

# How to Prototype Interactive Software

(outside of the Cooper book)

School of Computer and  
Communication Sciences

EPFL

Pearl Pu



## WHAT IS PROTOTYPING?

- Make low-cost systems with sufficient interaction and interface design details so that users can evaluate and give feedback
- The lessons learned from such prototypes can be quickly integrated into the next generation of prototype



## WHY DO WE PROTOTYPE?

- Prototype is cheaper to build
  - Experiment with alternative designs
  - More iterations of design/build/testing
  - Get feedback from users earlier
- Prototype is not so polished
  - Users feel more comfortable to critique the design

**Widely Practiced in Industry**



## FIDELITY IN PROTOTYPING

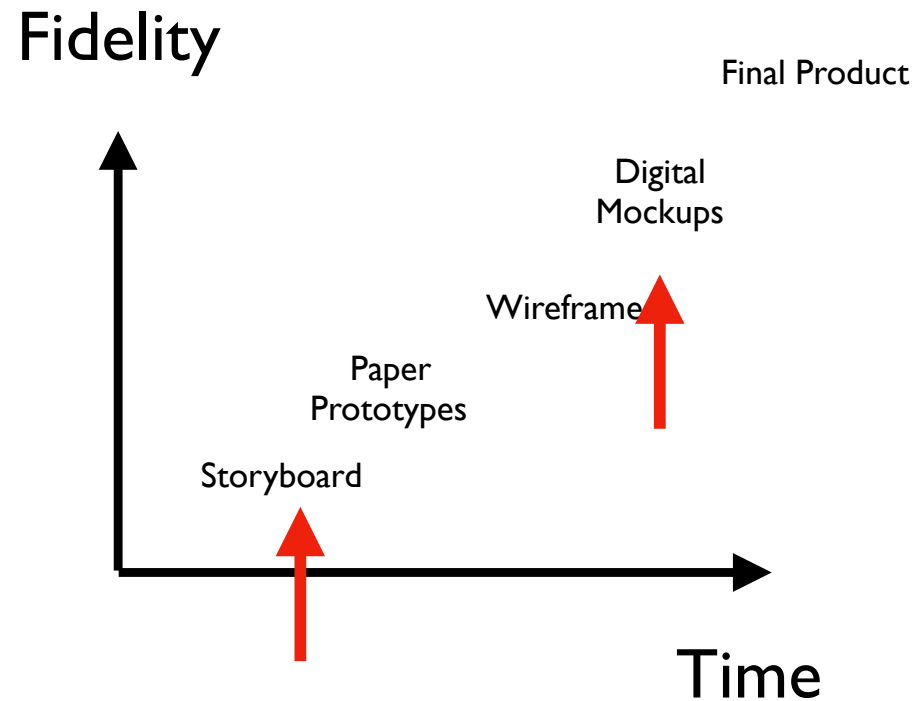
Fidelity refers to the level of details included in a prototype

High fidelity-prototypes look like the final product (hifi prototype)

Low fidelity-prototypes include carefully selected set of (rough) details (lofi prototype)

# TYPES OF PROTOTYPING METHODS

- Storyboards
- Paper prototypes
- Wireframes
- Digital Mockups



We show you an example using FluidUI (Digital Mockup) in Week 12



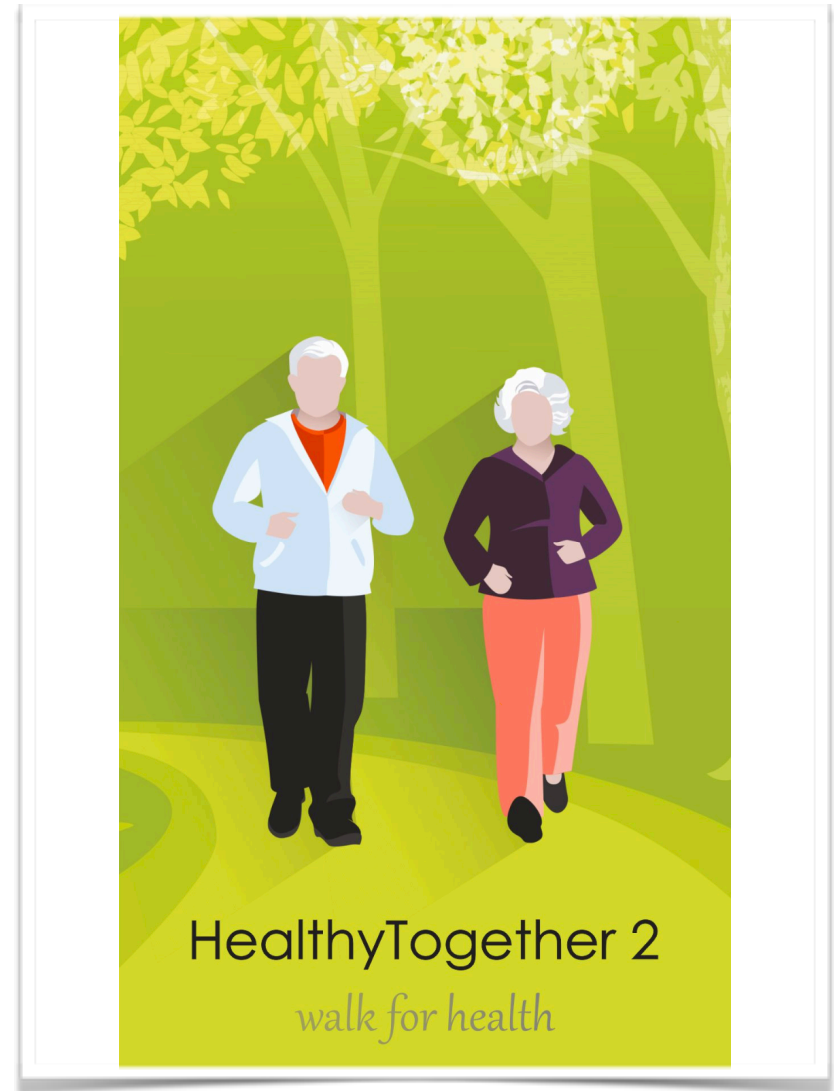
## 6 STEPS IN PROTOTYPING

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1. Start making the landing screen
2. Make screens to take care of user account management (sign in, register)
3. Make one cluster of screens for each main task
4. Iterate and improve.
5. Ask users to walk through your prototype and evaluate
6. Gather feedback and redesign

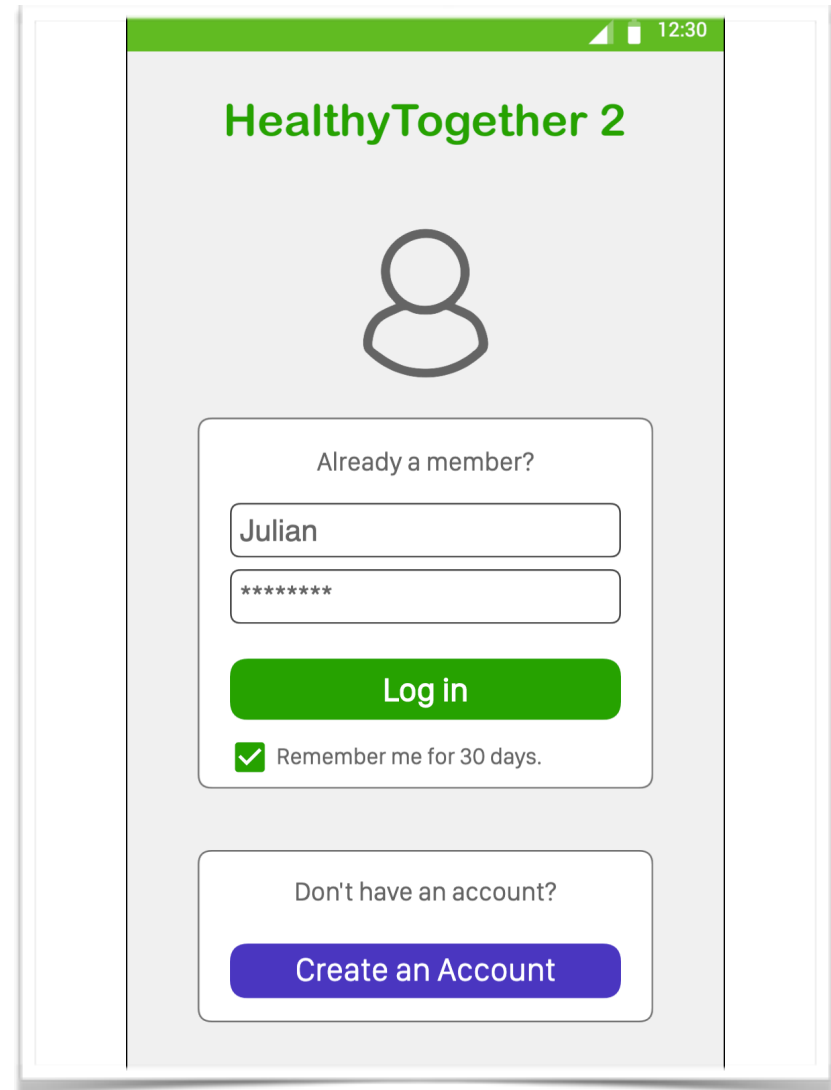
## STEP 1: LANDING SCREEN

- Landing screen conveys the main ideas of your product with
  - Title (HealthyTogether)
  - Visuals



## 2. USER ACCOUNT

- Registration screen
- Sign in screen
- After registration screen, users expect to see a **welcome screen**

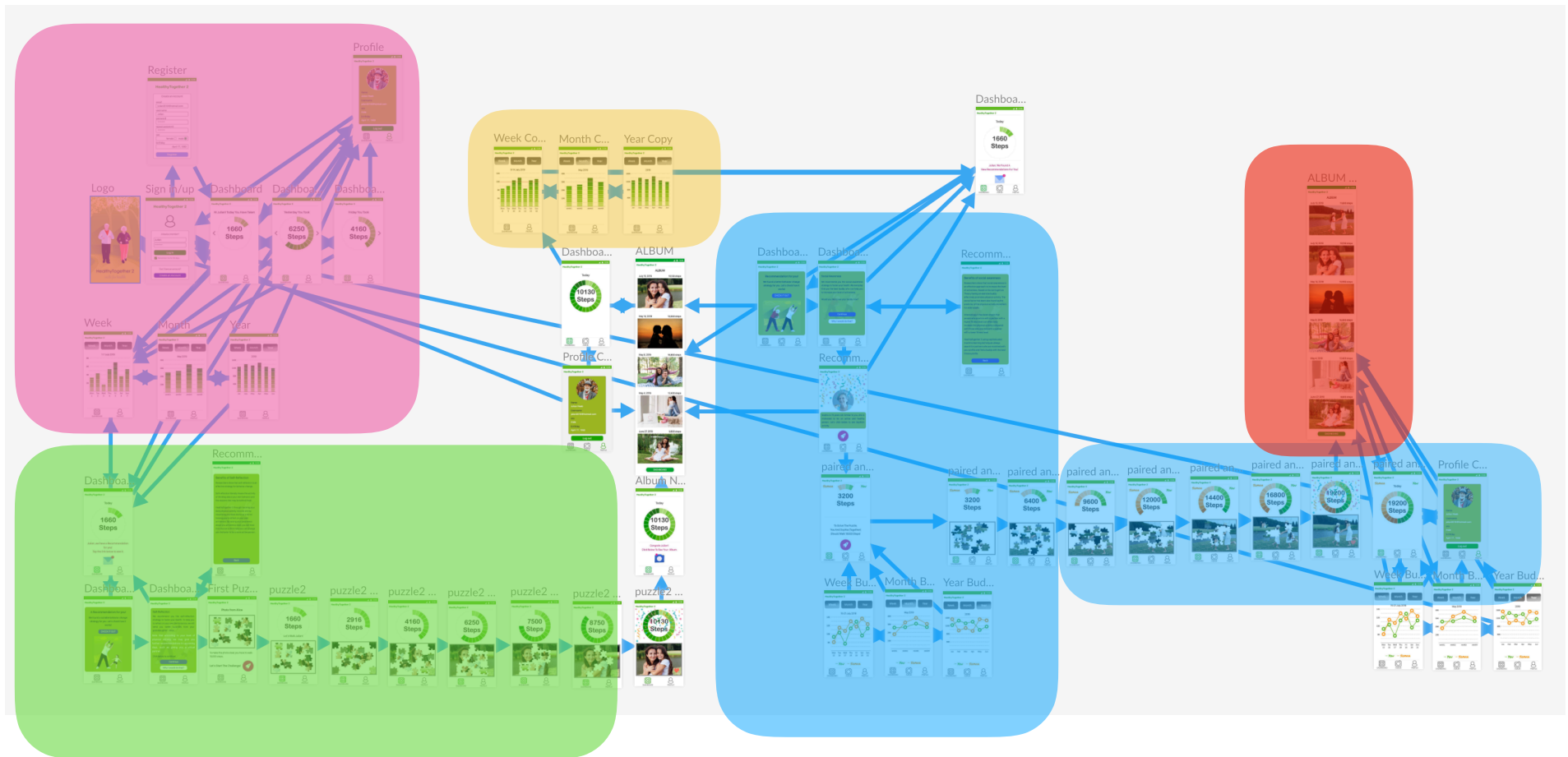


The image shows a mobile app interface for 'HealthyTogether 2'. At the top, there's a green status bar with a signal icon, a battery icon, and the time '12:30'. Below this, the app title 'HealthyTogether 2' is displayed in green. A large, light gray user icon placeholder is centered. Below the icon, there's a section titled 'Already a member?' with two input fields: the first contains 'Julian' and the second contains '\*\*\*\*\*'. A green 'Log in' button is positioned below these fields. Underneath the button is a checked checkbox with the text 'Remember me for 30 days.' Below this section, there's another section titled 'Don't have an account?' with a blue 'Create an Account' button.



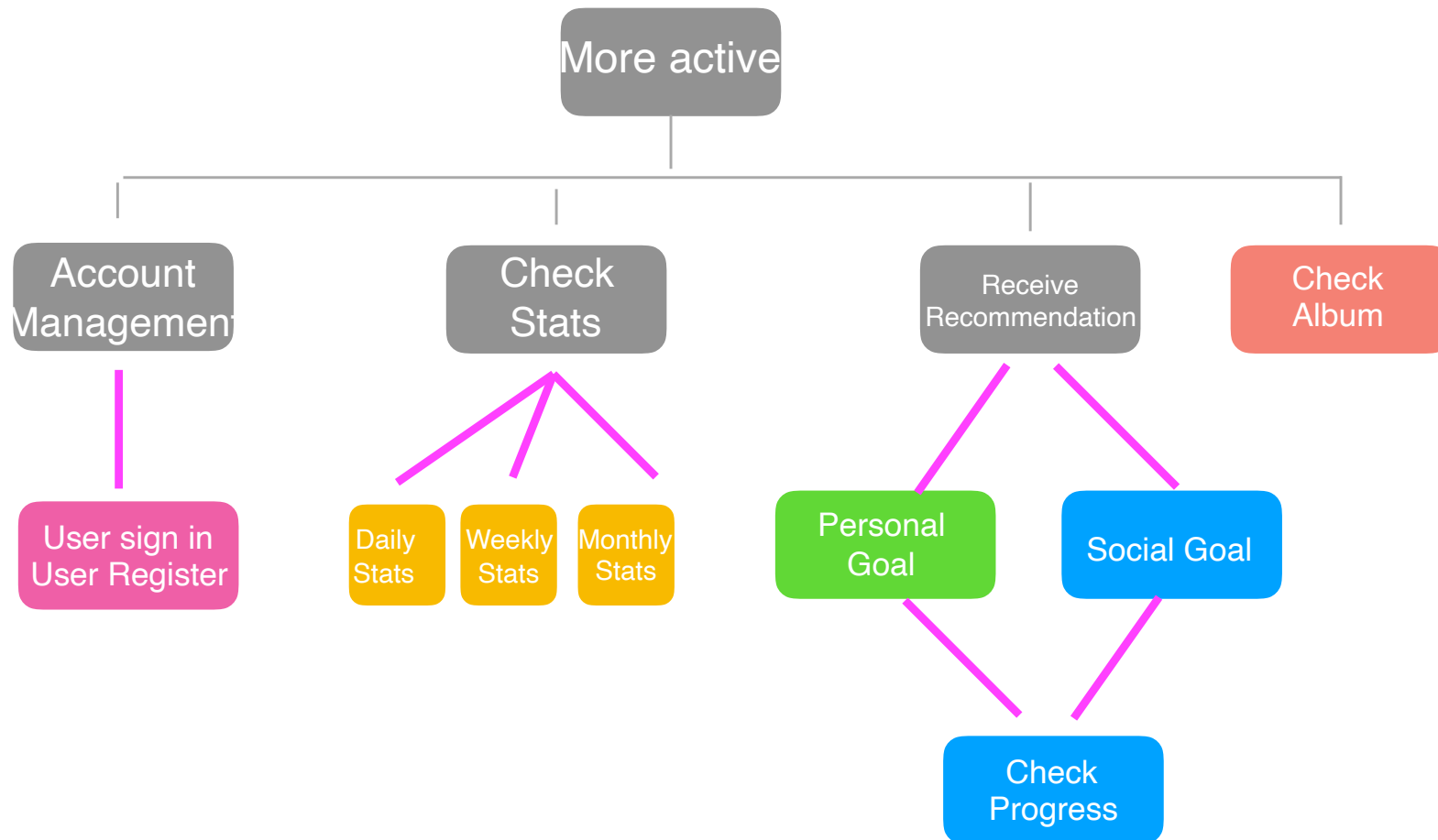


## STEP3: BUILD SCREEN CLUSTERS





# TASK TREE OF HEALTHYTOGETHER





## STEP 3: MAKE TRANSITIONS

- From one screen to the next, build a link and define an area of action (click, scroll, swiping)



## STEP 3: MORE INFORMATION

- See FluidUI tutorial video in Week 12



## STEP 4: ITERATE AND IMPROVE

- How to improve?
  - Perform partial and complete walk-throughs yourself
- When to stop prototyping
  - When users feel satisfied

**Another rule: 20-30 distinct screens**



## WHAT IS A USER WALK-THROUGH?

- A user walk-through is the simulated user interaction with the system
- A walk-through can be partial or full
- Partial walk-through example: user starts with an interface and walks through all screens related to payment, assuming the shopping cart is not empty
- Complete walk-through example: user starts with the *landing page* and completes an entire transaction of buying a book on amazon.com



## STEP 5: USER WALK THROUGH

1. develop one task scenario
2. recruit users from the priority user segment (primary persona)
3. invite users individually in a quiet room
4. ask them to perform tasks described in the task scenario
5. discuss with them about their feelings
6. if you notice visible pain points, go over them and ask why



## STEP 5: USER WALK THROUGH

- Different task scenarios
  - general: buy a book called “The Power of Habit” by Charles Duhigg”, pay and ship it to your home address
  - specific: you are on the product page of “The Power of Habit”, put that item in the shopping cart
- You need to test both general and specific task scenarios in walk-throughs



## WHY SPECIFIC TASK SCENARIOS?

- Inspecting one area
  - Suppose you have just done a general walk-through
  - You found some problems in “shopping cart” areas
  - You fixed it
  - Now just do a partial walk-through



Walking through a specific task scenario is called a “inspection”



## MORE EXAMPLES OF TASK SCENARIOS

- Find the #5 item on the best seller list in “Literature & Fiction” on Amazon.com, buy the book, and ship to your home address (general)
- Buy the first book recommended to you under “customers who read this book also read” when you are on the product page of “The Power of Habit”, ship to the address of your friend, John Smith, who lives in Boston (general)
- When you are on the product page of “The Power of Habit”, read the first line of the review of this book (specific)



## STEP 5: USER WALK THROUGH

Two testers (preferable)

facilitator - gives instructions, explain task scenarios,  
encourages thoughts, opinions

Observer - takes notes and ask why questions

Typical session is approximately 20 minutes



## STEP 5: USER WALK THROUGH

### Test

facilitator hands out written task scenarios to the user  
must be clear & detailed

facilitator keeps getting “output” from participant

“What are you thinking right now?”, “Think aloud”

Observer -> when you observe users having trouble  
doing her task

try to say “why is it that you are having trouble?”

avoid projecting your opinions to your users; avoid  
“no” “a-ha”, laugh, gape, etc.

**Avoid telling users what to do**



## STEP 6: GATHER FEEDBACK

Sort & prioritize observations

what was important?

lots of problems in the same area?

- likely the first place to fix

Make changes & iterate

problems revealed in walk-throughs can be fixed  
with design principles (coming up)



## EVALUATE EACH OTHER'S PROTOTYPE

- Use the same pairing as in cross-ideation
- Group being evaluated
  - Develop 3 general task scenarios
  - Instruct the other group to do walk-throughs
- Group evaluating
  - Each member takes turn to evaluate
  - Think aloud
  - Restrain from make subjective judgement



## SUMMARY

- We prototype to improve design much more quickly than we would with final software
- We can test multiple alternatives
- We can change the design as we test
  - If users are trying to use the interface in a way we didn't design it – go with what they think! Adapt!

- The amount of detail to include in the prototype
  - Do the task scenarios reflect main end goals users want to achieve with your software?
  - Have you fixed the usability problems revealed in the walkthroughs?