Inter·act

Team

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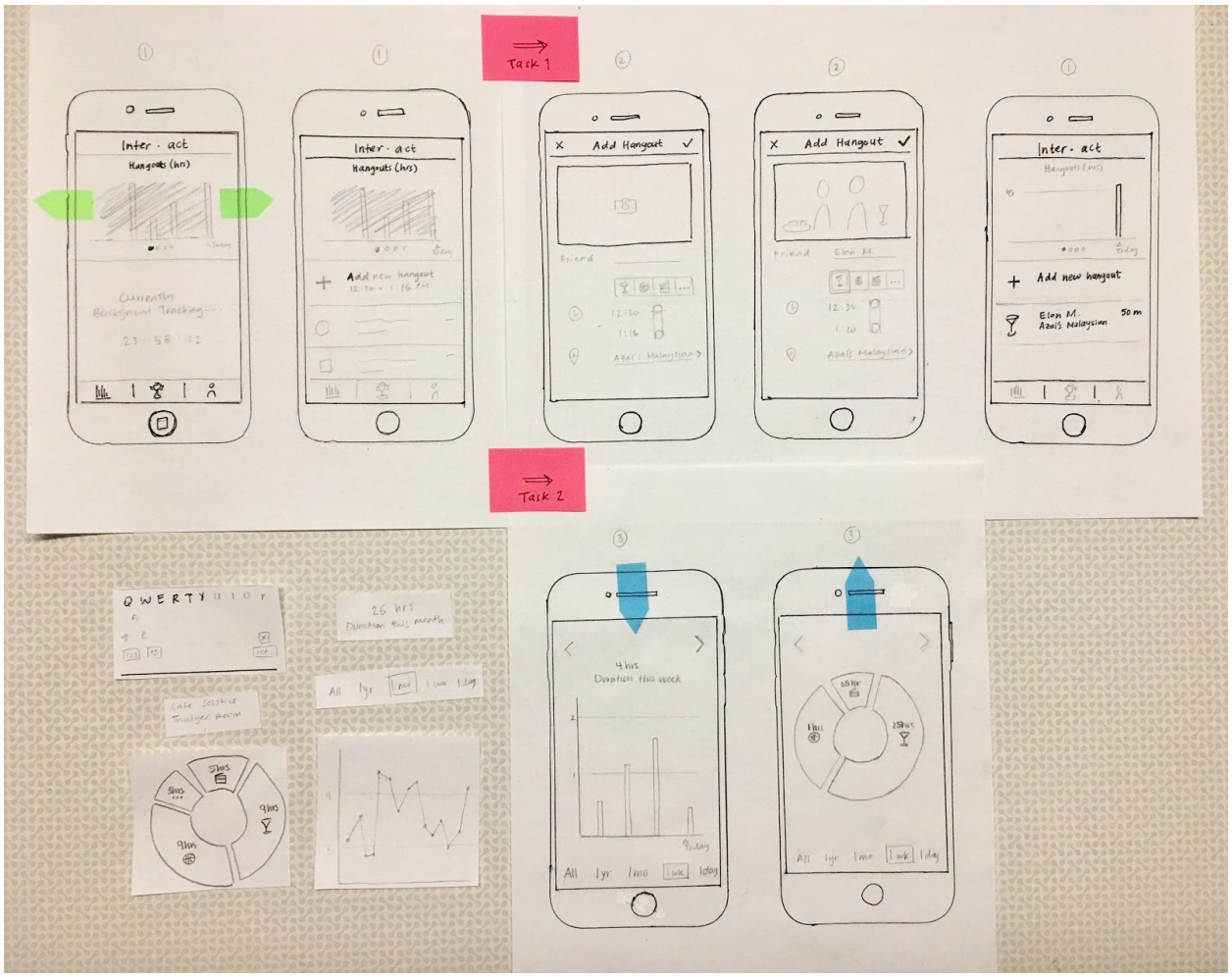
Overview

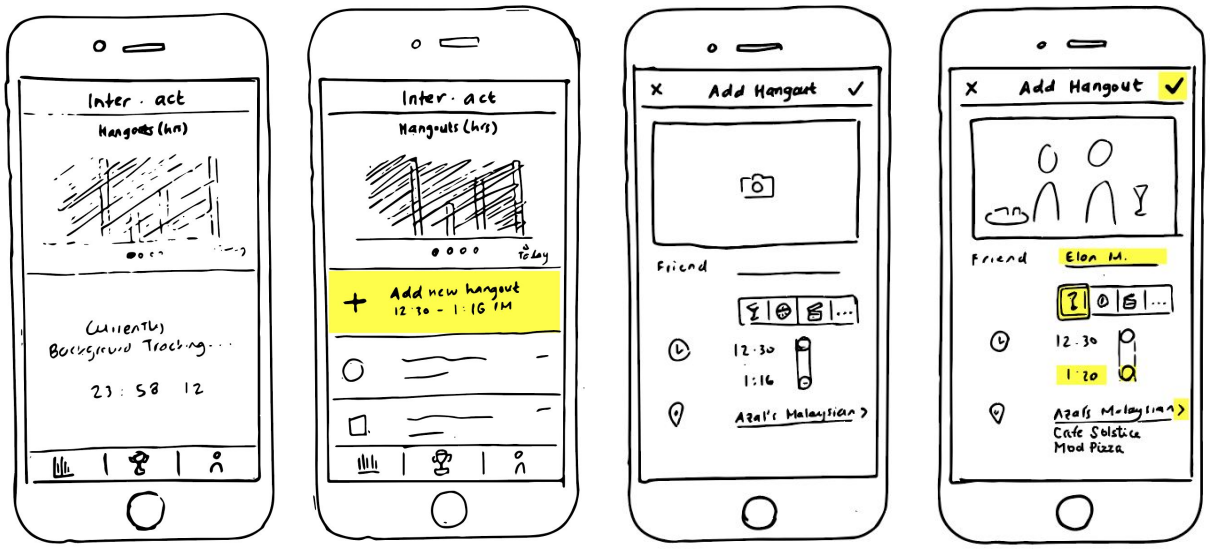
We all inherently realize the benefits of socializing and developing friendships, but as the pace of our modern lives continues to skyrocket, it feels as if we rarely see our friends anymore; even when we do eventually meet up, the first sentences you hear are “it’s been so long” or “I can’t remember the last time we hung out”. With everyone so focused on their busy schedules, it’s too easy to miss out on great relationships and become unintentionally distant from some of our good friends.

We are designing a smartphone application that encourages people to be more aware of their social activity and helps them reach their social health goals. We do this by tracking every day social activities and providing meaningful and interactive visualizations around this data including who they spend time with, what activities they do most often etc. With this knowledge at hand, people will be able to actively shape their social life.

Initial Paper Prototype



Task 1: Tracking social activity over time



Screen 1 Screen 2 Screen 3 Screen 4

Screen 1 is the locked home screen the customer sees when they first download the app. For the first 24 hours after downloading, the app is minimally responsive as it's collecting background time and location data for future interactions.

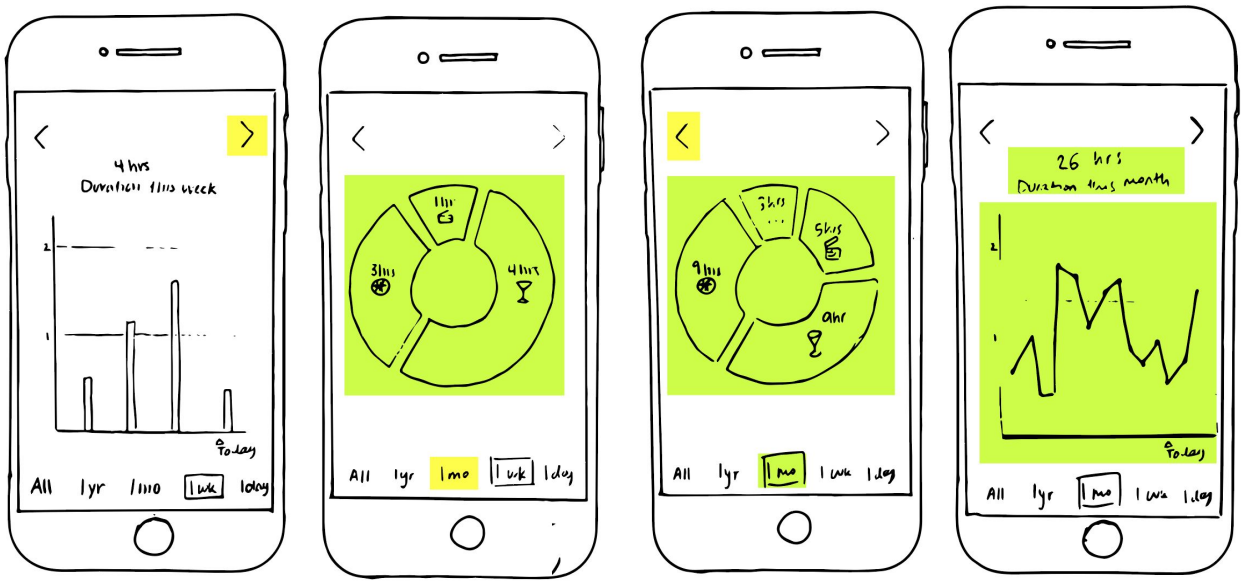
Screen 2 is the normal home screen, available to the customer after the setup period. There is a sample graph and example hangouts that are greyed out until the customer adds their own real data. With the tracking data, the app will suggest the most recent location and time for entering a new hangout.

Screen 3 is the "Add new hangout" screen before any interaction from the customer. It auto fills the most recent location from the location tracking data and the amount of time spent at that location.

Screen 4 is the screen where the customer "fills in the blanks"; they can (optionally) add a photo and enter friend(s). They fill in the category of the hangout and can modify the time and location. The location field has a dropdown to choose from options of the most recent places the customer has been, but it can also be entered manually. The check mark on the top right submits the data.

Screen 5 is the updated home screen that comes after the customer enters their first hangout. The visualization is immediately updated and the hangout shows up at the top of the list of most recent activities. This also activates left/right swipe motions to see different visualizations and duration of time.

Task 2: Viewing personal social history and metrics



Screen 6 Screen 7 Screen 8 Screen 9

Screen 6 is shown when the customer swipes down on the home screen or taps on the graph on the top half of the home screen. This expands the graph to full screen, and these consist of many visualizations including hangout time by day in the last week. To view a different time period in the same duration (i.e. week or month), the customer can swipe left or right to go back or forward in time, respectively, in the same duration increments. To view different metrics or visualizations, the customer can tap on the arrows.

Screen 7 shows a different visualization, which is a breakdown of hangout categories. To view data over a different duration, the customer can select a different time label.

Screen 8 is the same visual, but updated based on the customer's time label selection. It pulls in more data if the time span increases and less data if it decreases. If the customer taps on of the arrows to switch visuals, the time span remains the same.

Screen 9 is a return to Screen 6, but with a different time label and updated to reflect the new duration.

Testing Process

Test Methods

For our design testing, we did a heuristic evaluation with the Dash team along with 3 usability tests. We started each of our tests with some background and intuition about the purpose of our design. We then broadly described our two main tasks along with a rationale for why those are the primary focus of the design. We asked the participants to then perform the first task, and then the second task once they finished the first. While the participant was completing the tasks and exploring, we did not answer any big questions or provide help unless absolutely necessary. We also asked some of them to just explore the app and think aloud while they were exploring. After the test, we debriefed the participant(s); we explained things that confused them and ideal paths to completing each of the tasks. Lastly, we asked for any general feedback they had regarding the aesthetics, logic, or flow of our app.

Participants

Our first usability tester was Peter, a CSE undergrad who uses his phone frequently, and we met him in the Paul Allen building. We chose Peter because of his lack of experience with tracking apps which would help us improve the experience of our design for someone new to self-tracking. From our heuristic evaluation, we knew that having experience with other tracking apps made it easier to understand our app so we needed to test for someone who didn't have that experience. We also chose him because he had a busy schedule and would be more likely to find our app helpful. Having Peter think out loud was the most helpful part of the test because we could hear how he was interpreting the controls, which helped us decide where need clearer signs.

Our second usability test was with Oliver, a third year law school student, in the law library. We chose Oliver because he spends almost most of his time studying to finish school as fast as possible; many of his friends have graduated so he doesn't hang out with people as frequently as he did in his undergrad years. With his last year in school quickly approaching, Oliver wants to focus a little more on his social life and making better friends. We wanted to user test with someone that has a busy schedule to make sure that our interactions did not take too much time because low burden tracking is critical.

Our third usability test was with Natalie, who is currently in medical school and works at a hospital as part of the training program. We wanted to find someone with an especially irregular schedule because that tends to motivate targeted reflection around socializing. As expected, she mentioned she has difficulty keeping up with friends that have less demanding 9 to 5 jobs. This usability test took place at a cafe right next to her usual bus stop; we chose it because it seems appropriate to think about tracking and self reflection at the end of the day and a bus ride home seems like a good time for being on your phone. This was by far our smoothest and most helpful usability test because Natalie really understood the purpose of the app well which helped with the specific tasks we asked her to perform.

Retrospective

Our usability tests went smoothly for the most part and we did a good job having the participants talk aloud while performing the given tasks. We definitely adapted our testing methods as we conducted more tests. The biggest change, made after the first test, was following a planned out introduction to explain the purpose of the design and the test as well as to minimize the kind of off topic feedback we received in our first test. Following the first test, we also ensured having three people present to conduct the test giving us distinct roles of facilitator, prototype "computer", and observer. We also slowed down the pace of our test to give the tester a chance to explore and give our observer more time to note important observations. For our last two tests, we

found people that were specifically part of our target demographic; this helped bring us better feedback in all respects. A smaller change we made was to cut up our prototype screens instead of having them on one page so we wouldn't have to frantically hide future screens from the user. Overall, our testing process improved over the course of our different tests and gave us lots of actionable feedback.

Test Results

Heuristic Evaluation

There were three big changes that we changed as a result of feedback from our heuristic evaluations.

1. **Navigation**: it was unclear how to navigate back to the home screen from the full screen graph display as well as the functions of the left and right arrows. We added an arrow in the top right to indicate that tapping or pulling down would reveal the home screen. It now has tabs with icons mapping(!) each of the visualizations across the top. This makes it clear that you have to tap on the icons to switch visualizations and then the sliding then remains to be used for viewing the previous/ next duration.

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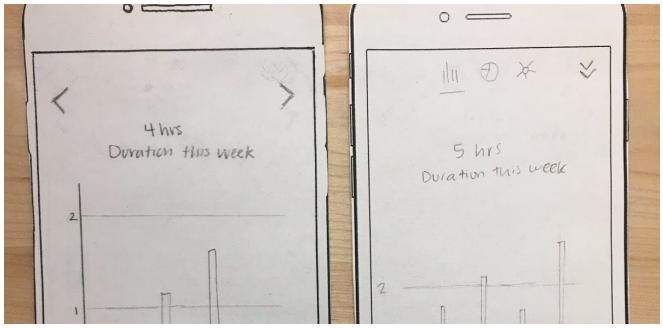

2. **Guidance**: it was unclear whether to take a picture or add a picture from phone photos. The new design has a clear caption to upload an existing photo.

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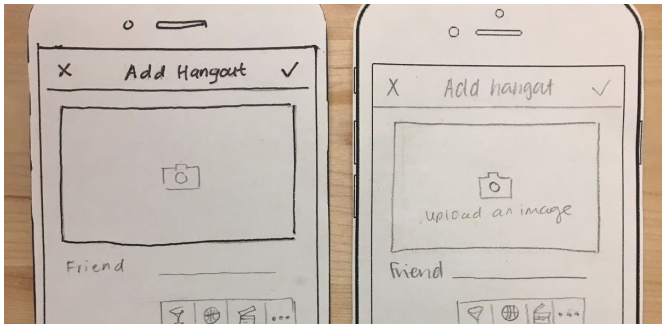

3. **Clarity and Visibility**: there were some smaller points of confusion relating to system visibility and clarity. The meaning of the "grayed out" data was unclear as well the meaning of the countdown timer and locked functionality. The user's current tab was also not visible. The tab was easily addressed with an additional overlay, and we added more informative text to address the other two points.

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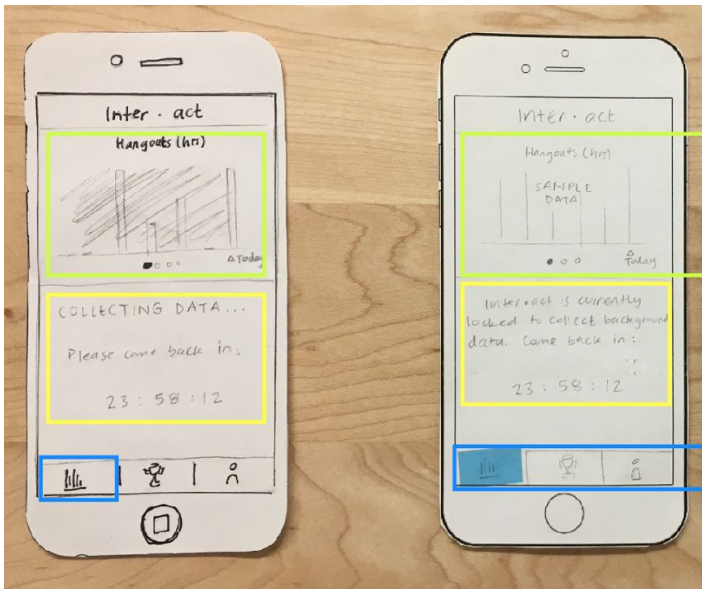

Usability Tests

A lot of the feedback we got from our usability tests overlapped with these same features. All of our changes were regarding clearer user controls and providing more detailed information.

1. **Language**: displaying hours with decimals was disorienting and too fine grain for a quick glance; round numbers are much better suited for this task. For all labels on the visualizations, we now round to the closest 15 minute chunk to have displays in conversational terms (hrs and mins).

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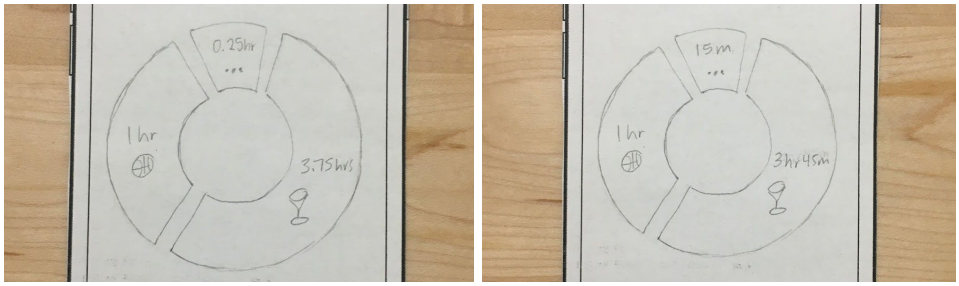

2. **Button Consistency**: it was unclear why time period was given as a suggested new hangout, and it seemed inconsistent with other "add" interactions. We changed the overall flow of the tracking social activities by adding a raised '+' button in the bottom tab bar.

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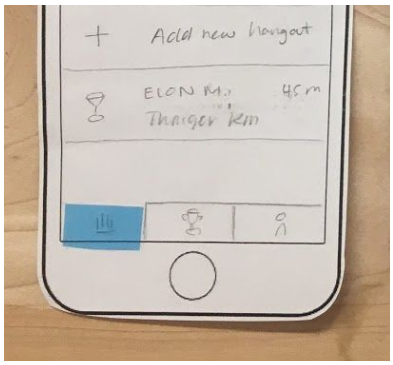

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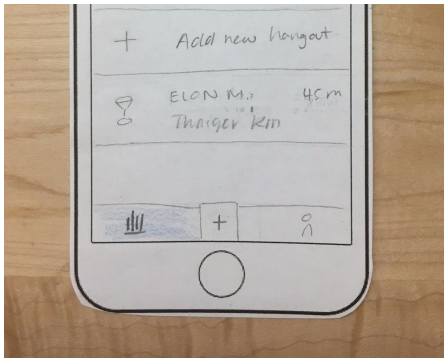

3. **Input Consistency**: when modifying the time, it was unclear where the limits are and how to change it by more than a few minutes. Since this was a repeated criticism, we just changed it back to a simple keyboard number entry.

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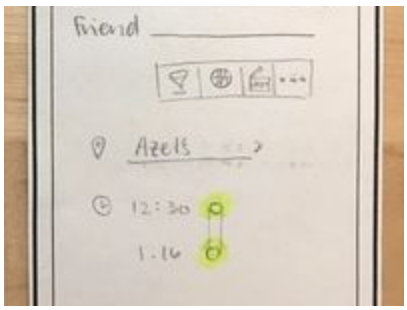

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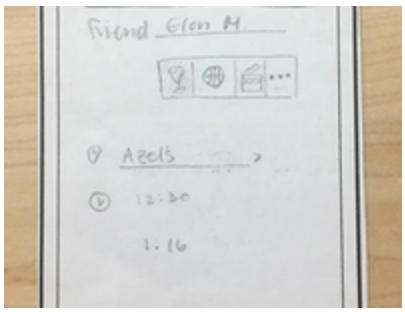

4. **Friend Specific Graphs**: users tapped on a specific person in the network visualization expecting to see data about hangouts with that person only. We added a new modal view that clearly shows either all interactions or activities with a specific person. The background color and the name of the friend make the difference between the two modes clear and reduces memory load on the user.

BEFORE

AFTER

5. **Tutorial**: the user expected to see tutorial and have the “let’s get to know you” screen at the end of tutorial. To address this, we added a 6 screen tutorial to cover the most important information related to our 2 main tasks and things we noticed that repeatedly cause confusion.

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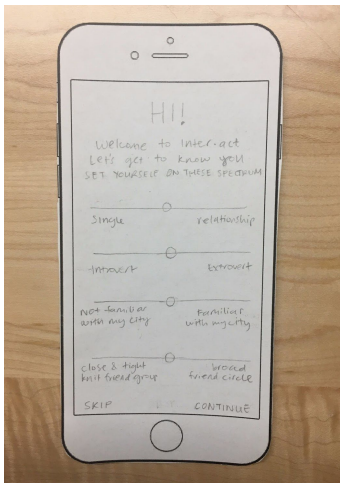

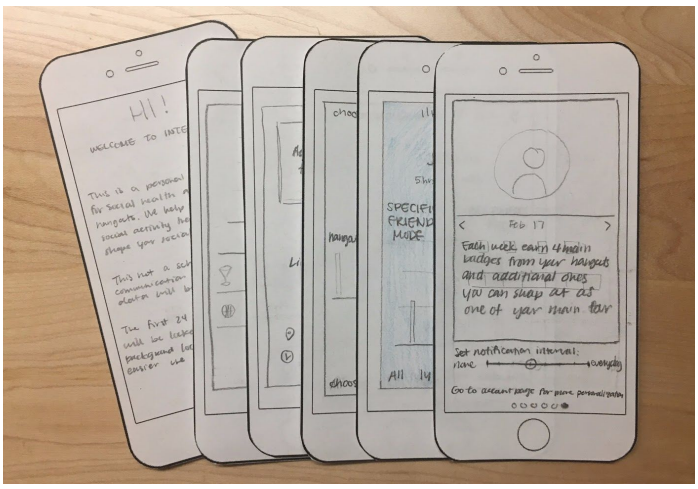

6. **Freedom and Choice**: the user expected the fourth icon in categories on add page to show more categories to choose from. We added a scrollable element to show more categories. We also allow the user to choose the categories they want in the personalization section we added.

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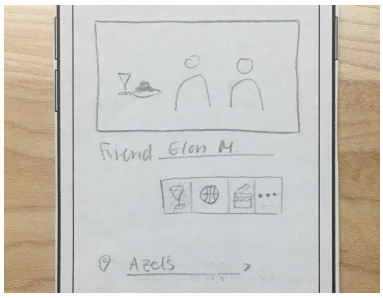

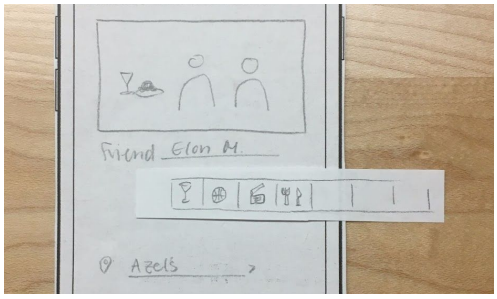

7. **Detail**: multiple users tapped on a specific part of the pie chart expecting more information. We added an overlay that gives you more information about a specific part of the pie chart.

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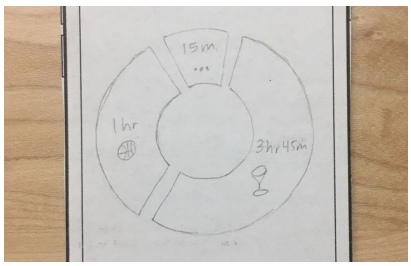
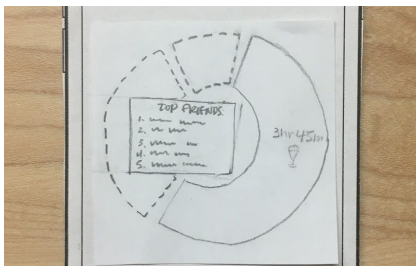
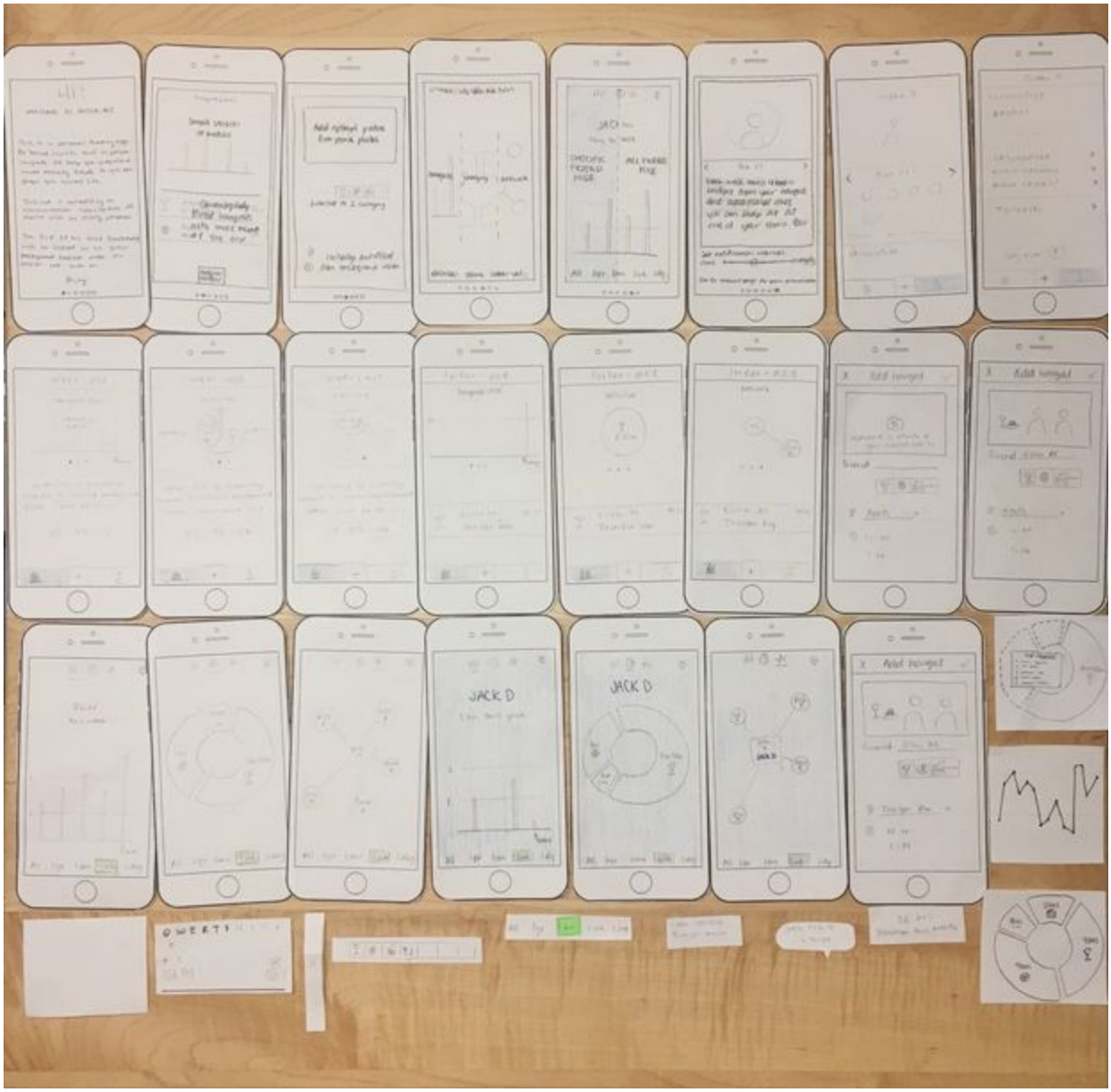


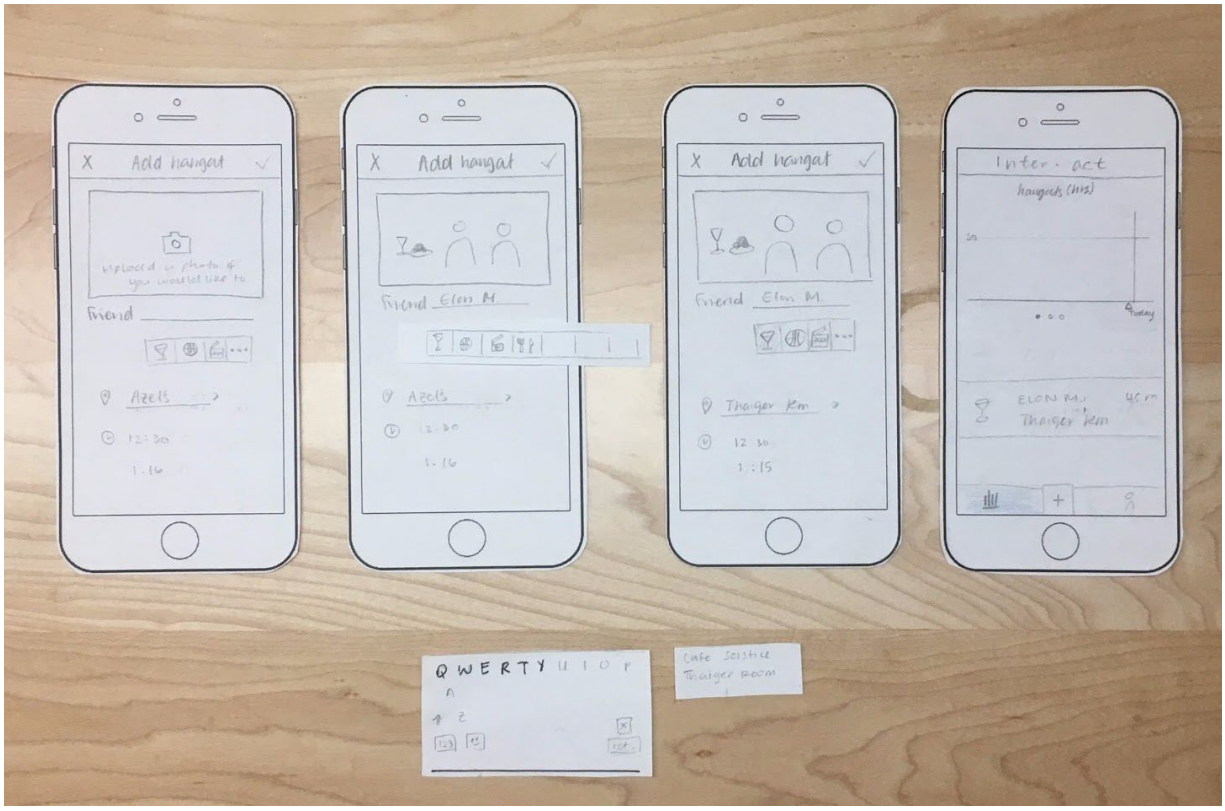


Final Paper Prototype



top 6 tutorial screens, 2 profile screens
middle 3 sample data screens during lock period, 3 home screens
bottom 3 metrics screens for all friends, 3 metrics screens for 1 friend
other 3 add hangout screen on the right

Task 1: Tracking social activity over time



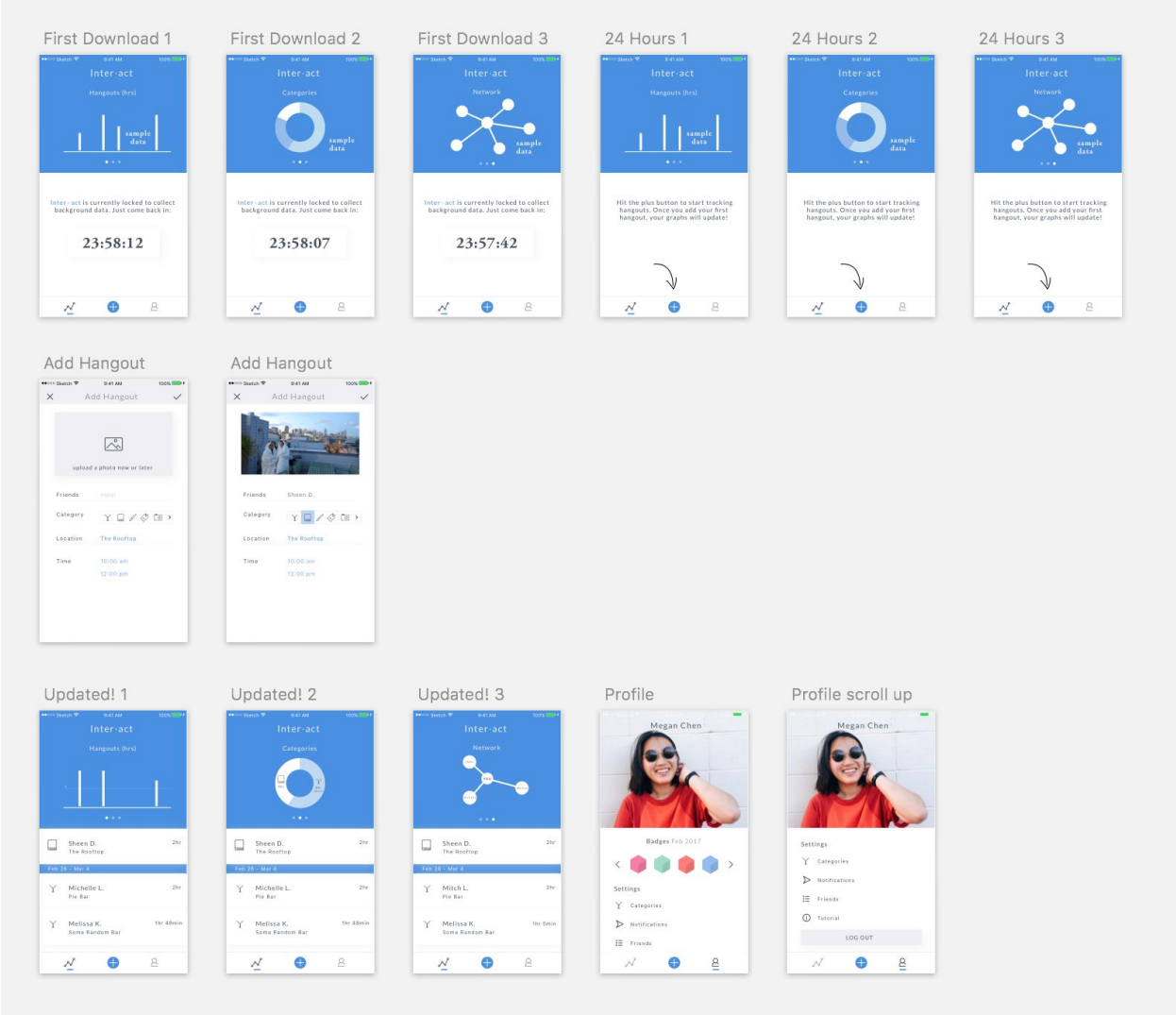
Our **first** main task is to track social activity over time. For each hangout, the user can go to the home page or account page and use the '+' button to add a new hangout. Ideally, the first autofilled location and time is correct to the user only needs to add two pieces of data, making it a low burden task to record hangouts. Once added, the list of hangouts will update immediately with the most recent hangout at the top.

Task 2: Viewing personal social history and metrics

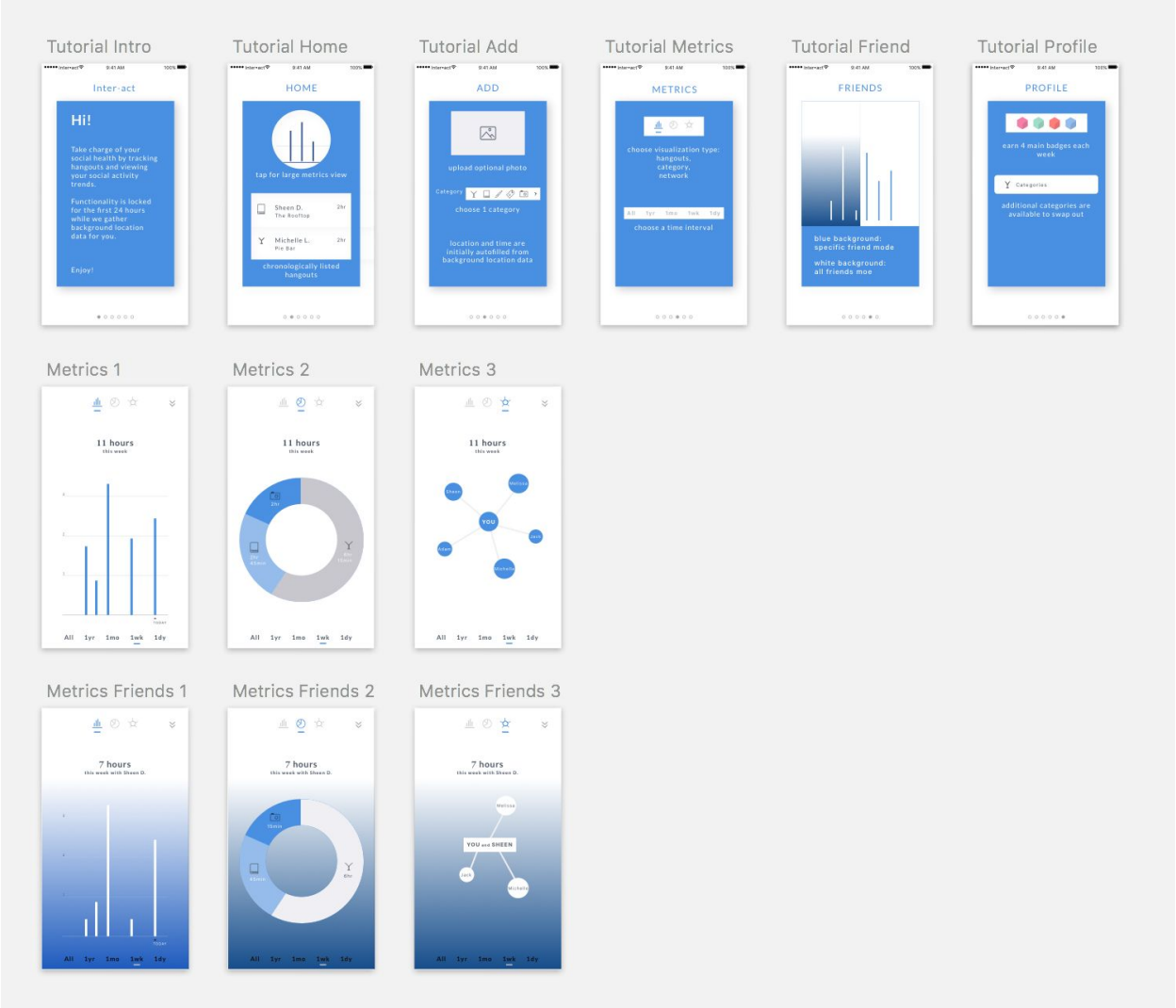
Our **second** main task is to view personal social activity metrics and history. We have multiple types of data visualizations that can be expanded to full screen. Here, the user can adjust the duration they are looking at and get more details by selecting data. We have visualizations about number of hours spent hanging out, the categories of social activities, and who the user is spending the most time with. By looking at their own trends, the user better understand and shape their social life.

Digital Mockup

Overview (pg I)

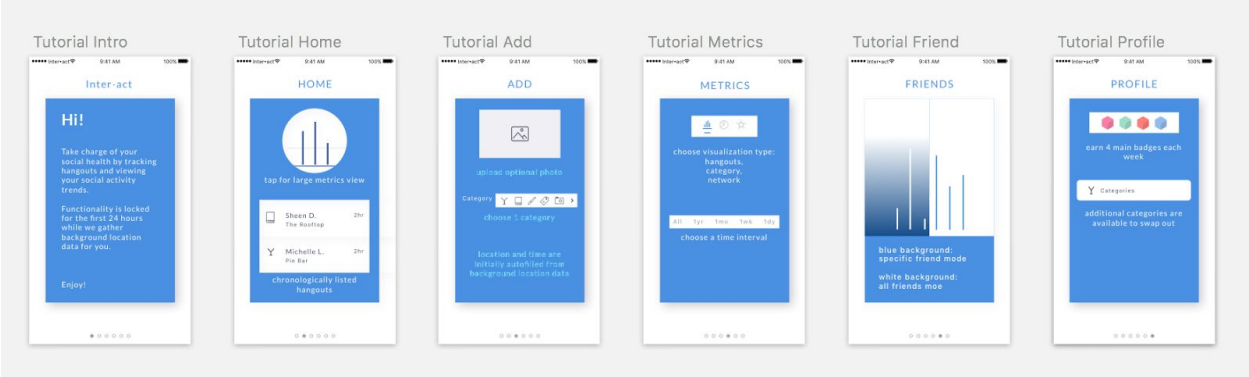


Overview (pg II)

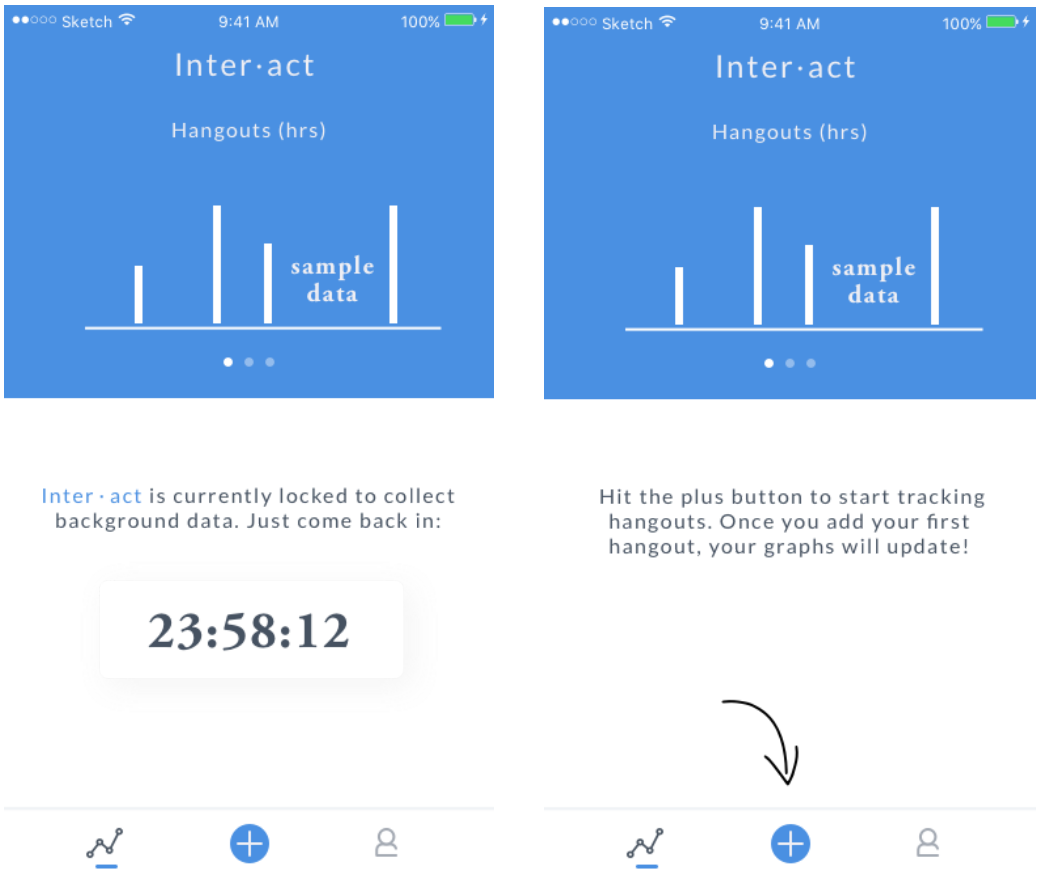


Task 1: Tracking social hangouts

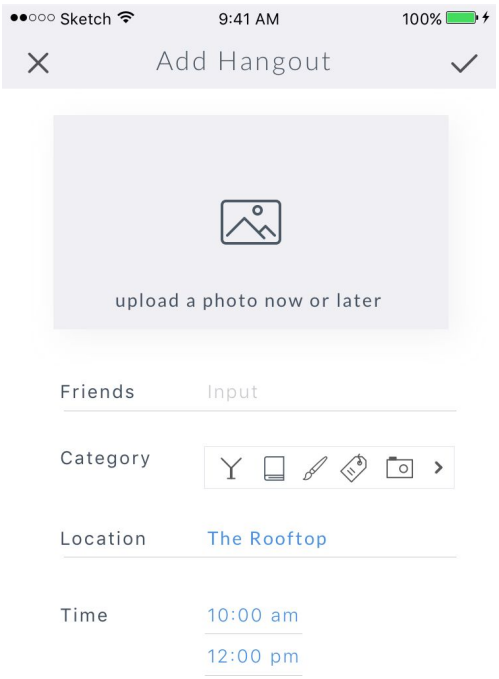
(**1a**) The first time the user opens the app, they go through a 6 screen tutorial that gives them the basics and tips on how to navigate the app. The 6 screens focus on main tasks and high level understanding of the product.

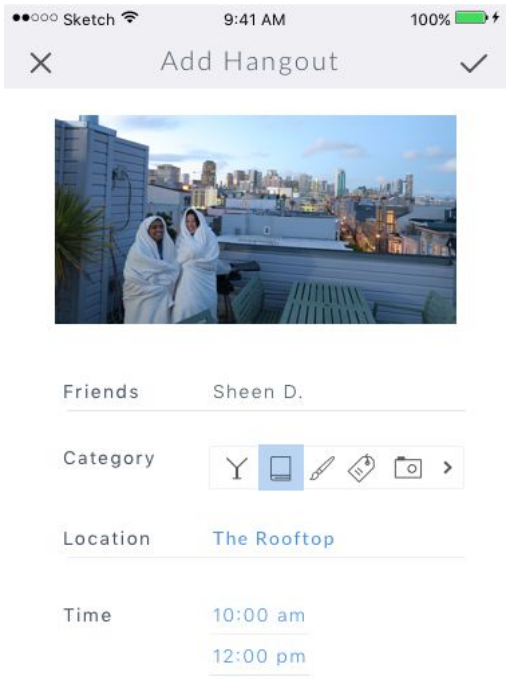


(**1b**) For the first 24 hours, the app collects background location data and most functionality is locked. After this countdown has finished, the user comes to the home screen and access all the previously locked functionality. The center "+" button takes the user to the screen to record a hangout. This is a main task.



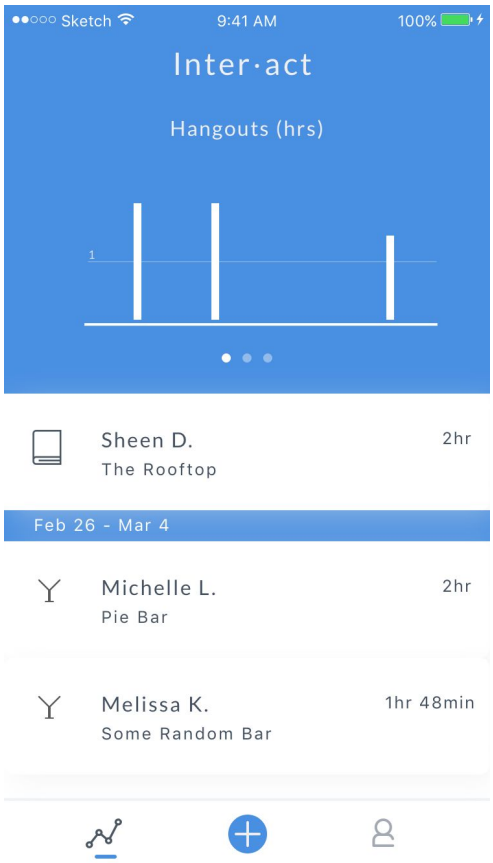
(**1c**) The background tracking allows us to automatically populate the location and time to make tracking as easy as possible for the customer. We can easily populate two fields, which means the customer only has two fields to fill in themselves (along with an optional picture). By logging these over time, the user starts to build personal social history.

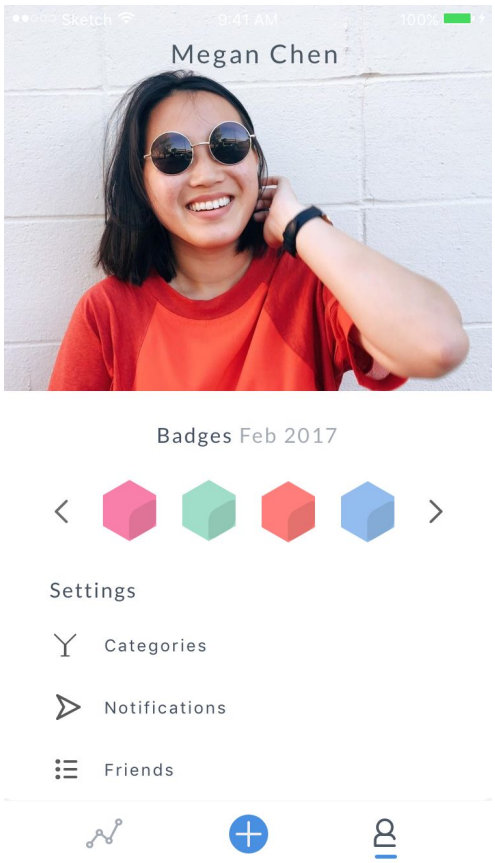




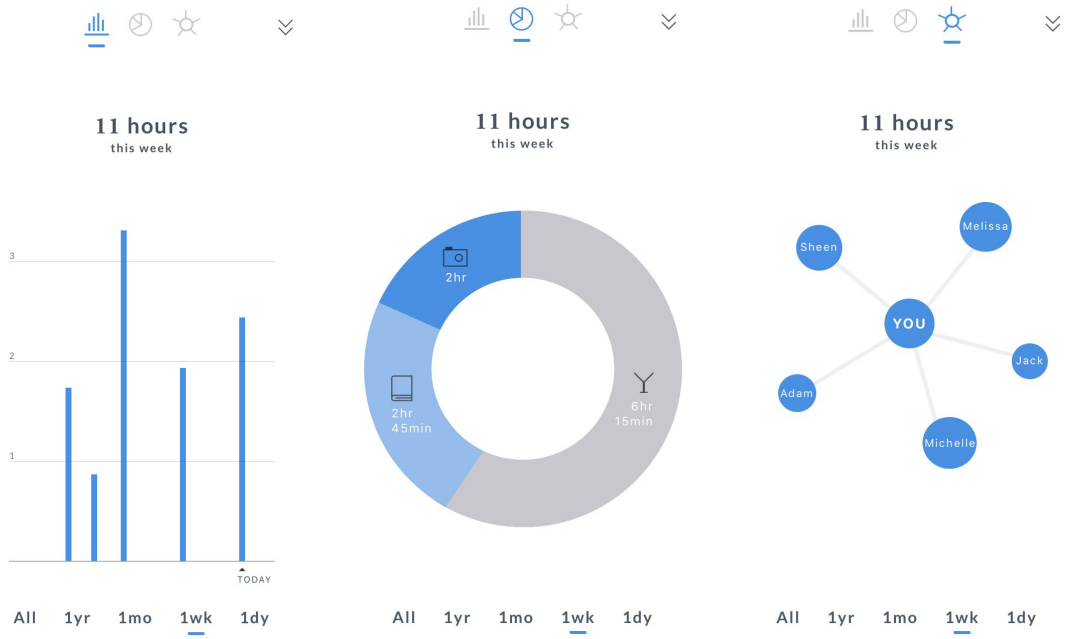
Task 2: Viewing personal metrics and social history

(**2a**) Once the user has tracked their first hangout, all the visualizations are automatically updated. Once they have tracked multiple hangouts, they can scroll left and right through the visualizations or down to see a reverse chronological list of hangouts separated for each week. Lastly, tracking hangouts also allows the user to see what badges they have earned so far and encourages them to continue tracking.

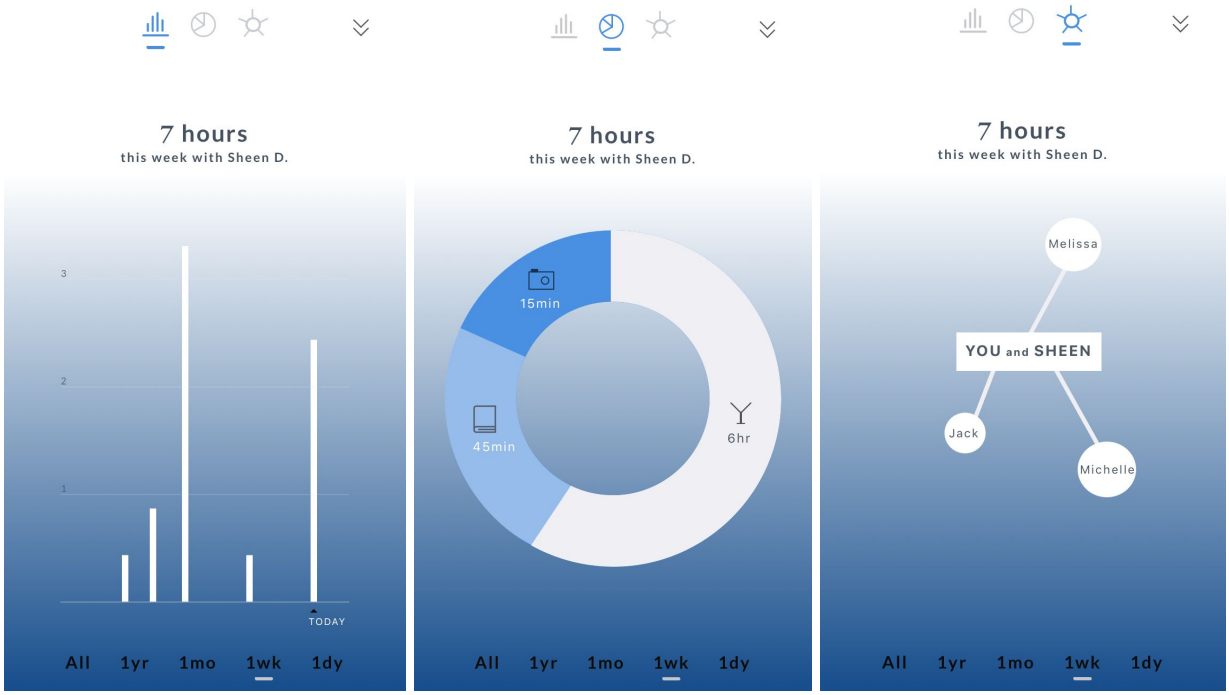




(**2b**) When the user wants to view personal metrics, they can just tap on any of the graphs in the top half of the screen to reveal a full screen view of personal metrics collected so far.



(**2c**) If the user taps on a specific person we bring up another overlay full screen to display stats associated with a specific friend. This modal difference is made apparent by the background color and subtitle.



Moving from Paper to Digital

Most of our major design changes and big modifications happened during or immediately after our usability tests. Our design decisions are thoroughly detailed in 3d: Usability Testing Review. There are a few minor changes we made in the process of going from our final paper prototype to the digital design.

1. **Hangout Dividers**: We realized that scrolling through an endless list of hangouts without any indication of the time period was not a good experience for the user. In our mockup, we added weekly bars to break up the tracking into easier to consume chunks for when the user is looking back on them.
2. **Profile Page Revamp**: We changed the layout by rearranging sections by importance and predicted frequency of use. We also mimicked the home screen and added a large profile picture where the visualizations lie in the home screen.
3. **Improved Tutorial**: We recreated most of the tutorial screens to have a more uniform look and feel with the rest of the app. We also removed a lot of unnecessary text so the walkthrough is easy to understand and not as overwhelming as it was in the paper prototypes.
4. **Deleted most recent Location Dropdown**: We decided that it was too cumbersome to have the user choose between typing a new location or looking through previous locations to add a new hangout. Now, the location will just be typed and auto filled with previous locations as appropriate.
5. **Background Color for Specific Friend Mode**: We knew this screen had to look different from the regular metrics screen so we had originally decided to just change the background color during prototyping. For our mockups, instead of having the full screen be a different color, we made it a gradient so it's less straining on eyes and still aesthetically pleasing.

Discussion

1. ***What did you learn from the process of iterative design?***
   This project was our first experience with the process of iterative design and it has been a fast-paced and fun few weeks. The iterative process is amazing because it allows you to constantly explore and learn from that exploration, and all of this has a direct impact on the design. It was an extremely effective process for this kind of design project and it's very clear how this is relevant in a broader realm outside of just end user application design.

   We learned that no design is ever perfect on the first attempt, so trying to get everything just right can be somewhat of a waste of time because it ends up being changed anyway. Since the best design is never the best one, it's best to just accept that and then work of improvements. Following along in the design process, the improvements can come from designer inspections, which are really quick to fix, and usability tests, which provide more depth and new perspective on certain aspects of the design.

   During our testing process, we realized how different people are in their expectations of the world and their interactions with the technology that exists today. Each usability test provided us with new insight because different people just find different flaws based on their own biases and experiences. In the same vein, almost everyone points out the same big issues and then you get more detailed ideas; conducting 3-5 tests is enough to get you the feedback you need.

2. ***How did the process shape your final design?***
   This was partially answered in the previous question, but the iterative process was integral to evaluating which tasks and focus points were most criticals for the design as well as learning how to communicate this rationale to the end user. It was important that we got so much feedback early in the design stages because it allowed us to better navigate the broad design space; as we narrowed in what we actually making, the feedback in the later stages gave us great guidelines to hone in on getting the design just right. It was incredibly useful getting feedback from people with varying perspectives including James, the TAs, peers, research participants, and usability testers. Having all these different input sources helped us identify common problem areas that got changed multiple time through the design process.

3. ***How have your tasks changed as a result of your usability tests?***
   There were no notable changes in our tasks as a result of the usability tests. There was a minor change in how we stated task 1: tracking social activity over time. We updated our language to just say tracking social hangouts. We changed social activity to social hangouts so it was consistent with our app vocabulary. Lastly, 'hangout' is a more casual word and embodies the two aspects of fun and simplicity we were looking for. We also dropped the over time part because it is implicit that meaningful tracking takes place over time.

4. ***Do you think you could have used more, or fewer, iterations upon your design?***
   Going through lots of iterations was indeed most helpful for our design; however, we would have preferred to have one more iteration. Specifically, we think that one round of feedback on our digital mockups would have been tremendously helpful. Since our paper prototypes look like rough sketches (as they are meant to be), we noticed that our users were hesitant to interact with the paper in the same way they would interact with a screen, like using swipe motions and pinch gestures; most testers asked if certain controls would work instead of just playing around with the interface and changing things themselves. With the digital mockup available on our phones, it would have been helpful to have users interact with a higher fidelity version of our prototype and get better feedback about intuitive actions instead of just the passive look of our design and placement of different buttons.

Appendix

Usability Test Critical Incidents and Severity

User 1

1. User wasn't able to adjust the hangout time very easily because the slider does not make it obvious it will scale as you move it. [**S:1**]
2. There is no way to select multiple hangout categories. I.e. I might be getting dinner and a movie but can only chose the food & drink or entertainment category. [**S:0**]
3. Seeing parts of hours as decimals is disorienting and too fine grain for a quick glance; round numbers are better. [**S:1**]
4. It's unclear that a picture is optional when adding a new hangout. [**S:1**]
5. Unclear about how to navigate back to the home screen from the full screen graph display and what the left and right arrows do. User was confused about how to exit and just tried gestures until something worked. [**S:3**]

User 2

1. It is unclear why time period was given as a suggested new hangout, and it seemed inconsistent with other "add" interactions. [**S:2**]
2. It's unclear how many categories can be selected for one hangout. [**S:0**]
3. When modifying the time, it's unclear what the limits are and how to change it by more than a few minutes. [**S:1**]

User 3

1. User went directly from the 1st task to the 2nd without us explicitly asking. They understood that once you enter some data, the visualizations would be updated with their hangout!
2. User clicked on the new '+' button intuitively even though there is no label specifying new hangout under the button!
3. User expected to see tutorial and have the "Let's get to know you" screen at the end of tutorial. [**S:0**]
4. User expected the fourth icon in categories on add page to show more categories to choose from. [**S:1**]
5. User tapped on a specific part of the pie chart expecting more information. [**S:1**]
6. User tapped on a specific person in the network visualization expecting to see data about hangouts with that person only. [**S:3**]