# Low-fi Write Up

Griffin D. - Developer
Lachlan G. -  Product Manager and Documentation
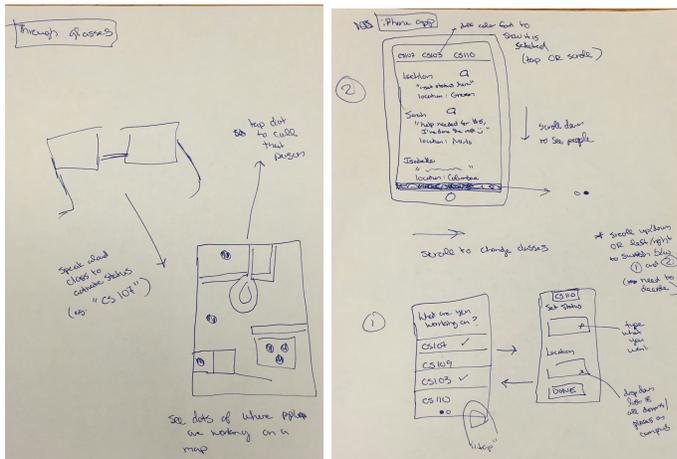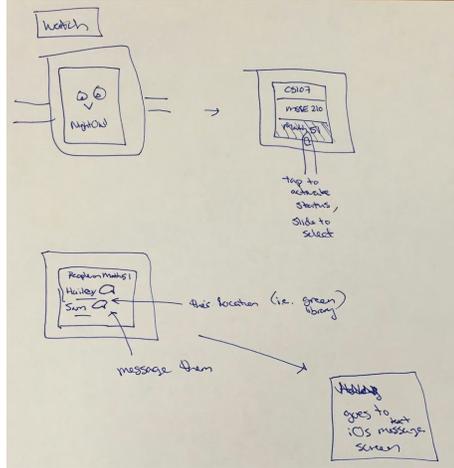Zara S. - Design and User Testing

## Introduction

Mission Statement/Value Proposition: Connect with classmates. Collaborate on work.
Problem/Solution Overview: Students working late at night often struggle to find help on assignments and psets. NightOwl connects students with peers who are awake, nearby, and working on the same thing.

## Sketches
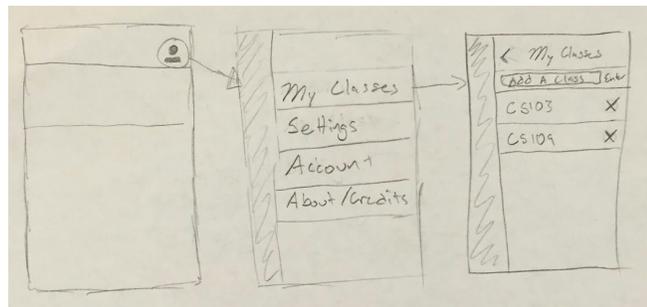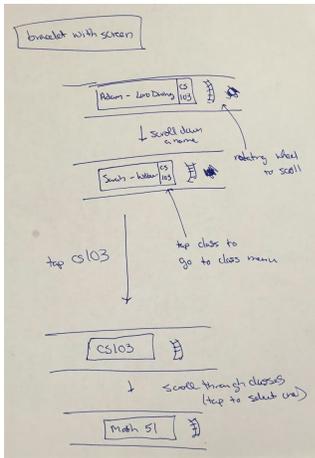
*Concept Sketches*

This is called the "Individual Approach" - where a user must first make themselves available for a set of classes before being able to see what other users are working on.

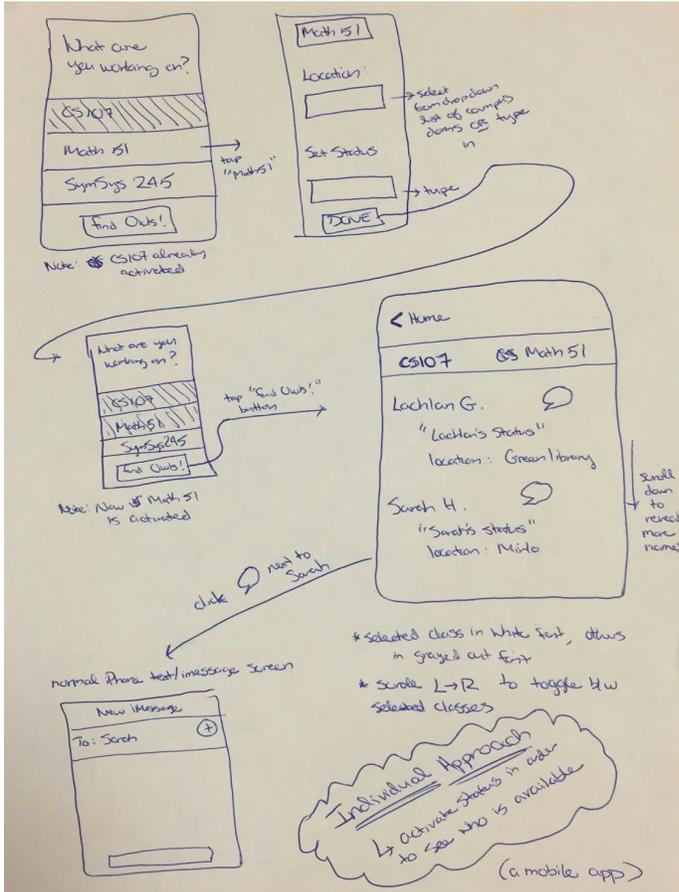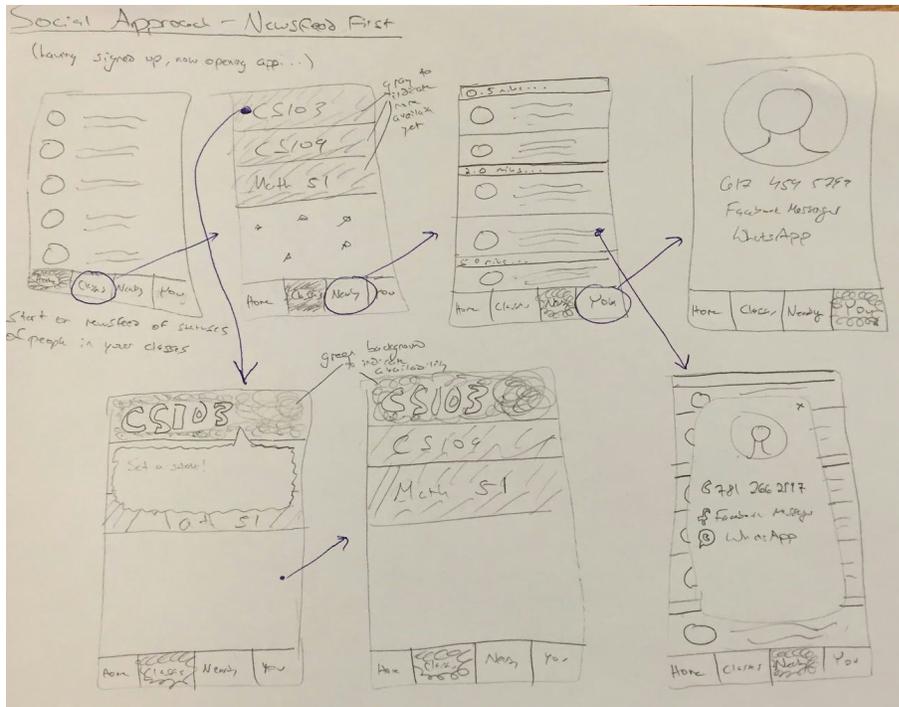This is the "Newsfeed First" approach - where users can scroll through a newsfeed of the statuses of other active users before making themselves available for any classes. This UI sketch also includes a tab bar controller where users can toggle between the newsfeed, their classes, people nearby, and the user's personal profile.

## Selected Interface Design

Ultimately, we decided to go with mobile devices over other types of hardware because it combined mobility with function in a way that neither a laptop nor a wearable application could. We chose mobile over laptop because because students always have their phones around even if they close their laptops while doing a problem set. We chose mobile over wearables because we felt we would not be able to do our features justice in a watch, band, glasses or other wearable tech. A mobile platform allows for all the functionality we need: users can navigate through a series of screens with taps and swipes, users can type in text, and a mobile platform allows for in-app messaging.

We chose the "individual first" design idea for continued exploration because we felt it was a simpler design with a much clearer flow. Additionally, we wanted to ensure that users coming to the app were making themselves available immediately, rather than perusing the newsfeed first to see if others in their class are available, to ensure the maximum number of people are engaged with the community at all times. This design eliminates the possibility of users not making themselves available because they don't see another person with whom they want to connect.

Simple Task: Respond to someone reaching out to you
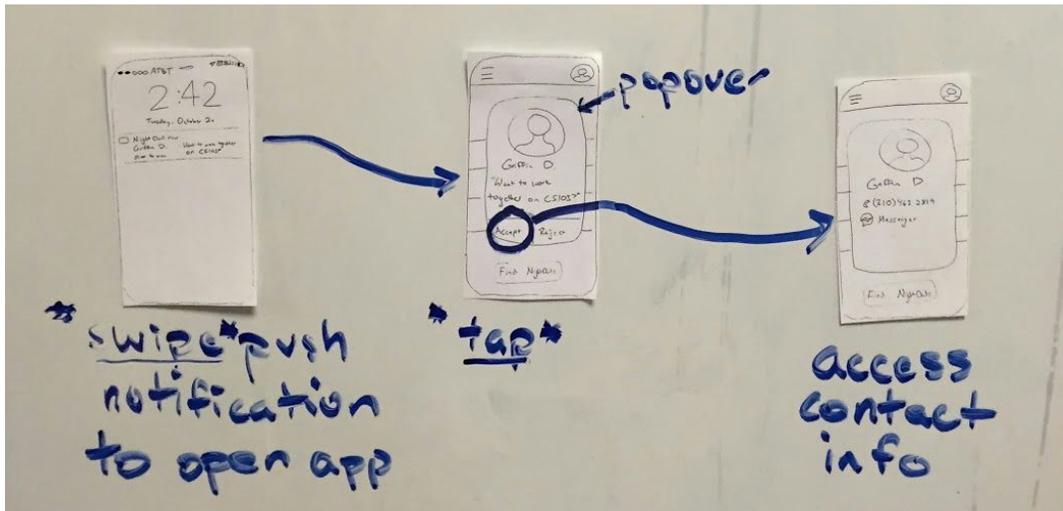


Moderate Task: Make yourself available and write a status
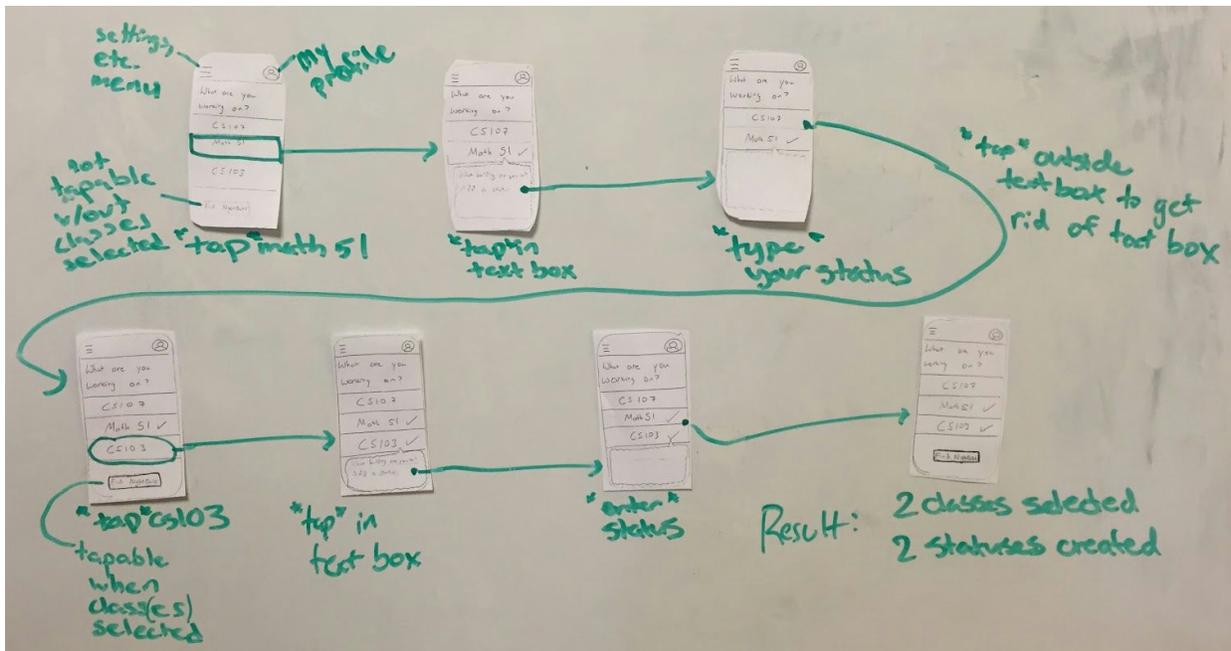


Complex Task: Find people in your class who are working now and connect with them
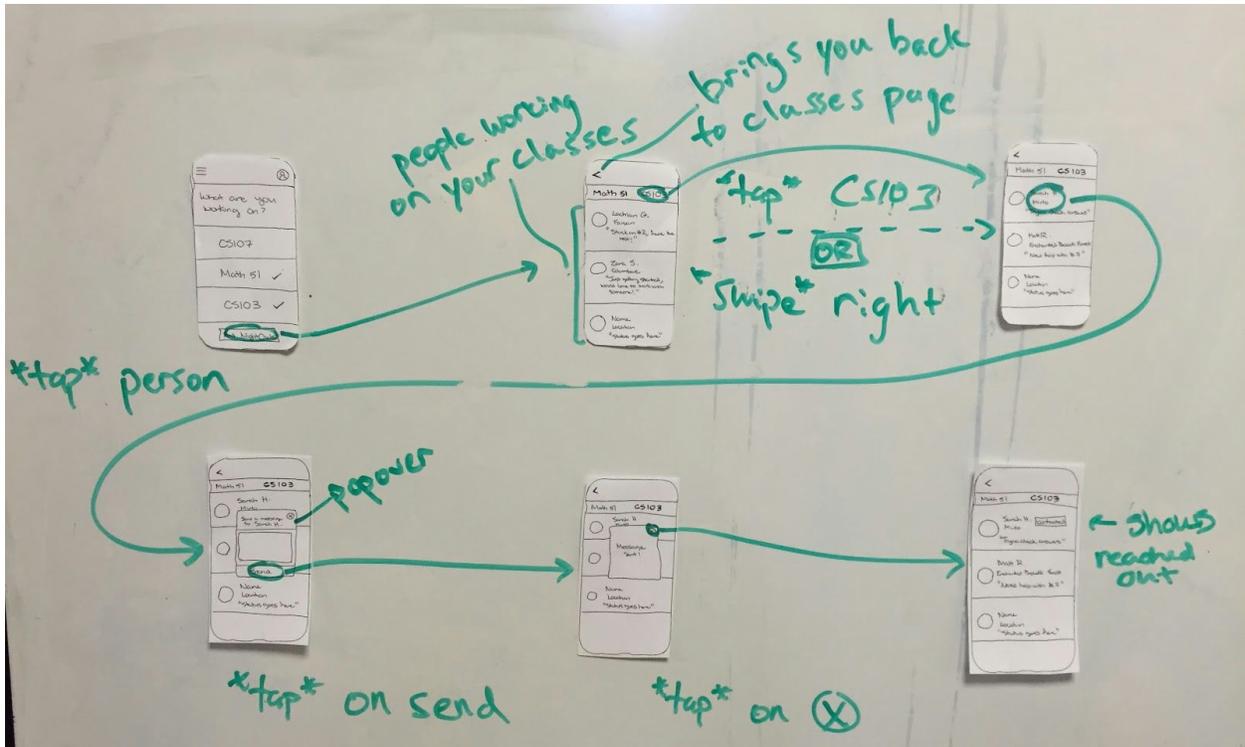
# Prototype

Our low-fi prototype consisted of a series of paper screens with UI elements drawn on that allowed participants to complete the 3 tasks and understand how the app will look and feel. The screens resembled iPhone screens, and were about the same size as an iPhone screen, to encourage participants to interact with the screens as they do their mobile devices (e.g. tap, swipe, type). Users operate the prototype by tapping, touching, and swiping. When participants wanted to type, we provided them with a pencil and allowed them to write text directly on the paper screen. Whenever participants navigated off the current screen, we immediately placed the subsequent screen in front of them.
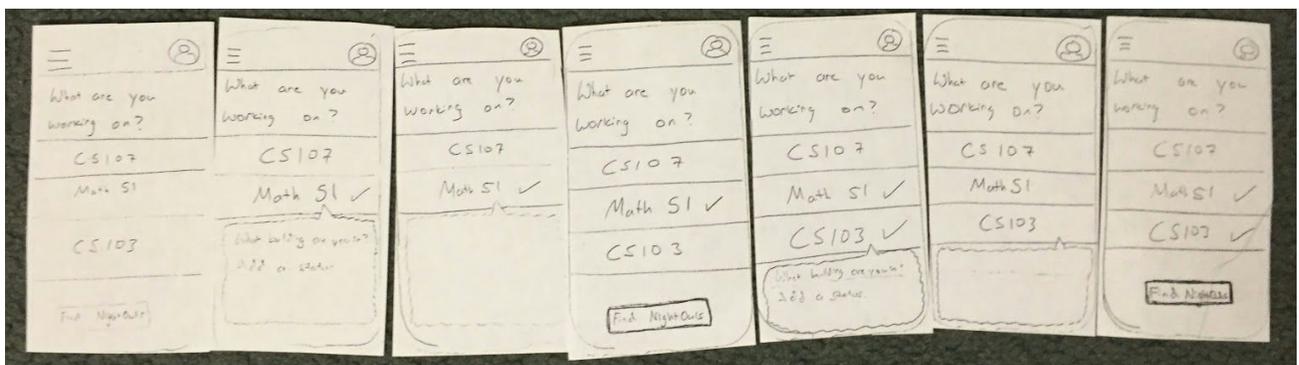


*Task 1 Screens*

In Task 1, users begin on a homescreen that shows three classes and a low-lit button "Find NightOwls". This screen presumes that the user has already entered into the app which classes they have taken but has not yet made herself available. The next screen represents a state in which a user has selected Math 51 and is prompted to enter a status. Next we have an identical screen with no text, designed to encourage the subject to actually write in a status. We made copies of all screens for each subject to allow them to write in them and make changes to reflect their preferences. In the next screen, the status blurb has disappeared and the "Find NightOwls" button is live, which would occur when the user tapped anywhere outside of the status blurb. Next the CS103 is selected, with a blurb for a status underneath. Like before, the next screen presumes the user has tapped that blurb. Finally, the last screen shows Math 51 and CS103 selected and the "Find NightOwls" button live.
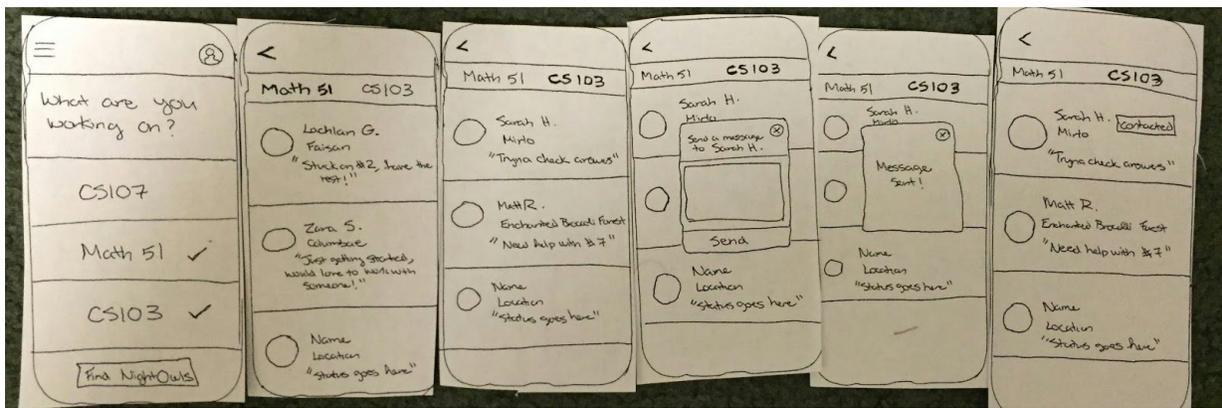


Task 2 Screens

Task 2 begins with the final screen from task 1, to show a continuous flow. The second screen assumes the user has selected "Find NightOwls" and shows a list of other users in Math51. A scrollable controller at the top of the screen allows the user to toggle between all selected classes. Screen 3 assumes the user has swiped left to select CS103 (as our task requires), and once again shows a list of users with their locations and statuses. Screen 4 assumes the user has tapped on Sarah, and shows an interface allowing the user to send a message to Sarah. Screen 5 shows confirmation that the message has been sent. Screen 6 assumes the user has X-ed out of the confirmation message, yet still gives the user a visual cue that they have contacted Sarah.



Task 3 Screens

Task 3 begins with a push notification; we drew a standard iPhone push notification to make this screen recognizable to users. The second screen includes a pop-over showing that another user, Griffin D., has requested to work with the user. We drew two buttons the user can choose to interact with: accept or reject. Finally, upon selected the accept button, the final screen shows the contact information of Griffin D.
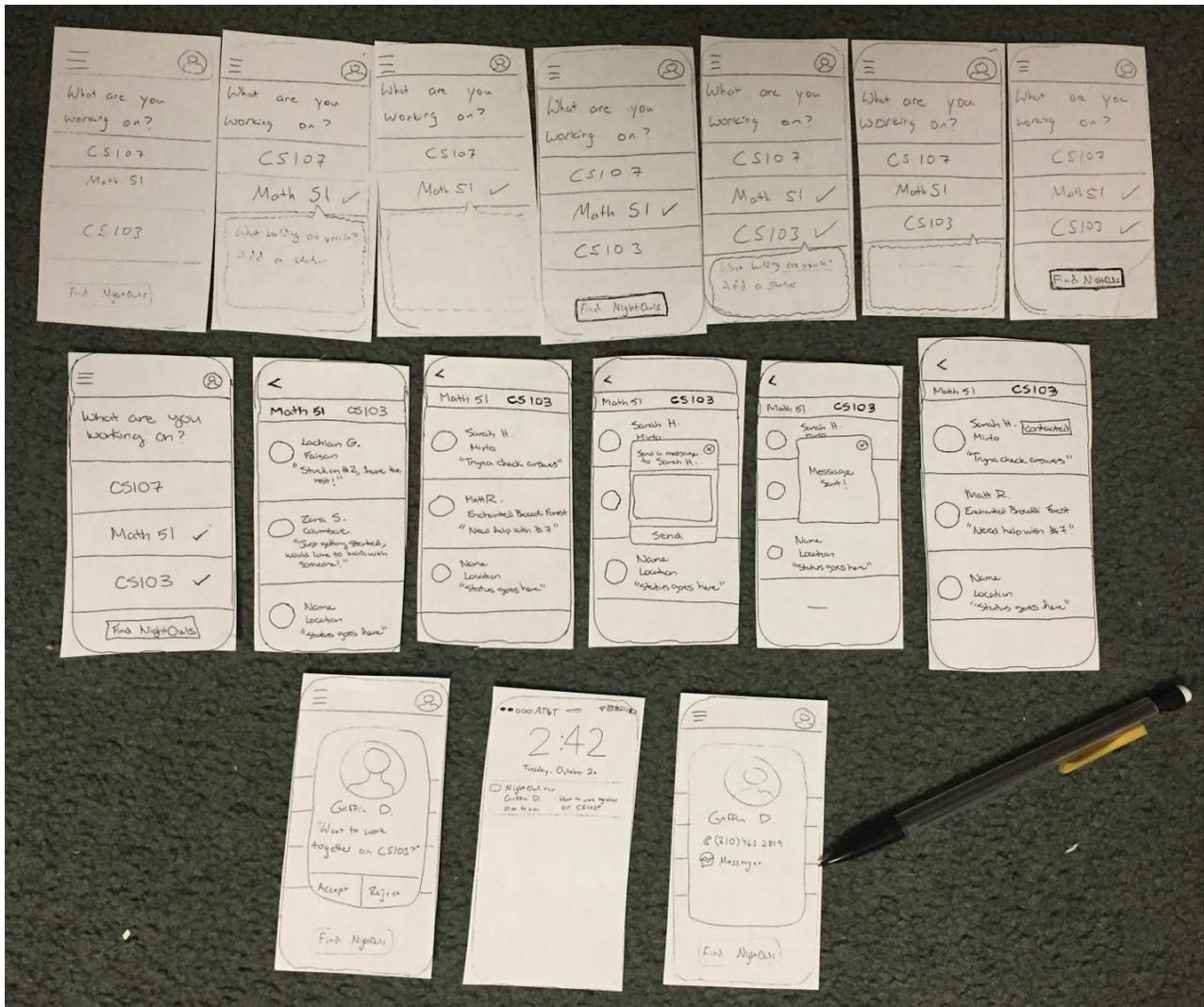


*All Prototype Screens*

# Method

*Participants*

To test our low-fi prototype, we interviewed three students working in the basement of Huang Engineering. We chose individuals we did not know to avoid subjects feeling awkward about criticizing our prototype. To select participants, we screened them by asking if they had 20 minutes to talk with us, and if they regularly worked on assignments/problem sets. We spoke only to those who answered yes to both questions. Subject 1 was a male sophomore CS major currently taking a mix of CS and MS&E classes. Subject 2 was a female EE coterm taking CS and EE classes. Subject 3 was a female first year master's student studying Material Science. None were compensated.



Subject 1                    Subject 2                    Subject 3

*Environments*

NightOwl users will most likely use our app when they are alone and working, meaning they will likely be a library, their room or a common study space. We wanted to replicate this environment as much as possible in our interviews. Since interviewing strangers in their rooms wasn't an option, we chose to talk to people in Huang basement who appeared to be doing homework. This way they were a location similar to our users, and in the same mindset as our users. To set up the prototype, we placed the paper prototype screens on the table in front of users. For subject 1, who was sitting, we placed the screens on his lap.

*Tasks*

After telling our participants about what NightOwl is supposed to accomplish, we had them complete the 3 tasks below. Tasks were ordered in chronological succession, to reflect a natural flow through the app.

Task 1 (medium): Select two classes to get help in, set location, and set statuses for each of those classes.

Task 2 (complex): Reach out to someone in CS103 who was nearby for help.

Task 3 (simple): Respond to someone who has messaged them asking to work together.

*Procedure*

We began by introducing ourselves and screening potential participants as described above. We also explained the value proposition of the app to give participants context without giving them too much detail about the implementation we selected. Then, we got participants to sign a consent form. After asking for background information about the participants majors and study habits, we began testing the three tasks - emphasizing that the prototypes were rough drafts and that all feedback would be valued. We asked participants to think out loud as they navigated the screens. Lachlan played the role of facilitator, explaining the tasks. Zara played the role of computer (handing participants new screens as they moved through the flow) and took pictures. Griffin observed and took notes.

As participants moved through the flow, we observed without saying much to get an authentic sense for things they found intuitive and things they found confusing or difficult. After each task, we asked them why they did certain actions and collected their feedback. After they finished all three tasks, we solicited any additional feedback.

*Test Measures*

During our interviews, we looked for moments in which our participants seemed most comfortable in navigating the app as well as moments where they were confused, frustrated, or made mistakes. The test measures used were the following: speed and comfort of navigating through the flow of screens, number of times participants got "stuck" or seemed unsure of what to do, number of errors made, times participants looked for a feature that did not exist (e.g. a way to view sent messages), and times participants showed excitement about a certain screen or feature (e.g. "cool!"). Looking at the speed and comfort of navigation, and where participants got stuck, helped us find weaknesses in our flow. Noting instances of error helped us pinpoint design flaws. Noting times participants searched for a non-existent feature shed light on features we should potentially include in the next iteration. Noting instances participants verbalized excitement about a design element or feature helped us understand elements participants valued in our design.

# Results

Subject 1
In task 1, subject seemed unsure why he needed to select classes and enter statuses before proceeding to find fellow NightOwls. He pointed to the "Find NightOwls" button and asked "Can I

find NightOwls right away?" He was able to navigate easily to the "set status" pop-over. He understood how to type in his location and assumed that his status should be something about the concepts he was struggling with (for Math 51 he wrote "confused about set theory"). However, he struggled to post a status saying "do I submit this somehow?" and tapping the text box again. In task 2, he breezed through the screens, correctly tapping and swiping to progress through the flow. He found the interface "easy and intuitive." He assumed the app was GPS based and seemed comfortable with this. In task 3, subject was able to progress from the push notification to the app, but hesitated to accept a request without knowing where the other user was located and what her status was. He chose eventually to contact the other user through a Facebook message, saying he would prefer that type of communication over a phone call or a text. He also mentioned that he would only feel comfortable adding his phone number if he knew the network was restricted to Stanford students.

Subject 2
For the first task, subject navigated easily to the status pop-over. When presented with the blank text box, she expressed interest in having individual boxes in which she could enter her location, the assignment, and the part she was stuck on. After writing a status, she said she would hit "post" (there was no post button on the prototype – so she made this up). She also expressed concern that few people would want to meet in person and wanted a way to communicate over Skype. For task 2, she was able to navigate the flow without error. She tapped the "CS103" tab immediately and wrote in a message to Sarah. When she received confirmation that the message sent, she said "Oh it sent! Cool." Once the flow ended, she looked for a way to access and see all of the conversations she had going (including the one she just began with Sarah). For task 3, she was excited to see a request from another user, saying "yay" upon seeing it. She was quick to accept, but said she would prefer a single button saying "respond" instead of two buttons for "accept" and "decline." She also did not like being forced to contact the other user outside of the app, expressing a desire for messaging within the app. She mentioned she would like the idea of being able to rate partners after working with them.

Subject 3
Subject struggled with task 1 – she did not understand the concept of a status and was unsure of what to write in the text box. She wanted the location box to be a drop down menu with options of all Stanford buildings. She also wanted a button for her to be able to post her status and would prefer for the status-entering box to be a new screen, rather than a pop-over. With task 2, subject was able to move through the screens easily, but wanted to know how far away people were (in miles). After sending a message to Sarah, she asked "where can I check if she replies?" Subject wanted to see all of the messages she had sent and received in one place. With task 3, subject was able to navigate the flow but expressed interest in having more information about the other user (such as her location). She liked being given a phone number, saying "That's good, I can call them if I can't find them."

# Discussion

We saw common themes arise from our three participants that will inform design changes in our interface: specifically, the uncertainty around how to post a status (task 1), the need to be able to view their conversation threads (task 2), and the desire to know more about a fellow NightOwl who has reached out before accepting their request to work (task 3).

Our first key learning was that participants struggled to understand the purpose of setting a status, and weren't sure where and how to enter the information they deemed necessary. They also struggled to post a completed status. These results pushed us to rethink the way in which users will be prompted to enter a status and location as well as the instructions we give new users about what a status means. Additionally, we plan to add a "post" button to this screen so it is obvious how to post a status. We learned that participants appreciated getting positive feedback that their messages sent and wanted feedback about their statuses posting – thus, we will keep the "message sent!" notification and add a similar one for "status posted!"

Another big learning was that users had a strong desire for an in-app messaging system that would allow them to view their conversation threads with other users of the app. We had not built this functionality into our original prototype, and multiple subjects mentioned that they wanted this feature to keep track of who they were talking to. Subjects seemed interested in this for two main reasons: to have the ability to work together through the app and to learn more about potential groupmates. We will incorporate this to our next prototype.

Finally, we realized that our target users are particular about whom they want to work with, and need some method of screening other NightOwls who contact them. We plan to redesign the screens involved in task 3 so that the user can view the location and status of NightOwls who contact them. Additionally, we are thinking about incorporating a rating system as a means of giving users even more information about their potential collaborators.

The experiment could not reveal how users would react to an onboarding flow that asked them for contact information, how willing people would really be to reach out to others, or how often they would end up using the app.

**Words:** 2,567

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# Appendix

Test Script

**Introduction**
We are conducting a short experiment to evaluate the interface of an app, called NightOwl, designed to help students find other working on the same thing as themselves late at night. A user can connect with classmates and collaborate to finish their assignments.

**Screening Questions (if they don't answer yes we don't interview them)**
- Do you ever work in groups on psets or other assignments?
- Do you use a smartphone?

**Confidentiality**
The experiment is completely confidential; no identifying information will be available to anyone beyond our team and instructor. We have a simple consent form for you to sign.

*have them sign form*

**Get background information**
- What is your name?
- What is your major?
- What year in school are you?

**Introduction to NightOwl**
Over the next few minutes, we will show you an early stage prototype of a few user flows. It's important to note that these are not finalized, so please be as honest in giving feedback as possible. We're actually most interested in getting this feedback, and hearing which things you like, things you don't like, which you have trouble reading or understanding or any suggestions for improvement you might have whatsoever. We currently have three tasks we would like to have you try.

**Selecting Classes and Creating Statuses**
Our first task is designed to see how you interact with the home screen. The home screen is a list of classes you are currently enrolled in. Your task is to mark yourself as currently working on Math 51 and CS 103.

**Connect With Classmates**
The second task is to find a nearby classmate. You are in FloMo. Connect with the nearest person working on CS103.

**Respond to a Request**
Our last task is to respond to a connection request. Griffin D. has requested to work together. Accept her request.

# Consent Form

The NightOwl 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 NightOwl. 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 (Griffin Dietz, Lachlan Green, or Zara Saraon) 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 NightOwl 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_____