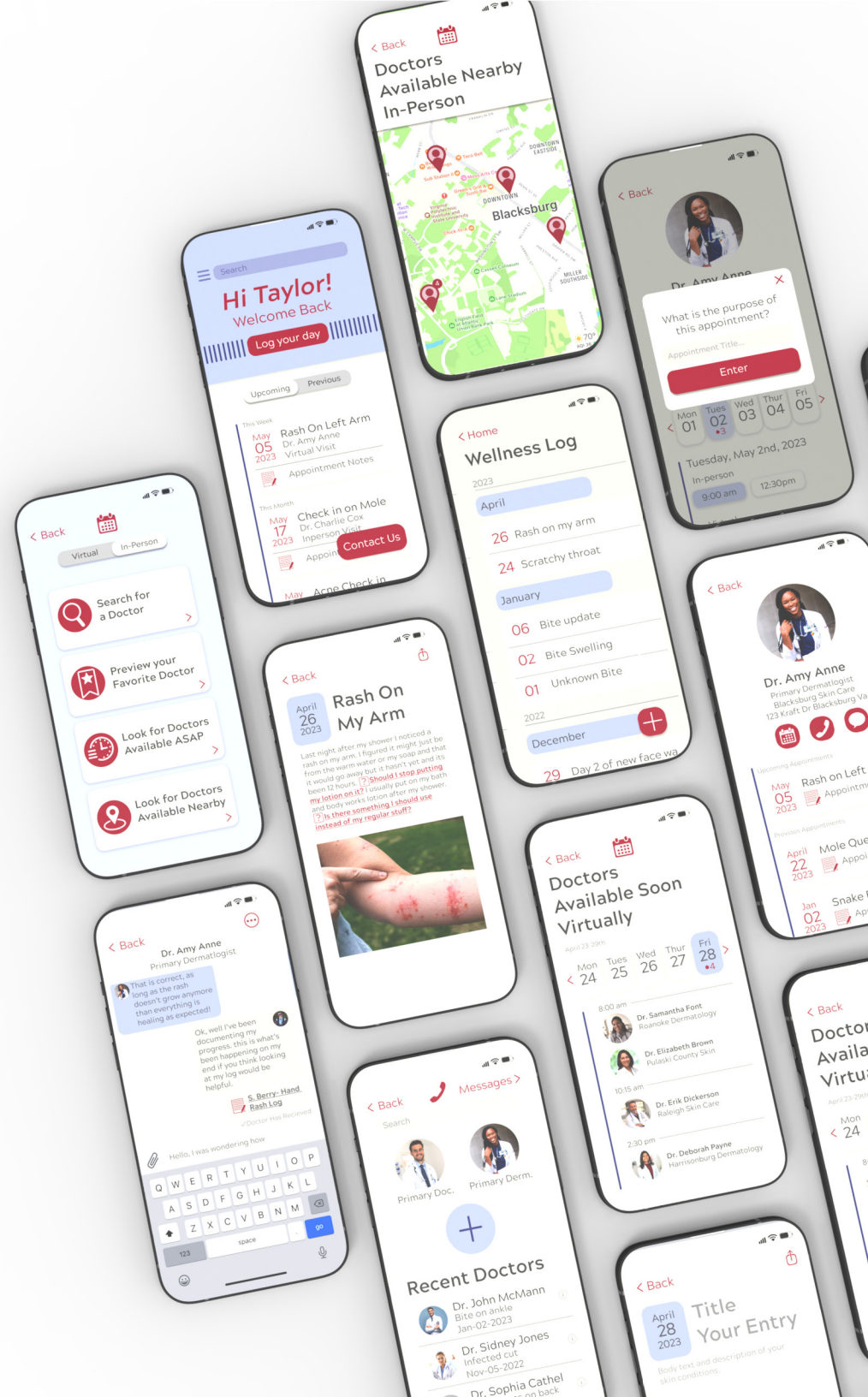


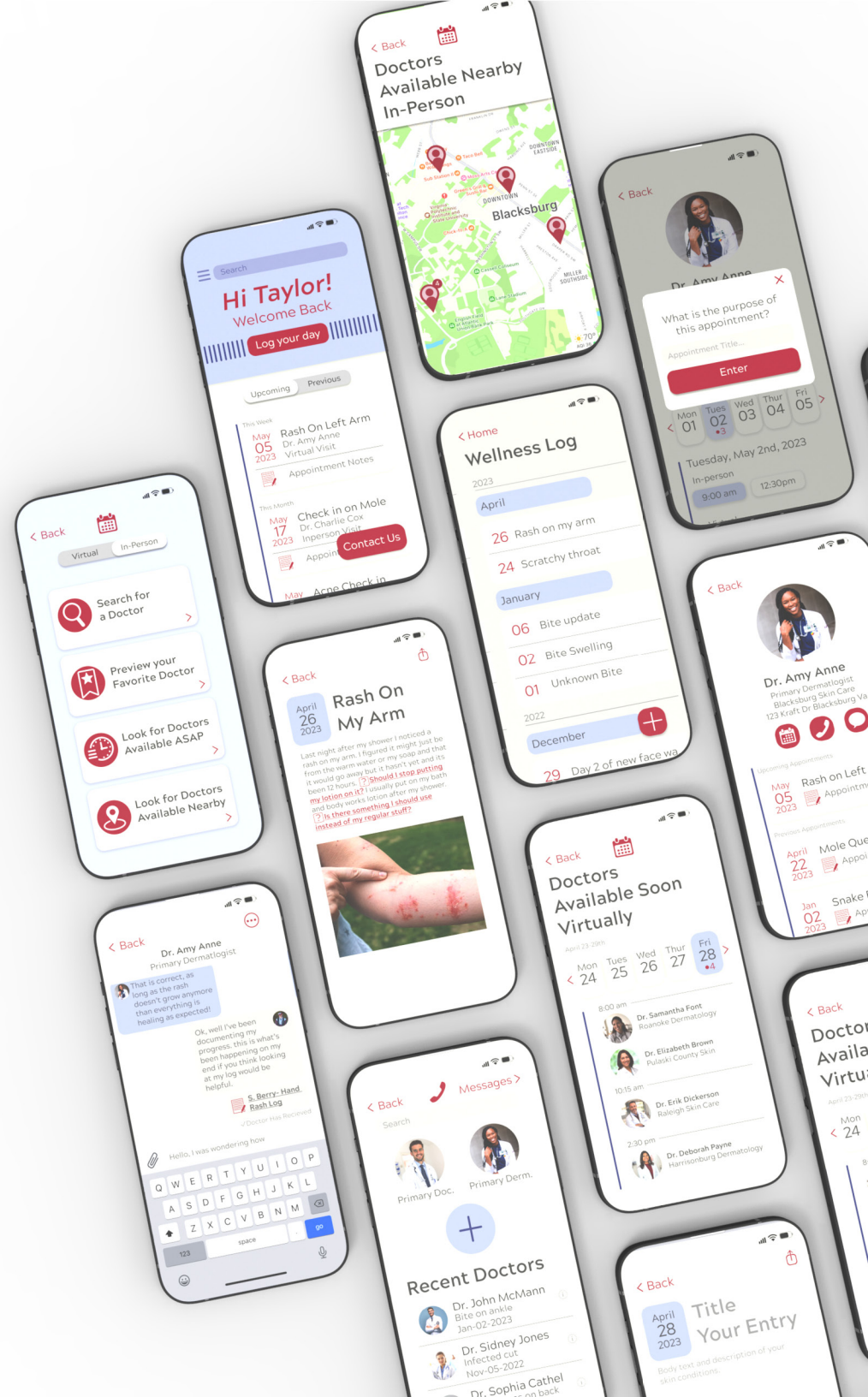
in my skin

Mackenzie Guillot



in my skin

Mackenzie Guillot







Thesis Gantt Chart

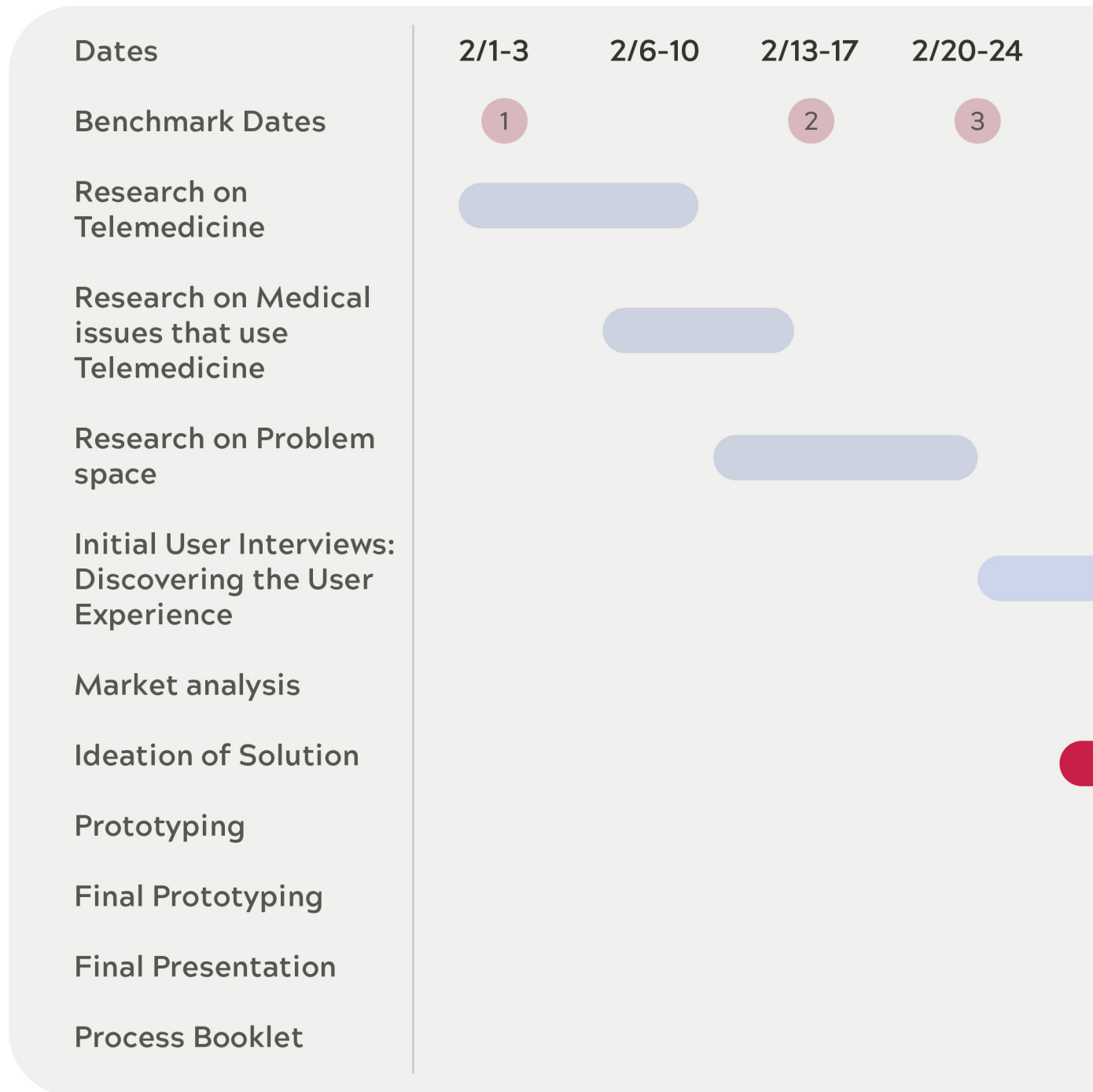
Throughout the 2023 Spring Semester the schedule here was created to keep the *in my skin* project on pace for presenting April 28th.

Benchmark Key:

1. Mentor Meeting #1
2. Research Review
3. Mentor Meeting #2
4. Ideation Review
5. Spring Break
6. Mentor Meeting #3
7. Mentor Meeting #4
8. Final Jury Presentation
9. Final Process Booklet

Key:

-  -Project Benchmarks
-  -Research
-  -Prototype Development
-  -Final Artifact Production



2/27-3/3

3/6-10

3/13-17

3/20-24

3/27-31

4/3-7

4/10-14

4/17-21

4/24-28

5/1-5

5/8

4

5

6

7

8

9



Your skin.
Your dermatologist.
Your dermatology app.

Brook Kennedy | Yoon Choi | IDAB | Shea Rhim | Brian Pughe



#1

Richest country in the world according to Forbes.com and the IMF.org

#4

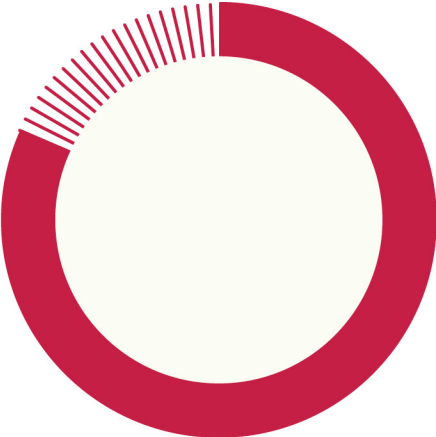
Country with the most technological expertise according to USNews.com

#18

Best healthcare in the world according to worldpopulationreview.com

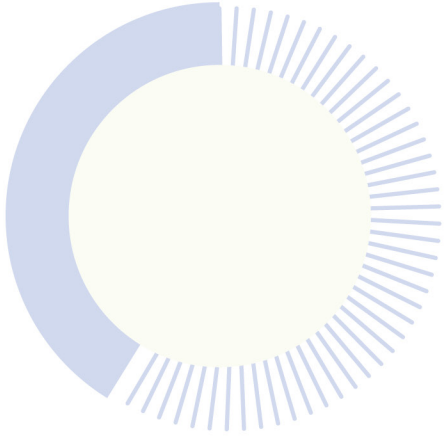
If America is so rich and wealthy, then why are they ranked so low in healthcare systems?

Factors that contributed to their low ranking could include the fact that:



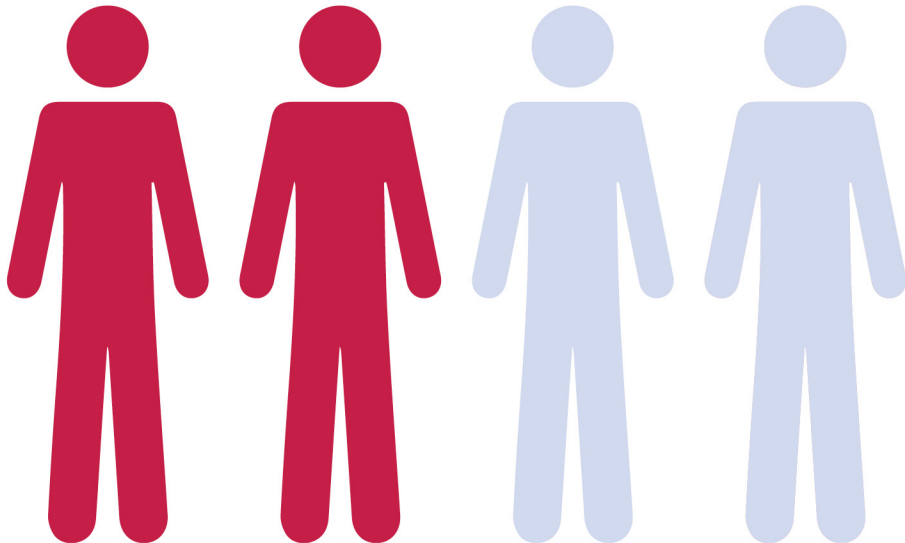
82.5%

Of American adults have been to visit with a doctor or other health care professional in the past year



40%

Of Americans report skipping a recommended medical test or treatment



2 in 5

Americans aren't going to seek medical attention when they need it

How can design
increase users
access to
healthcare and
medical
diagnosis?

Reasons why patients avoid going to the doctors

1. Unfavorable Evaluations

- Lack of trust in the medical staff
- Fear of bad news, medical equipment and or judgment
- Discomfort in the office

2. Traditional Barriers

- Lack of health insurance
- Limited Transportation
- Not enough time in their personal schedules

3. Low Perceived Need

- Belief that illness will heal on its own
- Concerned that doctor will think they are a hypochondriac
- Does not think that they are sick enough



A Modern Answer: Telemedicine

Telemedicine is the use of electronic information and telecommunication technologies to support long distance clinical healthcare. One of the goals of this method of healthcare is to address the doctor shortage while increasing patient and provider communications. Some of the benefits of telehealth for the patient include:

- Convenience- 65% of patients using telehealth services say that it's more convenient than meeting a doctor at a clinic, its especially convenient for travelers and those in rural areas
- Safety-63% of patients say they like using telehealth as they are protected from other sick patients
- Time-Patients can make an appointment any time
- Choice- Approximately half of the patients interviewed reported it is essential to them to choose a specialist to see and speak with by themselves

The following notes were taken while listening to a panel discussion led by Drew Schiller, the CEO of Validic, titled *Trends in Remote Patient Monitoring and Digital Health*. Panel guests included Kenneth Snow, the medical director for clinical product development at CVS Health, Nick Patel, the Chief Digital Officer at Prizma Health in Columbia, SC, and Steven Shook, the lead for virtual health in Cleveland, Ohio. The topics covered were helpful in developing design requirements for the in my skin app. To the right are questions that Schiller posed to the group and their responses.

Hospital at home is the shift from in-person clinic visits to care in the home, whats next for hospital in the home?

- Nick- patients were admitted with things that were avoidable, but also things that could be taken care of at home. Telemedicine was started pre-pandemic to decompress hospitals. There was a trend of devices and wearables that allowed for medical monitoring not totally in person. In order to reduce the cost, you have to reduce the admission and stay length.
- Ken- going into a hospital is not a benign event, there are adverse events. It can be minimized by being kept in an environment at home.




How are providers adopting the hospital at home?

- Nick- Clinicians enjoy it, provider burnout is real but being able to spend 50% of clinical time at home is a good work life balance, there's reduced time waiting. Some nurses don't like this because they think they're losing their jobs but Nick says there are opportunities out there. 48% of American hospital providers would like to continue this practice of care delivery. The key is that there has to be a strong link to the rest of the medical team, you can't do everything digitally, you have to have access to see a lab, you have to be able to come in house.
- Steve- pre-pandemic -15% during pandemic-95% and now it's settled to 75% approval rate from providers. They have let the patients dictate how much in person vs virtual interaction they want to have but also they let the providers dictate how much they offer. There is a trend towards providers to want to remain virtual. There should be a standard way of doing remote patient monitoring so that clinics can communicate
- Nick- We are shifting to a more proactive approach of monitoring a patient. Using telemonitoring technologies, doctors can stay in touch with patients between visits. Because why should you be suffering without your doctor knowing you are.

Market Analysis

To narrow the scope of the solution the app that was designed focuses on Dermatology conditions. These skin conditions present themselves in a physical way that can be shown through images and videos with healthcare providers, making them easier to diagnose.

Competitor Name	Platform	About Them	# of Patients	Year Started
DermatologistOnCall	Website	This service is a 24/7 telemedicine website that provides professional consultations with board certified dermatologists	Unknown	2012
First Derm Online Dermatology	Website Mobile App	Our service breaks down the barriers between you and quick, trustworthy dermatology. With our app or website we connect you to a dermatologist in under 24 hours who will give you information about your skin problem.	50,000+	2014
Healow	Website Mobile App	Healow lets you communicate with your doctors office and access up to date medical records. Find a doctor and book your appointment- fast easy and free at your convenience.	12.4 Million	2013

Medical Specialties	Social Networks	Program Features	Customer Reviews
Treats 3,000+ Conditions	Facebook (8.2k followers) Twitter (1,672 Followers) Linkedin (328 followers) Instagram (245 followers)	<ul style="list-style-type: none"> - ID through images - Patients choice of doctor - 24/7 service - Nation wide -Patient/ Provider login 	2.8/5 (Google Reviews) 
Acne, Eczema, Psoriasis, Rosacea, Skin rash, Cold sores, Fever Blisters, Herpes simplex virus, STD, STI, Virus related skin diseases, Chiblainis, Livedo Reticularis, Hives, vasculitis, and more.	Facebook (9,695 followers) Twitter (2,286 Followers) Linkedin (460 followers) Instagram (793 followers)	<ul style="list-style-type: none"> - AI assisted - Doctor reviewed cases in as soon as 8 hours - Skin guide - Patient/ Provider login 	4.2/5 (Apple Store) 3.3/5 (Google Play) 
Provides access to to patients' and family member's health records from a variety of specialists	Facebook (1.1k followers) Twitter (1,068 Followers) Linkedin (112 followers) Instagram (89 followers)	<ul style="list-style-type: none"> - Record viewing for patients' and their family - Televisits - Connect to Fitness trackers Manage medications 	4.5/5 (Apple Store) 4.6/5 (Google Play) 

User Personas

The below personas were created based off of user interviews.



Jenna S.

“Since my dad is a doctor in Pennsylvania, our health insurance is regional and so that makes it difficult for me to find medical help here in Virginia, Usually I only see a doctor when I’m at home”

Name

Jenna S

Age

18

Skin Conditions

Psoriasis

Lifestyle

- Out of state college student
- An active athlete

Struggles

- Has noticed that it’s difficult for her to focus in class when her Psoriasis flares up

Goals

- Wants to play in her games outside without fearing triggering a flare up
- Wants to find a doctor to treat her skin condition in her college town so that she doesn’t have to interrupt family time when she’s in her hometown.



Peter B.

“I went to see a dermatologist once for a snake bite. I don’t know if it was worth it. Took to long to get to see the doctor and his diagnosis wasn’t anything I didn’t already know”

Name

Peter B

Age

34

Skin Conditions

N/A

Lifestyle

- Passionate about the outdoors
- Lives outside of town limits
- Married with no kids

Struggles

- Since he lives so far out of the city, often times it’s a hassle for him to run all of his errands when hes in town

Goals

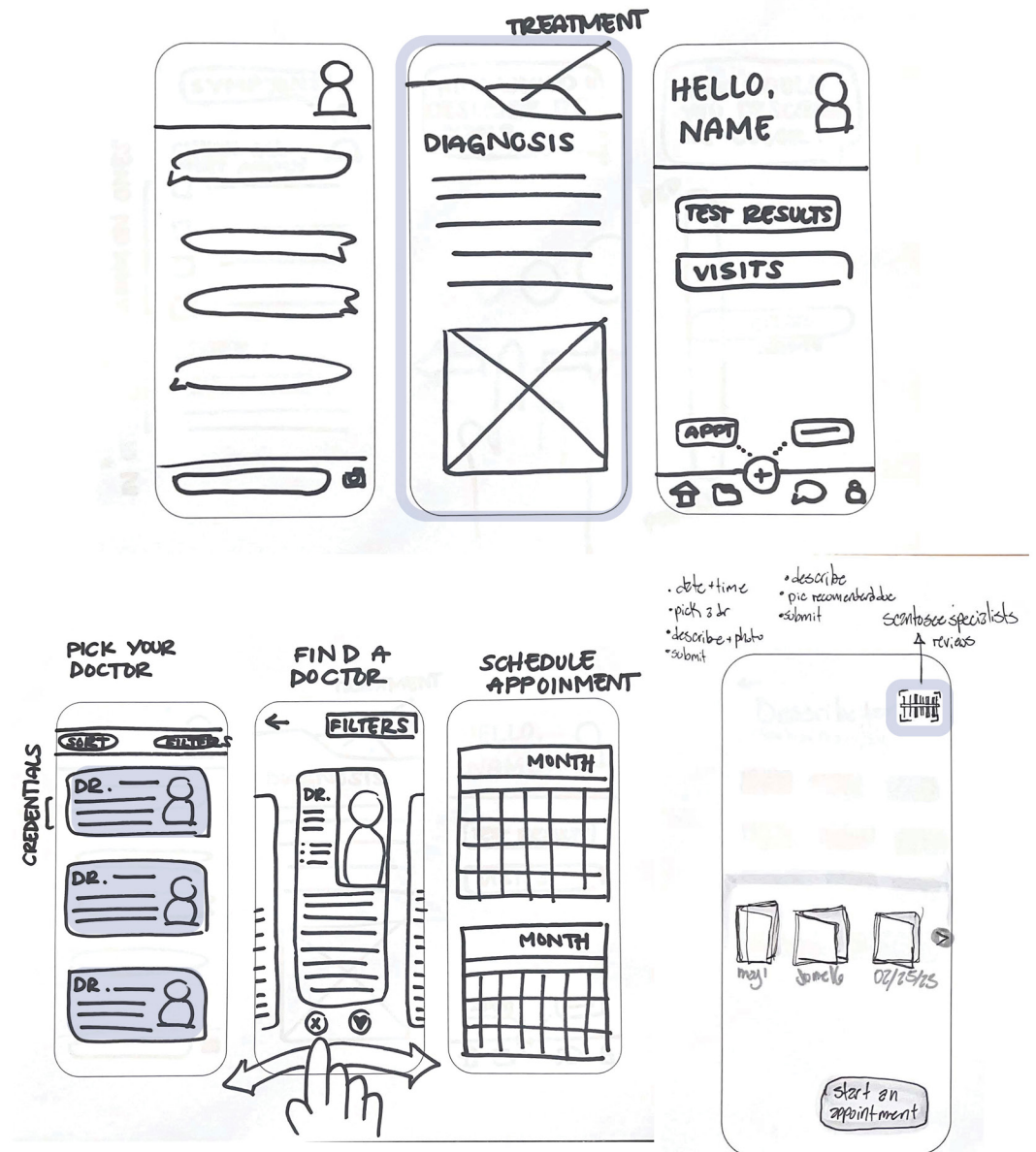
- Wants to hiker the Appalachian Trail before he’s 40
- Wants to start a family after his thru-hike

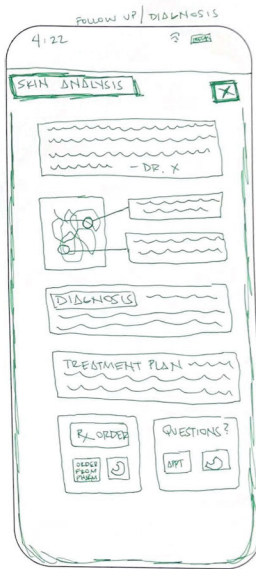
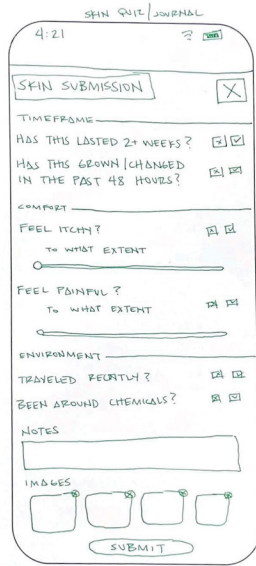
Ideation

To develop ideas for the layout and features of the app, I partnered with three other students to ideate together. The group was a combination of three students in the College of Architecture, Arts, and Design, and a student who is majoring in Psychology. Together the group was given seven screen scenarios to design for, the topics were as follows:

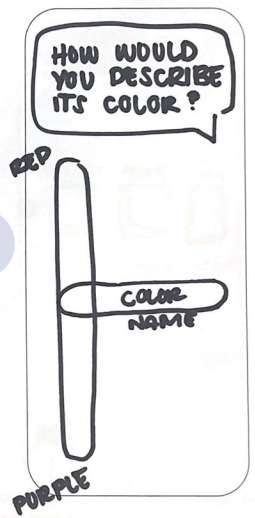
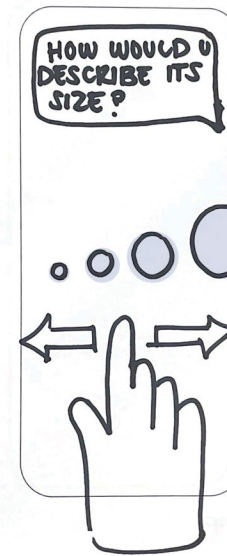
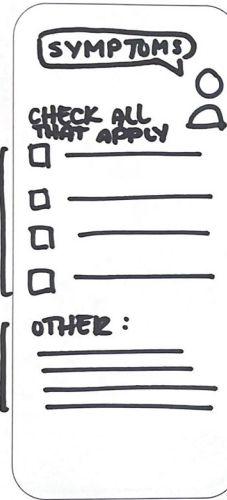
1. How does the patient schedule an appointment?
2. How does the patient change their pharmacy?
3. What does the profile page look include (contact information, name, background)?
4. How does the patient give their doctor information on your symptoms?
5. What is the first screen the patient sees when they log into the app?
6. How can the patient contact your doctor if they have follow up question?
7. How does the doctor communicate to the patient their diagnosis?

The results of this exercise are shown on this page.

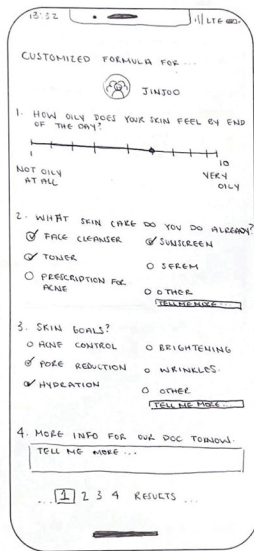




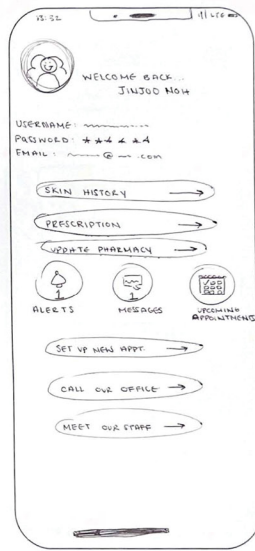
USER TYPES COMMON ONES IN OTHERS



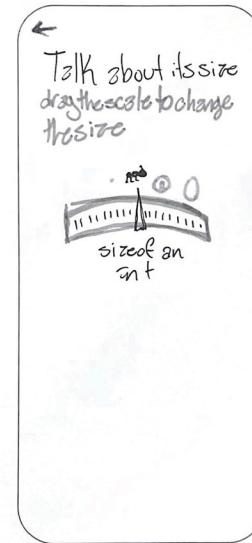
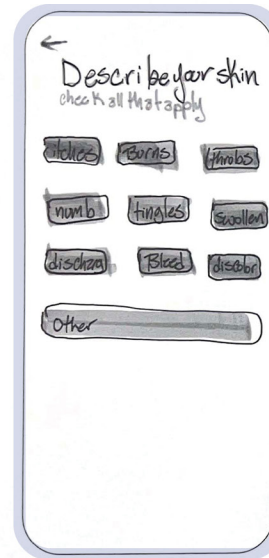
Home screen

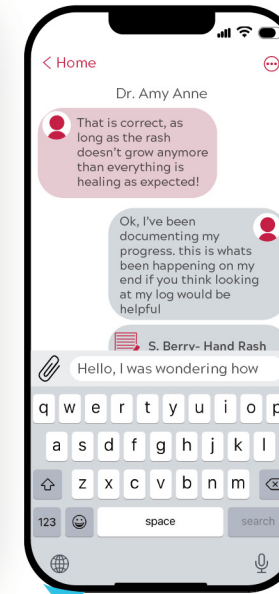
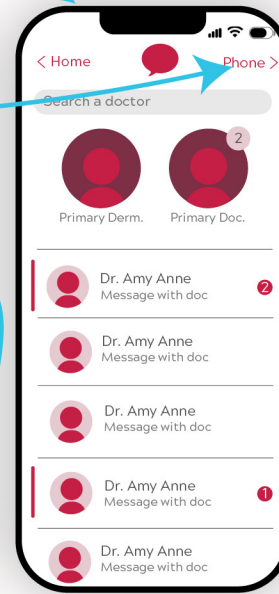
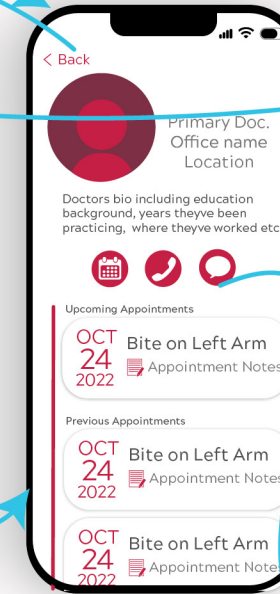
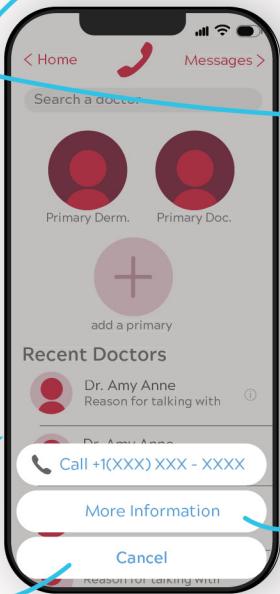
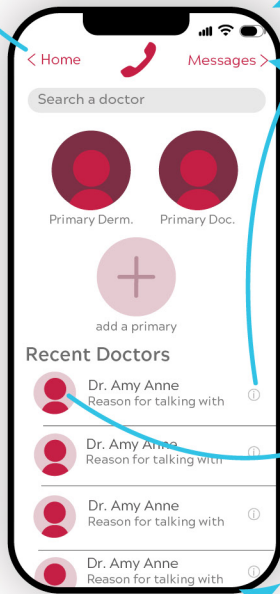
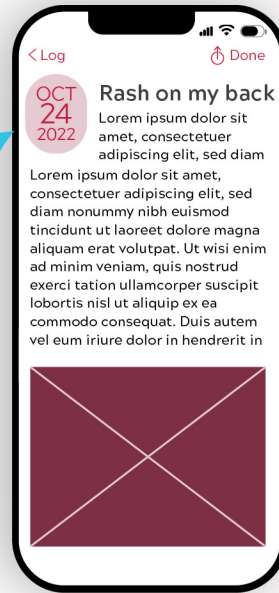
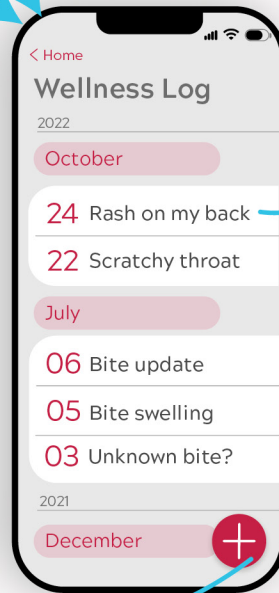
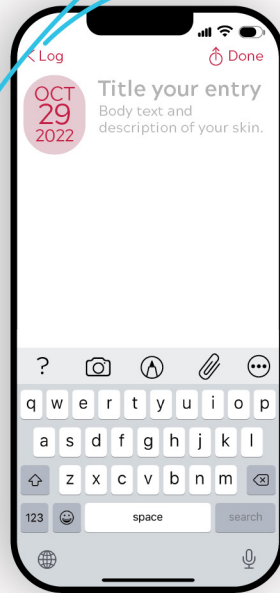
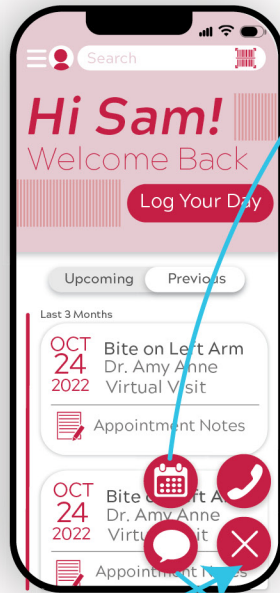
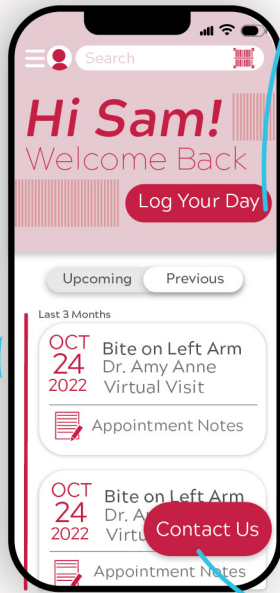


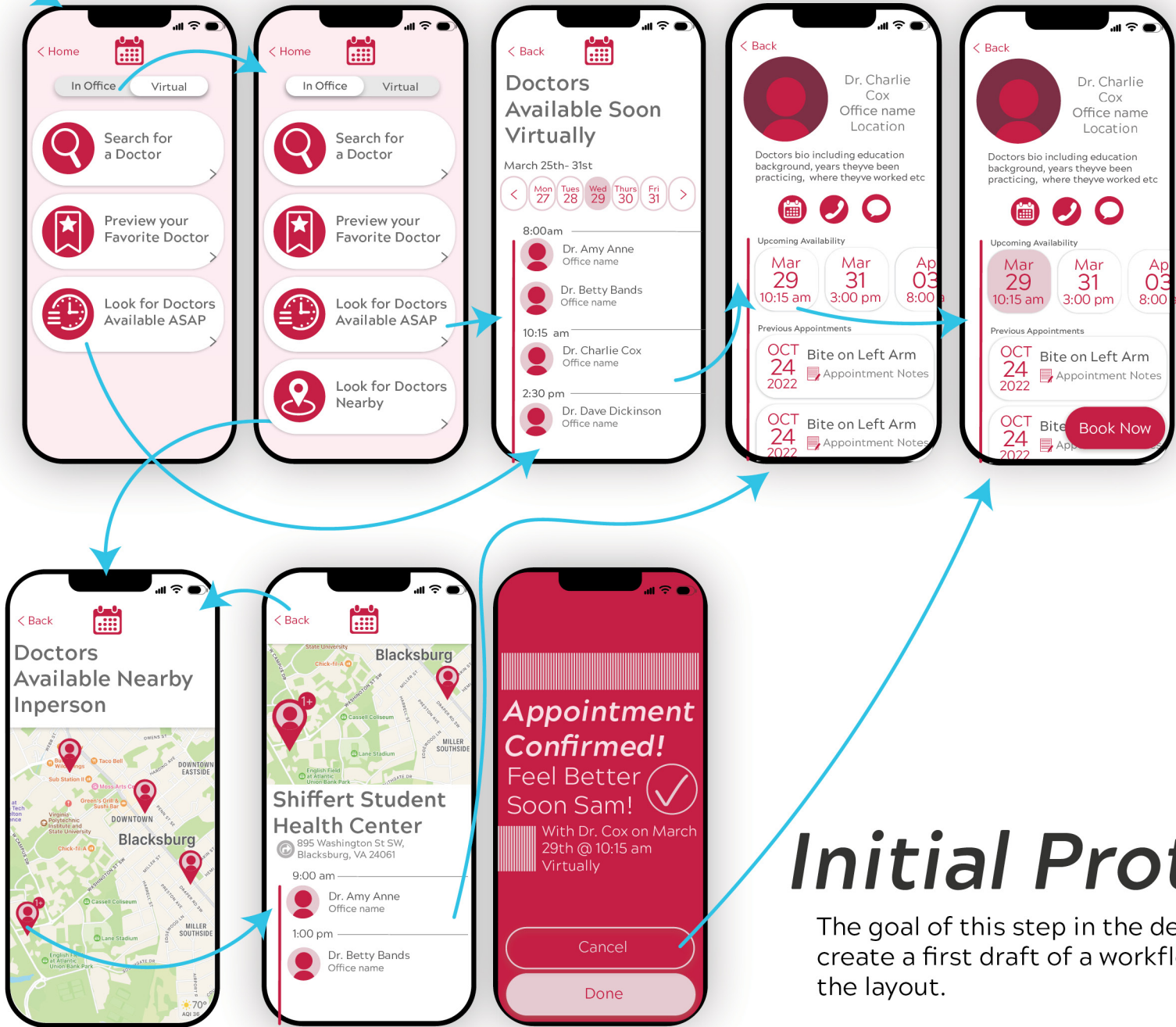
Skin quiz



Profile







Initial Prototype

The goal of this step in the design process was to create a first draft of a workflow and determine the layout.

Design Requirements

This Spread presents the three design requirements and how they are used together to in the work flow of the revised prototype.

1. Appointment Records

Patients should have unlimited access to their own medical records wherever they are.

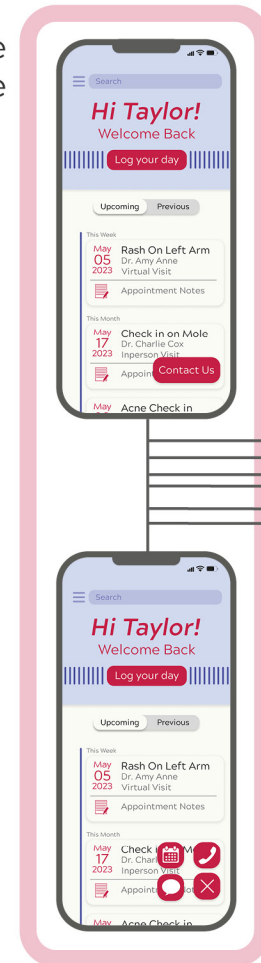
2. Telemonitoring Feature

Patients should be able to see the progress of their symptoms. By logging those symptoms over time they can look back and see progress. They also have records to present to doctors when they need them.

3. Contacting the Office

Patients should easily be able to contact their doctors. There should be a centralized place where all of their contact information is found.

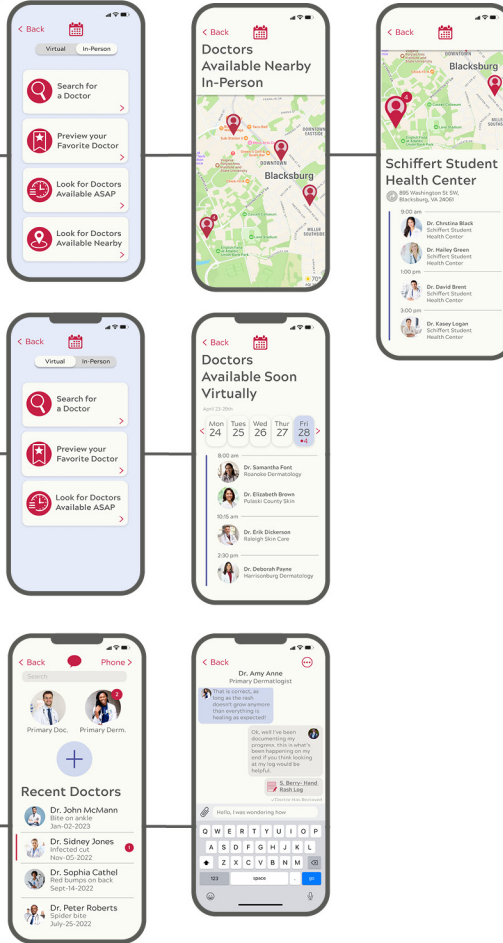
Home Page



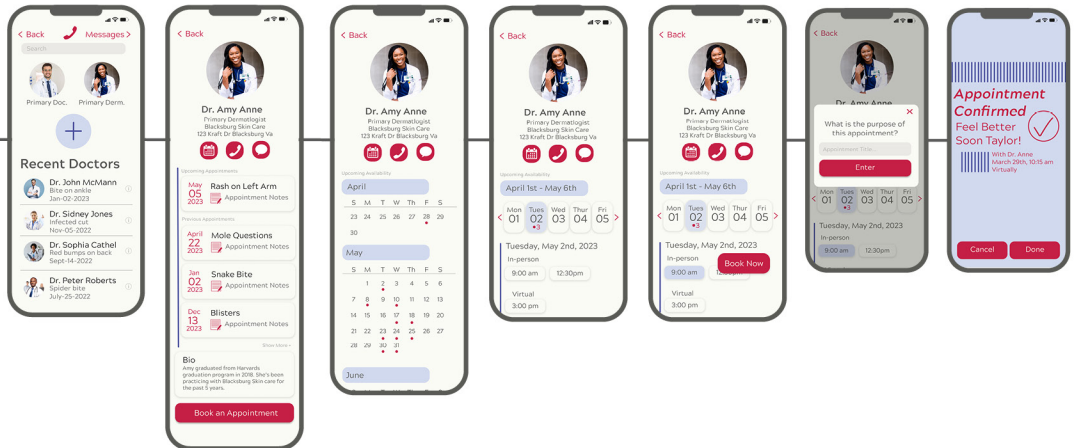
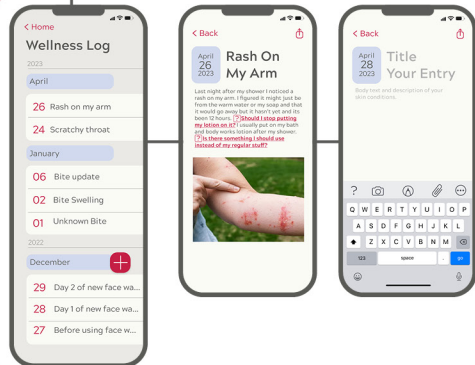
Appointment Records



Contacting the Office



Telemonitoring Feature



Style Guide

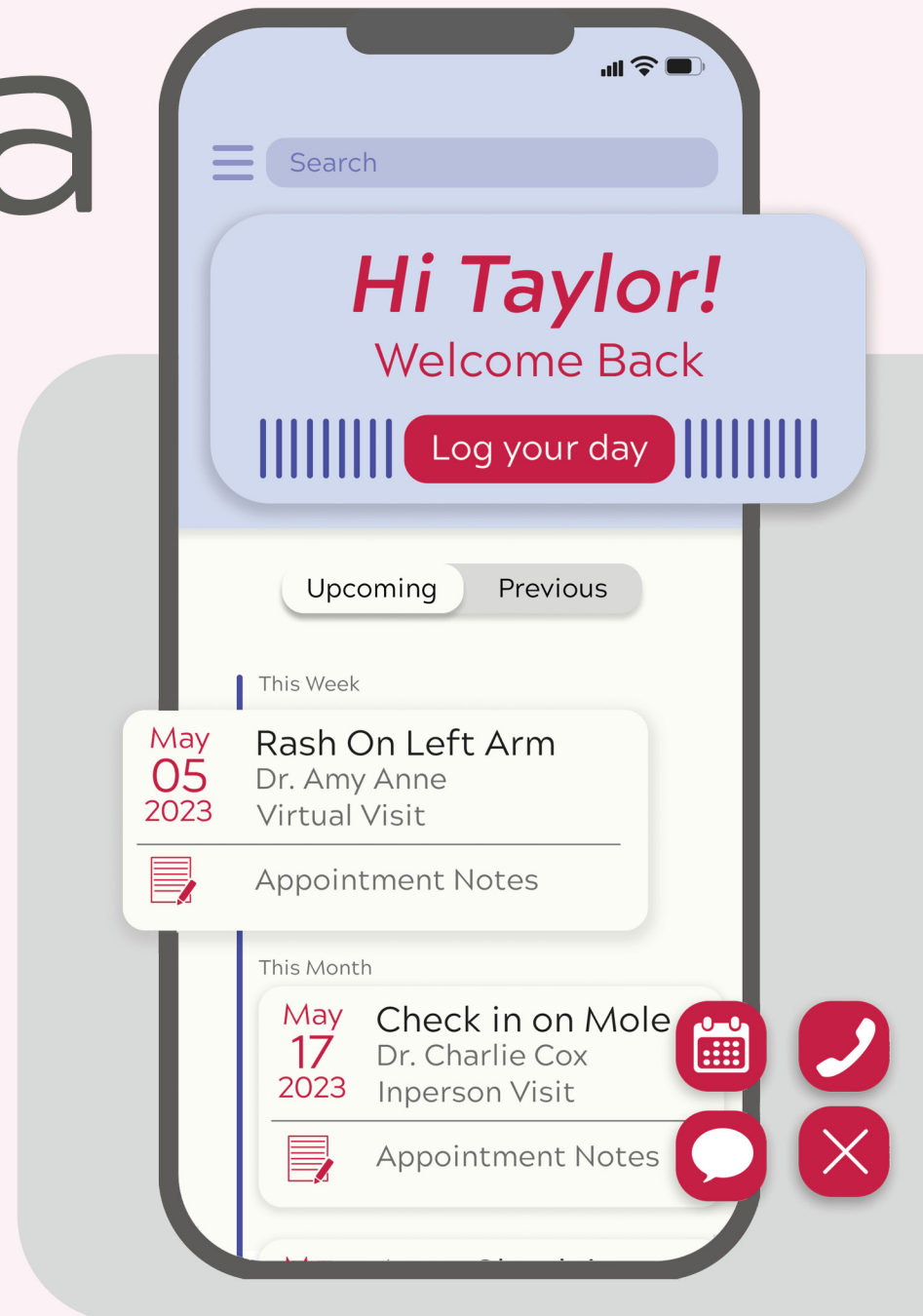
Typography:

Aa Aa Aa

Iconography:

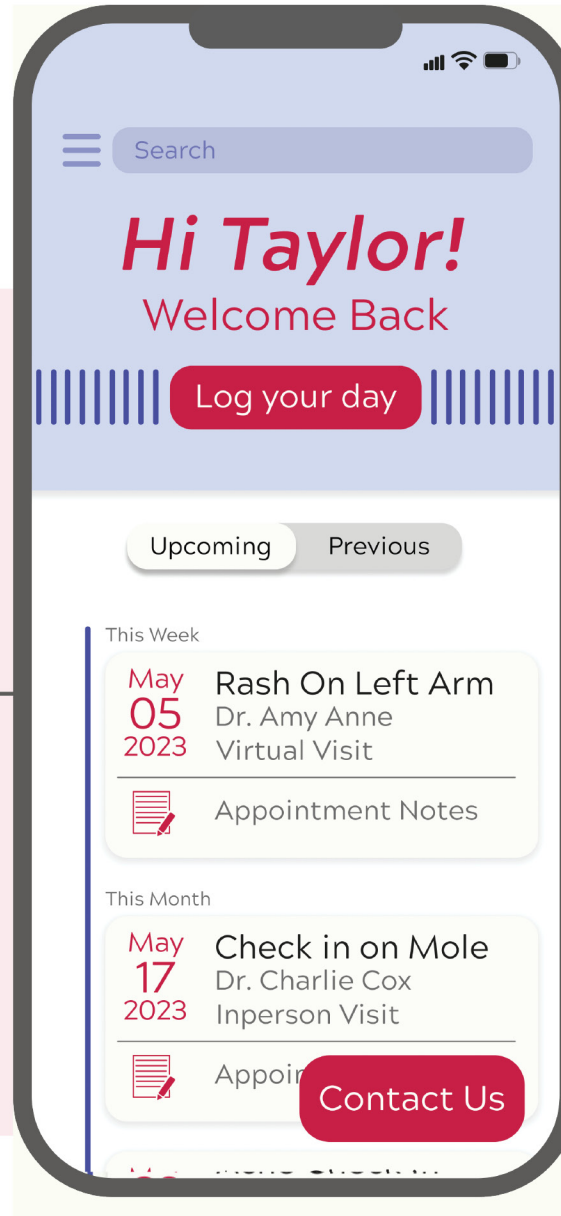


Color Scheme:



Home Screen

The home screen is the first screen that users will see when they open the app. So the three requirements shown on the prototype spread should be clearly shown. In the case of this app, color blocking and a floating action button are used.



Appointment
Records

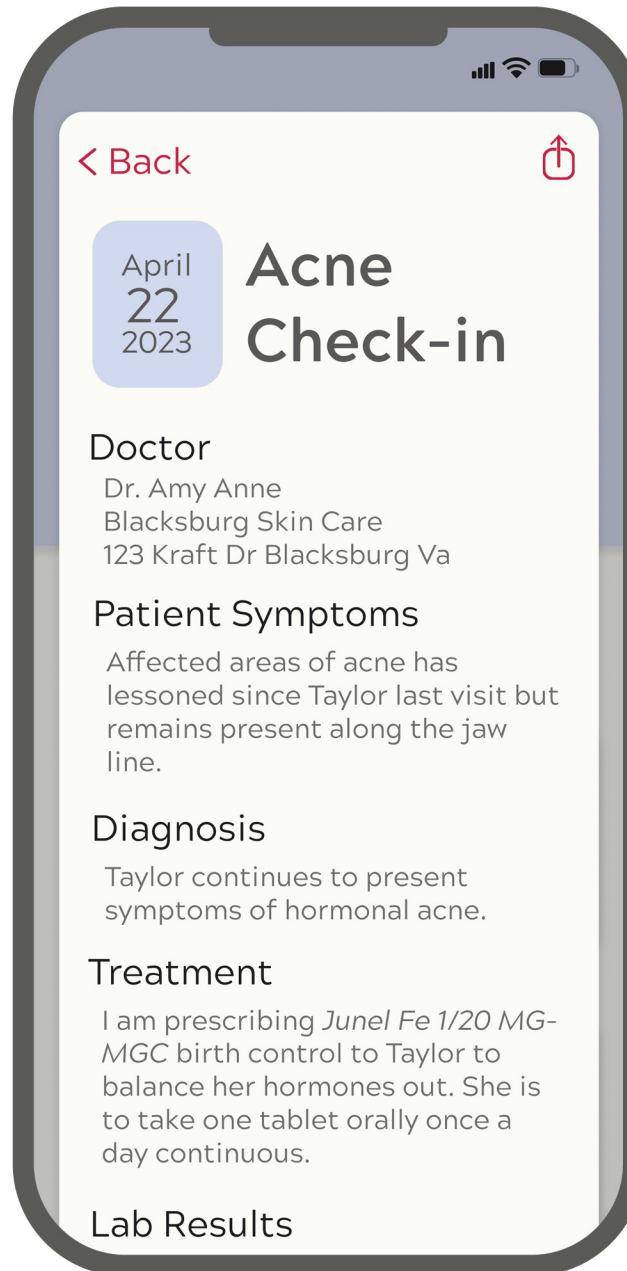
Telemonitoring
Feature


Communication
Options

Appointment Records

The first requirement named in the previous page was the ability for patients to view their medical records. This is a common feature that most telemedicine apps have. On this page it shows that users can view their personal appointment history, contact the office for follow up questions or appointments, and find information on medications prescribed to them. Notice on this page how all of the language used in the report is user friendly and can be understood by non medical personnel.

Images



< Back 

April 22 2023 **Acne Check-in**

Doctor
Dr. Amy Anne
Blacksburg Skin Care
123 Kraft Dr Blacksburg Va

Patient Symptoms
Affected areas of acne has lessened since Taylor last visit but remains present along the jaw line.

Diagnosis
Taylor continues to present symptoms of hormonal acne.

Treatment
I am prescribing *Junel Fe 1/20 MG-MGC* birth control to Taylor to balance her hormones out. She is to take one tablet orally once a day continuous.

Lab Results

April 22 2023

Acne Check-in

Doctor

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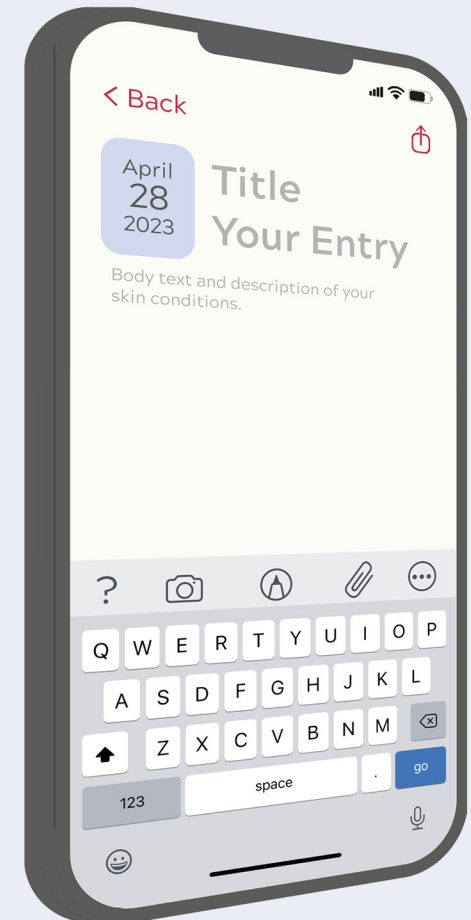
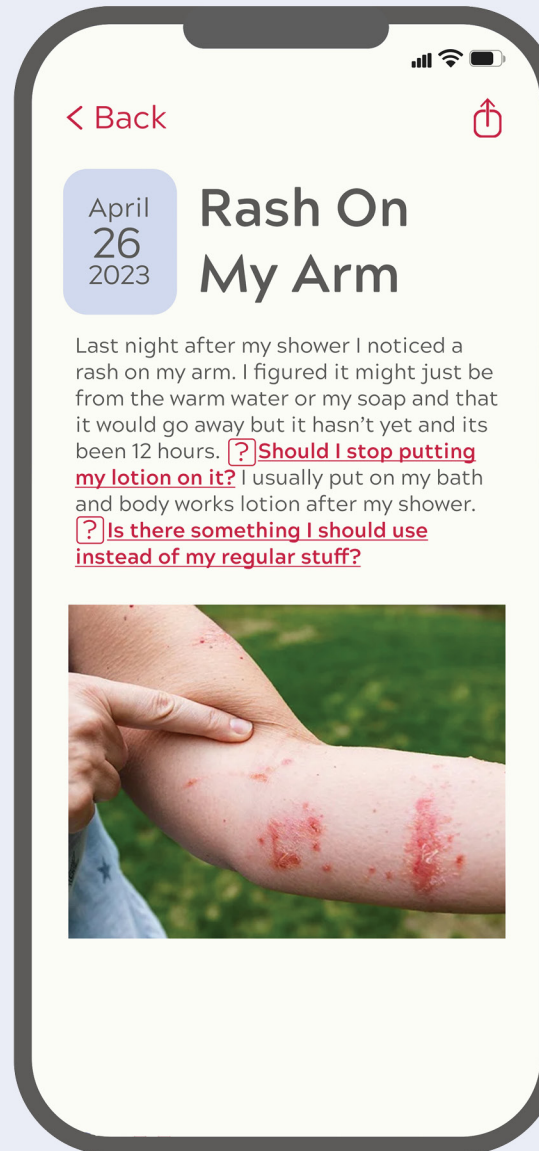
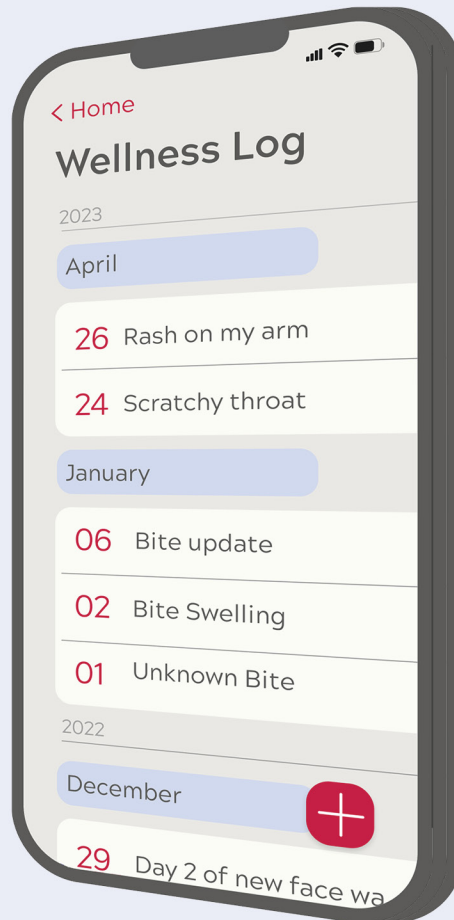
I am prescribing *Junel Fe 1/20 MG-MGC* birth control to Taylor to balance her hormones out. She is to take one tablet orally once a day continuous.

Lab Results

NA

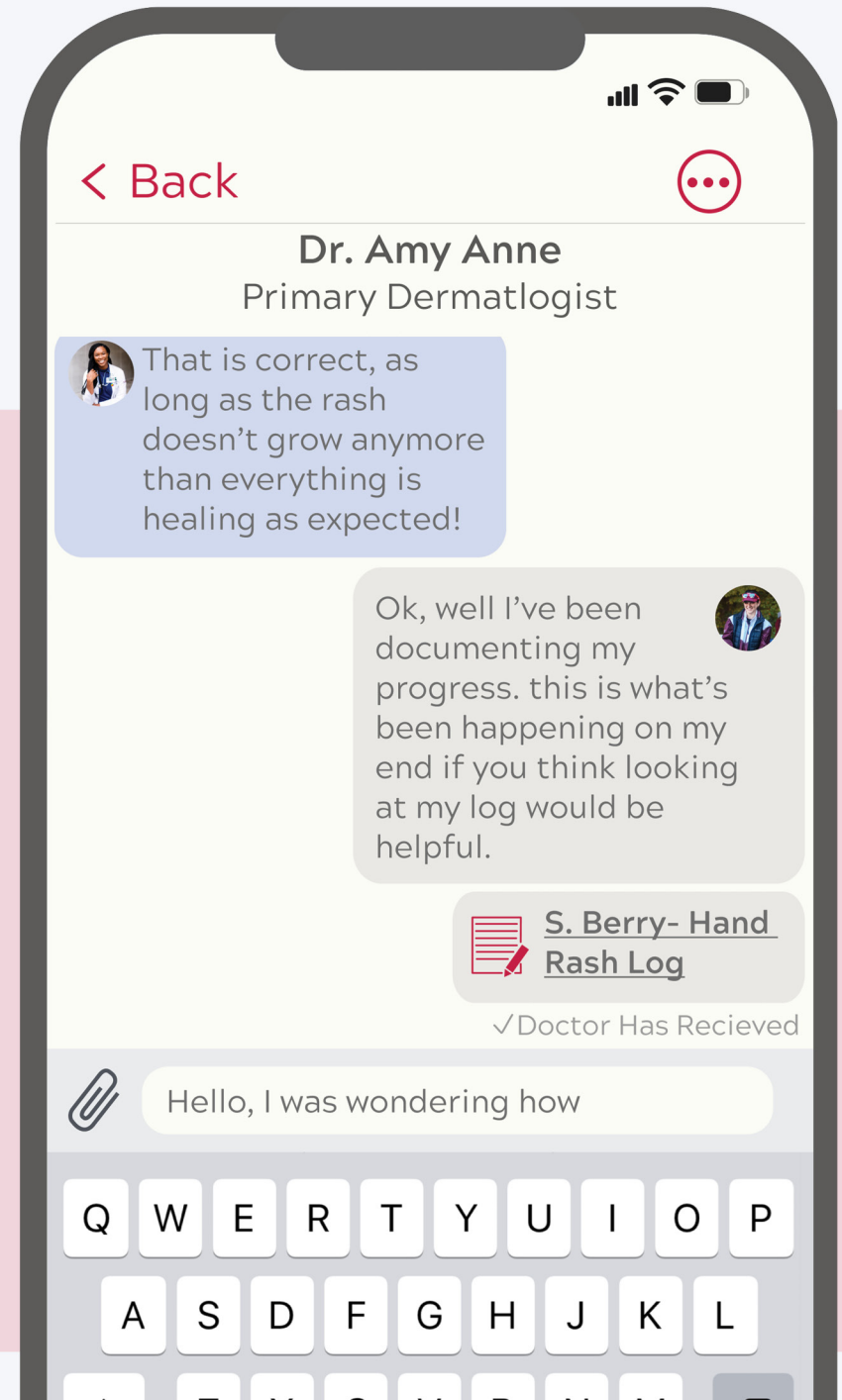
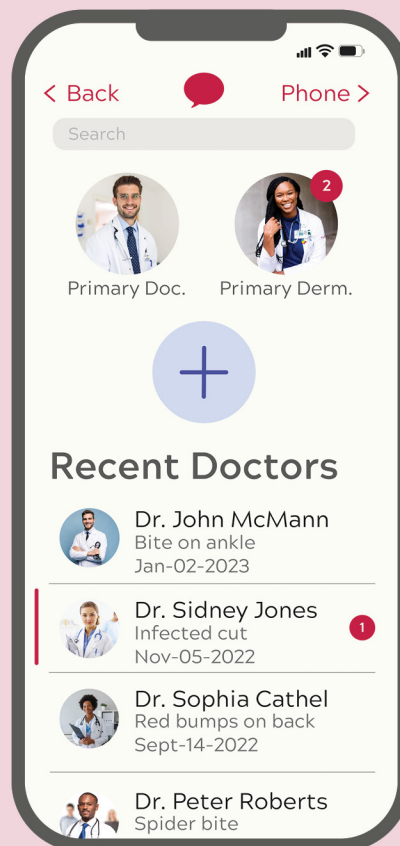
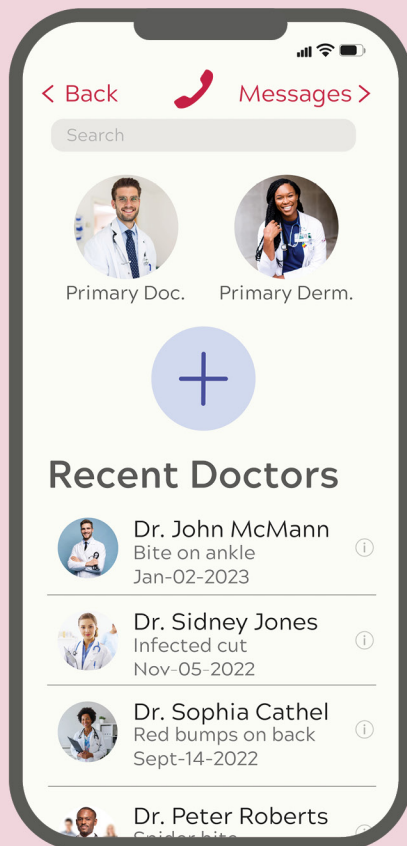
Patient Logging

This page highlights the second design requirement, the ability for patients to log the progress of their skin. Over time, patients can write a log about their skin noting their current skin conditions. This feature is something that is unique about the *in my skin app*. In this feature users can upload pictures, and write out descriptions but they can also keep a log for any questions they have. A common reason patients have to contact the office after their appointment is over is to ask questions they forgot to ask in person, this feature makes it easy for patients to find those questions while in their appointments. These logs are completely private to the patient unless they share it with someone else which they can do if they choose to.



Patient & Doctor Communications

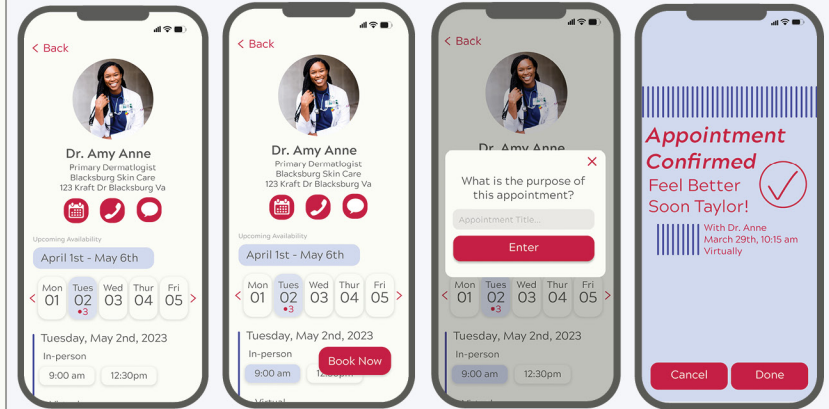
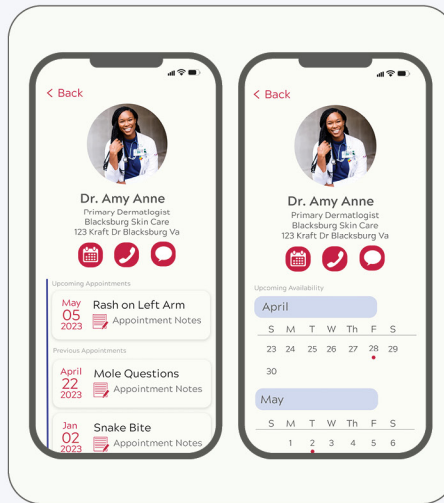
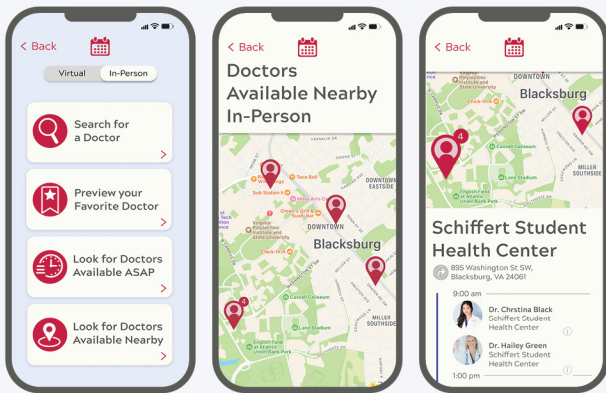
The last requirement is shown on the next two pages. The ability for patients to contact their doctor and find all of the necessary contact information from one centralized spot on the app. The two screens bellow show how the patient can either call or text their doctor. If the patient chooses to message their doctor, they will see a message saying that the doctor has received their text. This message is so that patients can be assured that the message has been sent even if the doctor doesn't have the time to respond immediately. To respect the doctor and their time they can respond on their own time when it's appropriate.



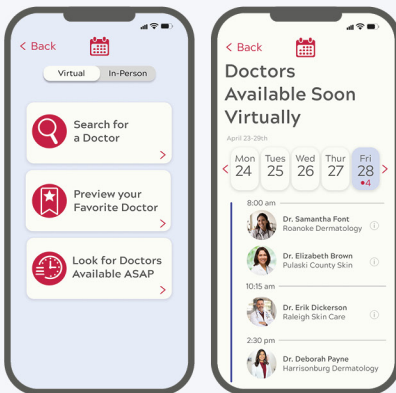
Setting Up an Appointment

Continuing the topic of communicating with the patients doctors, patients can set up an appointment to see the doctor though the app. They can choose to meet with a doctor in-person or virtually. When looking for the doctor they can choose to find a doctor by searching for them, choosing from their favorites, or looking for someone available ASAP. Additionally, If they are looking to meet with a doctor in-person, they can also schedule an appointment with someone who's available nearby. At any point on the app, Users can tap on the doctors profile picture to find their information page. This step is shown in the white box. Once the user is brought to the appointment schedule, they can select a time that works for them, book their appointment, give the appointment a title, and then confirm their appointment which will then appear in their upcoming appointments on their home page.

In-person Appointments:



Virtual Appointments:



Thank You!

in my skin Wouldn't have been possible without
the help of
IDAB
Professors
Brook Kennedy
Yoon Choi
and mentors
Shea Rhim &
Brian Pughe

Sources:

- <https://www.usnews.com/news/best-countries/rankings/technological-expertise>
- <https://www.forbes.com/sites/ceciliarodriguez/2022/08/07/the-richest-countries-in-the-world-tiny-luxembourg-at-the-top/?sh=75c48b06e072>
- <https://www.cdc.gov/nchs/fastats/physician-visits.htm>
- <https://www.norc.org/NewsEventsPublications/PressReleases/Pages/survey-finds-large-number-of-people-skipping-necessary-medical-care-because-cost.aspx>
- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4351276/>
- <https://www.youtube.com/watch?v=CyGN6E42GpM>
- <https://www.youtube.com/watch?v=PfFlikXyqCg>
- <https://www.imf.org/en/About>
- <https://worldpopulationreview.com/country-rankings/best-healthcare-in-the-world>





What is the purpose of this appointment?
App. In-person Visit
Enter
Mon 01 Tue 02 Wed 03 Thu 04 Fri 05
Tuesday, May 2nd, 2023
In-person
9:00 am 12:30pm

Check in on Mole
Contact Us
May 17 2023

Acne Check-in
Doctor
April 28 2023
Back

Appointment
Feel Better!
Soon Taylor!
With Dr. Anne
Monday, April 24th, 10:15 am
Cancel Done

Doctors Available Soon
Virtually

Doctors Available Nearby
In-person
Blacksburg
Map showing location and nearby doctors.

Upcoming Availability
Dr. Amy Anne
Primary Dermatologist
123 Kat Dr Blacksburg Va
01 Mon
02 Tues
03 Wed
04 Thur
05 Fri
April 1st - May 6th
In-person
9:00 am 12:30pm
Tuesday, May 2nd, 2023
Back

Recent Doctors
Primary Derm.
Primary Doc.
Search
Phone
Back

January
06 Bite update
02 Bite Swelling
01 Unknown Bite
2022
December
29 Day 2 of new face wa
+

Title Your Entry
April 28 2023
Body text and description of your skin conditions.
Recent Doctors
Primary Derm.
Primary Doc.
Search
Phone
Back

Hi Taylor!
Welcome Back
Log your day
Search
Upcoming Previous

123
A S D F G H J K L
Q W E R T Y U I O P
space
123
Rash Log
S. Betty-Hall
Doctor Has Reviewed
was wondering how

This Week
May 05 2023
Rash On Left Arm
Dr. Amy Anne
Virtual Visit
Appointment Notes
This Month
May 17
Check in on Mole
Dr. Charli
Inperson Visit
Appointment Notes
Virtual Visit
Appointment Notes