OpenKeep

Project 7: Evaluation - Team Ulu Watu

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ABSTRACT

OpenKeep is an application used for tracking the tasks of an individual. This application seeks to provide tools and motivation to users as they progress towards task completion. Unlike the wide variety of currently available organizational apps, OpenKeep is built around the idea that individuals can be encouraged to work on their tasks without the need for strict, time-based deadlines. Since this app is designed to increase productivity and motivation, an additional feature to this app is a self-advice interface. No more bookmarking websites and keeping forgotten productivity advice from blogs or websites. OpenKeep's self-advice interface allows the user to consolidate all useful productivity information collected from websites/blogs and reminds them at set times. This paper provides the results of our empirical and analytical evaluations of our revised user interface prototype. The goal of these evaluations is to optimize user experience in OpenKeep.

KEYWORDS

task tracking, organization, app, application, motivational methods, productive methods, time-based deadlines, openkeep, reminder, to-do list

I. INTRODUCTION

Team Ulu Watu conducted two types of evaluations to examine user experience with using OpenKeep. Our team performed analytical and empirical evaluations on our users for this current version of the prototype. The analytical (cognitive walkthrough) evaluations focused on ease of use, the flow of the app, and feature completeness. The empirical evaluation will test the features of the OpenKeep. The two features that are under investigation are the "Attachments" and "Self-advice" interfaces. The "Attachments" feature is a collection of all data that is relevant to a task, anything from PDFs, websites, images, and etc. The "Self-advice" page allows users to consolidate helpful information to themselves and personal commitments. These evaluations will help us assess the needs of the user and create a more robust app. The next step in development will be to update our current prototypes and produce high-fidelity prototypes using the results of these evaluations.

II. ANALYTICAL EVALUATION

A. Goals

OpenKeep should be developed with functionality and navigation features that make sense to end-users. While putting the concept straight into users' hands (via testing/surveys) can be deeply insightful, there is also value in an analytical evaluation that serves to solidify the ideas and implementations of the app developers. At the core, OpenKeep is envisioned as a task tracking application that is both simple and customizable. With that in mind, the purpose of our analytical evaluation is to review the applications current usability from the mindset of a prospective user. The primary goals are as follows:

1) Intuitive interactivity
2) Sensible navigation
3) Feature completeness

B. Method

In order to evaluate the usability of the prototype for OpenKeep, we have conducted a cognitive walkthrough of some typical usage scenarios. To ensure a thorough review, each scenario is broken down into smaller, simple subtasks and then analyzed from the perspective of a typical user. Each step must make sense and answer four basic questions which are:

- Will the user try and achieve the right outcome?

- Will the user notice that the correct action is available to them?
- Will the user associate the correct action with the outcome they expect to achieve?
- If the correct action is performed; will the user see that progress is being made towards their intended outcome? [2]

Below are the selected usage scenarios to be analyzed:

- View the current list of Tasks
- Add a New Task
- Edit an existing Task
- Adjust notification settings

C. Materials

In addition to the cognitive walkthrough we have outlined above and below, we have included two individual evaluations that follow Nielson's 10 Heuristics [1]. As a reference, these Heuristics are:

1: Visibility of system status
2: Match between system and the real world
3: User control and freedom
4: Consistency and standards
5: Error prevention
6: Recognition rather than recall
7: Flexibility and efficiency of use
8: Aesthetic and minimalist design
9: Help users recognize, diagnose, and recover from errors
10: Help and documentation

These will be the guiding points of our analytical evaluation and the full, written evaluation can be found in appendix A.

D. Analysis

The functionality explored in our cognitive walkthrough exemplifies what we believe to be the core functionality of OpenKeep. To better understand the user experience, each of the tasks listed above will be broken down into individualized actions that a user will need to complete in order to arrive at the designated "finish line" for each scenario. Among the scenarios to be analyzed, there are two user actions that will commonly precede any other subtasks:

- Open application
- Log into OpenKeep

To avoid repetition in the walkthrough analysis, we will discuss opening the application, logging into OpenKeep, and refer back to this analysis as necessary.

Shared Subtask #1: Opening the Application

Once a user has downloaded OpenKeep from the App Store, it will be installed on their device along with a small graphical icon to indicate the application it is associated with. Once installed, a user can tap on the icon (either from their home screen or a list of available applications) to open the app. After being opened, the application will display the login screen (which is also where you can start the signup process for new users). With the prevalence and maturity of smartphone technology, we believe that a typical user will intuitively understand this process. Because it follows the same usage pattern as any other existing application on a user's device, we don't anticipate any difficulties with this particular step.

Shared Subtask #2: Logging into OpenKeep

After opening the application, users will be greeted with the login screen prompting them for a username/email and password. For existing users, they will simply type this information into the two text fields and tap the "Login" button. For new users, there will be a text link beside the "Login" button that directs them to the signup page. Once on the signup page, a webform will collect and validate the data submitted by a new user before completing a new user account setup. If successful, the user will receive a pop-up notification informing them of the registration success and then be directed back to the login page and asked to log in using their newly created credentials. For a large majority of the anticipated user base, this process will be entirely familiar. A minimal amount of information is required during the registration process which allows for quick account creation with minimal potential for user failure. If an incorrect form of data is entered in any of the registration fields, the user will be prompted to fix the error before being allowed to proceed further. By displaying a pop-up notification upon successful account creation, it should be clear to the user that they have taken the correct steps to complete this subtask.

Scenario 1: View the current list of Tasks

Associated subtasks: *Open Application, Log in to OpenKeep, View List, View Individual Task*

After opening the application and logging in, users will be directed to the homepage. The homepage is the launching point for any further action a user can take within OpenKeep. By default, this screen will primarily be used to showcase the current list of tasks a user has saved to their account. Once on the homepage, users can review their list of tasks by scrolling from top to bottom and tapping on any task they want to the full details on. Again, because we are not implementing any form of novel user interaction, the scrolling functionality should be pretty familiar for most smartphone users who've used an application in the past couple of years. By placing the task list front and center on the homepage, we believe this reinforces the core functionality

of OpenKeep (task tracking) and allows users quick access to the information they need. Each task will be segmented from the others to visually indicate that each entry is its own entity. For brevity and consistency, these apps will display only basic information about the task and tapping on one of these segmented tasks will direct users to a Task Information Screen that displays any additional information (notes, attachments) that a user has associated with that Task.

Scenario 2: Add a New Task

Associated subtasks: *Open Application, Log in to OpenKeep, Tap "+ Add Task", Fill in form data*

From the homepage (reached by opening the app, logging in), users can add a task by clicking on the button in the top right corner that says "+ Add Task". OpenKeep will then direct them to a page with several text fields to be filled in with information about the task (Title, Description, Notes, etc…). An optional "Attachments" button will be present at the bottom of the page to allow users to attach documents, images or PDFs to the task. The series of text fields are described accurately and succinctly to avoid any confusion over the information being requested. The attachments button at the bottom is placed at the end of the data entry to ensure the option is present when required, but easily bypassed when it is not. When a user taps the "+ Add Task" button from the homepage, they receive visual confirmation of task progression as they are redirected to the Add Task screen.

Scenario 3: Edit an existing Task

Associated subtasks: *Open Application, Log in to OpenKeep, View Individual Task, Tap "Edit" button*

Users can see all the current tasks have been saved to their account on the homepage. They are able to edit any single task by clicking into the task they want to make changes with. Once the task is tapped, users will be redirected to a page that displays the full task description, details, notes and any attachments. There is a "Edit" button presented in the top right corner. Users may edit any field of the task or add new notes/resources after they click on that button.

Scenario 4: Adjust Notification Settings

Associated subtasks: *Open Application, Log in to OpenKeep, Tap "Settings" button, Review Settings*

On the setting screen, users are able to adjust notifications setting such as vibration or tones at the alert. Users can also change the type and frequency of the reminder.

E. Results & Insights

For the most part, our prototype is in a good spot from a user experience standpoint. We still have some work to do to maximize the aesthetic and help reduce visual clutter but most of the currently implemented features are easily recognized and simplistic enough to avoid any major user interface problems. Our "Help and Error Prevention/Correction" section may be the weakest element in our current design and we'll be taking steps to improve upon these features (see Evaluation 1 for further details). The consistency in visual elements and verbiage throughout the app lends itself to a more intuitive user experience.

Changes to Analytical Evaluation

After conducting a cognitive walkthrough, we decided that Neilson's 10 Heuristics would be the best approach for our individual analyses. Based on the findings from the evaluations, we expect future prototype refinements will benefit from the specific observations contained in our summary reports.

III. EMPIRICAL EVALUATION

A. Goals

The goals of our empirical evaluation are to observe user interaction with the prototype screens for both the sign up process and the different feature proposals including the "Self Advice" feature and the "Attachment scan" feature. As stated in our previous report, our evaluation has users mimic their real world interactions with the Open Keep application in a simulated environment to allow us to collect data for the purposes of determining whether or not the assumptions behind our design are valid.

Secondly we intended to identify potential design flaws through our empirical testing, we will use the data collected to reevaluate our design before working on our high-fidelity prototype. This way we can factor in feedback and insights discovered from our user testing from an early stage and have those important discoveries reflected in our application.

The goal of Open Keep is to create a stress free task management system. This is the primary goal and our designs are only a means to achieve it. Therefore empirical data and user feedback trumps any attachment to original design goals so we are more than happy to take these into account so that we can develop an awarding experience for our end-users.

B. Method

[The researcher explains why saying their thoughts out loud is important]

Two test users were observed and interviewed as part of our empirical evaluation. The first user is a single female in her late 20's that would identify as "not tech savvy" as well as someone who "is easily stressed by deadlines". The second user is a female in her 20's who considers herself a "procrastinator" and who does not "finish tasks early. In essence, our test users represented the ideal audience that we had outlined in our initial application proposal.

The evaluation consisted of two parts. A prototype screen walkthrough and a subsequent interview. The walkthrough simulated the interface interaction the user would have with our application. In order to track the user experience, users were instructed to think out loud as they walked through each of the screens in the Open Keep application. This made it easy for their thought process to be recorded so that it could be analyzed by our researchers.

The interview consisted of a series of questions that our researchers created in order to get a better understanding of our users needs and expectations. Each question carefully selected to capture the test users' understanding of our applications goals and to assess whether it is achieving our requirements in its current state. In order to supplement the walkthrough and observation portion, questions were also asked to gauge the ease-of-use levels of our prototype screens. This data allowed us to more completely gauge whether or not our prototypes were conducive to a good user experience.

C. Materials

Updates to Task Description

1) The researchers decided to evaluate the user sign-up process instead of beginning the evaluation only from the sign-in.
2) The "Search button" stays within each screen interface and looks for content that the user is searching for, rather than changing screen interfaces. For instance, if the user wants to search a keyword on Screen #6, a highlighted word will appear on screen #6 rather than switching to Screen #4.
3) Our researchers wanted to examine whether the search box makes sense on each of the screens, so we included the search box in our evaluation.
4) We decided to remove the "Attachments" button testing done on the self-advice interface in order to limit redundancy. We can capture the same insights by evaluating the "Attachments" interface from Screen #6.

Any changes from the previous task description will be highlighted.

Task Description

The OpenKeep app is a software tool to track the tasks of an individual. Unlike traditional task management apps, OpenKeep seeks to provide the tools and motivation to complete their tasks. The prototype below shows how the task is performed. We assume that you have downloaded OpenKeep and have an account. You enter your personal login information like email and password or using your face ID and touch ID. During testing, you are welcome to use different gestures like tap, drag, pinch, press. Using gestures can increase dynamism and realism to the prototype. The prototype will help you to access the appropriate screen according to your needs.

1) Two *homepage* screens. The leftmost screen is Tasks. The rightmost screen is Self-advice tips. Select one of the two.
2) On the *task* screens, select a task or select "+ Add Task" if you have more tasks to be recorded.
3) Click the "Search" box and search for a keyword.
4) Return the user to the homepage (Screen #4).
5) On the *Self-advice* screen, select a tip or select "+ Add Tip" if you have tips to be recorded.
6) *Task*, read your subtask and details/notes. Select "edit" to update the task information. Select "Back" to return to the task homepage. Select "Attachment" to see files.
7) *Self-advice*, read your details/notes. Select "edit" to update the task information. Select "Back" to return to the task homepage.
8) *Attachment*, select files to know more information about tasks. Select "Edit" to add/delete files. Select "Scan PDF" to scan file.
9) *Scan*, place your files in the camera's view and press the camera button. Choose to save your file as pdf and name it.

Interview & User interaction

The following questions are for a better understanding of user needs and user expectations.

1) Do you think this design meets its requirements?
2) What's your overall impression of the homepage? Clean or not.
3) Are you confused about the two homepages?
4) How difficult was it to access the task/self-advice page?
5) Does the task/self-advice page show everything you need? How would you change the way it presented?
6) How difficult was it to access the Attachments?
7) How difficult was it to edit your task/self-advice page?
8) What pages would you change? Which part? Why?
9) Are there any features you want to add?
10) What was the best/worst thing about the product?
11) Is there anything preventing you from completing the task?
12) Do you think you are more motivated than using the traditional task management app?

The prototype used for this evaluation is attached at the end of the document. Each screen is enlarged and printed on a separate sheet of paper. The content displayed on the screen is not different than what is on the user device. Separate printing is for better user

interaction. The number on the prototype will help you to access the appropriate screen based on your interaction with the screen.

- Screen #1 goes to Screen #4 if the user logged in.
- Screen #1 goes to Screen #2 if the user is not logged in.
- There are several buttons on Screen #2:
    - "Arrow" button goes to Screen #4 if the user logged in.
    - "Face ID/Touch ID" button goes to Screen #4 if the user login with face ID or touch ID.
    - "Sign-up" button goes to Screen #3 if the user is new.
- There are several buttons on Screen #3:
    - "Finish" button goes to Screen #4 if the user finishes registration.
    - "Back" button goes to Screen #2 if the user decides not to sign up.
- There are several buttons on Screen #4:
    - "Choose a task" leads to Screen #6.
    - "+ Add Task" allows users to add more tasks which would be a blank version of Screen #6
    - "Search" box highlights keywords the user is looking for within the screen interface.
- Return the user to the homepage (Screen #4)
- There are several buttons on Screen #5:
    - "Choose a tip" leads to Screen #7.
    - "+ Add Tip" allows users to add more tips.
    - "Search" box highlights keywords the user is looking for within the screen interface.

- There are several buttons on Screen #6:
    - The "Edit" button allows users to update the information.
    - "Attachments" button goes to Screen #8.
    - "Back" button goes to Screen #4.
    - "Search" box highlights keywords the user is looking for within the screen interface.

- There are several buttons on Screen #8:
    - Choose a file to learn about task information.
    - "Edit" button allows users to add/delete files.
    - "Scan PDF" button goes to Screen #9.
    - "Back" button goes to Screen #6/Screen #7.
    - "Search" box highlights keywords the user is looking for within the screen interface, even inside each PDF.

- Screen #9 goes to Screen #8 lets users finish the attachment.

- There are several buttons on Screen #10:
    - Choose a setting to change user preferences.
    - "Log out" button goes to Screen #2.
    - "Search" box highlights keywords the user is looking for within the screen interface.

- Screen #11 displays the user interface with notifications.

Follow-up Questions

D. Empirical Data

See appendices F - G for the collected empirical data.

E. Results & Insights

Overall in our testing we found that users wanted a little bit more clarity on how the application is to function with regards to its goals. We found that users do in fact want dates in the app as it is currently presented and we also found that a few of our designs were not as user friendly as we initially hoped.

While some aspects of our prototype, like sign up, were received other aspects, like the settings panel were seen as unintuitive from our users. Some of the terminology chosen such as "haptics" did not translate well to everyday people since they were overly technical in nature. Future iterations of our project will have to take into account that end users are not themselves application developers when naming user interface elements.

The attachment feature in particular needs to be more flexible than simple PDF scanning. Users would like to attach other documents, so perhaps a normal file attachment feature would improve the experience here.

In spite of a few design flaws the esthetics of our application were very well received by end users who found the minimalist direction to be clean and easy to navigate and understand. This bodes well for our design team as it means we have a solid basis for our screens layout and that changes will not have to be so dramatic as the larger portion of user layout was well received in our tests. Therefore, only a few feature proposal changes and naming schemes should be required before we can move on to our high-fidelity prototype.

ACKNOWLEDGMENTS

"Project W7", pp 1-20, unpublished.

REFERENCES

[1] "Cognitive Walkthrough for the Web" MH Blackmon, PG Polson, M Kitajima, C. Lewis
http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.96.7320&rep=rep1&type=pdf

[2] "Cognitive Walkthrough for the Web" MH Blackmon, PG Polson, M Kitajima, C. Lewis
http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.96.7320&rep=rep1&type=pdf

[3] "10 Usability Heuristics for User Interface Design" J Nielson
https://www.nngroup.com/articles/ten-usability-heuristics/

Appendix A

Heuristic Evaluation Walkthrough #1

Evaluator: Brock Neidert **Task:** Adding a new Task

Heuristic	**Findings: Positive/Conformance (+) & Negative/Nonconformance (-)**	**Potential Fixes (++) & Other Insights (**)**
Visibility of system status	+ Login status is visually confirmed by presence of user account name displayed in upper right corner + Successful Task creation confirmed by pop up noting "Task Added!"	++Prompt user to add a task as one of the first "tutorials" upon signing up for service to give awareness of what the process looks like
Match between system and the real world	+ Form used to enter details for new task closely resembles forms you would find in other apps	**most of the currently implemented functionality in our app closely mirrors existing systems found in competing apps
User control and freedom	+ App maintains data consistency by closely controlling the data entered in each field - Data that falls outside of the "acceptable" types does not have a way to be added to the task	++Users should have access to an "Other" field at the bottom of the task entry screen to include any non-conforming data
Consistency and standards	+ Verbiage and icons are largely consistent in their usage throughout the app + Editing an existing Task looks very similar to Adding a new task	** Any future additions to the app should be based on existing features to ensure continued consistency
Error prevention	+ Fields that have incorrect data are pushed back to the user before adding the new task and a red, italicized text indicates which field requires correction - Data can be still be malformed when adding a new task.	++ For numerical data, limits should be placed on the range given the type of data expected ++ Use a calendar pop-up to make date entry easier for user
Recognition rather than recall	+ Several aspects of our app are consistent with today's prevalent web design standards	++ Icons like a large "+" symbol are largely interpreted as the means by which to add a new item. To minimize text usage, consider replacing with just one large "+"
Flexibility and efficiency of use	- Flexibility has been slightly compromised to allow for consistency across data entries + Adding a task is a one-screen operation. Very efficient.	** Referring back to the user control section, add back some flexibility with an "Other" section that allows users to add data outside of what the app considers "acceptable"
Aesthetic and minimalist design	+ Navigation to the add task screen is simple and straightforward - The "Add Task" text after the "+" symbol is unnecessary due to the prevalence of this symbol in other apps	** Continue comparing potential symbols and text descriptions against existing, real world examples to increase minimalistic approach and help guide user's recognition of system features

Help users recognize, diagnose, and recover from errors	+ Errors in data entry are indicated as such by red, italicized text below the entry requiring revision - No indication of other potential system errors (server unavailable, no data connection, etc…)	++ Consider adding pop up notifications to indicate system problems ++ Allow for "Save Offline" pop up when system is failing due to data connection issues
Help and documentation	- No existing help section (currently) - No first time user tutorial	++ Add a user tutorial that quickly shows a user how to perform typical actions within the app. ++ Add a "?" somewhere on the homescreen to allow users to quickly access a help section

Appendix B

Heuristic Evaluation Walkthrough #1

Evaluator: Chiayu Tang **Task:** View the current list of Tasks

Heuristic	**Findings: Positive/Conformance (+) & Negative/Nonconformance (-)**	**Potential Fixes (++) & Other Insights (**)**
Visibility of system status	+ After signing in, the current task list is shown immediately.	** Once users log in, it is easy to know what our app is doing for them.
Match between system and the real world	+ The list of user's tasks is clear and pretty similar to what they can see in other apps.	N/A
User control and freedom	+ Each task stored data consistently and separately. Users can make changes to their tasks any time.	** If the user can switch the position of tasks, that will be better.
Consistency and standards	+ The font in each screen is the same. + The list looks organized.	N/A
Error prevention	- Tasks that has the same title may be messed up.	++ If there are tasks that have the same title, the app should ask users to change a different title.
Recognition rather than recall	N/A	**It is good that users don't have to memorize all the detailed information about the task because the title and some information are shown.
Flexibility and efficiency of use	+ Clink in the task can see more detailed information and edit it.	++ If there is an edit icon on each task in the list, it can be more efficient.
Aesthetic and minimalist design	+On the view page, the primary function is to show all the tasks for users.	** It is good and straightforward for the view page. Don't make it complicated.
Help users recognize, diagnose, and recover from errors	- Error messages can have included connection errors…	++ Pop-up messages will be good.

Help and documentation	- No any Help and documentation.	++ Add a help icon for users if they have questions or confusion.

Appendix C

User: **Chiayu Tang** Student Project 7 - Analytical Evaluation

1. Ease of Use (Recognition rather than recall)

a. Will you know what is going on?

Yes, it is really easy to know what is going on.

b. Can you go back to the homepage easily?

Yes, I can just click the back button on the upper left corner.

2. Usefulness (Match between system and the real world)

a. Will you feel the app is hard to use because it is different from other apps?

No, the app looks clean and easy to use.

b. Does the function located at what you expect?

Yes. If I want to add a task, there is an add button on the upper right corner.

3. High-level view (Visibility of system status)

a. Is the screen clear and easy to understand?

Yes, each screen is clear and easy to understand. Each screen can only do one thing so it is very straightforward.

4. Consistency (Consistency and standards)

a. Do identical or similar buttons on different pages do the same thing?

The similar buttons on different pages do the same thing, for example the back button on the upper left corner.

b. Do the screens all look similar?

Each screen looks different

c. Are there buttons that have the same function as you expect?

Yes, the button matches my expectations; such as add and edit button.

5. Feedback (Error prevention)

a. If the system does not allow you to log in, do you know the reason?

Yes, the system will tell me things like wrong id or password.

b. When the system does not allow you to upload files, does it give you any suggestions?

If I tried to upload files that the system does not accept, it does not give me suggestions like tell me what kind of file it accepted.

6. Graceful Recovery (Help users recognize, diagnose and recover from errors)

a. Do the in-app error messages make sense? Will users be able to easily fix the error and move forward?

If I type in the wrong data format it will show in red so that I will know that there is an error. However, If I upload a file that the system does not accept, there is no pop-up message.

7. Timeliness (Flexibility and efficiency of use)

a. How long do users take to get from the home screen to a Task Details screen?

It just took me a few seconds. very fast.

b. Are users able to revisit commonly accessed pages easily?

I can go back to the task list very easily by clicking the back button on most of the page.

8. Clean Presentation (Aesthetic and minimalist design)

a. Are there screens within the app that could be overwhelming to the user (e.g. too many navigational options)?

The app does not contain too many controls or options on a specific page. All the control or options are useful and will not feel extra.

b. Does the task list present information that is useful to the user?

The task list provides useful information such as task title and some content of the task.

c. Is the function of each screen clearly defined and free of visual clutter?

Every function of each screen is clearly defined and free of visual clutter. Every button has their own purpose and each screen has its purpose.

9. Usage Flow (User control and freedom)

a. Is it easy to connect use of related tasks together? (e.g.: moving from the add task screen to the view task screen)

Yes, it is easy to connect all related tasks together. After I add a task, it jumps back to the view task screen. As well as after I edit any task, the system takes me back to the view task screen.

b. Are tasks connected in logical ways at various junctures in their process? (e.g.: are you able to move from the homepage to editing an existing task and adding attachments)

The tasks are connected in a logical way and are connected all the tasks together. It is pretty clear to understand that I can do what in each screen. They are logically relative.

10. Help (Help and documentation)

a. Are there resources presented in the application to answer user questions or provide guidance on usage?

There is no Help icon or documentation that I can seek for help when I have confusion. But there is some error message that helps me to add and edit tasks successfully.

Empirical Observation

Researcher: Ulises Rodriguez – Team Uluwatu

User: Single female in her late 20's that would identify as "not tech savvy". She is a manager of a fashion store close to a metropolitan city. She would say that she is "easily stressed by deadlines". In her off time, this user does not have much time outside of work to do other activities and has a busy life. She does not know of the details of this application and fits our target user base, which is across all ages and backgrounds.

Observations

The evaluation was conducted in the user's home with the television quietly playing the background as mostly ambient noise. She was in a comfortable environment, likely tired after a 10-hour day at work in the evening. The environment was well-lit, but dark outside. The researcher informed the test user the purpose of the interview and its goal. The researcher then read the task description and the user acknowledged each task (a list was provided to her in order not to forget each task). Her mood was generally neutral in conducting these tasks. We began the evaluation with registration prior to the screen by screen tasks. From the start of this evaluation until the end, the researcher instructed the user to say thoughts out loud, so the user's thought process can be analyzed. Also mentioning that any mistakes or confusion will be because of our design, not because she made a mistake (reinforces comfort in detailing thoughts).

Registration:

Screen #1:
The user clicked on the icon without hesitation with their finger.

Screen #2:
The user quickly recognized the sign-up button and clicked the "Sign-up" button with her finger. Neutral in her demeanor.

Screen #3:
The user filled out their information appropriately and clicked finish. However, she mentioned that although that it was a successful registration, there is no feedback interface to indicate that it was successful. She assumes that it is successful, because the researcher told her to assume that it was successful.

Task evaluation:

Screen #2:
The user then signs in. She clicked the "Face ID / Touch ID" button instead of the green arrow. She mentioned that having a green arrow and the "Face ID / Touch ID" might be redundant. She didn't know the difference between the green arrow and the "Face ID / Touch ID" button.

Screen #4:
User pauses and takes a second to see the homepage. Mentions that she likes the simplicity and it seems "very straightforward". She then clicks the "+ Add Task" button. She also mentions that if the interface screens should display a blank interface rather than the examples that are currently listed. The researcher told her that these are examples and to ignore them and treat them as blank for now.

Screen #6:
User then adds a task that she mentions that she has been wanting to knock out little by little. In her case, it was spring cleaning. She clicked the "Edit" button. She titled the task as "Spring Cleaning" and included subtasks such as 1) changing out winter clothes for spring/summer clothes, 2) cleaning her storage area, 3) cleaning behind the stove and in closet spaces, and etc. She left the "Details/Notes" section blank.

Screen #6:
User tries to search for something, but there is no feedback mechanism or interface letting her know that the app is highlighting her input. She mentions this to the researcher. The researcher told her to go back to the homepage. The user clicks the "Back" button and returns to Screen #4.

Screen #4:
User then is instructed to go to the second homepage. She mentions that she sees that the Screen #4 interface is “swipe-able”.

Screen #5:
The user swipes from screen #4 to Screen #5. She does not know initially what the purpose of Screen #5 is. The researcher explains the intent of Screen #5. The user acknowledges that she could add in her own personal tips or commitments she made to herself. She decided that she would include her New Year’s Resolution of eating more plant-based products rather than animal-based products. She then clicked “+ Add Tip”.

Screen #7:
User sees the self – advice page and clicks the “Edit” button, which then allows her to title her self – advice tip and add in “Details/Notes”. She added that she would eat/buy more vegetables every time she went to the grocery store. She sees that this is a good idea, but there is no way for the self-advice page to remind/alarm her to buy more plant-based foods at the grocery unless she is constantly looking at the app.

[Researcher tells her to go back to the homepage. User clicks the back button from Screen #7 to Screen #5, then swipes left to Screen #4]

Screen #4:
User is instructed to add a task in which it would be important for her to have a document on hand. She mentioned that she would like to put her work schedule since it was annoying for her to always login/logout on a website. The user clicks “+ Add Task”.

Screen #6:
User clicks “Edit” and adds a title with neither subtasks nor “Details/Notes”. She then clicks the Attachments button

Screen #8:
User then pressed the “Edit” button, but she mentioned that there is no interface to add a screenshot that she took on her phone. She mentions that the “Scan PDF” button is a cool feature, there is no current system or interface in place currently to input a screenshot into her newly made task. She thinks (in her case) that it is kind of a waste of time to print out her work schedule just to scan it and save it as a PDF to the attachments screen.

[Researcher tells her to test the “Scan PDF” interface in order to test it.]

Screen #9:
User mentions she likes the feature, if there was an icon on the bottom to indicate to add an existing photo, it would solve her current issue (attempting to add a screenshot to the attachments interface).

[Researcher tells her to head to the homepage and go to the Settings page]
User has no idea how to get the settings page. There is no icon or clearly marked button on the homepage to go to the settings. Researcher acknowledges and takes her to Screen #10.

Screen #10:
User takes a look and pauses to look at the settings. She mentions that it looks very straightforward except for “Haptics”. She has no idea what that means, nor is she interested in testing what it is. She clicks “log out”.

[Researcher shows her notifications interface, Screen #11]

Screen #11:
The user wondered how and when the app would remind her. She also asked how she would even adjust the settings and what it would look like. The researcher explained that this is an oversight from our team and that the interface needs to be fixed in order for future users to customize notifications.

Questionnaire:

1) **Do you think this design meets its requirements?**
“I think the fact that it is a time-agnostic app is nice, however, without alerts of any kind, it defeats the purpose of the app. Normal things that we tell ourselves to improve on require constant reminders. This sort of works for personal self-improvement

and long-term productivity increases. In its current version, I do not think it meets the requirements. The features and flow of the app has to be fixed first."

2) **What's your over impression of the homepage? Clean or not.**
"I like that the interface is very plain and clean. I think the visual design of it is nice and the shade of green is pleasant."

3) **Are you confused about the two homepages?**
"A little bit confusing. I think that maybe Titles on the top homepages might help or maybe an visual thing that says this is Homepage #1 and this is Homepage #2. I'm not too sure."

4) **How difficult was it to access the task/self-advice page?**
"It was not difficult at all to access these pages. Right after signing in, it is only a left or right swipe."

5) **Does the task/self-advice page show everything you need? How would you change the way it presented?**
"I think that there needs to be something for notifications. Maybe within Screen #6 / Screen #7 or within Screen #4 / Screen #5 on the homepages."

6) **How difficult was it to access the Attachments?**
"Pretty difficult since I was trying to add an existing picture to that attachments feature. The only feature that exists is a scanning feature, which is useful in some circumstances."

7) **How difficult was it to edit your task/self-advice page?**
"It was fairly easy. I just clicked edit and was able to edit the title and everything else I needed."

8) **What pages would you change? Which part? Why?**
"1) I would change Screen #8 and/or Screen #9, so I could have added an existing image to the task page. 2) Also, there is no way of getting to the 'Settings' menu. 3) There is no way to edit or modify notifications, if there is, then there is no screen to see how customizable it is."

9) **Are there any features you want to add?**
"None that I can think of right now other than a way to add frequent reminders to personal promises like New Years' resolutions and stuff."

10) **What was the best/worst thing about the product?**
1) The attachments, 2) that there was no way to get to the settings, and 3) no clear way to edit notifications/reminders.

11) **Is there anything preventing you from completing the task?**
Yes, the settings screen.

12) **Do you think you are more motivated than using the traditional task management app?**
"In this app's current state, no because there is no way to customize reminders to make me do a task."

13) **Do you have any other thoughts, questions, or comments?**

"Nope! That is all."

Results & Insights:

1) The attachments feature needs to be able to include screenshots.
2) We need to create an interface screen for setting up notification settings.

3) Our team needs to place a “Settings”button in a location that flows well and is logical.
4) Create a bit more clarity with the two homepages, maybe experiment with titles or maybe an additional interface screen that explains the app’s dual homepage feature.
5) Haptics is technical jargon that is not user-friendly and will need to get replaced. We likely need to create an interface screen for how this looks as well
6) Potentially create more screens for each individual button on the “Settings” screen (Screen #10).
7) On Screen #2, make a team decision between the green arrow and the Face ID / Touch ID buttons; they may be slightly redundant.

Empirical Observation

Researcher: YiDong Lin – Team Uluwatu

User: She is my roommate. A senior in our school. Her major is interior design and design management. She is a procrastinator. She doesn't like to finish her task very early. She thinks that due date puts pressure on her, but she still thinks she has time to complete it. This caused her procrastination. She had done a survey about OpenKeep before. I think she knows OpenKeep is a task management app, but she doesn't know more about this software. I think she will be our target user because she doesn't like the task management tool she is using now.

Observations

The assessment was performed in her room. She was sitting in front of her computer while she was finishing her homework. There is no background sound and the surroundings are quiet. The user is not disturbed. I provided her with basic information about OpenKeep and the steps and questions she needed to complete. She doesn't have too many questions about the software. She also expressed a general understanding of the idea of our project and expressed interest. She hopes that a task management app will help her complete various tasks without stress.

Registration:

Screen #1:
TheUser clicks on the OpenKeep app.

Screen #2:
User has no account, she selects Sign-up buttons with her finger.

Screen #3:
User filled out the information. User stated that she did not need to fill in the password during registration, which made her confused. Users believe that something is wrong with our signup page.

Task evaluation:

Screen #2:
User completes the registration. Fill in the information to log in. User asked a question, and she wondered how the app distinguished between face id and touch id when the user chose "Face ID / Touch ID" to log in.

Screen #4:
The user is a little confused when she has two homepages, I explained to her that you can swipe left or right to select different homepages. She decided to start testing from the task page. User selected a task.

Screen #6:
The user browsed the task example. She likes the layout. She suggested that the attached files should be listed directly at the bottom of the screen to help users open those files. Then she thought that the search function would not be necessary here. She said that only a few people like long lists. More users want the list to be short and clean, which means they don't need the search function.

Screen #8:
The user wondered if we have only one way to add files. Users think that not all files can be scanned. The way to add files should be added. User selected Scan.

Screen #9:
The user simply took a look. She thinks Scan is cool.

Screen #5:
The user returns and chooses to swipe right to the notes homepage. Users compared the two homepages and think they are the same. The user thinks we need two more screens to display more content, one is when she selects "add task / add tips", and the other is when she edits tasks / notes. She thinks this can give her more information.

Screen #7:
The user browsed the advice page and didn't click "Attachments", she thought it was the same page as before. She clicked "Back".

Screen#5:
The user returns to the homepage and asks if there is more information. I told her there was a setting. She said she did not see the option. I let the user jump directly to screen#8.

Screen#8:
The user believes that password should be a privacy setting. She wants something more personal. Like different styles of pages.

Screen#11:
The user has not commented on the notifications interface.

Questionnaire:

1) **Do you think this design meets its requirements?**
   "I think it meets the requirement. But I think you guys should focus more on how to balance stress and due date. Because I only see "due date" twice in the prototype, which is in tasks and notes. I don't see the due date in the rest of the place. Will this become a problem? When more users use OpenKeep, will anyone give up using this software because of this problem."

2) **What's your over impression of the homepage? Clean or not.**
   "Clean. This is the interface I want."

3) **Are you confused about the two homepages?**
   "A little bit. Because I'm not sure if the two homepages are necessary, especially since their functions are basically the same."

4) **How difficult was it to access the task/self-advice page?**
   "Not difficult."

5) **Does the task/self-advice page show everything you need? How would you change the way it presented?**
   "I think all files should be listed at the bottom of the screen, I can directly see which files are related to this task or notes. I think this will be more convenient."

6) **How difficult was it to access the Attachments?**

"It's not difficult, but I think the function can be improved a bit. Beyond Scan, there should be more ways to add attachments. For example, I want to add a URL, a downloaded attachment, and so on."

7) **How difficult was it to edit your task/self-advice page?**
"I can't."

8) **What pages would you change? Which part? Why?**
"Screen#4, Screen #5, and Screen#8."

9) **Are there any features you want to add?**
"Calendar. I think it will be more convenient for more users. When I'm looking for a due date, I don't need to find that task to know the due date. A calendar can help me better."

10) **What was the best/worst thing about the product?**
"Attachment and some details mentioned before."

11) **Is there anything preventing you from completing the task?**
"No."

12) **Do you think you are more motivated than using the traditional task management app?**
"I don't feel different between OpenKeep and traditional task management apps."

13) **Do you have any other thoughts, questions, or comments?**

"No."

Results & Insights:

1) 1. Need to spend more effort to distinguish the two homepages. Users think that two homepages have no major difference. Their features are also very similar.
2) 2. "Scan" cannot meet all customer requirements. Users should be able to add different kinds of attachments.
3) 3. Need two more screens for adding tasks/notes and setting.
4) 4. Users don't see the huge difference from traditional management apps. She didn't feel more motivated.
5) 5. Users think calendar is needed.

Peer-Evaluation of Team Members:

Table 1: Group members, Assigned Tasks, and Task Completeness Grade

Member Name	Role	Responsibilities & Assigned Tasks	Task Completeness Grade (0-5)
Brock Neidert	Writing / Deliverables	Analytical evaluations	5
Chia-Yu Tang	User Research and Communication	Analytical evaluations	4
Gregory Stula	Visual Design / UX design	Empirical evaluations/editor	5
Ulises Rodriguez	Management	Empirical evaluations/editor	5
Yidong Lin	User Research & Writing	Empirical evaluations	5