CSE 440
2h: Final Report
Lend a Hand - Isaac Schaaf, Michael Kim, Elizabeth Schibig, Ellen Wu

1. **Title**
   Lend a Hand

2. **Team**
   Issac Schaaf - Ninja Project Manager
   Michael Kim - Ninja Web Developer
   Elizabeth Schibig - Ninja Writer
   Ellen Wu - Ninja Designer

3. **Problem and Solution Overview**: (1 paragraph)

   In our increasingly digital age, human interactions between community members and neighbors become extremely rare. Because of the large blanket of anonymity that encompasses most neighborhoods, it is difficult to give help to and get help from your neighbors even though in a lot of circumstances it would be beneficial to leverage community members in order to get help with a problem. For example, suppose you are sick and unable to go to the store for any medicine, most likely one of your neighbors would be willing to help you out, however approaching them can be difficult if you don't know them well. In a different scenario, suppose you need to drive to work but your car won't start because the battery is dead--the same kind of anonymity and isolation will make it difficult to ask for assistance, though most neighbors are able and willing to jump start your car. Instead, you may call your friend who lives thirty minutes away to jump your car, and as a result, you arrive to work late. Elderly or disabled members of the community, who may not be able to freely move through their own homes, may at times need (or like) help with maintaining their lawns or moving heavy objects. Most people would be happy to help, but the lack of awareness in a community of the existence of such needs makes it difficult to provide/receive help. Studies suggest that when neighbors take an interest in each other's well-being, neighborhoods experience less criminal activity[1]. If you don't see anyone out and about in the neighborhood, neither do criminals who are hoping to go unnoticed.

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[1] http://www.improvementcenter.com/security/8-surprising-facts-about-safe-neighborhoods.html

4. **Contextual Inquiry Target, Stakeholders, and Participants**: (1 page)

Interviewee #1 (Amy) is a UW dormitory resident. Amy is a resident advisor in the dormitory and enjoys cooking and baking. Amy is a junior who is majoring in Biology. Amy knows almost all of her neighbors on a first name basis. When faced with a difficult problem, Amy's generally tries to resolve the problem with the help of the internet first before asking family or friends for help.

Interviewee #2 (Lemon) is a 45 year old single mother living near the edge of West Seattle. She lives with her daughter (who is in college) and has several family members living in other parts of Seattle, but for the most part their family is scattered across several states. Lemon knows about two of her neighbors and has asked them for help with minor things before, but for the most part will turn to online tutorials or family members for help when needed. She enjoys engaging with her community and would not hesitate to help when someone else requests for it, but trust is a very important factor when it comes to helping out with tasks inside someone else's house. When asked if she would be open to relying on the community in times of need, Lemon unhesitantly answered "absolutely--we are not insulated individuals, and we need lots of support to function," but noted that there have not been many opportunities to establish that type of support.

Interviewee #3 (Mary) is an 80 year old, elderly women living with her husband in a suburban home in Tacoma, WA. Mary doesn't really get involved in the community much. It is noted that Mary and her husband are an elderly, aging couple. They do a lot of work in and around the house, preferring to do everything themselves if possible. But age is catching up, Mary's husband in particular has had a minor stroke before and no longer has as much mobility as he used to. This makes yard work (which can often include heavy lifting) increasing difficult to do. So Mary and her husband do need help to do some tasks. However they aren't well connected with the neighborhood community.

Interviewee #4 (Rick) is a 60 year old homeowner and active member of his community in Ashland Oregon. Having lived there for over 20 years, he is well acquainted with many of his neighbors and works with them regularly. Often times he will organize events and projects with his community members both to help improve the community as well as to bring people together. Being the handy man that he is, he owns many power tools and pieces of equipment often needed by other people. Because of this he has developed a reputation as the neighborhood goto guy.

5. **Contextual Inquiry Results and Themes**: (1 page)

One of the biggest themes that emerged from our interviews was a lack of trust that currently exists between members of the same community, along with that a lack of means to establish that trust. We proposed to our interviewees several types of assistance that they can offer or receive based on different levels of trust that each proposed scenario may require: assistance outside the home (e.g. trimming bushes), and assistance inside the home (e.g. unclogging a sink). For the outside scenarios, the interviewees seemed comfortable with both providing and receiving help even if they do not know the other person. However, with tasks that involve entering a home, all of the interviewees stated that they would need to know the other person rather well before they are comfortable with such tasks. This issue was paramount for every person we interviewed on pretty much every scenario discussed.

For Mary, an elderly resident within a suburban neighborhood, she expressed that she would like help with some yard work and heavy lifting, but they are not well-connected with the rest of their neighborhood. Rick and Amy seem to be exceptions since Amy is an RA who lives in a dorm with other students that attend the same school and Rick has lived in his neighborhood for twenty years. Establishing trust is generally difficult to do regardless of whether an individual is a newcomer or an existing resident; all interviewees prefer to turn either to internet guides, call family/friends, or hire a professional for help when needed rather than approaching an unfamiliar neighbor who can potentially provide faster assistance. When asked what can be done to foster trust, Lemon suggested organizing block parties/other neighborhood events.

Most interviewees expressed a desire to foster greater community interaction, but for our suburban interviewees there are very few avenues to establish those sorts of interpersonal relationships. Rick mentioned that oftentimes he will organize events and projects with others in the community in order to bring people together and improve the neighborhood--based on the additional feedback from Amy and Lemon, who are also interested in greater community interaction, we could potentially explore the organization/facilitation of group events as an additional feature to our app. Adding such a feature will not only let people rely on pre-existing relationships when requesting/offering help, but it will help foster new relationships and a greater sense of trust within the community in general.

Dealing with potentially unpleasant experiences when offering/receiving help was another aspect of community engagement that we took into consideration in our interviews. Both of the interviewees who we had discussed with concerning potential negative experiences expressed that they would strongly prefer not to have the ability to leave free-form comments because some people have the potential to be very rude/mean when given the ability to speak freely, and they feared this might lead to rifts and unnecessary disputes within the community. They would like some way to leave feedback (both positive and negative) for their experiences if they were to use the app, but they preferred a regular star-rating system or giving thumbs up/down (potentially even letting users select preset comments).

6. **Answers to Task Analysis Questions**: (2 pages)
1. Who is going to use the design?
   Community members, specifically suburban residents and people looking to get involved in their community, or people who need a little extra help (elderly or disabled).

2. What tasks do they now perform?
   Lookup tutorials on the internet, call friends or family, hire a professional. In cases where the issue does not pertain to one person in particular, some people simply ignore it.

3. What tasks are desired?
   Being able to just ask a neighbor (rather than call someone further away or hire someone). Get to know more people in the community, both to have more people to go to when you need help as well as to gain a sense of community.

4. How are the tasks learned?
   Most of the techniques people use to request help are learned by trial and error. People get help from a neighbor/family member/company and then based on their experience, either use or ignore that outlet in the future.

5. Where are the tasks performed?
   In or around the house, or in the broader community.

6. What is the relationship between the person and data?
   All data will need to be remotely accessible, but with access restrictions. People will have private data that only they can see as well as public data for a community (such as actual requests).

7. What other tools does the person have?
   Currently people can use the internet to lookup instructions to complete the task themselves (if it is something like fixing a computer/car). For problems where another person is needed, people can ask for help on facebook or using a more locally restricted platform such as Nextdoor.

8. How do people communicate with each other?
   Most people communicate over the phone or with email. Most of the tools listed above also have modes of communication built into them (facebook messenger, Nextdoor forums). That communication is centered around describing a problem they need help with.

9. How often are the tasks performed?
   Most people don't actually ask for help with problems more than once or twice a month, although people would be more inclined to ask if better avenues were available.

10. What are the time constraints on the tasks?
    Usually when people are looking for help with a problem people expect to get it within a day or two. Of course for some problems this could be as small as a couple hours or as large as a couple weeks. When it comes to the process of finding someone, most people will either hire someone or let it go depending on how important the problem is.

11. What happens when things go wrong?
    If you can't find someone to help with your problem, the problem might not get done (which could have varying degrees of consequences). If you find someone but that person turns out to be untrustworthy, then items might get stolen or broken which again could be very problematic.

7. **Proposed Design Sketches - "3x4"**: (8 page)

Design 1:

The first design is a mobile app which focuses on building relationships and simple visual representations. The main page will consist of a map (geographic locality) or graph (relationship) view showing people in your neighborhood and the requests they have made. Relationships between a user and his/her neighbors will be represented on the main page by different colors. By accepting and fulfilling requests, a neighbor can strengthen his relationship with a user, and trust is fostered through visual representations of extended connections. The relationship colors on the main page will be updated dynamically to reflect changes in relationships. The requests are structured into categories represented with different shapes based on the category. Requests visibility can be modified according to the security requirements of the request. For example, if a wealthy elderly woman needs assistance inside her home, she can make the request visible only to people she already has established relationships with and trusts. There is an option to make requests visible to your friend's recommendations or acquaintances (Ex. Someone your good friend trusts greatly). This option can be used to expand your network and build new relationships.

Task 1: Borrowing tangible Items
To create a request to borrow tangible items, tap on the Request button on the main screen which brings a create borrow request screen which allows one to enter the item required, the time frame, the borrow duration, security, etc. To accept a borrow request, one must tap on an existing borrow request shown on the main map screen.

on Create borrow request
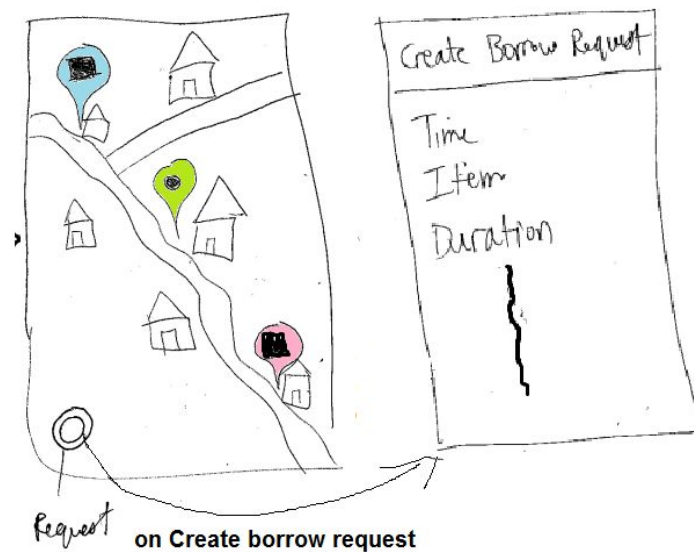
Task 2: Requesting in-person help

To create a request for in-person help, tap the Request button on the main screen which brings a create help request screen which allows one to enter a description of the help required, the time frame, the estimated duration, security, etc. To accept an in-person help request, one must tap on an existing help request on the map.


Create Help Request

Help description

Time

Duration

Request

on Create in-person help request
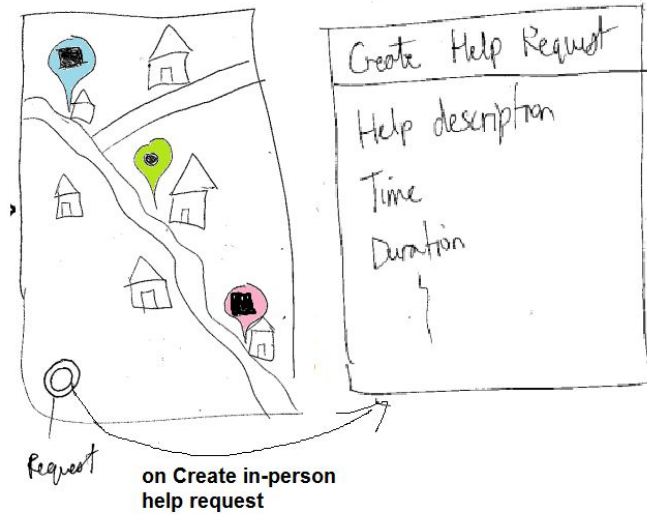
Task 3: Facilitating community events

To create a request for community events, tap the Request button on the main screen which brings a create community event screen which allows one to enter a description of the event, the location, the time, etc. To attend a community event, one must tap on an existing community event on the map.

Creating a community Event   Attending a community event

Community Event

description,

Time

Duration

Request

on Create community event

Park   On Click

Who is attending
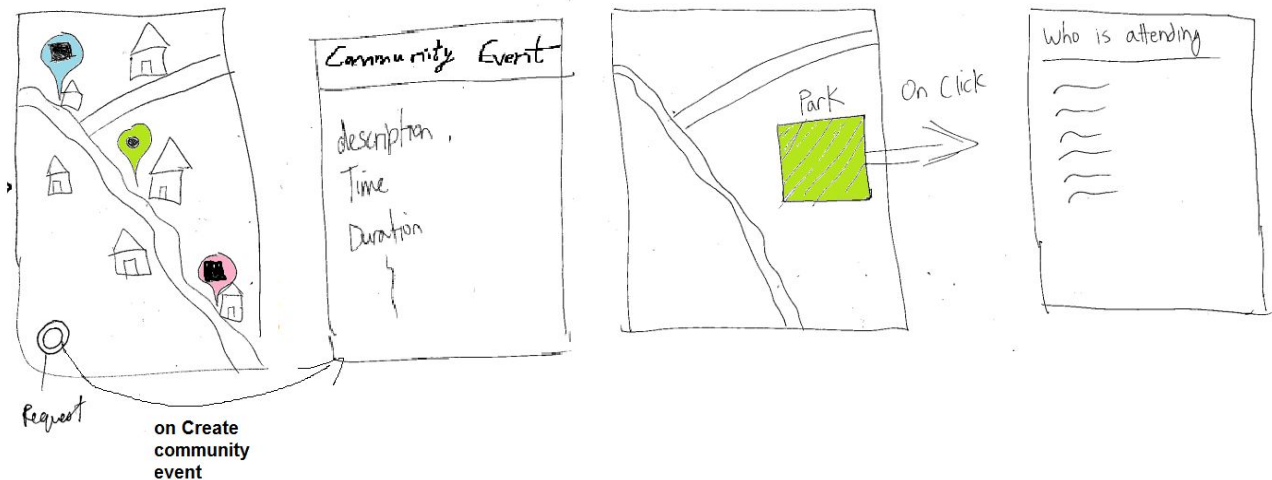
Task 4: Viewing graph network of connections
To view the graph network of connections, swipe the screen to the right. The same requests available on the map view are also displayed on the graph network view but with respect to your graph network of friends.


View Graph Network

Map
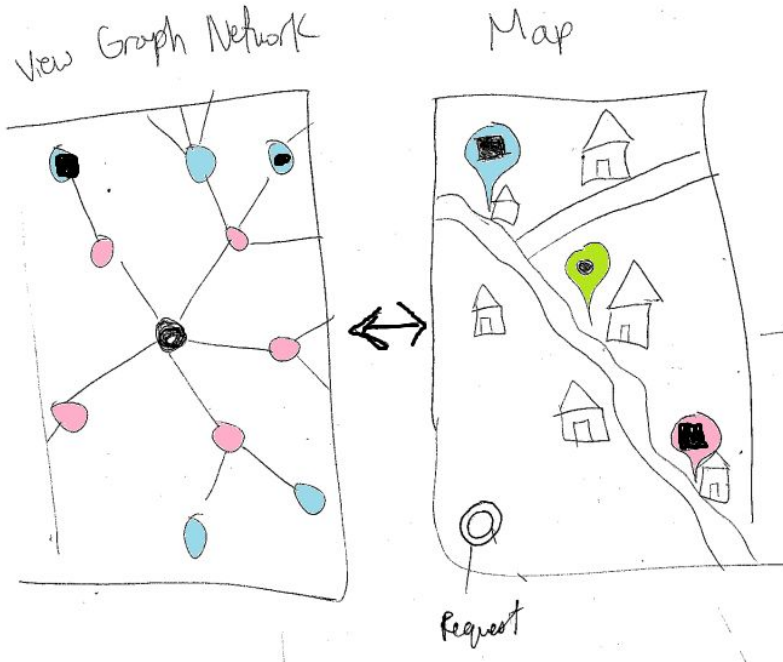
Request

Design 2:
A web portal that focuses on allowing free form input for requests and to borrow items. In order to facilitate exposure, requests can be referred by other uses to people they think would be appropriate for the task The request page has a section for a user to see their own requests, make a new request, and see their request status and a section for requests posed by other users. These requests can be sorted by date posted, category, etc. The borrowing items page allows the user to make a new entry for any item they are willing to lend, and more importantly shows a list of items other users have posted. The main page (accessed after logging in) has links to the requests and borrow items pages, and in the background shows an interactive graph view of a user's community connections. Using information from your profile, people in your graph can refer tasks to you if they think you'd be good for the job.
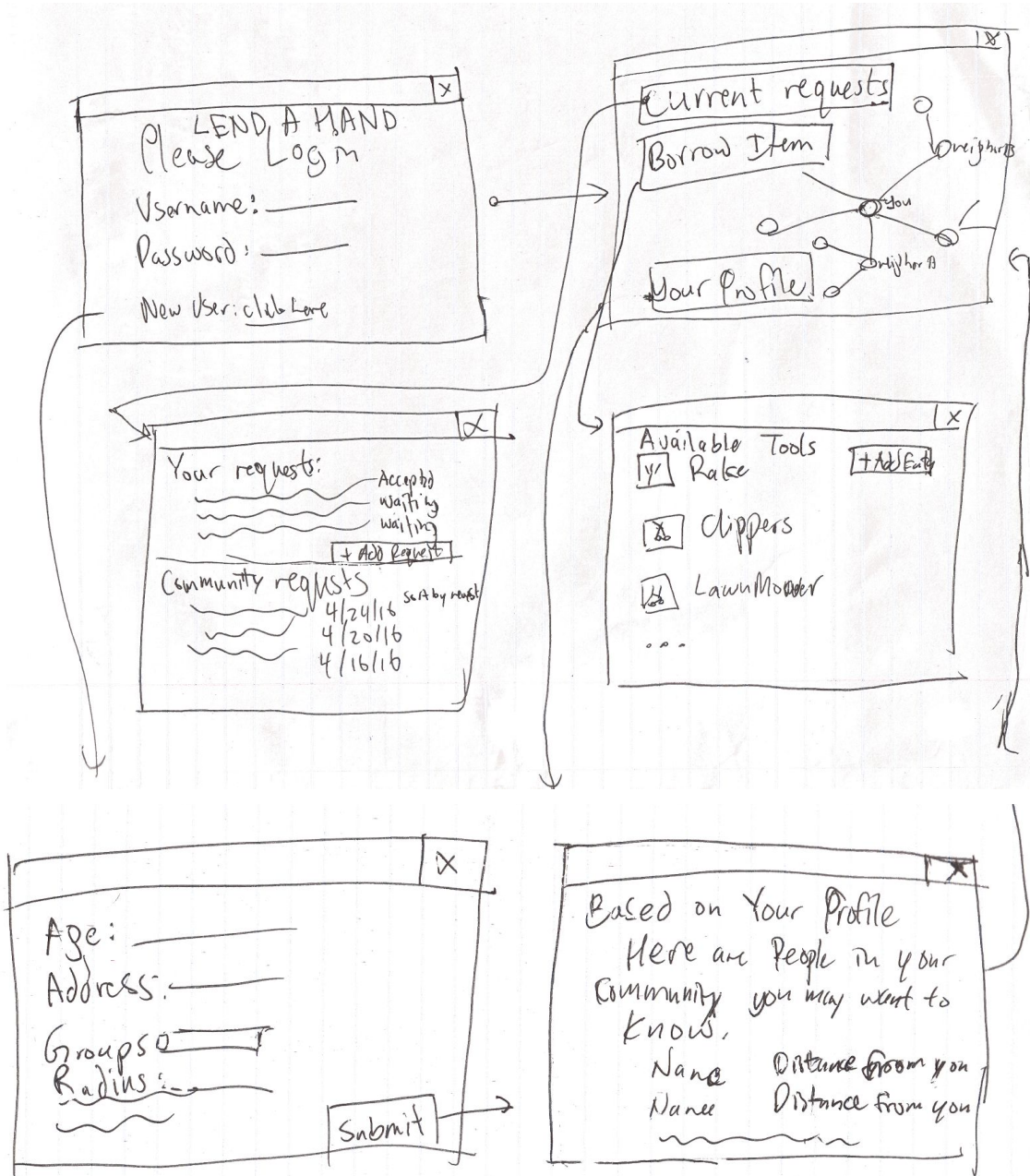
Introduce yourself to the community
When a user creates a new profile, the user is taken to a page that lists the names of people the user may want to get to know in the community. The user can then select people from that list he/she wants to connect with.
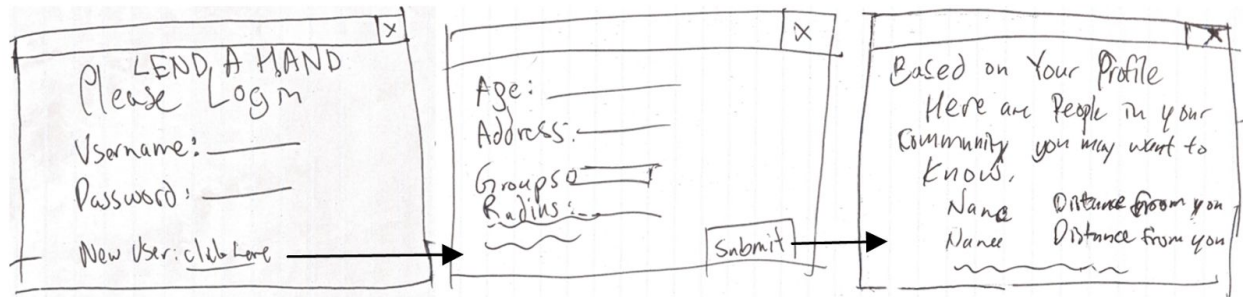

Requesting help
Top of page: User sees a list of own requests and request status (Accepted or Waiting). There is also a link to add a new request.
Bottom of page: User sees requests made by other users in a list. The list can be sorted by various categories, such as 'newest'.
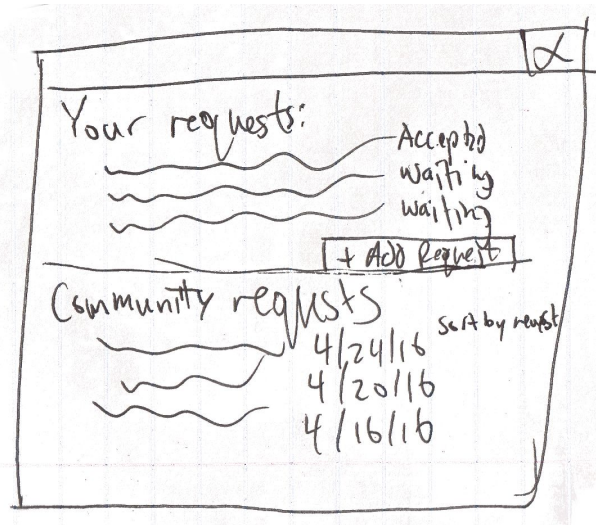
Borrow Items
Shows list of available tools with short name/descriptions and a picture of the tool on the side that the user can select from. New items can also be added to the list.
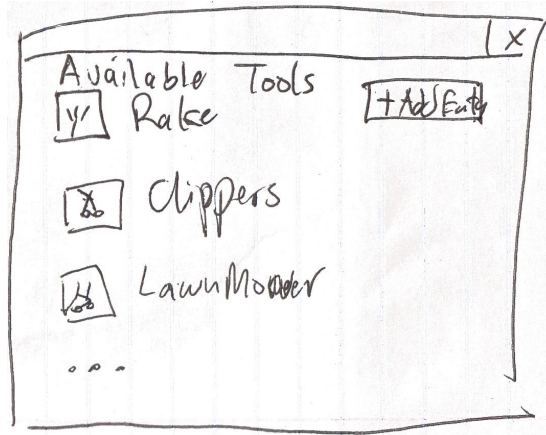
Graph Network
On the main page, in the background there is an interactive graph of a user's community connections. This graph is faded in the background until clicked on, in which case it fades into focus and allows for the user to click, drag, and zoom in the network.
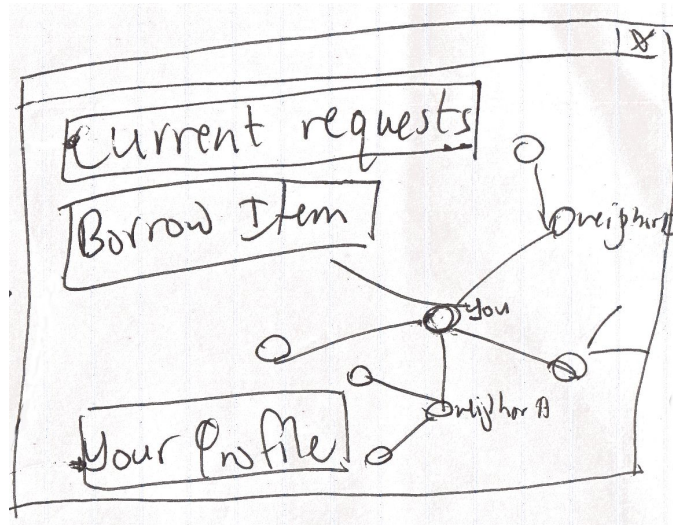
Design 3:
Subscription based model: a user can select categories of help they are willing to give (e.g. community events, moving, pet-sitting, etc.) and everytime someone within a certain radius of them requests help in that category (and the user fulfills the security requirements) the user will receive a push notification alerting them. From there they can snooze/accept the request for help. On the home screen will be a snapshot of the user's profile, the number of requests they have sent/accepted, their average feedback ratings, and items they have borrowed + days they are due. This model relies on the person offering help taking on a more active role, and trust is fostered through the feedback system rather than building directly upon pre-existing relationships (e.g. getting to know friends of friends).

Task #1 (profile/introductions): Clicking on the profile snapshot will take the user to a more detailed page where they can edit their basic information, self-introductions, and subscriptions. When a user makes a new profile, members within a certain radius within that user will receive a notification asking if they know the user/add them to their circle, or would like to introduce themselves. The user can also input their schedule of times/day they are available and others will be able to see it.
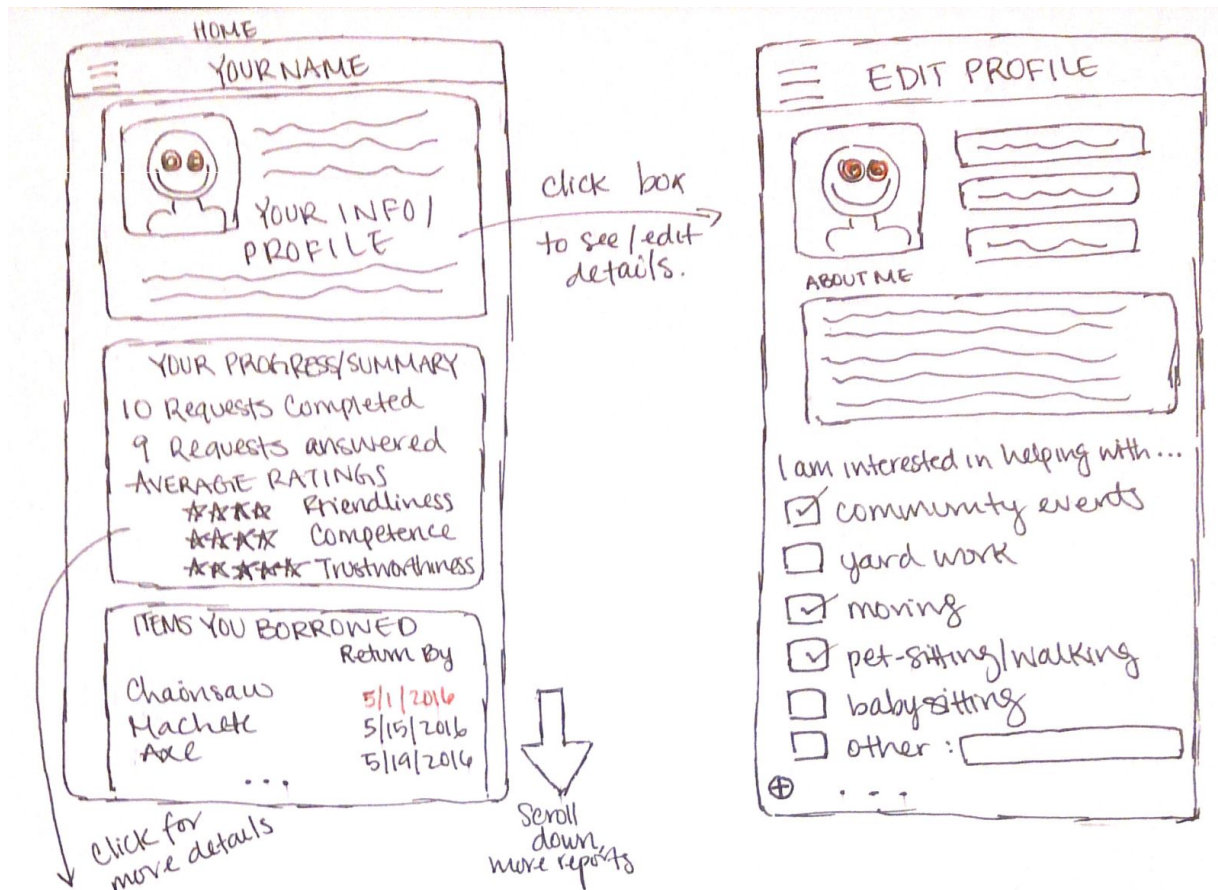
Task #2 (borrow items): Clicking the overview of items borrowed from the home page will take the user to a more detailed page listing items they have borrowed, items they have listed as available to lend, and recent item requests from nearby users. From this page the user can also initiate a request to lend an item or add an additional item they can lend others.

Task #3 (request help): From the menu button the user can initiate a request for help -- they can select the categories of help they would like, the category of people they would like it from (all neighbors, friends, FOF, custom, etc.) and the timeframe they would like it completed within.

Task #4 (feedback): Clicking the feedback snapshot will lead the user to a screen where the user can see the feedback they recently received from specific users, along with prompts to rate requests they have not left feedback for yet (if applicable). On this screen we can also display additional metrics showcasing the user's trustworthiness level.

8. **Written Scenarios - "1x2"**: (1 page) **+ Storyboards** (1 page)

   Getting Help: Randy, an elderly man, goes out one morning and notices his lawn is in desperate need of being mowed. He decides to try to mow it himself, however quickly gets exhausted and realizes he will need some help. He pulls out his phone and opens Lend-A-Hand. He taps the new request form and quickly makes a request to help get his lawn mowed, sending out the request to all neighbors. A few minutes later John, who had previously listed himself as available for yard work, responds to the request saying he'd be more than happy to help out and was on his way over. John arrives and mows Randy's lawn in a matter of minutes.
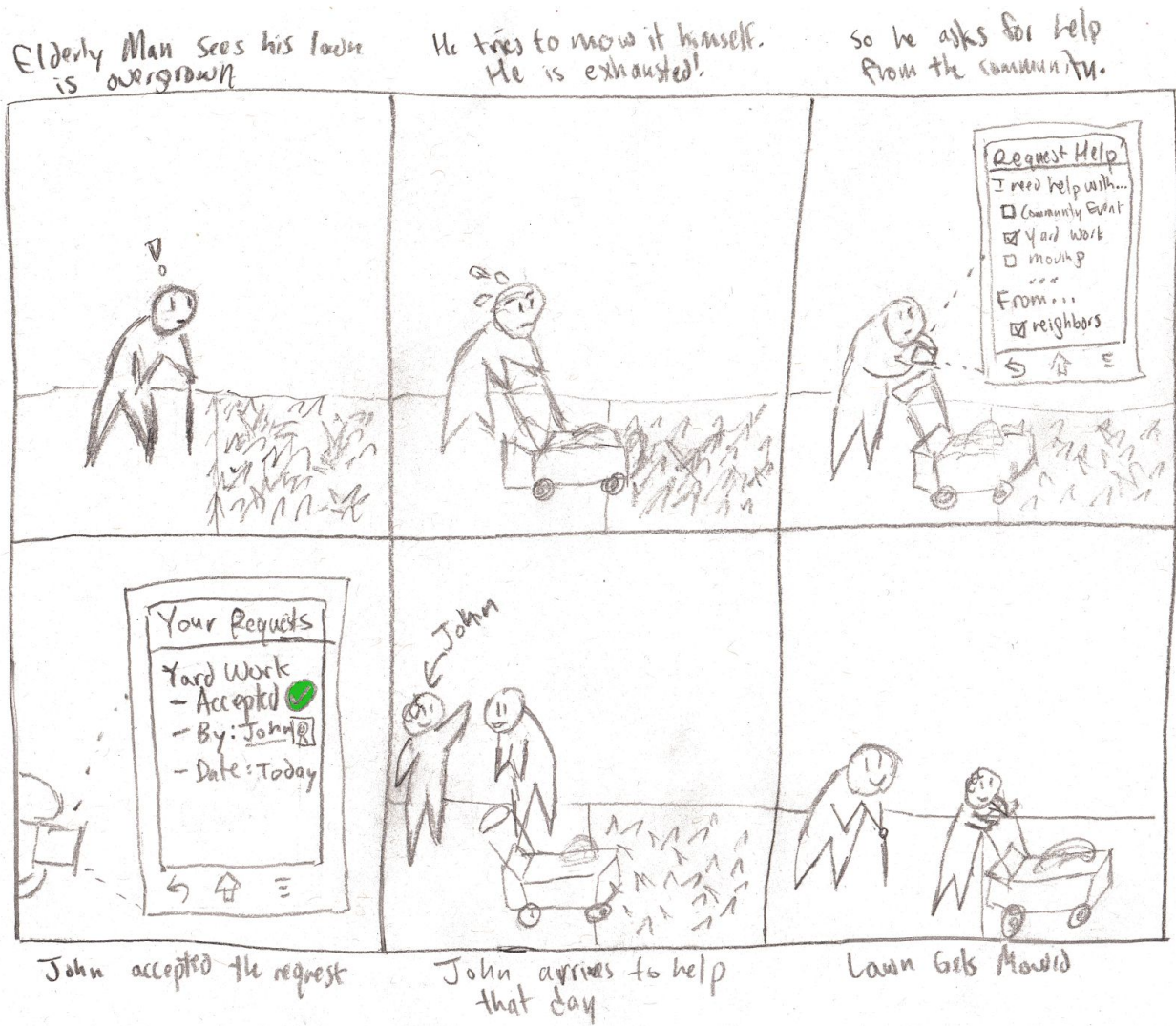
Leaving Feedback: After receiving help from John, Bowser opens up Lend-A-Hand to finalize the interaction. He is prompted with a screen asking him to leave some feedback on how the request went. After starting the feedback process, he is asked to rate Bowser in a number of categories, namely, friendliness, trustworthiness, and competence. Once he's submitted these responses, he is asked one final question: would he recommend Bowser to a friend. After answering this he is taken to his aggregate feedback page and the interaction is completed.

After receiving help... prompt user to rate the interaction
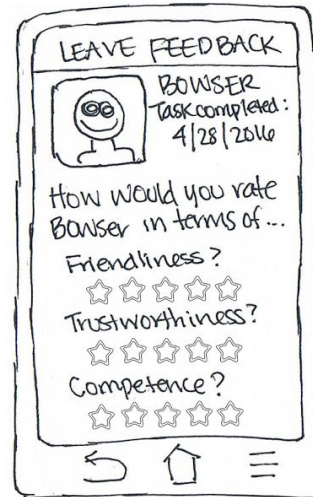
User leaves feedback

Option to recommend / not recommend to a friend

A summary of the feedback you've left and received