Mari Chinn, Amanda Lin, Stephanie Shi, Karin Vaughan
Section AC: Mental Wellness
3f: Final Report

Wishing Well

Each Team Member's Name and Role

Mari Chinn - Usability Observer, Prototype Ideation and Builder
Amanda Lin - Usability Computer, Prototype Builder
Stephanie Shi - Usability Facilitator, Prototype Ideation and Builder
Karin Vaughan - Usability Observer and Facilitator, Prototype Ideation

Problem and Solution Overview

Awareness and social interaction are two very important factors in mental wellness. The tasks of reaching out when in need, reaching out to friends in need, and thinking about personal mental wellness are all actions that we found that people already do, but would like to do more often, with more purpose and direction. We found that people get stressed and distracted by modern social media due to the public sharing and constant stream of information and opinions. Often on Facebook or Instagram, people only present the best of themselves, and this can make it intimidating to reach out. Additionally, simply sending a message on these platforms doesn't always feel appropriate for a serious situation.

Our application tackles the issue of supporting mental wellness within a population of stressed-out college students. Wishing Well does this by promoting honesty and vulnerability, regular care, and positive and healthy relationships with both yourself and your close friends.

Initial Paper Prototype:

Overview of Initial Prototype
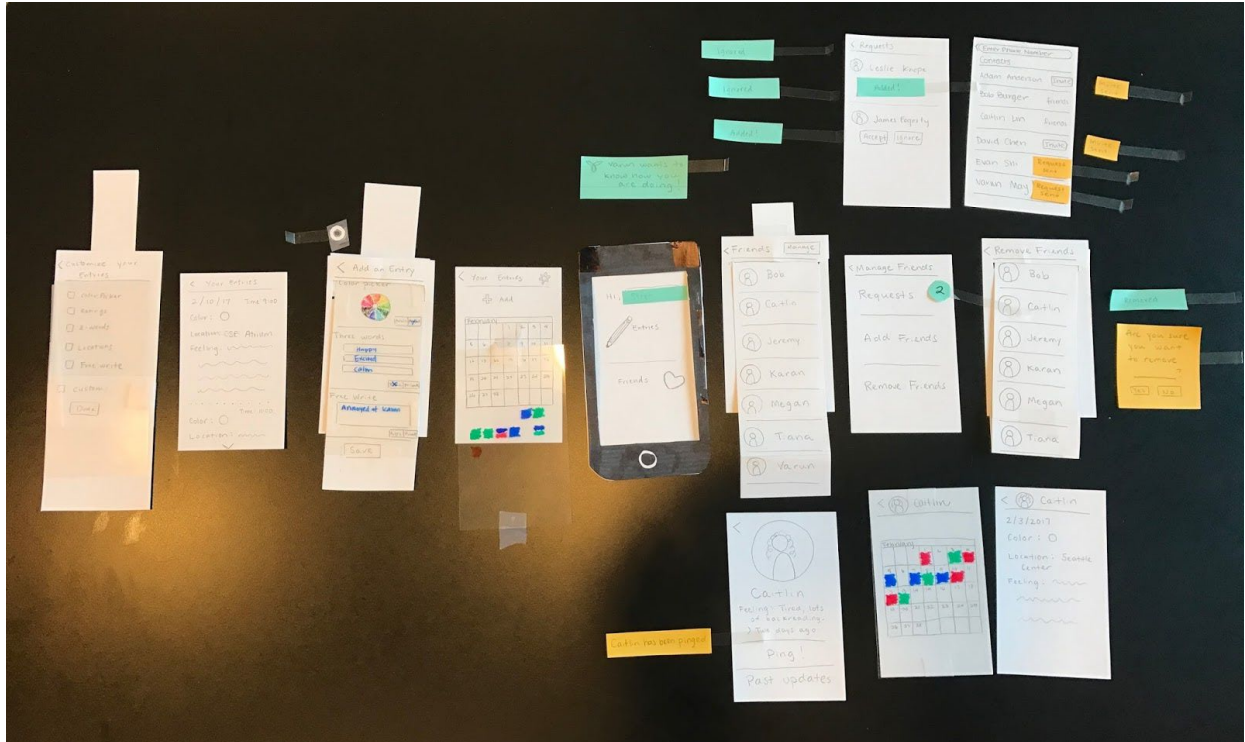
## Task 1: Creating and Managing Content

This first task of managing and creating personal content is facilitated in the "Entries" button.

Creating an Entry

This is the first screen the user sees after selecting the entries button. They click on the "Add" button to create a new entry. The custom tracking options that the user selected appear in this entry to be filled out. Each individual component of the entry also has the option to be either "public" or "private", where a public component can be viewed by friends and a private component is just for the individual user. The user then saves their completed entry. Entries the user has completed appear in their calendar with the color they selected on the color picker for each entry. The colors give a quick aggregation of data for the user to view trends in their mood.

Reflecting on Previous Entries
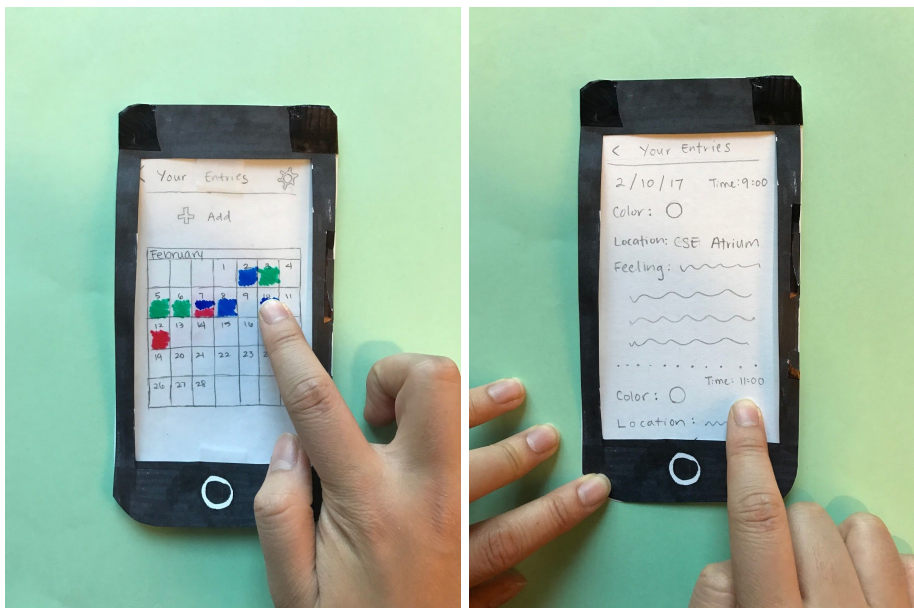
The user can view any of their previous entries. They can select a day to view an old entry and reflect on their feelings and wellness in the past.

Customization
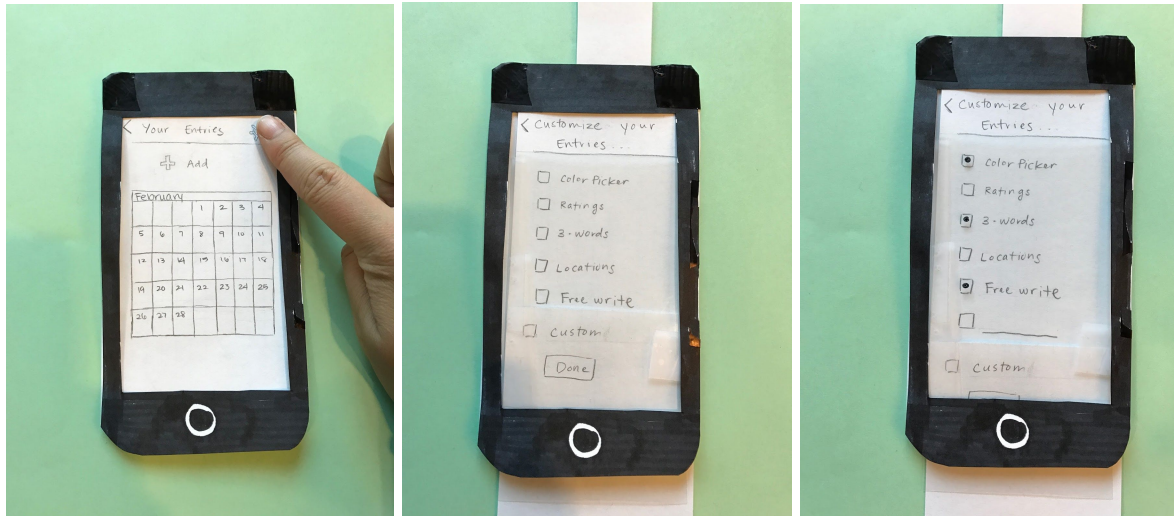
The user selects the gear icon in the upper left hand corner of the entries page to customize the components of their entries. They see a variety of different tracking options that they can include in each entry, with the option to create custom questions as well. The user then selects the ones they want to include in each entry, and saves those settings.

Task 2: Interacting with Friends' Content
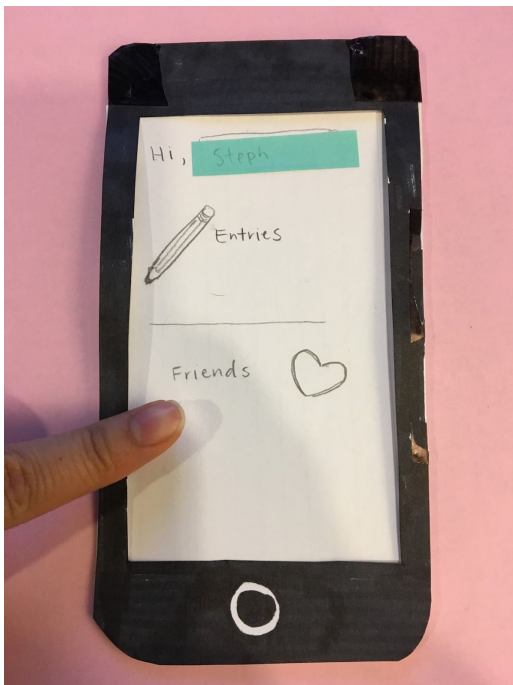
All of the user's interactions with their friends and friends' content is handled through the "Friends" button.

Checking in on a Friend

The user sees a list of their friends after selecting the "Friends" button on the home page. If the user wants to see how a friend is doing, they can click on that person's profile. They see the public components of the friend's last update, and also have the option to look at their friend's past entries. The user can then select a day to view the friend's entries. They can also "ping" their friend and their friend will get a notification saying "(Insert username here) wants to know how you are doing!" while the user gets feedback that their ping was sent.

An example of someone pinging the user. They can then choose to message that friend separately outside the app to start a conversation.
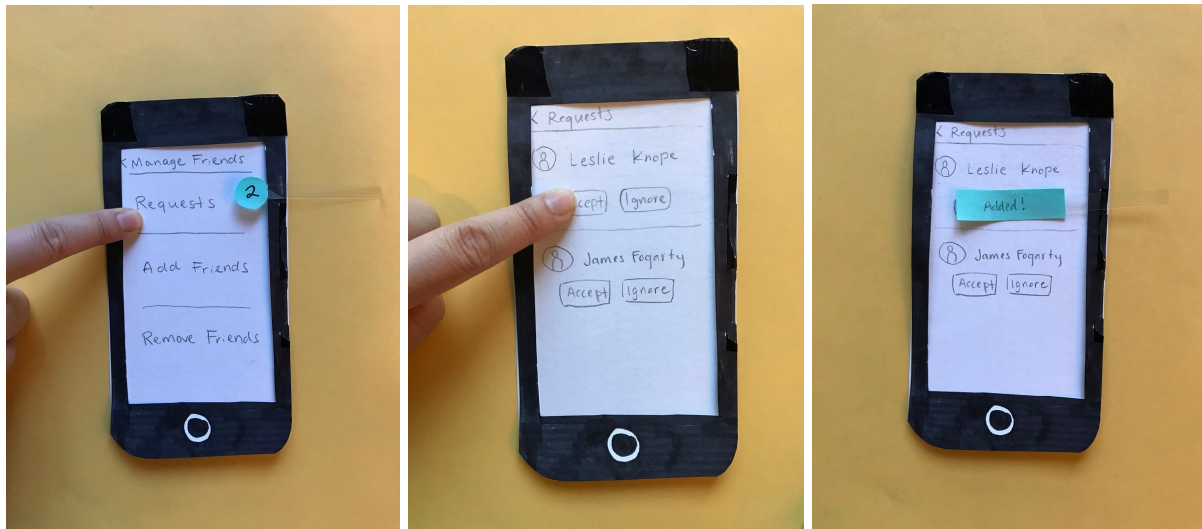
Managing Friends to Share Content With
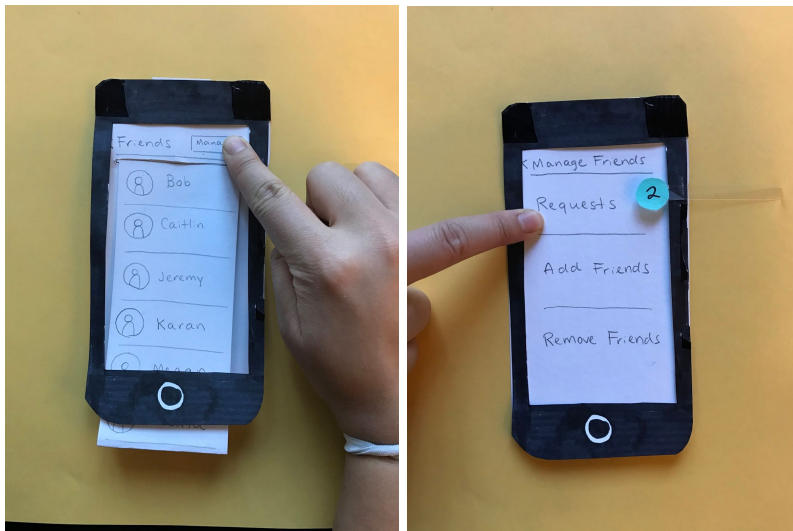
The user can add or remove a friend through the "Manage" button on the friends page.

Managing Friend Requests

The user is notified when they have friend requests in the manage friends page. By selecting the "Requests" button, they can view the details of the requests and then either accept or ignore them.

Testing Process:

We first conducted two heuristic evaluations on our initial prototype. These studies were conducted with members from other design teams. We used their feedback to quickly identify interaction issues with the prototype and make changes to improve our design before conducting full usability tests. We then conducted three usability tests to evaluate the ease at which our main tasks could be executed on our paper prototype. All of these studies were conducted in the atrium of the CSE building. Karin, Stephanie and Mari were observers, Amanda acted as the computer, and Stephanie and Karin acted as the facilitator. During the sessions, we did not answer any questions about how to complete a task. Questions about the application in general, however, were answered. We were focused on learning how the participant thought the application should work, rather than how it does work.

Our usability testing protocol went as follows:
1. Introduce the participant to our application and study
2. Explain think-aloud protocol to participant, encouraging them to say their thoughts, expectations, reactions, etc. out loud as they works through the prototype
3. Task #1: Tutorial and content creation
4. Task #2: Interacting with content socially
5. Task #3: Adding and removing a friend
6. Post-tasks: Additional questions from us and additional comments from participant

Our first test participant is a male in the computer science department. He's a senior who has experience with traditional forms of journaling. He was a convenient choice as a participant in terms of proximity and he was very thoughtful in his feedback. We also chose him because he

had no previous background or knowledge of our project, and so would be able to provide fresh, unbiased feedback. Our second test participant is a male junior majoring in math. He does not have experience journaling, but is interested in checking in on friends and maintaining positive relationships. We chose him as a participant because he is curious and thoughtful, while having no previous knowledge of our project. Our third participant is a male senior in HCDE who has some experience in usability studies, but no prior knowledge of our project. He was helpful to give another perspective. One fault of our study participants is that they were all male, so we lacked a female perspective.

While conducting the heuristic evaluations, we found it difficult to navigate around the prototype as the user interacted with the interface. We therefore modified our paper prototype to make it easier to switch out screens of our prototype, thus allowing our usability test to run more smoothly. After our first usability study, we realized we needed to better explain the purpose of our app so that the test participant had some context before using the prototype. We also found it difficult to explain a task to the participant without giving away too much. Through these issues from the first test, we improved our protocol by writing a script for introducing the study, and wrote each of our tasks down to read aloud and give to the participants to look at while completing it (see Appendix for the written script and tasks). We also wrote our tasks in a more scenario-based form, including the names of the "friends" they should interact with on the app. In the rest of the sessions we were more careful when answering questions, making sure to avoid giving away how to complete a task and only answering general questions about the application.

Testing Results:

Version 1: After the heuristic evaluations

After our heuristic evaluations, we made several changes, including a few to the calendar view. We originally allowed users to only see the current month of entries, but participants also wished to view past months, so we added arrows on either side of the calendar view to do so. We also noticed that participants did not use the "Add entry" button when trying to add an entry on their calendar view. Instead, they would tap the current day on the calendar to add an entry on it. For this, we simply allowed this action rather than saying it does not work. The last change that we made on our calendar was moving the "customize" button. Originally, we allowed users to customize their entry contents on the calendar view. However, users did not use it and we realized its function didn't align with the purpose of the calendar view (to reflect upon and add entries). We moved the customize button to the page where users actually fill in entries, so that they can customize the content of the page they are viewing.

We also originally had a profile page between the friends list and friend's calendar view, where the ping button was located. We decided to remove this view to streamline the task of checking in on friends. After removing this page, we moved the ping button to the top right corner of the friend's calendar and on a friend's entry. The ping feature is one of the most important features

on the application. However, we did not like the connotations of "ping" because it reminded participants of pagers and hospitals. We decided to change "ping" to "knock" because it sounded more friendly and gentle, like a way of letting your friend know you're there. This is one change we paid attention to closely during the rest of our usability tests to see if it was the right decision or not.

Finally, we found that participants were confused in general about the application and what it can do. To help, we added a tutorial mode for first-time users to explain some of the features and walk them through the beginning. It was presented as a clear overlay with text pointing to different features. We allowed participants to close the tutorial at any time with an "exit" button in the bottom right corner, while still allowing interaction with the application.

Version 2: Mid-usability tests

During our usability tests, we identified several more issues and revised them. Some changes were made between usability tests, while others were made after the tests were done so we could compare findings across participants (see Appendix for a table of critical incidents that lead to our main changes).

We made several minor changes in how a user manages friends. Originally, a user would go to Manage Friends, press "Remove Friends," then select the friend they want to remove from a list of their current friends. After hearing participant feedback, we realized it made more sense to show a list of friends right away on Manage Friends, then allow users to remove any with the X next to the friend's name. This made more sense to participants and was also more efficient. We also realized that Manage Friends page showed two friend requests, but the user was never notified, so we added notification badges.

We continued to observe how users felt about and used the customization feature. We expected users to click "customize" when they did not like the pre-set content sections of their entry. However, we observed participants simply skipping over sections they did not want to complete, rather than editing them in the customization feature. Instead of removing the customization feature, we decided to think of it as an "expert" feature for users who want to fine-tune their entries, but not as a necessary feature. We decided to change the button from saying "Customize" to a wrench icon to represent the idea of fine-tuning.

When we observed participants using the tutorial we added, we noticed that they did not press any of the buttons except "exit." After asking about this, we learned that participants did not think the regular buttons were still interactive during a tutorial, and that they had to exit the tutorial in order to use the application. Our original intent was that all buttons would still be usable, and the tutorial would continue on whatever screen they went to next. We believed this discrepancy was because the exit button was outlined like a button, but the other buttons were not. We changed the tutorial so that all usable buttons were consistently outlined in the tutorial overlay.

We observed participants pressing "back" until they got back to the main page of the application to switch from the view of their own entries to the view of their friends' entries. We realized that this was extremely inefficient. To accommodate users, we added a navigation bar at the bottom of each screen to allow users to jump to either section at any time. We also had a "?" button for users who are confused and may want to activate the tutorial on the screen they're on.

Version 3: From testing to digital mockup

After observing participants using "knock" instead of "ping," we found that this change was confusing. With the "knock" interaction, participants expected to be able to message their friends within the app, which is not a supported feature. Some participants even asked mid-tests what "knock" meant and if it was bad. We decided to change the wording of this feature back to "ping" for clarity.

Our tutorial was still confusing because participants thought it wasn't interactive, so we changed the tutorial in the digital mock-up to a non-interactive, presentation-style version. Users can swipe through the tutorial or skip it in order to access the application's features.

We made several changes in icons to better represent function. We changed the icons for friends, your entries, and customize. For example, we changed the icon for friends from a heart to a silhouette of two people and the icon for entries from a pencil to a journal.

In critique, we talked about the purpose of the home page once the navigation bar was added. We did not want to make your personal calendar the home page, or your friend's list the home page, because we did not want the focus of the application to skew either way. Instead of having a pointless home screen just to preserve neutrality, we decided to add more functionality to it by supporting the main point of our app: promoting reflection to support mental wellness, and sharing how you're doing. We added a word cloud based on recent entries so that users can get an idea of how they've been doing. We also added an "Add an entry" button on the homepage of the app, so that users can very quickly add an entry if that's all they want to do.
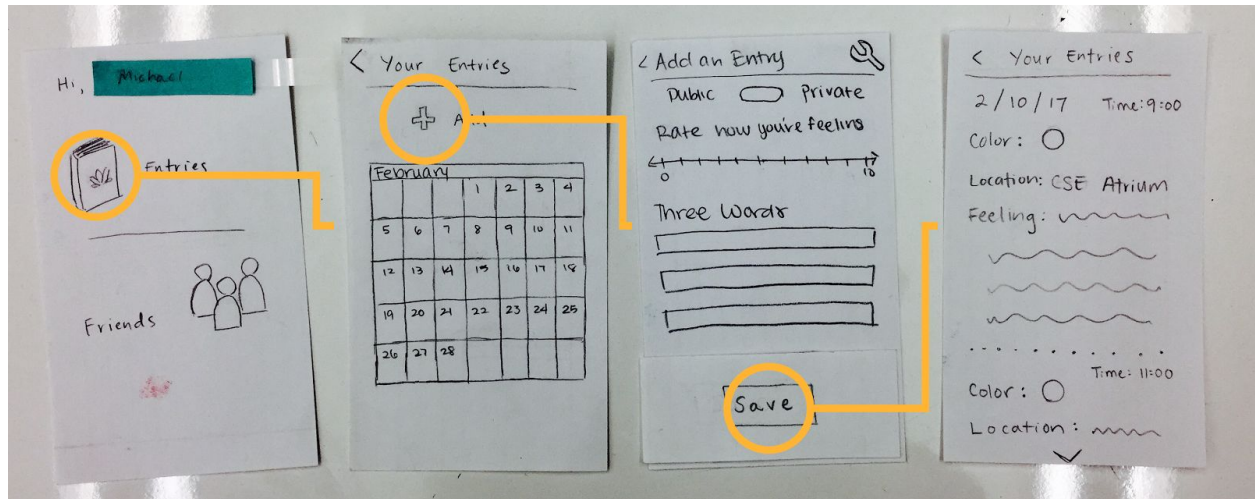
Final Paper Prototype:

## Overview
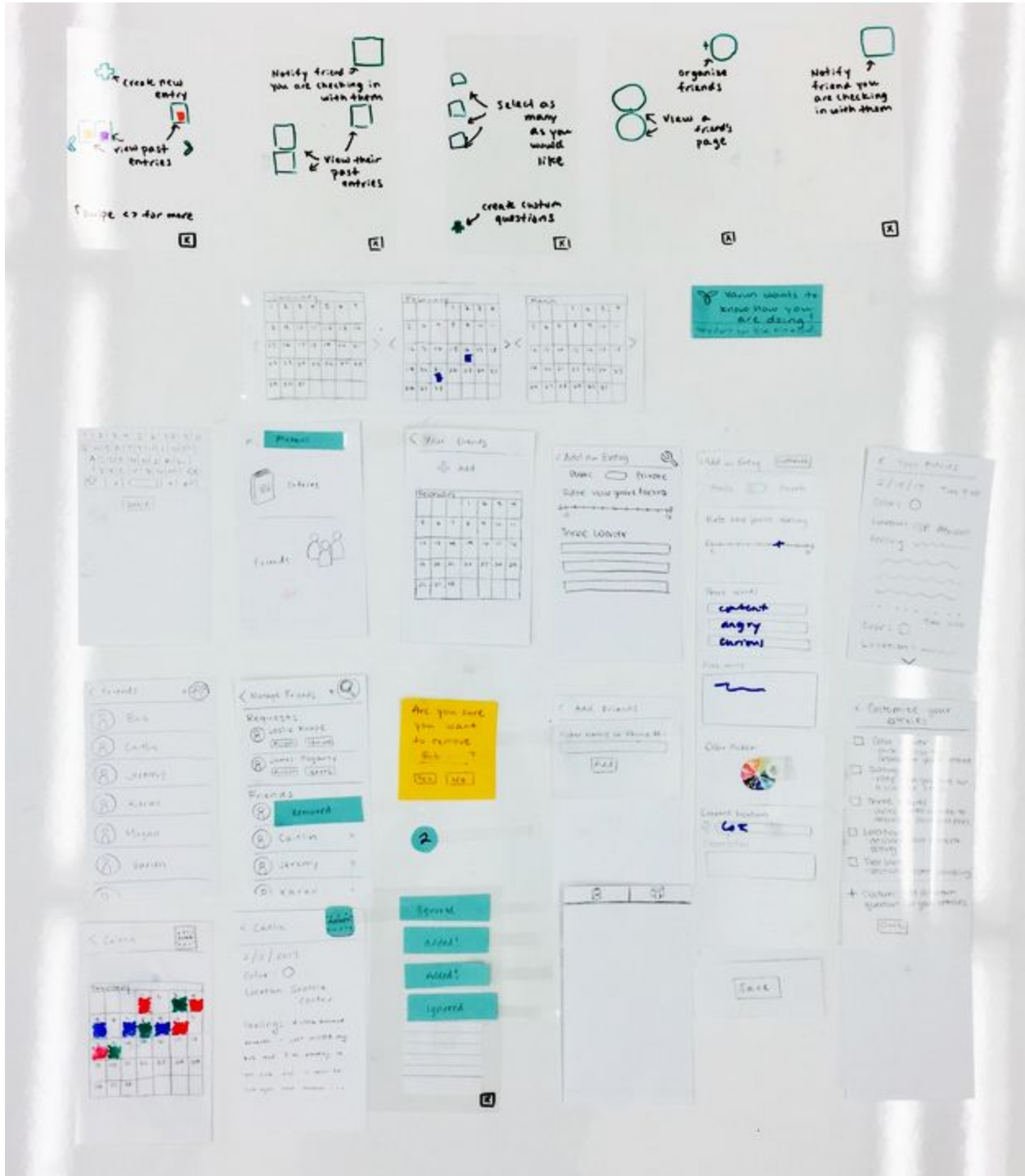
Task 1: Creating and Managing Content

Creating and Reflecting on an Entry

The user selects the "Entries" button on the home page. This takes them to their personal calendar. From here, they can select the "Add" button to complete a new entry. They can select for the whole entry to be public or private, fill out the entry, and then save the content. It then appears on their calendar (in their chosen color - not shown above) and they can select the current date to view their entry. The user can also select any other previous entry to view as well.

Task 2: Interacting with Friends' Content

Checking in on a Friend
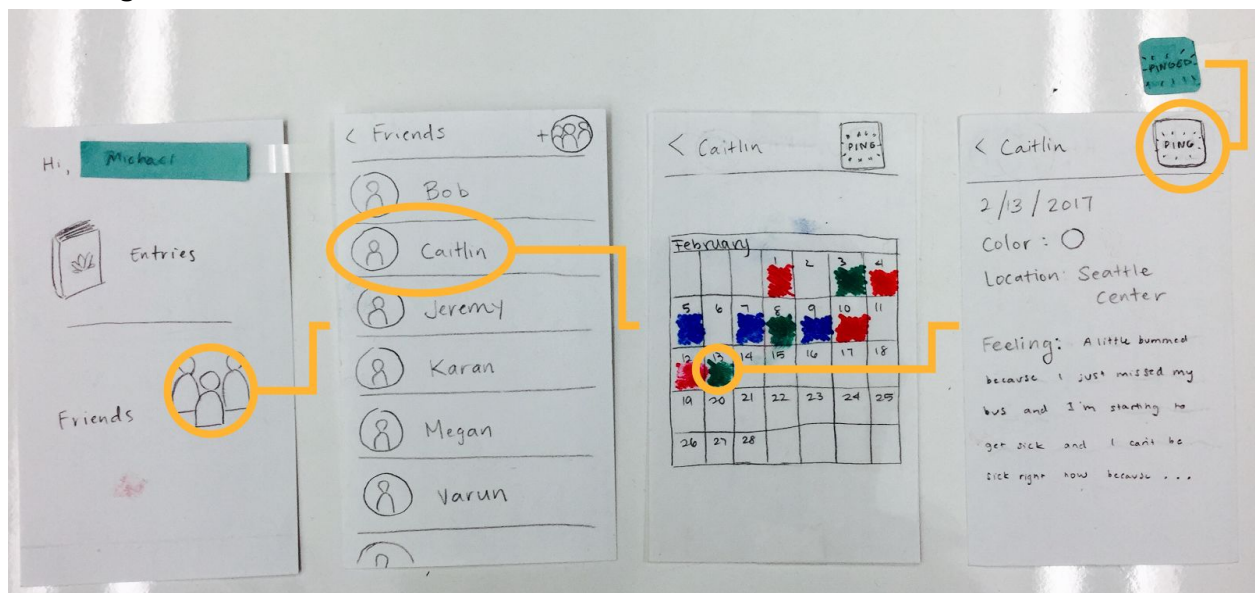
The user selects the "Friends" button on the home page to view their list of friends. Selecting on a friend allows the user to view their friend's calendar of public entries. From here, the user can

then select an entry to view the content. From either the calendar or the individual entry page they can "Ping" their friend which sends the friend a notification saying, "(Insert username here) wants to know how you are doing!" and then the user gets feedback that their ping was sent.
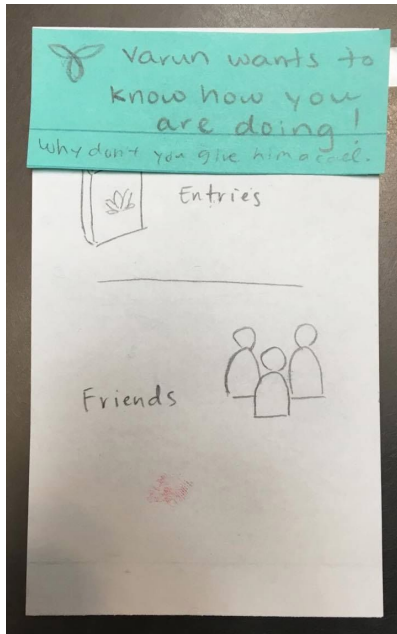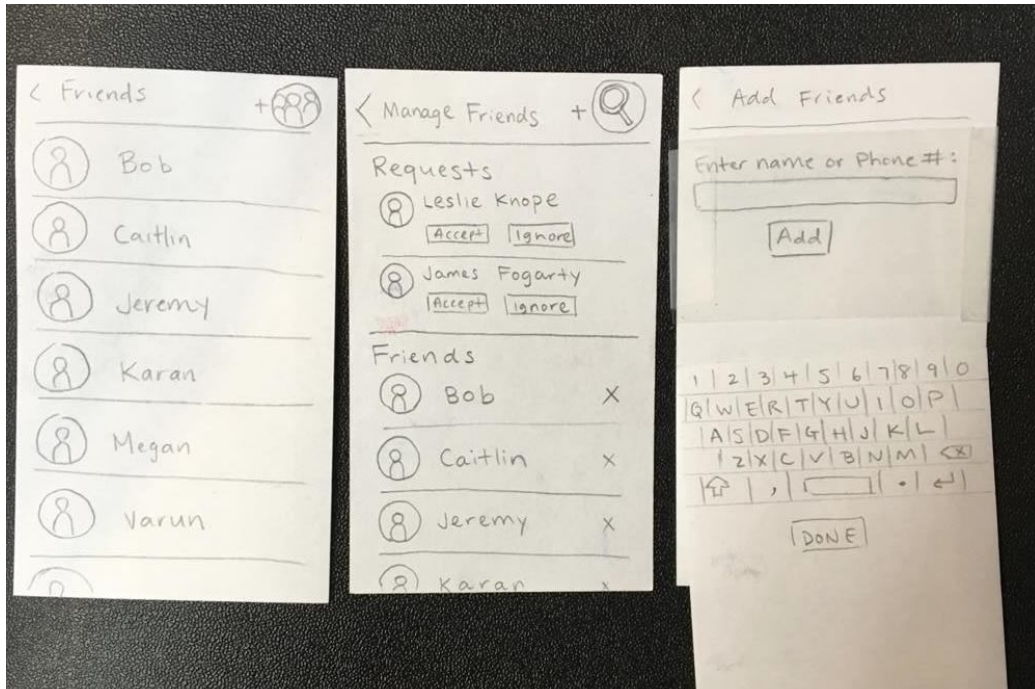

An example of someone pinging the user.

Other Critical Aspects

Customization

Once the user has selected the "Add" button on the entries page, they can select the wrench icon in the upper right hand corner to customize the components of their entries.

Managing Friends and Requests

The user can select the people icon in the upper right hand corner to manage their friends list. From here, the user can see if they have any requests (and accept or ignore accordingly). Additionally, the user can select the X next to any of their current friends to delete them. Finally, the user can select the magnifying glass icon to search for new contacts to add.
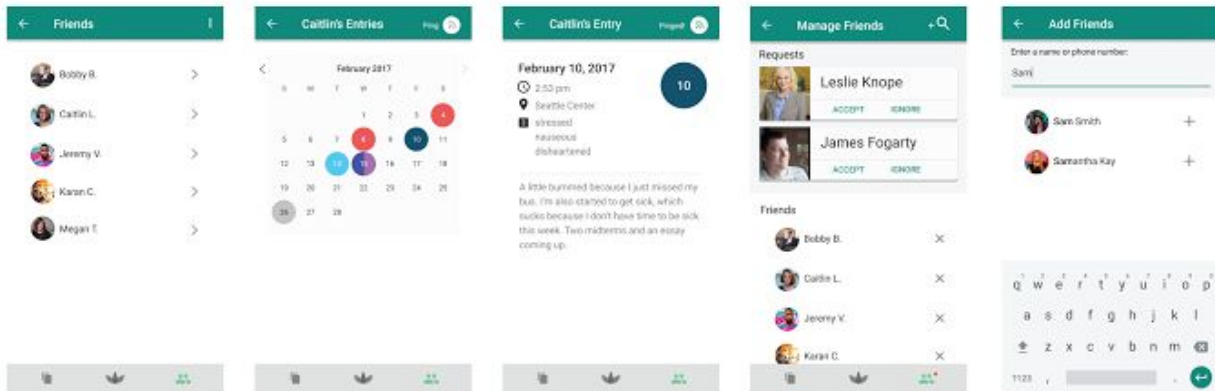
Digital Mockup:

Overview

Home Screen and Tutorial
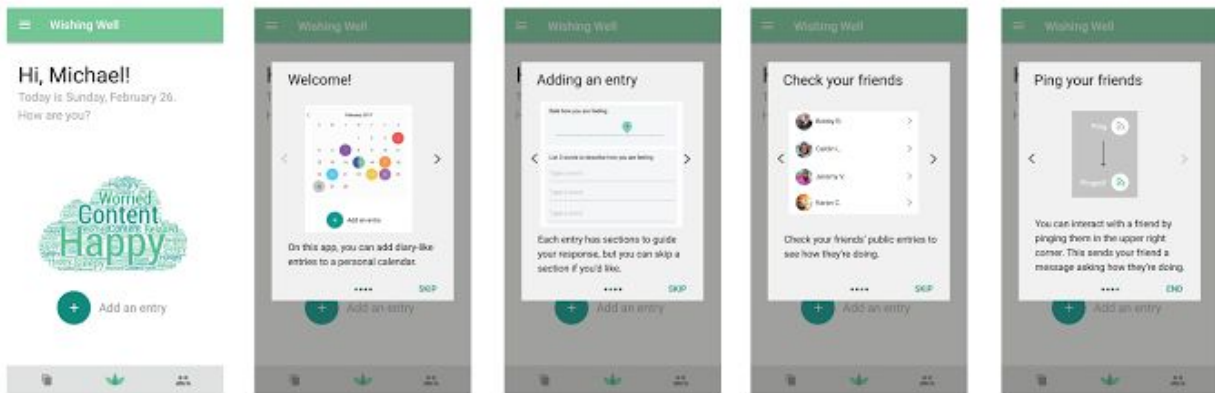
## Viewing and Managing Friends

During our usability tests, we found that the differences between the home screen and navigation through the rest of the pages confused users. We added the navigation bar to the home screen to keep the navigation consistent throughout the application. We wanted to still keep a simple home screen but give it use beyond just navigating to each part of the application, so we added a word cloud to display the most used words from the user's entries.

The tutorial mode was originally represented as an overlay over the app, allowing the user to be able to click through the application with the tutorial explaining what to do on each screen. We found that users would often find the tutorial overlay helpful but annoying to click through and would quickly click out of it. We changed this to be a set of initial welcome cards that explain

each section of the application. We removed the tutorial button from the home screen, instead hiding it in the menu. We made these changes in response to critique.

## Adding Entries
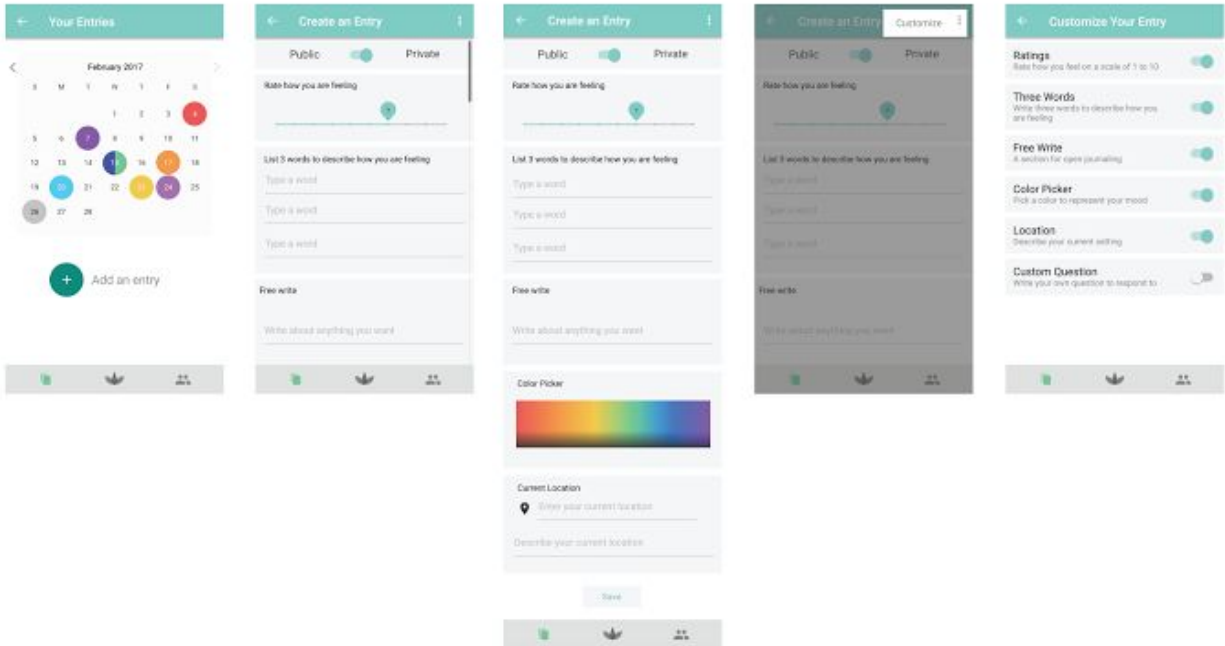
Viewing Your Entries

The paper prototype originally had a wrench on the "Add entry" page to denote the customization. For consistency, we instead hid this option under the three-dot menu.
The paper prototype originally had no options on each individual entry page. We did this to encourage the user to keep the integrity and honesty of their journal. Moving to the digital prototype, we decided to allow the user to have more control over their journal and create delete, edit and save functions on each entry. The save function is intended to allow to user to

download their entry outside of the application. We made these changes when switching to the digital prototype.

Tasks

Creating Content
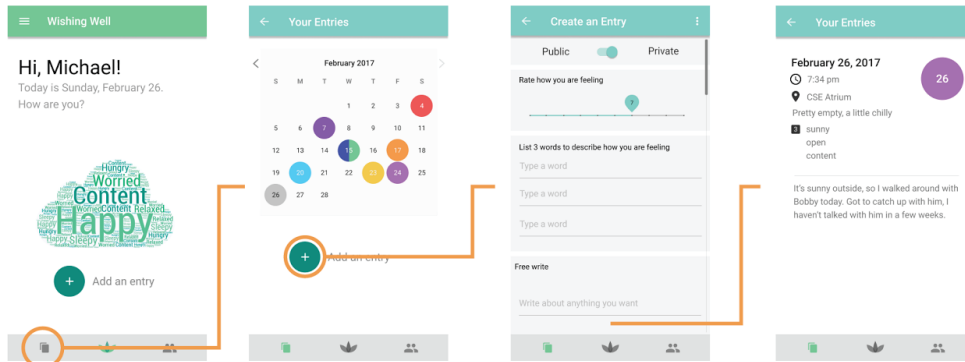
We added an "add entry" button to the home screen to allow the user to quickly write down their thoughts without needing to click through extra screens. We hid the "customize entry" feature in the menu to allow focus on the entry itself. We discovered that users would simply scroll through sections they did not want to fill out, and that it wasn't annoying or burdensome to see all the sections at once upon opening the "add entry" page. We did change the navigation bar to make it clearer what each button is for and how it denotes which area of the app the user is in.

Interacting with Content
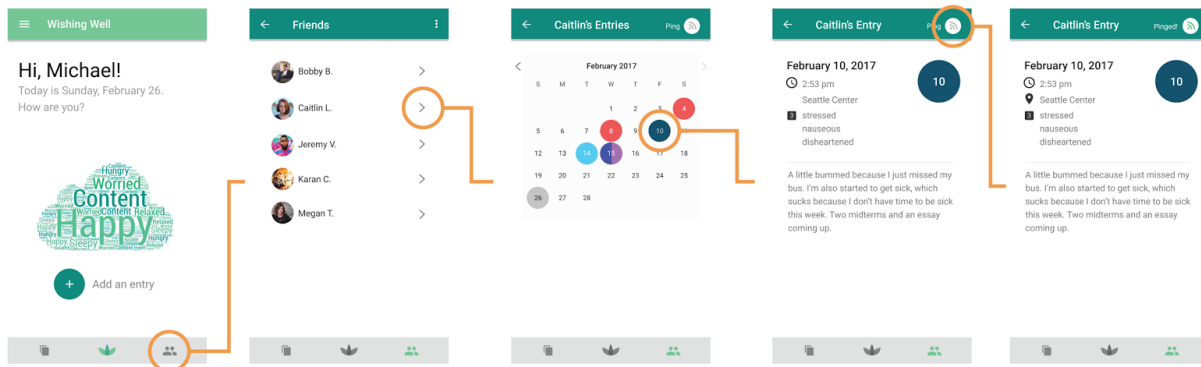
Our original navigation bar had a pencil icon for the journal. We observed an instance where a user got to a friend's page, then attempted to write a message to the friend by pressing on the pencil button. We changed the navigation bar to be more representative of a journal and removed the pencil. We added an icon to the ping button to make the meaning clearer. We kept most of the functionality the same, requiring a user to view a friend's entries to then ping them.

Changes in response to critique:
We found that navigation through the app was not very intuitive and the homepage was not very useful to the application other than to serve as an starting point for the app. To make the homepage have greater function, we updated the homepage to show ping notifications from other friends and a word cloud constructed from past entries. This then prompted us to add a third option to the navigation bar that allows the user to quickly switch back to this homepage and between the friends and personal entries sections. These changes gave our homepage a little more purpose than just an initial entry point to the app. We added dots to the navigation bar to indicate friend requests and ping notifications.

Changes from paper to digital:
We added a tutorial page that would be displayed the first time the application is used. This tutorial mode includes a few screenshots of the application and gives a quick explanation of what tasks can be done on each page. For the add friends page, we showed that phone contacts are displayed as friends are being searched. We also added small menu options to edit, delete, and save existing entries on the create an entry page.

As we moved from paper to digital, we had to make decisions on the appearance of the interface (color, typography, etc). We used the Google Material Design UI kit to build our interface. Using this, we had greater stylistic consistency across screens. We also chose colors to differentiate different features, such as friends view and personal view. Moving from paper to digital forced us to make many visual choices, but we were more confident in making those choices once the flow of the application had been tested and improved. The digital mockup is far clearer than any of the paper ones because of its consistency and styling.

Discussion

The iterative design process allowed us to constantly test our design decisions, make changes reflecting our findings, and test those changes. We tested with a total of 5 participants (including the heuristic evaluations). If we hadn't made changes at all during testing, we would have kept seeing the same problems over and over again. Then, at the end, we would have made revisions, but never test those revisions to see if we made the right choices. Instead, we made revisions between some of the tests so that we could move on from problems we had already identified and find more issues to improve. This means that the design we ended up with was well-tested and informed by research.

We discovered that designs and buttons that were very intuitive to us as the designers were not intuitive to other people. For example, we mixed buttons with text labels and and buttons with icons as we designed our prototype, but this ended up being confusing to users because of the lack of consistency. We also discovered that the effectiveness in what a word conveys is more important that how a word feels when we debated our word choice with "knock" vs. "ping". Even though we thought "knock" seemed more friendly, "ping" seemed to convey the idea better.

Having a usable and intuitive design is of equal importance to promoting the values of our application. We wanted to give equal weight to writing personal entries and interacting with friends and encourage the user to make deliberate choices, but this lead to a confusing overall application layout.

When we designed our initial prototype, we focused on the look and content of each page without considering how the pages connect to each other through navigation. Once we started usability tests, we found the navigation was very confusing and needed more thought in our design. It would have been better if we had more of a focus on the flow between pages earlier on in our prototype design, as this was turned out to be a very important aspect to the interactions with the application. As we continued, we also started to think more about affordances with relations to our icons and symbols to enhance this navigation experience.

In our tasks, we decided to emphasize the customizability much less. Rather than expecting all users to customize their entries, we reframed customization as an "expert" feature for those who wish to do it. Instead of focusing on the customization aspect of adding an entry, we put a greater emphasis on simply completing the entries themselves. We actually hid the customization because we found that it wasn't necessary as a prominent feature, but it is easily accessible for those who wish to use it through the three-dot menu on the entries page. This decision was a product of iterative testing and listening to user feedback. If we had not tested our application multiple times with multiple users, we may have always thought of customization as a necessary feature and represented that in our final design. Iterative testing made our design stronger and match users' mental model better.
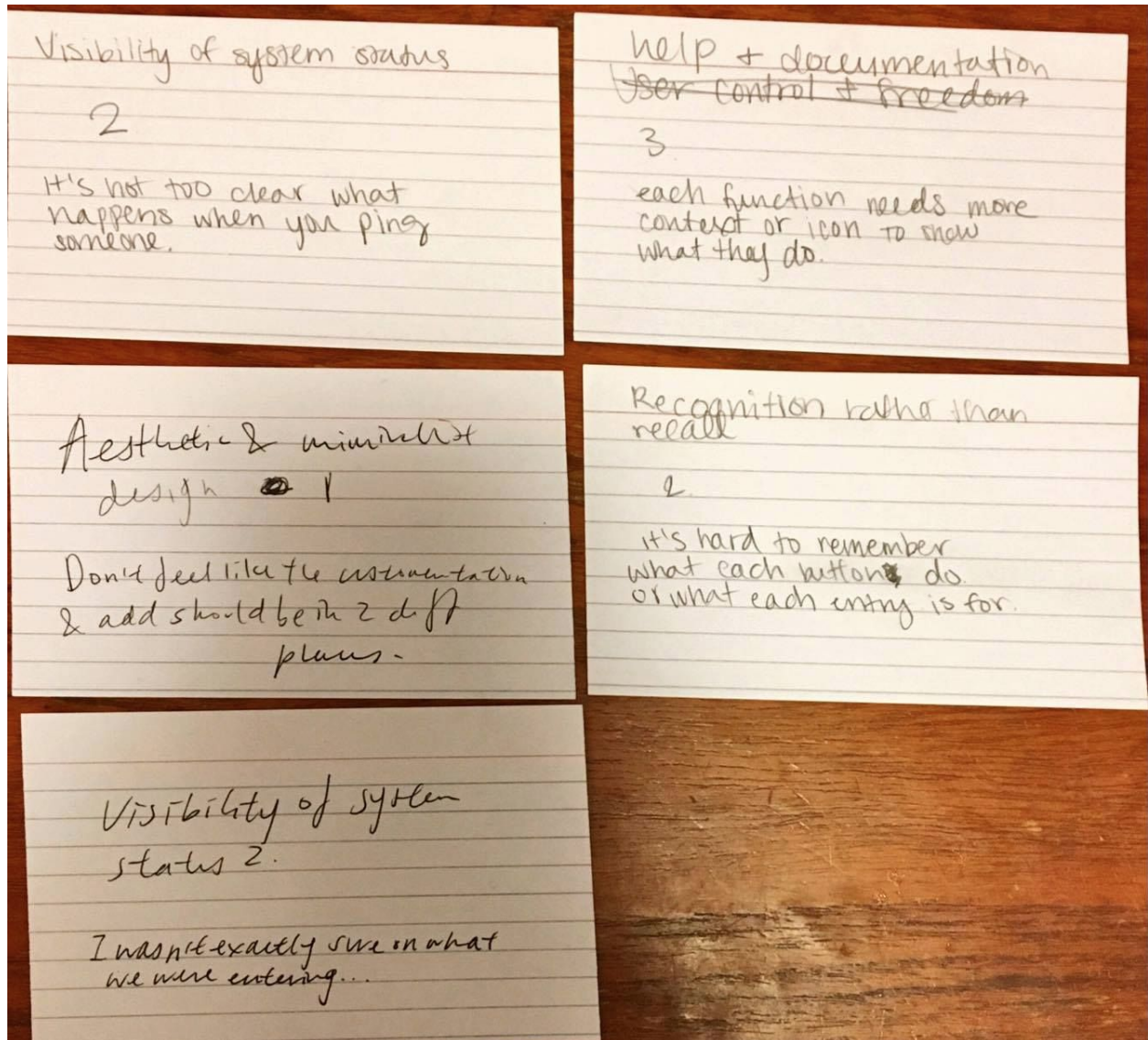
In our other task, we focused more on interacting with a friend's entries instead of just pinging them. The original prototype had a single status displayed, a button to view past entries, and a button to ping. We found that users didn't really understand the connection between the friend's entries and the action of pinging, so we moved to using the calendar view for each friend instead to focus on interacting with a friend's content meaningfully.

We could have used more iterations on our design, or at least have the iterations be more spread out. We didn't have a lot of time to consider the good or right way to address issues in between our usability tests, so some of the changes we made in between tests actually ended up being more confusing than we thought it would be. However, seeing the feedback for these changes was still useful.

If we were to do more testing, we would want to see what problems arise when participants interact with our digital mockup. Did we introduce any new issues? By testing this version of the application, we would be able to study and validate the design decisions we had to make as we switched media and increased fidelity.

Appendix

Heuristic Evaluation Feedback

Visibility of system status

2

It's not too clear what happens when you ping someone.

help + documentation
~~User control + freedom~~

3

each function needs more context or icon to show what they do.

Aesthetic & minimalist design ~~2~~ 1

Don't feel like the documentation & add should be in 2 diff plans.

Recognition rather than recall

2

It's hard to remember what each button do. or what each entry is for.

Visibility of system status 2.

I wasn't exactly sure on what we were entering...

Usability Script and Tasks

"We are working to create an application that addresses how college student track and maintain their mental wellness. Our application allows you to create content in the form of a journal entry to track and evaluate how you are mentally doing, and view the entries of close friends to see how they're doing and check in with them. I'll ask you to complete these two tasks during this study session.

It is essential you think out loud while working with the application. Tell me constantly what you are thinking, looking for, wondering, confused about, surprised, and so on. We want to know what you think of our application and how we can make it better. We won't be timing you, so take as long as you need to complete a task. We might ask some questions during your interactions to learn more about them. When you feel like you're done with a task, let us know.

We will try not to answer questions during the test, do you have any questions right now?"

Tasks:
1. Reflect upon how you're feeling right now and create an entry about it.
2. You think of your friend Caitlin and wonder how she's doing. Use the app to check on her.
    a. If it looks like she isn't doing well, start an interaction with her.
3. You want to be able to see how your friend Ben is doing, so add him to your friends list.
    a. You decide you no longer want to see how Bob is doing. Remove him from your friends.

Note: Tasks were written out and given to the participant when each task began. The facilitator also read them aloud.

Facilitator prompts:
"Tell me what you are trying to do."
"Please keep talking."
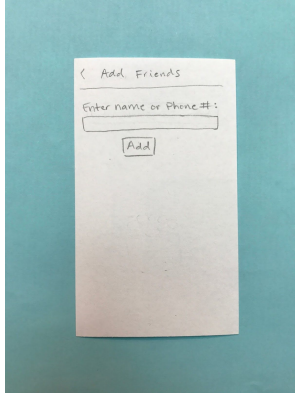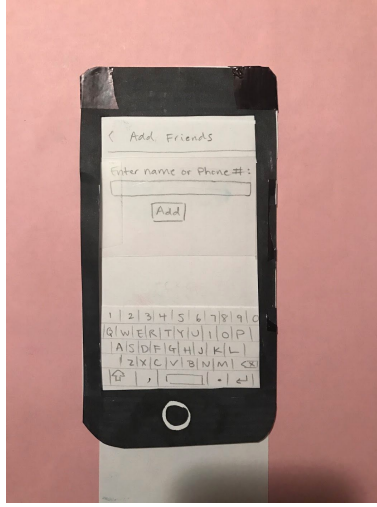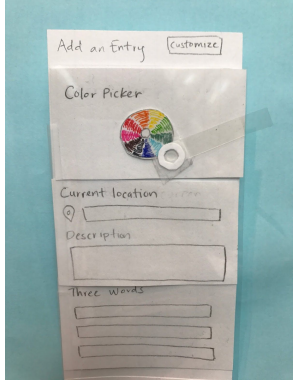"Tell me what you are thinking."
"Are you looking for something? What?"
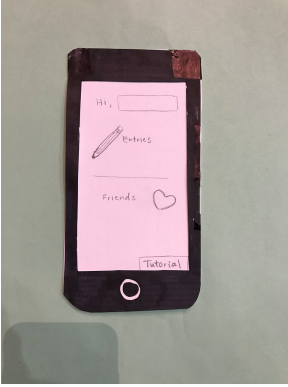"What did you expect to happen just now?"
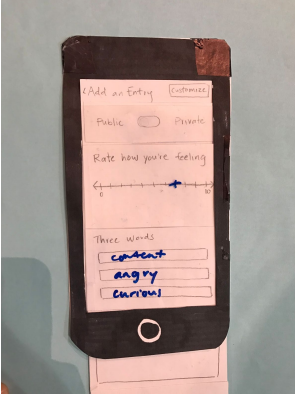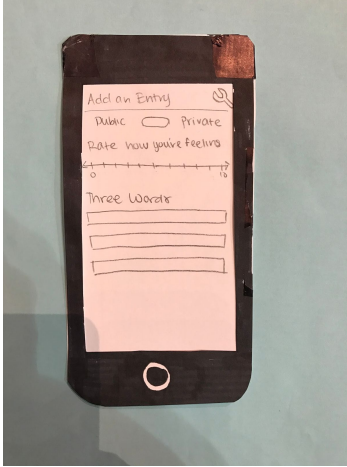"What do you mean by that?"
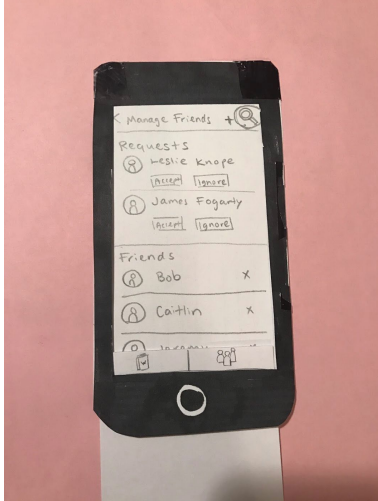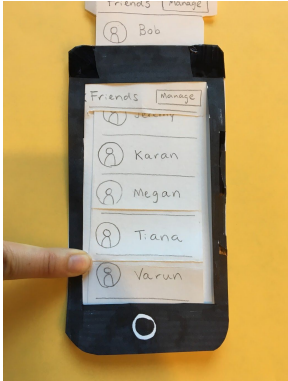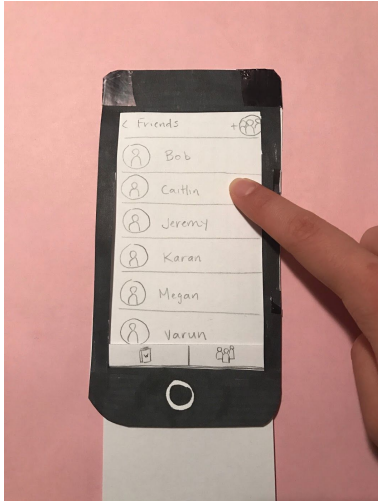
Thank you so much for your feedback, it has been really helpful!

# Critical Incidents and Results from Testing

Image	Description (+/-)	Severity	Revision
	- : Paused on the manage friend page, mentioned that it seemed like an extra screen to remove friends	1	Changed the "manage friends" page to show friend requests at the top and include the list of current friends below that can be deleted. The "add friend" page can now be navigated to through the icon at the top right corner.
	- : The manage friends page isn't necessary	1	Changed the "Manage" button to a friends icon.

	- : There was confusion about the "Add" button to add friends and the "Done" button on the keyboard (there's a pop-up keyboard with the "Done" button)	2	 Remove "Done" button.
See above picture	- : When adding a friend, expected a list of current contacts (either from phone or other network) to pop up when he started entering a name	1	Add an aspect of searching through a current contacts list.
	+ : The interaction for removing a friend was "exactly" what he expected to happen		
	+ : Really liked the scrollable months view in the entries page		Suggested maybe a week view as well, could have segmented navigation to toggle view.
	- : Confused by the meaning of the colors	2	Let colors correspond to specific, predetermined emotions.
	+ : Liked the minimal front screen with the		

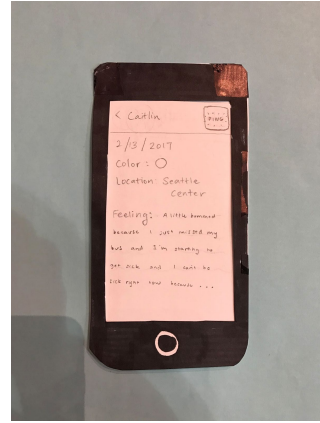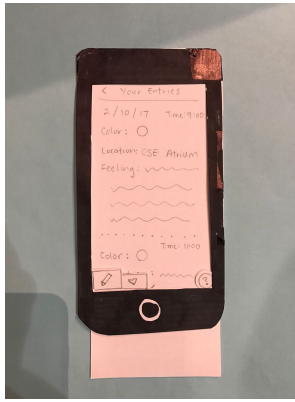|	main two options		
	- Pencil and heart icons were unclear to user. The pencil indicated creating an entry when it should indicate the user's personal entries.	1	New icons designed to better represent content.
	- : User doesn't find the customize page. This may be a less important task that is more likely discovered after using the app for a longer period of time.	2	Changed customize button to a wrench.
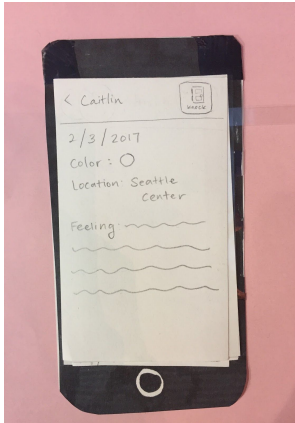
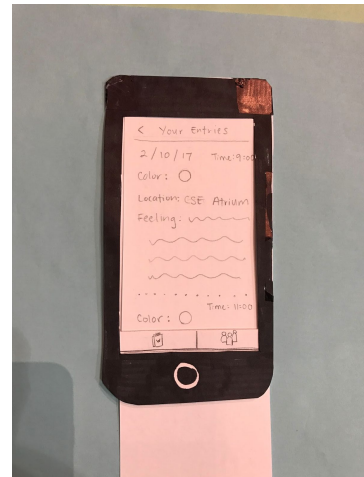|			
	- : "Knock" icon seems to suggest starting a conversation in the app. Two users expected it to open some sort of communication/chat feature, and were confused when this didn't happen.	3	 Changed "knock" back to "ping".
	- : The pencil in the navigation bar incorrectly indicated creating a new entry. Instead, it took the user back to their personal calendar.	2	 Changed navigation bar to match the new icons. Extended it across the bottom to more closely resemble its purpose of navigating.
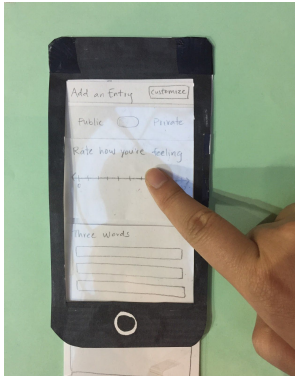
	+ : Users skipped past parts of entries they did not want to complete.	1	Two of our participants scrolled past pieces of the entry that they want to skip. When asked about this they mentioned that scrolling past was fine and didn't bother them. This led to an unexpected discovery that it's okay if they skip some pieces, and that maybe customization isn't super necessary for new users.