CS 147 - Arts and Culture Studio
Interactive Hi-Fi Prototype

Always Have A Friend to Practice With

Pife
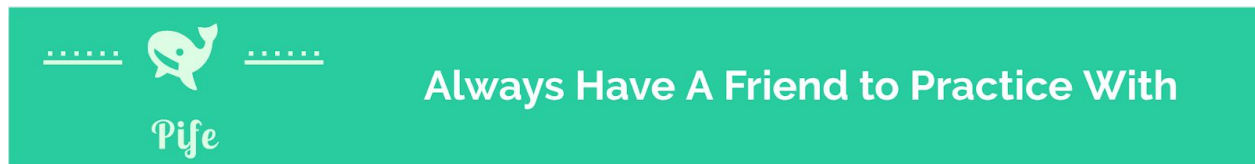
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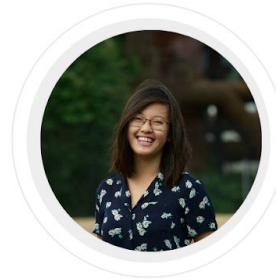
Problem and Solution Overview

Musicians know that practice makes perfect, but having the drive to constantly practice can be demanding. We have found that many musicians feel as if they have nothing to practice for and no one to practice with, which leads to a lack of motivation to practice. Pife addresses these issues by giving users a personalized digital companion that incentivizes practice, performance and collaboration with other musicians via character evolution and rewards.

Tasks & Final Interface Scenarios

### Simple: Feel motivated to practice

Users can select the **Practice** button from the **Home Screen,** where they will be directed to set a daily goal for how long they wish to practice. By pressing the **Play** button, the app will "listen" for sound generated by the user and track how long the user has been practicing for. Users are able to pause at any time via the pause button and will be prompted to continue practicing. By meeting the practice goal, the user's companion's happiness will increase, the user will gain **Pife Points** to use in the **Rewards Shop** and the user will get one step closer to evolving their

companion. This rewards system and the fact that the digital companion's happiness decreases after a day of not practicing aims to motivate users to practice consistently.
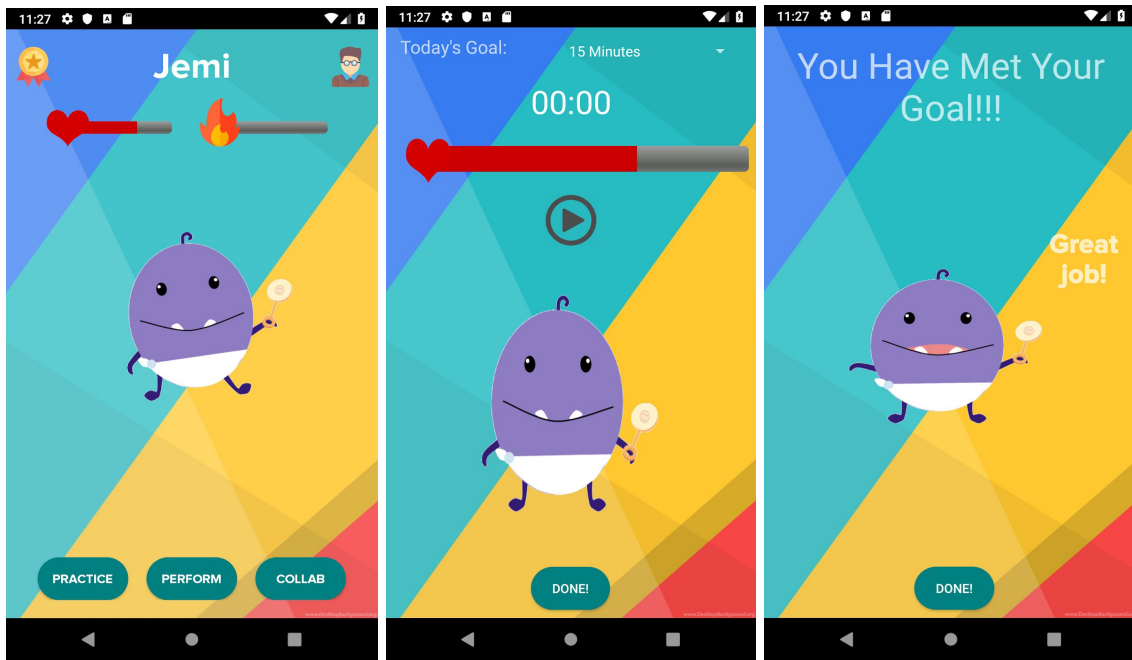

Moderate: Perform in front of an audience

Users can select the **Perform** button from the **Home Screen**, where they will have the choice of giving a performance or watching a performance. For this task, users can select the **Perform** button to give a live performance in a private video chat room.
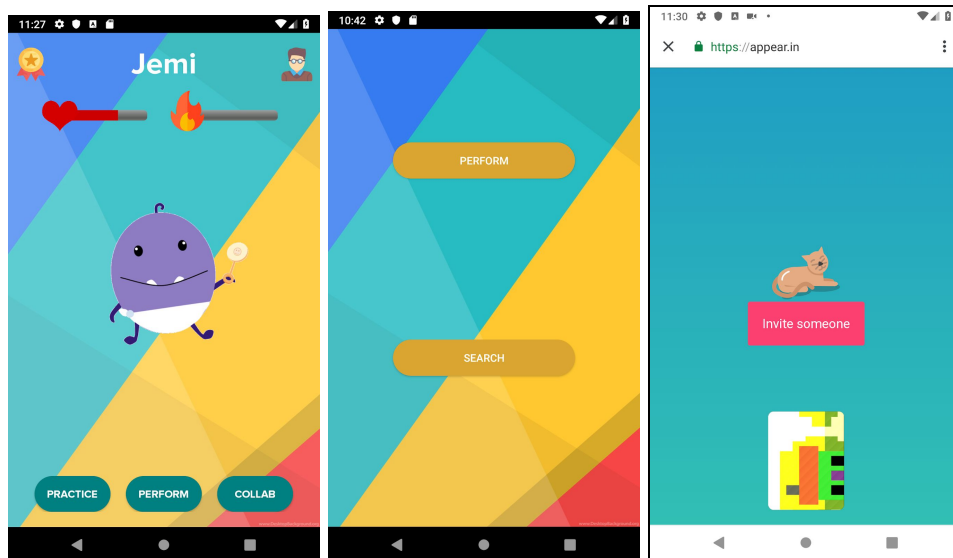
Complex: Set and share my practice schedule with other musicians to find collaboration times

        Users can update their practice schedules by selecting the **Profile** icon from the **Home Screen** and then selecting the **Schedule** button. Users can share their schedules with other musicians by selecting the **Collab** button from the **Home Page**. They will then be prompted to filter their collaborations based on music genres or musical instruments. From there, the user will be directed to a Tinder-like feature where they can swipe right to ask to collaborate with the displayed user or swipe left to reject the user. If a match has been made--both users swiped right--then user practice schedules will be shared to find possible times within both people's schedules for music collaboration.

        To select a specific time for collaboration, the user can navigate to the **Profile** page again, select **Matches** to view all other users one has matched with, then select a matched person to reveal three options: **Chat**, **Schedule Collaboration**, and **Collaborate Now**. Selecting **Schedule Collaboration** allows users to select a specific collaboration time slot that works for both parties.
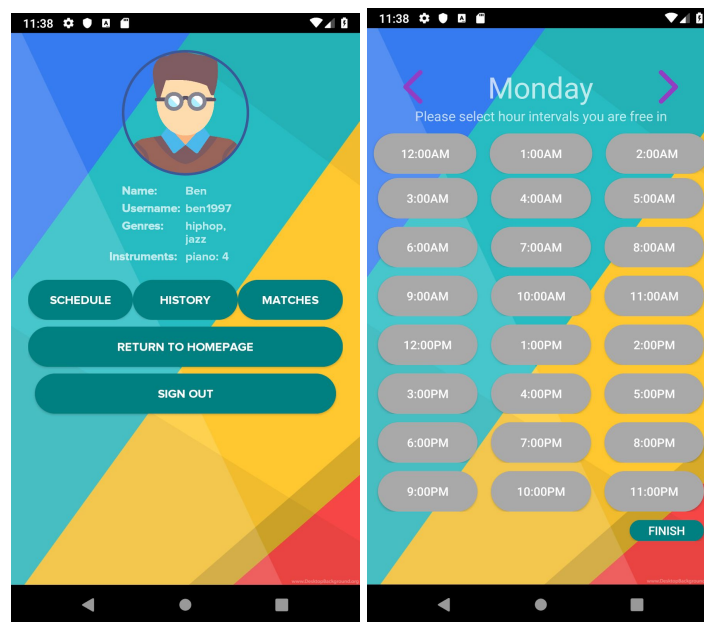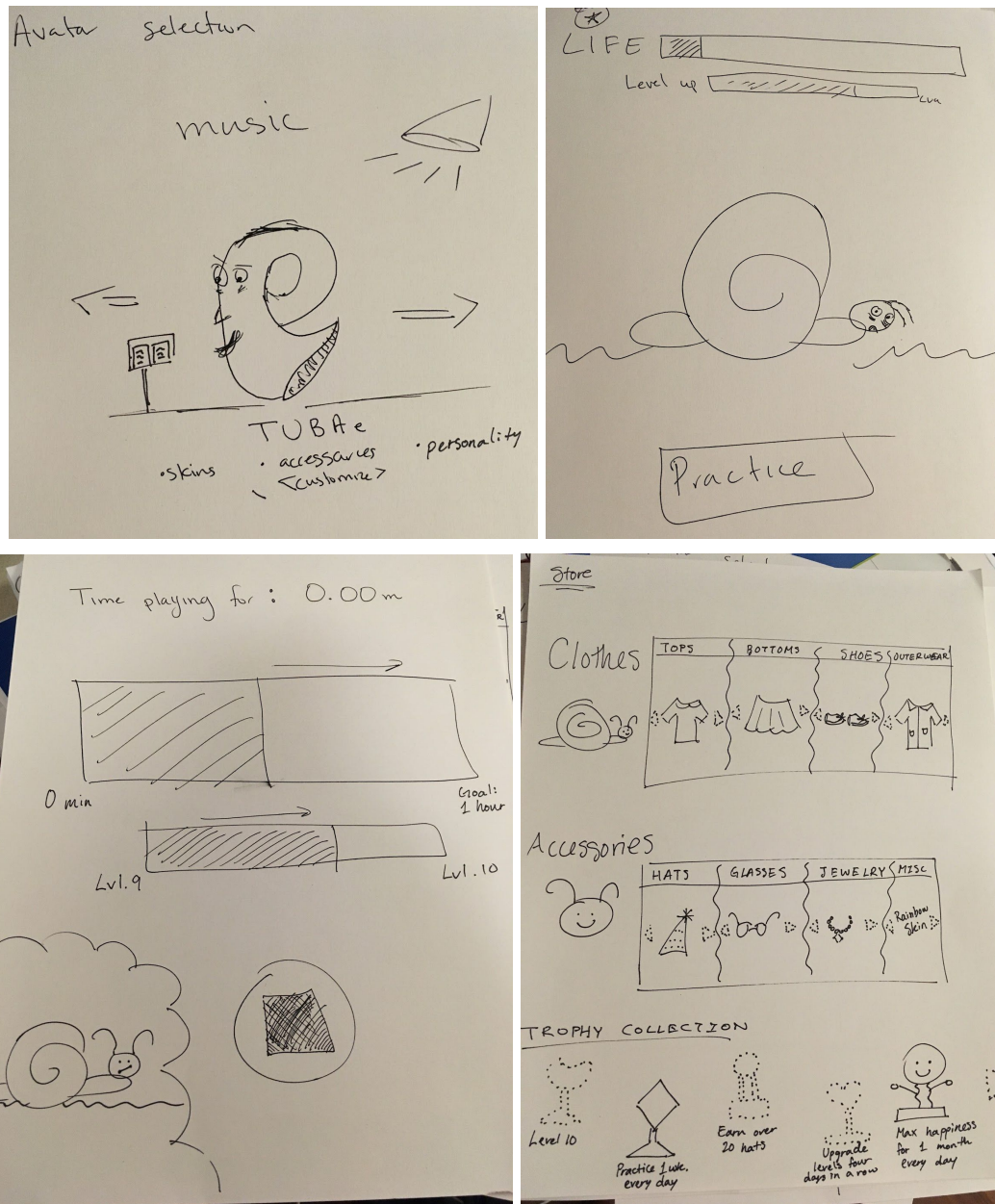

Setting the user's practice schedule
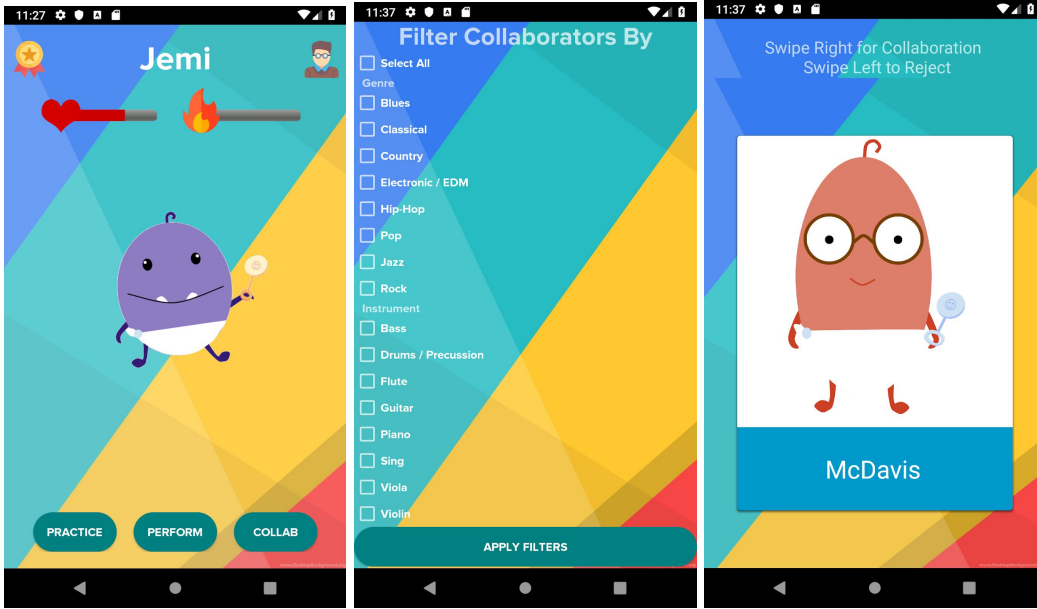
Sharing the user's practice schedule
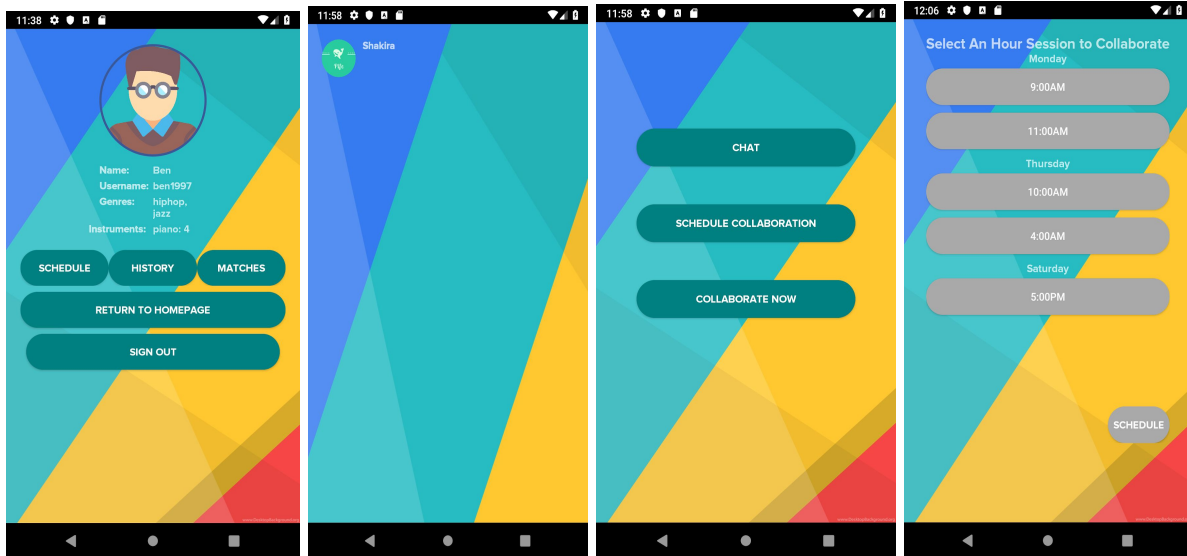
*Selecting a specific collaboration time after sharing schedules*

Design Evolution

Initial UI Sketch

For our initial UI Sketch, we wanted to create a platform that allows users to practice, perform and collaborate with the encouragement of a digital companion. This companion would be displayed in the Home Screen and keep users accountable for their practice. The rest of the app was dedicated to neatly laying out tools to help facilitate our music-based tasks. We decided to keep this general organization in all of our prototypes.
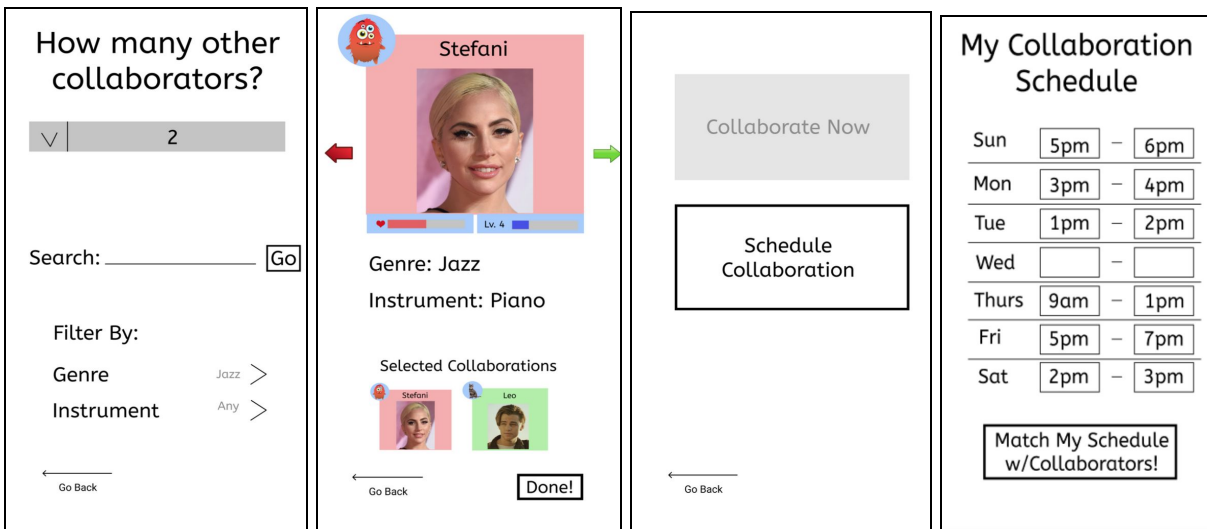
Low-fi Prototype: UI flow for our simple task
(Feel motivated to practice)
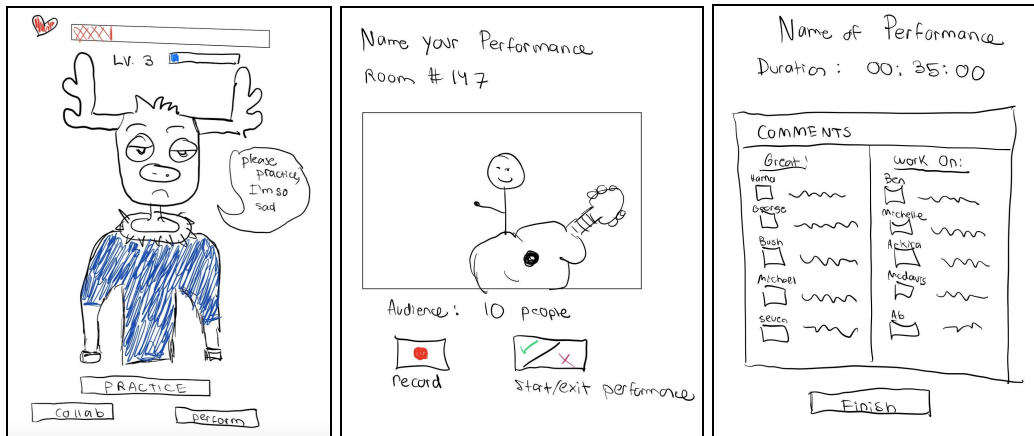
Low-fi Prototype: UI flow for our moderate task (perform in front of an audience)
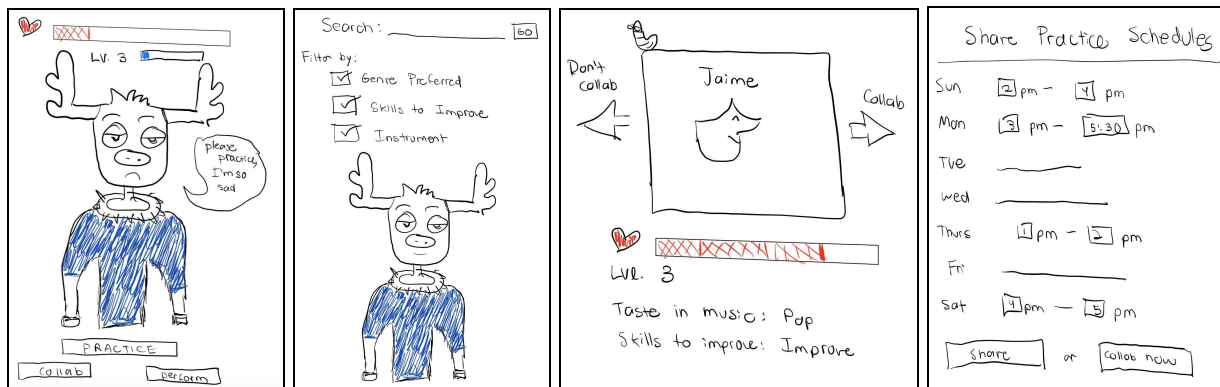
Low-fi Prototype: UI flow for our complex task
(Set and share my practice schedule with other musicians to find collaboration times)
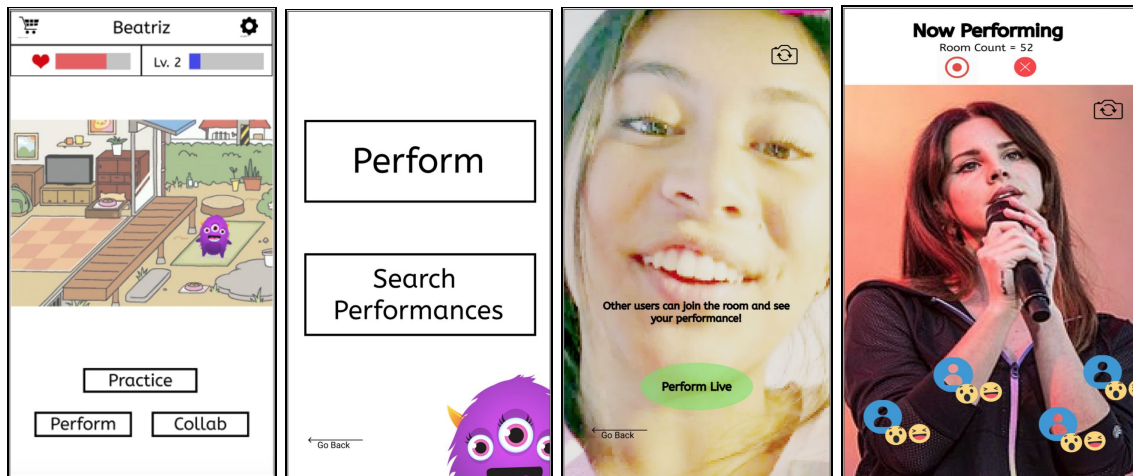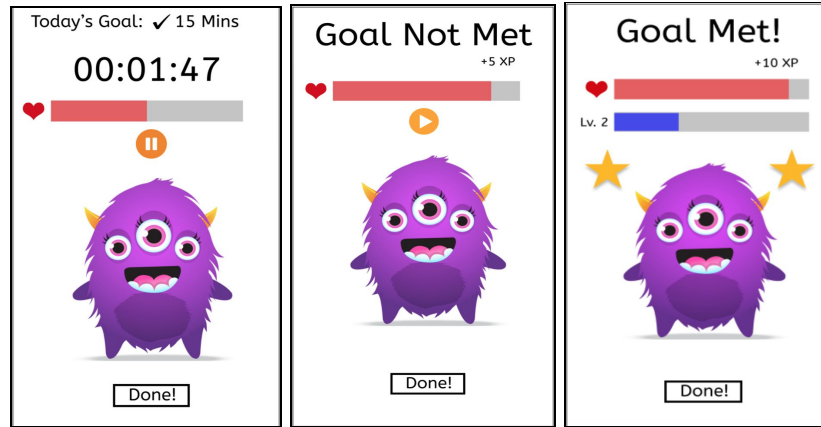
Medium-fi Prototype

After asking different musicians to test our low-fi prototype, we used testers' feedback to create our medium-fi prototype. Here are a few things we changed from the low-fi prototype to the med-fi one:

1. Making the Performance Tool More Interactive

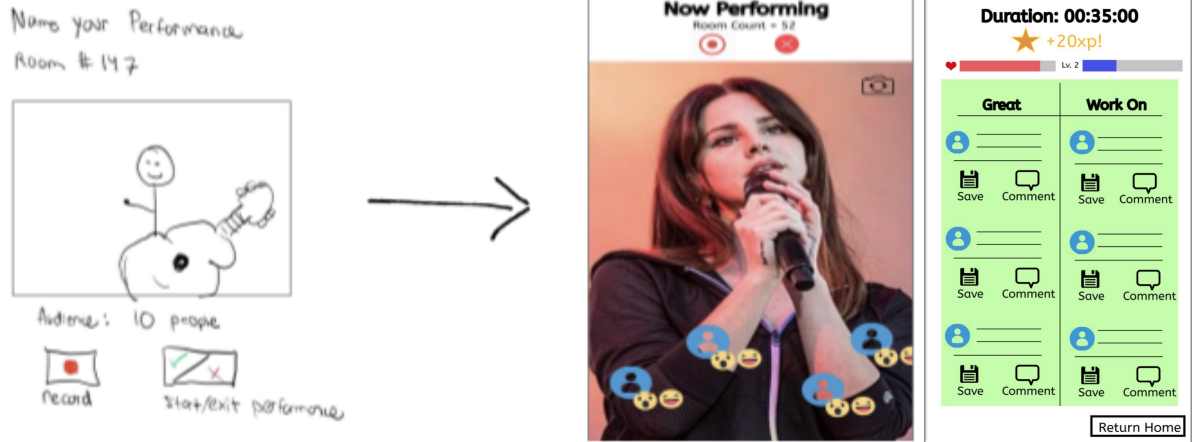Instead of simply having the performance tool consist of a video chatting room, we decided to allow audience members to live "react" with **reaction buttons** attached to their profile pictures during the performance. This feature is meant to encourage **audience presence**. We also added the ability to **reply** to received feedback after a performance, which encourages **community engagement**.
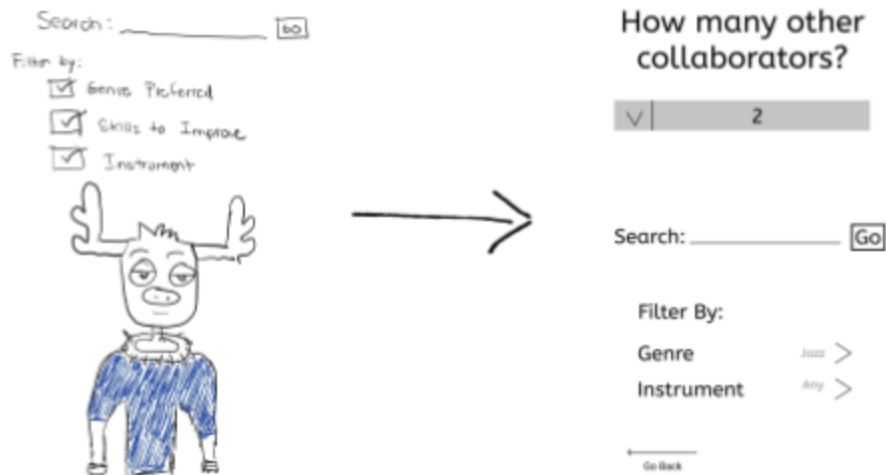
2. Choosing More Than One Collaborator

We added a feature to add **more than one collaborator** because some testers wanted to collaborate in duets and quartets. Given that one of Pife's main goals is to facilitate collaboration among musicians, we felt that it was important to give users **flexibility** with how many people they could make music with.
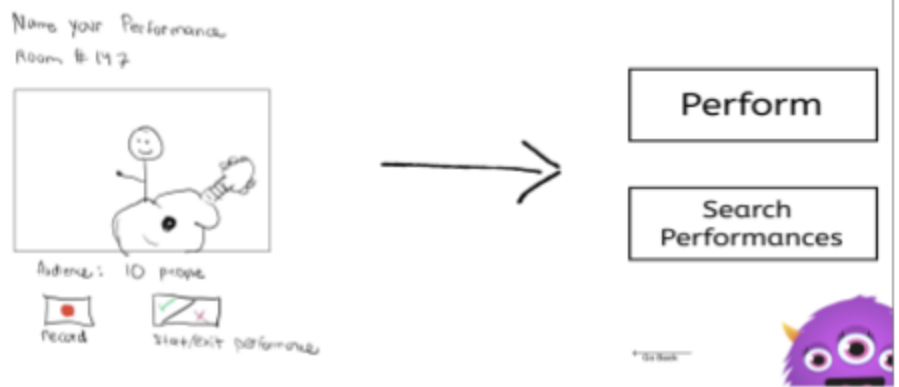
3. A Search Performances Feature

In the low-fi prototype, we had a feature that allowed users to give performances, but did not include a way for users to filter through the performances they wanted to see. With the new **Search Performance** feature, users can find **inspiration** in performances they're excited about and make their own performances **discoverable** by relevant audiences.

Additionally, we decided to use the feedback from our med-fi presentation to create a better prototype. These changes including making the avatar more interactive through rewards and adding clearer labelling to our buttons and text.

Major Usability Problems Addressed

Usability problems (levels 3 and 4):

Importance of Companion Was Lacking
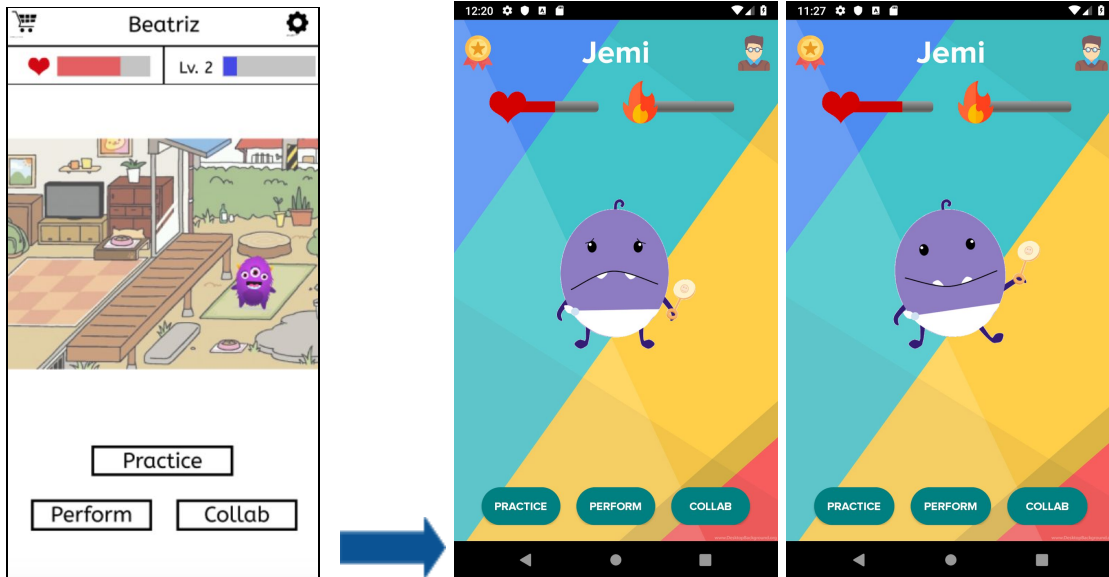
Companion expressing emotions
Note: the companion's animation cannot be displayed due to the .pdf format of this report
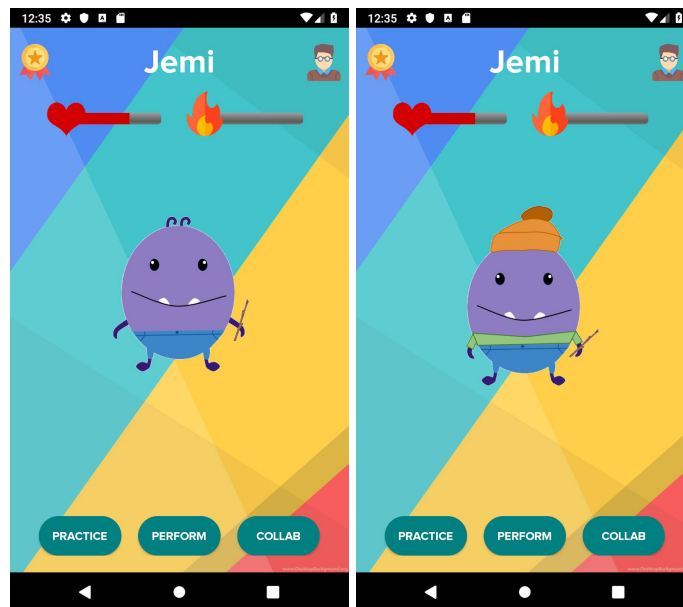
Companion after evolving from baby to toddler and after being dressed by user

With the same static image of the digital companion on every screen, the companion comes across as somewhat "lifeless" or boring. To address this, we implemented an evolution feature in the

companion, so that the more a user plays with it via using the practice, performance, and collaboration tools, the closer the companion gets to evolution. We also made the character more lively by animating it and giving it emotions based on its Happiness Level. Furthermore, the companion has been given the ability to wear clothing purchased with Pife Points from the Rewards Shop.

Placement of Trophies and Purchasable Items Is Unintuitive
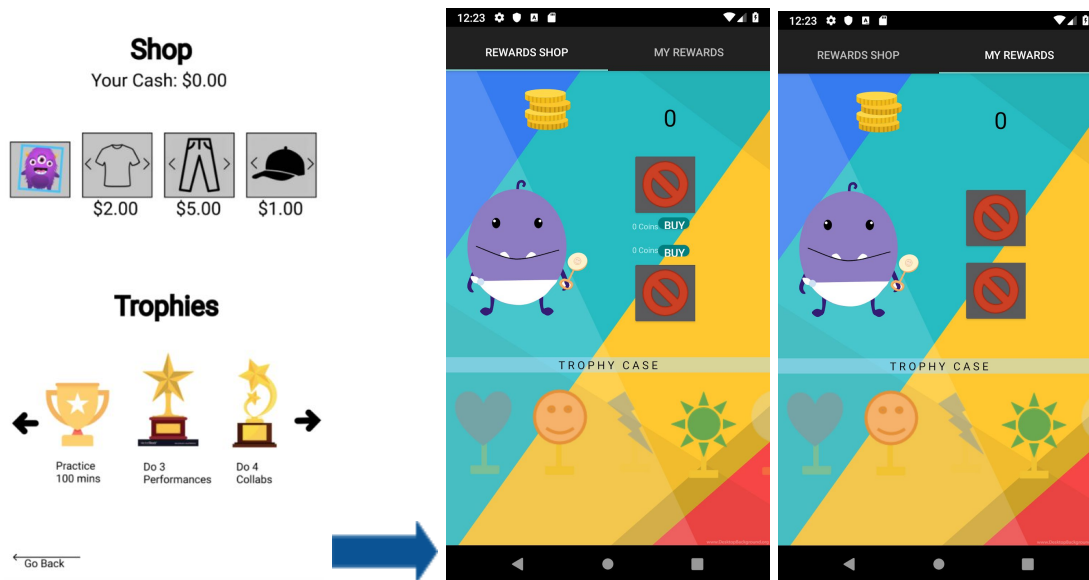

For the Rewards Shop items and trophies, users felt that displaying the two types of items in the same screen didn't make sense since one could buy Reward Shop items but could not trophies. To address this, we created a general Rewards screen that is broken up into two tabs. The Rewards Shop items a user could purchase are displayed in one tab, ("Rewards Shop") and already purchased items are displayed in the other tab ("My Rewards"). Trophies are displayed along the bottom and are unrelated to the two tabs above. This way, we maintain a clear separation between trophies and purchasable items while having a cohesive page of general Reward objects.

Abrupt Switch Into Live Performance
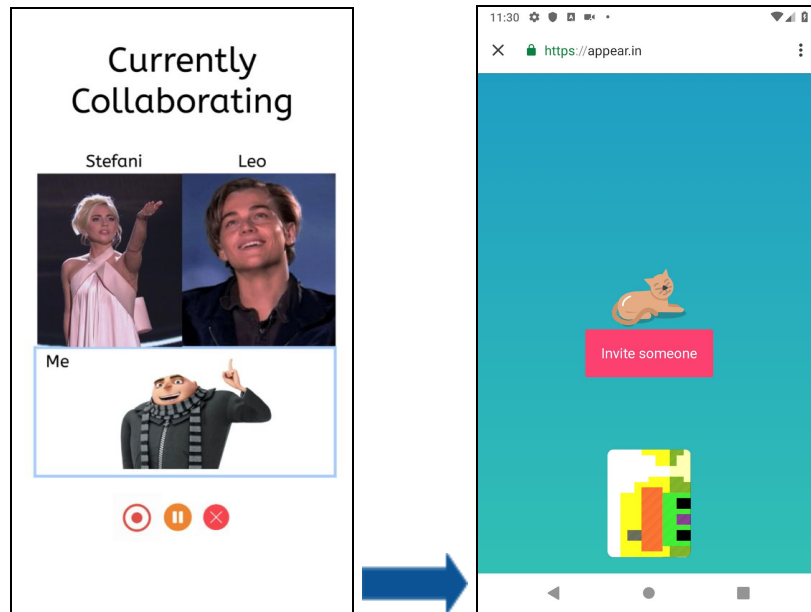
From our medium-fi prototype, choosing to use the Perform tool immediately leads users to a live video stream, which is jarring. We were unable to address this issue because we used a video chatting website to facilitate the Wizard of Oz technique for video performances. By choosing to perform, users are immediately directed to the video chat room.

Design of the Watch Performance Screen Is Not Intuitive
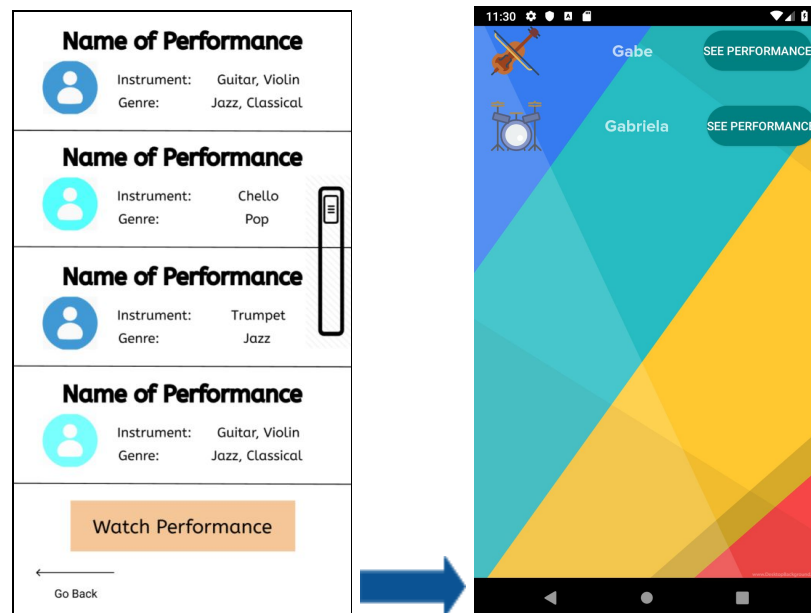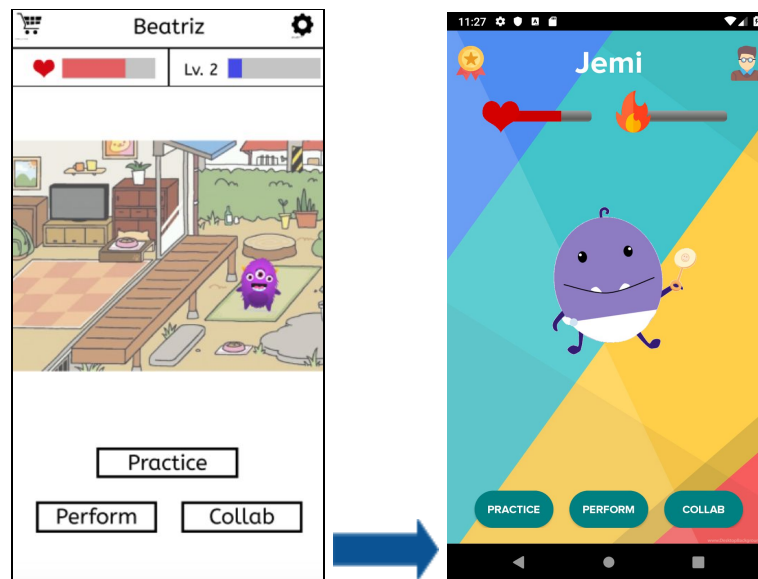
The performance information displayed on the Watch Performance screen is not laid out in a way that makes tapping on a performance to select it intuitive. To address this confusion, we organized the information into a list with each cell having a **See Performance** button.

### Confusion Surrounding the Happiness Bar and Level Bar

Users were unable to understand the difference between the two bars and expressed confusion when performing tasks seemed to affect the two bars differently. Additionally, a metric for increasing either bar was unclear. To address these issues, we removed the Level Bar and replaced it with a Streak Bar, which tracks how many consecutive days you use the app for. This way, users are still inclined to keep coming back to the app but do not have to deal with the confusion of the Level Bar. In the hi-fi prototype, the Happiness Bar functions similarly that in the medium-fi prototype - this bar indicates the companion's "happiness" level, which changes depending on how much the user interacts with their companion.

Navigation Around The App Is Not Efficient

Returning to the Home Screen while interacting with the app was inefficient because it took several pushes of the back button to return . To address this problem, we designed each tool to expand out to only 2-3 screens before returning to the Home Screen. This way, the back button is an effective way of returning to the Home Screen. For visualization of this task, please see the task breakdown in Tasks & Final Interface Scenarios.

In the medium-fi prototype, the Level Bar from the Home Screen would direct the user to the Settings page, which was a confusing, unintentional error. We addressed this error by ensuring that only the icons meant to direct users to other screens have this function.

Cash Currency Does Not Make Sense In The App
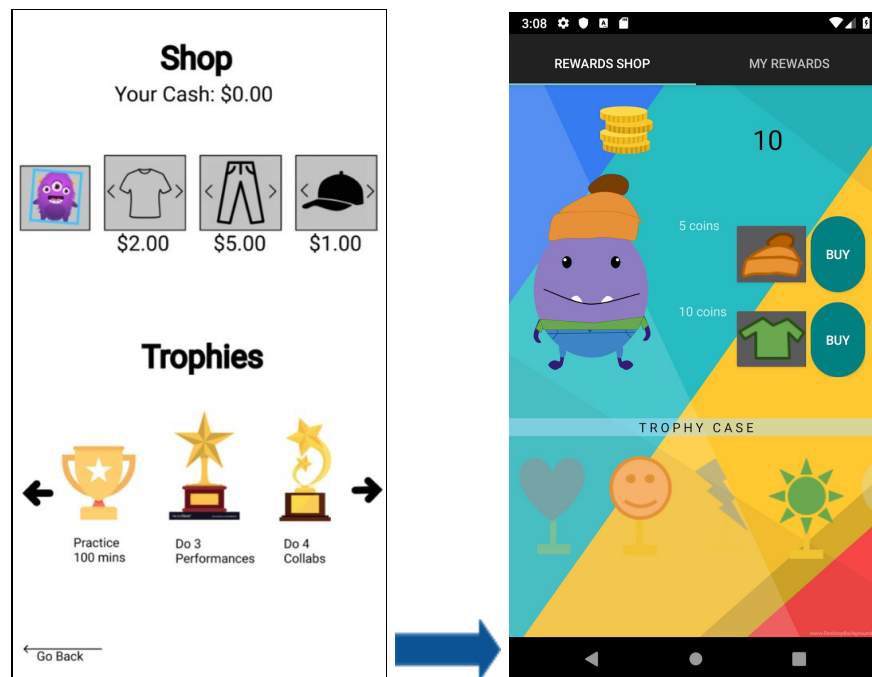
In the medium-fi prototype, Rewards Shop items can be purchased with "cash", which confused users since there is no place to input real US currency into the app. We addressed this by changing the in-app currency to Pife Points, which can be earned by practicing, performing and collaborating within the app.

Lacking Flexibility With Instruments User Can Practice With
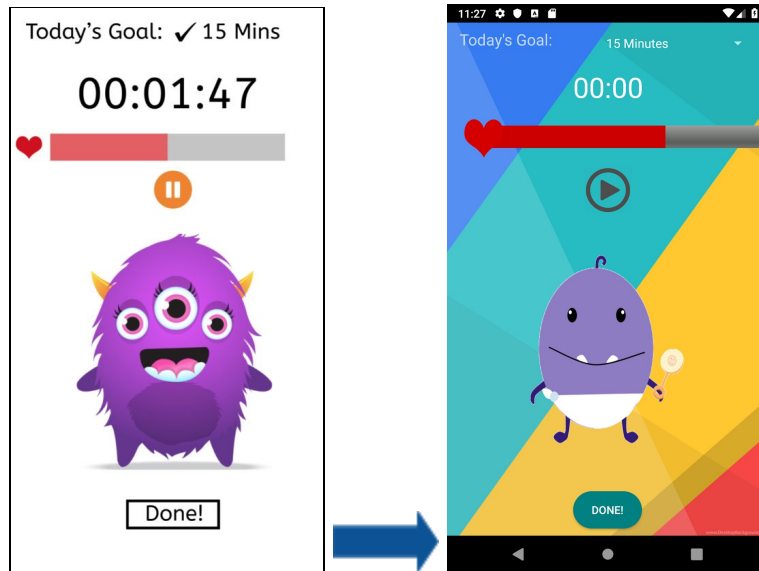
Users were under the impression that they could only practice with the instrument they specified having experience in under their Profiles. This is a false impression and we addressed the issue by not forcing users to stick to one instrument while playing. This way, users can practice any instrument they would like to while using Pife.

Requirements for Evolution is Unclear
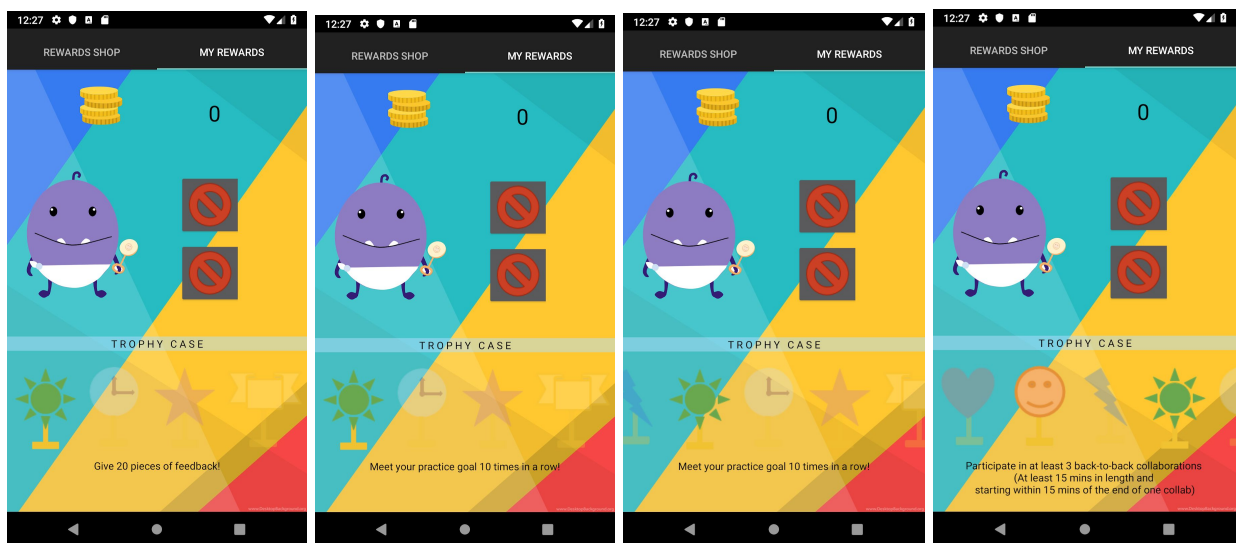
Scaffolded ways for users to figure out how they can evolve their companions were not clearly defined. We did not directly address this because we wanted users to enjoy practicing after the initial aid of Pife. Our concern is that users would be so focused on reaching evolution that they may lose sight of practicing, performing and collaborating. But, we did create milestones for users to reach for via unlockable trophies to encourage people to use specific tools for specific durations.

Difference Between Leveling Up Rewards and Purchasable Rewards is Unclear
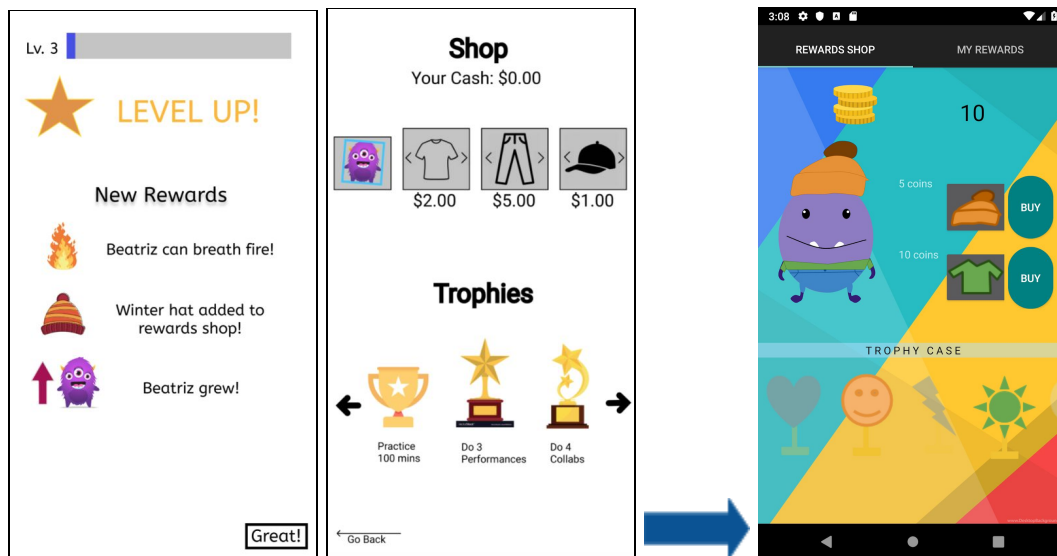
In the medium-fi prototype, users received rewards whenever they evolved their companion, which led to confusion around what the difference between these rewards and purchasable Reward Shop items was. To address this issue, we restricted collectable reward items to the Rewards Shop and made rewards that came with evolution unbuyable. This way, users are motivated to use Pife's tools to gain Pife Points, as well as to evolve for exclusive features.

Other changes we incorporated into the hi-fi prototype include general organization and clarification of features in the app, as well as cleaning up the overall aesthetic of the app. Text banners and clearer button names were added to clarify what each screen is meant to do, and features were placed in a cleaner, easier to use layout.

Prototype Implementation

We built our application mostly through Android Studio and its native toolkit since these tools lent themselves to a smooth flow between interactive screens, and had built-in app components and layouts. However, Android Studio is severely limited in its animation capabilities and has a fairly steep learning curve. Although the built-in layouts mostly helped in that they allowed us to quickly create screens with consistent margins, Android Studio layouts are very finicky and require a lot of patience to understand.

To create "Ronald" and "Jemi", our prototype's digital companions, we used Google Drawings to initially draw them out. Through Adobe After Effects and Photoshop, we turned the Google Drawings into animated GIFS. All of these tools were simple to use since our team had some animation experience, and there is a large online help community for these tools.

For our database, it was much easier for us to use Firebase (Google's online storage system) than it was to implement a lot of backend hard-coded data. As a result, all of the user's information app is stored online and is portable from device to device.

A Wizard of Oz technique was utilized in our prototype's video chatting features. We used *Appear.in* to connect users in the Perform and Collaboration tools. We also used a Wizard of Oz technique to dress our animated companions. Dressing "Jemi" through the Rewards screen makes it seem like the character's clothes are added to its body, but we have GIFS for every possibility we implemented.

The only things we really hard-coded in our app were the trophies each user got by default and every user's practice schedule. We decided not to implement these features fully but wanted to show what they would look and feel like in the app.

In the future, we would like to implement the following:
- Ability to filter collaborators by collaboration schedule
- A recording feature for every task so that the user can hear how they played and share the audio file
- More companion options with more reward options
- An audio sensing feature in the practice task that listens to make sure users are generating sound

Summary

Improving skill on an instrument is built on having a love for it and on having a drive to get better. Often times, musicians lose sight of why playing an instrument is enjoyable and lose the motivation to improve. It is our hope that through Pife, musicians will feel inspired again to simply enjoy practicing their instruments. Throughout the quarter, we iterated on many ways to motivate musicians to practice irrespective of their time, space and music community constraints until we came up a flexible, appealing and friendly solution. We learned how to find gaps in a problem space, design potential solutions for it, and keep testing until we arrived at a final product that is needed and desired by users. We will carry what we have learned from this project with us into the future, as we work to inspire others to continue practicing their passions.