IN4MATX 133: User Interface Software

Lecture 20: Wrap-Up

Professor Daniel A. Epstein
TA Goda Addanki
TA Seolha Lee

Today's goals

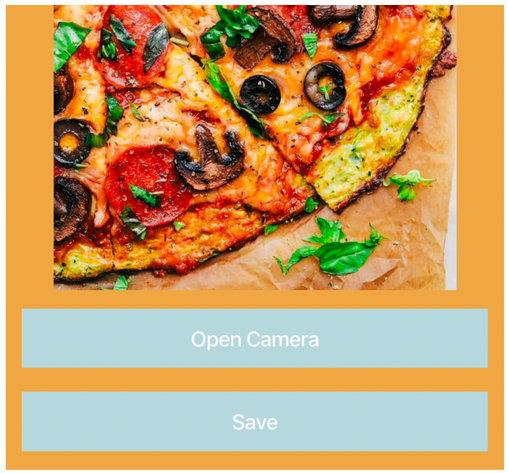
By the end of today, you should be able to…

- Describe how concepts from IN4MATX 133 can integrate into research and practice
- Summarize what you learned in IN4MATX 133
- Describe the relevance of the topics to different disciplines in industry
- Fill out the course evaluation!

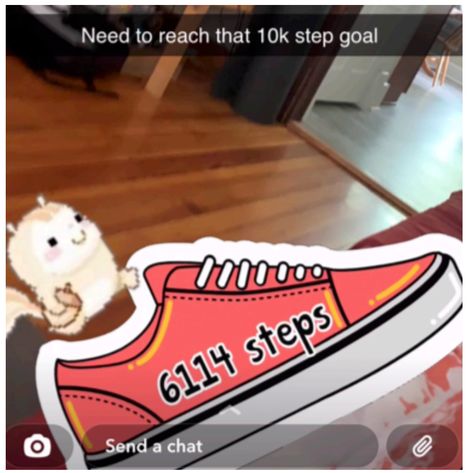
Putting 133 concepts to use

- How can 133 concepts be used in research and practice?

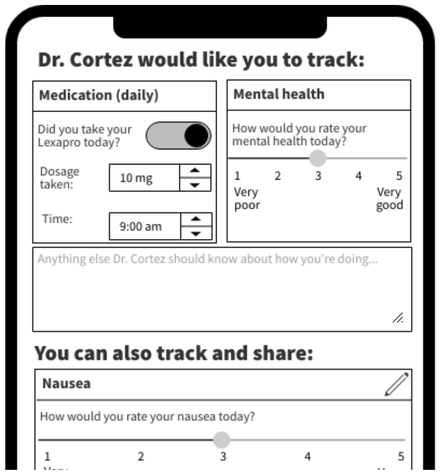
Putting 133 concepts to use



Multimodal and multi-device tracking

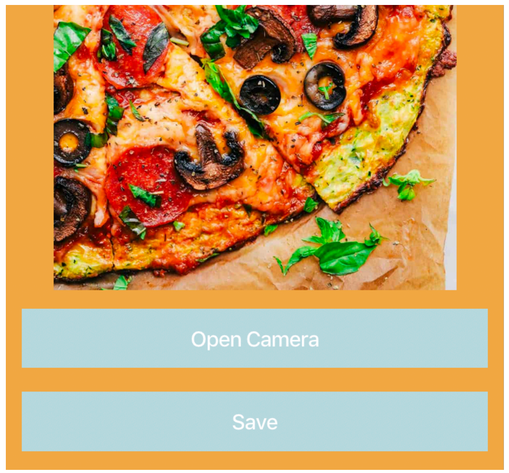


Tracking embedded in social technology



Bringing tracking to clinical settings

Current research



Multimodal and multi-device tracking

Tracking embedded in social technology

Bringing tracking to clinical settings

Current research

Multimodal & multi-device food journaling

Awareness of what they ate

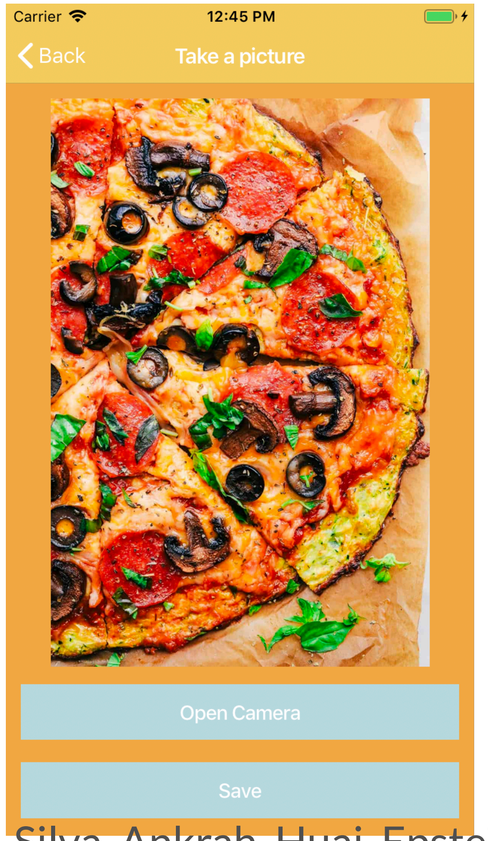
Weight loss or maintenance

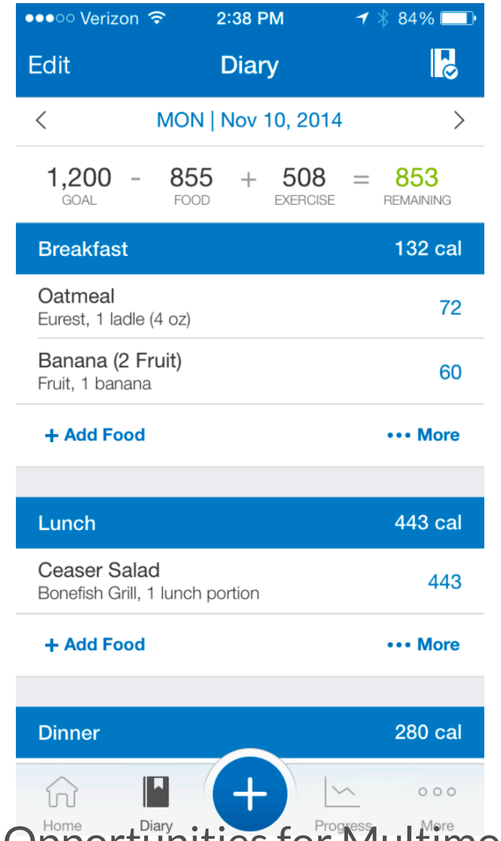
Diagnosis of an intolerance or allergy

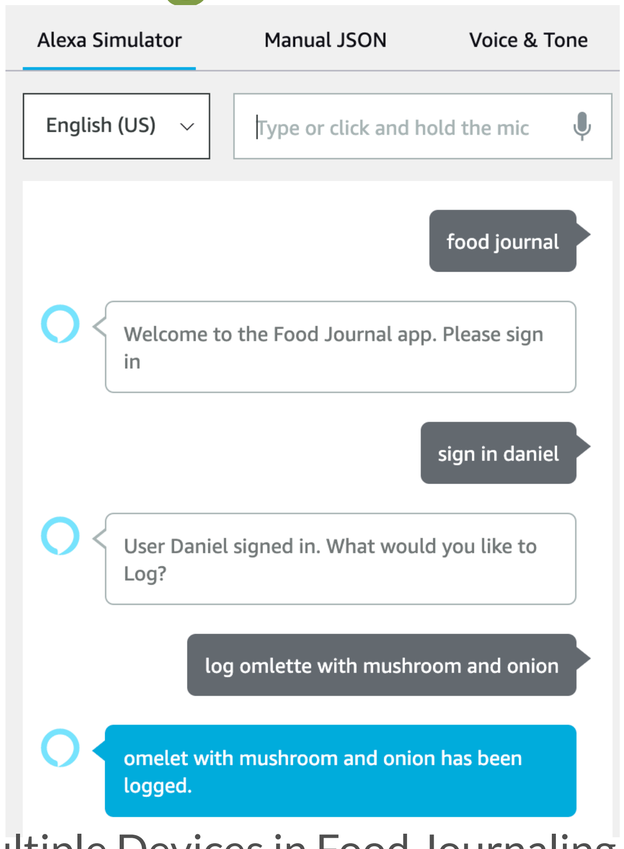
Silva, Ankrah, Huai, Epstein. Exploring Opportunities for Multimodality and Multiple Devices in Food Journaling. In preparation.

Current research

Multimodal & multi-device food journaling







Silva, Ankrah, Huai, Epstein. Exploring Opportunities for Multimodality and Multiple Devices in Food Journaling. In preparation.

Current research

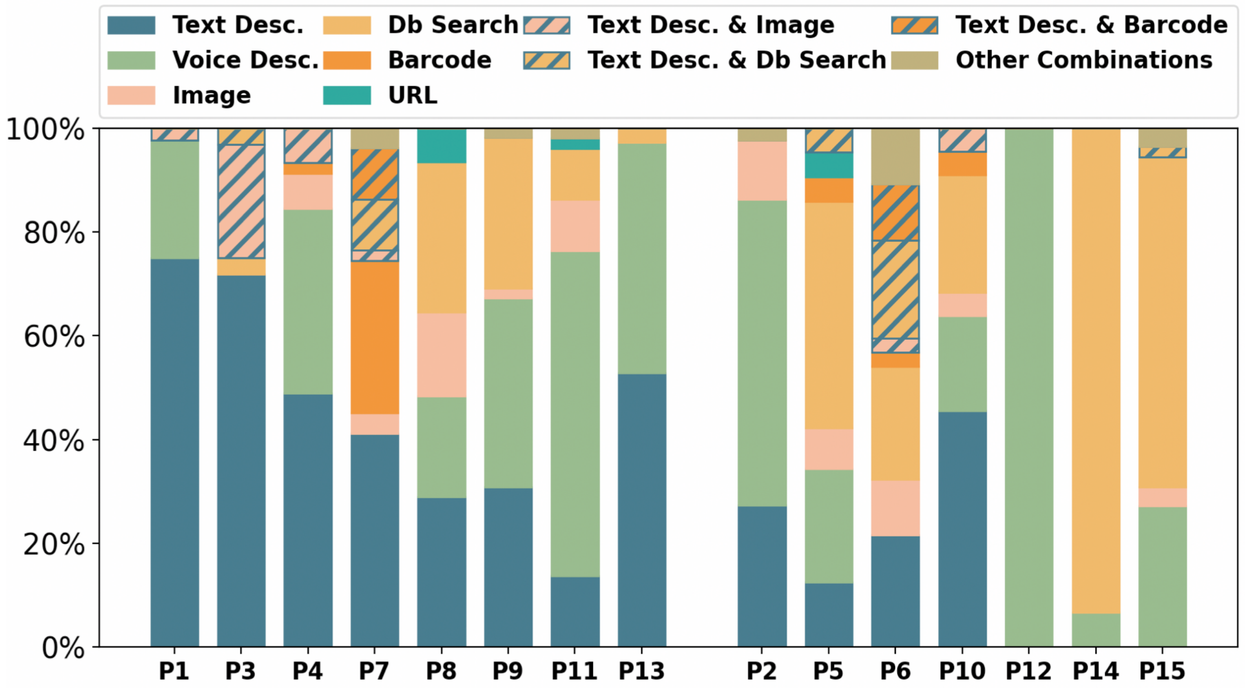
Multimodal & multi-device food journaling

	Speaker	Phone	Desktop	Watch
Voice	✓	✓	✓	✓
Photo		✓	✓	
Barcode		✓		
Text description		✓	✓	
Database lookup		✓	✓	
Recipe link		✓	✓	

Silva, Ankrah, Huai, Epstein. Exploring Opportunities for Multimodality and Multiple Devices in Food Journaling. In preparation.

Current research

Multimodal & multi-device food journaling



Awareness goals Weight loss goals

Awareness: open-ended text descriptions
(p<0.05, 95% CI 0.46-4.42x more often)

Weight loss: database searches
(p=0.07, 95% CI 0.38x less - 4.45x more often)

Silva, Ankrah, Huai, Epstein. Exploring Opportunities for Multimodality and Multiple Devices in Food Journaling. In preparation.

Current research

Multimodal & multi-device food journaling

Availability

“Studying, doing something on my PC and I want something to eat, [...] so I might as well just start logging it”

“I would use it when I want to multitask. If it's available right there and I'm prepping or if I'm cooking, [...] so I'll be like, ‘Alexa, journal blah blah blah’”

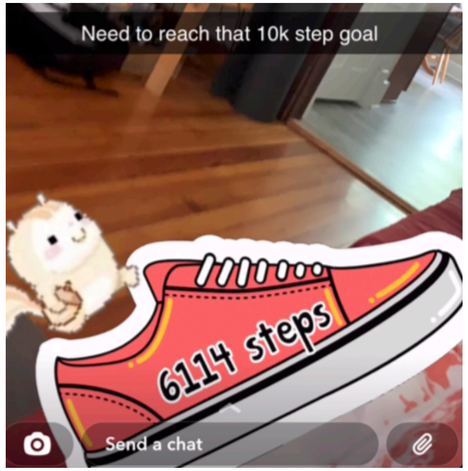
Presence of others

“my family is a bunch of eavesdroppers and control freaks and I don't want them hearing what I'm doing”

Silva, Ankrah, Huai, Epstein. Exploring Opportunities for Multimodality and Multiple Devices in Food Journaling. In preparation.

Current research

Multimodal and
multi-device tracking

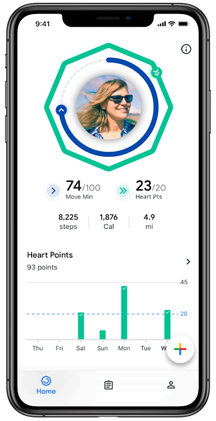


Tracking embedded
in social technology

Bringing tracking
to clinical settings

Current research

Tracking embedded in social technology



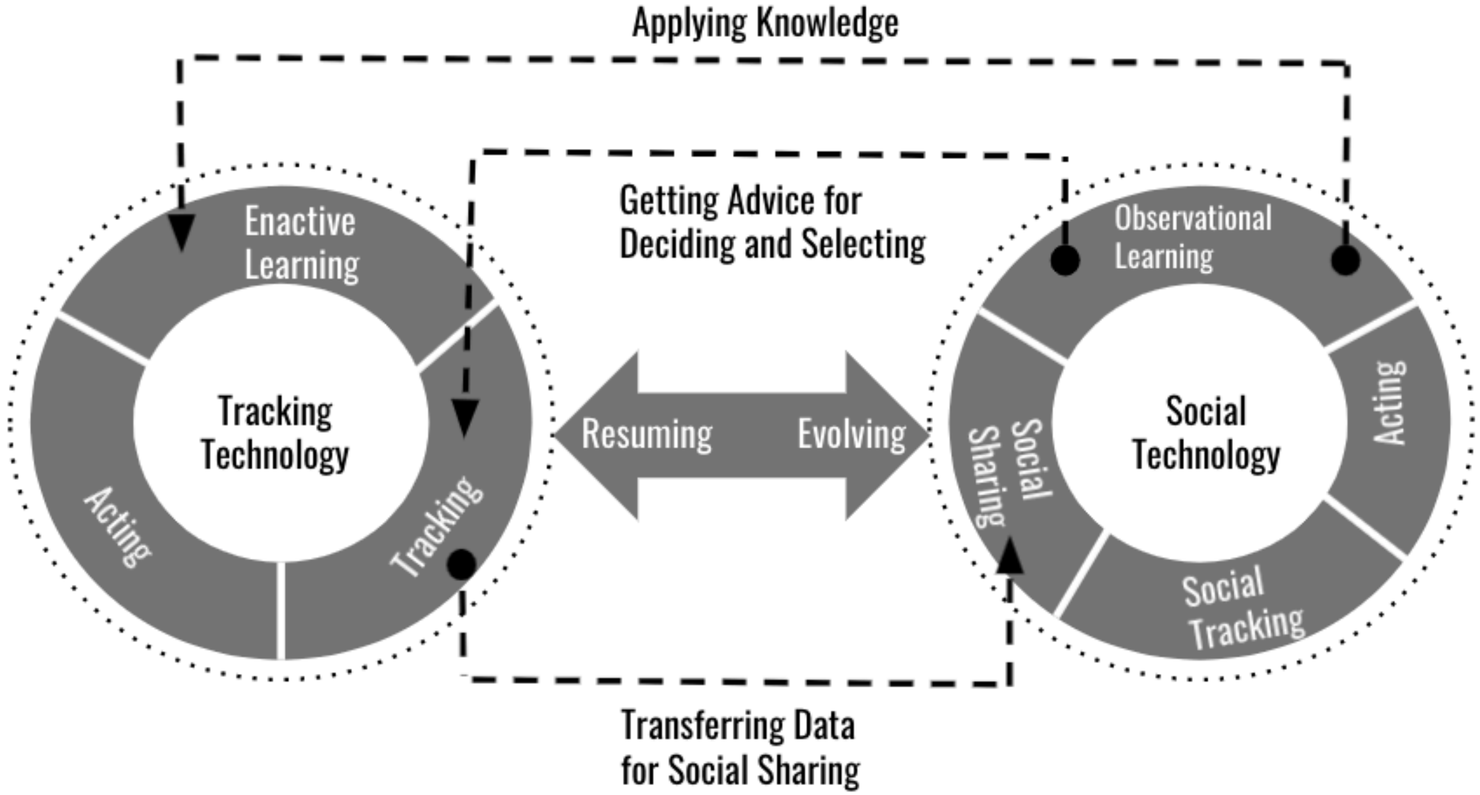
Tracking technology

Social technology

Lu, Chen, Epstein. A Model of Socially Sustained Self-Tracking for Food and Diet. CSCW 2021.

Current research

Tracking embedded in social technology



Lu, Chen, Epstein. A Model of Socially Sustained Self-Tracking for Food and Diet. CSCW 2021.

Current research

Tracking embedded in social technology

Moving data from tracking to social

"When you say something publicly, you then must be persistent in it to not be discreditable. So [sharing] works as monitoring and encouragement."

Transferring knowledge from social to tracking

"When I first started losing weight [by the food journaling app], I valued my appearance a lot. Then, nutrition knowledge [learned on external social platforms] makes me realize that eating is as important as appearance. I more and more realize the importance of healthy eating."

Lu, Chen, Epstein. A Model of Socially Sustained Self-Tracking for Food and Diet. CSCW 2021.

Current research

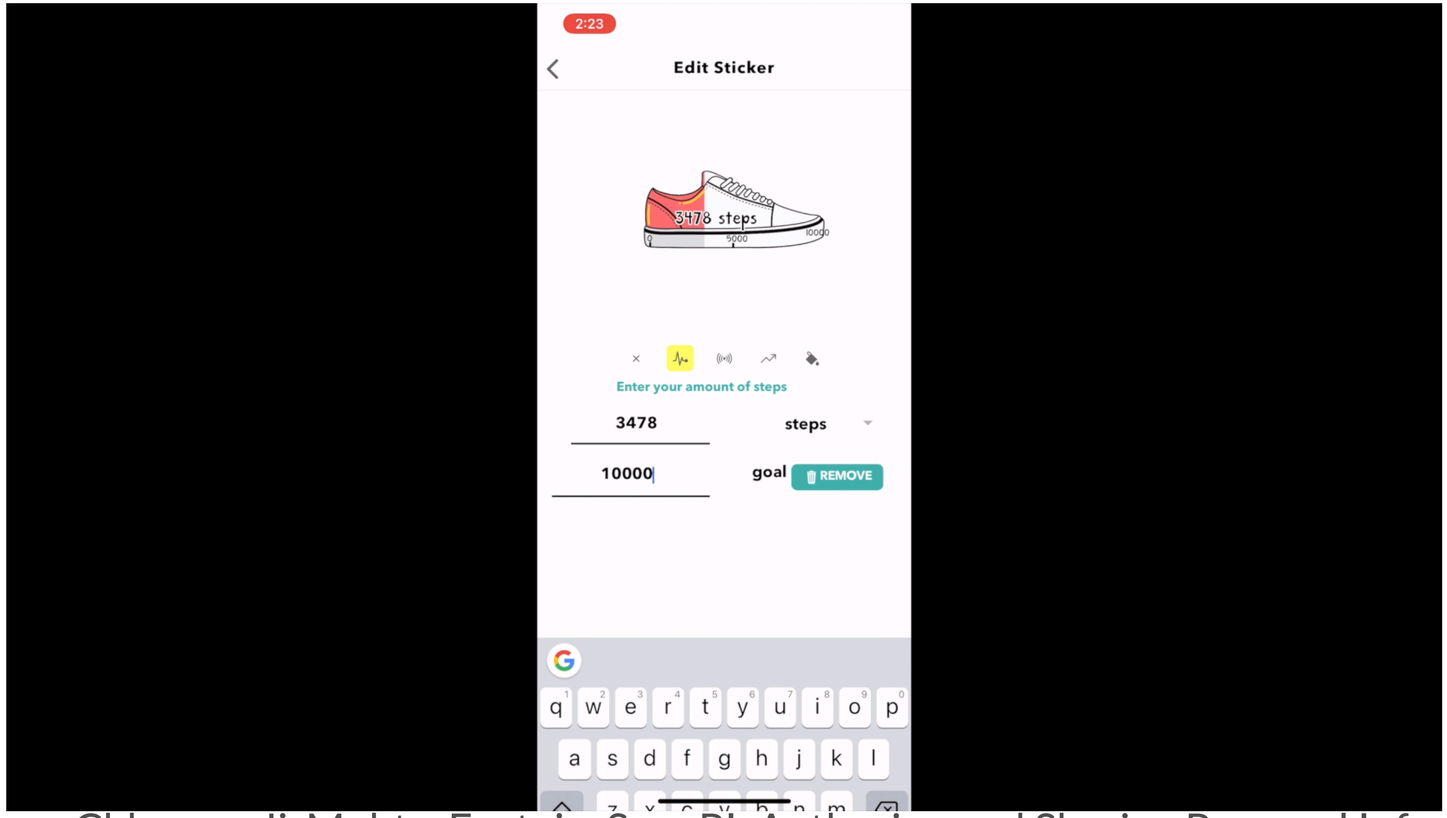
Tracking embedded in social technology

Can we design technology which supports moving health tracking data to social technology?

Wang, Chheang, Ji, Mohta, Epstein. SnapPI: Authoring and Sharing Personal Informatics Data Stickers on Ephemeral Social Media. Under review.

Current research

Tracking embedded in social technology



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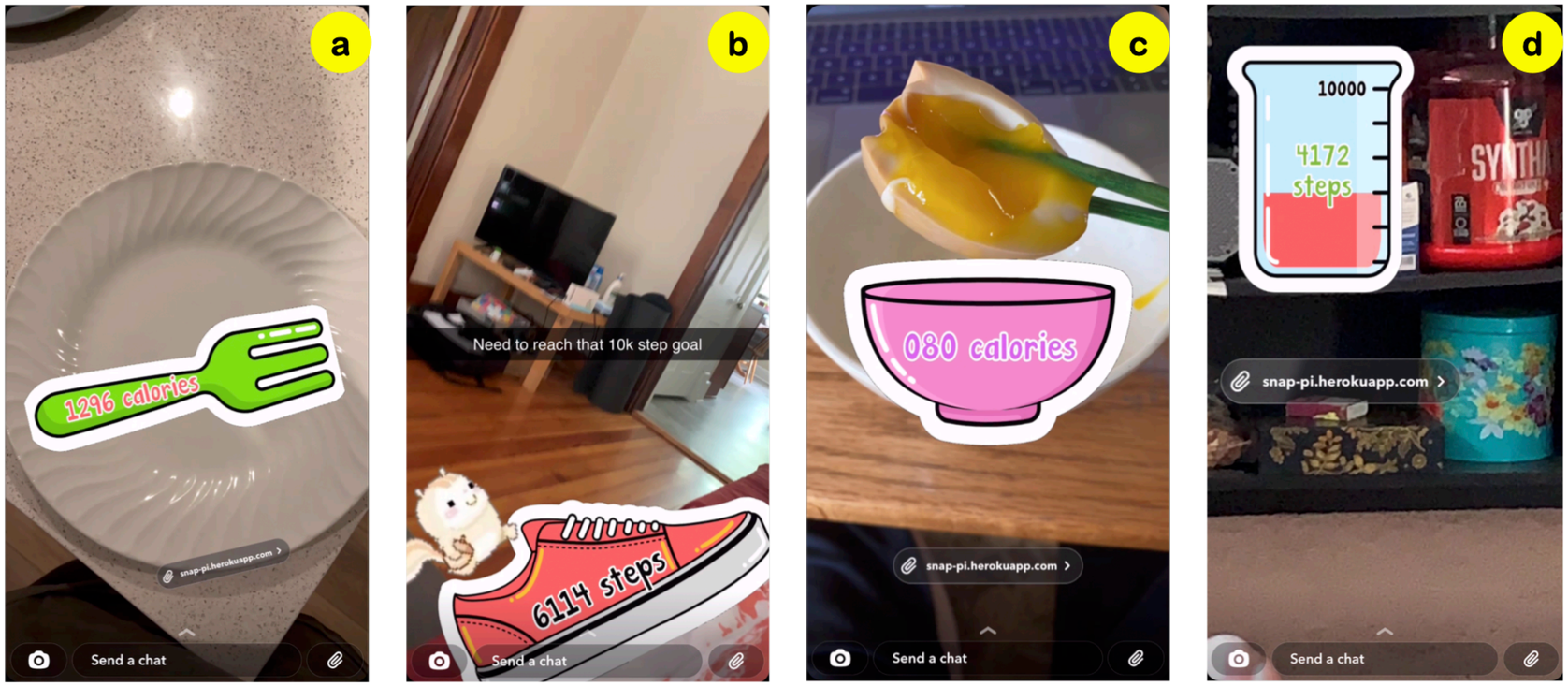

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Current research

Tracking embedded in social technology

Have playful engagements around health data

"I have some friends on another app, MyFitnessPal, where you track your calories, so they see that, but again, it's numbers [...], it's not as interactive or interesting to see. And Snapchat it's sort of, I'm sending them Snaps anyway."

Supported connection around health

"So with these stickers, they start a point of conversation, I think [...], if I went on a walk, and I use this sticker, my friend would ask me, [...] stuff like, 'Where did you take the walk?' Or like, 'Oh, good, that you took the walk'"

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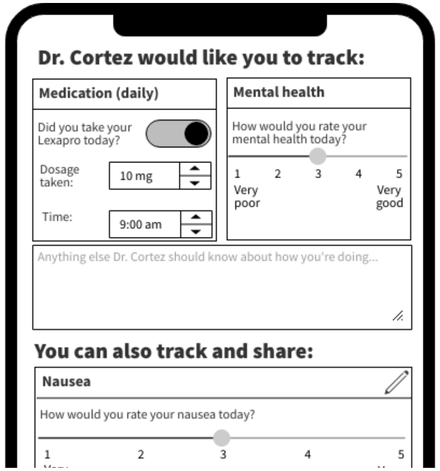
Current research

Multimodal and multi-device tracking

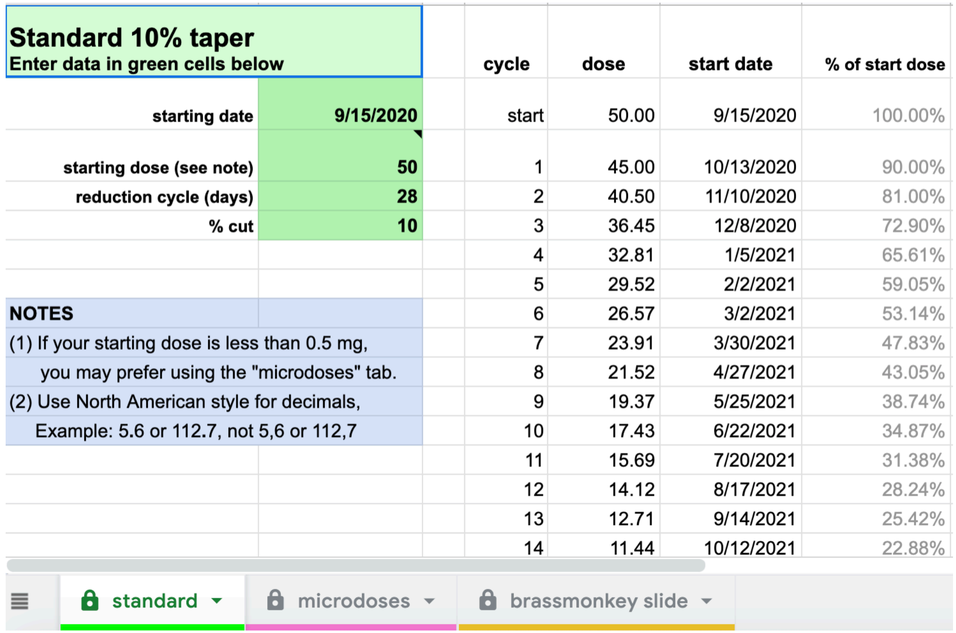
Tracking embedded in social technology



Bringing tracking to clinical settings

Current research

Bringing tracking to clinical settings



Standard 10% taper
Enter data in green cells below

starting date	9/15/2020
starting dose (see note)	50
reduction cycle (days)	28
% cut	10

NOTES
(1) If your starting dose is less than 0.5 mg, you may prefer using the "microdoses" tab.
(2) Use North American style for decimals, Example: 5.6 or 112.7, not 5,6 or 112,7

cycle	dose	start date	% of start dose
start	50.00	9/15/2020	100.00%
1	45.00	10/13/2020	90.00%
2	40.50	11/10/2020	81.00%
3	36.45	12/8/2020	72.90%
4	32.81	1/5/2021	65.61%
5	29.52	2/2/2021	59.05%
6	26.57	3/2/2021	53.14%
7	23.91	3/30/2021	47.83%
8	21.52	4/27/2021	43.05%
9	19.37	5/25/2021	38.74%
10	17.43	6/22/2021	34.87%
11	15.69	7/20/2021	31.38%
12	14.12	8/17/2021	28.24%
13	12.71	9/14/2021	25.42%
14	11.44	10/12/2021	22.88%

standard | microdoses | brassmonkey slide

6 a.m. Woke with anxiety
8 a.m. Took 2.5mg Lexapro
10 a.m. Stomach is upset
10:30 a.m. Ate breakfast
11:35 a.m. Got a headache, lasted one hour
12:35 p.m. Ate lunch
4 p.m. Feel a bit better
5 p.m. Took 2.5mg Lexapro
6 p.m. Ate dinner
9:20 p.m. Headache
10:00 p.m. Took 50mg Seroquel
10:20 p.m. Feeling dizzy
10:30 p.m. Fell asleep
2:30 a.m. Woke, took 3mg Ambien (NOT "took 1/2 tablet Ambien")
2:45 a.m. Fell asleep
4:30 a.m. Woke but got back to sleep

Papoutsaki, So, Kenderova, Shapiro, Epstein. Understanding Delivery of Collectively Built Protocols in an Online Health Community for Discontinuation of Psychiatric Drugs. CSCW 2021.

Jo, Ryu, Kenderova, So, Shapiro, Papoutsaki, Epstein. Designing Flexible Longitudinal Regimens: Supporting Clinician Planning for Discontinuation of Psychiatric Drugs. CHI 2022.

Current research

Bringing tracking to clinical settings

Providers don't have time to review data

"If you have a 20-minute appointment […] then you don't have a lot of time to do face-to-face time with patients."

Distrust of patient-driven health tracking

"Problem is at the beginning I went way too fast (On my idiot doctor's recommendation, of course). That's what put me where you are right now."

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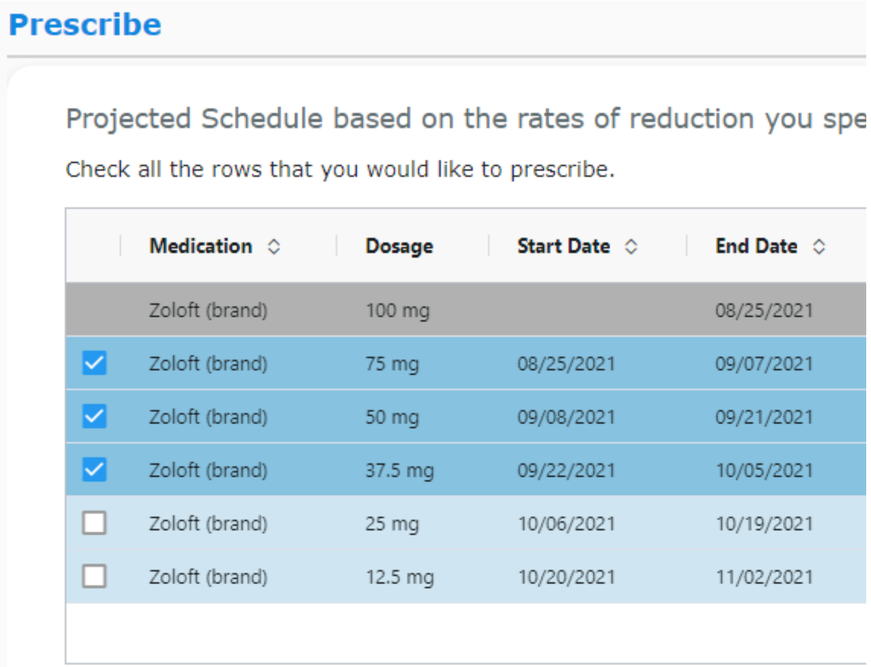

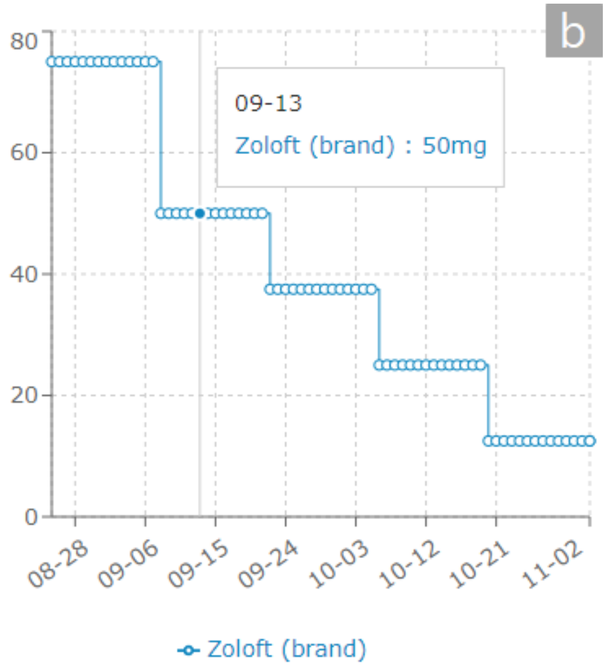

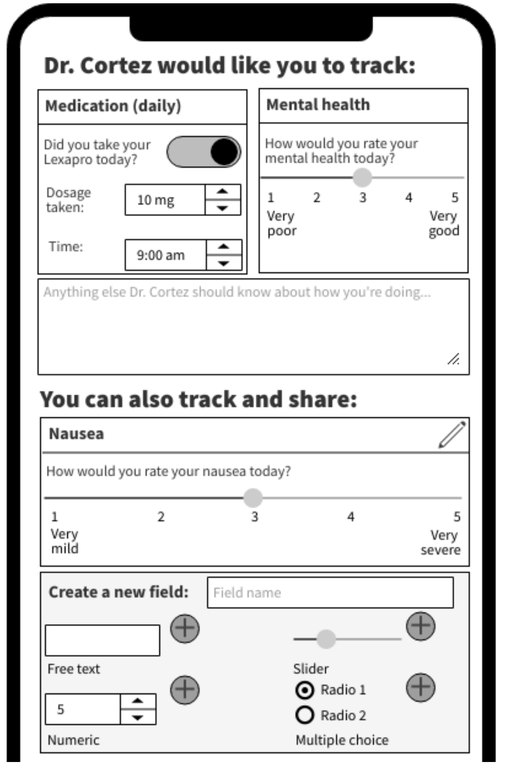

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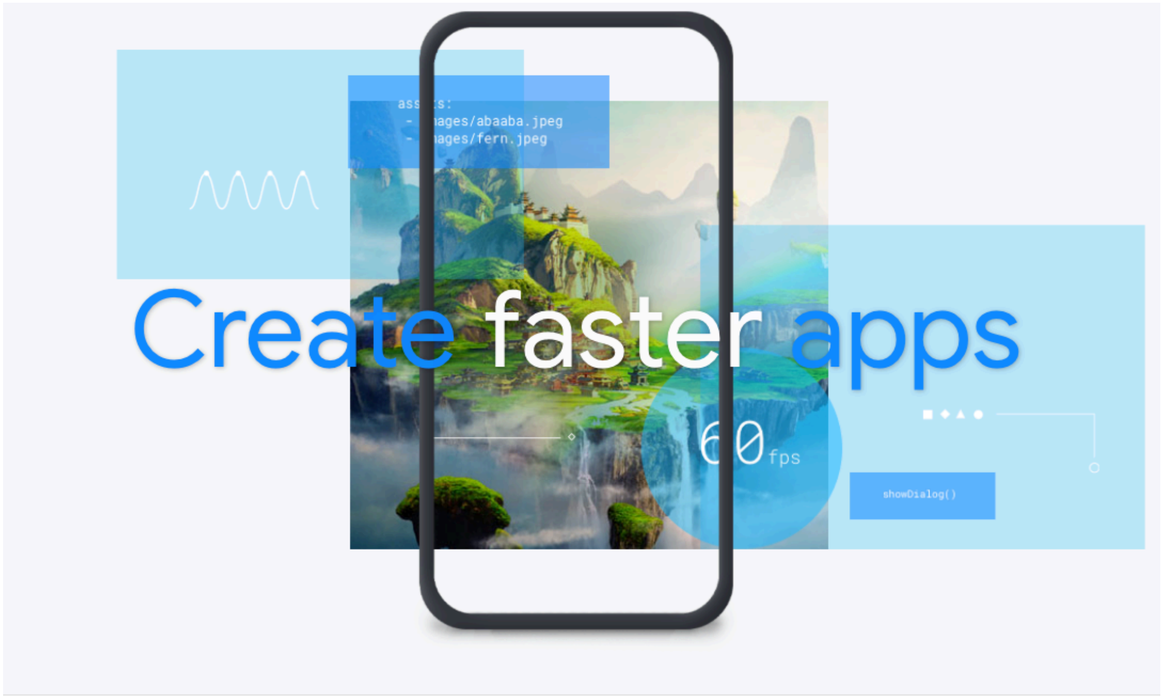
Reflecting on 133

Technology changes quickly

Technology changes quickly



Made by Google

Flutter is Google's UI toolkit for building beautiful, natively compiled applications for mobile, web, and desktop from a single codebase.

Get started Watch video

https://flutter.dev/

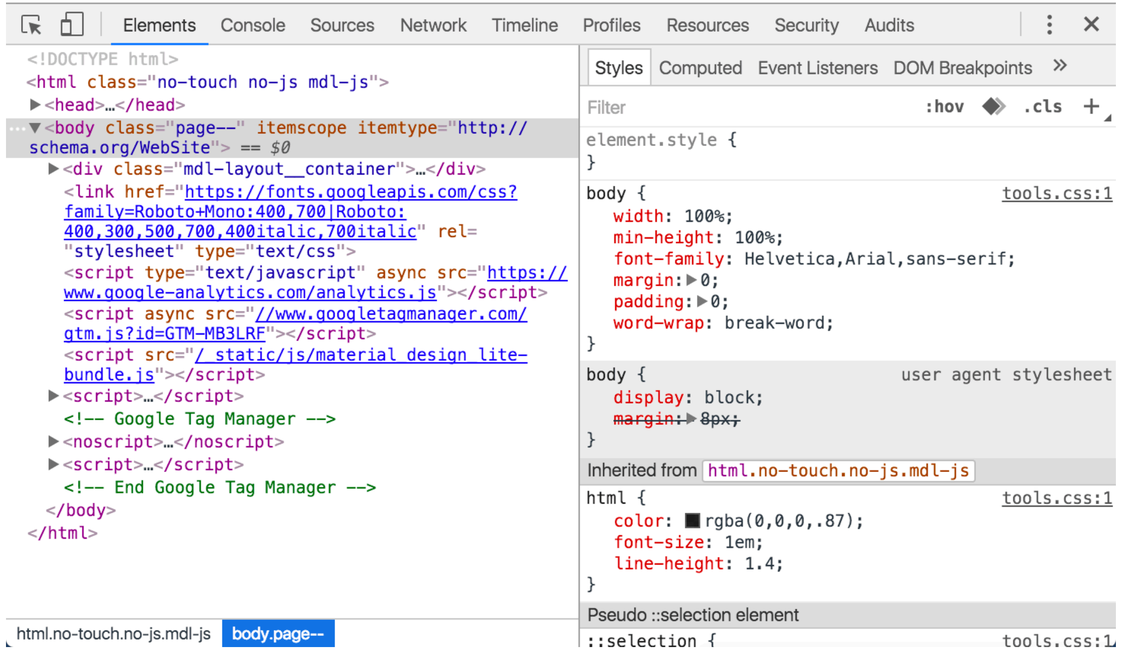
Take away messages from the course

Search before you build

- Do not reinvent the wheel!
- Use interfaces, algorithms, animations, etc. that have been created by other people

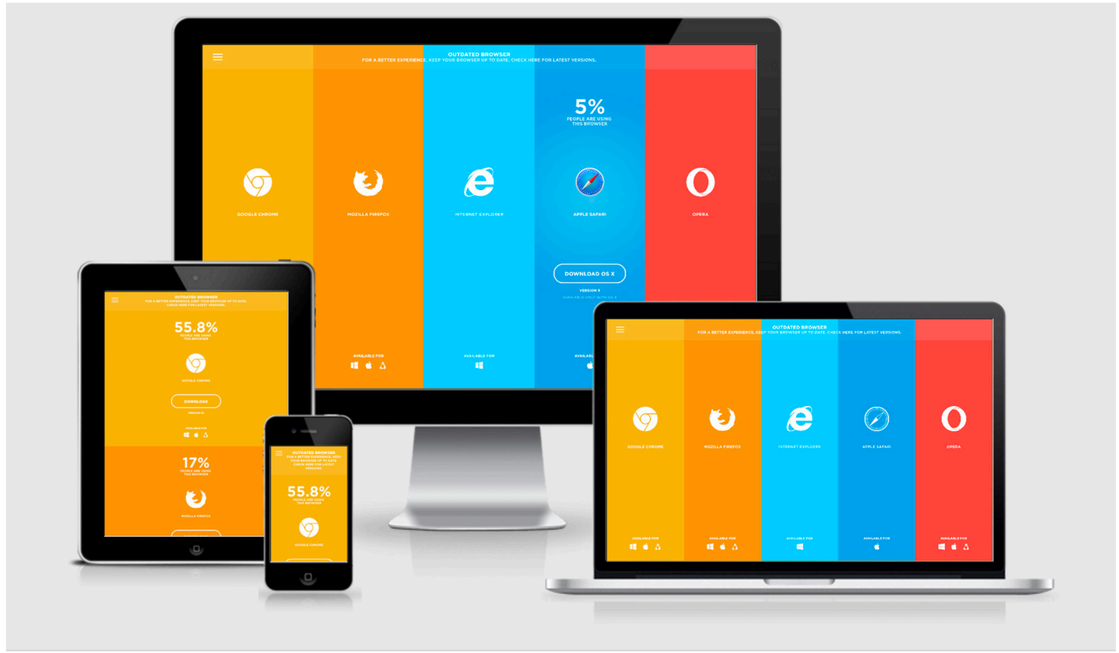
Build by example

- Learn from others
- Read source code on webpages, GitHub, StackOverflow
- Use the element inspector in your browser to see someone's design or implementation



Build for accessibility

- Keep in mind who you are designing for!
- Make sure your app works for:
  - All users
  - All browsers
  - All devices



Build with caution

- Use version control!
- Test while you build
- Iteratively refine and debug

Build on a solid foundation

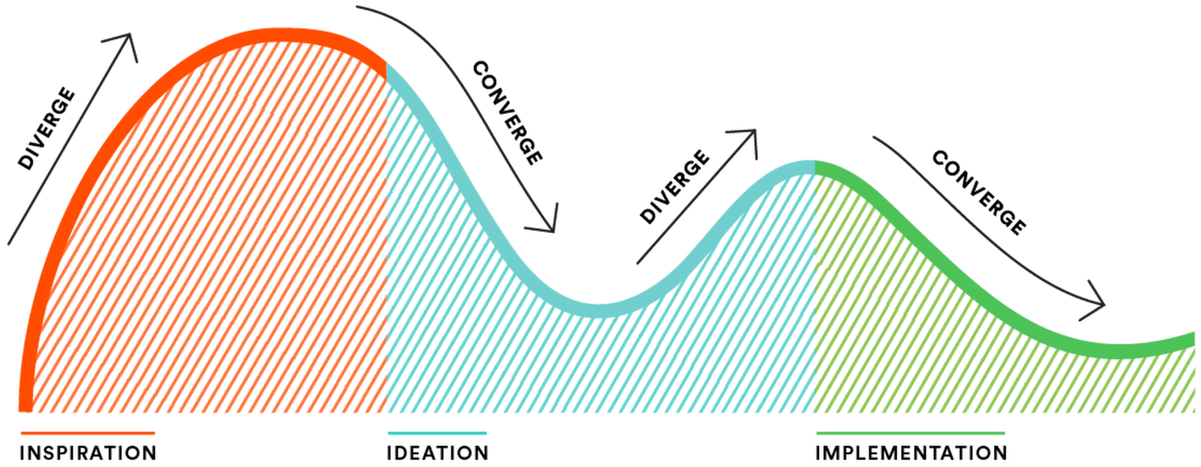
- A new framework will come out next year
  - Or next month or next week
- But some fundamental principles unite them all
  - Separating interface from data and interaction, for example

Take away messages

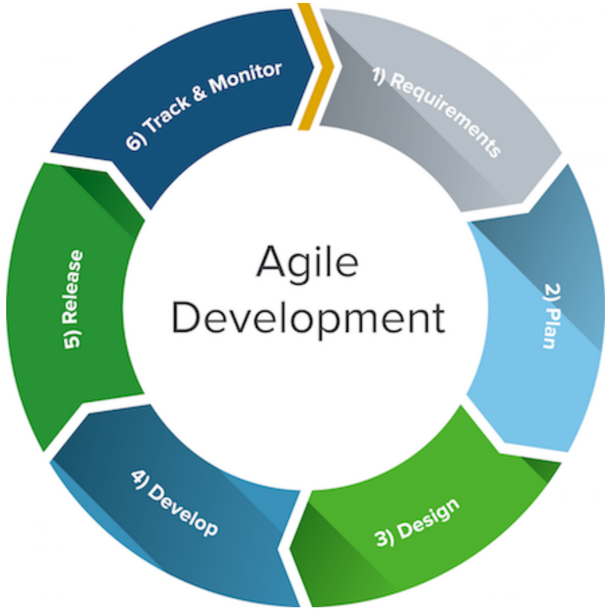
- Search before you build
- Build by example
- Build for accessibility
- Build with caution
- Build on a solid foundation

Applying this course in practice

Product design process

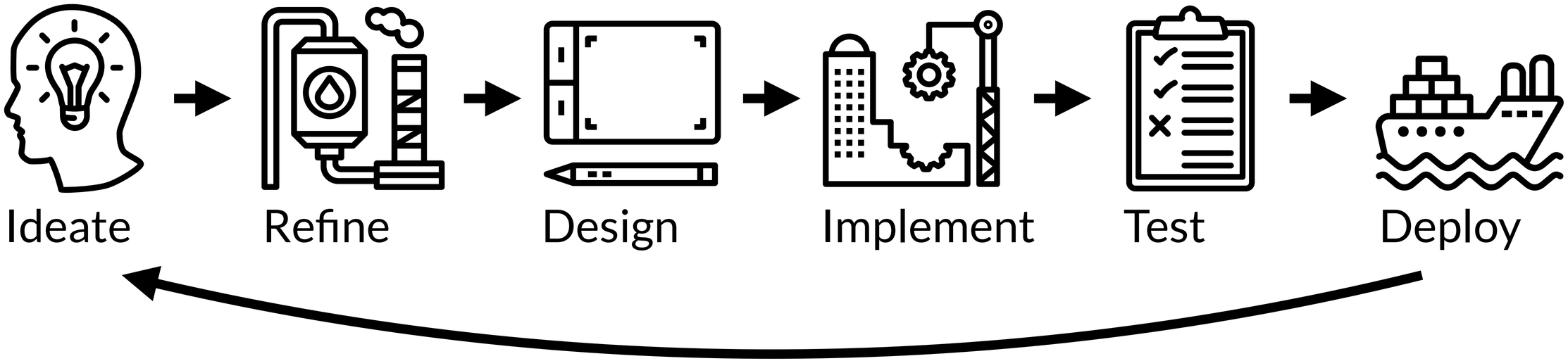


Human-Centered Design, IDEO



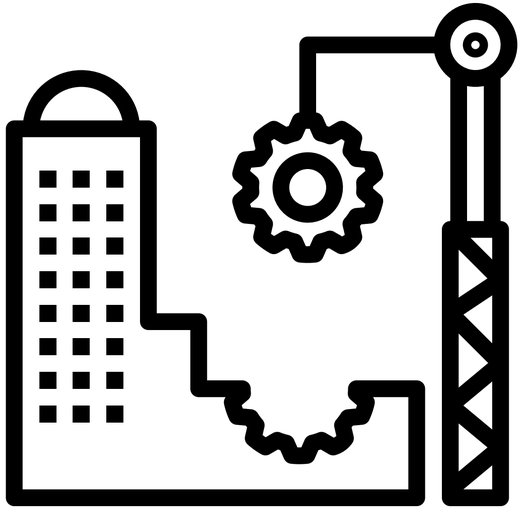
Agile Development, Agile Manifesto

Product design process, simplified



User interface implementation

- Has the power to turn ideas into reality
- Often dictates design decisions and timelines, for better or for worse
- Either you will be implementing, or you will need to communicate with your colleagues who are



What job might you get when you graduate?

Some job options

- User experience designer
- User experience researcher
- Front-end software engineer
- Back-end software engineer
- Academic researcher (graduate student)
- Software consultant
- Something unrelated to technology
- … others?

If you’re going into UX, you can now…

- Follow principles of web, mobile, AR design
  - Responsive design! Error prevention! Give clear instruction!
- Be conversational in web and mobile programming
  - Be able to understand what tasks are easy and what are hard
  - And understand when a developer is BSing you about how long something will take
- Style a webpage
  - Use CSS and SASS to change a design and even add animations

Front-end software engineering...

- Build a webpage in plain HTML
  - Make it responsive with Bootstrap
- Use a framework to build a richer application
  - Angular for a web frontend
  - Ionic for a mobile frontend
- Style a webpage
  - Use CSS and SASS to change a design and even add animations

Back-end software engineering...

- Build a web server
  - Allow it to respond to requests from a front-end interface
  - Allow it to make requests to APIs made by other developers
- Follow authentication and authorization protocols
  - Enable users to sign on
- Use a database
  - Data can persist between sessions

Academic research…

- Explain some key problems in a couple of areas
  - Ubiquitous computing
  - Human performance
  - Mixed reality design
  - Conversational interfaces
  - Wearable computing
  - Augmented and virtual reality

Software consultancy…

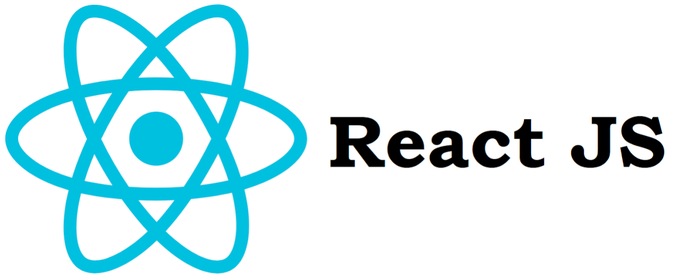
- Process and analyze data
  - Retrieve it from an API
  - Parse and process it to answer your question
- Visualize data
  - Use an appropriate tool for the task

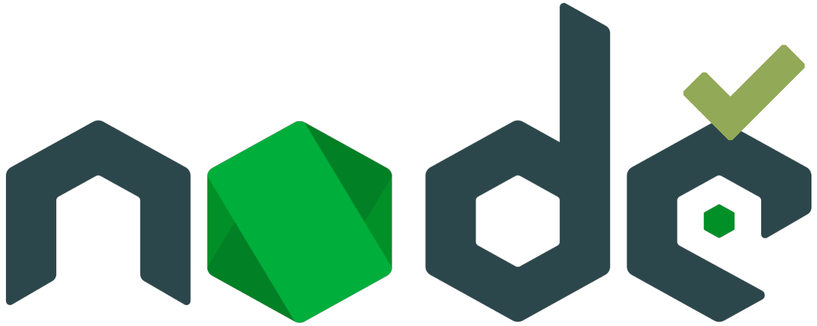
Something unrelated...

- Make a portfolio to show off your skills
  - Selling yourself is key
- Judge new devices and apps that come along
  - Is this solving a real problem?
  - Is this well designed?

What is interface implementation today?

Often HTML, CSS, and JavaScript





Assignments

- A1: Personal web portfolio
- A2: Programming on the web
- A3: Web frameworks
- A4: Mobile development
- A5: Beyond Web & Mobile




Other skills

- Git and GitHub
- Package management in npm
- SASS
- Visualization in Vega-Lite

Question 

pickup

What framework or language did you find the most challenging to pick up?

A. HTML and CSS

B. JavaScript and TypeScript

C. Angular

D. Ionic

E. Platforms beyond web & mobile

Question 

reward

What framework or language did you find the most rewarding to learn to use?

A. HTML and CSS

B. JavaScript and TypeScript

C. Angular

D. Ionic

E. Platforms beyond web & mobile

Congratulations!

- We said this class would be challenging
- You have risen to the challenge and worked hard (and still are)
- You have created impressive work as a result

It’s been an honor
to be able to teach you.

I look forward to seeing what you do next!

Today's goals

By the end of today, you should be able to…

- Describe how Jo and Lucas concepts from IN4MATX 133 in their research and practice
- Summarize what you learned in IN4MATX 133
- Describe the relevance of the topics to different disciplines in industry
- **Fill out the course evaluation!**

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