

CATHERINE LIU

Design Portfolio

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H E L L O

I am Catherine Liu, a digital designer interested in interactions between visual languages and technology, storytelling, and speculative thinking. My work mostly consists of graphic and product design, as well as more traditional forms of visual media like illustration and 3D modeling/animation.

Currently, I am a junior at the University of Pennsylvania, pursuing a major in Design and a minor in Consumer Psychology. My past work experiences have largely involved graphic design, user experience design, marketing, and branding.

As a designer, I believe it is our responsibility to design ethically and produce solutions for those often neglected within society. We must create with awareness and detail, recentering design around more diverse narratives and values. Instead of developing bandaid solutions, we need to attack the roots of systemic issues to design for a better future.

DESIGN TOOLS

- Adobe Creative Suite
Illustrator, Photoshop, InDesign, AfterEffects
- HTML | CSS | Javascript
- Figma
- Autodesk Maya

DESIGN EXPERIENCE

- The WALK Magazine | Art Director & Illustrator
January 2020 - Now
- SimpliFed | Product and UX Design Intern
January 2021 - June 2021
- Riley Versa | Graphic Design Intern
January 2020 - September 2020

PERSONAL DATA

project url: <https://liucath.github.io/projects/personaldata/index.html>

web design front-end development data visualization

This project aimed to use web design and development to visualize personal data collected over the course of a few days. Inspired by feelings of being burnt out near the end of the semester, my data collection revolved around what I did every day, and how I felt doing them. As my data collection period included Thanksgiving break, I was able to contrast the moods I felt while on break and in school.

Nov - Dec 2021

two weeks

Academic Project

DSGN 234: Art of the Web

Mediums

HTML

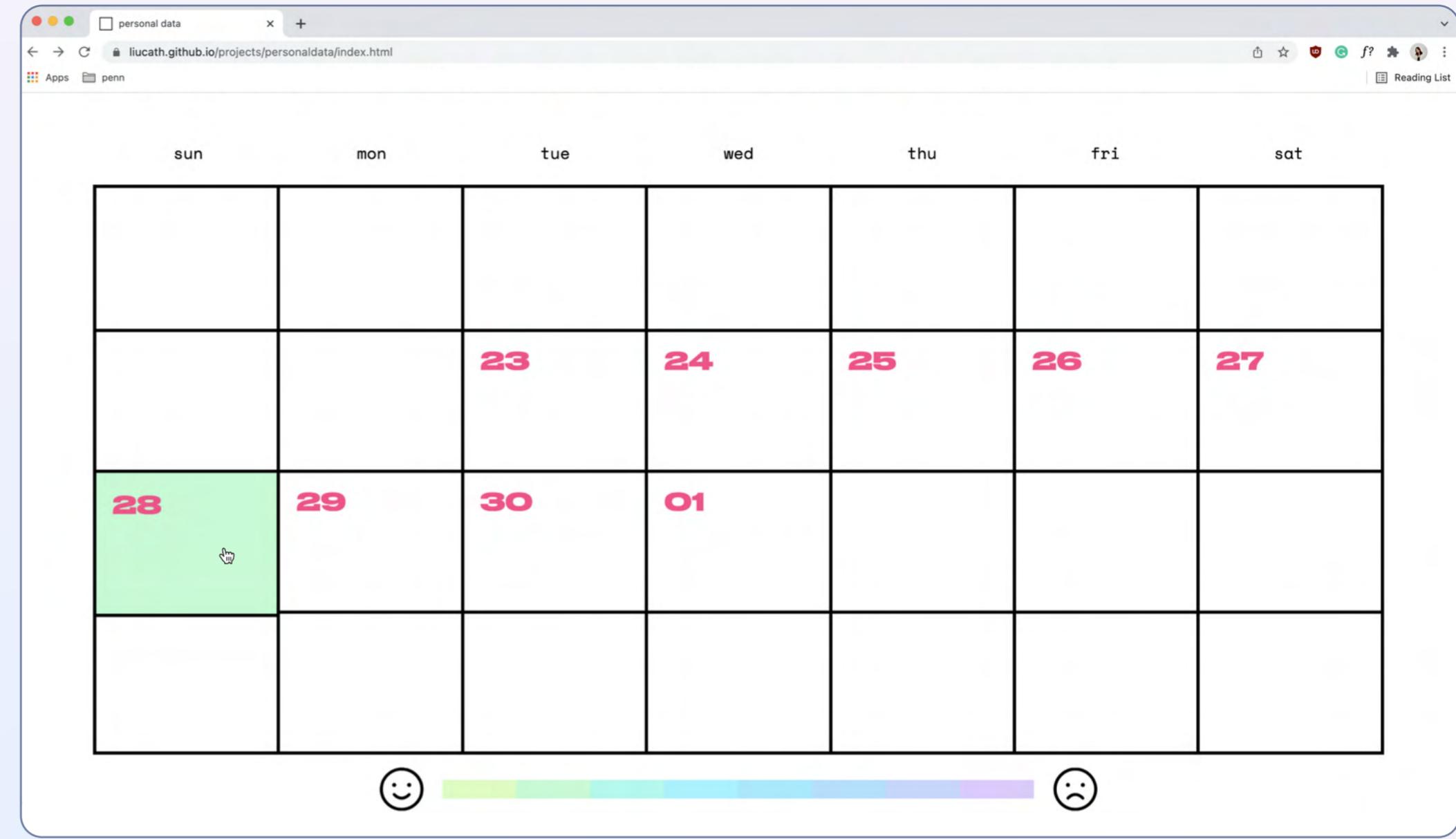
CSS

Javascript

Figma

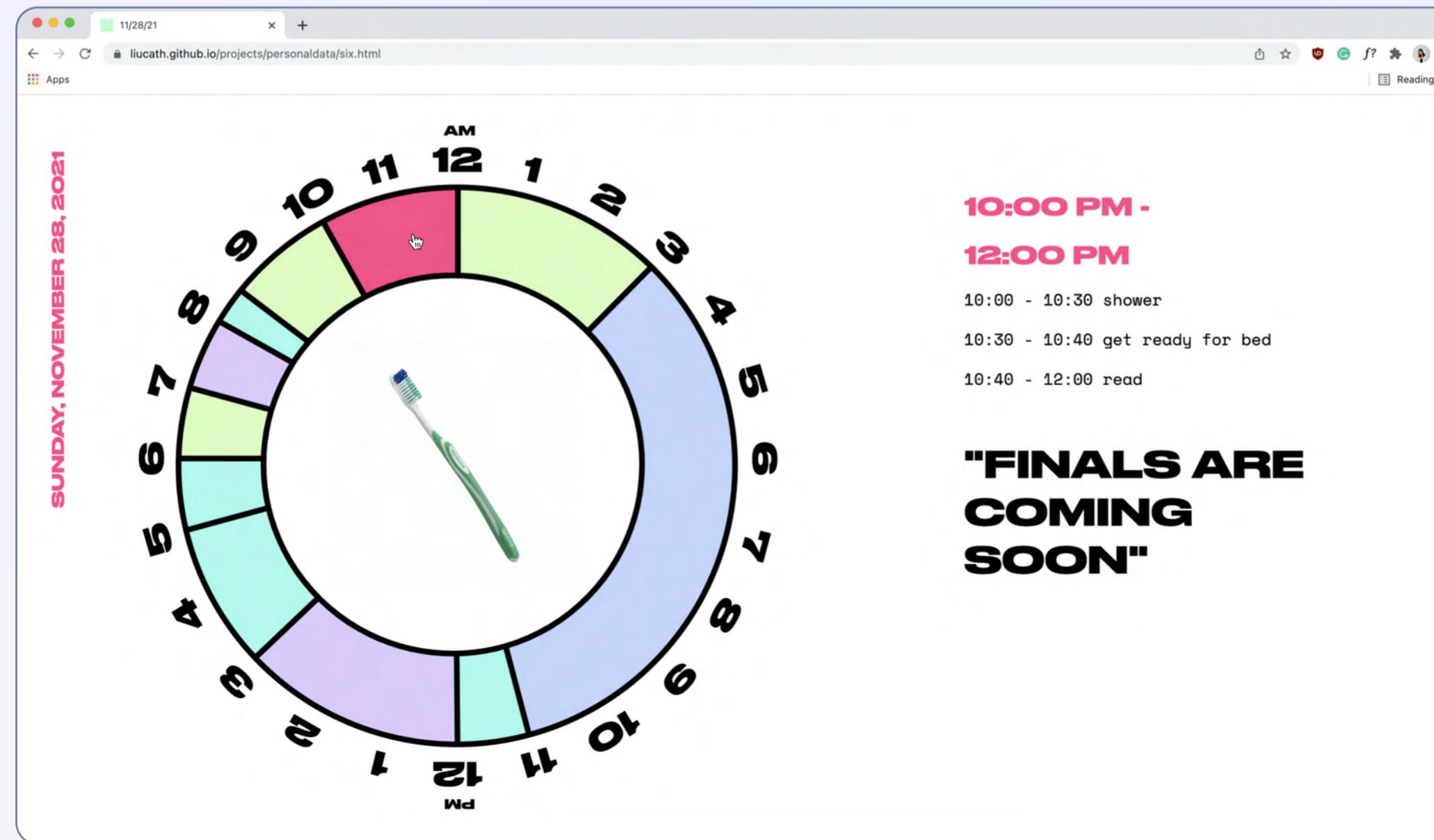
When hovering over specific days, the background changes color to indicate my overall mood of that day, correlating to the scale at the bottom of the page

Homepage



Individual Day Page

Each time block is color coded according to mood/type as well. Clicking on a time block will show what I did, what I was thinking, and an image/gif of the action



1.

Color-coded moods of that day are shown in the favicon of each individual page

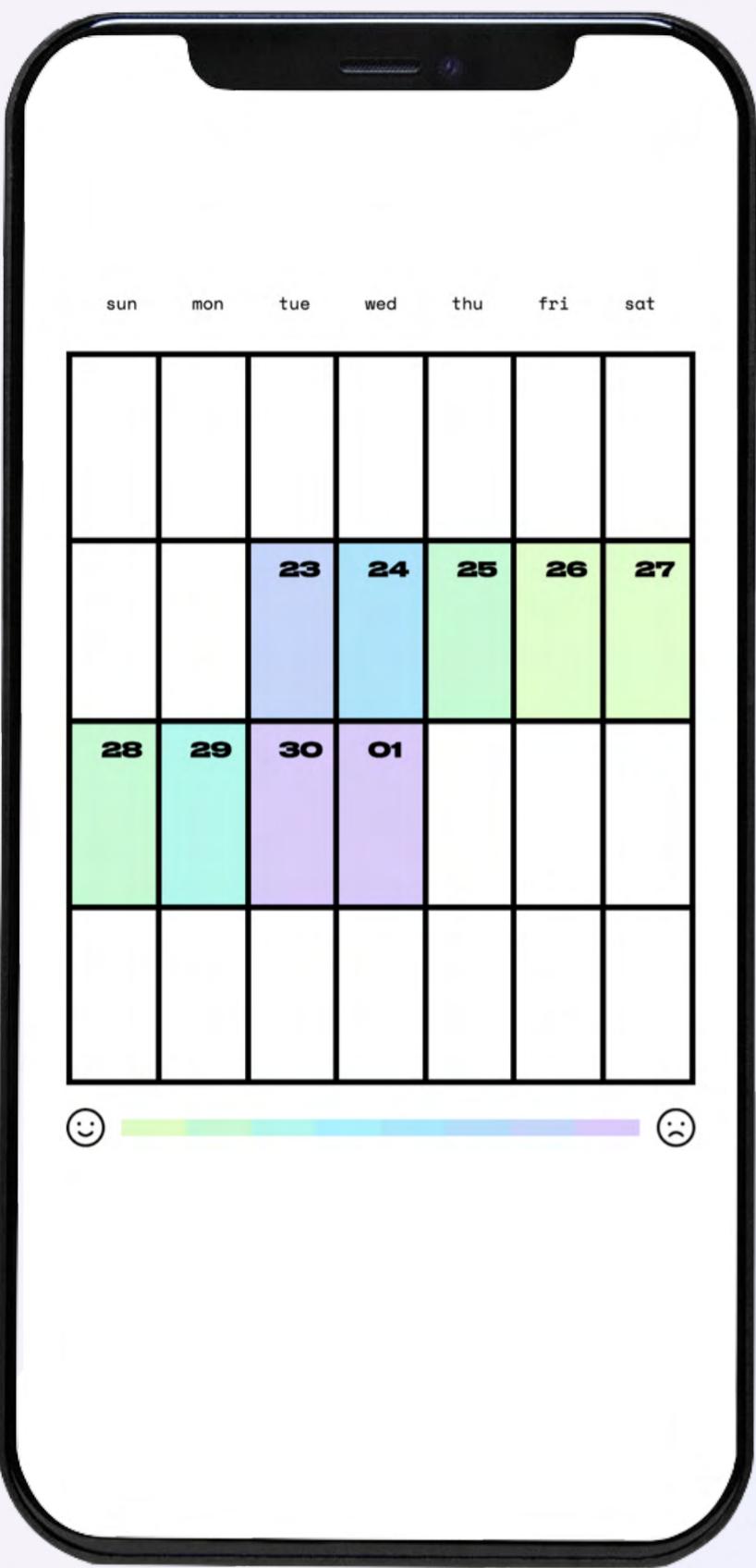
2.

Individual blocks turn pink on hover to indicate you can click on it

3.

All parts of the "clock" are scalable SVG vectors

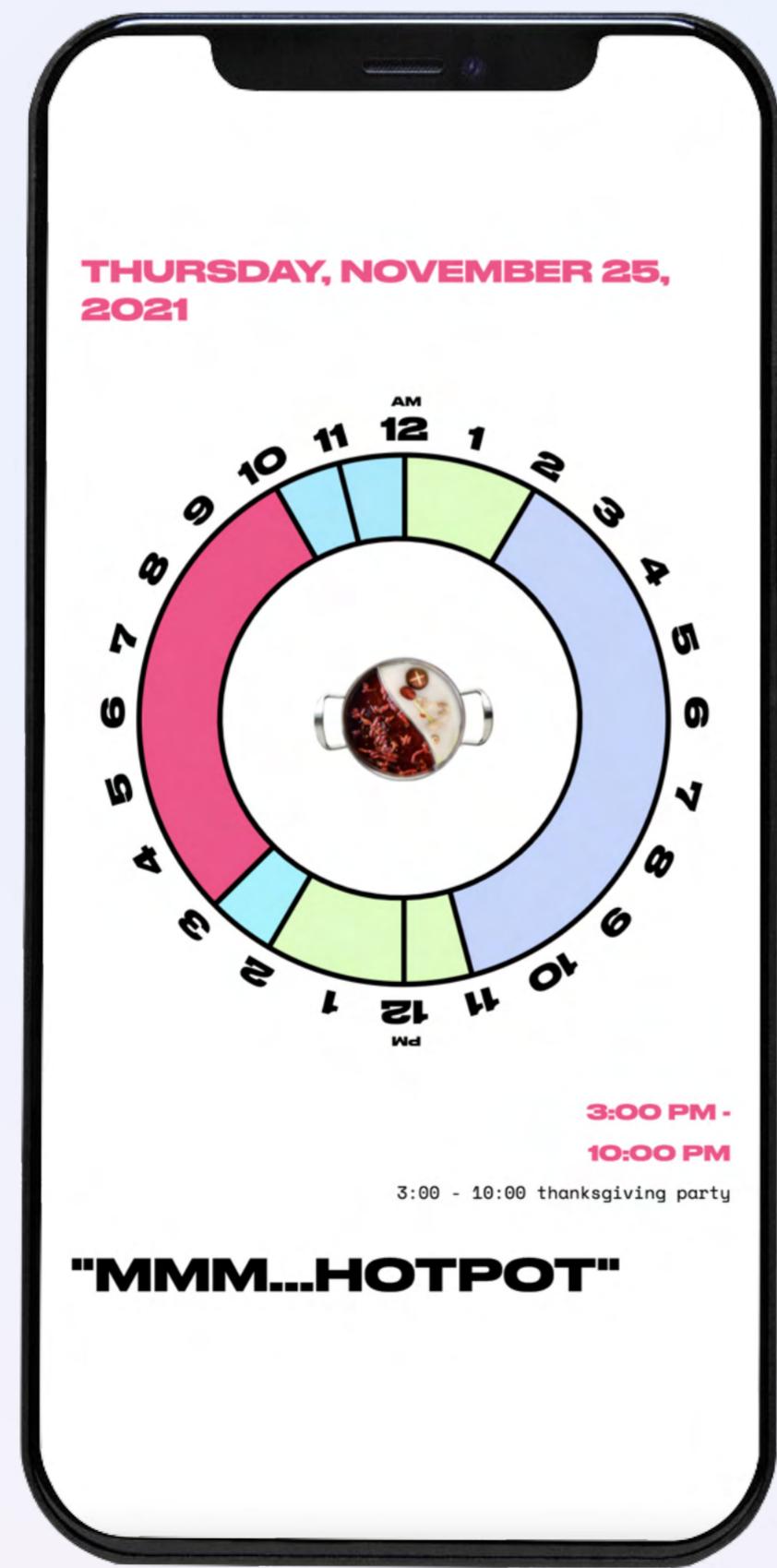
(mobile) Homepage



project url: <https://liucath.github.io/projects/personaldata/index.html>

All color-coded backgrounds are displayed since users cannot hover on mobile

(mobile) Individual Day Page



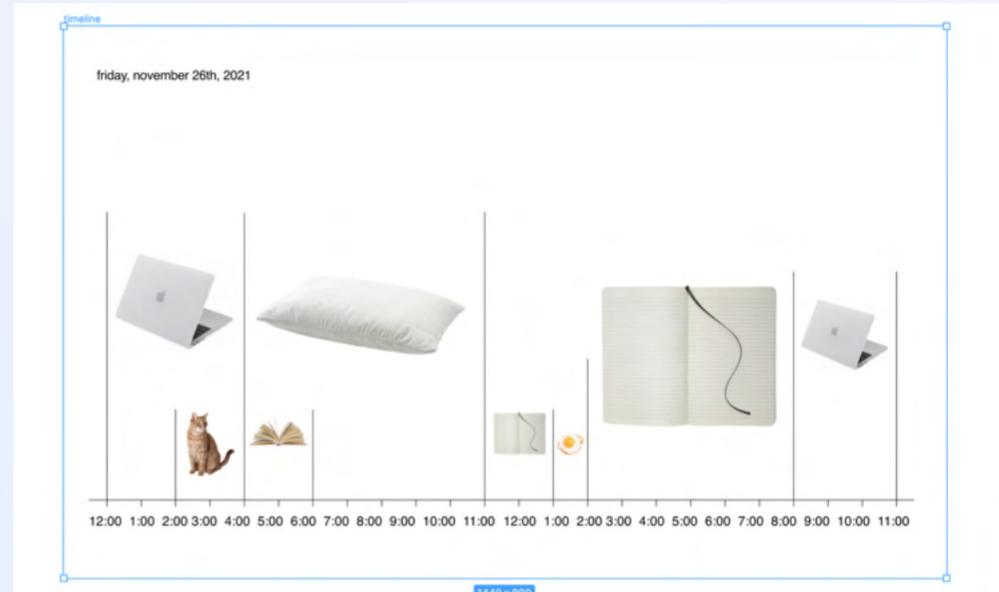
Beginning Sketches

1.



Incorporated elements:
gif/images displaying according to time passing

2.



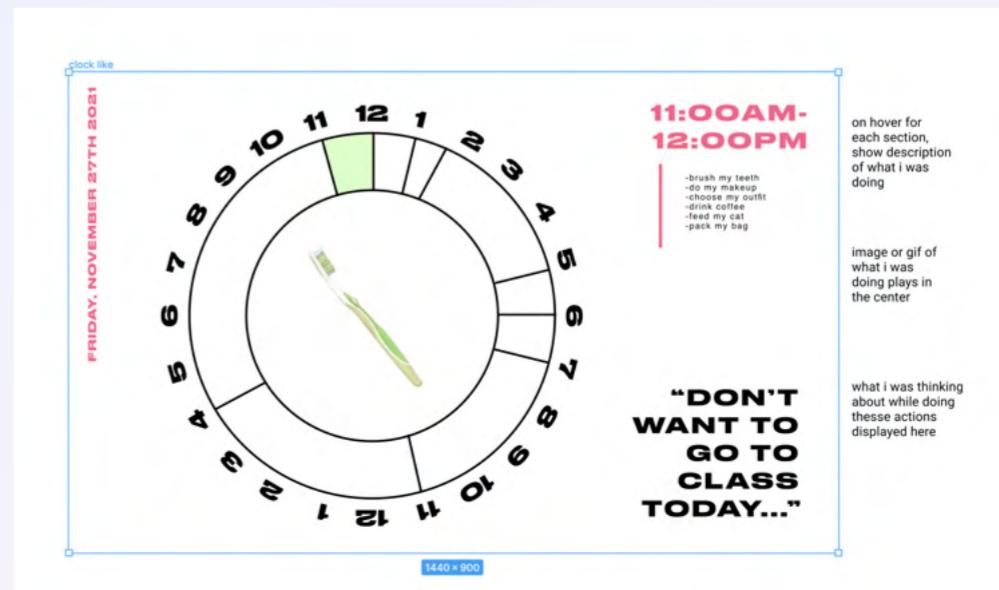
Incorporated elements:
time blocks

3.



Incorporated elements:
color-coding system, calendar grid, displaying items on hover

4.



Incorporated elements:
circular graphic, displayed thoughts + images + actions on click/hover

FAN PAGE

project url: <https://liucath.github.io/projects/fanpage/index.html>

web design front-end development visual storytelling

Inspired by fan pages on the early internet, this project's goal was to create a visually creative and narrative website dedicated to someone or something deserving of the honor. The subject of my fan page is Fernanda Ly, a model who went viral for having pink hair on the runway a few years ago. After hearing Fernanda's thoughts on her career and Asian identity, I wanted to juxtapose her media title as "the girl with pink hair" with her own personal background and interests.

Nov 2021

two weeks

Academic Project

DSGN 234: Art of the Web

Mediums

HTML

CSS

Figma

Heading "Fernanda Ly" has absolute positioning that remains on sides as user scrolls

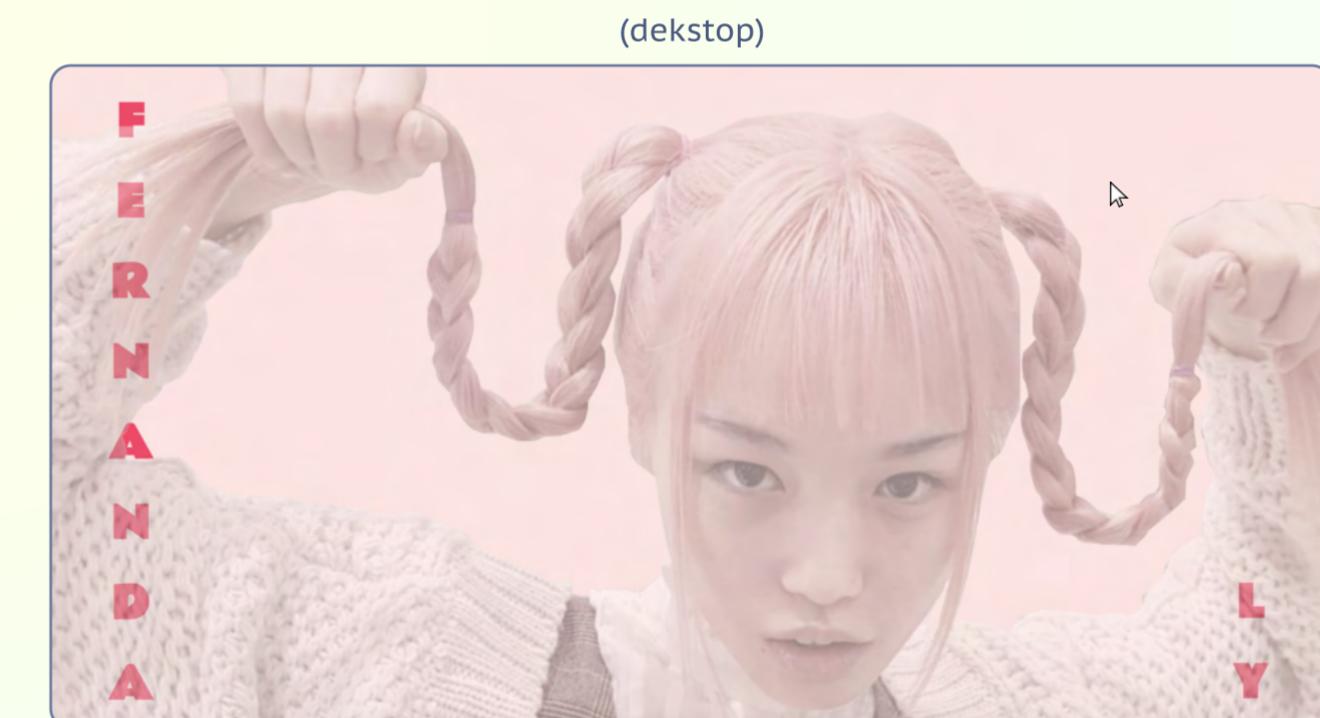


Button at bottom of the page shows more of Fernanda's playful side, as it leads to second page, "Fernanda Ly"

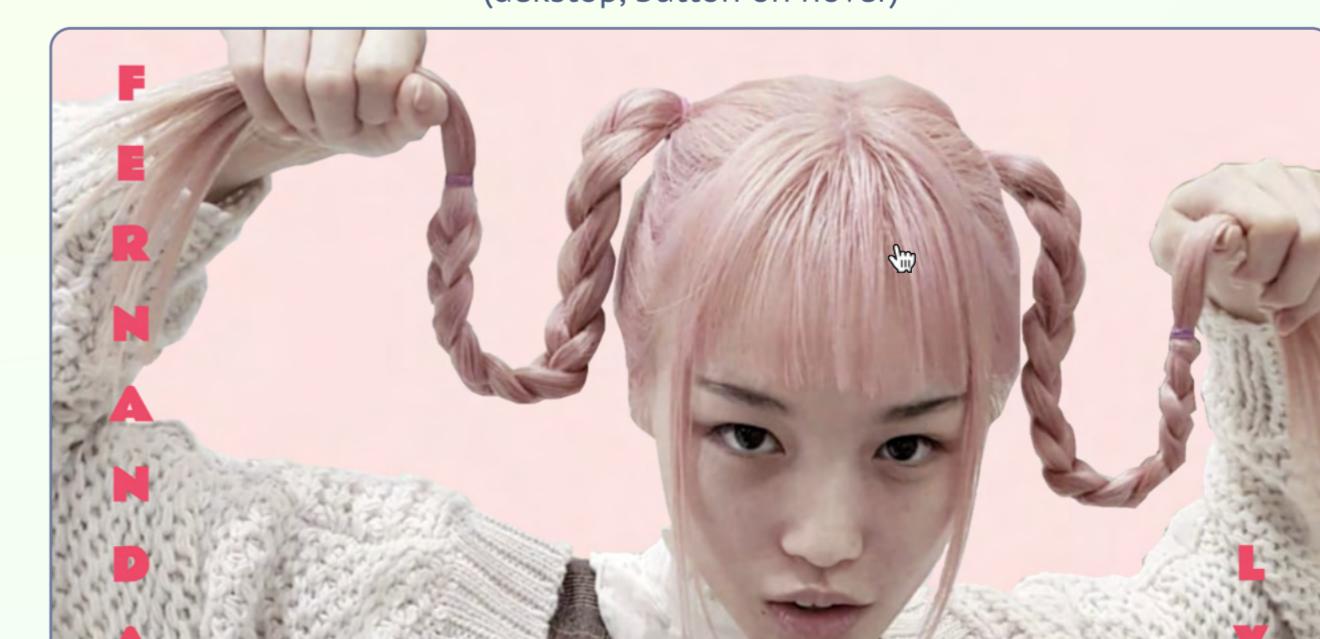


Page One: "Girl With the Pink Hair"

The first page takes a more serious approach, focusing on Fernanda's modeling career and her professional identity as the "girl with the pink hair". To match the theme, the entire page is in pink, featuring Fernanda's modeling images, as well as quotes from articles and audio clips of her speaking out on her Asian identity in a white-dominated industry.



Button (desktop) turns opaque on hover



Page Two: “Fernanda Ly”

The second page centers around Fernanda Ly as a person - her hobbies, personal style, friends, and social media. Using a collage-like spread, I aimed to design a playful environment highlighting her identity without the labels and stereotypes she feels chained to.



project url: <https://liucath.github.io/projects/fanpage/index.html>



(desktop)



Background of entire page is animated with changing colors:



“The girl with pink hair”, is a button that leads back to first page. The text becomes italicized on hover, and is animated with changing colors:



**“...TO BE SOMETHING
MORE THAN THE GIRL
WITH PINK HAIR”**

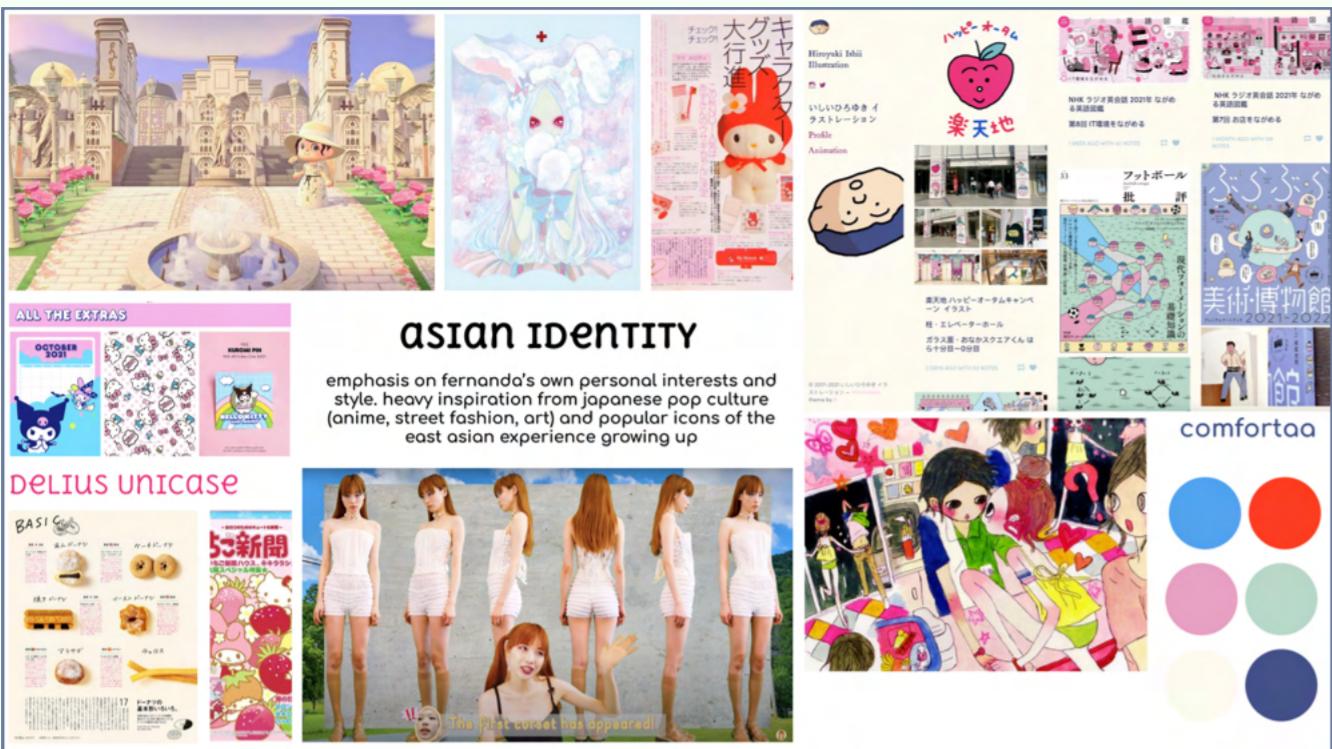
(on hover)

**“...TO BE SOMETHING
MORE THAN THE GIRL
WITH PINK HAIR”**

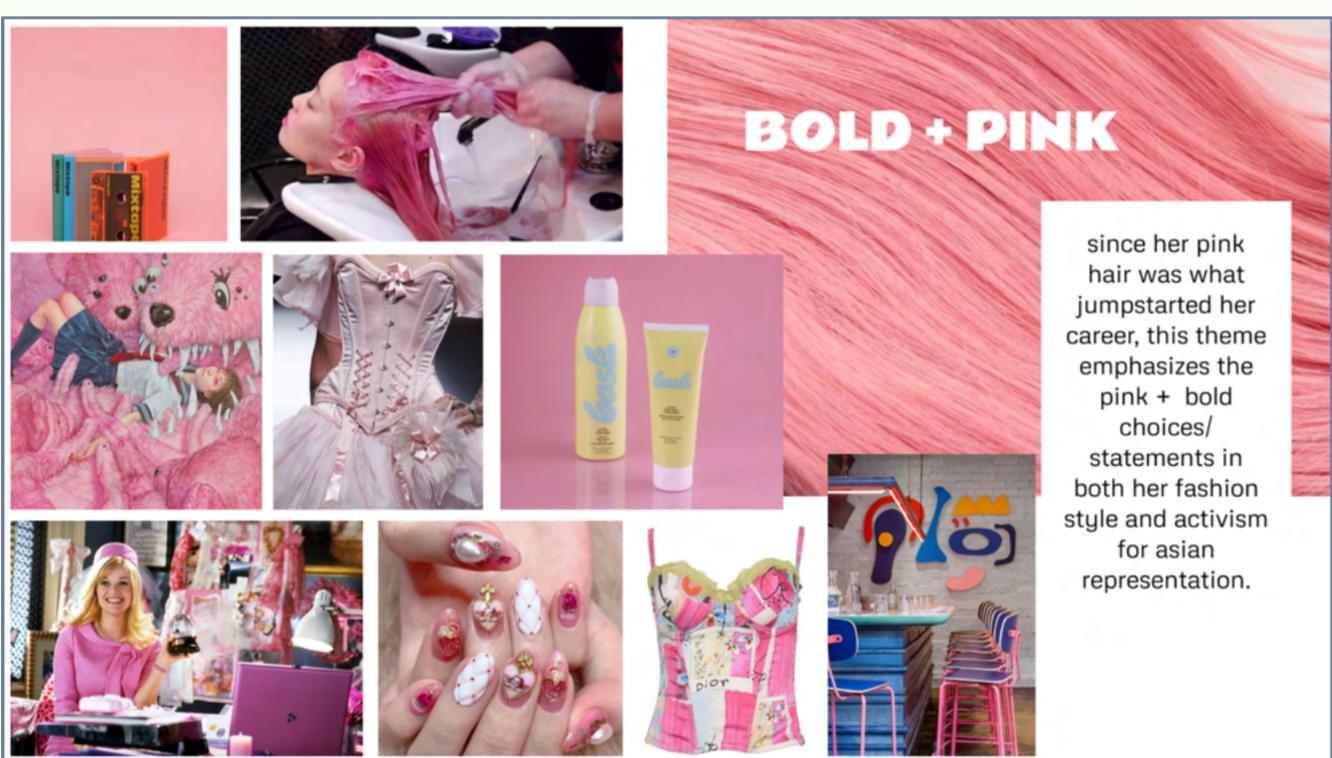


Moodboards

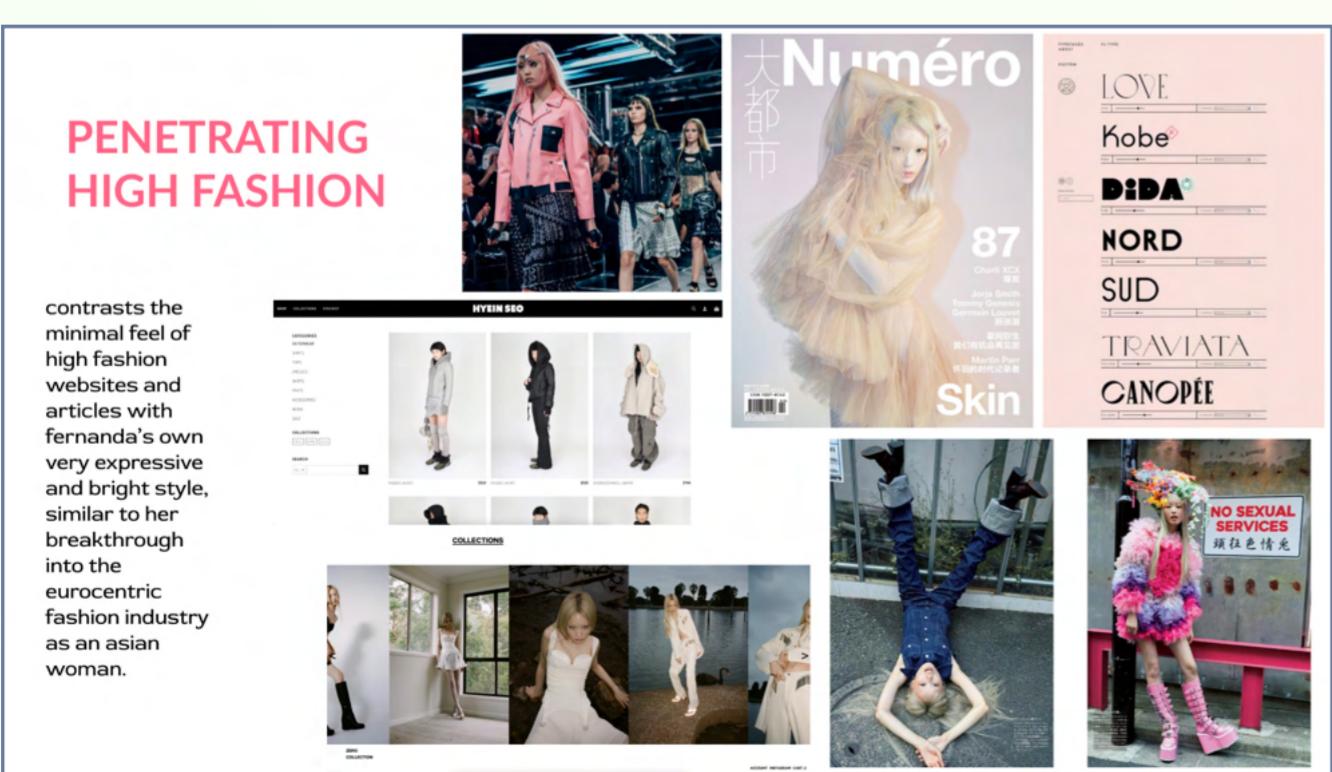
1.



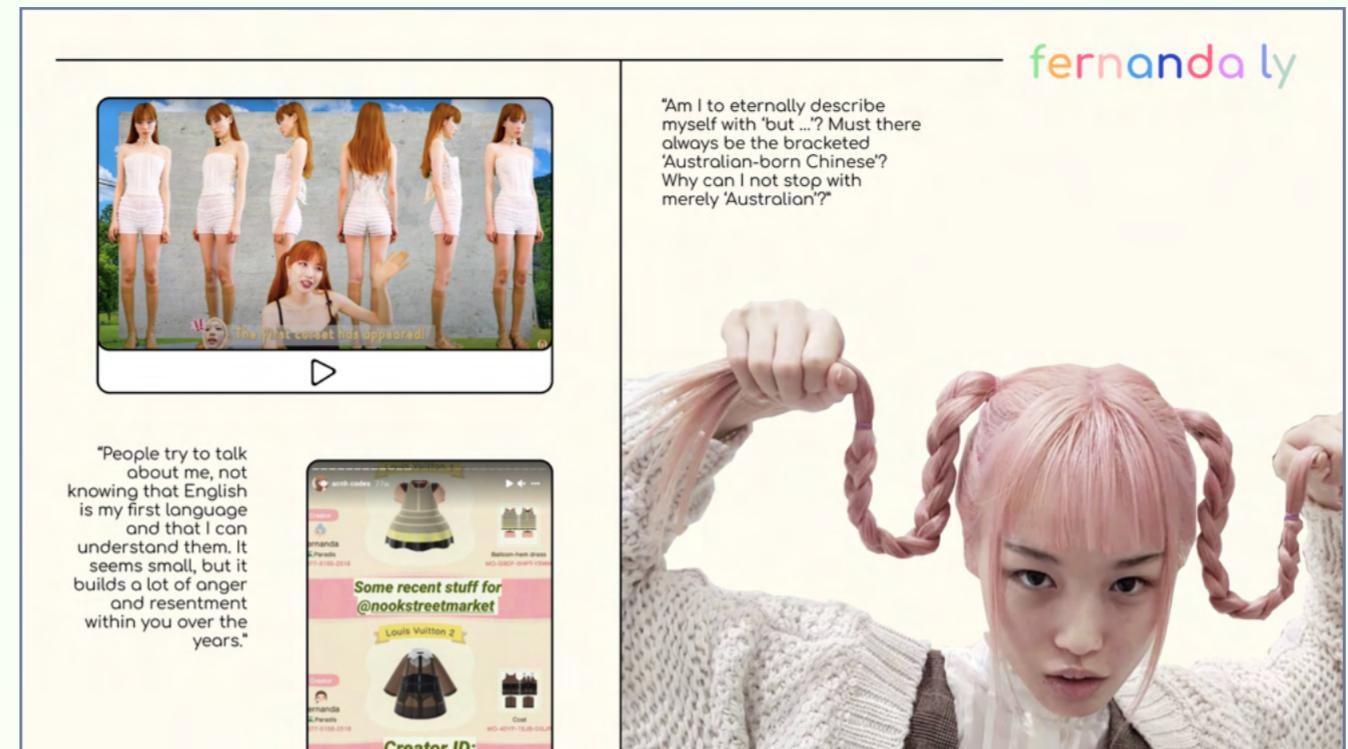
2.



3.



Sketches



Incorporated elements:
Fernanda's personal interests (Youtube channel, playing Animal crossing), bright colors, cutout images

Incorporated elements:
Bold pink heading and background, quotes and images in center column

Incorporated elements:
Professional modeling career and photos as a focus

FIZZY

brand identity packaging design logo design

Fizzy is a flavored sparkling water brand I came up with for a packaging/branding design study. Inspired by the heat of summer, I designed fizzy to have a light and colorful brand identity. I wanted to emphasize the electrifying feeling after drinking the first sip of sparkling water, which led me to generate the tagline "stay electric"

June 2021
three weeks

Personal Project

Mediums

Adobe Illustrator
Adobe Photoshop

Marketing/Promotional Material



Bold colors and text to make fizzy eye-catching and appealing

Packaging Design

drink can packaging



Each flavor design is marked by the fruit's unique stem and color

case of 6 box packaging

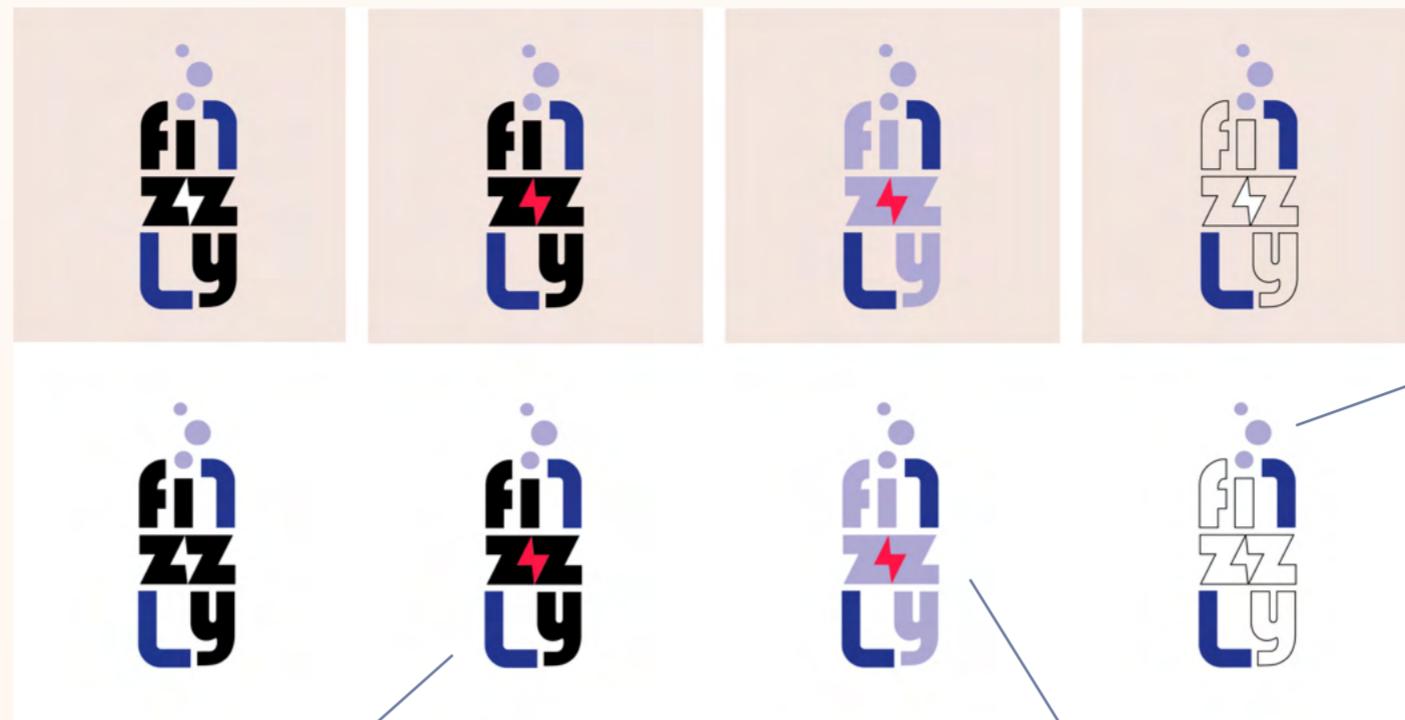


Logo Design

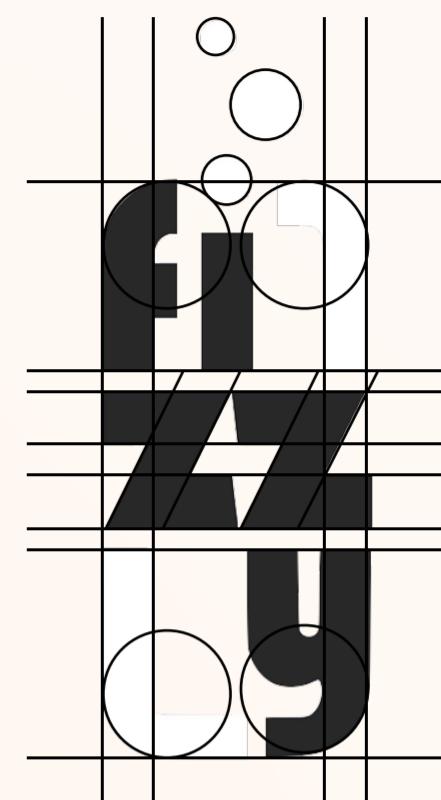
final logo



sketches



logo construction



Typefaces

logo

**bauhaus 93
regular**

heading

**MONTSERRAT
EXTRABOLD**

body

montserrat italic

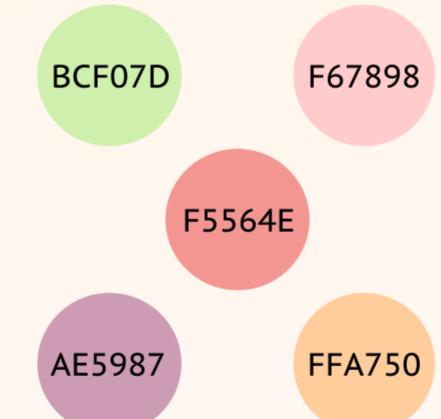
montserrat regular

Colors

brand colors



product colors



COOL CLAMP

prototyping product design user research

When tasked to create an affordable, problem solving product for college students, my team and I decided to create the Cool Clamp - a simple tool to help users remove hot items from the microwave without burning their fingers. The Cool Clamp is cheap, efficient, and simple to use - ideal for college students heating microwave meals in a rush between classes.

Feb - Apr 2021

three months

Academic (Team) Project

IPD 515: Product Design

Team: Bradley Berkman, Guanyu Fang, Yu Qian, Catherine Liu

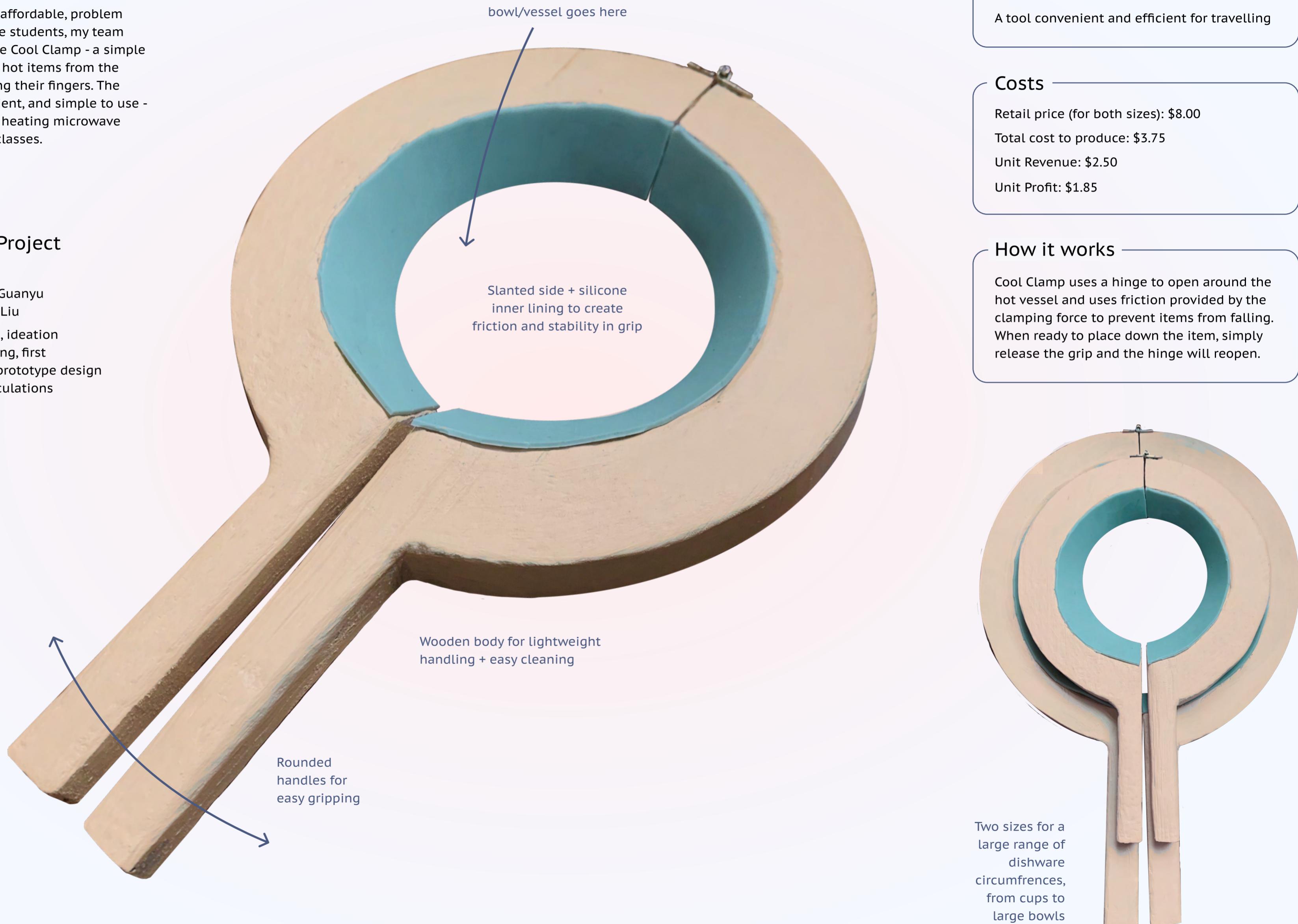
My roles: user interviews, ideation sketches, prototype testing, first iteration + alpha + final prototype design and fabrication, cost calculations

Mediums

Miro
Adobe Illustrator
silicone
wood
mixed tools

Final Prototype: Cool Clamp

(design and fabrication by me)



User Needs

- A device that can transport hot items around the kitchen without burning one's hands
- A simple solution that can be used in a rush
- A tool convenient and efficient for travelling

Costs

- Retail price (for both sizes): \$8.00
- Total cost to produce: \$3.75
- Unit Revenue: \$2.50
- Unit Profit: \$1.85

How it works

Cool Clamp uses a hinge to open around the hot vessel and uses friction provided by the clamping force to prevent items from falling. When ready to place down the item, simply release the grip and the hinge will reopen.

User Research

Our research questions focused on learning more about the average college student's eating and kitchen habits

Research: Questions

1. What does your daily schedule look like?
 2. What are your eating habits? (ex: do you cook; takeout?)
 3. How often do you heat the food per week?
 4. What kind of dish do you usually use in the microwave?
 5. What kind of food do you usually heat?
 6. How do you remove hot items from the microwave/oven?
 7. When heating foods, are you usually in a rush/on the go?
 8. What is a frequent issue you encounter when heating foods?
 9. What bowl shape/structure do you usually prefer to use?

Research: Insights

- Largest pain points of using microwave is removing hot bowls/plates (many risk burning their fingers)
 - College students have a wide variety of uses for microwaves - some use multiple times daily, while others rarely use
 - Many students use microwave for prepackaged meals and frozen foods (too busy to cook, eat in between classes)
 - Many microwave users worry about the safety of microwaves
 - Many are bothered by food splattering inside their microwave and dislike cleaning

miro free • bowl bowl team ⭐ ⬆

types of bowl

```

graph TD
    A[ceramic bowl] --> B[likes big bowls because gets less hot]
    A --> C[likes deep bowls]
    A --> D[prefer to use a large plate to warm food]
    A --> E[use microwave plastic bowl]
    A --> F[likes a handle that can easily be grabbed]
    A --> G[uses paper towels for heat]
    A --> H[burns herself removing food from microwave]
    A --> I[wraps towel around hand]
    A --> J[takes out food by paper towel]
    A --> K[has been scalded by the plate in microwave]
    A --> L[taking out the milk until it has been cooled]
    A --> M[not in rush, wait until the bowl cold enough to eat]
    A --> N[uses paper towel to grab hot bowl]
    A --> O[puts on an oven mitt when too hot]
  
```

how they deal with heat

Use for Microwave

problem of using microwave

Non Users

Organizing user research results in Miro to find the largest similarities between users

Karenna
Zimao
Miriam
Uri
Joseph
Tyler
Shreya
Nafessa
Sunny
Shaoming
Dragon chan

always cook, dinner-delivery /2 days

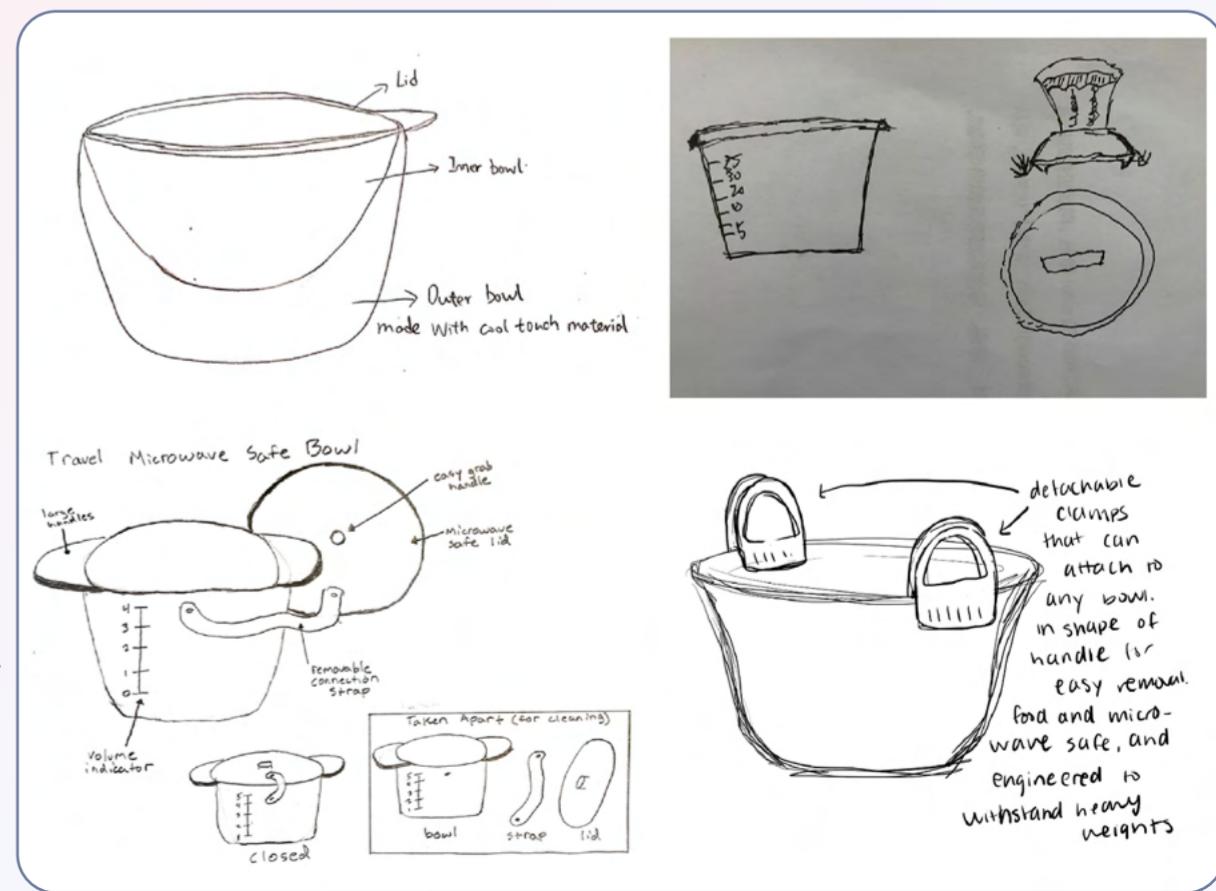
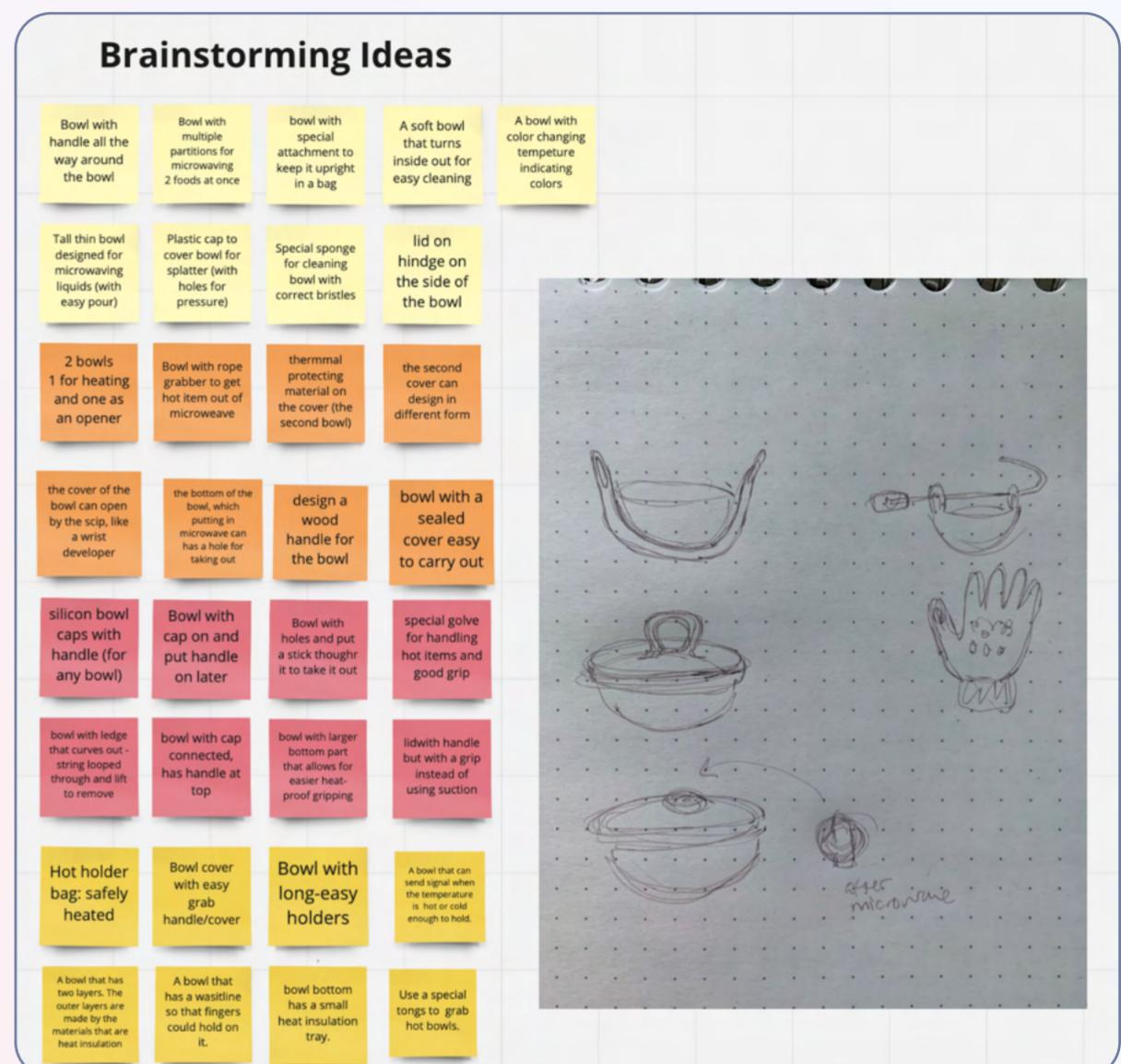
Cook with families, go out to eat. 30%

Initial Mission Statement

In what way might we create a bowl that can be safely grabbed from the microwave without burning our fingers?

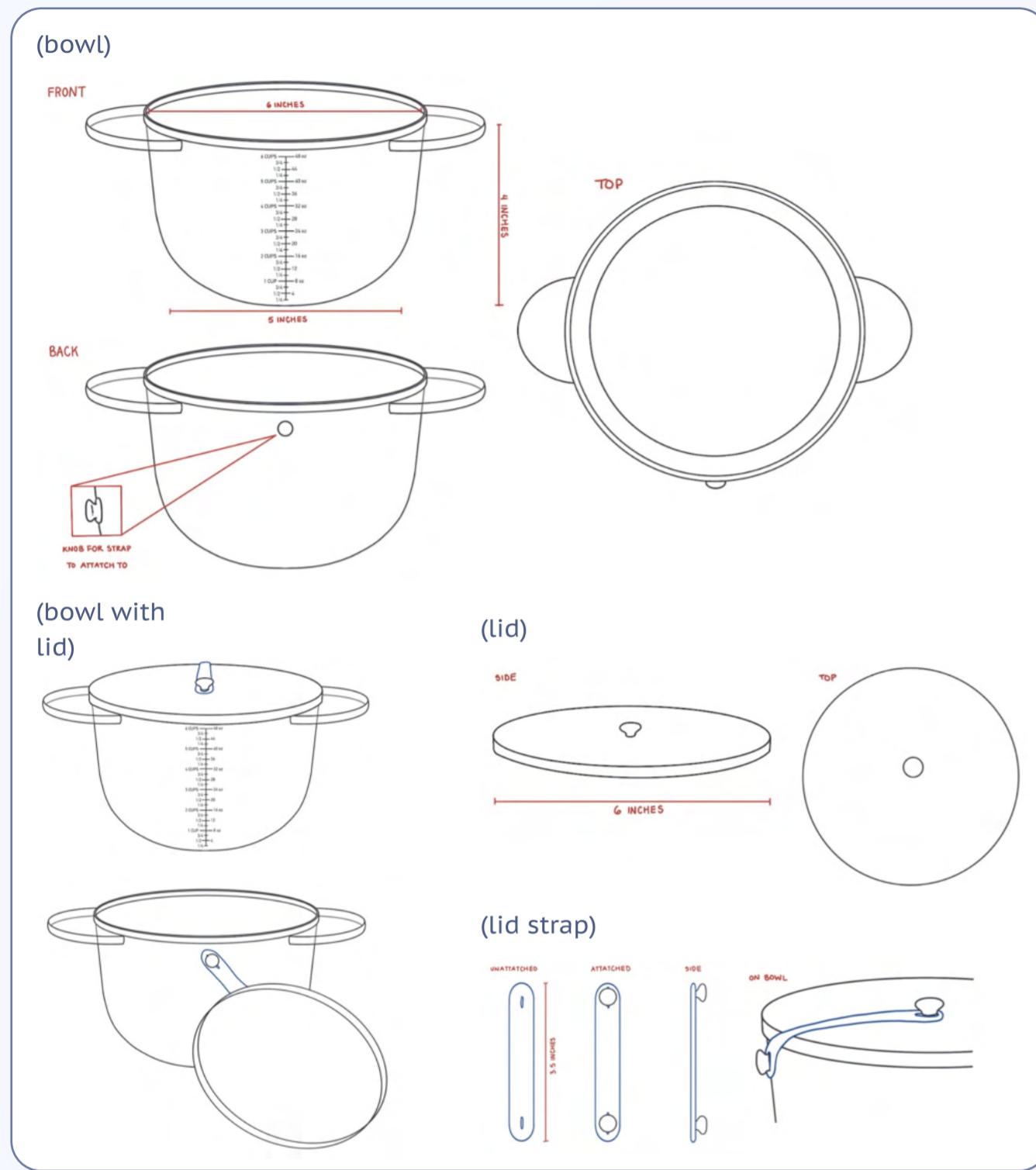
Brainstorming/Sketches

As our initial mission statement aimed to create a bowl that solved microwave pain points, we focused on the bowl aspect of the product



First Iteration Prototype: Go-Bowl

(designed by Bradley Berkman, sketched by me)



First Iteration Prototype User Testing

Hypothesis: Our hypothesis was that the Go-Bowl would be convenient to carry and would prevent burning when used in the microwave

Synthesis: After seeing results of the user testing, we decided that the bowl seemed to be inconvenient and bulky as a product that is supposed to make carrying food more efficient. Moving forward our team considered designing a different product that is more convenient as a tool instead of a bowl to make removing food from the microwave easier

New Mission Statement

How might we develop a tool that can safely transport hot items around the kitchen without burning one's hands?

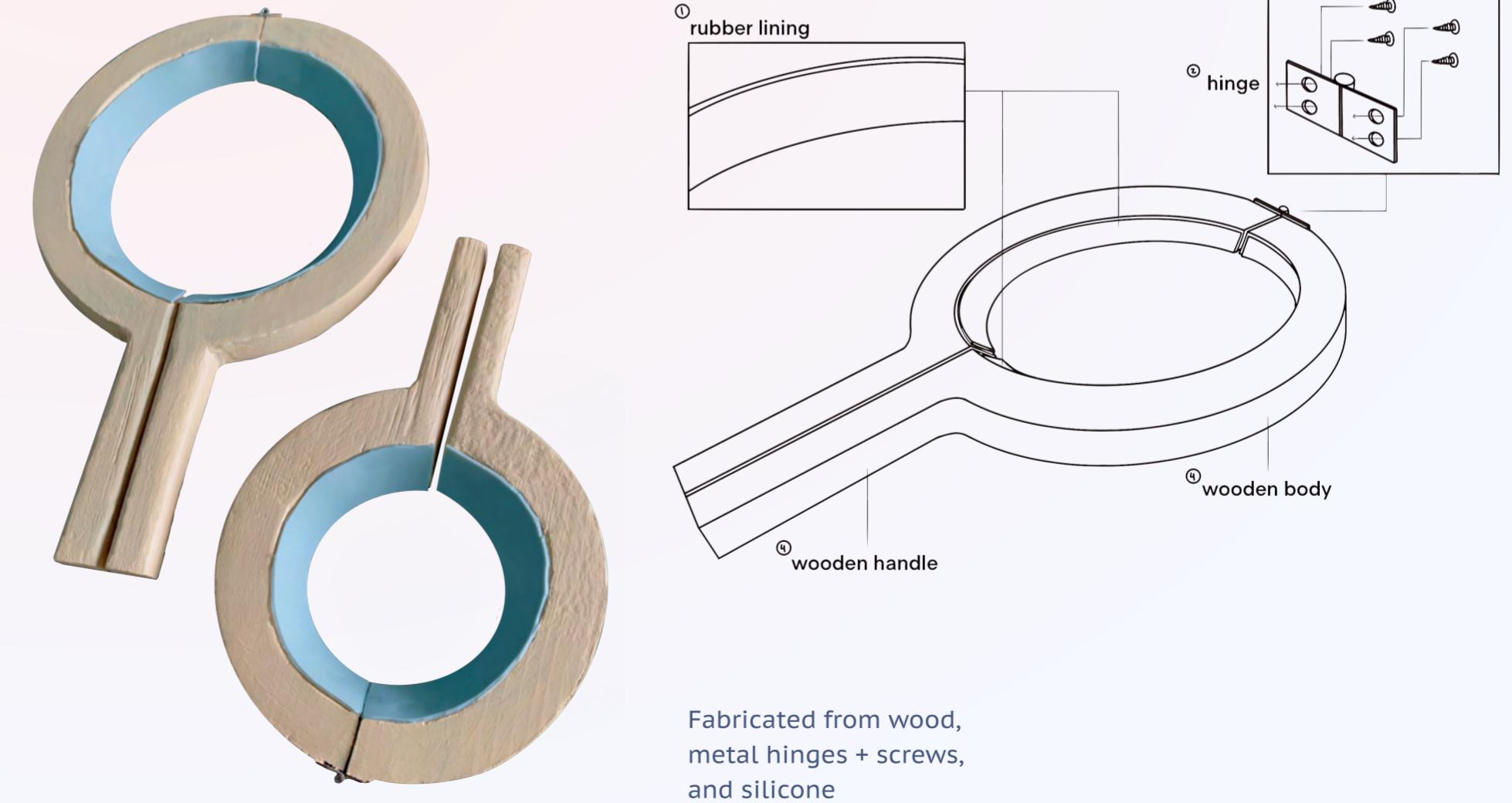
Alpha Prototype: Cool Clamp

(designed and fabricated by me)



Final Prototype: Cool Clamp

(designed and fabricated by me)



SIMPLIFIED

app design user experience design product design

SimpliFed is an infant nutrition and health platform for new parents that offers virtual lactation consultation support. They are currently also developing an accessible organic infant formula with traceable and trusted ingredients source from pasture-raised dairy cows. During my time at SimpliFed as a Product and User Experience Design Intern, I helped design their on-demand lactation consultation app, focusing on the workflow and visual language. Additionally, I designed one-pagers, brochures, and other promotional/educational material.

Jan - June 2021

six months

Professional Project

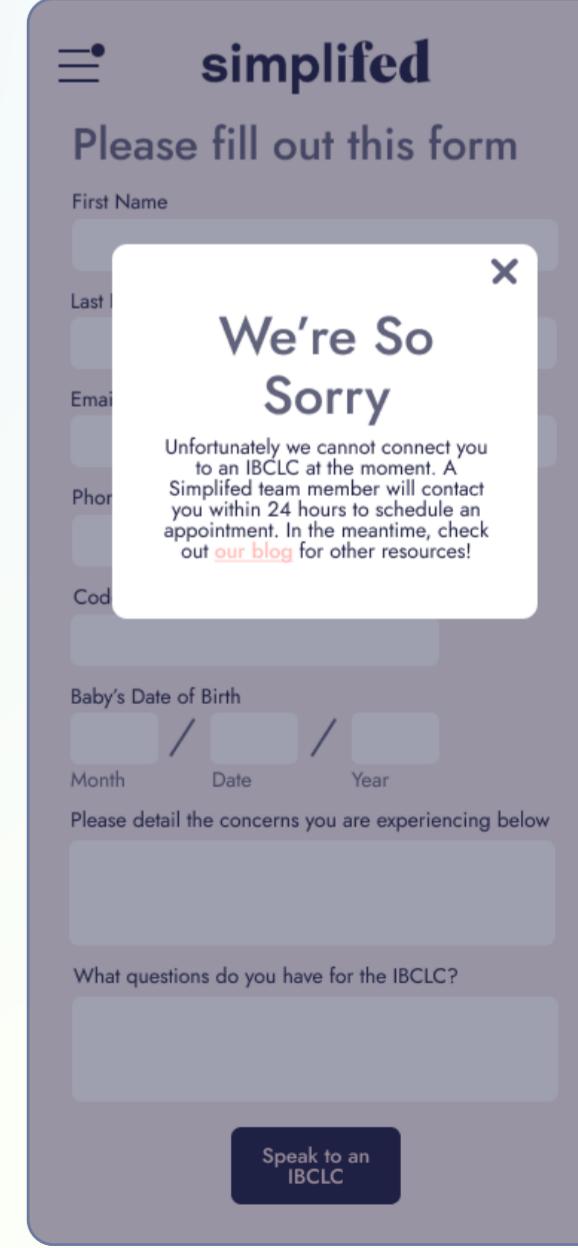
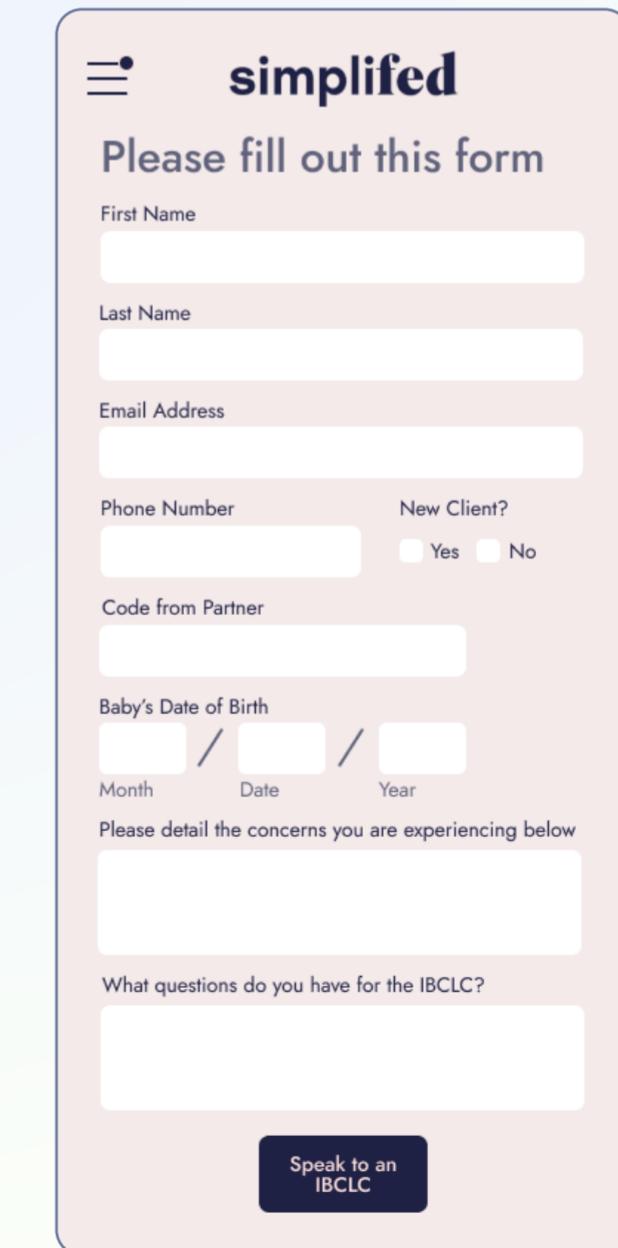
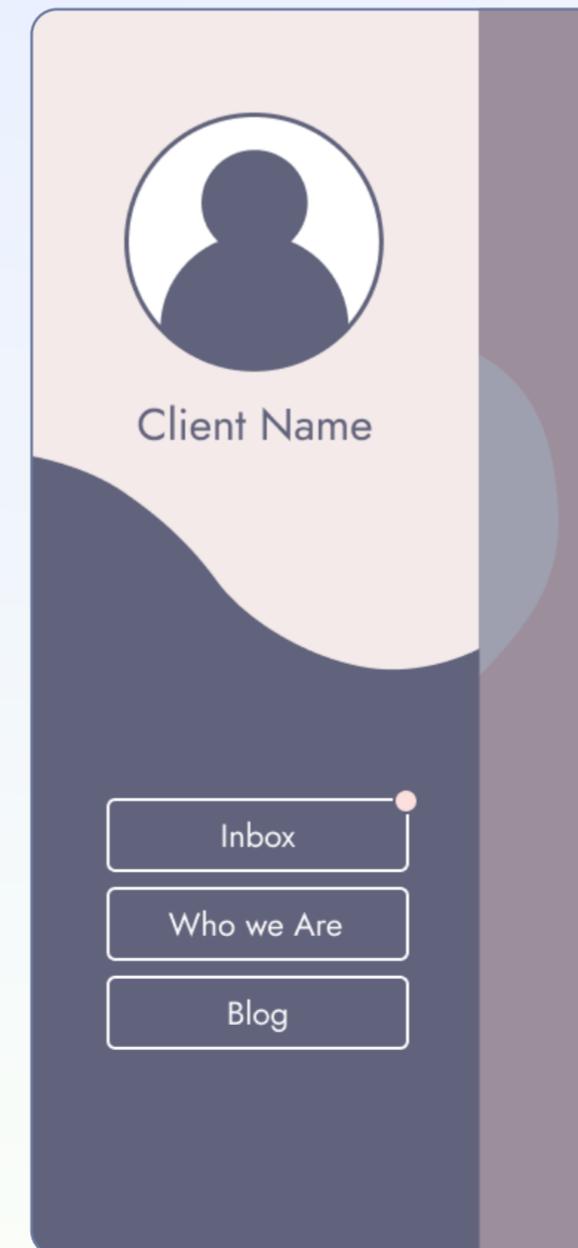
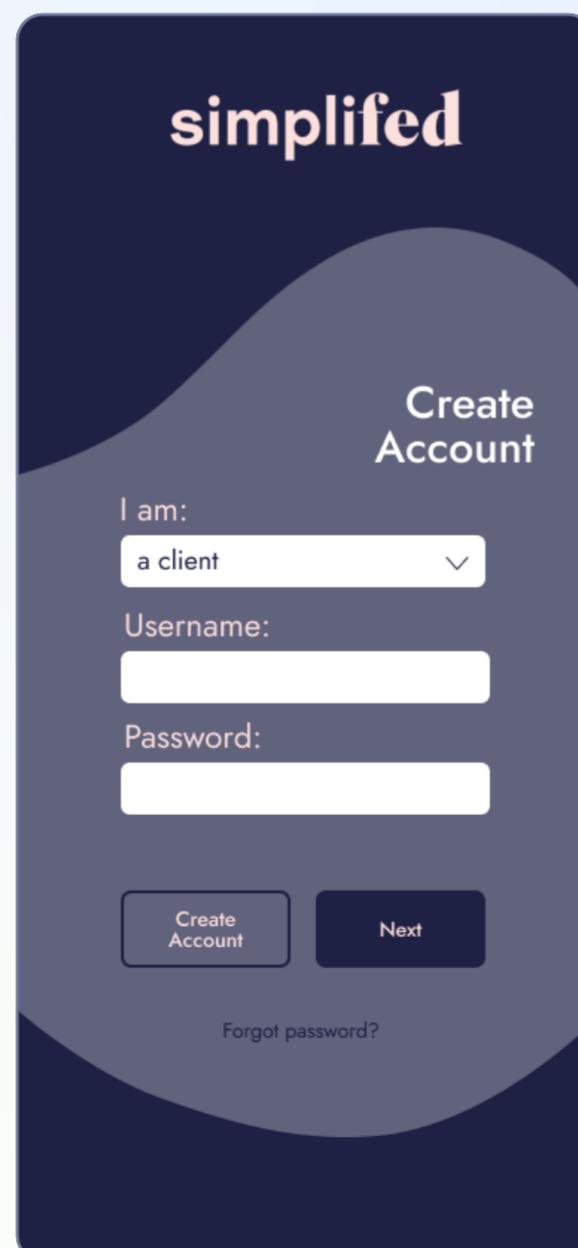
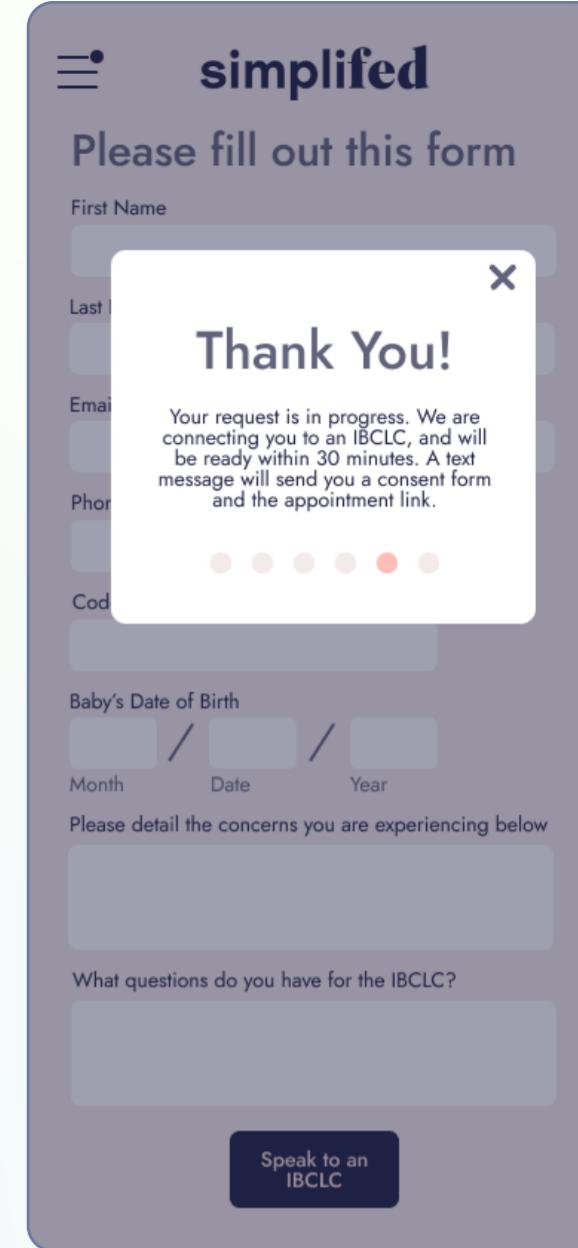
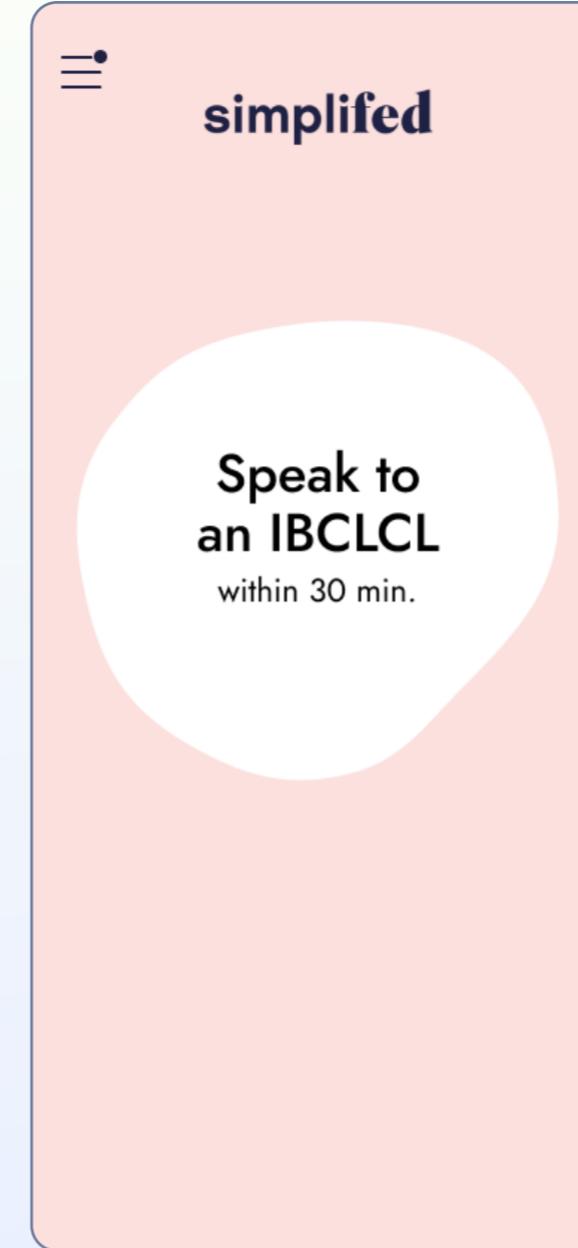
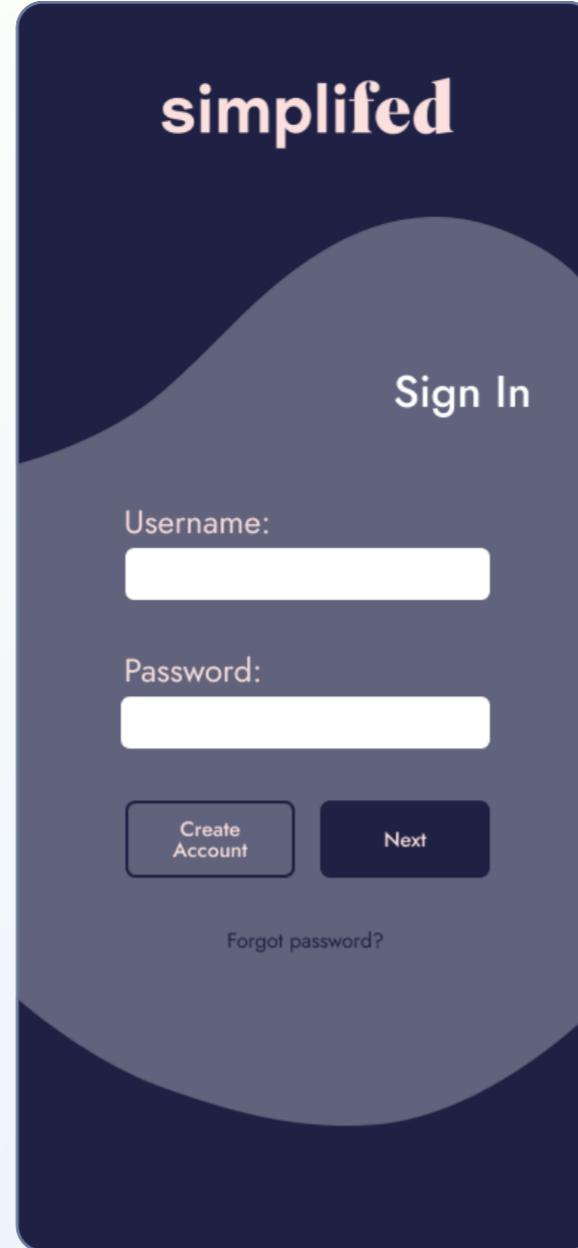
[SimpliFed: Virtual Lactation Support](#)

My roles: app visual design, user experience wireframing, graphic design

Mediums

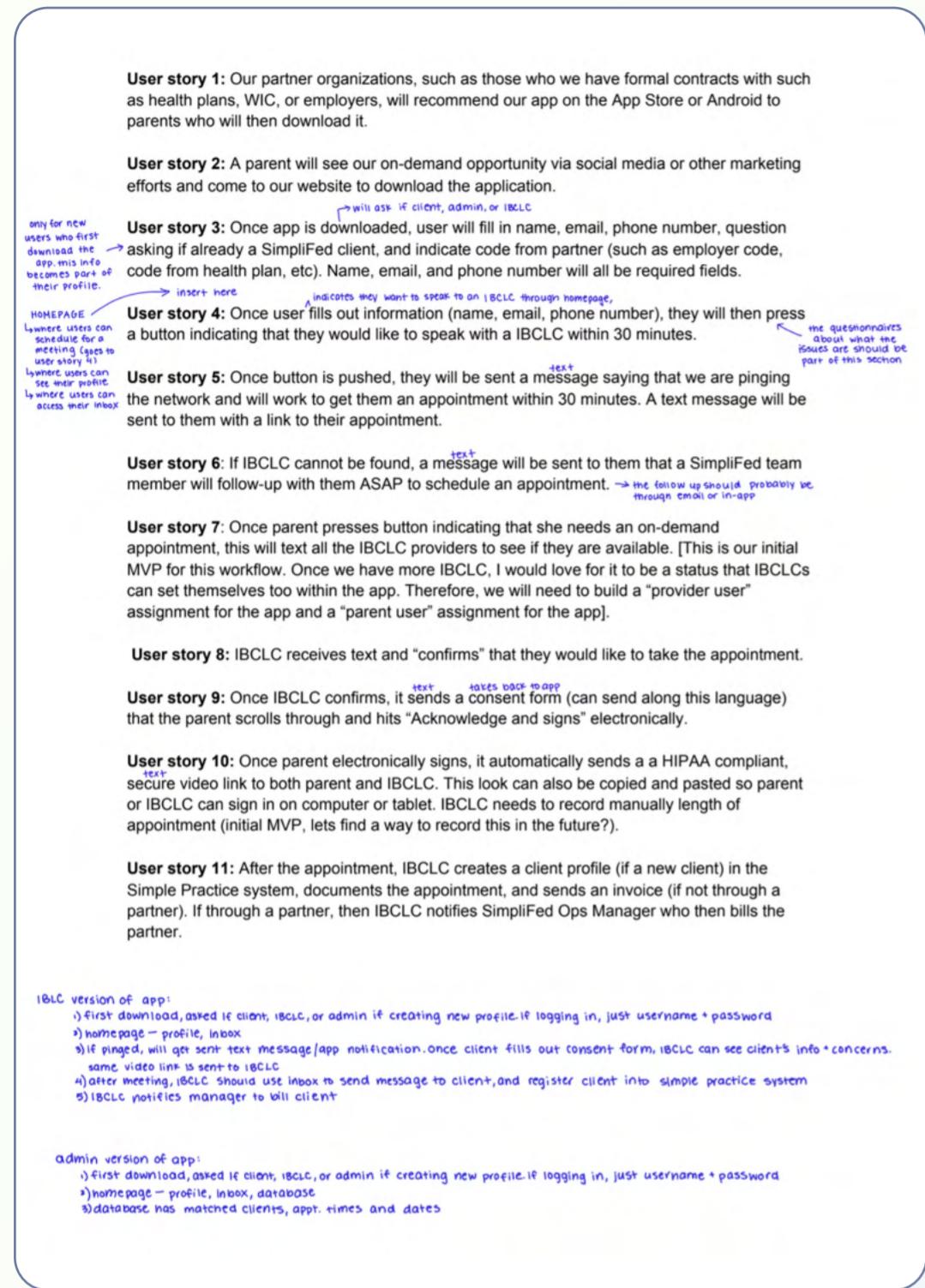
Procreate
Adobe Illustrator
Figma

Visual app designed in accordance to SimpliFed's branding and mission. As an on-demand app, the navigation is intended to be extremely direct and simple to understand. As some aspects of the wireframing are done off the app, only the in-app screens are displayed here:



App Workflow Plan + User Story

(written by Andrea Ippolito and me)



Rough Sketch of Workflow + App Interface

(sketched by me)

client interface



IBCLC interface



admin interface



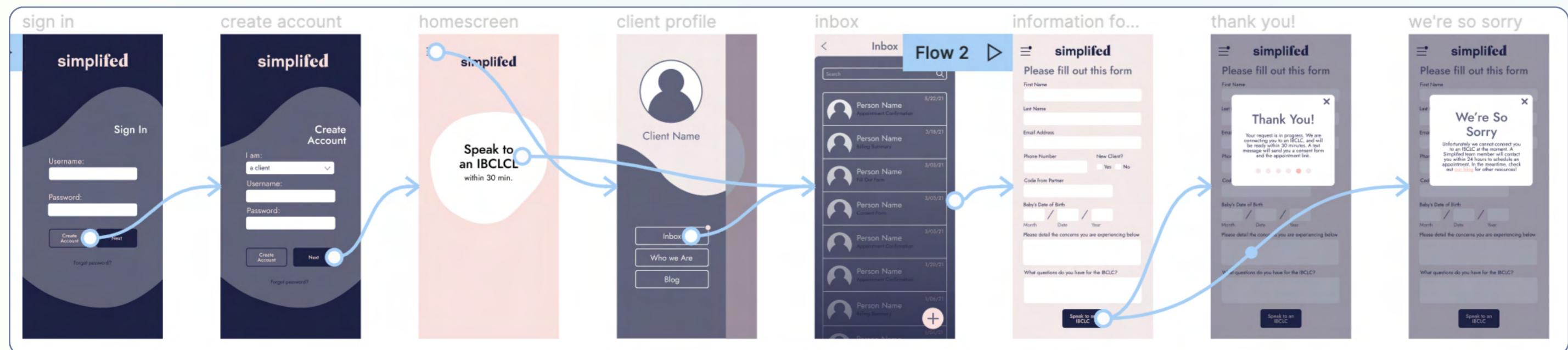
There were three intended users: client, IBCLC, and admin.

Clients were new mothers seeking lactation support from IBCLCs. The app was mostly used for clients to create appointments and sign information + consent forms for IBCLCs and admins to view. After requesting an appointment, clients would be led to an outside video call link.

IBCLC and admin interfaces were largely used to view client appointments and information, which was connected to non-SimpliFed healthcare databases.

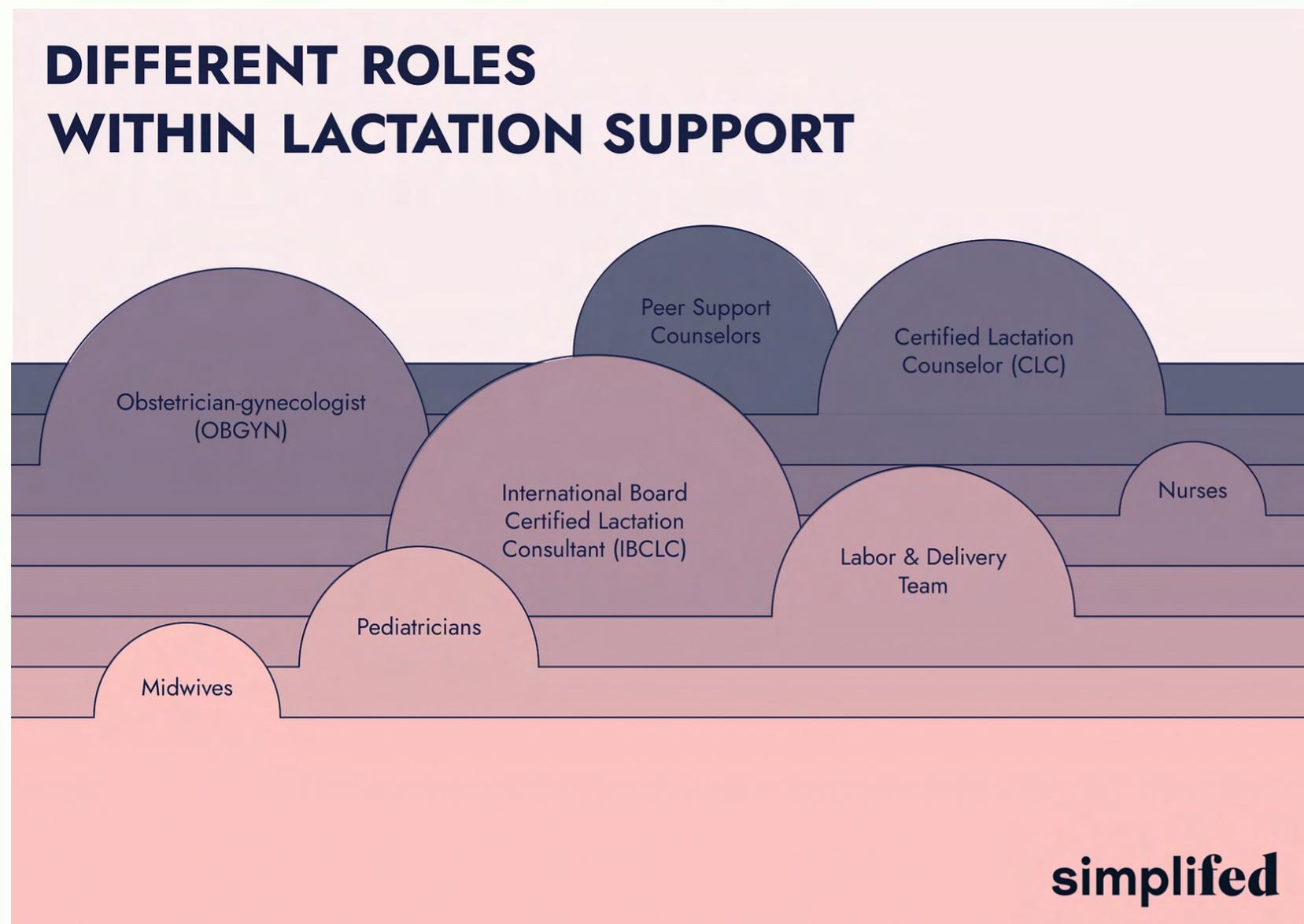
Refined Sketch of Workflow + App Interface

(sketched by me)



The app designs I sketched were shown to the Product Development team, where we worked together to refine designs after user research and testing. After finalizing the designs and workflow in Figma, the Product Development team worked to code the app into reality (still a work in progress).

Infographics



simplified
Virtual breastfeeding and infant feeding support to new and pregnant parents

Why work with SimpliFed?

The Problem

- Improves health of infants
- For babies, access to breastmilk has been shown to prevent respiratory illnesses, ear infections, gastrointestinal diseases, eczema, and sudden infant death syndrome¹
- only 26.6% of infants are exclusively breastfed despite American Academy of Pediatrics recommendation

Our Solution

- Improves health of moms
- For mothers, breastfeeding may help reduce postpartum blood loss and postpartum depression, Type 2 diabetes, rheumatoid arthritis, cardiovascular disease, breast cancer, and ovarian cancer²
- \$1435 in medical claims savings per breastfed infant³
- 3:1 ROI estimated by Aetna on savings on claims alone⁴
- Medicaid and WIC saved \$478 per month for breastfed babies⁵
- New parent texts SimpliFed to schedule their appointment or get answers to urgent questions
- SimpliFed sends a secure video link to their scheduled appointment
- New parent meets with their IBCLC over video from a smartphone, tablet, or computer
- Contact: Erin Hunt at erin@simplified.us and Andrea Ippolito at andrea@simplified.us

1. Patel, J., et al. (2008). Effect of Exclusive Breastfeeding on Mortality in Infants. *Journal of Nutrition*, 138, 10-16.
2. American Academy of Pediatrics. "Breastfeeding." *http://www.healthychildren.org/* [Accessed 2018]
3. Iglesias, S., et al. (2007). Breastfeeding and infant health outcomes in developed countries: A meta-analysis. *Journal of Nutrition*, 137, 1548-1555.
4. International Board Certified Lactation Consultant. *http://www.ibclc.org/* [Accessed 2018]
5. Aetna, Inc. (2014). *Health Plan Analysis Method and Timing of Breastfeeding Initiation*. *Journal of Nutrition*, 138, 10-16.

WE ARE SIMPLIFIED AND WE ARE RETHINKING THE INFANT NUTRITION CATEGORY

THE OPPORTUNITY

Three years ago when I had my daughter Mae she was born early and underweight. We had to start using infant formula but were deeply dissatisfied by this option. The marketing surrounding the formula felt gimmicky, the infant formula powder felt like it exploded everywhere across my kitchen, and a lot of the claims the manufacturers were making weren't substantiated by science.

THE SOLUTION

SimpliFed is building an organic infant formula with trusted ingredients that parents can feel good about that is informed by the latest science in infant nutrition. Parents are craving new innovations in infant formula that address their concerns and provide them with what they need to feel good. But right now, Europe sets the gold standard for infant formulas, so we are offering a European-inspired recipe at an affordable and accessible price point. And we are improving the convenience of making formula for your baby by allowing you to put together a bottle in under 10 seconds with 1 hand while holding your baby whether in your home or on the go.

However, we don't start there. We first start by building a relationship with moms during pregnancy by providing a lactation and nutrition support platform via telehealth. We pair new parents first with a peer support mom to help them learn about infant feeding goals and provide emotional education via text messaging. Then after birth is born, SimpliFed provides support from our network of international board certified lactation consultants (IBCLCs). We meet parents where they are at from the convenience and safety of their own home to support them in their journey. Then as they decide that they want to transition to formula, we are there to support them until they feel ready to transition to formula. We help increase breastfeeding rates for those that can and want to, then we are there to support them during their transition to formula. We are parent's ally in their journey and allow them to feel good about their choice.

Over the next two years, we are also working with health plans and employers to help increase breastfeeding rates for their populations. Then in Q1 2023 once we get through the FDA approval process, we will launch our formula. Our approach will truly transform the way we think about infant nutrition in this country and allow us to win the market in the meantime.

WE ARE SIMPLIFIED AND WE ARE REINVENTING INFANT NUTRITION BY BUILDING PRODUCTS THAT PARENTS CAN FEEL GOOD ABOUT

WEB: simplified.us | IG: @simplifiedbaby

BB 83% of parents in the US both breastfeed and use infant formula **BB**

simplified
a virtual lactation consultant platform to support and retain your employees

Why provide a breastfeeding support platform for your employees?

The Problem

- Retain employees
- Companies with lactation support programs retain 94% of employees that go on maternity leave, compared to the national average of just 57%¹
- Half of all pregnant women said they'd consider leaving their current workplace for a job that better accommodates breastfeeding mothers²
- only 26.6% of infants are exclusively breastfed despite American Academy of Pediatrics recommendation

Our Solution

- Worth the investment
- \$1435 in medical claims savings per breastfed infant³
- 3:1 ROI estimated by Aetna on savings on claims alone⁴
- 300% return on every dollar employers invest in lactation programs⁵
- A 19-year, 215-company study out of Pepperdine University found a strong correlation between companies hiring women executives and their profitability, resulting in 18.6% boost for the Fortune 500 firms with the best records of promoting women⁶
- Companies that support working parents see 1.5x greater revenue, which means retaining women is good for business, based on a 2020 Parents at Work Best Workplaces Study⁷
- Companies with the best records of promoting women⁶

How SimpliFed helps support you along the way

- visit: during pregnancy to learn about breastfeeding, set up breast pump, etc
- visit: just after birth
- visit: as issues may arise, or check in to maintain positive experience
- visit: transitioning back to work (how to maintain supply, best practices with pumping, etc)
- visit: how to visit supplement with formula and/or foods
- visit: how to wean

1. Patel, J., et al. (2008). Effect of Exclusive Breastfeeding on Mortality in Infants. *Journal of Nutrition*, 138, 10-16.
2. Iglesias, S., et al. (2007). Breastfeeding and infant health outcomes in developed countries: A meta-analysis. *Journal of Nutrition*, 137, 1548-1555.
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7. Aetna, Inc. (2014). *Health Plan Analysis Method and Timing of Breastfeeding Initiation*. *Journal of Nutrition*, 138, 10-16.

PEER LACTATION SUPPORT:
fighting inequities in breastfeeding duration and lactation workforce participation

Services we provide:

- tele-health breastfeeding support
- traceable transparent formula

An important driver of the disparities in breastfeeding rates is an overall lack of lactation support. Particularly, there is a lack of diversity among existing lactation consultants. PLS pairs Peer Counselors and existing mothers of color with new mothers whom they culturally, linguistically, racially, ethnically, and generationally identify with. These community-led models increase initiation and duration of breastfeeding, provide an entry point for healthcare careers, and reduce disparities in physical, mental, and social health. This not only increases the number of women that can provide these services, but also improves the diversity of specialists. PLC creates flexible employment opportunities for women via telehealth.

These services are provided direct to consumer as an employer benefit, through private health insurance and Medicaid

SimpliFed creates unique opportunities to:

- work with WIC (Women Infants and Children), the largest purchaser of infant formula
- create more diversity in lactation support through a workforce development program

HOW SIMPLIFIED IS TACKLING THE ISSUES OF INFANT FEEDING

Services we provide:

- tele-health breastfeeding support
- traceable transparent formula

83% of women both breast and formula feed. These services are provided direct to consumer as an employer benefit, through private health insurance and Medicaid.

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HEX CARDROOM

brand identity merchandise design illustration

Hex Cardroom is an online strategy card game my friends created. As the designer for Hex, my main role was to establish the branding and visual aesthetics of the game and site. This included the design and illustration of 9 character cards, as well as all the visual elements used for the game (icons, buttons, brand colors, site layout). In order to cater to a young and modern audience, I designed Hex to have a minimal geometric style while still maintaining the medieval elements of the content

June 2020 - June 2021

one year

Personal Project

Mediums

Adobe Illustrator
Adobe Photoshop
Procreate



Character Cards



Logo

official logo



alternate logos



Card Backs



Brand colors



Typeface

logo

GOTHIC LIGHT

body

CALIBRI

THANK YOU

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