



Prototyping [Develop]

“Create me an out of the world image like we have in the past. Where lots of little animals are showcasing their design work to each other. Use the theme to pacific northwest. Keep all the animal sizes consistent.” ChatGPT

Today

- Reflections from Ideation
- Today: From Ideation to Prototypes
 - Storyboard -> design sketches -> lo-fi (paper) prototype
- Wed: Design gallery
 - Design Sketches

Why Prototype

"Prototypes let you fail faster and cheaper." – IDEO

What: Flesh out a concept with **enough detail**

Why:

- Spot issues before investing time and code
- To communicate (boss, team, clients...)
- Get feedback from teammates and users
- Explore multiple directions quickly

Prototype Characteristics

- Fidelity: How closely it matches the look-and-feel of the final system
- Fidelity can be in the areas of:
 - Visuals
 - Interactivity
 - Content and Commands

Types of prototypes: based on visual/content

Lo-fi prototype:

- When: Cheap, early stages
- yet force enough attention to detail
- (can be sketches, but more often paper prototypes)
- Why: get more substantive feedback from users

Hi-fi prototype:

- When: AFTER get through lower-fi ones first.
- Why: Get at details of design (layout, icons, color etc)
- Front end finished with widgets polished up, but computer behavior/data is hard-coded (no back end).
- For boss, clients, at trade shows, etc.

Types of Lo-fi Prototypes

- Storyboards: frame-by-frame flows
- Sketches: quick drawings, ideas
- Paper Prototypes: simulate UI interactions

Storyboarding

Movie Storyboards

3

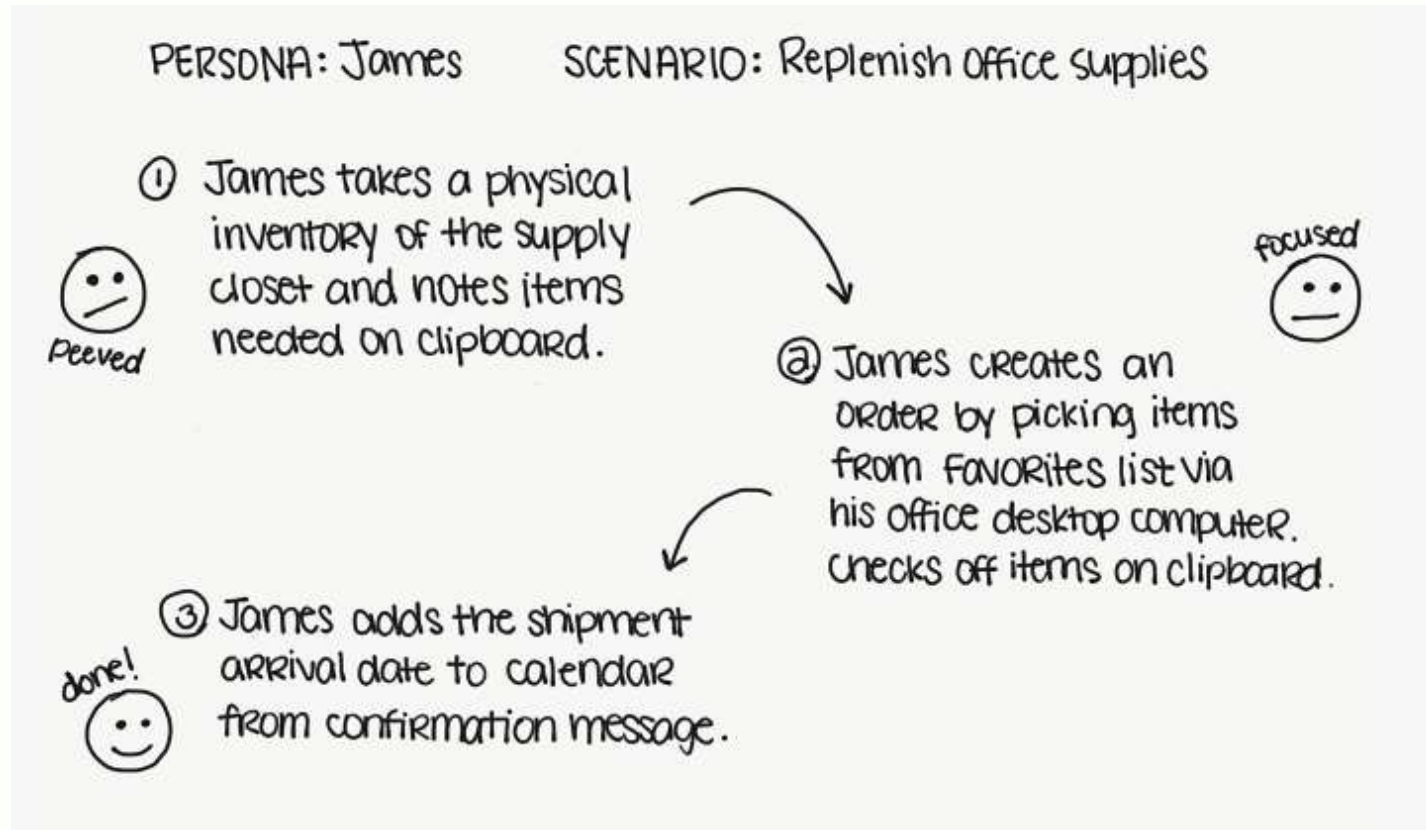


UX storyboards

- Sequences of sketches, showing
 - actors / screens
 - progress through a task
- Optimal number: 5-8 frames
- Used early in design



But, if its intimidating...you can start with outlining the steps and the users' emotion



Storyboarding – 4 Visual Elements

1. Level of detail

Number of objects and actors in a frame

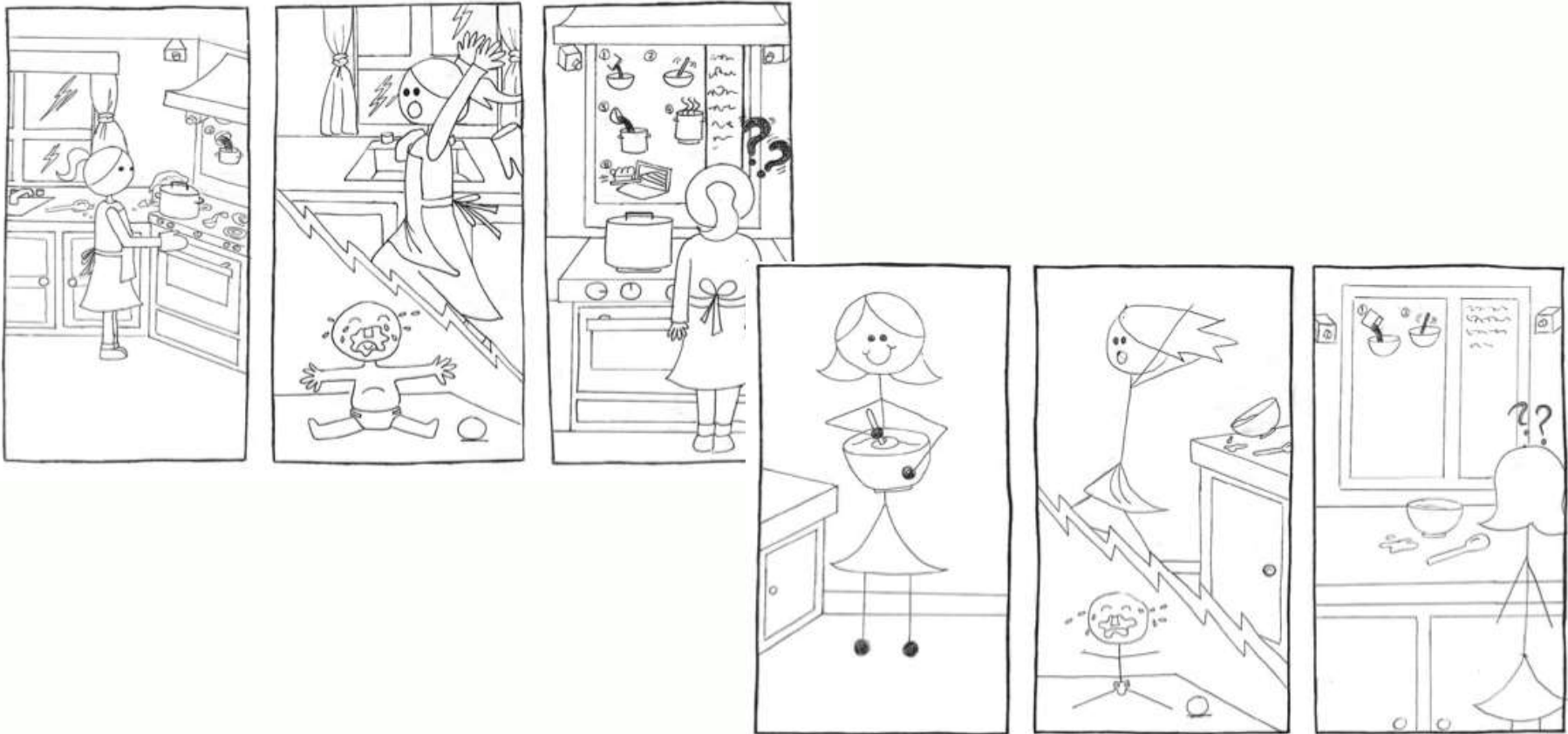


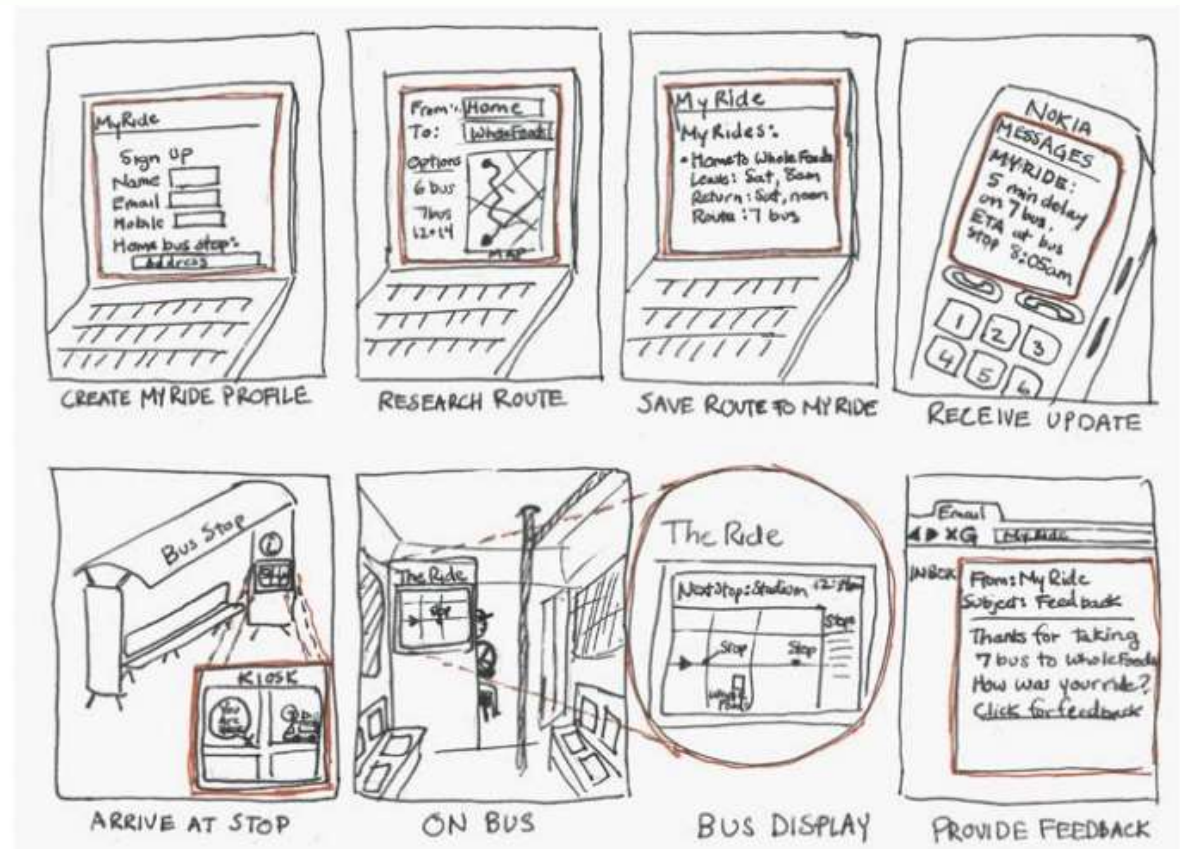
Figure from: courses.cs.washington.edu/courses/cse440/14au/slides/lecture/l08-storyboarding.pdf

Elements of Storyboarding

2. Inclusion of text

Tagline narration or

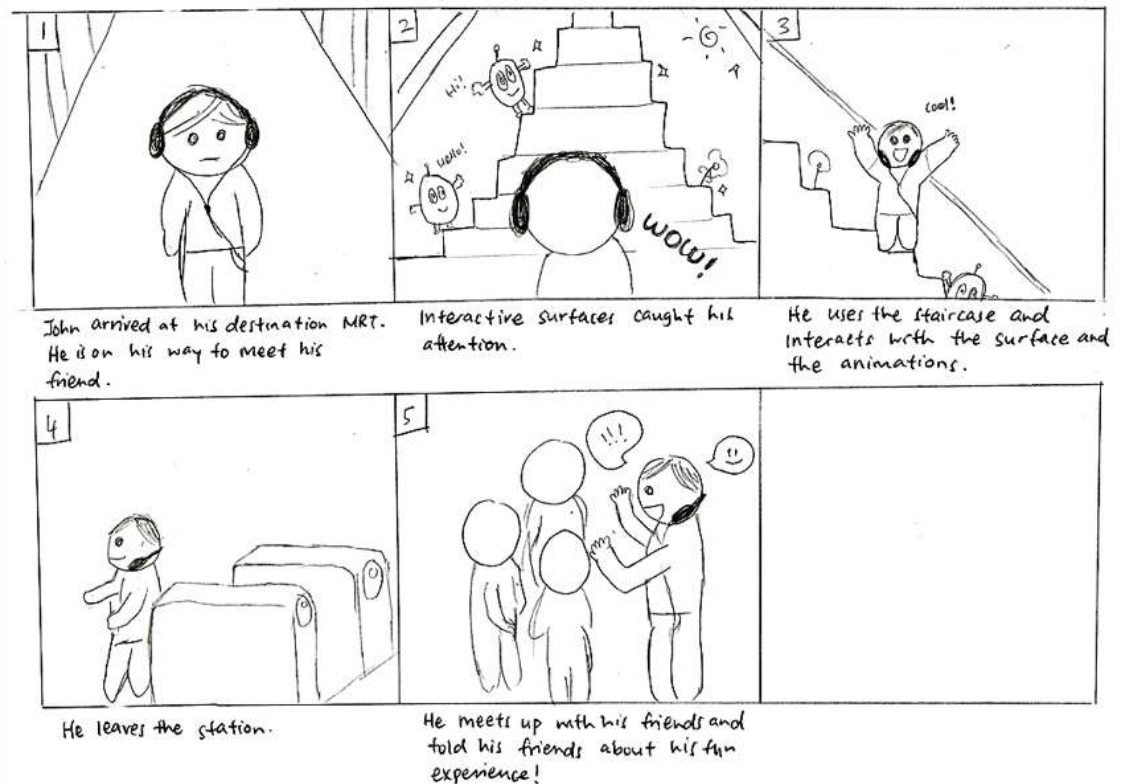
Inside the pane (speech, thought bubbles, or labels and signs)



Elements of Storyboarding

3. Inclusion of people and emotions

- Display emotions, motivation
- Interaction through reader as the actor



Elements of Storyboarding

4. Portrayal of time

Explicit timeline

Transitions that convey changes over time

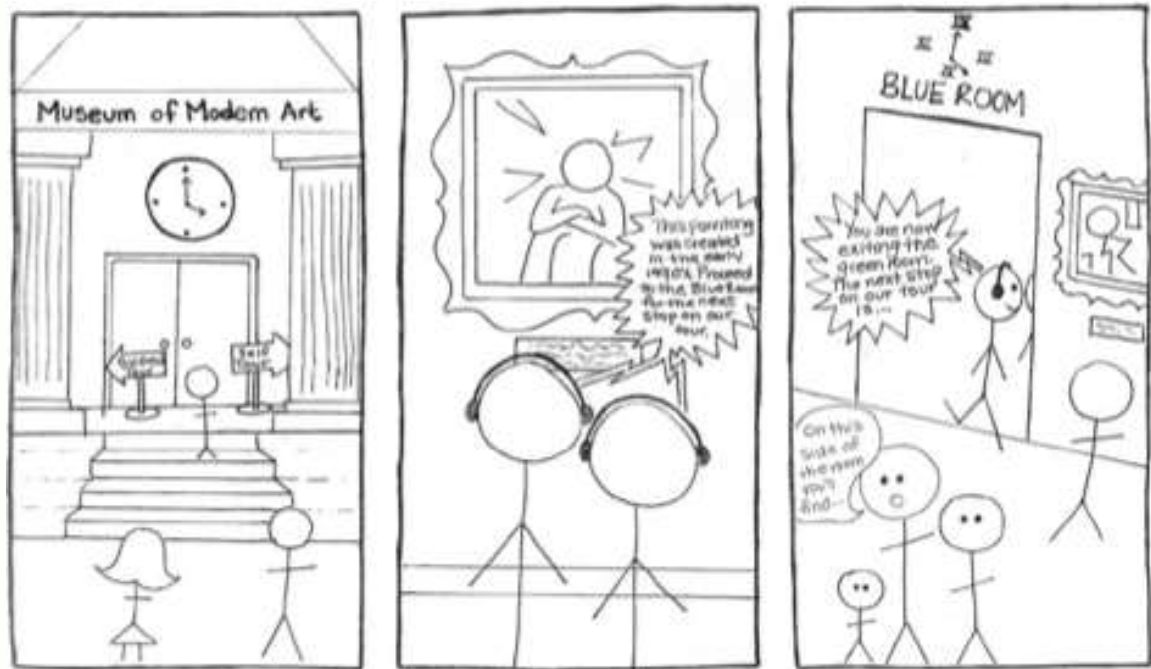


Figure from: courses.cs.washington.edu/courses/cse440/14au/slides/lecture/l08-storyboarding.pdf

Your turn (3 min)

Draw a storyboard for Margaret who uses the fitness app to track her exercise for the day, while she takes her walk.

5-8 frames; rough, stick figures are fine.

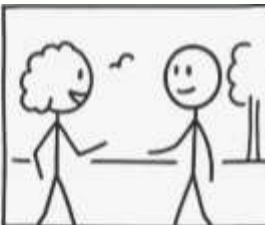


Attempt #3

GPT: Draw me a visual of 6 frame storyboard of a older adult user (Maggie) who interacts with the app to: (1) set work out mode to be fast walk, (2) when walking meets friend and stands and talk, (3) finishes walk and checks the stats, (4) realizes that the app automatically paused when she was chatting with friend and didn't record the rest of the walk, (5) tries to update the walk log but is unsuccessful and feels sad and frustrated, (6) calls daughter for help. ask clarifying questions. make very rough sketch. Use stick figure-like images to show the actors.



SET WORKOUT MODE
TO FAST WALK



MEET FRIEND
AND TALK



FINISH WALK
AND CHECK STATS



REALIZE WALK
AUTO-PAUSED



TRY TO UPDATE
WALK LOG



CALL DAUGHTER
FOR HELP



SET WORKOUT MODE
TO FAST WALK



MEET FRIEND
AND TALK



FINISH WALK
AND CHECK STATS



REALIZE WALK
AUTO-PAUSED



TRY TO UPDATE
WALK LOG



CALL DAUGHTER
FOR HELP



SET WORKOUTMODE
TO FAST WALK



FINISH WALK
AND CHECK STATS



REALIZE WALK
AUTO-PAUSED



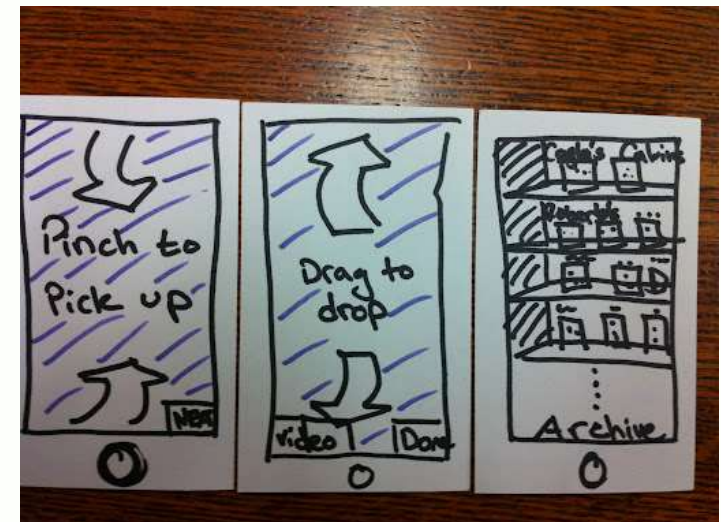
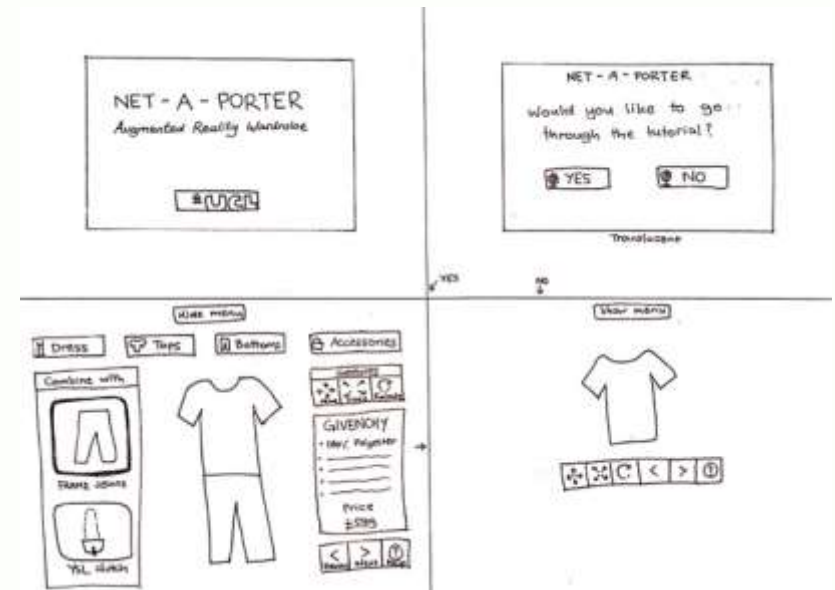
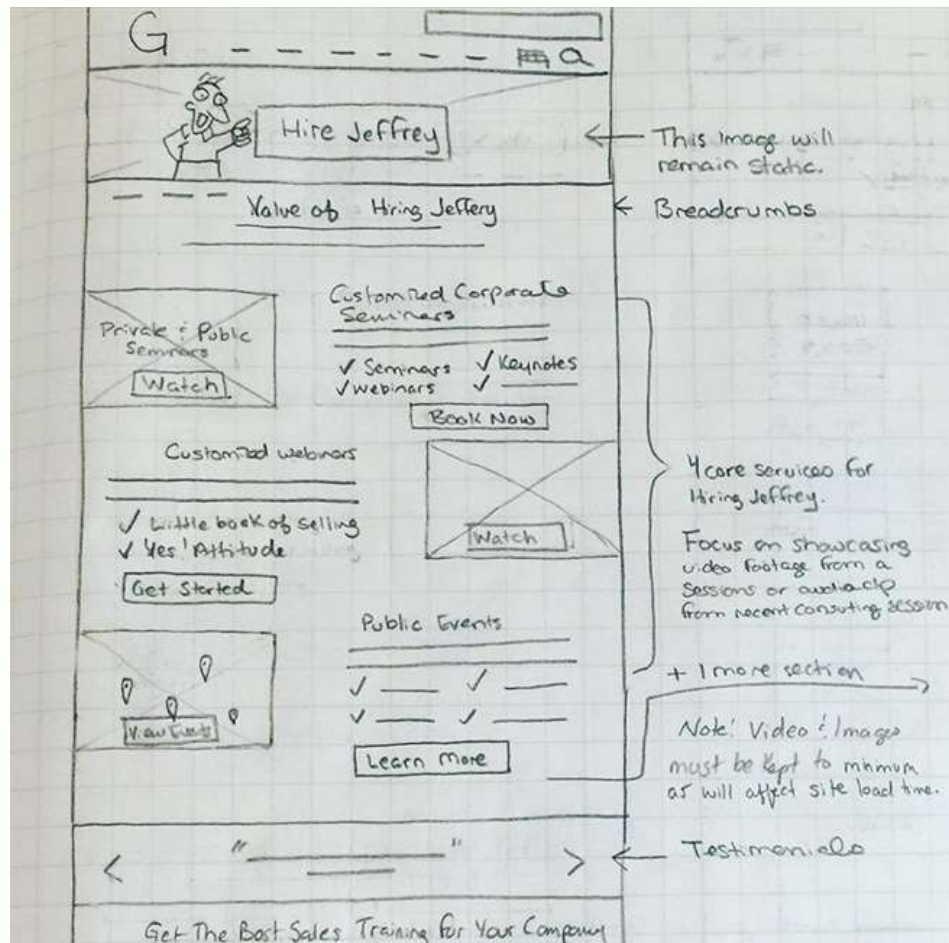
TRY TO UPDATE
WALK LOG



CALL DAUGHTER
FOR HELP

Sketching/Prototyping (the UI & interactions)

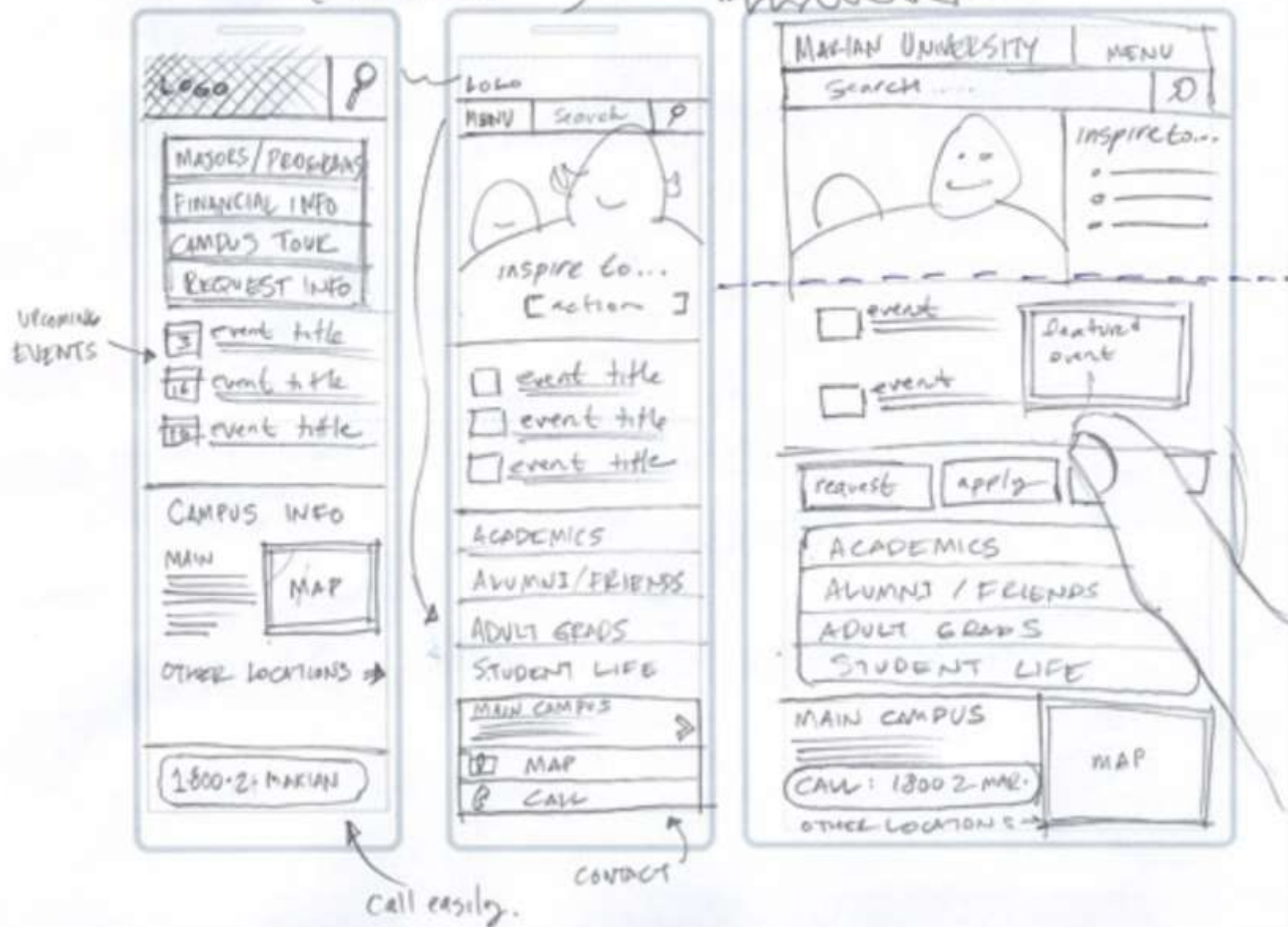
Sketches



Don't have to be a good artist.
Everyone should sketch

CAN I GET A JOB??

Text CHAT?



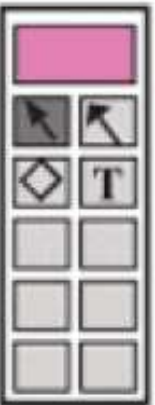


Rough Sketch

Scanned from a hand-drawing, made with a drawing app and a tablet, or using the Napkin Look and Feel skin.

"Maybe the tools should be context-specific...
Let's kill the toolbar and bring up only the
t

Feedback image




Visio, Powerpoint, etc.

Illustrated using a professional drawing or presentation tool.

"I don't like the two-column layout for tools.
Can we have them go across the top?"

Feedback



Looks Done

Mocked up in Photoshop, a multimedia program (Director, Flash, etc.), or a GUI builder (NetBeans, Visual Studio, etc.)

"Can you change the font on that 'T'?"
Not sure I like the bevel line weight.."

Feedback: detailed tweaks to specific features. Very focused and incremental.

Pitfalls with sketching

- Making it look polished
 - Using icons/pictures for widgets etc.
 - You get shallow feedback
 - Instead – **hand sketch**
- Putting multiple tasks into one storyboard
 - Things get confusing, make separate boards for each task
- Picking shallow tasks
 - Hard to understand the UI interactions
 - Plan to have at least 5-6 screen sketches per task

Your turn (5 + 5 min)

1. Draw the last app you used in 3 frames:

- Frame 1: What task were you trying to do?
- Frame 2: What did the screen look like?
- Frame 3: What happened next?

(No art skills needed – use stick figures and boxes!)

2. Once done simply exchange the sketches with the person next to you. Do not explain the idea, see if your neighbor understands the app.

Reflection

Was there any part of the app you didn't know how to sketch?
Could your neighbor tell what each frame was showing?

For Design Gallery

- Focus on your best idea/s from your quick sketches.
- Spend time crafting sketches that are neat and include as much detail as possible.
- Evaluation using Design Principles/trap cards
- If done by hand, use a ruler and even drafting paper.

Interactivity in Prototypes

Types of prototype: Interactivity/commands

Static

- For *communicating among team members*
- Usually done as a sketched storyboard or sketched “state machine”
- Design gallery-1

Dynamic

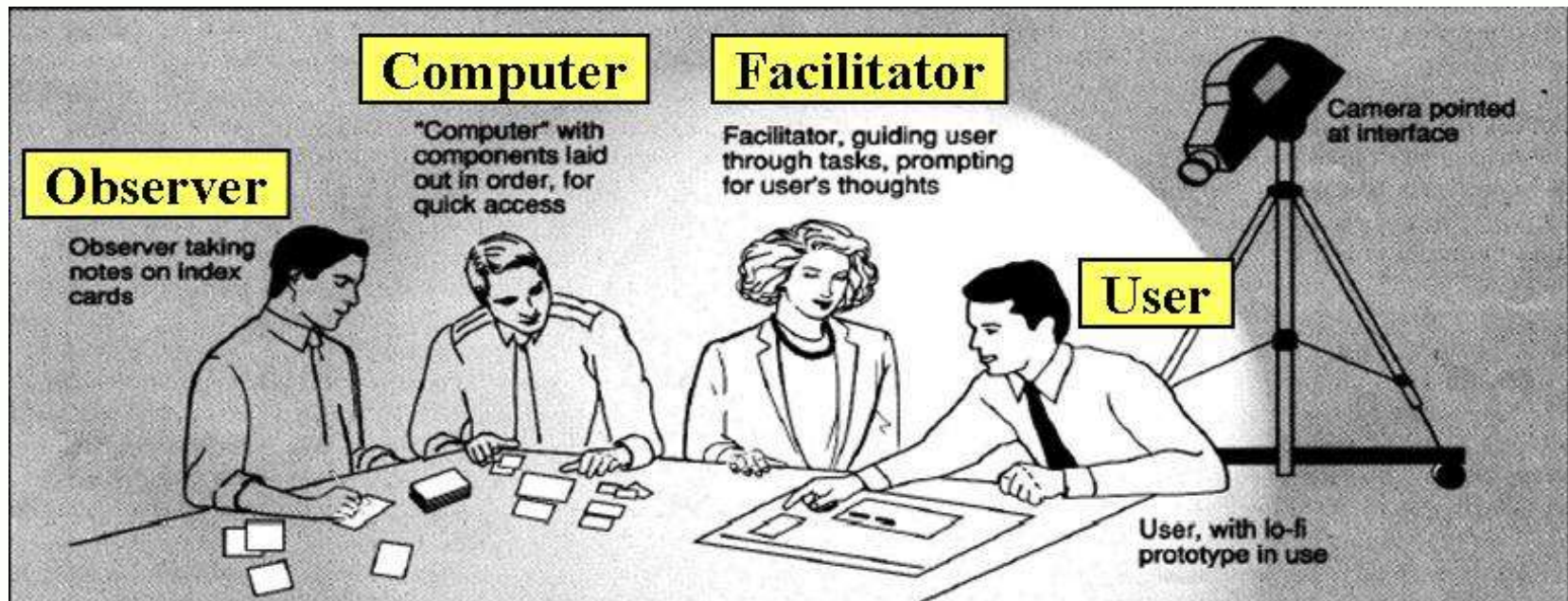
- For *getting feedback from users*

Dynamic prototypes

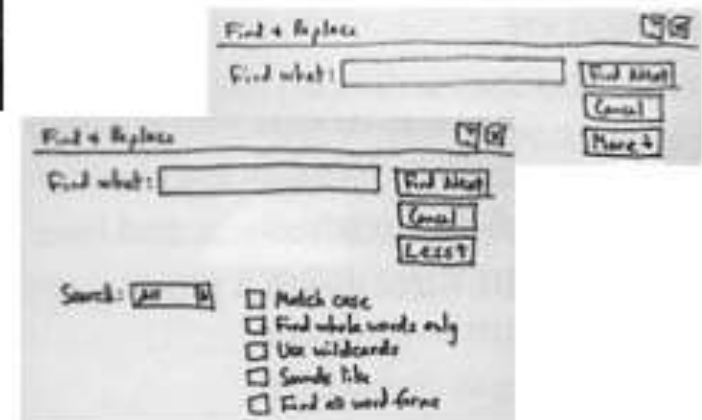
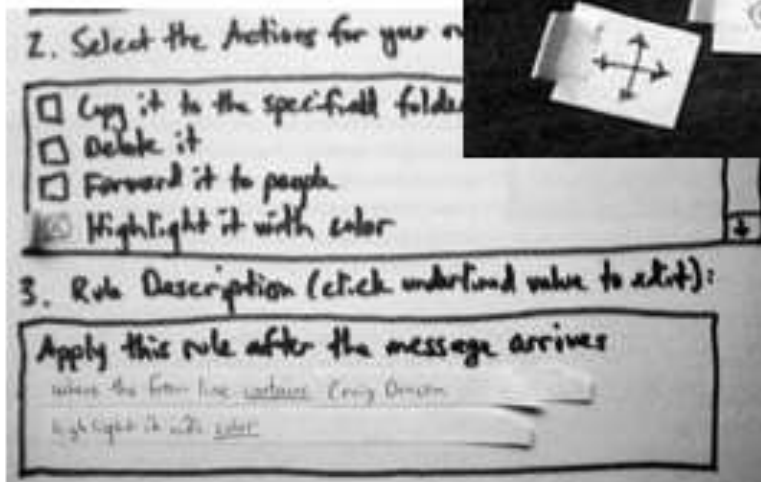
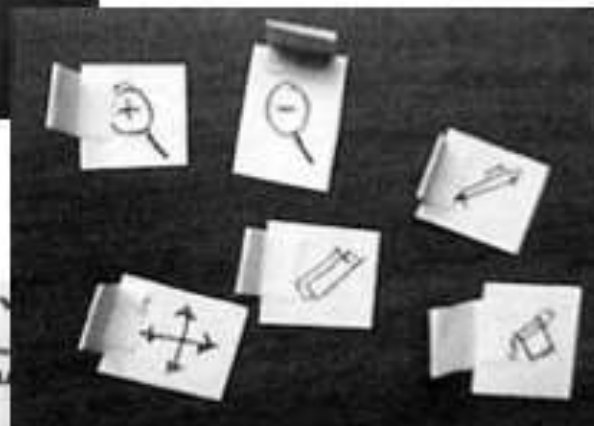
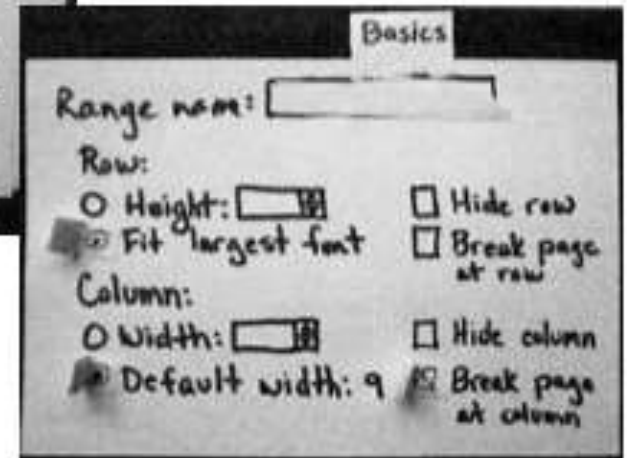
Dynamic (interactive) paper prototype

For **evaluating with user** at a very low-cost.

Wizard of oz: human fakes in the computer logic (can be on paper or on screen).



Paper prototype: Interface Elements



+ Add a course

- Drop a course

Q Search for a course

✓ View Requirement

? Help

≡ Preferences

⌂ Print

⌨ Update keyboards

💾 Save

ESP

EECS
Schedule
Planner

Add Menu

Help - Add Menu

▷ Select Department from drop down menu.

▷ Enter course number.

if you don't know course number, press SEARCH button.

▷ Press ADD to continue transaction.

▷ Click CANCEL to end transaction.

CLOSE

Dept. ▼

course.

transaction.

Search

if you don't know
the course number,

HELP

Dialogs

Menus

Main screen

Hand-drawn dialog box for "Shipping". It includes a "Ship To:" dropdown menu, a "Ship From:" dropdown menu, and a "Ship Date:" dropdown menu. There are also input fields for "Ship Date:" and "Ship Time:". Buttons for "OK" and "Cancel" are at the bottom.

Hand-drawn dialog box titled "Tip - Please do not use the mouse to click on the buttons". It contains a "Tip" label and a "Close" button.

Hand-drawn dialog box titled "Order History". It contains a table with columns for "Date", "Order", and "Status". The table has three rows of data. A "Close" button is at the bottom.

Hand-drawn dialog box titled "Document". It contains input fields for "Title", "Subject", and "Author". There are "OK", "Find", and "Cancel" buttons at the bottom.

Hand-drawn dialog box titled "Find". It contains a "Find" input field and a "Find" button. There is also a "Cancel" button.

Hand-drawn dialog box titled "WRONG!". It contains a "WRONG!" label and a "Close" button.

Hand-drawn dialog box titled "Error". It contains an "Error" label and "OK" and "Cancel" buttons.

Hand-drawn dialog box titled "Save As Template". It contains a "Save As Template" label and "OK" and "Cancel" buttons.

Hand-drawn dialog box titled "Find". It contains a "Find" input field and a "Find" button. There is also a "Cancel" button.

Hand-drawn table titled "Equipment".

DESC	ID	AMOUNT
TRUCK	TRUCK1	100
TRUCK	TRUCK2	100
TRUCK	TRUCK3	100

Hand-drawn main screen titled "Customer Database - List of Customers". It contains a table with columns for "Customer Name", "Address", "City", "State", and "Zip". The table has three rows of data. There are buttons for "Add", "Delete", "Update", and "Print" at the bottom.

Hand-drawn menu bar with several menu items: "File", "Edit", "View", "Format", "Tools", "Window", "Help", "About", "Quit", "Print", "Find", "Find Next", "Find Previous", "Find All", "Find Close", "Find Open", "Find Save", "Find Load", "Find Print", "Find Help", "Find About", "Find Quit", "Find Print", "Find Help", "Find About", "Find Quit".

Hand-drawn table titled "Equipment".

DESC	ID	AMOUNT
TRUCK	TRUCK1	100
TRUCK	TRUCK2	100
TRUCK	TRUCK3	100

Provide users with *interactive* paper mockup



Entering text in a lo-fi paper mockup

Provide users with *interactive* paper mockup



Clicking a link in a hi-fi paper mockup

HanMail video (snippet)

<https://www.youtube.com/watch?v=GrV2SZuRPv0>

Prototyping in this class

- Begin with static paper (sketched screen transition diagrams) (Project #2)
- Create & evaluate lo-fi prototypes (Project #3)
- Iterate from that using Figma to create Hi-Fi prototype & evaluate it (Project #4)
- Wizard of oz, when needed

Next week

- Midterms