Inf 43 – Spring Quarter, 2015 – Homework 1

Student Name: **Jessica Anteater**
Student Number:

Awarded Points	Maximum Points	Document Aspect
	15	Clarity of writing (spelling, grammar, sentence construction) and Clarity of expression (flow, structure, making logical arguments). Roughly 7.5 each.
	15	Introduction / Executive Summary (can be different sections or combined into one)
	7.5	Application Context / Environmental Constraints (can be different sections or combined into one)
	35	Functional Requirements, including use-case diagram and each use case (following a use-case template).
	7.5	Software Qualities and Non-functional Requirements
	5 (+5)	Other Requirements and Other Items. At least a Glossary of Terms. You can earn up to 5 points Extra Credit if you go beyond Glossary
	7.5	Assumptions / Risks (can be different sections or combined into one)
	7.5	Priorities / Implementation Phases; Future Directions and Expected Changes
	100	**TOTAL**

ZOT My Health System Requirements

April 20, 2015

Jessica Anteater

Introduction

This is the requirements document for the Zot My Health web page and phone application created by Health Beacon partnered with Frontier Software. This document will outline what this software will accomplish and go over in varying levels of detail how it will be used. All sections of this documents will take into consideration the goals determined by Health Beacon in order to satisfy the frustrations they have identified in the fitness accessory market.

First, I will outline a high level summary of the major portions of the application that will serve as the fastest way for anyone to get a general understanding of what the software will accomplish. The overview will not cover every aspect of the software and so should not be used as a sole guideline for developers. This section will be very light on technical terminology, but the later sections will then go into more specific and technically detailed information and will give a complete understanding of what this software will do.

The next thing I will discuss is the context of this software which will include the environment in which the mobile application and web page will be used and discuss how developers should design them with respect to these factors. This section will also discuss the various platforms and operating systems this software will be running on and the differences in design and programming language that can be expected. This will give us information on what our developers should know and give a better understanding of how our software will be used by our intended audience.

Then I will move into the functional and nonfunctional requirements, as well as any miscellaneous requirements. Each of the requirements for both the web page and phone application will be discussed here following the use case scenarios standard. Using this system will identify all aspects of the software and instances that the user could create. This section will also cover the traits of the software as a program for the developers as far as its limits and capabilities so that they can know what may or may not work for them down the line. Lastly, this section will also include any visual aides outlining the software as well as a glossary of terms. The visual aides will include rough design guidelines and use case diagrams as well as any other helpful images. This part of the document will serve as the main guide for developers so that they may understand what we intend for this software to accomplish and what the users experience should be like.

The final sections will cover what risks this software may face both in the real world and potential bug or design issues, what functionality will take priority in development and bug testing, and what plans there may be as far as expanding the software. This section will include information on which operating system be completed first, what risks our product may face both in development and in the field and how those concerns will be addressed. None of the future plans listed are final and may be subject to change.

Thank you for reading this document and please contact us with any questions.

Overview / Executive Summary

The Zot My Health phone application aims to provide the user with a simple way to track their workouts, calorie intake, and sleep schedule. Planned to be available for

iOS, Android, and Windows Phone, will be an easy access hub for users to help keep themselves healthy neatly and effectively by being able to sync with, and download data from a wide variety of fitness/health accessories. One of these devices will be selected by the user as the primary syncing device which will automatically transfer data to the Zot My Health application. All data that is either imported or entered directly into the application will be stored on the company's own server where it will only be deleted if the user requests it or has deleted their account for over a year. With this application, Health Beacon, paired with Frontier Software, will fill the void left by fitness accessories organizing their data as well as providing a smart platform for fitness tracking.

After creating their account, the user will be able to view or enter data for either fitness, calorie intake, or sleep. From the 'Exercise' menu, the user will enter the type of workout along with other required fields causing the app to calculate the amount of calories the user has burned. This functionality is designed to assist the user who may not have another way to obtain this information and also keep our application quick to use, a similar functionality will exist within the eat menu for the same purpose. In both of these menus, we are including the option for the user to edit this number if they feel it is inaccurate. Still from the fitness menu, users will be able to view their collected data in an easy to read format such as a graph or chart allowing them to know what their fitness routine looks like quickly and concisely. Furthermore, users can set fitness goals, based on which our application will send them notifications depending on whether or not they meet these goals. We have included this feature in the fitness menu so that users will set these goals when they have just finished a workout or are thinking about their fitness.

From the 'Eat' menu, the user can enter information about what they ate in order to have their calorie intake suggested as mentioned previously. We want the user to be able to enter specific meals from restaurants they frequent as well as enter ingredients from meals they create and have the calorie data generated either way. In order to save the users time we will also include the ability for the user to save their custom meal data so they can access them like a restaurant meal. Also from this menu, the user can set goals for daily calorie intake that will send them notifications. Furthermore, the user will also be able to see their data over time like in the fitness menu and see their average daily intake.

From the 'Sleep' menu users can calculate how long they have slept based on when they went to sleep and when they woke up. They will also be able to see their data over time and their averages as with the other menus, but will not receive suggestions for sleep or be able to set sleep goals. This menu is basic partially due to its nature, but also because we feel that simplicity and speed are critical for this section. We feel that it is important for our users to track their sleep cycles and want to encourage our users to do so by having this menu be simple and make tracking sleep a very quick and easy activity.

Lastly, the user can navigate the 'My Profile' section to see other miscellaneous menus where they can sync devices and choose their main device, see all types of data on one general graph, edit information and more. We hope to have the application completed by the end of the quarter staying under the specified budget.

Application Context / Environmental Constraints

When designing this application, the developer should keep the mental image of the user using this application on their phone after just having completed a workout. This

is the context in which the most use can be expected and we want to accommodate this situation as much as possible. Likewise, developers should also consider the phone application to be the primary entity for this application as it will contain the most functionality and features. With this in mind developers should consider factors such as sunlight and user exhaustion wherever relevant and also assume that if the user is entering fitness, food, or sleep data, they have access to the internet.

Since the phone application and web page will span across all platforms, all resolutions and aspect ratios should be properly accommodated with no resolution being under utilized. Furthermore, because of the recent web mandates set in place by Google, the web page will have mobile and tablet specific versions as well as one that serves low-bandwidth users. Not much use is expected from these versions as the mobile application will have more features, however they must be taken into consideration. The laptop/desktop versions of the webpage should be the main focus as the features specific to the web page will be most relevant in those contexts.

Between the differing operating systems the mobile application there will be some variation, but this should be kept to a minimum. Under no circumstances should any version of mobile application be inferior to another. However, the web page will be intentionally limited in order to encourage users to primarily use the phone application. Between these two platforms the differences should be limited to the platform specific capabilities such as exporting to a spreadsheet format from the web page, the intentional differences previously mentioned, and cosmetic differences due to operating system or programming language.

The languages for the we have chosen to write the software in are as follows:
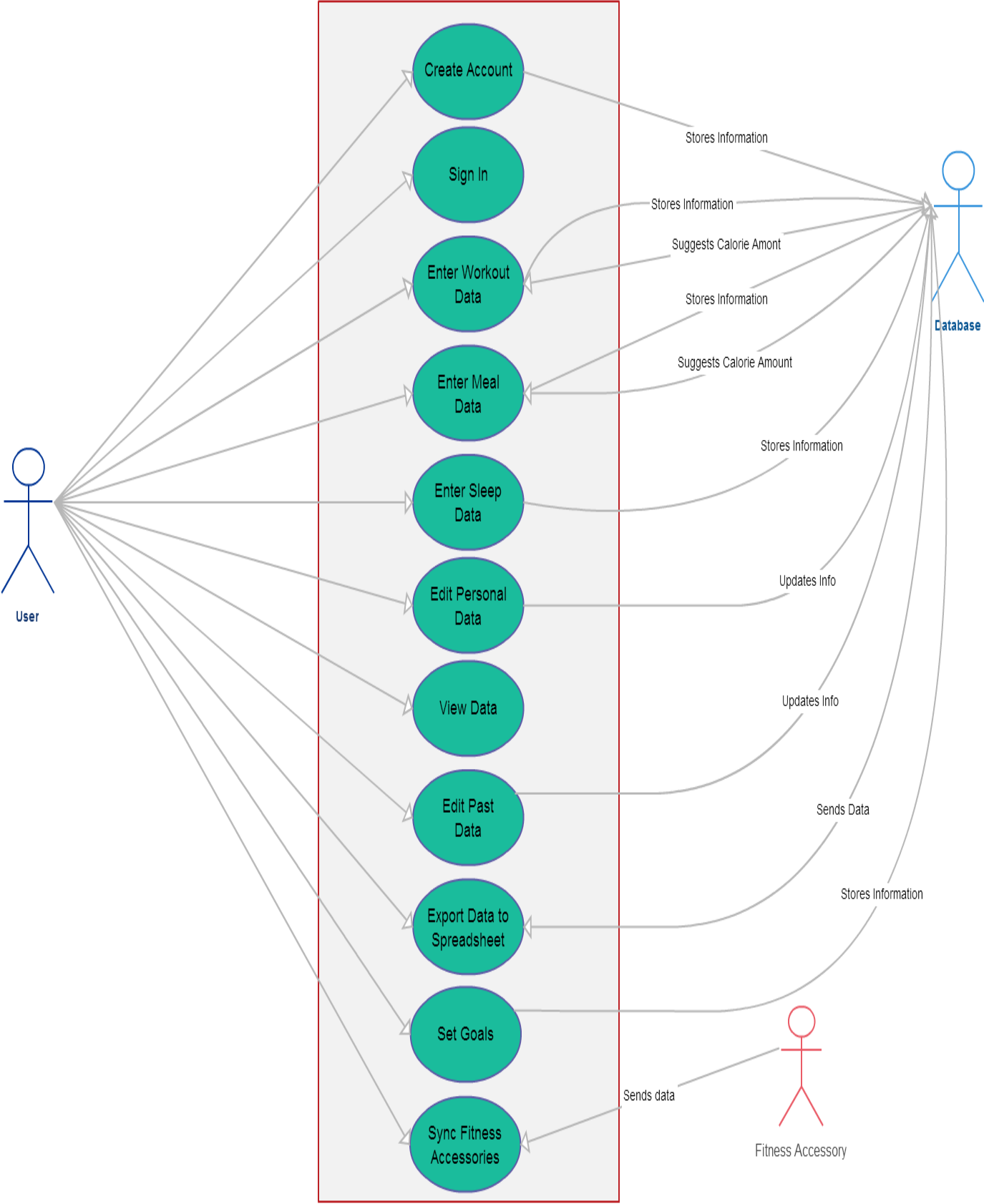
- Web Page (all versions) - Javascript (front end), C (back end)
- Mobile Application (iOS) - Objective C
- Mobile Application (Android) - Java
- Mobile Application (Windows Phone) - C#

Functional Requirements

This is the functional requirements section where, following the use case diagram included below, each of the functional requirements will be identified and discussed. The actors and their relationships with each functional requirement that applies to them will be the main focus. This section is the most specific this document will get and should serve as a general overview for developers. When describing these use cases it is assumed that the user has already installed the application.

The following is the use case diagram for Zot My Health:

Zot My Health

Create Account

Sign In

Enter Workout Data

Enter Meal Data

Enter Sleep Data

Edit Personal Data

View Data

Edit Past Data

Export Data to Spreadsheet

Set Goals

Sync Fitness Accessories

User

Database

Fitness Accessory

Stores Information

Stores Information

Suggests Calorie Amont

Stores Information

Suggests Calorie Amount

Stores Information

Updates Info

Updates Info

Sends Data

Stores Information

Sends data

Creating an Account:

Basic Flow:
- User opens the application and selects create new account on the sign in menu
- User fills in required information including email, name, gender and password and any of the optional information (weight, age, height)
- The database verifies that the email is not already registered
- User is then prompted to check their email for the verification code
- After entering the verification code, the account creation is complete

Exception Flow:

User does not receive email:
- After being prompted to check their email, the user does not receive an email
- User selects indicates that they did not receive an email
- User is prompted to re-enter their email and wait up to 5 minutes while another email is sent
- If the user still does not receive their email, they may repeat this process, otherwise they will enter the verification code and continue

User quits application:
- Any time during the account creation process the user quits the application
- The user must repeat the account creation process from the beginning

User is not connected to the internet:
- If the user is not online they are not allowed to create an account and told they need to be online to create an account

Alternative Flow:

Email is recognized by database:
- After entering their email address, the database recognizes the user's email as one that is already registered
- The user is told they have already created an account and is sent back to the sign in menu where they can choose the forgotten password option if necessary

User minimizes application:
- Any time during the account creation process, user minimizes the application
- When the user returns to the application their progress will be saved

Signing in:

Basic Flow:
- The user opens the application or web page and enters their email and password
- The user has complete access to their account

Exception Flow:

The email is not recognized or the password is incorrect:
- The user is told their information is invalid and to try again
- After the fifth unsuccessful attempt, if the database recognizes the email the user is sent to the verification menu, otherwise they are prompted to create an account

Alternative Flow:

The user is not connected to the internet:
- After entering the correct information, the user is logged in and told they are in offline mode
- In this state, the user is able to view any previously entered information, but is unable to enter any new data

The user selects the forgotten password option:
- After arriving at the verification menu, the user is sent a verification email
- User enters verification code and is prompted to enter a new password
- After entering the new password twice, their password is changed and they are sent back to the sign in menu

Entering Workout Data:

Basic Flow:
- From the homepage the user will select the 'Exercise' menu and from there select enter new workout
- The user is then required to enter the name of the workout and the amount of calories burned, but may also fill the weight, reps, duration, and distance fields to have the database suggest a calorie amount that can be change by the user
- After confirming the data, the user will be sent to the view data menu for the exercise menu

Alternative Flow:
User enters workout from a synced device:
- After selecting enter new workout the user will have the option of added a workout from a synced device which will automatically enter all relevant data
- After confirming the data the user will be able to view it normally

The user's selected primary syncing device automatically imports data:
- The user enters a workout into their primary syncing device and the data is automatically entered into the database
- The user can then change this information from the 'My Profile' menu

Entering Calorie Intake Data:

Basic Flow:
- From the homepage the user will select the 'Eat' menu and from there select enter new meal
- The user is then required to enter the name of the meal and the amount of calories contained, but may also select one of the suggested meals to have the database suggest a calorie amount that can be changed by the user
- After confirming the data, the user will be sent to the view data menu for the eat menu

Alternative Flow:
The user creates their own custom meal:

- After selecting enter new meal, the user chooses to create a custom meal
- The user enters the name and ingredients of their custom meal and the database suggests a calorie amount that can be changed by the user
- The user then saves their meal and can now select it when entering a new meal

The user's selected primary syncing device automatically imports data:
- The user enters information into their chosen primary syncing device and the data is automatically entered into the database
- The user can then change this information from the 'My Profile' menu

Entering Sleep Data:
Basic Flow:
- From the homepage the user will select the 'Sleep' menu
- The user is then required to enter a to and from time and confirm the total time slept
- The user will then be sent to the view data menu for the sleep menu

Editing Personal Data:
Basic Flow:
- From the homepage the user will select the 'My Profile' menu and from there select edit personal data
- From this menu the user can edit any of their personal data

View Data:
Basic Flow:
- From the homepage the user will select the 'My Profile' menu and from there select view data
- From this menu the user can see a graph of all their different types of data organized by day/week/month/year/all based on the header field as well as their averages for each type of data with respect to the time field

Alternative Flow:
The user only want's to see one type of data:
- From the homepage the user select either the 'Exercise', 'Eat' or 'Sleep' menu based on which type of data they would like to see
- From there the user will select the view data option and be shown their activity specific data over the selected time along with the average based on the selected time

Editing Previously Entered Data:
Basic Flow:
- From the homepage the user will select the 'My Profile' menu and from there select edit previously entered data

- The user can select which entry they would like to edit from a list of workouts that can be filtered by type and date
- The user can now edit or delete all data from the selected entry excluding the date and type of the entry

Exporting Data as Spreadsheet (Web Page exclusive):
Basic Flow:
- From the homepage the user will select the 'My Profile' menu and from there select export data
- The database will send the information and a download containing all of the users entries will start automatically

Setting Goals:
Basic Flow:
- From the homepage the user will select the 'My Profile' menu and from there select goals
- User can then choose between 'Exercise' goals and 'Eat' goals
- The database will suggest a goal, if there isn't one already, that can be edited to the user's preferences
- After confirming their goal, it will appear in the list contained within either the Exercise or Eat goals depending on what was selected previously
- Once the goal is set the user will receive notifications based on their progress with their goals.

Syncing Fitness Accessories:
Basic Flow:
- From the homepage the user will select the 'My Profile' menu and from there select synced devices and then select add new device
- The user will find their device and pair it with the application
- After the sync, the user will be prompted to import the device's backlog and make their synced device their primary syncing device

Alternative Flow:
The user wants to import their backlog from an already synced device:
- After navigating to the synced devices menu the user will select the synced device they wish to receive data from
- The user will then select the dates for which they want to import the data and the database will determine which type of entry they are
- The newly entered data will now be viewable alongside any other data

Software Qualities and Non-functional Requirements
Performance Requirements - The most critical performance requirement for both the webpage and mobile application will be communication with the database. The main issue with this will be balancing performance with bandwidth usage as this application

should be lightweight in that regard. For now, the primary functionality of the application depends on communication with the database so performance has to reflect that.

Accuracy and Precision - In order for our application to be high quality, we must prioritize the precision of our data over its accuracy as getting the database's suggestions as close as possible to actuality will mean a better working application.

Modifiability - It is important that the application is never too fixed that it cannot be changed with relative ease and it especially important that the parts mentioned in the future changes section maintain this quality.

Portability - Since we will be developing the application for all platforms from the beginning, portability will be a major concern initially as it will have major time saving benefits. However, once initial development has concluded we are confident that the quantity of versions will give the application inherent portability.

Reliability - With the current design of the software and its dependency on the database, the main concern with reliability is recovery rather than prevention. That being said, the reliance on the database should allow our mean time between failures statistic to be quite good, but being able to recover and restart quickly is the main priority.

Security - With regard to the database, security is a extremely critical concern as stealing data from it would be akin to taking money out of our safe so to speak. However, within the context of the application, it is up to the user to take care of their own personal security. We give them to option to not automatically sign in and will use idle timers to satisfy basic needs.

Usability - As mentioned previously, this is yet another primary concern for the application as it is safe to assume that the user could be exhausted and frustrating them needs to be avoided. Furthermore, without any tutorial or help menu, usability needs to be a priority.

Other Requirements

A crude flow chart used solely to ensure consistency within this document. Does not accurately reflect final software, but can be referenced in case this document isn't sufficiently clear.
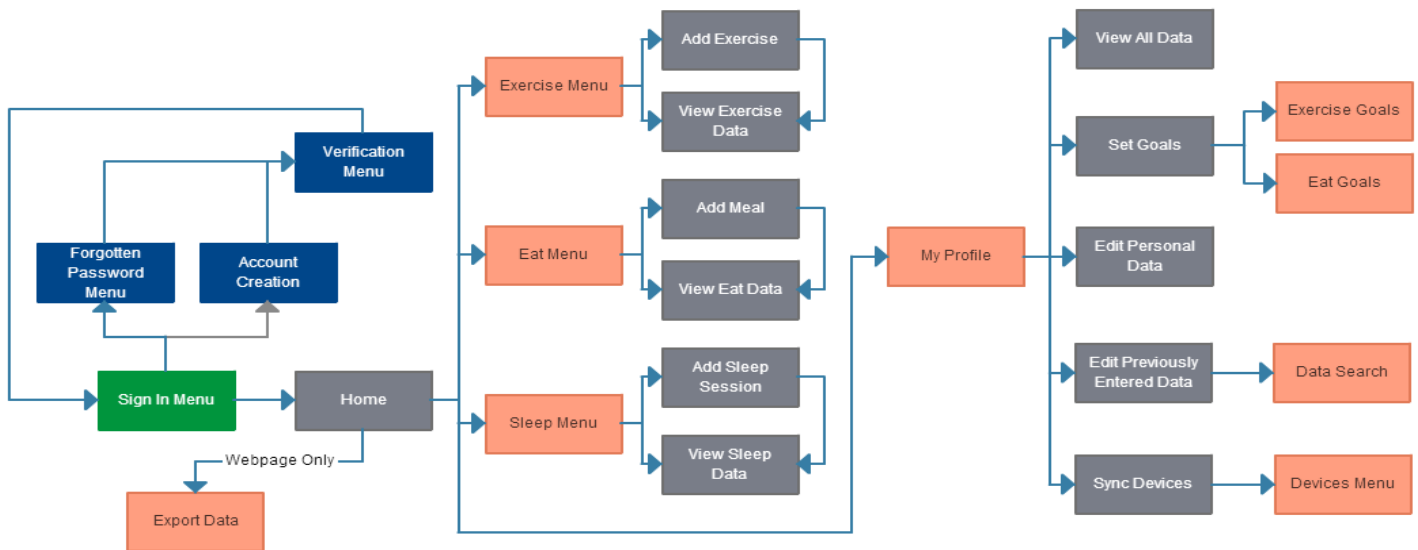
Glossary of Terms:

Database - The main storage and data hub controlled by Health Beacon. Able to store all types of user data as well calculate calorie amounts and goals based on this data.

Eat Menu - A working title for one of three main gateways for the user to enter data or view specific data. Eat will be used to refer to calorie intake data in general.

Entry - A general general term meaning data input. Can be one of the three designated types of fitness data.

Exercise Menu - A working title for one of the three main gateways for the user to enter or view specific data. Exercise will be used to refer to calorie output data in general.

Fitness Accessory - See 'Synced Device'.

Forgotten Password Menu - One of the alternative menus for signing in. Can be navigated initially by selecting it in the sign in menu or entering an incorrect password five times.

Minimize - Defined to in contrast to the term 'Quit', when the user minimizes the application is simply running in the background and data is saved. This term is used even when discussing the mobile application which doesn't necessarily have a minimize function like a desktop.

My Profile Menu - The last section on the homepage, this is a hub for the user to view and edit all the their data as well as sync with their fitness accessories.

Offline Mode - A state of limited functionality for the application that occurs when the user is not connected to the internet.

Primary Syncing Device - A single synced fitness accessory chosen by the user to sync data automatically.

Quit - Defined in contrast to the term 'Minimize', when the user quits the application it is completely terminated, they are logged out, and any unsaved progress is lost.

Sign In Menu - The initial menu the user is sent to if they do not sign in automatically.

Sleep Menu - A working title for one of three main gateways for the user to enter data or view specific data.

Synced Device - A term used to refer to <u>hardware or software</u> that has been linked to the user's account. Synced devices are viewable from the Devices Menu page and any synced device can be chosen as the primary syncing device. Used interchangeably with fitness accessory depending on which is more clear.

Verification Menu - One of the alternative menus for signing in, this menu will be reached when it becomes necessarily that user must verify their email either to reset their password or to create their account.

Assumptions / Risks

Assumptions:
- Unless stated otherwise, the user is assumed to have internet access and if they lose this access it is assumed that they are automatically put into offline mode
- If an exception was not listed under the exception flow of a use case it should be assumed that the exception will cause an immediate denial/try again cycle
- As of now, it is assumed that the user knows the functionality within each menu as there is no tutorial
- It is assumed that the user knows how to install the application and has already done so
- It is assumed readers of this document either understand the terminology or have read the glossary of terms

Potential Risks:
- The application in its current design is very dependent on internet access which could create problems for future plans or frustrate the user
- It is currently assumed that the user has a complete understanding of the various menus of the application which very clearly won't be the case for new users
- The current method for entering exercise data is set up in a way that could cause a user who does a lot of different types of workouts to be forced into a repetitive data entry cycle causing user frustration
- The application currently has no method for being profitable other than user data, which is being a point of conflict for much of today's audience
- The application will be entering an already fairly saturated market and depends on its ability to work in tandem with most of its competition
- Competitors may make their devices incompatible with our application

Priorities / Implementation Phases

Before the release of version 1.0 of our software,

Must have:

- Feature complete mobile applications for Android and iOS
- Syncing capabilities with major devices
- Functional Webpage
- Adequate communications throughput with database

Should have:
- Feature complete mobile application for Windows Phone
- Feature complete web page
- Syncing capabilities with most devices

Nice to have:
- Syncing capabilities with almost all devices
- Social Media capabilities

Future Directions and Expected Changes

Addressing Previously Mentioned Risks:

In order to reduce dependency on internet access, solutions such as a caching system or low bandwidth mode are being considered. In theory this would work by locally store the data the the user enters while in offline or low bandwidth mode and sending it to the database once they have better internet access. While this may be a "band aid" solution it would provide the most benefit at the lowest cost for resolving this issue.

In order to reduce overall user frustration the addition of a tutorial is being considered. This would most likely take the form of a guided tour of the application when the user first creates their account. Whatever form it takes should be skippable.

To help the user enter information more quickly, the option of adding multiple entries of the same type of data is being considered. This could create problems with throughput and bandwidth or even storage with regard to the potential low bandwidth mode, so more testing will need to be done before a decision is made.

A paid version and advertisements are options we have to consider, but for the meantime will avoid.

Other Expected Changes:

The name of the 'Sleep' menu is being hotly debated as it is the only menu the does not begin with and E and changing it to a word that does begin with an E would allow us to create a mild EEE reference.

Options currently being considered:
- Ease
- Energize
- Envigorate
- End