



# Storyboarding

CSCI 3002– Fall 2018

# Today

- More on sketching: designing the UI
- Storyboarding: showing sequences of interaction

# Goals of sketching

- To practice creativity / generate ideas
- As a quality check on our imagined user interface (are we missing something? Is there more we can do?)
- To gain experience in viewing, understanding, and working with user interface elements

# More on divergent sketching

- Similar to brainstorming or ideating but at one more level of specificity
  - In brainstorming: “we can use biometrics to log in”
  - Divergent sketching: “what are the steps of the login procedure?”
    - May address what info the user provides, when it’s provided, etc.

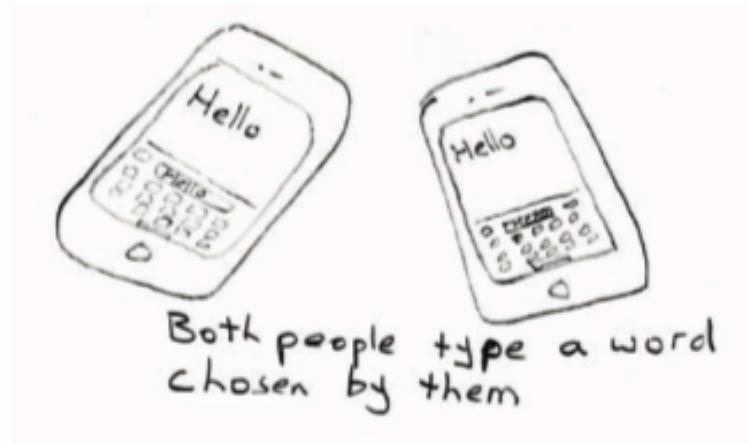
# 10 + 10 method

- Choose a design problem
- Generate 10 different ideas
- Pick a few promising ones
- Explore 10 variations / refinements of your idea

**a**

### Entering an agreed upon keyword.

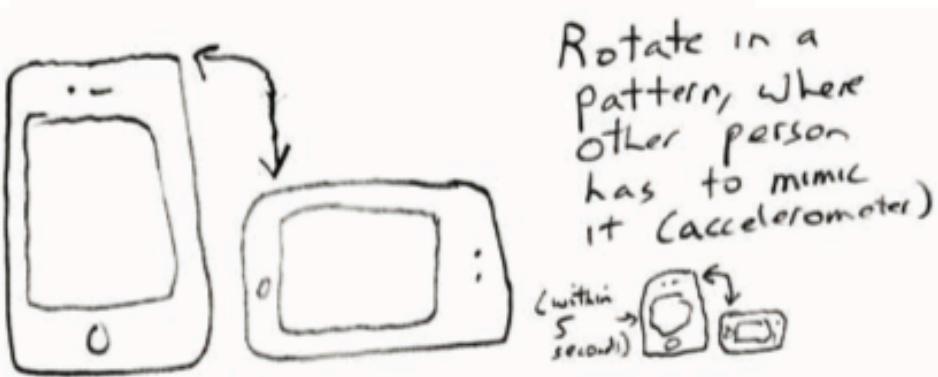
Both people start an 'authentication' program, which merely asks them to type in a word. They decide on a word, and type it in. Because the word matches on both phones, the connection is authenticated.



**b**

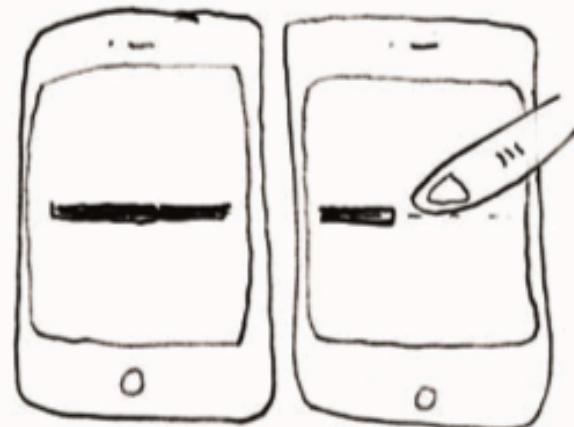
### Mimicking a rotation pattern.

A person rotates the phone in a certain pattern. The other person watches and does the same pattern within a certain amount of time. The accelerometer data on both phones are checked; if they are similar, the connection is authenticated.



## C Tracing across displays.

The two phones are held side by side and a line appears on the same place on each. One person uses a finger to draw the line across both displays as a single stroke. The touch screens on the phones capture and analyze the timing of the stroke and use that to authenticate the connection.

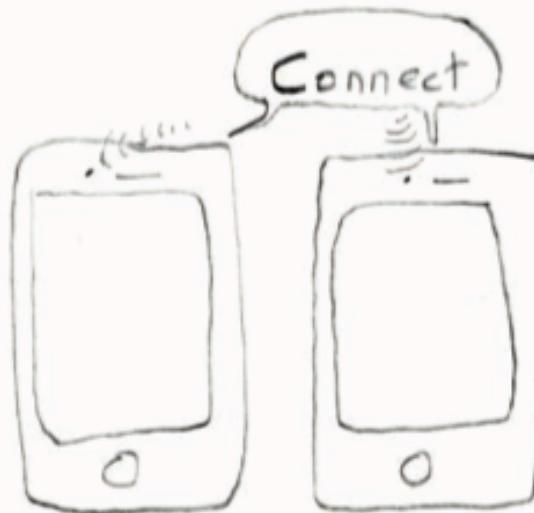


Synchronous  
gesture

Trace a line  
across both  
side by  
side devices  
as a single  
stroke

## d Speak a command.

Two phones are held side by side and the word 'connect' is spoken into their microphones. The word is recognized and the volume levels are checked across both phones; if they are similar, the connection is authenticated.

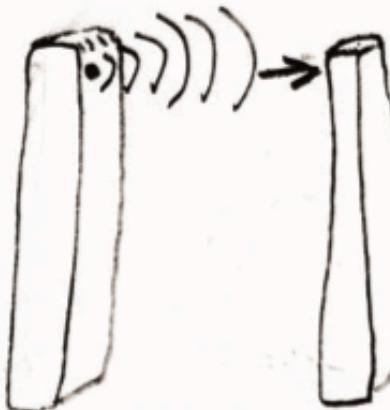


Microphones pick  
up Spoken  
command at  
similar volume

e

### Recognize a phone's flash strobe pattern.

The flash on one phone is turned on as a strobe pattern. The other phone's camera is pointed directly at it. The intensity is checked to make sure that the other phone is very close to the camera, and then the pattern is detected and analyzed to see if it matches.



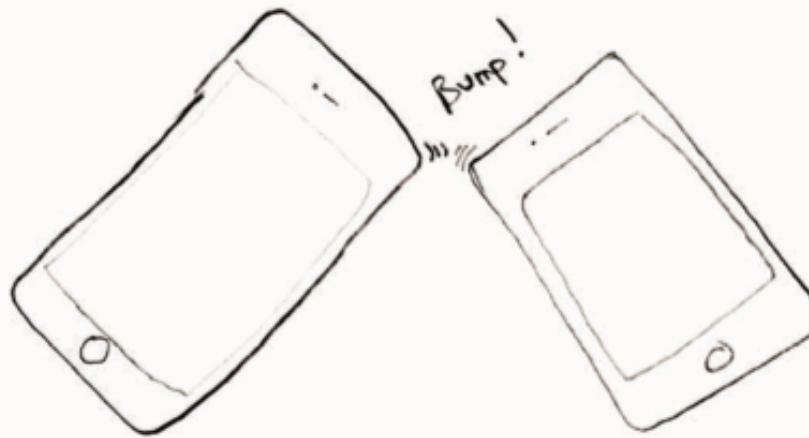
LED strobe  
pattern captured  
by camera

f

### Bump two phones together.

The accelerometer data is compared to see if the same bump pattern occurs at the same time.

Credit: this concept is realized by the Bump Technologies App for the iPhone and the Android.

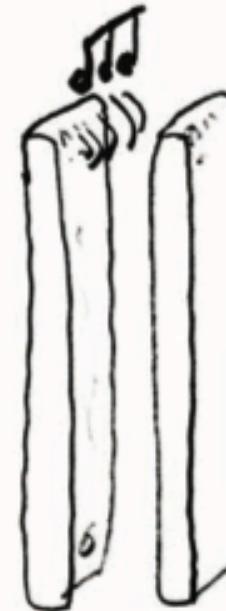


Bump. Accelerometer matches  
bump vibrations

# g

## Musical Sequence.

A musical sequence is played on one phone at low volume so it can only be heard by another phone held very close to it. As with other examples, the patterns are compared across phones and if they match, the connection is established.

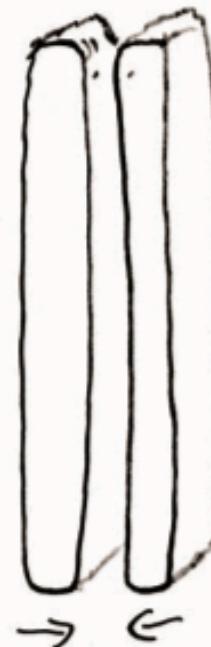


Faint musical sound played on one device picked up by the other device

# h

## Light / dark patterns.

Some phones are equipped with light sensors. The idea is to touch the surface of two phones directly together in a random back and forth pattern. Because light sensors on both are simultaneously covered, the phones can look for matches in their light/dark patterns and connect them when that match occurs.

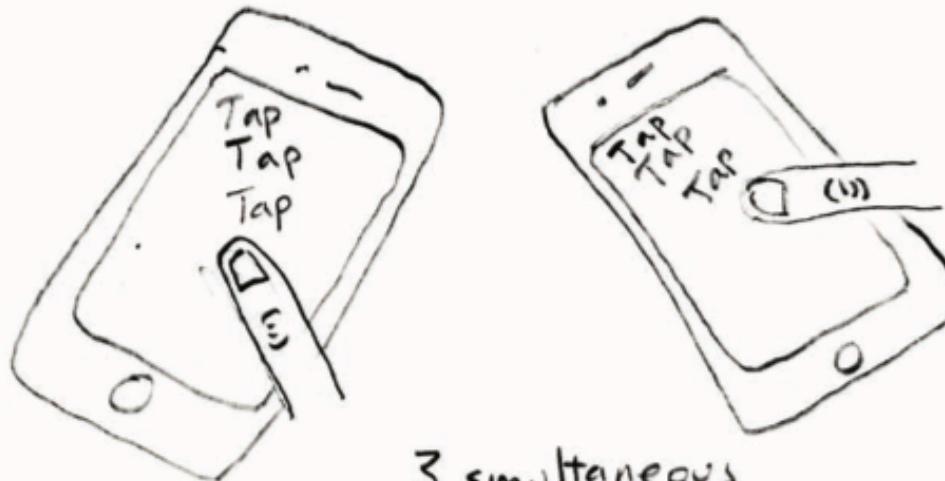


Ambient light sensor  
Touch surfaces together in a pattern; Both detect same light/dark pattern

i

### Three simultaneous taps.

Each person has to tap his or her touch screens three times at the same time.



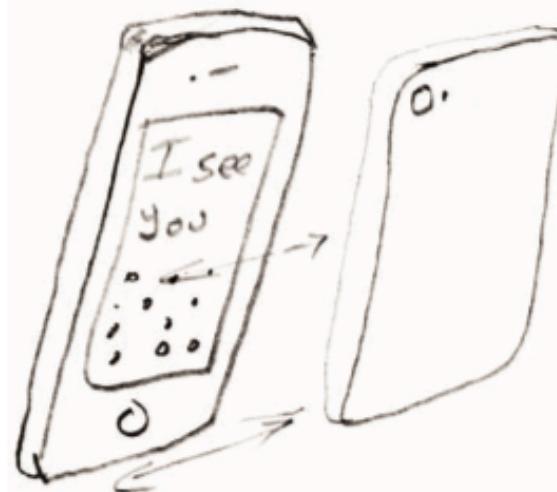
3 simultaneous  
taps on both  
phones

j

**Take a picture of an identifying feature on the screen of the other person's phone.**

An image is displayed on one phone and captured with the camera of the other phone.

The images across phones are compared and if they match the connection is established.



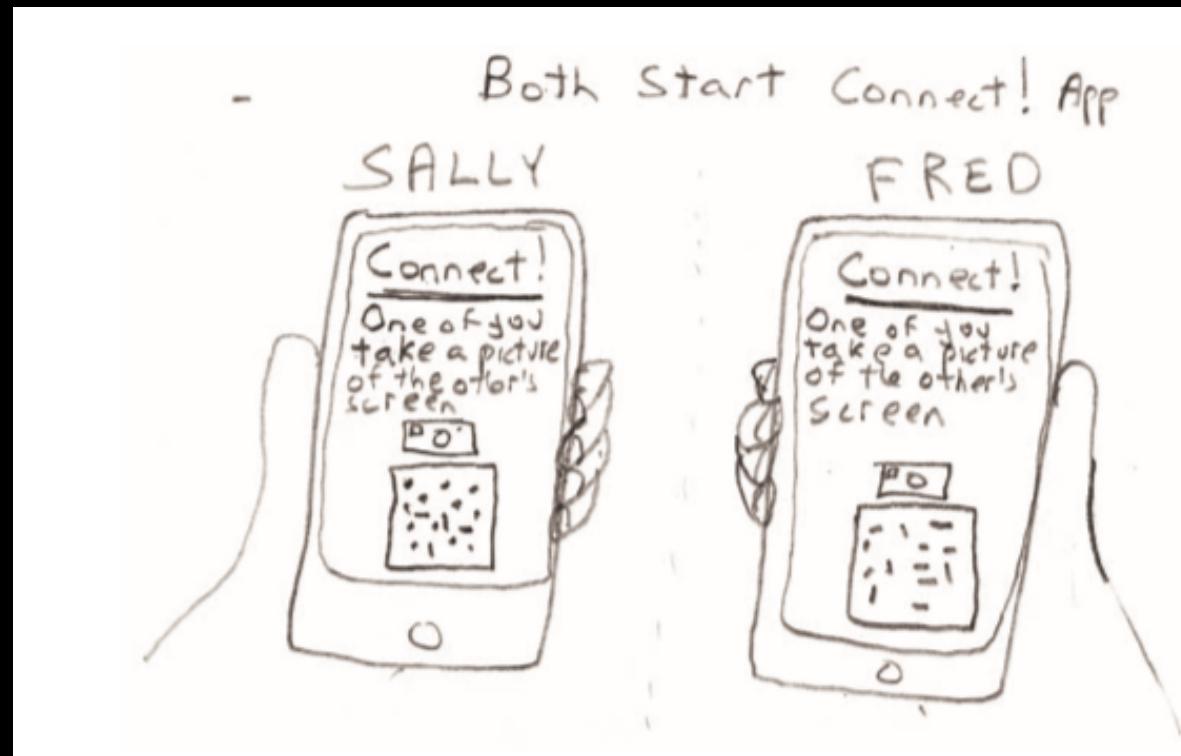
Mutual  
Video/photos  
captures  
identifying  
images such  
as tags via  
camera

# Notes on 10+10 sketches

- Note the use of labels and accompanying sketch notes – use these where it helps
- Sketches are more or less just drawn versions of the ideas, but fill in some important details
  - Where are the devices facing?
  - How close are they?
  - Who is touching the phones and at what time?

# 10+10: going into detail

- Choose one example (in this case, using photos to pair phones)
  - When do we ask?
  - What is the user told?
  - Do we confirm?
  - Are there other variations of this?



# What to include and leave out?

- Should you draw the screen? The device? The user's hand/body? Where the user is?
- It depends on the problem. Draw what's relevant
  - If you're sketching a wearable computer for dancer, you probably wouldn't want to just show the screen

# Adding notes to sketches

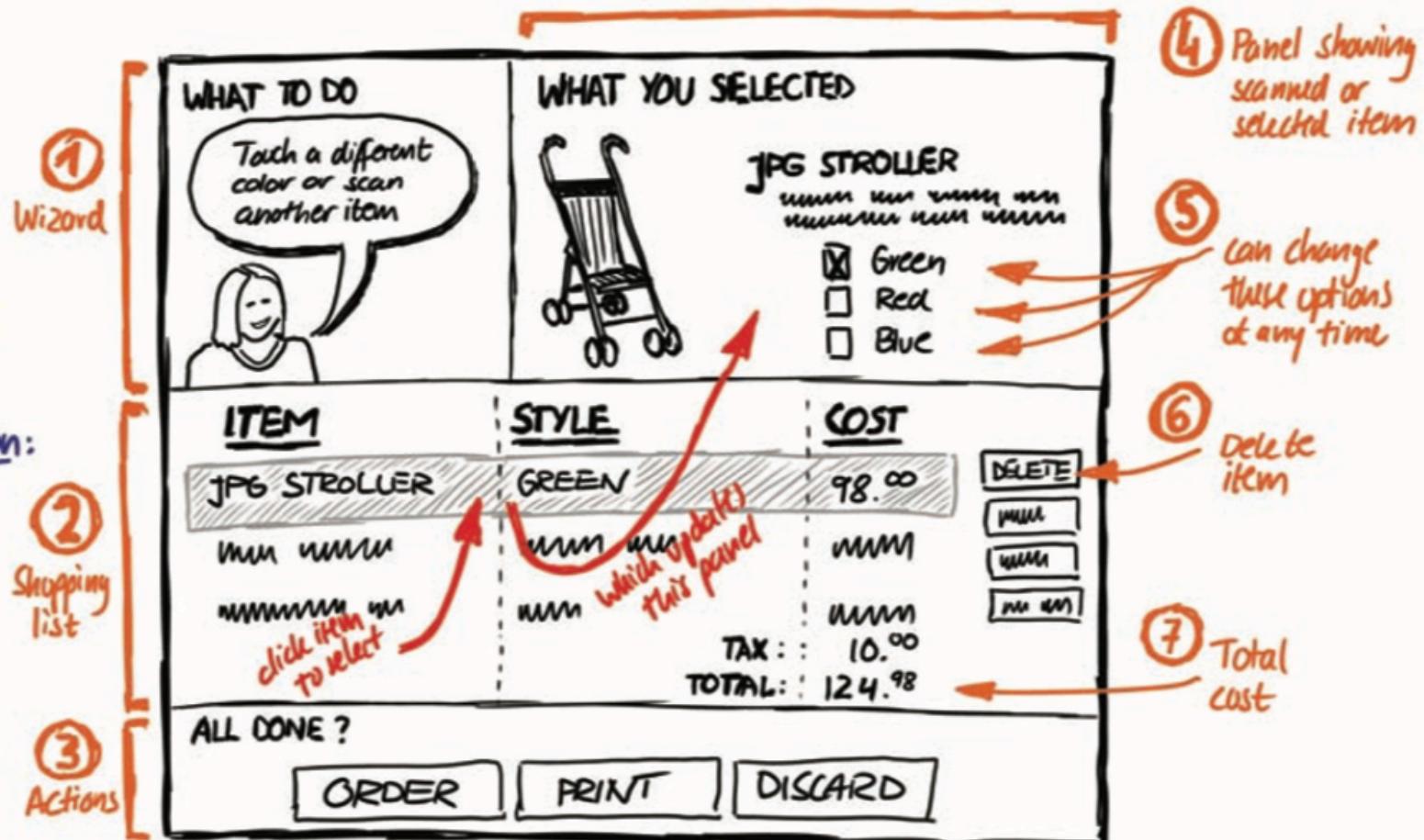
- Use with a scanner + paper catalog
- Printer prints out current list & bar code so it can be scanned

Shopping person icon:

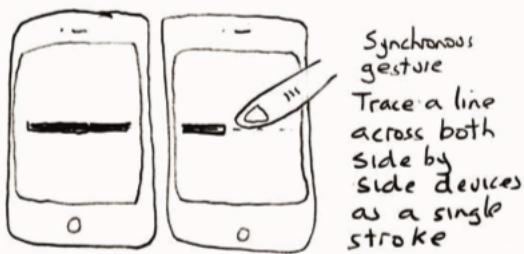
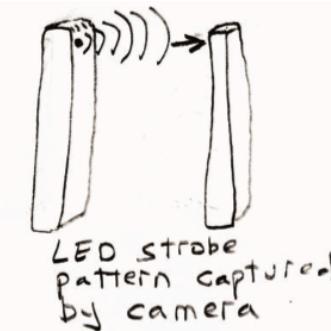
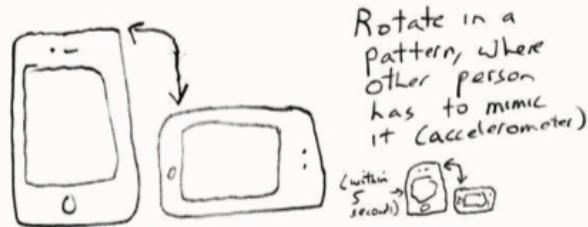
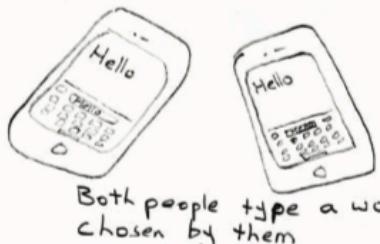
- cartoon?
- photo?
- video/audio?

Issues

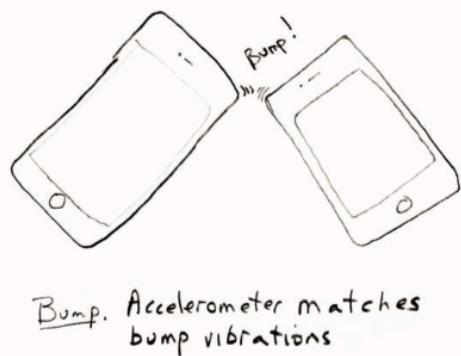
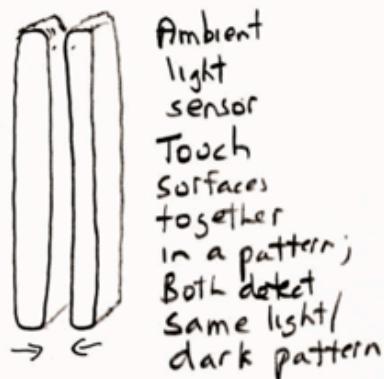
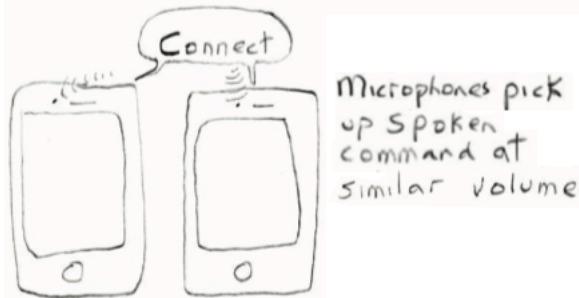
- Can we avoid scrollbars for long lists?



# Sketches as archive of design process



Faint musical sound played on one device picked up by the other device



# Sketching to identify hidden details

- Our brains are really good at missing some details
- Sketches help us detect those early
  - Like spell check or compiler errors for our ideas

- Both Start Connect! App

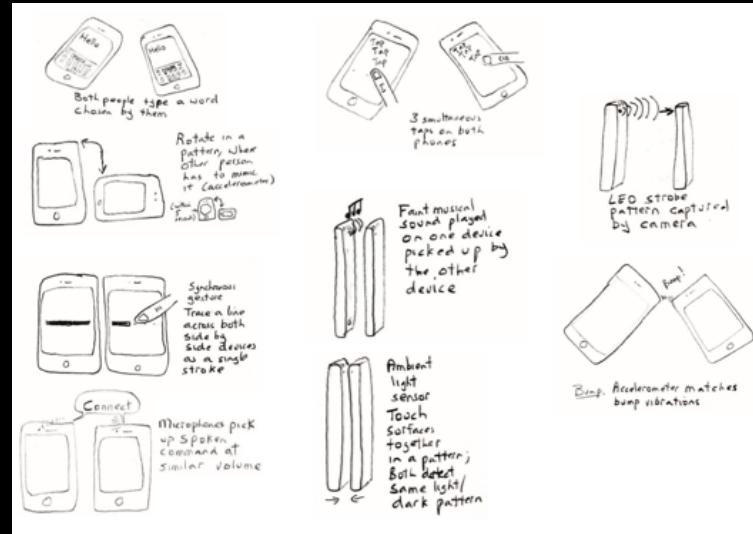


start up  
dialog

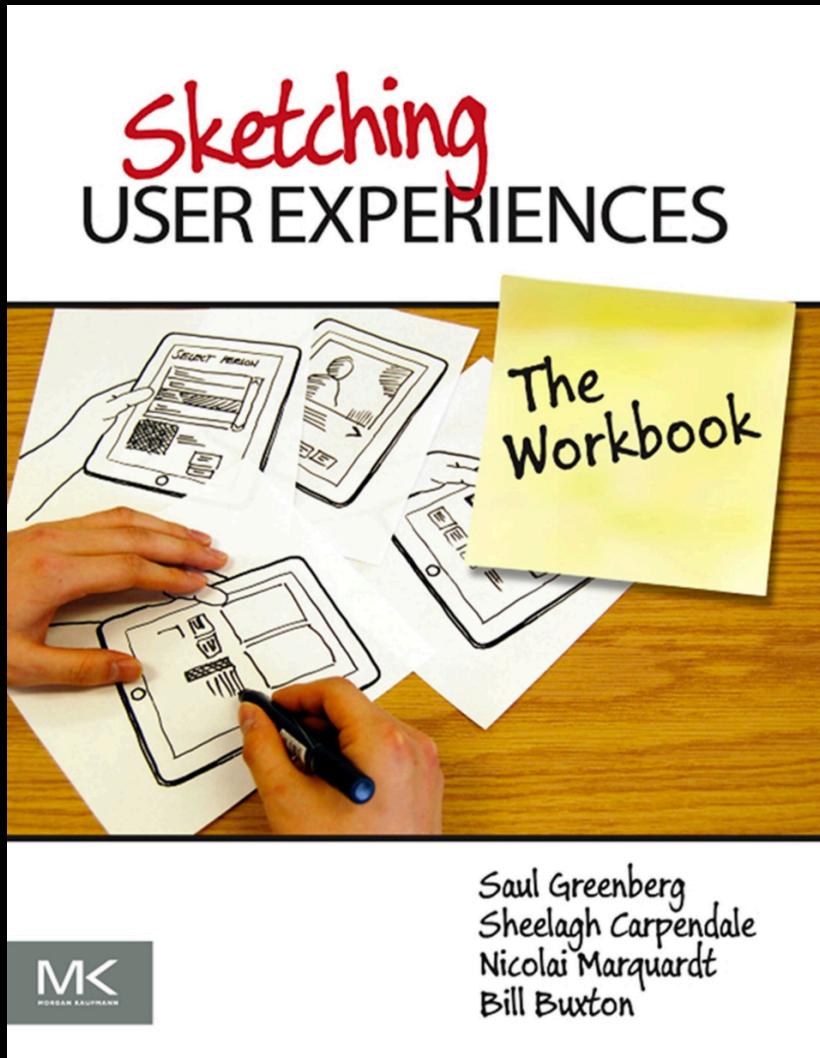
Do all of the elements fit on the screen? What instruction for the user is needed? Are all the buttons there? Where are the user's hands? Where is the touch screen, camera?

# Tips on UI sketching

- Make lots of sketches; don't be afraid to make more
- It can help to hang sketches up, or look at a series of sketches
- Practicing really is key; this is easy after the first 50 attempts



# More on sketching



- Greenberg et al.,  
*Sketching User Experiences: The Workbook*
- Selected chapters available on Canvas

# How to see user interfaces

# Paying attention to details

- Now that you're starting to think about how to sketch user interfaces,
- Start to pay attention to the user interfaces around you
- What are the decisions that underlie a specific user interface?

# Case study: Mac email clients

- Picture a desktop email client

# Apple Mail

Inbox — Greenescape (60 messages)

Get Mail Reply All Forward Mark Delete Compose Inspector Search

Hide Greenescape Personal Leads

ACCOUNTS

- Greenescape 5
- Personal 47
- On My Mac
- News & Blogs 3861
- Search All Folders

Folders

- Inbox 5
- Archive
- Drafts
- Templates
- Sent
- Trash
- Junk
- Leads
- Proposals 1

Date

**Re: Upcoming Newsletter Feature Image**

 From: Ben Greene To: Sonny Fazio 9/26/10 12:45 PM Sent

 From: Sonny Fazio To: Ben Greene 9/22/10 6:28 PM Inbox

I really like it Ben.

Karen also likes the tree picture I sent you. I think that will be the one I'll have in the newsletter.

Are we still on for lunch this Friday? I was thinking about making a reservation at Flower + Water, I know how much you like Italian. Here is the address:

2401 Harrison Street  
San Francisco, CA 94107  
415.826.7000

-Sonny

Quick reply...

 From: Ben Greene To: Sonny Fazio 9/22/10 6:20 PM Sent

 From: Sonny Fazio To: Ben Greene 9/22/10 6:11 PM Inbox

Hey Ben,

Which picture do you like better for the upcoming newsletter? Give Annie my best

# Google Inbox (web app)

Inbox    Search   

Today		
	Stephanie	Today's the last day to get the Se... -
	Stephanie Wanek	This week's ATLAS & TAM note... - EngBUFFtalks...
	amy beth	supah peeps: Please Confirm S... -
	ACM Bulletins	Today's Topic: ACM Ambassador...
	Robert H Davis	FW: Tenure clock delay – Jim/Shaun...
	Hugo Nicolau	AccessCamp cancelled – Hi everyone...
	Makey Makey	Performance Art, Teacher Libra... -
	Snarf's	Last chance to win an Apple Ma... -
	Leah, Shaun (3)	Follow-up from CHI submission – Hi ...

# AirMail

The screenshot shows the Airmail app's inbox screen. On the left, there's a sidebar with icons forCompose, Mailbox, Star, Pencil, Location, Search, and a three-dot menu. Below the sidebar, a vertical stack of colored circles indicates unread messages: blue (12), yellow (11), red (1), and pink (1). The main area displays a list of emails:

- Apple - Pre-order iPhone 6s or iPhone 6... (12 Sep 2015)
- Apple - News from our September 9 eve... (10 Sep 2015)
- FontShop News - The all-new FontShop (10 Mar 2015)
- Withings - Explore our friendly ecosystem (17 May 2013)
- FontShop News - No Joke! Real Typography Tips... (17 May 2013)
- FontShop News - New for April (17 May 2013)
- FontShop News - FontShop Newsletter – Special E... (17 May 2013)

The background of the app is a scenic mountain landscape.

The screenshot shows the FontShop website's homepage. The header reads "The all-new FontShop". Below the header, there's a navigation bar with "Summer" and "Index" tabs. The main content features a large "FontShop" logo with "Font" in black and "Shop" in yellow. Below the logo, it says "December 1, 2014 | view in browser". A large image of a computer monitor displaying the website is shown. The text "The all-new FontShop" is repeated at the bottom, followed by "With all the fonts you love".

# Unibox

Inbox

Today

Stephanie 10:07

Stephanie Wanek 1

amy beth 1

ACM Bulletins 1

Robert H Davis

Hugo Nicolau

Makey Makey 1

Snarf's 2

Leah Findlater

CU Connections 3

Josh Brown 1

Maria Rauschenberger

Be Colorado 2

Stephanie

New Message

Today's the last day to get the Sensel Morph! Today 10:07

sensel

Today's the last day  
to order a Morph on

Inbox

1 message

# How to think about UIs

- Status quo: Email app needs a message list and a detail view and a search bar – where do each of these go?
- Instead: Think about what the user wants to do, and how to efficiently support that

# Other factors

- Speed – how can we accomplish the task as quickly as possible?
  - Don't ask things you don't need to know
  - Guess when you can
  - Ask the most discriminating questions first
- Fun – how can we make interaction itself fun or enjoyable
- Other things we might want to optimize for? (appearance, privacy, walk up and use-ability)

# Finding inspiration

- Pay attention to tools you currently use
- Inspiring blogs
  - Little Big Details: <http://littlebigdetails.com/>
  - Beautiful Pixels: <http://beautifulpixels.com/>
  - The Sweet Setup: <http://thesweetsetup.com/>

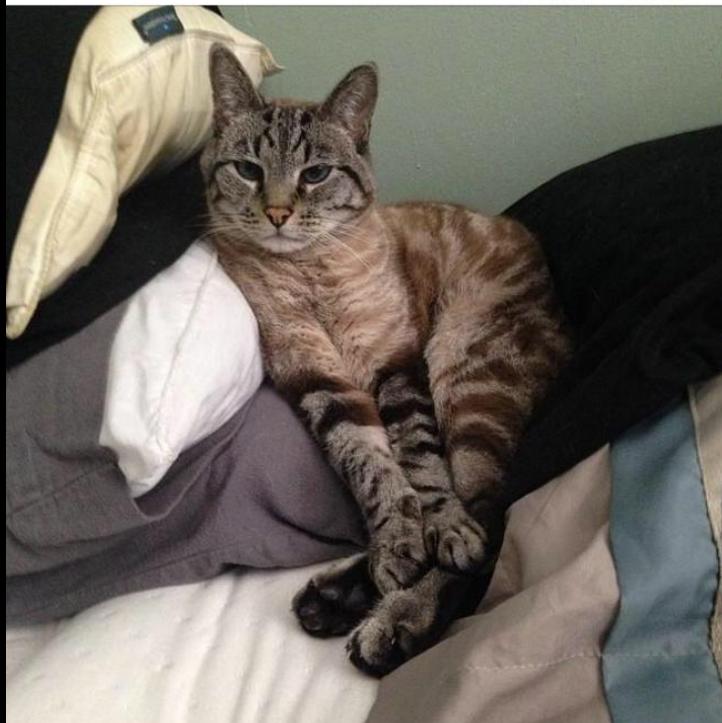
# Showing sequential interaction

# Limitations of sketches

- Show only a single screen
- Easy to leave out important details
- Hard to show connections
- Hard to show interactions in context

Done

• • • ○ • •



## Anna, 30

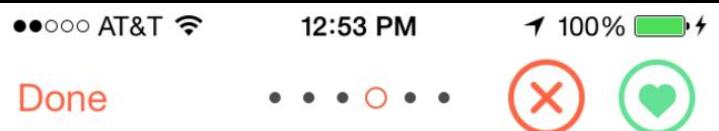
• • •

30 miles away Active 1 month ago

### About Anna

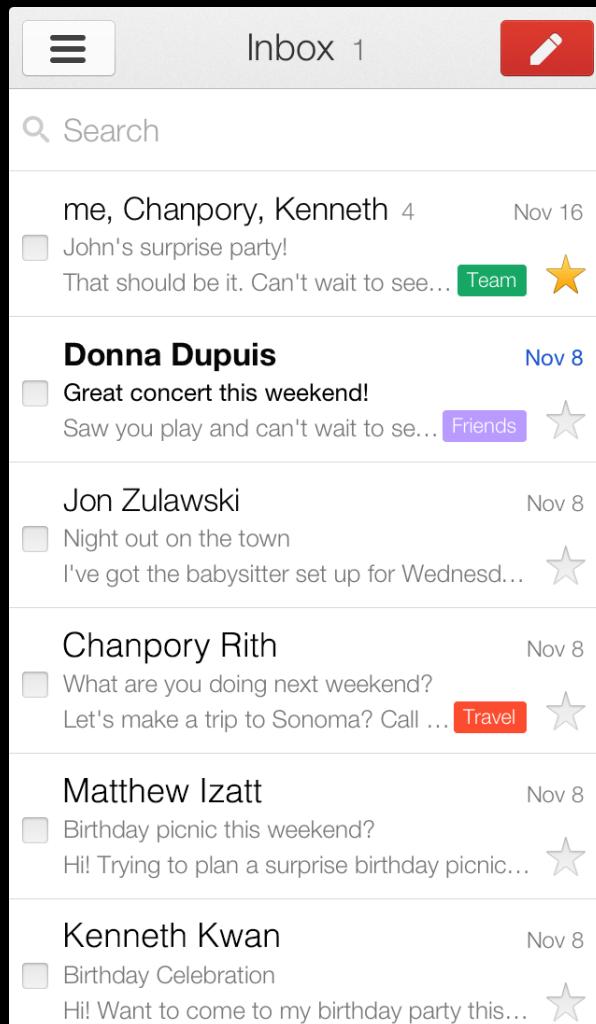
This is me...I love the outdoors, love the smell of old books, is obsessed (kind of...) with her super awesome cat, and drives a Prius. But, I'll have you know...that....um....well. I eat meat. So that's something right? 😊😊

P.S. I speak Japanese. 👍



- What happens when I click each button?
- What options do I have?
- Are we hiding complexity somewhere?

# Hiding complexity



# Hiding complexity

The screenshot shows a mobile application interface for managing emails. At the top, there is a navigation bar with a menu icon (three horizontal lines) and the text "Inbox 1". Below the navigation bar is a search bar containing the placeholder text "Search". The main content area displays a list of emails. The first email in the list has the subject "me, Chanpory, Kenneth 4" and the body text "John's surprise party! That should be it. Can't wait to see...". A green button labeled "Team" is visible on the right side of the email preview. The bottom of the screen features a large, bold, black text "Donna Dupuis".

Inbox 1

Search

me, Chanpory, Kenneth 4

John's surprise party!  
That should be it. Can't wait to see... Team

Donna Dupuis

# Storyboards

- Show sequences of interaction
- Show context of use
  - Where is the user?
  - What are they doing?
  - How are they interacting with the device?

# Storyboarding

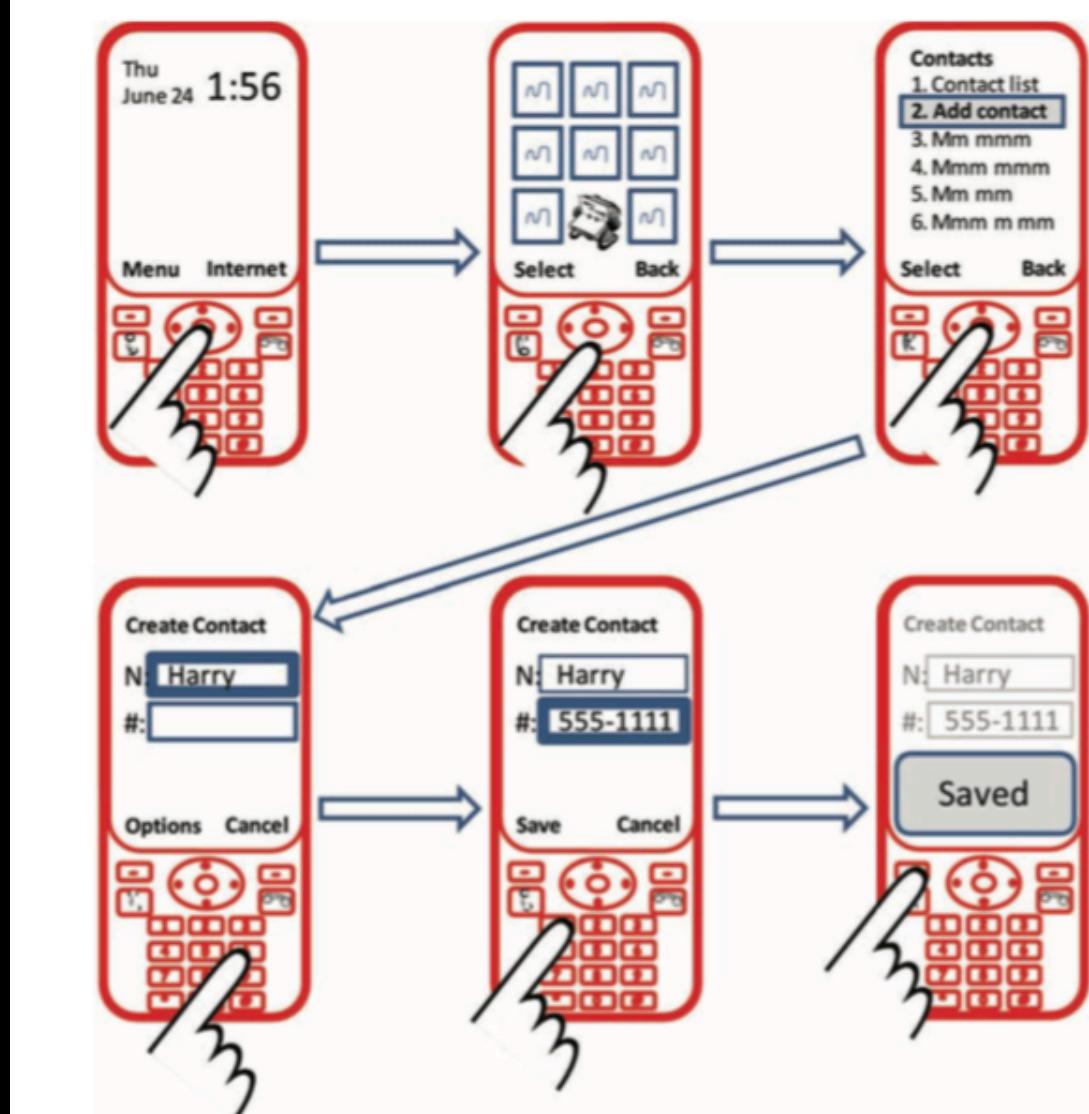
- A “rough draft” of a visual, sequential story
  - Like a comic book
- Focus on visual storytelling
  - What’s going on?
  - What do I need to show?
  - What are the transitions?
  - What are the major “beats” of the story?

# What storyboarding is good for

- Tell a story (or describe a usage scenario)
  - Can get useful feedback
- Identify the main steps of the interaction
- Identifies potential problems
  - Do tasks need to happen in a certain order?
  - Where are the user's hands/eyes/attention?

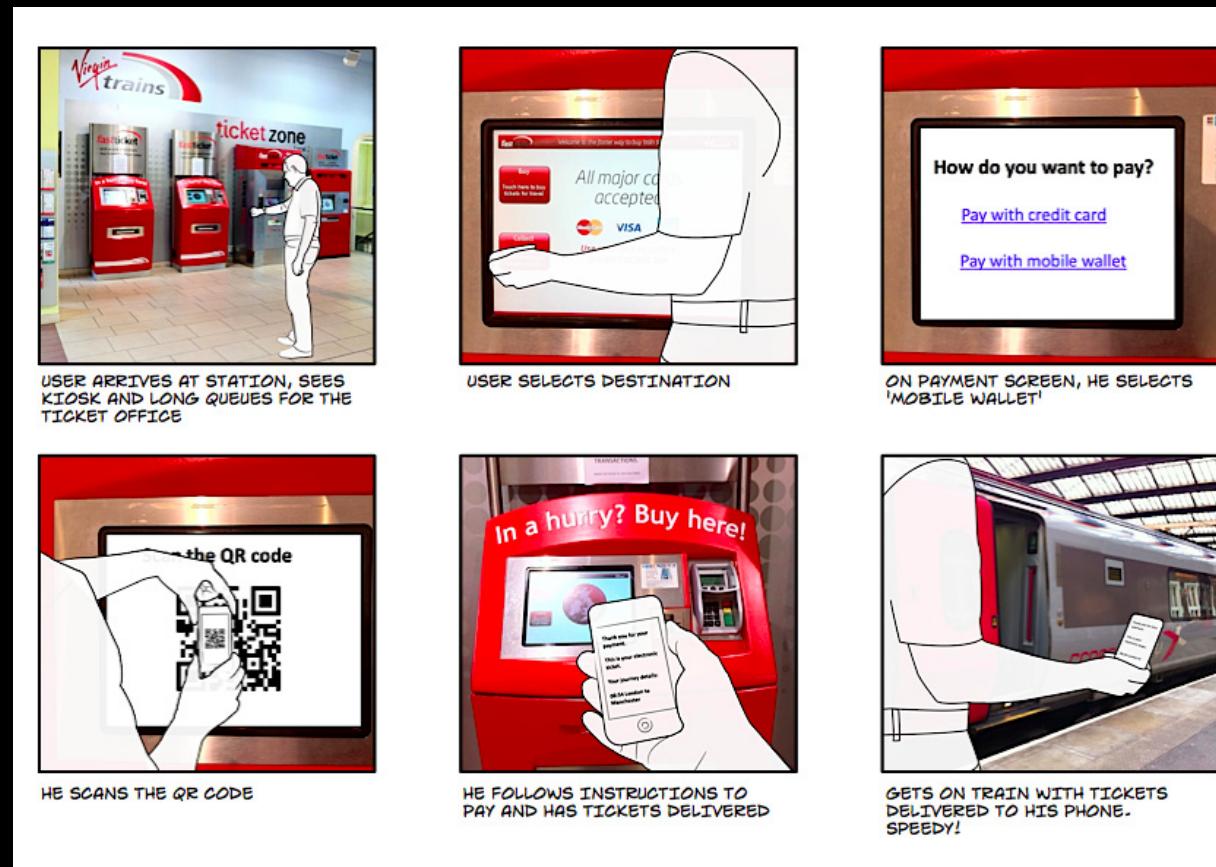
# Two types of storyboards

- UI focused



# Two types of storyboards

- Interaction in context





USER ARRIVES AT STATION, SEES KIOSK AND LONG QUEUES FOR THE TICKET OFFICE



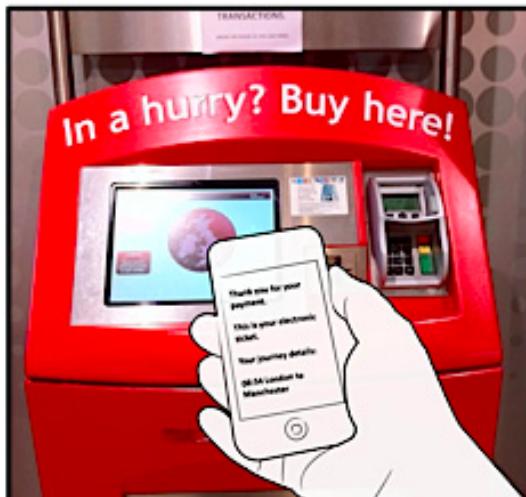
USER SELECTS DESTINATION



ON PAYMENT SCREEN, HE SELECTS 'MOBILE WALLET'



HE SCANS THE QR CODE

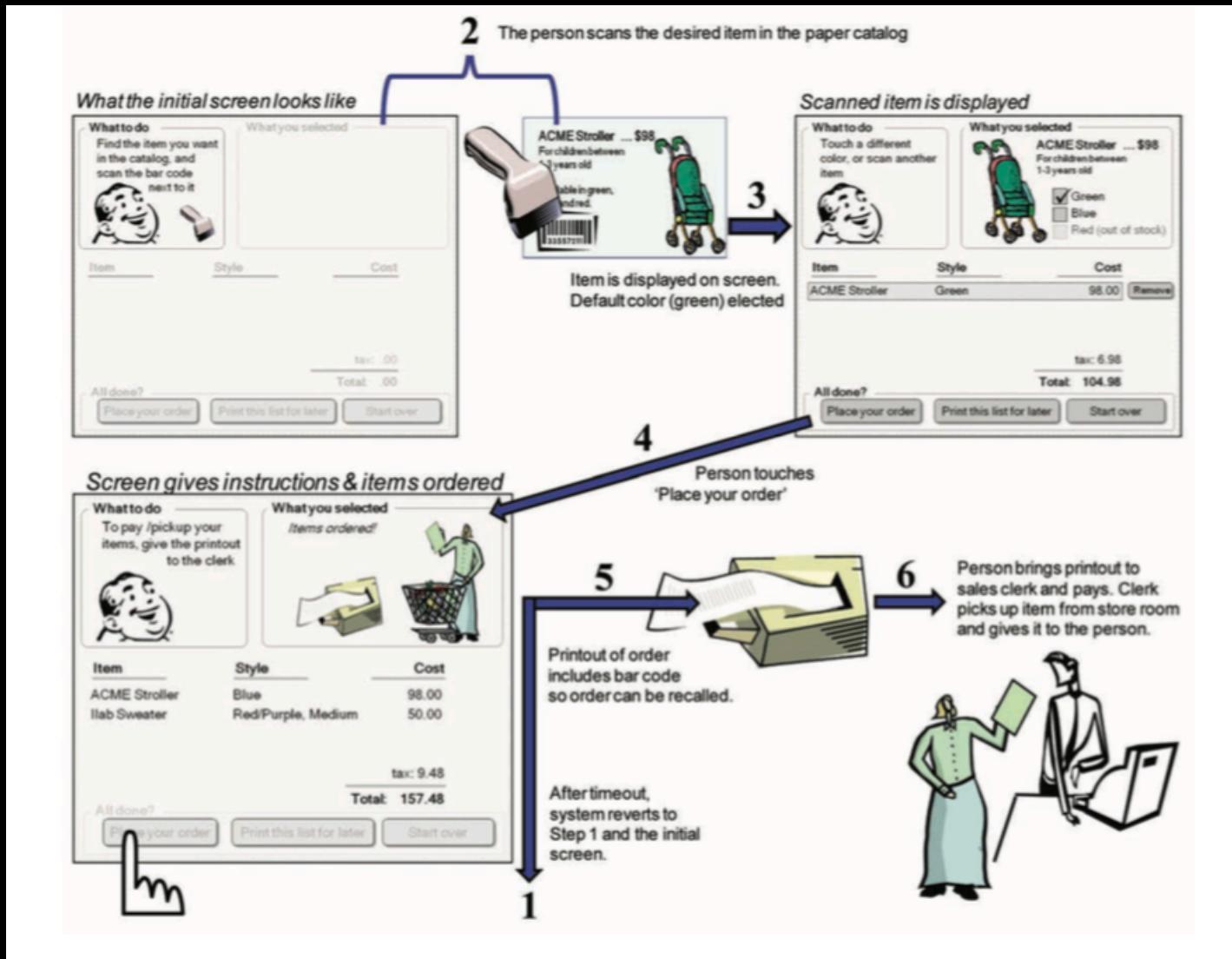


HE FOLLOWS INSTRUCTIONS TO PAY AND HAS TICKETS DELIVERED



GETS ON TRAIN WITH TICKETS DELIVERED TO HIS PHONE. SPEEDY!

# Can mix representations



# Drawing people and scenes

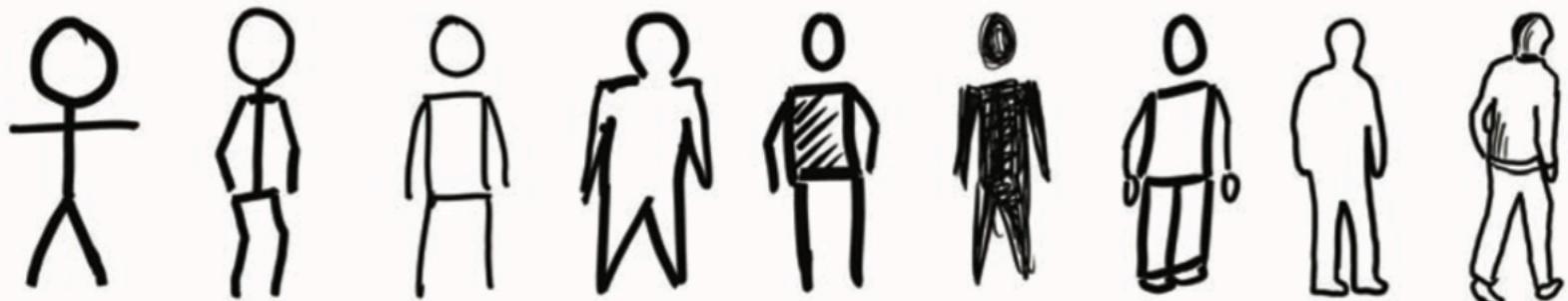
- It's difficult to do well and takes lots of practice
- Focus on important details
- What is important for designing a UI?

# Drawing people

## 3

### People

Many sketches in interaction design include people performing their actions, motions, and activities while interacting with information technology. There are many different techniques to draw people: from simple stick figures to detailed and realistic outlines of a person. Often, simple stick figures are preferable to detailed drawings of people: they are expressive enough to illustrate people and their actions in a variety of situations.



# Star people

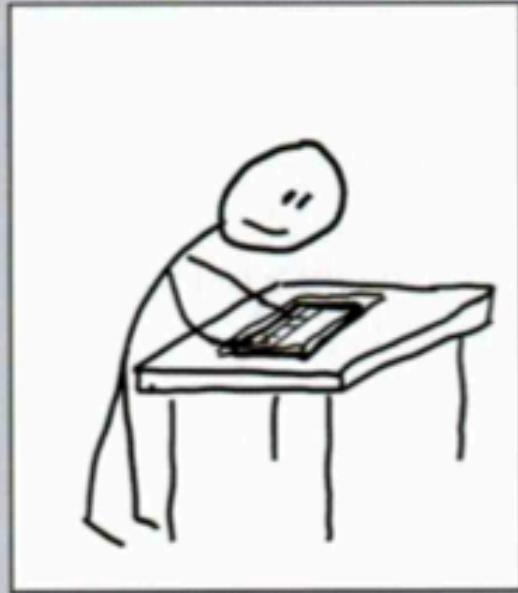
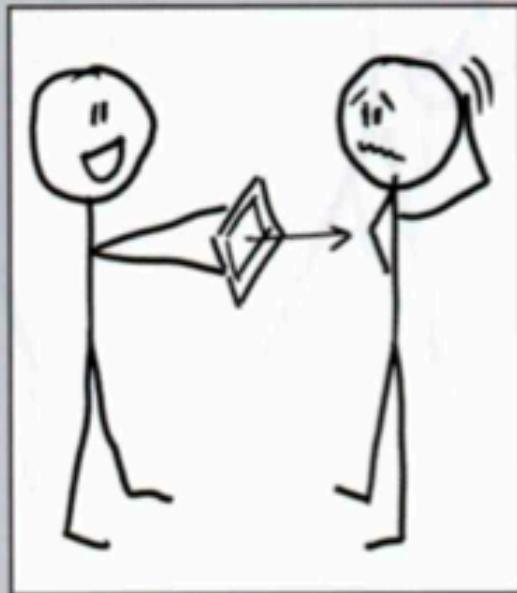
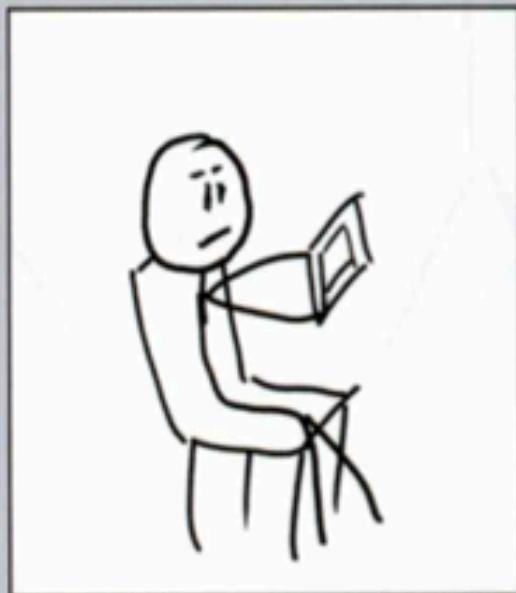
- Almost as easy to draw as stick people,
- But they have volume, fill space



## Exercise

Draw a person interacting with **your app** in three different situations. For example, you can draw the person while sitting on a chair and reading a book, while showing a document on a tablet to a second person, and while placing the tablet on a table to write a text. Try to vary people's poses and facial expressions.

### Our Solution:



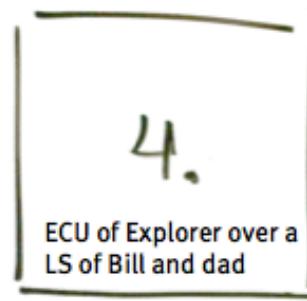
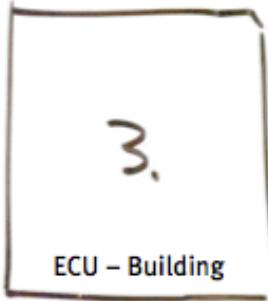
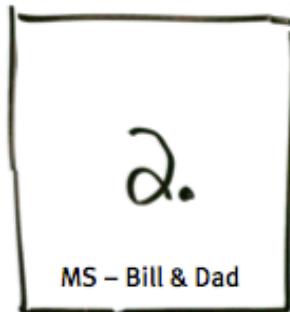
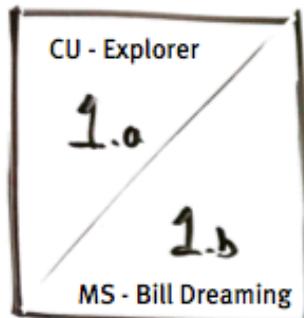
# Storyboarding a scenario

1. Start with your scenario / use story
  1. divide it into sentences
  2. Put each sentence in an empty box
  3. Number each box
2. Write the sentence from the scenario below each box

# Storyboarding a scenario

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## Example:



Bill dreams of sending his favorite toy, a LEGO space explorer, into space.

Bill describes his dream, while his dad thinks of ways it might actually happen

Bill and his dad build a weather balloon to carry the explorer into space. An onboard camera will catch all of the action.

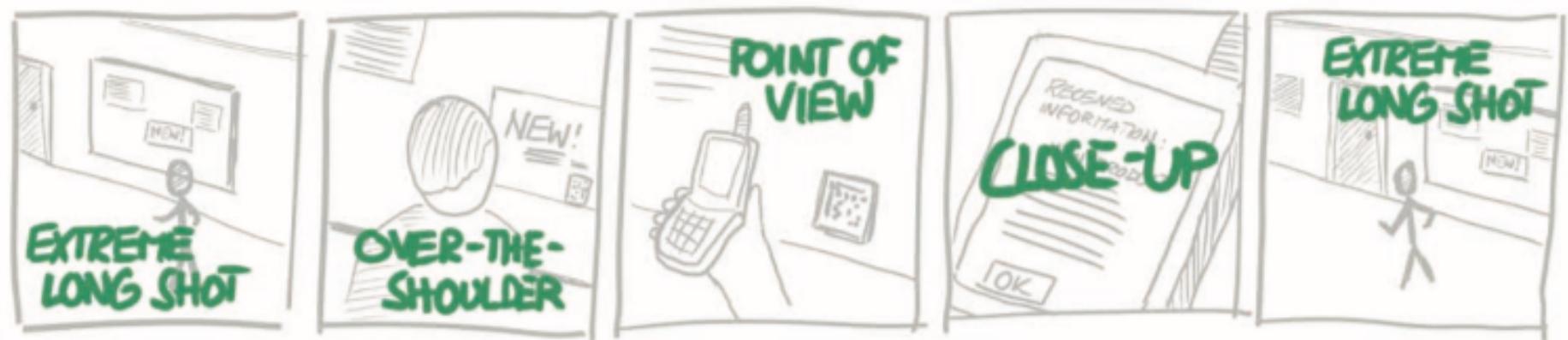
Bill and his dad launch the LEGO space explorer on their home-made space craft. They wave goodbye as the explorer rises into the sky.

The LEGO Explorer reaches the edge of space.

# Storyboarding process

- 3. Start designing the scene
  - a) Who is in the scene?
  - b) What is the minimal amount of content you need to convey the scene?
  - c) What kind of “shot” will communicate the idea?

# Camera shots



# Storyboarding process

4. Sketch what happens in the scene inside each box
  1. Emphasize people, hands and eyes
  2. If there are screens, first show the context, then fill in the screen



Bill dreams of sending his favorite toy, a LEGO space explorer, into space.

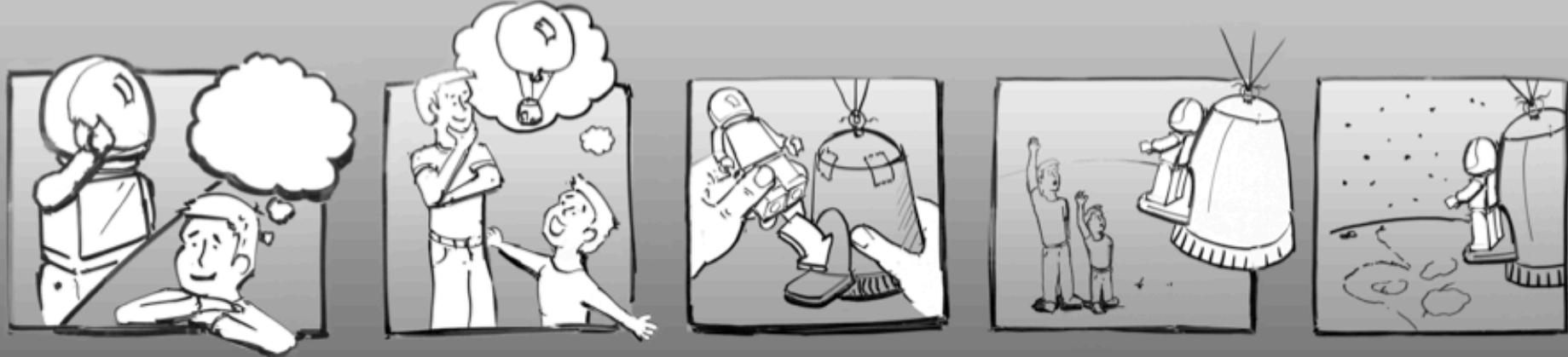
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The LEGO Explorer reaches the edge of space.

Start with rough sketches, detailed sketches can come later



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The LEGO Explorer reaches the edge of space.

# Emphasizing action and motion



# Storyboarding fails

- Skipping over an important step
- Missing some important context

# Leaving details out



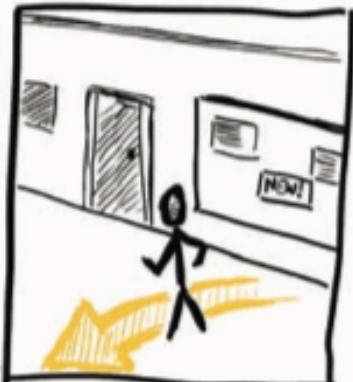
1. Person passing by an advertisement board



2. Notices one announcement and is interested in more information



4. The mobile phone downloads detailed information about the new product.

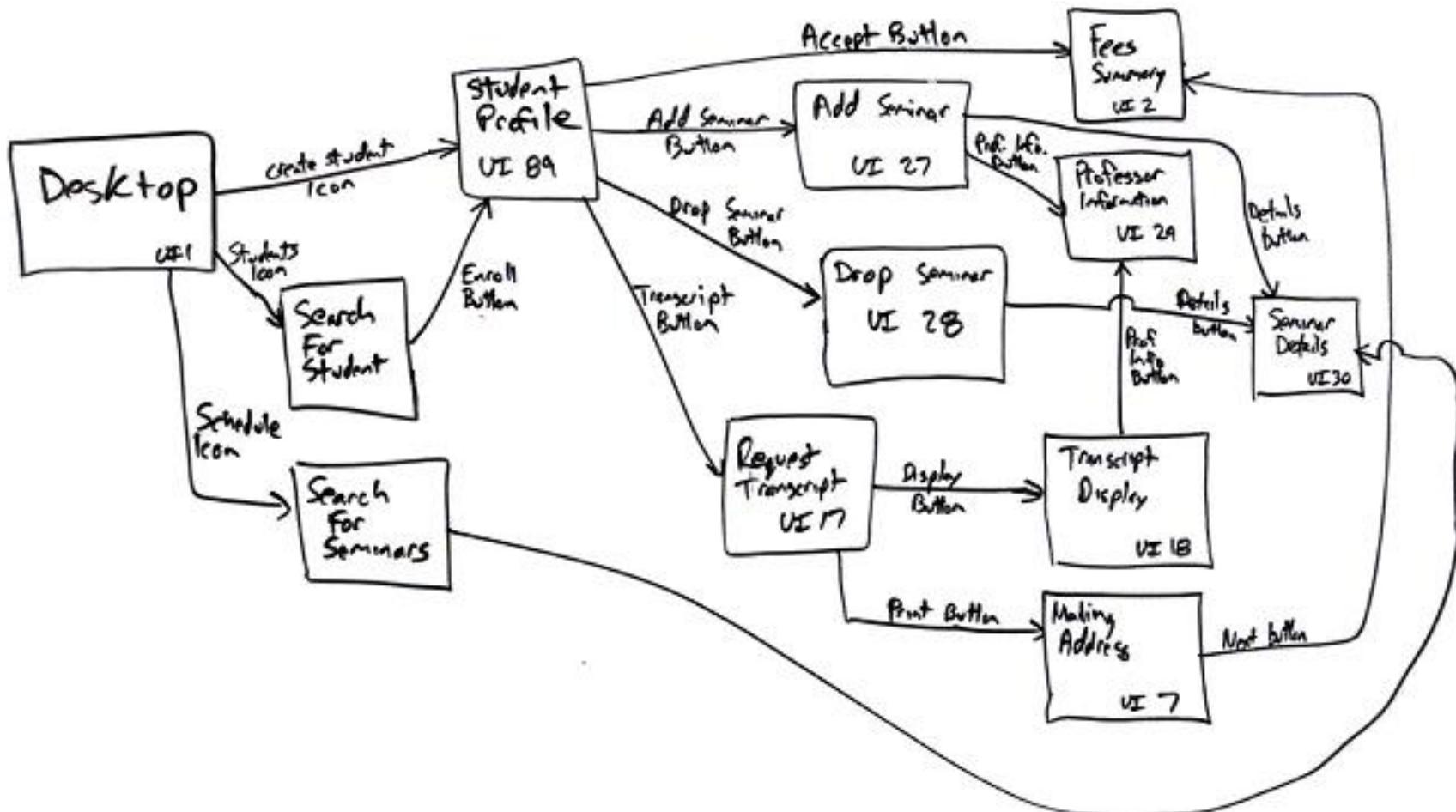


5. The person puts away the phone and turns around.

# Notes on storyboarding

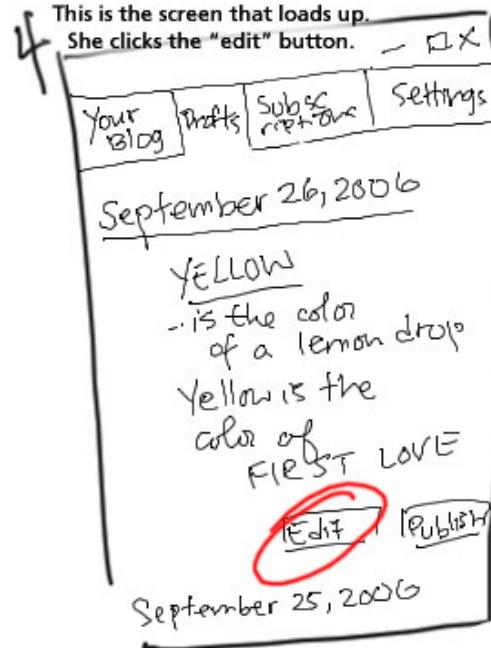
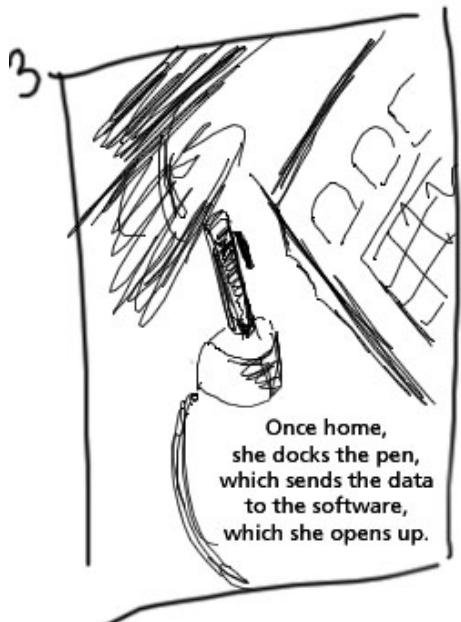
- Pay close attention to context
  - Where is the user? What are their hands doing?
- Look out for skipped steps
  - Video prototyping can catch some of these also!

## Flow diagrams vs. storyboards

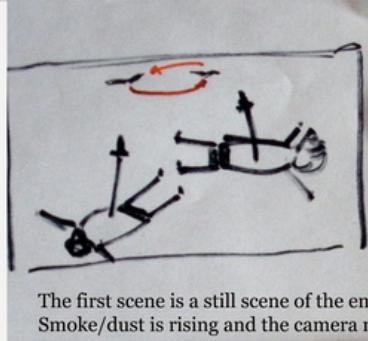


# Example storyboards

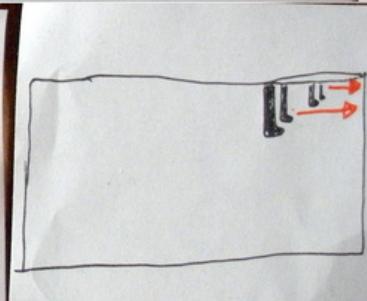
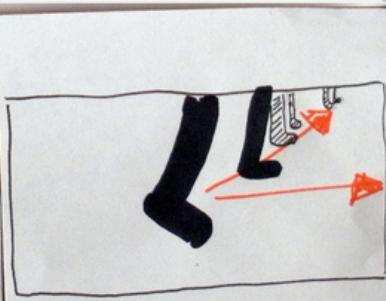
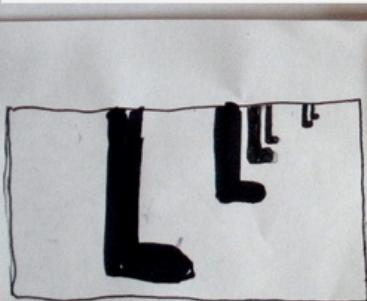
## Storyboard #1: Creating + Modifying a Blog Entry



START

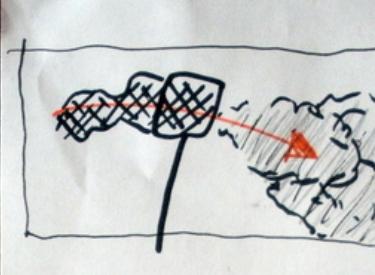
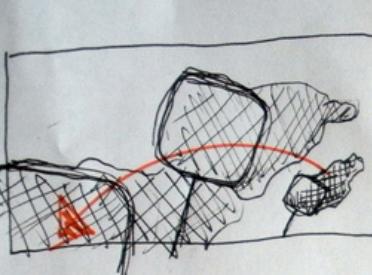
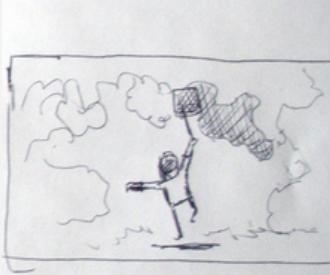


The first scene is a still scene of the end of a battle.  
Smoke/dust is rising and the camera moves up to show the silhouettes of 3 figures



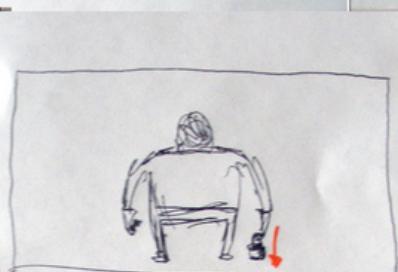
The side view of the characters standing in a line.  
The first character moves, followed by the second and third, spacing out their movements.

We then get a face shot



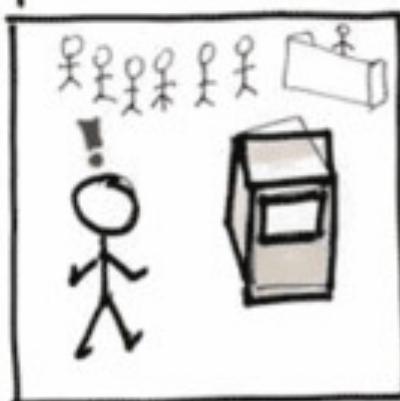
We see the smallest one struggling with a butterfly net to catch the smoke  
and clear the air.

She frantically waves it around and is clearly too small for the job.  
A bird could be caught in the net mid flight.



The larger one settles a paint can down next to some bushes covered in blood.

She proceeds to paint them green, although it's the wrong shade.



User arrives at station, sees kiosk  
and logs queue for the  
ticket office.



User opens mobile application



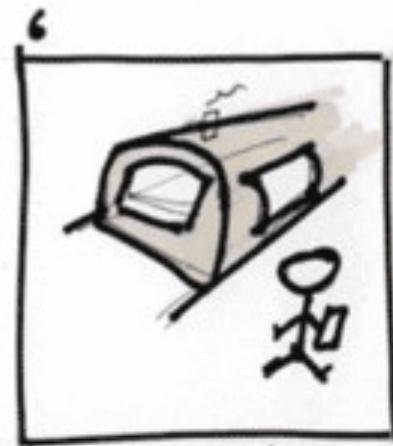
on payment screen, he  
chooses mobile phone



He scans the QR code



Follow instructions to pay, and his  
ticket delivered



Get a ticket with ticket  
delivered to his phone. Simply!

# Presenting storyboards

- Often valuable to act them out
- Can sell the idea, help find more bugs
- In animation, this is often called an *animatic*
- Example from Shrek:  
<https://www.youtube.com/watch?v=mgAliVS5JAk>

# Interactive demo

- Let's make a storyboard together

# Choosing a problem

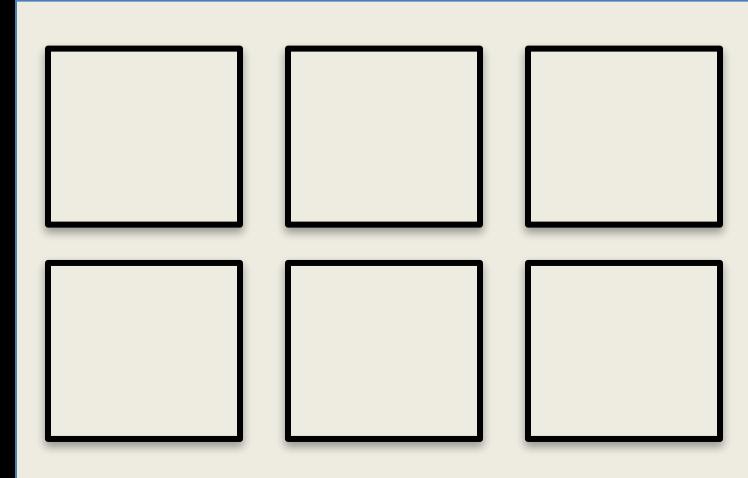
- Let's storyboard some interaction
- Something that requires multiple steps, and multiple objects (users, devices, etc)
- Any suggestion?

# Fall-back idea

- Design a mobile app that allows people in a neighborhood to track wildlife sightings
- And provides push notifications based on certain criteria

# Make your own storyboard

- Partner up with your neighbor
- Sketch out a 6 panel storyboard
- Then we'll make one as a group (from our initial sketches)



# Recitation tomorrow

- Sketching and storyboarding practice