



**house**

discover and create dance communities

**CS 147 Autumn 2022**  
**Team ACAI Final Report**

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## Team

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## Problem/Solution Overview

### The Problem

Dancers who are not in dance teams want community, but struggle to find them solely in classes.

### Our Solution

A centralized platform for dancers to connect with each other outside of teams and classes.

# Needfinding

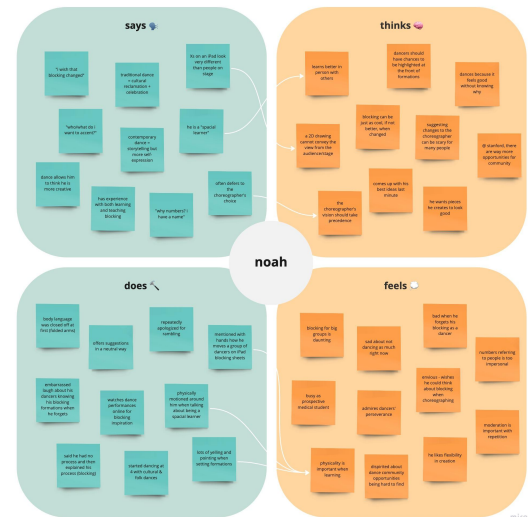
## Interviews

We used our contacts in our own dance communities to find dancers in the bay area and cross-country who were at different experience levels and stages of life. We interviewed on campus and at a nearby dance studio with boba as compensation.

Our original problem domain was quite different: our interview questions centered around the concept of “blocking”, which is the creation of formations for dance performances. However, we found throughout all of our interviews that this was too narrow of a focus so early in the design process. Our interviews all pointed towards a different problem, one of wanting and discovering community. With our new findings, we then pivoted our focus and conducted a second round of interviews to explore this area further.

## Synthesis

To synthesize our findings, we created empathy maps for each interview. From these maps, we constructed the POVs and HMWs listed in the next section. To the right is one of our empathy maps:



The second round of interviews confirmed our initial findings from the first round: dancers want to find communities outside of dance classes and college teams.

## POVs/HMWs

Here are our final three POVs, with their accompanying HMWs.

### POV 1

We met Participant 5, a recent college graduate who danced and choreographed on teams in college and is now taking dance classes independently all over the bay area. We were surprised to notice that he has a very structured day-by-day process of how he chooses who he wants to take class from each week, but also sometimes decides to take classes from people he watches and meets randomly in classes that he searches up after

class. We wonder if this means he cares deeply about how he utilizes his time each day when figuring out where to take class. It would be game-changing to give him an effortless experience where he can personalize and structure his schedule.

From this POV, we asked: **How Might We...**

1. help people find positive takeaways from classes they take?
2. help dancers find classes worth taking?
3. let dancers take more classes?
4. make people talk to each other in dance classes?
5. we make dance classes an entirely social experience?

## **POV 2**

We met Participant 3, who was highly involved in the college dance community and is now dancing with a studio called EDS after graduating. We were surprised to notice that he said good blocking should make the choreography interesting, yet he himself wanted to invest minimal effort in the process while still reaping its benefits. We wonder if this means that he sees blocking as a ‘necessary evil’—a process to endure to create an artful end product. It would be game-changing to make blocking more enjoyable, simple, and less tedious.

From this POV, we asked: **How Might We...**

1. make blocking the most interesting part of the choreography process?
2. make blocking the most fun part of the choreography process?
3. make blocking not necessary for choreography?
4. reduce repetitive steps in blocking?
5. introduce other rewards for good blocking?

## **POV 3**

We met Participant 5, a recent college graduate who danced and choreographed on teams in college and is now taking dance classes independently all over the bay area. We were surprised to notice that he misses his old dance team communities where he felt close and connected to others and feels like finding a dance community post-grad is far harder than it was in college as a shy person. We wonder if this means he struggles with finding a community now as an adult living on his own. It would be

game-changing if class culture was more of a shared and collaborative experience than just a solo experience.

From this POV, we asked: **How Might We...**

1. make people feel they are not alone if they attend classes solo?
2. help people reconnect with their old dance communities?
3. help dancers find communities outside of socializing in classes?
4. encourage people to take more classes?
5. let people create their own dance communities?

# Solutions/Experience Prototypes

## Solution 1

Creative prompts/constraints for blocking formations

### Experience Prototype

- **Assumption:** Random prompts are a fun way to generate new blocking ideas.
- **Setup:** We scribbled prompts on paper and put them in a cup, shook them to randomize it, and asked our participant to select a prompt from the cup. we then asked her to create a dance formation based on the prompt she selected.
- **What worked:** It was clear that she should create a blocking formation from the prompt.
- **What didn't work:** The participant was stressed when trying to think of the blocking formations.
- **Implications:** Visual prompts influence the formations more than text alone; her initial confusion over how to implement a prompt led to a creative solution.

## Solution 2

Centralized place for dance events in your local area

### Experience Prototype

- **Assumption:** Dancers want to meet other dancers beyond the classroom context.
- **Setup:** A paper simulation of an app that pinged the participant about dance events happening nearby.
- **What worked:** Simple yes/no buttons, providing information about the event up front.
- **What didn't work:** Our prototype leaned heavily into app design territory, rather than focusing on the experience.
- **Implications:** The participant was enthusiastic about going to a dance event but only thought that it could be a workshop or class (she did not consider the possibility of a social event, or another type of dance event).

## Solution 3

Private diary for dance reflections and journey

### Experience Prototype

- **Assumption:** People want to see and reflect on their own dance progress.
- **Setup:** A two-part Google Form with basic reflection questions, for the participant to fill out before and after a dance audition.
- **What worked:** The participant felt present and excited to dance after filling out the prompts.
- **What didn't work:** The participant was slightly overwhelmed by having to put emotions and thoughts together in writing.
- **Implications:** People feel accomplished and fulfilled upon reaching the goals they've set for themselves.



## Design Evolution

### Final Solution

The solution we decided on was a mobile app that allows dancers connect with each other by joining groups called “houses”. Users can browse houses in the area around them via a public list and join houses to interact with community members, attend events and gatherings, and explore common dance interests.

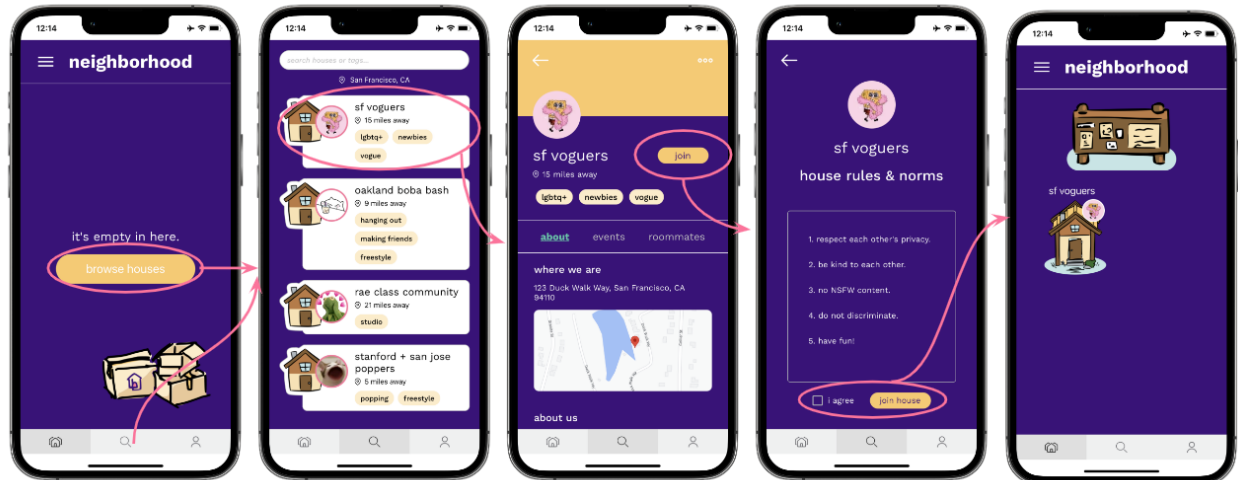
Our key insight from our needfinding interviews was that **dancers find comfort in a consistent group with common goals** (structure and common ground). For our platform, we wanted users to be able to easily connect with these groups on the go, so we chose a mobile app. One alternate solution we explored focused on one-to-one interactions that limit communities to a physical space, but we wanted something that allowed for more flexibility in what activities the community does (dance together, messaging, hanging out, etc.). Considering these factors, as well as our other values (which we explore later in this report), we decided on our final solution.



## Tasks

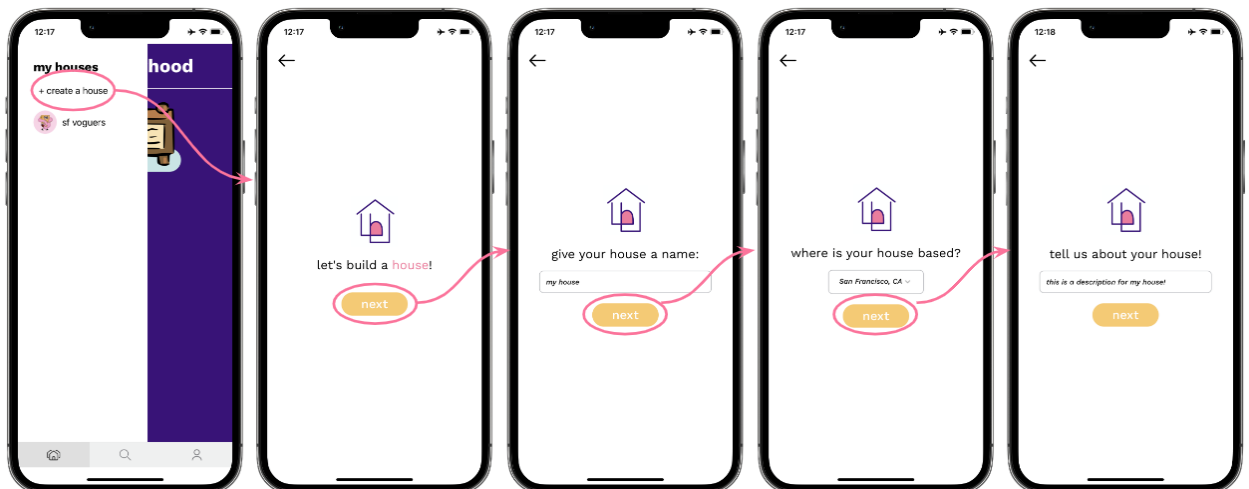
### Simple Task: Browse and join a house

The user browses the public list of houses within a certain distance of their set location and joins one that interests them. This is a central feature of the app: allowing users to explore houses around them and join the communities.



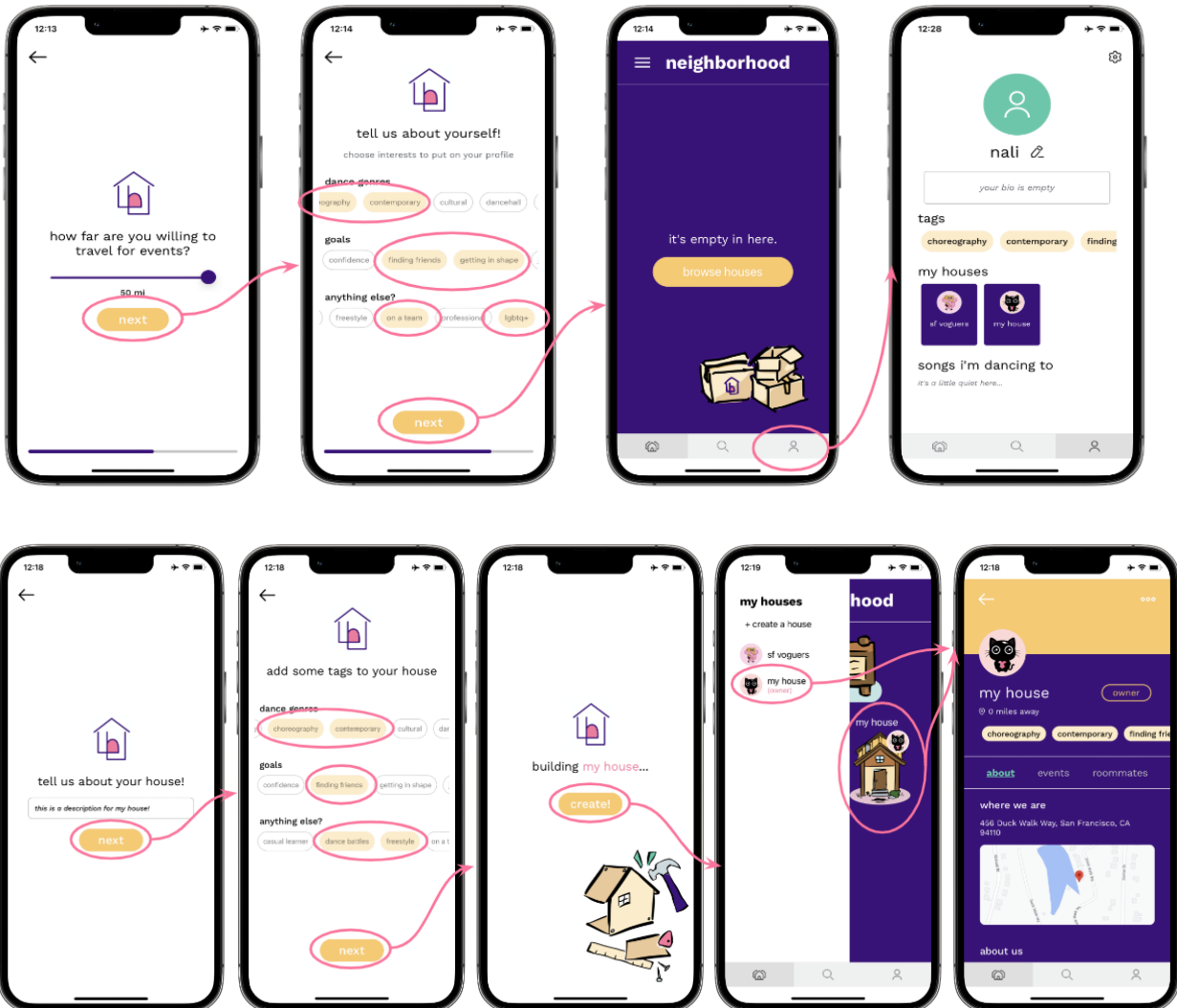
### Moderate Task: Create a house

The user can create their own house, setting the location, name, norms/rules, description, and dance-related tags. This is an important task because many users will want to start their own communities that closely align with their interests.



## Complex Task: Create your profile

When the user first downloads the app, they are prompted with several questions that will build their profile, including their location and dance interests. Since a core experience of the app is finding and connecting with other users in the area based on their dance interests, these questions provide valuable information that aid that experience.

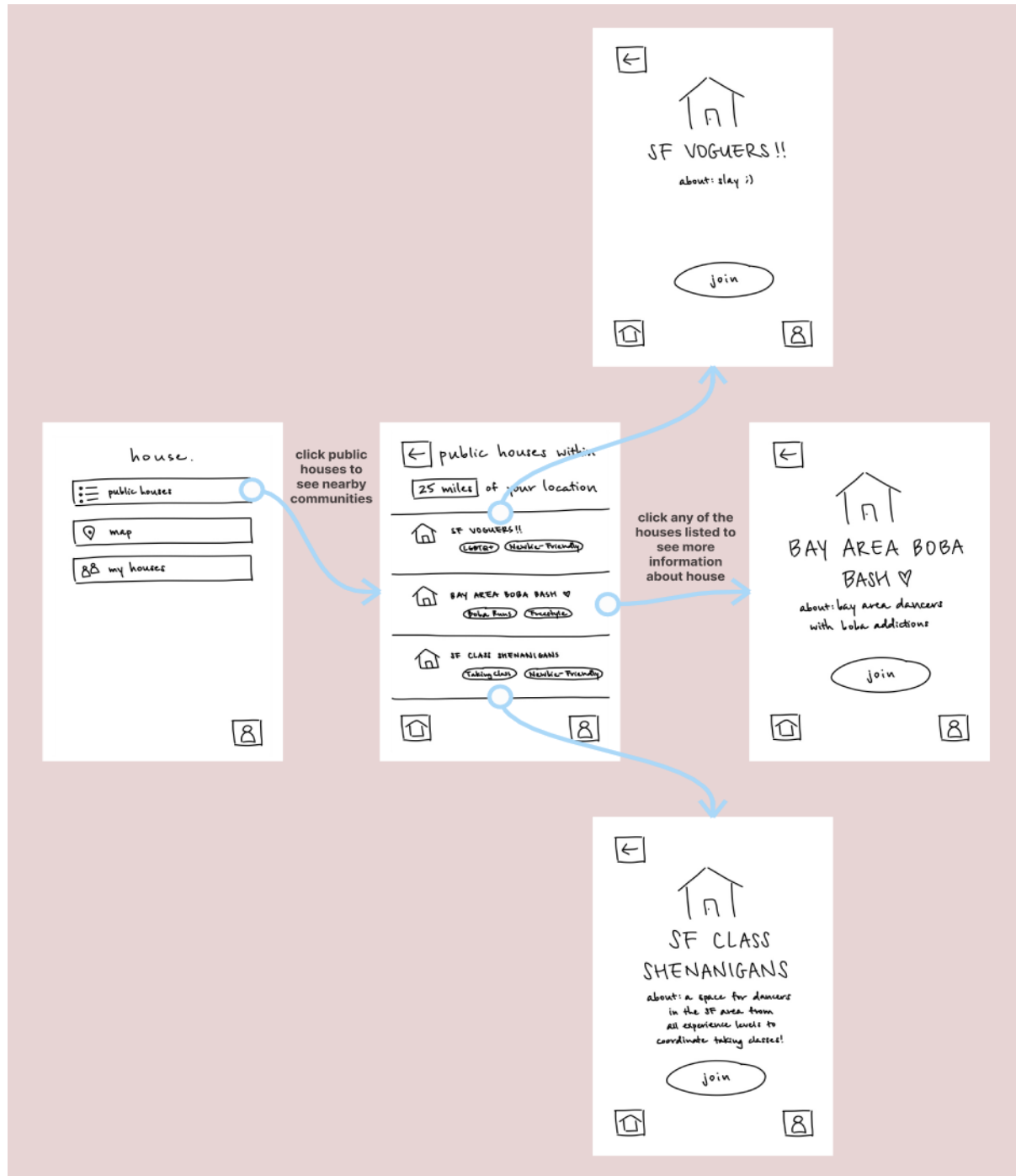


## Design Evolution Visualization(s) and Rationale

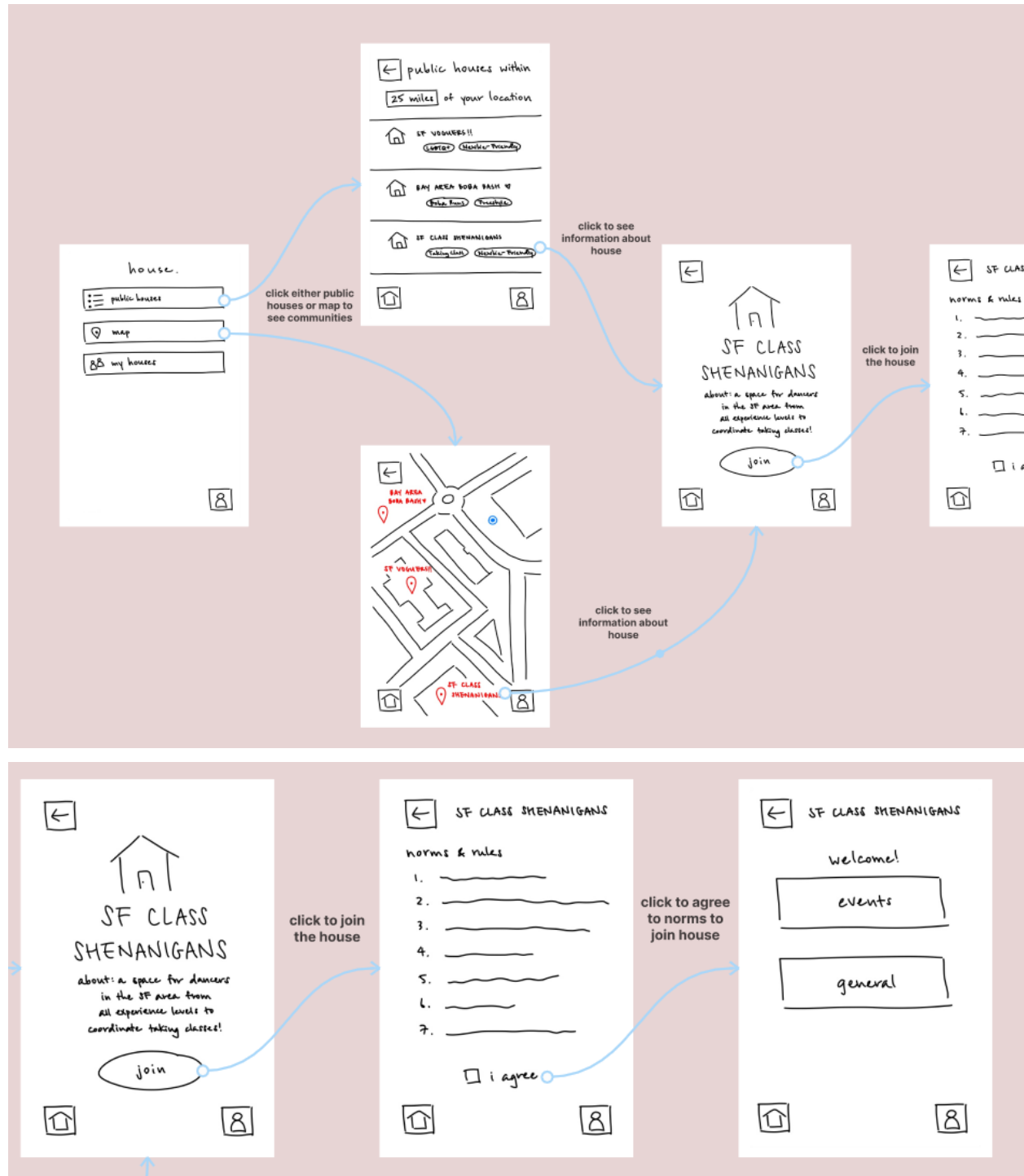
This section explores each iteration of our UI from start to finish, with annotated visuals from every level of fidelity to show our project's evolution.

### Lo-fi

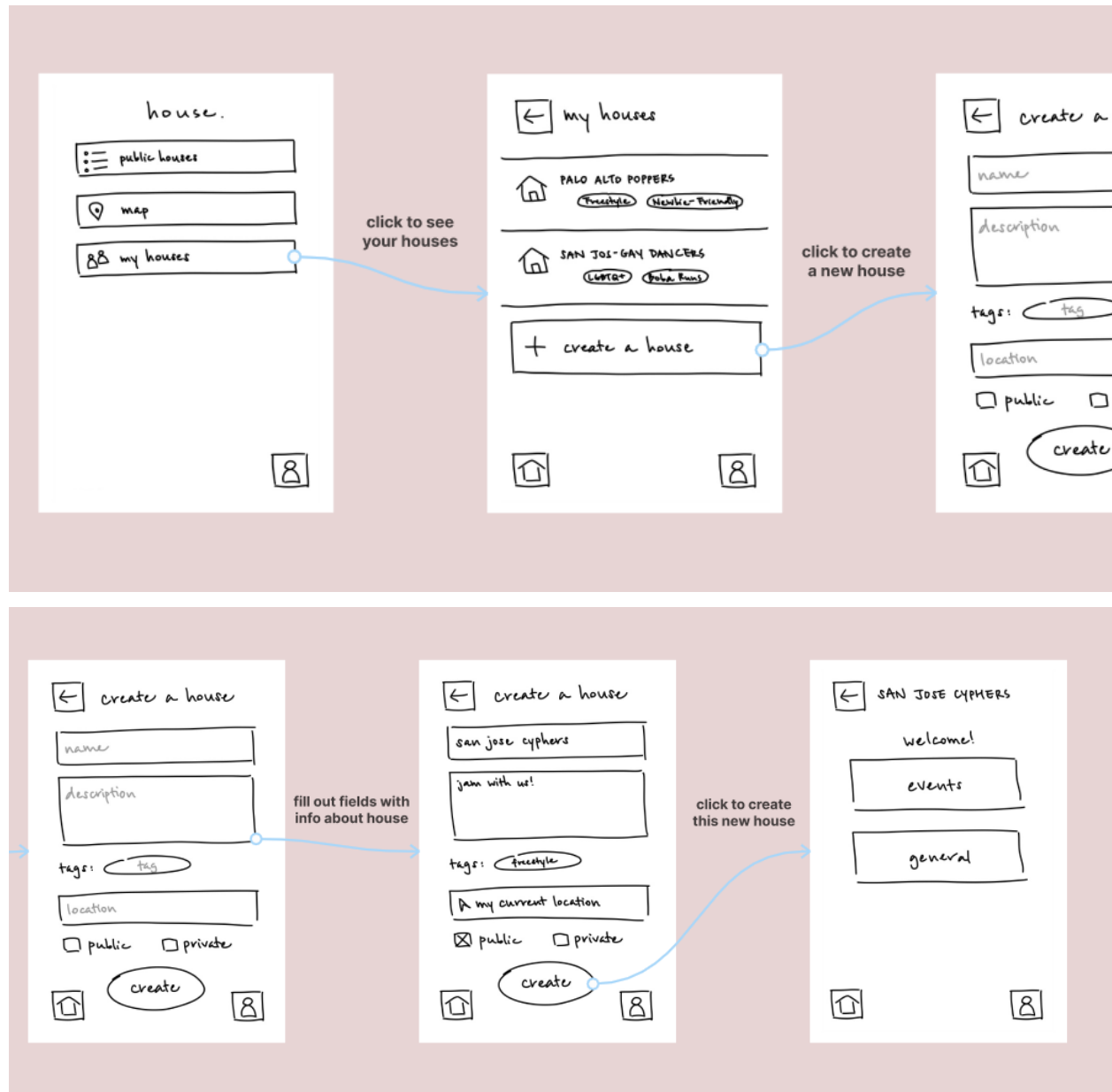
This task flow was our original simple task, to browse houses in the area.



This task flow was our original moderate task, to join a house. Notice that there is redundancy in this original flow, since the user can reach a house page by either browsing a list or a map.



This task flow was our original complex task, to create a house. Although the UI looks totally different from what we have in our high-fi prototype, the task flow is actually almost identical. The only real difference is where the “create a house” button is located within the app.

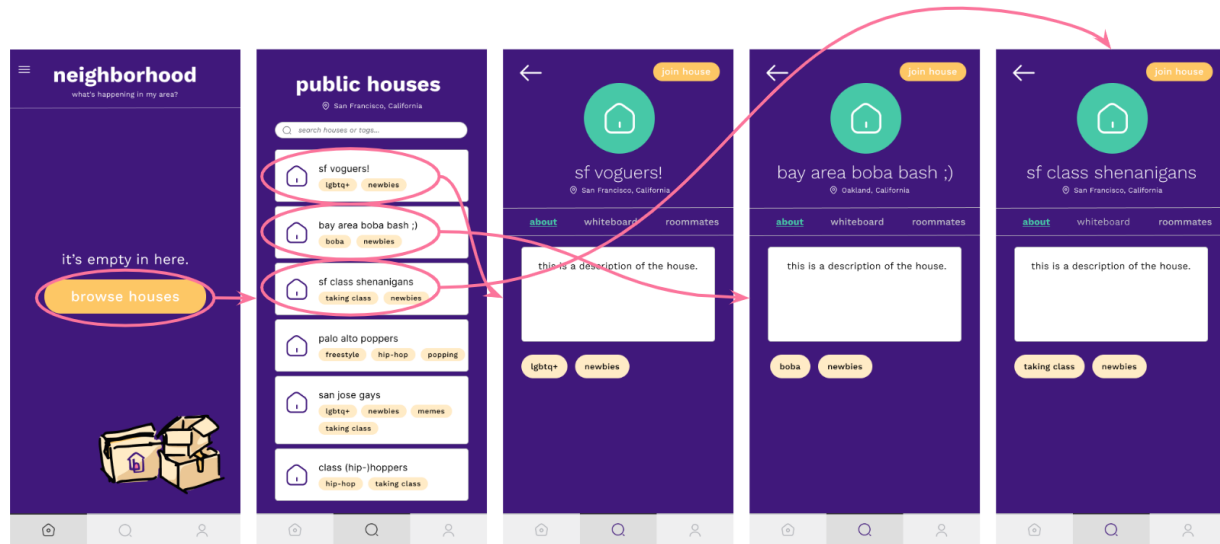


To evaluate our lo-fi prototype, we visited On One Studios, a dance studio in San Jose, and asked people coming out of class to participate. We gave participants paper prototypes of each screen so that they could interact with them by “clicking” (tapping) on drawn buttons. Then, we led them through tasks according to a script, with each of our team members playing a separate role (Izzy as the greeter, Annabelle as the observer, Nali as the computer, and Caroline as the facilitator).

Our two main goals were to evaluate **intuitiveness** and **efficiency** of the app, which we measured with number of clarifying questions asked and time taken to complete each task, respectively. We determined that our prototype was intuitive and efficient according to the goals we set before testing, but we also learned something else important: **our tasks needed to be adjusted**. That is, all of our participants completed the moderate task in the same breath as the simple, and several also went on to complete the complex task as well. Clearly, the tasks were too fragmented, so we combined some and added others. Because of time constraints, we were unable to update most of the task flows by the med-fi prototype deadline, but we implemented all changes by the high-fi prototype checkpoint.

## Med-fi

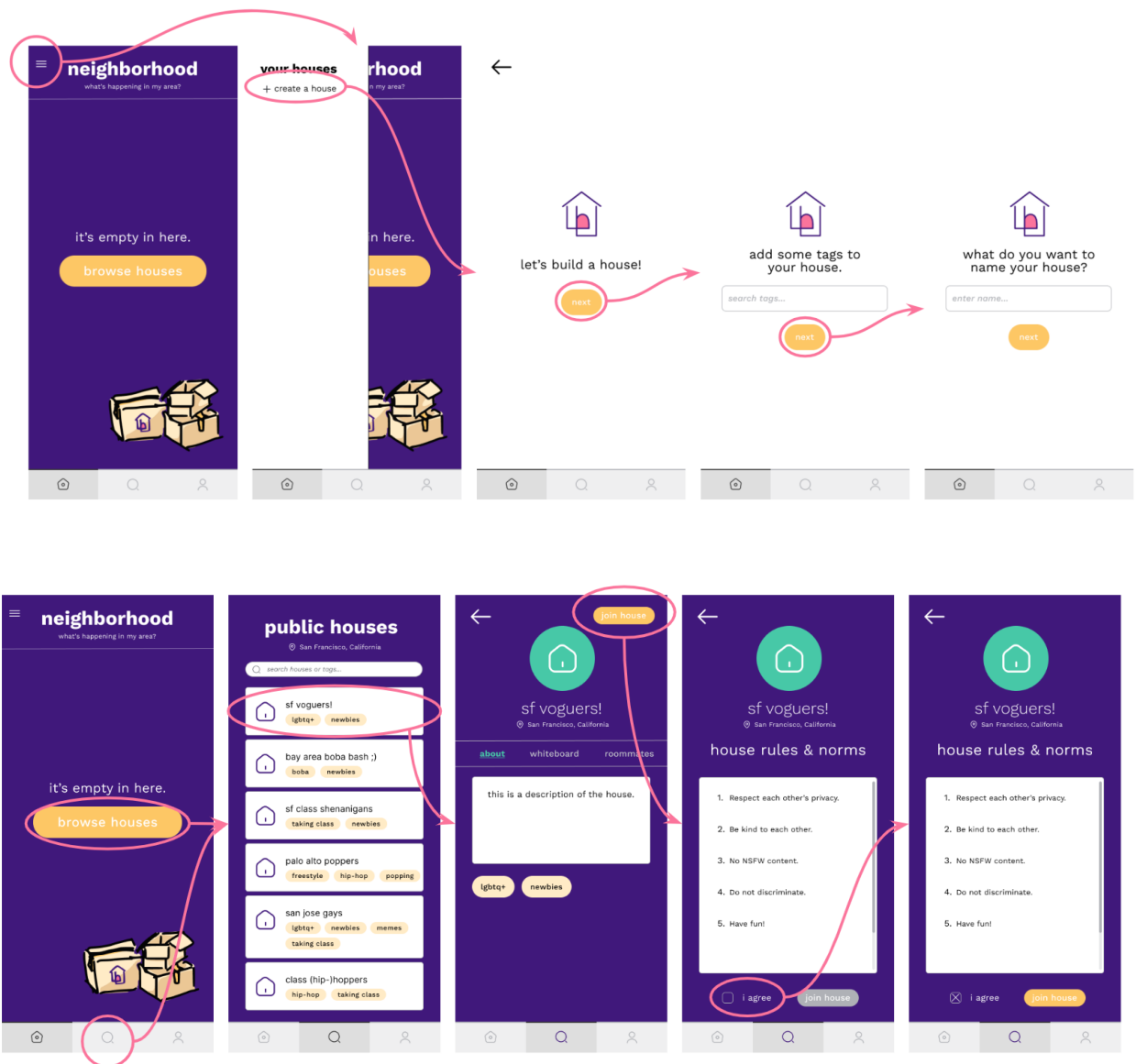
This task flow was our original simple task, to browse houses in the area.



Users would click on the “browse houses” button to reach the public list of houses, and then clicking on any of the first three listed houses would bring them to the landing page of the respective house.

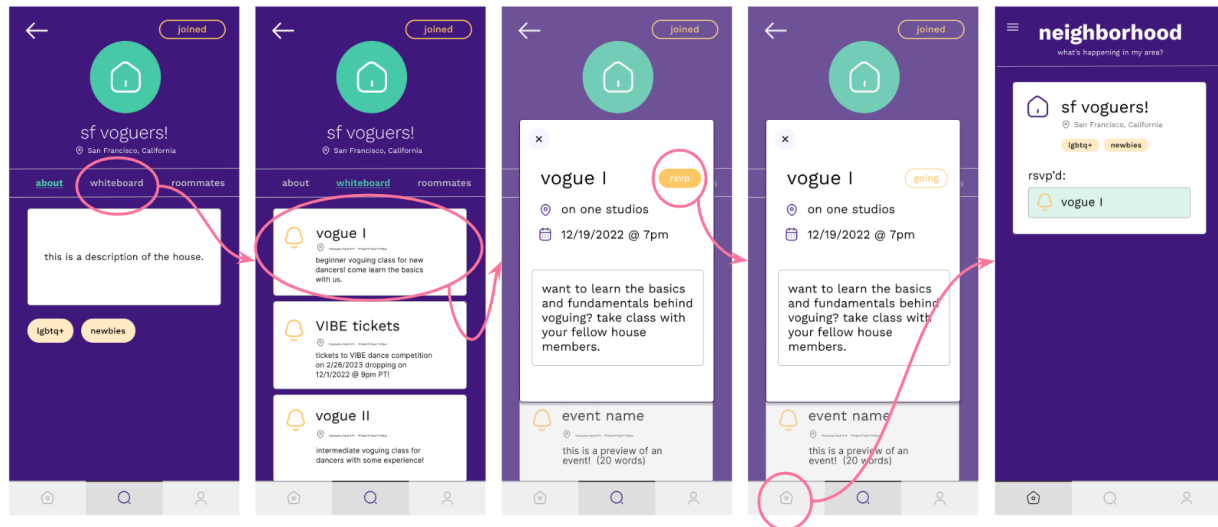


This task flow was our updated moderate task flow, to join a house and RSVP to an event.



To join a house, the user would click on the “join house” button in the top right corner of the house landing page, then agree to the norms and rules. They could then navigate to the “whiteboard” tab, which displayed a list of upcoming events. Clicking on the first event opened a pop-up of information about the event, and the user could then click the “rsvp” button to rsvp to the event. That event would then show up on their neighborhood page.

This task flow was our complex task flow, to create a house. It is very similar to the onboarding process, where the user inputs information that will populate the landing page for this new house.



After opening the sidebar and tapping “create a house”, the flow is very similar to the onboarding process, where the user inputs information that will populate the landing page for this new house.

This prototype underwent a heuristic evaluation. The next section will go into more detail about specific heuristic violations that the evaluators found, but one key note was that some of the formatting, terminology, and app layout was **unintuitive or confusing**. For example, it was unclear exactly what “neighborhood,” “whiteboard,” and “public houses” meant, and many text elements were simply too small. Another main takeaway was that although we included some elements that pointed to our value of playfulness, they were infrequent, and other aspects of the design lent themselves to a more clinical feel. We took these critiques into careful consideration when developing our high-fi prototype.

## Heuristic Violations (Severity 3 and 4)

In this section is a list of all severity 3 and 4 violations found by the evaluators, along with either the fix we implemented or our reasons for not fixing them.

1. **Problem description:** The current structure of a house makes me feel very passive as a user, Unable to interact directly with the house I'm a part of whether it be through not being able to post to the whiteboard and share an event I have or influence the visual design. I don't feel that playfulness that you expressed as one of your design values in the current layout of the house.
  - a. **Heuristic violated:** H12 (Value Alignment & Inclusion)
  - b. **Severity:** 4
  - c. **Our fix:** This was a planned but unimplemented feature as of the time of evaluation. We added the feature to the high-fi prototype.
2. **Problem description:** I cannot modify my name if I wrote it wrongly. I might easily mistype my name, and I do not want to feel frustrated for a moment thinking that there is no way back.
  - a. **Heuristic violated:** H3 (User Control & Freedom)
  - b. **Severity:** 3
  - c. **Our fix:** Added back buttons to onboarding and a way to edit the user's profile page
3. **Problem description:** There is no information about the exact location of the house or how far it is. The user needs to know at least approximately how far that house is!
  - a. **Heuristic violated:** H4 (Visibility of System Status)
  - b. **Severity:** 3
  - c. **Our fix:** Added an indicator of distance to house listings on the explore page and each house landing page
4. **Problem description:** I cannot tell what "RSVP'd" means. I have not rsvp'd to anything and it seems to be coming out of nowhere. The user just added a house as a community, it would be overwhelming to start showing them stuff they have not signed up for.
  - a. **Heuristic violated:** H1 (Visibility of System Status)
  - b. **Severity:** 3
  - c. **Our fix:** This was a logic issue with our Figma connections, and we fixed it in the actual code for our high-fi prototype.

5. **Problem description:** Cannot find a way to remove an added house. The user would want to remove houses after adding them.
  - a. **Heuristic violated:** H3 (User Control & Freedom)
  - b. **Severity:** 3
  - c. **Our fix:** We removed the original button to remove a house (which was confusingly labeled “joined”) and instead added a meatball menu for house options, including an option to “leave house”.
6. **Problem description:** Creating house button is not easily visible and deeply hidden within the interface. This is a core experience of the app and users will not be able to create their own communities
  - a. **Heuristic violated:** H7 (Flexibility & Efficiency of Use)
  - b. **Severity:** 4
  - c. **Our reason for not fixing:** Since creating a house is not a simple task, we felt that it was alright to be more hidden than desirable for a task that users would complete on a regular basis.
7. **Problem description:** There is no way to edit a House that the user created (e.g. change the name). Communities can change over time and an option to reflect that should be available.
  - a. **Heuristic violated:** H3 (User Control & Freedom)
  - b. **Severity:** 3
  - c. **Our fix:** This was a planned but unimplemented feature as of the time of evaluation. We added the feature to the high-fi prototype.
8. **Problem description:** There is no way to moderate a House (e.g filter posts or remove members). House owners should be able to moderate a House to ensure the community’s safety and protect from harmful participants.
  - a. **Heuristic violated:** H3 (User Control & Freedom)
  - b. **Severity:** 4
  - c. **Our fix:** We added a “moderator” role that house owners could assign to certain members. These moderators have abilities that allow them to protect the community.
9. **Problem description:** A House Owner cannot delete the house that they have created. A user may want to delete their House when it is no longer active.
  - a. **Heuristic violated:** H3 (User Control & Freedom)
  - b. **Severity:** 3

- c. **Our fix:** We added a “delete house” option in the settings available to house owners.
- 10. **Problem description:** The tags do not reflect other identities (e.g other ethnicities, genders, etc). It is important to allow users to select relevant tags because it is an important part of discovering communities that they connect with.
  - a. **Heuristic violated:** H12 (Value Alignment & Inclusion)
  - b. **Severity:** 4
  - c. **Our reason for not fixing:** We decided that this did not align with our values, so we did not add the suggested tags to the options.
- 11. **Problem description:** Users cannot expand details for a house on the Neighborhood page. They have to go to their profile and tap on the house from there. This causes significant friction for users because they have to go through a lot of pages to find the information they need.
  - a. **Heuristic violated:** H7 (Flexibility & Efficiency of Use)
  - b. **Severity:** 3
  - c. **Our fix:** We created a transition from houses in the neighborhood to their house profile.
- 12. **Problem description:** Currently, there is no capability to cancel an event the user has RSVPed to. A user may no longer be able to attend the event or have pressed it on accident.
  - a. **Heuristic violated:** H3 (User Control & Freedom)
  - b. **Severity:** 3
  - c. **Our fix:** We removed the original button to cancel an event the user has RSVP'd to (which was confusingly labeled “rsvp'd”) and added a “cancel” button elsewhere on the pop-up.
- 13. **Problem description:** A House that the user created is not visible in their neighborhood.
  - a. **Heuristic violated:** H1 (Visibility of System Status)
  - b. **Severity:** 4
  - c. **Our fix:** As part of our overhaul of the neighborhood page, we made sure to include houses the user owns in their neighborhood.
- 14. **Problem description:** Hitting back button in settings page when “show my houses on my profile” is toggled off. There appears to be a back button in the top left of the settings page, but when I tried to tap on it, it didn't behave as I expected and didn't allow me to take this emergency exit that I'm familiar with in real life conventions.

- a. **Heuristic violated:** H3 (User Control & Freedom)
  - b. **Severity:** 3
  - c. **Our fix:** This was a planned but unimplemented feature as of the time of evaluation. We added the feature to the high-fi prototype.
- 15. **Problem description:** The current interface of the house page doesn't immediately appear to have a space where users are able to have their voices be heard. Your design value of inclusivity is really strong "users should have a chance to be heard in houses", but based on the about, whiteboard, and roommates page, I was initially confused on how the current layout of the house promotes that; it feels more like each house just shares relevant information, when I wish there was a space for users to share their voices in order to heard.
  - a. **Heuristic violated:** H12 (Value Alignment & Inclusion)
  - b. **Severity:** 3
  - c. **Our fix:** The whiteboard was meant to be a space for this, but the terminology was vague and non-intuitive. We changed the "whiteboard" tab to say "events"; house members can create their own events.
- 16. **Problem description:** After I've joined a house, I'm not able to join additional houses. I still see the button "join house", but don't get any messages as to why I'm not able to join another house. No feedback at all in this case which helps me indicate the problem as to why I can't join another house.
  - a. **Heuristic violated:** H9 (Help Users with Errors)
  - b. **Severity:** 4
  - c. **Our fix:** This was a planned but unimplemented feature as of the time of evaluation. Because of Figma's inability to save state, for the med-fi prototype we only allowed the user to join one house. We added the feature to the high-fi prototype.
- 17. **Problem description:** Key information (the houses I'm in) seems to be nested and not upfront. It's unclear to me now whether the neighborhood page is the page for all the houses I'm a part of. The only part of the app from the home page that seems to explicitly display the houses I'm a part of is the "your houses" page which is only shown after tapping on the drawer container. I could see it being difficult for screen readers to find this clear information as it's nested away.
  - a. **Heuristic violated:** H11 (Accessible Design)
  - b. **Severity:** 4

- c. **Our fix:** We changed the visual and logical structure of the neighborhood to be both more intuitive and more accessible.
18. **Problem description:** The interface used in the top right hand portion of the screen says “owner” on the about and whiteboard screens, but says “joined” on the roommates screen. Users may be confused by this inconsistent terminology used in the same feature and may think that this feature has a different purpose on the roommates page than it does on the about and whiteboard pages.
- a. **Heuristic violated:** H4 (Consistency & Standards)
  - b. **Severity:** 3
  - c. **Our fix:** We changed all instances to say “owner”.
19. **Problem description:** When on the profile page, I notice that next to the song’s I’m listening to page, there seems to be a pencil icon. From prior experience seeing in the real-world, it makes me think that I’m able to tap on it to get an edit feature (in this case to edit the song’s I’m listening to), but this does not match the behavior in this app.
- a. **Heuristic violated:** H2 (Match Between System and & Real World)
  - b. **Severity:** 4
  - c. **Our fix:** This was an unimplemented feature as of the time of evaluation. We added the feature to the high-fi prototype.
20. **Problem description:** The term “neighborhood” is unclear to me about whether it is referring to a group of houses or is just another term for houses. Users may get confused on the terminology of “house” and “neighborhood” here especially as the text underneath the string “neighborhood” says “what’s happening in my area” which makes me think that neighborhood is referring to houses
- a. **Heuristic violated:** H4 (Consistency & Standards)
  - b. **Severity:** 3
  - c. **Our fix:** We changed the visual and logical structure of the neighborhood to be both more intuitive and more accessible. We also removed the subtext under the page heading, trusting that the new visual design would speak for itself.
21. **Problem description:** When comparing the (seemingly) two places in the app where I can clearly see which houses I’m a member of (the “your houses” page in the drawer navigation bar from the main screen to “my houses” section of the profile page), there is different terminology used “my” versus “your”. The term “my” feels more personal especially when

thinking about communities I'm a part of (houses) meanwhile "your" feels a bit more distant.

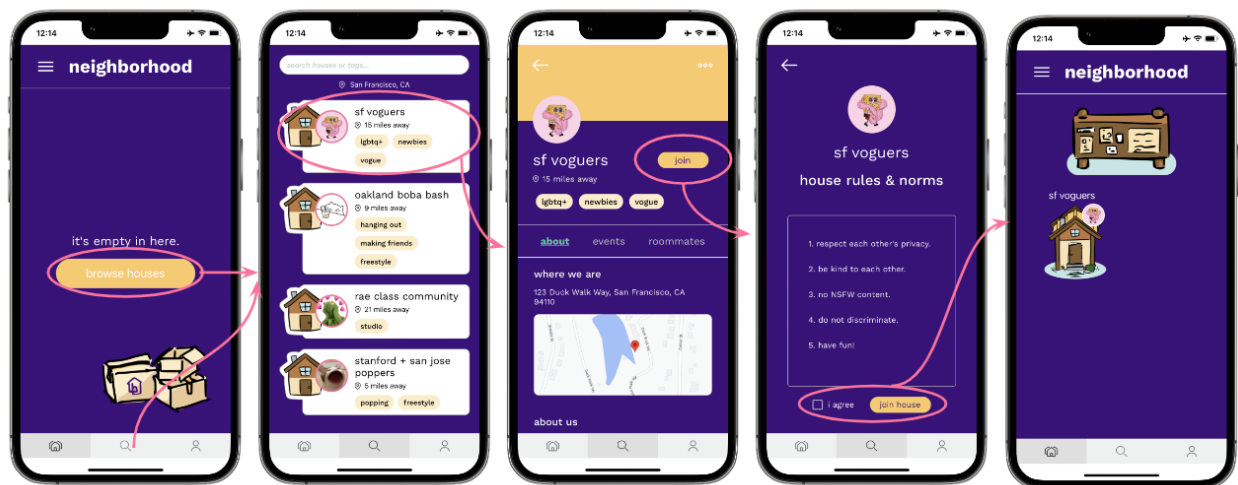
- a. **Heuristic violated:** H4 (Consistency & Standards)
- b. **Severity:** 3
- c. **Our fix:** We changed both instances to say "my houses".



## High-fi

This task flow is our final simple task flow, to browse public houses and join a house. We decided to combine the two previously fragmented tasks into one that intuitively flowed together.

The user can tap the “browse houses” button of the empty neighborhood page to reach the public list of houses, and then clicking on any of the listed houses would bring them to the landing page of the respective house. Here we show the landing page of the “sf voguers” house.



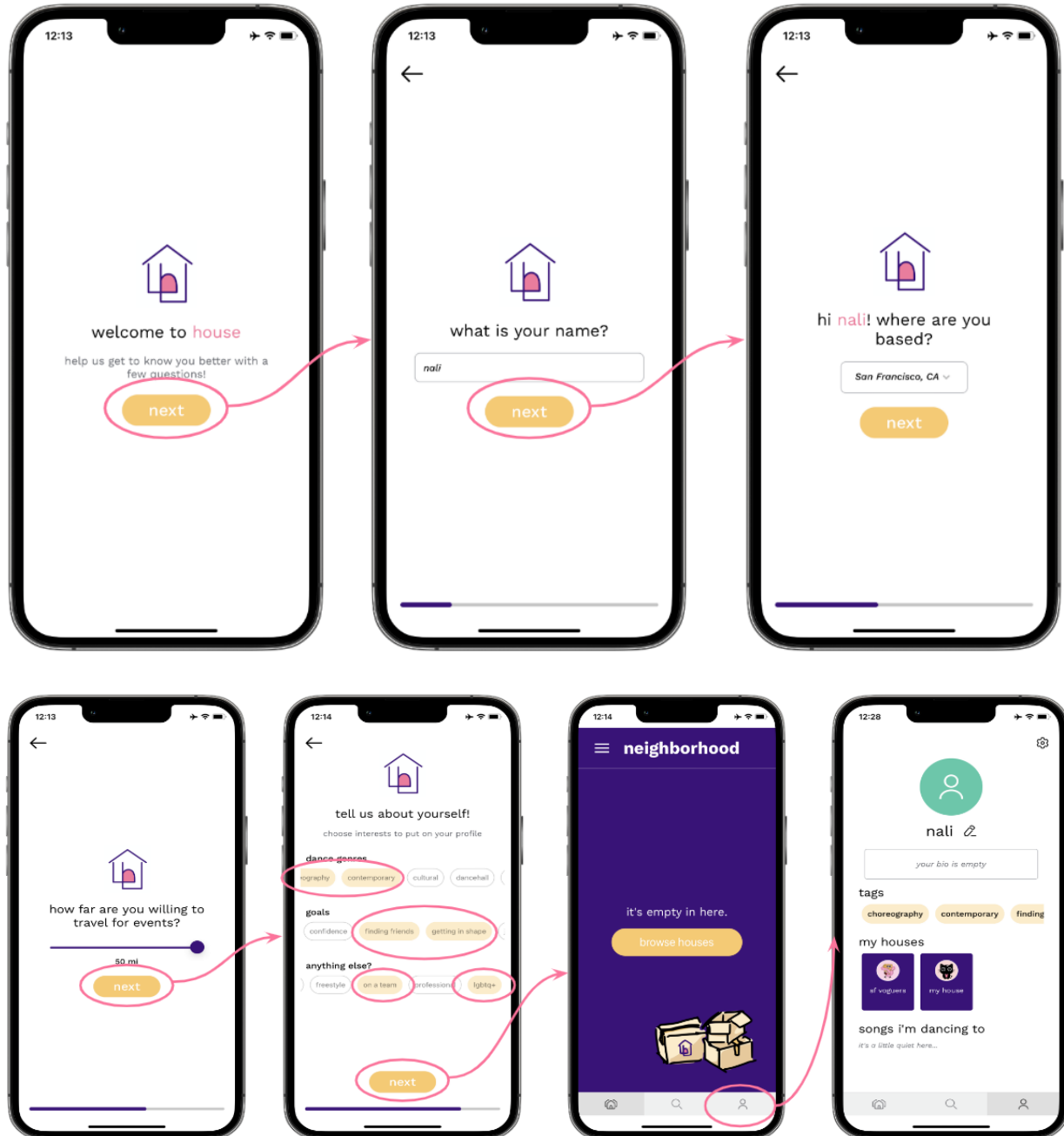
To join a house, the user can tap the “join house” button in the top right corner of the house landing page, then agree to the norms and rules. This brings them back to the neighborhood page, where a pop-up (not shown) confirms that they have joined the house. The neighborhood page now shows the joined house.

This task flow is our final moderate task, to create a house.



One of our heuristic evaluators pointed out that creating a house seemed too hidden away for how integral of an experience it was. Although we decided not to move where the “create a house” button was located, we agreed that it was more common than was suggested by assigning it the “complex” label, and therefore moved it to be our moderate task.

This task flow is our final complex task, to create their profile.



Users enter information about themselves as prompted while clicking through the onboarding screens. This information populates their profile page, which you can view by clicking on the rightmost navigation tab. This process stayed mostly the same; the biggest change was the layout of the screen where the user can select tags to add to their profile.

## Values in Design

### Inclusivity

We wanted to make sure everyone has a chance to be heard and does not feel excluded from groups and communities. Here are some features with inclusivity embedded in them:

- users can see which houses are newbie-friendly
- various dance styles and demographics are represented
- users can create their own houses that align with their interests

### Intuitiveness

We set up communities (as well as the app itself) in a way that is easy to understand and draws on real-world metaphors and structures. Here are some features with intuitiveness embedded in them:

- homepage tab displays info and events from all of a user's houses
- we kept tabs simple and took familiar icons/interfaces from similar apps

### Playfulness

We wanted the app to be pleasant and enjoyable for the user to use and find communities (keeps people coming back). Here are some features with playfulness embedded in them:

- users can create custom tags
- users can list songs they're listening to on their profile
- various illustrations and phrases related to houses (moving in, neighborhood, unpacking, etc.)

### Flexibility

We wanted to allow people to get as much as they want/need from a community. Here are some features with flexibility embedded in them:

- users can toggle public vs. private status of profiles and communities
- houses can be filtered by tags when browsing
- house owners create team norms to set community standards

Of the above values, only two could possibly conflict: too much flexibility may hurt intuitiveness. We didn't want our solution to be so open-ended that users are overwhelmed or confused by minimal functionality.

# Final Prototype Implementation

## Tools

Here are the tools we used to bring our product from a med-fi prototype to an interactive high-fi prototype.

### Figma

We used Figma to visualize final changes to our med-fi prototype before implementing them in code. It was easy to create our desired layout for a particular screen or element, but Figma has several limitations (such as an inability to save state) that make some visualizations cumbersome.

### Expo

We used Expo to test and run our high-fi prototype. Not only was it easy to run our code on our phones (simply scanning a QR code), but we could see real-time updates as we made changes to the code. One downside was that later on in the coding process, if we wanted to refresh the app, we had to go through our unskippable onboarding screens each time before reaching the desired screen.

### Visual Studio Code

We used Visual Studio Code as our IDE. One useful feature was the ability to “live share” (code synchronously on multiple machines), so we didn’t necessarily have to meet in person if we wanted to code together on the same feature. Automatic formatting and syntax highlighting were also very helpful.

### React Native

We used React Native as a framework for writing our code. It comes with a massive community of developers and countless packages that made coding a much smoother process. Since many of our team members were familiar with CSS/HTML, it was sometimes frustrating that only certain features are shared between the two (e.g., stylesheets), while others were not (e.g., React Native does not have cascading styling).

### Github

We used Github to store and manage our code. It is great for keeping track of different features we worked on at the same time and making sure bugs don’t irreparably break our entire app, but there was a steep learning curve (and several scares) with pushing, pulling, making branches, etc.

## Wizard of Oz Techniques

The user can only select San Francisco, CA as their location (in addition, they can only select this location when creating a house). We do not have any current users or houses to draw data from, and we decided it was not feasible to create a massive database of fake houses and users all around the world.

## Hard-Coded Elements

We created JSON files containing information for houses and members in the San Francisco area, so that we could demonstrate how users can interact with houses and other users.

When the user creates a house, the house profile picture and one event are hard-coded into the house data, for consistency with how the other houses are displayed.

## Conclusion

### Reflection

Our team started off the design process exploring a very different problem space from that inhabited by our final product. After our first round of needfinding interviews (as well as feedback from our studio and TA), we realized that our scope was too narrow and that we needed to pivot. One of the most difficult parts of the process recognizing we had made a decision that was either not aligned with our values or would later cause us issues, and then making the necessary changes in a very short amount of time.

We also learned that failure is an essential part of the design process. Unfortunately, because we only had 10 weeks in this class, and because we were graded at every step, there was little room to fail as part of our journey. Several times throughout the quarter, we made safer or less ambitious choices because of the time limits and grading guidelines we were given. But the times we did fail (picking too small of a problem space, needing to switch our strongest solution from the dance diary to the community app, etc.) taught us much more than any success we had this quarter.

Although our studio theme of “undominate” seemed opaque at the beginning of the quarter, it is such an intuitive concept that we found it naturally wove itself into all of our design choices. To undominate the dance space is to encourage people to use our app for community building; to undominate the dance space is to ask why we seek out communities of people like us; to undominate the dance space is to challenge what a dance community is. The values we built into **house** are inextricably linked to the values that make up **undominate**, and we greatly appreciate our TA’s guidance with this project.

### Next Steps

Currently, since our project does not have a true userbase, the dance genres, personal goals, types of events, etc. that we built into the app are limited to only what the four of us could imagine. In the future, we would like our userbase to bring their own ideas to the app: adding new dance styles and personal goals, inventing new kinds of events, creating new ways to interact with each other, and more. We would also like to add small features/fixes like search functionality, a settings page, sharing/reporting houses, etc.