

## **Health Points**

A Health and Fitness App  
CSE 440 Autumn 2013  
Low Fidelity Prototype

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## **Problem and Solution Overview**

Health is a major concern today and for good reason. Far too many people are unmotivated or uneducated when it comes to what they eat and how much physical activity they participate in. Our app serves to solve that problem by promoting friendly competition through a system that tracks fitness levels and eating habits. When the user follows healthy habits they gain points that they can use to compete against friends. Conversely they lose points for unhealthy habits. The point system allows friendly and simple competition while also allowing tracking of habits to promote dietary and fitness related changes for the better.

## **Prototype**

Our paper prototype has four main pages, the activity feed, profile, friends/leaderboard, and goals pages. Each page has a specific purpose. Each main section also has a subsection excluding the activity feed. To navigate to a page the user uses the navigation bar on the bottom of the screen sending them to the appropriate page. When there the button that was pressed changes to the button for the subsection of that page. For example the base navigation bar displays Profile, Goals, and Friends. When navigating to Goals the corresponding button changes to the Past Goals button.

Before entering the app our paper prototype also provisions for loading, logging in, and creating a new user complete with sample screens for introducing new users to the application. Beyond that several of our pages implement sliding functionality by cutting out areas in the screen and sliding pieces underneath. The main activity feed, leaderboard, and profile graphs all use this. We also have several areas that are intended as pop ups and lay over the screen when used. These consist of a mock keyboard, changing profile name and password, and creating goals and examples of this.

To use our prototype users need to first do one important thing: realize that the app is supposed to be mobile and is touch-based. Button clicking and sliding gestures are what the app is based on. When initially logging in the user can scroll through a limited list of activities and navigate to the three other main pages by clicking the corresponding buttons on the bottom of the screen. On the profile page users can see their activity trend via a graphical representation and recent points. Pinch-and-zoom as well as buttons are provided for toggling between different levels of granularity when viewing the graph. Graphs for week, day, and hour trends are provided with limited scrolling abilities. When tapping on graph points the user is

directed to another page that gives more details on their activities for the time in which they clicked on the graph. Currently only one such screen is provided for this.



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The goals page displays daily and weekly goals that are set and sent out by the app's parent company (us) to all users. The user can also see personal challenges that they've set for themselves and add them by tapping the empty space with the "+" icon. They can also view past completed challenges by clicking the Past Goals button on the navigation bar.

The Friends page serves as a hybrid friends list and leaderboard with sorting and grouping, which is not supported by the paper prototype right now. There is also limited group viewing functionality and enough pieces implemented to illustrate creating new groups and adding friends.

## **Testing Method**

### ***Participants***

The participants we chose derived from a set of pre-determined inclusion criteria. Since our user base was rather broad, we slightly narrowed our scope by targeting University of Washington students that were at least moderately cautious about their health and use their mobile devices for social media or game play. All three of the participants we chose represent this target demographic. Our first participant, Jessie, is very physically active and highly competitive among his peers. Our second participant, Chris, is mildly active and is more involved in eating healthy. Our third participant, Ian, is less physically active than both Jessie and Chris, but focuses on eating healthy to sustain a healthy lifestyle and loves to play video games. These three participants embody a wide spectrum of potential users, but were ideal for the sake of this report and timing.

### ***Environment***

We held the paper prototyping usability test in a Suzzallo library study rooms. We chose to use a study room because it was an easy location to meet and it was quiet enough for the user to concentrate on the tasks without being distracted. The room was large enough to accommodate our entire group and had several tables, which allowed us to lay out our entire prototype. This allowed the computer to work quickly and change the UI as requested by the participant.

### ***Tasks***

#### **Task 1: Getting Started**

You have just downloaded Health Points. Create an account so you can get started.

#### **Task 2: Quantify Personal Health**

You have been using Health Points for a week now. Set a new goal for yourself and view your progress over the past week.

### Task 3: Get More Detail

Now you want to get more on your progress related to the past day. View your progress over the past few hours.

### Task 4: Newsfeed

Browse the newsfeed and comment on someone's post.

### Task 5: Compare Scores

You want to compare your health score with your friends'. Find out how many points one of your friends has.

### ***Procedure***

We switched roles for each study to allow almost everyone to experience being the moderator and/or the computer. Since we had four people, not everyone could be the moderator. However, we were all content with the roles we got to presume.

We began with the moderator reading the script to the participant (see Appendix B). The script described the various roles and explained the background of the study to the participant. It also talked about conducting a think aloud protocol, and that the participant should think aloud while going through the tasks. The moderator then went over participant consent for use of their data in our report (see Appendix A) and asked if the participant had any questions or concerns before we got started.

Before beginning the task, we told the participant that s/he was testing a mobile application and should assume any gestural interactions would be the same. The moderator then asked the participant to read the scenario out loud to get a better feel for the think aloud protocol:

“You are a college student at the University of Washington and your friend told you about a new health and wellness app called Health Points. S/he tells you that Health Points is an application that helps motivate people to eat healthier and exercise more by making it a competition between friends and family. S/he also says that you can lose and earn points by what you do and what you eat and challenges you to play with him/her. You decide to download the app and check it out.”

The moderator then asks if the participant has questions pertaining to the scenario and to start by reading the first task out loud. As the participant works on tasks, the moderator is not answering questions by asking unbiased questions like “what did you think would happen when you pressed the goals button?” Meanwhile, the computer is switching out pieces of the UI and the note takers are quietly taking notes.

After the participant completed all the tasks, we issued a SUS survey and had the participant give rationale to their answers for the SUS. We the participant read these survey statements out loud and rate them on a likert scale from 1-5. This helped us better understand the usability of our systems gave us qualitative and quantitative data.

### ***Test Measures***

The goal of this test was to receive qualitative feedback on the usability of our apps user interface. We wanted to investigate which parts of our interface were showed good UI standards and which parts were problematic and difficult to use, and learn why. We asked for each participant to think aloud when working on tasks, which surfaced many useful quotes and other qualitative data on our interface. In addition to the think aloud protocol, we asked reinforcing questions such as “why did you click that button?” or “what do you expect to happen next?”. This allowed us to better understand the expectations of our user population.

### **Testing Results**

The following are common problems or comments our participants had when performing the tasks (see Appendix C).

#### ***Ambiguous button labels***

There were a few buttons that participants were not sure what they did just by looking at the label. The first one was the "Profile" button. It was not apparent to participants that they can click on "Profile" to review their personal data logs. They initially went to "Goals" to look for that information instead. Under the goals page, one participant assumed that "Past Goals" meant past points gained, but it was intended to mean completed goals. Lastly, all of our participants were clueless about what the "Option" button does. Even though our tasks do not require using the option page, all three participants were tempted to click on it since they had no idea what it did.

This is a major problem, because users struggled in finding the information that they needed and this caused quite a bit of frustration. For that reason, this problem has a severity of 3; better wording should be used to label the buttons.

#### ***No back button within interface***

Two of our participants were iPhone users, they were not familiar with the idea of having the back button on their actual mobile device. When performing the browsing news feed task, they were confused on how to go back to the news feed or home page. It was pointed out that on iPhones, there is only one physical button, which pressing it will not bring users back to previous page but to the landing screen. Therefore, on mobile device without a back button, there would be no way to go back to the news feed page within this interface.

If we want our system to be a multi-platform app, we need to create an internal back button to be cross-functional for all users. This problem has a severity level of 4 and we must have a back button in the interface for all operating systems.

### ***Main buttons changes on navigation bar***

Even though all participants were able to use the buttons to navigate within the system, they needed to spend more time to see what buttons are available on each page. The participants expressed that they were confused because they did not expect the buttons on the bottom navigation bar to change. When being asked about their preference, two participants said they preferred having tabs at the bottom which do not change, and that they would have buttons of different features within the interface. One of the participants also mentioned that he thinks that the option button should be placed at a corner on every page instead of the navigation bar.

We have agreed that this problem has a severity of 2 because it violates the consistency heuristic. Participants did not have problems using the buttons but this should be fixed to avoid confusion.

### **Interface Revision**

As a group, we wanted to incorporate icons instead of labels for each button within the navigation to hopefully make it easier to understand what each button does. This will also allow our UI to be more simple and minimalistic (see Figure 1 below). We also wanted to include a back button within the interface for cross-platform usability. Androids have a built in back button on the mobile device, but no other company has a back button built in (see Figure 1 below). Lastly, we wanted to make the main bottom navigation consistent by keeping the options consistent across different pages. Right now they differ when users access different pages and this has caused confusion (see Figure 1 below).



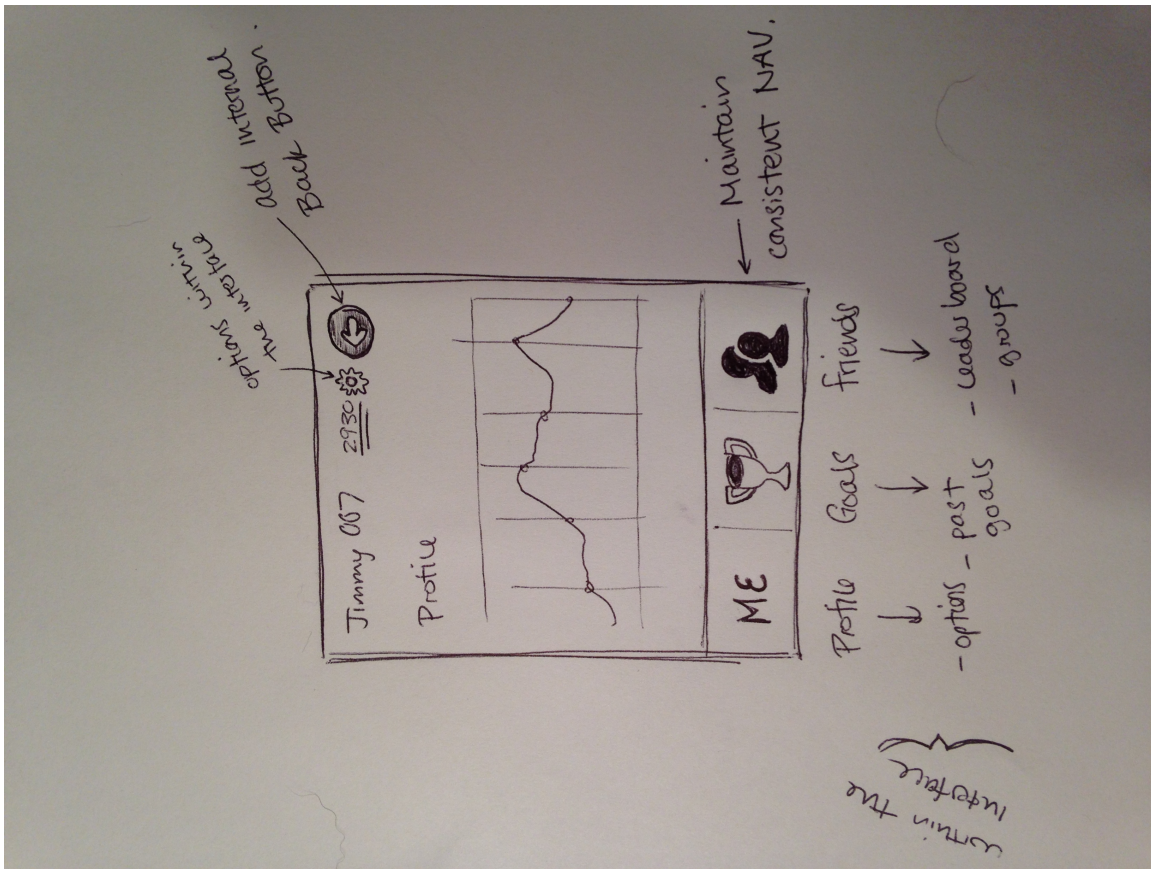


Figure 1

## Discussion

At the end of the usability study, we walked away a few takeaways from the experience. We learned that it was important to have a clear end goal and a method on how we would get there. In order to do so, we needed to organize our tasks and run through the process before beginning sessions with participants. Some members that lacked u-testing experience and have not moderated a study before required help from the other members to facilitate the participant. It was a learning experience for most, but practice would have made the study more efficient and more professional.

Also, we found out that both internal and external inconsistencies were more jarring than expected. Users expected the common “cog” settings icon for options on every page, and were confused by the placement of options within the main navigation on the profile page. Even though it made sense from an organizational standpoint and participants understood what it did, it was inconsistent and out of place.

That being said, consistency is very important for users to understand and use the system. We used different colors to denote daily “D” and weekly “W” goals, but this was very confusing for our participants. If there are colors used, they should be

consistent in how they may mean different things. In our prototype, we colored “D” red and “W” purple. The participants failed at understanding these symbols in two ways: 1) they did not know what “D” and “W” stood for and 2) They thought the colors meant something, like red correlating to failing. Also, since this was the only place we used color in our paper prototype, it really confused our participants. The color should have not been used in this stage of our design process.

We also learned that it was bad practice to rely on outside functionality like the built in back button and the Facebook login integration. Although Android provides their customers with a built in back feature, not all devices have this capability and we need to design for all platforms. Also, it is nice to support Facebook integration to allow users to login, but not all users have Facebook. We must focus on the functionality of our application without these features, and add them as necessary later.

A last takeaway we found was that it was important for each section of the app to have a descriptor that represent its purpose. If that is not possible, we need to make it easier for users and/or add in tutorials as needed to for better understanding. The names we chose made sense to us, but that is because we already knew what all of them meant. We need to remember, “we are not the users”.

Within the context of this study, we were not able to investigate the ethics and values related to the use of sensors and sensor technologies to quantify personal health. This was a major issue that we wanted to address for the customer adoption of this product. However, within the context of this class and our resources, we were unable to investigate any aspects of the sensors.



## **Appendix A: Consent Form**

### **Consent Form**

I agree to participate in the study conducted and recorded for Health Points.

I understand and consent to the use and release of the recording for Health Points.

I understand that the information and recording is for research purposes only and that my name and image will not be used for any other purpose.

I relinquish any rights to the recording and understand the recording may be copied and used by Health Points without further permission.

I understand that participation in this usability study is voluntary and I agree to immediately raise any concerns or areas of discomfort during the session with the study administrator.

Please sign below to indicate that you have read and you understand the information on this form and that any questions you might have about the session have been answered.

**Date:** \_\_\_\_\_

**Please print your name:** \_\_\_\_\_

**Please sign your name:** \_\_\_\_\_

**Thank you!**

We appreciate your participation.

## **Appendix B: Script**

### **Health Points: A Health and Nutrition App**

Thank you again for agreeing to participate in our CSE 440 paper prototype usability test. As a participant, you are one of a select number of individuals invited to take part in this research. Your feedback will help evaluate our application's user interface and be used to inform design changes.

During this session, you will be given several tasks to complete using our paper prototype rendition of Health Points. Try your best to complete each task to the best of your ability; we are testing the product and not you. Also, please talk aloud while working on each task. This helps us better understand what you are experiencing.

When instructed, please flip this sheet over and begin the tasks by reading task 1 out loud.

## Task List

Scenario:

You are a college student at the University of Washington and your friend told you about a new health and wellness app called Health Points. S/he tells you that Health Points is an application that helps motivate people to eat healthier and exercise more by making it a competition between friends and family. S/he also says that you can lose and earn points by what you do and what you eat and challenges you to play with him/her. You decide to download the app and check it out.

1. You have just downloaded Health Points. Create an account so you can get started.
2. You have been using Health Points for a week. Set a new goal for yourself and view your progress over the past week.
3. Now you want to get more detail on the past 24 hours. Try and view your progress over the past few hours.
4. Browse the newsfeed and comment on someone's post.
5. You want to compare your health score with your friends'. Find out how many points one of your friends have.

**SUS Questionnaire (1-Strongly Disagree | 5-Strongly Agree)**

	1	2	3	4	5
1. I think that I would like to use this system frequently.					
2. I found the system unnecessarily complex.					
3. I thought the system was easy to use.					
4. I think that I would need the support of a technical person to be able to use this system.					
5. I found the various functions in this system were well integrated.					
6. I thought there was too much inconsistency in this system.					
7. I would imagine most people would learn to use this system very quickly.					
8. I found the system very cumbersome to use.					
9. I felt very confident using this system.					
10. I needed to learn a lot of things before I could get going with this system.					

## Appendix C: Raw Data

Notes on Jessie(1st participant) user test:

Task1:

- signed in as existing user

Task 2:

- went to goals page and saw daily/weekly challenges, mistaken them as personal goals
- didn't notice that he can add goals at first
- wasn't clear that if challenges can be performed anywhere(not clear that data were collected automatically all the time)
- when adding goals, didn't know what to put for calories limit, not obvious that inputs are optional
- did not navigate to profile page to view his own data log

Task 3:

- check his own goals on news feed page
- on profile page
  - took some time to find the week and month buttons

Task 4:

- didn't find any problem scrolling through feeds and commenting

Task 5:

- went through the feeds to compare his own goals with others' goals, check everyone else's goals
- post status on own goals and post how many points he gained when trying to beat someone specific
- on friends page
  - would sort leaderboard differently depend on goals
  - not too obvious that friends on leaderboard are clickable
  - like the sort function
- on profile page
  - option button should not appear on friend's profile page

Suggestions:

- three buttons at the bottom stays the same on every page, have option button at top right corner

-Goals page:

- have new goal and past goals buttons in the middle only
- Jogging -> should have time as goal instead of calories burnt
- adding new goals -> too many steps, better to focus on one task or have presets
- should have different menu for different actions

-Friends page:

- have group button in options/ up in the main screen
- want to be able to hide info of people at the bottom of leaderboard/remove people from leaderboard
- have group against group tota

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Notes on Chris's(2nd participant) user test:

Task1:

- created a new account
- went through the instructions

Task 2:

-Goals page:

- didn't know what D and W stood for
- assumed "past goals" meant "past point gain"
- expected "sets" of repetitions for weightlifting

Task 3:

- tried to find the information in goals page
- wasn't sure what "Profile" meant

Task 4: newsfeed

- confused as to how to "go back"

Task 5: compare scores

- wasn't sure where he was on the leaderboard

Suggestions:

- "go back" function should be more obvious

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Notes on Ian's user test:

- Eased through the process of creating a new user. Found the sliding on the tutorial intuitive to use.
- Was not a fan of Facebook integration
- Attempted to access unimplemented features on the main page

- Initially confused on what the point system was keeping track of
- Noted once we explained that it made sense. Cause = lack of knowledge of tracking nutrition and fitness
- Confused/disliked the changing of the buttons on the bottom of the screen. Thought that the main buttons (profile, goals, friends) changed into secondary functions and shouldn't be on the main navigation bar.
- Wanted additional ways to view friends besides just a leaderboard view. Suggestion was for being able to set different viewing defaults such as by name, preference, etc. so those friends would show up first rather than always by score.
- Couldn't find a way to get back to the news feed page
- Hunted for but couldn't find (because it doesn't exist) a way to directly compare himself to his friends without navigating back and forth between friend pages and his own page.
- Discovered opportunities to slide (the graphs and friend lists) easily and seemed familiar with touch based interfaces.



## **Erick's Notes:**

### ***Participant 1 - Jessie***

#### Task 3 - Being top "dawg"

- To see others progress, check on everyone others goals.
- Clicks on friends page
- Gets to friends page and wants to sort by.
- Sort by alphabetically or by score
- "Depends what goal I am trying to meet for that week" when choosing filters.
- "Set my goal to beat him or compare the score to see how far away I am"
- Seeing that Jimmy007 is decreasing in health progress, I would be more inclined to work harder to beat him.
- Fix consistency in graphs between weeks and days
- If he went down yesterday I would work hard to beat him but if he went up I would have to work twice as hard to beat him.
- Does this profile screen make sense to you? Yes, it does.
- Would not care about friends' information/data below because their goals and scores are irrelevant if I am higher on the leaderboard.
- Make it clearer to sync once versus multiple times.

#### SUS:

1. 3 - look at it every couple of days to compare my score to the others
2. 2 - it was pretty simple
3. 4 - it was pretty easy to use
4. 1 - It is pretty simple
5. 5 - they were pretty to understand it was broken down well with the three navigation in the bottom
6. 2 - Inconsistency wise, it did not change much. Basic structure makes sense
7. 4 - I agree with that
8. 3 - because going through the different options and in daily view and weekly view would take some time. Make it easier to focus on one goal. I run a lot and would want to click job and 6 miles all the time.
9. 4 - feel confident
10. 2 - it is basic stuff, especially for someone that is consistently working out. It might be a little confusing for someone who doesn't though. If this were all about nutrition, it would be different. For me, this was all about working out and being fit.

*Asking about the consistency of the bottom navigation, namely if it should change or stay the same once user goes to different pages.*

In many social media apps, the option or setting button is always available. However, I should always be able to see the other options. Keep the navigation consistent.

*Asked about the leaderboard fused with friends list.*

That is what I expected because I want to see my friends and how they are doing and what they are doing.

Maybe include a competition between groups by aggregating the score for the entire group and compete.

*Other Comments*

Make a new account I would want to add weight, height, sex, etc... If the algorithm takes into account these aspects of users.

### ***Participant 2 - Chris***

#### Task 1 – Create an account

- Creates a new account, disregards Facebook.
- Fills out the fields to create a new account
- Walks through the tutorials, is the sync going to be automatic or do I have to go somewhere else?
- Intuitive to swipe across with the dots on the bottom.
- Finish the tutorial and goes to home.

#### Task 2 – Quantify Personal Health

- Goes to goals to try and set a goal for himself
- Knows that he adds a goal so adds a challenge/goal. Dropdown to set a goal. Easily sets a goal.
- Check progress for the week and clicks goals > past goals. What are D and W? Done or working on, not sure what they mean.
- Fail to complete task, has not gone to profile to view progress.

#### Task 3 – Drill down to view personal progress

- Goes to profile and views the graph and knows he is in the right place.
- Clicks on today to view specific hours.
- Clicks on individual nodes to view the event.

#### Task 4 – Browse and post on newsfeed

- Go to friends first, if not there hit home.
- Scroll through the leaderboard and click on Jimmy007.
- Views Jimmy007 progress.
- Hits back until the home page.
- Comment on Jimmy about his progress.

#### Task 5 – Find the leaderboard and view friends' info

- Easily found the leaderboard by accessing it from previous task.
- Finds out that Jimmy008 is above him.

#### SUS:

1. This does seem pretty intuitive and knowing it is passive it is super easy to check in on stuff. 4.5
2. 1.5 was not complex
3. 4 – was only confused once, about the D's and W's
4. 1 - no need of technical support.
5. 5 – well integrated
6. A bit of inconsistency because of the colors.
7. I believe most people would be able to use it easily.
8. It was not cumbersome in a any way
9. I understood what was happening for the most part. Everything was available and accessible. I like being able to immediately being able to compare today vs. yesterday.
10. Intuitive so did not need to learn much to get started.

Maybe include a back function within the interface rather than on the actual android machine.

It was inherently clear that profile meant status.

Does not want Facebook integration

Recommends to have the bottom navigation bar consistent and to include options as an icon on profile page.