Meal Mate
More than just delivering Lunch

Team Members
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Problem and Solution Overview

The problem we sought to solve was the difficulty and inefficiency inherent in the current elderly meal delivery system. It can be difficult to ask for help when you need it, especially when you are not able to do all of the things that you used to. Elderly clients of these services may feel disempowered to affect their own day to day lives. Establishing a clear line of communication between those delivering meals and those receiving them is paramount to preserving their dignity. However, this can be difficult, especially when the people the senior receives these meals from may be changing frequently. This is where we were originally hoping to step in and improve things.

Over the course of our research we found out that volunteers sometimes have issues too. When they leave, they are given names and places to deliver to, but not much beyond that. This can lead to the awkward situation of being greeted at the door by someone you aren't even sure that you are supposed to give the food to. Having all the information all at once is a hard task for a single volunteer in a big system. All the while you have to be on the go and make short transitions from house to house

To solve this problem, we created an app. While this app is centered around the volunteer experience, it is there to help the elderly clients as well. It gives clients a quick and easy feedback process that puts power back in their hands. They have a way to regularly keep in touch with those providing service. This is not just a call to complain, it is a regularly scheduled point of contact. It is large and simple so that even those isolated from technology can use it, and if not, can be guided through the process every step. In addition to the daily check in, it has a system to allow clients to keep volunteers informed of changes to their delivery needs as they come up. For the volunteers, this keeps all their information in one place. It has clickable links that expand to the rest of the phone's technology to make the journey go as smoothly as possible. No more waiting at the door with a stranger unsure if you should hand over the food.

Initial Paper Prototype

Our initial prototype allowed us to lay out the way we wished for information to flow when using the app. We established that we wanted the main page to be a list. This is what the volunteers would already be used to, so adapting it to digital form seemed to be the obvious choice. After that, we wanted to include some sort of profile so that we could accomplish one of our main goals, which was to compile all information about a client in a single place where it would be easily accessible. This included emergency info, contact details, delivery instructions and other things that would make the volunteer's job easier.

Our other main goal was allowing client to self-report any issues they were having and to give them a voice that they otherwise lacked. Establishing the method for this was a bit more difficult. We leaned into minimalism, with just a few buttons and text boxes for this. We really wanted an easy to use form that even those unfamiliar with technology could use without much trouble. We opted to use simple phrases and large text so that everything was readable and straight to the point. We wanted to use the progression like that you might find on a form in a doctor's office, just one thing after another, no scrolling needed, just flipping through pages.

We only ended up with a few screens for this first try. However, these were still the screens that provided the base in our final product. This step truly allowed us to visualize the issue and start brainstorming the way that a solution might look.

Task 1: Gathering volunteer-assisted feedback regarding changes in medical status
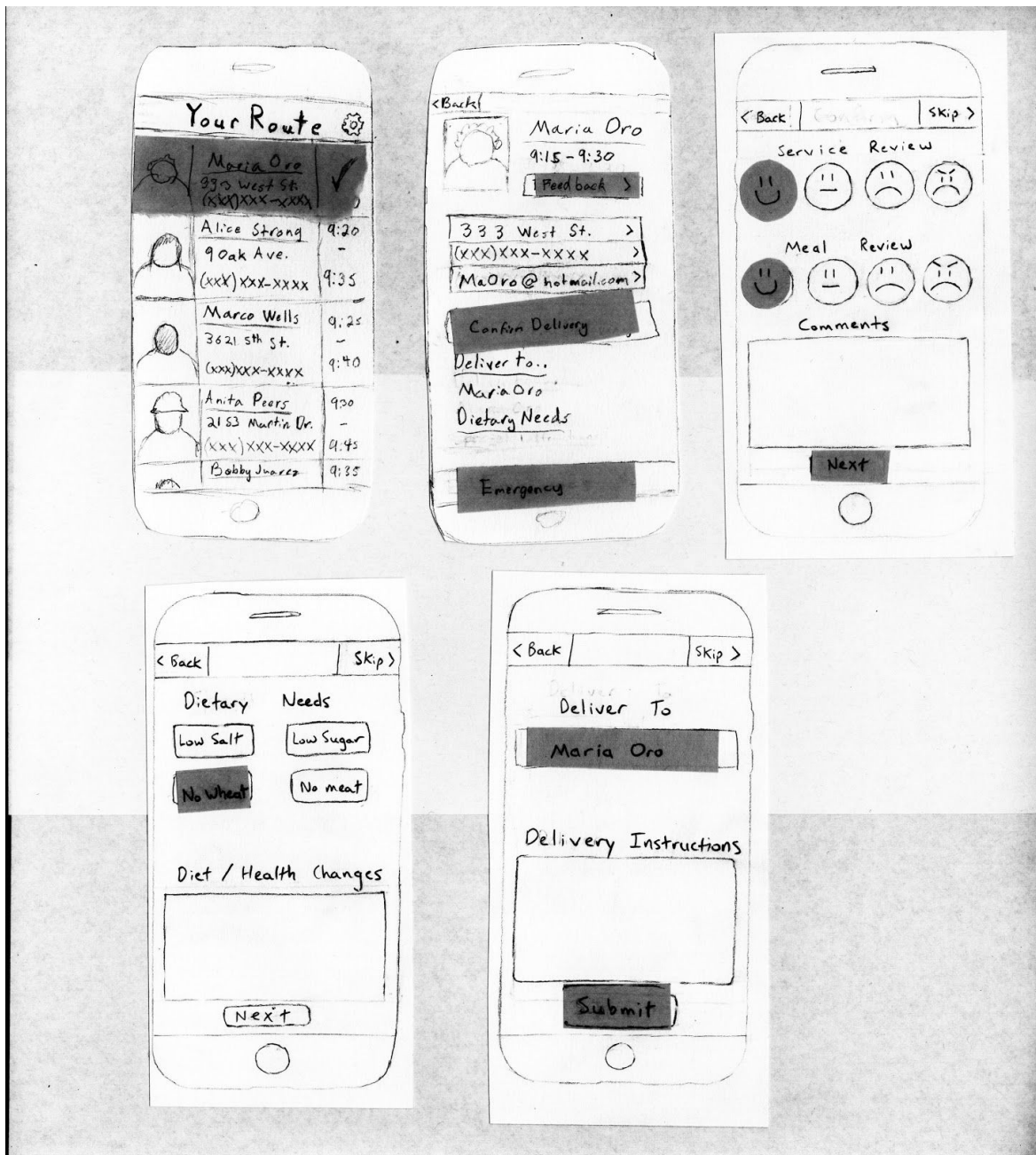
Screen 1: Volunteer home page, lists the people along the route in order of delivery. Includes delivery windows, addresses and phone numbers for each. Tapping one will bring up their profile. Check appears when delivery is confirmed.
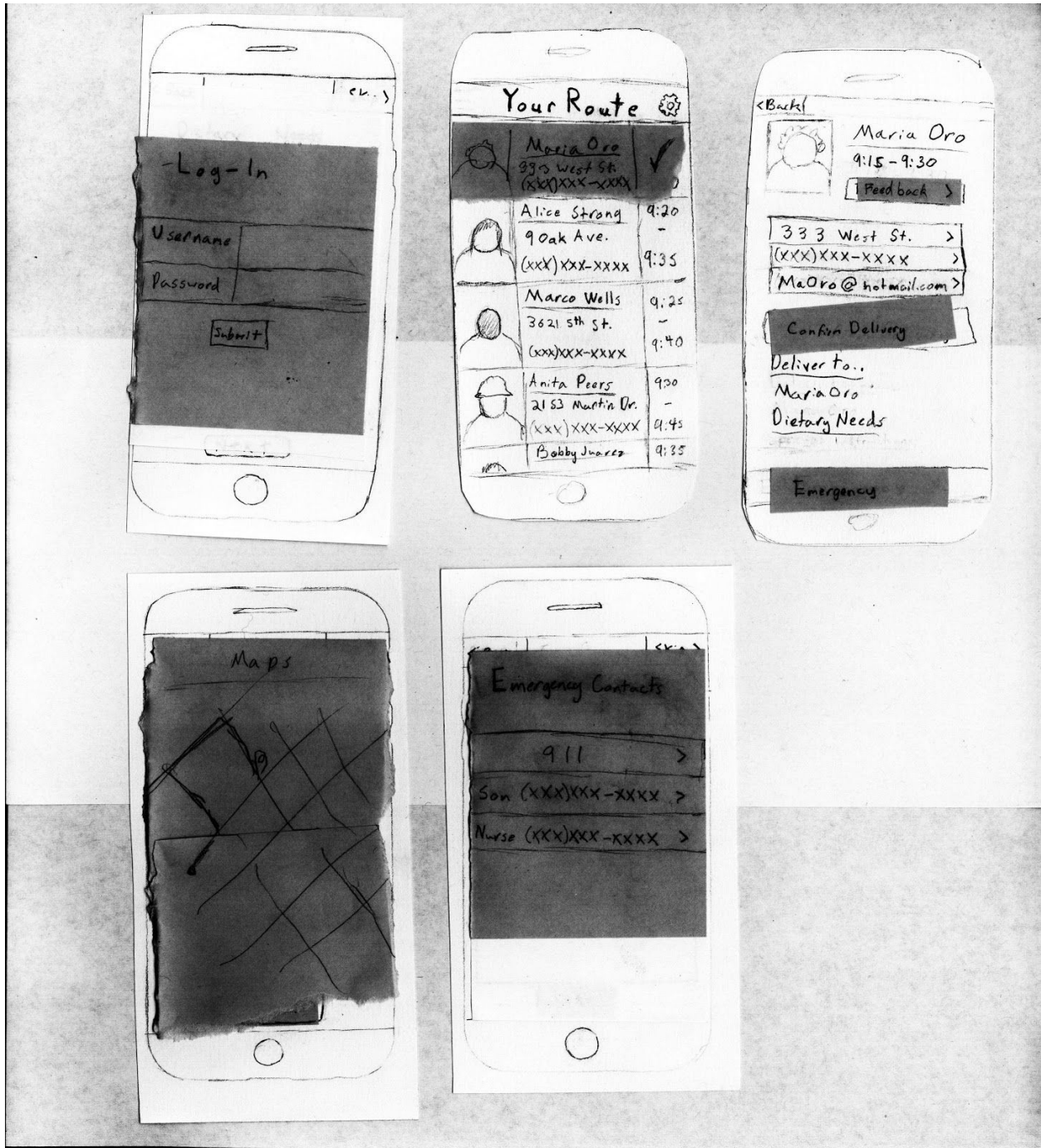
Screen 2: Client profile includes delivery and contact details. Tapping contact details will allow calling/emailing/etc tapping the address will bring up the google maps route to it. Allows for delivery confirmation on completion. Has a button for emergencies.

Screen 3: Reached by tapping feedback button. Features for general review of food and service as well as specific comments.

Screen 4: Let's client update their dietary needs with some typical needs and a text box for more specifics.

Screen 5: Specifies who picks up meals and any special requests for deliveries. Final feedback page. Submit sends the data to the organization.

Task 2: Volunteer responding to unexpected emergency situation while delivering meal

Screen 1: Simple login page, username, password, submit button.

Screen 2: Volunteer home page, lists the people along the route in order of delivery. Includes delivery windows, addresses and phone numbers for each. Tapping one will bring up their profile. Check appears when delivery is confirmed.

Screen 3: Client profile includes delivery and contact details. Tapping contact details will allow calling/emailing/etc tapping the address will bring up the google maps route to it. Allows for delivery confirmation on completion. Has a button for emergencies.

Screen 4: Tapping an address routes using google or default phone mapping app.

Screen 5: Tapping the emergency button brings up the emergency contacts associated with the profile. Tapping one will call that number.

Testing Process

2 In-class Heuristic Evaluations
Overview:
Our participants were fellow classmates in CSE 440 Intro to HCI. Following the heuristics guidelines, they were able to give us feedback about each heuristics in our paper prototypes.

Protocol:
We introduced our participants to our project and what design problem is sought to solve. Our participants then were allowed to freely explore each design interface and communicate heuristic violation as they saw in the paper prototypes. We asked them to talk aloud about violations and severity ratings as they went through each heuristics. After this, we reviewed our design and made changes to it before conducting usability tests.

3 Usability Testing Sessions
Overview:
Our group conducted three contextual usability testing sessions on three people with volunteer or meal delivery service. We ran the participants through a whole delivery with no guidance to see what problems they run into.

Roles for Each Team Member:
For the first usability test, Sofie played the role of the computer, Carol had the role of the test administrator, and Will was the note taker. For the last two tests, Will played the role of the computer, Sofie was the note taker and Carol was the role of the test administrator.

Protocol:
We first explained that we were in CSE 440 and were testing a paper prototype for volunteers who deliver meals to the elderly. We assured the participant that there were no wrong answers and that this was a test of the system rather than the individual. After some background information on the project, we gave them two tasks.
1. Gathering volunteer-assisted feedback and delivery changes

2. Volunteer responding to unexpected emergency situation while delivering meals

Participants and Experience
Usability test #1
- Volunteer: 21 year old male with experience in customer service
- Client: 21 year old male
- We chose these two because they had the resources necessary to simulate a delivery. Although we did not choose our target users to conduct this usability test, we believe that they are capable of simulating the environment of delivery and requesting feedback.

Usability test #2
- Volunteer: Female teacher at refugee school in Kent, WA and volunteer with homeless people
- We chose this participant because she is our target audience and had lots of experience with volunteering with homeless people and people in need.

Usability test #3
- Volunteer who has worked with several organizations getting signatures for various petitions about public health, the environment, and animal rights.
- We chose this participant because they had experience with door to door work, much like the work a volunteer for meals on wheels would be doing. They would have a good idea of how to have positive interactions with people.

Testing Results

Heuristic Evaluation Results

Heuristic Violated	Specific description of problem	Changes made
Consistency & standards	Wording for "Confirm Delivery" is not clear as confirmation is usually the prerogative of the client, but our intent is to let volunteers confirm	Changed "confirm delivery" to "delivery complete." This language reflects our intent
Flexibility & efficiency of use	Emergency is supposed to show both"911" and "emergency contacts", but we found that users typically call "911" directly	We accept users will dial "911" in the typical fashion. Changed "emergency" to "emergency contacts" and placed it in context with other

		profile items
User control and freedom	- Confusion about "Your Route" - Only today's schedule is shown for schedule	Added a calendar and changed to "Deliveries"
Visibility of system status	Confusion about what happens after submission. If client is operating phone, when do they hand it over?	Changed "Submit" to "I'm Done", reinforcing the interface between volunteer and client

Design Critique

Problem	Specific description of problem	Changes made
User control and freedom	Confusion about "Your Route"	Changed to "Deliveries"

Usability Testing: Issues and changes

Specific description of problem	Changes made
Login screen was just a username and password. Many people including the one we spoke to do not wish to create a new account	Added facebook as a login option to increase flexibility. Added a system for forgotten passwords. Customizable image now available for a friendly feel.
Scrolling can be one extra step that many may not take.	The screen now automatically puts the first undelivered customer at the top, eliminating the need for most scrolling.
The look and function of the calendar was unfinalized.	made a familiar pop-out calendar. When the dates are clicked, takes you to a schedule for that day without all the interactivity of today's interface.
It was unclear what was a button and what was not. The home button was	Feedback button now front and center. Top left label is "home." Delivery details can be edited,

previously called "back," which was confusing and there was no way to edit profile details individually. No way to denote a missed delivery or to take notes.	taking you to the individual screens. Now there is a way to note delivery, lack of delivery and note issues surrounding delivery.
Inconsistent layout with other screens	Title at the top
Unclear when the new person would pick up.	Added a pop out calendar to select dates for each different person to pick up.
No place for volunteer to make their own notes, only the client.	Simple volunteer notes page with a text field.

Final Paper Prototype

The final paper prototype still had most of the same base features as the initial one, with some notable changes. In general, our design simply expanded and grew to the new difficulties it needed to accommodate. Our profile page now separated out the different functions to correspond to their timing. "Feedback" would be an everyday thing but changing aspects of the delivery would not. As such we now split them.

One major change and new function in the final paper prototype was the ability to look at past and future deliveries. We added a pop-out calendar in the top left corner of the home page. By accessing a past or future date, you enter a more limited version of the app with no feedback or delivery change capabilities, but which still has client details including any notes you may have made on that day for each client.

Something else that got added is the ability to mark clients with delivered/undelivered. This makes it easy to keep track of what you have already done. In addition, marking "undelivered" pops up a screen that allows for communication with the service about why the delivery could not be completed and any personal comments. We also added a notes section for the volunteer so that they can keep track of what is going on with their own deliveries from day to day.

Our login also became more sophisticated with this version, allowing not only for a login with the app, but also the ability to log in via facebook for ease of use. We also allow you to change your profile picture now to make the whole thing a little more personal. We chose to keep a lot of this new functionality as optional so that the involvement level on the part of the volunteer is where they choose it to be. It encourages enthusiastic volunteers to get really into it and lets those who are simply doing their good deed to just use necessary features and streamline the experience.

Overview
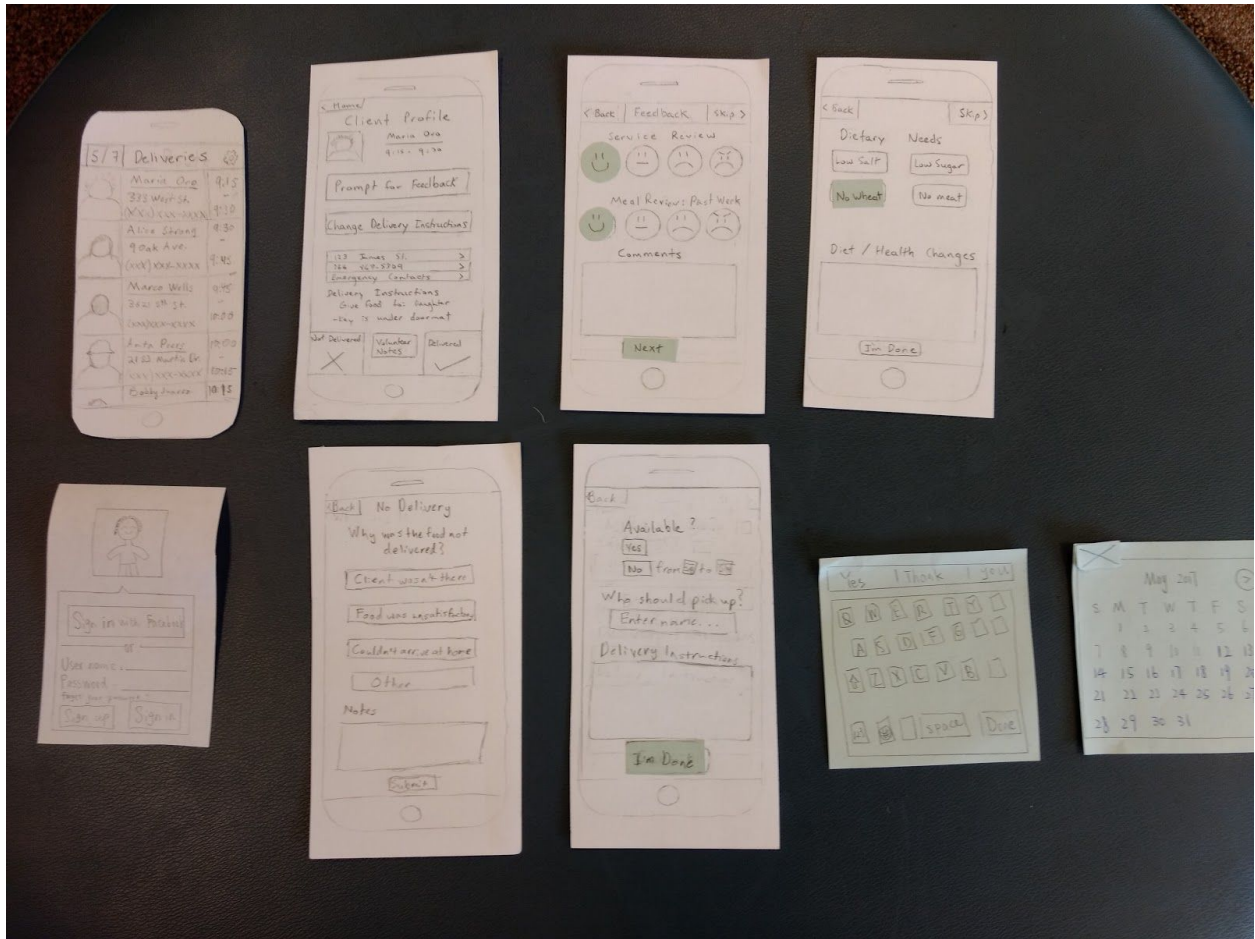
Task1: Gathering volunteer-assisted feedback and delivery changes
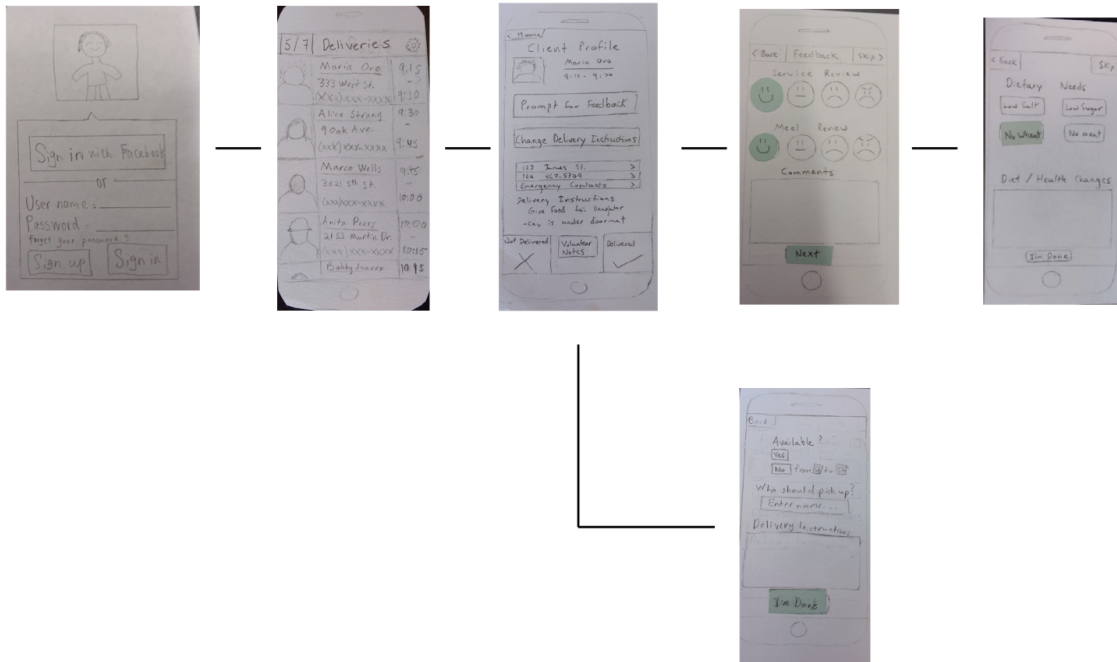
Volunteers are able to either log in or sign up with their accounts and land in on the home page which is a list of the delivers for today. Volunteers are able to adjust the date to see other day's deliver history or plan. After the food is being delivered, volunteers can hand in their phones to the clients and assist them to provide feedback about service and meals and any changes about their dietary needs. Volunteers would also ask any changes for clients about their delivery instructions.

Task2: Volunteer responding to unexpected emergency situation while delivering meal
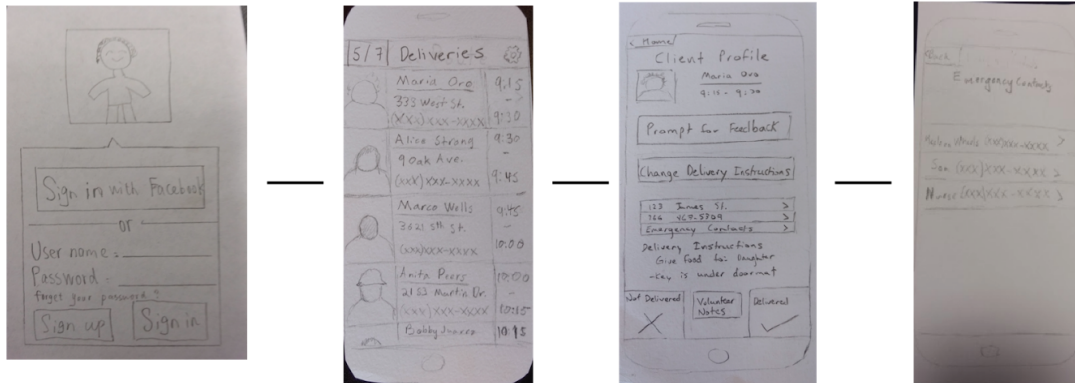
Volunteers are the primary point of social contact for most elderly citizens and should therefore be prepared to respond appropriately to emergency situations. If a volunteer encounters an emergency, the volunteer would likely call 911 reflexively, and then hopefully adhere to training and contact the appropriate people. Under "Emergency Contacts", we provide the client's' family emergency numbers as well as a direct line to the service organization, such as Meals on Wheels.

Mock up

Overview

All in all, our digital mock up is fairly similar to our finalized paper prototype. A few changes have been made, including the addition of color, fonts, and design elements in general. We also altered some labels and layouts in this version, mostly because they looked better on paper than digitally. We wanted to make sure our interface was bright, simple, and easy to use. For this reason we include large buttons, and not that many on any given page. Our color scheme is contrasting saturated colors on a more subdued background so that selectable items are obvious.
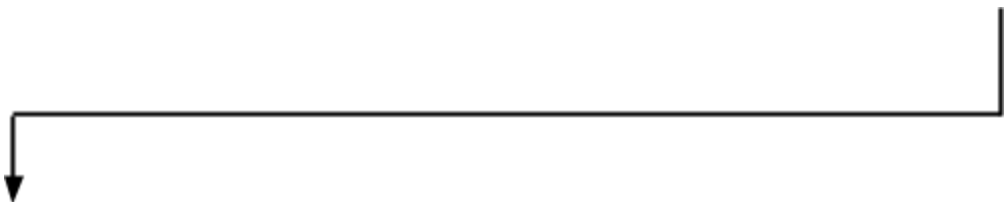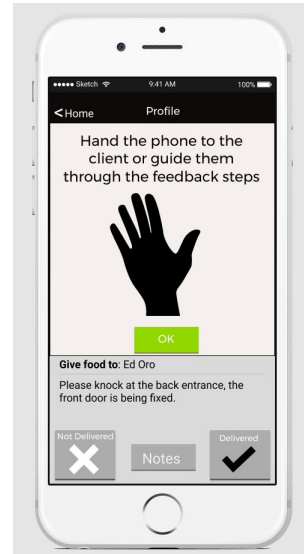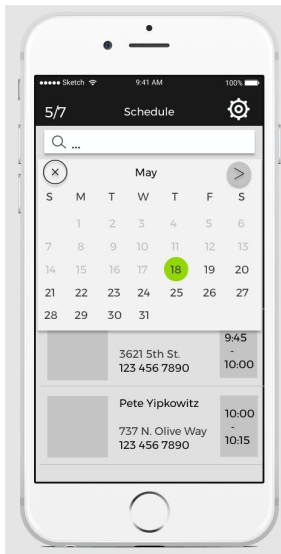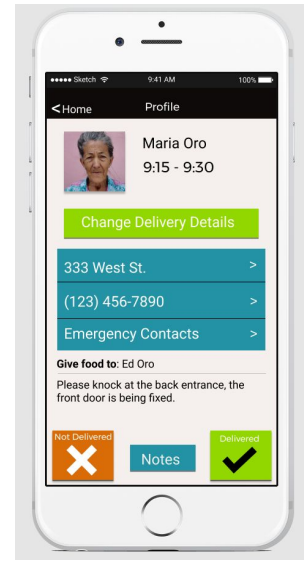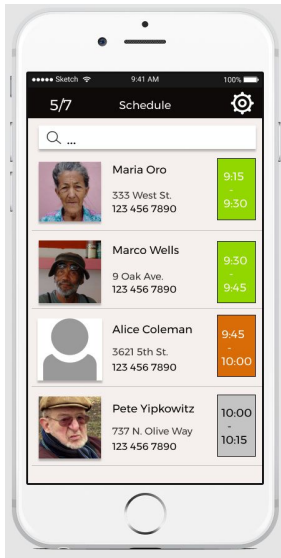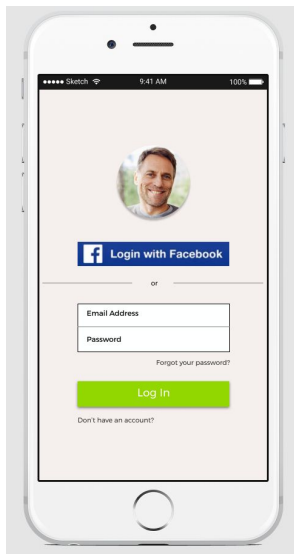
We also placed the titles all in one place and have some other elements that are now more consistent. Text boxes, submit buttons, and navigation now all have the same style throughout. We decided to eliminate the "Prompt for feedback" button altogether because it had been causing lots of confusion. Instead we integrated this function into the delivery button. We also clarified some instructions on the emergency contact page in order to help those in a panic.
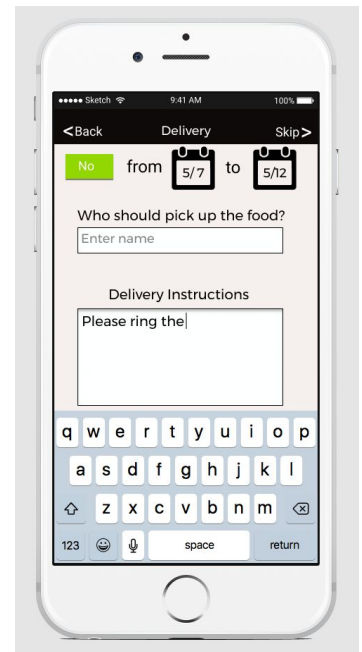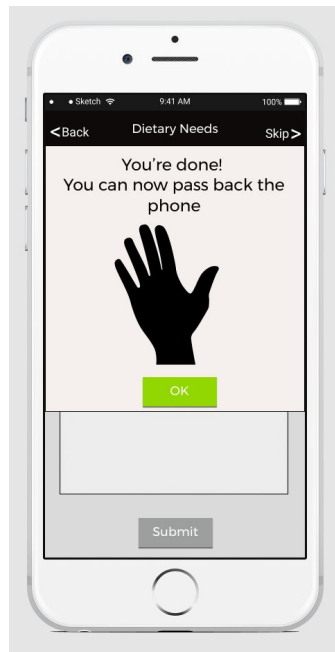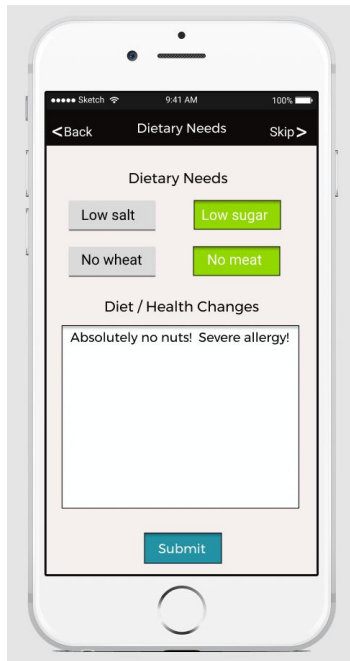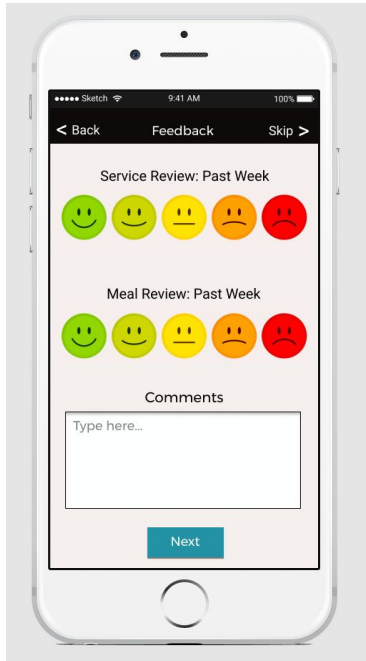
Elements like the keyboard and calendar now have a clear style and altogether everything just looks and functions more smoothly and efficiently.
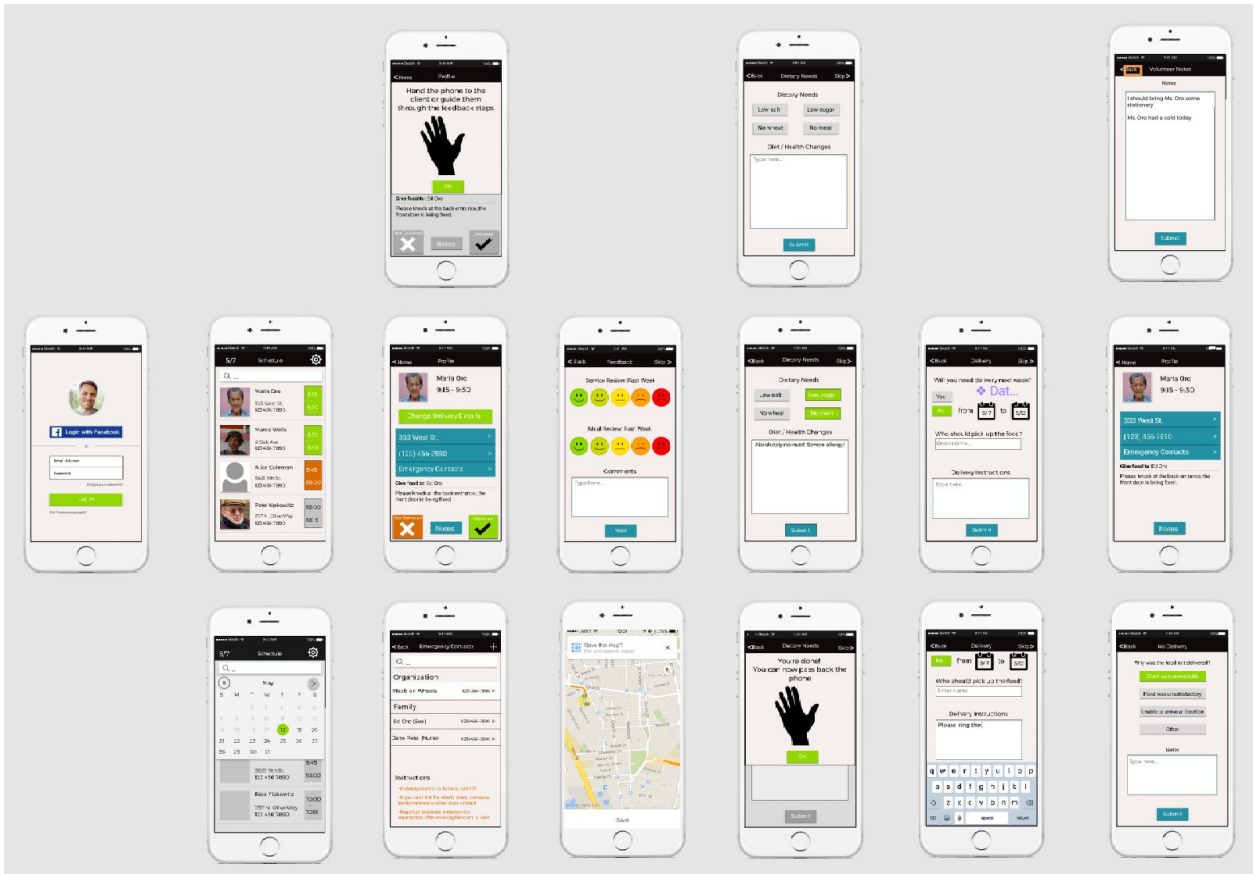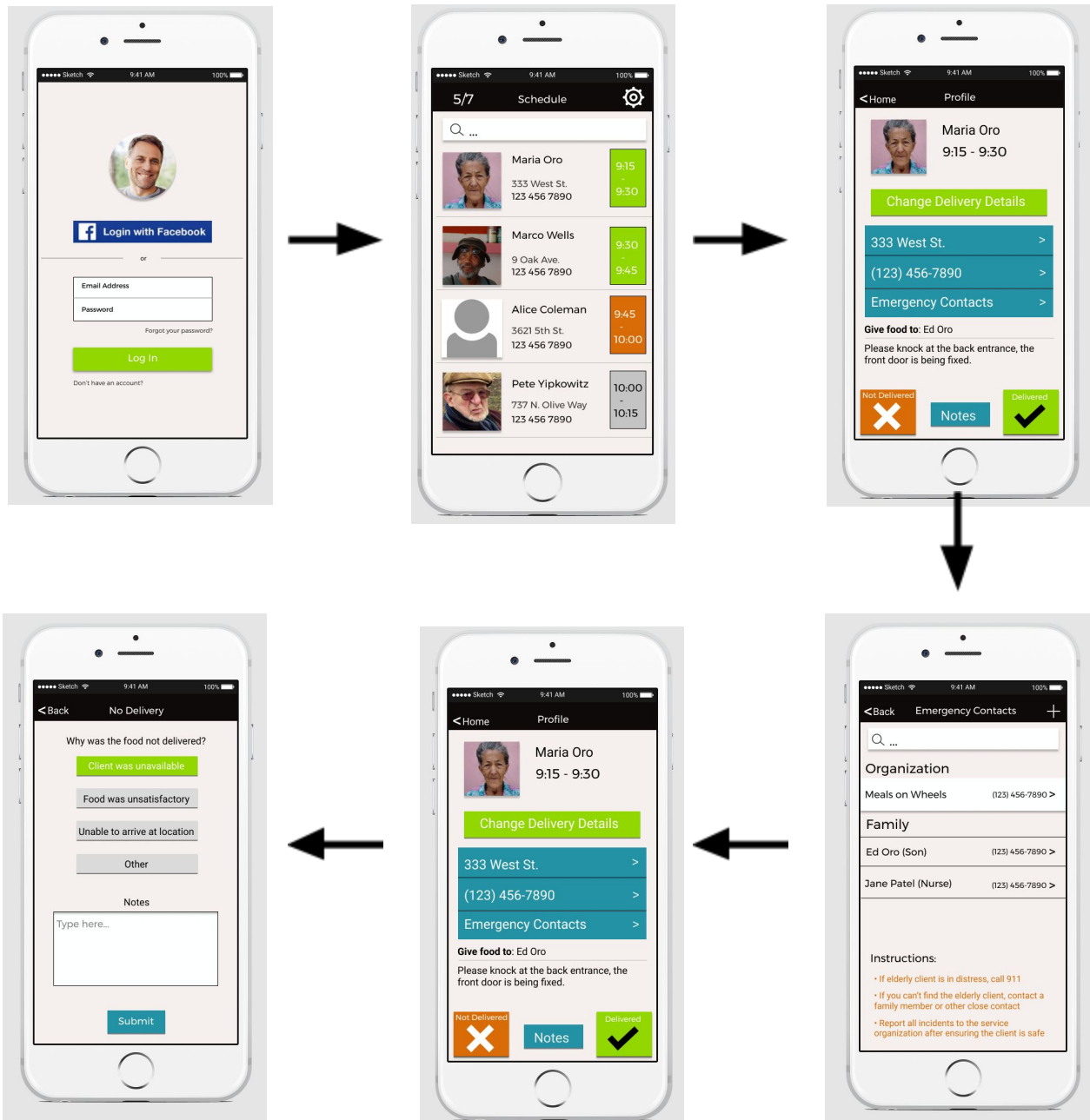
Task 1: Volunteer delivers meal and collects feedback from client

Screen 1 (Feedback):

< Back　Feedback　Skip >

Service Review: Past Week

Meal Review: Past Week

Comments

Type here...

Next

Screen 2 (Dietary Needs):

< Back　Dietary Needs　Skip >

Dietary Needs

Low salt　　Low sugar

No wheat　　No meat

Diet / Health Changes

Absolutely no nuts! Severe allergy!

Submit

Screen 3 (Delivery):

< Back　Delivery　Skip >

Will you need delivery next week?

Yes

No　from　5/7　to　5/12　Date Range

Who should pick up the food?

Enter name...

Delivery Instructions

Type here...

Submit

Screen 4 (Dietary Needs - done):

< Back　Dietary Needs　Skip >

You're done!
You can now pass back the phone

OK

Submit

Screen 5 (Delivery - keyboard):

< Back　Delivery　Skip >

No　from　5/7　to　5/12

Who should pick up the food?

Enter name

Delivery Instructions

Please ring the

q w e r t y u i o p
a s d f g h j k l
z x c v b n m
123　space　return

Task 2: Volunteer responds to client in distress

Discussion

What was the biggest challenge and what did we learn from it?

Although the project is simply a class project (CSE 440), our team is focusing on an existing social problem on the elderly and volunteer who deliver meals to the elderly. This problem made our user research somewhat lack of access and ineffective. We, however, see that the biggest challenges during the user research stage were rotted in the lack of clarity in our target users. The key users at first were the elderly who receive the meals from the volunteer. Our professor and TA pointed out as "hard to explore". They suggested us to switch the key users from the elderly to the volunteer because the volunteers have more control over the feedback functions and can help the elderly navigate the application. Our team spent half of the project trying to pin down the pain points of the target users to build a solid design solution based on our data analyze. In summary, we learnt that the ambiguity leads to inefficiency and lack of direction, trying to receive a clear perception of every single aspect during every stage is crucial.

What should we have done if we had more time?

One thing we would have done if we had more time is to conduct multiple rounds of usability tests. This is because critiques from the potential users are critical feedback and it was their responses which made our product actually solving the pain points. Design is an iterative process and if we were capable of receiving conflicting feedback from the users during the usability testings, it would be ultimately helpful for our team to eliminate what is bias from our perspectives and determine the best design direction to continue with.

What should we do again in the future?

Always ask "WHY". Always think about the reason why we are doing this during each stand and why we are moving onto the next page.

Although design tools such as Sketch and Figma are simply handy tools, it is still necessary for designers to be familiar with in order to design rapidly. During the mock up phase, we found us lack of knowledge to a lot of detailed functions in them. Thankfully, all of these iteratives, we have been conducting filled our gaps and keep us motivated to learn more.