HCI and Design

Assignments

Assignment 2 is due TODAY, 11:59pm!

Submit one per pair on Blackboard.

Today

Paper prototyping
  ◦ An essential tool in your design toolbox!

How do we design things that actually fit user needs?

Problem:

- We can't evaluate a design until it's built
  But...

- After building, changes to the design are difficult
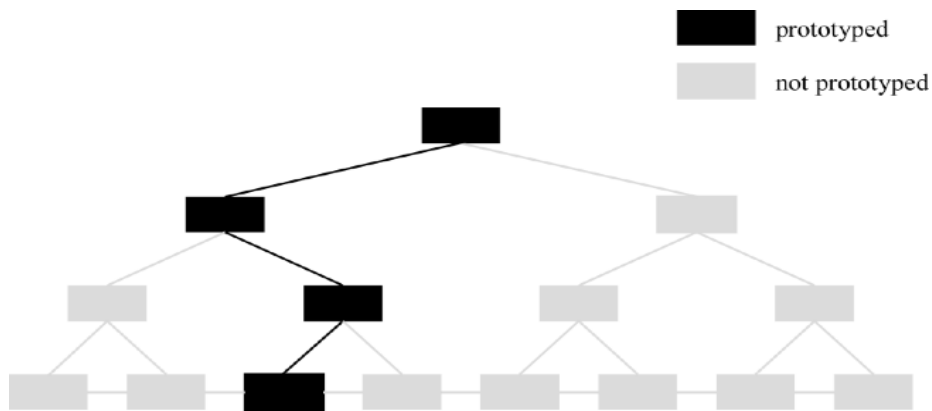
- What to do?

Solution

- Prototype!

Prototyping

- Simulate the design in low-cost manner

- Make it fast. Make it cheap.

- Facilitate iterative design and evaluation
  - Your first idea is rarely your best!

- Promote feedback

- Allow lots of flexibility for radically different designs
  - Don't kill crazy ideas!

How to prototype?

■	prototyped
▢	not prototyped

Vertical - "Deep" prototyping
◦ Show only portion of interface, but large amount of those portions

■	prototyped
▢	not prototyped
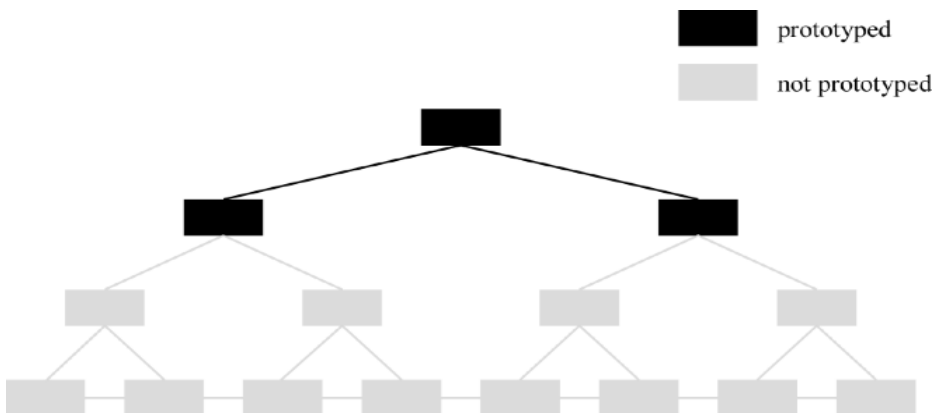
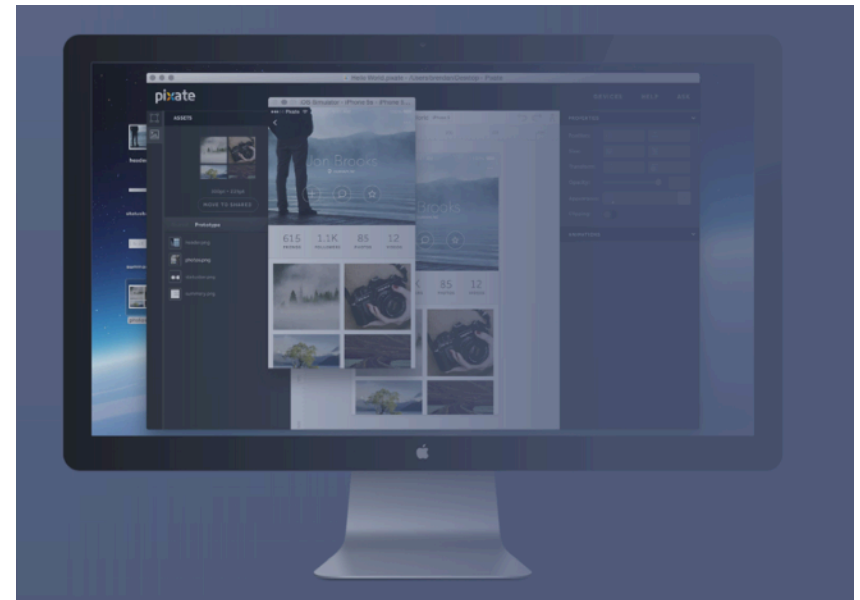**Horizontal** - "Broad" prototyping
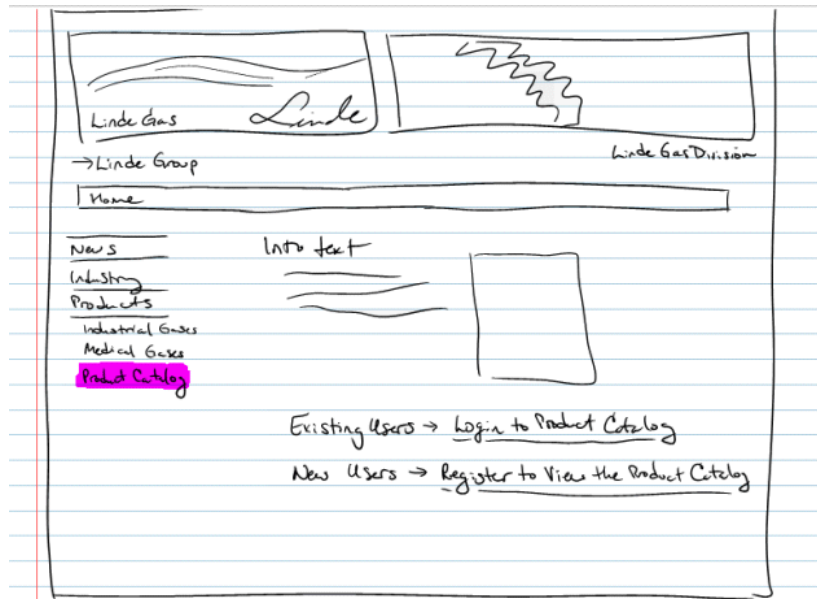◦ Show much of the interface, but in a shallow manner

# How to prototype?

Low fidelity   vs.   High fidelity

Amount of polish should reflect maturity of the prototype... Why?

"Mixed" fidelity

- Easy access to cameras makes it easy to blur the lines between lo-fi and hi-fi prototypes
- Photos of hand-drawn prototypes can easily be captured and displayed on real screens
- Sequences of photos can also be animated to simulate interaction
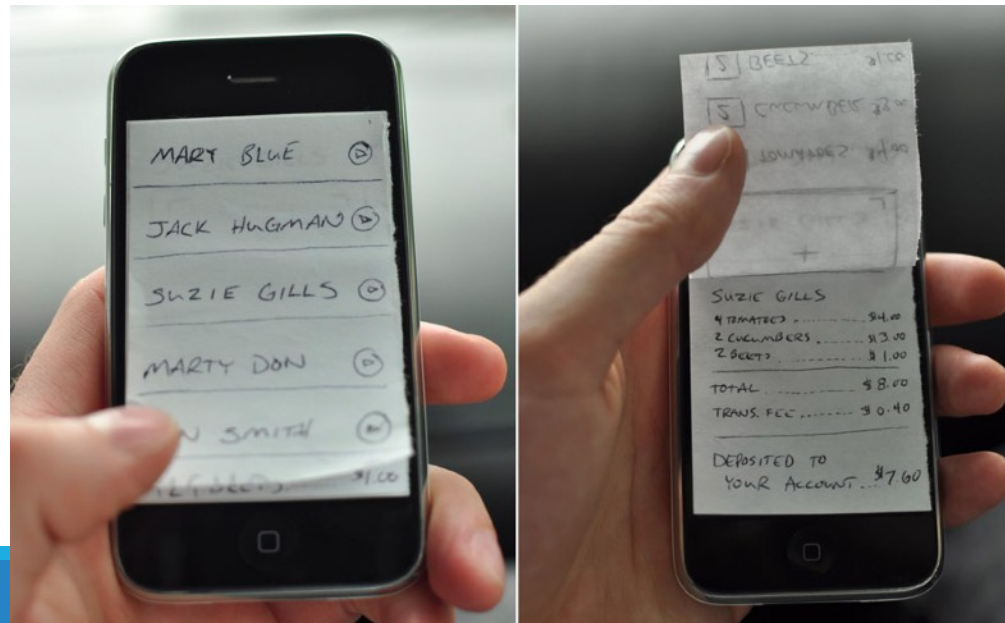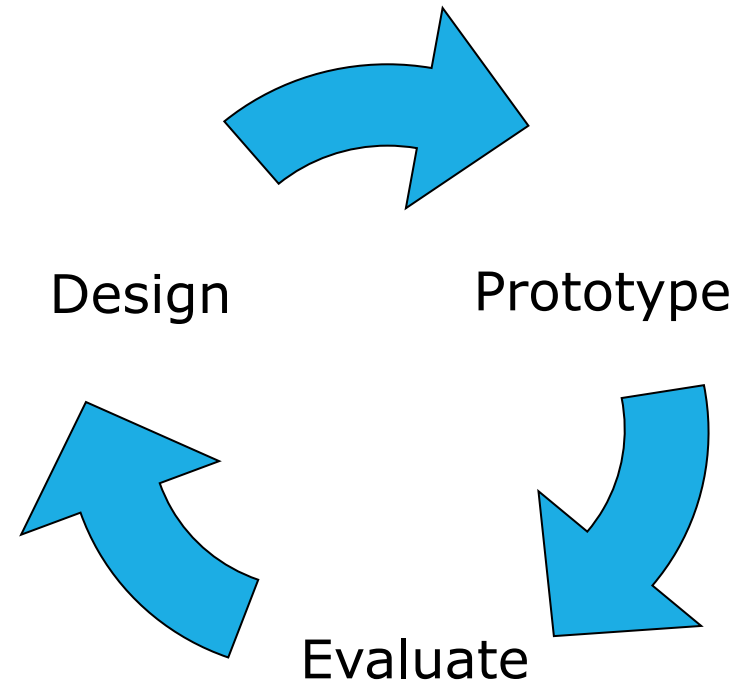
Today: Paper-Prototyping

An iterative design method where potential users perform realistic tasks by interacting with a paper version of the interface that is manipulated by a person 'playing computer,' who doesn't explain how the interface is intended to work.

Why do it?

Principle of iterative design

- ◦ Quality is partially a function of the number of iterations and refinements that a design undergoes

Design

Prototype

Evaluate

Why do it?

Low cost

Fast to implement
- Typical hi-fi prototype takes a few weeks as opposed to a paper prototype that takes a few hours

Allows you to merge the design and prototyping phase together

It gets everyone involved!
- Builds teamwork in groups with diverse skill sets
- So simple, no one gets left out

Why do it?

Feedback on the BIG things
- Lo-fi nature forces users to consider usability issues related to layout and control
- Nit picking over choice of colors, buttons sizes, font choice ignored
- Focus on *Content* as opposed to *Appearance*
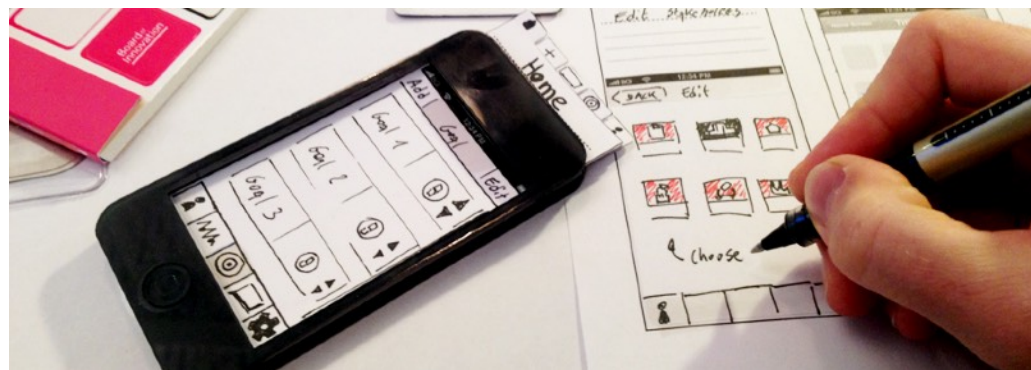
Why not to do it?

May seem unprofessional to some users
◦ *Maybe not the right prototype for the VCs* ☺️

Can't represent some effects with paper

Typically, you would start with several rounds of paper prototyping, and move towards high-fidelity prototyping as the design becomes more finalized. i.e., YOU DO BOTH!
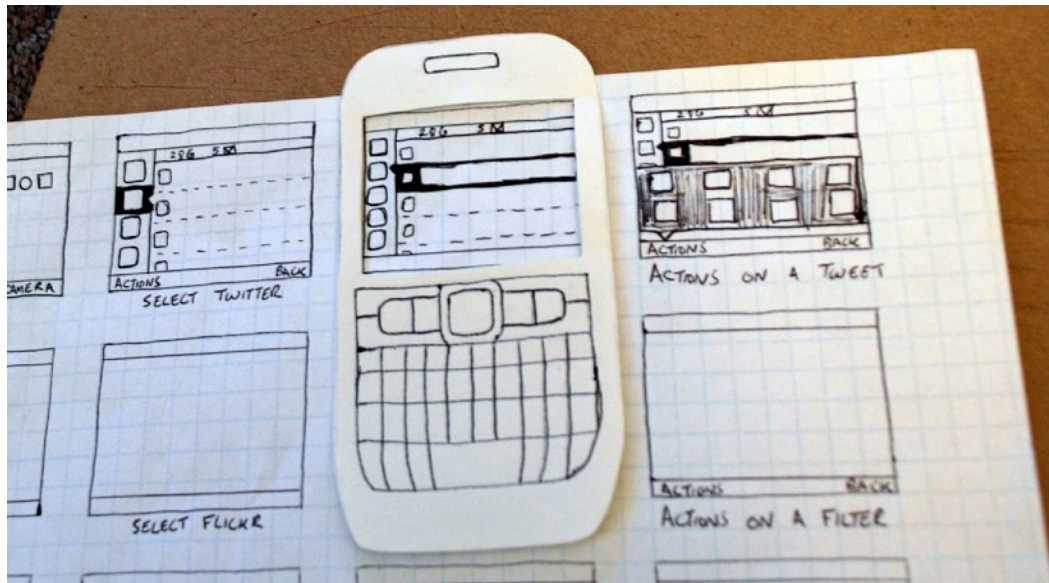
Building a lo-fi prototype

Gather essential materials
- White paper
- 5 by 8 inch cards
- Adhesives
- Markers
- Sticky pads
- Scissors
- Anything else you think of!!!

Building a lo-fi prototype

Don't get carried away with design!
- ◦ Goal is to get as much user feedback as possible
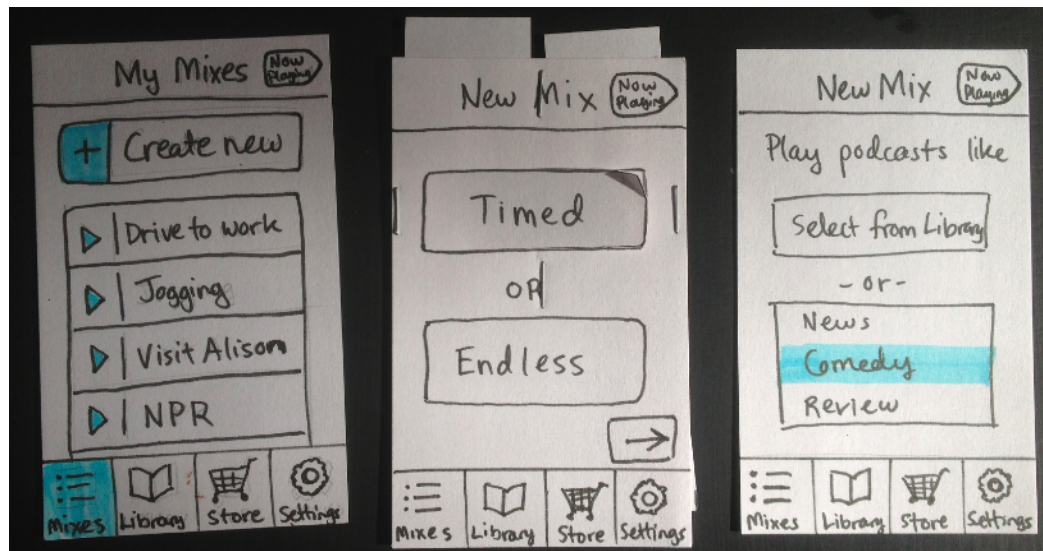- ◦ Set a deadline – forget minor details

Building a lo-fi prototype

Draw generic frames

Make everything needed to simulate effects

Photocopier/camera is your friend!

Preparing for a test

Select users
- Perform user and task analysis
- Find out educational background, knowledge of computers, typical tasks required
- Get testers who fit the final user profile

Preparing for a test

Prepare test scenarios

Practice
- ◦ Sort out bugs/hitches before the real testing
- ◦ Get everyone comfortable with their role

Conducting a test

Facilitator
- Encourage user to express thoughts
  - (don't influence decisions!!!!)
- Giving instructions
- Making sure timing is met

Conducting a test

"Computer" person
- Arranges the paper prototype according to user input
- Needs to be organized
- Knows the prototype well
- Make changes quickly

Conducting a test

Observers
- Take notes
- Write possible solutions to problems faced
- Cannot react to user's actions

Evaluating results

Summarize problems (e.g., make a list)
- ◦ Usability issues
- ◦ Missing (or mis-specified) functional requirements
- ◦ Preferences for different alternatives
- ◦ User priorities
- ◦ Issues outside the user interfaces (e.g., high-level understanding)

Prioritize problems

Construct revised prototype

Iterate, iterate, iterate!

Summary: Paper Prototyping

- An important prototyping tool (but not the only tool!)
- Quick to build/refine, thus enabling rapid design interactions. Useful tool for speeding up the process of iterative design
- Requires minimal resources and materials (cheap!)
- Detects usability problems at a very early stage before implementation.
- Focus on the "right" things early on
- Promotes communication between stakeholders. Team members gain understanding of user needs and priorities
- I recommend you always do a few rounds of paper prototyping for every new design/app/system/solution that you create!

Let's practice

Your task is to design a privacy controller app. i.e., an app that magically helps you control and keep track of the privacy settings of all other apps on your device. You should be able to have custom privacy settings for different apps, but it should still be easy to use.

- Pick a couple of concrete tasks to focus on (your choice)
- Create a paper prototype for those tasks
  - Work quickly! Set a deadline.
  - Evaluate your paper prototype with another team
  - Take turns in using each other's prototypes
- Write down the results from testing your prototype
- Iterate!