

# Tream Crowdsourcing

*Teamwork makes the dream work*

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Raymond C (User Testing & Documentation)

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**Word Count: 2491**

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## **Quick Links**

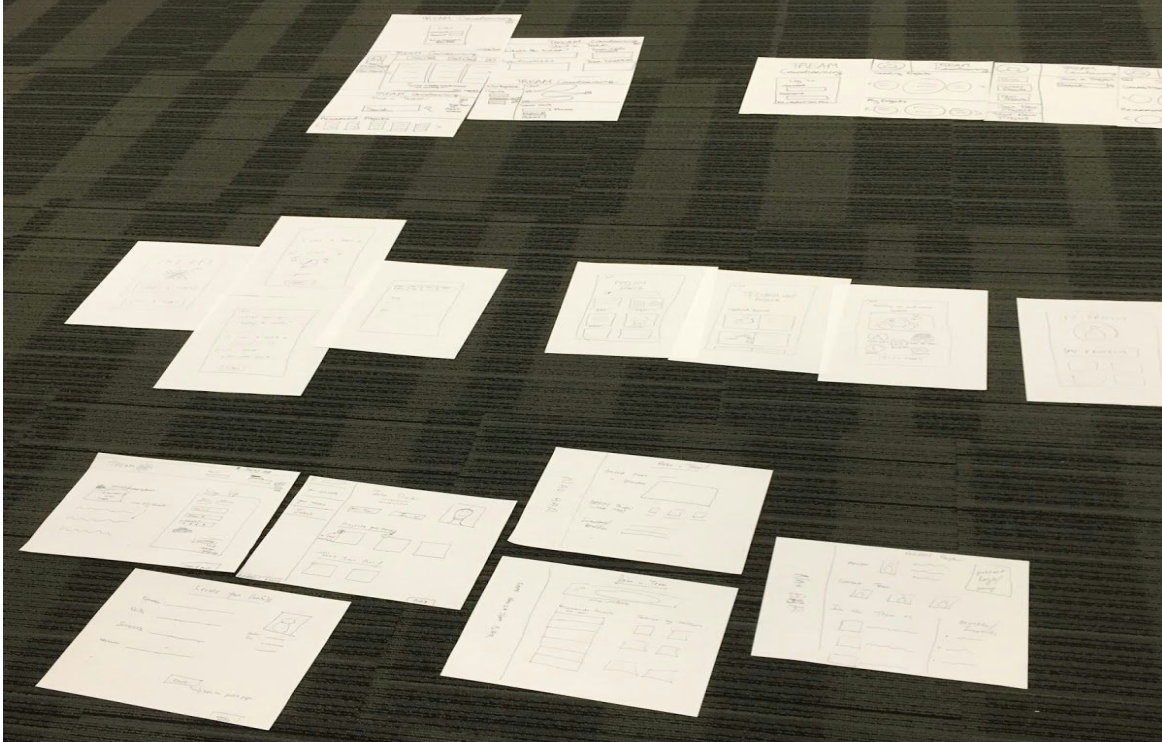
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## **Introduction and Mission Statement**

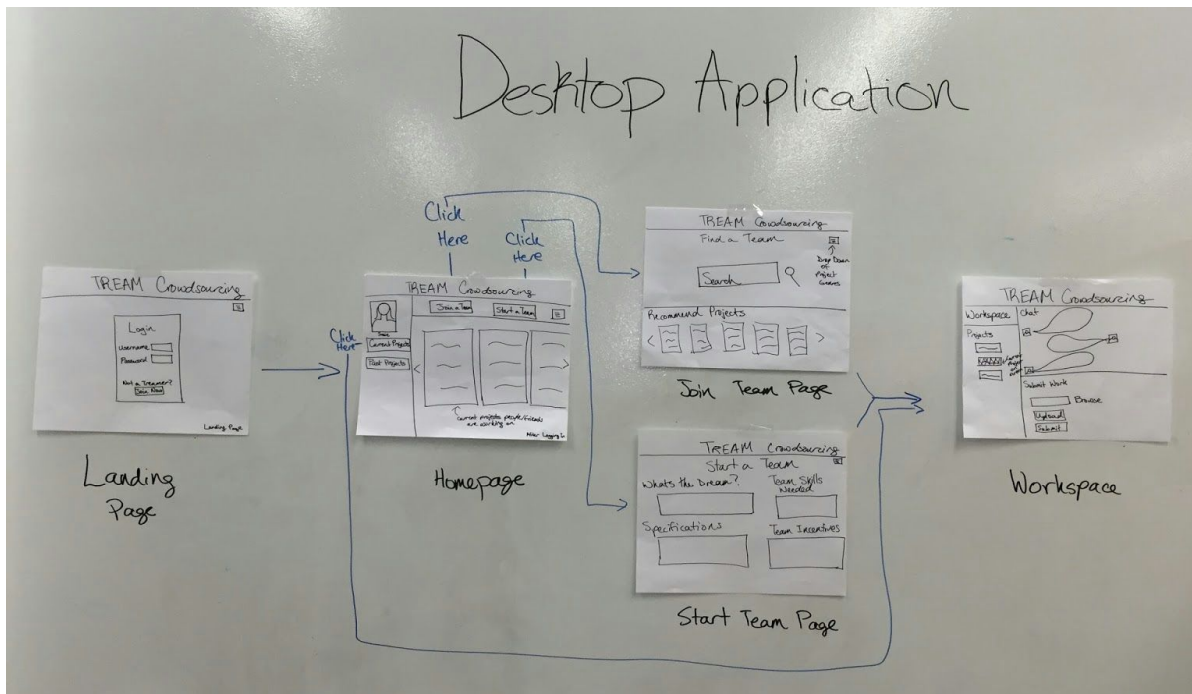
Have you ever had a project in mind, but haven't had the skills or manpower necessary to get it done? Tream Crowdsourcing is an app that helps people crowdsource projects by connecting them to people with diverse skillsets. After initial planning, we built a low-fi paper prototype to explore scenarios and interface ideas. The results presented in this report have shed significant insight on improving the usability of our app and have given us insight into the needs and wants of our target customers that will help us through the rest of the design process.

The goal of Tream is to make it as easy as possible for teams to form and collaborate. By helping people collaborate, the app removes the barrier to entry for aspiring project creators and visionaries and lowers the barrier of entry for contributors looking to hone their varied skillsets. Our app aims to redefine how teams are designed and created and how they will work together in the future.

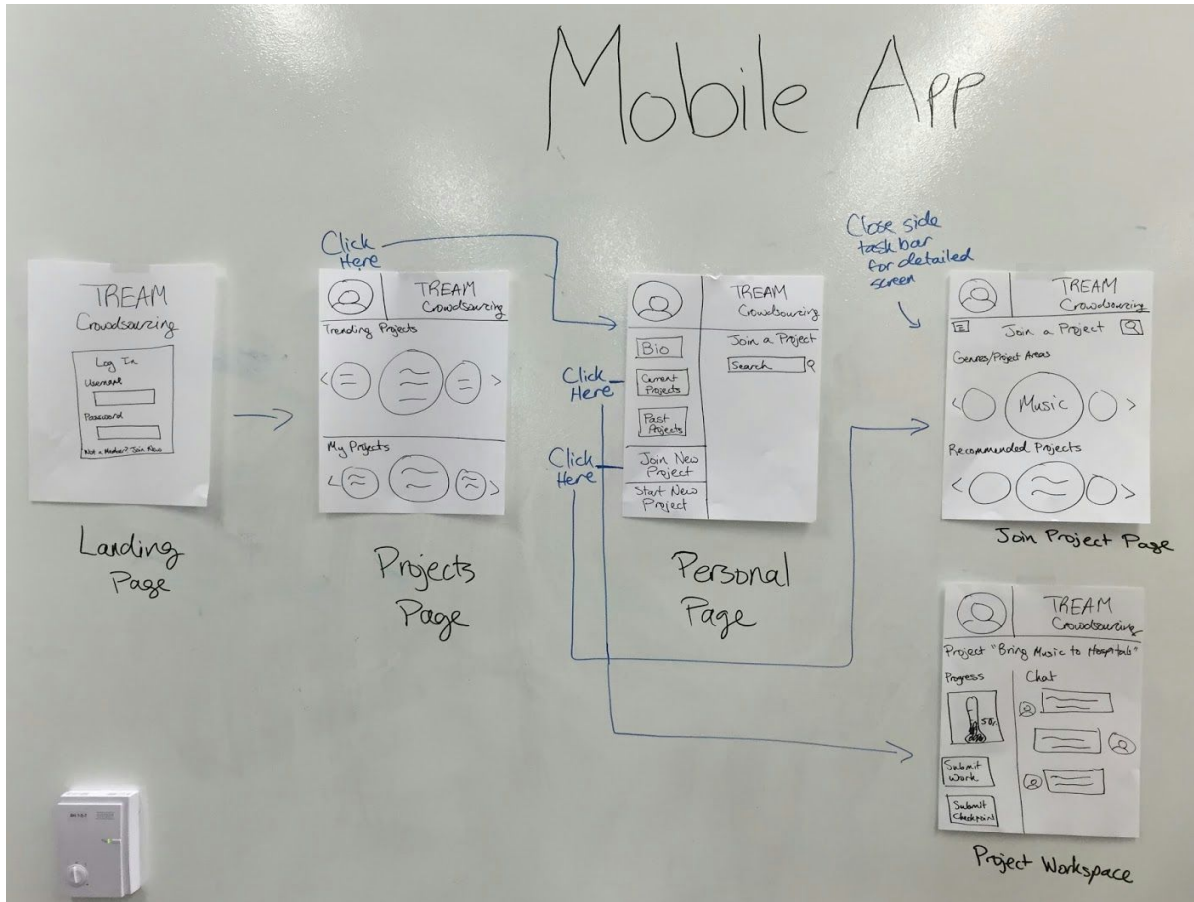
## **Sketches and Selected Interface Design**



**Figure 1.** Overview of our 20 sketches for our mobile app (top), desktop (middle), and tablet (bottom) implementations.



**Figure 2.** Top sketch 1: Desktop storyboard.



**Figure 3.** Top sketch 2: Mobile App storyboard.

## Reasoning for Our Selection

We selected our Mobile App design (Figure 3 above). The reason for this selection was in part due to the target platform upon which our application will be run. In an era of on-the-go work and communication, we realized that an app that would be accessible at any time would be ideal. Therefore, we chose the design that best suits a mobile phone.

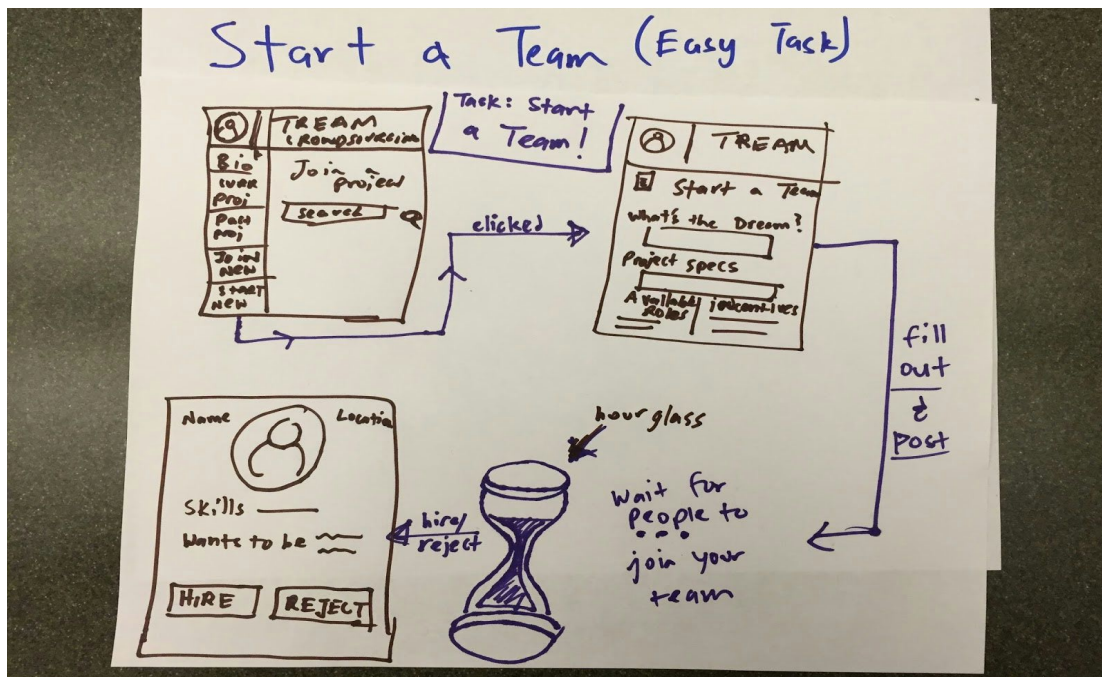
When a user opens the application, she sees a login page. Then, in the application, she can join, start, and work on projects. Our design choices make the application as functional as possible by simplifying the process of doing these tasks (Table 1). One of the unique design features used when a person browses through projects is a swipeable/scrollable row of bubbles containing project names or genres, in which the center bubble enlarges as she scrolls over it. This design is easy for touch screen phones because the user can easily swipe to look at projects, and the enlarging center bubble makes it easy for her to read what she is currently looking at. Furthermore, the screens contain a retractable menu bar

on the left hand side. This minimizes the amount of clutter on the phone screen when a user is trying to read information or do work on her projects.

TASK	Join New Project	Start New Project	Work on Project
FUNCTIONALITY OF APP	-Search and browse projects -Read about project specs -Apply to join project	-Fill out project start form -Wait for people to join project -Can hire or reject people	-View project timeline and discussion board -Manage project deadlines and other specs -Save and submit work in project workspace

*Table 1.* This table shows the functionality of the app in carrying out the 3 main tasks.

## UI Storyboard



*Figure 4.* Storyboard for a simple task - Starting A Team

# Join a Team (Moderate Task)

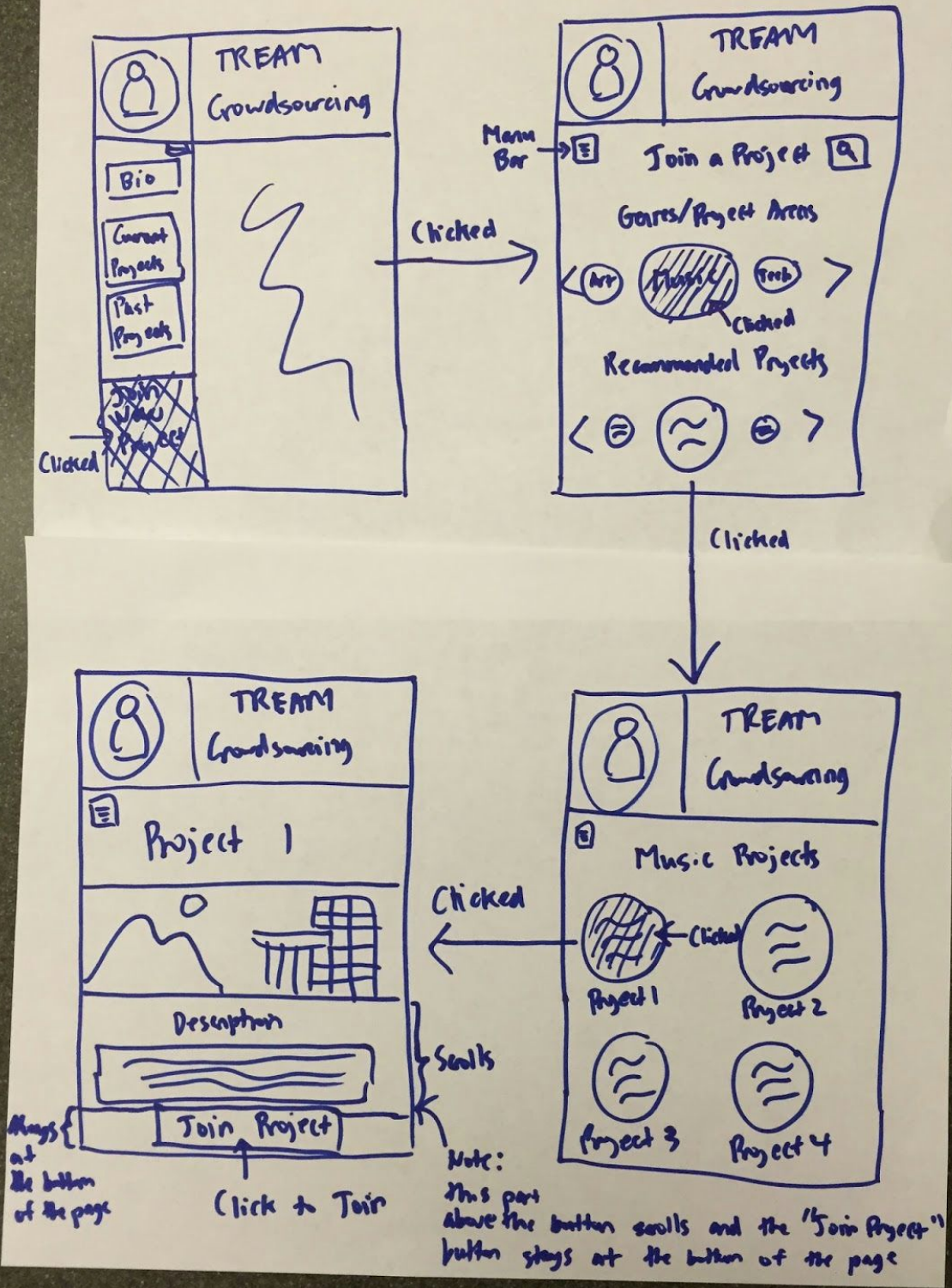


Figure 5. Storyboard for a moderate task - Joining A Team

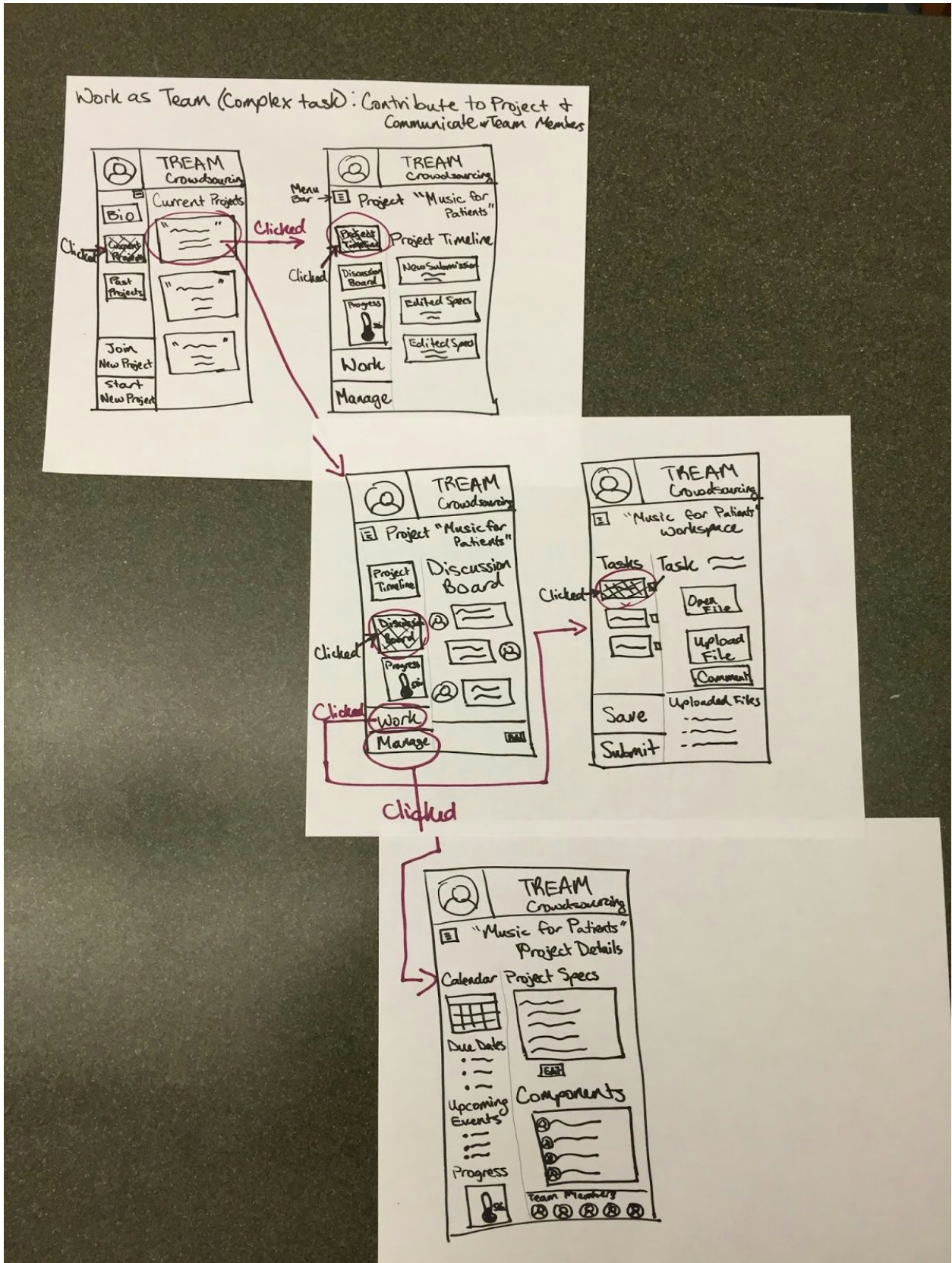


Figure 6. Storyboard for a complex task - Work As A Team

## Prototype Description

To simulate the user experience of our mobile application, we created a paper prototype that roughly resembles how people would navigate through our three main tasks in real life. The user interface presented in our paper prototype doesn't include all of the details and features our application would eventually have, but it encapsulates the key aspects. When the user first opens our application, they can log in or be prompted to create an account if they don't already have one (Figure 7).

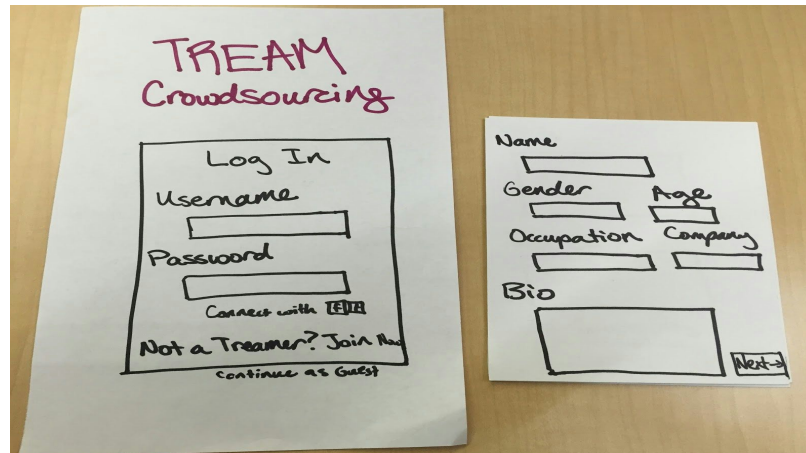


Figure 7. Login Page

Then, there is a homepage where the user can look at trending projects or explore projects by genre. In addition to that, there are two buttons at the top of the page that makes it easy for the user to begin two of our three key tasks: Join New Project and Start New Project (Figure 8).

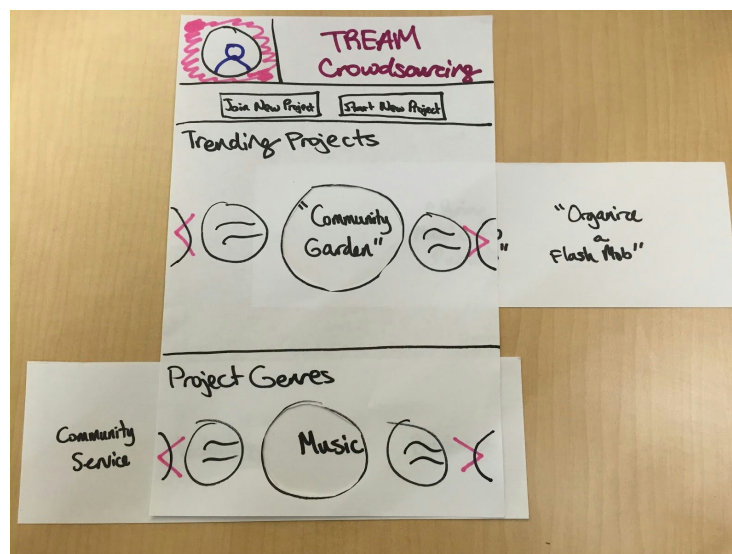


Figure 8. Homepage

By clicking on the “Join New Project” button, the user is directed to a page to search for a project based on keywords, based on genre, or based on app-provided recommendations (Figure 9).

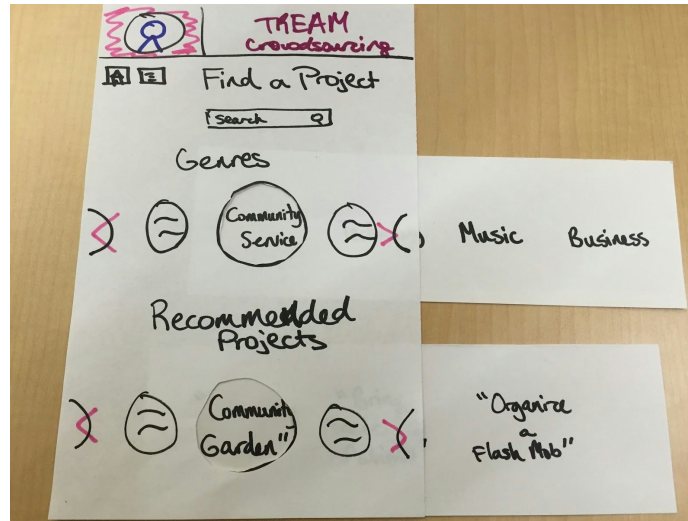


Figure 9. Search for a Project Page

Once the user clicks on a project, she can read about the specifications of the project, which team members are currently a part of the project, and which additional team members are needed. This screen is a clean and easy-to-navigate project details page (Figure 10). If she wants to join the project, she can click “Join” at the bottom of the screen. From there, she fills out her application to join the project (Figure 11)

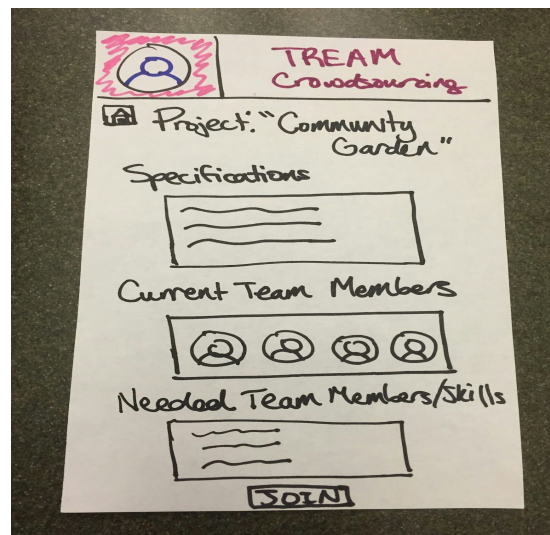


Figure 10. Project Details Page



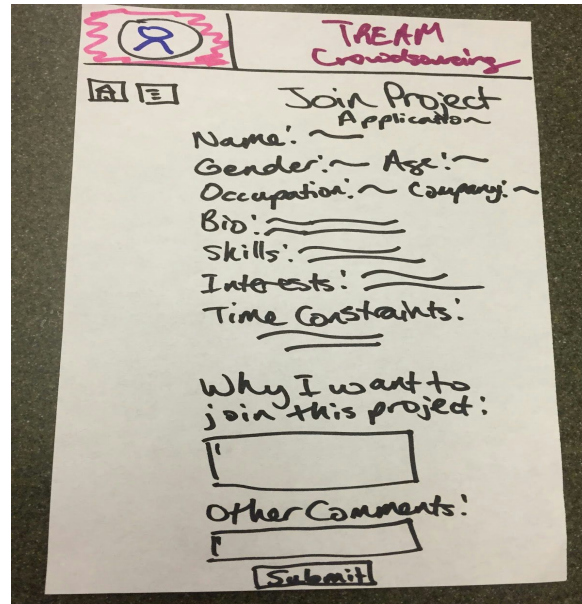


Figure 11. Member Application Page

The “Start New Project” button allows the creator of a project to write the specifications of the project and identify what skills are needed in team members (Figure 12).

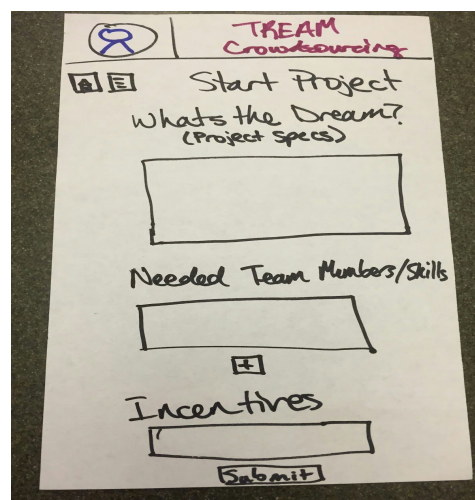


Figure 12. Start Project Page

What the creator provides here will be what shows up on the project details page. In addition, as the creator of the project, she will be notified by a pop-up screen each time someone applies to join the project. She can view the person’s application and decide to hire them or not (Figure 13).

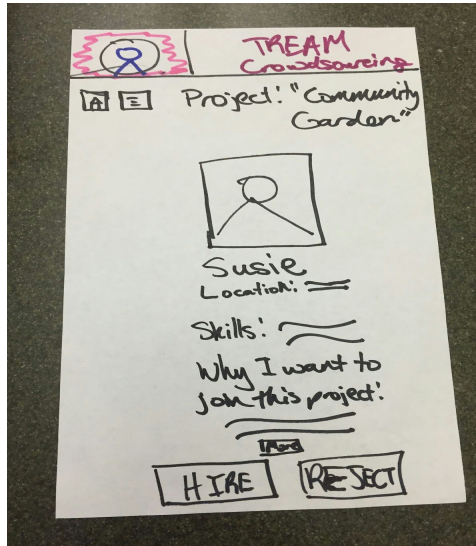


Figure 13. Project Hire Page

Finally, the last main task users in our app will perform is working on a project. When users first enter the homepage, a pop-up screen explains that she can view all work related to her by clicking on her profile picture located in the upper left (Figure 14).

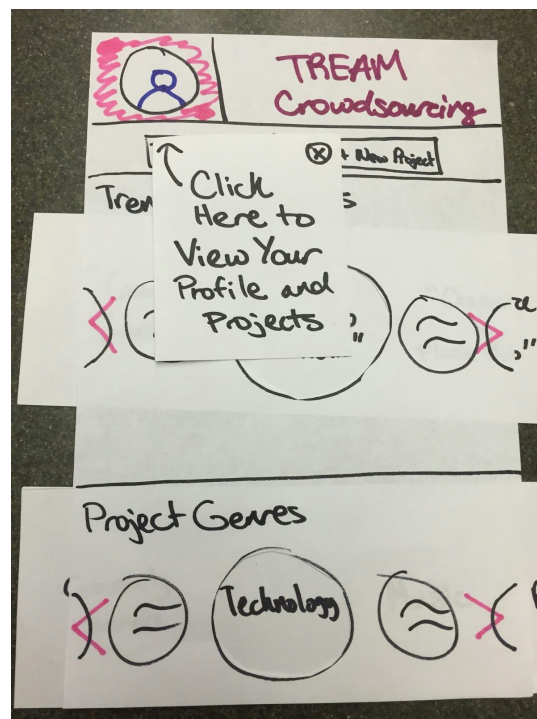


Figure 14. Pop Up to View Profile and Projects

After clicking on the picture, the user is directed to her biography page, and there is a menu bar on the side that maximizes efficiency by having minimal buttons. Some buttons include “Current Projects” and “Past Projects” (Figure 15).

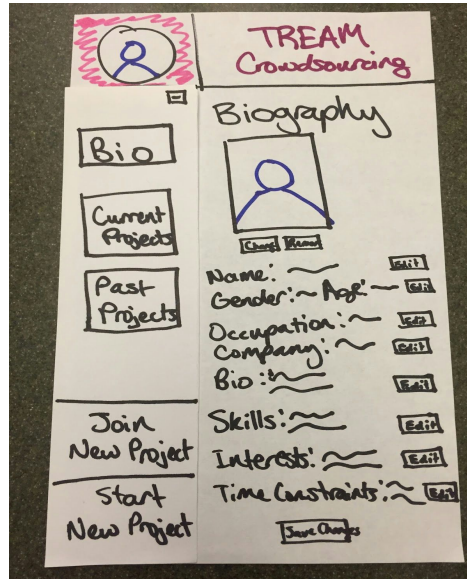


Figure 15. Biography Page

Clicking on a specific current project will take the user to the project specs page for team members. On that page, she can view the project timeline and contribute to the discussion board (Figure 16). She can also navigate to her project workspace where it is easy to complete tasks, upload files, and write comments and to her project management page where she can view upcoming due dates and edit project specs (Figure 17).

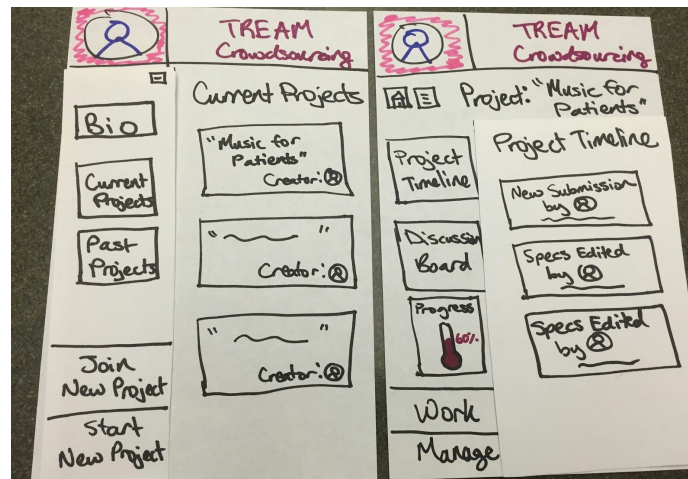
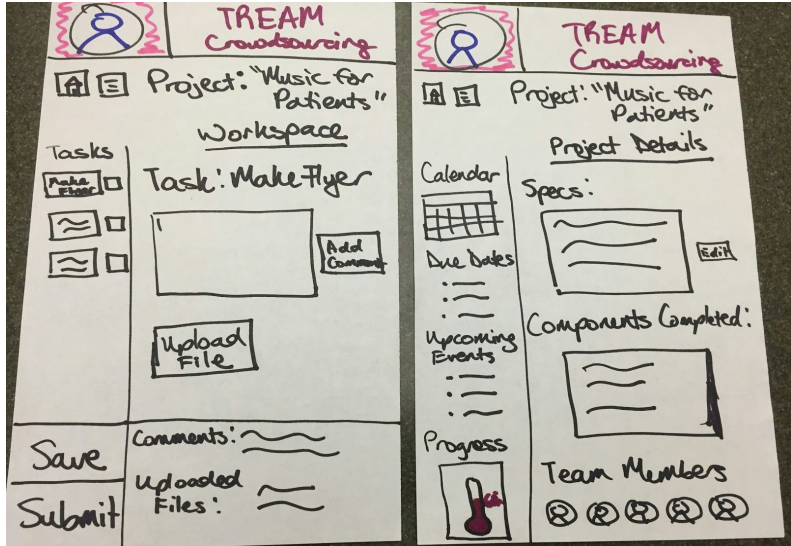
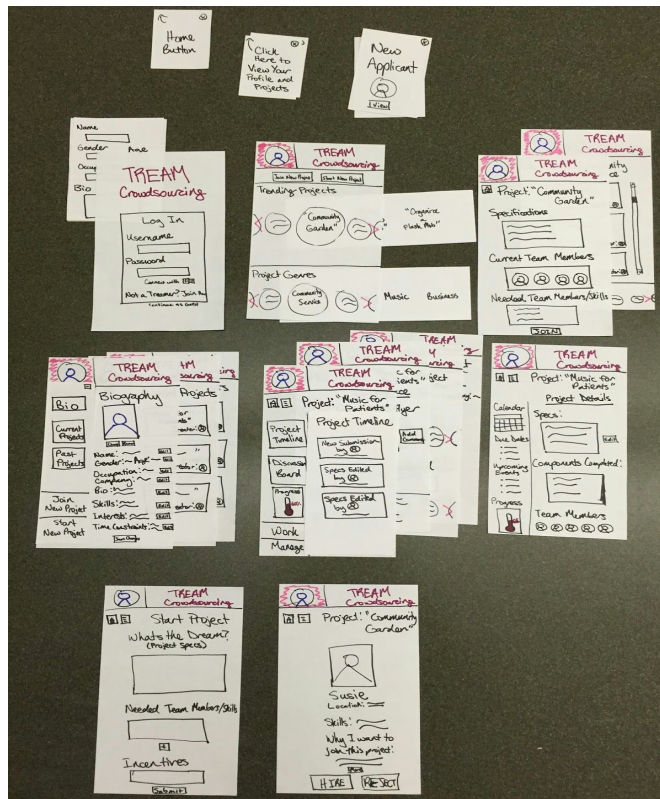


Figure 16. Click on a current project (left) to navigate to project pages for team members (right)



**Figure 17.** Project Workspace (left) and Project Management Page (right) for team members

Everything about the paper prototype focuses on the most efficient way to complete our three key tasks: join a project, start a project, and work on a project. An overall image of our paper prototype is included below (Figure 18).



**Figure 18.** Paper Prototype Overview

## Method

For our usability test, we randomly selected participants from off and on campus who looked like they would fit our target demographic. Two of our four participants, Maggie and John, were students in their 20s. Another participant, Jamie, was a woman in her early 30s studying here at the Graduate School of Education. Our last participant, Marilyn, was an older woman who is a real estate investor in her late 30s. We felt like this was a good representative sampling of our target customer base - young college students and some professional adults. We recognized the fact that four participants aren't necessarily representative regardless of the diversity between our four participants, so we made sure to focus on getting usability/intuitiveness feedback and fixing problems that were clear standouts between participants. All of our participants owned iPhones and some sort of computer, which is necessary for our target user base anyway.

We did most of our tests out in the field, with the exception of Maggie, who we ran into while she was waiting to be picked up from the airport. We tested on John in the basement of a dorm on campus, on Marilyn in the Arbuckle Dining Pavilion in the GSB, and on Jamie in a local Starbucks. All of the areas had many benches/tables/furniture items so that we were able to put the current page of the prototype and the participant on one table while the computer ran pages between a different table and the participant's table.

We did our testing in teams of two or more. One of us would be the main facilitator of the interaction, and the other(s) would serve as the computer, cameraman/woman, and/or note taker. To standardize, we made sure that each test followed approximately the same script. The first thing we would do is give participants a short questionnaire to fill out - this questionnaire gave us a bit of insight into what experience the participant had doing work in teams. The fun facts portion of the questionnaire gave us a little insight into their personalities. We then described the app at a high level and started off with the tasks, and concluded with a short survey to get more feedback. We made sure to break after each task and get some feedback on clarity, usability, and general user friendliness. To not bias our participants, we never ran them through how to use the app or any portion of our interface. We felt that since we designed the app to be on an iPhone and followed decent design paradigms, it should be intuitive to users of iPhones and touchscreens in general, and our testing showed us that it was in fact fairly intuitive.

Our three tasks were to start a team, join a team, and do work on a current project (after joining, of course), since they are three very common tasks users will perform when using our app.

## Results

Although users indicated a high level of satisfaction with the prototype from the beginning, we continued to iterate on the prototype after obtaining feedback from each user. We made changes to our prototype by adding in features using paper and pencil, and we were careful to note whether subsequent users found the changed or added features helpful. Overall, we made a handful of minor edits to our prototype, and we did see an improvement in the ease with which users carried out the three main tasks. User satisfaction also increased, but since our prototype was well-received even from the initial iteration, there wasn't a major jump in satisfaction between the first users and the last users.

From the very beginning, users found our application to be very intuitive. The processes of making an account or of logging in were very simple, and we ranked some of the feedback we received as "cosmetic problems (1)." For example, one of the users said that she would like the option to continue as a guest so that she could look at what sorts of projects are in the application before she created an account. Therefore, we added a "Continue as Guest" button on the login page. That is just one example of the minor changes we made.

For our tasks, there were some additional problems that we addressed through our iterations. When the initial user was asked to join and start a project, she was a bit confused for a few minutes (a problem we identified as "major usability problem (3)"). She figured out that she had to navigate to her biography and projects pages to get to the "Join New Project" and "Start New Project" buttons on the menu sidebar. She suggested that we also put them on top of the homepage, and after doing so, we have found that the speed and ease with which users joined and started projects increased. The final task that we asked users to carry out was work on a current project. There were primarily no complaints except that a user was confused as to how to navigate back to the project specs for team members (such as the timeline and discussion board) from the project workspace. We identified this as a "minor usability problem (2)."

Overall, though, users really appreciated the ease with which they could navigate around, and they found it easy to do tasks. The general consensus was that they also really appreciated the clean design of the prototype, including the scrolling bubbles and menu sidebar.

## Discussion

The overall paper prototyping process was extremely helpful for us to gauge users' satisfaction and ease with which they could complete key tasks. We were able to easily see if our design choices worked well, and we were also able to get helpful feedback and advice from users. Despite all of these pros, though, there were still some drawbacks to our paper prototyping and testing process.

Although we wanted to keep our design simple, we realized that we had to simplify it a bit more just for the paper prototyping. It would have been infeasible to have 30 sheets of paper to represent every possible screen that would show up if a user picked certain options. Furthermore, because the prototypes were done on paper, it's a bit difficult for users to read the handwriting and to make out the icons on some screens. Therefore, we felt like user response times aren't completely accurate. In addition, to simulate the scrolling bubbles on our screens, we used a piece of paper that the "computer" member of our group moved when users were "scrolling" through different project options or genres. This was initially a bit confusing for users, so we hope that the questions they have regarding how project genre bubbles and project bubbles match up will be answered in a higher fidelity prototype.

Despite these minor issues, though, our users gave us extremely useful feedback, and although we have already implemented some changes in our paper prototypes, we will continue to evaluate whether additional changes will be made in our upcoming prototypes. Something we heard was that users wanted to be able to connect with their real-life friends. We added in the option on the login page for users to connect through Facebook or Twitter, but we may also include new features that allow people to view friends' bios on the app so that they can see what their friends are working on. We may also want to give them the option of inviting their friends to join in on their current projects. Something else we're considering is adding in a few more buttons to the menu sidebar so that users aren't confused about how to navigate back and forth between pages (especially so that the navigation problem addressed in the Results section is resolved).

Overall, our prototype yielded some extremely positive responses, and although there were limitations to a paper prototype, we also got some helpful feedback. Through that feedback, we were able to implement some changes, and we will continue to incorporate that feedback into our future higher fidelity prototypes as we develop the application's UI even more.

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# Appendices

## Demo Script

### ***LANDING PAGES***

#### **LOGIN**

Welcome to TREAM. Here's the landing page of the app. Do you want to view projects right away (continue as a guest) or sign up?

#### **SIGN UP POP-UPS**

Please fill out your name, gender, skills, etc. to create your profile.

#### **HOME PAGE**

Here on the homepage you'll find the two main options to start a new project and join a new project. You can also scroll through trending projects and see project genres.

### ***MENU BAR PAGES***

#### **BIOGRAPHY**

On this page you'll find the option to edit your biography and upload a profile picture.

#### **CURRENT PROJECTS**

If you have any projects you are currently working on, it will be listed on this page. Otherwise, it will show buttons to join or start a team project.

#### **PAST PROJECTS**

List of all archived projects you completed in the past.

#### **SEARCH FOR PROJECTS**

In this page, you can search projects by keywords in a standard search bar. You can also use a scroll wheel to browse project genres and see recommended projects based on your profile and interests.

#### **START NEW PROJECT**

Please provide the necessary information to start a new project (ie what's your dream, desired team members, incentives, etc.)



## ***NAVIGATION PAGES***

**SPECIFIC PROJECT GENRE PAGE** (when someone clicks on a specific genre)

This will list all projects that are in this genre on this page. Here for example is a list of all community service related projects.

**PROJECT SPECS PAGE FOR NON-TEAM MEMBERS** (when someone clicks on a specific project)

On this page, you will see an overview of the specs of the project, some needed and wanted skills, and overall you will get an idea of whether you want to join this project. Would you like to join?

**JOIN A PROJECT APPLICATION PAGE** (when someone clicks join on a specific project page)

Standard application procedure stating why you want to join this project and any other comments you may have for the team manager.

**PROJECT HIRE PAGE POP UP** (Pops up for the creator of the project when someone wants to join their team)

You, the creator of the project, got an alert that a new person wants to join your team. You can review their application and decide if you would like to hire or reject them.

**PROJECT SPECS PAGE FOR TEAM MEMBERS** (when someone clicks on a specific project)  
(TEAM PROJECT MENU BAR)

You've joined the project, and now you see a more elaborate/detailed project overview page. It has a different menu bar that allows you to view timeline, discussion board, progress bar, tasks, workspace, manage, etc.

**PROJECT WORKSPACE FOR TEAM MEMBERS** (TEAM PROJECT MENU BAR)

On this page you can work on tasks, upload files, and add comments.

**PROJECT MANAGEMENT FOR TEAM MEMBERS** (TEAM PROJECT MENU BAR)

On this page you can review and edit specs of the projects, due dates, upcoming events, view members of the team, etc.

## ***MENU BARS***

**MAIN MENU BAR** (default)

- Bio

- Current Projects
- Past Projects
- Join New Project
- Start New Project

#### TEAM PROJECT MENU BAR

- Project Timeline
- Discussion Board
- Progress
- Workspace
- Manage

# Raw Data

## Marilyn Hughes

### Pre-Testing Questionnaire

Name: Marilyn Hughes

Occupation: Real Estate Investor

Any interesting background info, personality traits, interests you want to share: Knows a ton of people from Stanford who have founded startups and companies.

Experience working with teams: Loves connecting with people and working together on anything from gardening to investment projects.

### Post-Testing Survey

1. How usable were our features? (1-5) 4.5
2. How easy were the tasks to complete? (1-5) 5
3. Would this be something you would use in real life? I would use this if I knew people would sign up for my project. I think that this project would need to have a big user base for it to be successful and for me to use it. I am not sure how you will amass the users but I have faith in you all. I would be too busy to join other people's projects though.
4. Do you have any feedback for us? I think that having the two scroll bars to sort through recommended projects and genres was confusing. I thought that we had to pick both in order for this to work. Joining a team is really easy though! This is definitely better than a lot of random apps out there on the App Store. For starting a team, I think it would be cool if we could connect with people first, so maybe consider adding it as a feature? For working on a project I've already joined, I think it is easy to hire people, but I want to have a way to see how hardworking someone is. I'm not very computer savvy but I think it is overall easy to use :)

## Maggie Teets

### Pre-Testing Questionnaire

Name: Maggie Teets

Occupation: Full-time pre-med student double majoring in Philosophy & Religious Studies

Any interesting background info, personality traits, interests you want to share: I was a gymnast on the Stanford Women's Gymnastics team, and spent a large part of my life before Stanford heavily involved in gymnastics. I'm currently an RA on campus, and I love Dante and deep conversations on philosophy and ethics. I enjoy dancing awkwardly at random points in conversations. I've been told I am very motherly and a little old-fashioned, probably from having been raised by my grandma and her older lady friends.

Experience working with teams: I've been doing gymnastics for 15 years and have had tons of experience going through the ups and downs of working with teams. RA training has also

prepared me well to handle obscure situations with residents, which extrapolates well to handling obscure situations with team members in classes and work.

### **Post-Testing Survey**

1. How usable were our features? (1-5) 4
2. How easy were the tasks to complete? (1-5) 4
3. Would this be something you would use in real life? I don't think I would be honest. I don't think I would have any need for crowdsourcing projects. I prefer to do things the old fashioned way in general.
4. Do you have any feedback for us? Joining a team was very easy and intuitive, but I thought that it was unnecessary to have to fill out another long application to join a team, especially since I already filled out a lot of the same information previously when I signed up to be a user. I wish there was a way to browse projects without having to join as a user because I feel like it's a lot of commitment to have to join as a user before you get to see any of the projects. On Kickstarter, I can browse cool projects without being forced to join. I think that some of the button placement is a little awkward - the main functions took me a little scanning to find. I wish it was more intuitive to go back home to the home page (in general) as well.

## **John Pericich**

### **Pre-Testing Questionnaire**

Name: John Pericich

Occupation: Undergrad in CS

Any interesting background info, personality traits, interests you want to share: I am a licensed private pilot and have thousands of hours in flight time. I also enjoy practicing magic and am an aspiring magician.

Experience working with teams: I wouldn't say I'm particularly good or particularly bad. I've managed my way around teams all of high school and college, so I suppose I am okay.

### **Post-Testing Survey**

1. How usable were our features? (1-5) 4.5
2. How easy were the tasks to complete? (1-5) 4.5
3. Would this be something you would use in real life? If this got popular and lots of people started using it, I would definitely. I would want there to be good content on the app before signing up to use it myself!
4. Do you have any feedback for us? I am a little confused with the nomenclature of your app. Is it search or find or join? (in reference to the Join Projects page that lets you search and browse projects). I also think that there should be some sort of menu bar on the home page. I wish there was an option to see other people's profiles as well. I also wasn't entirely clear on the difference between managing a project and working on a project. I wish there were more tools to work collaboratively with my team, and I'm not entirely sure how team members are incentivized to join my team.

## **Jamie O’Keeffe**

### **Pre-Testing Questionnaire**

Name: Jamie O’Keeffe

Occupation: Graduate student in the School of Education here at Stanford

Any interesting background info, personality traits, interests you want to share: I am currently working on making the process of publishing work easier and more open. Right now I’m studying the impact of open journal resources.

Experience working with teams: I’ve had a decent amount of experience through my years in the GSB and college. I like to think I am good at conflict resolution.

### **Post-Testing Survey**

1. How usable were our features? (1-5) 5
2. How easy were the tasks to complete? (1-5) 5
3. Would this be something you would use in real life? I can see a lot of use cases for this. I’ve actually had a lot of projects that would have benefited immensely from this. Go on and publish it already!!!
4. Do you have any feedback for us? I think it would be great to just scroll through the genres and then have the recommended projects be listed based off of what the main genre is. So for example if I scrolled to community service in the genre section, I would immediately be able to scroll through a list of community service projects. I don’t think I would browse a whole lot because I have very specific projects in mind. How are you guys going to ensure projects are unique? I think that the stuff you’ve done to make working on projects intuitive is great. I think it’s very similar to Google Docs and email and so it’s familiar. This would be so great for my research team!

# Consent Forms

## Consent Form

The Tream Crowdsourcing 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 Tream Crowdsourcing. 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 (Osama El-Gabalawy, Raymond Chan, or Vivian Nguyen) 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 Tream Crowdsourcing 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 John Pericich

Participant Number 3

Date October 22, 2015

Signature John Pericich

Witness name Raymond Chan, Osama El-Gabalawy, Vivian Nguyen

Witness signature Raymond Chan Osama El-Gabalawy Vivian Nguyen

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Name Jamie O'Keefe

Participant Number 4

Date October 22, 2015

Signature Jamie O'Keefe

Witness name Osama El-Gabalawy, Vivian Nguyen

Witness signature Osama El-Gabalawy Vivian Nguyen

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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 Tream Crowdsourcing 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 Maggie Teets

Participant Number 2

Date October 21, 2015

Signature Maggie Teets

Witness name Raymond Chan, Osama El-Gabalawy

Witness signature Raymond Chan Osama El-Gabalawy

## Consent Form

The Tream Crowdsourcing 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 Tream Crowdsourcing. 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 (Osama El-Gabalawy, Raymond Chan, or Vivian Nguyen) 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 Tream Crowdsourcing 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 Marilyn Hughes

Participant Number 1

Date October 21, 2015

Signature Marilyn Hughes

Witness name Vivian Nguyen, Raymond Chan

Witness signature Vivian Nguyen Raymond Chan

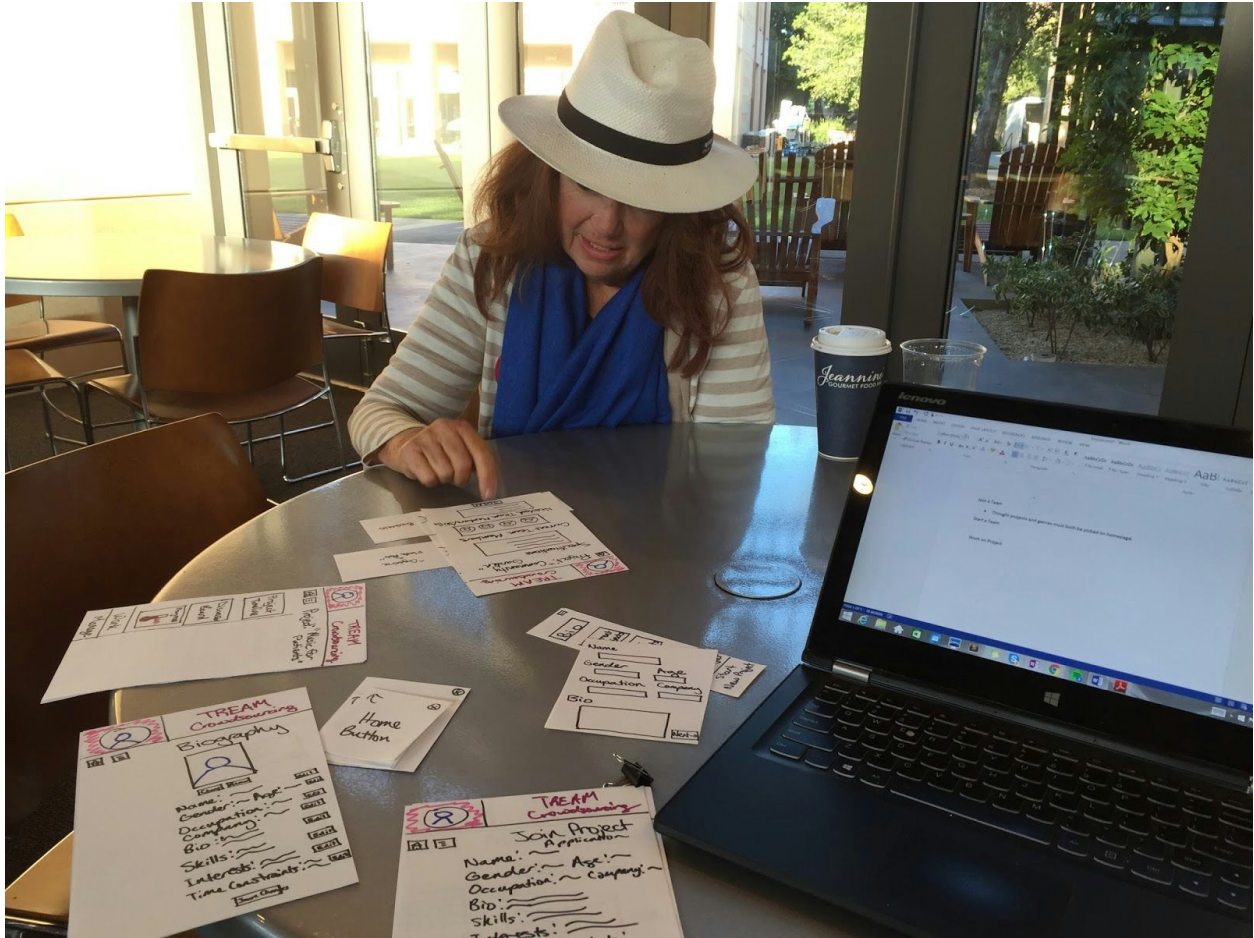
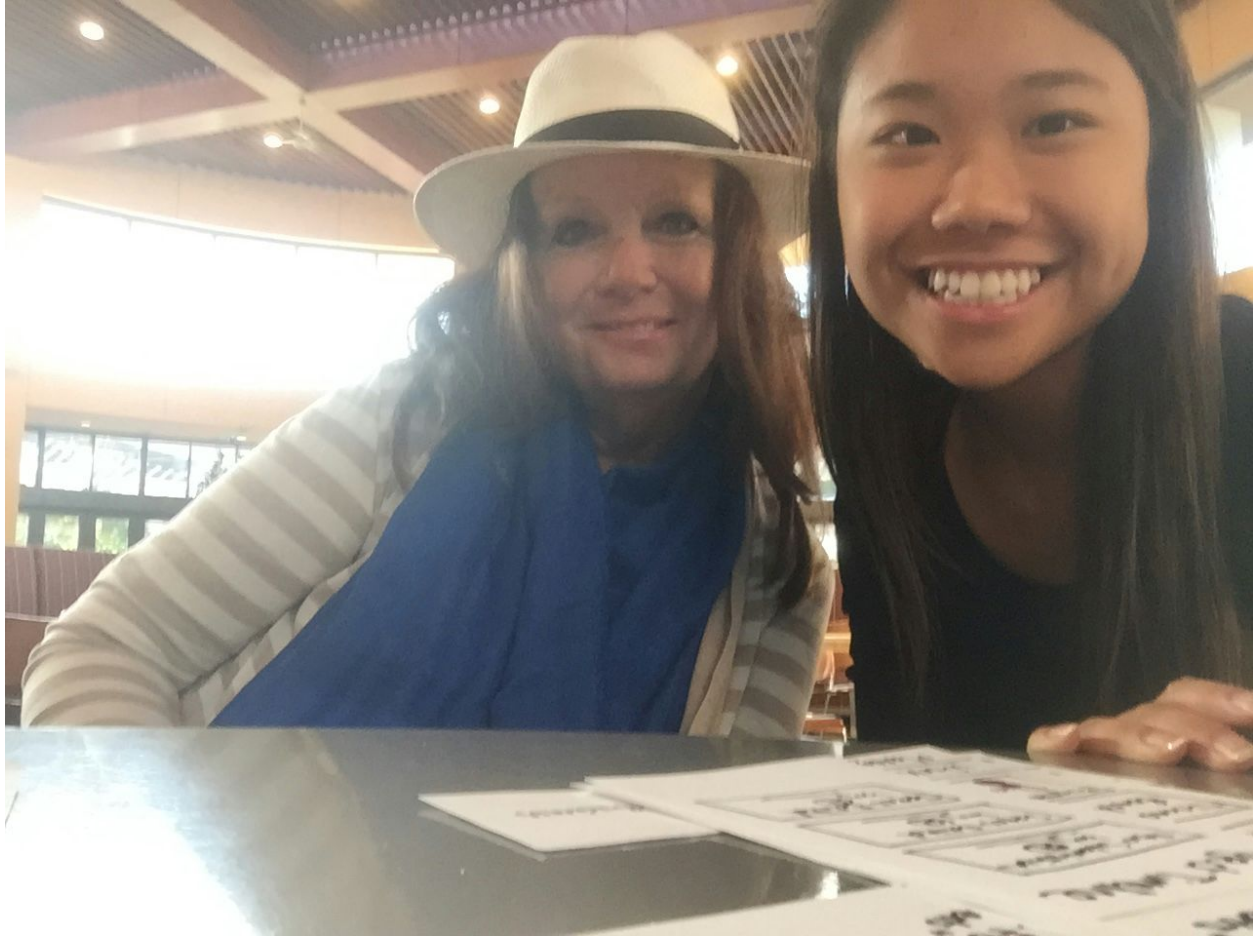


Figure A1. Prototype testing on Marilyn Hughes



*Figure A2.* Prototype testing on Marilyn Hughes



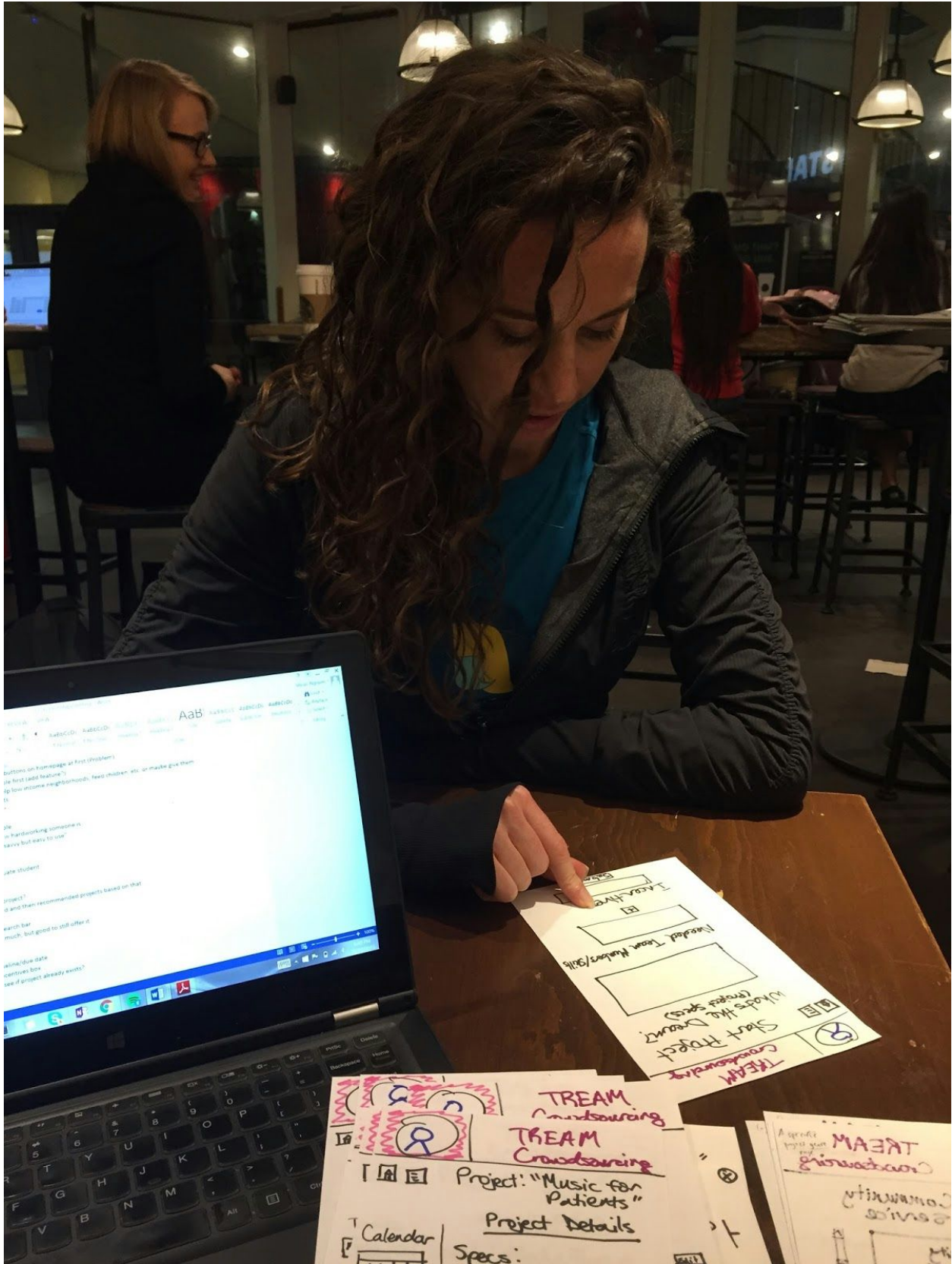


Figure A3. Prototype testing on Jamie O'Keeffe



*Figure A4.* Prototype testing on Jamie O'Keeffe



*Figure A5. Prototype testing on John Pericich*



*Figure A6. Prototype testing on Maggie Teets*



*Figure A7. Prototype testing on Maggie Teets*