

Human-Computer Interaction Design



COGS120/CSE170 - "Intro. HCI"

Instructor: Philip Guo

Week 2 - Prototyping (2016-10-04)

some slides adapted from Scott Klemmer's Intro. HCI course

Grading policy: aim for transparency

(This is a summary; *logistics* tab on course website has full details)

- 165 total points. No curve. Standard letter grade scale (e.g., 90% is A-)
- Assignments (107 points total for 8 assignments)
 - The staff will grade based on a public rubric
 - You will also self-assess to *give yourself a grade* based on same rubric
 - For team assignments, you will also assess your teammates
 - (ungraded, but may be used in extreme cases to rebalance scores for fairness)
- Completing self-assessment form (8 points, 1 for each assignment)
- Exam 1 (15 points)
- Exam 2 (15 points)
- Studio attendance and participation (20 points)

Learning Objective

to create prototypes of varying degrees of fidelity throughout the design process.

Outline

- Prototyping: what, why, and how?
- Storyboards, paper prototypes, Wizard-of-Oz
- Prototyping in-class activity & discussion

Before this class:

“Let’s build
something cool!!!”
<code code code>

After Week 1 of class:

“Let’s do some needfinding.
OK, found some needs. Let’s
build something cool!!!”

<code code code>

Today's big question:

Why shouldn't you

<code code code>

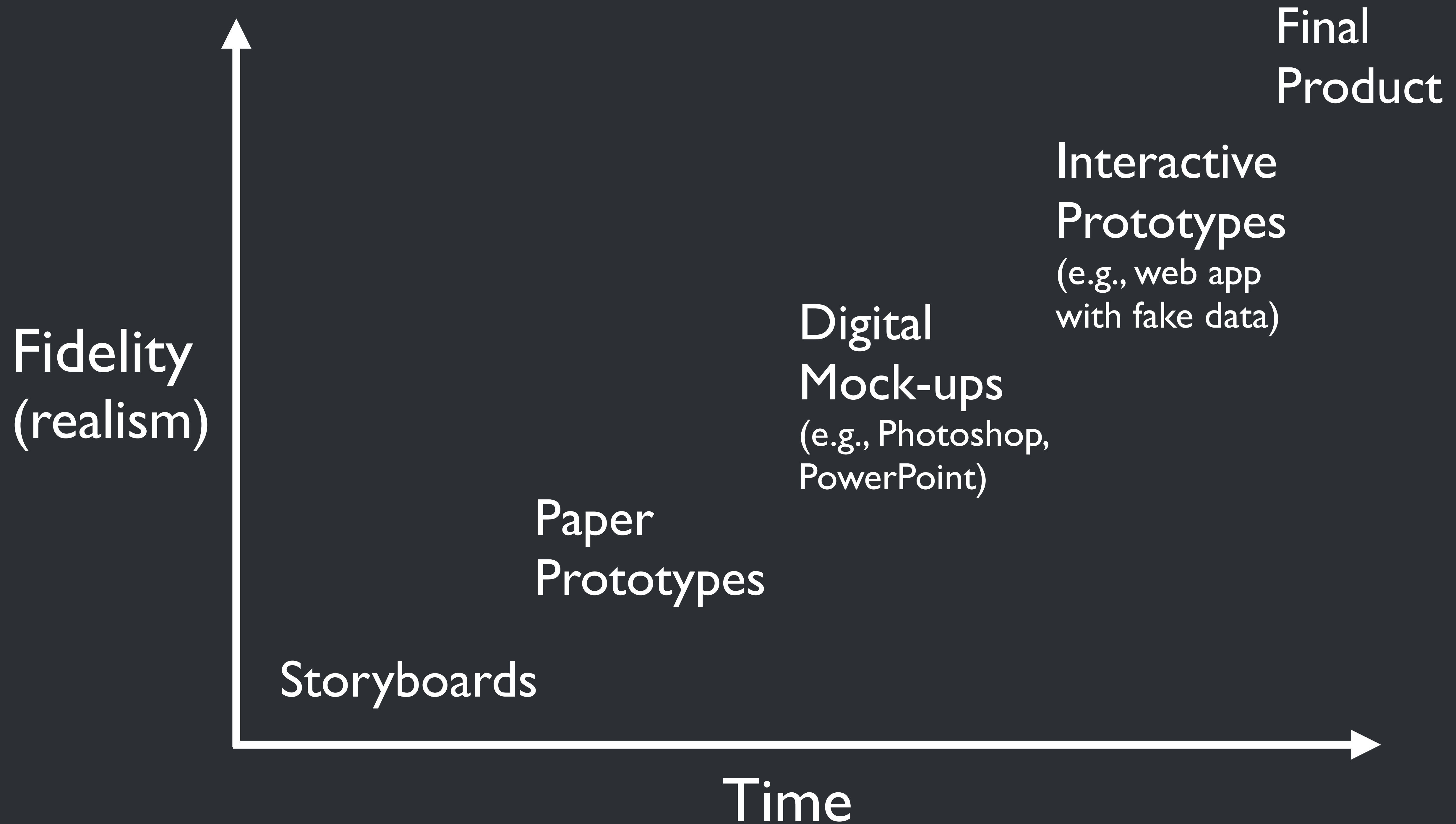
right away?

What is a
prototype? Why
build prototypes?

Prototypes

facilitate

conversations



Prototypes facilitate conversations about ...

Fidelity
(realism)

Picky usability details

Interactive

Prototypes

(e.g., web app
with fake data)

Visual design

Digital

Mock-ups

(e.g., Photoshop,
PowerPoint)

User interactions

Paper

Prototypes

User tasks

Storyboards

Time

What are the
chances that your
initial design ideas
are the best ones?

Prototypes allow you
to quickly test on
users, get feedback,
iterate, and pivot.

STORYBOARDS

(slides adapted from Amal Dar Aziz)

STORYBOARD =
A hand-drawn comic
that features:
Setting + Sequence + Satisfaction

No artistic skill required!

Setting

- people involved?
- environment?
- task being accomplished?

Sequence

- what steps are involved?
- what leads someone to use the app?
- what task is being illustrated?

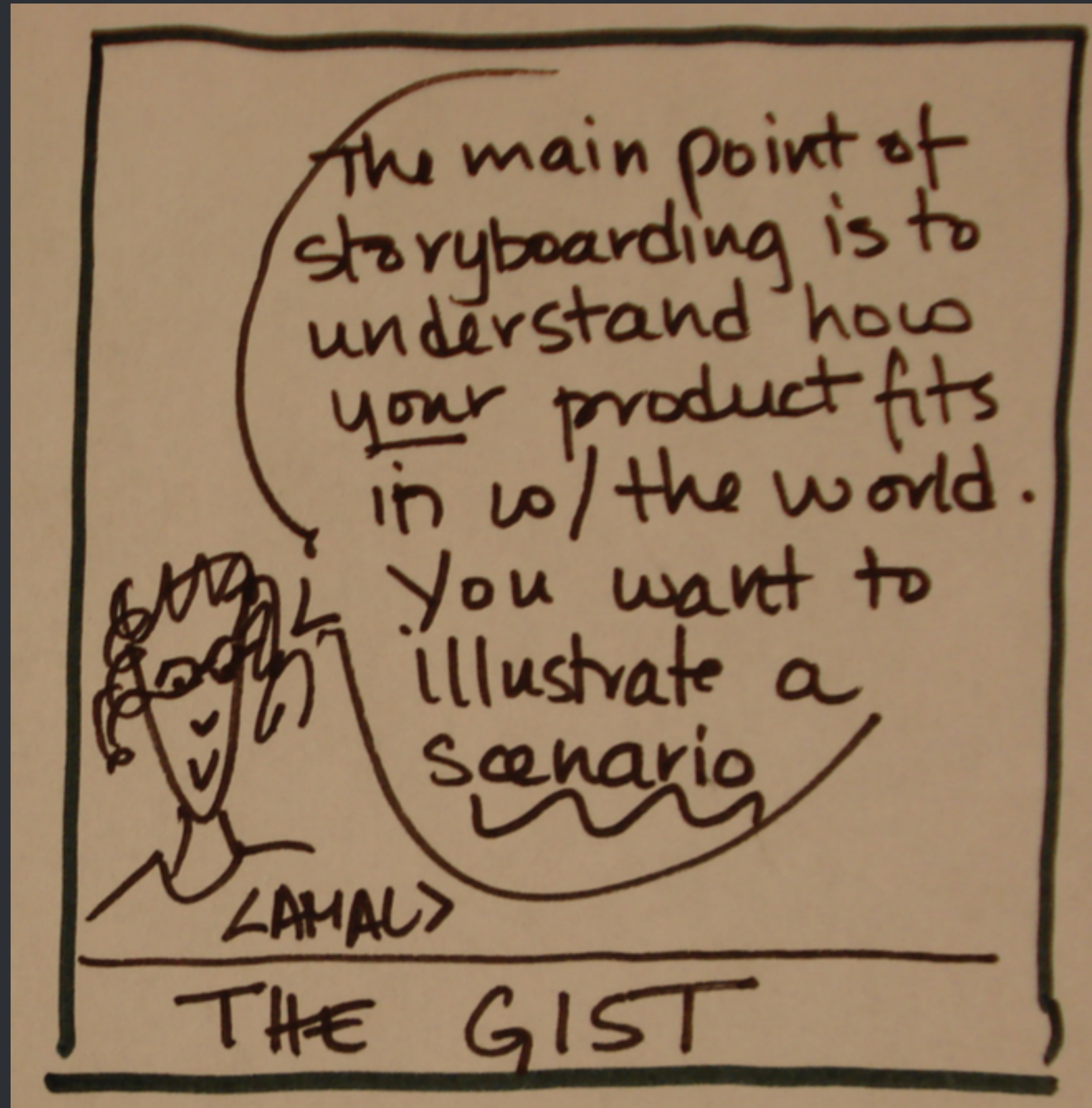
Satisfaction

- what's the motivation for the user?
- what's the end result?
- what need are you "satisfying"?

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RED & SEAN WERE
BORED AFTER GOING TO
THE BLUEGRASS FESTIVAL,
& DECIDED TO FIND OUT
WHAT ELSE THEY COULD
DO...

DUDE,
WHAT
DO WE
DO?!

<RED>

LET ME
USE
TOURSATEL
ON MY
iPhone.

<SEAN>

SHOW WHY &
WHEN features would be
used

STORYBOARD =
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that features:
Setting + Sequence + Satisfaction



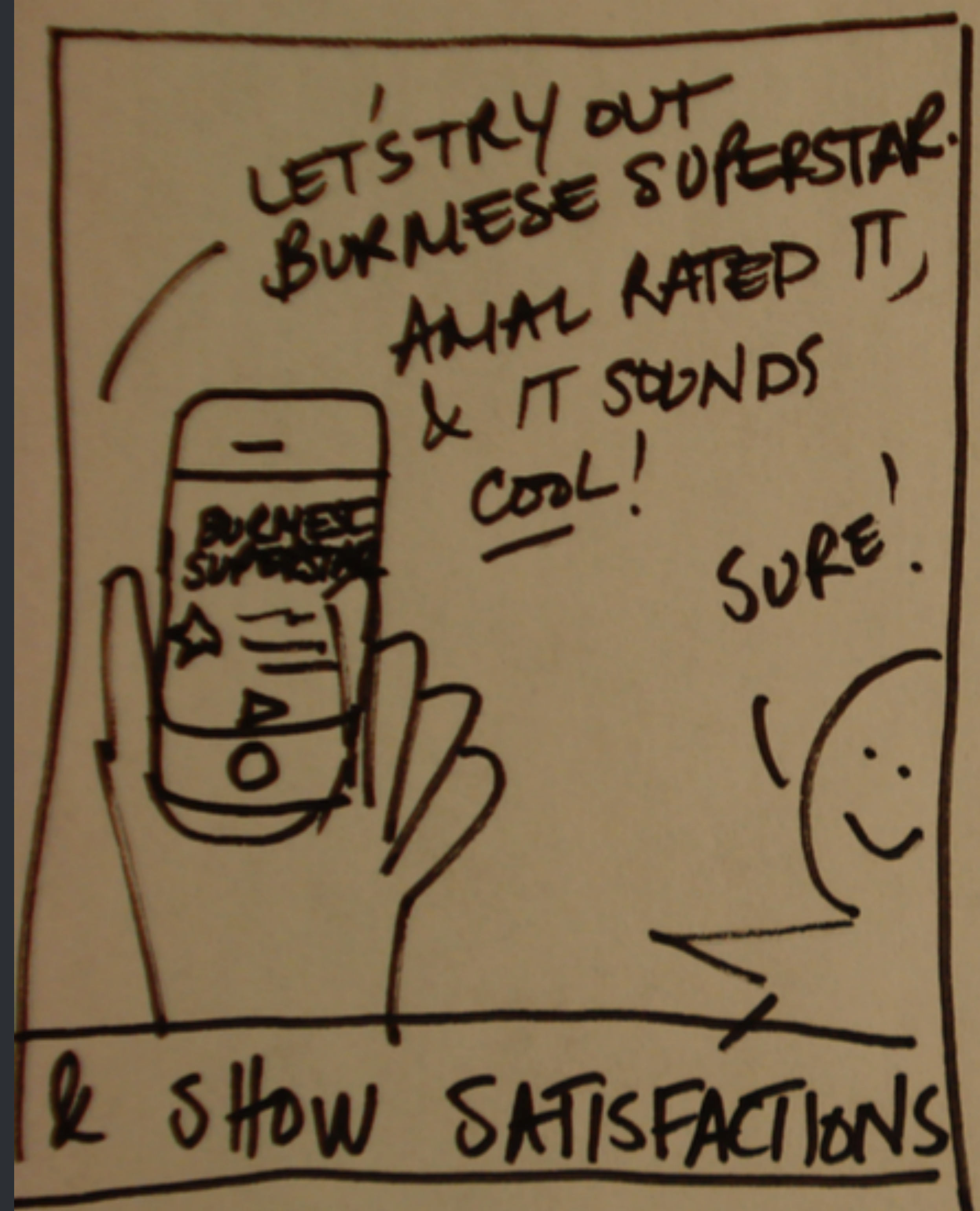
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Benefits:

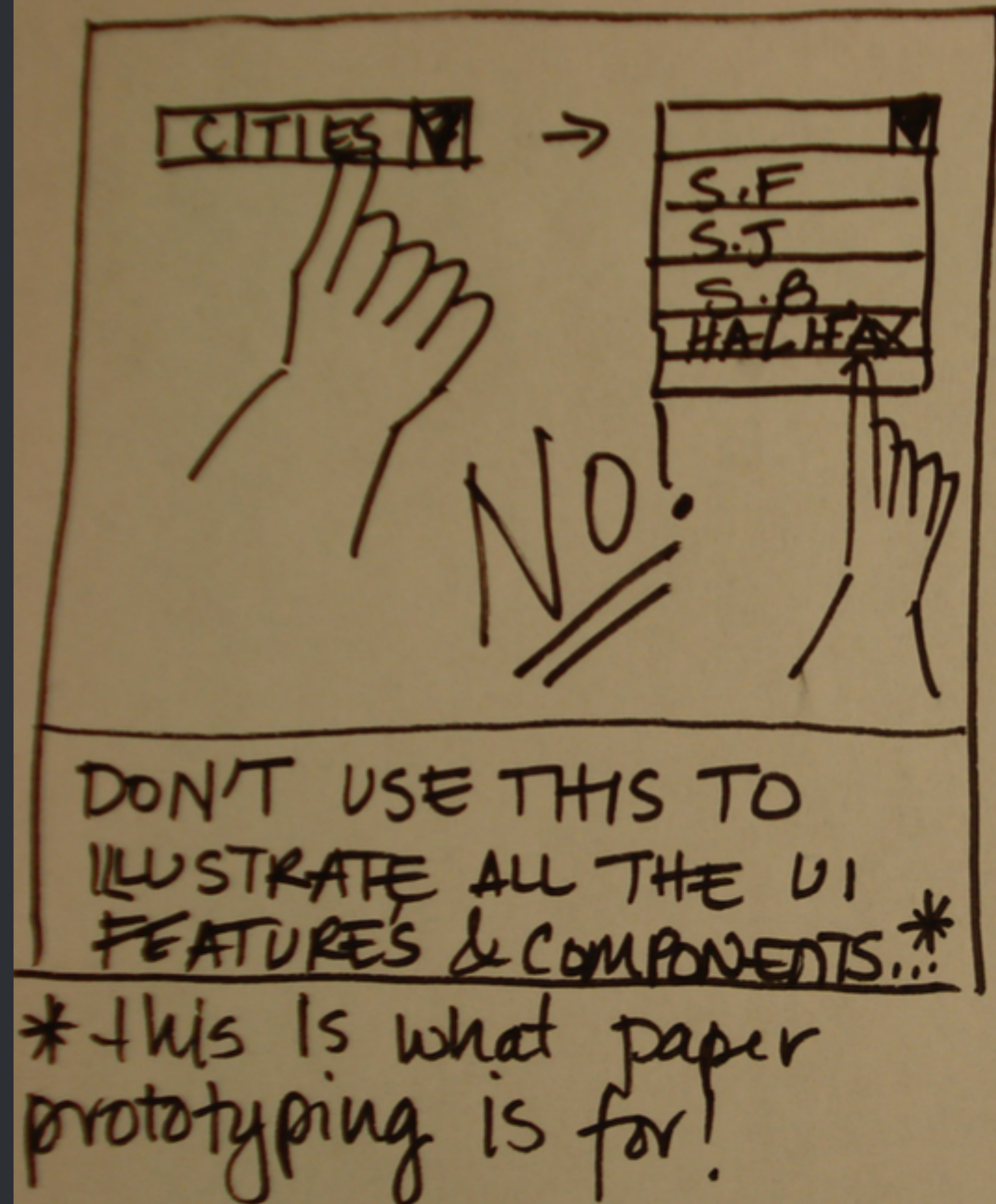
- focuses the conversation and feedback on *user tasks*
- gets everyone on same page about the app's goals
- avoids nitpicking about user interface details



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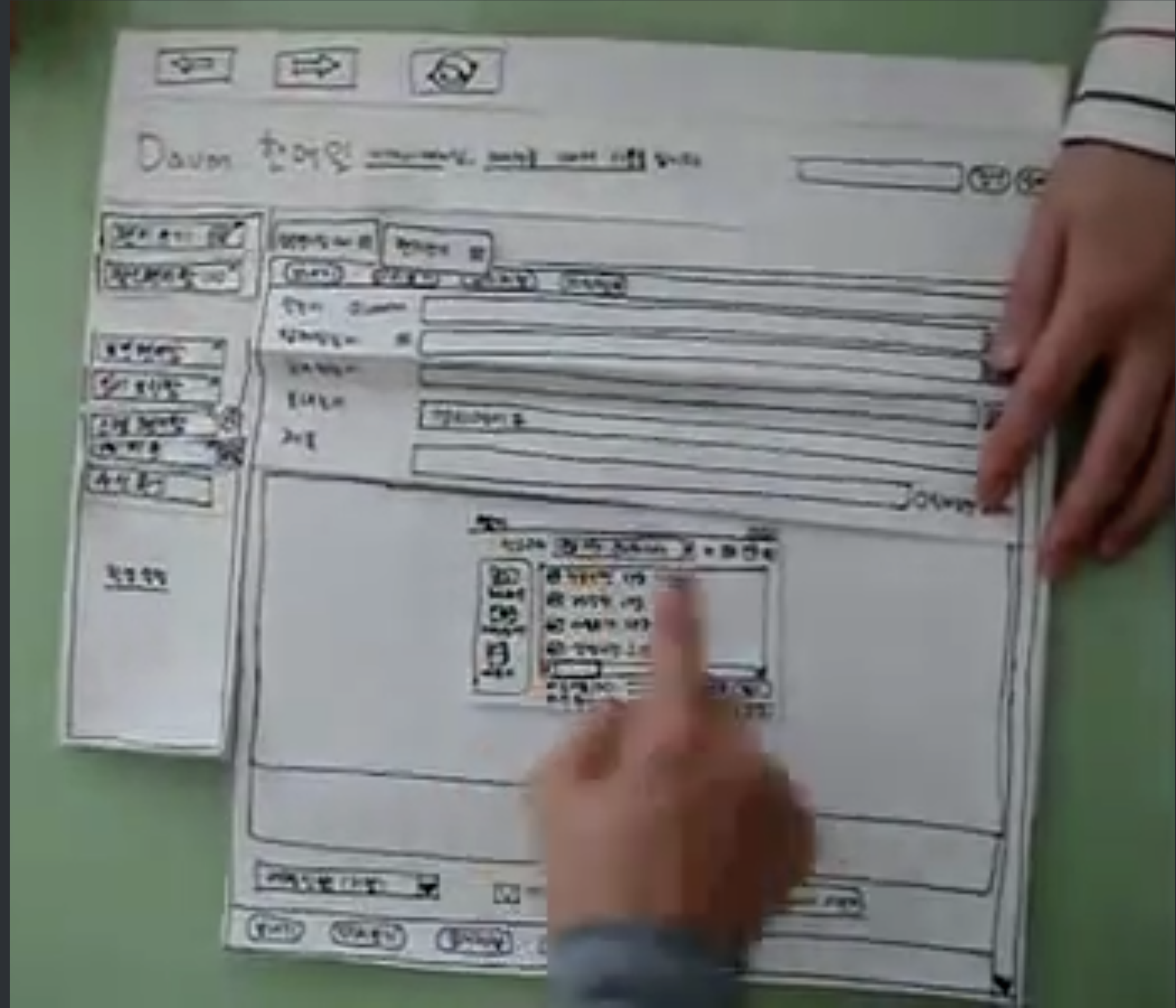


PAPER PROTOTYPES

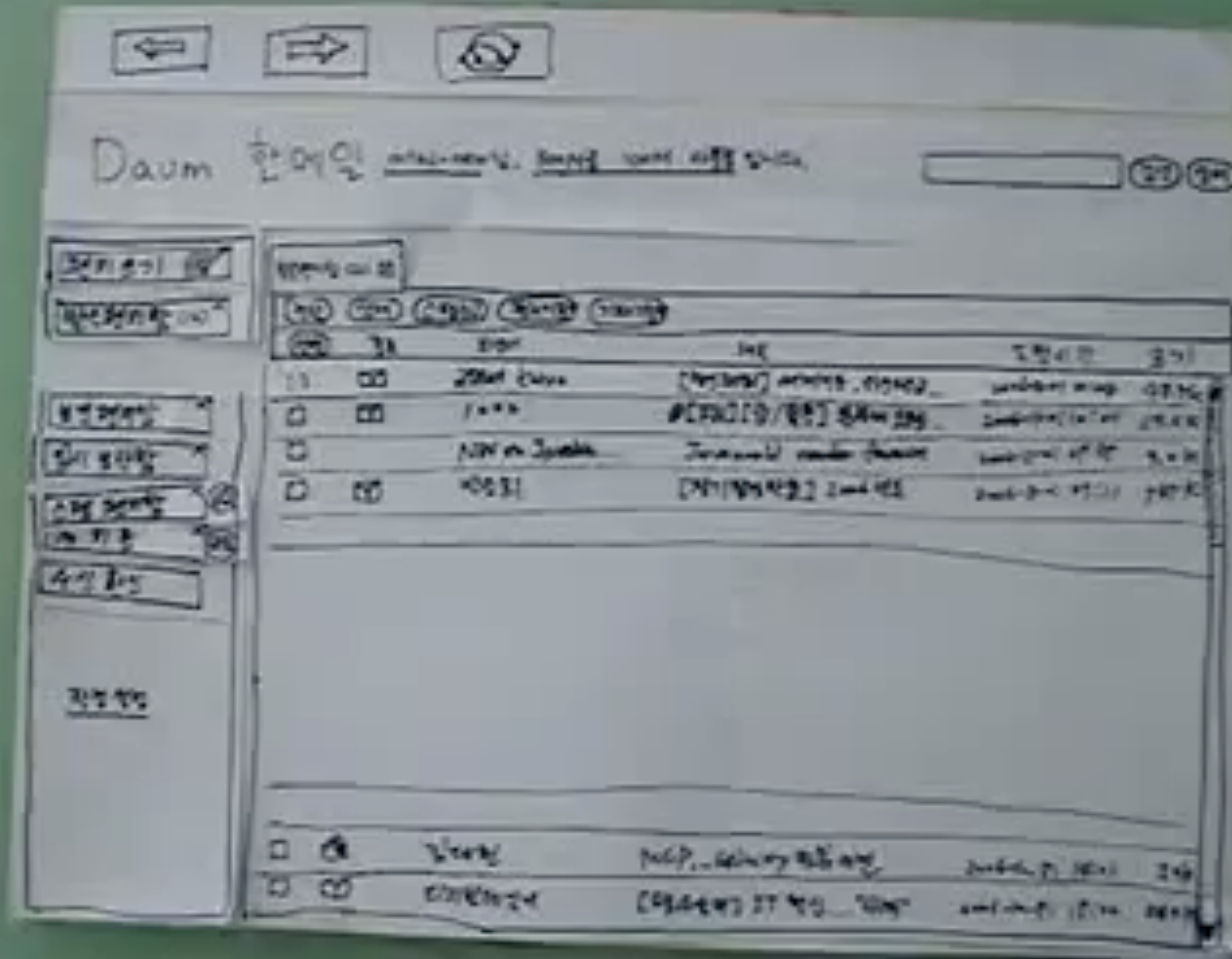
PAPER PROTOTYPE =

A hand-drawn user interface (usually) on multiple sheets of paper of varying sizes

You can photocopy your hand-drawn components, but don't create anything on the computer!



Paper prototype of Hanmail.net <https://www.youtube.com/watch?v=GrV2SZuRPv0>

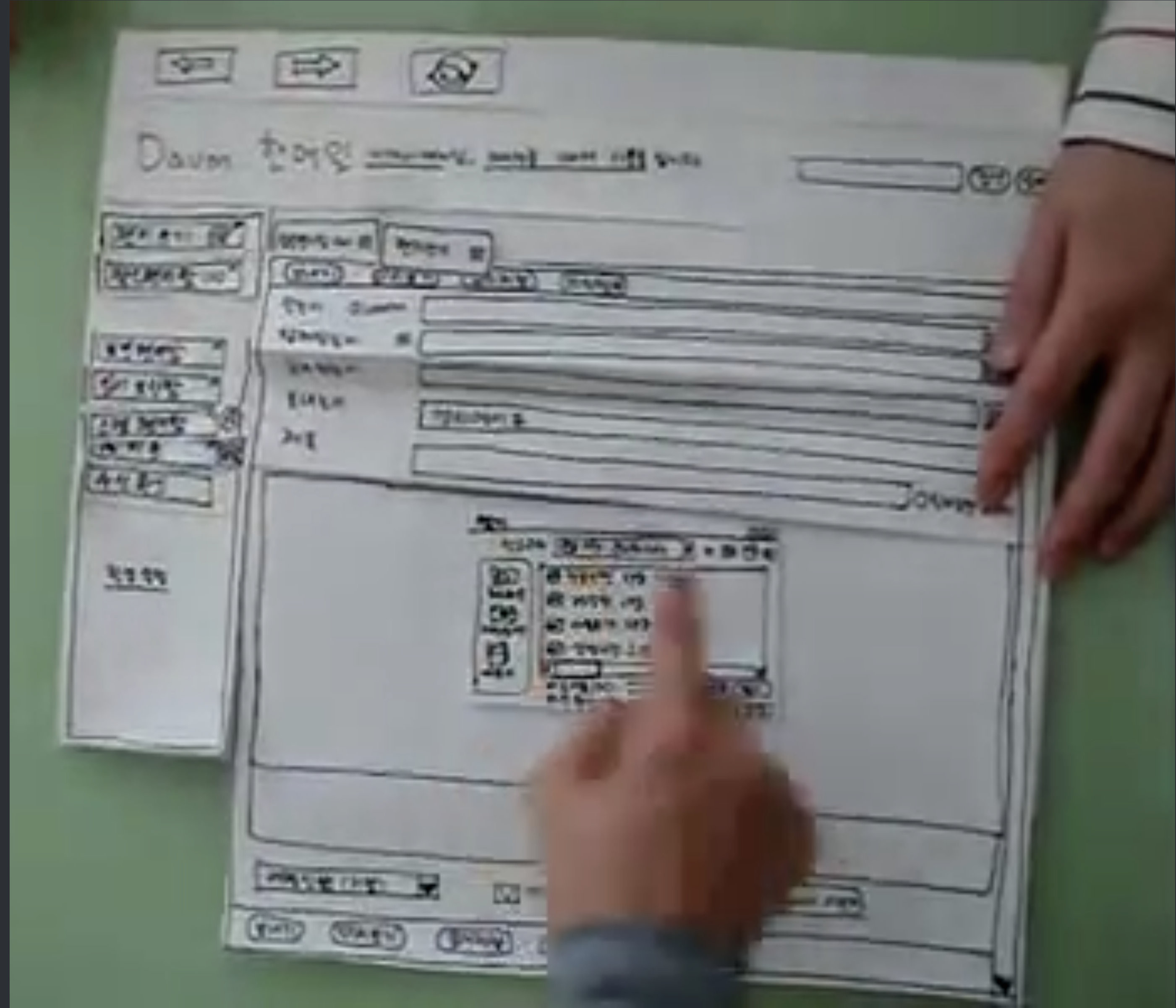


PAPER PROTOTYPE =

A hand-drawn user interface (usually) on multiple sheets of paper of varying sizes

Benefits:

- much easier than writing GUI code
- starts conversation about user interactions
- change elements on-the-fly when given feedback



Paper prototype of Hanmail.net <https://www.youtube.com/watch?v=GrV2SZuRPv0>

Increasing the fidelity a bit ...

Fidelity
(realism)

Video Prototypes

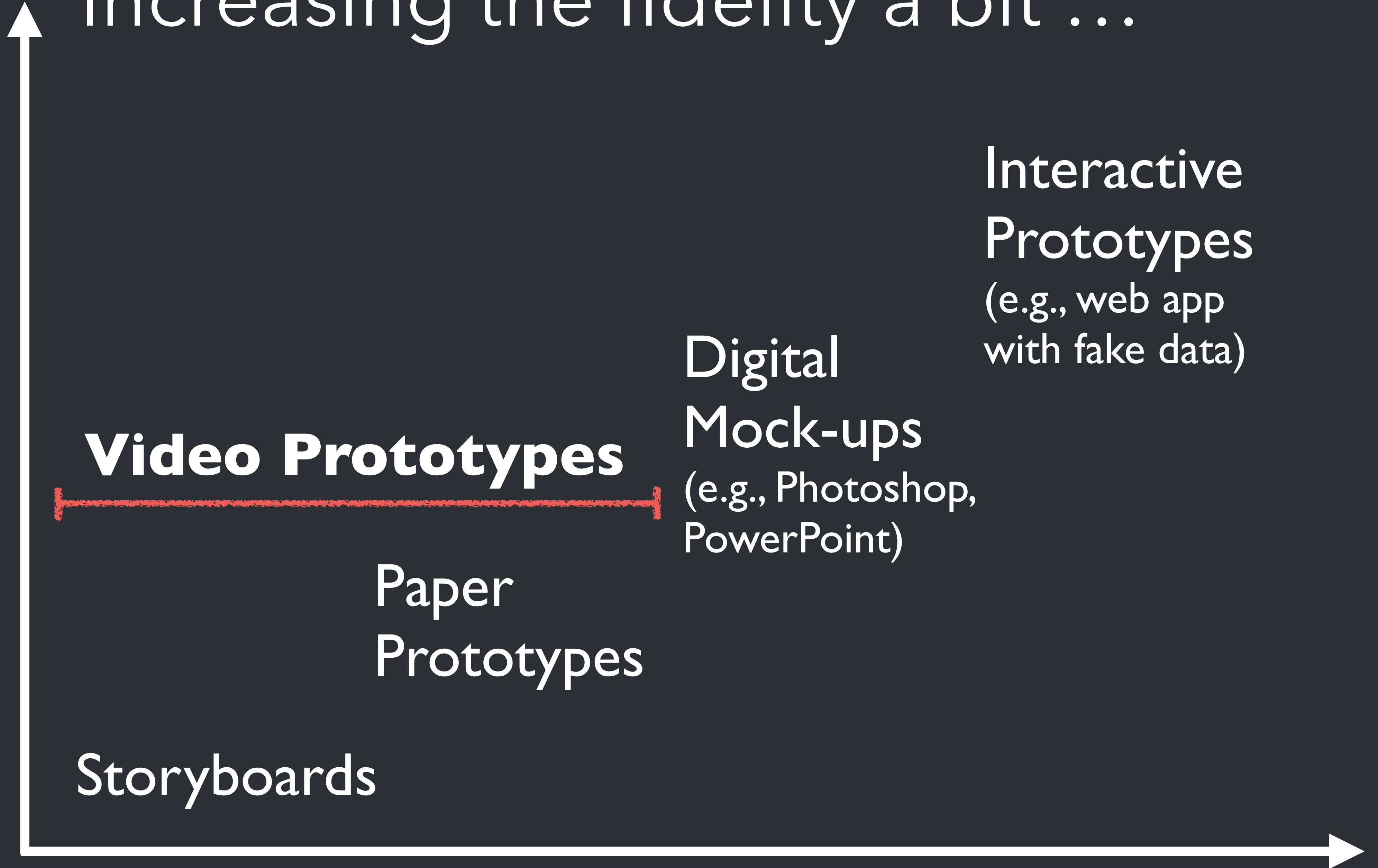
Digital
Mock-ups
(e.g., Photoshop,
PowerPoint)

Interactive
Prototypes
(e.g., web app
with fake data)

Paper
Prototypes

Storyboards

Time





Video prototype combining storyboard and paper prototype concepts. From Lisa Seeman, Stanford University: <https://www.youtube.com/watch?v=FXSk9UJM738>

VIDEO PROTOTYPE =
A video that conveys your
storyboard and/or paper
prototype concepts.

Benefits:

- clean & self-contained;
just share a YouTube link
- can more vividly inspire
people's imagination
- good for “pitching” or
“selling” to management



WIZARD-OF-OZ

(a way to “run” your prototypes without writing code)



WIZARD-OF-OZ=

A human operator
pretending to be an
interactive computer app



WIZARD-OF-OZ=

A human operator pretending to be an interactive computer app

Benefits:

- makes your prototypes interactive without writing backend logic code
- gets more sophisticated feedback on complex tech
- you can learn a lot by being the wizard



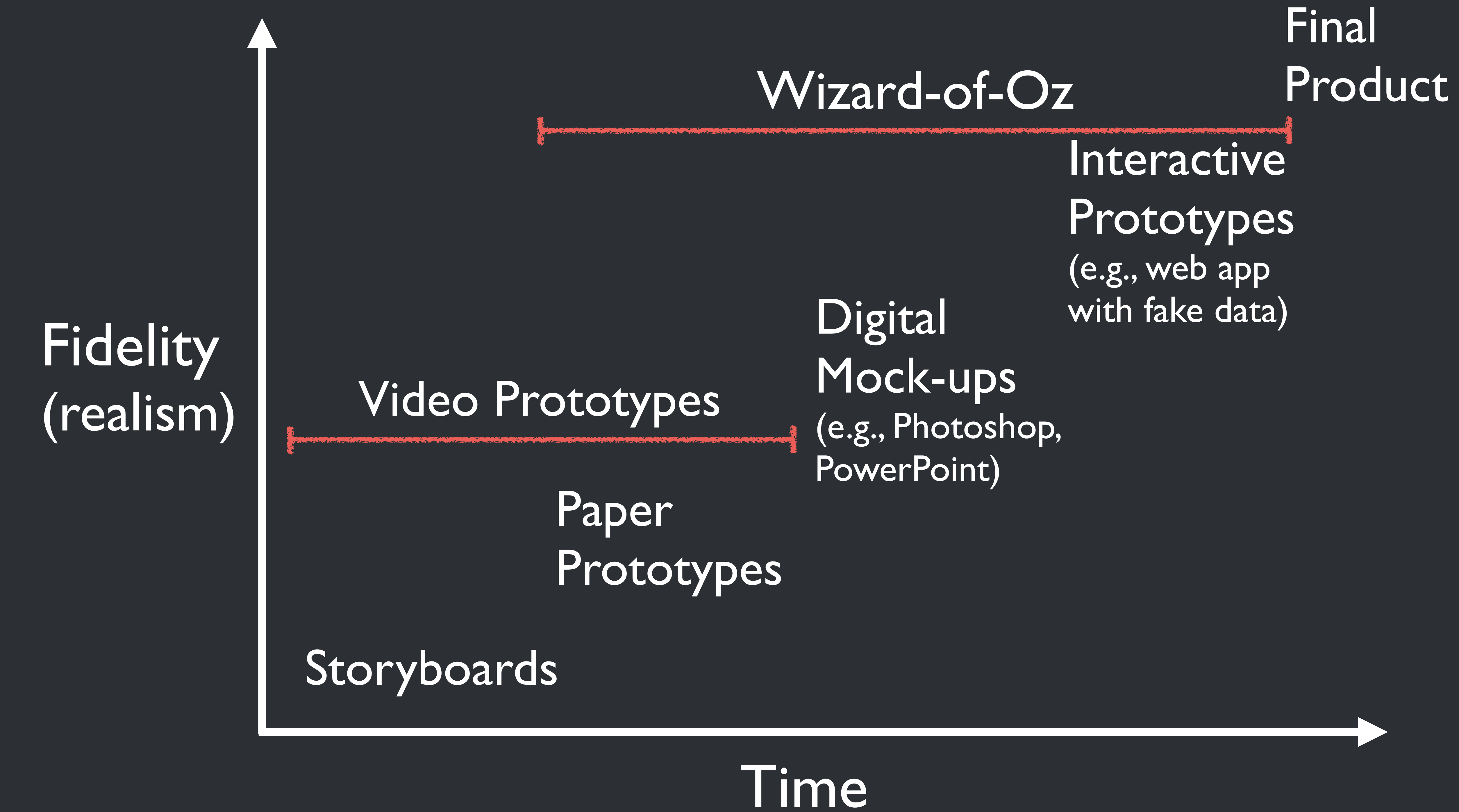
WIZARD-OF-OZ=

A human operator pretending to be an interactive computer app

Tips:

- Have one teammate be wizard, and another be the study facilitator
- Write an “algorithm”/ prompt for wizard so that they follow pre-set rules
- Practice on friends first





Summary of prototyping techniques

OK YOUR TURN!

**IN-CLASS STORYBOARD
ACTIVITY**

(designed along with TA Shawn Kang, Fall 2016)

Remember the restaurant-picking needfinding activity from Week 1?

- **Person A:** wants to find a restaurant to go to lunch with B, who is their boss.
- **Person B:** boss who plans to go to lunch with A but doesn't have access to web/mobile themselves. is not very tech-savvy, but is very picky about food and has strong opinions overall.
- **Person C:** observer who watches A and B interact. (needs to not be shy about maybe reporting findings in front of class)

Review of Week 1's needfinding activity:

- Person A and B should try to agree on a place for lunch, with Person A using their cell phone to look up places (if they have decent Internet access on it), or their laptop (if they don't).
- Remember, Person B is the non-tech-savvy, super-picky-about-food, strongly-opinionated boss. Get into the role :)
- Person C is a *silent* observer watching how A interacts with their phone/laptop, and how A interacts with B. Do not talk to either A or B. Get a clear view of the phone/laptop, though.

Person C's (People C's?) report back ...

- What difficulties or stumbles did A have when using mobile or web app?
- Did A and B both look on the screen at once? Did A and B both try to interact with the app?
- Any unusual interactions with the app?
- What did you wish you could jump in to suggest but couldn't, since you had to remain silent?
- What do you think A or B need to make this restaurant-picking scenario go smoother?
- [focus on problems & needs; don't jump to solutions just yet]

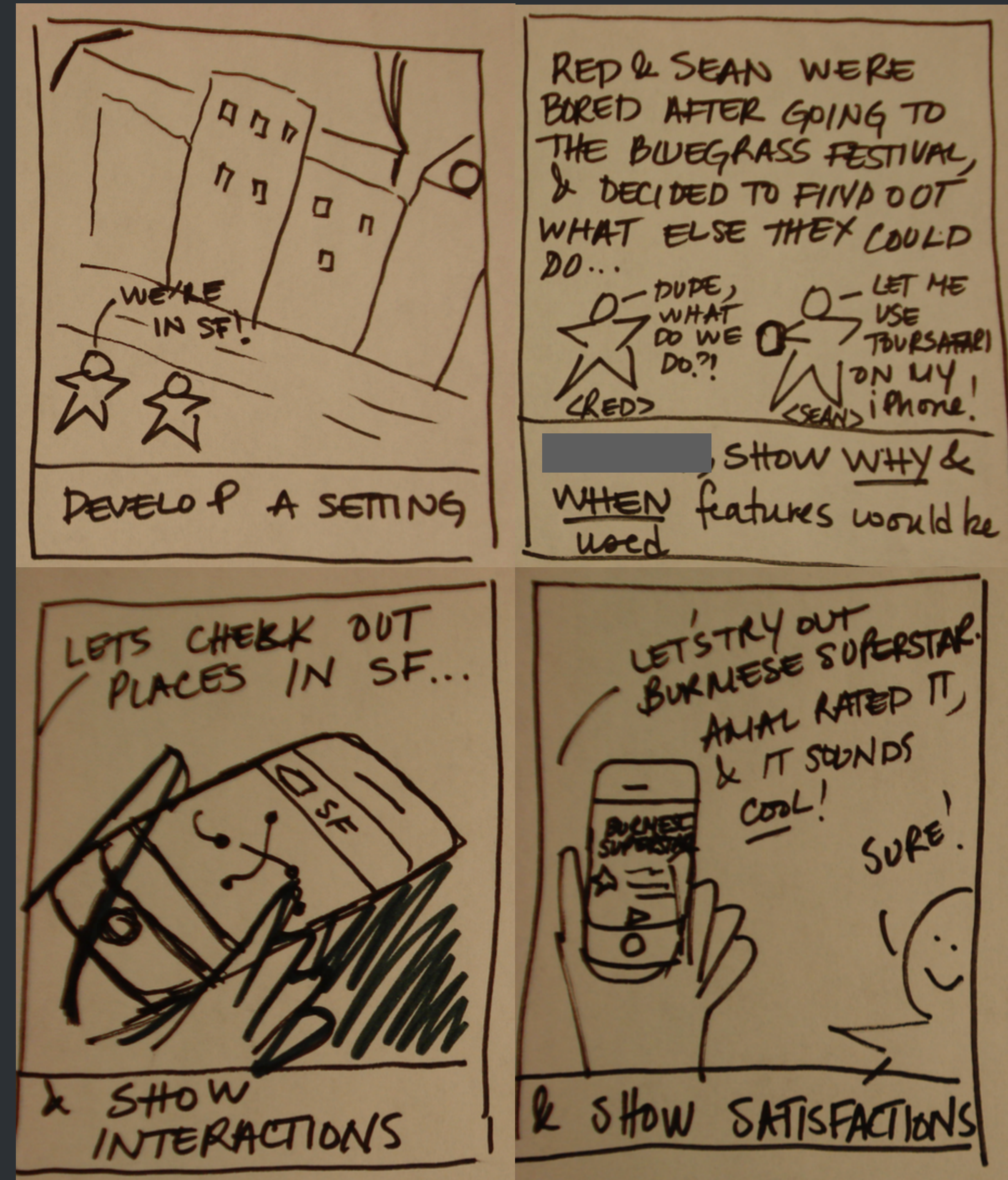
Right now: form a group of 3-4 with your neighbors

- Doesn't need to be the same group as Week 1's activity, but if you're sitting next to the same people again, go for it!
- Create a *point-of-view* from the most compelling need that your group-mates discovered in class last week
- As a group, on a sheet of paper, write down your point-of-view sentence and draw a *4-panel storyboard* that illustrates a potential technology solution to a need you identified (don't focus on UI or technical details).
- At the end of class, I will get volunteers to bring me their storyboards, and *I will try to comprehend/explain them.*

STORYBOARD =

Setting + Sequence + Satisfaction

- Create a *point-of-view* from the most compelling need that your group-mates discovered in class last week
- As a group, on a sheet of paper, write down your point-of-view sentence and draw a *4-panel storyboard* that illustrates a potential technology solution to a need you identified (don't focus on UI or technical details).



**NOW I WILL TRY
TO EXPLAIN YOUR
STORYBOARDS**

Who wants to volunteer?

Learning Objective

to create prototypes of varying degrees of fidelity throughout the design process.

TODOs after class

- Make sure you're registered for Gradescope
- Assignment 1 due Thursday night on Gradescope