HEALTHMATE

Problem and Solution Overview

Our contextual inquiry result shows that people have no trouble coming up with workout goals. However, they find it difficult to build a right workout plan to achieve their goals.

HealthMate builds a right workout plan for your goals
HealthMate tracks your progress and visualizes it
HealthMate connects you with workout partners

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Prototype Description

We created a paper prototype for our low-fidelity prototype (see Figure1). Our paper prototype is designed and optimized for iPhone. Our application is organized by three tabs (Workout, Track, and Social) in the navigation bar (Figure 2). When users click on "Workout" tab, they see a list of exercises they need to finish, and take further actions (info, skip and done) for each exercise. The "Track" tab is oriented by graphs. First, users can track the general health information such as calories burned throughout a course of time on a line graph (Figure 3). Second, users can track the overall progress for goals through the gauge bars (Figure 4). The "Social" tab brings up an interface similar to Facebook mobile. The options like "Inbox", "Add Friend", and "Who's Here?" are laid in a grid view so that they are eye-catching ad accessible.
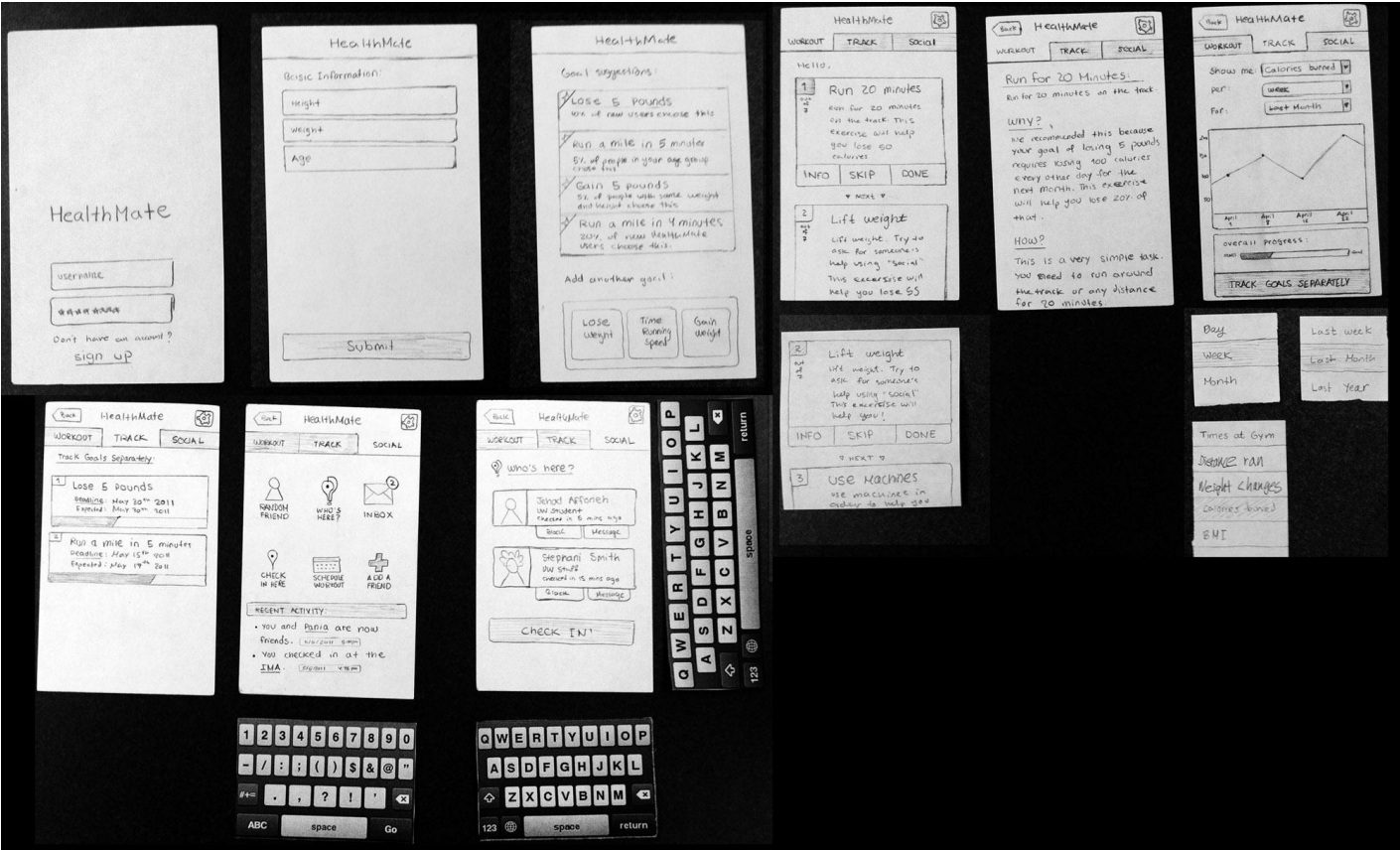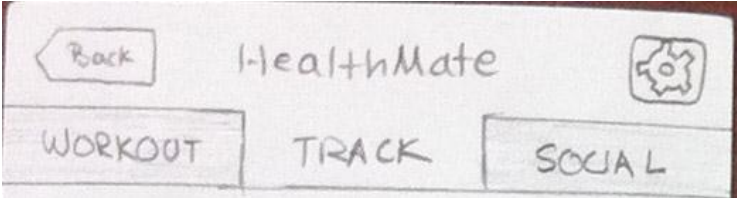

Figure 1: Overall Interface
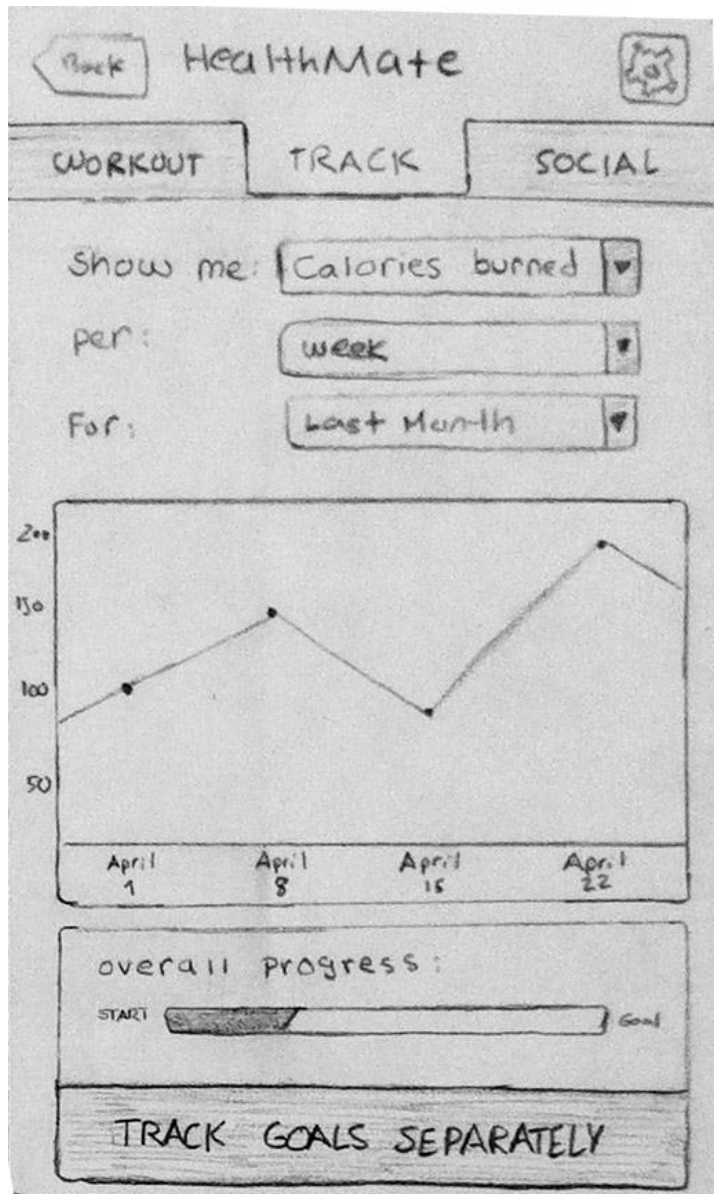

Figure 2: Navigation Bar
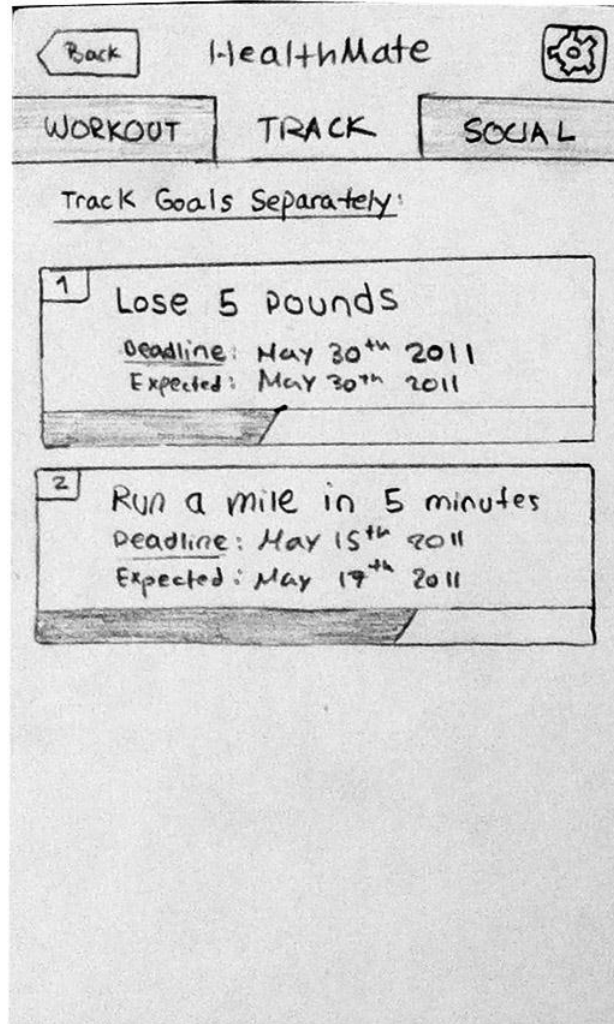
Figure 3: Calories Tracking

Figure 4: Goal Progress Tracking

Our Prototype supports the following tasks:

- Setting goals (through user inputs and preferences)
- Getting workout routine recommendations
- Tracking workout progress (through visualizations)
- Finding friends to workout together

Testing Method

Participants

We selected four participants who all go to the IMA to exercise. Also, they were from different genders and age group which might be useful because our app targets all audiences.

Stephanie is a 21 years old female student who works out at the IMA regularly by herself. She is health conscious and takes good care of her nutrition.

Jack is a middle-aged man who goes to IMA twice a week to stay in shape and he's used to do his own routine.

John is a young male student who tries to works out at the IMA twice a week. He thinks he needs to lose weight.

Amy is a middle-aged woman who goes to IMA to do cardio and swim. She usually works out by herself at the IMA.

Environment

To get the most out of our testing, we decided to stay at the IMA where the participants felt comfortable. The atmosphere is ideal for the participants because they know what they want to work out on, and thus could provide us valuable feed-backs to our user interface. We did the user testing at the same place we met the participant so they don't waste their time or feel lazy to walk elsewhere.

Tasks

Task 1: Completing the first workout routine
Imagine that you are using HealthMate for the first time. You would like to set goals and get started on the first workout routine recommendation.

Task 2: Tracking the progress
Imagine that you have been using HealthMate for several weeks in the gym and you would like to check how much progress you have made. Use HealthMate to track how much calories you have burned over time on a graph (calories vs time), and how far you are to achieve your goals (i.e. losing 5 pounds) on progress bars.

Task 3: Finding workout partners
Imagine you find it hard to go to IMA with your friends or boring to workout alone. Use HealthMate to find friends who have similar interests and background to workout together.

Procedure

The paper prototype screens were kept by one of our members and hidden from the participants so they would not see them before they interacted with them. To do our user testing, we had a "facilitator" interacting with the participants in case they needed help. The "computer" was ready to give the new screens to the participant depending on what they interacted with. And the "observer" wrote down raw data of what the participants liked and mistakes they made.

The facilitator began to explain to the participants by reading a demo script (see Appendix: Demonstration Script) that we were doing this as part of a class project. Then he asked them to agree and sign the consent form (see Appendix: Consent Form), and introduced them to the "computer" and "observer" explaining the role of each members.

The facilitator introduced the tasks to the participant by reading them out loud, answering clarifying questions if needed. The "computer" switched out different screens to give to the participant as they interacted with the interface. Any confusion and positive experience were jotted down by the "observer" describing the situation.

After each of the participants finished with all their tasks, we asked them for any feed-backs of what they liked about our user interface or what they would like to see.

Test measures

Out test measures are based on both the feedback from the users and observations from us. We asked users to talk about how they are interacting with the interface while they are using it. When we observe users not using the interface in a right way or looked confused, we asked them "what makes them confused?" and "what they were expecting?" In addition, when we observe people make the same mistakes, we paid extra attention understanding the problem. Lastly, we took the time it takes to finish the tasks into a consideration.

Testing Results

Testing our application with a diverse group of users gave us the opportunity to look at our own mock-up from the prospective of users who will be using the application to reach a goal but will be using it differently. We had a very positive feedback from all the participants, but we also received some feedback that will help us improve our application.

Completing the First Workout Routine

Our young participants immediately started signing up with their basic info (email address, name, age, etc.) while our two other participants hesitated before entering this information and were hoping to get more details of how this information is going to be used and what an "account" exactly meant in the context of using this application.

Although we anticipated that users will have a trouble choosing one of the suggested goals or suggest a new one, all participants found it easy to choose one from the list or to create a new goal. In fact, they pointed out that suggesting goals gives them the chance to experiment with goals they might have not thought about.

All participants found that the workout section (by clicking "Workout" tab) is easy to use. One participant suggested swiping-screen method to move to next routine instead of pushing the "Done" button. It is easier to swipe the screen than to press on a specific area on the screen.

Tracking Progress

Testing this task was a little bit harder since the user had to imagine they had used the application to work out and that they are actually tracking their data. However, once the task was explained, users did not have a problem working with the paper prototype we provided.

Two of the participants preferred to filter the data by providing all options on the screen instead of a drop-down. Although they were not specific on how this information should be presented, they thought using a drop-down menu makes it harder to look at different things quickly. Also, one of the participants was looking for a way to compare different metrics (graphs) with each other to see if there is a correlation.

In general, the participant liked the track task. They appreciated that workout information can be tracked and visualized. However, they felt that the interface should be designed so that users can quickly access information while working out or in the transition to another activity.

Finding Workout Partners

This task in particular showed the importance of having a very diverse group of testers. The two young testers showed an interest in using while the other two participants showed little or no interest.

For the female student, she felt that she would like to make sure her information (especially the location, interests, and goal) were safe, not shared without her permission, and that nobody can access them. Our male student didn't feel as protective of that information although they asked about the security and privacy of their data and pointed out that they would like to see a clear description of that policy somewhere on the interface.

One of the most important things we got from this is the idea of "groups". The participants showed interest in joining groups with specific interests instead of talking to individuals. One example the male student gave us was a "soccer" group where people can join, plan games, and invite others (even if they are not currently using the application).

Interface Revision Sketches

After the usability test, we decided that there are three main changes we need to make to the application:

The registration process

Users felt overwhelmed with the amount of information they have to provide and not knowing how many steps left in the registration process. In addition, the participants had many questions about how this information is going to be used. Based upon this feedback we decided to do the following:

- We decided to make the registration process simple and quick with two steps: one for the very basic information the user has to provide and the other for choosing a goal.
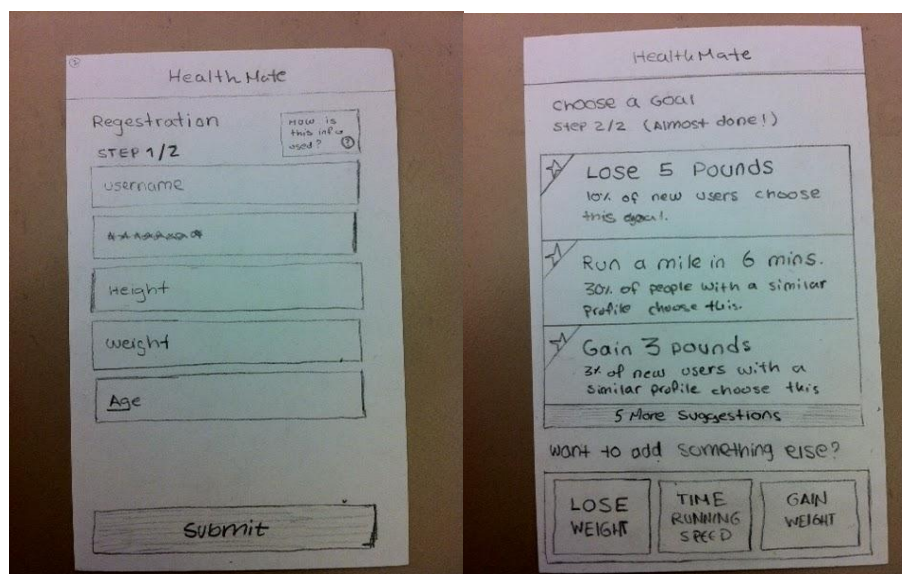

Figure 5: New Registration Process

- Also, as shown in Figure 5 above, we added a small button at the top in step 1 of the registration process that reads "How is this data going to be used?" and by clicking on it, the user will be taken to a page (inside the application) with a full description of how the data is going to be used, answers to any privacy concerns, and the way the application operates.

A new layout for "Track"

According to the participants, track was very important but a bit complicated and time consuming. Thus, we decided to do the following:

- We moved the progress bar to the top in order to make it easier for the user to check their overall progress more frequently.

- We replaced the drop-down menu for graph selection with the list view menu placed in the bottom of the screen(Figure 6)

- We replaced time range drop-down menu with the embedded buttons within the graph (top-left corner, Figure 6) You can easily change the x-axis scale (time range) from a day to month or week with the new buttons.
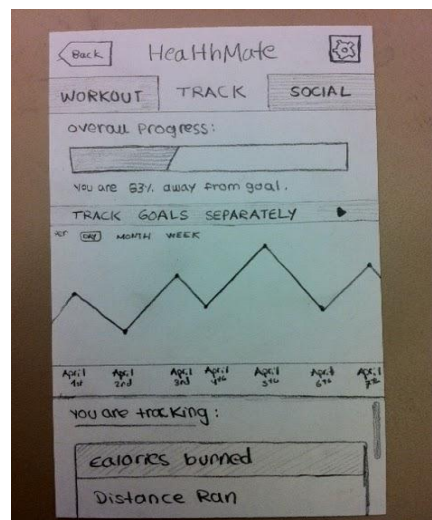

Figure 6: Re-design of Track

Groups and privacy

Social was an interesting task to change. Although we thought users will be very interested to get to know each other, our prediction turned out to be inaccurate. Based on the information we collected in our testing, users would like to be identified through groups based on interest not simply by matching them to another individual. Also, users felt unsafe sharing personal information and needed to know what is being shared and who is this information being shared with. To resolve the above issues:

- We removed the "Random friend" icon which used to find a random person (who the application think matches the user's profile) to "Groups", a new concept to this application. In groups, a user is able to create a group for "soccer", "football" or any other sport and invite others to it.

- We have also removed the "recent activity" section at the bottom and introduced two new buttons: privacy settings, and friends' list to make it easier for the user to identify or even change the way they share their information.

- We have also added a link to the application's privacy FAQs page (bottom-right, Figure 7) to make it easier for the user to understand how the application will deal with personal data.
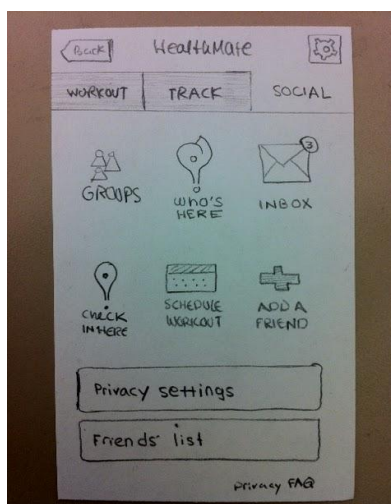

Figure 7: Re-design of Social

Discussion

From the usability test, we found three areas of improvements for HealthMate. First, we need to lower the barrier for users to sign up and kick off the service. Three participants found that the sign-up process is cumbersome and slow. One participant was not familiar with the "account" idea. Second, we need a better way to communicate on how user information is used in the system. Two participants asked how collected personal information such as weight and height will be relevant to building a workout plan. Also, one participant was concerned about the security of sharing her personal information with the application and others through social feature. Third, we need a better model that captures socializing pattern in gyms. Participants pointed out that group feature will allow them to connect to people that they normally workout with or share similar interests easier.

Based on our testing results, we found major changes in three areas of our app:

First, we lowered the barrier for users to sign up and keep off the service by putting sign up form and user information form into one. Just as many website registration forms, we ask username, password, user information such as weight and height in one screen. Second, to meet people's concerns on information privacy, security and usage, we placed help icons in appropriate locations. For example, when users click on the icon, they can access HealthMate information

privacy policy, and see how HealthMate facilitates user information to build a personalized workout routine. Third, we added "groups" feature to the social section based on the user testing feedback. People feel less awkward and comfortable with group approach to find workout partners than individual search. On top of three changes, we made some modifications to "track" section as well. Since the test participants did not like drop-down menu to manipulate the graph settings, we replaced the drop-down menu to a list menu that is always visible on the screen (to increase accessibility speed). Also, we added features to put together two graphs (i.e. calories and distance ran) on the same plot so that users can better analyze the data. Lastly, time range buttons are placed within the graph so that users can quickly plot graphs (i.e. calories and distance ran) for different time ranges (a day, a week, a month).

Beyond the major changes we made above, we made several minor changes. First, we fixed some wordings on the interface that caused confusions. For example, "Add another goal" is now changed to "Want to add something else?" in the choosing a goal section (Figure 5). The participant though that "Add another goal" is also required section along with the previous section "Goal suggestions" which is required. Second, we started to show progress in the registration process. People wanted to expect how long the registration process will take. By putting "Step 1 / 2" on each page of registration, we help users anticipate the time to complete the process.

Appendices

Consent Form

The **HealthMate** application is being produced as part of the coursework for the University of Washington Computer Science & Engineering course "CSE 440: Introduction to Human-Computer Interaction". Participants in experimental evaluation of the application provide data that is used to evaluate and modify the interface of **HealthMate**. 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 (**HealthMate** or with Professor James Fogarty, the instructor of CSE 440:

> James A. Fogarty
> Computer Science & Engineering
> University of Washington
> 206-685-8081
> jfogarty at cs.washington.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 researchers and their supervisors.

I 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 usage and opinions in relation to the **HealthMate** experiment. I understand I may withdraw my permission at any time.

Name _____

Date _____

Signature_____

Witness Name _____

Witness signature_____

Raw Data and Comments

Participant #1: 21 years old, UW Student, Female.

Task 1
- Asked about the information (especially age and height) and how it is going to be used
- Got through the sign up process quickly
- She easily identified how to get through to the end of the workout routine (clicking done, how to get more info, etc.)

Task 2
- She did not like the drop-down menu and thought it takes lots of time to go through it
- She wanted to compare two things with each other (Calories and Distance Ran for that day)

Task 3
- She was a little bit worried how this information is going to be used and if the other users are able to see basic information about her
- She said she would use it a lot as long as her privacy is kept until she authorizes the application to share information

Liked
- She liked the general idea of having 3 tabs to move between the three different tasks and though that is very clear
- User friendly interface
- Icons in social

Disliked/Would Change
- Provide more info at each step to how data is being used
- Provide help if the user needs it (although she said she didn't need it)

Our Comments
- Her suggestions were very helpful especially the feedback she gave us regarding privacy and providing the user with more information regarding how the data is going to be used.

Participant #2: Middle-Age Man.

Task 1
- Didn't really get the idea of having an account with this application and wanted to know what it entitles and why not just use the application immediately first to test it out.
- Loved the suggestions when choosing a goal

- Clearly understood the idea of moving between different workouts (done, info, etc.)

Task 2
- Wasn't as interested in track as much as the workout routine recommendations engine
- Liked the idea of having a graph to represent the information collected
- Asked about how this information is collected and if he needs to enter information after each workout (the answer is no, it is collected automatically)

Task 3
- He wasn't quite interested in this, however he finished the task and found it easy to deal with the interface (although he had few questions about the meaning of "check in" or "who's here") but thought the interface is easy once you get the chance to "test it out".

Liked
- Liked the interface
- Loved the suggestions for choosing a goal (especially the quick note under each goal).

Disliked/Would Change
- Make it easier to access the application when using it for the first time.

Our Comments
- Although he was able to navigate through the application, he wasn't extremely interested with anything else but the actual main feature (workout) so we thought we might need to introduce a motivation for users to use the other features.

Participant 3: UW Student, Male.

Task 1
- Navigated through the info quickly at the beginning
- Was searching for a "skip" button when it came to choosing a goal (he wanted to test the app first, we said that is not possible)
- Thought that he would like to "swipe" through workouts instead of clicking on Done.

Task 2
- Drop-down menu takes too much time and using another way to present the information might be more helpful.
- After using the first drop-down he didn't know if the information is going to update or if he needed to click a submit button somewhere (we think this will be easier when having an actual application running since the graph will be updated immediately)

Task 3
- He wanted to have the concept of "groups" especially a "soccer" team for example where people can share their interest.

- He wanted that to be based on location
- He was able to navigate through the social part of the app (thought it was similar to the Facebook application for the iPhone so it was extremely easy for him to figure out what each of these buttons mean)

Liked
- Friendly interface
- The social interface is similar to the one he already knows and uses everyday
- Easier to workout with friends (would use it!)

Disliked/Would Change
- Drop-down menus in the second task
- The ability to skip parts of the registration process.

Our Comments
- Parts of the registration process is required, we might need to make it easier for the user to get through it but signing up is required to save data to a specific account.
- His suggestions of using "groups" or "teams" are very valuable!

Participant 4: Middle-Age, Female.

Task 1
- Didn't feel comfortable sharing information about her age/weight/height and asked how this information will be used.
- Wanted to sign in first (but we pointed out that this is the first time using this application so we need to actually sign up first).
- Was able to get through the goals and the first workout routine without questions.

Task 2
- Didn't like drop-down menus but though it was okay.
- Didn't like the progress bar being at the bottom instead of being somewhere more prominent.

Task 3
- She liked the idea of checking in for a different reason which is the ability to broadcast her location (we pointed out that the main reason we use it is to find others in the gym)
- After getting all the feedback possible we asked if she would like to have "Groups" she said yes that would be much better than an individual search for users.

Liked
- She liked the user interface
- She liked the tabs at the top and thought they were easy

- She liked the ability to get information about a specific workout (Especially having the ability to learn how to use specific machines)

Disliked/Would Change
- Drop-down menus

Our Comments
- The position of the progress bar in the design is important so we think she was right and we need to make that change to the track screenshot.

Problems with Severity Ratings

Severity Rating 0
- Provide more info at each step to how data is being used
- Provide help if the user needs it
- Parts of the registration process is required.
- The ability to skip parts of the registration process.

Severity Rating 1
N/A

Severity Rating 2
- Make it easier to access the application when using it for the first time (without sign in).

Severity Rating 3
- Drop-down menus in the second task for tracking progress.

Demonstration Script

We are designing an iPhone application called HealthMate. This app will help people achieve their fitness goal by giving them suggested workout routines, help them track their progress and find people to workout with.

To test our design, we have paper prototypes that you can interact by touching on the screen like a real application. When you touch the screen, it will switch to different screen depending on the interaction. For example if I touch the "Username", it will pop up a keyboard for you to input your username.

We will be reading aloud three tasks for you to complete and write down any feed-backs that you have to get a sense of how well our interface is designed. Please feel free to ask any questions you have, we're here to help you complete the tasks.