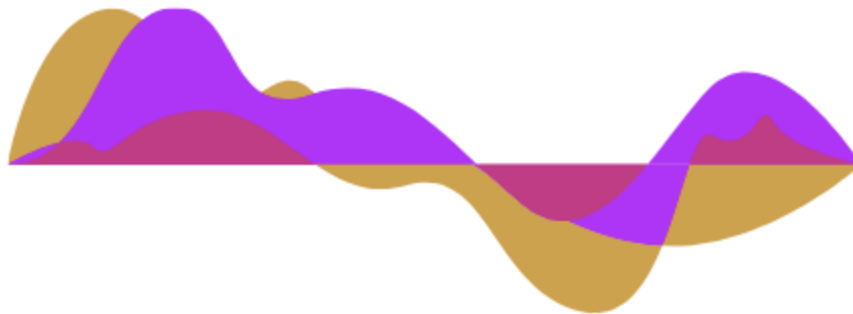# audiYO

Experience Virtual Concerts Like Never Before

03.17.2021
CS147 Winter 2021

Our Team

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Problem and Solution Overview

Problem: Our story began with concerts transitioning to the virtual space. We realized audience members missed the collective experience of interacting with others and enjoying elements of the concert together. This often resulted in a disconnect between audience members, the performance, and the experience as a whole.

Solution: To combat this, audiYO creates a cohesive and collective concert experience often missing. With group invites, customizable private rooms, and built-in performer interactions, we provide the audience with a collective experience that extends beyond the main performance.

1

Empathy Map

Says

Thinks

Does

Feels

Todd · Collins · Glenn · Ace
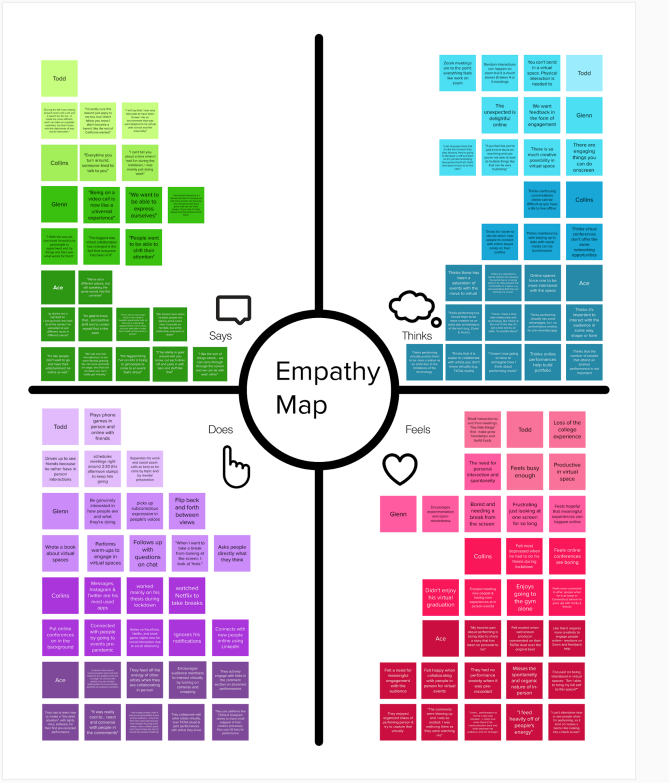
Needfinding

Our studio's theme for the quarter ws "Engagement in Digital/Physical Space", with a focus on bridging the gap between the digital and physical world. With our lives transitioning to the digital space due to the pandemic, solving this issue became more relevant than ever.

At the start of our project, we conducted four needfinding interviews. These were to explore people's engagement in digital and physical space before and during the COVID-19 pandemic. Here, we had a broad scope, focusing on exploring different perspectives. We looked at Ace "The Entertainer'', a poet and rapper, to learn about the contrast in how they engaged people in physical space and digitally, now and before the pandemic. Next, we looked at Colins and Todd, "The Entertained", exploring how they entertained themselves in physical and digital space, before and during the pandemic. In terms of social interaction during the pandemic, they were on separate ends of the spectrum; one we deemed "The Hermit'' and the other "The Mingler". We explored their experiences at large in-person gatherings such as concerts, virtual events in general, as well as their day to day leisure activities in the pandemic versus beforehand.

Finally, we interviewed Glenn, an expert who's latest <u>book</u> focuses on how people can engage each other and strengthen relationships virtually. Their empathy map is pictured above. Although we did one empathy map, we color-coded it to distinguish the four perspectives.

After the first round, we realized that we needed to be much more specific in our needfinding. So we narrowed down our scope to the concert space. We interviewed 5 additional people related to our new narrowed down topic of concerts and performances. We interviewed Elise, an expert in VR spaces and engagement. Then, on the audience end, there was Seneca, an average user who had attended both live and in-person concerts, from which we learned that audience members crave and miss that intimate connection. On the performance end, there was Emmanual (a rapper/DJ), Uzo (a singer), and Chloe (a producer and performer). As performers often go to performances, we also learned much about the audience experience as well. From these interviews we learned that performers really missed the "chaotic" energy of a crowd and the close intimate interactions not only during but before concerts.

Point of View (POVs) and Experience Prototypes

After conducting all of our needfinding, our group decided to focus on the POVs below. We also came up with How Might We (HMW) statements, to help us brainstorm ways in which we could address the needs in our POVs. Here are some examples:

<div>

POV & HMW: Ace

We met Ace, a young poet/rapper

We were amazed to realize that they preferred to have audio engagement during a virtual performance even if it was messy and produced a chaotic good engagement.

It would be game changing to have a way to encourage the audience members to participate with smaller interactions with the performer during virtual performances.

"**How might we** simulate the energy of a crowd during a performance in a verbal or non-verbal way? "

</div>

<div>

POV & HMW: Seneca

We met Seneca, a young professional who has attended both virtual and in person concerts.

We were amazed to realize how magical they found the collective experience of thousands of people singing the same song at a live concert

It would be game changing to be able to replicate this collective experience virtually.

"**How might we** induce the feeling of being part of a collective whole virtually? "

</div>

We met a guitarist/DJ based in Boston that's been growing his musicianship and reach

We were amazed to realize he enjoyed transforming his basement to a club setting for the virtual performance.

It would be game changing to have performers and audience members be able to adapt their physical spaces in ways that promote a realistic and engaging ambiance relating to the performance.

*"**How might we** have artists explore, create and export their physical spaces to audience members and other artists?"*

After our brainstorming, we came up with 3 solutions based on these HMWs, as well as experience prototypes to test the validity of assumptions made when coming up with these solutions.

Solution #1

Allow audience members to give audio/visual feedback to interact with the performer in a virtual performance to promote engagement.

Assumption: Being able to see and hear other people would improve the feeling of engagement for the audience member and the performers.

Experience Prototype: Zoom Jazz Club

We created a Zoom Jazz Club. We held a short jazz performance on Zoom where everyone has their cameras and microphones on throughout the performance. We encouraged audience members to verbally contribute as they would in live performances.

This tests the above assumption because the performer isn't just playing into a computer; they are able to see, interact with, and talk to audience members. Audience members are also able to see other people watching the performance, and interact with each other and the performer both visually and though sound.

We tested the validity of our assumption by observing audience members and performers during the concert, as well as by conducting a post-concert interview with both parties.

Pros
- Having cameras and mics on made the participants more in the moment.

- They all preferred this intimate experience to professional live streams from jazz clubs they've watched in quarantine.

Cons:
- There were technical considerations - mic of audiences etc. are key to maximizing this setup

From this experience prototype, we learnt that forcing people to unmute and show their faces facilitated natural and organic engagement, more similar to in person experiences. You don't have to think about muting/unmuting and turning your camera on/off to reveal your face.

Our assumption was valid. The audience said they felt more connected to the performance, and that it captured the humanity that is absent on Zoom.

Solution #2
Create "pre-game"activities for smaller friend groups to do together in preparation for a performance to create a more cohesive audience experience.

Assumption: People enjoy the concert experience more when they get to interact with their friends in smaller settings to get, creating a sense of engagement.

Experience *Prototype: The Pregame*

We held a Jazmine Sullivan themed listening party for the audience via Zoom Screen Share and Spotify, prior to watching her Tiny Desk Concert on YouTube.

We tested the validity of our assumption by observing the audience during the interview and conducting interviews after the listening party and concert.

Pros:
- The audience felt very connected with one another

- They appreciated having an intimate, casual pre-concert setting where people could talk and move freely

Cons:
- Forcing audio to be on *all* the time sometimes distracted from the performance

- Participants didn't know how loudly they needed to speak over the music in order to be heard by others during the listening party.

Overall, audience members enjoyed the idea of being able to have a pre-concert listening party, and watch with friends.During the listening party everyone was very chatty, but during the concert everyone was sitting and humming.

Our assumption was valid. All of the participants reported enjoying the listening party and felt connected to one another and remarked they would attend another similar session.

Solution #3
Adapt the audience's physical space to replicate that of the performer's to simulate the experience of physically being present at a performance.

Assumption: People enjoy the concert experience more when the ambience surrounding it, including the elements of the physical space such as lighting, matches the physical space and ambiance in the performance.

Experience Prototype: Experimenting with lighting

We had Individuals compare their experience watching a concert with mood lighting, created by LED lights which would match the colour of the lights in the WizKid concert they watched, versus watching the same concert with standard room lighting.

We tested the experience prototype through observation and by asking questions about their experience in a post-concert interview.

Pros:
- Mood lighting made individuals feel more connected to the space, reduced

distractions, and increased engagement to the performance as a whole.

Cons:
- Natural light from windows interfered with the ambiance

- Lighting didn't affect engagement to the performer.

We learnt that the physical space of the audience affected their level of engagement to the performance space, but not necessarily to the performer and the music being performed. **Our assumption was valid,** as the audience member felt more connected to the physical space.

Design Evolution

From our experience prototypes, we learned many lessons. Among them were that 1) interactions are key to engagement in performances, both in-person & virtually, for both audience members and performers, and 2) transitions can be used as a tool to alter levels of engagement in the performance. Using these findings, we drafted a final solution of creating pre-concert activities to promote a collective experience for smaller audiences and allow the audience members to engage with both the other audience members and the performers in a smaller, more engaging setting, not only during the concert, but before it as well. We realized that experiencing a concert isn't just the concert itself, but the whole process of getting ready before it as well.
The core tasks for our solution are as follows:

- Task 1 - Create pre-concert room & Invite your squad to room (Medium)
    - Inviting friends to a pre concert room is essential to recreating the experience . You attend concerts with your friends, we are recreating that step.

- Task 2 - Customize room to match your group's pre-concert vibe (Complex)
    - The ability to customize a room to your group's liking is important because there are a variety of options for pre-concert activities in audiYO, including room themes, party games and music choices. We want users to be able to tailor their choices in each of these areas to their liking.

- Task 3 - Watch the performance with your friends (Simple)
    - This task is the culmination of the collective performance experience - after enjoying the various activities in the pre-concert rooms with your friends, this task allows them to watch the concert together.

Low-Fi Prototype

Our Low-Fi Prototype was created by uploading our drawing in Marvel's Prototyping on Paper. This allowed us to create connections between our different screens, and share our Low-Fi prototype digitally with users to conduct testing.

Low-Fi Prototype - Sample Screens
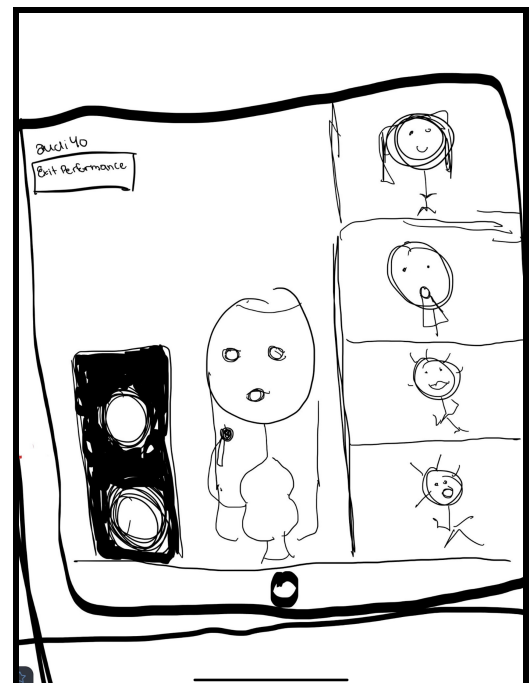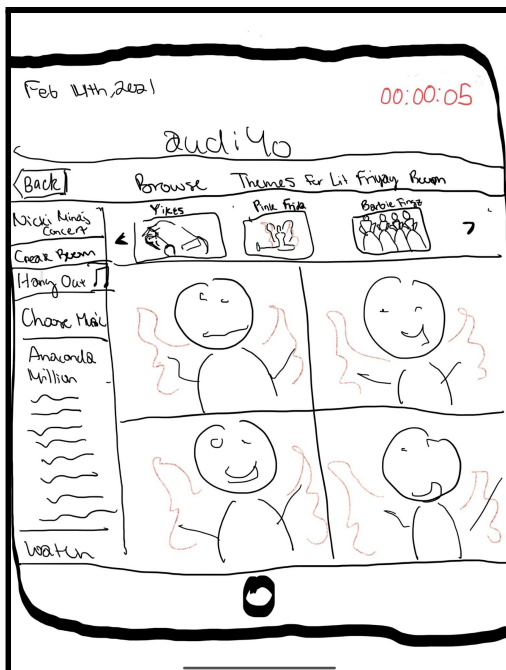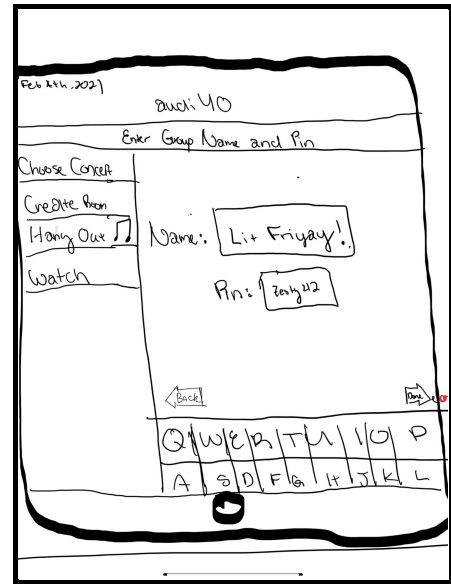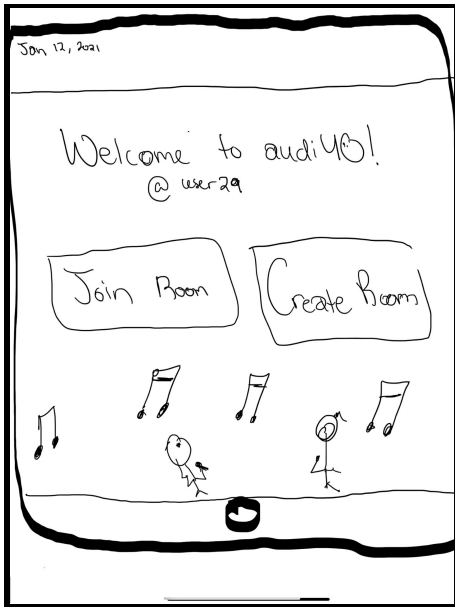
Major Design Changes from Low-Fi to Med-Fi Prototype

We tested our Low-Fi prototype by conducting pilot usability testing. After giving them a brief demo of how to navigate the prototype, they were asked to complete the 3 core tasks of the application. Whilst completing the testing, users narrated their experience navigating the UI. We then logged critical incidents regarding their positive and negative experiences with the interface.

Based on the results of this usability testing, we made the following changes to our UI from our Low-Fi to our Med-Fi prototype, in order to respond to negative aspects of our UI which affected the UX.

1st Design Change
Added a new room customization screen (R)to come before the pre-concert room (L).
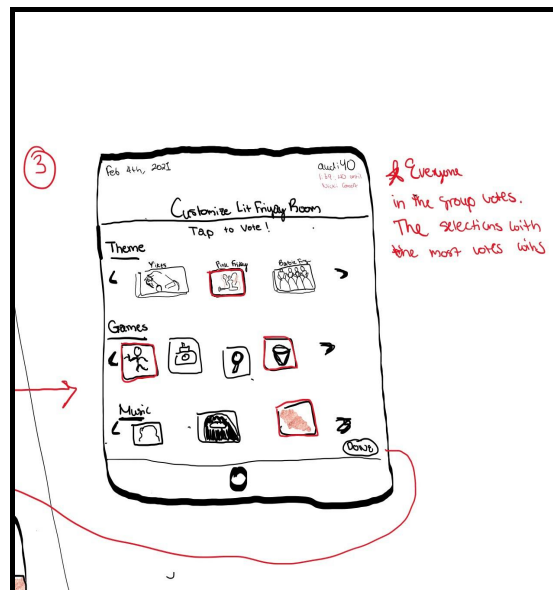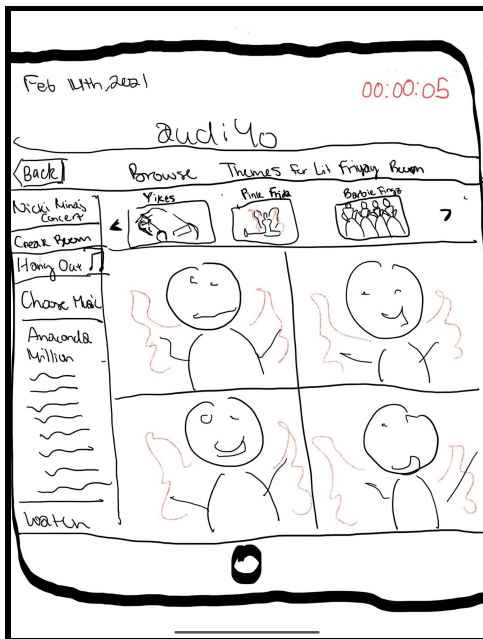
Before

During the Low-Fi prototyping stage, we received feedback that the pre-concert room screen (L) had too much information for users.

Once the users were in the room, we had a number of customization options at the side and bottom of the screen. They could click either the Pink Friday button to apply visible changes to the theme of the room or change the music with the side buttons. However, users were unsure of which button to press to activate this feature, due to the amount of information on the screen.

After

As a result, we decided to move the customizations to a different screen, as some of the customizations, such as the theme, only need to be chosen once and therefore would not need to be on the key screen while users were in the pre-concert room.

With the addition of the customization screen, after entering the room name and pin, users are taken to a customization screen where they can vote on the room theme, and select between the different games and music options. They are then taken to the pre-concert screen to interact with their friends. We also decided to add games to the pre-concert room in order to increase the engagement of users with their friend group during the pre-concert experience. Below is this implementation in the Figma.
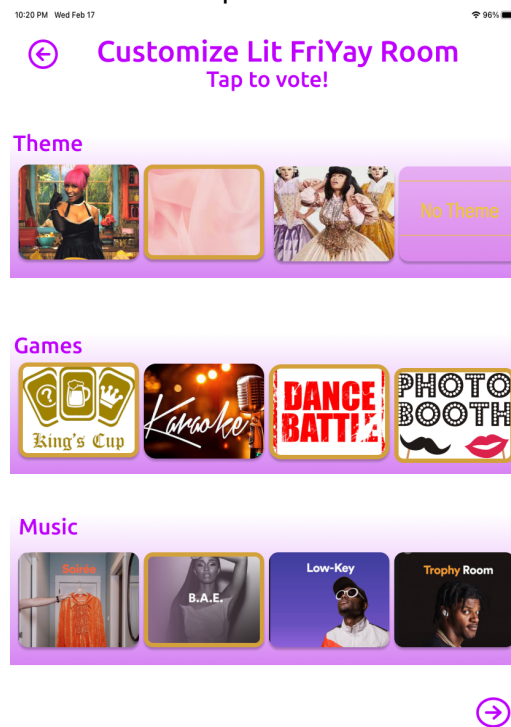
2nd Design Change

Move side buttons at the bottom of the video screen. L shows original screen, R shows redesigned screen
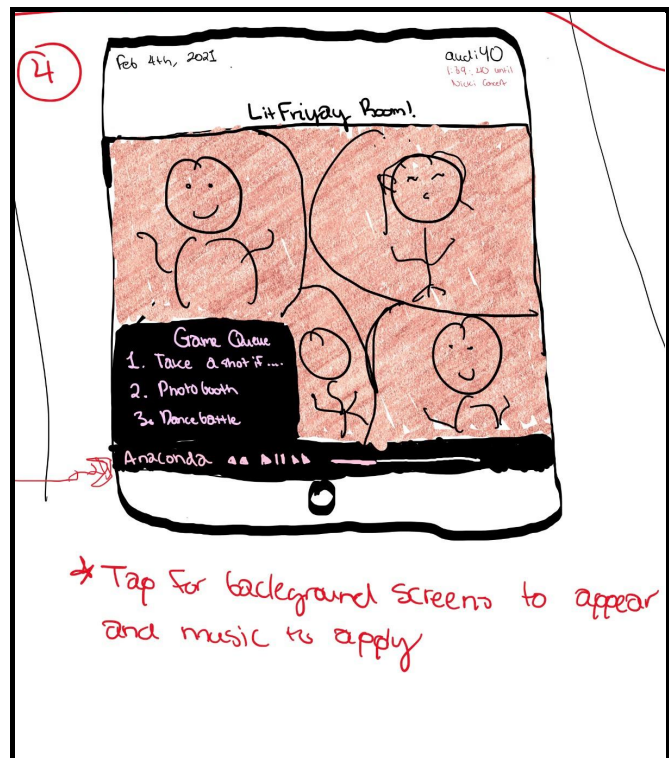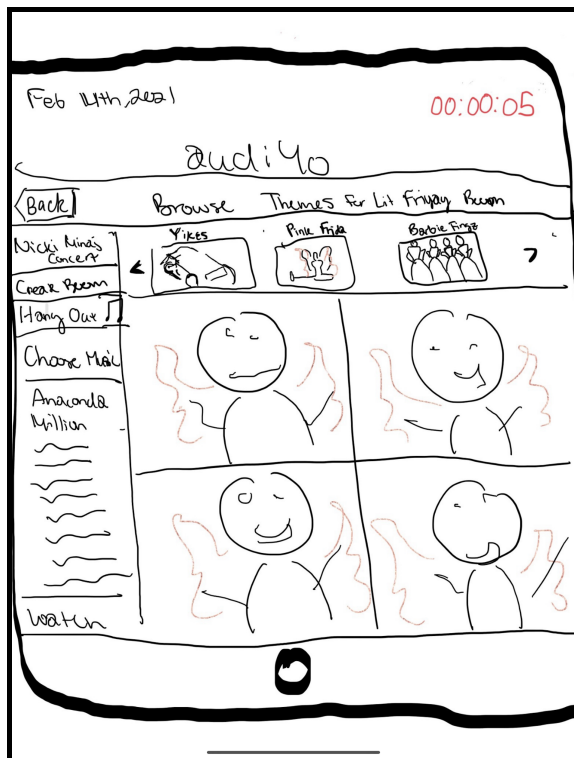
Before
We initially had the buttons on the pre-concert screen to the side of the video call. These buttons allowed users to switch between different songs easily and to view the song that was currently playing.

After
We decided to reduce the number of buttons on the screen and put them at the bottom of the screen beneath the users. This is because while in the room, the main objective is for users to be able to see and interact with their friends. We received feedback from users that in our original design, there was a large amount of information on the screen.

As a result, we had the users video take up the main part of the screen. We also swapped some of the text with icons in order to reduce the amount of text on the screen. This still allowed the user to access items such as the currently playing songs and to switch between the room and the concert while reducing the amount of information on the key screen. We also added a games button to allow the users to play games during the room. Below is the

implementation change in the Figma.

3rd Design Change
Redesigned the performance room. Original Design - L, New Design - R
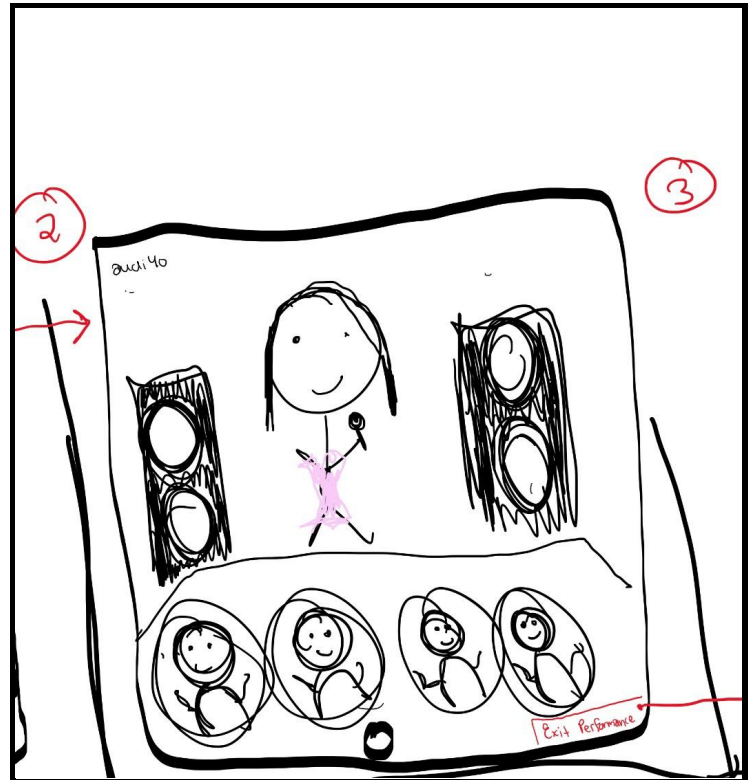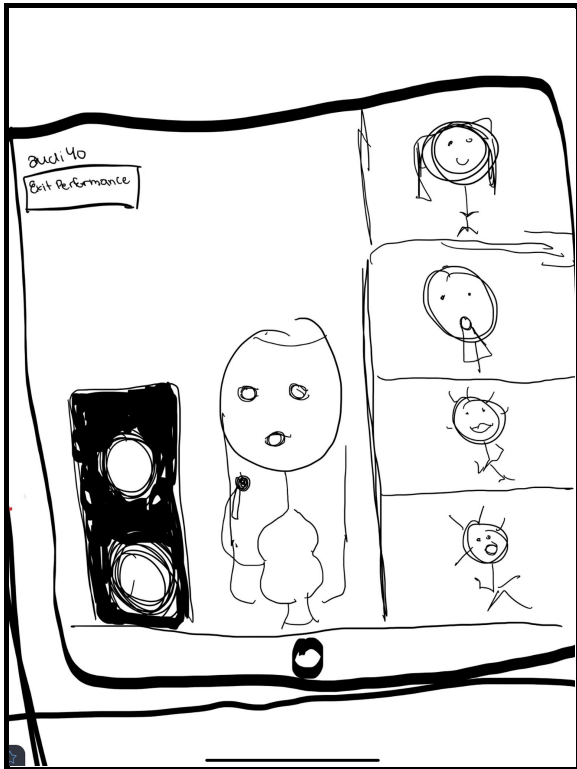
Before

We had the performer take up the main part of the screen and the users on the side. This allowed for friends to view the performance together as it was going on. It also allowed them to switch back and forth between the main room and the pre-concert room to talk about the performance.

After

We redesigned the performance room to make it simulate the feeling of being in a performance with the performer on a stage (at the top of the screen), and the users at the bottom. In our original UI design, some users found it difficult to identify themselves on the screen. This change would clearly differentiate between audience members and performers.

It also allowed friends to view and focus on the performance more easily. Below is this implementation in the Figma.

Performance Room!

Med-Fi Prototype

We designed our Med-Fi prototype using Figma. We applied the above improvements to our UI when designing this prototype. The aim of the Med-Fi prototype was to be an accurate visual representation of what our Hi-Fi prototype would look like. We took advantage of Figma's prototyping feature to create connections between the different screens.
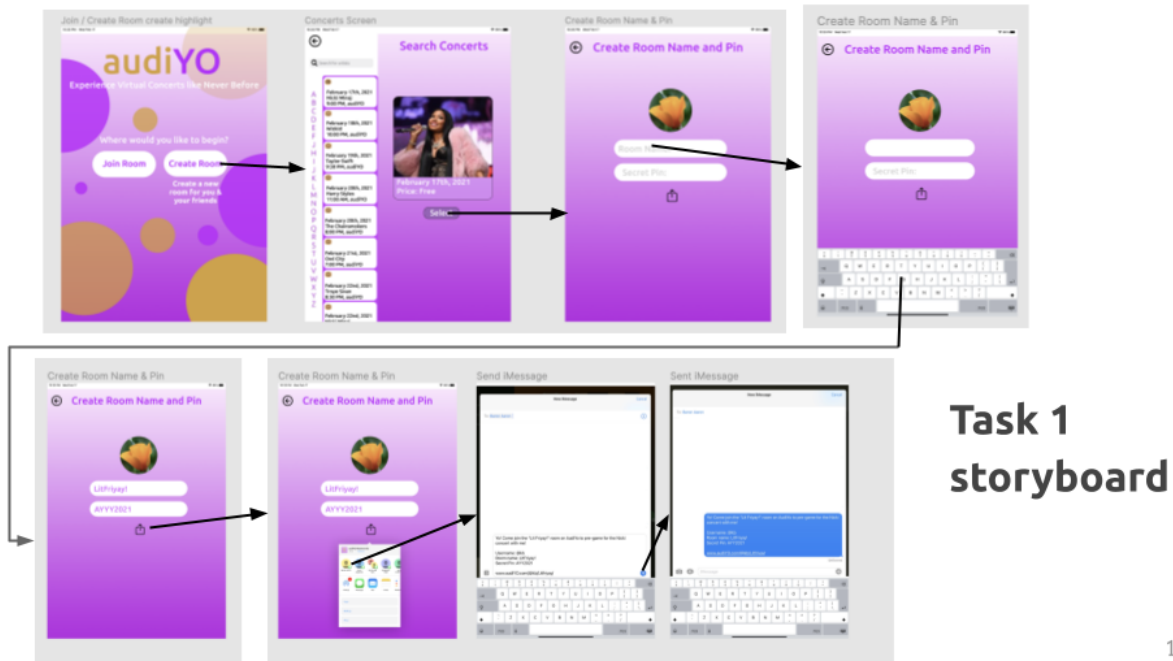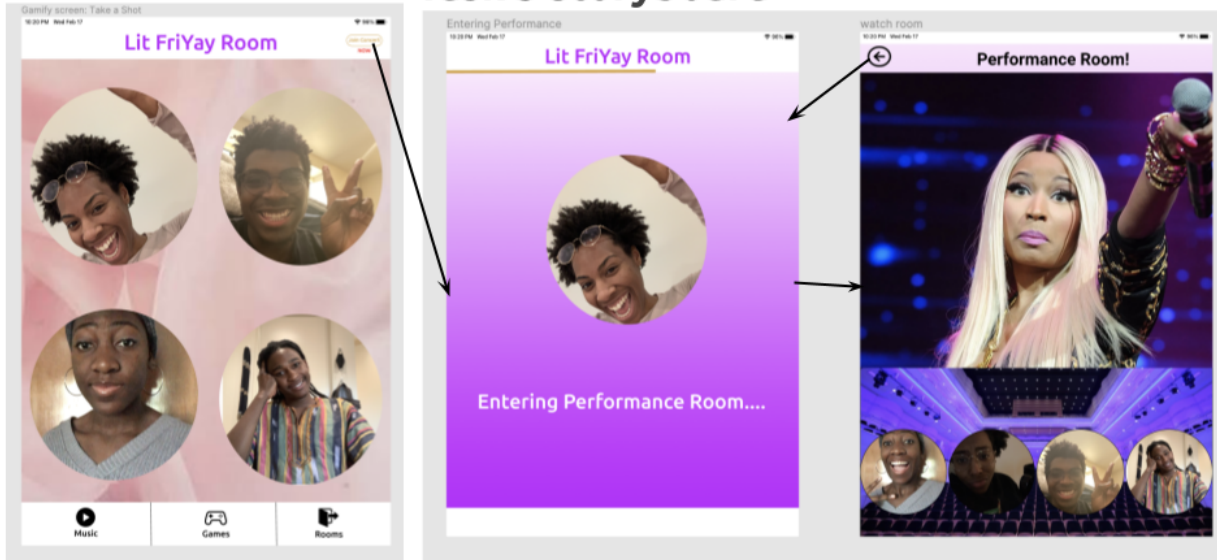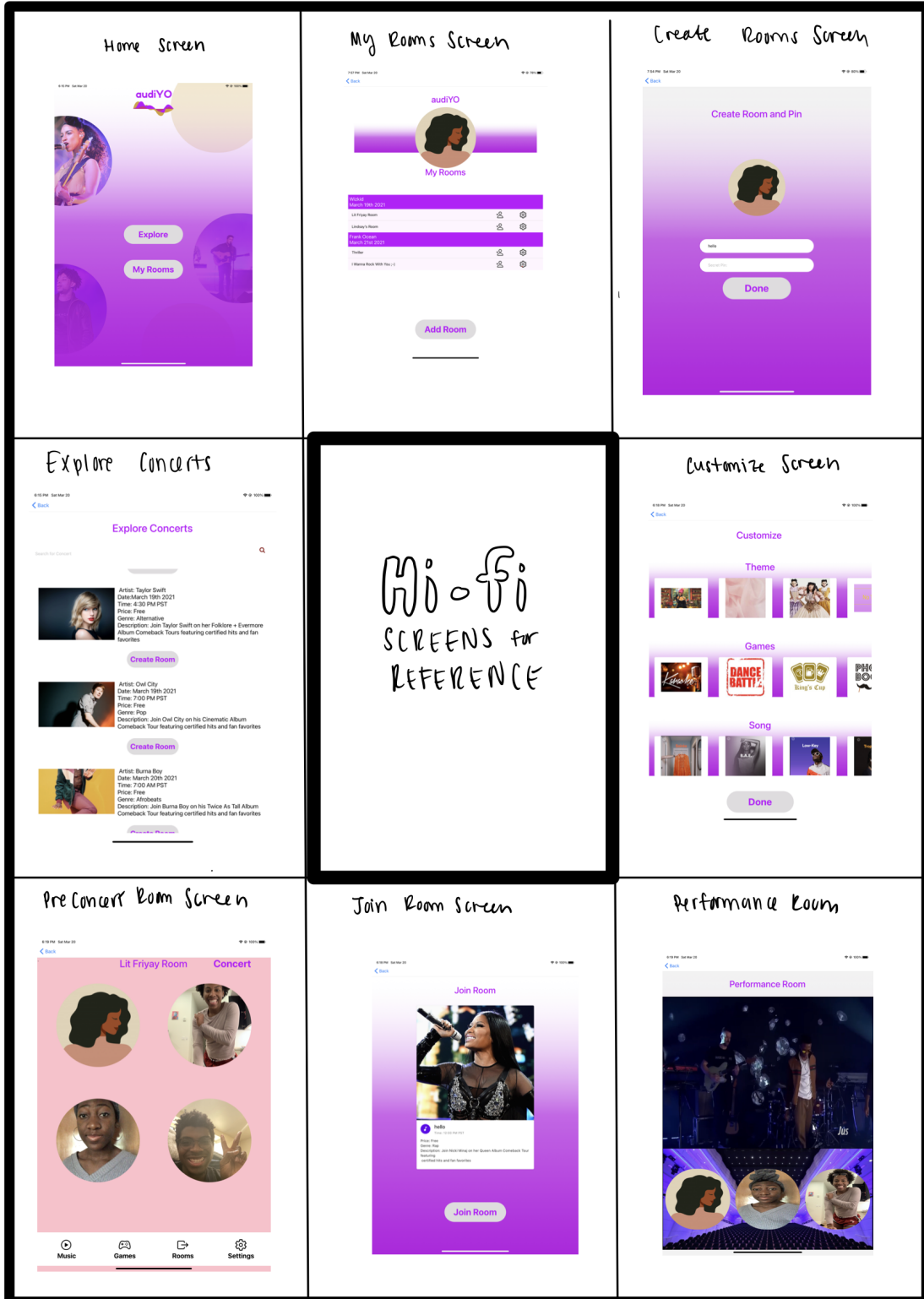

Task 1 storyboard

12
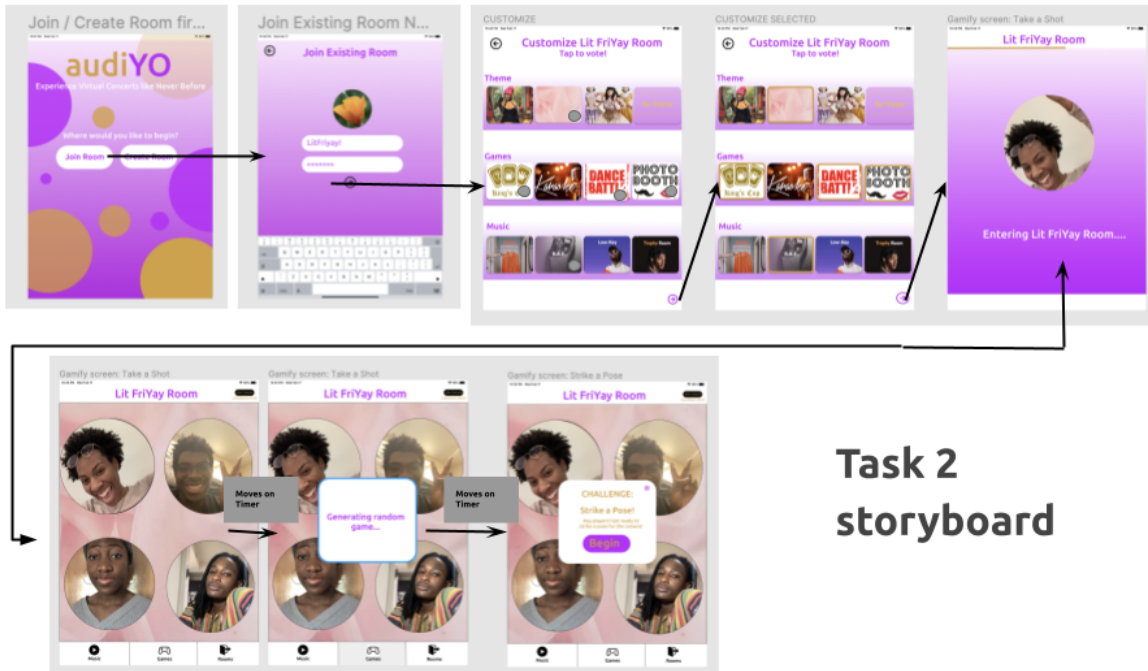
Task 2 storyboard

Task 3 storyboard

These are our High-Fidelity screens for reference.

This was our Hi-Fi Task 1.

This was our Hi-Fi Task 2.

in theory, one should also be able to go to rooms & settings from this page

can also go & shuffle through games selected
*this feature is also hardcoded

view music
this feature is unimplemented

go to the existing rooms

TASK 2 -
customize your room to match your preconcert vibe

click on a room to join it

after "choosing" a theme, games & a song

Click to go to the preconcert room

view the details of the room

And this little gem here was our Hi-Fi Task 3.

click on the concert button to watch the performance with friends! :")
* video plays !!

go to the existing rooms

TASK 3 -
Watch the performance with your friends

after 'choosing' a theme, games & a song

click on a room to join it

click to go to the precancrt room

view the details of the room
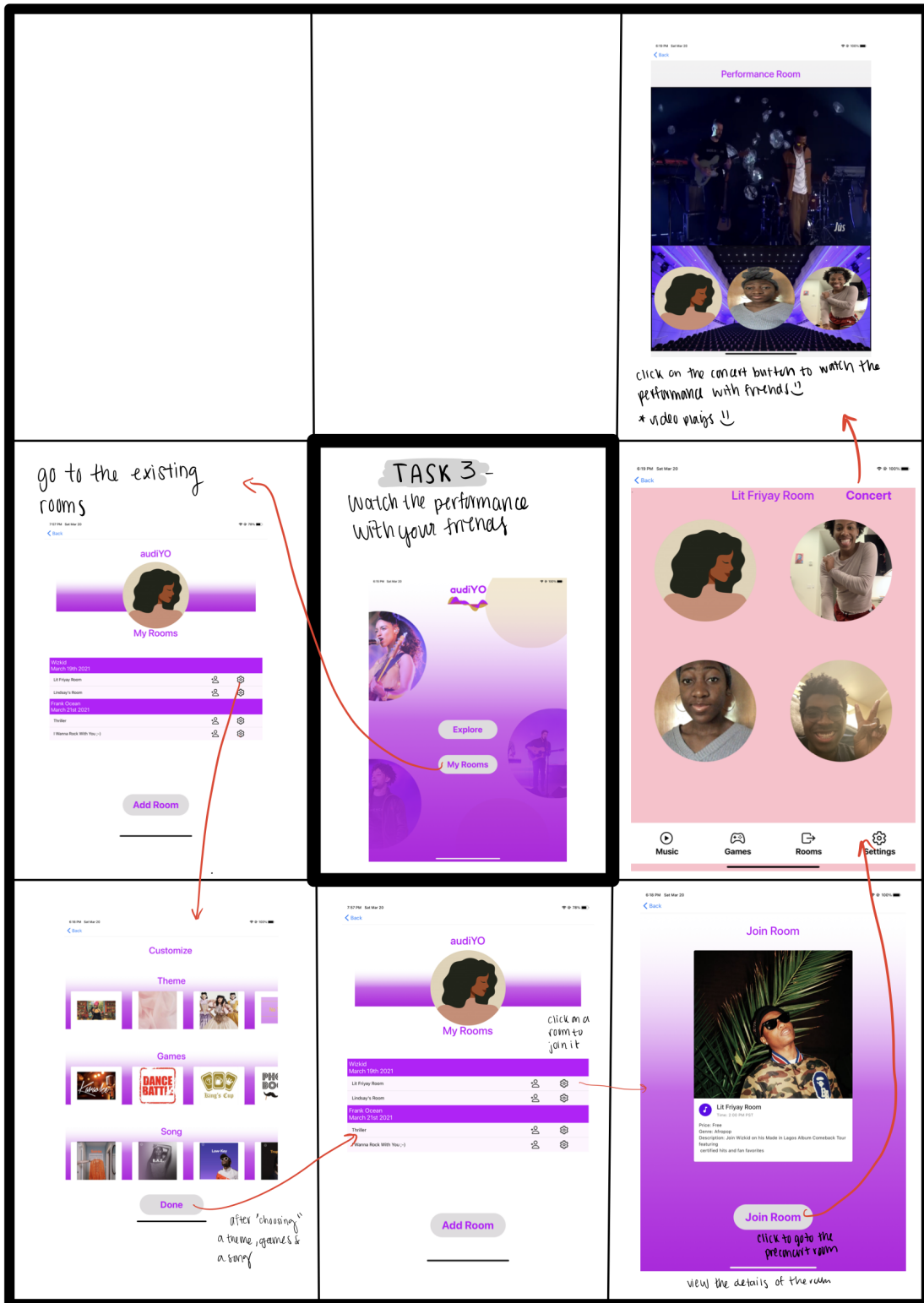
Changes from Medium-Fi to Hi-Fi

As for the changes we made from the medium fi to the high fi, there were a lot. It was a very difficult process because we essentially reworked our original design for the sake of the violations and implementation in mind. Often, both of these went hand in hand as structural things that resulted in violations were also structural issues for implementation. Unfortunately, this delayed the time to work on the app— it ate up a *significant* amount of time and we reworked *a lot* to address both sets of issues. It was indeed an investment though as we believe it made our app more usable. The app was evaluated by 4 users according to Nielsen's 10 Usability Heuristics. There were 21 severity 3 and 4 violations, and we've addressed the 10 most pertinent ones. Here are those suggestions we did and did not take into account from the medium fi.

1. H4 Consistency and Standards / Severity 4

The text at the top of the screen says "Search Concerts" and the faded text in the search bar says "Search for artists". The inconsistency makes me confused as to whether there is a difference between "concerts" and "artists"

Fix: Making language in the search bar and header consistent

We heeded this change, changing both to be more consistent as this was quite an easy fix and added clarity.
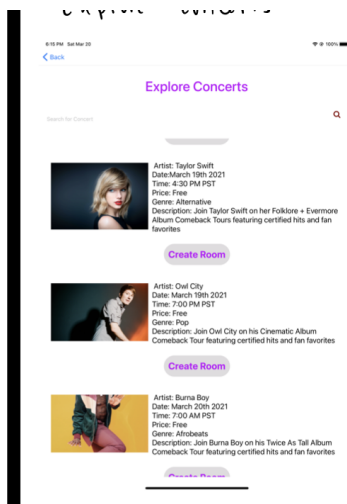
2. H3 User control and freedom / Severity 3

There was not a clear home button to exit the rooms or go back to the main menu.

Fix: Add home button, saving settings in dras if you leave a room mid-creation.

We added back buttons everywhere to make it easy for the users to go back to the previous screen. However, we did not implement a saving settings screen as we believed the Customize Screen did not necessitate that— it only consisted of three options which could easily be done and redone. Rooms also just consisted of a concert and pin, so we thought it would be less efficient to save that.

An example of the back button is to the left. This is on every screen.

3. H8 Aesthetic and Minimalist Design / Severity 3

The lettering on the lemost side of the screen seems to take up an unnecessary amount of space. The text of who's performing and the date/ time they are performing seems to be arguably more important yet is a much smaller font size.

Fix: Decreasing font size of the letters on the le and increasing font size of concert names

4. H7 Flexibility and Efficiency of use / Severity 3

Someone that is experienced with concerts might know exactly who they want to see and go there immediately. But someone with less concert experience might want to explore different concerts/artists and learn more about their music. While the design is nice because it is minimalist, it might be helpful to include short descriptions of the concert when a user clicks on it. This more information will help newcomers to the app decide which concert to go to and I don't think it will be enough text to bother experts of the app.

Fix: Adding short descriptions of the concert or artist when selected for novice users to learn more when exploring.

5. H8 Aesthetics / Severity 4

The split screen set-up between searching for artists v. concerts is confusing to me. It took me three trips to the screen to realize each half was supposed to have a separate function. Also the design between the two looks like they should be two separate pages.

Fix: Simplify by integrating into one search function that allows you to search by specific Criteria.

To fix #3 and #5, we redesigned the Explore Concerts page. We went for the simple and yet elegant list of concerts at the bottom rather than a very colorful and busy screen with a complex layout. The sidebar referenced was removed and the fonts of details enlarged. As for Violation #4, we added more descriptions of each concert as to provide new users with more information.
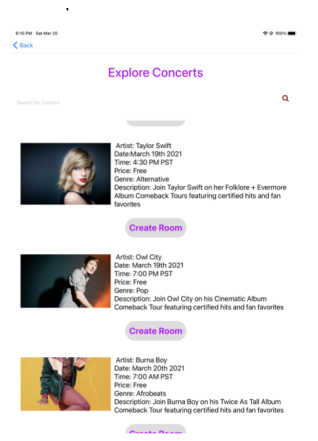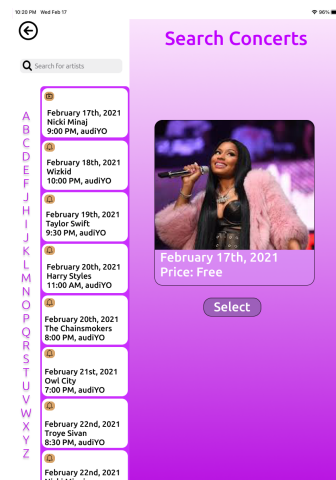
6. H10 Help and Documentation / Severity 3

I am confused on what "Tap to Vote" implies. There was no voter counter or anything of the like to show that there was some sort of poll/ tracking system. I would want to see what others voted for or even what the room currently is experiencing and vote accordingly.

Fix: Adding a tally or some other way to keep track of "voting"

We completely removed this feature as we deemed it too complex and confusing for both users and implementation.

7. H10 Help and Documentation / Severity 4

As a new user, I am not sure what Theme, Games, or Music implies. Some short descriptions or question mark symbols that can be expanded would be helpful for novice users wanting to learn more about what these different things are. The categories sound interesting but I am not sure what they are.

Fix: Adding short descriptions or question mark highlights that users can select to learn more about the different categories.

We did not take this change into account as we thought that the short description for each, especially games and music, was sufficient.
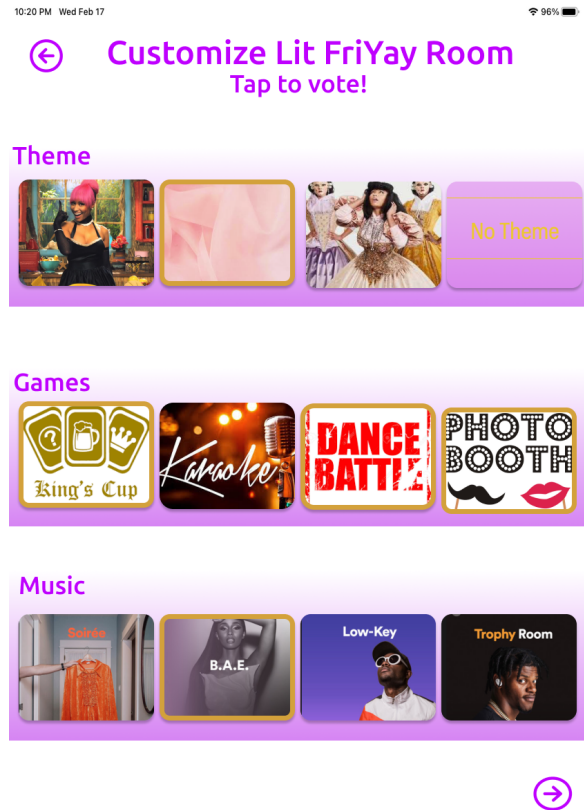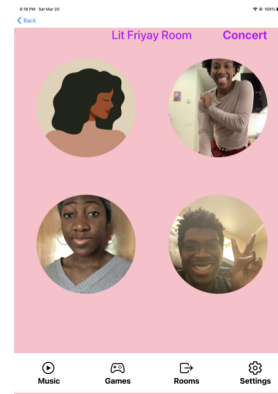
8. H3 User Control and Freedom / Severity 3

Users seem to be locked into their choices after creating a room. After selecting the games, theme, and music upon the initial entrance/creation of the room, users are unable to update their preferences from inside of the already created room.

Fix: Add the option to update theme, game, and music from inside the room (ex. Have a "room settings" button in the top left corner)"

 To do this, we added a "Settings" button in the preconcert room so that one could change settings from within the room.

9. H5 Error Prevention / Severity 3

There is no way to modify members of a group. If a user sends the request but forgets to invite someone, there is no way to share the room again after it is sent initially.

Fix: Incorporate a share room button within the room after it has started.

10. H10 Help and Documentation / Severity 4

It's unclear whether I'm logging into a separate room, or a sub-room within Lit FriYay. Moreover, once the user is redirected to Lindsay's room, and there are two other people, it's unclear to me where those individuals came from. Also, it seems like Lindsay is simultaneously in her own room and in the main Lit FriYay room. Does that mean a user can participate in two rooms at once?

Fix: Further refine the language and thinking behind the navigation of rooms and sub-rooms. If they're not sub-rooms at all, it may be prudent to remove the rooms tab from the navigation bar and instead give an option to leave the room and join another.

11. H4 Consistency and Standards / Severity 4

In the average consumer tech application, a user is redirected to a homepage or an account page aer registering for something. When you create a room, there's no indication as to what that room actually is because you're not directed anywhere and instead you must immediately share the room with others.

Fix: Either create a homepage for a prospect audioYO room or implement fix #4 with a more detailed message.

To fix these, we added a whole new screen—the My Rooms screen. Addressing #9, a home base page of rooms allowed for the users to invite anyone at any time for any room. As for #10, this feature allowed people to see all the rooms, making the navigation and relationship between rooms more apparent. And in addressing #11, a home base of rooms allows for one to see all the rooms without having to immediately share the interface.
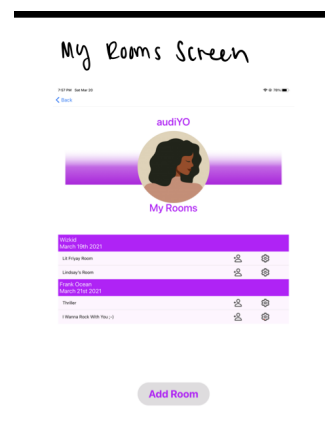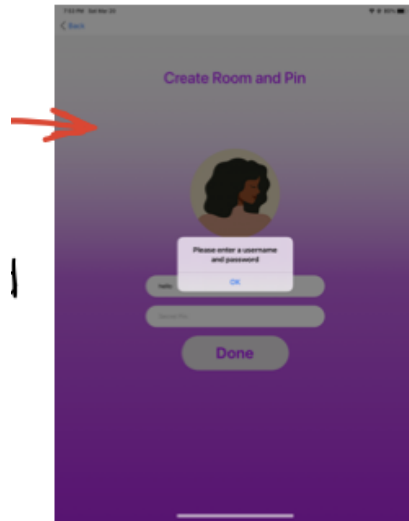

12. H9 Help Users with Errors / Severity 4

There are no error messages, even for error prone screens like entering a room name and pin number

Fix: Add error messages detailing acceptable username/pin numbers

We added an error message that tells users to enter a room name and password on the

Create Room and Pin screen, preventing errors
from not entering one at all.

Final Prototype Implementation

We ultimately used React Native to build the app. Using Expo Snacks as our medium, we merged our code together manually and then exported the file and QR code. Initially, we had tried using Atom to pair program and collaborate, but we found that to be extremely difficult. Between adding dependencies, collaboratively working with the code, and difficulty with the platform, it wasn't an ideal solution. Fortunately, Expo snacks proved to be amazing. The coding platform was simple and intuitive, had many error-preventing mechanisms, and also lots of automatic processes (like adding dependencies) that streamlined the app development process. It was very convenient being able to share code with just a link and a QR code which allowed us to constantly refresh and track the progress of the app through our individual tablets. It wasn't all easy, however; merging the code was also difficult because it required manually adding files and making sure names and components lined up, and keeping track of different versions could be difficult; sometimes if you forgot to save and you refreshed— boom, that was it– your progress would be gone. But we managed to make it work.

As for the Wizard of Oz techniques, there were quite a few. Concert APIs were difficult to get our hands on, and so we had to hard code a lot of that data. The concert data was hard coded as well as the images and video since the API for that was a quite advanced one and with the numerous constraints we had, we were unfortunately unable to explore and implement that. We also had to hardcode in the music and the games on the pre-concert screen because those were packages that were not feasible to add given our constraints. They were more so placeholders, but if the app was more developed and we had more time we could have explored so much more. Nonetheless, we learned lots through the process of building and deploying our app! Thanks CS147!

Summary & Next Steps

One key learning from this quarter from the design thinking process was the importance of talking to users at every stage. Speaking to different people a range of different people at the Needfinding stage, within the categories of "The Entertainer" and "The Entertained" was key to us identifying our area of need, virtual concerts, and the problems within the space that needed addressing. Speaking to users and testing our interface with them at the Low-Fi and Med-Fi stages, was also integral in gaining feedback to improve our UI & UX. When you have been working on designing an interface, you can be blinded to poor design decisions which negatively affect the UX. Therefore, gaining an external perspective is extremely important.

We primarily focused on what audiYO concerts would look like from an audience perspective for this project. However, concerts are two sided engagements, involving audience members and performers. Therefore, if we had more time, we would explore what hosting a concert on audiYO would look like from an artists perspective. This would include them being able to interact with audience members in rooms, as well as host and schedule pre-recorded and live performances through the app.