

Low-Fi Prototyping and Usability Testing

Haiyin W. (Project Manager) | Gavin M. (Development Manager) |
Ian L. (Design Manager) | ChangYoung P. (Usability Manager)

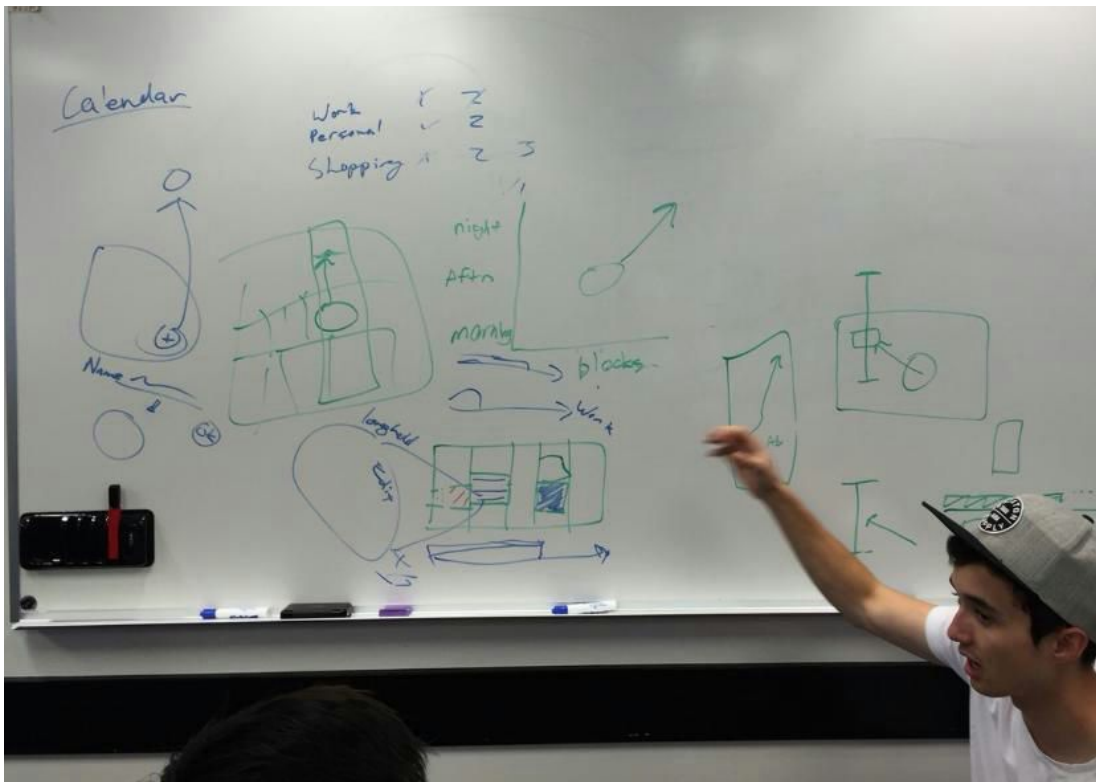
Mission Statement and Solution Overview

Rote: task management made easy

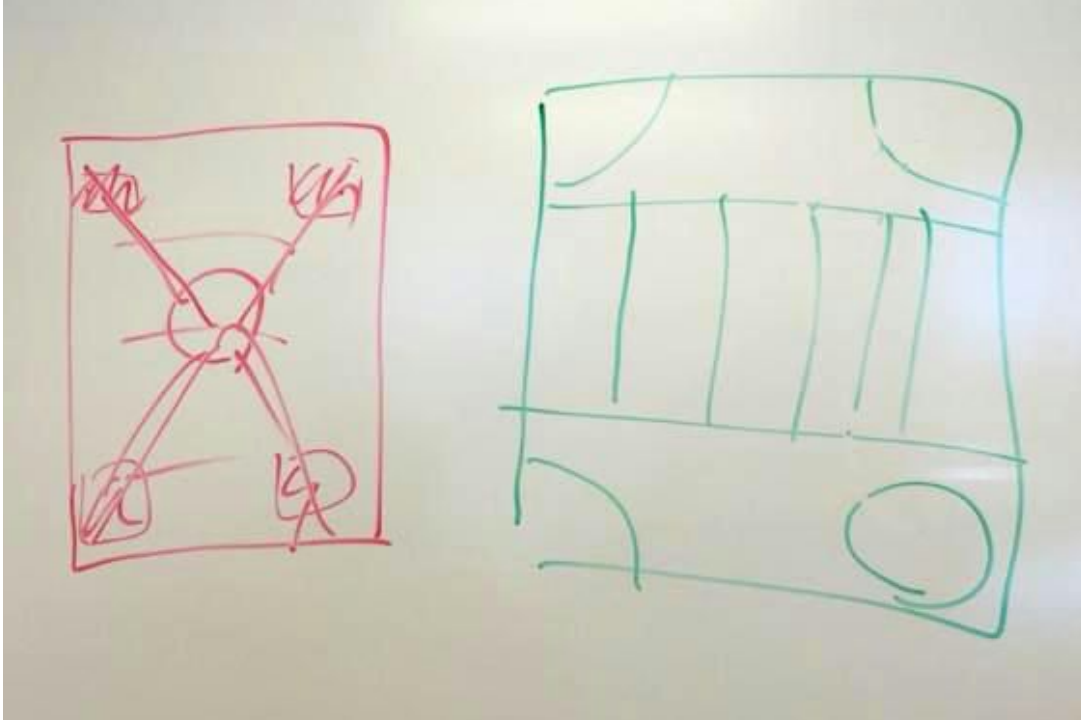
Time is an invaluable asset and especially in today's busy world, the most important. However, not many people have a good understanding on how to manage this asset. There are a wealth of productivity and focus apps out there to improve focus time.

Rote is an intelligence task management that reduces friction to productivity apps by using artificially intelligence and a simple UI/UX. The AI coupled with machine learning and NLP does the heavy lifting while the user can focus on the important things like achieving his/her goals.

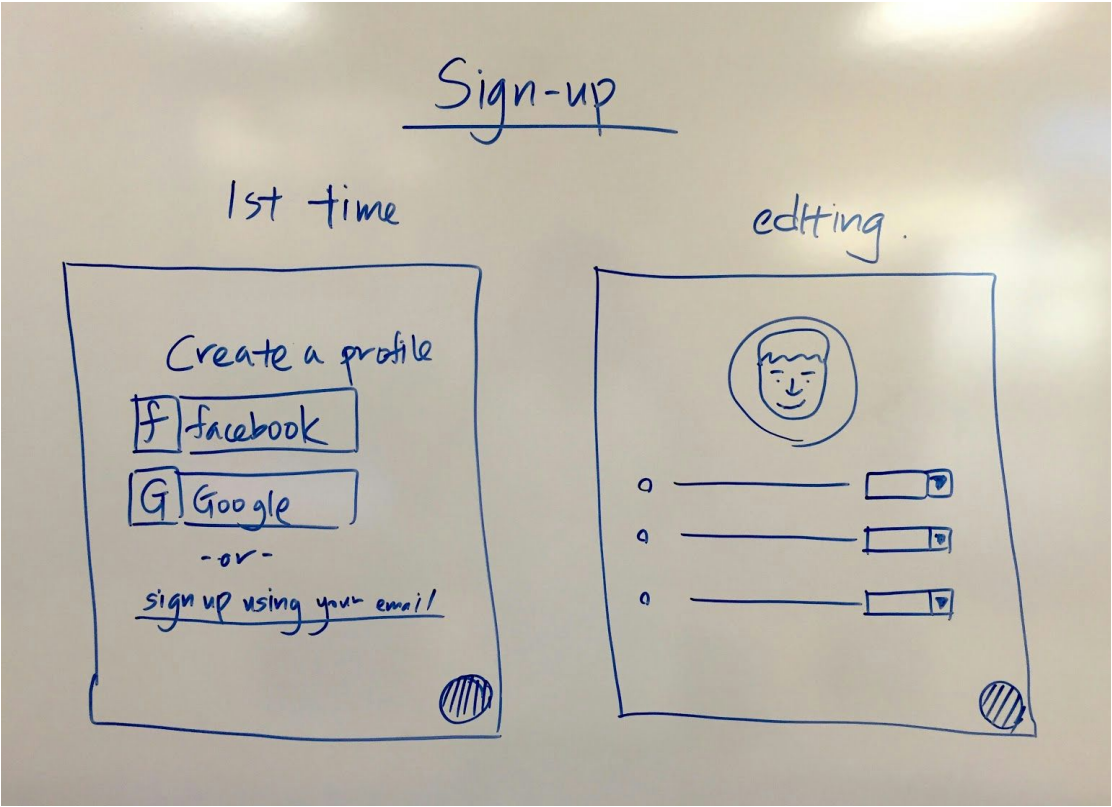
15-20 Sketches



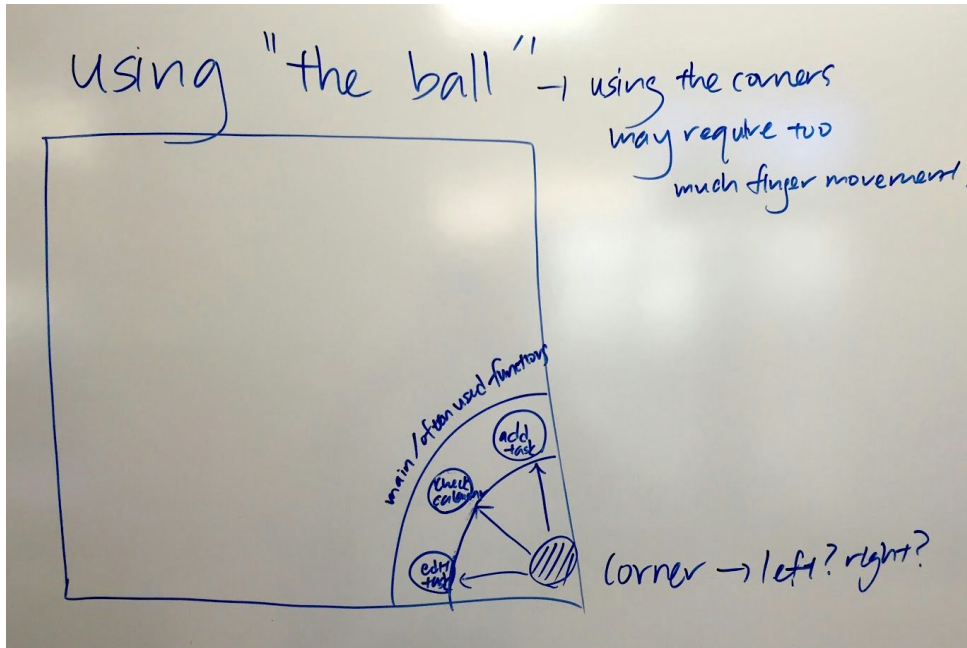
Ian explaining a very early prototype after class



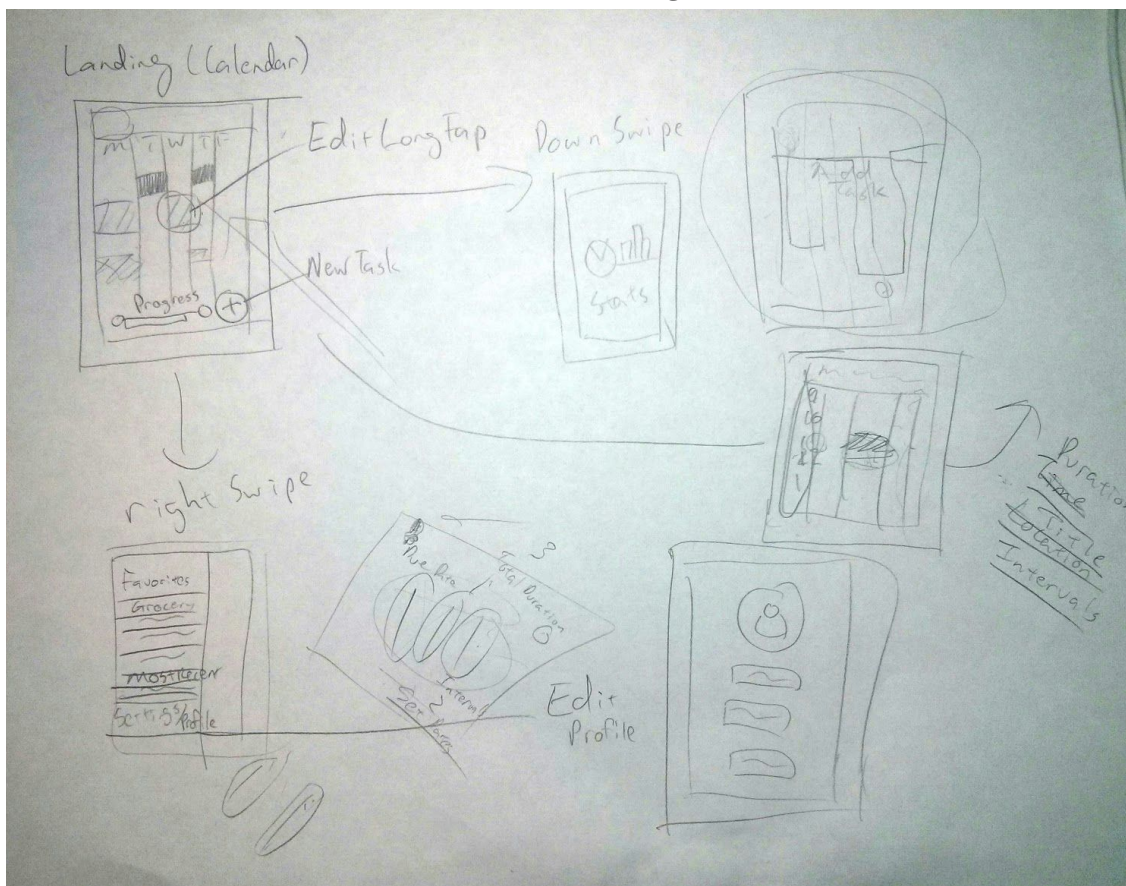
An early UI/UX design to organize tasks by identifying them by four different characteristics



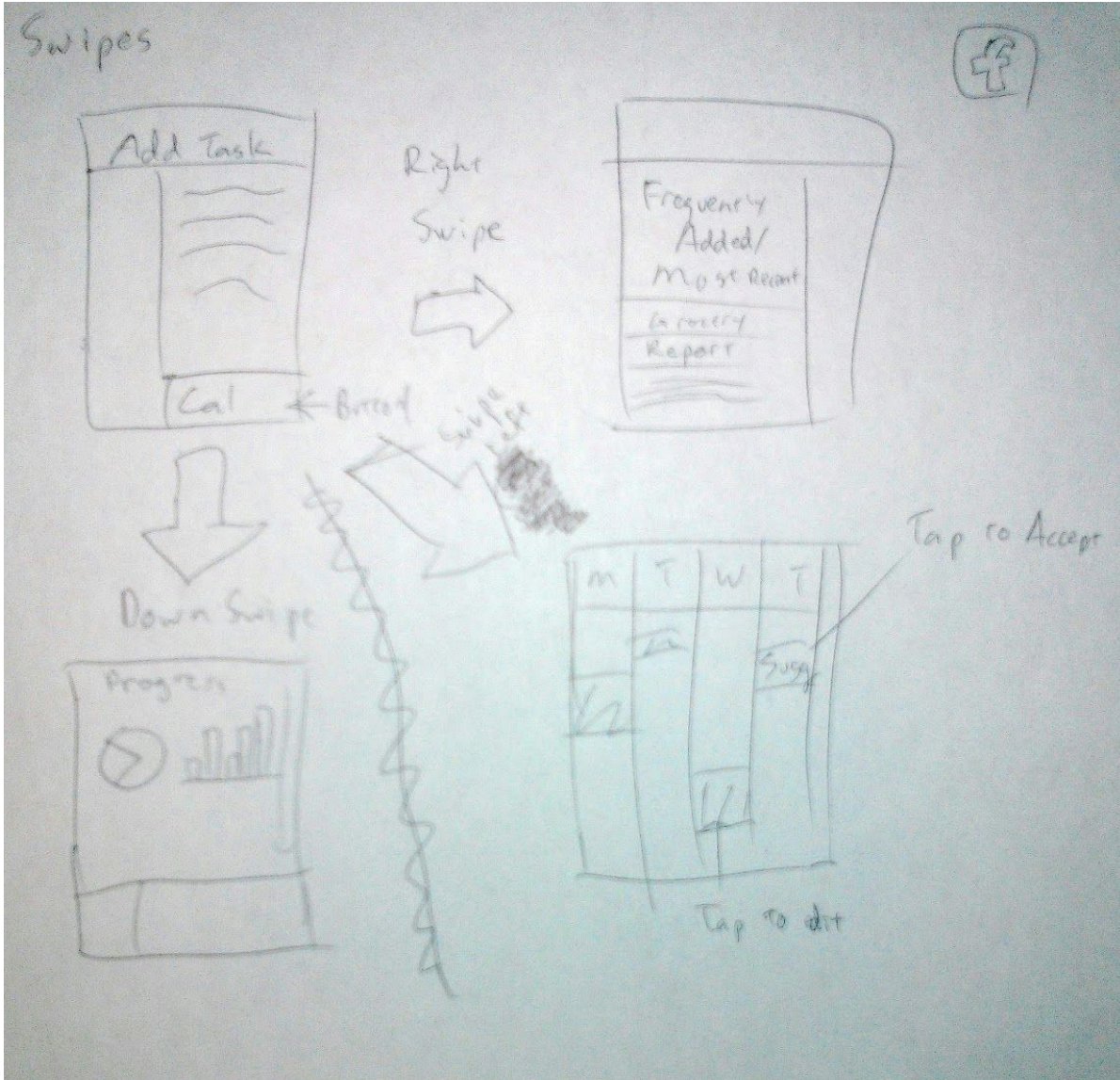
An early view of the sign-up/edit profile pages



Here is another variation of the "dragging" concept, except now to edit tasks, check Rote's calendar, and adding tasks

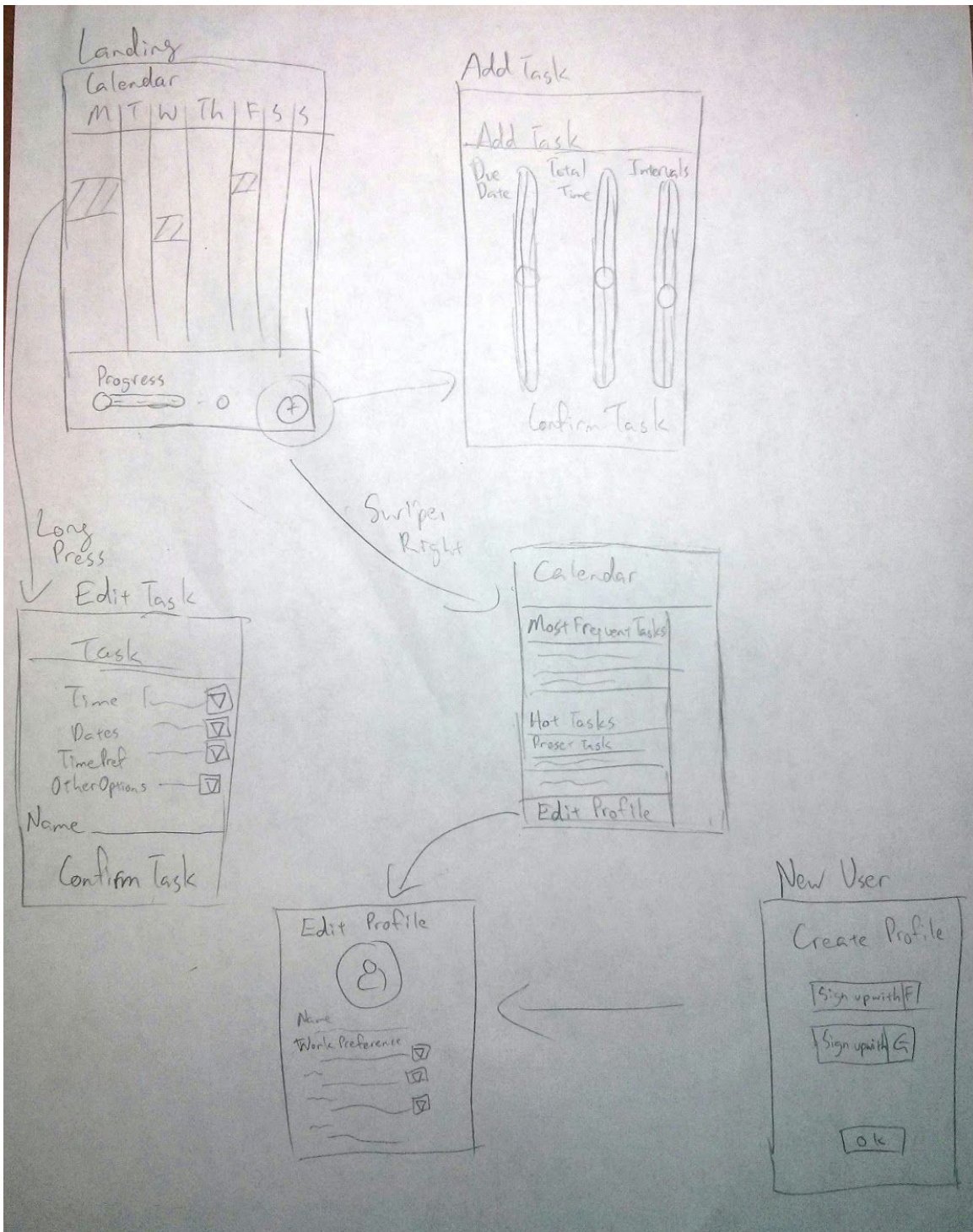


Massive brainstorm session at Zaps where we mapped out all the pages

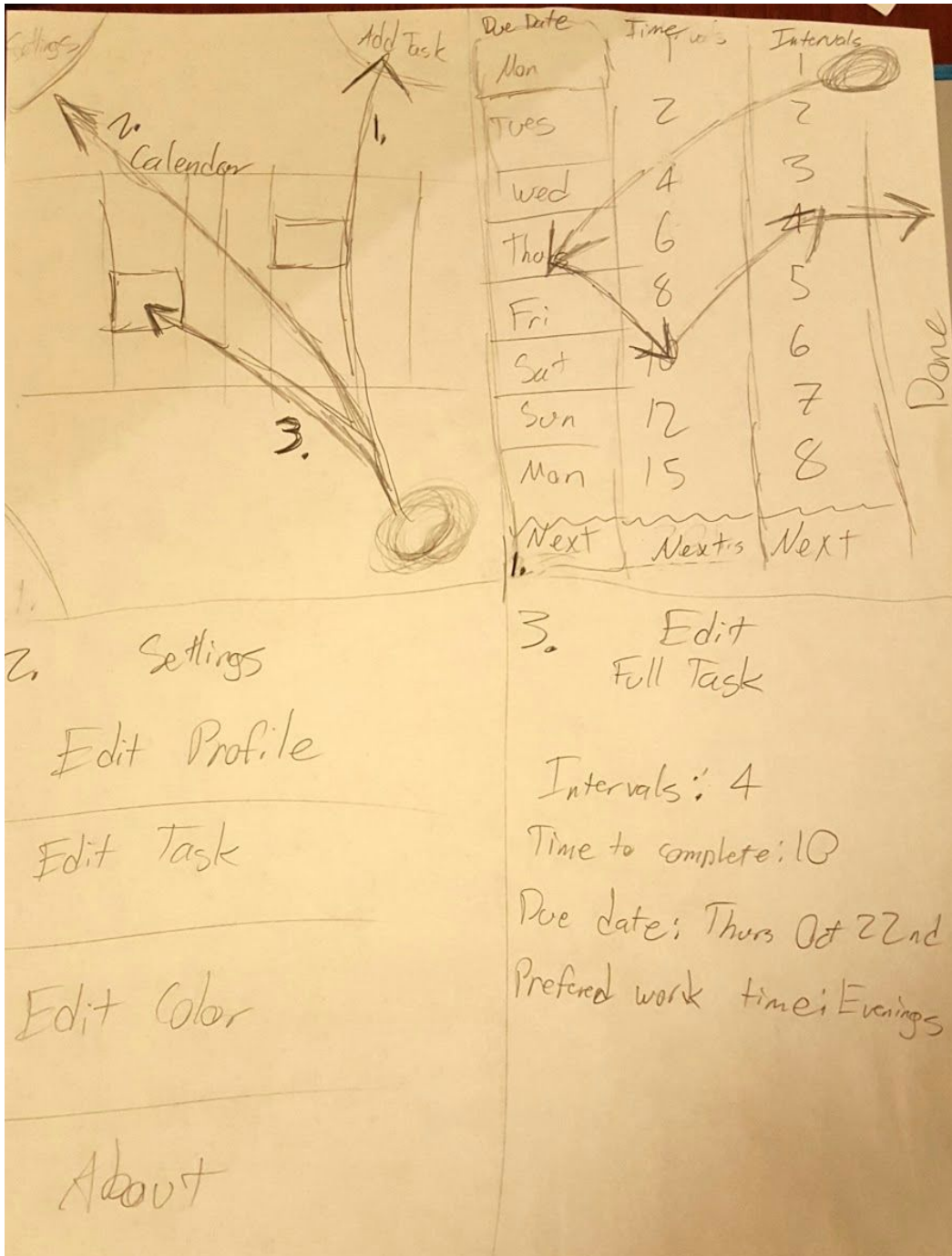


A second massive brainstorm on how a user can interact with the screens, including editing a tasks, seeing task progress completion and repeated tasks.

Top two Sketches storyboarded



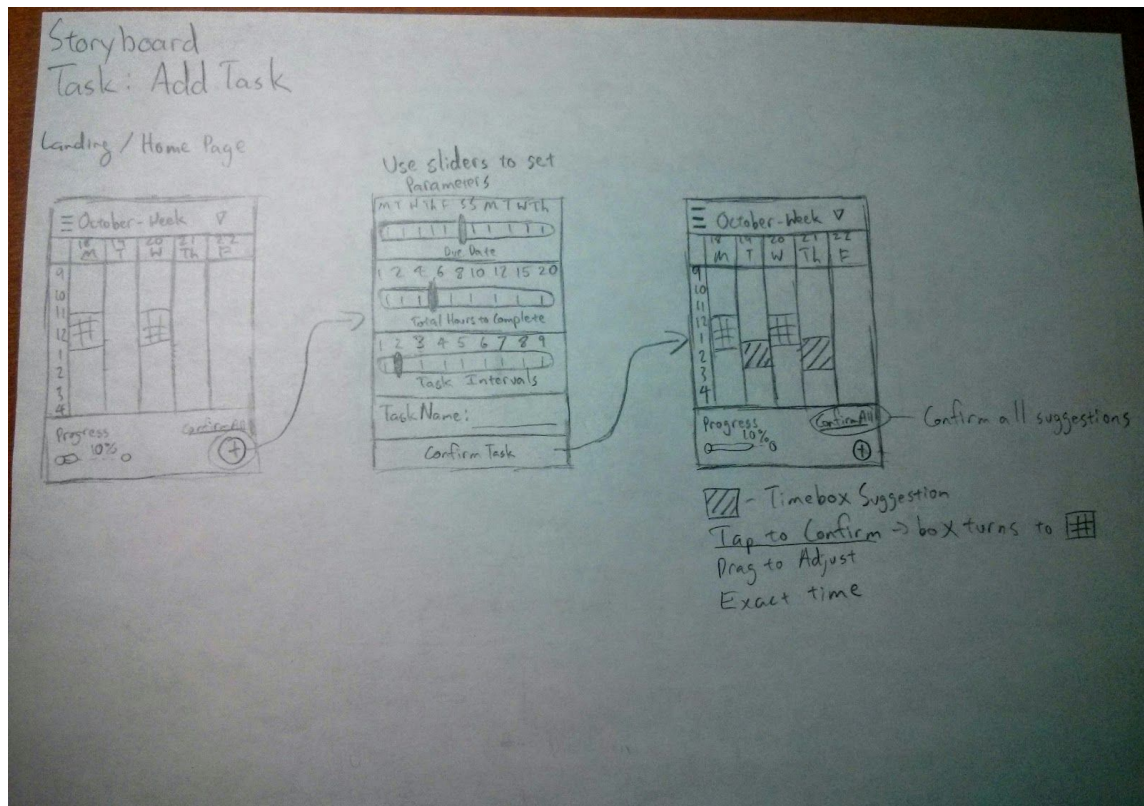
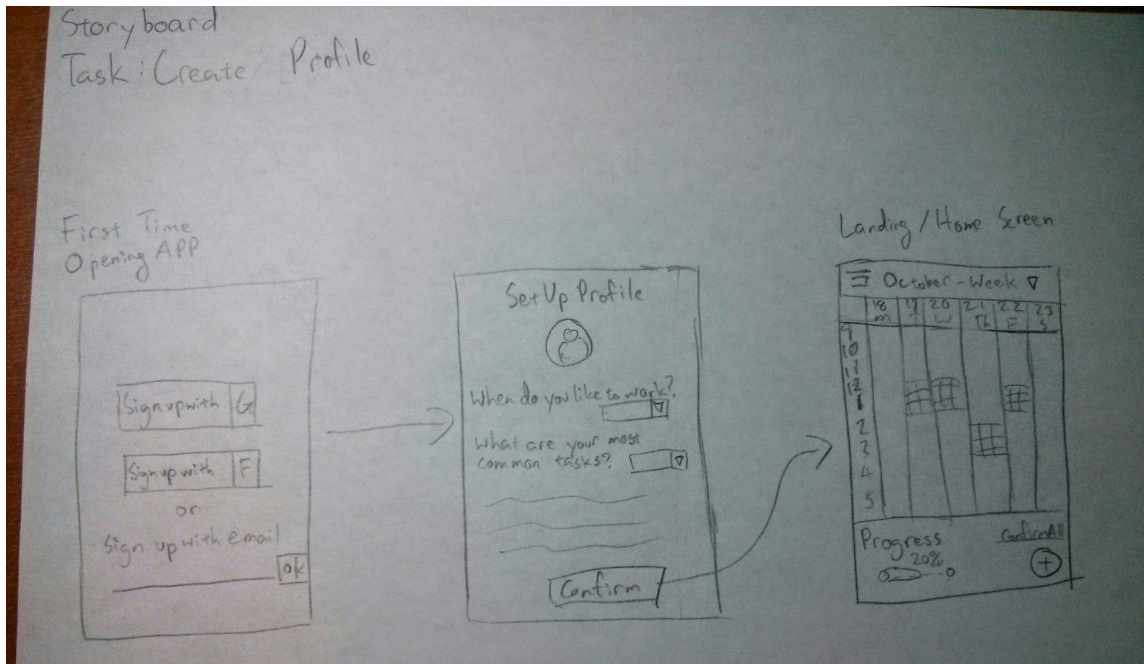
This is one view that we agreed upon. In this storyboard, we creating a landing page that contains a progress bar, the ability to add tasks, edit tasks, in addition to profile creation. We chose this mainly because of it's ease of use and navigation. We used techniques such as long-holds, swiping and minimizing typing.

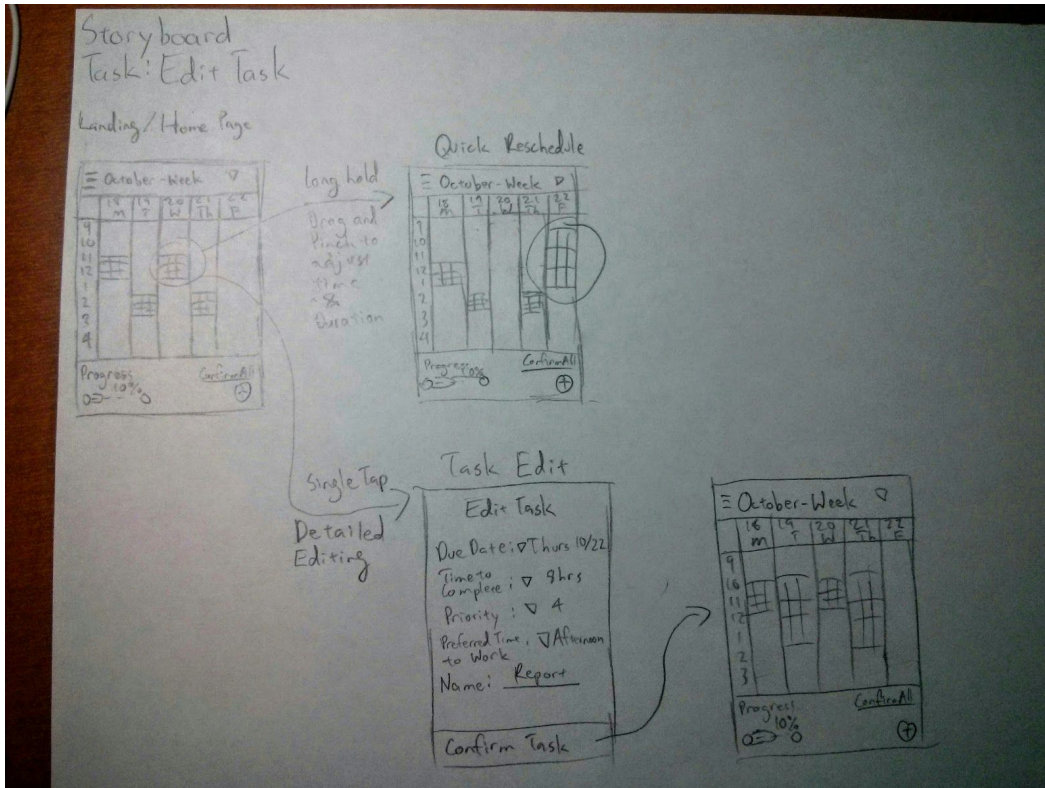


This second selected interface design takes the same principles as the first selected interface, an important part of which was to make it fast and easy to add a task, with minimal typing. The lines drawn in represent swipes and is a condensed version of the first interface.

You can notice that there are less views in this version than the first. For many people we think this is a good feature because it makes the app intuitive and simple. I will explain soon why simple is not always good.

Selected Interface Design (Storyboard for 3 tasks)





Reasoning for selection

We ended up choosing the first of the top two sketches. I mentioned earlier that one of the key differences between the two sketches was the fact the first had more features, whereas the second UI/UX design had less features.

With any UI/UX differences like this, there are certain tradeoffs. For an app with more features, the obvious advantage is that it is a more versatile app, with more functionalities. This can assist the user in greater control in his/her daily tasks. With an app that has less features, the advantage comes in the form of simplicity and a lower learning curve.

The extra features in the first app include the ability to create/edit a profile, which is strongly associated with our feature to add tasks. Because our app uses machine learning to learn from a user's habits, a preference/profile manager is essential towards this.

From a functional standpoint, we believe that certain aspects of the first design were better than the second. While the underlying philosophies were the same, that is to minimize the amount of typing/friction to add a task, the two aspects approached this belief differently. In the first design, we used sliders to adjust length, time and intervals of tasks, whereas in the second design, we

used buttons. A simple change in design can impact so much. We believe that using a slider helps put the user in the right mindset but understanding that there is a scale to everything, whereas the buttons in the second design didn't do much to put time in perspective.

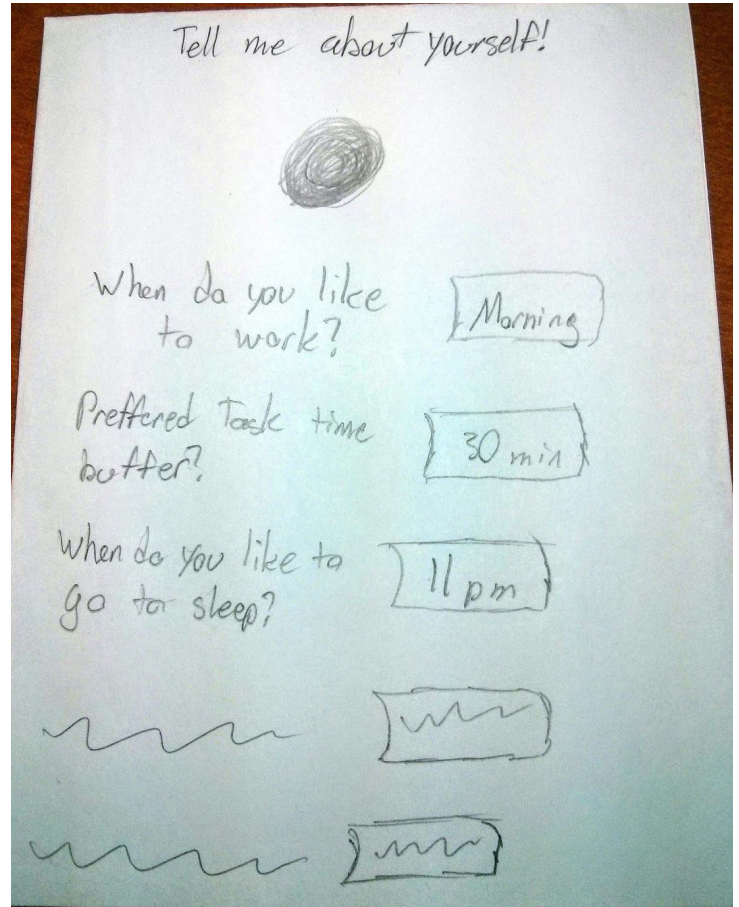
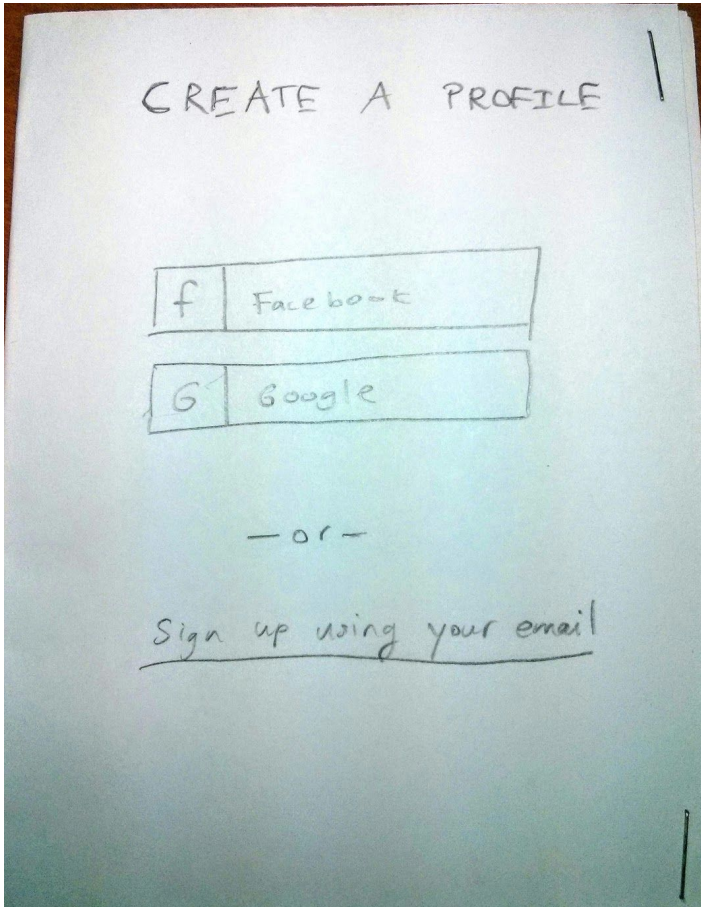
Furthermore, the manner in which tasks were added were much different. In design 1 and our final design, the user can add tasks by tapping a button which brings them to a new page. In design 2, we dragged a ball to the specific spot on the calendar, which would suggest an appropriate time to add the task. We felt this process was not intuitive enough and would cause friction in the user's experience.

This is why we stuck to design 1: it has the essential features without giving up functionality, while providing a smooth and easy to understanding user experience.

Prototype Description

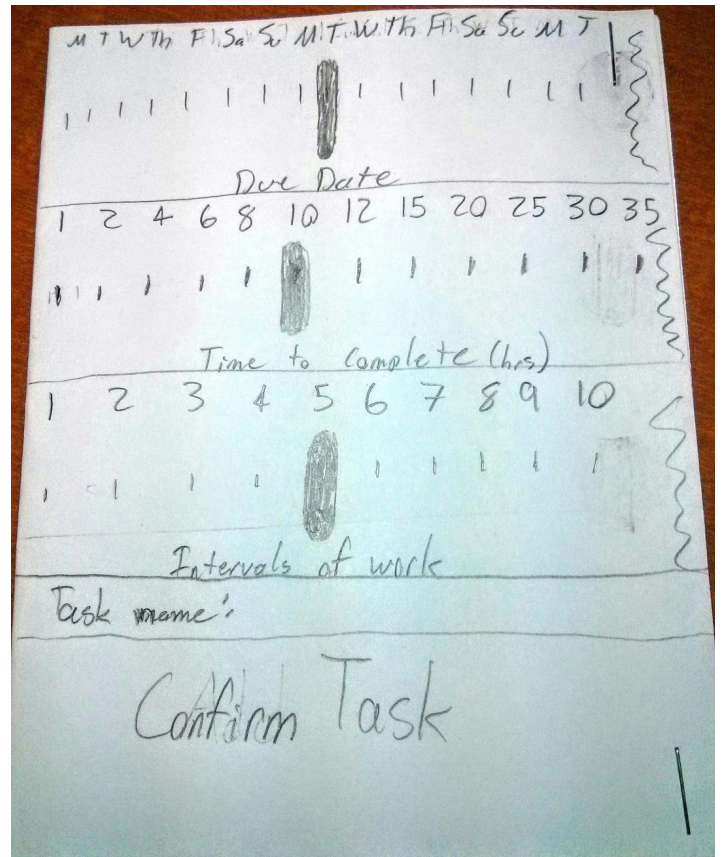
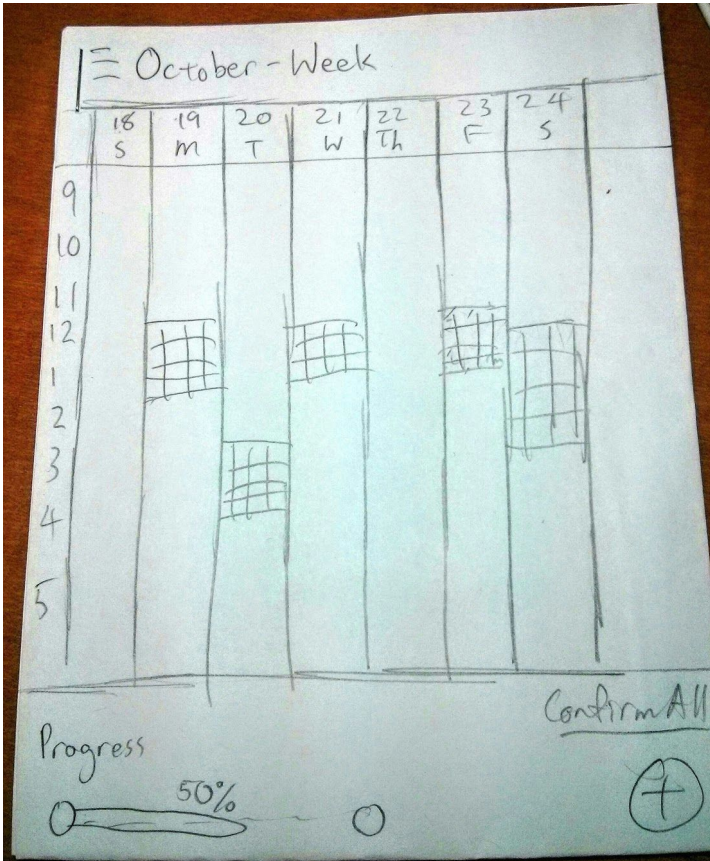


Task 1: Create a new profile (simple difficulty)



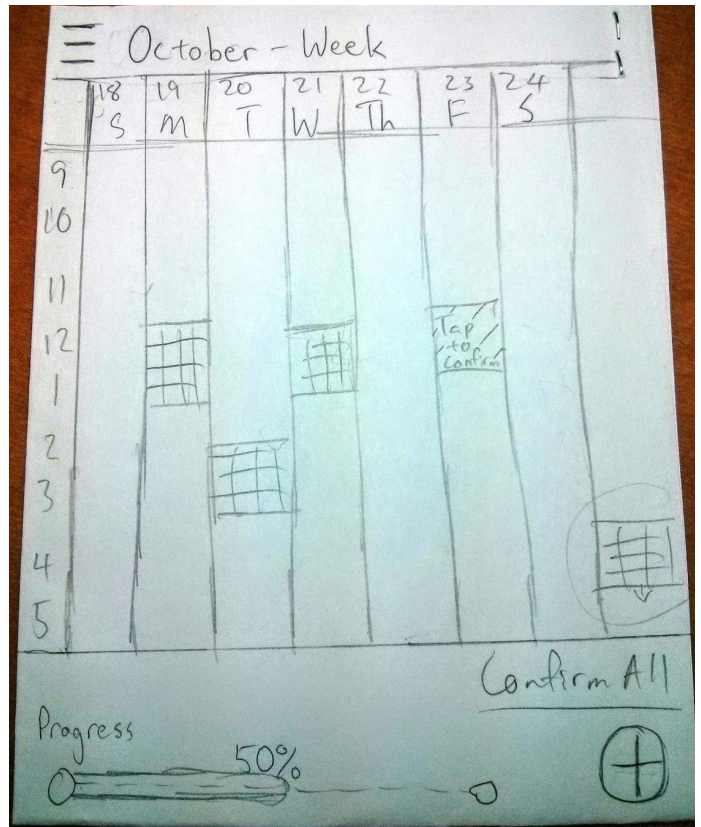
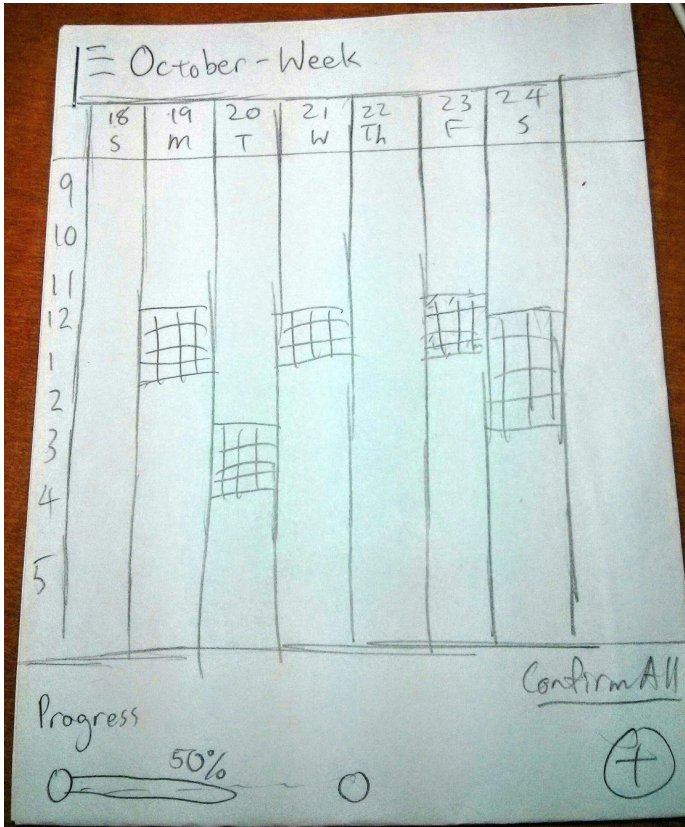
This simple task is the first screen the user will see when they open the app, assuming it's their first time. It is very intuitive in our opinion and thus, we categorized it as a "simple" task. All the user needs to do is sign up by clicking a button and entering their task preferences. There's also the option to edit the user's profile by tapping on the options menu, which we will see shortly.

Task 2: Create a new task (moderate difficulty)



Task 2 description: In task 2, we ask participants to add a new task, such as doing Laundry. The user would have to come to the calendar view, understand or feel their way to the “plus” button, which would allow them to add a new task. The next page is a slider page, where all the user has to do is do one big swipe and finish adding the details and specifications of the task, such as its length etc.

Task 3: Edit an existing task (complex difficulty)



Task Settings

Due date: Thurs Oct 22
 Time to complete: 8 hrs
 Intervals: 4
 Preferred time to work on: Afternoon
 Priority: High
 Name: Pset 4

Confirm Task



Task 3 description: We asked users to imagine that a task they previously added needs to be changed to another date. They would need to edit the tasks so that it doesn't conflict with a current task. So the process they would need to do is check the monthly view and find a time that is suitable. They would then zoom into the date that needs changing, long hold the event and drag it to the correct day. After finishing this, they would tap "Confirm All" which would lock in the new changes. The reason why we categorized this as a "complex" task is that it is a multistep process that results

Method

Participants

The demographics of the participants ranged from young to old. We did not know the participants prior to the interviews and this added a random factor to our interviews, as we did not know the backgrounds of the participants. One happened to be a visiting young adult (recently graduated) who would be the ideal user for our application, another was a student, and the last was News and Content Production Director for an Office for Communication.

Environment

The environment we interviewed the participants were at a Starbucks, in an open courtyard with minimal noise and lastly a busy lunch area with ambient noise. We divided up our roles as a team into a general Interviewer/Demo guy, a photographer, a critical incident log recorder and a general notes recorder. We approached our participants together and pitched them our idea.

Tasks

The tasks, as previously mentioned, were to create a new user profile and enter preferences, create an arbitrary task, such as doing laundry, and edit a task by moving it around and addressing schedule conflict. Please refer to our appendix for the script of what was said.

Procedures

Continuing off what I said in "Environment", we approached our participants and gave them our idea. We had previously prepared our app UI/UX designs on pieces of printer paper, folded twice to represent the size of a mobile application. We would give them the consent form, which upon signing, our demo guy would give a brief overview and introduction of the purpose of our app, Rote. He would introduce all the features without diving deep into how to use everything. This

was done to ensure that users could discover the app's UI/UX by themselves and point out obvious errors or features that are intuitive or not. After each task, as mentioned above, the interviewer would ask for feedback to ensure that the experience is fresh in the participant's mind. After all the feedback, we would go around the team and see if anyone still had any final questions.

Test Measures

Generally speaking, we used the critical incident log to understand how the user experience went. A note taker would jot down what went well and what didn't. In addition, after each interview, we would spend a couple minutes talking as a group and identify what interactions went well and what did not. These new findings would be recorded into the notes, which will be shown in the appendix. We think that in addition to the log (0 - 4 scale), the interaction on a subjective level was also very telling. A human to human interaction can reveal a lot about how a user feels about the app. For example, participant 1 gave very little feedback and the interaction was quite short. It was clear he was not very passionate about the app, although he said it was "easy to understand". By contrast, participant 2 spent almost 3x time asking about different features and trying to understand how the app worked. At the end, he said it was "fascinating" and gave us his business card "to keep in touch". While he spent more time, he was simply fascinated with the idea and wanted to learn more. These soft factors should be considered in addition to the log details.

Results

Our participants gave us a lot of good feedback, some positive and some negative. On the whole, it seems that Rote App's philosophy of simplifying adding tasks struck a chord with everyone. As soon as we mentioned it, the participants thought to themselves and after a second of realization, agreed that it was a problem. The friction of adding tasks can deter a naturally lazy person to not use a time-management tool, which causes them to become more lazy. Some of the biggest feedback revolved around understanding the task itself and making it more organized. For example, the organization of new tasks and differentiation seemed to be a big point. Participant 1 works Monday-Friday from 7am to 4pm and says that not all tasks are created equal. He would have liked to see a priority level, perhaps in the form of color, to categorize tasks based on their importance and urgency.

Participant 2 seemed to be very fixated on the multiple features of the app. He gave very positive feedback on the UI/UX design but asked many questions on the ability to add tasks, the ease of a slider for time and overall was very pleased with it.

Another interesting thing that came up was the idea that the app seemed to remind the user of existing time management tools, in terms of the UI/UX. Participant 3 said it reminded her of Google.

Discussion

In response to these results, we realized that the philosophy behind the app was sound. It is something that people will be excited to get behind: the idea being that Rote is making task-management, what is normally a very tedious and boring process, fun and easy. What they wanted more was the ability to understand the tasks better and improving the UI/UX design. The machine learning and natural language processing aspects of Rote was very commendable but cannot be seen in these paper mockups. We believe that will be a very prominent feature in the user experience as task dates/lengths/intervals will be automatically suggested and all the user has to do is confirm them. This makes the experience much more automated, quick and easy.

Regarding the understanding of tasks, we plan on adding some additional features like priority level in an easy to understand way and easy to add. I would guess we could add a feature that can change the sizes of task blocks, so that more important tasks are bigger while less important tasks are smaller. This immediate visual cue could work. We could also color code tasks but this brings up two complexities. 1: how can a user quickly remember what each color means? 2: how can a user tags tasks with a color without it becoming tedious and painful? This will be something we talk about at length this coming week.

Finally regarding the fact that user design looks very similar to Google, our main reaction is that is probably not a very desirable thought. One of the beliefs in our group is that Google's calendar/task management feature is flawed in the sense that it is difficult to add features. Rote is a direct response to this cry for help. We are trying to making task management fun and easy. The fact that our UI/UX reminds people of Google is a step backward because unconsciously, our users will associate Rote with the flawed features of Google's calendar/task management features. We will try to make some changes to the feel of the app while retaining the key features of creating a profile, adding tasks and editing tasks. We want the experience be completely different from anything else out there in the current market. We want Rote to pave the way to painless time management.

Appendix

CONSENT FORM

Consent Form

The Rote application is being produced as part of the coursework for Computer Science course CS 147 at Stanford University. Participants in experimental evaluation of the application provide data that is used to evaluate and modify the interface of Rote. Data will be collected by interview, observation and questionnaire.

Participation in this experiment is voluntary. Participants may withdraw themselves and their data at any time without fear of consequences. Concerns about the experiment may be discussed with the researchers Gavin Mai, Haiyin Wang, ChangYoung Park, Ian Lewis or with Professor James Landay, the instructor of CS 147:

*James A. Landay
CS Department
Stanford University
650-498-8215
landay at cs.stanford.edu*

Participant anonymity will be provided by the separate storage of names from data. Data will only be identified by participant number. No identifying information about the participants will be available to anyone except the student researchers and their supervisors/teaching staff.

I hereby acknowledge that I have been given an opportunity to ask questions about the nature of the experiment and my participation in it. I give my consent to have data collected on my behavior and opinions in relation to the Rote experiment. I also give permission for images/video of me using the application to be used in presentations or publications as long as I am not personally identifiable in the images/video. I understand I may withdraw my permission at any time.

Name _____

Participant Number _____

Date _____

Signature _____

Witness name _____

Witness signature _____

CRITICAL INCIDENTS WITH SEVERITY RATINGS

Severity 4 (very problematic)

- N/A

Severity 3

- Participant 3 said that the UI/UX interface looks very similar to Google

Severity 2

- Participant 1 said that he wanted to understand the task management better - > gave the suggestion of priority list.
- Participant 2 needed extra explanations on the features, but this could easily be due to personal interest. Regardless, we think this is an issue. He had some hesitancy editing a task, which was our complex feature.

Severity 1

- Participant 2 agreed vocally that natural language processing and machine learning is a plus in this app

Severity 0 (critical incidents that users liked)

- Philosophy that Rote is making task management easy and painless

- Based on the interviews, it seems that the users can very easily navigate the simple and moderate tasks of creating a profile and preferences, in addition to adding a task.

TEST SCRIPT

Overview: The notes for these demos and events have to be detailed. They will be used in the report so they are pretty important.

Log of Critical Events:

- 0 = No problem
- 1 = Cosmetic problem only
- 2 = Minor usability problem
- 3 = Major usability problem
- 4 = Usability catastrophe

Each participant will perform ALL 3 tasks, keep data separate and keep names confidential. Refer to people as "Participant number X"

Script

We are conducting an experiment to evaluate our user interface for our mobile application, Rote. Rote is an intelligent task manager. The application allows you to add a task easily. The goal is to reduce the headache of traditional calendars/tasks managers and let you focus on the important things like meeting your deadlines and reaching your goals. Rote is your personal assistant and learns from your habits. It organizes your appointments, tasks, to-dos according to your preferences and makes your workflow faster. New tasks are added without lifting your finger. Tasks can be edited by ****. Your current view of your tasks can be zoomed into the specific task itself or a monthly view. Tasks are draggable and give the impression of sliding glass panes that can move and lock.

I'd like you perform these tasks to the best of your ability and give us honest feedback of our interface. If at any time you get stuck, let us know what you're stuck on, and your thoughts at the moment, if possible (for instance, I am trying to add a

new task at this time, but I don't know how to ____). Then, we can give you a small hint to keep you moving forward.

We will be evaluating our interface to determine how easy it is for the user to navigate through screens and accomplish these tasks. Once you click a button on a current screen, we will act as the app operating system and replace it with the new current screen. Please remember that if you become frustrated or confused, it is not your fault but a problem in our design.

This application is still being designed, so feel free to provide us with your thoughts and opinions, including constructive criticism! If there are any questions throughout the interview, feel free to stop at any time and ask us for clarifications. Lastly, it would be great if you could "think out loud" while using our app (This design seems counter intuitive. This design makes ____ easier, etc).

Thank you and welcome to Rote!

I will now demonstrate how to zoom in and out and point out the different features and pages. (do demonstration)

Once again, we are mainly looking for your honest feedback on our interface design, so any constructive criticism is welcome! Lastly, it would be great if you could "think out loud" while using our app (This design seems counter intuitive. This design makes ____ easier, etc).

Thank you and welcome to Rote!

Task Description #1: You are a new user for Rote. I will now ask you to start the Rote application and create a profile for yourself.
(user attempts to perform first task)

Good job! You've created your profile. How was the experience? Was there anything in specific about the interface that made the task hard or easy?

Task Description #2: Fantastic. Now that you have completed your profile, I'm going to ask you to create a task to do the laundry Sunday afternoon. This should be a repeating event.
(user attempts to perform second task)

Good job! You have just added your first task on Rote! Adding tasks should only become easier as you add more tasks onto your schedule using Rote. How was the experience? Was there anything in specific about the interface that made the task hard or easy?

I will now place you back at the home screen.

Task Description #3: I would like you to use our application to look ahead a couple months. You find out that you have an important appointment two Sundays from now and cannot do laundry at your regular time. Please edit your task so that your schedule doesn't conflict.

(user finishes the last task)

Well done! You are now one of three people to first try the first version of Rote!

Do you have any further questions or suggestions for improvement? In terms of usability, was there anything specific that stood out? (both positive and negative)
(user gives us additional feedback)

Thank you for your time and hope all the best in your future endeavors!

INTERVIEW NOTES

Interview 1 -

Asked about the target audience after finishing the sign up task. Specifically, he asked about the questions regarding attention spans and when one prefers to work.

He also didn't know which part of our interface was intended to use for dates.

He suggested that our tasks be color-coded based on different categories and priority levels.

Also, he asked if he would be receiving reminders.

Interview 2 -

Asked what "buffer" meant in our interface. When we described what we meant by using the term buffer, he asked when the buffer would be put into place (before/after a task)

When he looked at our slider buttons, he said "you guys nailed it! I like to slide and drag and drop things" and "sliders at good because its easy to be definitive and vague at the same time)

He had trouble adding a new task (The plus button at the bottom right hand corner)

He had trouble understanding which label corresponded to what (date, interval, etc)

He liked our progress bars - "progress bars are fun!"

He suggested that we add difficulty of tasks to our questions

He pulled out his original calendar app and said "Well, I push something here and there and hope it does something, but your design is much better"

"Auto-complete is great! As long as the buttons and the texts aren't too tiny"

FUNCTIONALITY -

He suggested that we allow users to wiggle the tasks on the calendar and use it as one of the functionalities.

He suggested that we allow users to add notes for the task.

Interview 3-

"pretty straightforward"

She knew how to add a task to the screen as our interface was similar to those of other apps that she's used before.

"I like the fact that I can edit as I go"

On slider buttons: "I like that idea. It seems pretty intuitive"

"wiggling is a cool idea"

"using two fingers to stretch a task is hard and not natural"

"I think the interface is good that it allows you to add tasks easily. Most scheduling is front-heavy"

"I almost never use month-views"