Milestone 4: Evaluation

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HEURISTIC EVALUATION

Heuristic evaluations are designed to see how a person interacts with specific features on a system and in this case, the calendar and journal functionalities. This evaluation process can be done in either two ways, one is where a group of participants perform a specific task while an evaluator notes how they react to the system and the second is where the evaluators simply run the tasks themselves and score issues on a severity scale and provide recommendations to solve it. Due to the current status of the world, this study was set up to be done with two evaluators who will run through the app and the evaluators will score the severity when they run through the tasks.

To properly conduct a heuristic evaluation, an interface needs to be selected and in this case, the team would like the journal and calendar alongside the main UI to be thoroughly examined. In order to properly assess each phase of the system, the evaluators will be utilizing Jacob's Nielson's 10 Usability Heuristics for User Interface Design so every fundamental standard is clear from the start to ensure that the design is solid. All interactions will then be recorded for further analysis and feedback.

After inspection of the system is completed by each evaluator, they will then share their observations with each other for collaborative work to assess what was a shared problem they experienced. As an additional step, the evaluators will give each problem a score for severity. When scoring, they will have to think about the frequency of the problem, the impact, and the persistence of the problem. The score system will follow a scale developed by Jacob Nielsen:

0. I don't agree that this is a usability problem at all
1. Cosmetic problem only: need not be fixed unless extra time is available on the project
2. Minor usability problem: fixing this should be given low priority
3. Major usability problem: important to fix, so should be given high priority
4. Usability catastrophe: imperative to fix this before product can be released

<u>Procedure</u>

Journal

1. Navigate to the new journal entry
2. Create a journal entry
3. Go through all the steps
4. Save the entry and return to main menu

Calendar

1. Navigate to the calendar
2. Go to entry that was just created
3. Edit and save it
4. Navigate back to main menu

These tasks were chosen since they highlight the major functionalities of the app. These features are one's that will either make or break the app and need to be truly hammered to perfection. This evaluation was done using the prototyping tool, Figma and the evaluation standards developed by Jackob Neilsen.

Results

Evaluator 1
About: 23, male, web/app developer

Heuristic	Severity Rating	Comments
Journal		
Visibility of System Status	0	Transitions fine and smoothly.
Match Between system and real world	0	English is cool.
User Control and Freedom	1	Often get "cancel" and "back" mixed up
Consistency and standards	1	"New" is not clear
Error Prevention	0	No error messages appeared
Recognition rather than recall	2	"New" button is not intuitive. The buttons on the bottom do nothing. Why are the hyperlinked words buttons, but "Hello Phoenix" not a button or the main feature?
Flexibility and efficiency of use	0	Process is pretty streamlined as is
Aesthetic and minimalist Design	3	The buttons on the bottom during the journey process feel out of place to the atmosphere of the app. The "Skip or Done" button feels crowded. The green and red are a bit too saturated for the theme of the app.
Help user recognize, diagnose, and recover from error	1	Don't think error messages are put into place since I never seen one.
Help and documentation	2	App is not intuitive when first opened. It takes experimenting to understand fully.
Calendar		
Visibility of System Status	1	No legend present to define what each bubble means under each date without opening it.
Match Between system and real world	0	Readable.
User Control and Freedom	0	Back button is clearly visible
Consistency and standards	0	Words are clear
Error Prevention	0	No errors seen
Recognition rather than recall	0	App is clear
Flexibility and efficiency of use	0	App is streamlined

Aesthetic and minimalist Design	0	The theme is consistent here
Help user recognize, diagnose, and recover from error	1	Don't think error messages are put into place since I never seen one.
Help and documentation	3	No idea what the calendar is for without having to explore what it does initially

Evaluator 2

About: 33, female, middle school teacher

Heuristic	Severity Rating	Comments
Journal		
Visibility of System Status	0	N/A
Match Between system and real world	0	N/A
User Control and Freedom	0	N/A
Consistency and standards	1	Its transitions are weird. It scrolls up when everything else scrolled left
Error Prevention	0	N/A
Recognition rather than recall	0	N/A
Flexibility and efficiency of use	1	Slow transitions
Aesthetic and minimalist Design	2	The button layout is bulky and clunky. The font style is nice.
Help user recognize, diagnose, and recover from error	0	No error
Help and documentation	2	What is this app for??? What is use case
Calendar		
Visibility of System Status	0	N/A
Match Between system and real world	0	N/A
User Control and Freedom	0	N/A
Consistency and standards	1	What is difference between the circles under the numbers
Error Prevention	0	N/A
Recognition rather than recall	2	Circles??
Flexibility and efficiency of use	0	N/A
Aesthetic and minimalist Design	0	N/A

Help user recognize, diagnose, and recover from error	0	N/A
Help and documentation	4	What is this page?

Discussion of Results

Looking over the results of the evaluators when they went through the system, there are a lot of similarities that came up. In regard to the usability of the journal feature of the app, they seemed rather content with the visibility of the system status, which means that they think the system keeps the user informed of what's happening on the screen. They both left no substantial comment for how the system matches the real world. In regard to control and freedom, evaluator 1 thought that the “back” and “cancel” buttons are ambiguous in regard to how they differed. On a similar note, evaluator 2 also thought that the whole layout for the buttons on the button was clunky and overly bulky as a whole. Based on their responses to the severity of it, it seems that this aspect of the feature definitely needs to be restructured to be more appealing and easier to navigate through in the final iteration. Finally, they both shared the common sentiment that the lack of documentation or instructions did not add positively to the app and needs to be addressed. Evaluator 2 especially was confused for the whole purpose of the journal feature until a full run through was done.

The calendar feature was overall positively received by both evaluators with only one major issue arising. It was clear that they both wished for more documentation and help being displayed to the user to better understand what is going on or what they are looking at. When both evaluators navigated to this page initially, they had zero understanding of its purpose and what the dots represented under each date.

Improvements to be Made

Based on the usability feedback received, the team decided that the following needs to be redone or added to give more clarity to users of the app:

1. Restructure the button layout in the journal to look more sleek and minimal. This could come in the form of an actual back button icon, home button icon, and making the next button smaller and less bulky.
2. Adding instructions of what each feature does when the user first opens it for the first time and a more information button icon in the corner or within a hamburger icon if they need a refresher for both the calendar and journal so plausible.
3. Adding a legend in the calendar page would help to remove the ambiguity of each circle type under the dates.
4. As a side note from both evaluators, they both mentioned how confusing the main menu is initially, but the style grew on them. They feel more comfortable if the buttons look like buttons rather than hyperlinks and the user’s name not being in the bottom right since they thought it was a button also.

PREDICTIVE EVALUATION (FITTS LAW)

Background**:** There are several methods for conducting a predictive evaluation for a specific design. Some include Fitts Law, KSLM, and GOMS. For our specific project, methods for testing could be performed in several ways across these three testing types. The most appropriate model for predictive evaluation would be a touch level model, but there is not much data regarding this model as it is fairly new. In addition, users of this therapy companion application will not need to use some form of physical computer with keyboard and mouse so that eliminates the use for a Key-Stroke Level Model; therefore, Fitts Law will be addressed as it fits more for the proposed design.

Fitts Law is a predictive model primarily used in human-computer interaction. The law states that to achieve an optimal user outcome, it is best to “utilize every available pixel” to enlarge the clickable area, making it (specific sections of the screen) a larger target for clicking and other interactions such as gestures.

For our design, we chose to focus and evaluate the two primary functions of the application: creating a journal and accessing/editing calendar. The evaluation procedure for each is as follows:

Journal

1. Upon start up, quickly give the user the ability to jot down their current mood and/or thoughts they may be experiencing via one click.
2. After clicking a single button on the home screen, the entire next screen provides the user with 3 different options for jotting down their mood. Specifically, the user has the ability to draw their mood, swipe to select from a predefined list of moods, and most importantly, the ability to write their thoughts in a huge text editor. (large target)
3. Upon a simple click of each screen in (2), a user can efficiently reach the next target.

Calendar

1. Upon start up, quickly give the user the ability to access their calendar to view appointments, view past journal entries and edit past journal entries for any date of their choosing. This can be done by initially clicking a single button called ‘Calendar’ on the main screen of the companion application.
2. The user is immediately taken to the calendar, with the current date highlighted. Here the user has options of which date they will like to access the three options listed in (1).
3. As soon as a user clicks a date, the entire screen is filled with current date, past journals, and a button to edit the pre-existing journal if there is one. Otherwise, they can create a new journal directly from this page.

<u>Procedure and Record Type</u>

We provided this test to 5 individuals and recorded their speeds for each unique subtask under each primary task. Data for each subtask begins from the home page and before the initial click of the primary task they would like to perform. Their data was recorded onto an excel sheet for further analysis and organization.

	Journal			**Calendar**		
Individual	*draw*	*swipe*	*jot*	*View appts*	View journal	Edit journal
Participant 1	1	2.3	4	1.5	1.8	2
Participant 2	1.2	2	4.2	1.7	2	2.2
Participant 3	1.1	2	3.8	1.6	2.1	2.3
Participant 4	1	2.2	3.5	1.5	1.9	2
Participant 5	1	2	4	1.25	2	2.15

Discussion of Results

As can be seen by the data recorded from our participants accessing the different subtasks for each primary task did not take too much time. Starting with the journal, each user was asked to perform each successive task that was initiated via the next button on the bottom of the current screen. Upon clicking the New > Journal option, from the main screen users are asked to draw their mood if they desire. For testing purposes, we made all users perform all tasks in each page to record a full range of times for each function. Getting to the “draw” screen and comprehending what was being asked on that specific screen took an average of 1 second. Clicking next and navigating to choose their mood via swiping the gradient view took an additional 1-1.1 seconds, currently totalling ~2.1 seconds to fully understand what is being asked on each screen (subtask) for the current primary task. With the fast gesture recognition smartphones have nowadays, swiping and clicking controls on a screen only takes a few milliseconds and almost appears instantaneously to the user. What takes the most time is the cognitive thinking performed through each subtask. Finally, it took a total average of about 4 seconds for the user to begin jotting their initial thoughts for the journal. Overall,we concluded this was fairly efficient for the participants.

Next we evaluated the Calendar primary task of the companion application. From the homescreen, it took an average of ~1.5 seconds for the user to comprehend and quickly glance

which days of the month had some sort of appointment scheduled (small filled bubble per day). By clicking a specific day from the “view appointments” calendar view, a user can almost instantly see the journal written for that day on the next screen with an immediate option to edit by clicking a button. Once that button was clicked, they reached the Edit Journal screen in an additional average of 0.25 seconds.

Conclusion

We can see that through a Fitts Law predictive evaluation study, we can uniquely test the efficiency of each feature based on the order in which they are arranged within the application. Overall, the design team thought that this was the quickest way to give users multiple options to edit their journals and view calendar details. However, some improvements could have been made.

Prototype Improvements

Most improvements could have been made with the Journal. Interaction time could have been positively minimized by giving the user full autonomy on what the next screen they wanted to see would be, however, this could be considered a trade off for those users who will like to express their thoughts as elaborate as possible. By autonomy, we mean providing the user the option of which of the three screens they would like to visit upon initial main screen click: Draw, Swipe, Jot. Some users may have wanted to only do the first, the second, the third, or any combination of the screens depending on their desires.

Calendar improvements were very miniscule. The idea of a small filled in circle was very sleek however, did not serve the designers well in a Fitts Law predictive evaluation as the circles were very small, forcing users to think they had to click the little dot rather than the entire date itself. In the future, we should consider making the full day(s) of the month highlighted to show an appointment (and possibly whether a journal entry was written or not) through some color variations.

COGNITIVE EVALUATION

In order to conduct a cognitive walkthrough, we had to first make a list of the features that the users will have to access in the prototype application. Using the MHP model we wanted to study the reaction time of a user trying to get to a feature in the list from our application. The MHP model helps predict which cognitive processes are involved when the user interacts with the user interface and can be used to determine the reaction time. There are three main factors that play a role in determining the reaction time, which are perceptual processor, cognitive processor, and motor processor. Perceptual processor refers to how long the information takes to be processed in the brain. An example of this would be if a user spots a certain image on the ui, the brain will try to figure out the context behind it. Cognitive processors usually decide what action a user will take based on what has previously been stored. And lastly, the motor processor essentially carries out the appropriate response. The formula Tp+Tc+Tm= RT(reaction time), will be used in determining the reaction time for each feature.(Tp=100, Tc=70, Tm=70)

Evaluation

For the Evaluation Procedure, we considered the reaction time of accessing the calendar, journaling, and viewing previous journal entries:

Calendar:

1. The user looks at the home page and has a decision to make from a list of 5 options.
2. Upon visual confirmation, the user clicks the calendar option. Tp+5Tc (compare and decide) +Tm.

Journaling:

1. The user looks at the home page and has a decision to make a form list of 5 options.
2. Upon visual confirmation the user clicks the new option.
3. The user must swipe and pick from 12 options to choose a mood and 2 more to cancel or proceed.
4. User clicks the next option and is presented with a drawing page and 4 options, one of which proceeds to the next page.
5. User clicks the skip button and can journal. (Tp+23Tc (compare and decide) +16Tm).

Previous journal Records:

1. To get to the journaling aspect with our prototype the user looks at the home page and has a decision to make from a list of 5 options.
2. Upon visual confirmation, the user clicks the calendar option.
3. The user then must find the date of the journal entry and has to decide between roughly 30 choices depending on the month.

4. The user clicks on the date and is asked to journal. (Tp+35Tc(compare and decide) +2Tm)

Participants	Calendar	Journal	Previous entries
1.	520ms	2830ms	2690ms
2.	500ms	2750ms	2450ms
3	540ms	2650ms	2550ms
4.	490ms	2789ms	2200ms
5	519ms	2720ms	2345ms

Discussion

So, based on the results of the evaluation the reaction time for users trying to journal in the application seems to be greater than the other two tests. This makes sense because there are multiple steps that are involved to complete a journal entry. And depending on how long the user spends in the interactive drawing activity and text entry page the reaction will be higher. This test involved multiple cognitive processes and motor processes. Most of the users did not have a problem to get to the calendar page in the application since their reaction time was roughly the same. And viewing previous entries involves multiple steps but not as many as journaling. However, it did involve the users to utilize their cognitive processors due to the decisions they had to make with the various options.

Improvements

Decreasing the number of options a user has to pick from in the application can decrease the reaction time which can result in swiffer transitions. An alternative way of improving the application would be to have multiple options in the homepage that will direct the user to features that they desire. This limits the number of cognitive processes and also motor processes.

RETROSPECTIVE TESTING AND THINK ALOUD

We interviewed six people who individually had remote access to a computer running the prototype. They were given an unlimited amount of time and instructions direct enough to complete a particular task but vague enough not to give specifics of how to complete the task. Their actions were recorded, however their spoken dialog was not.

Each participant was asked the following questions before their interview:

1. What is your name?
2. What is your age?
3. What type of phone do you use?
4. Have you used a mood journaling app before?
5. Have you ever been to a therapist or mental health professional?

They were then read the following script and asked to interact with the interface:

> Mood is a mood journaling app that is designed to make therapy sessions run smoother. It allows a user to make detailed and creative journals based on their mood and sends the information to their therapist or mental healthcare professional. As a result, patients have an easier time remembering past events since their last session and therapists and mental healthcare professionals have an easier time appropriately diagnosing their patients.
>
> Pretend that you are a regular user of this app named Phoenix and are completing two tasks:
>
> 1. **Create** a new journal entry for today, marking your mood as “MEH”, attempt to draw a picture, and skip adding text, and save it
> 2. **Edit** your mood on January 15th from “ANNOYED” to “DEPRESSED”
>
> Do what you find necessary to complete these two tasks and express your thought process aloud.
>
> After you finish, I will replay your video for you and ask you why you chose those particular actions.
>
> After each interview, we conducted a think aloud evaluation asking why they decided to take the actions that they did. These questions were the only guided thought dialogue presented in this study. Questions were asked like “You chose *x* action, why did you take that route?”

Below are the results from each interview.

DOUGLAS

59, Android User, not used journal app before, been to therapist

New	Calendar
• "hello phoenix" meant opening up the journal • 'new" signified a new journal • thought clicking "how are you feeling" would change the mood • Scrolled on accident, finding other moods • Clicked mood before moving to next screen because though had to click to select • Needed a pen to draw, so clicked pen tool	• clicked hello phoenix out of habit • calendar signified a date • Thought edit mode would open on clicking mood • After seeing scrolling function, was intuitive to use again • Decided to click on save because it was more natural

STACY

49, Android User, not used journal app before, not been to therapist

New	Calendar
• The word "new" meant new journal entry • Clicked "next" when reading "scroll left for more options", didn't read properly and assumed next would take to next mood • Clicked "pen" to select drawing instrument before drawing • Save and send was the only save option	• Was given month and day, where else would you find other than a calendar • Clicked mood to scroll because it was a mood • Clicked edit since nothing moved when clicking mood • After seeing scrolling function, was intuitive to use again • Assumed once changing the mood, it would automatically save it • Clicking on the mood before saving is an extra step

ELISE

22, iPhone User, not used journal app before, not been to therapist

New	Calendar
• Assumed "new" was the starting point for new journal • Scrolled based on instructions • Didn't know if scrolling locked in mood, so clicked the mood to select it • Did not think that pen tool was selected automatically	• It was logical since that's where dates would be • Didn't know if had to confirm an edit before clicking edit button • After seeing scrolling function, was intuitive to use again • Just thought to click save before selecting mood

JAILEN

23, iPhone User, not used a journal app before, not been to therapist

New	Calendar
• Clicked Hello Phoenix since saying "hello" is intuitively the first step • New made more sense (located at the top, says "New", and the arrow)	• Clicked because the instructions said to edit for a date, would've considered statistics as a next option • "Edit" was more logical, cannot change the day itself ◦ there is nothing else to do

• Swiped because it said to do so, if it had not, probably would swiped up or down or left to right • Clicked pen to see if there were any other options (e.g marker, pencil, colors etc.) • “Save and send” was logical	• Scrolling was how you set the mood, therefore that’s how you change it to edit it

JULIANA
22, iPhone User, not used a journal app before, been to therapist

New	Calendar

• Look for a way to initiate a new
• Instruction to scroll
  • If not there would’ve tapped since nothing else scrolls
  • Wasn’t intuitive with the invitation
• Thought that the pen tool would be default without clicking “PEN”
	• No other option to access old journals, so calendar was the obvious choice
	• Clicked mood before edit since typically that is not normal, but after seeing the edit button realized there was one button for entire screen
	  • clicking mood first is preferred
	• After seeing scrolling function, was intuitive to use again
	• Thought a mistake was made when changing mood (skipped step of clicking mood again before saving)

JACOB
22, iPhone User, not used a journaling app before, never been to therapist

New	Calendar
• Was initiative to click new • Felt should scroll both ways for mood	• Didn’t realize edit was an option • No instructions to scroll so did not find it intuitive

Based on the reflective interviews, there are two changes that we should make to the prototype.

The first is in the New function. This change should allow the user to click on their mood after scrolling to “lock it in”, thus giving the user a sense of security when picking their mood.

The second change will exist in the Calendar function. When editing, perhaps the “Edit” button will be removed since it was less frequently used. The user should be able to click their text, picture, and/or mood by clicking the respective field, thus reducing the number of steps to complete the action.

QUESTIONNAIRE

Collecting the general demographic of the users will be relevant in figuring out the types of users that might use our application. Demographics will also help us understand how different groups will experience the application. For example, we can evaluate user experiences based on age groups to see how younger groups compare to the more older age groups. Six people who were involved in the retrospective test or think aloud evaluation were made to fill an online survey. All of these participants individually had remote access to a computer running the prototype. Prior conducting the online survey, the 6 participants were asked the following questions:

1. What is your name?
2. What is your age?
3. What type of phone do you use?
4. Have you used a mood journaling app before?
5. Have you ever been to a therapist or mental health professional?

The following is the sample of the questionnaire that was shared with the six people involved in the retrospective tests who individually had remote access to a computer running the prototype. The questions will need to be written clearly and must be simple, so that they are not confusing. These participants were asked to fill this survey online. The questionnaire/ online survey included 3 open-ended questions, 2 closed questions, 2 scalar questions , 2 multi-choice questions and 1 ranked question.

Draft of Questionnaire:

1. What do you like the most about the “MoodApp” mobile application?
(open-ended question)

2. Which feature would you likely use the most?
(open-ended question)

3. Are there any features that you think you need but are missing in the application? Name them.
(open-ended question)

4. Was it difficult to find a particular application feature?
(closed question)
   (a) Yes
   (b) No

5. Was your experience with navigating through the application good ?

(closed question)

(a) Yes
(b) No

6. How often would you use the app?

(multi-choice question)

(a) Never
(b) Rarely
(c) Sometimes
(d) Often
(e) Always

7. Which feature do you think makes the app stand out?

(multi-choice question)

(a) Drawing the emotion
(b) Multiple selection of moods from the options available
(c) Workspace provided to write down the journal

8. On a scale of 1 to 5, how likely are you to recommend this application to someone else?

(scalar question)

(a) 1 (very unlikely)
(b) 2
(c) 3
(d) 4
(e) 5 (very likely)

9. On a scale of 1 to 5 (with 1 being poor and 5 being excellent), rate the user interface of the mobile application?

(scalar question)

(a) 1 (poor)
(b) 2
(c) 3
(d) 4
(e) 5 (excellent)

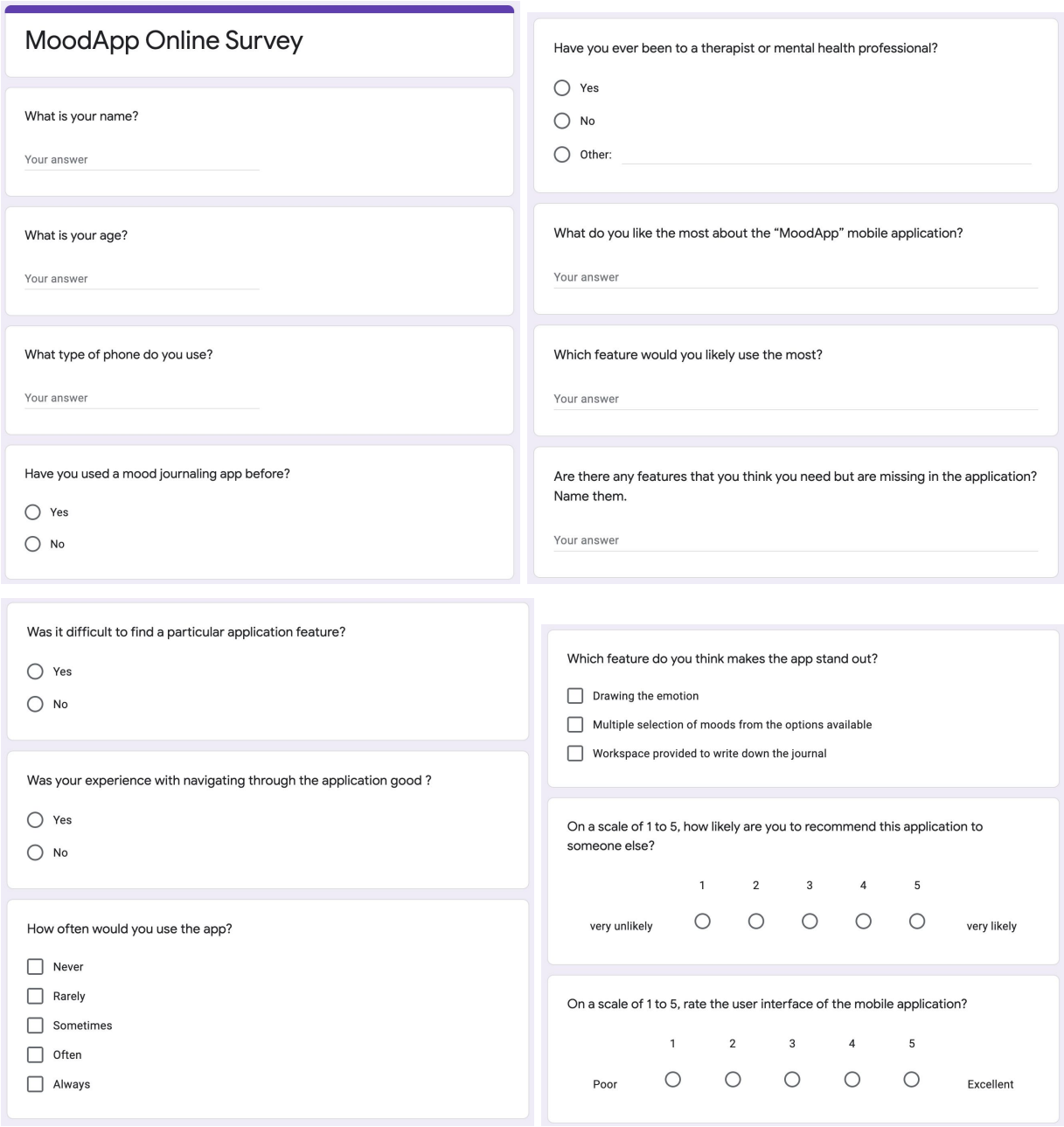
10. Please rank the following for this application based on your experience:

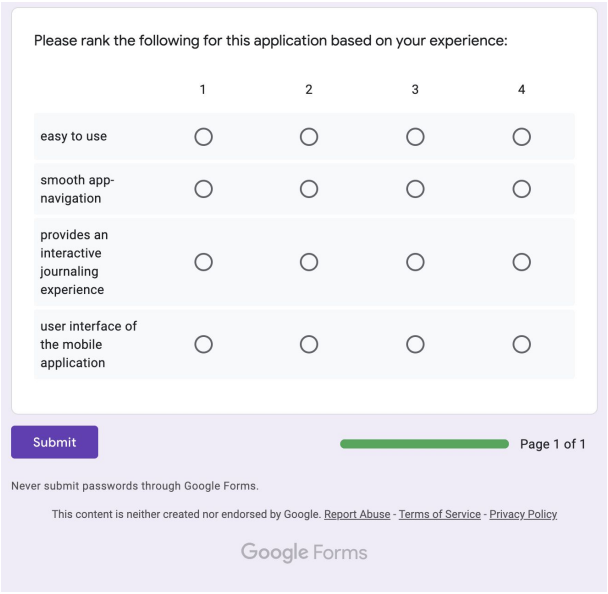
(ranked question)

_ easy to use
_ smooth app-navigation
_ provides an interactive journaling experience
_ user interface of the mobile application

<u>Online survey form:</u>

This survey was conducted using Google forms which was shared with these 6 participants. The link to this form was : https://forms.gle/1f5TkssUGqLTyxA19 and the information/responses were recorded in the Responses section of the Google form.
The form looked as follows:





Results:

Demographics of 6 participants:

Name	Age	Type of Phone used
Douglas	59	Android
Stacy	49	Android
Elise	22	iPhone
Jailen	23	iPhone
Juliana	22	iPhone
Jacob	22	iPhone

When asked if any of these 6 participants had used a mood journaling app before, all of them replied as “No” as shown in the below pie-chart figure.(a), while only 42.9% of the targeted user group had ever visited a therapist or a mental health professional as seen in figure.(b) below

.

Have you used a mood journaling app before?

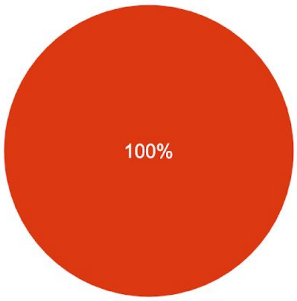


fig.(a)

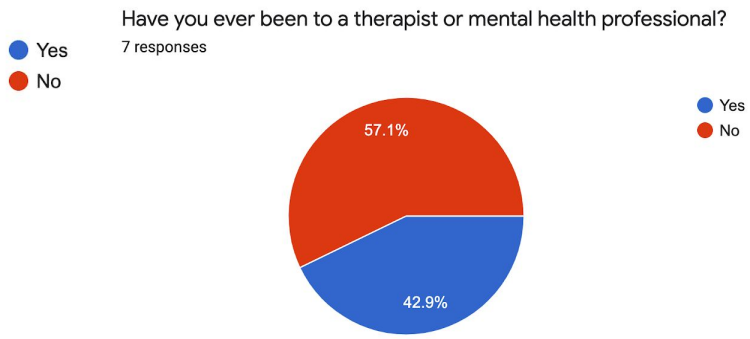


fig.(b)

Survey question results:

Q.1) What do you like the most about the “MoodApp” mobile application?
For the above question, the following was the response:

Finding mood's list to select from.

Loved the UI

Love the way moods changed the background color.

Scrolling to select moods.

Draw feature

Loved the interface and colors used are calm and gentle on eyes.

The above were the results collected that showed that MoodApp was liked mainly for it’s way of interacting with the user like scrolling to select moods or variation in background colour based on the mood.

Q.2) Which feature would you likely use the most?
For the above question, the following was the response:

"New"

Drawing the emotion

"Calendar" since it keeps me up to date.

Draw feature in New

"New" as well as Calendar.

These responses showed that the feature that the users liked was entirely based on one's convenience.

Q.3) Are there any features that you think you need but are missing in the application? Name them.
For the above question, the following was the response:

No, found this app good!

Yes, maybe including a color palette

A manual with the app

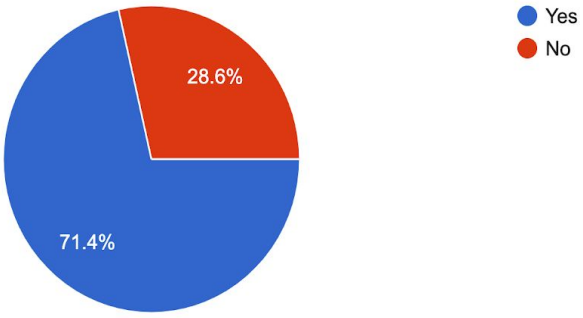
Yes, maybe including an option to set reminders for the appointments.

No, seems good.

Should have included a virtual assistant as a navigation guide.

This was a section wherein responses helped to work over the flaws in the app. Many participants came up with new ideas to be included in the app. Few amongst which were based on advanced techniques like having a virtual assistant as a navigation guide for the application.

Q.4) Was it difficult to find a particular application feature? **Q.5)**



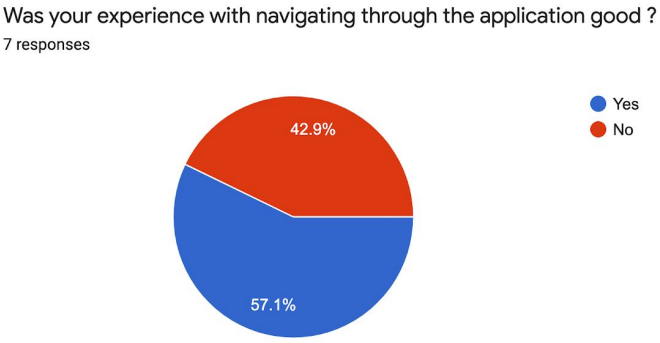


fig.(c) fig.(d)

As seen in figure.(c) above, 71.4% of the user group found it difficult to find some application feature. Few of them accidentally came across features like scrolling to select mood while age also played a major role. The young tech-savvy users were easily able to understand the app as compared to the older people. As a result of which some people took time to learn the app-flow while a few had good experience with the navigation as shown in figure.(d).

Q.6) How often would you use the app?

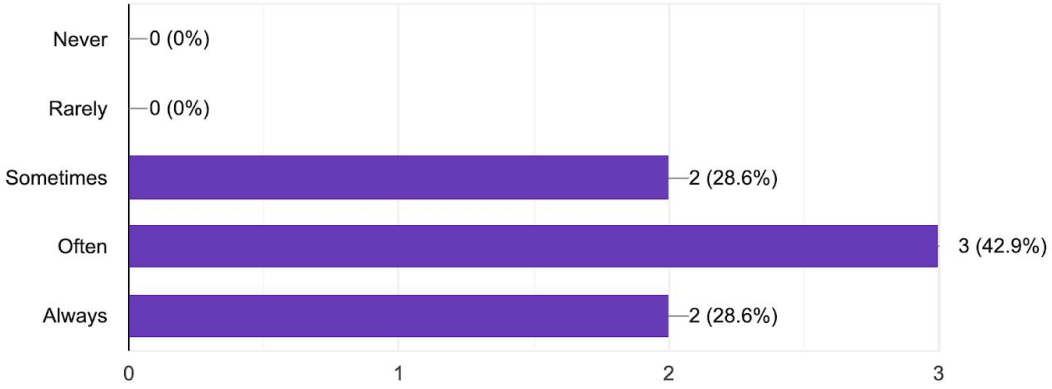


fig.(e)

Figure(e) shows that 42.9% of the user group showed willingness to use this app often while 28.6% of the group which is 28.6% of the user group showed willingness to use this application always.

Q.7) Which feature do you think makes the app stand out?

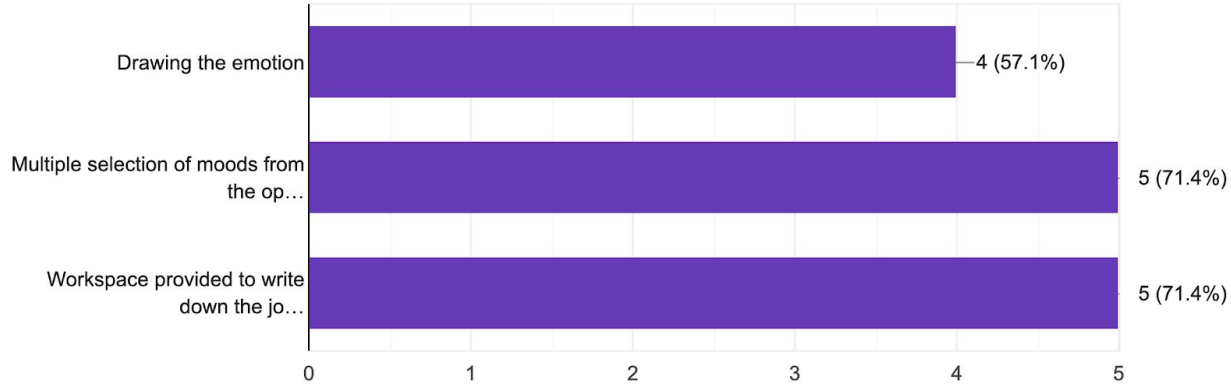


fig.(f)

The above figure.(f) it is clear that the two main features that make the app stand out are:

- Allowing the user to select multiple moods from amongst the scrollable moods that pop on the screen thereby, changing the mood color. Darker the background color, worse is the mood.(recorded as 71.4%)
- Workspace provided in order to make the journal entry was liked by the users since it allowed them to write down all that they felt like.(recorded as 71.4%)

Q.8) On a scale of 1 to 5, how likely are you to recommend this application to someone else?

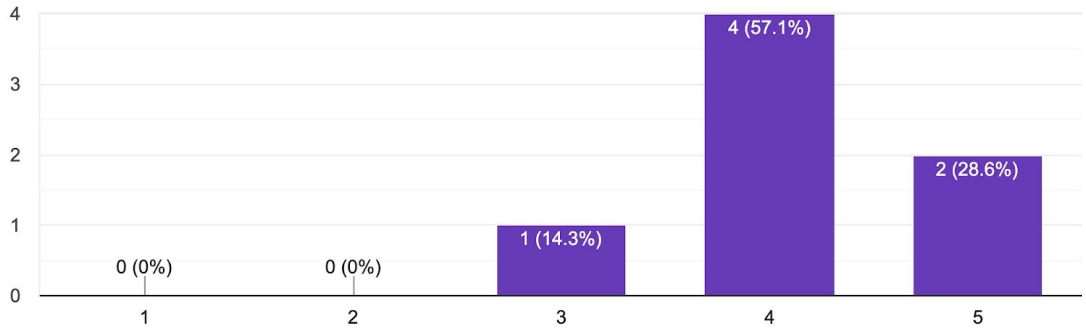


fig.(g)

The above figure(g) shows that most of the users were likely to recommend MoodApp to others. This accounted to almost 85.7% of the user group.

Q.9) On a scale of 1 to 5, rate the user interface of the mobile application?

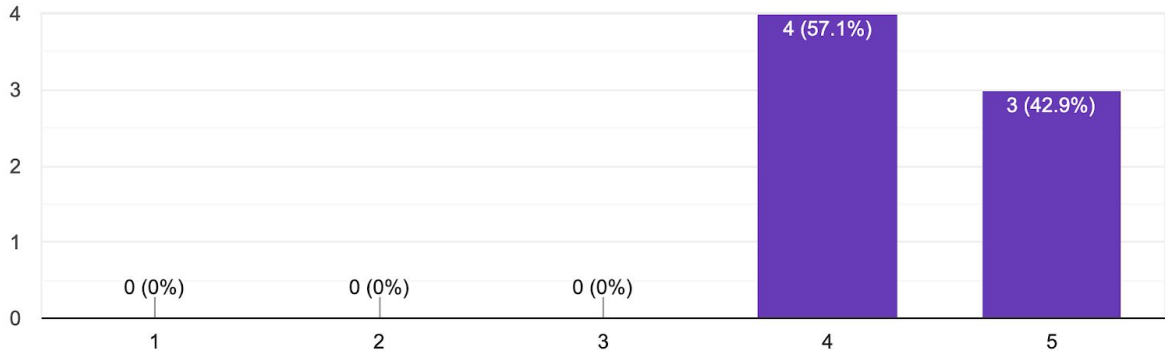


fig.(h)

Figure.(h) shows that the UI of the app was liked by almost everyone due to various reasons like usage of gentle colours for the background, color transition for the background based on different moods.

Q.10) Please rank the following for this application based on your experience:

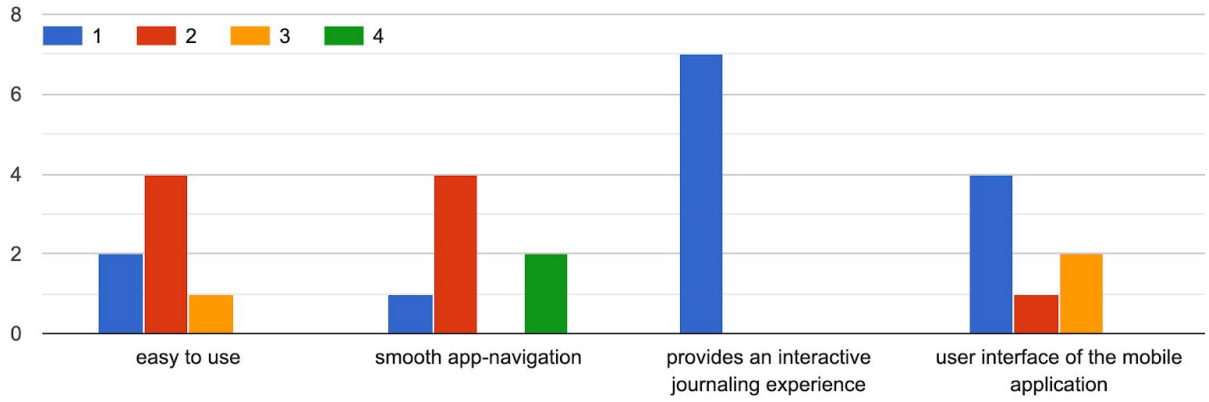


fig.(i)

The graph above (i.e fig(i)) shows that all the participants ranked the journaling functionality of the app at the first position while the second position was taken by the navigation and the ease-to-use. These results varied from user to user. They were entirely based on the user's experience with the app. Factors that were responsible for this ranking included age of users, familiarity with the technology, frequency of usage and exposure to the other UIs. However, all users ranked the functionality as first which clearly makes the team feel satisfied about being able to deliver that was expected.

Prototype improvements:

The following are the improvements that can be made to the prototype.

1. Having a virtual assistant for the app that can act as a navigation guide in case someone gets stuck.
2. Including an option to set reminders for the appointments "Calendar" feature.
3. Including a color palette in the "draw" section.

Strengths and flaws in the prototype:

1. Usage of background color transition depending on the mood worked well and was liked by most of the users.
2. Including an empty workspace for journal entry allowed users to freely write down about their feelings.
3. Allowing users to book appointments as well as to view all the previous/future appointments was a feature that the users found really convenient.
4. This app didn't have an option to set reminders for the appointment so that the user can be notified when an appointment was due and needs to be worked on.
5. Usage of back or forward arrows was slightly confusing for some users.

WHAT FAILED TO MEET M3 SPECS AND WHY?

For milestone 3 the development team was asked to implement a prototype for their application idea, which was essentially a journaling platform for patients with mental health problems. Upon further analysis of the prototype they found that some aspects of their specification did not meet their expectations.

I. Journal - Through the various tests and evaluations conducted, the majority of the results seemed to correlate in many aspects that need to be addressed before the app can be fully deployed. One specification that was important was the idea that the app should smoothly transition from one screen to the next. During the heuristic evaluations and retrospective testings, many of the participants and evaluators were often confused due to the overall layout of the screens. These tests highlighted the problem being that the layout of the buttons on the bottom of the screen and the instructions for the journal were not sufficiently designed for the user to navigate through the journal. Many participants either thought that the buttons would perform certain actions that the user did not expect or they simply thought the buttons were not intuitively placed for smooth transitions. Utilizing the data obtained from the predictive testing session, it also reinforces the idea that the overall time it takes to go from one page to the next was longer than users would like. Overall, this could all be fixed by redoing the layout of the buttons on the bottom of the screen to be clearer and intuitive while also providing instructions that makes each screen understandable for a first time user.

II. Calendar - Although the calendar feature did allow the users to review previous data entries successfully, it failed to provide an option for the user to schedule an appointment with a mental health care professional. Instead the user was able to simply send their data to a point of interest. That being said, having the prototype evaluated through various means such as cognitive evaluation we found that users didn't really have trouble navigating to the calendar to view their past data.

III. Home UI - Although this section wasn’t explicitly written out for what is expected of it, it is inherent that the main ui should be appealing and easy to understand for both experienced and inexperienced users. One overarching failure that almost every participant based test and evaluation shared was the label on the bottom right that served as a greeting to the user. This instead looked like the main button to press as it stood out by being colored differently and being located on the bottom right of the screen, which is normally used as a location where buttons are located. This could be fixed by either moving the greeting to the top of the screen or changing the color of the button to make it less confusing.

DETAILS ON EVALUATION DECISIONS

Various evaluations were performed such as Heuristic evaluations, Cognitive Walkthrough, Predictive Evaluation (using Fitts Law), Retrospective Testing Interview, Think Aloud w/ 5 People in Retrospective Testing Interview, Questionnaire (in this case online survey). These evaluations were however performed in order to assess the extent of the system's functionality, to assess the effect of interface on the user and to identify specific problems with the application.

All these evaluations had the user groups evaluate the system. The responses recorded were not evaluated on the basis of a focused group feedback but instead each individual user's feedback was valued because the team's aim was not to test the user but to perform Usability evaluation instead. The evaluation results helped deal with reliability as well as validity issues and kept the team assured about measuring the usability performance. Confounding factors such as the experiment set-up, learning effects, question's ordering effects and not letting out extra information in favor of the product were well taken care of. These evaluations promoted experimenters to wisely use the learnability aspect, to maintain an efficient evaluation flow by executing the benchmark tasks in time, to connect with the users emotion-wise, to look for errors and their severity causes on the system and to achieve subjective satisfaction in the form of questionnaires.

The team had read a few documents on User Acceptance Testing (UAT). UAT is also referred to as Beta, Application, or End-User Testing. UAT is generally the last phase of the software testing process. During this phase, a group of target users tests the software (in this case, MoodApp application) based on its functionality, ease-of-use, app-navigation flow, and features that require changes. This test is usually performed to make sure that the application or the software will be able to perform the required tasks in the real-world scenarios. This is a critical test that needs to be performed in order to know whether the product is able to fulfil user's requirements as well as meet their requirements.

In our project, conducting the online survey played the role of UAT phase. Based on these documents, the questions for the online survey were framed. These questions met the UAT guidelines. The responses of the online survey were collected from the users and were recorded and presented in the form of graphs. These graphs helped us to figure out which feature worked well while which feature required improvisation. The evaluation graph results clearly proved the team's intention of performing usability testing of the application rather than testing the users by avoiding intentional questions which would have seemed in favor of the application. This is why we asked users what we asked!

ROADMAP

Future Design & Development

Journal

- Consider the changes from the Fitts Law predictive evaluation study to maximize efficiency by minimizing time taken to reach screens.
- Give user autonomy on the specific screen they would like to reach from the start (i.e. right after they initially click New > Journal on main screen)

Calendar

- Implement a Fitts Law (larger target) and some color schemes to denote appointment dates and those dates which contain journals.

Exercises

- Implement common meditation practices based on the user's current and learned mood.
- Provide video instruction as a subscription service as a revenue stream for the company willing to take on the design of this companion application.
- Possibly provide a custom ability for doctors or other medical professionals to upload their own exercise practices via their clinical portal.

Goals

- Similar to Journal, give users the ability to set goals and track their completions via badges and other programmable accolades.

Messages

- Give users the ability to chat with others going through a similar mental state or even their medical professional directly at one another's own convenience.