Project Charter

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What We Are Doing, Why, and Duration

Our team is planning and developing a framework for a health and wellness application that goes beyond simple weight loss and exercise. The focus is for each user to adopt a disciplinary and behavioral change that enables them to maintain their desired health and fitness regimen permanently. This agreement and cooperative effect will last from the 5th of February 2018 (signing date of this document), until we deliver the final proposal on the 14th of April 2018. During this time, our team will continuously inform the stakeholders on the status of the application, provide required documentation for the application (including requirements document, a project plan, and a risk assessment plan), and provide wireframes of the application for later development. This project will close the gap in the current fitness application market by introducing an easy to use mobile app which enables users to *sustain* their weight loss. Current applications drop the ball on helping users maintain their successful weight loss and we are fully prepared to design a more comprehensive application.

Objectives and Deliverables

The main objective of this project is to provide our stakeholders with the framework and wireframes of our innovative health and wellness application. The details of the framework will include an estimated timeline, budget for production of application, risk assessment, and quality assessments. At the end of the agreed upon time the wireframes for the application will be delivered to the stakeholders for further development. These deliverables will not only keep the stakeholders in the loop, but also provide them with all the information necessary for further application development.

Key Constraints and Scope

Assumptions

Our team will operate under certain assumptions to expedite internal team processes as well as overall project development. Several factors have been taken into consideration that regards our team's ability to spend time on the project together. Holidays, such as Easter and spring break, and the travel that is associated with visiting family has been considered. Team member jobs outside of school, that may also pose a problem to deliverables, have also been properly accounted for. However, other school assignments could potentially arise that cut into one or more team members' ability to

execute their role independent of the other members. Another assumption that our team must consider is the capricious nature of mainstream health trends. As these trends change and influence the public, orthodox methods of maintaining health or reducing weight may be more difficult to suggest. This will involve a solution tailored to whatever current, safe, health trends may suggest. As research on human behavior continues, Dr. Jakicic and Dr. Rogers may develop further ideas that will be essential to the success of our application. Thus, our team must be able to adapt and integrate new research findings as any new research developments require.

Business Constraints

The duration of this project will coincide with the school semester exactly. Application development that transpires past the end of the school semester will fall outside of the realm of the current project's objectives. Project deliverables completion is mandatory by the 14th of April as specified by Professor Mitchell. This remains true for all future deliverables throughout the semester. Team collaboration and final deliverable quality control must be planned with 4 unique, individual class and work schedules in mind. Although we have no tangible budget, we must consider each team member's time as a valuable resource that they must distribute over a multitude of responsibilities. Dr. Jakicic, Dr. Rogers, and Professor Mitchell provide the advice and consulting that this project requires. Also, key information that our team obtains and uses for the purposes of the project that does not originate from these health and behavioral authorities must be corroborated by all of the aforementioned parties. Our team members are our other most critical resource.

Technical Constraints

Our project will include a physical component that will take the form of a wristband or a similar type of product depending upon the findings of market analysis and the advice of Dr. Jakicic and Dr. Rogers. This device will enhance the tracking functionality of our application. This device must accurately monitor and seamlessly sync with the application to ensure consumer frustration and misinformation is avoided. Our application will be accessible via mobile app stores as well as a web client. The final, fully developed product will include access to health consultants who will help keep users on track. This application will not claim authority over all areas of health and considerations of a user's health will be confined to physical device data and data provided by the user.

<u>Key Stakeholders</u>

For our application there are two key stakeholders from the Healthy Living Institute at the University of Pittsburgh, Dr. Jakicic and Dr. Rogers. They are the ones who brought the idea to us and to whom we will be reporting our progress to, regarding the status of the application. In addition, our professor Leona Mitchell will be influencing and grading our project, as well as provide feedback to stay on track. There are additional stakeholders that will help development such as the other members of the class, anyone who is interested in healthy living, and the rest of the project team.

Communication Strategy

Communication with our stakeholders, the value of information, and how it is tracked, reported and analyzed is of utmost importance to the success of this project. There are a variety of communication channels available, and we are prepared to use whichever channel each individual stakeholder prefers. Email, online platforms, social media, phone conversations, and in-person group meetings are several of the available options. In addition, it is important for our team to understand where the stakeholders place the most value, and which factors they believe are most crucial to this project's success. Each stakeholder is encouraged to share their wealth of knowledge on all pertaining subject matters. We strongly believe that this feedback, both from the stakeholders and our team, is vital for meeting deadlines and innovative development. Back-and-forth communication will ensure all commitments are properly addressed and resolved on time. Coordinating using these tactics will also eliminate potential misunderstandings, prevent delays, and will keep stakeholders and developers aware of all project milestones.

Potential Risks

The major risk we have is the potential that our application will end up being too similar to the competition and therefore, won't succeed. Our application could also be too advanced, too simple, or not what the market knows how to use. In addition, the development of our application could stray from what the stakeholders had envisioned or be delayed if the stakeholders change their requirements without proper communication. Another risk of delays is that our innovative ideas could be stolen, and therefore overshadowed, by a larger company with more resources and capability to develop applications faster and more efficiently.

Benefits and Value

As we take up this project, our team understands the saturation of the current health application market. While there are many other options out there, we realize the flaws in these apps and hope to address them with our comprehensive application. The key value in this project comes from creating a product which allows for users to sustain their weight loss. Current applications fail in this area for reasons that include a lack of engagement, poorly designed interfaces, and lack guidance or advising available. Our application will remedy these issues with an easy to use, engaging, and highly informative product. Additionally, we hope to appeal to a large user base which will not exclude people by age or a lack of current fitness. Our application will prove its value by attracting the widest age range of users, and providing the most comprehensive and effective health and fitness management platform.

Measures of Success and Acceptance Criteria

Success can be measured for our application in several ways. The first important measure of success is the effectiveness of the weight loss generated from our program. If our users are consistently getting closer to their target weight, we are on the right track, but we cannot consider the program entirely effective. Only once users reach a target weight and are able to maintain that weight and health over the long term will we truly know if success is achieved. Since our aim is to create a fitness application for all ages, the age range of our daily active users will effectively indicate the usability of the user interface. A large age range, like 13-65 years of age, shows that our UI is not only effective, but also that the user experience is very pleasant. In addition, the length of time each user uses the app each day will vary depending on the user's desired fitness program, so the metric we are looking to increase is the amount of days our application is used consecutively. We believe this variable is essential to evaluating both the commitment of each individual user and whether our application is effectively helping them maintain their regimen. Finally, our project will be complete when the semester is over and we have produced all the necessary wireframes and tools to begin application development.

IS1027

2018

Health At Hand

STAKEHOLDER MANAGEMENT PLAN

IAN JACKSON, KALIE SOUTO, NIC MARCOPUL, NIKOLA VIDIC

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Purpose / Introduction

Stakeholder management will play an essential role in ensuring the success of our project. By establishing an official communication strategy in dealing with project stakeholders, we will be able to keep project goals and product features within the scope that is required and desired by stakeholders in a precise and effective manner. To accurately identify and analyze our stakeholders, we need to clearly define what a stakeholder is at the outset of our stakeholder management process. A stakeholder is defined as any individual, group or organization that can affect, be affected by, or perceive itself to be affected by a program.[1] This stakeholder management plan provides us with a valuable tool for assessing communication priorities and for establishing consistent and reliable means of communication with the stakeholders, that fit their needs and ours.

Our Stakeholder Management plan consists of four parts:

- Stakeholder Management Plan
- Communication Plan
- Power Interest Grid
- Deliverables and Timeline

Stakeholder Management Plan

Identifying stakeholders

The first step in developing a stakeholder management plan is to identify stakeholders and the best way to manage them. Stakeholders, for this project, fall into two basic categories: engaged or affected. This classification helps us appropriately identify all communication requirements as they pertain to each stakeholder. Categorizing stakeholders in these two groups will lead to a further elaboration based on a scale of one to three for each stakeholder. They will then be given a value based on perceived interest and influence in and on the project.

The stakeholders are as follows:

[1] https://en.wikipedia.org/wiki/Stakeholder_management#cite_note-Stakeholder_Identification-1

- **Engaged stakeholders**:
    - **Dr. John Jakacic** – Faculty member at the University of Pittsburgh's School of Education within the Health and Physical Activity Department. Dr. Jakacic is also the director of both the Healthy Living Institute and the Physical Activity and Weight Management Research Center. He has conducted a significant amount of research in the discipline of physical activity and weight loss/regulation. [2] Dr. Jakacic will benefit from this project because it will help advance and support his research.
    - **Dr**. **Renee Rogers** – Assistant Professor at the University of Pittsburgh's School of Education within the Health and Physical Activity Department. Dr. Rogers is the director of the Moving Health with Media Core of the Healthy Lifestyle Institute. Her research and expertise focuses on behavioral interventions for weight loss with emphasis on physical activity engagement. [3] Dr. Rogers will benefit from this project because she will be able to enhance her programs for her clients by adding the application.
    - **Leona Mitchell** – Professor at the University of Pittsburgh's School of Computing and Information. Professor Mitchell has her reputation at stake and has invested a lot of time and effort into the project.
- **Affected stakeholders**:
    - **Dean Paul Cohen** – Dean of the School of Computing and Information. Dean Cohen has interest in this project since it is being done under his school's name. It also creates some collaboration between the different schools within the university.
    - **Users** – The demographics (age, gender, ethnicity) vary between users but they all share a common factor: a BMI of over 25. The app is targeting people who are overweight and obese and have a weight loss journey ahead of them.

[2] Bio from Leona
[3] Bio from Leona

Stakeholder Analysis Register

Project Name: Health At Hand
Begin Date: 01/09/2018
End Date: 04/17/2018
Date Prepared: 02/20/2018
Author: Team 3
Version: 1

Stake-holder	Title/Role	Interest (1-3)	Influence (1-3)	Stakeholder's Goal	Stakeholder's Contribution	Best way to Manage	Comments
Dr. John Jakacic	Faculty – Department of Health and Physical Activity	3	3	Realization of application which helps users maintain weight loss and healthy living	Provides goals and guidelines for the application which will help the team to better design the application for user needs	Management will be through periodic emails sent by Leona Mitchell. A Q&A session in March which will allow us to finalize any confusion over the desired end product. By maintaining an understanding of Dr. Jakacic's wishes we will be able to make sure his goals are properly managed and met.	
Dr. Renee Rogers	Faculty – Department of Health and Physical Activity	3	2	Realization of application which helps users maintain weight loss and healthy living	Provide additional consulting towards necessary features of the application	Dr. Rogers will be managed similarly to Dr. Jakacic. We will communicate through email in order to clarify any potential confusion. At the Q&A session in March we will be able to ask questions in person which will help to understand her wishes.	
Leona Mitchell	Professor	2	2	Delivery of deliverable to Dr. John Jakacic	Oversight of entire project as well as direct communication with both Dr. Jakacic and Dr. Rogers	Professor Mitchell will be managed with direct email or phone communication. Weekly meetings will allow for in person communication regarding the project.	
Dean Paul Cohen	Dean	1	1	Reputation of SCI and creating relationships with other schools at the University	Approval of project	The dean will not be directly managed. Any necessary communication will be through Leona Mitchell.	
Users	Program Users	3	1	Weight loss through use of the application	Provide experiment data which helps to design application based on user needs	Surveys for information gathering may be sent to potential users.	

Communication Plan

Our communication strategy is designed to ensure we receive appropriate feedback while documenting our progress along the way. Our primary communication channel will be emails, in addition to a few face to face interactions.We strongly believe that both are necessary to keep track of progress. The variation in communication channels will also ensure we receive the most effective feedback to make changes to our solution. Bi-weekly progress updates will be delivered to all pertaining stakeholders via email, at which point any necessary feedback can be received and appropriately handled. One important focus of our communication plan is to facilitate more than enough communication to eliminate any potential setbacks or problems. The Q&A meeting in March is set up in addition to other stakeholder communication to further ensure our progress is on track and all challenges handled accordingly. We believe these are the keys to keeping the stakeholders and our team members happy and motivated.

Dr. Jakacic: As a key stakeholder, we will communicate with Dr. Jakacic via email. These emails will consist of updates on accomplishments, any potential setbacks, the meeting of milestones, and a risk analysis update. There will also be two more stakeholder meetings which will facilitate communication in an immediate and open forum. In preparation for the requirements document, we will reach out to Dr. Jakacic on February 21, 2018 to discuss questions our team needs to address in order to present a document that meets his needs. Communication with Dr. Jakacic will determine our project trajectory for this specific deliverable as his input dictates how we will construct our functional requirements and features. After this upcoming scheduled contact, we will reach out to him two days after the deadline of each project to prepare for the next project.

Dr. Rogers: Emails sent to Dr. Jakacic will also be directed to Dr. Rogers. These emails will be in reference to met accomplishments and milestones, potential setbacks, and updates on risk analysis. Dr. Rogers will also be present for the two remaining stakeholder meetings as well. In the event that Dr. Jakacic is not able to discuss project details to the degree to which our projects require due to time restrictions, Dr. Rogers will be our primary means of contact.

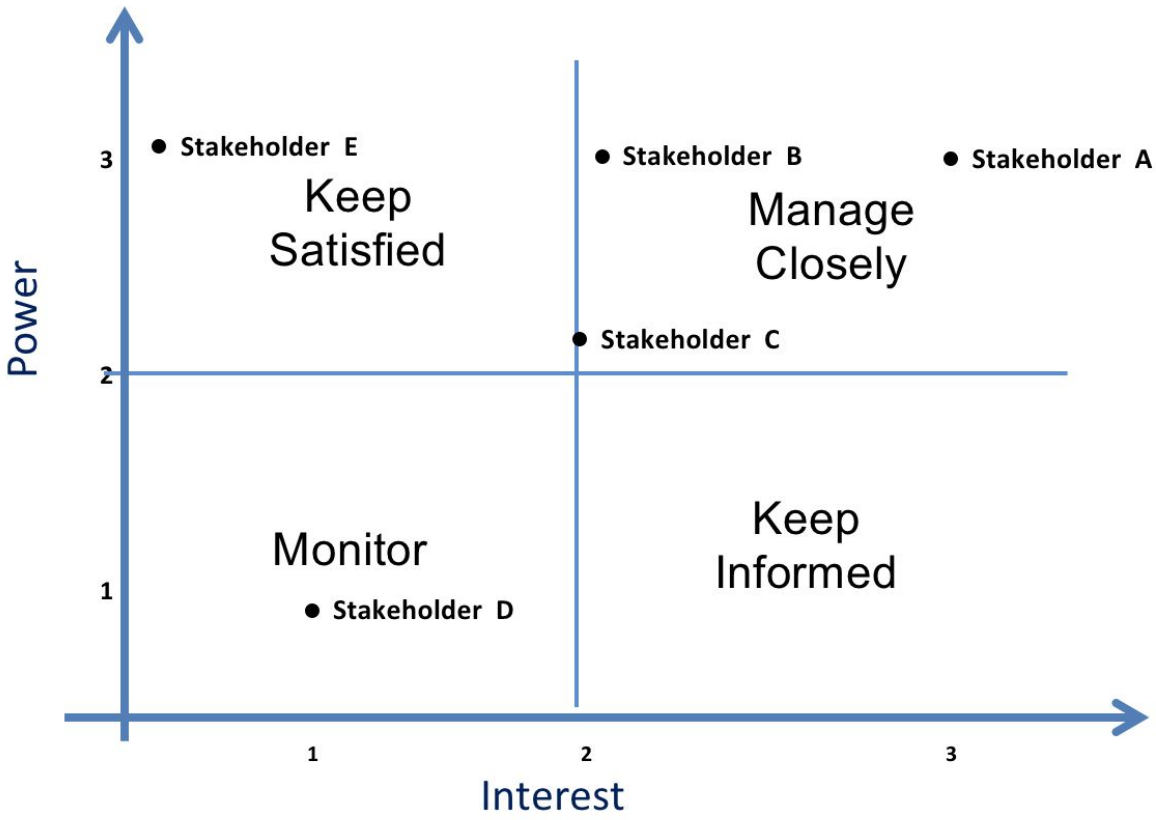
Leona Mitchell: Any milestones that we complete will be sent to Professor Mitchell via email. Additionally, any setbacks that occur will be immediately emailed to Professor Mitchell since she is the most available stakeholder. All

deliverables will be provided to Prof. Mitchell first, and she will forward them to Dr. Jakacic and Rogers after approval. Our team will move forward with the intent of emailing and meeting with Professor Mitchell on an as needed basis. We currently follow a schedule of congregating at 9 a.m. every Tuesday where we receive much of the input and advice we need to move forward. Further interaction outside of this venue will take place over our shared messaging platform, or through face to face interaction during her regularly scheduled office hours on Thursday.

The remaining stakeholders are addressed in both the *Stakeholder Analysis Register* and the *Power Interest Grid* below.

Power interest grid

The power interest grid below visually represents how each stakeholder for this project is categorized. Power indicates stakeholder influence over project, and Interest denotes overall interest and dedication to the project.

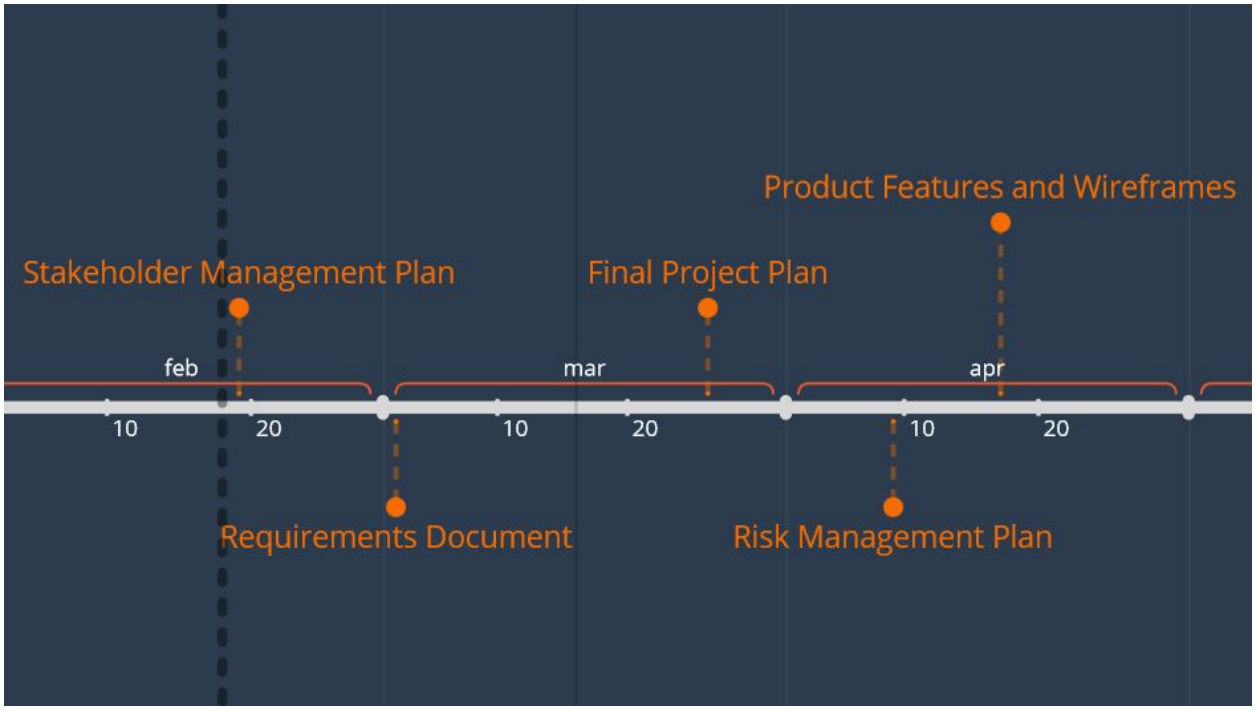


Key:

Stakeholder A - Dr. John Jakacic
Stakeholder B - Dr. Renee Rogers
Stakeholder C - Leona Mitchell
Stakeholder D - Dean Paul Cohen
Stakeholder E - Users

Dr. Jakacic, Dr. Rogers, and Professor Mitchell were all placed in the "Manage Closely" section of the Power Interest Grid because they all have high levels of interest that also coincides with their level of power. These are the key stakeholders that we want to prioritize and maintain a high level of communication with to ensure that their needs are satisfied and concerns are noted. Dean Paul Cohen was placed in the "Monitor" quadrant of the grid because he doesn't have much power or influence over the project, and has a low level of interest. Despite both of these factors, his opinion is very important and can change the course of the project; therefore, he must be monitored. Lastly, the users were placed in the "Keep Satisfied" quadrant because they have more power than interest, and are directly responsible for application success in the future. At this point in time, the users don't know that the application development is taking place, so they have a low level of interest, and are ranked accordingly. We must keep them satisfied so that our application development continues as planned.

Timeline With Key Deliverables



This project has six key deliverables that will be given to Professor Mitchell on the given dates and forwarded onto Dr. Jakacic and Dr. Rogers pending Professor Mitchell's review.

Timeline is designed to show all upcoming key deliverables.

Key Deliverables

- **Business Case/Project Charter:** February 5, 2018.
    - The project charter outlines the statement of scope, the value, justification for the project, identification of stakeholders, and any other relevant information necessary for starting the project. Since this is the first step in our development, the stakeholders will not be engaged as much and will only be contacted as needed. The information we documented at the information session prior to starting, in addition to weekly communication with Leona Mitchell, will provide the necessary framework to begin development and effectively create a Business Case and Project Charter for our application.
- **Stakeholder Management Plan:** February 19, 2018.
    - This plan consists of the stakeholder register, an outlined communication plan, a power interest grid, and a high level overview of key deliverables. The stakeholder register and power interest grids are each an in-depth analysis of the overall needs and importance of the stakeholders. The analysis helps us prioritize the most important needs of the project, while being mindful of the project as a whole. At this point, we're focusing on collecting all the necessary data, such as potential risks, potential user features, any constraints, and any additions to the project requirements as to complete the *Requirements Document* on time. An email will be sent to all engaged stakeholders on February 26th, one week after the delivery of *Stakeholder Management Plan*, to make sure all milestones are completed, and that appropriate progress has been made. It is important to us to have constant feedback from the stakeholders in order to ensure the lack of setbacks later on.
- **Requirements Document:** March 2, 2018.
    - The requirements document lists user features and identifies constraints and limitations that may interfere with the project. This section has been in development since the beginning of the project. The reason we started this section early is to ensure that we have all the necessary information to move on. The *Final Project Plan* is contingent on a solid *Requirements Document*, which we strongly believe is crucial to the foundation of this project, and ultimately later to overall success. Our definition of success not only includes deliverable due dates being met on time, but also the constant checking of potential setbacks so that *zero* problems arise in the future. The limitations and constraints that are listed will include an analysis of severity, probability, and an estimate of when they are most likely to occur. We strongly encourage consistent analysis by all team members and stakeholders in order to effectively document progress over time.
- **Final Project Plan:** March 26, 2018.
    - This will contain the work breakdown structure, a project timeline, key milestones, and key deliverables. The work breakdown structure divides each task into smaller, more manageable sections. The project timeline/schedule will act as a map with all the necessary tasks to successfully complete a project. It will also show how each task may or may not depend on each

other. The key milestones are used to show the important points in the project. They are a useful tool to stop and look at the progress of the project.

- **Risk Management Plan:** April 9, 2018.
    - This plan will identify all the potential risks for the project via a risk register and a quality assessment. The risk register will easily allow us to monitor the potential risks and their assigned probability so that we can either transfer, mitigate, accept, or eliminate them as they arise. However, we believe there will be very few possibilities of new risks and problems because of the aforementioned persistent communication with the stakeholders and our team members.
- **Product Features and Wireframes:** April 17, 2018.
    - This will be the final presentation to the stakeholders where they will see wireframes of the application mockup and a finalized list of user features. We will also release all of our resources, ending communication with Dr. Jakacic and Dr. Rogers.

Health At Hand: Requirements Document

Date(s): March 12, 2018
Prepared by: Ian Jackson, Nic Marcopul, Kalie Souto, Nikola Vidic

Introduction

This document contains the system requirements for ***Health At Hand***. These requirements have been derived from several sources.

Types of Reader and Pertaining Sections

Key Stakeholders

- Product Functions
- User Characteristics
- Assumption and Dependencies
- Functional Requirements
- Availability and Performance Requirements

End Users

- Functional Requirements
- Product Functions
- User Characteristics

Project Managers

- Availability and Performance Requirements
- Functional Requirements
- General Constraints
- Product Functions
- User Characteristics

Software Developers

- Availability and Performance Requirements
- Functional Requirements
- Sustainability Requirements
- System and Integration Requirements

Database Administrators

- Availability and Performance Requirements
- General Constraints
- Product Functions
- Sustainability Requirements

Graphic and Interface Designers

- Functional Requirements
- Product Functions
- User Characteristics
- User Interface Requirements

Technical Background Required

Users:

Easy to Use Interface

> Mobile phones and similar mobile applications have been around since the early 2000's, so most users have a previous understanding of operating web or mobile clients. Similar apps like MyFitnessPal, RunKeeper, and other apps have been available for download since 2005 and run similarly to our application, Health at Hand. However, our user interfaces are even simpler and focus on a clear and concise user experience. Our program is designed to be used by both new and veteran smart phone operators.

Developers:
System Infrastructure and Requirements

Developers and administrators will need to have a thorough understanding of system and integration requirements and functional requirements. Graphic and interface designers will need to have an in depth understanding of functional requirements and user characteristics so that they will keep the end users in mind while creating the interface.

General Description

Health at Hand is a lifestyle and wellness application which aims to help users sustain weight loss and healthy lifestyle changes. The application was commissioned by Dr. Jakacic and Dr. Rogers in order to study weight loss and the long term maintenance of that weight loss. By using utilizing data provided by Dr. Jakacic and Dr. Rogers, and our unique approach to maintaining a healthy lifestyle, Health at Hand will succeed where other weight loss applications have failed.

The application will include calorie monitoring, exercise logs, weight loss trackers, and the ability to communicate with program administrators ("health mentors"). These health mentors will personalize guidance and recommendations for each individual user, which is a vital component of our application, and of the beginning to a successful healthy lifestyle transition. Initially, the user base will be composed of participants from Dr. Jakacic and Dr. Rogers' studies, and after preliminary success, the application will be available to the public through all major application stores and distributors.

The main difference between our application and other similar fitness and health applications is that we are focused on sustaining weight loss over time and adopting a lifestyle change. This includes any user who is overweight to anyone who wishes to adopt a lifestyle change. As we mentioned earlier, each lifestyle change will be tailored to each individual user, as it all depends on their current diet, exercise, and availability. This individually tailored approach is the most effective way to maintain the long term weight loss and permanently adopt lifestyle changes.

As mentioned earlier, advantages of Health at Hand include the ability to get personalized guidance from "health mentors", weight loss visualization, daily allotment calorie counter, and many more features which we will explore throughout this document. Thanks to the research of Dr. Jakicic and Dr. Rogers, our intuitive user interface, and the health and wellness program that we offer, Health at Hand is fully equipped to take over the health and wellness application market.

Product Functions

Health at Hand will be used to assist patients in Dr. Jakacic and Dr. Roger's studies through the Healthy Living Institute from the University of Pittsburgh. The application will allow the users to monitor their progress and promote the continuation of a healthy lifestyle in order to sustain weight loss.

The application will have several key features: application launch page, user profile page, caloric intake monitoring system, daily exercise/physical activity tracker, admin communication service, and weight loss visualizer.

The user profile page will serve as the main screen within the application. Before accessing their user profile, users will have to create an account, initially under the guidance of Dr. Jakacic, Dr. Rogers, or any of the Healthy Living Institute staff. Once the participants are registered for an account, they will move on to the user profile section. The users will have a summary of the other key functions (ex. caloric intake, exercise, etc.). The application will have a simple and easy to use interface so that the application can serve a wide variety of people. On this page, the user will enter all their personal information such as height, weight, and age, and schedule. This page will calculate the users BMI based off the information entered and give a snapshot of the progress obtained by the user.

There are two functions that will be used more often than others. These are the caloric intake monitor, and the exercise/physical activity tracker. The caloric intake monitor will allot the user with their recommended daily amount of calories, determined by Dr. Jakacic and Dr. Rogers. The user will log the food or drink items they have consumed. The application will link with the NutritionIX/USDA Food Composition Database API so that the user will not have to calculate calories. This number will be subtracted from the recommended daily amount and display how many calories the user has left for the day. The second function is the exercise and physical activity tracker. The exercise/physical activity tracker will allow the user to input any workouts or exercise they have complete during the day. It will also contain a step tracker. Dr. Jakacic or Dr. Rogers will assign a step goal to each user which may increase with progress. As the user works to accomplish these goals, the application will give encouraging notifications to let them know how they are doing.

The remaining functions are used to obtain support and provide motivation. The users will be able to communicate easily through the application with whoever is administering their weight loss plan. This will allow the users to reach out with any questions or concerns. The communication channel is two way, so the administrator will also be able to check in on their clients. They will be able to see all the information that the user is inputting, which will give them a better idea of the users progress. Lastly, the weight loss visualization tool can be utilized to show overall progress in an easy to read chart. This will help the users be able to understand and pinpoint trouble spots in their weight loss journey.

Constraints

Part of making our application successful will involve making sure that it is compatible with multiple mobile operating systems. This will include connectivity with Android Operating Systems 5.1.1 and above, and iOS 8.1.1 and above. In order to achieve this compatability, the application will be built using Objective-C and Java programming languages. Objective-C will make the application run on iOS, while Java does the same for Android systems. HTML5 will be used to enable mobile browser compatibility, as well as to build the framework of the app.

The server space required for Health at Hand will be provided by The University of Pittsburgh. Servers are managed by the universities IT department at the Network Operations Center. By using the university run servers, we remove the cost and responsibility of running our own, and when we need more space the university offers the ability to expand access. Additionally, Health at Hand will be Section 508 compliant. This involves making our interfaces accessible to all individuals regardless of medical disabilities.

Assumptions and Dependencies

For Health At Hand, we are depending on the University of Pittsburgh Servers to handle all of our code and applications. We are also assuming that there will be no delay from Dr. Jakacic and Dr. Rogers who will be implementing the application to their participants through the Healthy Living Institute. We are depending on them to provide our test market. In addition, we are relying on the assumption that all users will have reliable and continuous access to mobile devices and the internet. They will also have to have the basic knowledge outlined in the technical background required section. Also, The success of the application is dependent on the users. They must accurately and honestly enter all of the relevant information, such as food consumed and exercise, and be honest with their health mentors. The users must use the application consistently to in order to show our predicted weight loss results. The application will also require our entire administration to ensure that the application maintains 508c compliance. Administration will also be in charge of maintaining up to date workflow diagrams of data and inner-system dependencies, application documentation both online and offline, document configuration settings, work at the right security/privilege level when diagnosing and resolving a problem, and properly source administration accounts ("Application Administration"). Lastly, we are relying on the assumption that the NutritionIX/USDA Food Composition Database API will be readily available and easily integrated into our systems. We are operating under the assumption that this database will hold all pertinent food information that our users will need as well.

Specific Requirements

This section of the document lists specific requirements for ***Health at Hand***. Requirements are divided into the following sections:

1. Functional user requirements.
2. Availability (reliability) and Performance requirements.
3. System and Integration requirements.
4. Sustainability Requirements
5. Usability requirements.

Functional (User) Requirements

- **Application Launch / Login Page**
    - Introductory page that requires users to enter their usernames and password to login to their individual accounts. We've also introduced the ability to create an account through users' Facebook and Google+ profiles to make the process easier

- **User Profile Page**
    - This page will allow for users to view and update their personal information which includes age, weight, height, schedule and contact information. The user will also be able to view their current weight, BMI, and fat percentage on this page, as well as receive feedback on their weight loss progress.

- **Caloric Intake Monitoring System**
    - This will allow users to enter in the number of calories they have taken in during the day. This system will function by subtracting the inupted calories from your total daily

allotment. The remainder will tell the users how many calories they have available for the day. We are doing the monitoring system in this way because of its increased likelihood that users stick to the allotment.

- **Daily Exercise/Physical Activity Tracker**
    - This will be an input which allows users to enter their specific activity performed and the duration of that activity. The activity tracker will also include a step monitor which will give encouragement to reach certain step goals. Some feedback will be received from the health mentors here as well.

- **Admin Communication Service**
    - Being able to communicate with the administrators is a asset to users maintaining weight loss. Not only will this allow them to ask questions and receive answers, but also it will allow the administrators to make weekly check ins with all of the users. In addition, users can report any problems they are encountering with reaching their goals, as the rest of the problems will be address in the system feedback section.

- **Weight Loss Visualizer**
    - A weight loss visualizer allows users to monitor their weight loss in an easy to understand way. The visualization allows for users to quickly check and understand their progress by reading it off a simple graph.

Availability (Reliability) and Performance Requirements

- **Speed and Throughput Efficiency**
    - Users will experience maximum waiting times of up to 1 second while browsing through different sections of our application. The amount of active processes that our application can handle at any given time will be directly correlated to the total user count, giving each user the ability to perform up to 2 operations per second.

- **User Capacity**
    - The total amount of users is entirely dependant on the stage of development. Initially, we will have several hundred users who are all participants in Dr. Jakacic's and Dr. Rogers's study. After the application finishes beta testing with initial applications, the initial release to the public will include 100,000 spaces for individual user accounts. As the total user accounts grows closer to the total capacity, we will increase the total spaces by 2 times. The support team will monitor the total amount of users and make sure the server space is never filled to capacity, and has plenty of space to operate with. For example, when the total user count reaches 75% of the threshold, we will increase the total capacity to 200,000 to accommodate the rising user rates.

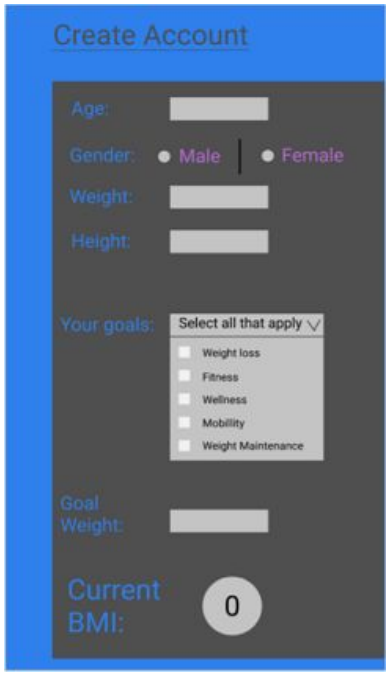
System and Integration Requirements

- **Browsers Supported**
  - Google Chrome version 50.x
  - Mozilla Firefox 49.x
  - Safari 10.x
  - Microsoft Explorer 11
  - Microsoft Edge 38.x with EdgeHTML 14.x
- **Server Systems**
  - Pitt hosted servers
  - Secure Remote Access
  - Client Access Licenses
- **Development Languages**
  - Objective-C
  - HTML5
  - Java
- **Mobile Application**
  - Available on App Store and Google Play
    - iOS version 8.1.1
    - Android version 5.1.1

Sustainability Requirements

- **Support Network**
  - Team of technical support professionals will be monitoring application status, as well as offering technical support when necessary. This support network is designed to handle back end issues and handle increasing amounts of totals users.
- **System Feedback**
  - The ability to report issues encountered with logging information, contacting administrators, using the interface, and other similar problems alleviates the need to have constantly support on standby. A digital error reporting system, accompanied with Frequently Asked Questions and Answers about the program, will save the most time and money on both the user and developer sides. Users will not feel frustrated if they have the ability to express concerns or problems, which ultimately leads to a higher user satisfaction and greater likelihood that they continue to use the application.
- **Data Backup**
  - As a safety, all user information will be stored on a separate server that will automatically update every 24 hours at 12:00am. The purpose of this backup is to eliminate the possibility of users individual devices corrupting any of our application data. This way, users will not be discouraged to continue using our application should they have to reinstall the application.

Usability Requirements



1) Health at Hand is designed for simple use and easy access. The topic of health and weight loss can be involved and time consuming. Our application is intended to help expedite the process of a user monitoring their health and progress. Our system's key features will be streamlined in our UI design so that the necessary information is recorded and vital feedback given. We will keep the user from feeling bogged down by the details of their daily monitoring by abstracting their input into helpful and meaningful graphics. We will integrate a Facebook or Google+ option for signing up and logging in to help users avoid the hassle of additional contact information input. The mockup below shows our initial conception for sign up page design with a simple color scheme and easy to understand input fields to avoid confusion.

2) The second mockup outlines the key pieces of information that are needed from the user to begin to construct a picture of their current health and weight status. This second page is not a complete, comprehensive look into the user's health and mindset, but the goal of this page is to ease the user into inputting data without overwhelming them. This is where much of the competition falls short. MyFitnessPal offers too much information up front and makes initial calorie intake user input too complex. We are designing a system that allows users to easily gain access to the information they need while not feeling overwhelmed by all of that information at one time. Once this initial data has been input and an account created, a tabbed homepage with basic tracking graphics will be displayed for the users

The user's self monitoring process will be carried out in part through their use of a caloric intake input engine which will use user basic food name prompts to suggest food items from the NutritionIX/USDA Food Composition Database API that the user may have had. From these options, the user can pick which food option they ate. This action will initiate a calculation of calories consumed which will display in a graphic with additional nutritional input facts underneath. Compliance to user self-stated goals will show

a green colored graphic with a yellow for calorie intake nearing limits at a rate that will end before the day is over. Red will show when calorie intake has gone over the allotted daily amount.

The essential component of our design is simplicity. We will make user input straightforward and keep feedback abstracted so that users will not leave our application for pen and paper tracking. The problem of retention of users for applications closely resembles that of maintaining weight loss or continuing weight loss for an extended period. Thus, it is imperative that we implement our design with little resulting frustration or confusion from users. We believe this can be done by clear, concise use of graphics and abstracted data with a refined search engine that allows for quick and reliable input from the user.

Appendices

Wishlist

The following ideas / concepts are “wishlisted” for future consideration:

- Compatibility and interfacing with “wearable technology”. Examples include: wearable heart-rate monitors, blood sugar monitoring devices and diabetes monitors. Developing an interconnected system will increase the the market value of our product.
- Using a fat percentage index that gives a more detailed account of patient fat ratio than basic body-mass index.
- Incorporation of app learning which will allow the AI system to pick up on user trends regarding both activity and caloric intake. By using the data collected and monitoring of user trends, the application will be able to automatically create individualized messages and notifications for users. These notifications will help users to stay on track with both exercise and dieting,
- Social connectivity to allow for users to have friends as accountability partners in app.

Glossary

API - An application programming interface is a set of subroutine definitions, protocols, and tools for building application software that can make it easier to develop a computer program by providing all the building blocks, which are then put together by the programmer.

HTML - HyperText Markup Language

iOS - iPhone Operating System

Nutritionix - One of the worlds largest food database. The database includes nutritional information on over 26,000 foods, 641,000 grocery items, and 136,000 restaurants.

Section 508 - an amendment to the United States Workforce Rehabilitation Act of 1973, is a federal law mandating that all electronic and information technology developed, procured, maintained, or used by the federal government be accessible to people with disabilities.

USDA Database - A database produced by the United States Department of Agriculture that provides the nutritional content of many generic and proprietary-branded foods. Released in August 2015 and revised in May 2016, the current release, Standard Reference 28 (SR28), contains "data on 8,800 food items and up to 150 food components".

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