

CS 147 Introduction & Course Overview

Design Thinking for User Experience Design, Prototyping & Evaluation

Prof. James A. Landay
Computer Science Department
Stanford University

Autumn 2025

September 22, 2025

Hall of Fame or Shame?



The screenshot shows the weather.com website. At the top, there's a search bar and navigation tabs for 'Today', 'Hourly', '10 Day', 'Monthly', 'Weekend', and 'Radar'. The main content area is titled 'TOP STORY ON OUR RADAR' and features a satellite map of the Atlantic Ocean with a large red storm system labeled 'I'. Below the map is the headline 'Keeping An Eye On Still Active Atlantic' and four article thumbnails: 'El Niño: How The First In 4 Years Could Impact You', '5 Changes To Expect From The Weather This Fall', 'Severe Turbulence Injures Passengers On JetBlue Flight', and 'Last Dance With Harvest Moon This Week — 2023's Final Supermoon'. A 'Hurricane Tracker' section for Tropical Storm Philippe is also visible, showing its path and current status: Max Winds 45 mph, Movement W at 12 mph, Pressure 1003 mb. A 'Web Notifications' pop-up is present in the top right, and another 'Web Notifications' section is on the right side of the page.

weather.com

Hall of Shame!



weather.com

Need to click for weather

What is the “first read”?

videos

popups/ads

not my local weather!

It used to be worse!

Hall of Fame or Shame?



The screenshot shows the Yahoo! weather interface for Stanford, United States. The page features a navigation bar with categories like HOME, MAIL, NEWS, FINANCE, SPORTS, ENTERTAINMENT, LIFE, SEARCH, SHOPPING, and YAHOO PLUS. The main content area displays the current weather as 'Mostly Clear' with a temperature of 62°F (16°C). A forecast section shows the following data:

Day	Icon	High	Low	Humidity
Tuesday	☁	79°	56°	32%
Wednesday	☀	79°	54°	0%
Thursday	☁	77°	55°	0%
Friday	☁	74°	57°	4%
Saturday	☁	69°	52°	4%

The 'Details' section on the right shows: RealFeel® 62°, Humidity 76%, Visibility 9.01 miles, and UV Index 0 (Low). A weather alert at the bottom states: 'Tonight - Clear. Winds from WNW to W at 5 to 9 mph (8 to 14.5 kph). The overnight low will be 57 °F (13.9 °C). Today - Sunny with a high of 79 °F (26.1 °C). Winds variable at 4 to 16 mph (6.4 to 25.7 kph).'

weather.yahoo.com
(last year)

Hall of Fame!



The screenshot shows the Yahoo! weather interface for Stanford, CA. The main content area displays the current temperature as 62°F (18°C) with a 'Mostly Clear' forecast. A sidebar on the left lists various global locations. The bottom section includes a detailed forecast for the week and a 'Details' panel with metrics like RealFeel, Humidity, and Visibility. The page is powered by AccuWeather.

weather.yahoo.com
(last year)

Good!

aesthetic

clean typography & icons

Bad!

image is 1st read

too much empty space!

Hall of Fame!



yahoo!weather Search by city or zip code [Search] News Finance Sports More [Mail] [Sign in]

Stanford 59° Clear Add your favorite places Follow a location to see it here

Powered by AccuWeather

Stanford California 59° RealFeel® 60°
Partly Cloudy today with a high of 79 °F and a low of 59 °F.
H 79° L 59° ☀️ 6:56 AM 🌄 7:06 PM
[Follow]

Conditions

- Humidity: Humid - 90%
- Air quality: Excellent - 82 UAQI
- Peak UV tomorrow: Moderate - 5 UV
- Allergens: Low
- Pressure: Average
- Visibility: High
- Moon: Waning crescent

Source: Includes air quality data from Google

Next 8 days

Today	Tomorrow	Tue 23	Wed 24	Thu 25	Fri 26	Sat 27	Sun 28						
☀️ 79° 59°	☀️ 85° 60°	☀️ 93° 66°	☁️ 78° 60°	☀️ 78° 59°	☀️ 79° 55°	☀️ 78° 55°	☀️ 76° 54°						
Now	Midnight	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	6:57 AM	7 AM	8 AM	9 AM	10 AM	11 AM
59°	60°	60°	60°	59°	59°	59°	59°	Sunrise	59°	62°	66°	71°	74°
🌙	🌙	🌙	🌙	🌙	🌙	🌙	🌙	🌄	☀️	☀️	☀️	☀️	☀️

Precipitation in/hr

Wind MPH

Now	6 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	6:57 AM	7 AM	8 AM	9 AM	10 AM	11 AM
↗️	↗️	↗️	↗️	→	→	→	→	→	→	→	→	↘️	↘️
6 SW	6 SW	5 SW	5 SW	5 W	5 W	5 W	4 W	4 W	4 W	3 W	4 W	4 NW	6 NW

Map

Radar [Dropdown]

San Francisco Berkeley San Ramon Mountain House Manteca

weather.yahoo.com

Good!

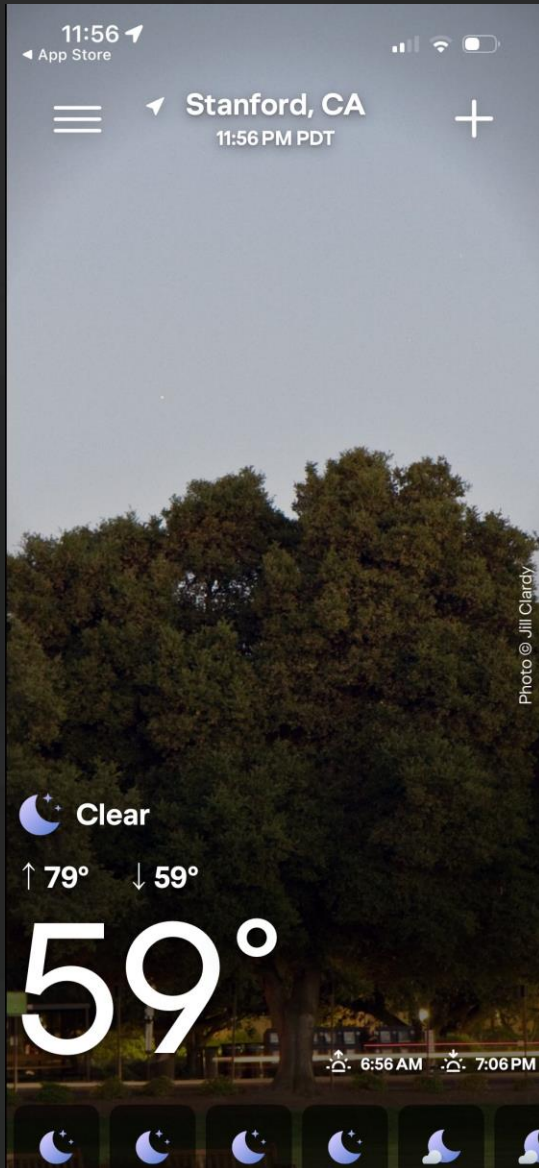
Weather clearly up front

Simple iconography

Bad!

image hidden

Hall of Fame!



iOS yahoo weather

Good!

aesthetic

clean typography & icons
(new version not as nice)

image recedes to
background w/ flick

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Design Thinking for User Experience Design, Prototyping & Evaluation

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Autumn 2025

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Who are We?



James Landay

he/him

- . Professor in Computer Science at Stanford
 - formerly at Cornell Tech (1 year), University of Washington (10 years), & UC Berkeley (7 years)
 - spent 3 years as Director of Intel Labs Seattle
- . PhD in CS from Carnegie Mellon
- . HCI w/ focus on ubiquitous computing, web design (tools, patterns, etc.), HAI
- . Founded NetRaker, 1st in web experience management (sold to Keynote)
- . Co-authored The Design of Sites with Doug van Duyne & Jason Hong
- . **Office Hours:** TBD (CoDa E354) or by appointment (slack me)
- . Email: landay@[insert usual Stanford email domain]



Alan Cheng

he/him

- PhD candidate in Computer Science, working on MA in Education
- BA & MEng in Computer Science @ Cornell
- I do HCI x education research, building learning experiences with AI & AR
- I (used to) sing a cappella with O-Tone, Stanford's East Asian interest a cappella group
 - **Office Hours:** Fri 1:30-2:30pm (CoDa E320) or by appointment

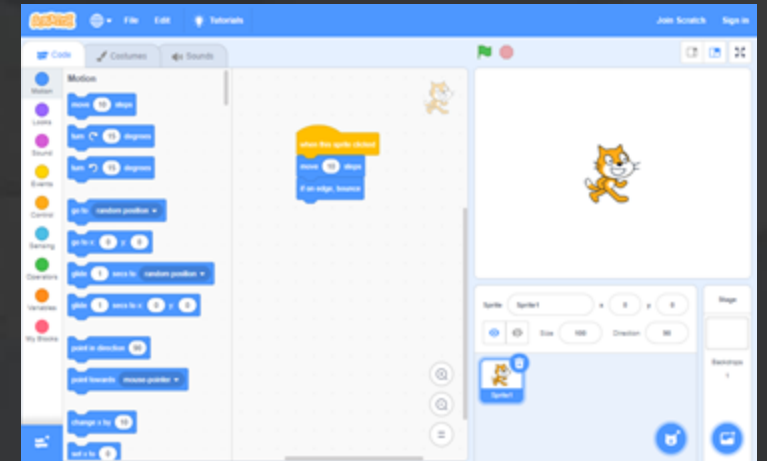
Empowering Learners with AI

The rapid advancement of generative AI in recent years has posed many challenges to the field of education, leading to fears that AI will supplant student thinking and undermine their learning. However, AI also **opens up opportunities for new kinds of learning technologies** that enable students to take control of their learning experience, scaffold their learning, and adapt to their needs.

The key lies in the **design** of these AI-supported learning technologies. How might we design **AI-supported tools to empower learners**, rather than robbing them of their agency?

Studio Thu 4:30-6:20PM

Examples: Scratch, Khanmigo, Anki





Abbie Maemoto

she/her

- MS Candidate in Management Science & Engineering
- BS in Computer Science & Product Design
- Interested in creating systems for educational equity
- Come talk to me about breaking into product management!
- Love coffee & taking new workout classes (+1 for solidcore & Barry's) :)
- **Office Hours:**
 - Wed 4-5:30 PM (CoDa B02) or by appointment ([Calendly](#))

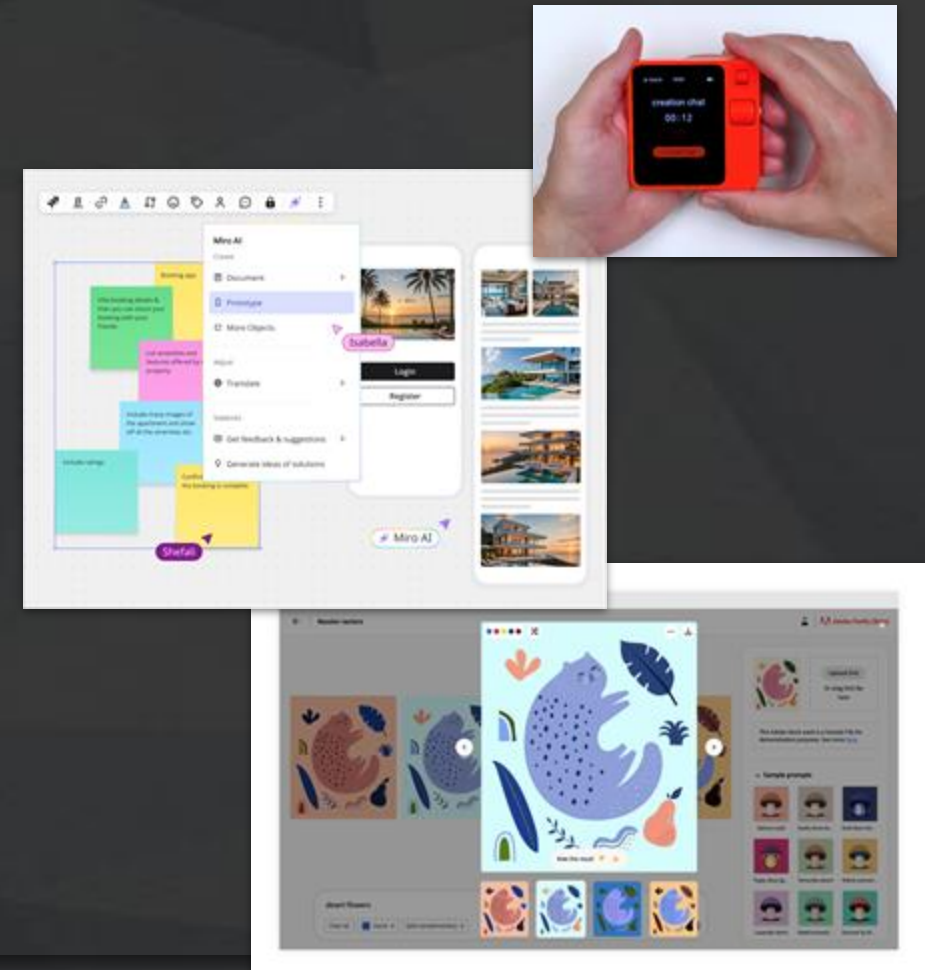
Agents of Change

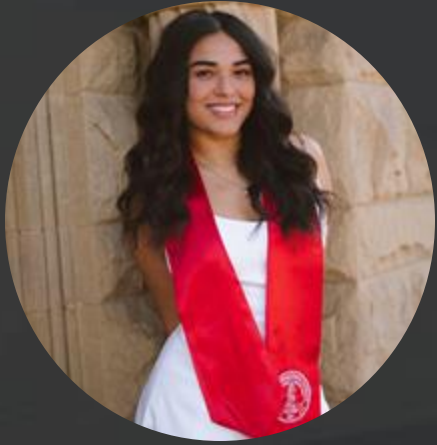
Most AI agents today feel like text threads—you type, they reply. But as systems evolve, richer interactions are emerging to address **accessibility, trust, and transparency** through **multimodality**: agents you can talk to, type at, gesture toward, or that understand context.

Imagine ideas surfacing on a shared canvas, ready to be dragged or reshaped. Or reasoning displayed as a living map you can trace over time. Or an agent that turns spoken ideas into sketches, refined by voice, text, and/or hand-drawn pen strokes.

In this studio, we will **reimagine agentic interaction itself**, moving beyond text exchanges to design experiences that feel **natural, contextual, and embedded** in everyday life.

Studio Friday 1:30-3:20pm
Examples: Miro AI, Adobe Firefly, ChatGPT Canvas Mode, Rabbit r1





Naima Patel

she/her

- . MS Candidate in Computer Science - HCI
- . BS in Design on the Digital Design & AI track
- . Previously Product at Oracle, currently building a Voice AI product through the Bell AI fellowship
- . Interested in consumer product design, media, live music, the intersection of tech & entertainment
- . I was Director of Stanford Concert Network last year & was on the team that booked Doechii! Come talk to me about live music :)
- . **Office Hours:**
 - Wed 10:30AM - 12PM (COHO) or by appointment ([Calendly](#))

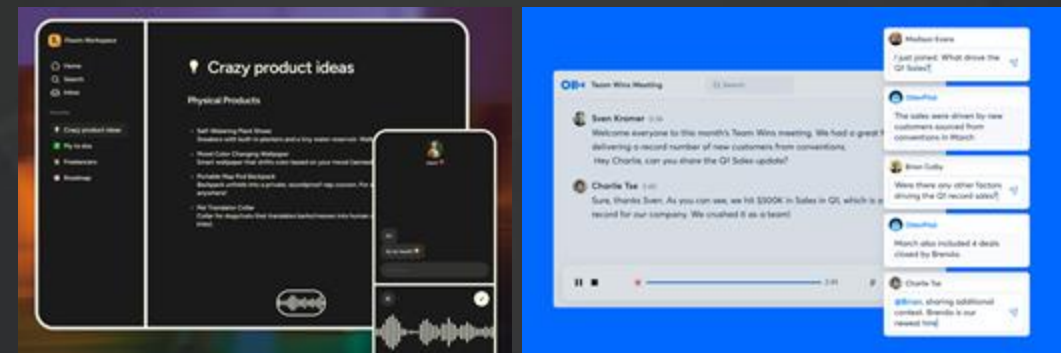
Designing Voice AI for Everyday Value

Voice assistants have become part of our daily lives, but most still feel like tools you “use” rather than something that actually supports you. The real promise of voice lies in **weaving it into routines and workflows** so it genuinely saves time, reduces friction, or helps you stay on track. How can a voice agent guide someone through a complex process **without breaking their flow**?

Most importantly, integrating voice interactions is a design challenge: in this studio we’ll explore how to make voice a natural, meaningful part of people’s days rather than an add-on feature. We’ll focus on **multimodal interfaces where spoken interaction is paired with visual feedback**, responsive controls, and rich displays, applying principles of both visual and conversational design.

Studio Fri 12:30-2:20PM
Fri 2:30-4:20PM

Examples: Alexa Routines, Otter.ai, Vapi, Wispr Flow, Google Nest Hub





Diya Sabharwal

she/her

- CS coterm, SymSys & English undergrad
- Love HCI and this class changed my LIFE
- UX research and design experience at Google and at both pre seed-stage and more mature startups - AMA about any of this!
- Fun fact: I'm a writer at heart and read a new poem every day
 - Reach me at diyasabh@stanford.edu
- **Office Hours:**
 - Wed 11 am -12 pm (Zoom) or by appointment on [Calendly](#)

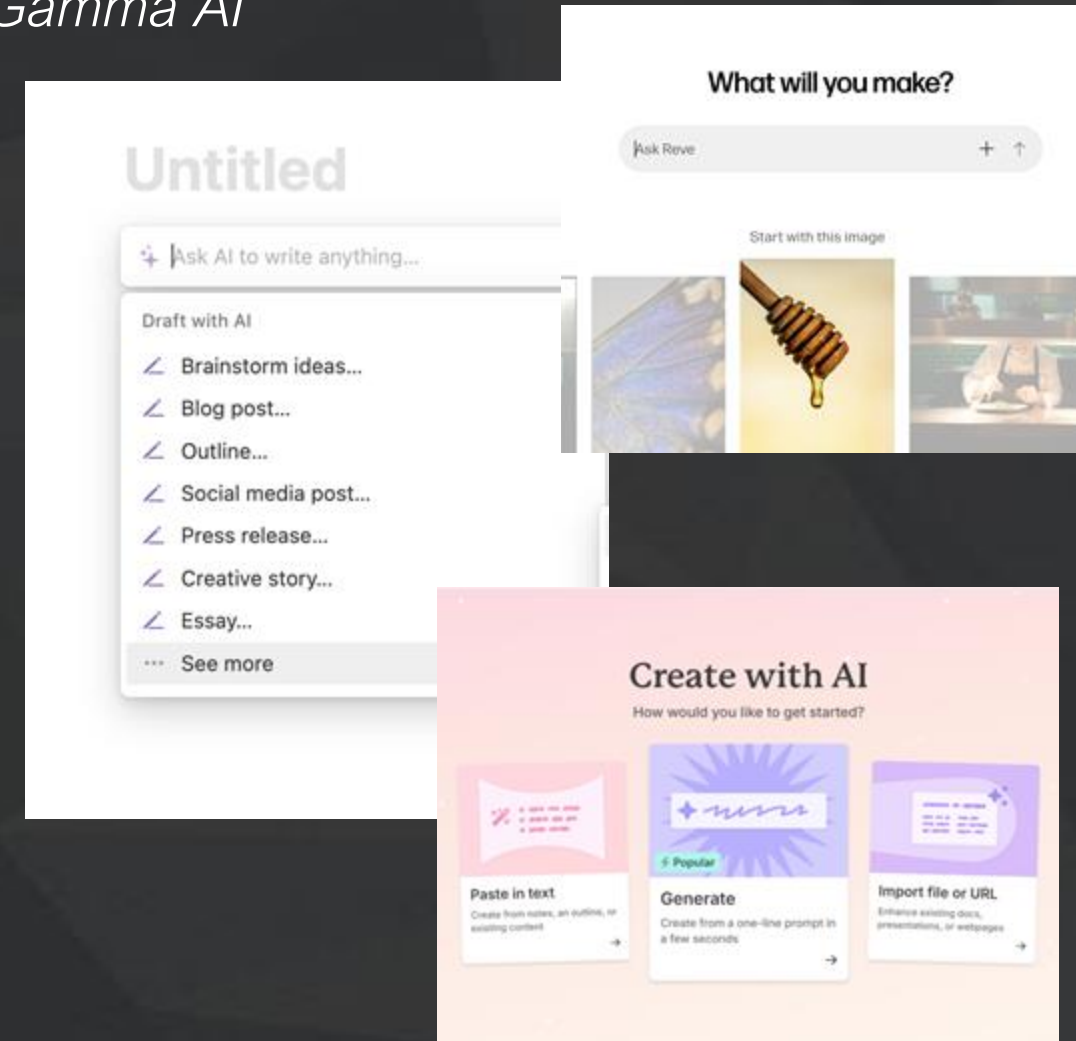
Intelligent Creative Tools

AI is transforming creative work, yet most people still juggle a patchwork of tools—for example, switching between ChatGPT and Google Docs for brainstorming and drafting. This fragmentation interrupts flow, erases context about how ideas evolve, and often delivers support misaligned with the creator's needs.

This studio will explore **designing GenAI tools that act as creative collaborators instead of replacements**, unifying fragmented workflows while empowering creators. The central challenge is designing tools for co-creation: systems that **provide more granular controls, embrace transparency in how AI is used, and overall provide the right kind of help without taking over.**

Studio F 9:30-11:20am, 11:30am-1:20pm

Examples: Claude, Notion AI, Reve Image, Gamma AI





Sarah Jacob

she/her



- MS Candidate in Sustainability Science & Practice
- BS in Design, UX + AI Track
- Interested in using UX/design/AI to address social & environmental challenges
- Previously UX Design @ Oracle, designed AI Supply Chain Management tools
- Come talk to me about being FLI @ Stanford and all things PM, design, & UX research related
- I love painting, reading, comics, & going to concerts w/ friends!
- **Office Hours:** Tues 2-3 pm (CoDa B04) or by appointment ([Calendly](#))

Design for Community Resilience

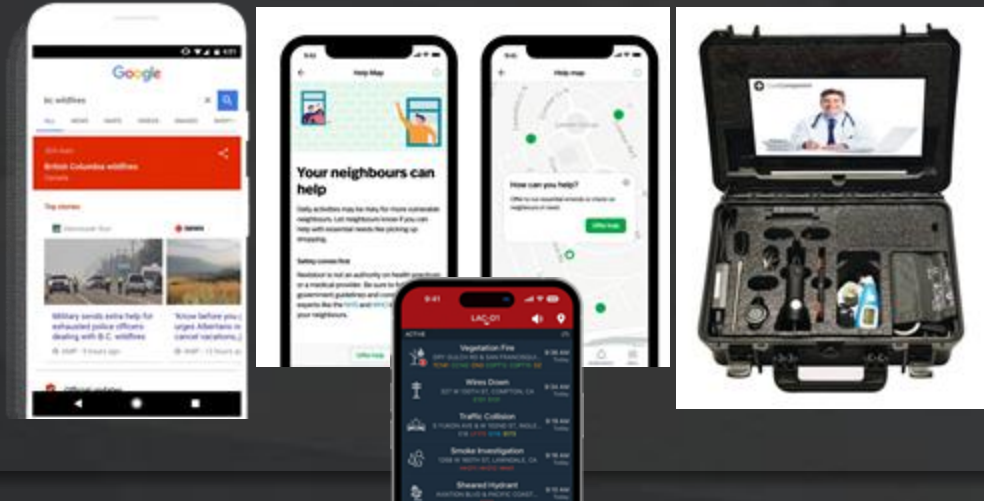
Communities face many crises – wildfires, hurricanes, pandemics, economic shocks, and local emergencies – that disrupt lives and test our systems. Design often assumes things will go smoothly, but **design for resilience requires thinking about what happens when they don't.**

In this studio, we'll explore how **design and AI can help communities prepare, adapt, and recover in times of crisis.** How can digital tools strengthen prevention efforts and communication? How might technology help neighbors share essentials like food or shelter in emergencies? How might we ease pressure on hospitals through preventative and at-home care? And **beyond survival**, how might we **design for hope, connection, and solidarity** for communities in their hardest moments?



Studio Friday 2:30-4:20PM

Examples: Google Maps SOS Alerts, Nextdoor Help Map, PulsePoint Respond, Telemedicine Kits





Charlotte Zhu

she/her

- CS Coterm; Symsys Undergrad, EAS minor
- Interested in hci / css - Social computing & Affective computing
- Worked as pm in startups; doing hci Research
- Loves writing, anime, travelling. Just climbed mt. Fuji 🏔️ .
- **Office Hours:**
 - Mon 3:30-4:30 PM (CoDa E314) or by appointment

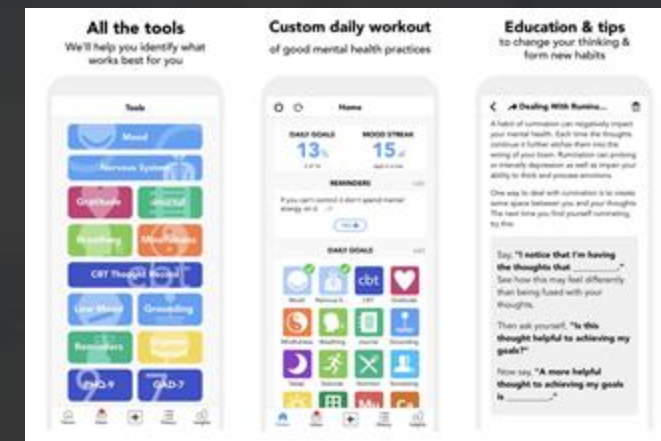
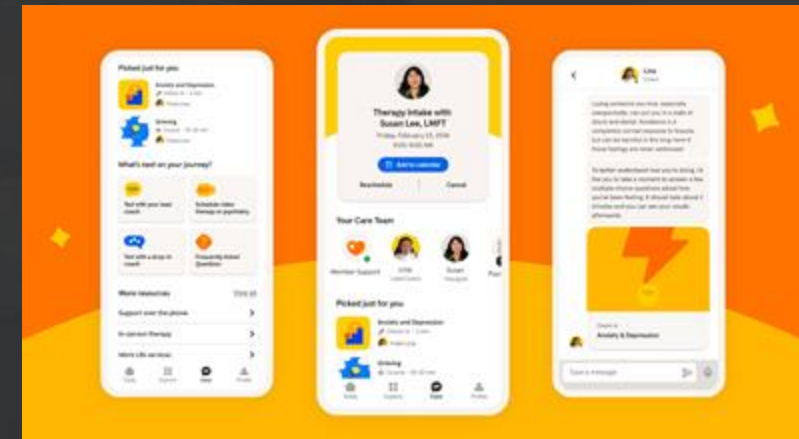
Design for Mental Wellbeing

Studio Fri 8:30-10:20 AM,
1:30 - 3:20 PM

Maintaining personal mental health has become an important challenge of this age. Some people use many **practices to support their mental wellbeing** — journaling, reflection, meditation, and professional counseling, while others are still yet to find their best solutions.

Examples: Reflection, Calm, Headspace, Tide, Moodfit, Youper

How might we design tools that support people in maintaining mental wellbeing? Potential design might involve **supporting users in their existing self-care routines**, helping them **explore and develop new habits**, connecting them with **support professionals**, building **a community of support**, etc.





Candy Tang

she/they

- CS HCI cotermin
- BA in Urban Studies (Urban Sustainability)
- Interested in accessible design and tech + urban planning
- Love to bake, make ice cream, and learn languages
- **Office Hours:** Tue 1:30-2:30 PM (CoDa B02) or by appointment

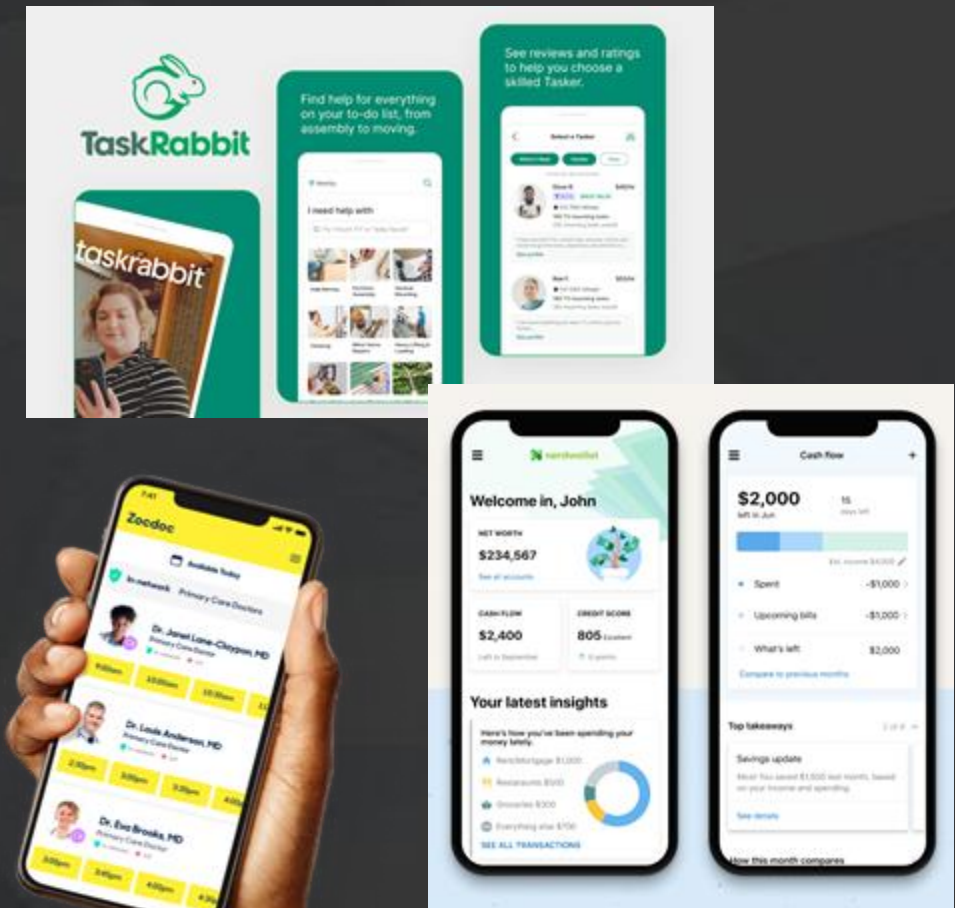
Adulthood Made Easier

The transition into adulthood is a journey filled with new responsibilities, from managing finances and paying bills to cooking meals and keeping up with healthcare. While these mundane tasks can feel seemingly small on their own, they can feel overwhelming when piled up.

In this studio, we'll explore how technology can make the process of **becoming independent more approachable and supportive**. What digital tools can we create to lessen the burden of cross-country moves and help people settle into new places with confidence? How might we support new renters in finding, securing, and maintaining their first apartment without confusion or hidden pitfalls? How might we change our mindset **from someone taken care of to someone who's self-sufficient**?

Studio Fri 10:30-12:20 PM,
12:30 - 2:20 PM

*Examples: NerdWallet, Notion,
TaskRabbit, ZocDoc*



Join our Slack!

cs147-2025au.slack.com

What Do You Hope to Learn in CS147?

Put a few key phrases in the #lecture slack channel

* if you aren't in our cs147 slack grid, direct message Naima (npatel12@stanford.edu)

** For all **during** lecture activities & questions use the #lecture slack channel so we can see them.
For questions **outside** of lecture time, use the #q-and-a channel.

Outline

- *Who are we?*
- AI & User experience design
- Balancing design thinking & technology
- Design discovery & exploring ideas
- Rapid prototyping & evaluation
- Goals of the course
- Course format & schedule
- Course policies

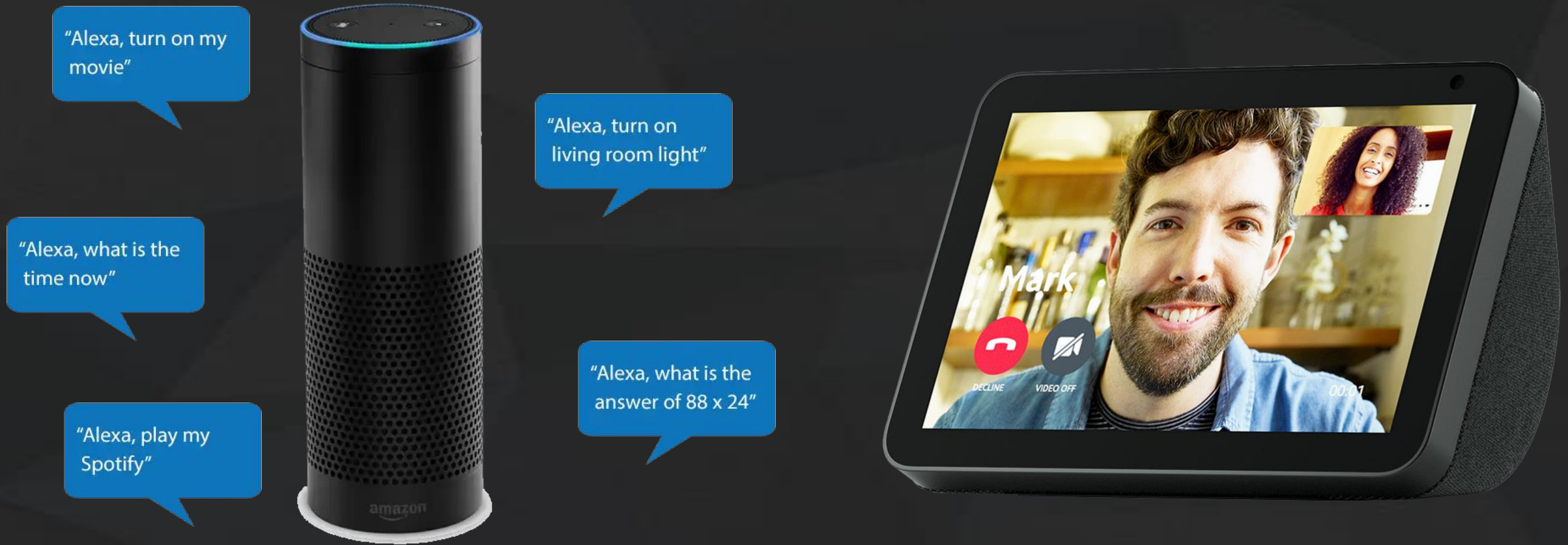
AI Needs User Experience (UX) Design



- Tesla Model S “Autopilot”
- Future of autonomous cars
- How do we design the UX?

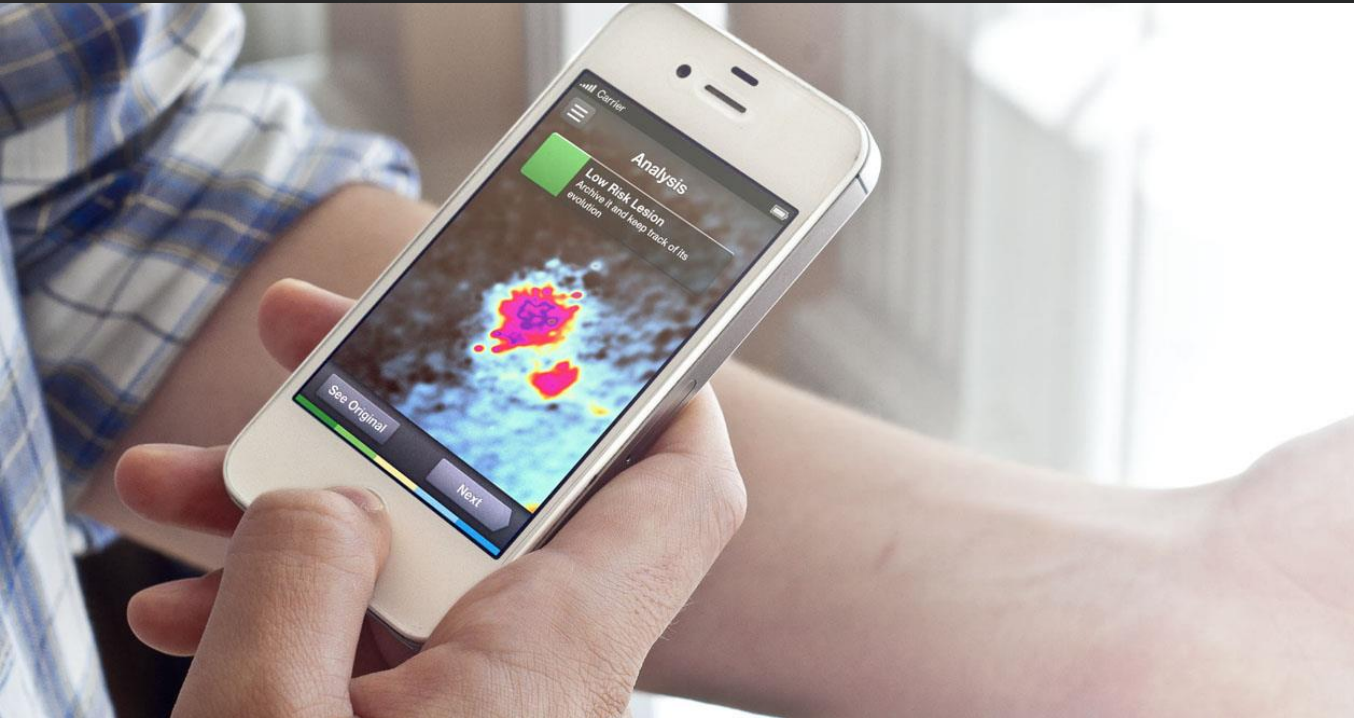


AI Needs User Experience (UX) Design



- Amazon Echo, Google Home & other Smart Speakers use Voice UI
- How do we design them to deal with natural human conversation?
- How do we design to support multimodal input? (e.g., + screen or vision)

AI Needs User Experience (UX) Design



Computer vision-based skin cancer detection getting better and better

- What is appropriate to show a patient?
- What should be the interface for the doctor?
- Is there a set of design patterns for these Smart UIs?

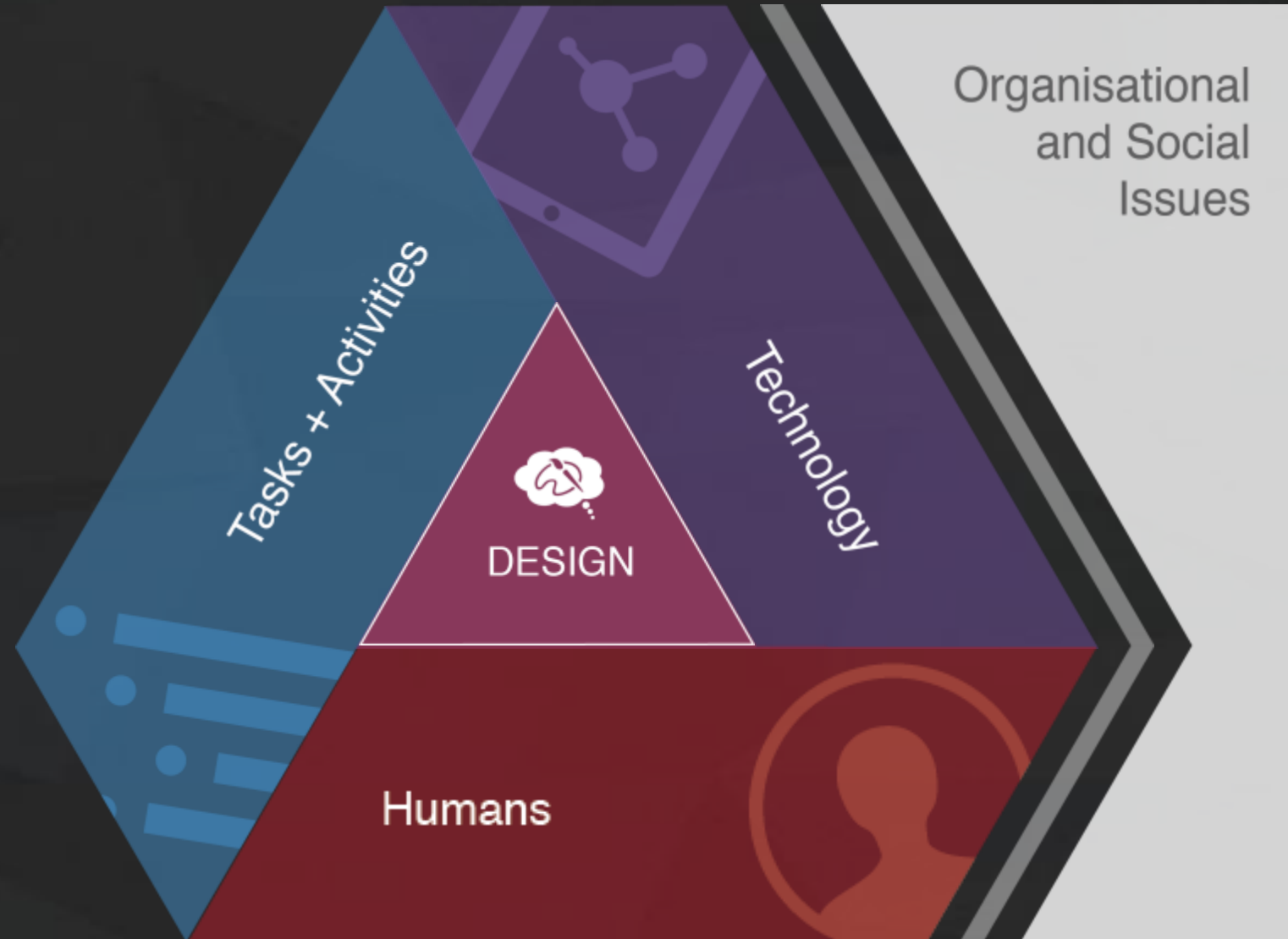
Balance

DESIGN

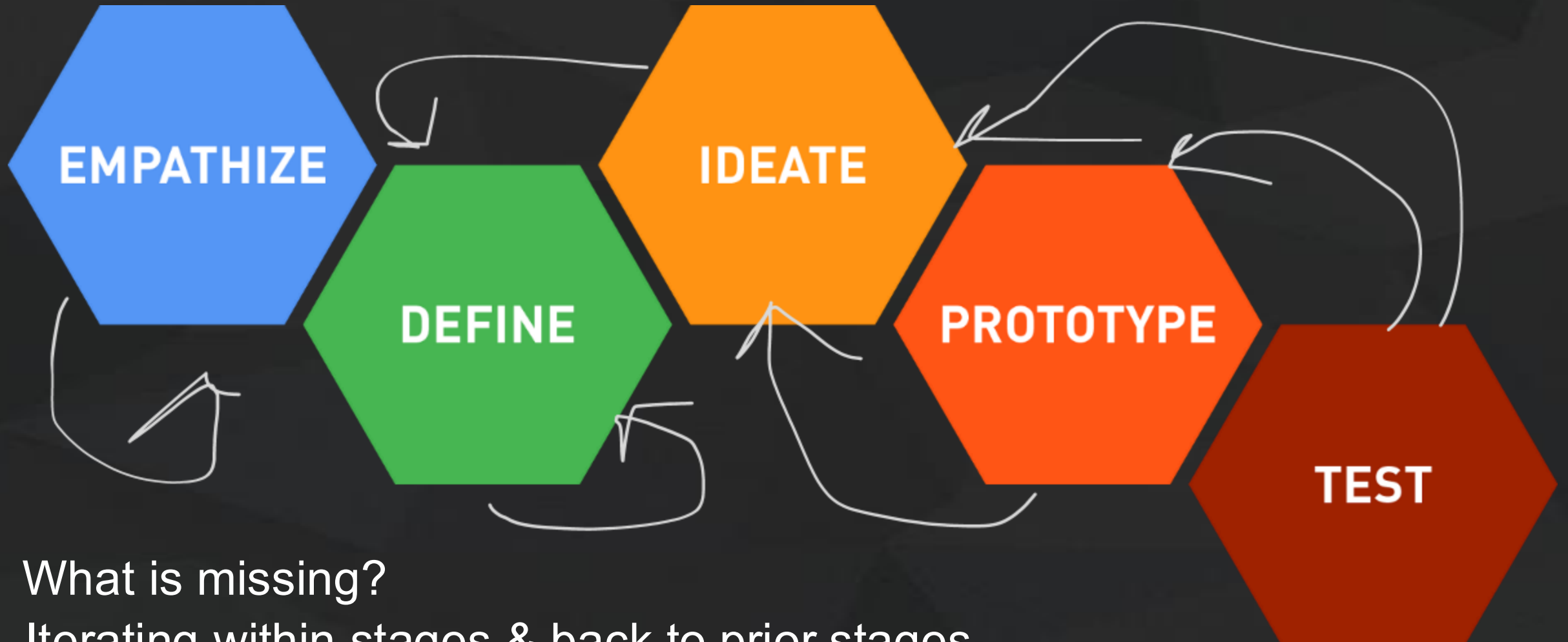
TECHNOLOGY



Approach to Application Design & Prototyping



Design Thinking Process



What is missing?

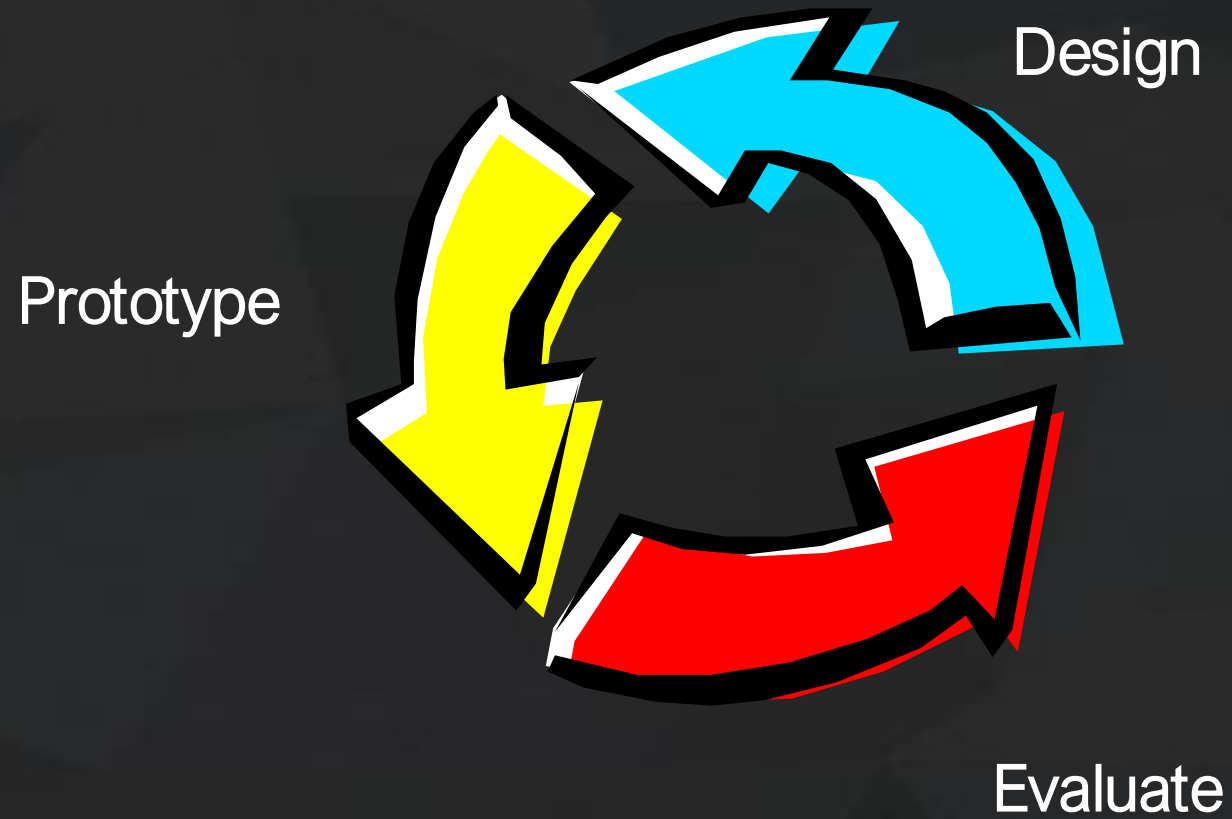
Iterating within stages & back to prior stages

How to Design and Build Good UIs

- Iterative development process
- Usability goals
- User-centered design
- Design discovery
- Rapid prototyping
- Evaluation
- *Programming*

Iteration

At every stage!



Usability^(?)

According to the ISO:

The *effectiveness, efficiency, and satisfaction* with which specified users achieve specified *goals* in particular *environments*.

This doesn't mean you have to create a “dry” design

Usability/User Experience Goals

- Set goals early & later use to measure progress
- Goals often have tradeoffs, so prioritize
- Example goals(?)
 - Learnable
 - faster the 2nd time & so on
 - Memorable
 - from session to session
 - Flexible
 - multiple ways to do tasks
 - Efficient
 - perform tasks quickly
 - Robust
 - minimal error rates
 - good feedback so user can recover
 - Discoverable
 - learn new features over time
 - Pleasing
 - high user satisfaction
 - Fun



User-centered Design

“Know thy User”

- Cognitive abilities
 - perception
 - physical manipulation
 - memory
- Organizational / educational job abilities
- Keep users involved throughout
 - developers working with target customers
 - think of the world in users’ terms

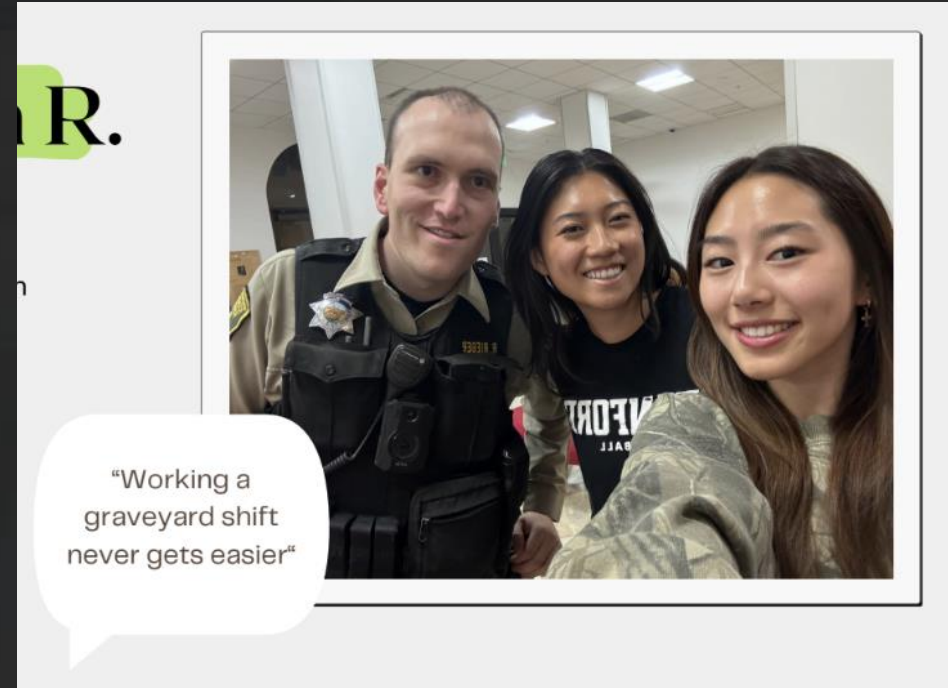
Accessible Design

- Different abilities
 - vision, hearing, cognitive, mobility
 - e.g., blind users with screen readers
- Moral and ethical purpose
 - inclusive design benefits everyone
 - e.g., sidewalk curb cuts
- Legal guidance
 - Americans with Disabilities Act (ADA)



User-centered Design: Needfinding

- Observe existing practices for inspiration
- Make sure key questions answered
- Ethical questions in design w/ underserved communities



Lunar

Unpacking the Needfinding

SAY

THINK

FEEL

DO

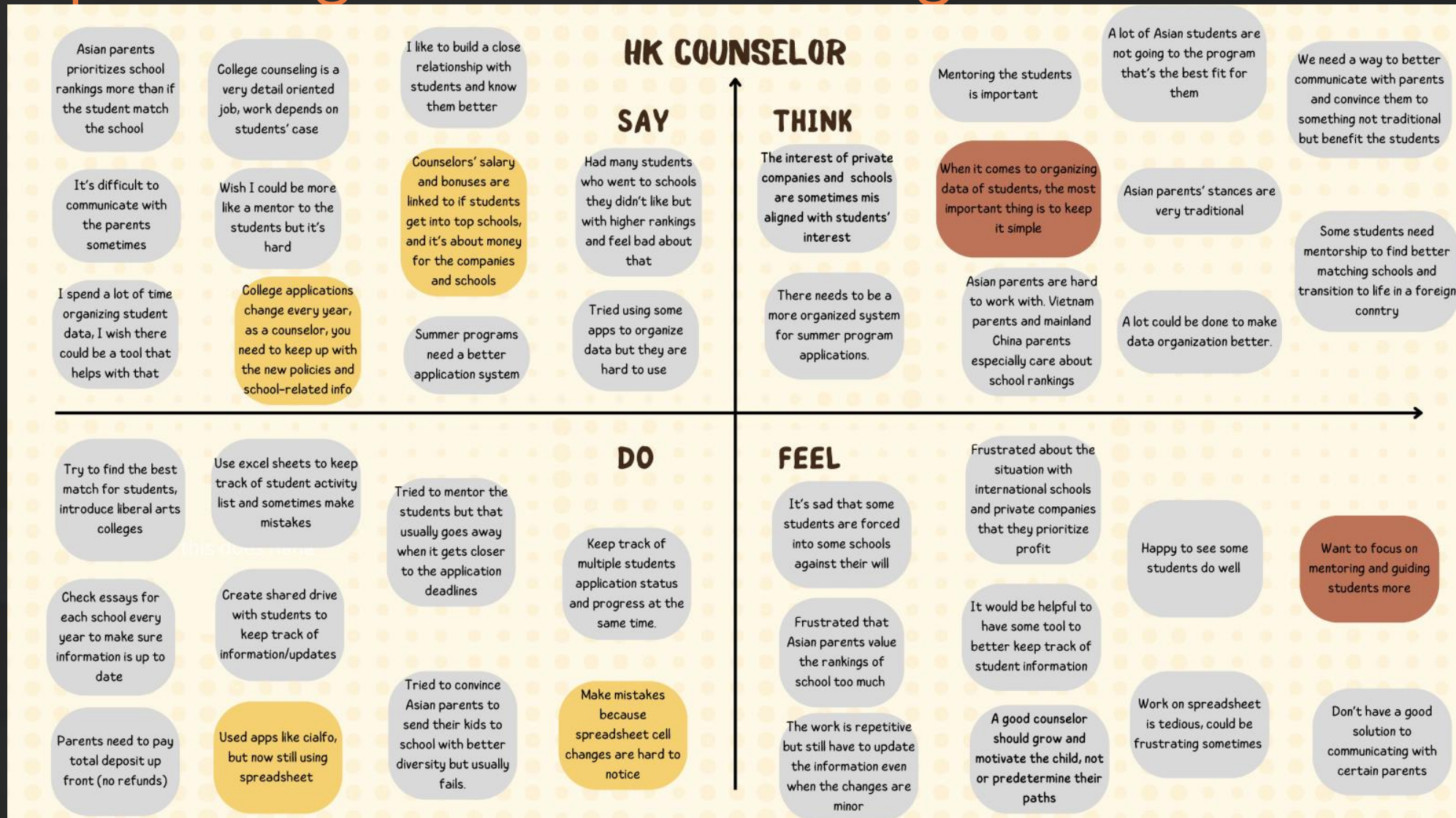
Rechords

Tensions, Contradictions, Surprises

DO

TENSIONS, CONTRADICTIONS, SURPRISES

Unpacking the Needfinding





STANFORD has advantage
of world-class faculty & staff
has proven its excellence

PERKINS 1990s early 2000s

System that might not help beyond basic level

budder

Develop Point of Views (Person + Insight + Challenge) Brainstorm on How Might We Solve

WE WERE AMAZED TO REALIZE...
(what did you learn that's new?)

THAT THANKS TO THE BOAT OWNER'S MENTORSHIP, TRUST, AND DESIRE OF
THE FISHING LIFESTYLE AND CONNECTION TO NATURE, HE HAD TURNED HIS LIFE
AROUND FROM DRUG ADDICT W/OUT A JOB TO SPENDING WITH SKILL & COMPANY

IT WOULD BE GAME-CHANGING TO
(frame up an inspired challenge for yourself
don't dictate the solution)

ALL OF US COULD TAKE A RISK TO SEE A SPARK IN OTHERS AND
NURTURE IT INTO A PURPOSEFUL TRANSFORMATION.

HMW bring
routine (and
discipline)
me less?

Experience Prototype to Test Assumptions



Pission

Experience Prototype to Test Assumptions

participants

1

Edith - Grandmother (88 yrs) with a lifetime of stories

A descendant of the mason who built Jordan Hall, she likes to share stories with her daughter.

2

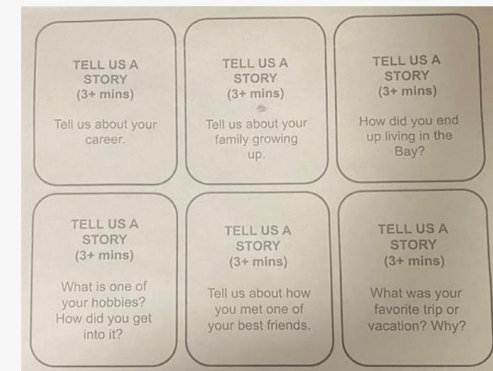
Vanessa - Writer (56 yrs) who enjoys fiction

Creating interesting narratives is part of her career and she is interested in the act of storytelling

3

Corinne - Dancer and college student (22 yrs)

She is interested in learning about the stories of other people.

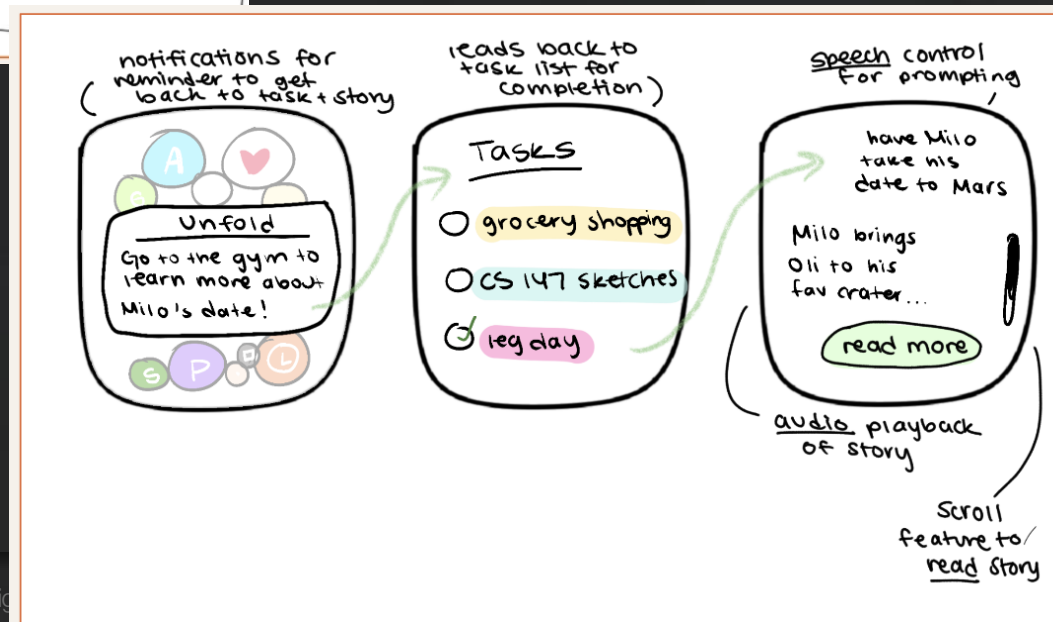
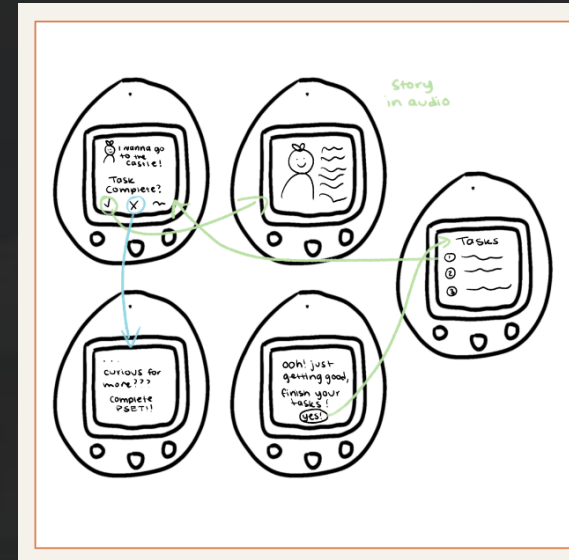
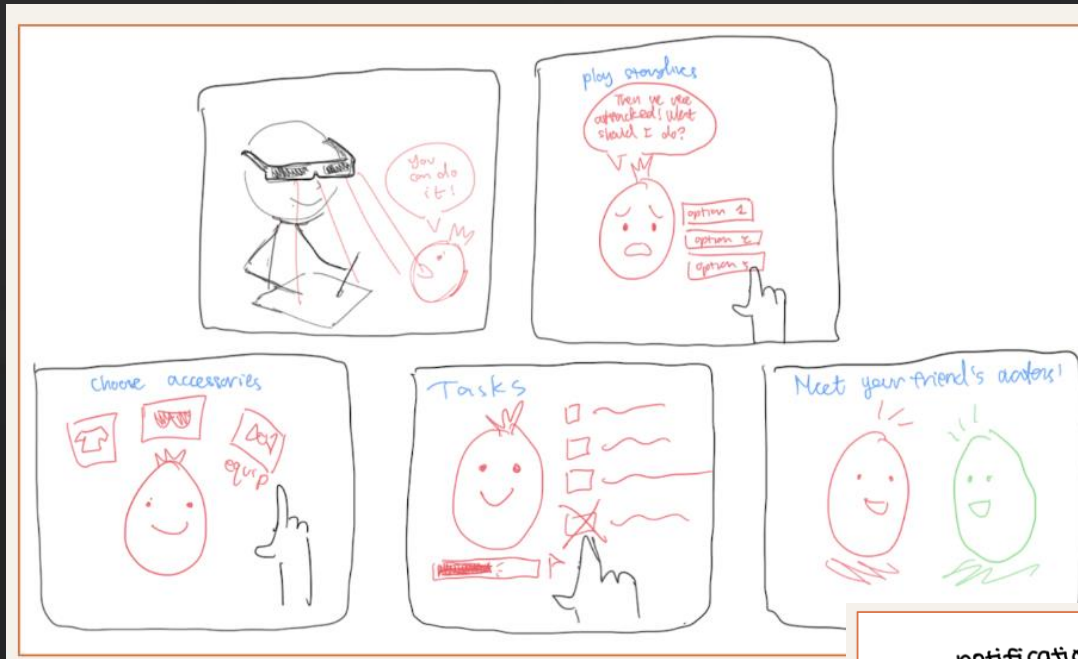


Sketching & Storyboarding



artbot

Sketching & Storyboarding



Unfold

Concept Videos

- Illustrate context of use rather than specific UI
- Quick & inexpensive
- Forces designers to consider details of how users will react to the design

Concept Videos: Planning Storyboards



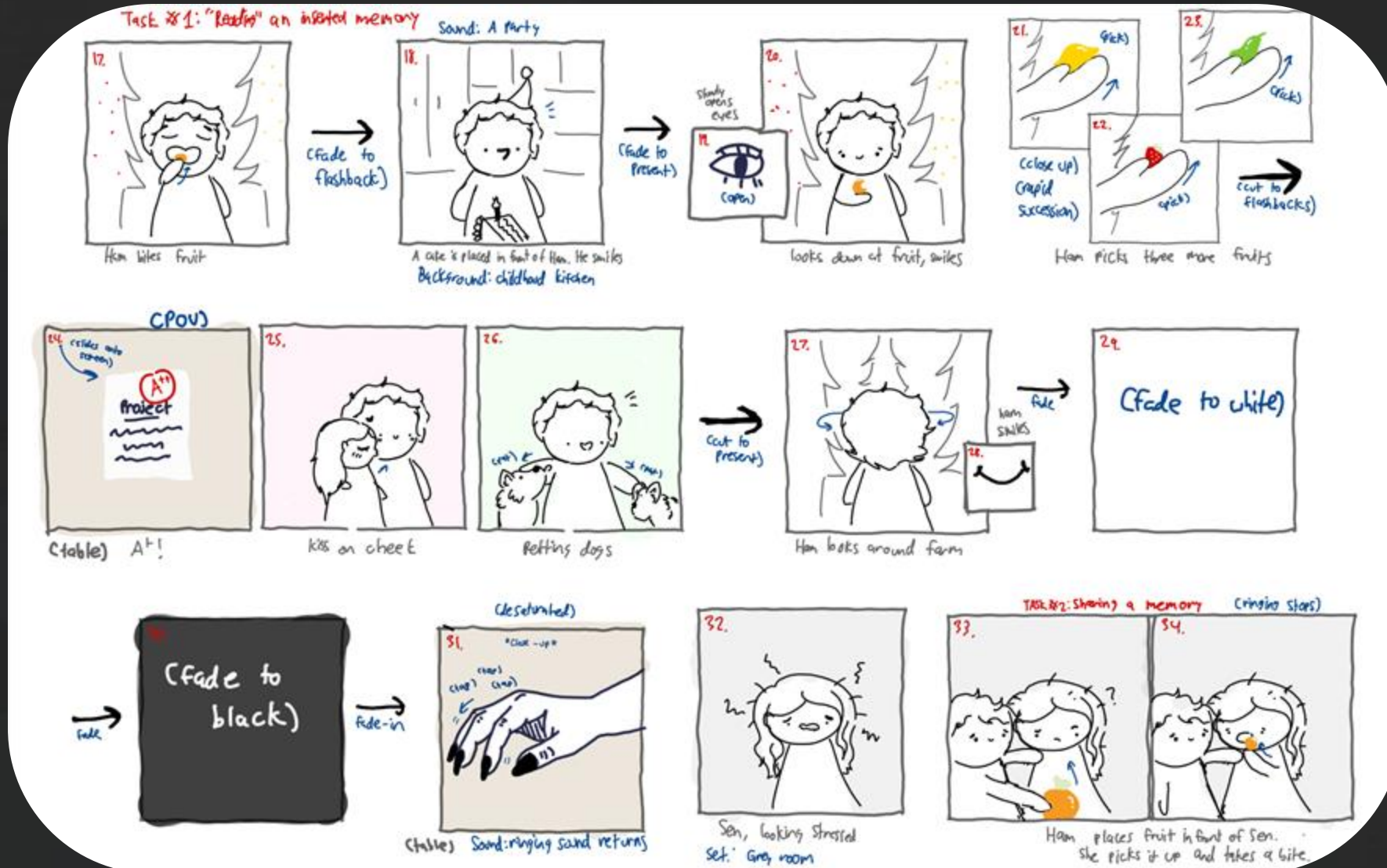
TURNING POINT : INTRO RAMBL



Rambl



Concept Videos: Planning Storyboards



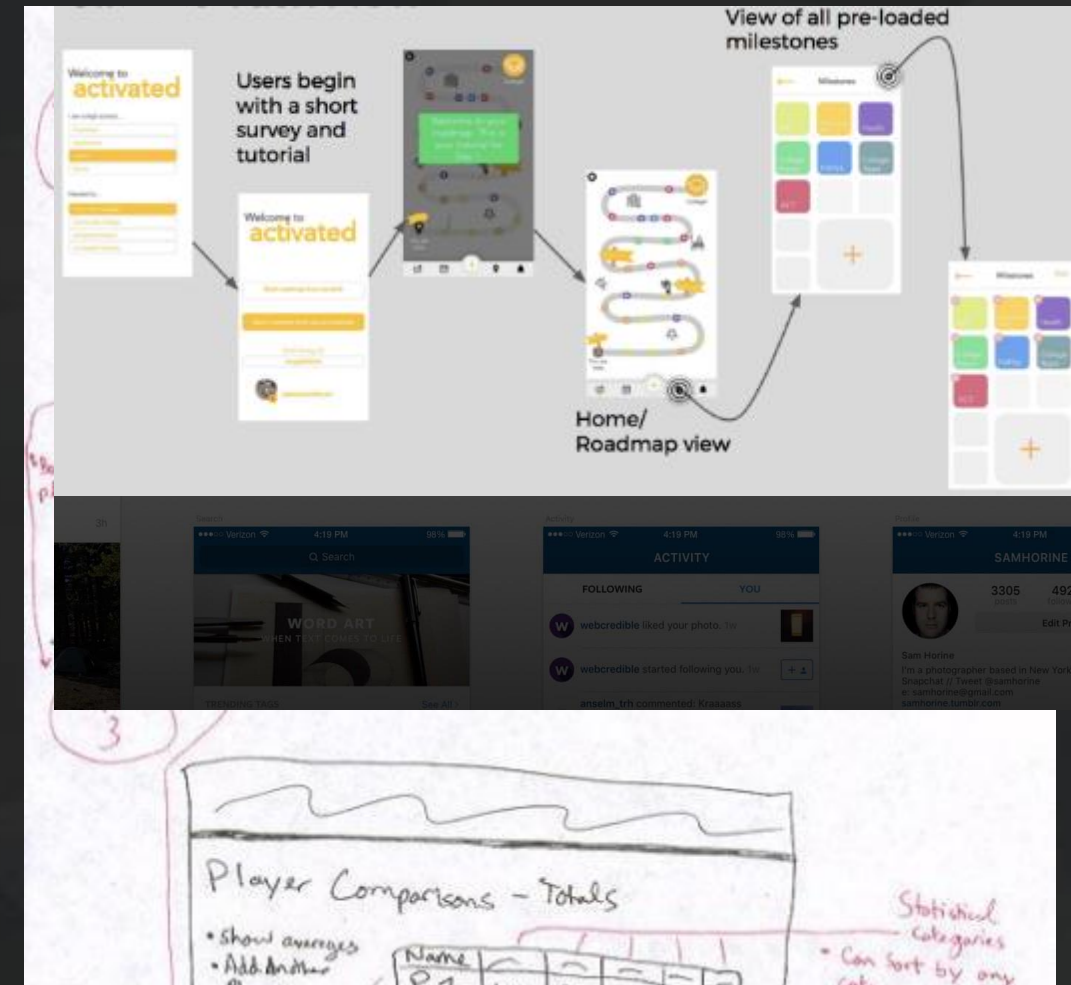
Concept Videos



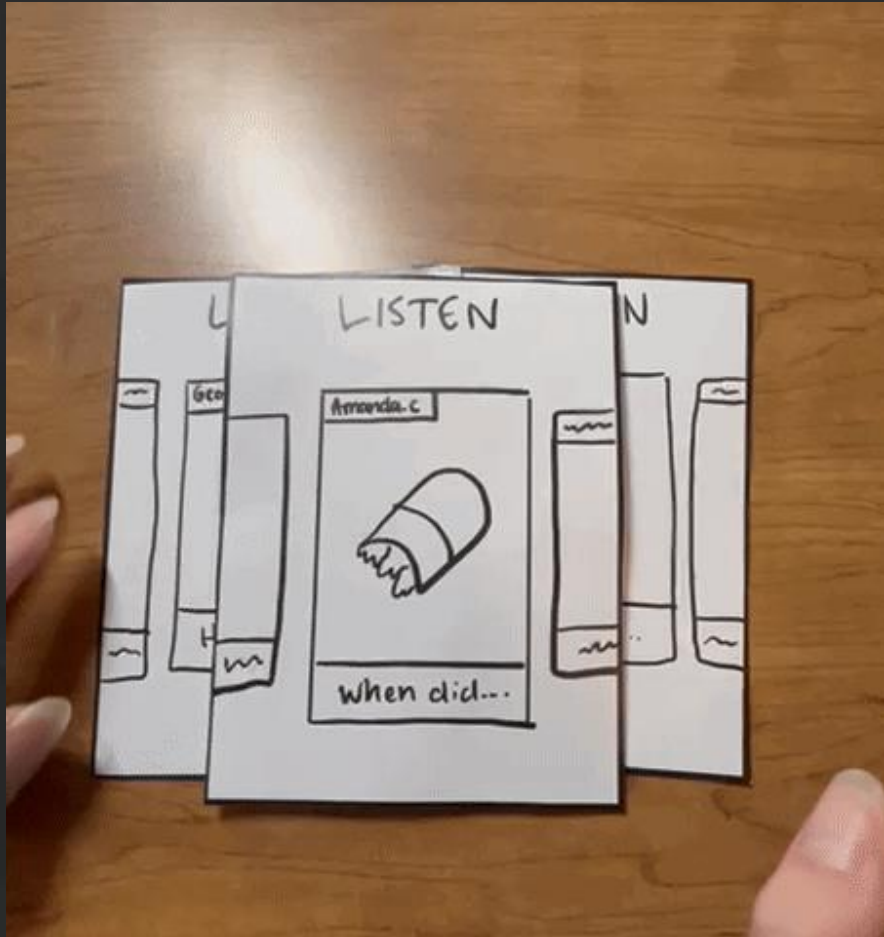
Rapid Prototyping

Fantasy Basketball

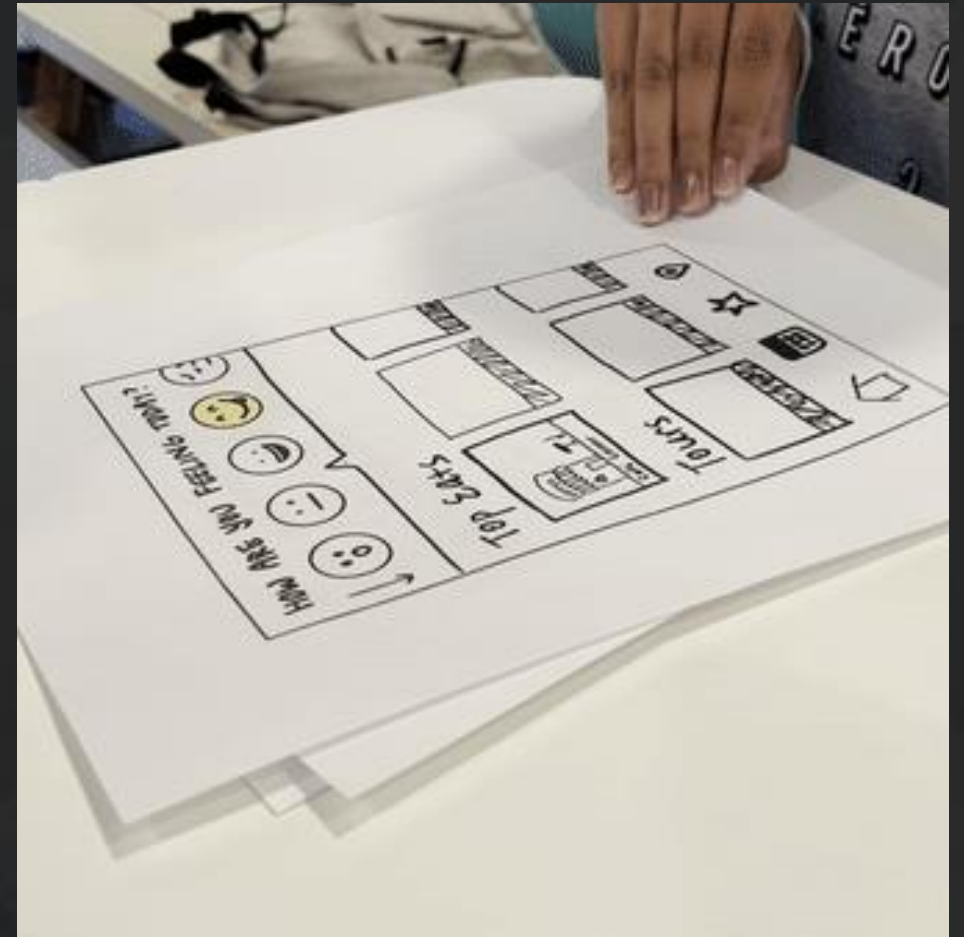
- Build a mock-up of design so you can test it
- Low fidelity techniques
 - paper sketches
 - cut, copy, paste
- Interactive prototyping tools
 - HTML, Balsamiq, Axure, proto.io, Sketch+Marvel, Figma, Modao, etc.
- UI builders
 - Expression Blend + Visual Studio, Xcode Interface Builder, etc.



Low-fi Prototyping & Testing

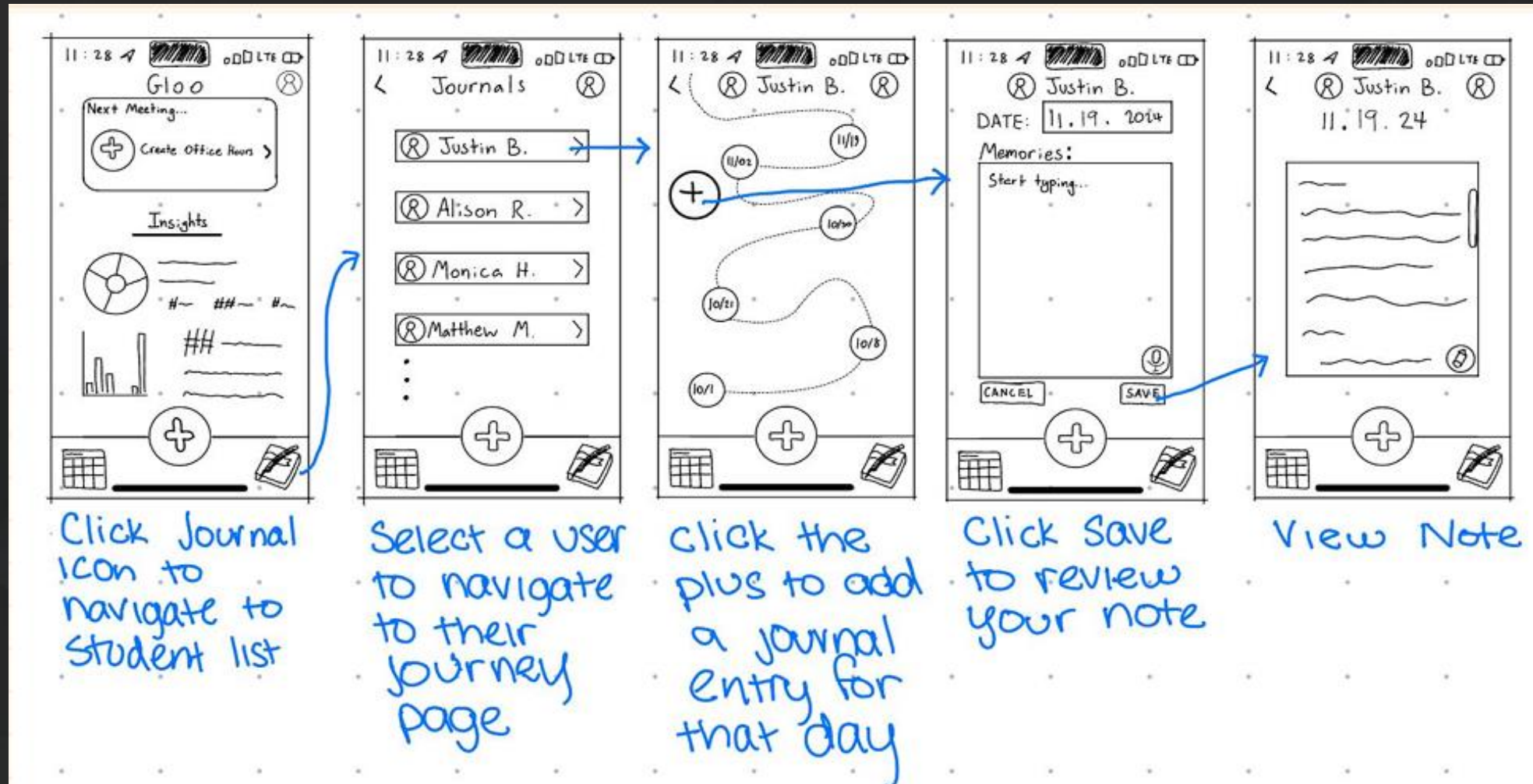


StoreaTime

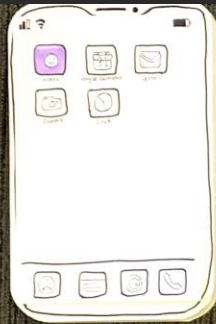


UnCover

Low-fi Prototyping & Testing



Low-fi Prototyping & Testing



How have you been feeling this morning?

STRESSED
 CONTENT
 SAD

How free are you today?

0 | 1 | 2 | 3 | 4 | 5
 Not free | Kinda free | Super free!

Check In

Thank you for checking in

Team is STRESSED

Investigate team mood >>

70% of your team says they have free time

Find people with free time >>

Check in your mood >> Team Thoughts >>

Team is CONTENT

Investigate team mood >>

70% of your team says they have free time

Find people with free time >>

Check in your mood >> Team Thoughts >>

Team is EXCITED

Investigate team mood >>

70% of your team says they have free time

Find people with free time >>

Check in your mood >> Team Thoughts >>

PEOPLE WITH FREE TIME

SEARCH BY COUNTRY

Top 3

Carrie
 Andre
 Sally

Entire Team

Carrie
Social Level: 4

About Me:

- Rabbit Man
- Birkes Lover

Interests:

- Hiking in the Rockies
- skiing

Andre
Social Level: 3

About Me:

- Just got engaged
- Music Lover

Interests:

- Hip hop

SALLY
Social Level: 4

About Me:

- Video game lover
- Love to cook

Interests:

- Minecraft, pasta, hiking

Maria
Social Level: 2

About Me:

- Taylor Swift fan

Interests:

- Baking

Timone
Social Level: 2

About Me:

- Karate Blue Belt holder
- Classic Rock Lover

Interests:

- Zoology
- Camping
- Origami

Juan
Social Level: 1

About Me:

- amateur DJ

Interests:

- Clubbing

Carrie
Planner Manager
Status: Mostly Free

About Me:

- Rabbit Man
- Birkes Lover

Interests:

- skydiving
- Crafting

Andre
Senior Software Engineer
Status: Kinda free

About Me:

- Just got engaged
- Music Lover

Interests:

- Hip Hop

Sally
Data Scientist
Status: Mostly Free

About Me:

- Video game lover
- LOVES to cook

Interests:

- Minecraft, pasta, hiking

Maria
Business Lead
Status: Barely free

About Me:

- Taylor Swift fan

Interests:

- Cooking

Timone
Business Strategist
Status: Barely free

About Me:

- Karate Blue Belt holder
- Classic Rock lover

Interests:

- Zoology
- Camping
- Origami

Juan
Software Engineer
Status: Not Free

About Me:

- Amateur DJ

Interests:

- Clubbing

←THOUGHTS

I wish the team planned social events and activities that everyone would enjoy. 7

Does anyone else feel like our meetings have been unproductive recently? 4

The team has been pretty quiet lately - can we plan a team lunch? 8

Welcome Devin to the team! We are excited to have him join us. 10

+

Add a Thought

POST

I'm so glad there's an organized way to voice my opinions

←THOUGHTS

I wish the team planned social events and activities that everyone would enjoy. 7

Does anyone else feel like our meetings have been unproductive recently? 4

The team has been pretty 10

+

3

9

10

11

8

Messaging feature is not available

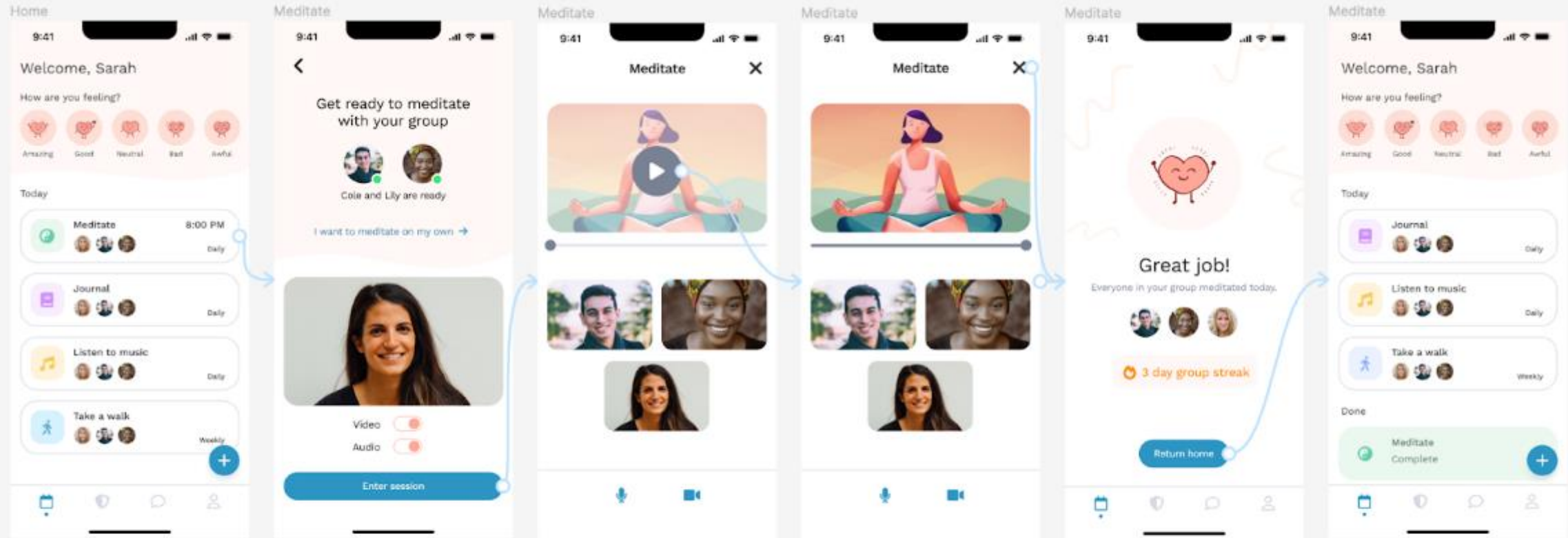
Error: Please answer both questions.

Error: Please enter a valid coworker.

Vibes

Interactive Prototypes

Medium Fidelity



Home screen with a mood check-in and tasks for the day

Meditation preview screen to see which friends are available and adjust audio and video settings

Group meditation screen that shows a synced guiding video and your friends' videos

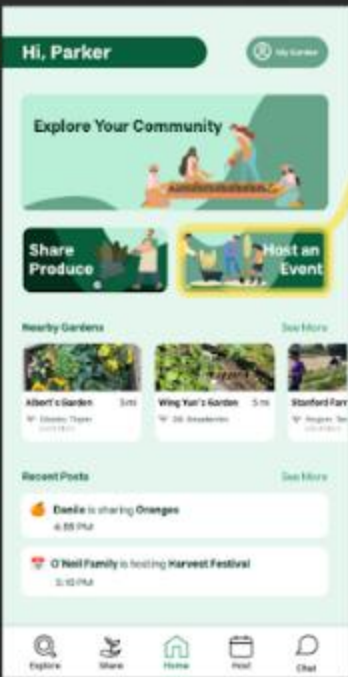
Completion screen that notifies you if your entire group has completed the task and of any continuing streaks

After you have completed a task, it gets sorted into the "Done" section. If the whole group has completed it, it is marked as "Complete" and the entire bar is filled in

Interactive Prototypes

Medium Fidelity

Medium Task: Schedule and edit an event at your garden



Hosting an event can be done by tapping the call to action or selecting the Host nav tab.



Hosting an event is done by filling out a form which will become visible to neighboring gardeners.



User enters event name, description, location, date, and time.



Popup modal indicates success.



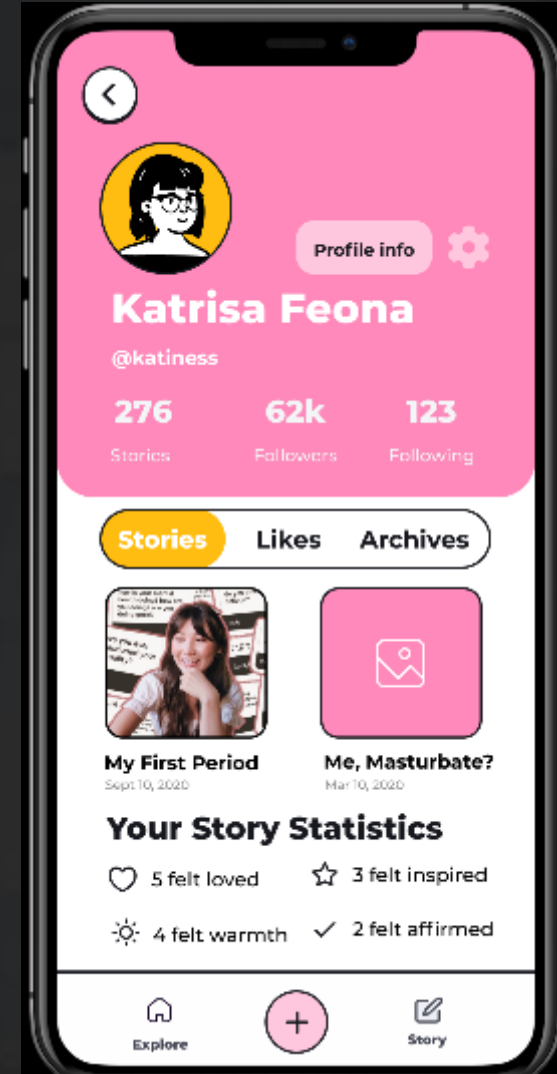
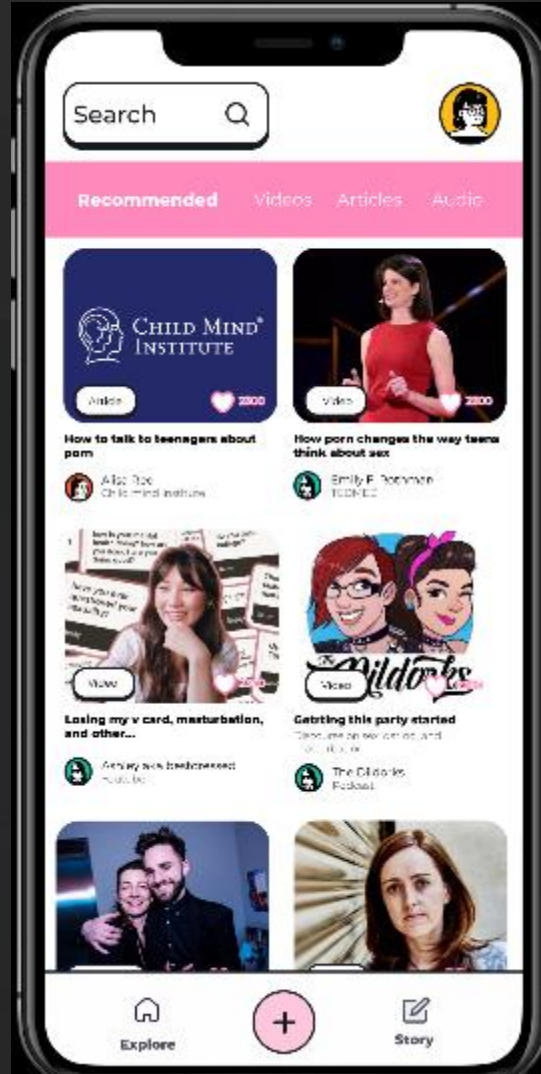
The event information is now public and will appear on the user's garden page and in search results.



The user can edit their event details and resubmit at any time.

Interactive Prototypes

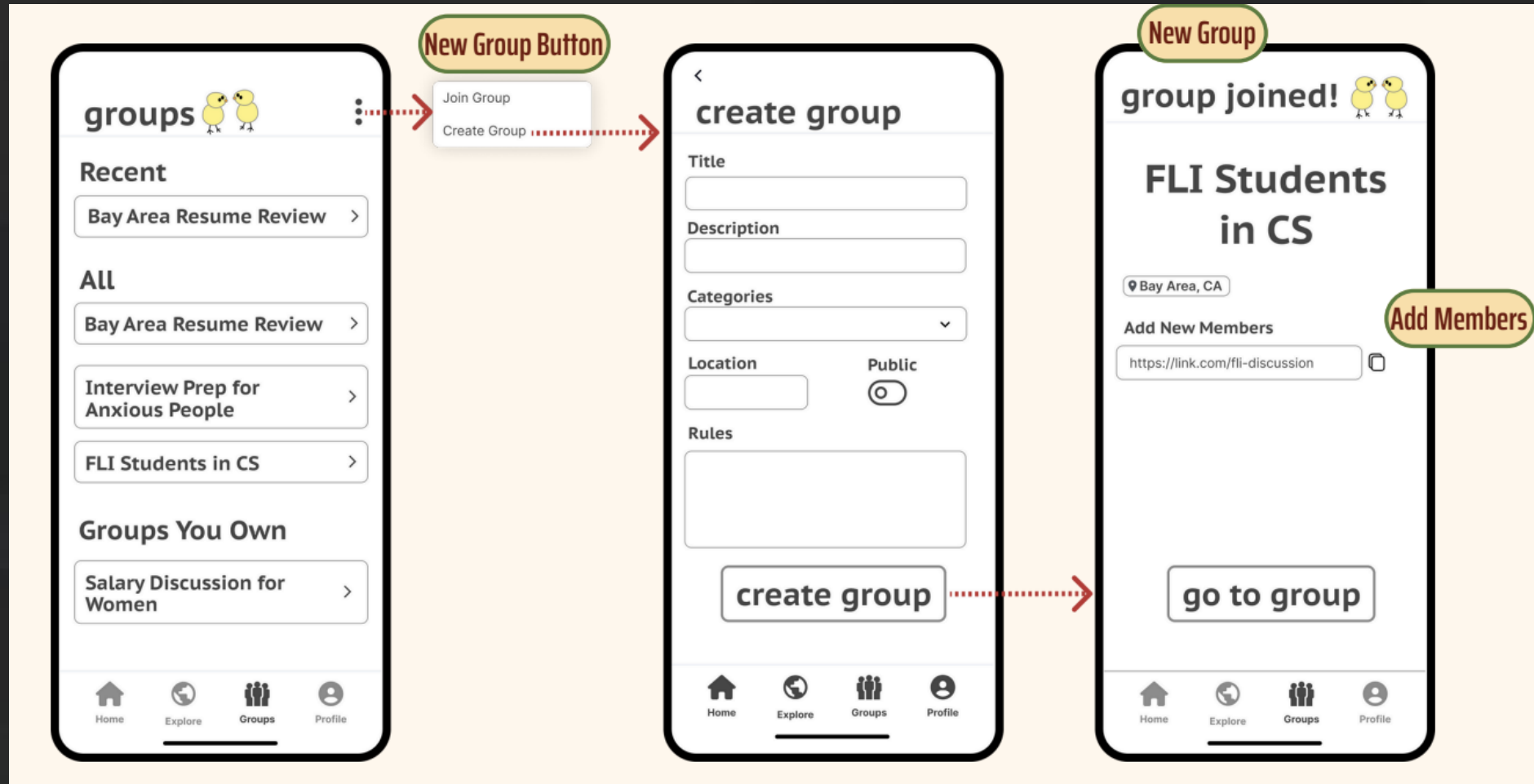
Medium Fidelity



Sex Academy

Interactive Prototypes

Medium Fidelity

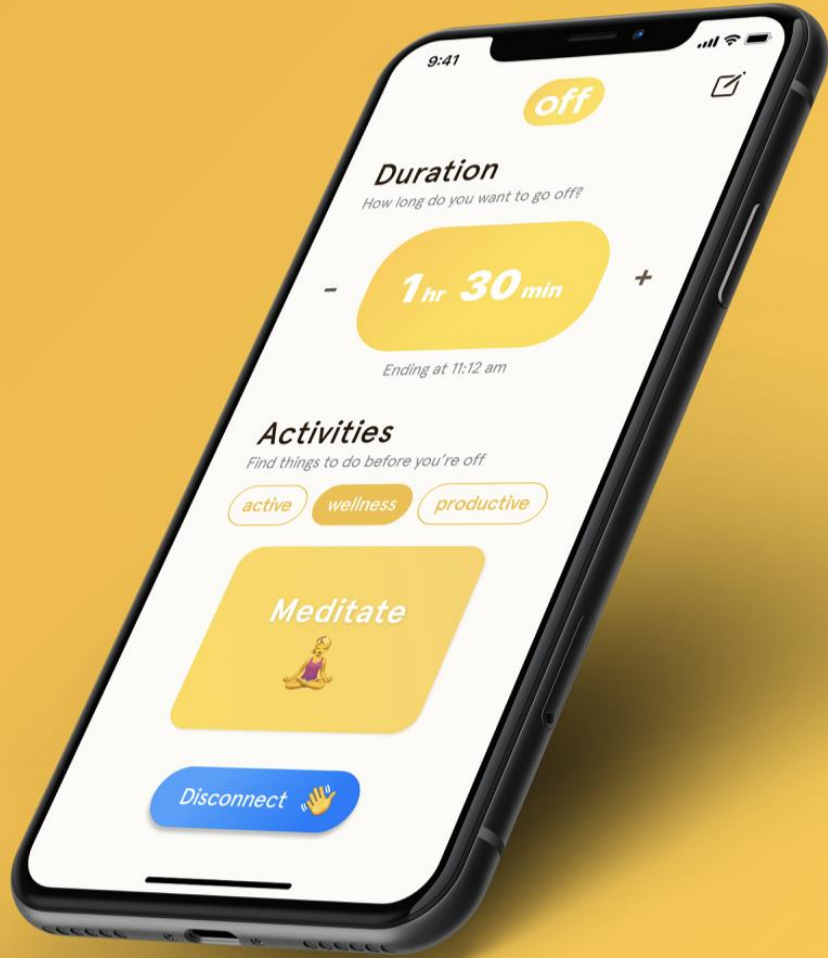


hatcher

Interactive Prototypes

Hi-Fidelity

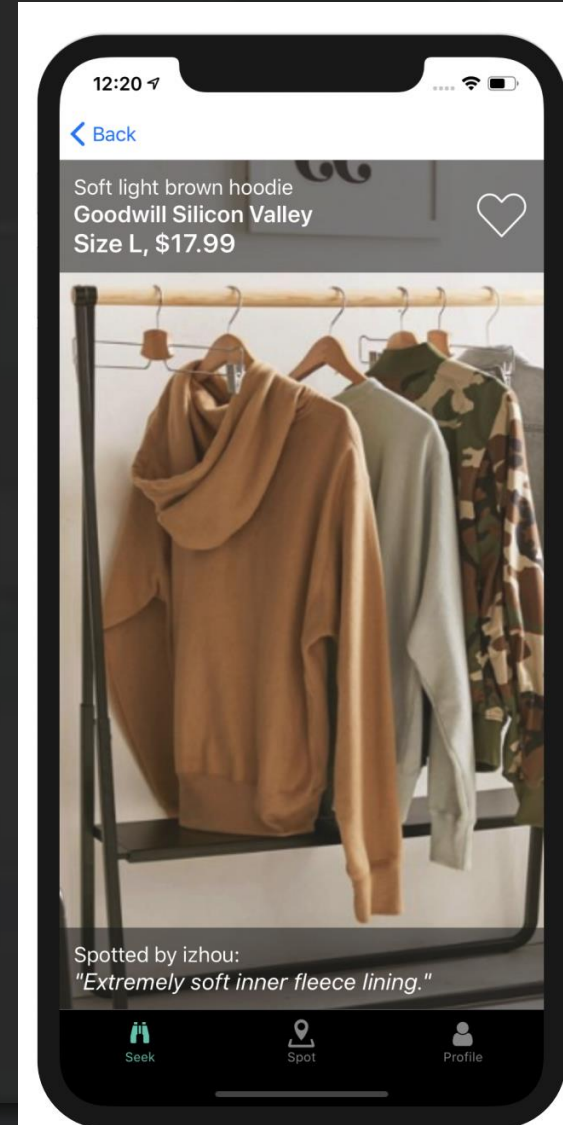
off



butter



thread

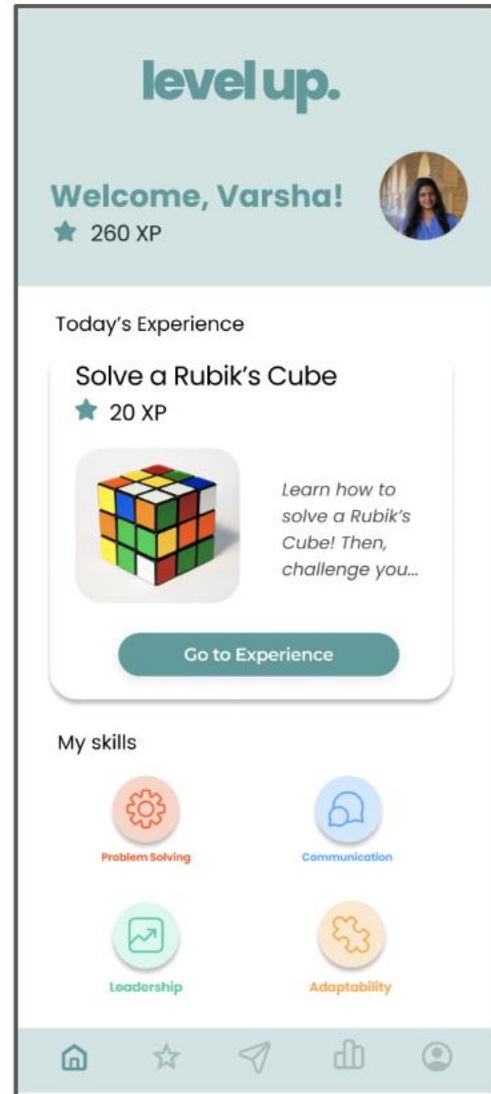
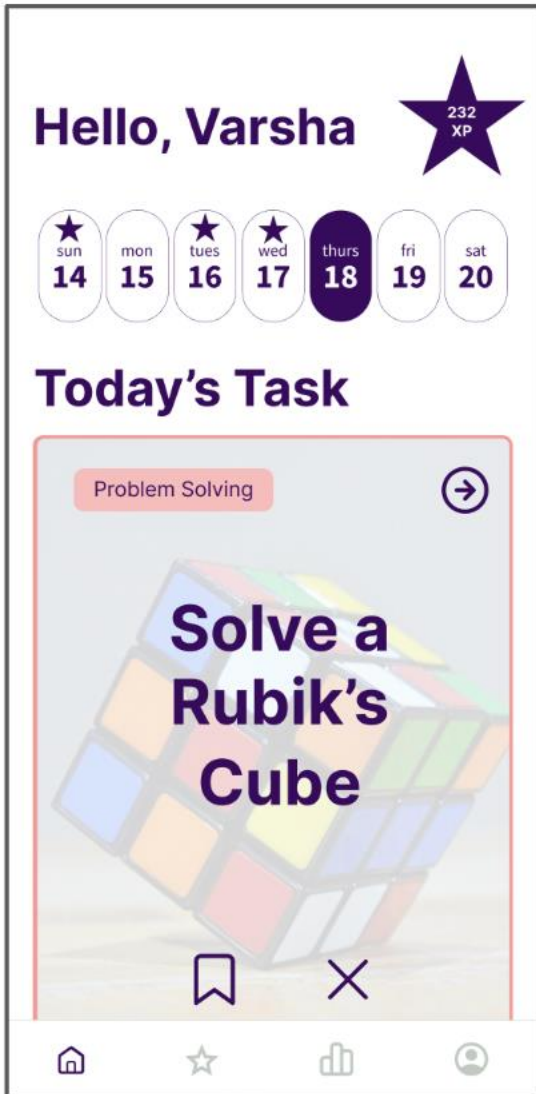


Interactive Prototypes

Hi-Fidelity

LevelUp

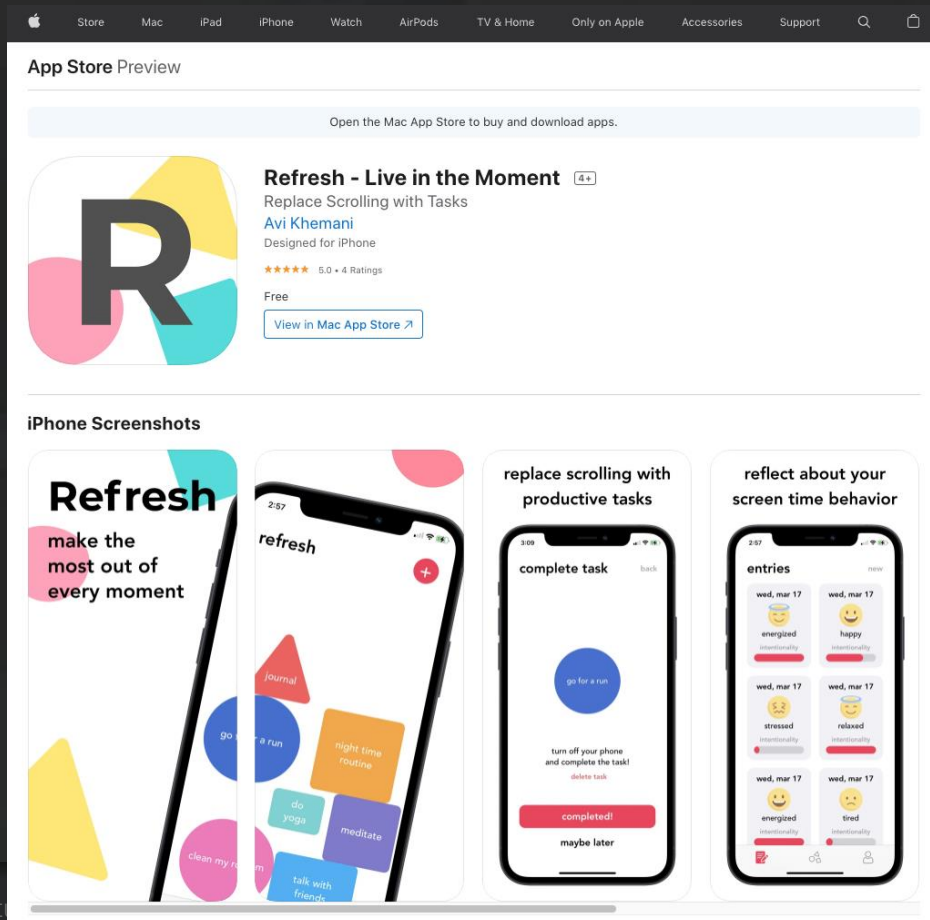
LuckyDay



Interactive Prototypes

Hi-Fidelity

- Does this mean at the quality to go in an app store?
 - for a few yes, but for most no (this is not a requirement & many will push to this in CS194H)



- You **will** be building a real app (with code)
 - **not** a click-thru prototype (e.g., using Figma or InVision)
- It should support most of your functionality
- But it might be missing
 - polish
 - back-end implementation
 - maybe data stored locally, social networks incomplete, etc.
 - can use AI to help you here (see policy at end of lecture)
- CS (intended) majors should have pre-reqs (106B/X, 142/193P/193A or experience building apps)
If not...

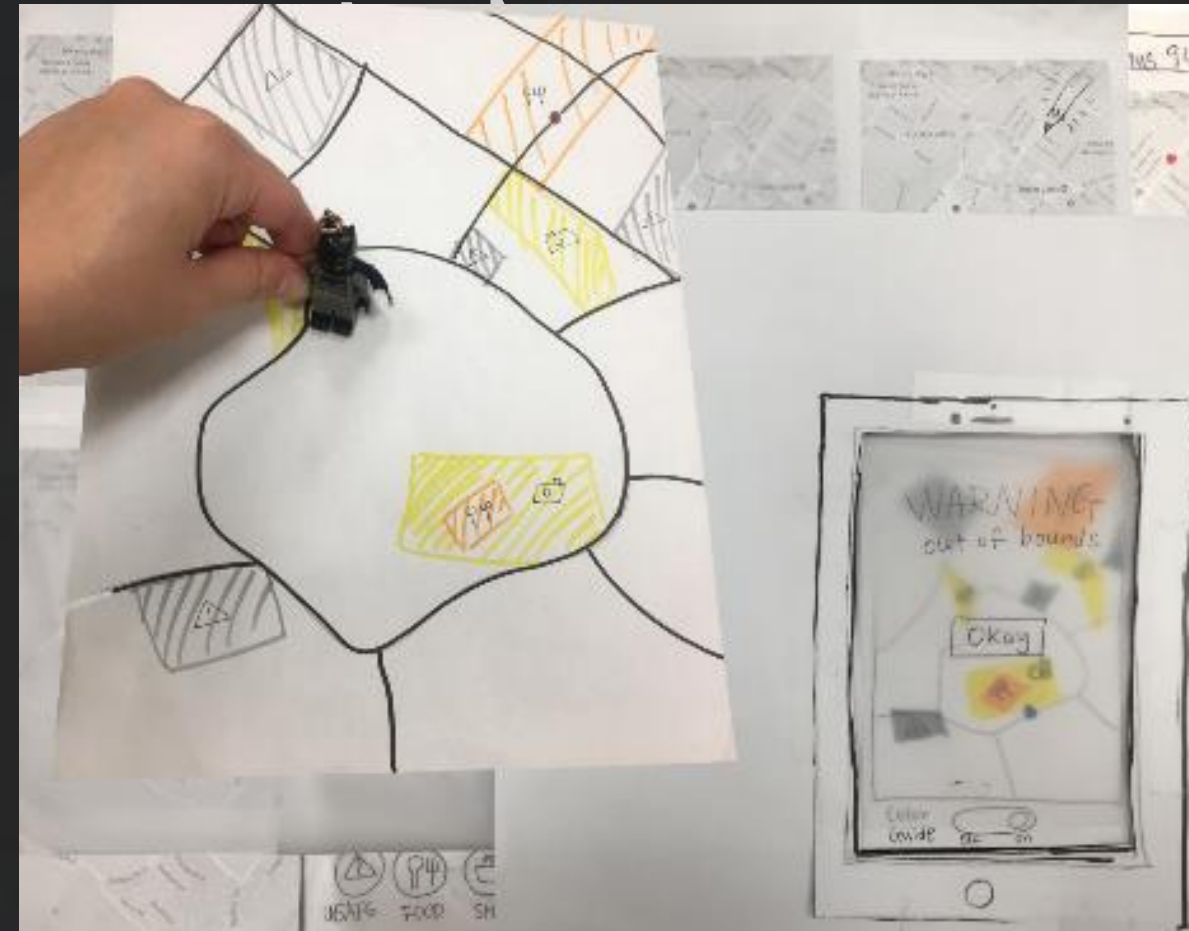
CS147L – Cross-Platform Mobile Development

- Create a mobile app on both iOS & Android using the React Native framework in just 10 weeks
- Tuesday/Thursday 3:00 – 4:20 PM, CoDa B80, 3 Units
- You can dual use CS147L/CS147 projects!
- Course web site: <https://cs147l.stanford.edu>
- Preference given to graduating seniors & CS147 students
- Apply here by Thursday, 9/25 at 11:59 PM

<https://hci.st/cs147L-25au-A0>

Evaluation

- Test with real customers (participants)
 - w/ interactive prototype
 - low-fi with paper “computer”
- Low-cost techniques
 - expert evaluation (Heuristic Evaluation)
 - online testing



Wanderlust

Learning Goal of CS 147

*Learn to design, prototype, & **evaluate** UIs*

- Tasks, activities & practices of prospective users
- Cognitive/perceptual constraints affecting design
- Techniques for brainstorming, ideation & prototyping
- Methods for evaluating UI designs
- Importance of iterative design for usability
- Technology used to prototype UIs

- *How to work together as a team*
- *Communicating results to a group*

Course Format

- Interactive lectures → you speak!
- Each week
 - 2 lectures on techniques & background
 - 60-80 minutes of lecture
 - 20-30 minutes team meeting each lecture → you need to be here to work with your team
 - 10-20 minutes for in class exercises
 - 1 studio with hands-on activity or team presentation
- Quarter-long project
- Readings, Videos, Podcasts
- Course material will be online
 - slides, exercises, readings, schedule
- Have fun & participate!

Projects

- Each team will propose a UI-oriented project
 - fixing something broken or a completely new idea
 - based on team *needfinding*
- Theme
 - each Thursday/Friday studio has a theme
 - all projects mobile/wearable/off desktop/AI
- Groups
 - 3-4 students to a group (4 much preferred)
 - work with students w/ *different skills*
 - CS students should have had 142/193p/193a or equivalent (non-majors need not)
 - If not, take CS147L, learn ReactNative, dual use project for 147L/147
 - groups meet in class & studio weekly
- Cumulative
 - apply several HCI methods to one interface
- If you let your team down, we will lower your grade

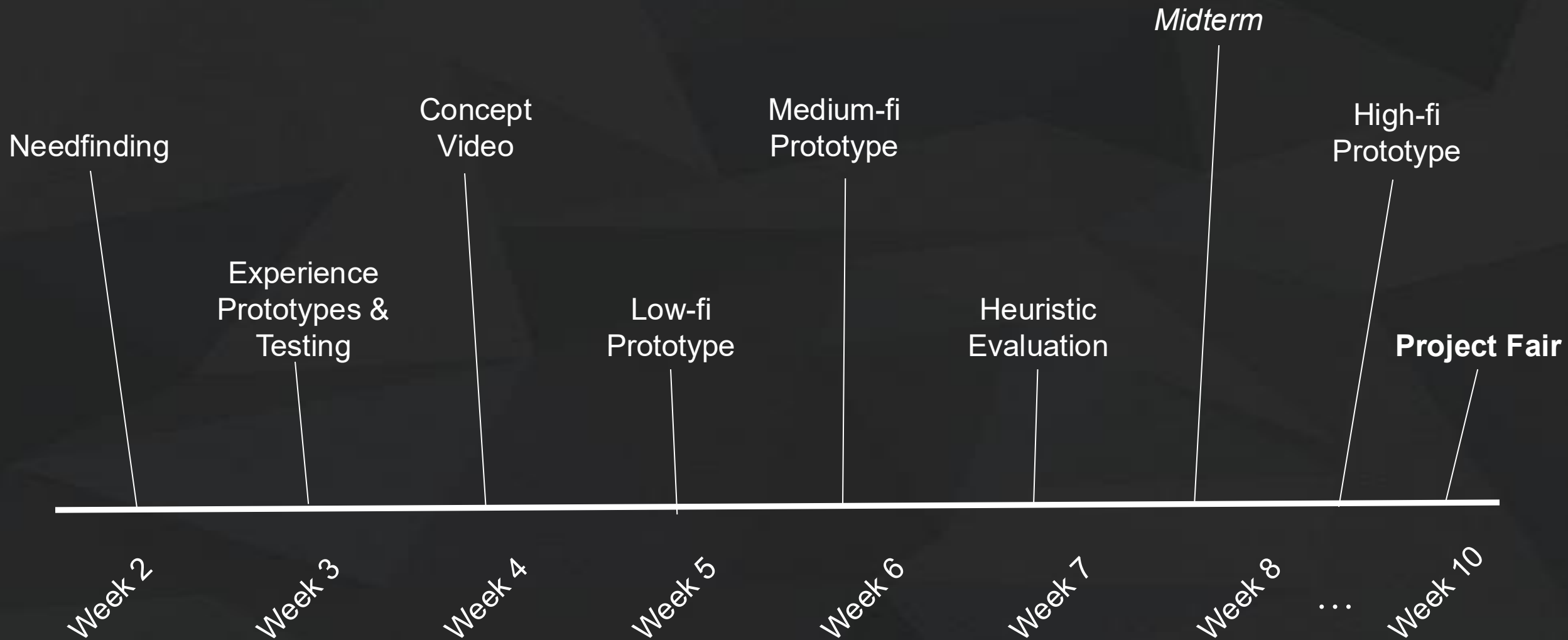


Design Studios

Teams attend small weekly studio (9-16 students)
-critique/feedback in more intimate environment



Project Process Timeline



CS 147 AU25 COURSE TIMELINE

- Lecture
- Studio (for most people)
- Special Event

	SUN	MON	TUE	WED	THU	FRI	SAT	
WEEK 1	21 SEP	22 Intro	23	24 Design Discovery	25	26 Design Project 0 <small>Team preference form (due @ 11:59PM)</small>	27	*Team mixer this week
	Fill out studio preference form, due 09/24 @ 5:00 PM		Assignment 1 (Needfinding) released, due in studio 10/2 or 10/3					
WEEK 2	28	29 Define <small>*Remote Lecture</small>	30 OCT	1 A1 Field Work <small>*No Lecture</small>	2	3 A1 Presentation, POVs	4	Working on Assignment 1 (Needfinding), presented in studio 10/2 or 10/3
	Assignment 2 (Define) released, due in studio 10/09 or 10/10							
WEEK 3	5	6 Ideate	7	8 Concept Videos	9	10 A2 Presentation, Tasks	11	*Web Workshop this week
	Assignment 4 (Video) released, due in studio 10/16 or 10/17					Assignment 3 (Website) released, final due 11/19 @ 11:59 PM		
Working on Assignment 2 (Define), presented in studio 10/09 or 10/10								
WEEK 4	12	13 Exploration	14	15 Early Stage Prototyping	16	17 Video Crit, Sketching	18	*Figma Basics Workshop this week
	Assignment 5 (Low-fi & Test) released, due in studio 10/23 or 10/24					A4 Video Revisions (optional)		
Working on Assignment 4 (Video), presented in studio for critique 10/16 or 10/17								
WEEK 5	19	20 Human Abilities	21	22 Visual Info Design	23	24 A5 Presentation, Design Systems	25	*Design Systems Workshop this week
	Assignment 6 (Med-fi) released, due Monday 11/3 @ 5 PM							
Working on Assignment 5 (Low-fi & Test), presented in studio 10/23 or 10/24								
A4 Video Revisions								

ASSIGNMENTS OVERVIEW

See corresponding colors on the calendar to see when these projects will occur during the quarter.

Assignment 1

Needfinding

In this assignment you will plan, develop, and execute the first needfinding round for your quarter-long team project. You will present your interview plan (methodology), data gathered from your initial interviews, and the key insights and inferences you have made. You will capture this analysis in an empathy map that you will share in your studio presentation.

Assignment 2

POVs and Experience Prototypes

You will revisit the findings from A1, interview more participants based on a deeper focus, and formulate points of view for your potential users. From there, you will craft several "How Might We" statements to frame the problem area and intended design goal. Based on the best HMW statements, you will brainstorm several solutions. You will then create and test 3 "experience prototypes" to learn more about these ideas.

Assignment 3

Website

The goal of this assignment is to learn how to present your work in a professional, engaging, and appealing manner. Previous students have used their websites to talk about their project when on the job hunt! Your website will be hosted on Stanford AFS.

Assignment 4

Concept Video

The goal of this assignment is to continue to learn how to brainstorm novel design ideas and turn these ideas into a concept video. You will start by conducting market research to find other apps in your space (ensure you're thinking up a novel product). You will then shoot a video that will help you to learn how to both

Assignment 5

Low-fi Prototype and Usability Test

Learn how to use low-fi prototyping in the early stages of UI design. You will first sketch many different design realizations

Assignment 6

Interactive Medium-fi Prototype

Learn how to build medium-fidelity, interactive prototypes of UI ideas using an interactive UI design tool. Understand the tradeoffs compared to low-fi prototyping or even creating a prototype through coding. You will revise your UI ideas based on the insights from your low-fi prototype user testing and feedback from your studio peers and CA. Then, you will use interactive tools to

Books

We will give you web links to all necessary readings/videos

Recommended textbook (if you need one)

Designing the User Interface: Strategies for Effective Human-Computer Interaction by Shneiderman et. al, 6th edition (2016)

Assignments

- Individual
 - 1 presentation each
 - 2 written (handed in online)
 - class & studio participation (graded)
 - in class exit tickets to show you came to lecture & are paying attention
- Group
 - 10 assignments
 - 4-5 presentations with 3-4 write-ups + video + poster
 - all group work handed in online
 - team web site & online submission site

Grading

- A combination of
 - individual assignments & presentation (10%)
 - class/studio participation (10%)
 - midterm (20%)
 - group project (60%)
 - presentations/poster (group component)
 - project write-ups
- No final
 - **must be present at project fair on Friday 12/5 (6:00-9:30 PM)**

AI Policy

- Programming & creative industries have been increasingly adopting generative AI
- AI tools can inhibit the learning process by undermining the **struggle & effort it takes to truly learn a new skill**
- **Our policy:** *For all assignments except for implementing the Website (Assignment 3), Concept Video (Assignment 4) & Hi-Fi prototype (Assignment 8), we ask that you do not use AI tools to complete the assignment*
 - these assignments will help you build fundamental design thinking & prototyping skills
 - we will allow use of AI tools for A3, A4, & A8 as long as their use is credited appropriately and you tell us where they were used in your submission
- We understand that the line can be fuzzy as to what counts as an AI tool these days, so reach out to the teaching team if you have any questions about the AI policy

Tidbits

- Late Policy
 - no lates on group assignments
 - individual assignments lose one letter grade/day
- Course web site
 - <http://hci.stanford.edu/courses/cs147/2025/au/> or cs147.stanford.edu
- Studio time preferences & team signups (you do **not** need a team in advance!)
 - form will be open on Tue and due Wed at 5 PM, but we want to gauge if we have the right times now
 - <https://hci.st/courses/cs147-25au-sections> (fill this out now! non-binding)

Tidbits

- Team Mixer
 - Tue. in CoDa E160 from 6-7:30 PM. Meet people. Eat pizza. Find a team?
 - Fill out this form now so we know how much pizza to order
<https://hci.st/cs147-25au-mixer>
- OAE Letters
 - Send to landay@stanford.edu & ayc@stanford.edu within first 2 weeks of class
- Attendance
 - you are expected to be in lecture & studio in person
 - If you have a small conflict (less than 30 min), we will consider how to resolve it
 - fill out <http://hci.st/cs147-25au-conflicts> for us to review & approve conflicts
 - studio misses
 - we drop 1st miss w/ **pre-approved** excuse, 2nd pre-approved miss w/ makeup assignment, after that it comes out of your participation grade
 - if you get sick, we will figure it out. Contact me & our head CA (Alan)

Laptop & Phone Policy

- We do not allow laptops or phones to be on in front of you during lecture (except during team break or when asked to do surveys / team exercises)
- This policy starts on Wednesday
- Policy is based on careful research on the negative impacts of screens on both student learning & the learning of neighbors in class
 - readings
Carter, S.P., Greenberg, K., and Walker, M.S. (2017). [Should Professors Ban Laptops? How classroom computer use affects student learning](#). *Education Next*, 17(4), 68-74. (due for Wed.)
 - optional readings
Adrian F. Ward, Kristen Duke, Ayelet Gneezy, and Maarten W. Bos (2017). [Brain Drain: The Mere Presence of One's Own Smartphone Reduces Available Cognitive Capacity](#). *Journal of the Association for Consumer Research*, 2(2), 140-154.
- Fill out this form if you need an exception based on OAE or other important reason
 - teaching staff will decide on a case by case basis & may speak to you further
 - <https://hci.st/cs147-25au-laptop-exception>
- Notetaking Alternatives
 - write on paper (studies show you learn more as you process the info)
 - write on a tablet (e.g., ReMarkable or iPad – useful for design sketching as well)
 - just listen and review slides after class (posted by 6 PM on lecture days)

Exit Ticket

<http://hci.st/cs147-25au-exit-1-198>

Due within 24 hours → Tue 9/22 3:30 PM

Summary

- UX design is an important part of most software
- Getting the interface right is hard, but...
- Solution is *Iterative Design* including repeated cycles of
 - Design
 - Prototyping
 - Evaluation

Next Time

- Design Discovery
- Read
 - Holtzblatt & Beyer, Ch. 3 from [*Contextual Design*](#)
 - d.school's [Empathy Fieldguide](#)
 - Carter, S.P., Greenberg, K., and Walker, M.S. (2017). [Should Professors Ban Laptops? How classroom computer use affects student learning](#). *Education Next*, 17(4), 68-74.
 - optional: Holtzblatt & Beyer, Contextual Design, In *The Encyclopedia of Human Computer Interaction*, 2nd Ed.
 - If any readings are password protected, it should be “hcid”
- Watch
 - [ABC News Nightline IDEO Deep Dive, July 1999](#) (22 minutes)
 - optional: [ABC News, IDEO Design Thinking](#), January 2013 (13 minutes)