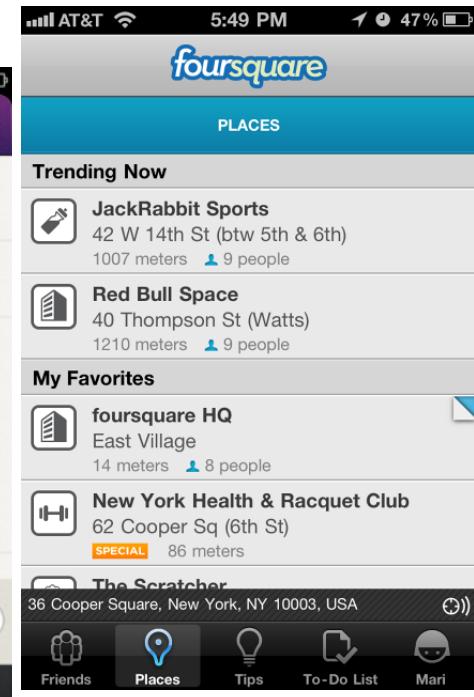
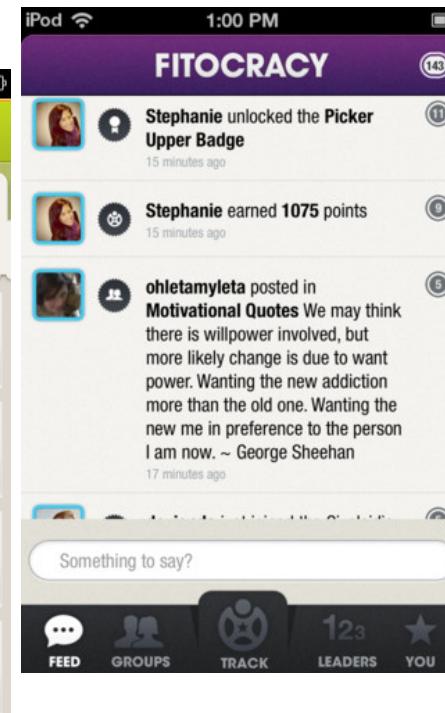
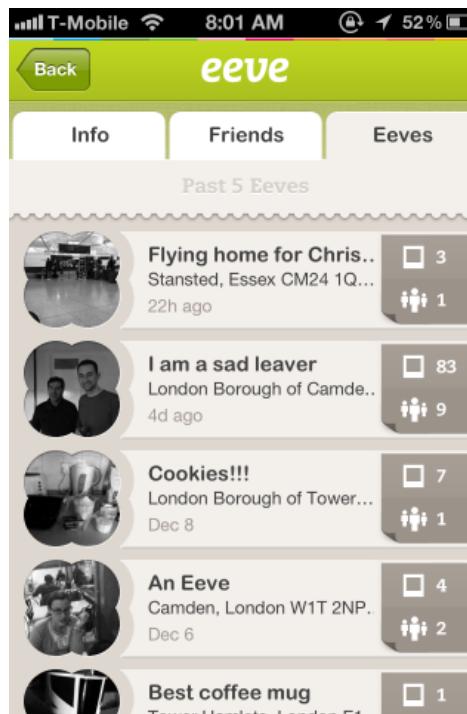
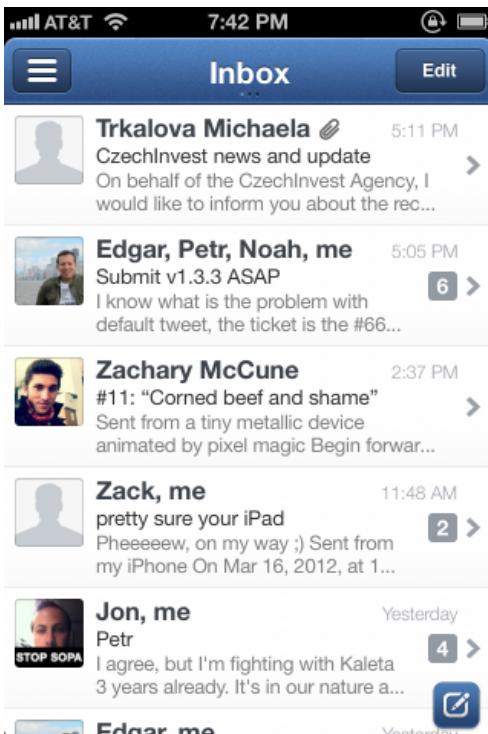
Springboard

- Use a **grid layout** for items of equal importance, or an irregular layout to emphasize some items more than others
- Consider personalization and customization options



Lists

- Works well for long lists with subtext
- All internal screens should have a way for returning back
- It can be “infinite”, it can have thumbnails



Cards

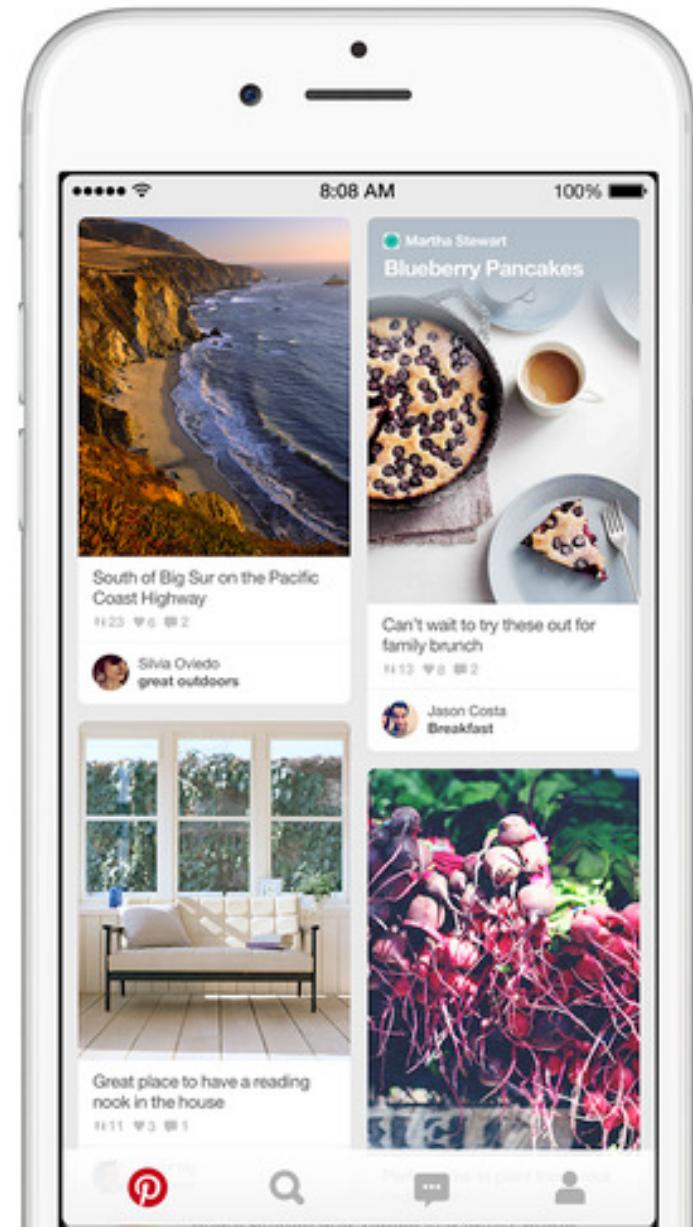
Definition

container that logically encapsulates bits of information

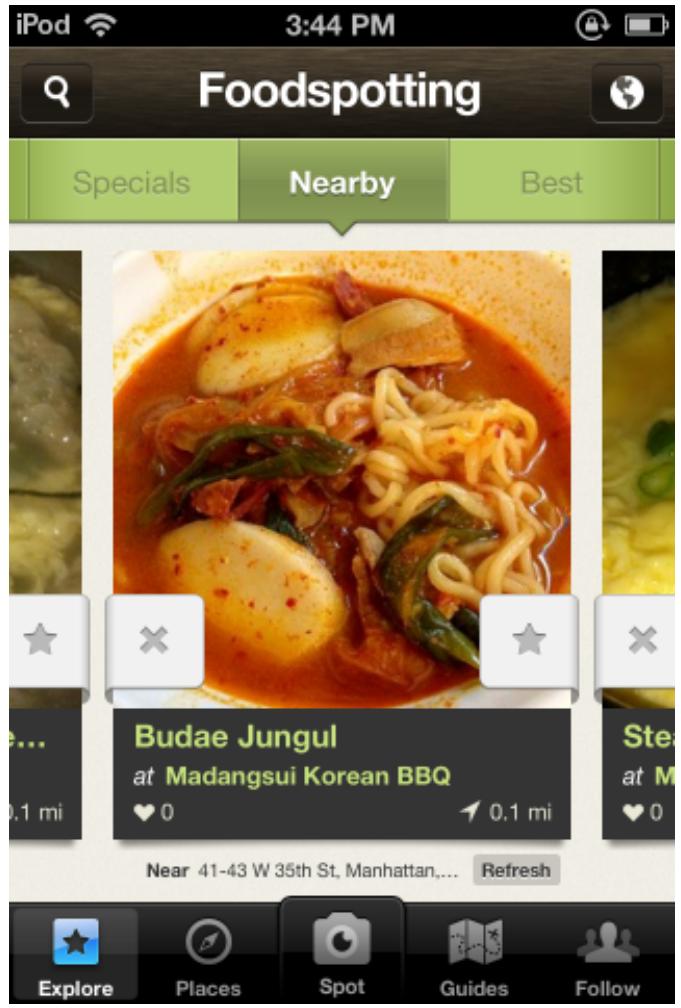
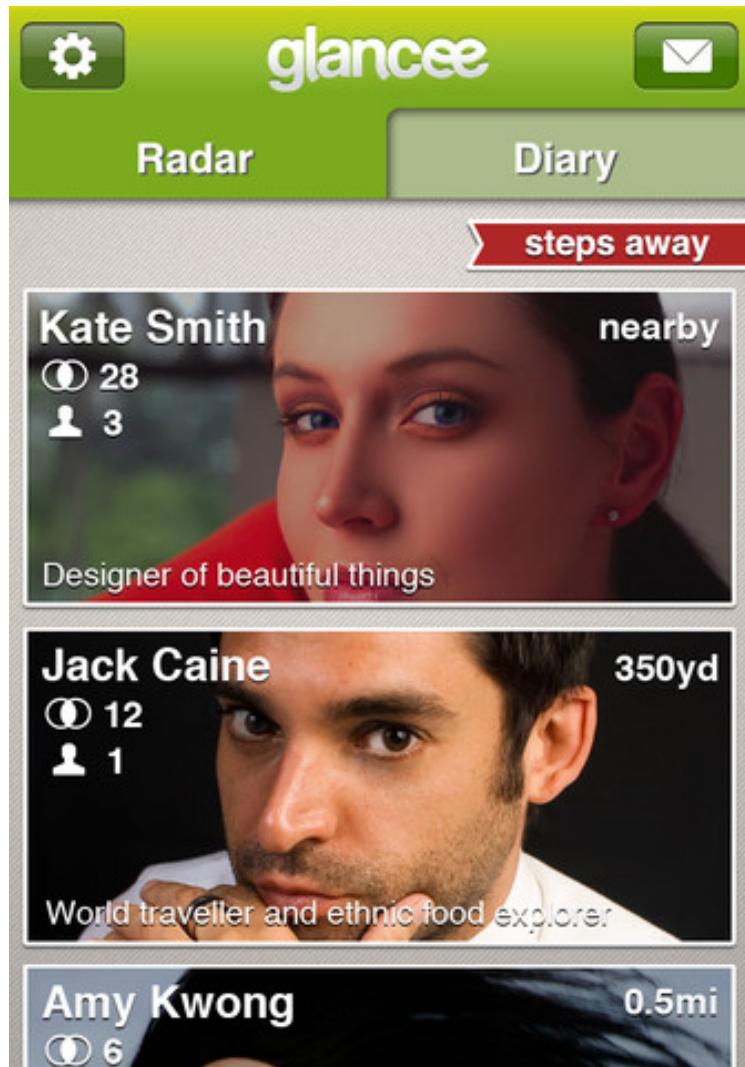
Good for presenting similar objects whose size or supported actions can vary considerably

we can take advantage of animation and movement

<http://goo.gl/kB8GIW>

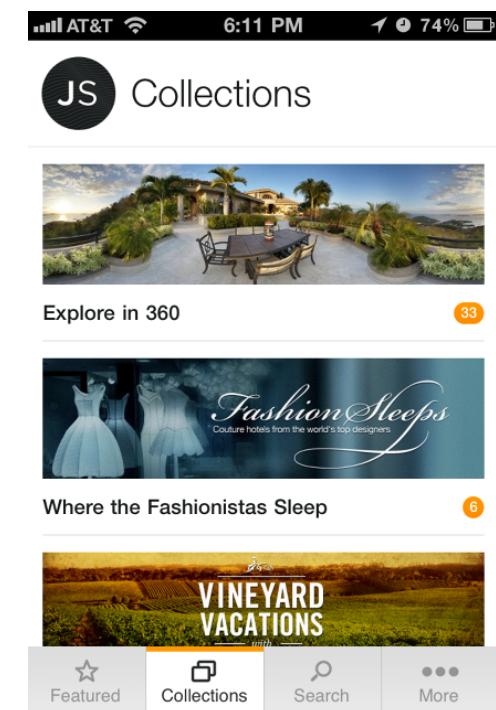
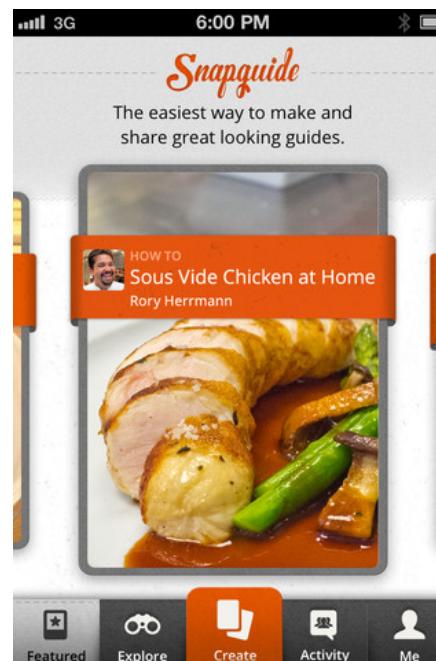
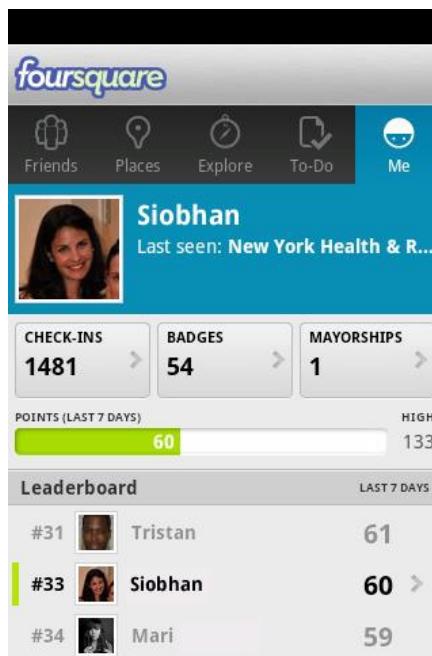
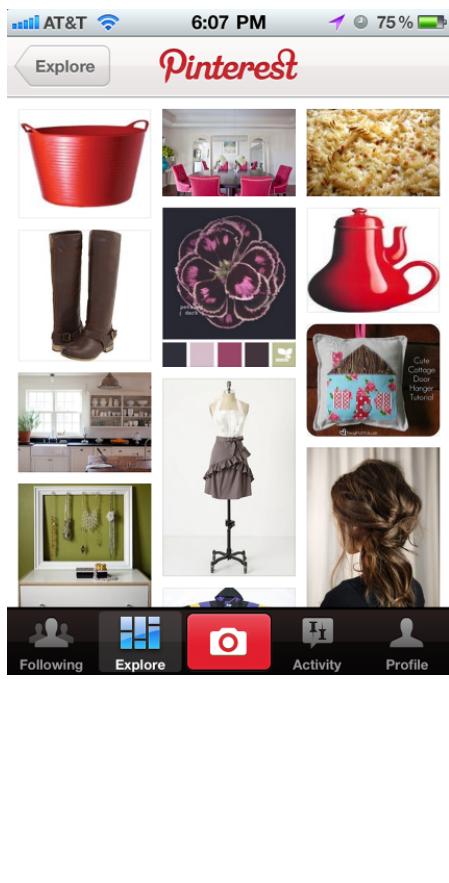


Examples of cards



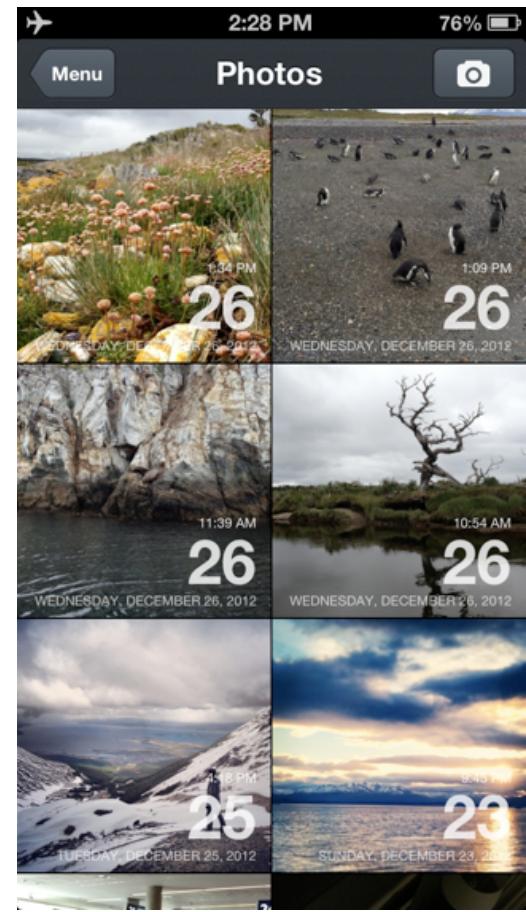
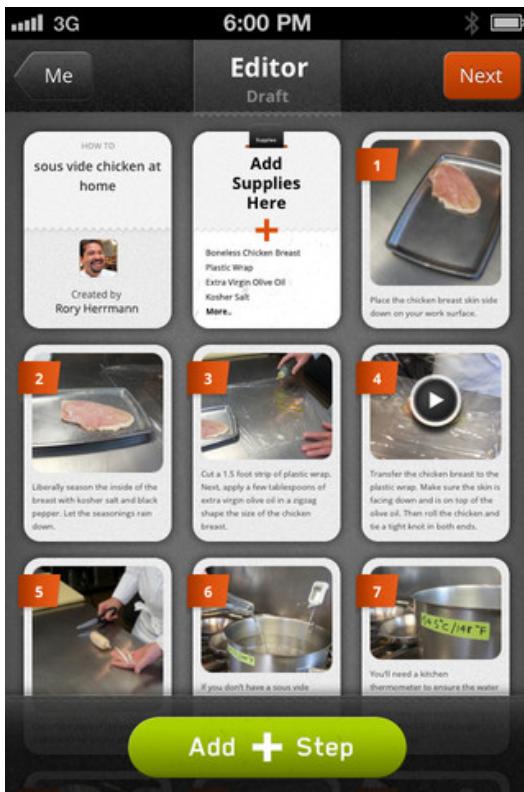
Tabs

- Clearly differentiate the selected tab from the others
- Use easy to recognize icons or icons with labels



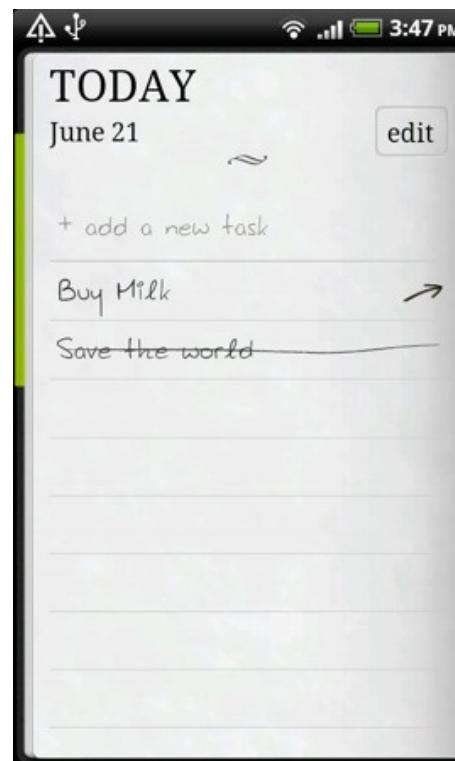
Gallery (Grid)

- Works best for frequently updated content that people want to browse



Metaphor

- Pages are modeled to reflect the application's **metaphor**
- Use the Metaphor pattern judiciously



Page carousel

- Works best for navigating a small number of pages
- Visual indicator to reflect the number of screens, and current screen
- Flick to navigate the carousel

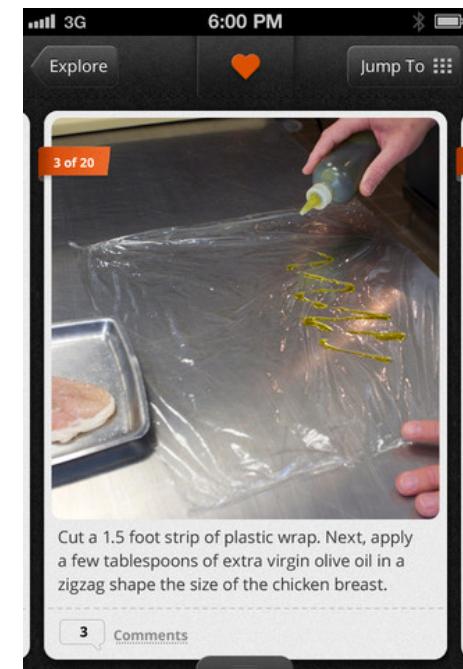
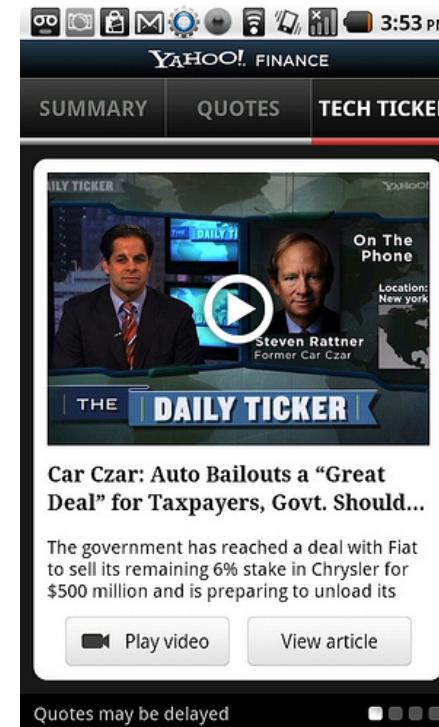
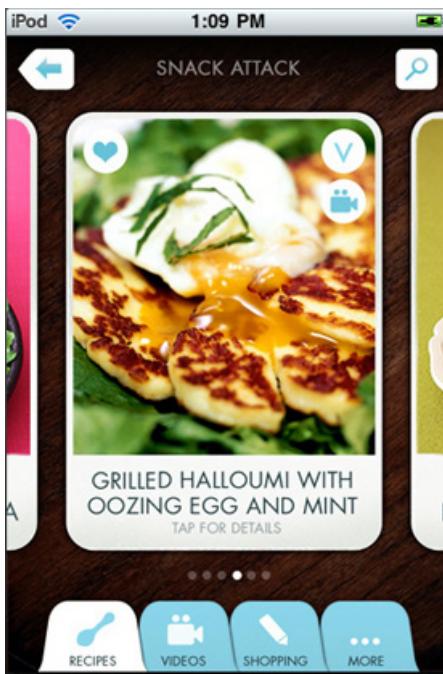
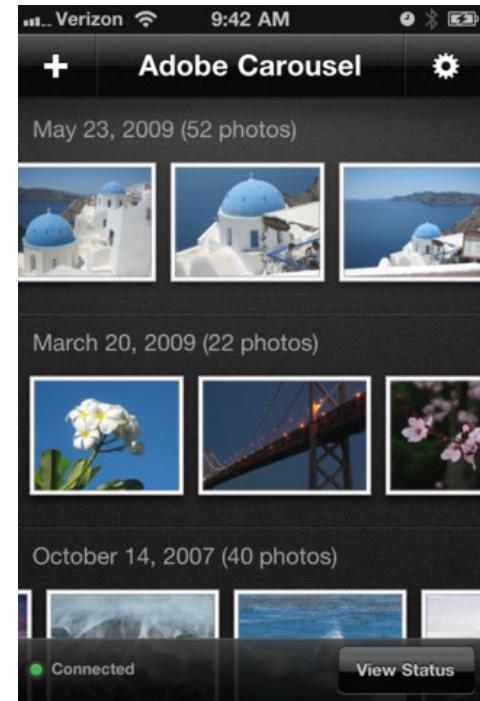
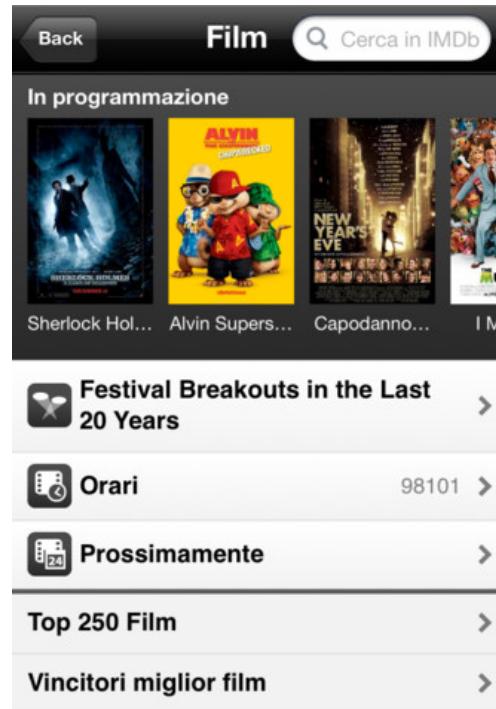
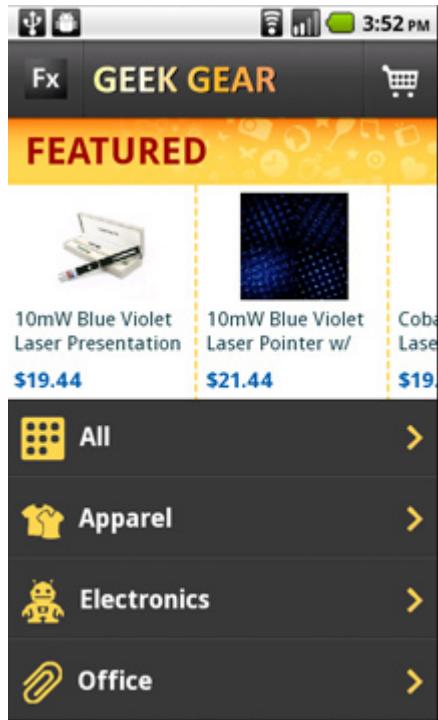


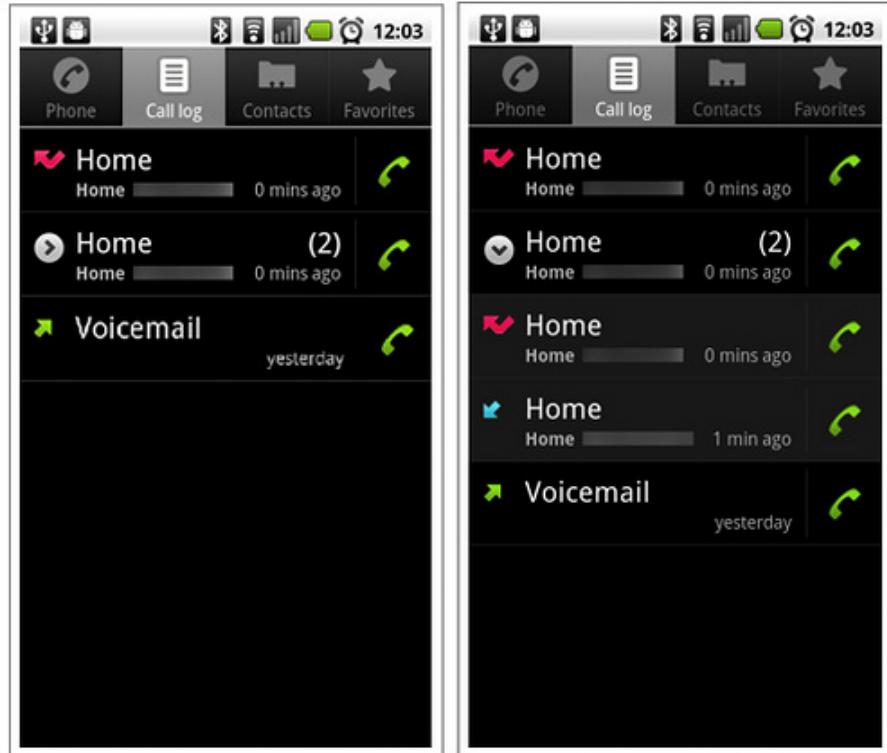
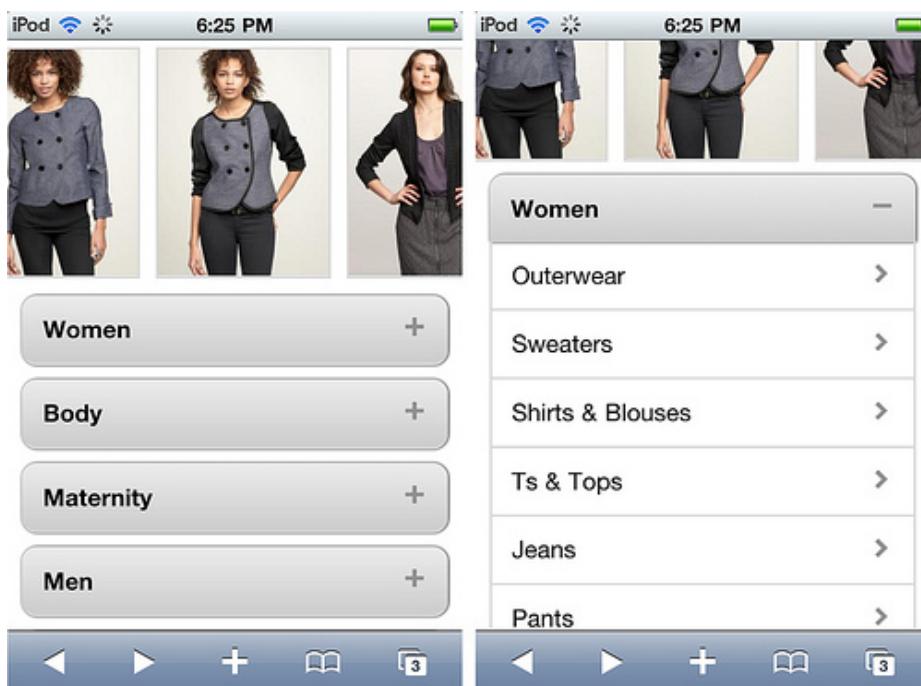
Image Carousel

- Works best for displaying **fresh visual content**, like articles, products, and photos
- Provide **visual affordance**, either with arrows, partial images, or page indicators that more content can be accessed



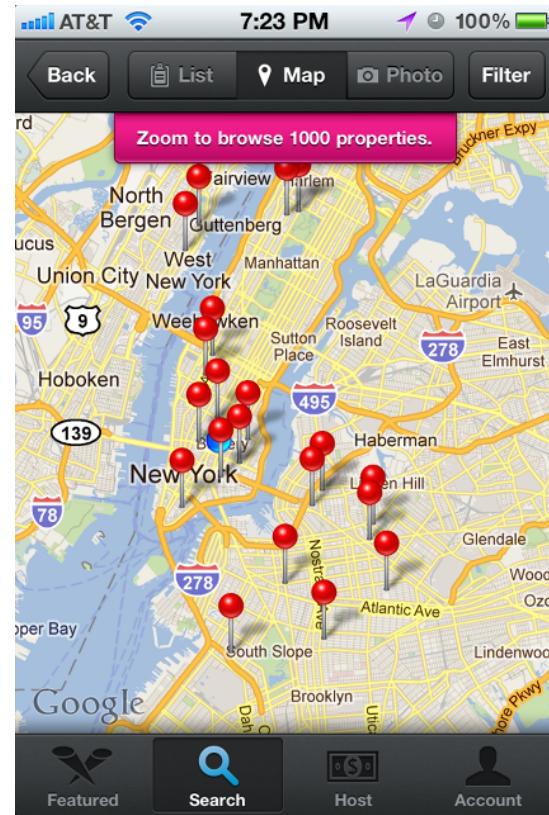
Expanding Lists

- Works best for progressively disclosing more details or options for an object



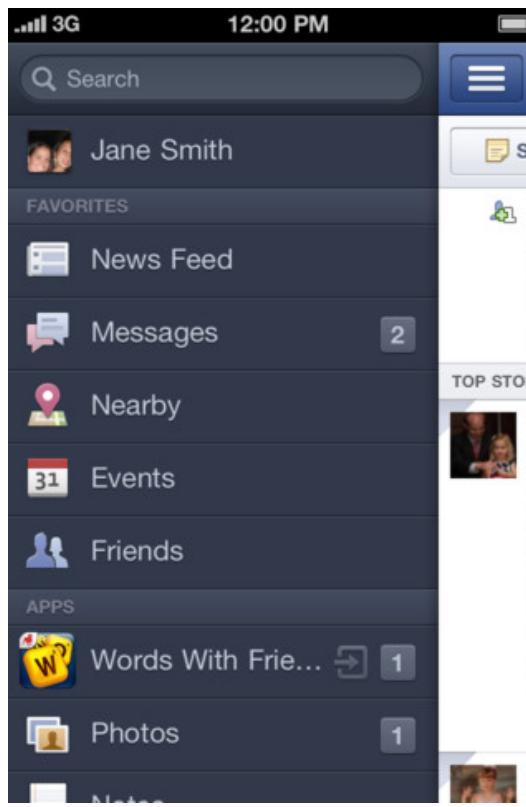
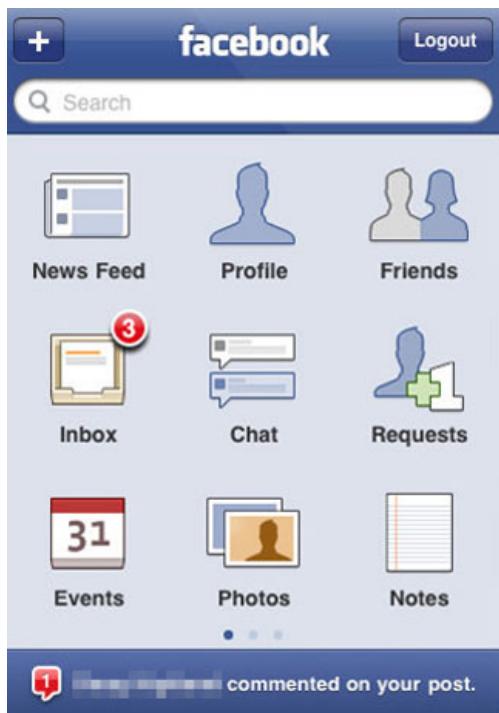
Infinite Area

- The entire data set can be considered to be a **large**, two-dimensional graphic
- The viewport shows only a small subset of the whole data set



Exercise

Can you compare these navigation designs?



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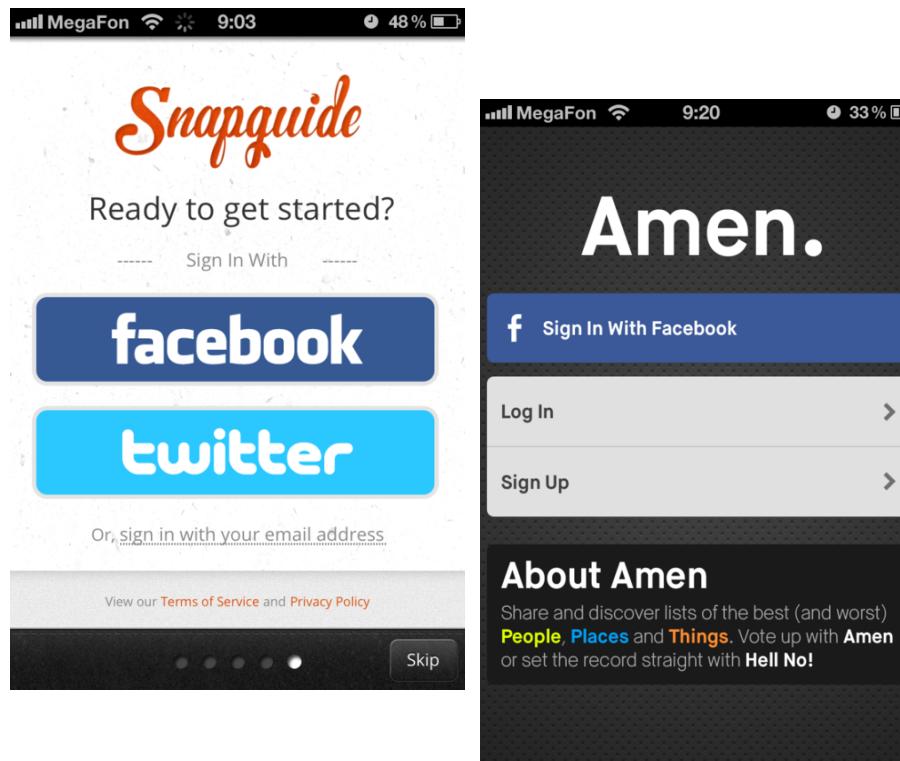
Forms

- They are for data entry and configuration
 - Sign In
 - Registration
 - Check-in
 - Comments
 - Users Profile
 - Share
 - Empty Datasets
 - Multi-step
 - Settings



Sign In

- Don't innovate on the sign in screen
- Provide a way to retrieve a forgotten password
- Provide a way to login via social networks



Registration

- Keep it short, preferably one screen
- Register button well visible

iPod 6:58 PM Create Account

Have a Facebook account?
Sign Up with Facebook

GOWALLA WILL NEVER POST TO YOUR ACCOUNT WITHOUT YOUR PERMISSION

or

First name
Last name
Email
Password

This screen shows a mobile registration flow for Gowalla. It includes a "Create Account" header, a "Sign Up with Facebook" button, and four text input fields for first name, last name, email, and password. A note at the bottom states that the app will never post to the user's Facebook account without permission.

iPod 8:22 PM Register

Your Name: theresaneil

Pick a unique username that will identify you on Kik

Checking Availability...

Password

Q W E R T Y U I O P
A S D F G H J K L
Z X C V B N M
.123 space Done

This screen shows a mobile registration flow for Kik. It includes a "Register" header, a "Your Name" field containing "theresaneil", a note to pick a unique username, a "Checking Availability..." progress bar, a "Password" field, and a standard QWERTY keyboard at the bottom.

Path

Email Address

Password

If you have an account, please type it in here.

I'm new here

This screen shows a mobile registration flow for Path. It includes a "Path" logo, fields for "Email Address" and "Password", a note about existing accounts, and a large "I'm new here" button at the bottom.

Back Sign Up Done

First Name Last Name

I'm Male Female

Email Address

Phone Number

New Password

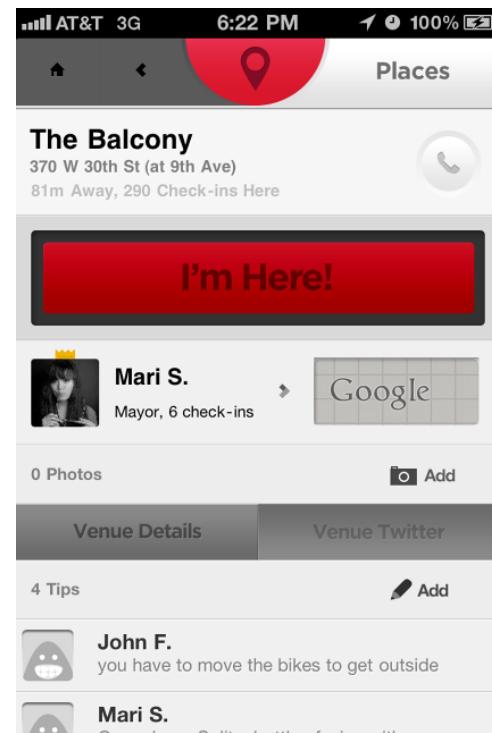
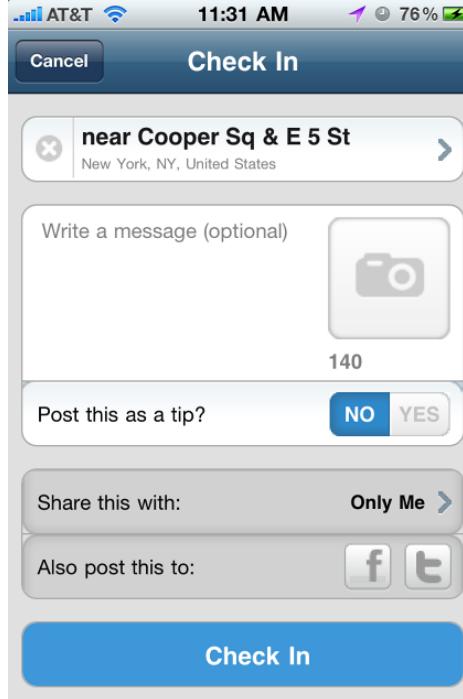
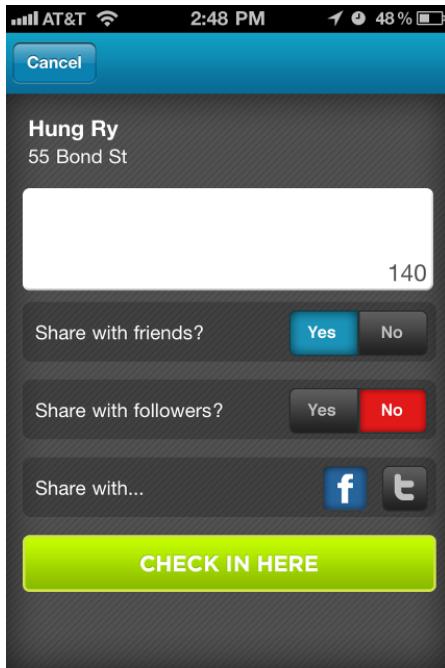
Your email address and phone number make it easier for your close friends to find you on Path.

Path

This screen shows a continuation of the Path registration process. It includes a "Sign Up" header, gender selection ("I'm" with "Male" and "Female" options), and fields for "Email Address", "Phone Number", and "New Password". A note at the bottom explains that email and phone number make it easier for close friends to find the user.

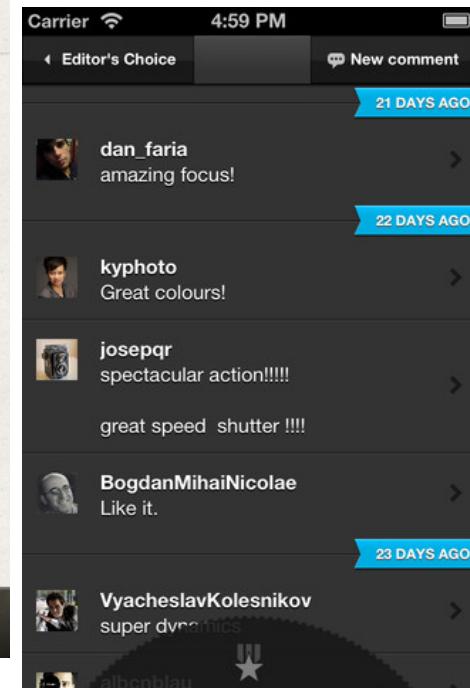
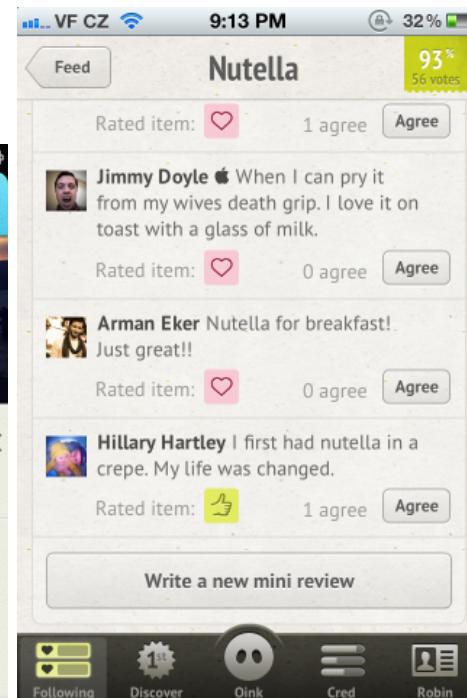
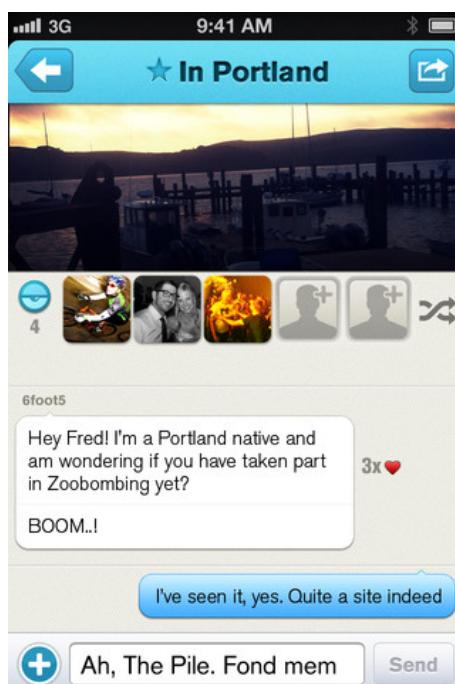
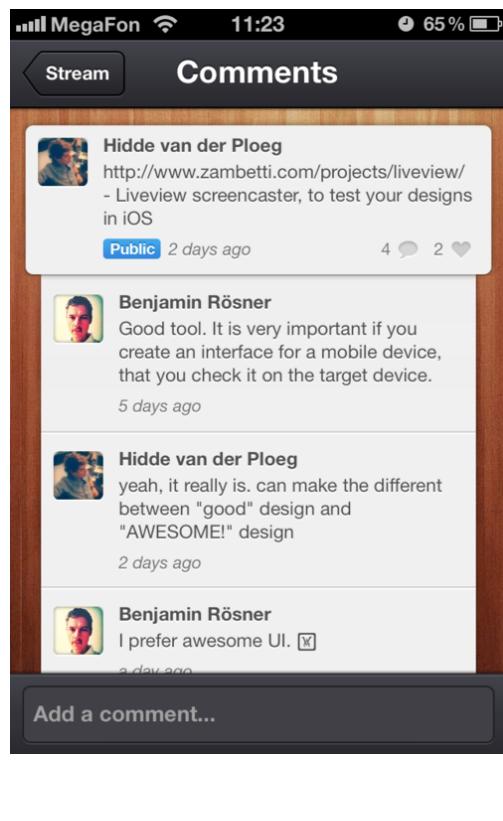
Check-in

- Keep it ultra-short
- Design for speed, and efficiency
- Eliminate unnecessary fields
- Don't show the map!



Comments

- Invite user to leave comment
- Always clarify what is being commented
- Show other people's comments over time



Timeline

- Within the **current hour**, show as minutes ago
- Within the **current day**, show the time as number of hours ago
- Within the **last two days**, show the day of the week, and the time range, morning, afternoon, evening, night
- Within the **past week**, show the day of the week
- Within **12 months**, show as mm/DD
- Older than **12 months**, show only the year

Users Profile

- Put the badges in evidence
- Show their contribution to the social network
- Provide action controls

This screenshot shows a mobile application profile screen. At the top, it displays the time (9:07), signal strength, battery level (46%), and the carrier (MegaFon). Below this, the word "Profile" is centered. The main content area features a profile picture of a woman and the name "Sara Paul Raffel". Below the name is the location "Potrero Hill, San Francisco". A bio states: "Librarian, Beekeeper, Gardener, Healthy home cook". Below the bio are four statistics: "22 Guides", "24 Liked", "74 Followers", and "87 Following". There are "FOLLOW" and "TALK" buttons at the bottom. Below these buttons are icons for Twitter and Facebook. The bottom section is titled "Guides" and lists two items: "Make Baked Quinoa Cakes" and "Make Beeswax and Honey Lip Balm". Each guide entry includes a thumbnail image, the title, the number of likes, the number of views, and the author's name.

This screenshot shows a mobile application profile screen for "Mark Zurada". The top part of the screen has a blue background with a photo of a smiling man. To the right of the photo is the name "Mark Zurada" and a large red "FOLLOW" button. Below the photo is a section titled "Mark's Followers" showing five small profile pictures. Another section titled "Mark is Following" shows three small profile pictures. At the bottom of this section is a "Mark's Feed" card for "ULTIMATE EARS NOISE ISOLATING EARPHONES" from "New York, NY" posted "5 min ago". At the very bottom are three navigation buttons: "FEED", "SCAN", and "PROFILE".

This screenshot shows a mobile application profile screen for "Konstantin M." from "London, UK". The top has a green header with the brand name "eeve". Below the header are three tabs: "Info", "Friends", and "Eeves", with "Info" being the active tab. The profile information includes a photo of a man, the name "Konstantin M.", the location "London, UK", and stats: "Following 104", "Followers 78", "Eeves started 34", and "Eeves joined 56". A bio states: "I love traveling and meeting cool people at great events. I take pics for polaboy.com - you should check 'em out." Below the bio are links to Twitter and Facebook. A large green "Follow" button is at the bottom.

This screenshot shows a mobile application profile screen for "DMITRI MARKINE" from "TORONTO, CANADA". The top has a black header with the carrier "Carrier", time "16:03", and a "Boys" button. Below the header is a photo of a man and his name. The profile information includes a photo, the name "DMITRI MARKINE", the location "TORONTO, CANADA", and stats: "20 PHOTOS" and "0 FRIENDS". A bio states: "I am a professional Toronto and destination wedding photographer. I love journalism and seeing remote parts of the world :)" followed by a smiley face. Below the bio are several thumbnail images of people and landscapes.

Share

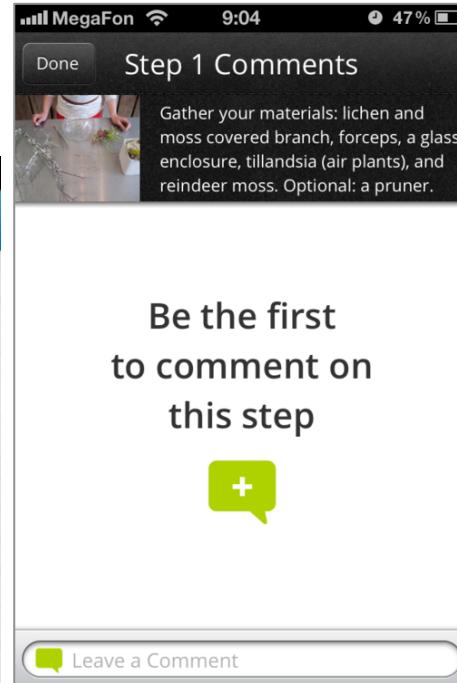
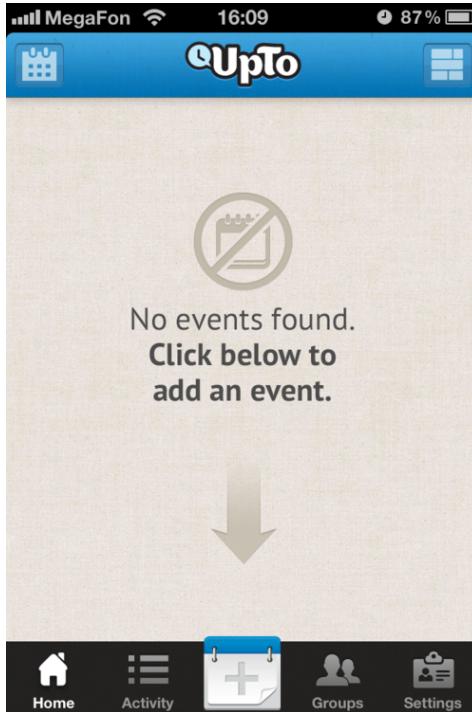
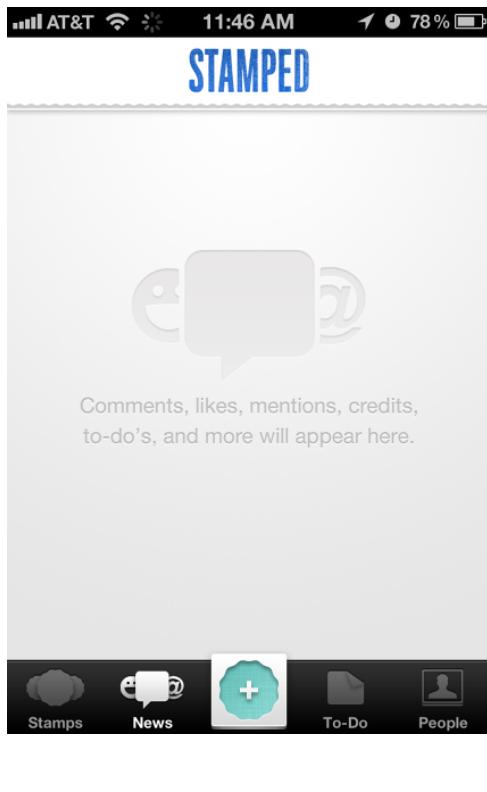
- Always keep track of past logins
- Always provide an “off social” way to share (e.g., by email)
- Remark what is being shared

The image consists of four separate screenshots of mobile applications, each demonstrating different sharing mechanisms:

- Screenshot 1:** Shows a mobile application interface. At the top, there's a "Share" button and a "Finish" button. Below is a post featuring a photo of a bowl of soup with the caption "Soup #lunch". On the left, there's a sidebar for "Cheers" with 0 followers. At the bottom, there are sharing options for Facebook (ON), Twitter (ON), and Email.
- Screenshot 2:** Shows a mobile application displaying a list titled "Top 15 Tweets-Per-Second". A sharing menu is open over one of the list items, listing options like "Recommend", "Email", "Instapaper", "Pinboard", "Tumblr", "Facebook", and "Twitter".
- Screenshot 3:** Shows a mobile application displaying a video thumbnail of a man named Tom. The caption below the thumbnail reads "Hanging out at Peet's Coffee & Tea with Tom". At the bottom, there are sharing icons for Facebook, Twitter, and Email.
- Screenshot 4:** Shows a mobile application titled "SHARING" with a "DONE" button. It has a "ADD A CAPTION" field containing "Castle in Yalta, Ukraine". Below it is a "SHARING OPTIONS" section with two buttons: "FACEBOOK" (OFF) and "TWITTER" (OFF). There is also a "PUBLIC ON KLIK" button.

Empty datasets

- Avoid white-screens, explain why the dataset is empty
- Call for action, only one!
- Avoid error messages



Multi Step

- Show the user where they are and where they can go
- Eliminate unnecessary fields
- Minimize the number of pages and steps

The first screenshot shows the "Enter Information" screen with a title "Accept Card Payments". It displays a message: "Before you can accept card payments, Square has to collect some information." Below this is a question "Are you an individual or a business?" with two buttons: "Individual" (selected) and "Business". The second screenshot shows the "Confirm Information" screen with a title "Identity Information" showing placeholder data for Theresa Neil. It includes fields for "first name" (Theresa), "last name" (Neil), "phone" ((000) 000-0000), and "address" (Street Address). A "Continue" button is at the bottom.

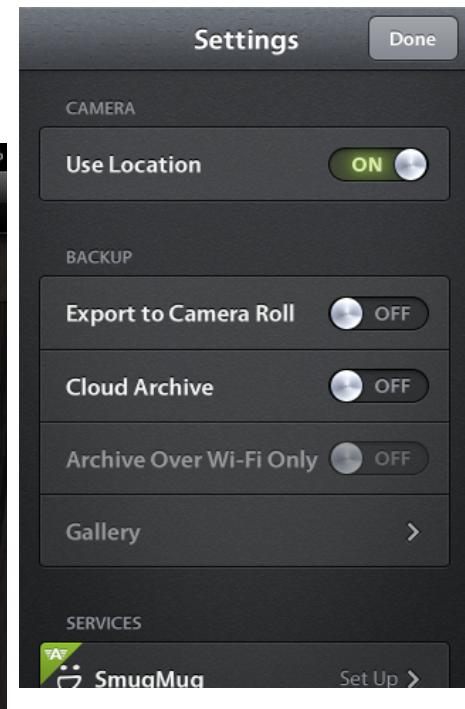
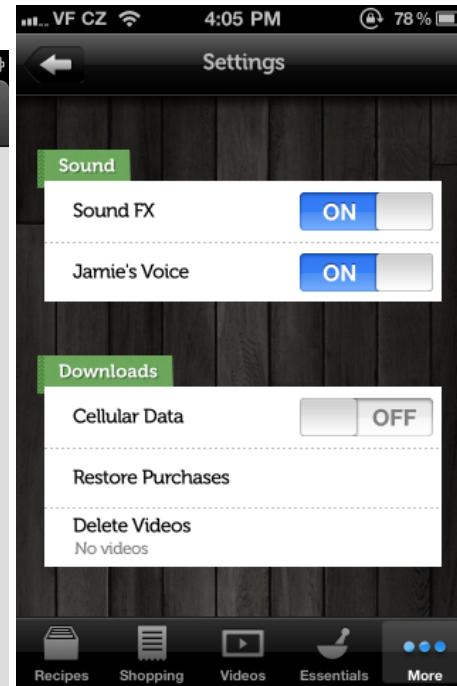
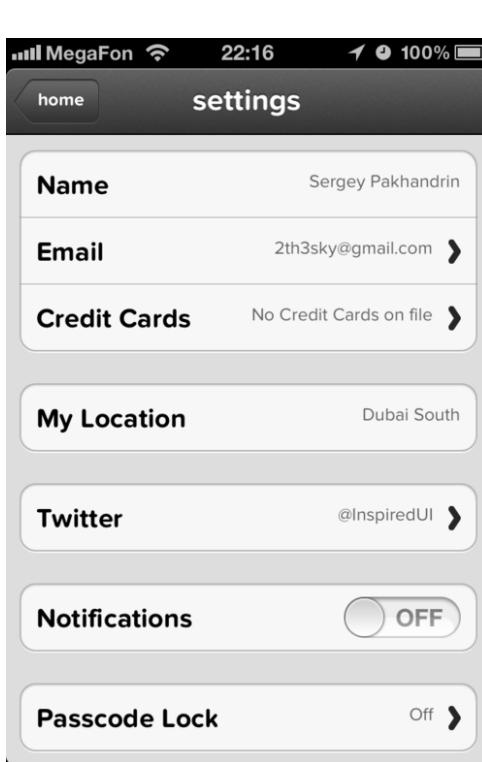
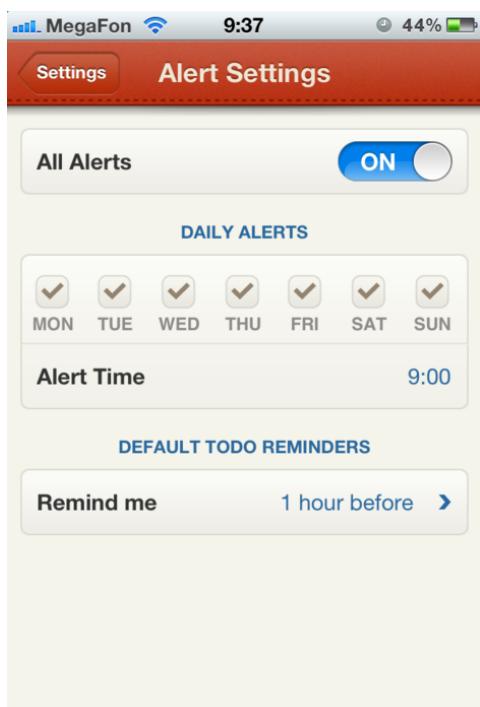
The screenshot shows the "Setup" screen with a title "Step 2 of 4" and a section "Personal Info". It contains instructions: "Please enter your info so that miCoach can calculate calories and other useful information. You can always edit this info in Settings." Below this are four input fields with radio buttons:

- Gender:** Male (radio button selected)
- Weight:** 140 lbs (radio button selected)
- Height:** 5 ft 5 in (radio button selected)
- Date of Birth:** 01/01/1976 (radio button selected)

A "Next" button is at the bottom.

Settings

- Put them inside the app
- Clear and grouped
- Easy to be understood



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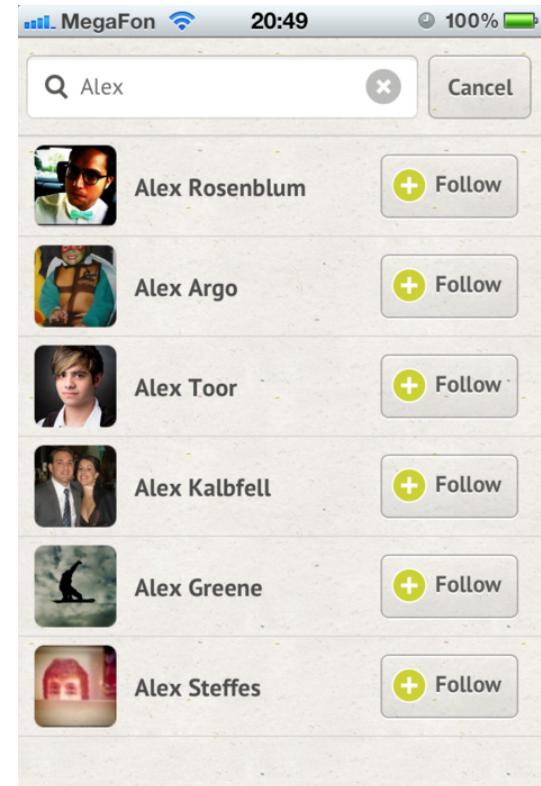
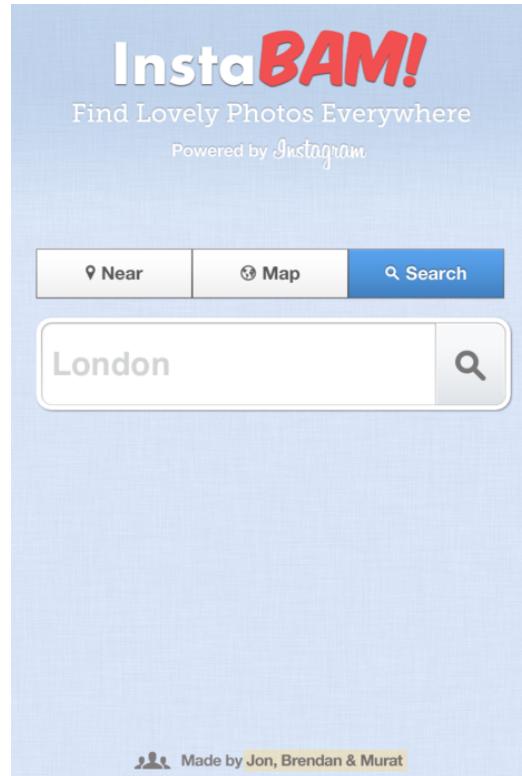
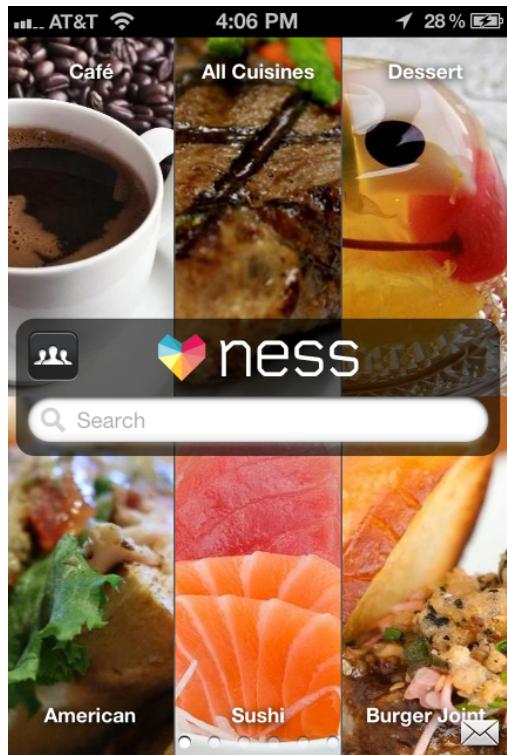
Search, Sort & Filter

- Search
 - Explicit Search
 - Dynamic Search
 - Search form
 - Search Results



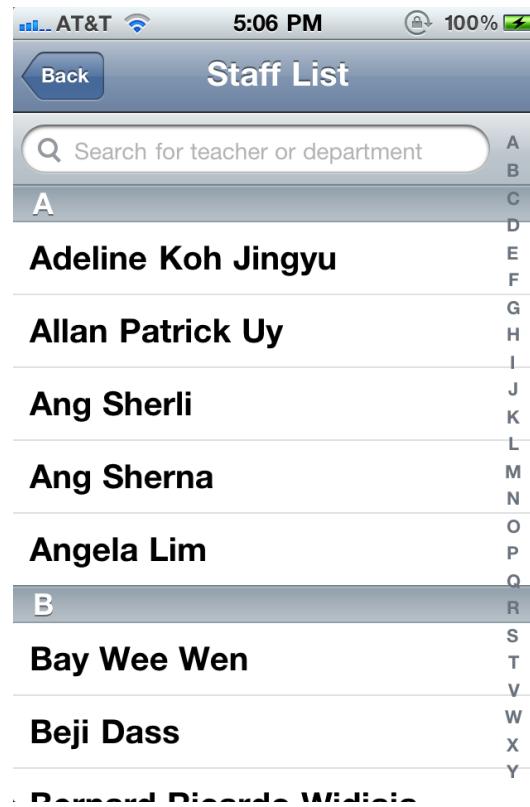
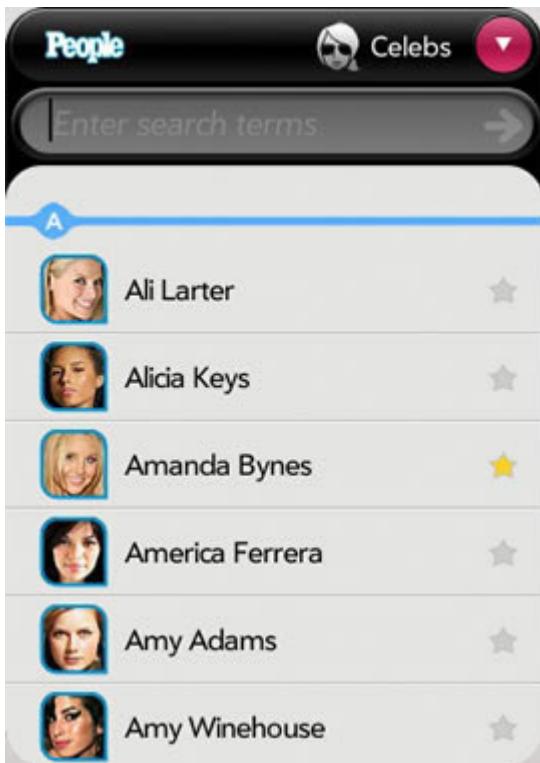
Explicit Search

- Offer a clear button in the field
- Provide an option to cancel the search
- Use feedback to show the search is being performed



Dynamic Search

- Automatically filters a given list of items
- Works well for constrained data sets, like an address book or personal media library



Search form

- Minimize the number of input fields
- Follow form design best practices (alignment, labels, size)
- Use only when strictly needed

The image shows two side-by-side mobile application screens. Both screens have a top bar showing 'iPod' with signal strength, '10:28 PM', and battery level.

Left Screen (Flights):

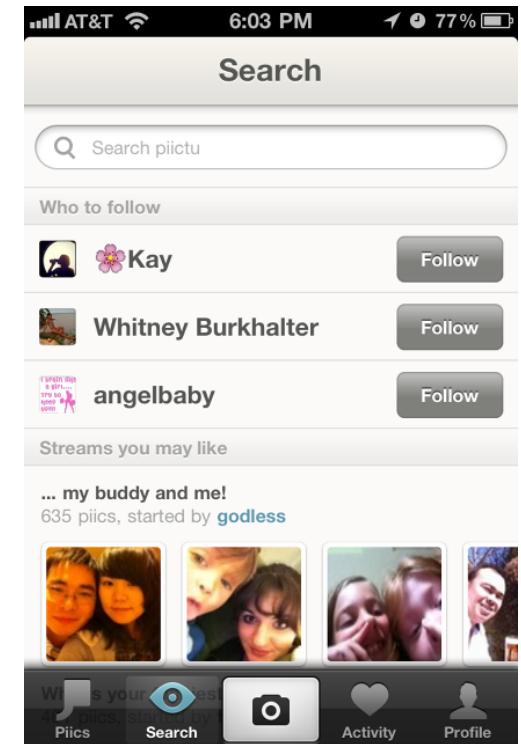
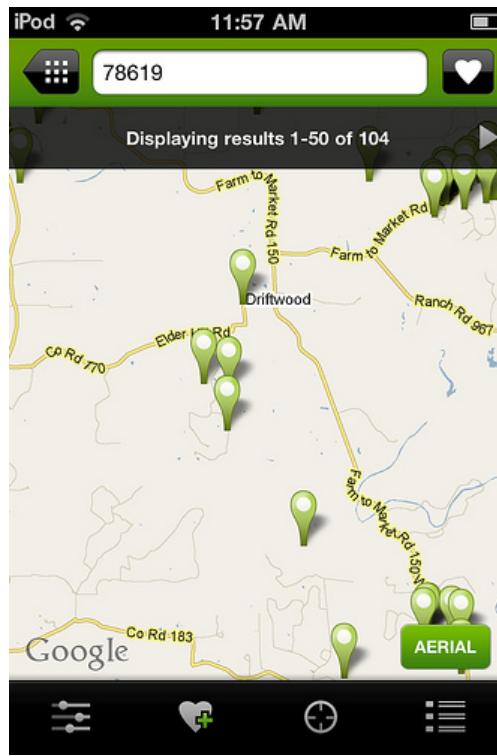
- Header:** Home, Flights.
- Search Bar:** Search icon, History icon.
- Flight Options:** One-way, Round-trip, Multi-city.
- Flight Details:** Departure airport (AUS) and arrival airport (LAX). Below it, 'Austin, TX - Austin...' and 'Los Angeles, CA'.
- Flight Dates:** DEPART MON MAR 21 and RETURN WED MAR 23.
- Passenger Information:** 1 traveler.
- Class:** \$ Economy.
- Buttons:** 'Search Flights' at the bottom.

Right Screen (Hotels):

- Header:** Home, Hotels.
- Location:** Los Angeles, CA.
- Dates:** CHECK-IN TUE MAR 29 and CHECK-OUT WED MAR 30.
- Guests:** 2 guests.
- Room:** 1 room.
- Buttons:** 'Search Hotels' at the bottom.

Search Results

- Use live scroll instead of paging
- Apply a reasonable default sort order
- Call for action



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Tools

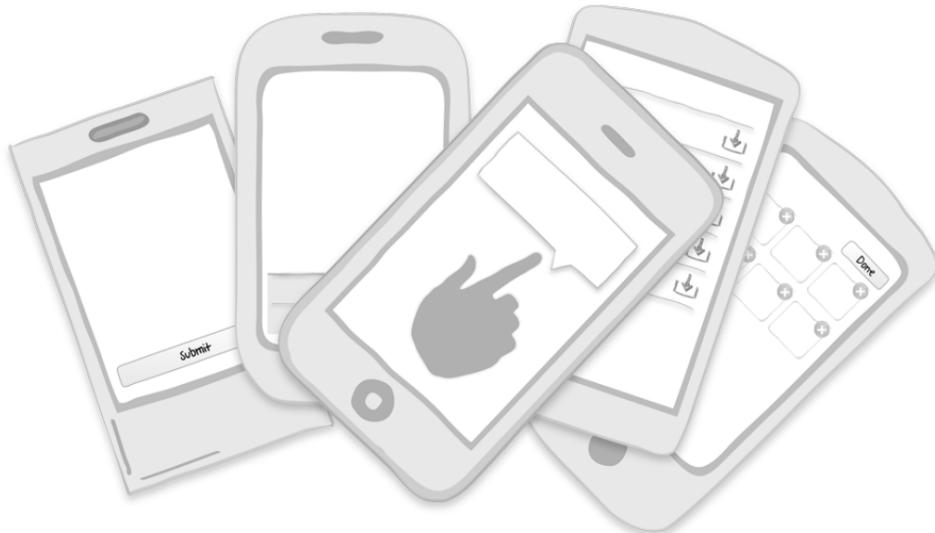
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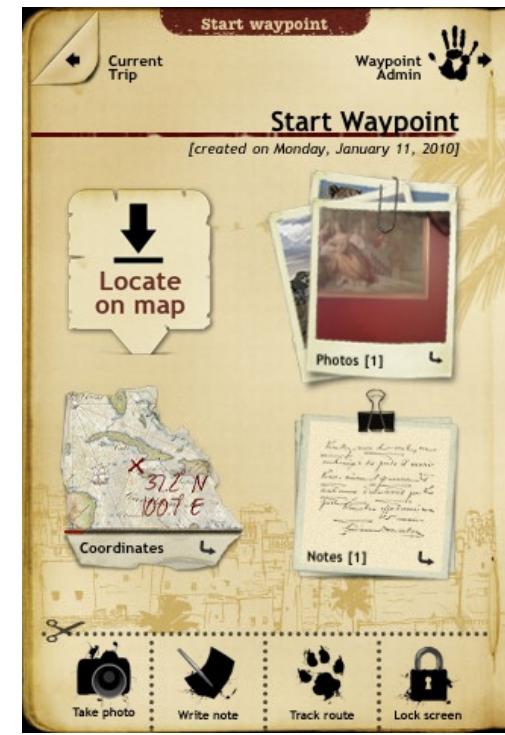
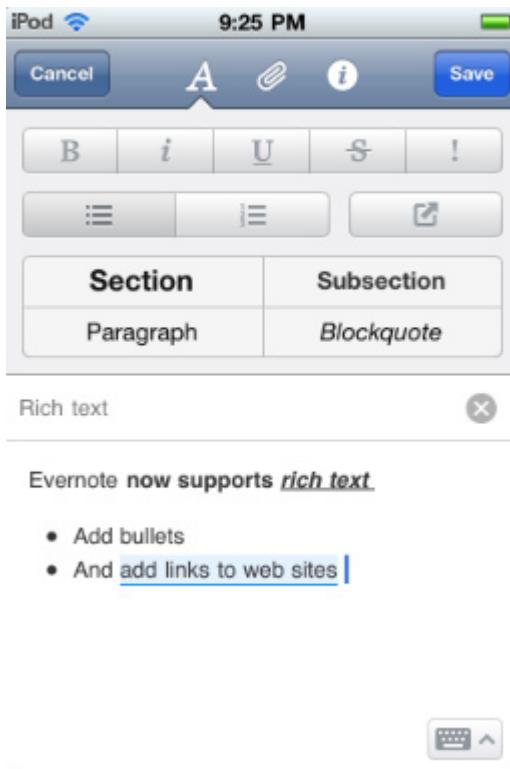
Tools

- Buttons & Controls
 - Toolbar
 - Contextual Tools
 - Inline Actions
 - Call to Action Buttons
 - Multi-state Button
 - Maps



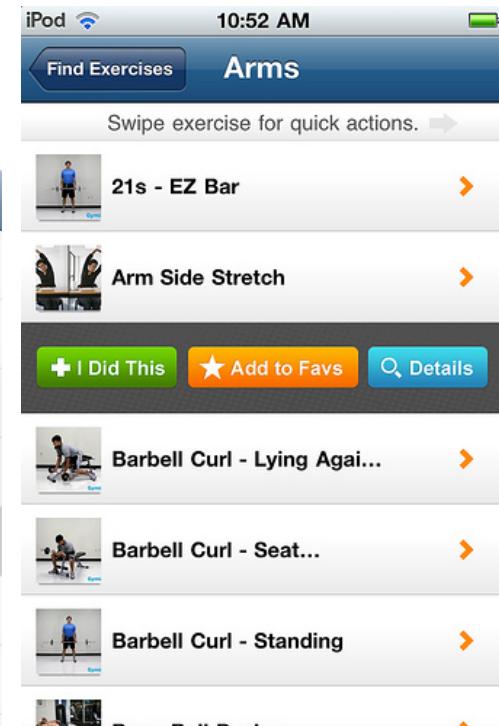
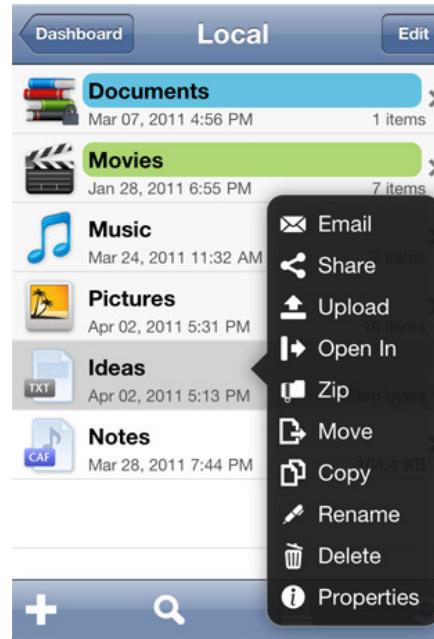
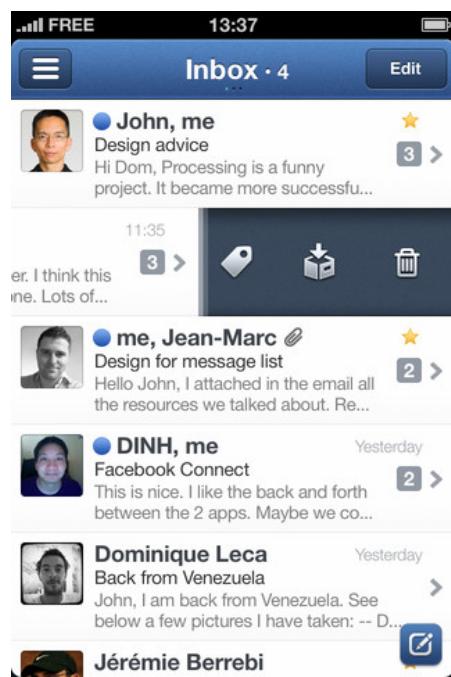
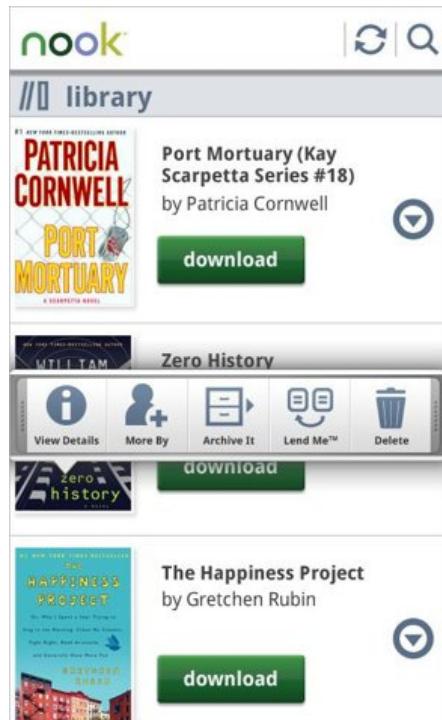
Toolbar

- Contain screen level actions, they are generally displayed at the bottom of the screen
- Choose icons that are easy to recognize, or use labels plus icons



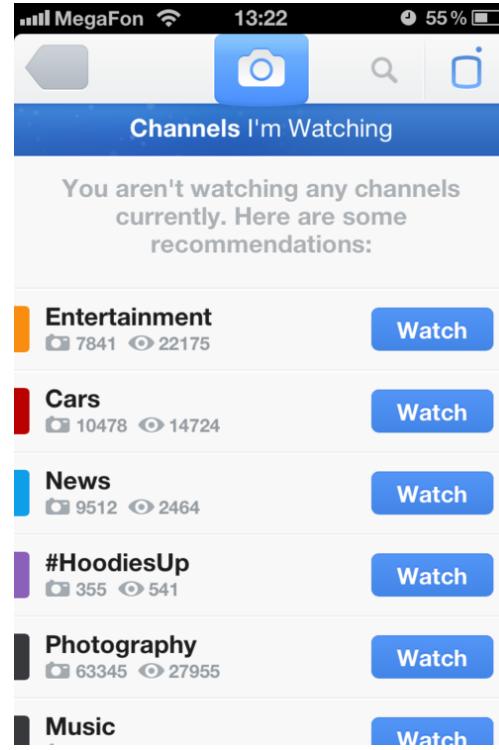
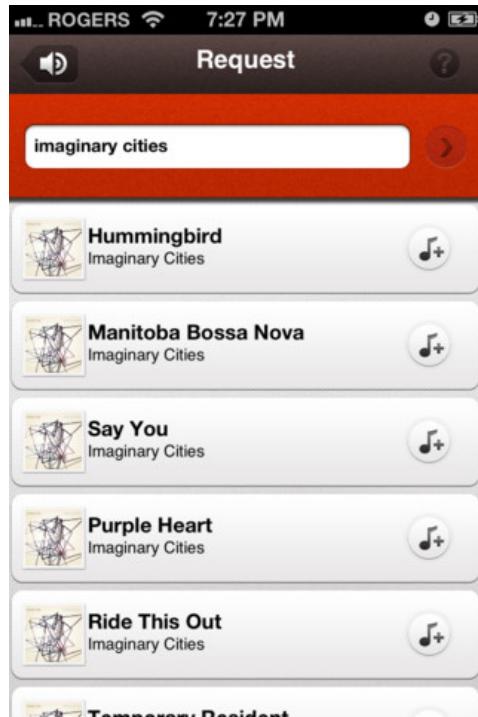
Contextual Tools

- If buttons are necessary, they should be displayed in proximity to the actionable object
- Choose a familiar icon or use a text label



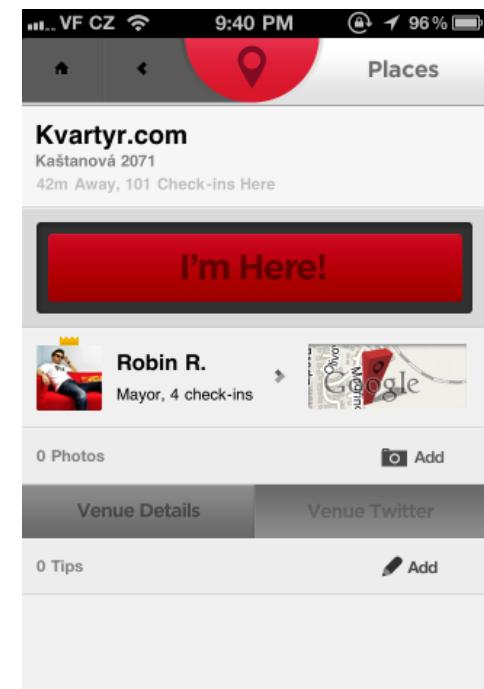
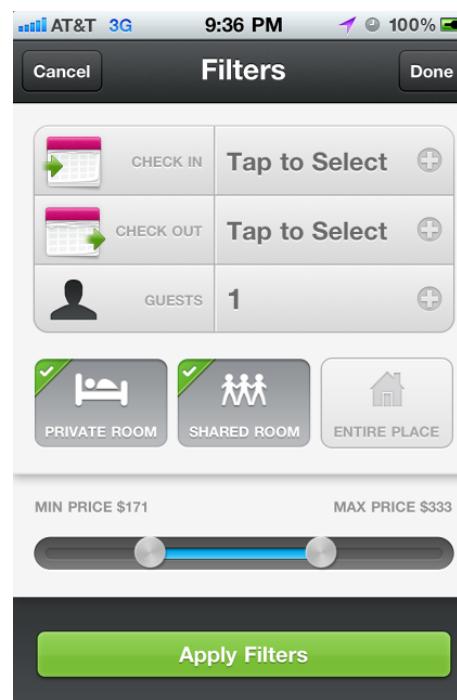
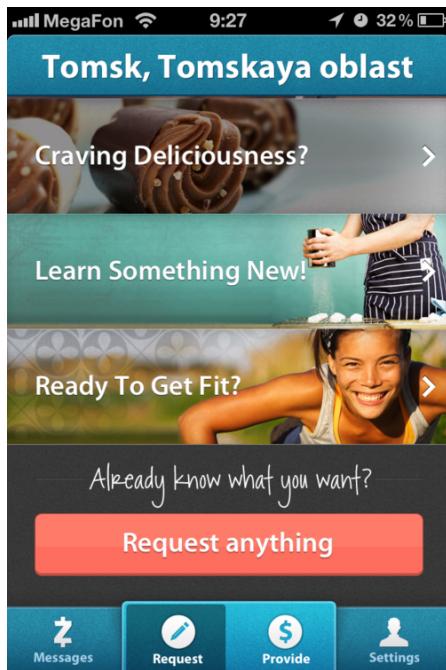
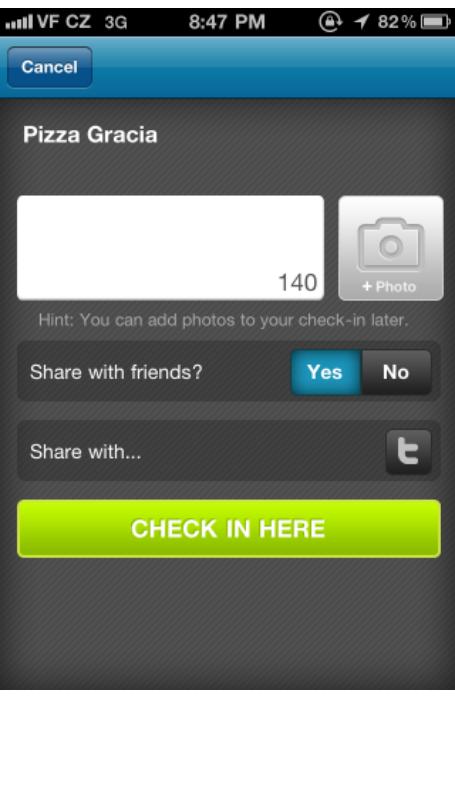
Inline Actions

- They should be in proximity to the actionable object
- Choose a familiar icon or use a text label
- Max 1 to 2 Inline Actions per object



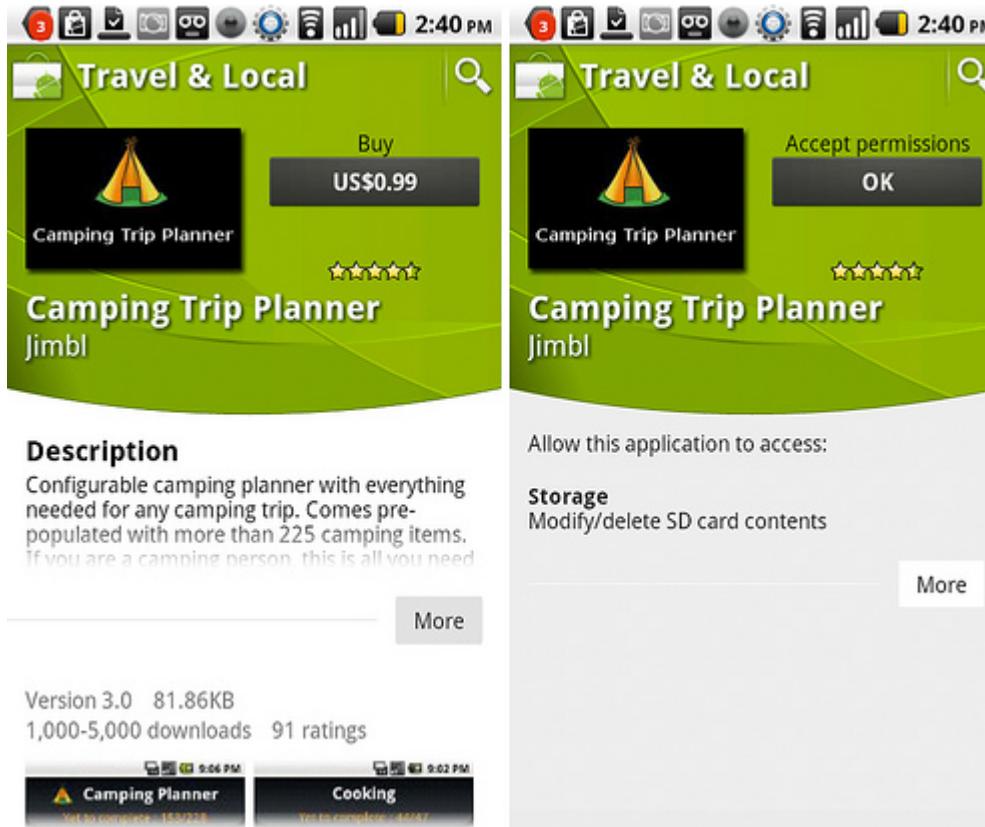
Call to Action Buttons

- Don't hide the main call to action in a menu or disguise it as an unrecognizable icon in a toolbar
- Good contrast and clear label



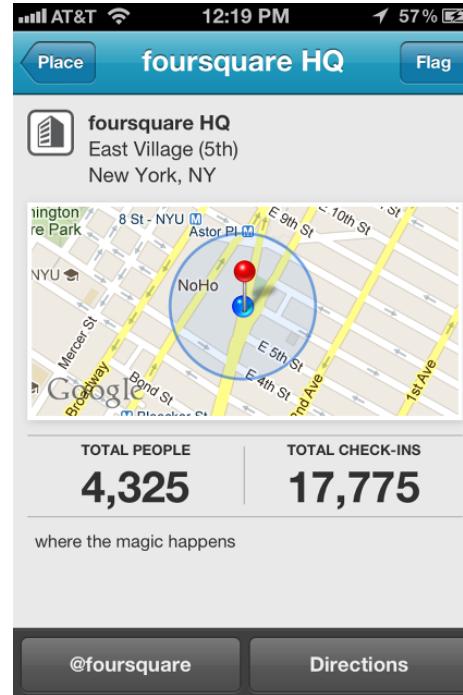
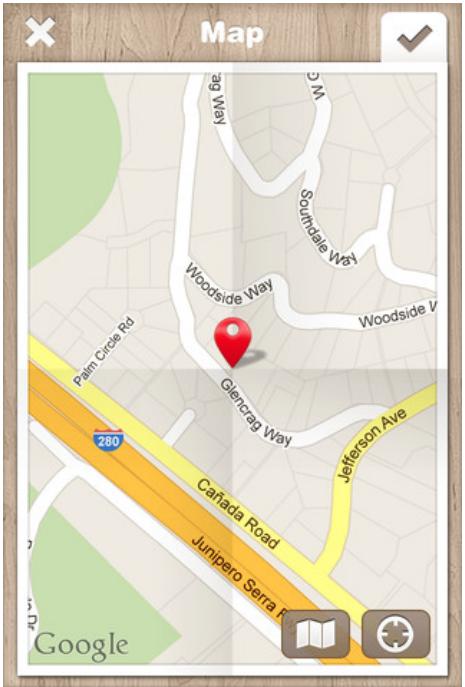
Multi-state Button

- Multi-State Buttons work well for a series of tightly correlated actions that will to be performed in succession



Maps

- Provide visible markers (avoiding “terrain-mode”)
- Use as much screen as possible
- Can be small if the location is not the main item



Roadmap

Navigation

Forms

Search, sort & filter

Tools

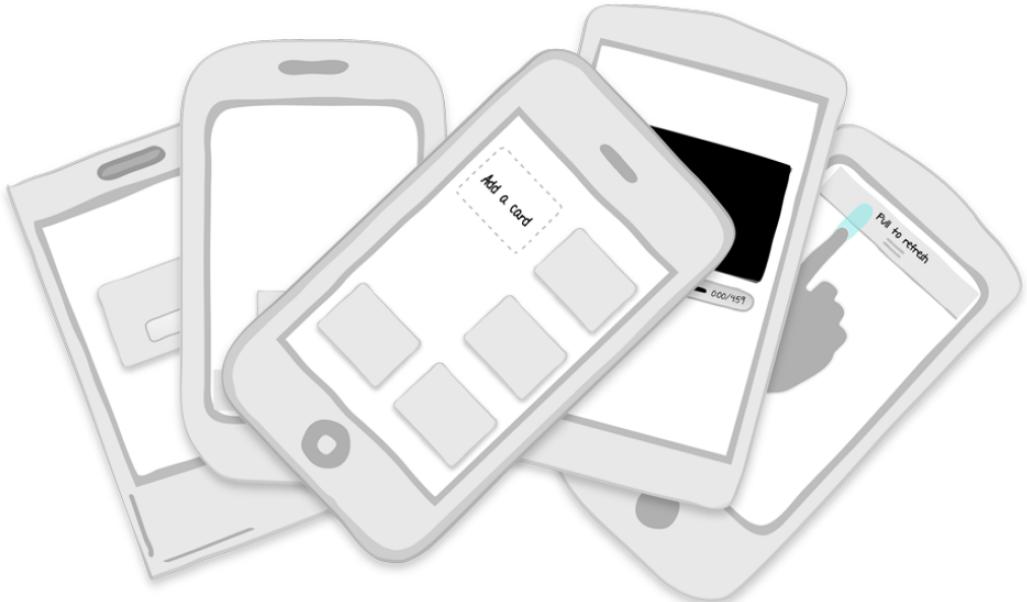
Invitations

Feedback & Affordance

Anti-Patterns

Invitations

- Helpful tips displayed the first time a user launches an app
 - Dialog
 - Tip
 - Tour
 - Video
 - Transparency
 - 1st Time Through
 - Persistent



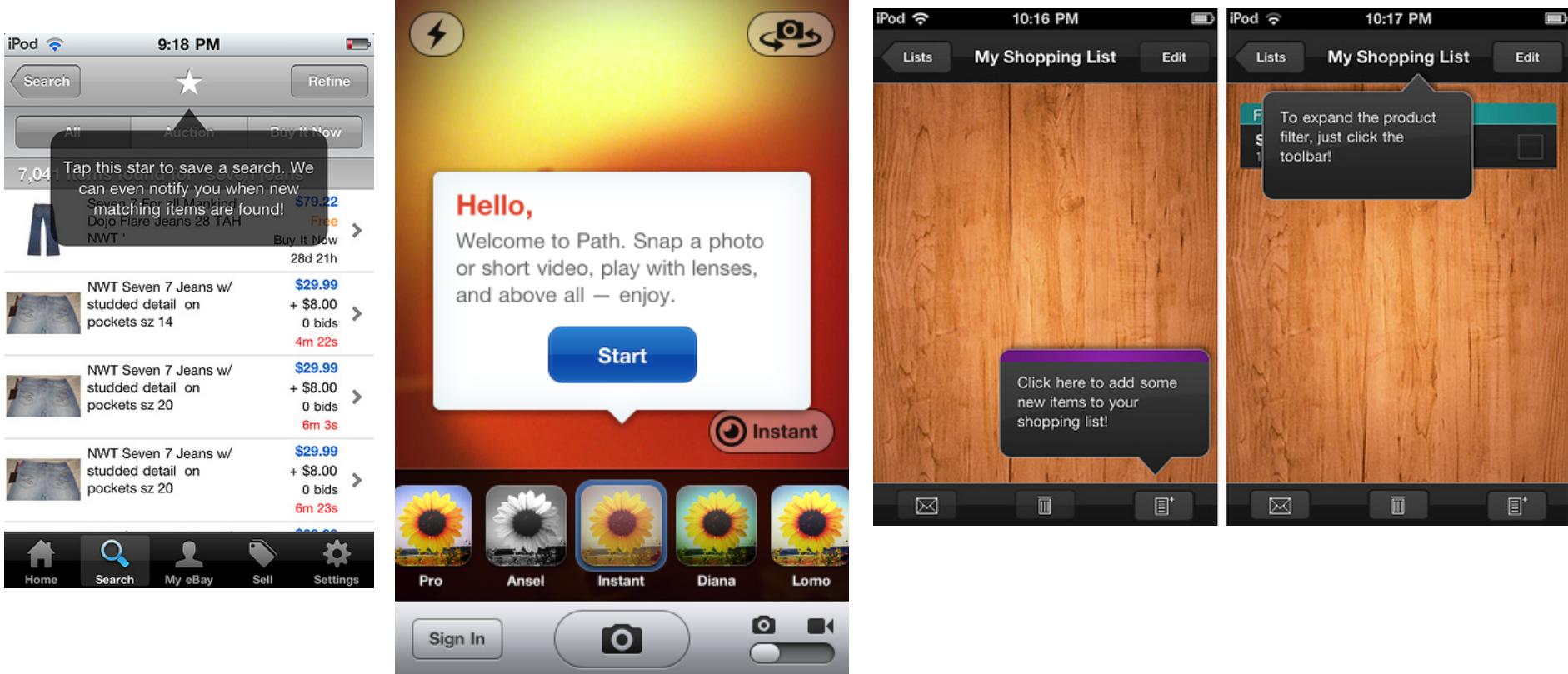
Dialog

- Keep dialog content short
- make sure there is an alternate way to access instructions from within the application



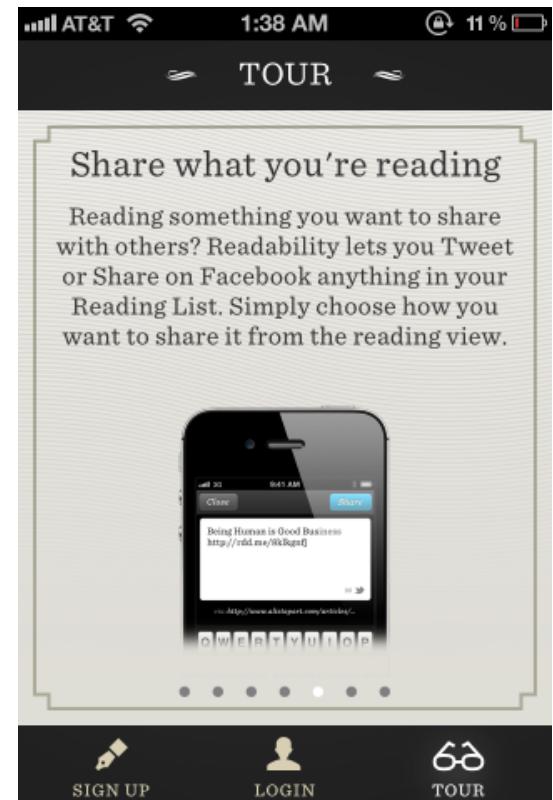
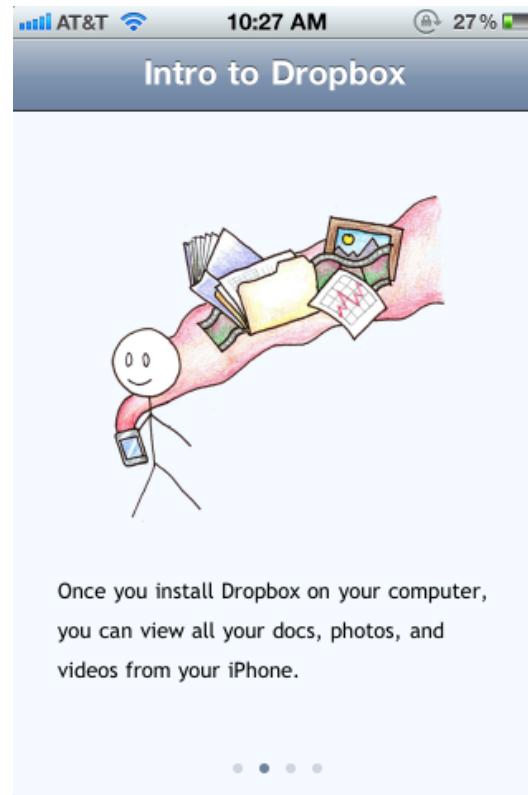
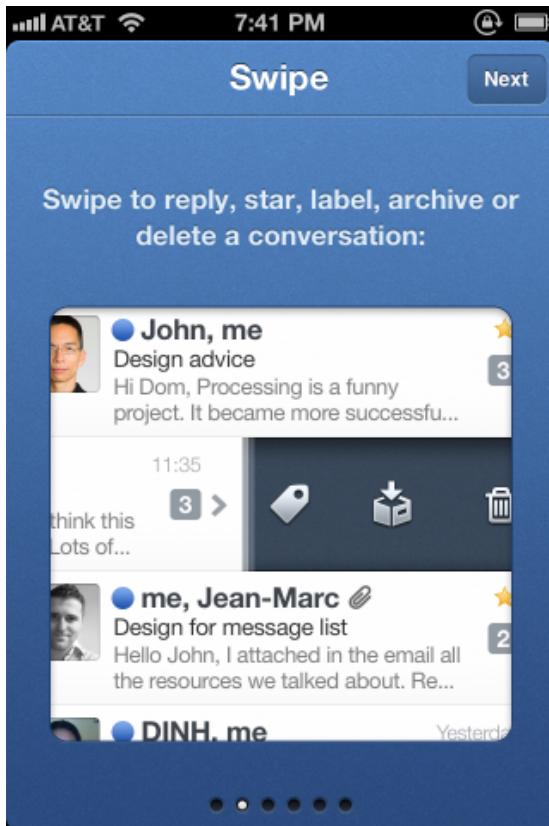
Tip

- Place tips in proximity to the feature they refer to
- keep the content short
- remove the tip once interaction begins



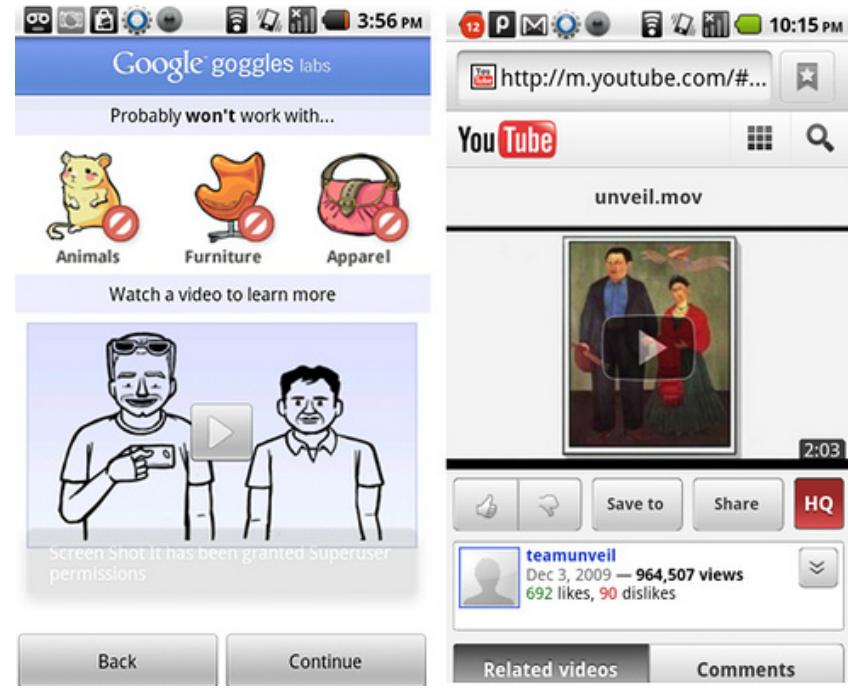
Tour

- A tour should **highlight key features** of the application, preferably from a (user) goal perspective
- Keep it short and **visually engaging**



Video

- Demos should showcase key features or show how to use the application
- Common video features (stop, pause, volume controls, etc,...) should be provided



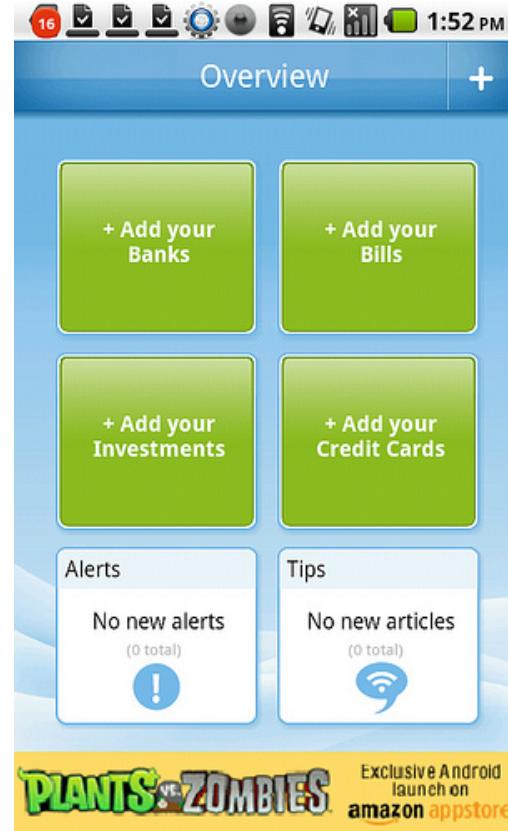
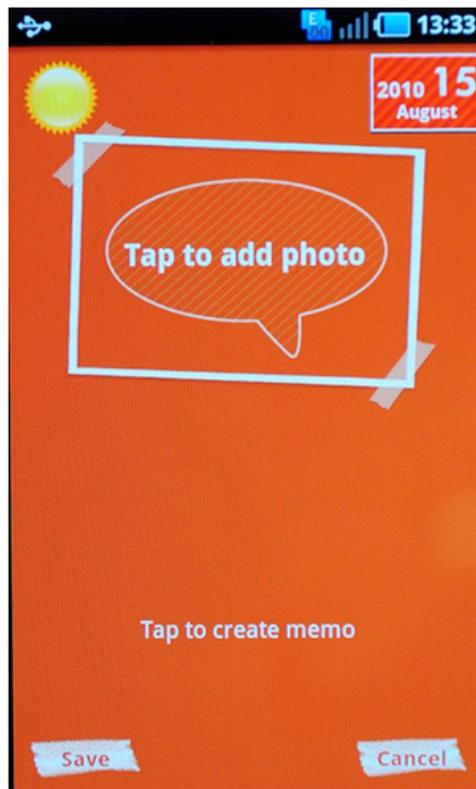
Transparency

- Transparencies are not meant to compensate for poor screen designs!
- Remove the Transparency once interaction begins



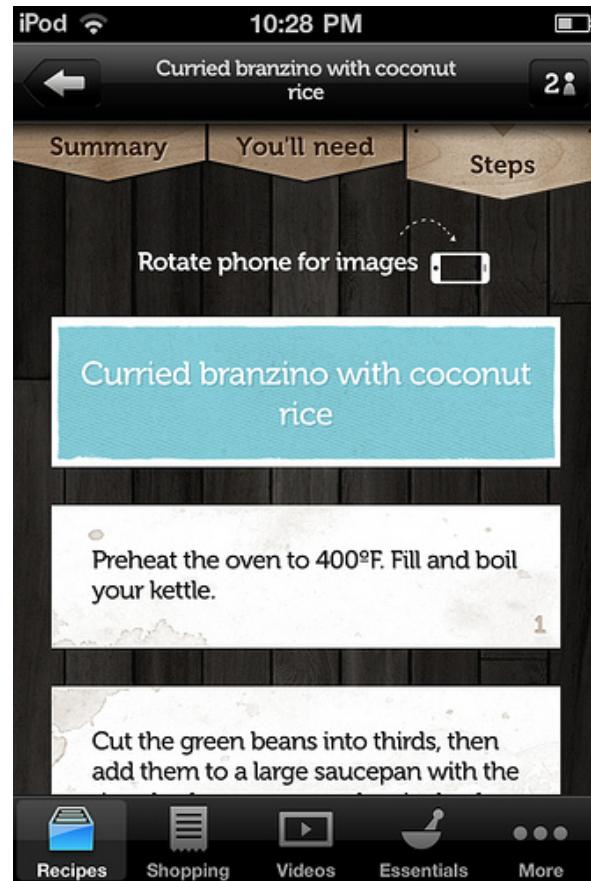
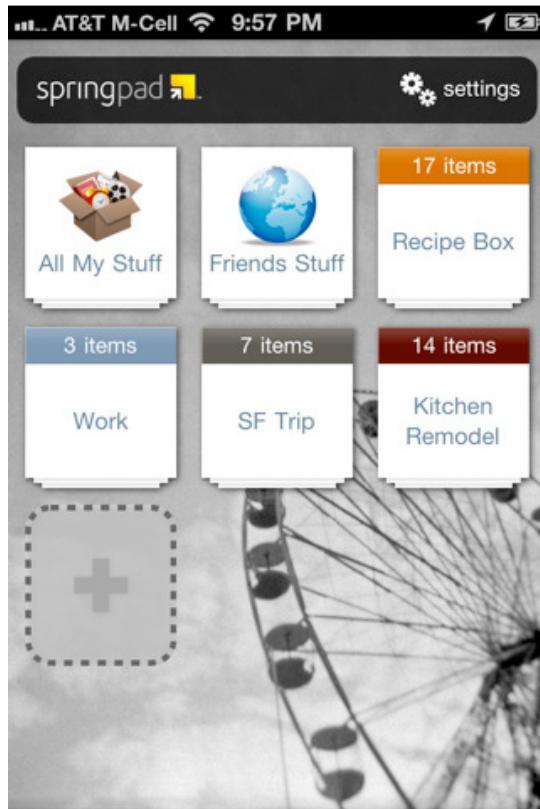
1st time through

- Clearly differentiate the invitation from other content with images or other visual cues



Persistent

- Keep it short
- Clearly differentiate the invitation from other content with images or other visual cues



Roadmap

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Search, sort & filter

Tools

Invitations

Feedback & Affordance

Anti-Patterns

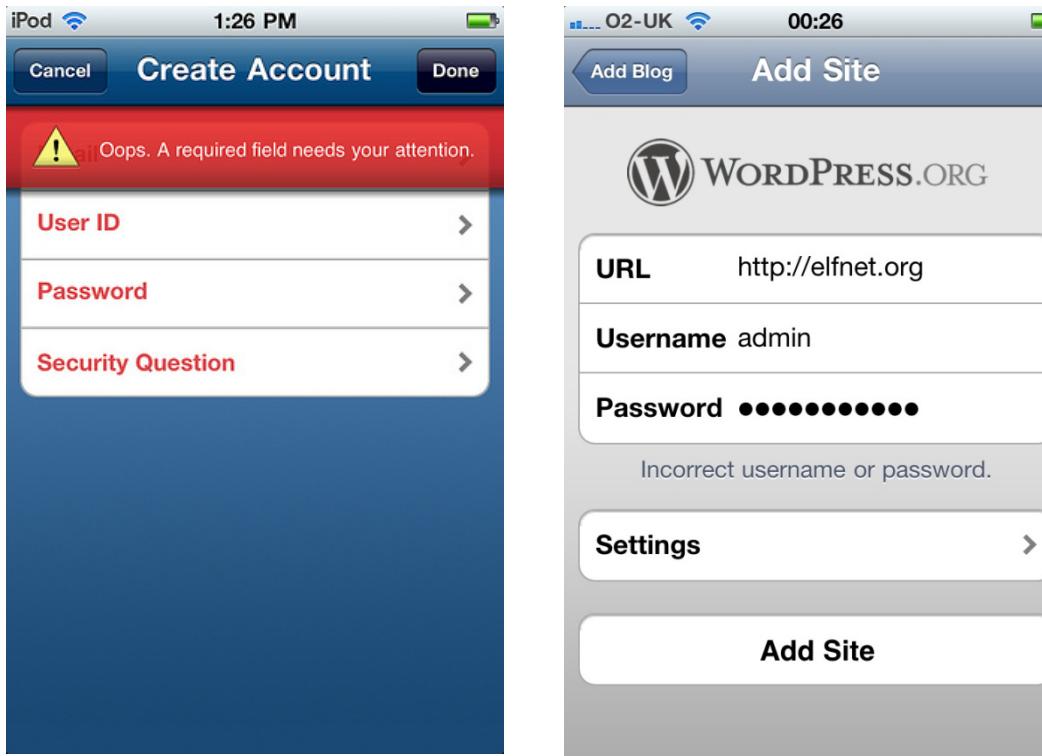
Feedback & Affordance

- Feedback
 - Errors
 - Confirmation
 - System Status
- Affordance
 - Tap
 - Flick
 - Drag



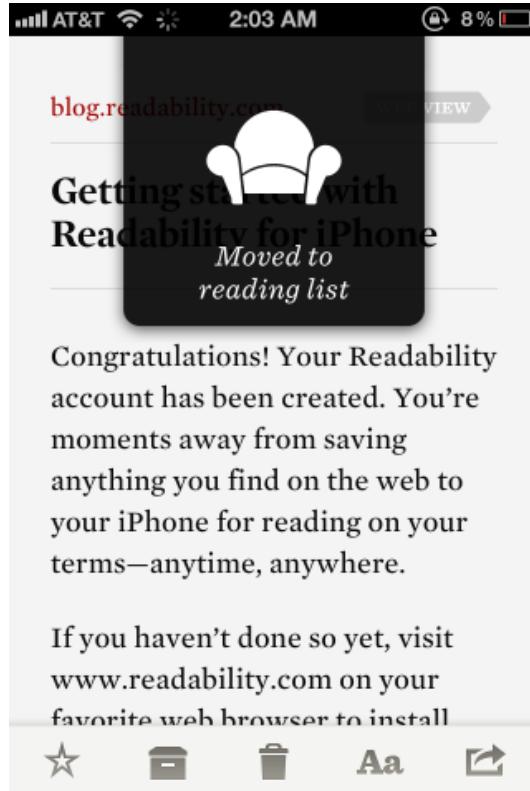
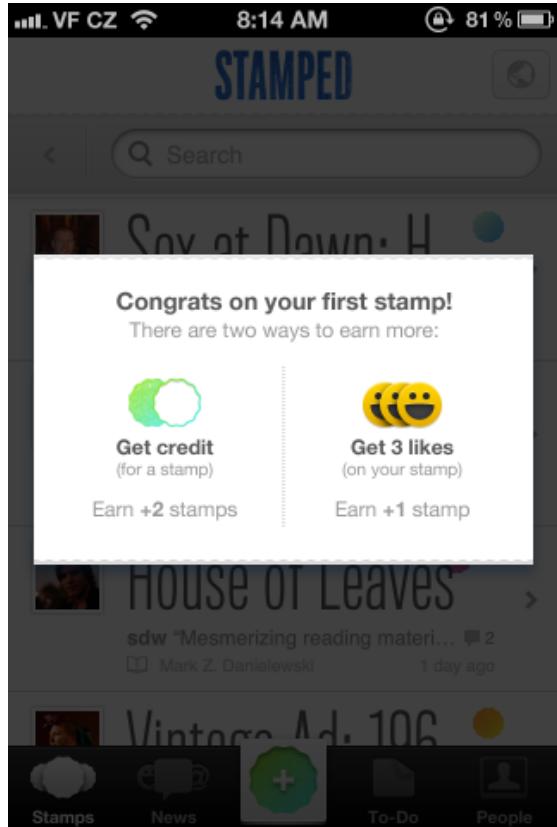
Feedback: Errors

- Use plain language that **offers a solution** for resolving the issue
- make the error **visible**
- use in-screen messaging instead of modal dialogs



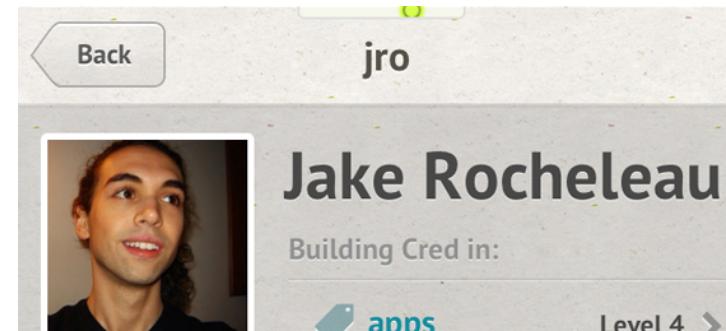
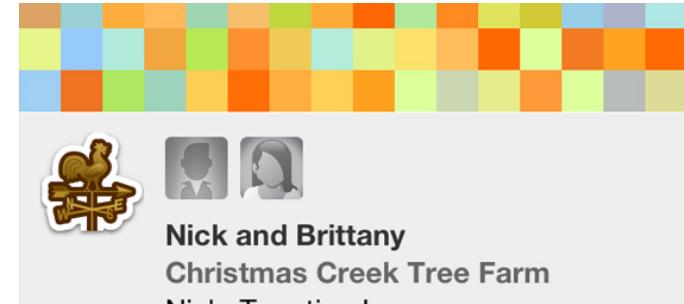
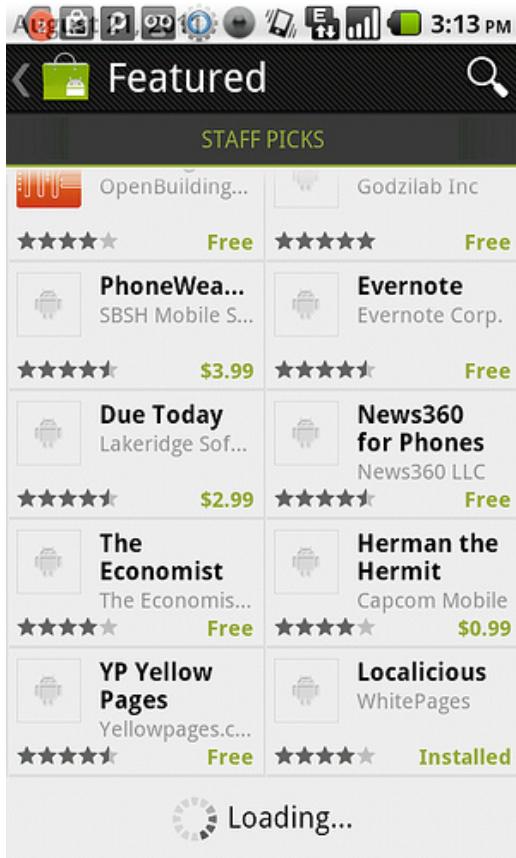
Feedback: Confirmation

- Provide confirmation when an action is taken
- don't break the user's flow



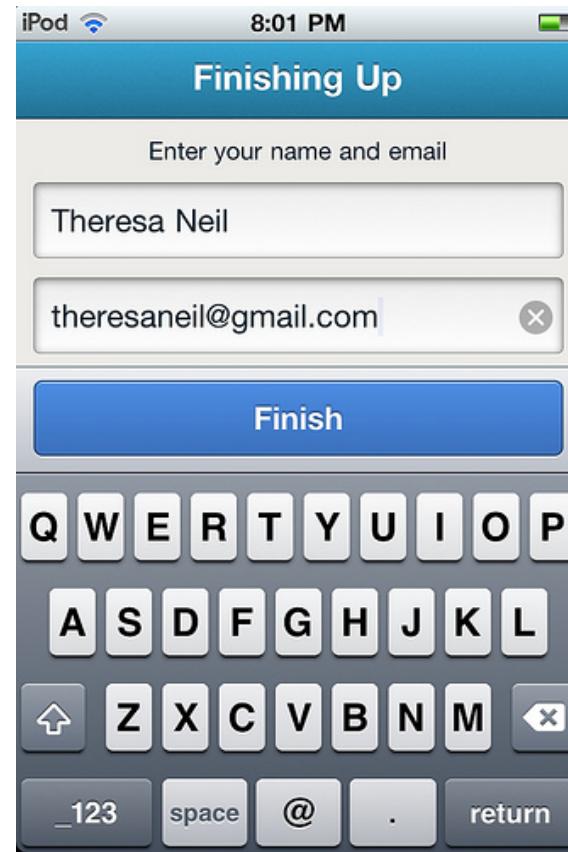
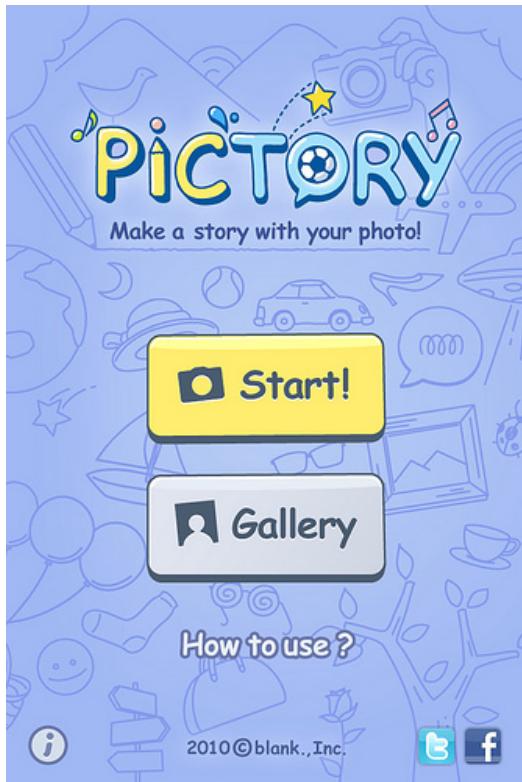
Feedback: System Status

- Provide feedback about the system's status
- Offer a cancel option for potentially lengthy operations



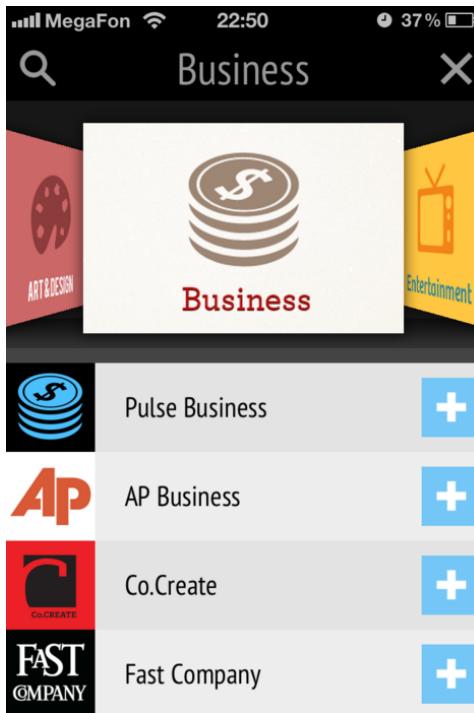
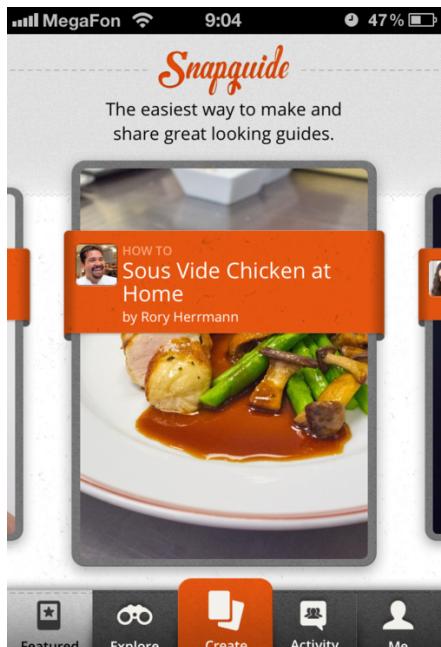
Affordance: Tap

- Use common visual design techniques to indicate tappable controls
- Apply 3D effects judiciously



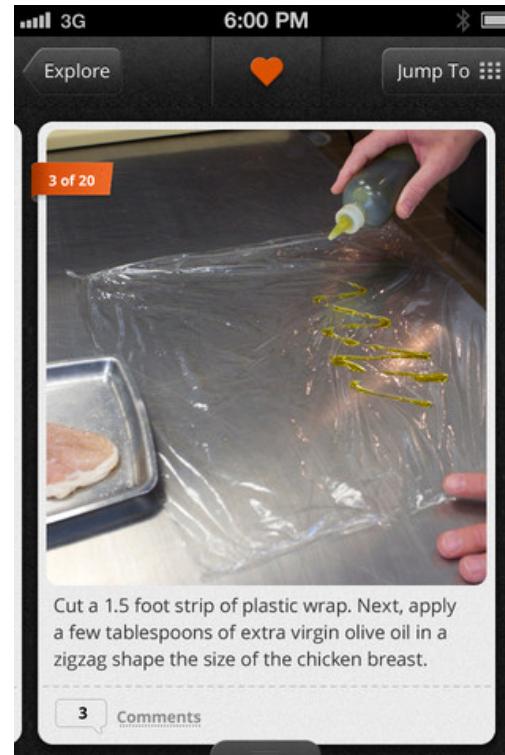
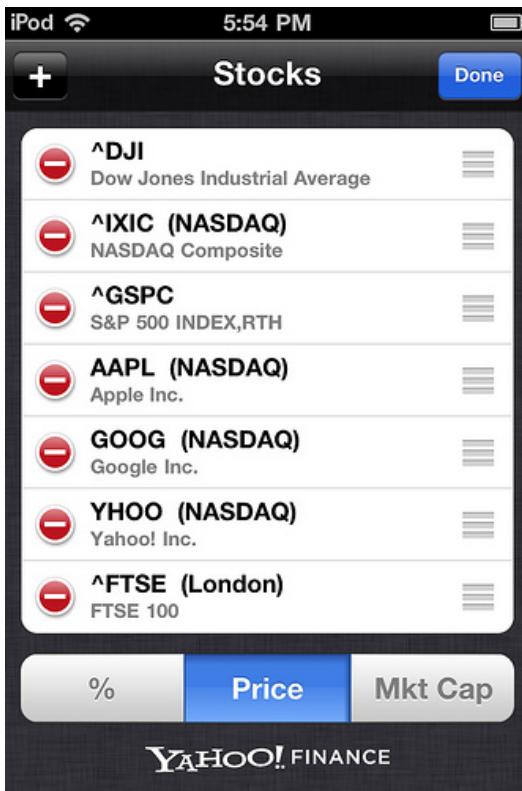
Affordance: Flick

- Use a page indicator
- show the edge of the next item
- Avoid heavy weight scroll bars



Affordance: Drag

- Use a recognizable icon for the handle
- Consider using an invitation to let users know this feature is available



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Anti-Patterns

Anti-Patterns

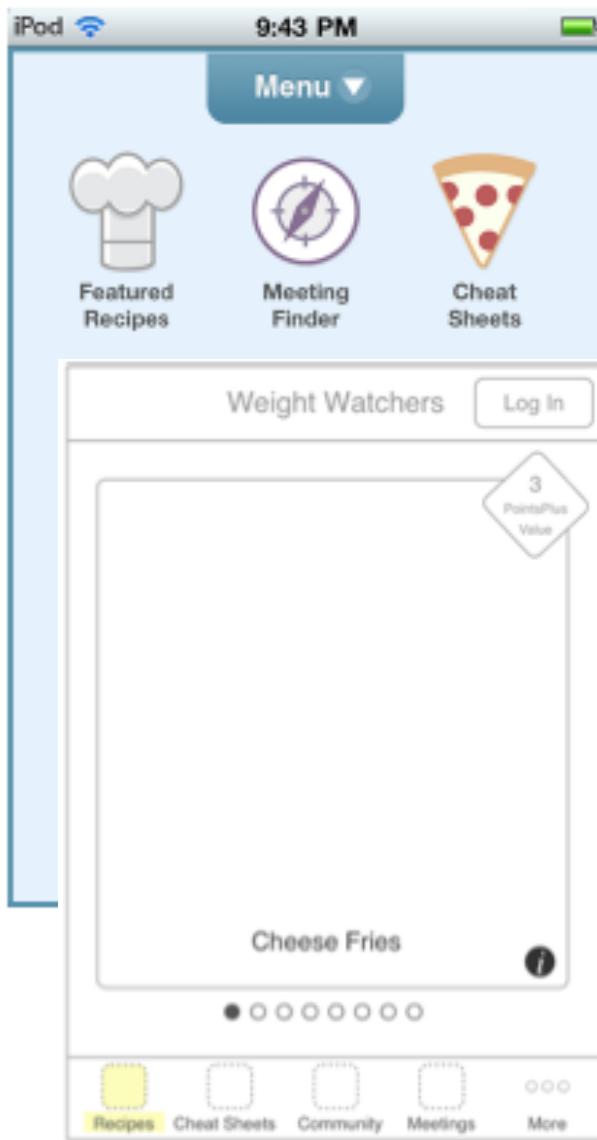
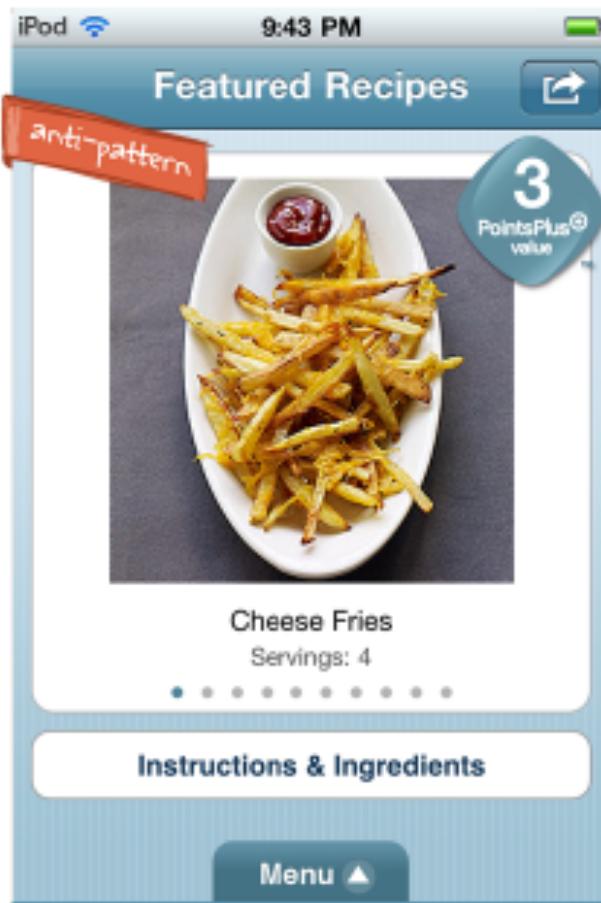
- Common pitfalls to avoid
 - Novel Notions
 - Metaphor Mismatch
 - Idiot Boxes
 - Chart Junk
 - Oceans of Buttons



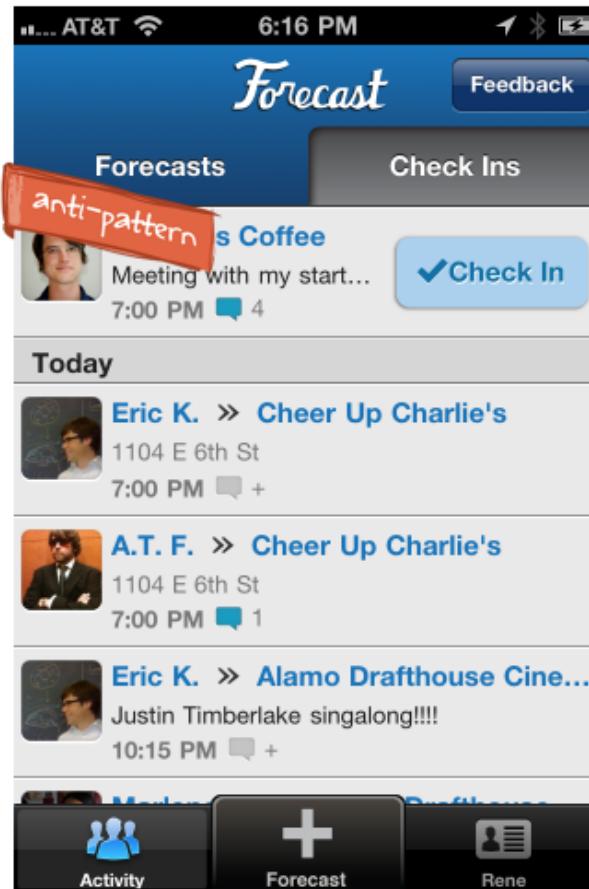
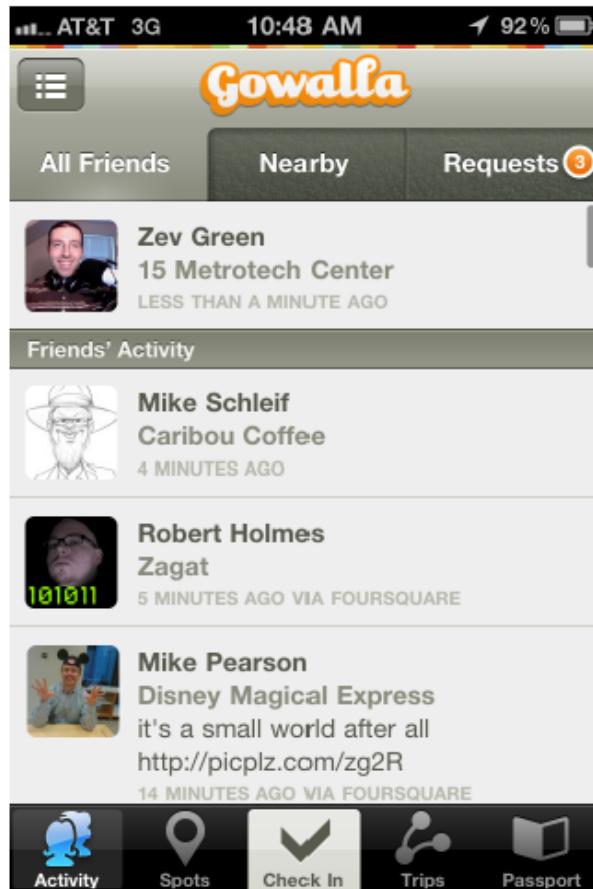
Novel Notions

- If you are looking for a way to innovate with your application, focus on your core features and offerings, but rely on best practices for the interface design
- If you design a custom control, rigorously test it and refine it to make sure it is usable

Novel Notions Examples



Novel Notions Examples

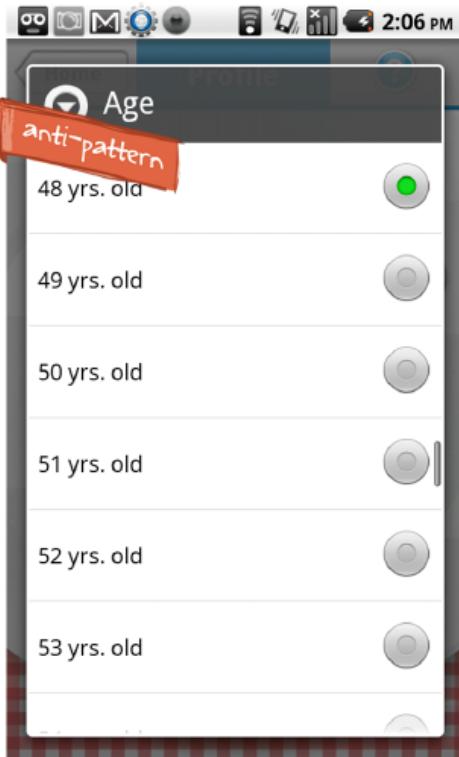


Metaphor Mismatch

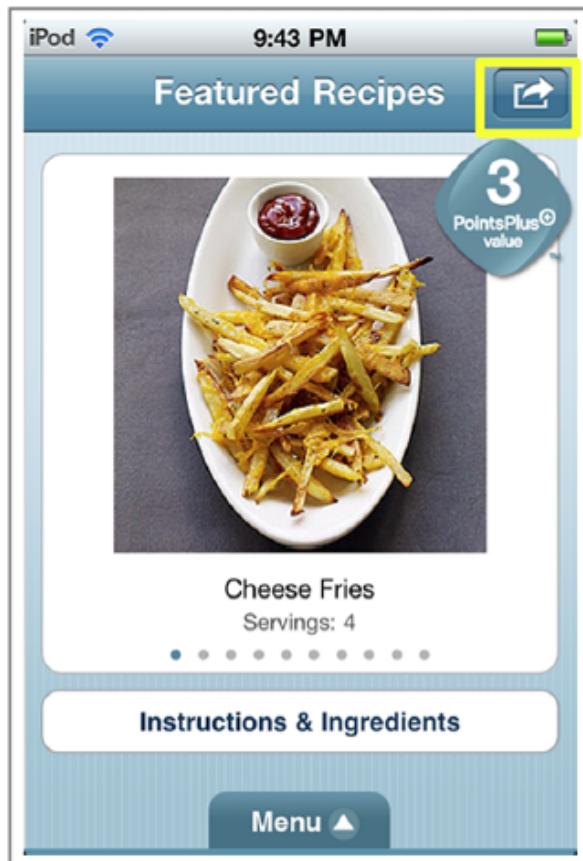
- Consists in picking the wrong metaphor for the interface:
 - Control mismatch
 - Icon mismatch
 - Mental model mismatch
 - Gesture mismatch

Metaphor Mismatch Examples

Control
mismatch



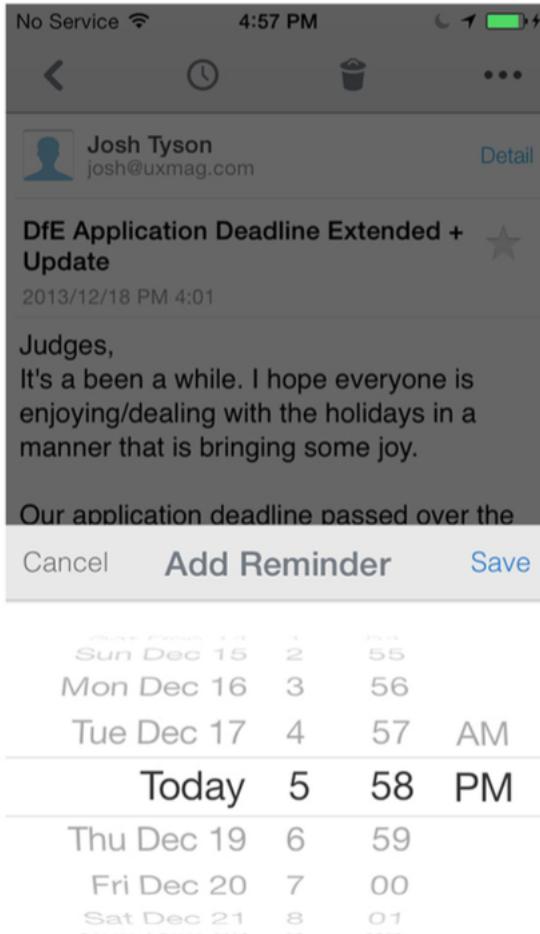
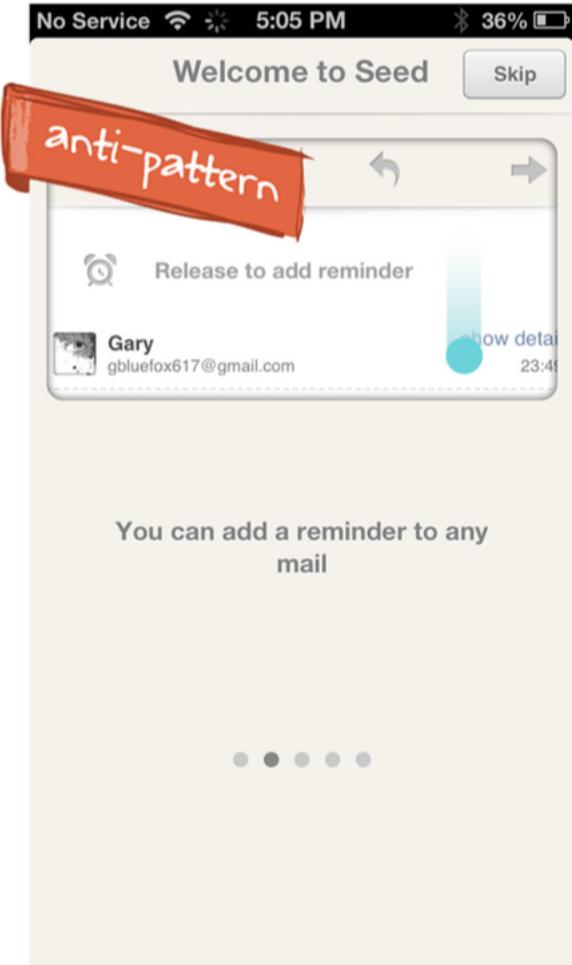
Icon
mismatch



Mental model
mismatch



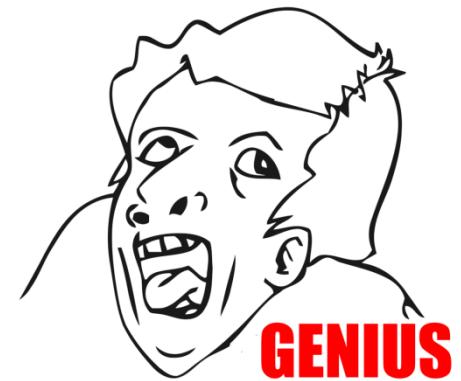
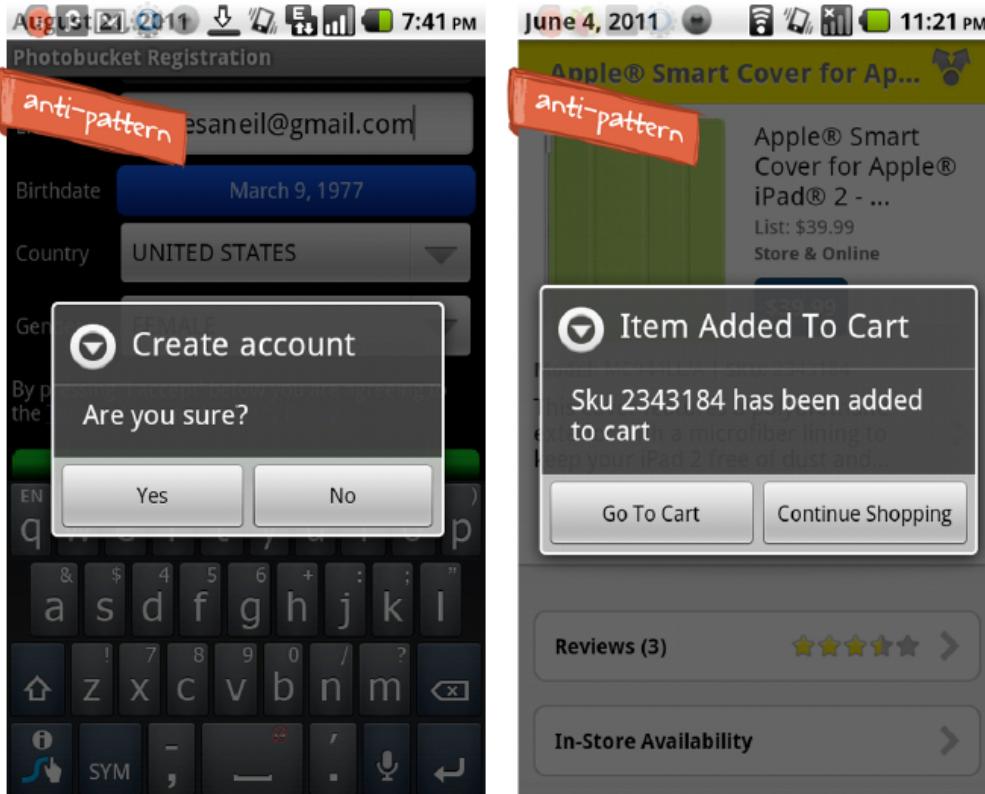
Gesture mismatch



Idiot Boxes

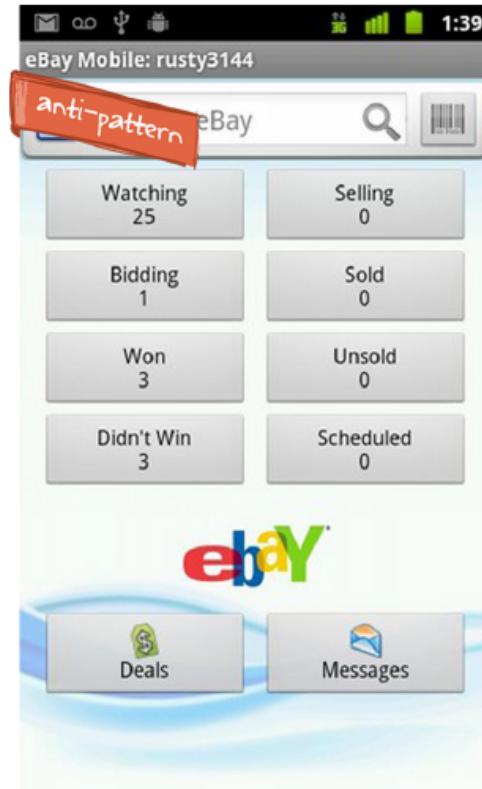
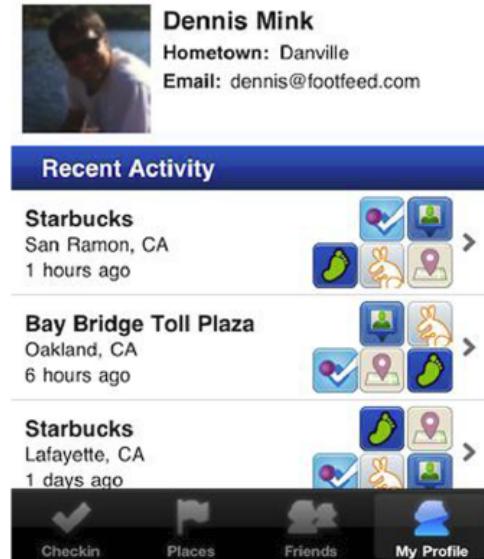
Avoid disrupting the workflow

only show a confirmation dialog when an irreparable action is being taken (like a permanent delete)



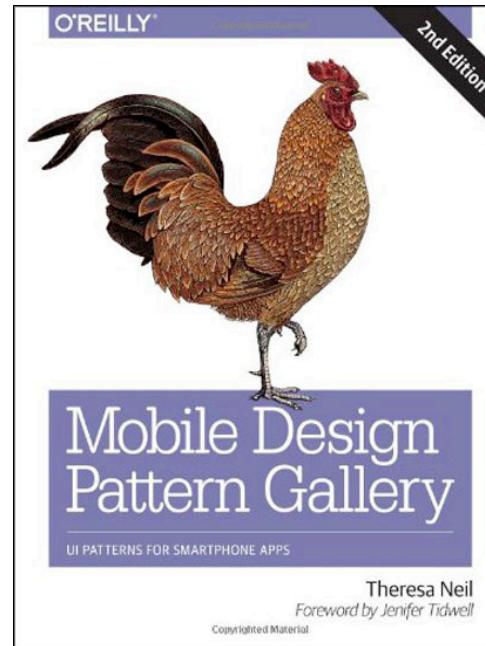
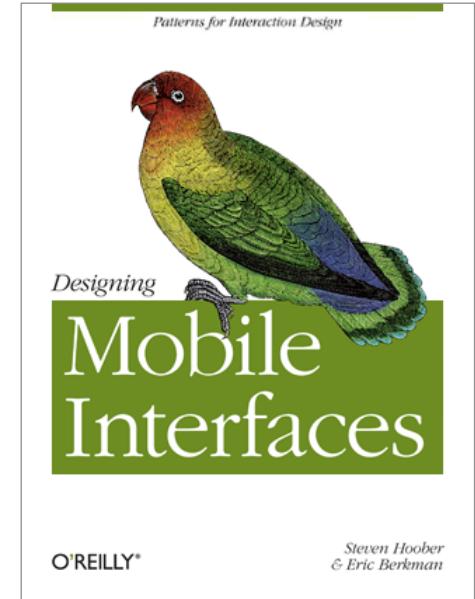
Oceans of Buttons

- Use standard patterns for displaying page level actions
- Provide contextual tools for item level actions instead of repeating the same button
- Keep page level actions visually separate from navigational elements

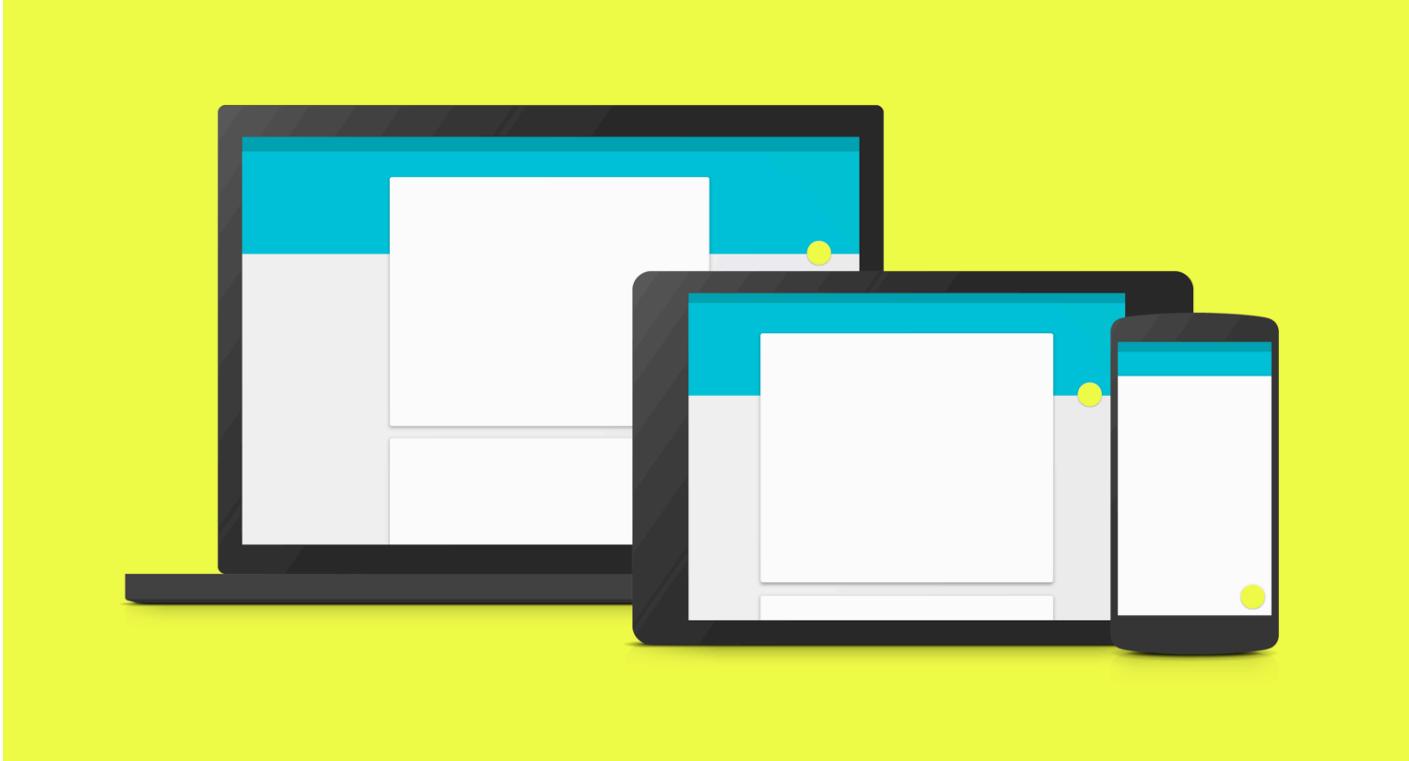


References

- Screenshots from:
 - www.mobiledesignpatterngallery.com
 - pttrns.com
 - inspired-ui.com
 - mobile-patterns.com



References



Google material design guidelines

<http://www.google.com/design/spec/material-design>

Exercises

- Sketch down the wireframe of two views of your app
- List for each view the applied design patterns and the applied design decisions