QUEERX

Search for doctors by location, specialty, gender, and more. Read reviews of doctors that are specific to LGBTQ+ patients. Lean on the Queer community and spread the word about safe, accessible healthcare.

Final Report

CS 147 Fall 2023
Accessing Healthcare

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QUEERX

Problem and Solution Overview:

We learned that Queer people often struggle to find supportive doctors and that they lean on other members of the Queer community to help vet medical professionals.

To solve this problem, we proposed designing a mobile platform specifically for the Queer community to search for supportive doctors nearby and share their experiences with others.

Needfinding:

When we initially embarked upon the needfinding process, we narrowed our topic from "Accessing Healthcare" to "Accessing Healthcare within the Queer Community." To identify where members of the Queer community ran into trouble with the healthcare system, we conducted interviews with a wide range of individuals. We aimed for diversity in gender identity and sexuality, race, and socioeconomic status.

Interviews:

In searching for interviewees, we were conscious of the fact that people's Queerness and healthcare statuses are both sensitive subjects that people may not be willing to discuss with strangers. We reached out to over a dozen community organizations and our own first and second-degree connections. It was incredibly challenging to find local, non-Stanford members of the Queer community who were willing to speak with us. As such, we were careful to respect individuals' time and privacy, and only one interviewer went to each meeting in order to reduce intimidation factors. We recorded our interviews,

with the permission of the interviewees, so that we could accurately refer back to our conversations.

Our initial three interviews featured the following individuals:

PD (they/he), 19, transgender, polyamorous, and pansexual.
CL (she/her), 22, lesbian.
CC (they/she), 24, nonbinary and pansexual.

In our second round of interviews, we made an effort to increase the age diversity of participants:

JG (she/her), 49, lesbian.
LC (they/them), 21, nonbinary.
CB (he/him), 73, gay.

Figure 1: Settings of two of our interviews (Zoom, left, and Stanford QSR, right)

Synthesis:

One of our biggest takeaways from the needfinding interview process was that Queer healthcare is not (and should not be!) one size fits all. Each of our interviewees had very different experiences with the healthcare system, and the importance of other factors, such as age, race, and location, became obvious. We found that many Queer people jump through hoops to find doctors that they know will be supportive of all aspects of their identity; often, this leads to frustration. JG commented that the "lack of supportive doctor accessibility is not limited to queer youth." CB's interview reinforced the idea that potential problems regarding identity are best discovered at the beginning of the patient-doctor relationship. PD, who has had difficulties getting gender-affirming and disability-required care, stated that "non-queer healthcare professionals are much more likely to be s#*t at gender-affirming care." We heard of many occurrences in which Queer individuals went through the Queer community to get doctor recommendations to shorten the tedious trial-and-error process which can come with finding a new physician.

To better understand the broader patterns of the interviews we conducted, we made empathy maps that break down what the user says, thinks, does, and feels.

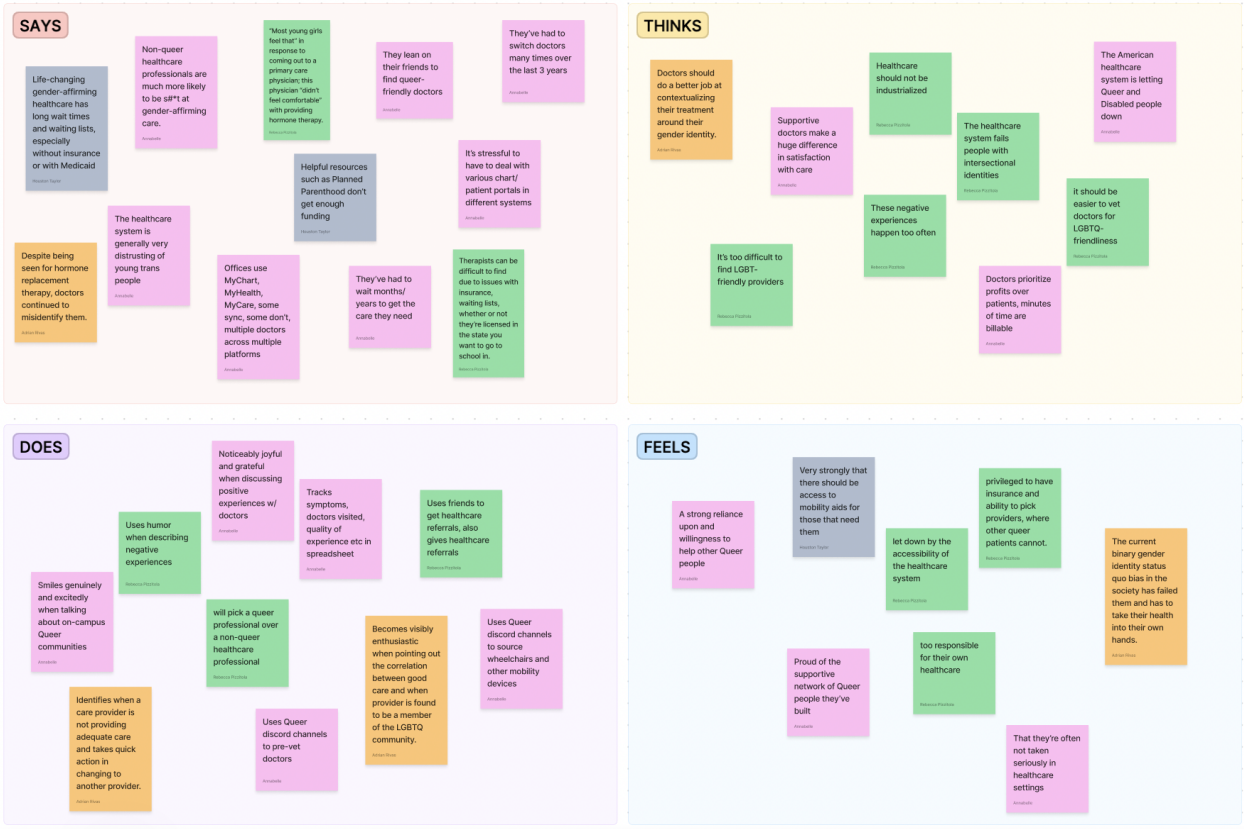

Figure 2: Empathy Map for PD's interview

Empathy maps helped us discern possible large-scale problems from one individual's experiences. Our biggest takeaways pertained to impact, inclusivity, identity, and connection. Some of our interviewees felt like their Queerness never really impacted their access or quality of healthcare. Others, however, felt it to be a recurring source of stress and emotional strain. Overall, there was a wide variety of experiences here, all of which are relevant to the Queer community. When we asked about technology specifically, interviewees shared that they look for apps (for example, menstruation trackers) that are inclusive to non-cis-het users (i.e. don't just offer insights and pregnancy tracking for heterosexual women). Relatedly, our cisgender and cis-presenting interviewees didn't experience as much discrimination as, for example, PD did. Lastly, we consistently heard that social media was a game changer. Currently, many Queer people use Reddit,

Instagram, Discord, etc., to find inclusive healthcare providers through their communities; people were proud and excited to share that their communities had supported them in this way, but they wished there was an easier way to do it.

POVs and Experience Prototypes:

Point of View Statements:

Point of View statements helped us further synthesize our takeaways from our interviews and hypothesize potential connections to broader patterns within the Queer community.

We met Puck (they/he), a transgender, pansexual, polyamorous student studying Mechanical Engineering and ASL and Deaf Cultural studies as well as a leader of their on-campus Disabled Students Union. **We were surprised to learn** that they lean on networks of Queer and disabled communities to find supportive doctors. **We wonder if** this outreach work is emotionally taxing in times when a person is already stressed about their health. **It would be game-changing i**f Queer people could have a more reliable way of finding doctors that will be accepting of all aspects of their identities.

We met CL (she/her), a lesbian from Florida, studying at Stanford, in her dorm room at Columbae. **We were surprised by** the fact that she said she wasn't "out" to any of her healthcare providers except for her therapist. **We wonder if** she feels uncomfortable bringing it up to her doctors in Florida, not knowing who would be supportive. **It would be game changing** if CL had a way to gauge who were LGBTQ+ supportive providers.

We met JG, a 49 y/o cisgender, bisexual woman, who has been married to her wife for 15

years, living in Pennsylvania where she grew up and has lived most of her life. **We were surprised to learn that** she asks her other queer friends for recommendations and referrals to doctors who won't be weird/presumptions about the fact that she has a wife. **We wonder if** this is annoying for her after doing it for so long. **It would be game changing** to have a centralized location to find LGBT-allied doctors without all of the outreach.

For each of these Point of View statements, we drafted about 15 How Might We statements.

How Might We and Solutions:

In taking our Point of View statements and generating How Might We statements, we were able to open up many possibilities for potential solutions without worrying about feasibility or judgment. We used strategies such as breaking the POV into pieces, questioning assumptions, changing a status quo, and exploring the opposite to promote creativity in our HMW statements. After generating nearly 50 individual HMWs, we selected three which would become a jumping point for our solution development.

1. HMW encourage healthcare providers not to assume gender identity or heterosexuality?
2. HMW amplify the voices within existing networks of Queer people helping each other find supportive doctors?
3. HMW make selecting a new doctor akin to selecting a new friend?

We brainstormed 41 solutions for these three favorite How Might We statements. The solutions ranged in subject, feasibility, and breadth.

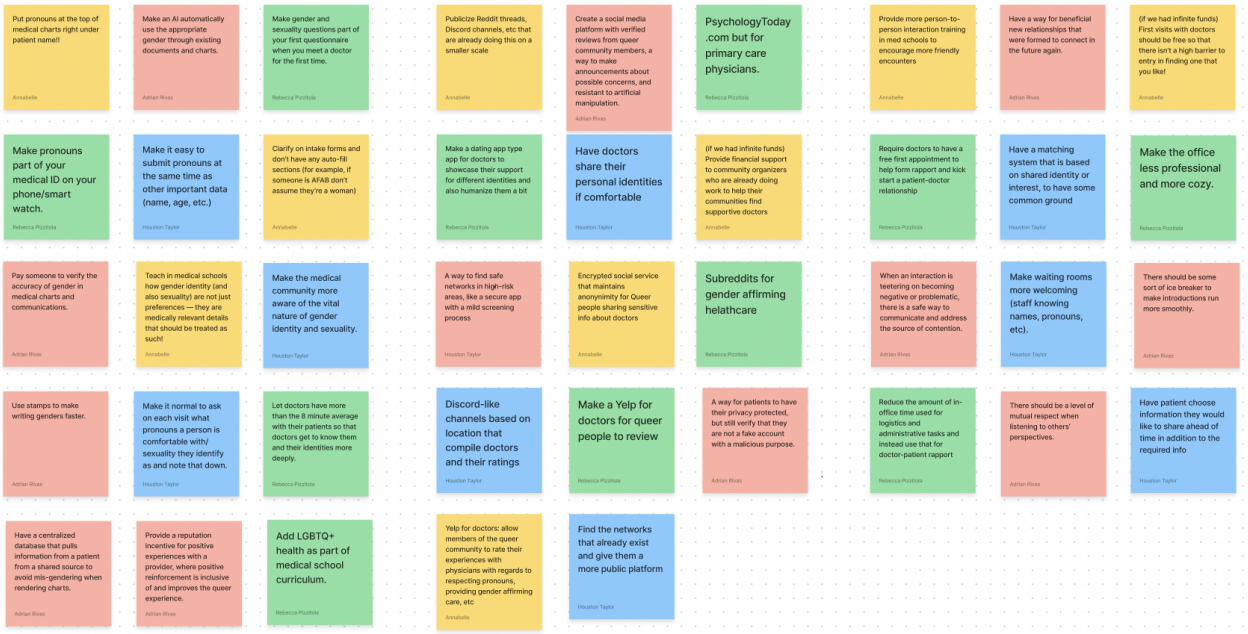

Figure 3: Brainstorming solutions for our top 3 How Might We statements

From this, we narrowed down to our three best solutions.

1. Make it easier to find doctors that are allies (psychology today style)
2. Create a social media platform with doctor reviews from the Queer community
3. Make waiting rooms feel more welcoming

Experience Prototyping:

After identifying our top three solutions, we designed experiment prototypes to test initial assumptions with our target audience. We

Psychology Today Style Prototype

For our first experience prototype, we aimed to make it easier for Queer users to find supportive doctors via a Wizard-of-Oz style prototype that simulated a chatbot conversation on a user's smartphone. In this prototype, we assumed that our user is

Queer, is in search of a doctor, and has access to a smartphone with SMS (texting) capabilities. To simulate a chatbot experience, we connected with a Queer college student and acted as the computer by sending appropriate responses to their inquiries in real-time. We asked the user questions to gather necessary information, making it feel like a tailored conversation. This personalized experience allowed us to incorporate a user's location, distance, desired specialty, and diverse identities to bridge the doctor and patient matching process. We chose the chatbot mode of interaction with our service for ease of use and integration with platforms users are already familiar with. In this way, less tech-savvy individuals can feel comfortable interacting with something they already have experience with and not have to completely learn a new app's user interface and organization.

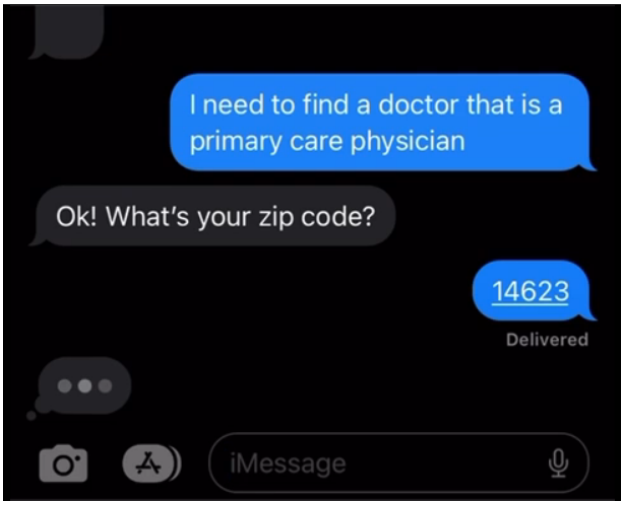

Figure 4: Initiating experience prototype chatbot conversation

Our prototype would fail in its mission if the user was *not* looking for a medical professional or did *not* care about their healthcare providers' beliefs and attitudes. Nevertheless, our testing uncovered that users thought the "chatbot" was fast and efficient in answering user inquiries while providing an inclusive environment for user identity which is still missing from existing solutions. We also learned from our users that our service differentiates itself by not treating LGBTQ+ as a monolith category as our

chatbot allows them to be specific about their identity as opposed to checking an "LGBTQ+" checkbox while onboarding.

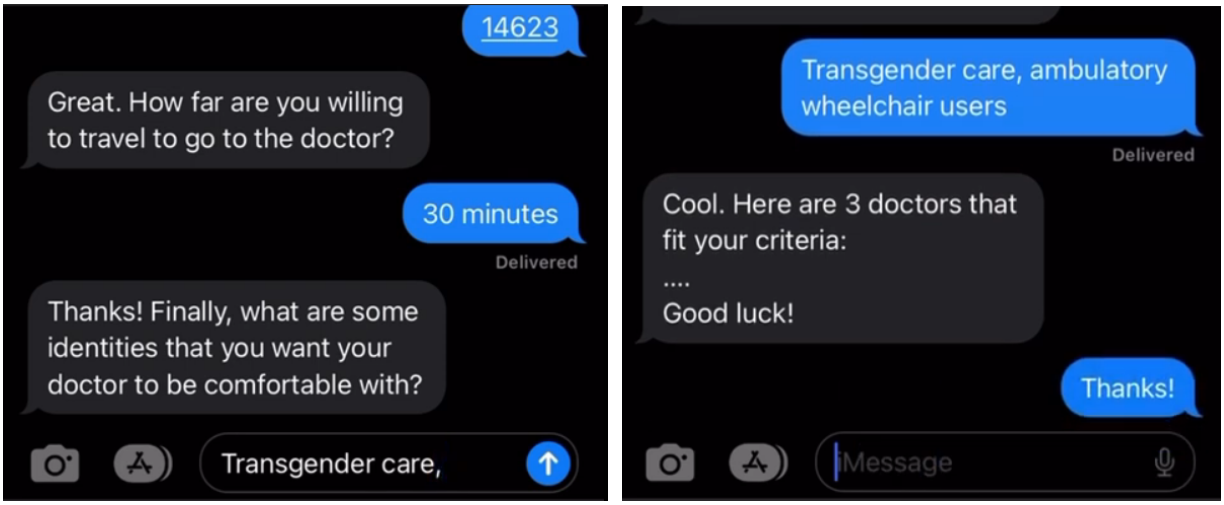

Figure 5: More details of the conversation from the chatbot experience prototype

Crowdsourcing Reviews from a Social Media Platform Prototype

For our second experience prototype, we mocked up a social media platform with reviews from the Queer community. Wizard-of-Oz techniques allowed us to use an existing social media platform to host a simulation of a review-centric platform for doctor discovery. In our case, we used X, formerly known as Twitter, to host mock patient profiles, reviews, and interactions on an online social media platform. We assumed that our users identify as Queer, are currently searching for a doctor, and find social outlets/reviews a valuable option to incorporate in their doctor search. Logistically, users also require internet access on a computer to access the online platform. We reasoned that a social platform would allow users to incorporate patients' identities and physical locations as a basis for their search for doctors with good reviews. In this way, users can get a better understanding of the social nuances and deal breakers that may await them when visiting a new doctor's office. The public nature of the social network democratizes existing queer

patient reviews, benefiting those who may not have the most robust social support network from which they can extract reviews, as is currently common practice. Our participant, a 22-year-old gay man, highlighted that this was an effective way to find community due to the ability to follow up with specific accounts in public or privately through direct messaging. This allows users to synthesize a more complete understanding of a user's past experiences with a specific doctor past an initial post.

However, our participant brought to our attention the social influence that a popular social media platform may bring, which may be difficult to moderate in the case of bad actors. The probability of bad actors using this platform to spread misinformation, hate campaigns, and other forms of abuse may unfortunately be increased when allowing users to post anonymously. On a similar note, a location feature that is too accurate may bring privacy and personal safety concerns to users. A user who is not attempting to find a healthcare professional may not find many uses for our social media platform due to its focus on crowdsourcing reviews of healthcare providers for queer individuals.

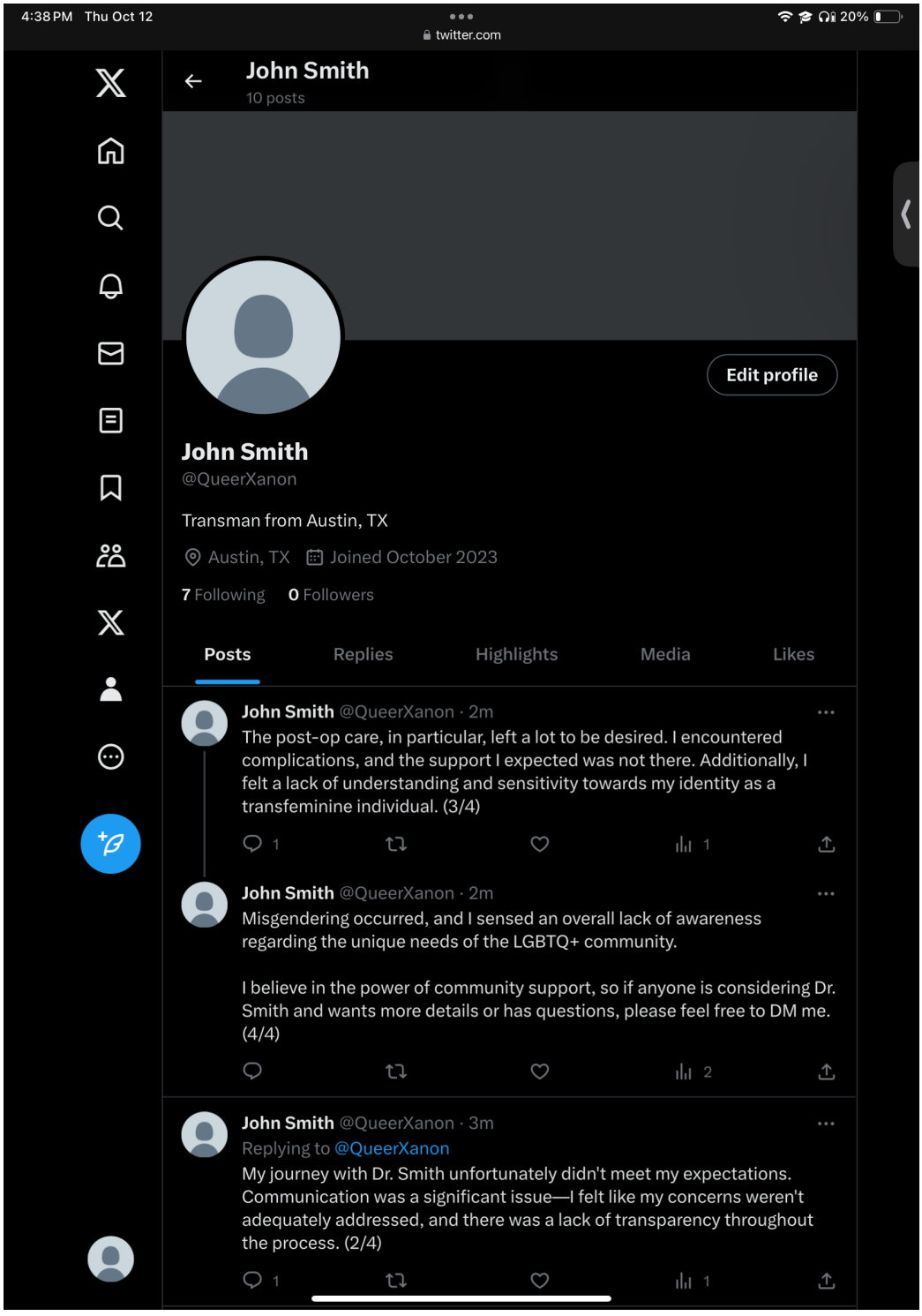

Figure 6: Social platform experience prototype, executed through X (Twitter)

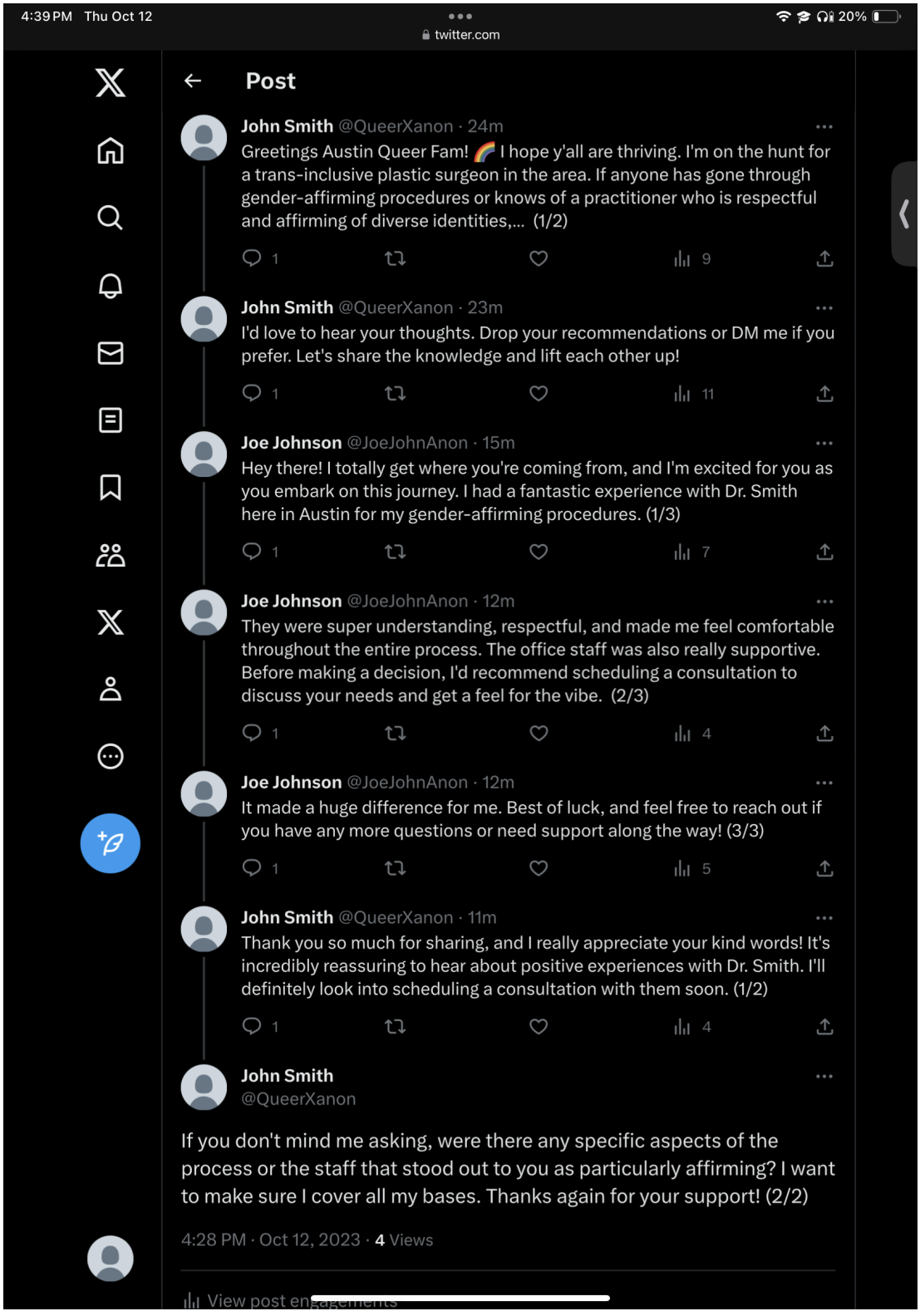

Figure 7: Social platform experience prototype, executed through X (Twitter), continued

User-Driven Waiting Room Rendering Prototype

For our third experience prototype, we asked participants to draw their *ideal* waiting room in five (5) minutes. We assumed that a patient who is waiting to meet a new doctor would want a welcoming, cozy environment to make the visit as enjoyable as possible to minimize any anxiety and stress the interaction may bring with it. To test this we asked Safaa, an 18-year-old gay woman, to sketch “her ideal doctor's office waiting room” on a notepad within a 5-minute time limit. We attempted to make the process of completing the experience prototype more welcoming to the participants by keeping clear and active communication with them throughout the process and conducting the experiment in a calm environment (quiet dorm room).

This prototyping method may fail if a patient feels that a waiting room’s design is an unimportant part of their visit. It also may be ineffective at preventing negative doctor-patient interactions that originate outside of the waiting room. We were made aware by Safaa that this prompt was “kind of a difficult question” to answer due to a lack of detailed expectations/examples. Nevertheless, they included interior design elements that make the waiting room more welcoming and fun such as children’s toys, aquariums, and clear instructions for new guests. The presence of clear visual outlines like footprints on the floor to help guide patients towards the next step in the process demystifies the process, reducing anxiety.

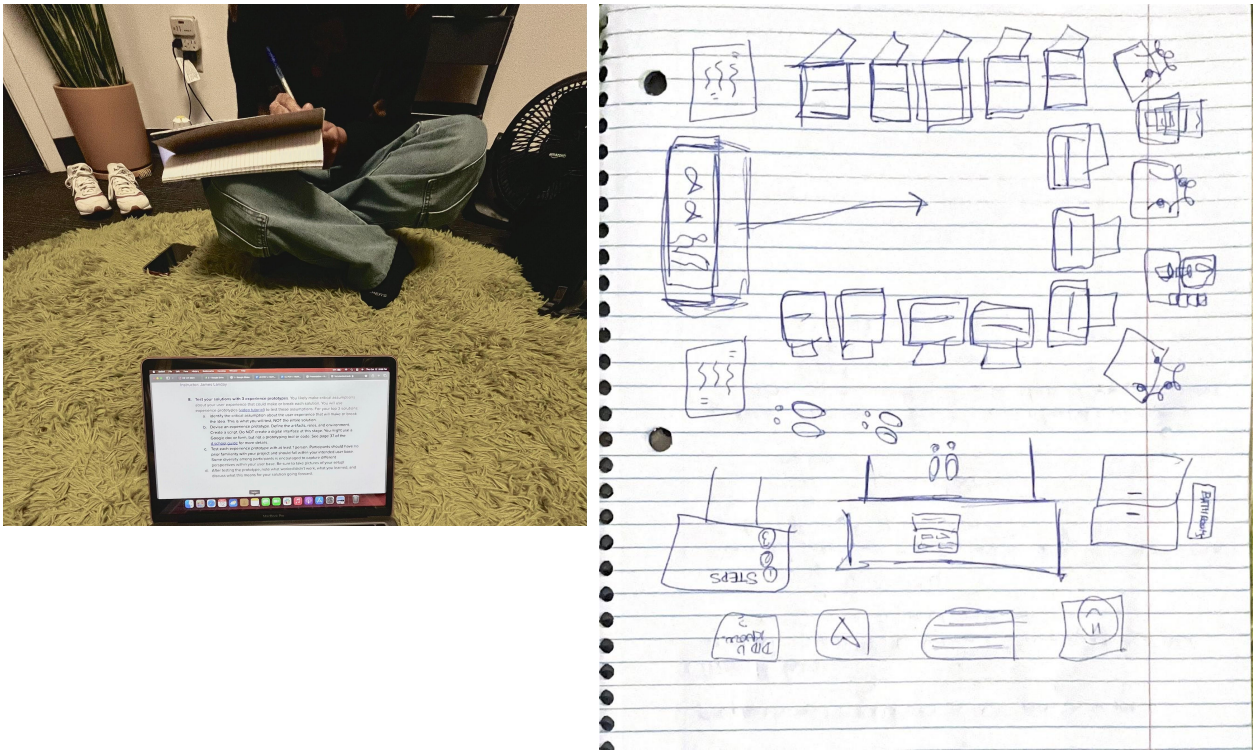

Figure 8: Waiting room design experience prototype

Design Evolution:

We considered a wide range of implementations for our favorite solution, a platform for sharing doctor reviews within the Queer community. Among our options were virtual reality, web browser extension, and mobile app.

Figure 9: Web browser extension implementation for doctor review solution

We settled on a final solution, a community-based app meant to streamline and centralize the process of finding referrals to doctors who support queer people. This solution caters to the full spectrum of Queer individuals, regardless of their specific identities or medical issues. The product builds off of the actions that members of the community are already taking to improve the experience of searching for a new physician.

Tasks:

The simple, moderate, and complex tasks that we chose for our prototype give a broad overview of the functionality of our platform.

Simple – Search for a doctor by location, specialty, etc.

Our simple task is likely what will bring even the most superficial of our users to the platform: to search for a doctor. Included in this task is the ability to filter results based on preferences. We determined these filters (location, specialty, gender, star rating, insurance) based upon our initial needfinding interviews in which members of the Queer community shared what they look for when finding a new doctor.

Figure 10: Search for doctors

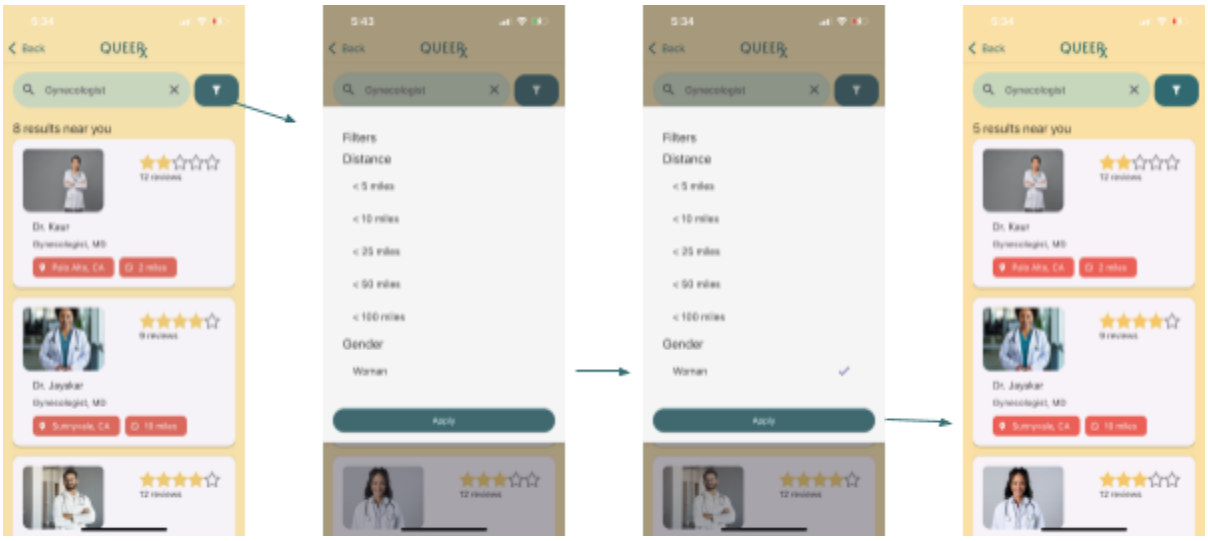

Figure 11: (additional functionality): filter doctor results

Moderate – Read reviews for a specific doctor.

Our moderate task is a very fluid continuation from the simple task. Once a user has navigated to the results page, they can click on any doctor to see a profile which shares more information, including user reviews. QueerX user reviews give personal insights into Queer patient experiences, which consolidates information that Queer individuals are currently seeking out manually through personal channels.

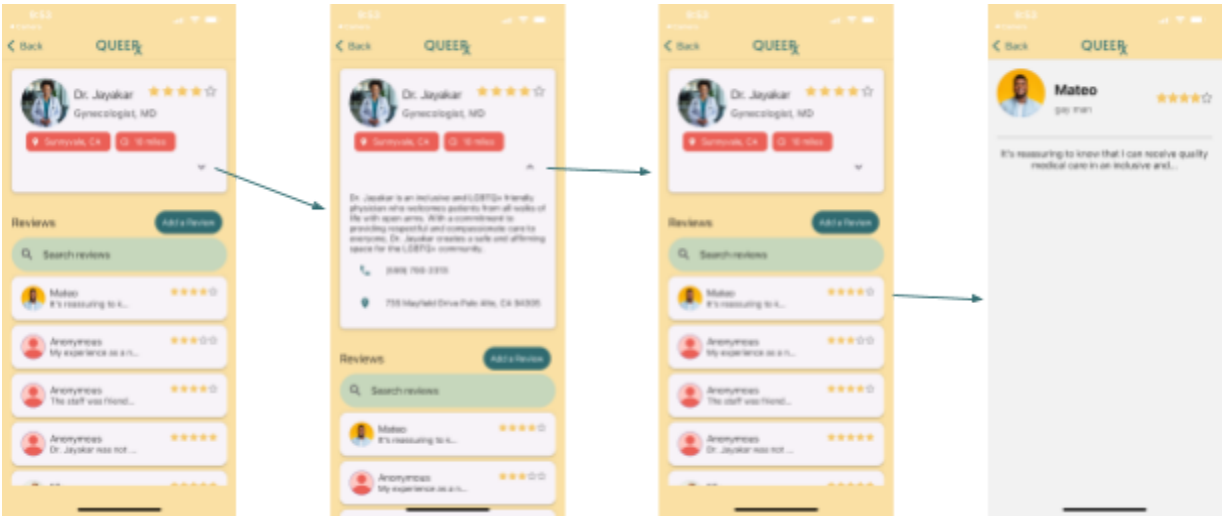

Figure 12: Read a specific doctor's details and look at reviews

Complex – Add a review for a doctor you've recently visited.

Our complex task allows users to share their own thoughts with the QueerX community. This action makes a user much more actively involved in the network, and it populates what other users will see about this doctor. While not all users will engage with these tasks, users who do are essential to the functionality of the platform.

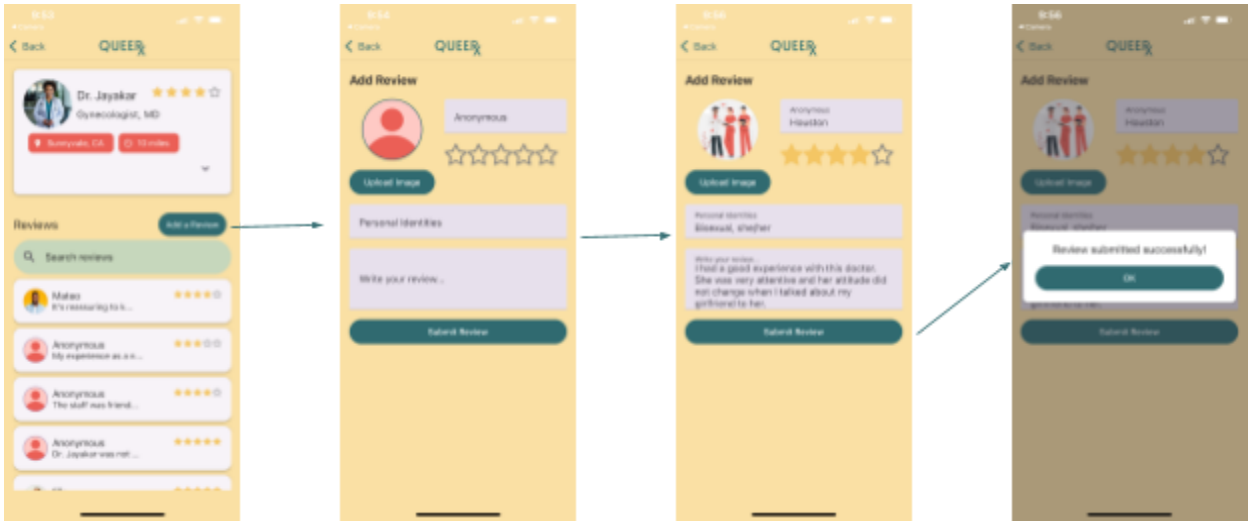

Figure 13: Add a review for a doctor

Low Fidelity:

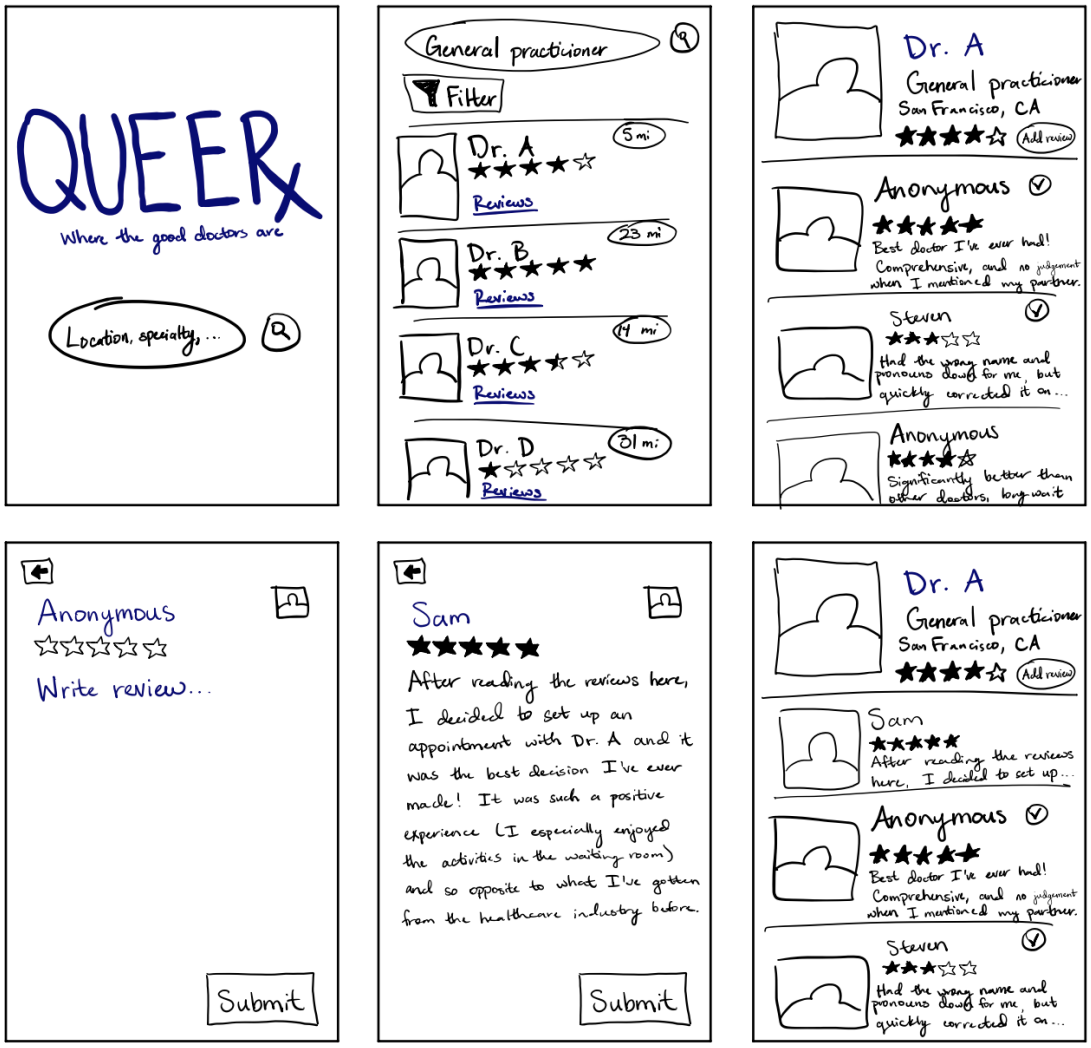

Figure 14: Low Fidelity prototype screens of the complex task: write a review for a specific doctor

We tested our low fidelity prototype on Figma with several Queer individuals outside of the Stanford community. We gave these users a brief overview of our needfinding process and the solution we came to, and users were asked to complete the three aforementioned tasks. All of our testers completed the 3 tasks without assistance, and overall they had

positive comments about the basic idea and functionality of the platform. Our low-fidelity prototype was efficient and discoverable, but it was not very flexible; it was difficult to navigate backwards and between pages. Users also shared that they wanted to see a section where doctors can input their identities/allied communities and the ability to filter by sex or gender to find doctors users are comfortable with (i.e., gynecologists). We addressed this feedback in the next iteration of our design.

Medium Fidelity:

Our medium fidelity prototype was much more refined in its design; at this point in the development process, we are now interested in getting feedback on aesthetics in addition to raw function. We utilized Wizard of Oz prototyping techniques by hard-coding profiles and user reviews. This way, testers could get a feel for what it would be like to use QueerX in its final form. Figma connections allowed users to click on buttons and move to the appropriate page.

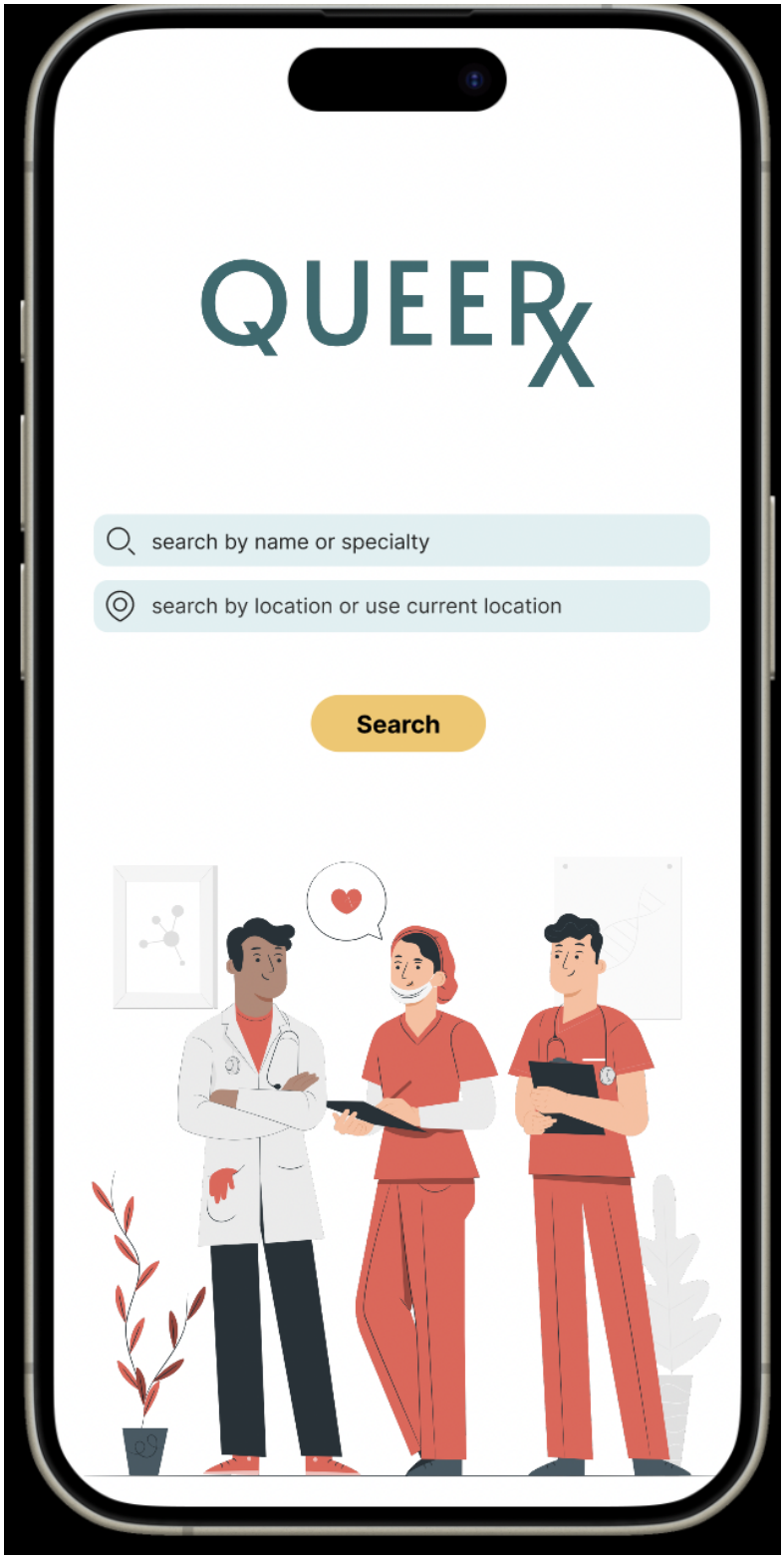

Figure 15: Home page of medium fidelity prototype

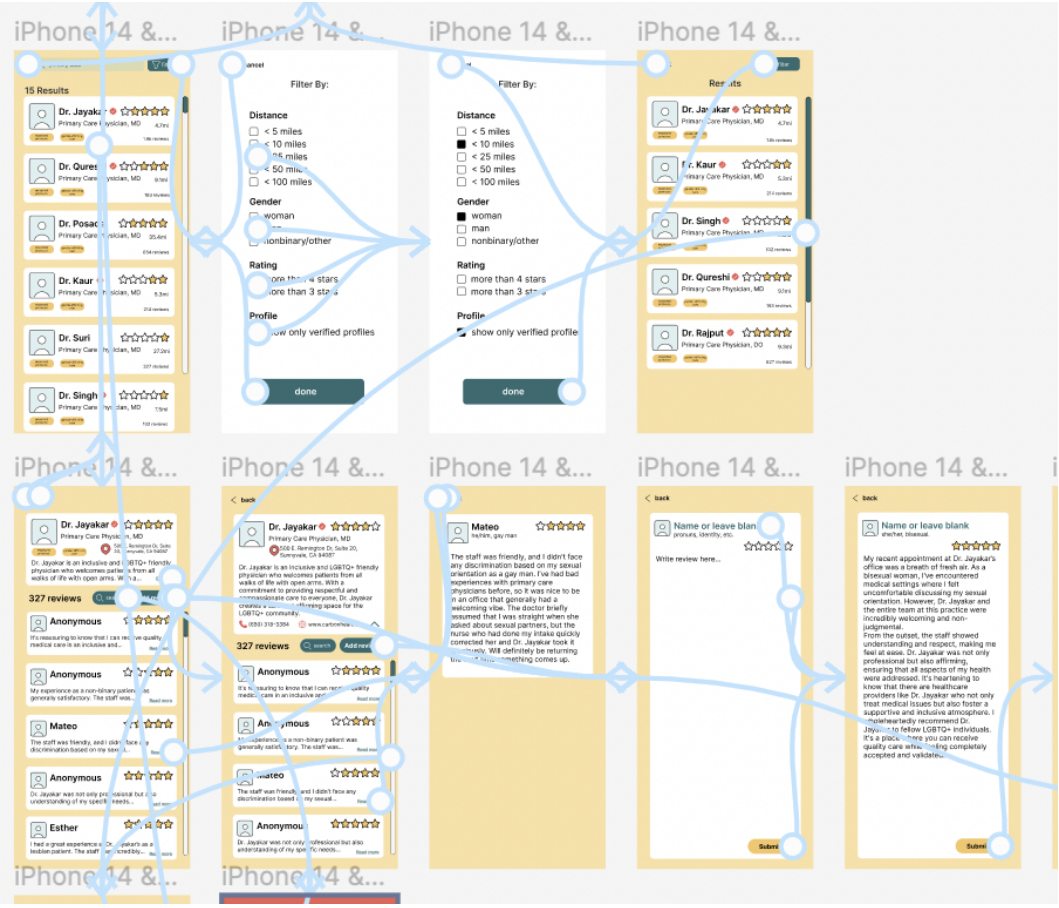

Figure 16: Figma capture showing connections between some of the medium fidelity screens

We received heuristics evaluations from other CS 147 teams, which gave us a better understanding of the violations in our medium fidelity iteration of the app. The violations mostly were categorized under Consistency and Standards and Minimalist Design. Our reviewers found three severity 3 violations and no severity 4 violations. (See appendix for a full list of Heuristic Violations.)

Efficiency of Use: Users had to navigate to the home screen to begin a new search

We agreed that the search process would be more smooth if users did not have to go all the way back to the home screen to adjust a search. To remedy this, we added the search bar to the results page for easy editing.

Figure 17: Search UI changes

Help Users with Errors: “under construction” page directs users back to the home page

The under construction page was a place-filler for our medium fidelity, Figma version of our product. In our Hi-Fi prototype, this issue will automatically resolve itself as we will not have full pages that haven’t been built.

Accessibility: Text size on review page may be difficult to read for visually impaired

We conducted research into industry standards for font size on mobile apps and found that the minimum text size should be 12 pixels high. We combed through our app and either removed or enlarged any text that did not meet this standard in order to make reviews more legible.

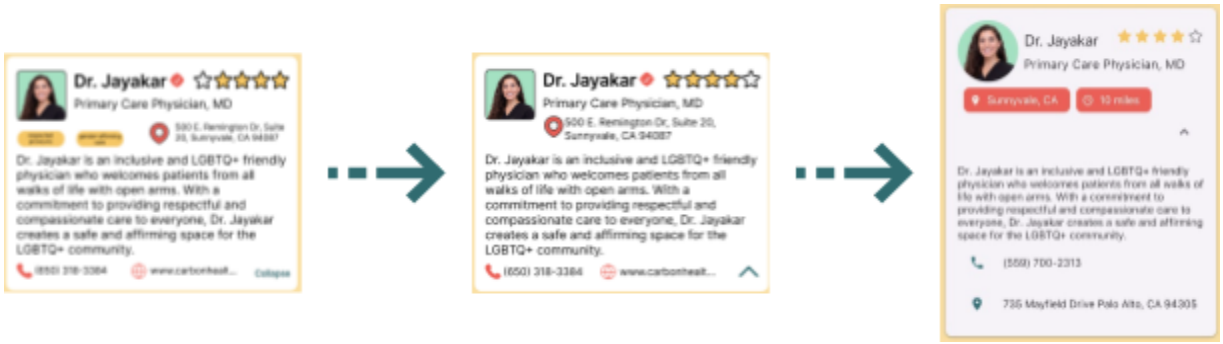

Figure 18: Text size UI changes

High Fidelity:

Our high fidelity prototype became a more refined version of our medium-fidelity prototype. We implemented the changes for violations found in our heuristic evaluation for a more polished, user-friendly interface.

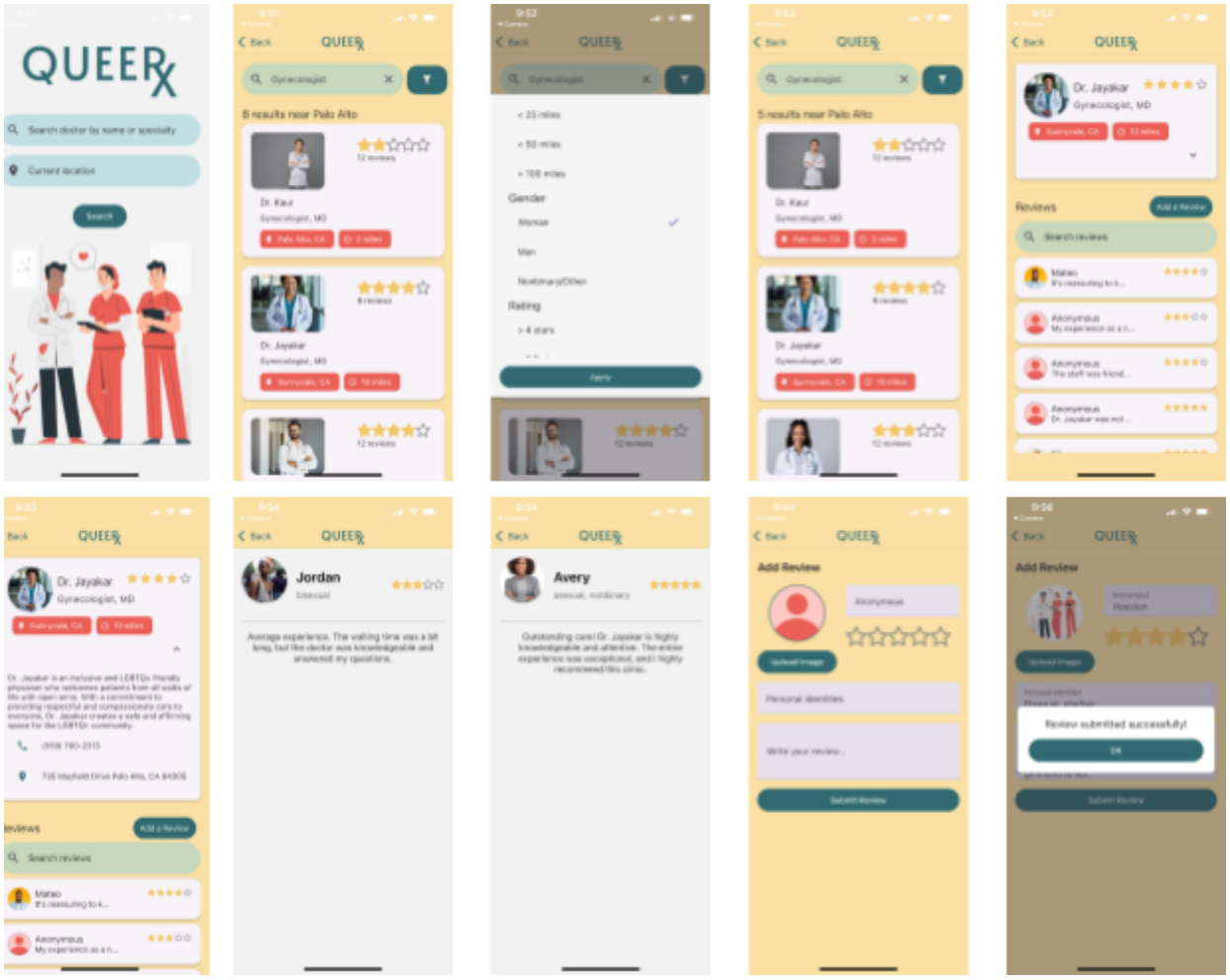

Figure 19: High fidelity screens of our application

Values in Design:

As a team, we identified several values that are at the core of our QueerX mission. Most of these stem from the vulnerability of our user base; it is of utmost importance that our users' data remains private and protected from malicious intent. User safety and privacy, inclusivity, and diverse, accurate sources of information are essential to an ethical functionality of the app.

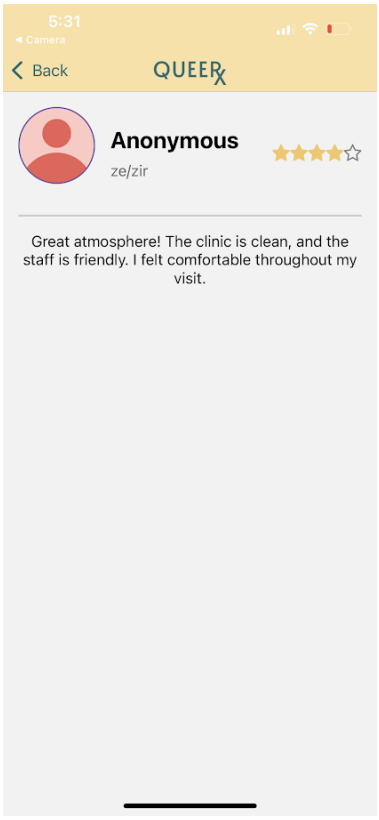

Figure 20: An anonymous review for a doctor

We want to make sure that our platform is a safe space for members of the Queer community, which at times means allowing anonymity. Without requiring users to validate their identities, however, we risk the infiltration of our community by people who could potentially be threats. This tension is one that many platforms struggle with, and it remains an ongoing conversation within our team. We plan on allowing anonymity and not requiring user identity verification, but if we notice negative effects over time we will continue to reevaluate in order to keep users' safety a priority.

Final Prototype Implementation:

We used a variety of tools in the process of creating the mobile application. Details of this technical implementation can be found below.

Tools Used:

We used React Native, React Native Paper, and Expo to build our application. Our team chose to use React Native because it allowed for fast development and because a member of our team has some experience with the framework. We decided on React native Paper because of the similarity of the style of components between our medium-fidelity prototype and the components present in the library. Expo allowed for our team to be able to test code easily on local devices, which aided in fast progress and bug testing. In addition, we used GitHub to store code remotely and collaborate with each other on future versions of the app, Figma to redesign our medium-fidelity prototype to base the high-fidelity prototype off of, and VS Code to edit code. Since our app's data was primarily hardcoded without a database, all data was manually sourced or created.

Wizard of Oz Techniques:

Our application involves a location-based search that is not yet implemented. In an ideal version of the app, users would use their current location or enter a desired location to search for a doctor and receive a distance calculation between the doctor and themselves. In our app, we simulate that by impressing upon a user that a doctor is a specific number of miles away from the location that they searched. This data does not change, but does give the user a sense for the app's intended functionality.

Hard-Coded Techniques:

The information in each doctor profile, which includes an image, their name, their specialty, a description, their phone number, their address, and their distance from the user, is hard-coded. The information in each review, which includes their name, an image, their personal identities, their star rating, and their review itself, are also hard-coded. This limits the effective use of filtering since there is no actual distance calculation, so the doctors that are 2 miles away will always be two miles away. This also limits the

authenticity of the app in its initial stages, as many testimonials are based on the needfinding interviews we conducted, but none actually reflect a doctor-patient interaction. In the future, it would be important to source actual doctor information and gain a community of Queer users for a more authentic experience. In addition, it would be important to design an algorithm with the ability to read a user's location, calculate distance, then effectively sort search results for what the user wants, taking into account filter specifications, query specifications, and distance calculations.

Next Steps and Reflections:

In the future, developments can be split into two main categories: features and user base. If given more time to develop the product, we would add a mapping feature to display search results in a more visual, interactive way. We would also add a profile page so that users can personalize their experiences with their gender identities and sexuality and see all of their reviews in one place. The user base will also be integral to developing QueerX into its final form. The value of the platform correlates directly to the number or users we can enroll; the more reviews we have, and the more diverse an array of Queer perspectives that are shared, the more helpful the app will be. As such, if given more time, our team would also focus heavily on spreading the word about QueerX to recruit as many users as possible.

This quarter, we saw firsthand the importance of listening to members of your target audience; our final solution was one we never would have seen coming, but which is actually quite a simple way of achieving massive impact. While our needfinding process was incredibly difficult – people were generally hesitant to discuss their sexuality and healthcare with strangers – once we began talking, people were really grateful that their experiences were being considered and valued. It was also interesting to see just how effective design thinking strategies are; in moments when we were stuck or not feeling

inspired, brainstorming with post-its and silly constraints helped to get ideas flowing. In taking user feedback into account every step of the way, we ensured that their visions were represented in the final product.

Over the course of the project, it was heartening to hear how excited members of the Queer community were about our idea. They overwhelmingly agreed that something like this should already exist, and that, if we were to fully develop our app, they and their friends would absolutely use it. It was empowering to work on a project whose real-world impact was so pronounced, and we were excited to be recognized at the CS 147 Project Expo with the award for Greatest Societal Impact.

Thank you for joining us in our design evolution process. Working on QueerX these past 10 weeks has been an incredible learning experience.

Appendix:

QueerX Website
https://web.stanford.edu/class/cs147/projects/AccessingHealthcare/QUEERX/

QueerX Google Drive
https://drive.google.com/drive/u/0/folders/1HpzamB8QKosaVE5DeRfYVLn1GqXmHnoi

10 Heuristics
https://www.nngroup.com/articles/ten-usability-heuristics/