

Informatics 134

Software User Interfaces
Winter 2022

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Agenda

1. Designing User Interfaces
2. Preparing Your Course Project
3. T2: Scenario Story
4. Next Class

Designing User Interfaces

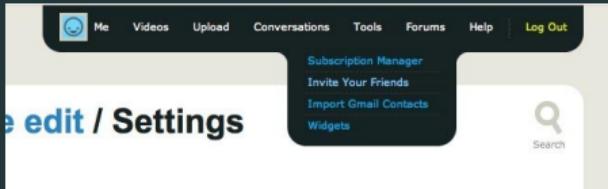
Designing User Interfaces

UI's are hard to implement...

From a programming perspective

From a design perspective

```
var target = document.querySelector('.box');
var player = target.animate([
  {transform: 'translate(0)'},
  {transform: 'translate(100px, 100px)'}
], 500);
player.addEventListener('finish', function() {
  target.style.transform = 'translate(100px, 100px)';
});
```



Designing User Interfaces

Thinking About Design

“Design is a plan for arranging elements in such a way as best to accomplish a particular purpose.”

—Charles Eames

Designing User Interfaces

When applied to HCI

a plan: processes and methods

arranging elements: a naturally creative endeavor

accomplish: through tools or other things

particular purpose: human use and other people-centered concerns

Designing User Interfaces

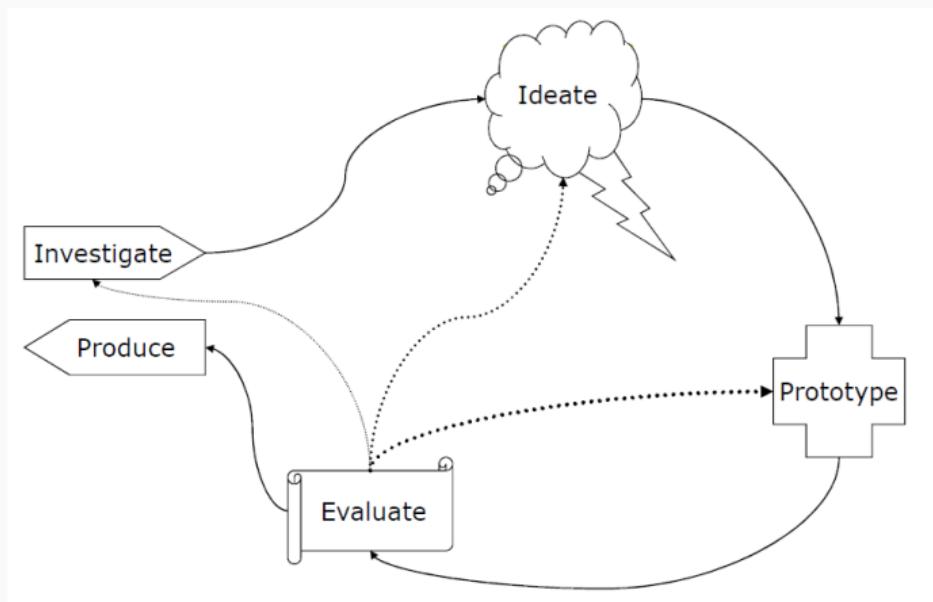
In HCI we talk a lot about users and experiences...

User Centered Design

User Experience Design

What do you think they have in common?

Look familiar?



Designing User Interfaces

At the heart of any creative endeavor in HCI is the iterative process

We Investigate

We Ideate

We Prototype

We Evaluate

And We Produce

Designing User Interfaces

Investigate

Learn about stakeholders

Discover goals and needs

How is it done now?

What is wanted?

What else has been tried?

Designing User Interfaces

Ideate

Generate **lots** of ideas

Grasp issues and potential solutions

Why?

Ideate

Generate **lots** of ideas

Grasp issues and potential solutions

Why?

- Creativity does not just pop up in bursts of brilliance!
- The more ideas the better chance for success
- Systematic evaluation of a large volume of ideas
- Be sure to avoid picking your first idea!

Designing User Interfaces

Prototype

Why?

Produce something tangible

Identify challenges

Uncover subtleties

Designing User Interfaces

Prototype

Produce something tangible

Identify challenges

Uncover subtleties

Why?

- It's hard to evaluate a thing that does not exist
- Helps your audience understand abstract concepts
- Helps **you** identify future constraints and bring potential obstacles into view

Designing User Interfaces

Evaluate

Discover problems

Assess progress

Determine next steps

Why?

Evaluate

Discover problems

Assess progress

Determine next steps

Why?

- Feedback on your direction and ideas
- Increase chance to discover major issues
- Help to resolve disagreements

Designing User Interfaces

What are some ways that you can (or have) ideate, prototype, and evaluate?

Designing User Interfaces

What are some ways that you can ideate?

"Idea Oscillation" - gradually iterate through micro-changes

Immersion (storytelling, bodystorming)

Generation (keep a design notebook, rapid-fire post-its)

Sketching and storyboarding

Talk (and listen) to anyone ... everyone

Modify what already exists

Mix and match across domains

Read/watch science fiction!

Designing User Interfaces

What are some ways that you can prototype?

Paper prototypes

Power point

Software tools

Designing User Interfaces

What are some ways that you can evaluate?

Ask a friend, ask a stranger

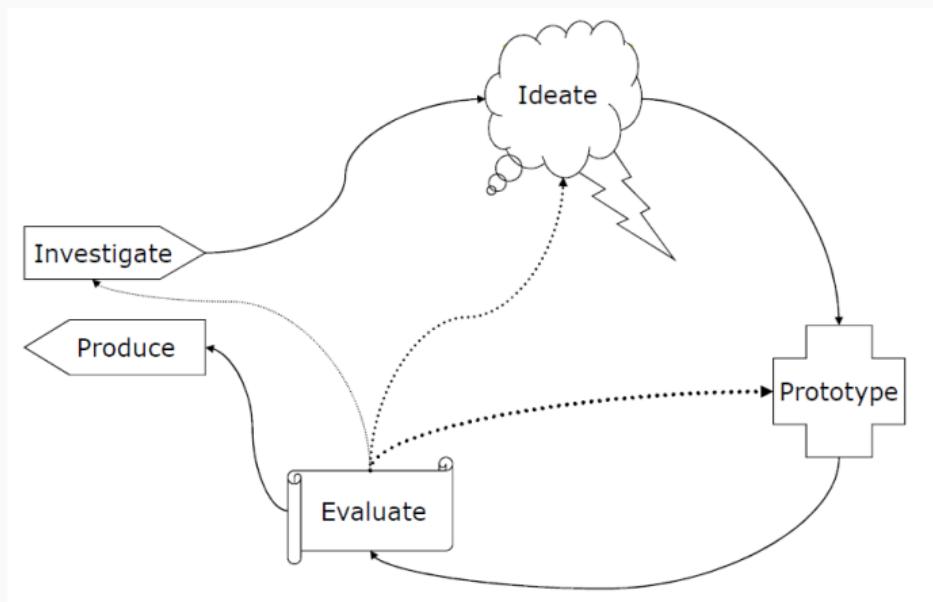
Share with your team

A/B testing

Publish low-fidelity online, ask for feedback

Controlled via lab setting

What's the point?



Designing User Interfaces

Designing (good) user interfaces is hard!

Designing User Interfaces

How will we learn?

Next week we will start learning how to incorporate patterns like observer into the development of our own widgets

You will collectively apply these skills and others as a team to build a compelling and novel user interface for your project scenario

Preparing Your Course Project

Preparing Your Course Project

For T2, you will start developing your scenario through artifact generation that will lead you to concrete prototypes that can be used for evaluation.

Preparing Your Course Project

What are prototypes?

In designing interactive systems, a prototype can be:

- a series of screen designs (e.g., Photoshop)
- a storyboard
- a slide deck or html pages
- a video simulating use of a system
- a physical artifact like wood, cardboard, or paper
- a piece of software with limited functionality

Preparing Your Course Project

You have already learned a few core methods of the iterative process in previous courses. While you are free to use whichever methods that you and your team prefer, let's briefly review a few of the most useful.

Preparing Your Course Project

Brainstorming

Working in groups is essential

Should approach with fun

Build assets (materials/artifacts) and keep them visible (any thoughts how?)

Preparing Your Course Project

Brainstorming

How?

Start with an open-ended questions ("What are some ways we could tackle our design problem?")

Have each team member spend several minutes in silence jotting down ideas

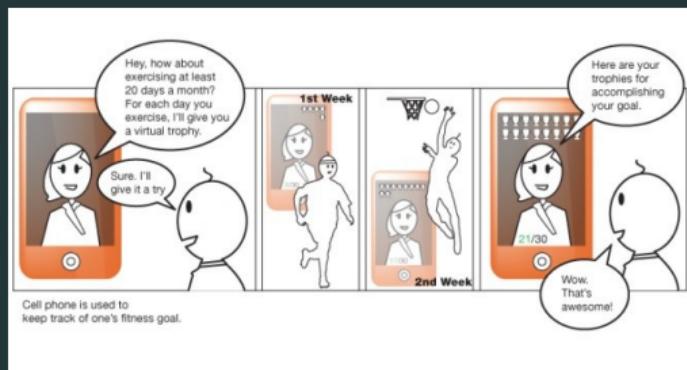
Collect individual ideas by sharing them round robin. No criticism!

Have each team member evaluate ideas (individually and anonymously) and vote for the best ones. Share and tabulate.

Preparing Your Course Project

Storyboarding

What is it?



Preparing Your Course Project

Storyboarding

What is it?

- Adapted from movie industry

- Useful for early round, low stake, idea validation

- Can be used to communicate with team or with users

Preparing Your Course Project

Storyboarding

5 visual elements

Level of detail

Inclusion of text

Inclusion of people and emotions

Number of frames

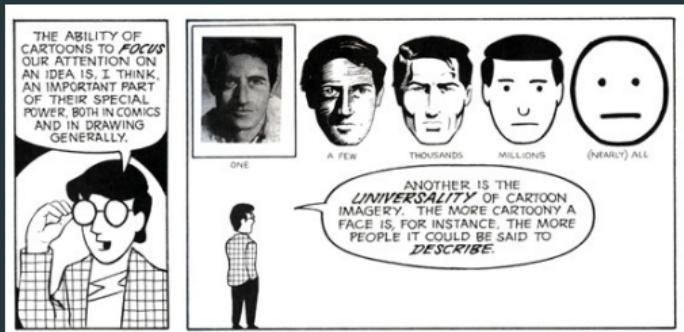
Portrayal of time

Preparing Your Course Project

Storyboarding

Level of detail

Too much detail can lose universality

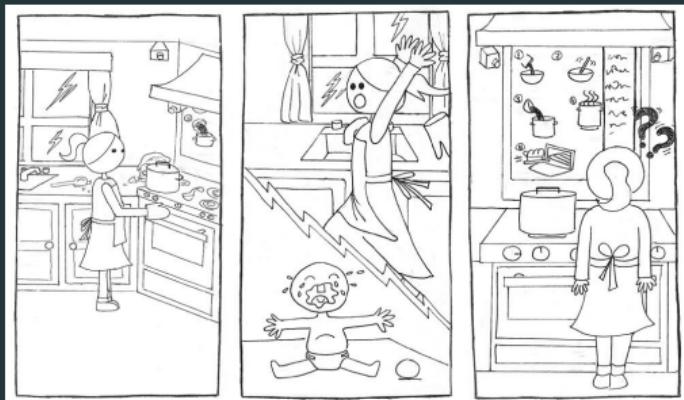


Preparing Your Course Project

Storyboarding

Level of detail

Too much?

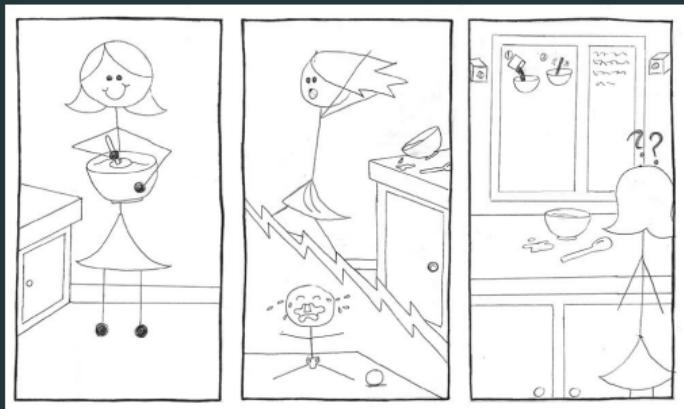


Preparing Your Course Project

Storyboarding

Level of detail

Better?

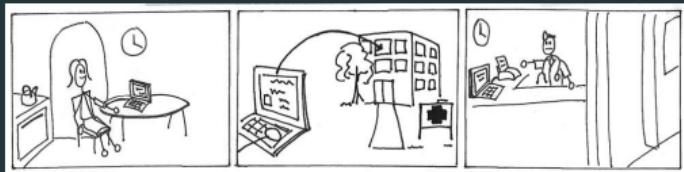


Preparing Your Course Project

Storyboarding

Use of text

It's often necessary, but keep it short!!!



Preparing Your Course Project

Storyboarding

Include people and emotions

Include people experiencing the design
and their reactions to it (good or bad)

Convey the *experience* of using the
system

Preparing Your Course Project

Storyboarding

Number of frames

4-6 frames/panels is ideal

More is not always better, can lose focus/attention



Versus:



Preparing Your Course Project

Storyboarding

Passage of time

Only use if it's necessary to understand
story

Preparing Your Course Project

Storyboarding

It doesn't have to be drawings!

What are some techniques that you have used to generate storyboards?



Preparing Your Course Project

Storyboarding

Summary

Think about how long you have a captive audience

Think about how much you want to tell

Think about options for presenting sequences of drawing

Preparing Your Course Project

Paper Prototyping

Why?

Easy and fast to do

Helps you think of specifics

Usually good as a first round prototype

Can use for idea evaluation and usability testing

Preparing Your Course Project

Paper Prototyping

Prototyping can be done at a wide range of fidelities.

Rough sketch, cardboard, foam core

Wireframes

Interactive wireframes, clickable slides

Mockup demo

Functional system

Preparing Your Course Project

Paper Prototyping

Choosing the right level of fidelity

What kind of feedback do you want?

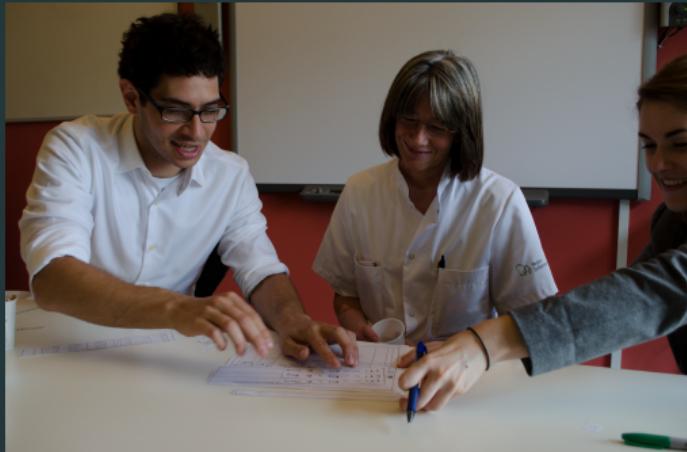
What skills does your team have?

What resources are available?

How much time do you have?

Preparing Your Course Project

Some examples



Preparing Your Course Project

Paper Prototyping

Recommendations

Start early in the process

Avoid evolutionary (refining) prototypes (temptation too great to stick with bad ideas)

Start with idealistic (rather than realistic) prototypes

Level of polish should reflect maturity of the prototype

T2: Scenario Story

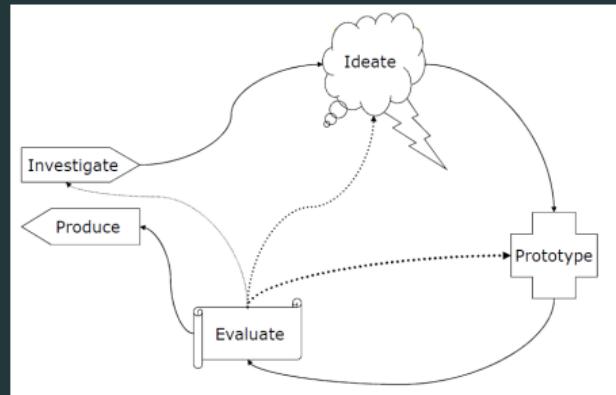
T2: Scenario Story Overview

Team assignment 2 is about developing a plan for your project

Your first loop through the Investigate, Ideate, Prototype, and Evaluate phases

At each point in the iterative cycle, you will generate assets that tell your story

You will share these assets with the class



T2: Scenario Story Overview

Part 1: Scenario selection and refinement

You have a basic scenario, next you will need to lock down a plan for the rest of the quarter. Meet with your team and document the following:

Overview

Requirements

Team roles

We want to make sure that your scope is set accurately. Scope will vary by team size and overall project. Aim high, it's better to narrow your scope later than have to add more at the end.

T2: Scenario Story Overview

Part 1: Scenario selection and refinement

Submit a PDF of your plan by February 1st.

T2: Scenario Story Overview

Part 2: Generating Artifacts

Now that you have a rough plan in place, it's time to start generating artifacts.

Notes, sketches, brainstorming assets

Prototypes

You can use the methods discussed today or select other ideation and prototyping methods.

T2: Scenario Story Overview

Part 2: Evaluation

Once you have generated enough artifacts to clearly communicate your ideas, it's time for some evaluation!

Peer evaluation (we'll do this in week 5)

Friends, family, students outside of class

Target likely users of your idea

Keep track of everything.

T2: Scenario Story Overview

Part 2: Evaluation

Pull it all together. Collect all the artifacts that you generated (including evaluation notes) and organize them into a single PDF document.

- Artifacts (the more the better)

- At least 1 prototype per team member

- A summary of evaluation feedback and how it will influence your direction

Most importantly: we want to see process and progress! We should be able to look through your submission and follow the path that guided you from a one sentence scenario prompt to a set of guidelines for developing your idea into a functional prototype.

T2: Scenario Story Overview

Part 2

Submit a PDF of your final document by February 8th.

Next Class

Tuesday

- Introduce A3
- T1 Presentations
- Wrap up A2 (DUE 1/24)
- Get started on T2 (Part 1 DUE 2/1)

References

References i