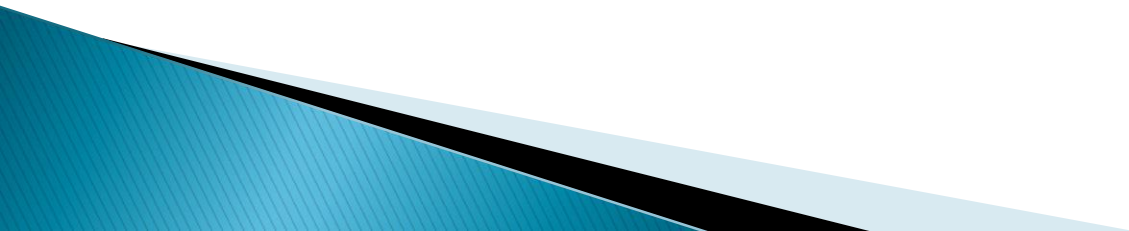


Professors d'IDI - UPC

# IDI – Interaction Design (II)



# Outline

## Session 1:

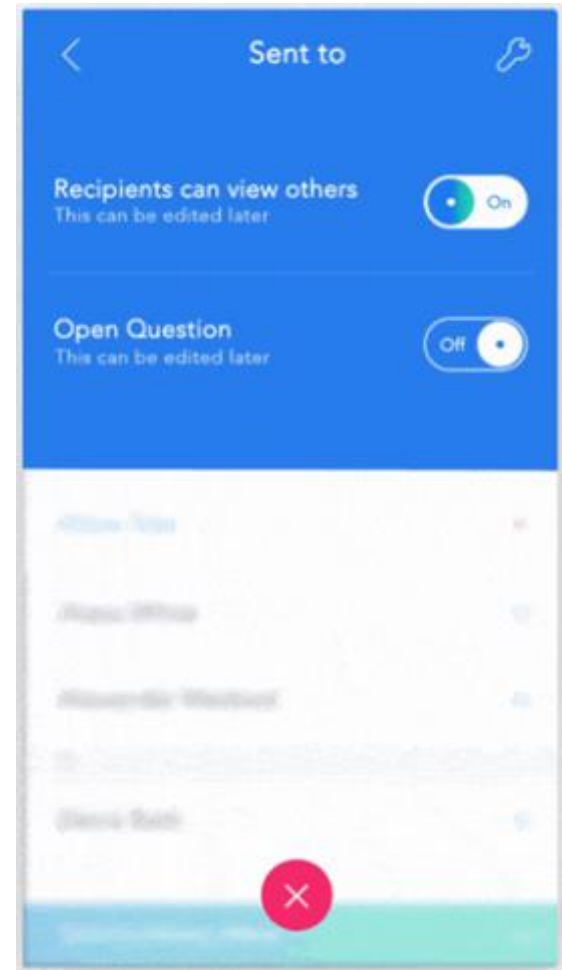
- ▶ Understanding the fundamentals of basic interaction in UI
  - *Background (Information Theory)*
  - *Hick-Hyman Law: Measuring Choice-Reaction Time*
  - *Fitts' Law: Measuring Pointing Time*
  - *Crossing and Steering Laws: Continuous Gestures*
- ▶ Fitts' Law in UI Design
  - *Applications in UI Design*
  - *Accelerating Target Acquisition*
- ▶ Exercises

## Session 2:

- ▶ Pointing Devices
- ▶ Typing & Keyboards
- ▶ **Mobile Interaction Design**

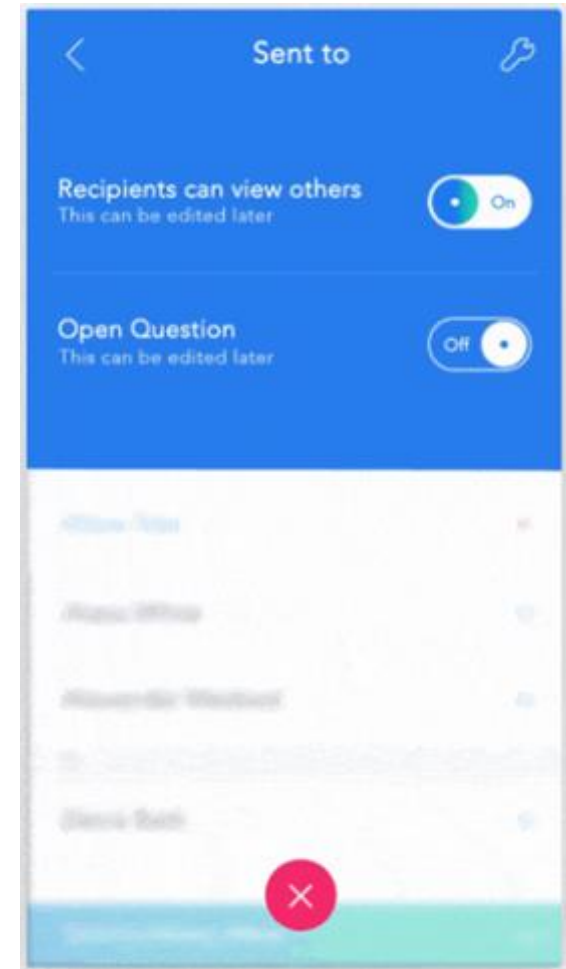
# Mobile Interaction Design

- ▶ Mobile devices have different requirements for design:
  - More personal
  - The environment where users use them competes for their attention
  - Entering data is difficult
  - Small screen sizes



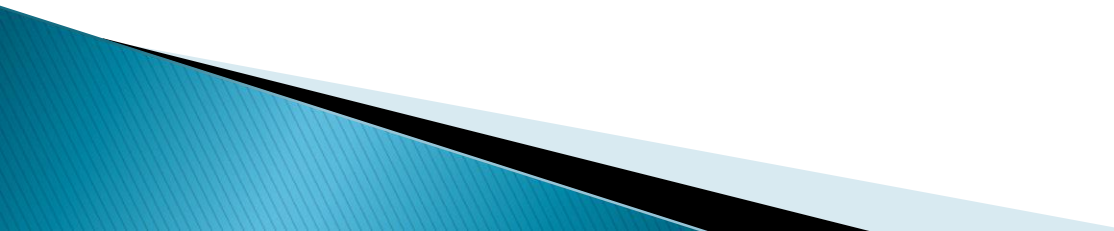
# Mobile Interaction Design

- ▶ Desired features for mobile UIs:
  - Quick find what they intend to
  - Minimum cognitive load for interaction
  - Information presented in small chunks
- ▶ User Interface and Interaction Design different from desktop



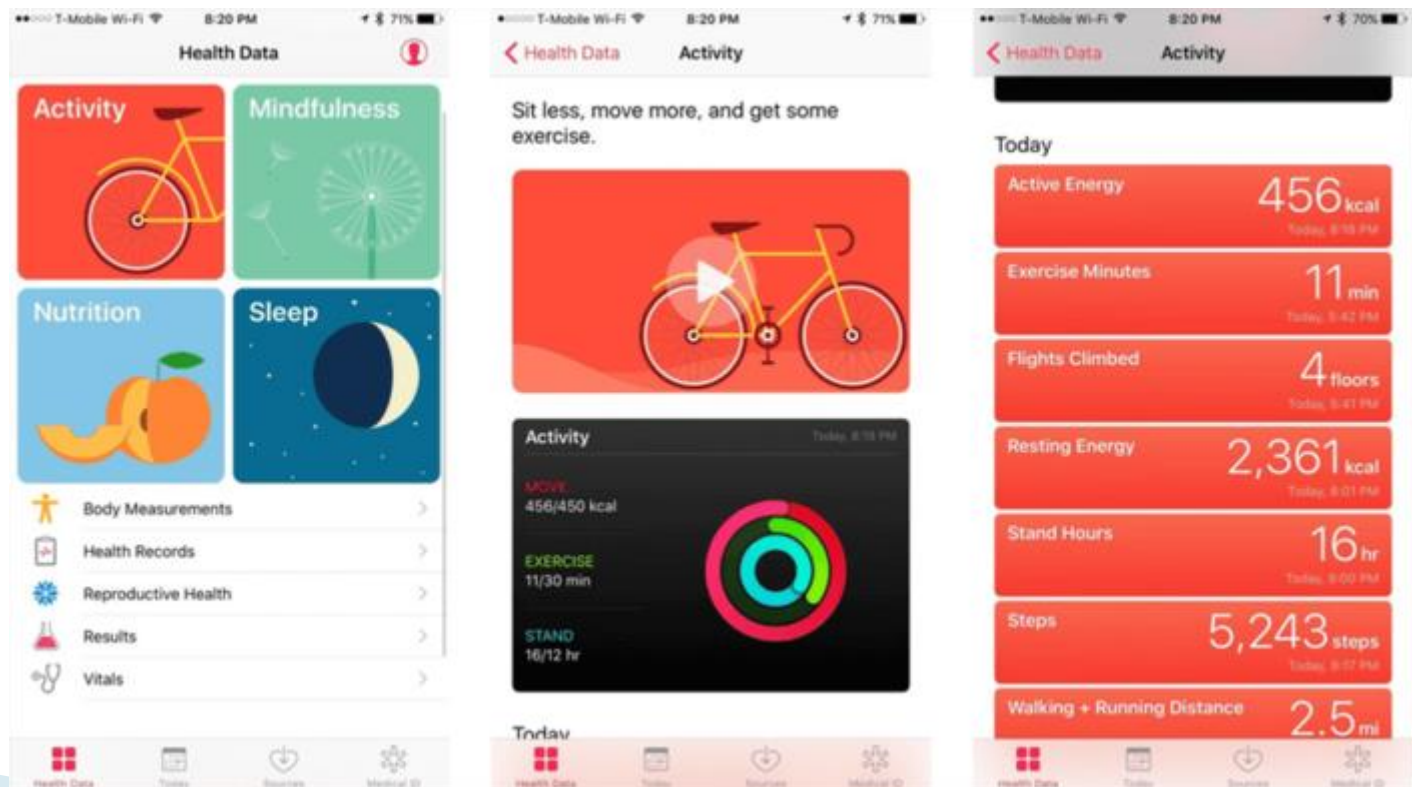
# Design Guidelines

## Keep navigation simple

- ▶ Ensure navigation feels familiar
  - ▶ Design good information architecture
  - ▶ Navigation should not grab user attention
  - ▶ Ensure users know their location
  - ▶ Strive for consistency
  - ▶ Clear path to objectives
  - ▶ Clear visual hierarchy
- 

# Design Guidelines

Keep navigation simple: Communicating the current section of the app



# Design Guidelines

## Finger-friendly tap targets

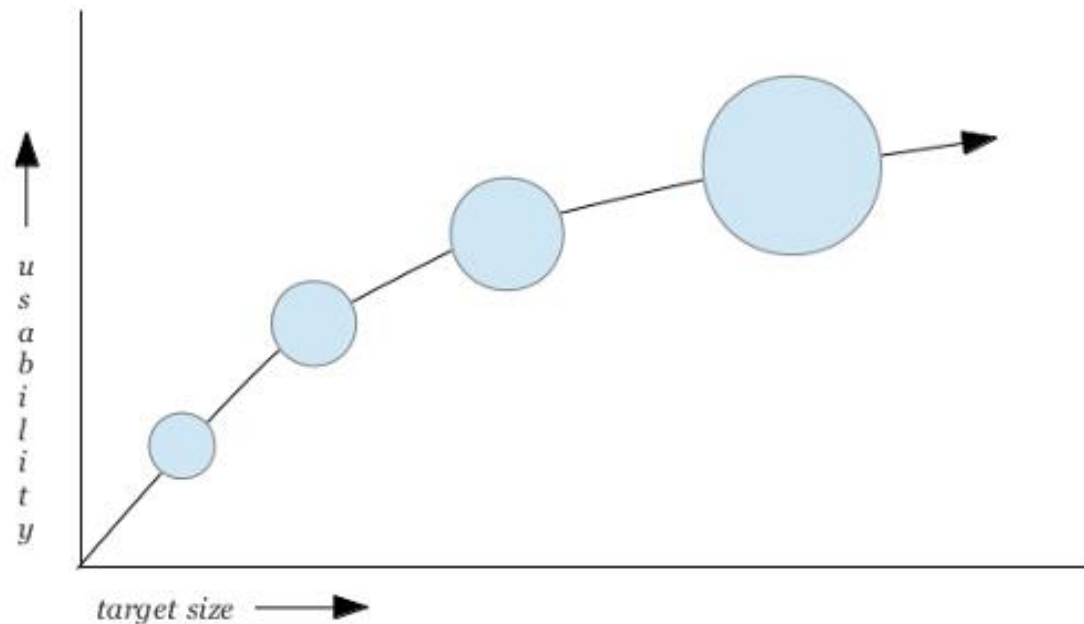
- ▶ Around 10x10mm minimum
- ▶ Keep good spacing between elements



# Design Guidelines

## Finger-friendly tap targets

- ▶ Predicted usability of a button according to its size





# Design Guidelines

## Finger-friendly tap targets

- ▶ For mobile take into account the thumb zones
  - Consider Fitts only within the operation range of the thumb
  - Outside elements require extra effort

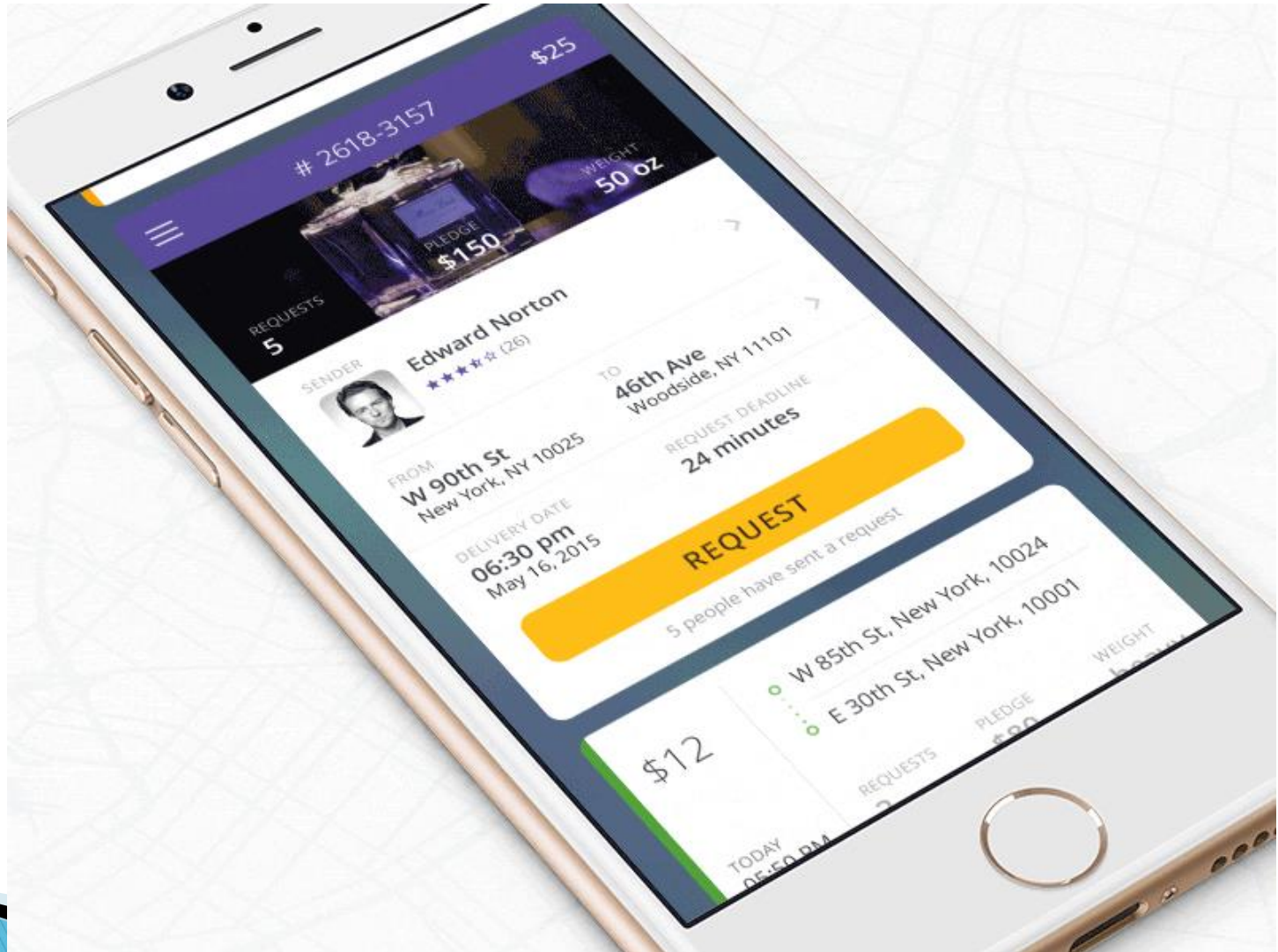


# Design Guidelines

## Progressive disclosure and cognitive load reduction

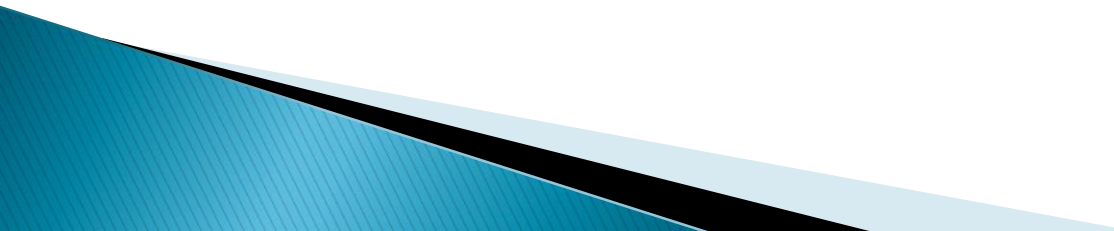
- ▶ **Cognitive load:** amount of brain power required to use the app
  - Keep amounts of information (required to remember) low
  - Progressively show new features or tasks
  - Helps simplifying UI

# Design Guidelines



# Design Guidelines

## Make text legible

- ▶ Choose typeface that works well in multiple sizes and weights
  - ▶ Use legible font sizes: at least 11 points
  - ▶ Use adequate contrast
  - ▶ Correct vocabulary
- 

# Design Guidelines

## Make text legible

### Heading

#### Sub-Headline

Adipiscing elit. Sed neque nisl, blandit vel ipsum eu, imperdiet blandit lectus. Morbi tristique urna ut volutpat ornare. Curabitur semper vitae urna ac tempus. Duis vehicula elit nulla, eleifend egestas nisl vehicula nec. Nullam varius est dui, nec accumsan lectus posuere ut. Nullam viverra purus laoreet euismod tempor.

Adipiscing elit. Sed neque nisl, blandit vel ipsum eu, imperdiet blandit lectus. Morbi tristique urna ut volutpat ornare. Curabitur semper vitae urna ac tempus. Duis vehicula elit nulla, eleifend egestas nisl vehicula nec. Nullam varius est dui, nec accumsan lectus posuere ut. Nullam viverra purus laoreet euismod tempor.

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### Heading

#### Sub-Headline

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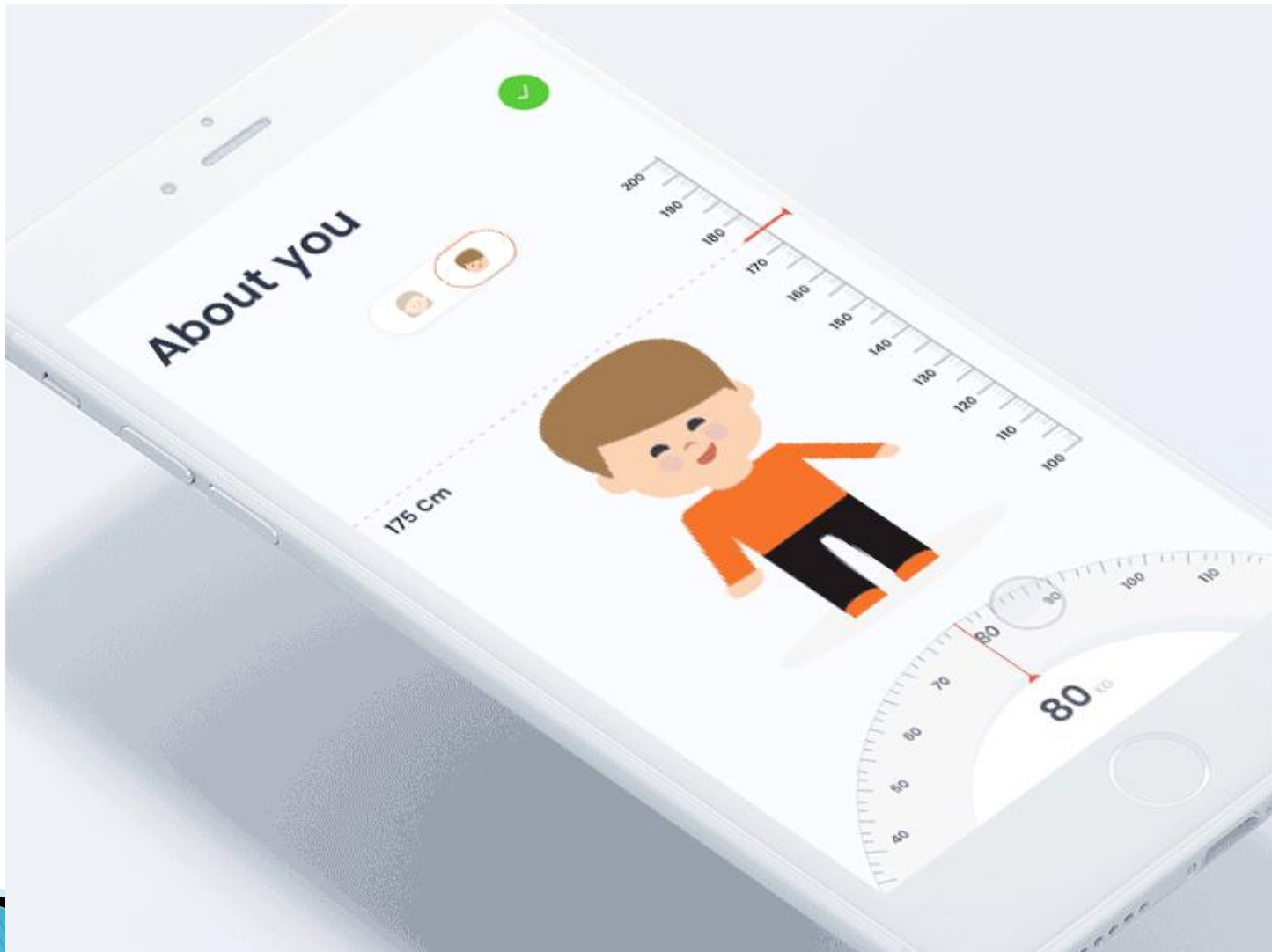


# Design Guidelines

## Provide feedback on interactions

- ▶ Use microinteractions if possible
- ▶ Add progress indicators when required

# Design Guidelines

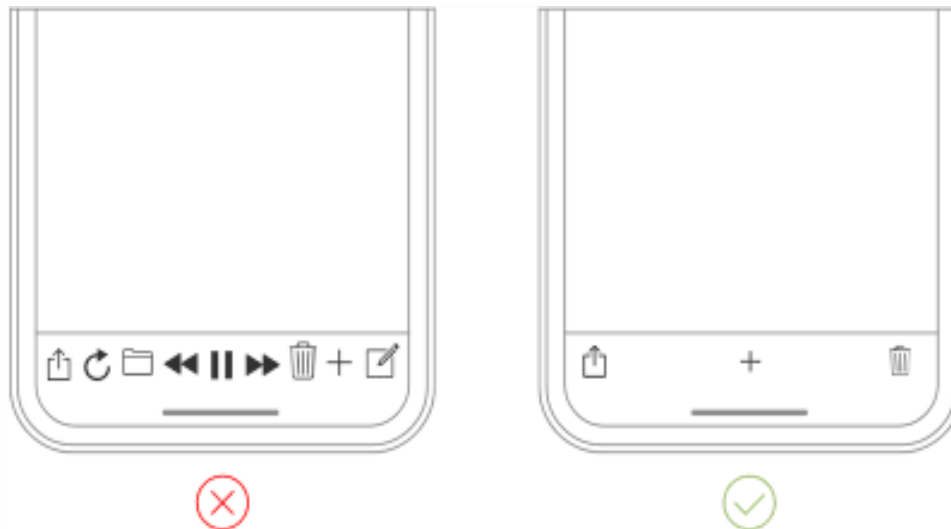




# Design Guidelines

## Reduce clutter

- ▶ Keep content to a minimum
- ▶ Keep interface elements to a minimum
- ▶ Alternatively, use progressive discovery
- ▶ Strive for minimalism





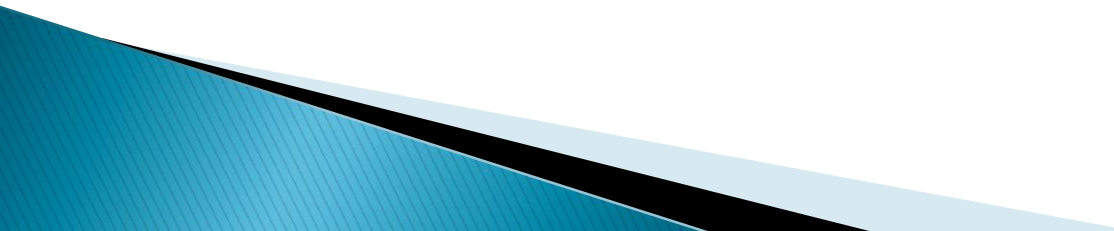
# Design Guidelines

## Reduce user inputs

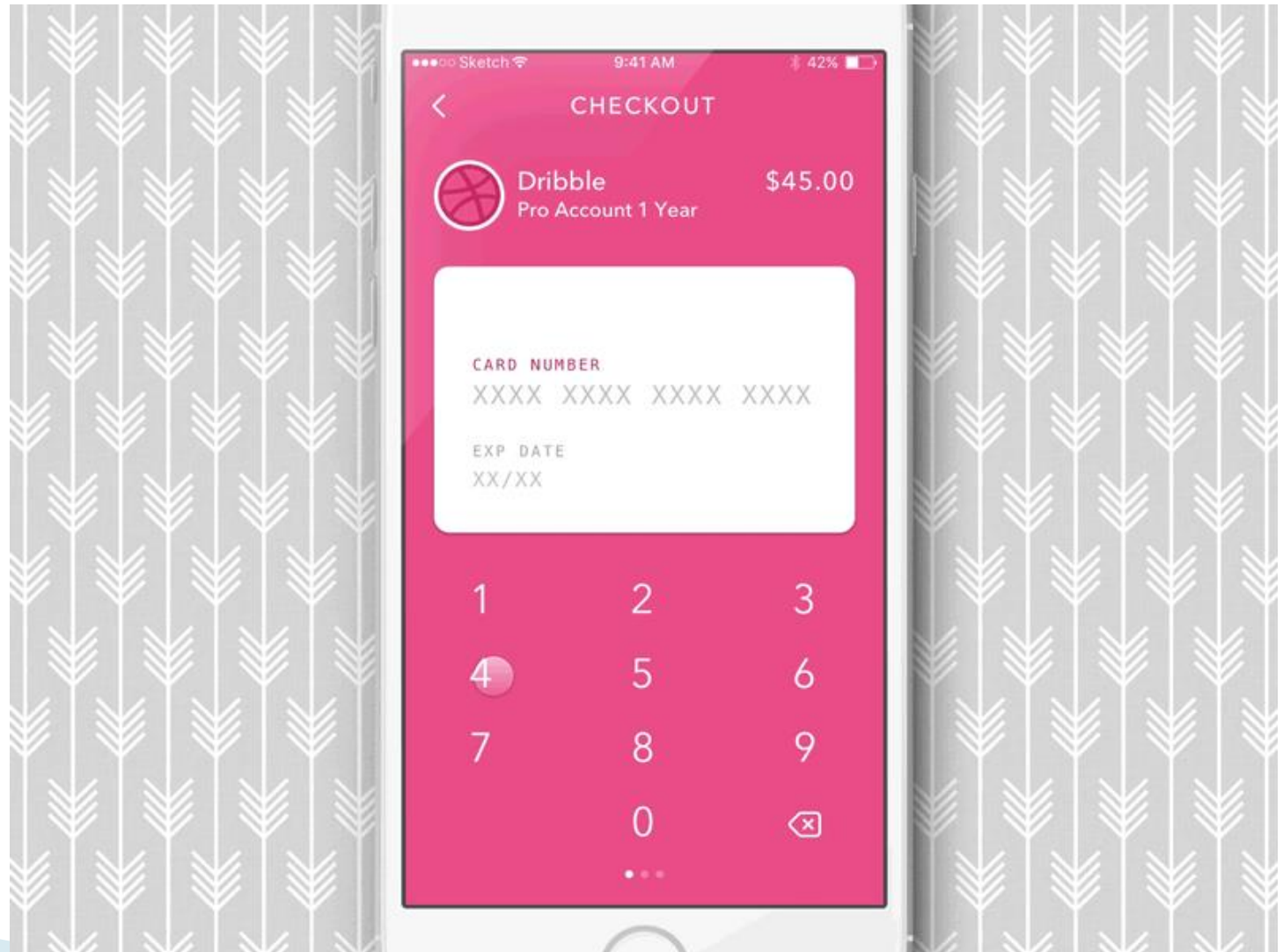
- ▶ Simplify procedures: onboarding, logon...
- ▶ Onboarding:
  - Break in multiple steps
  - Delay information retrieval
  - Inform properly on the needs
- ▶ Logon:
  - Use one-time passwords or QRs when possible

# Design Guidelines

## Reduce user inputs: recommendations

- ▶ Keep forms as short as possible
  - ▶ Provide input masks
  - ▶ Use smart features such as autocomplete
  - ▶ Dynamically validate field values
  - ▶ Customize the keyboard for the type of entry
  - ▶ When possible, substitute text entry for options
- 

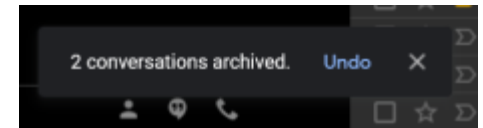
# Design Guidelines



# Design Guidelines

## Manage friction

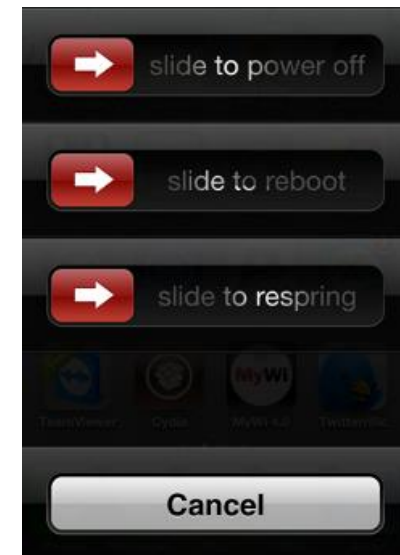
- ▶ Some alternative to increase the size that improve usability:
  - Visual stimulus, undo,...
- ▶ Some “editing” actions must be dealt with care (send, upload, download, burn, share):
  - Possibility of undoing (even temporarily)
    - E. g. Google’s mail
  - Highlight relevant elements
    - E.g. Call To Action buttons (they guide users towards your goal conversion)



# Design Guidelines

## Manage friction

- ▶ Design with friction to avoid mistakes. Rule of the thumb:
  - Make destructive/delicate tasks more difficult
  - Increasing the effort to prevent accidents
    - Buttons for non-destructive
    - Slides for destructive



# Design Guidelines

## Don't make users wait for content

- ▶ Mobile connections are not stable: don't present blank pages to the user
- ▶ Use skeletons, lower resolution images...
- ▶ Update as soon as possible



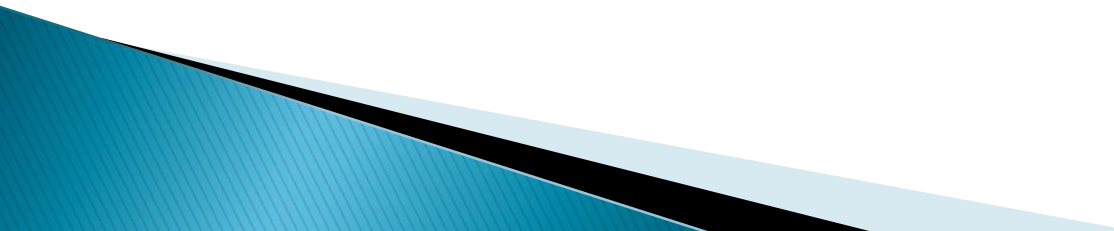
# Design Guidelines

## Use gestures prudently

- ▶ Gestures can save space: they do not require visual representations
  - Hard to remember and use
  - Not currently standardized
  - Make use of standard gestures
  - Don't use standard gestures for non-standard tasks

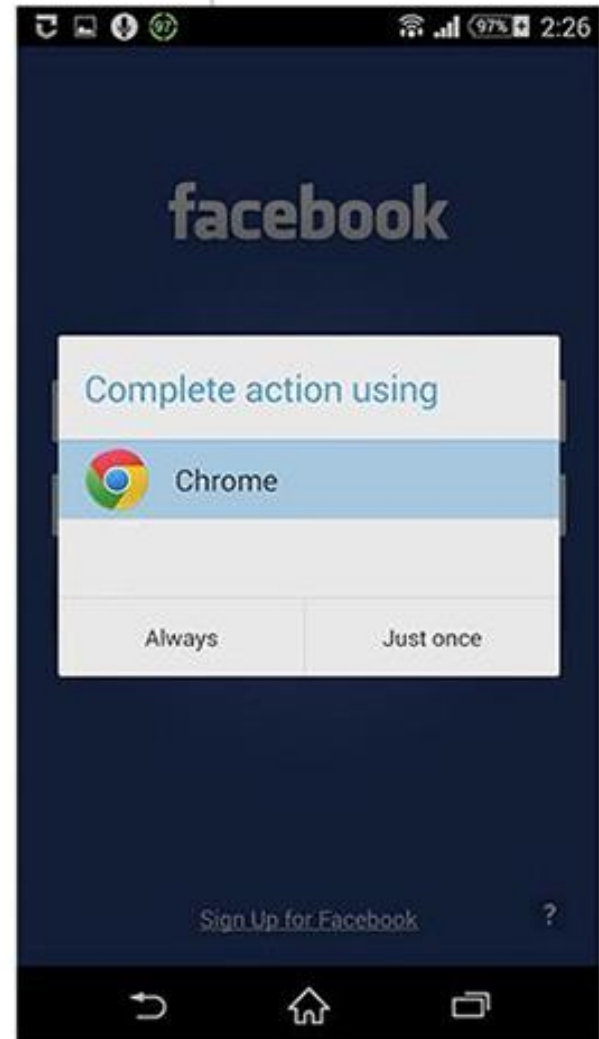
# Design Guidelines

## Continuous integrated experience

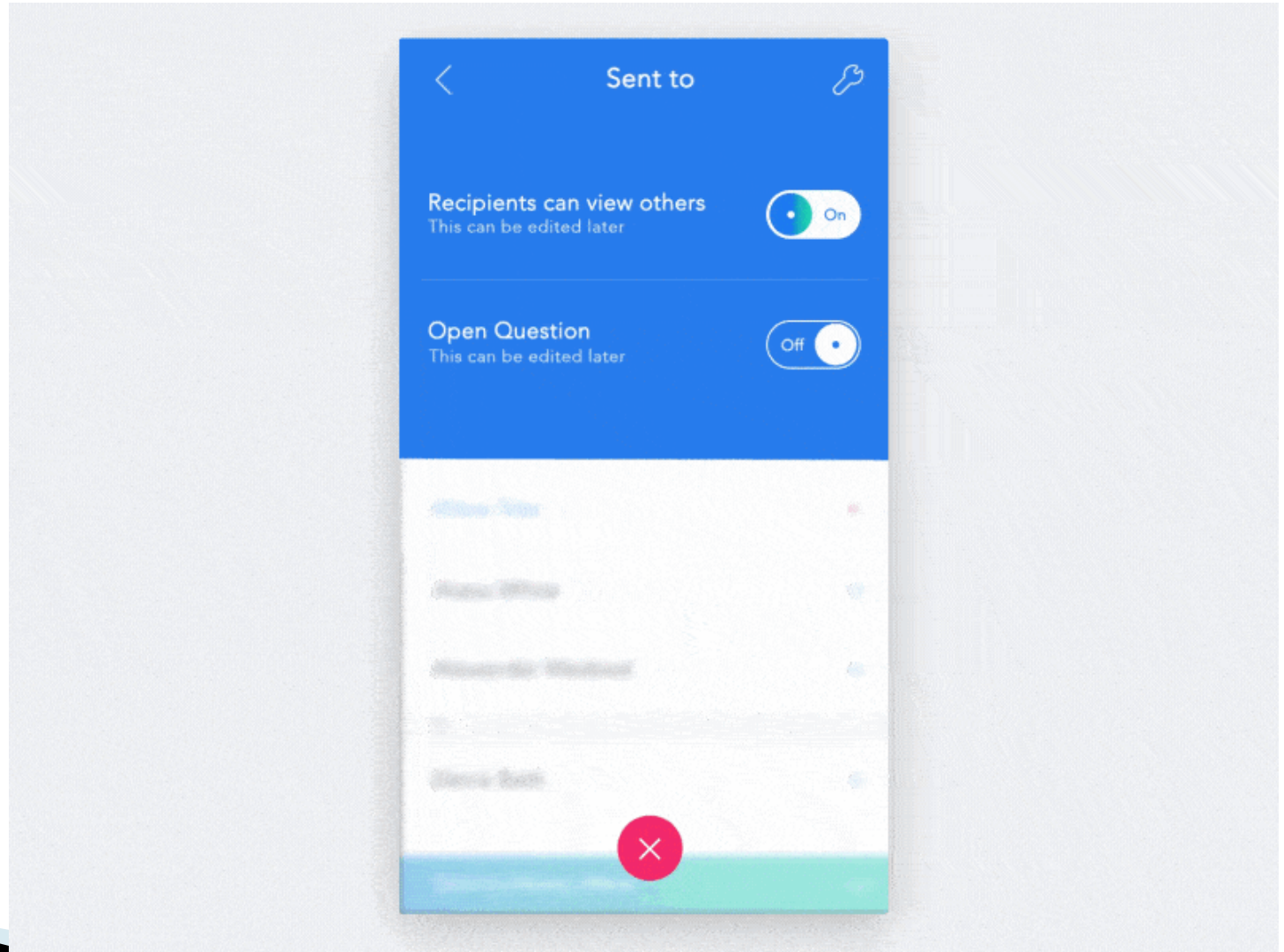
- ▶ When possible, synchronize app with desktop interaction (tasks can be continued on different devices)
  - ▶ Do not replicate exact (web) experience on mobile
  - ▶ Be consistent with users' expectations: in terms of visual elements, interactions...
  - ▶ Don't open external web browsers to complete tasks
  - ▶ Don't create dead end pages
- 



# Design Guidelines



# Mobile Interaction Design



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# IDI – Interaction Design (II)

