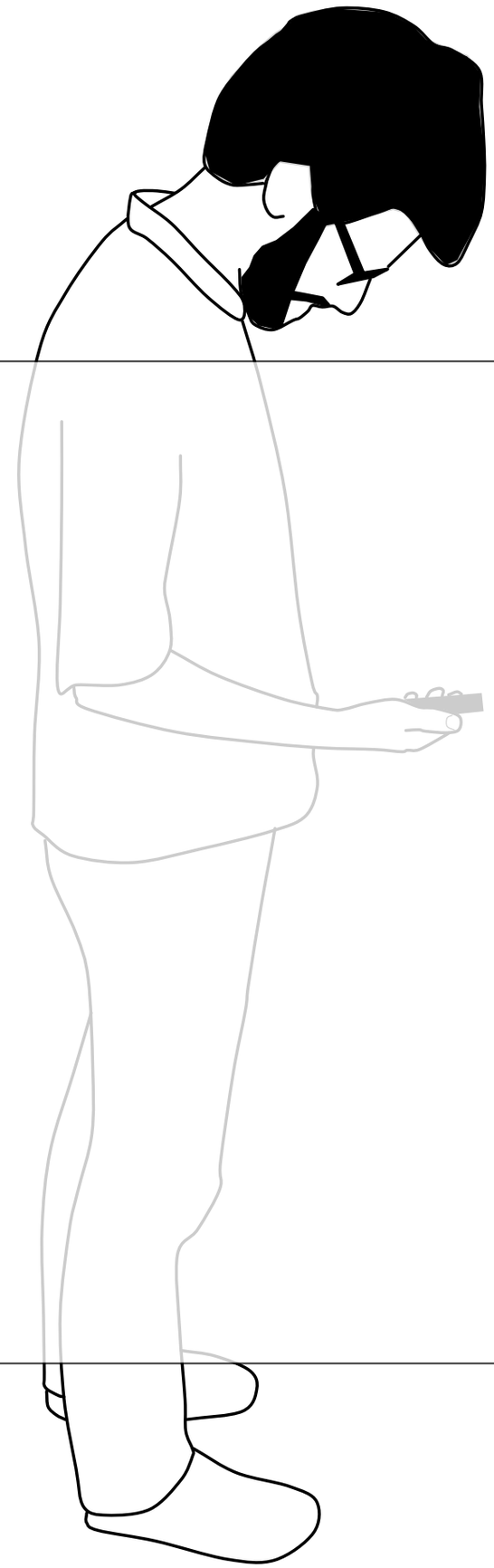
Mobile Technologies



- context and task
- theory
- interaction techniques
- in/output technologies
- **current style guides**

Looking at current mobile technology

- We‘ve seen many ideas for interaction concepts
  - important for further development of the field
  - important source of inspiration
  - important for understanding general principles
- Device and SW vendors have a different view
  - cannot switch interaction concepts daily
  - need to be very concrete about design
  - want to provide standards (consistency!)
- Purpose of this part of the lecture:
  - have a closer look at current mobile UI style guides
  - understand their basic elements
  - compare different approaches

Apple: iOS Human Interface Guidelines

- https://developer.apple.com/library/ios/documentation/userexperience/conceptual/mobilehig/

- UI Design Basics
- Design Strategies
- iOS Technologies
- UI Elements
- Icon and Image Design

iOS HIG: main principles

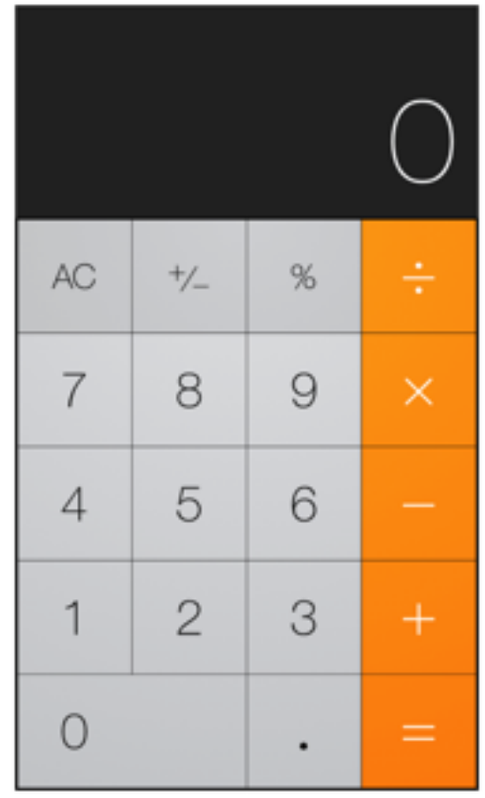
- Deference.
  - The UI helps people understand and interact with the content, but never competes with it.

- Clarity.
  - Text is legible at every size, icons are precise and lucid, adornments are subtle and appropriate, and a sharpened focus on functionality motivates the design.

- Depth.
  - Visual layers and realistic motion impart vitality and heighten people's delight and understanding.

Basics: start and stop

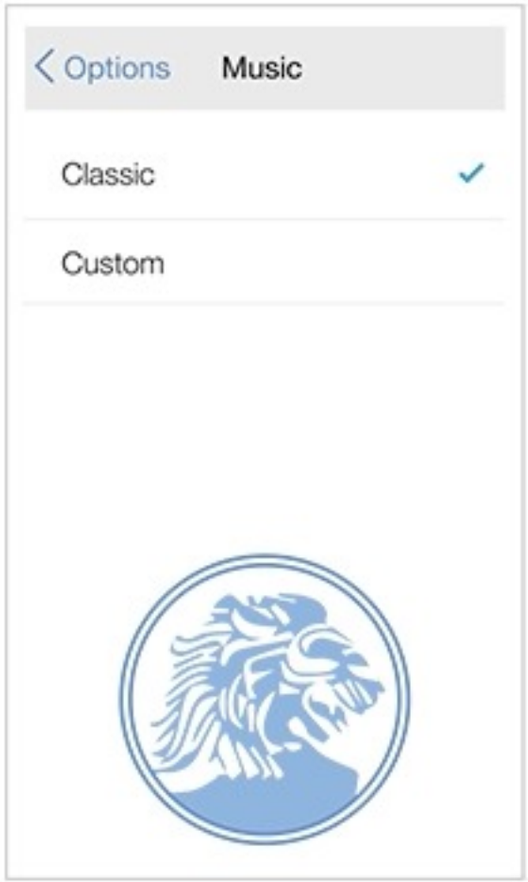
- start instantly
- don‘t force reboot
- defer login
- don‘t ask for setup information, instead
  - Focus on the needs of 80 percent of your users.
  - Get information from other sources.

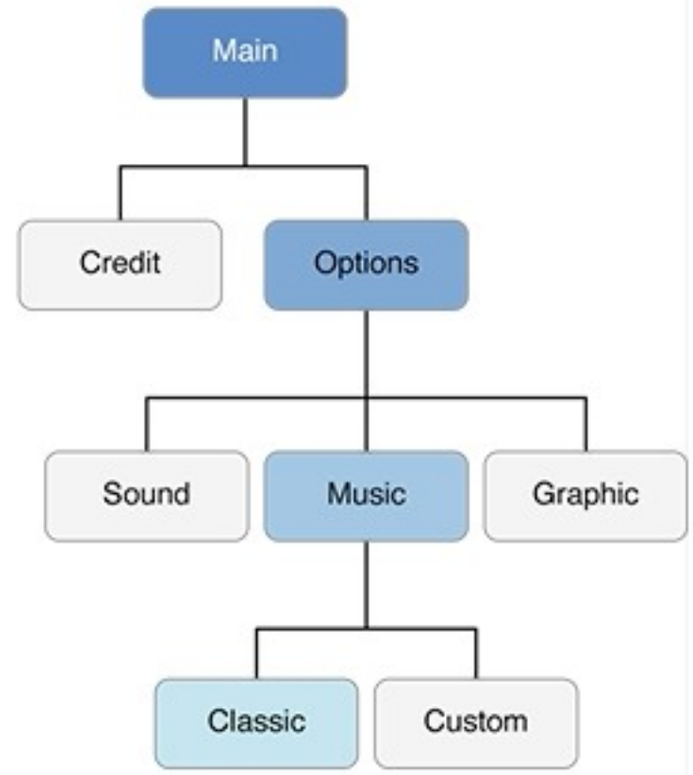


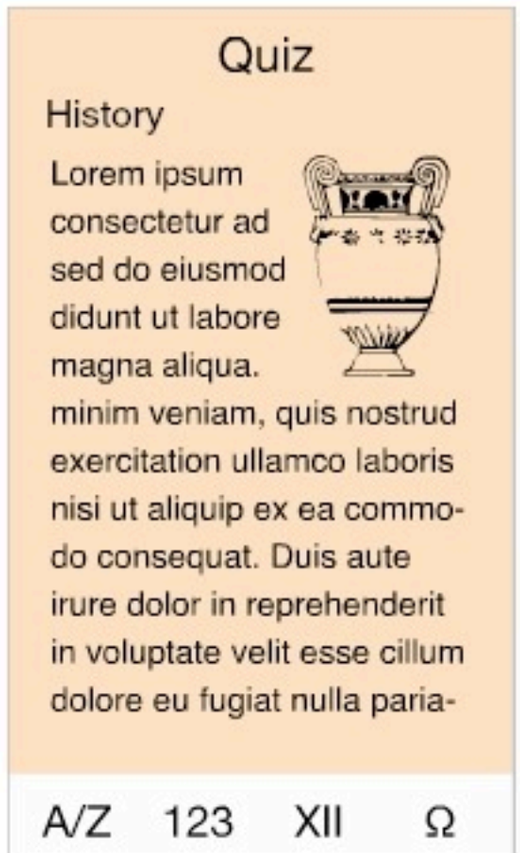
- Always be prepared to stop
  - An iOS app never displays a Close or Quit option.
  - Save user data as soon as possible and as often as reasonable.
  - Save the current state when stopping at the finest level of detail possible.

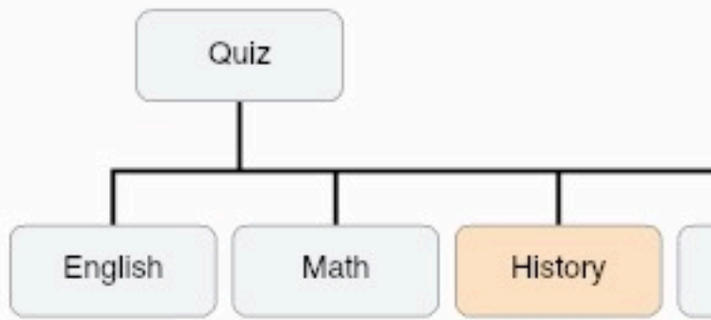
Basics: Navigation

- standard structures
  - Hierarchical
  - Flat
  - Content- or experience-driven
- Users should always know where they are in your app and how to get to their next destination.



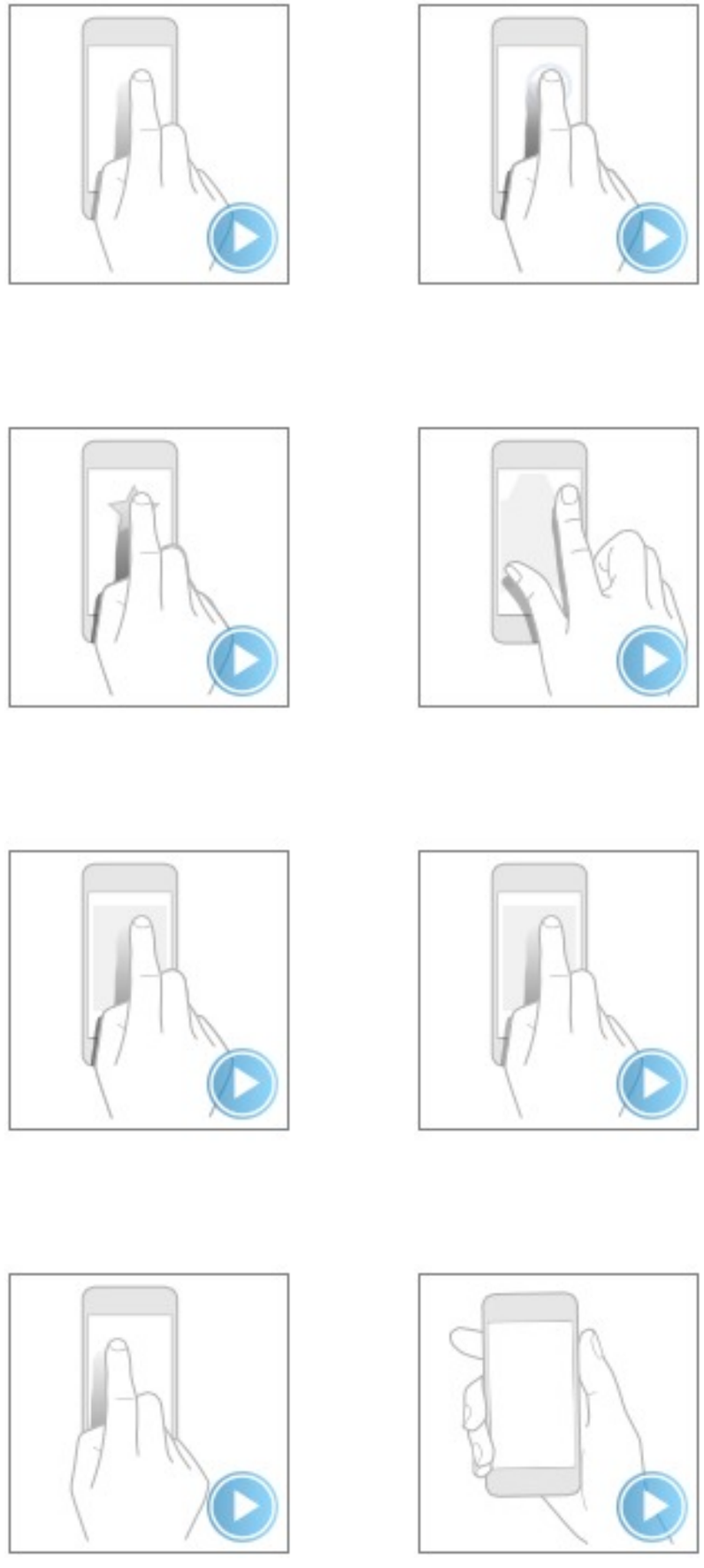






Basics: Standard Gestures

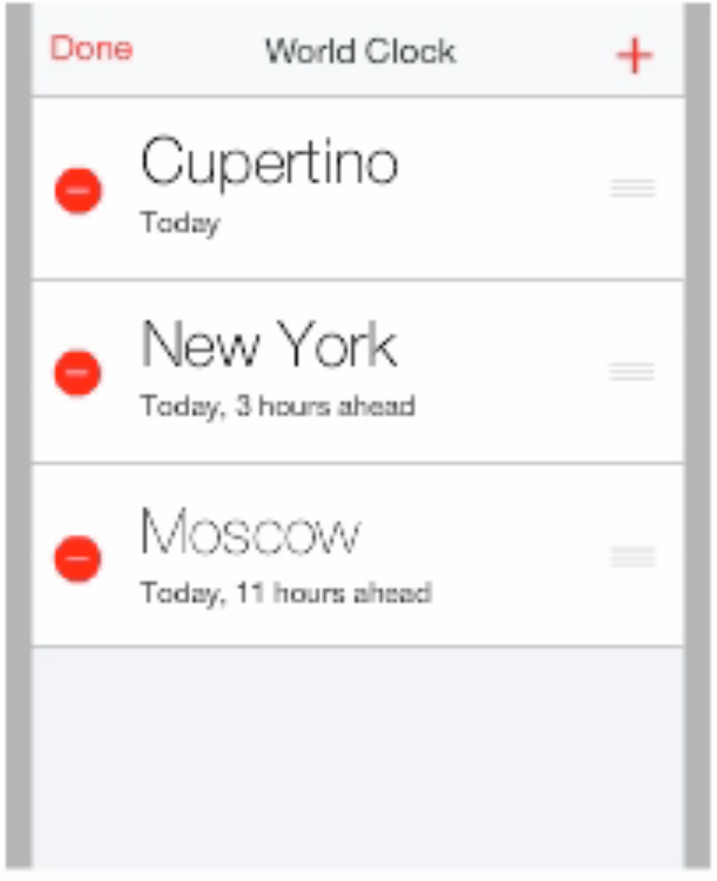
- Tap
- Drag
- Flick
- Swipe
- Double tap
- Pinch
- Touch-and-hold
- Shake



- all assumed to be known!?!?
- avoid messing with these!

Basics: Animation

- Communicate status and provide feedback
- Enhance the sense of direct manipulation
- Help people visualize the results of their actions

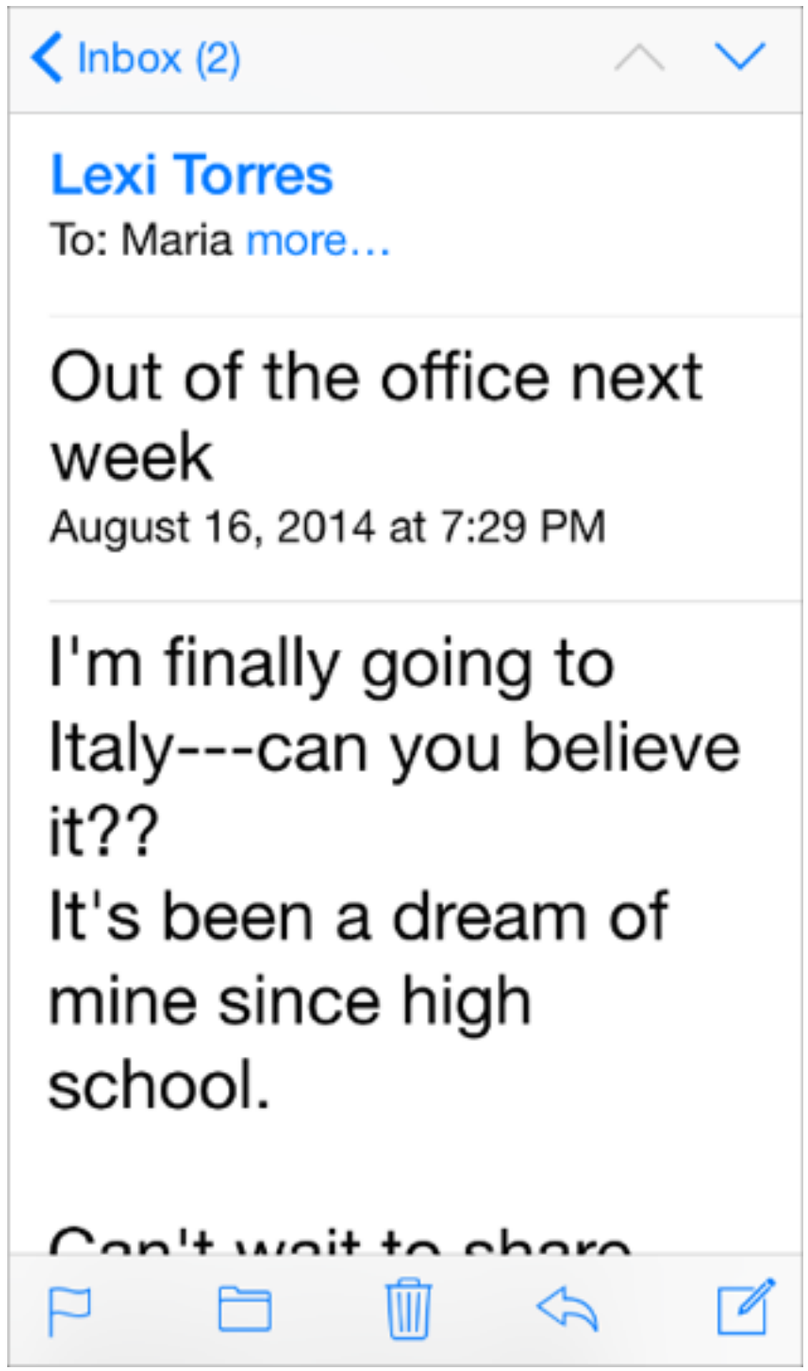


Basics: color

- If you create multiple custom colors, make sure they work well together.
- Pay attention to color contrast in different contexts.
- Be aware of color blindness.
- Consider choosing a key color to indicate interactivity and state.
- Avoid using the same color in both interactive and noninteractive elements.
- Color communicates, but not always in the way you intend.
- In most cases, don’t let color distract users.

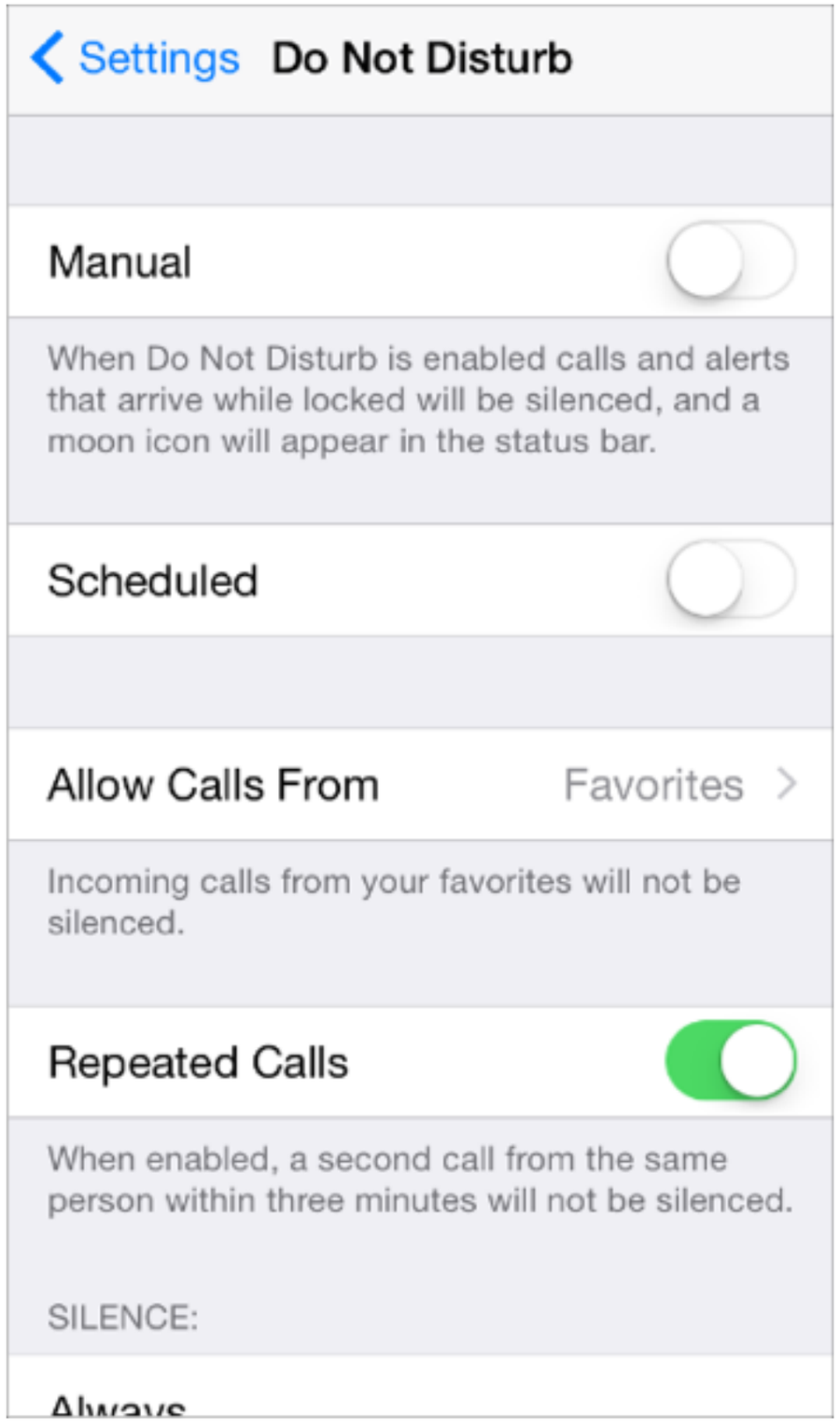
Basics: Typography

- Text Should Always Be Legible
- rules for resizing
  - focus on content
  - readjust layout
- Make sure all styles of a custom font are legible at different sizes.
- In general, use a single font throughout your app.



Terminology and Wording

- Use terminology that you're sure your users understand.
- Use a tone that's informal and friendly, but not too familiar.
- Think like a newspaper editor, and watch out for redundant or unnecessary words.
- Give controls short labels or use well-understood icons.
- Make the most of the opportunity to communicate with potential users by writing a great App Store description.

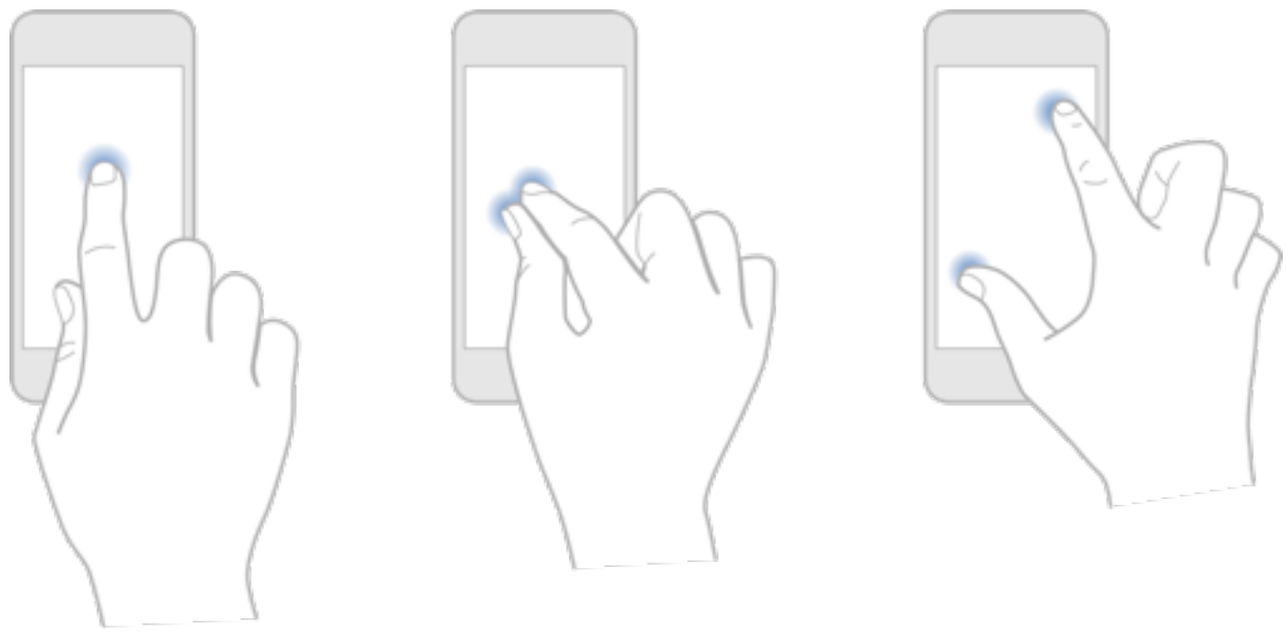


Design Principles

- Aesthetic Integrity
  - design adequate to the task

- Consistency
  - internal
  - external
  - with earlier versions

- Direct Manipulation
- Feedback
- Metaphors
- User Control

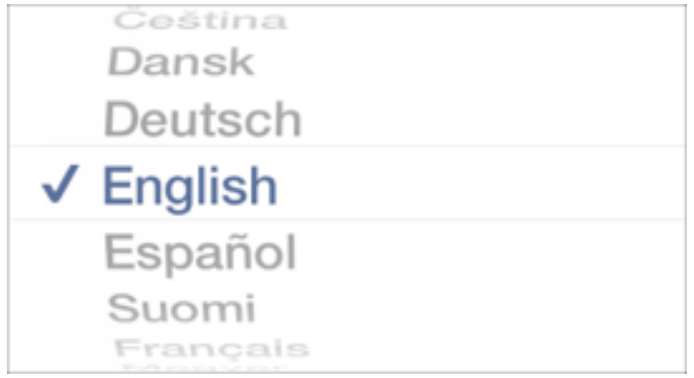


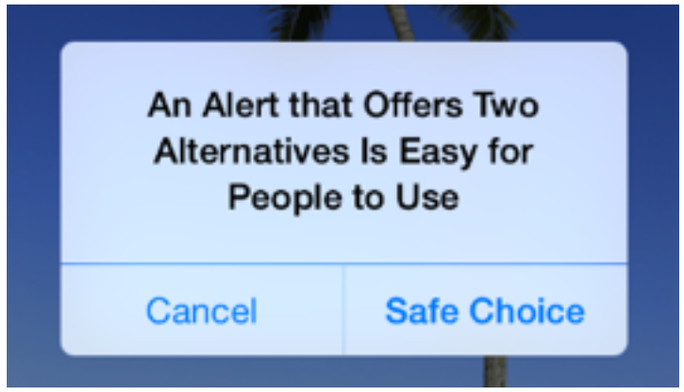
iOS Technologies

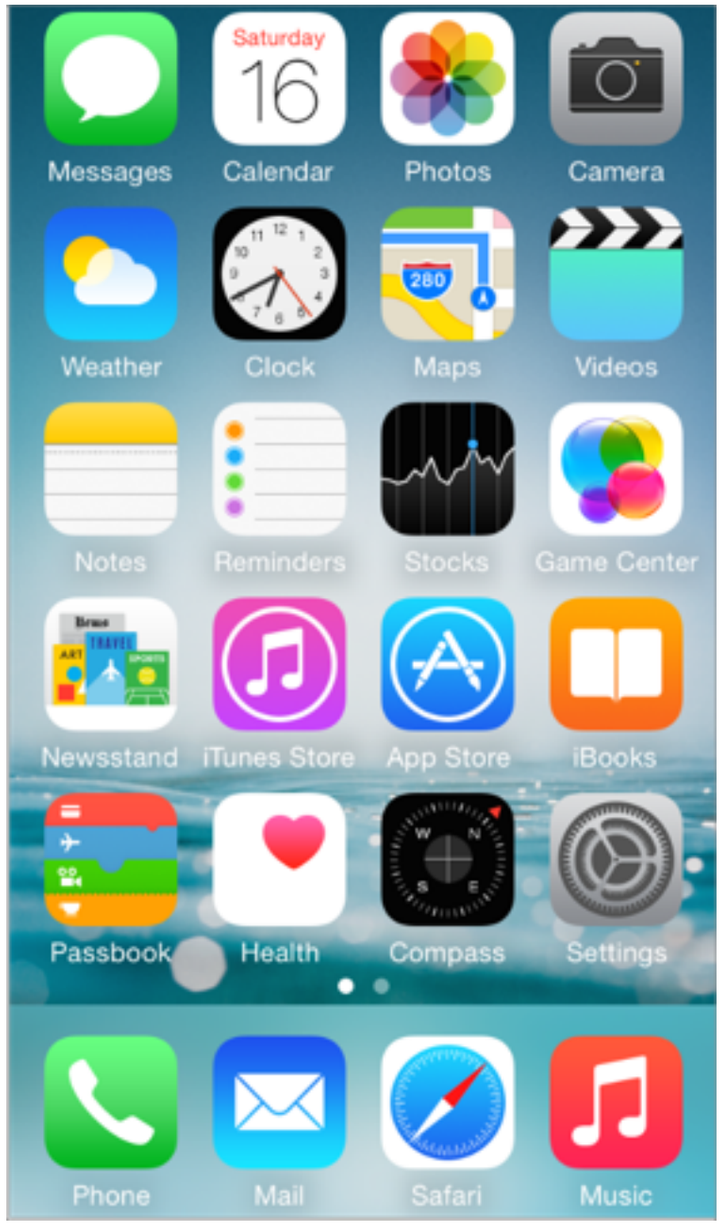
- very specific recipes for concepts which are part of the operating system:
  - App Extensions
  - Notifications
  - Multitasking
  - Social Media
  - iCloud
  - Passbook
  - In-App Purchase
  - Game Center
  - iAd Rich Media Ads
  - AirPrint
  - Accessing User Data
  - Quick Look
  - Sound
  - VoiceOver
  - Routing
  - Edit Menu
  - Undo and Redo
  - Keyboards and Input Views

UI Elements & Icons

- Bars
- Content views
- Controls
  - Buttons
  - Labels
  - Picker
  - ...
- Temporary Views







- very specific rules for icons
  - size, design, purpose

Google: material design

- „comprehensive guide for visual, motion, and interaction design across platforms and devices“
  - https://developer.android.com/design/material/index.html
- „create a visual language for our users
  - that synthesizes the classic principles of good design
  - with the innovation and possibility of technology and science“
  - http://www.google.com/design/spec/material-design/introduction.html
- „Develop a single underlying system that allows for a unified experience across platforms and device sizes.“
- but also: „seeking to build experiences that surprise and enlighten our users in equal measure“ ?!? ==>discuss!

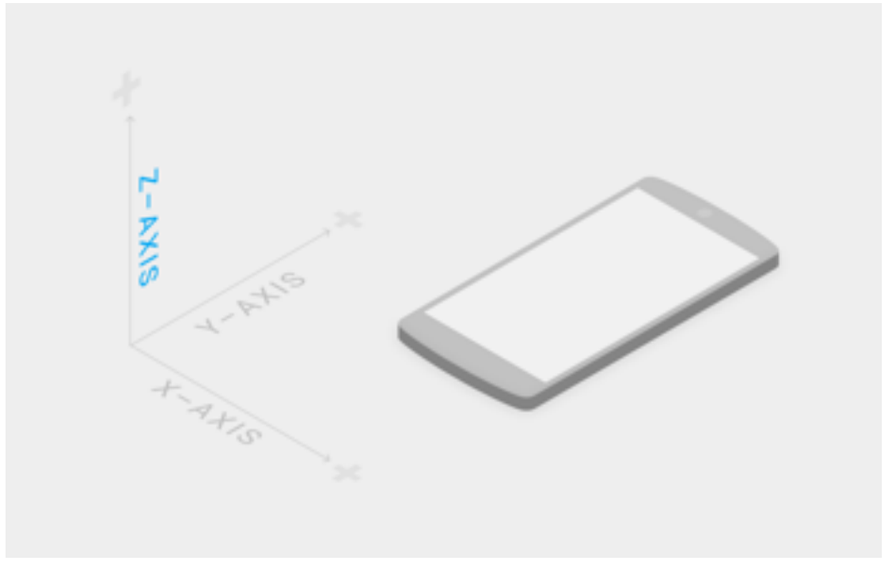
www.youtube.com/watch?v=Q8TXgCzxEnw

Material Design: main principles

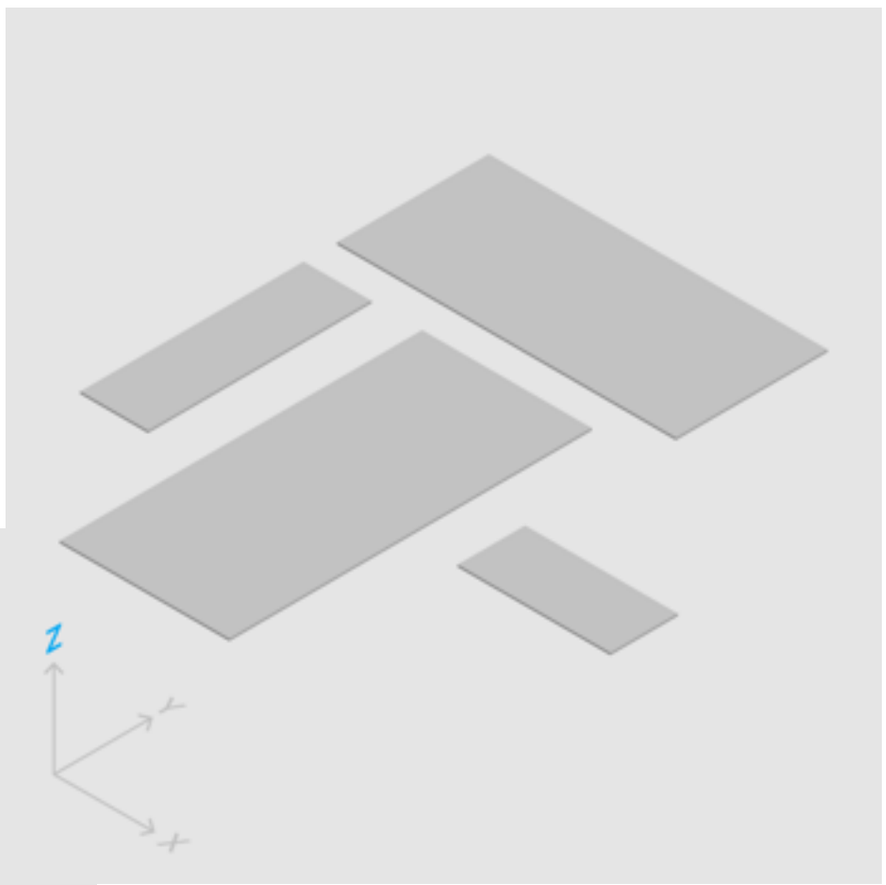
- Material is the metaphor
  - grounded in tactile reality,
  - inspired by the study of paper and ink, yet technologically advanced and
  - open to imagination and magic
- Bold, graphic, intentional
  - typography, grids, space, scale, color, imagery
  - do not just please the eye
  - create hierarchy, meaning, and focus
- Motion provides meaning
  - respects the user as the prime mover
  - meaningful and appropriate, serving to focus attention and maintain continuity
  - Feedback is subtle yet clear.

Material and objects

- material environment is a 3D space
  - base unit: density-independent Pixel (dp)

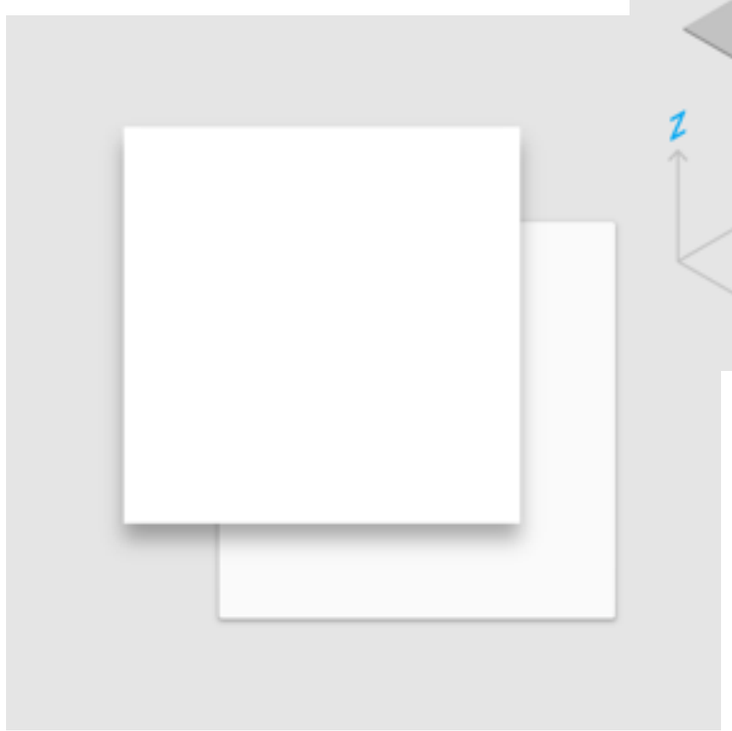


- sheets of material are all 1 dp thick



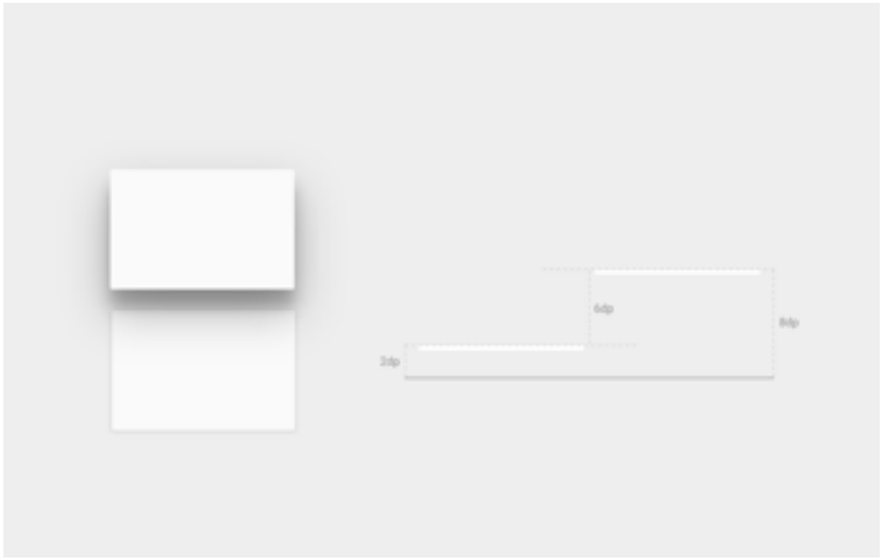
- can overlap, but never occupy same space
  - as in reality

- can split and merge
  - beyond reality

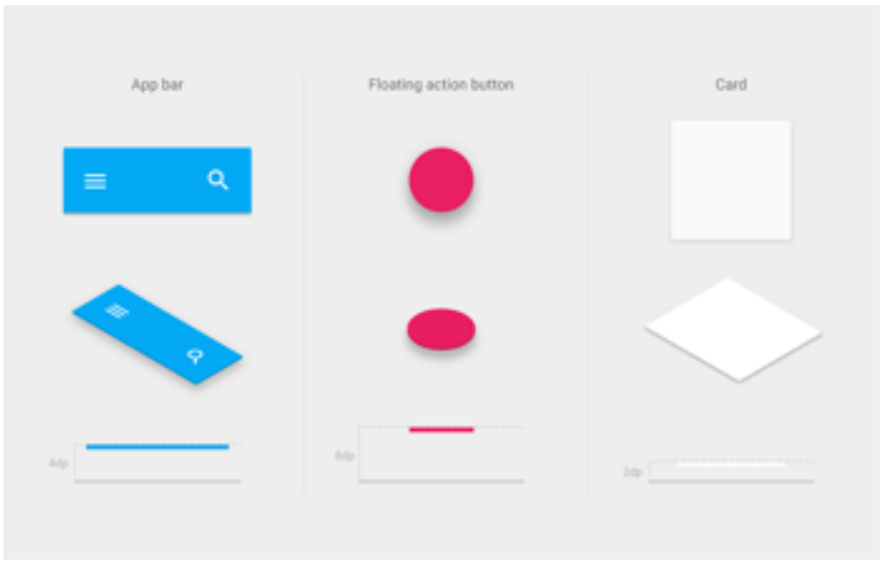


Objects in space

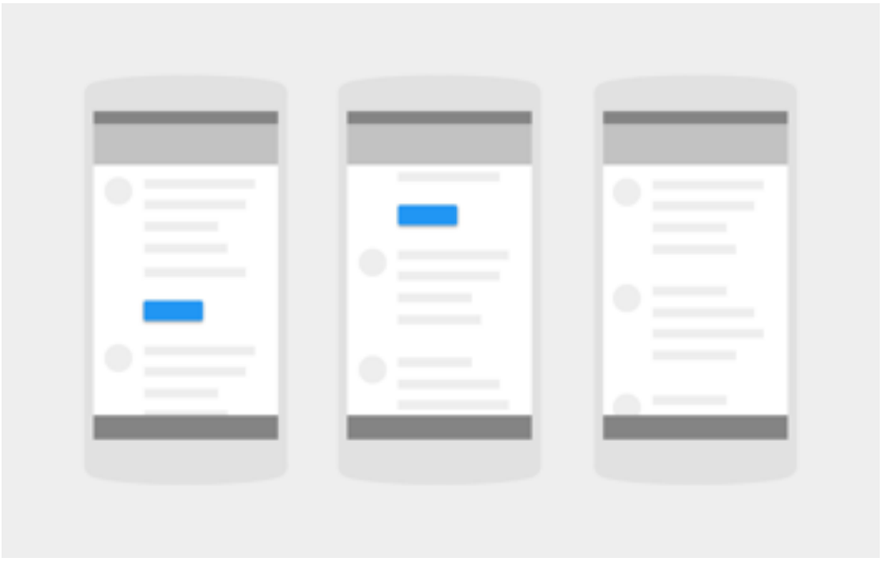
- objects float above ground plane or other objects



- rise up when pressed
  - –indicates active state
  - –„responsive elevation“

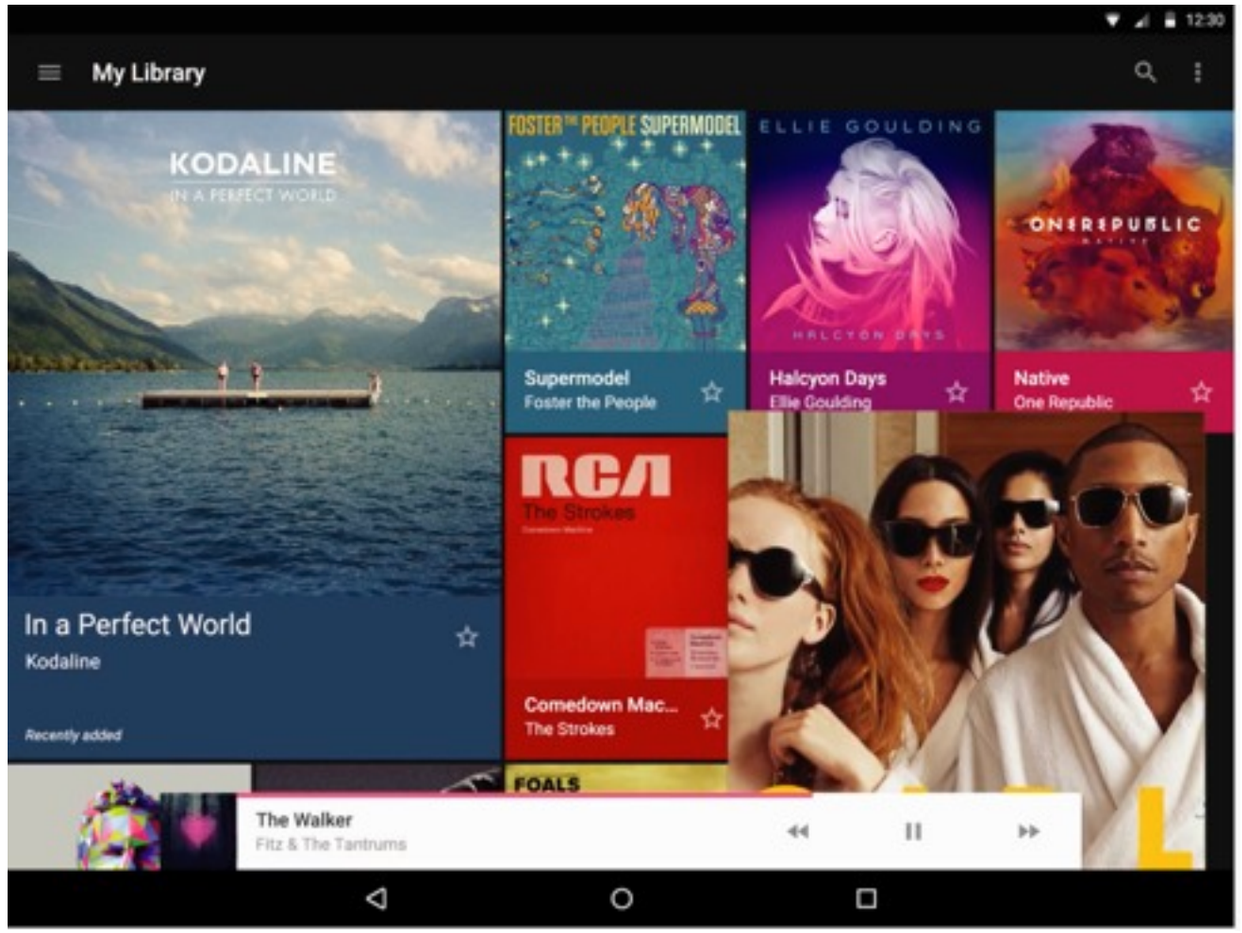


- shadows convey depth
- objects are organized hierarchically
  - – children inherit transformations from their parents



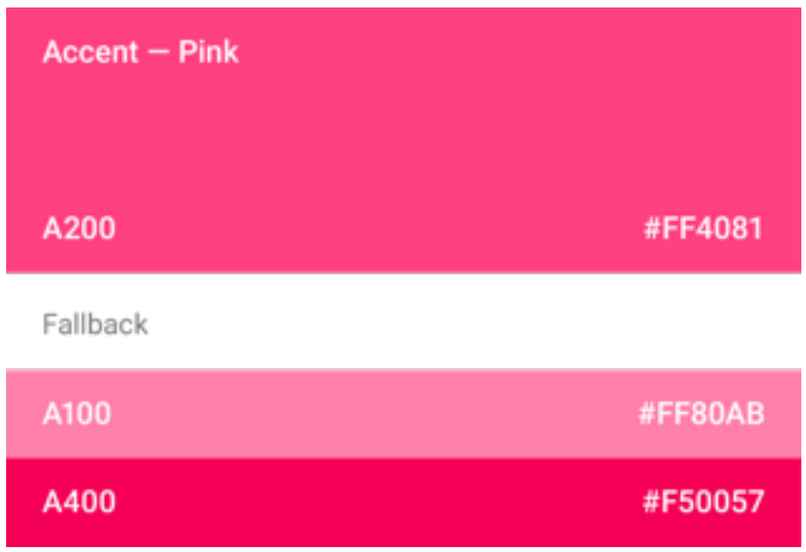
Animations

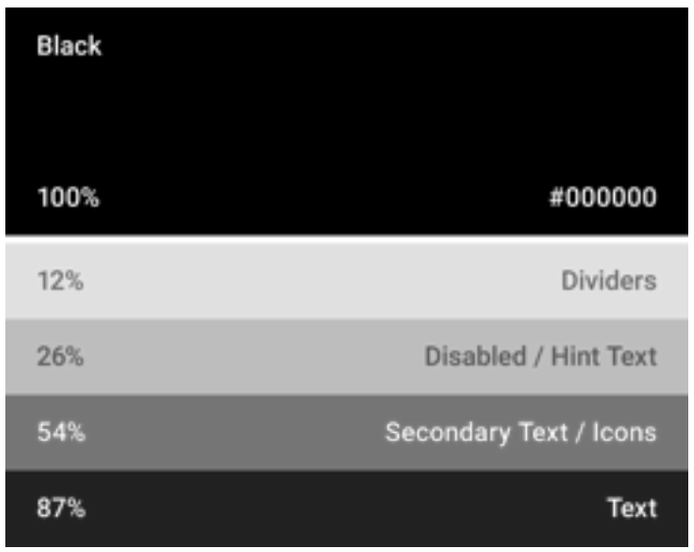
- using authentic motion
  - ease-in, ease-out where appropriate
- motion also conveys mass and weight
- motions should create visual continuity



Style: color

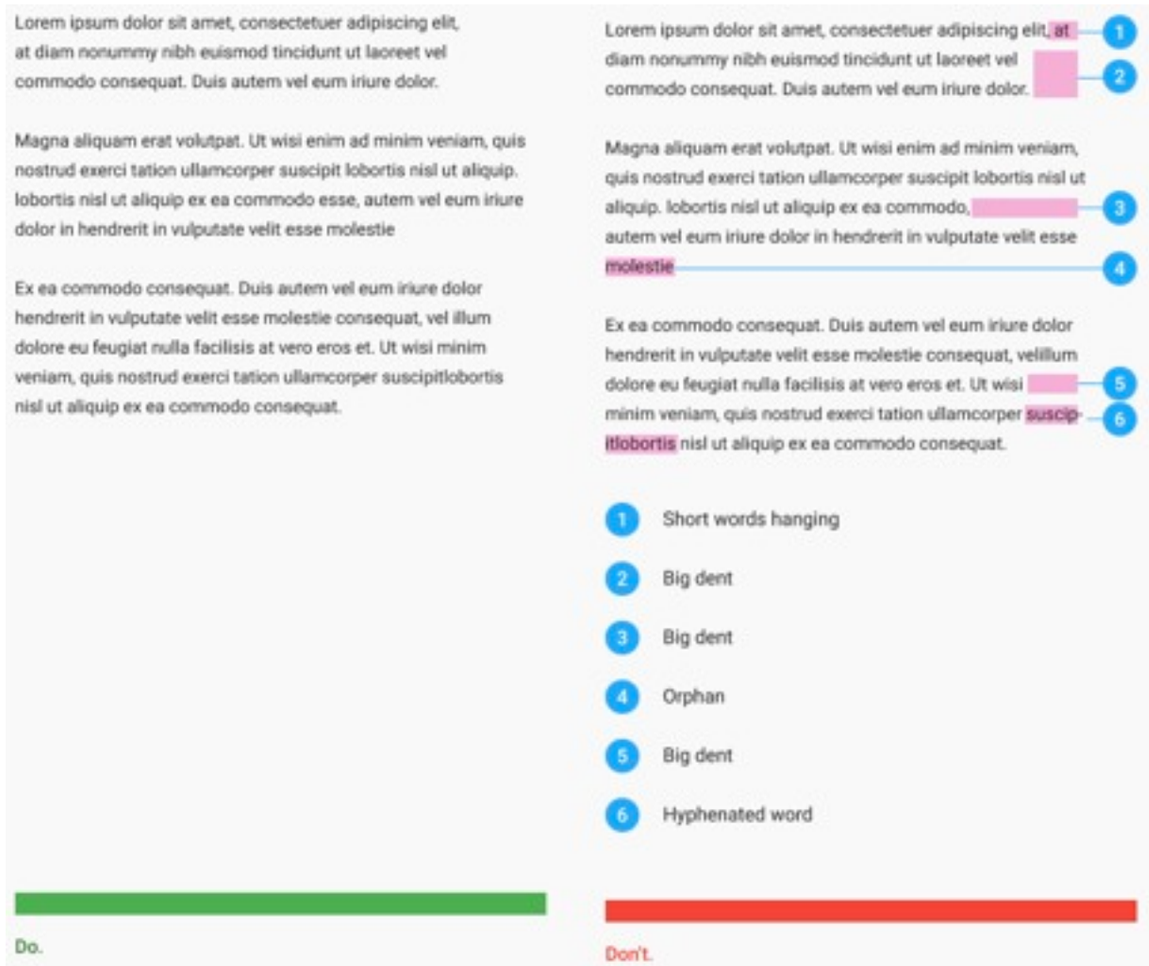
- inspired by bold color statements juxtaposed with muted environments,
  - taking cues from contemporary architecture, road signs, pavement marking tape, and sports courts.
- limit color to 3 hues from a primary palette and 1 accent color
- use alpha values for grey text, dividers, ...





Style: typography

- 2 fonts for roman and asian languages
- predefined styles which match nicely
- prefer large and dynamic type
- strict line breaking and hyphenation rules



Roboto Thin
Roboto Light
Roboto Regular
Roboto Medium
Roboto Bold
Roboto Black
Roboto Thin Italic
Roboto Light Italic
Roboto Italic
Roboto Medium Italic
Roboto Bold Italic
Roboto Black Italic

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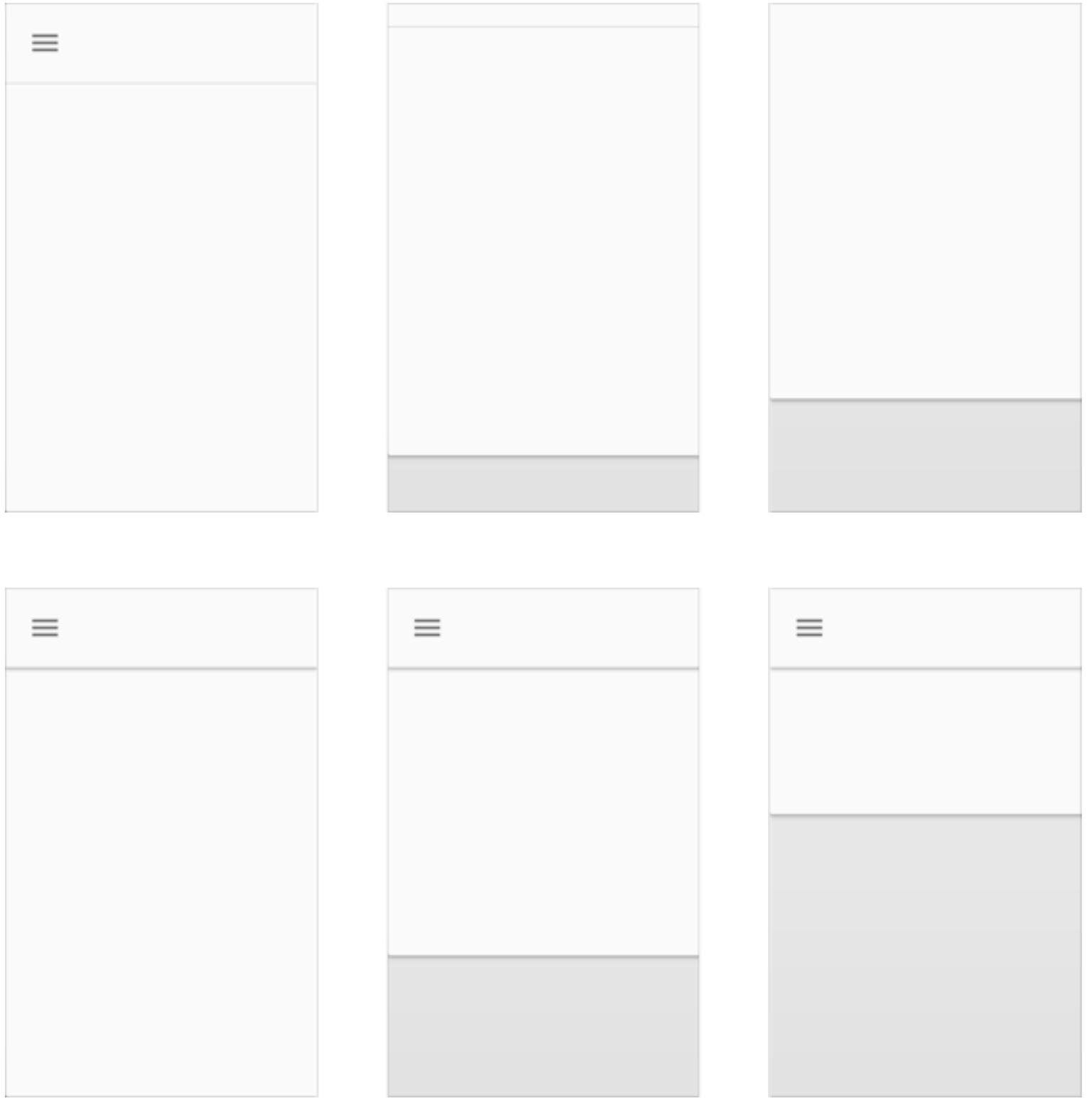
Layout: paper craft

- seams mean objects move together



- steps means they move separately

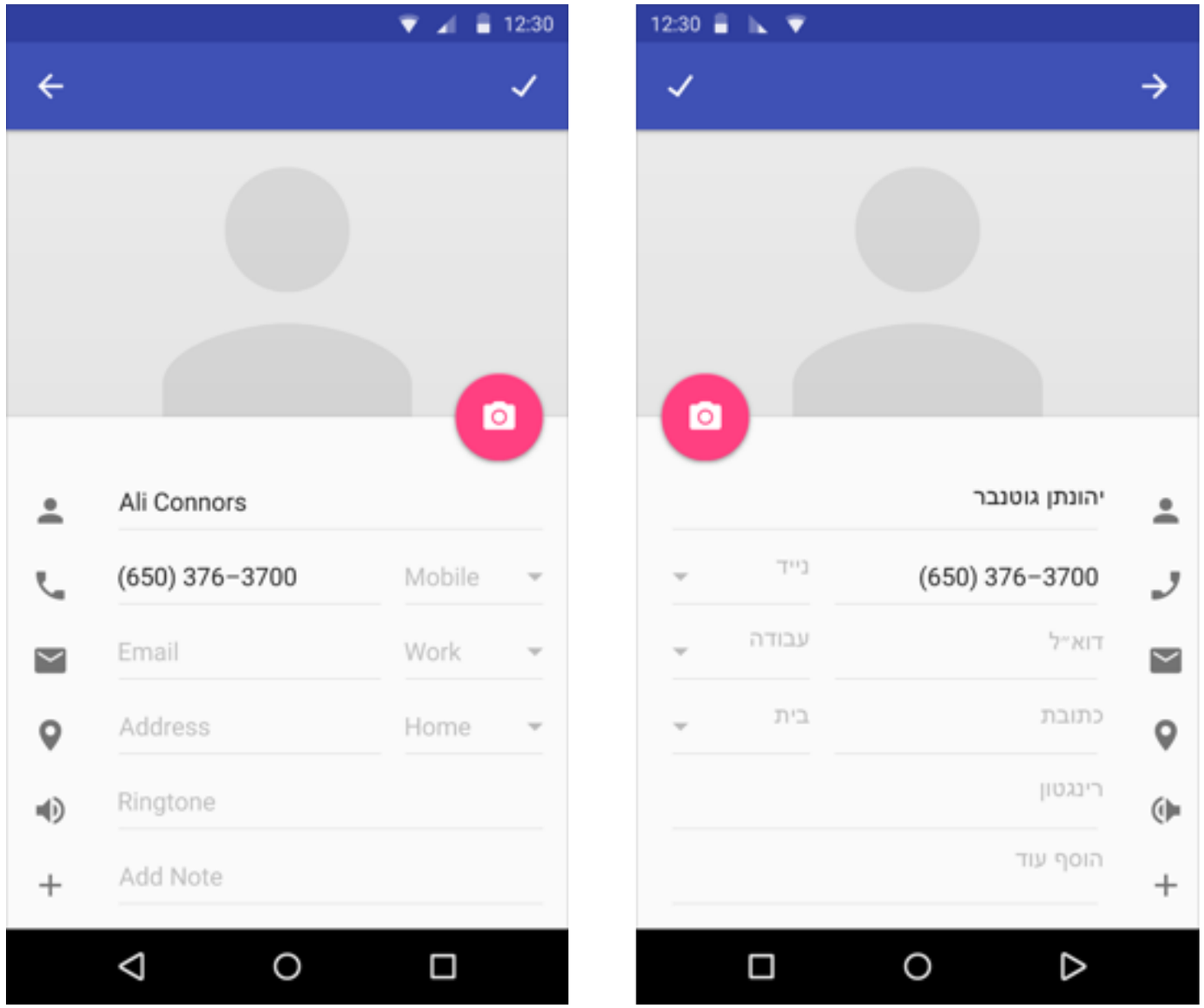
Layout: structure

- structure depends on the type of app
- emphasize important functionality
  - tone less important things down
- standard structures for mobile, tablet, desktop
- specific rules about:
  - UI regions and guidance
  - Toolbars
  - App bar
  - System bars
  - Side nav
  - Whiteframes

More specific regulations

- descriptions of all standard UI components
- UI patterns for standard situations
- Usability rules for
  - accessibility
  - bidirectionality

- way too much for this class
- read up yourself!



Mobile

context and task

theory

interaction techniques

in/output technologies

current style guides

Points for open discussion

- structure of the 2 style guides
- presentation of the guides?
- scope?
- degree of specificity?
- target audience?
- aesthetics, timeless or fashion?