Introducing

HealthierMe

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I. Context

Analysis of problem

Food is a necessity and has been apart of society for a long time from hunting and gathering to driving up to a fast food place and ordering. Through many generations, food has become a staple in everyone's life, but we have forgotten the importance of nutrition. A study from the World Health Organization has shown "in 2014, approximately 462 million adults worldwide were underweight, while 1.9 billion were either overweight or obese." It is clear that malnutrition is an epidemic that has led to many medical health risks and needs to be handled.

Correcting this pattern of bad eating habits is incredibly important, because poor nutrition can have an effect on all aspects of a person's life. Not only can poor nutrition cause death, it can cause a myriad of underlying health issues. Spreading awareness of proper eating habits has become incredibly important in today's society. According to Maria Cohut from Medical News Today, "36.6% of adults in the United States ate fast food on any given day."

Teaching proper nutrition is easier said than done however. Many bad eating habits are hard to break and stem from years of misinformation on how to properly fuel your body. There are many "fad diets" which can be dangerous for a person's health. The problem is, there is no shortcut to health. Being healthy requires consistency and discipline to make good choices, which is what our application will assist with.

Target Audience

Obesity is an epidemic that continues to grow in more industrialized nations. Though there are many causes for obesity, such as genetics, stress, or socioeconomics, we are primarily focusing on the eating habits of adults who take in more calories than they are able to burn

through exercise and normal daily activities that contribute to weight gain that can potentially lead to obesity. This form of malnutrition is called over-nutrition. Our target audience are adults 18 and over who are more prone to obesity primarily in the United States as it is home to the largest number of overweight and obese people in the world. Our target users are not children. We hope that our solution inspires adults who are concerned about their weight to make changes in their diet and physical lifestyle to ensure a longer healthier life. Obesity can start as young as 2 years old and carry well onto 60 years and over if nutritional and physical health are not taken seriously. We see the ongoing epidemic of obesity in the U.S growing because according to data from the National Health and Nutrition Examination Survey, over the course of 17 years, specifically, from 1999-2016, there has been a significant increase trend in obesity observed in both the youth and adults.

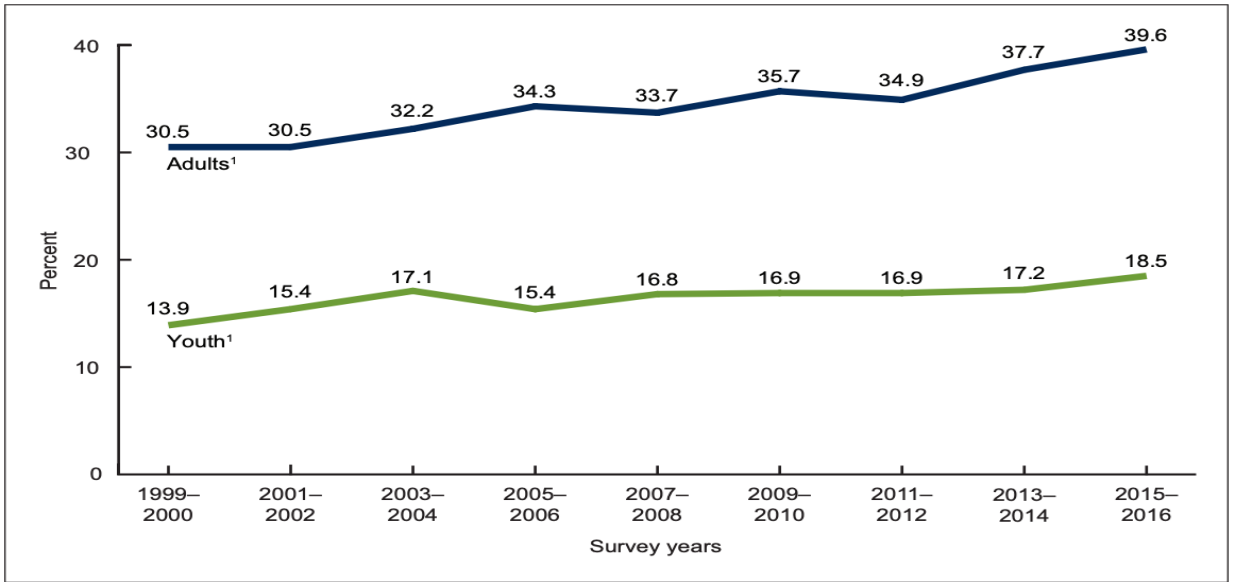


Figure 1

In terms of age and sex, from 2015-2016, data from the National Health and Nutrition Examination Survey indicate that obesity among U.S. young adults aged 20 to 39 years is 35.7%. Among middle-aged adults aged 40 to 59 is 42.8%, and among older adults aged 60 and older is

41.0%. With these age ranges, we focus our target group to primarily be 18 years and older. This is an appropriate target group because obesity is most prevalent and deadly as adults age well into their middle age.

In terms of geographic location, each year the CDC releases the adult obesity prevalence maps for all 50 states, the District of Columbia, and US territories. The maps show self-reported adult obesity prevalence by race, ethnicity, and location, which is data from the Behavioral Risk Factor Surveillance System, an on-going state-based, telephone interview survey conducted by CDC and state health departments. Specifically, the map

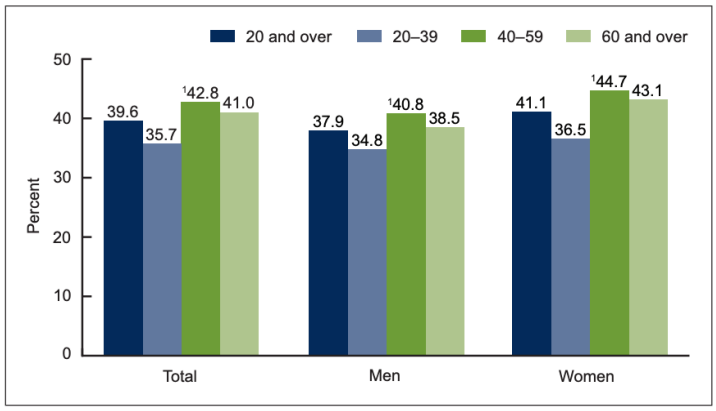


Figure 2

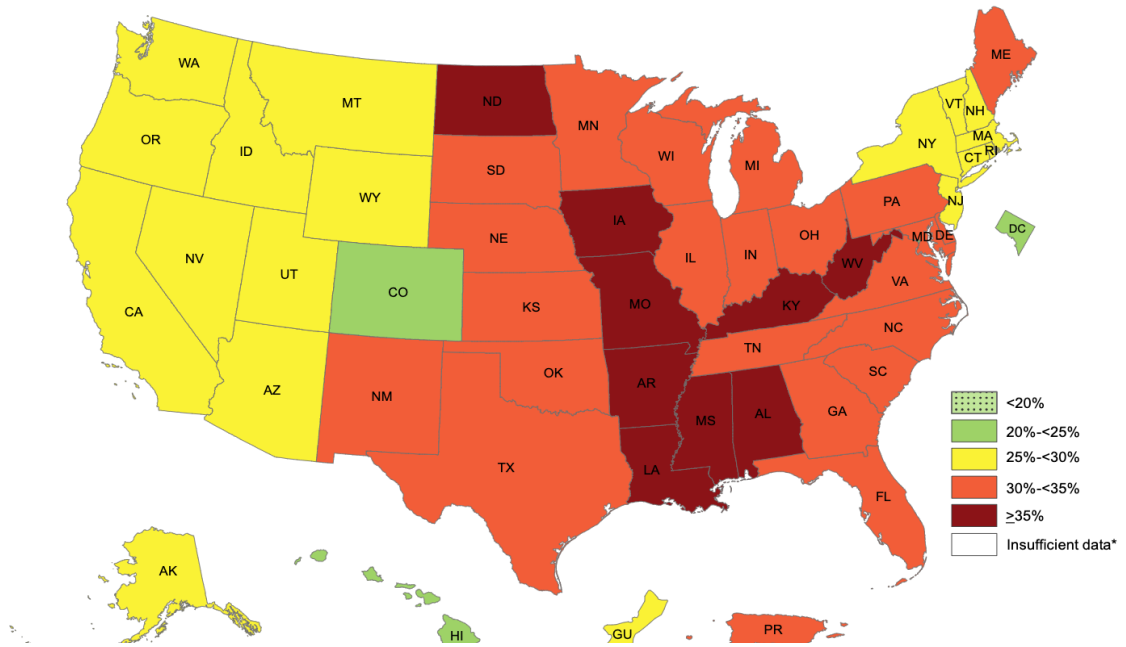


Figure 3

below shows the prevalence of self-reported obesity among U.S adults by states and territory. We get insight of where our target group are located and where obesity is most prevalent. The adult obesity prevalence map highlights the states of obesity by adult body mass index. An adult is considered obese if their BMI is 30.0 or higher and as we can see, the orange and red states highlighted indicate obesity.

Solution

Our solution is an application called HealthierMe, which is nutrition and workout application which serves to help adults maintain a discipline healthy lifestyle by helping to prevent them from being overweight or obese and its associated health risk. It ensures that adults are keeping track of their eating habits and increase their physical activity. We have identified adults ages 18 and over to be our potential users. It is within this age group where obesity is most prevalent and deadly and all the more reason why this solution is much needed. To get more insight of our potential users, we dispersed a health survey via social media to collect data by analyzing our potential users current approach in how they're living a healthy lifestyle, any flaws they may have in their pursuit to living healthy, and how our solution would assist them. Our survey also served to give us an idea of what may be needed in our application and if our application would be of interest to our audience. We had 48 participants where 95.7% were over the age of 18 and 4.3% below the age of 18. Our survey was designed to ask our potential users relevant questions such as:

- How often do they workout
- How often do they eat fast foods
- What are some things that are holding them back from living a healthier lifestyle and staying in better shape.

- If they use or are familiar with any kind of health application
- If they would be interested in an application to help plan their diet or exercise

In analyzing one of the data we collected from our potential users, for example, what are some of the things that are holding them back from living a healthier lifestyle and stay in better shape, with our 48 participants, 58.7% said it's because they're not eating right, 52.2% busy schedule, 30.4% stress, and 15.2% inconsistent fitness routine. This gives us insight on how our solution can aim to assist people that categories themselves in situations like these.

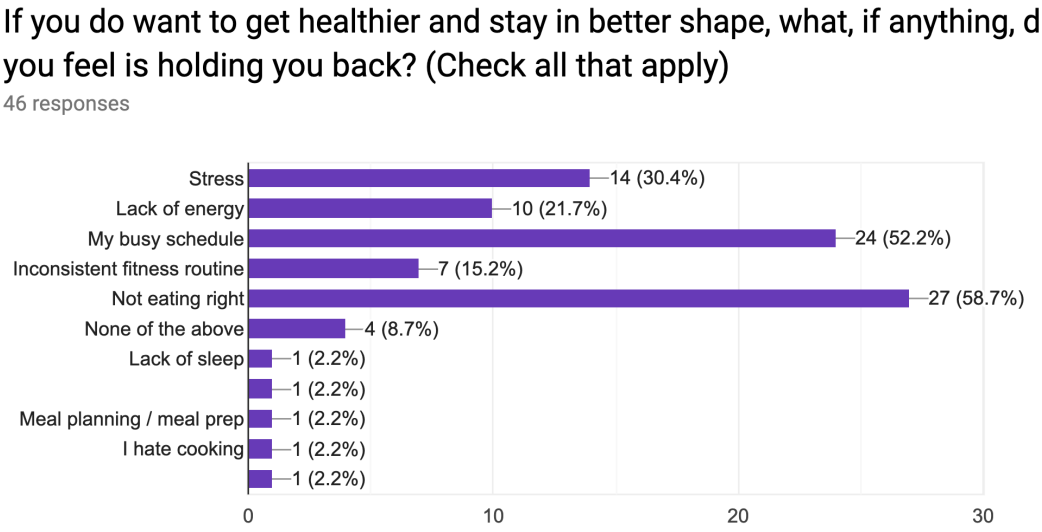
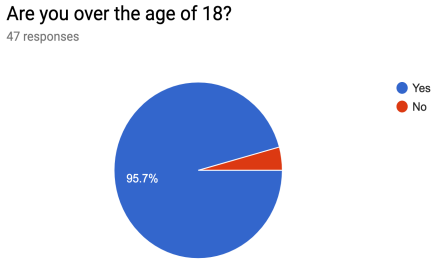


Figure 4

Below are some more data we collected from our target group.



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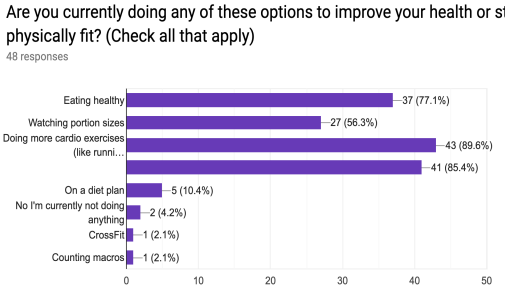
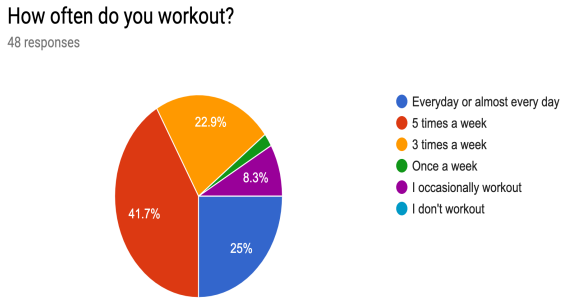


Figure 6



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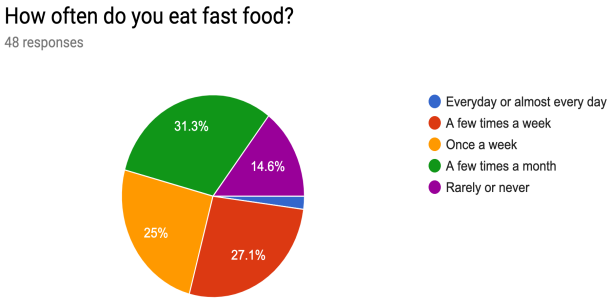

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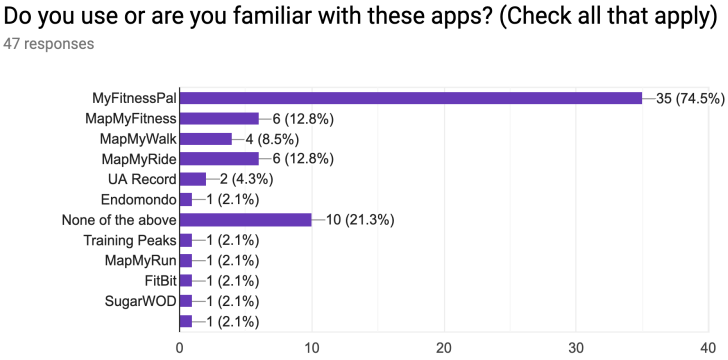

Figure 9

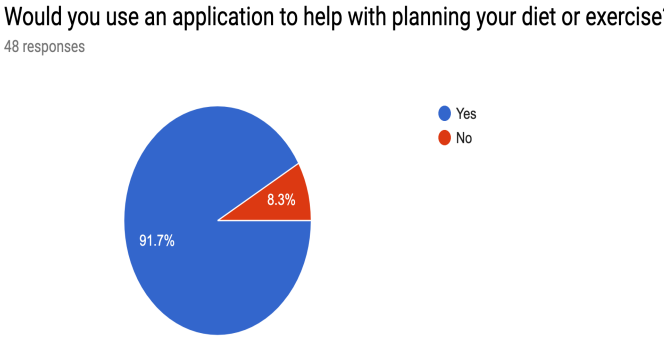

Figure 10

Research on Similar Products

MyFitnessPal

- Purpose: keep track of daily food and beverage intake, calculating nutrients, calories, and vitamins; enables users to see where to improve in diet
- Target Audience: people that want to lose weight, tone up, get healthy or just learn more about their eating habits
- Features:
    - Forum for users to support each other with advice.
    - Large food database that makes it easy to find what users want to log. Foods can be directly added to the database.
    - Barcode scanner promotes easy entry into diary.

    - Recipe tool lets users save recipes from anywhere on the web without having to add all ingredients. It calculates the nutrition information for any recipe.
    - Restaurant logger enables users to see nutrition information for the items on the menu.

The following applications are supplemental to MyFitnessPal, but can also be used as standalone fitness trackers.

MapMyFitness

- Tracks and maps users' workouts
- Users can analyze their performance for each mile
- Users join a large community of athletes to provide support, motivation, and advice.
- MapMyFitness connects to wearables and other applications
- Users can find local training routes

MapMyWalk

- Users track walks and go further.
- Users know their distance, pace, calories burned, elevation, and more.
- They can discover new routes, and load their favorites.

II. Tasks

User modality analysis

Users can interact with the application in a variety of ways, and can choose to take advantage of whichever features they feel are helpful to help them accomplish their goals. For example, users can simply use the community forum to obtain information from posts relevant to

their situations. Users who navigate through the application may be registered users or not to seek information from the community forum. Some may come to seek only 1 answer to a question, while some may visit frequently and use the forum as a necessary resource for their health. More active users may also use the forum as a way to help others, and may find themselves not actually gaining much information from it, but instead disseminating their own information. A database of information for the user's personal account can be used to keep track of user data or to gain a better understanding of the food they already have and how to best moderate their intake of the foods they enjoy. The system can give information and diet improvements, but can still function even if none of these recommendations are taken by the user. In addition, when connected with the other applications or a phone's pre-installed health information, additional information on the users health and caloric intake and output can be given to ensure users can be as healthy as possible. Even without these other applications, users can input their information manually and view information on their performance.

The application will be usable on iPhone, Android devices, a scaled version for tablets, and a specific version embedded wearable devices that can be connected to the phones or tablets. Tablet applications are very helpful for users who may find it difficult to see or read some of the buttons on a smaller screen. The application will also use a very flat, simple color scheme for easy visibility and clarity, and to not interfere with use by colorblind users visual understanding of the system. Tactical feedback through haptic vibrations in mobile devices and audio feedback through navigation of the app to confirm button presses and changes on the application will be additional settings users can choose to manipulate. Similar to other phone applications, there will not be assistance for completely vision impaired individuals however.

Task analysis

Users of the HealthierMe application all have a particular goal that involves tasks and subtasks in order to accomplish their particular goal. Below is an example of a hierarchical analysis from the user's perspective of how they may use the application to accomplish a particular task.

- Goal: Set fitness goal for the week
    - 0: Open app
    - 1: User Login
        - 1.1: Enter personal login information
        - 1.2: Main Hub (Nutrition portal or Workout portal)
        - 1.3: Navigate to nutrition portal
    - 2: Nutrition Portal
        - 2.1: Nutrition Hub
        - 2.2: Navigate to LogBook tab
    - 3: LogBook
        - 3.1: Enter health information such as:
            - How old are you?
            - What is your height?
            - What is your weight?
            - What is your BMI?
            - What is your fitness goal?
        - 3.2: Select fitness goal for the week
    - 4: Return to nutrition hub or main hub to carry on other tasks.

Features

Our application will utilize multimodal capabilities allowing our users to interact with the application in multiple different ways to ensure they accomplish their tasks. The HealthierMe application will be operating under two portals which are the nutrition portal and workout portal. Users will need to create an account for authentication sign in and will be presented to the main hub where they can decide which portal to access upon application launch. Users can switch anytime depending on specific tasks they set to accomplish. Each portal will contain their own features. The features are as follows:

Nutrition Portal Features	Workout Portal Features
1. User authentication login a. Users can keep track of personalized goals 2. Calorie calculator a. Keep track of calorie intake. 3. Meal planning and scheduler a. Users can choose their diet goals, food preferences, and plan for the week. 4. Notifier a. Automatically notify users where they need to fix their diet. 5. Community Forum a. Users can join a large community of other users to provide support, motivation and advice.	1. User authentication login a. Users can keep track of personalized goals 2. Logbook a. Allows for planning days for personal exercise routines. b. Notifies the user when to start workouts 3. Activity tracking a. Track physical activity, including steps taken, hours slept, minutes walked, distance traveled etc… 4. Community Forum a. Users can join a large community of other users to provide support, motivation, and advice.

III. Design

Hardware

We know how important it is for users to have access to their workout and diet/nutrient regimen anywhere and anytime they need it. That is why our app will be based on both iOS and Android devices. According to a survey posted on Rock Health, 71% of participants own a smartphone while less than half of those participants actually had a health app downloaded (King). We noticed that roughly 73% of the participants actually found out about different health apps by finding them independently through the App Store or from Ads online. Since most people are taking the initiative to download these apps on their phones just from the general consensus of reaching or staying healthy, we thought it was the best to design an app that will be at the reach of the users' fingertips.

UI design aspects

The design of our system is ultimately reflected off from existing systems such as MyFitnessPal and MyNetDairy. It was essential to look at the facts in order to fully capture how users interact with current health apps in order to make our app fill in the gaps that turned people off from using them in the first place. We will incorporate a lot of different features such as:

- Automatically notifying users on where they need to fix their diet
- Setting personal goals to reach by a specific date
- Letting users set up a workout routine that will notify/remind them of when to start working out

- Letting users set up a nutrient tracker/diet that will notify them of when to eat what to reach their nutrient goals

We plan on integrating an intuitive design interface that catches the attention of our users. One of the initial UI design aspects a user can expect is a dashboard that gives them shortcuts to their nutrition/diet tracker and the workout/exercise scheduler. It will have different layouts that a user can choose from in order for it to be more personable. We want users to have control over what is more important to them in their daily lives.

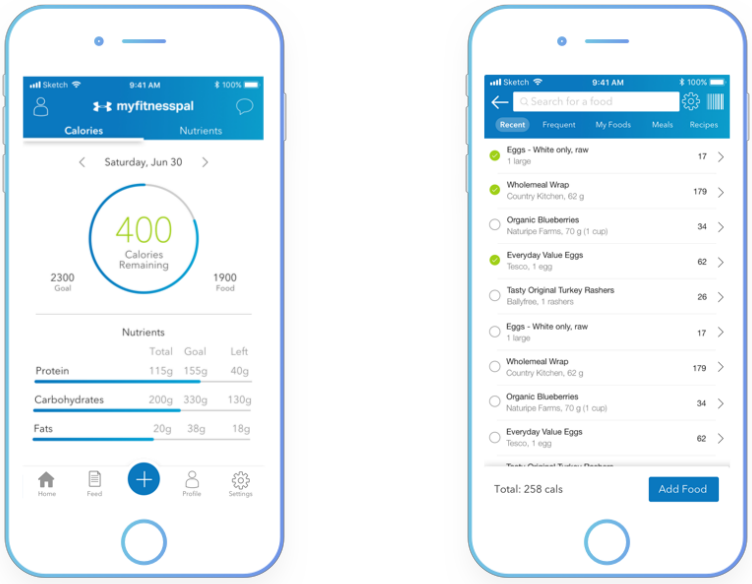

Figure 11

Referring to the image above, we will try to reflect a design that is similar so that we are able to grab current users of MyFitnessPal and similar products (Sullivan). We want people to be familiar with our design environment in addition to grabbing the attention of new users who want to live a healthier lifestyle.

In addition, both of the applications will be native to its designated platform (iOS v.s. Android). We do not want to misguide our target audience by giving them something they have

never seen before so that is why we will refer to UI design aspects from other similar applications.

IV. Citations

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Survey Link:

https://docs.google.com/forms/d/e/1FAIpQLSc7Pp9ik7zGBHTsgL_nrPsILZMiZpNjCFIfolxitzFCHcJQwQ/viewform?usp=sf_link