

FiDi

"Seamlessly integrate both the diet and fitness aspects of healthy lifestyle."

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Executive Summary

FiDi is a diet and fitness tracking app both for smartphones and wearables. A vision we had for this app was to seamlessly integrate both the diet and fitness aspects of healthy lifestyle. In our app we use food scanning technology and machine learning to approximate dietary information of a dish or food by simply scanning an object, or snapping a picture. This technology does not exist in a smartphone or wearable format, we assume it will be in the near future.

Curious about the apps available right now in the market, for competitive analysis we focused on the content, features, aesthetic, and interaction of each app. We also conducted an analysis on various wearable devices to compare what product features currently exist in the wearable realm. Looking at the current apps for both diet and fitness in the market, we noticed that fitness apps like Nike run, did a good job in tracking various fitness activities but most of them (5x5 Stronglifts, Strong, Stay) did not incorporate the tracking of diet. Vice Versa looking at the diet apps like Weight watchers, My Diet Coach had the feature of tracking the fitness but most of them depending upon the compatibility, were just pulling the data from other fitness apps like Apple Health etc. Thus, we aimed to create a cohesive experience for people interested in maintaining a healthy lifestyle by easily tracking not just one part of healthy lifestyle but both fitness and diet.

After doing our competitive analysis, we wanted to know the users usage and experience with the current apps in the market. We created our interview questions trying to capture this. Then, based on our interview responses, we did a survey to confirm our qualitative analysis from the interviews. As expected, the responses from both the medium were pretty much the same.

From there we decided our main features for both diet and fitness tracking for our app. We all made basic sketches of our vision for the app and combined them to create a low fidelity prototype. For our Low-Fi we did in person user testing to get a better insight on what exactly the users do while using our app. It helped our tremendously in understanding the mindset and expectations of the users. One of the key factor we found was that the users were expecting suggestions to be in the community page. From there we made changes in our Low Fi and did our second round of user testing.

From our second and third user testing, we went ahead and created our Hi-Fi prototypes for the app and the wearables. Main changes we made to our onboarding screens and recommendations page was shifted to the community along with the summary of it kept on both the diet and fitness main page to ensure smooth flow for the users.

Initial Concept

Our project was created by first recognizing a problem space. We recognized the importance of diet and fitness as it relates to health and wellness, and were curious about the current tools aimed at improving one's diet and fitness habits. Usually these tools are apps, but the current upward trend of wearable devices, and their relationship to the fitness industry caught our attention.

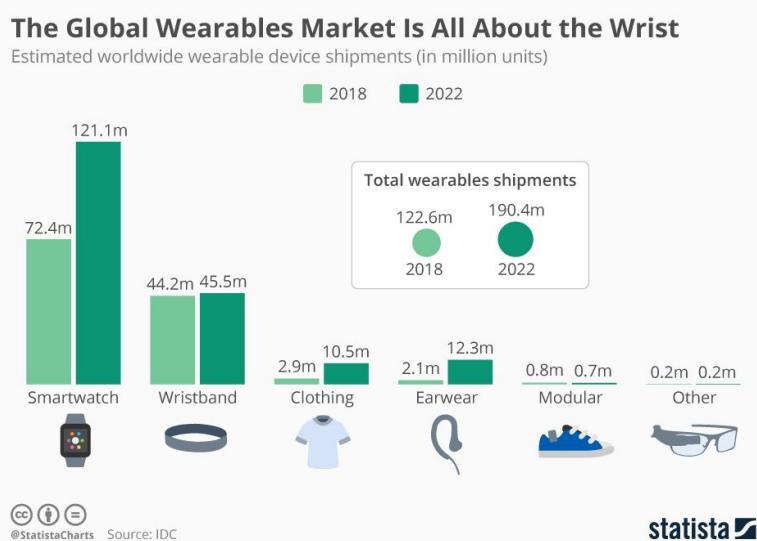


Figure 1: Wearable market shipment predictions in 2022

Currently, wearable devices are advertised by promoting two key benefits: fitness and convenience. Relative to physical health, we recognized that fitness is only half the battle of maintaining a healthy lifestyle. We aimed to create a cohesive experience for individuals interested in maintaining a healthy lifestyle, by applying the same benefit of convenience to track both fitness and dieting habits. Additionally, with the current trend of wearable devices, we aimed to integrate the convenience of tracking fitness and dieting habits within a wearable device, in addition to a smartphone application.

The initial realization which bore our product was many wearable devices with features to support health and wellness tend to focus on fitness and physical activity, and neglect dietary monitoring. We initially intended to focus solely on dietary monitoring using wearable devices. However, we expanded our scope and decided to research the overall topic of diet and fitness monitoring. Rather than assuming a problem, and conducting research to test around it, we focused on examining the solution space, with the hope of uncovering needs a pain points we can address.

Competitive Analysis

A competitive analysis was conducted to examine the solution space of diet and fitness applications. With this, our goal is to better understand how these applications solve problems related to physical and dietary wellness, and integrate their strengths and unique features into our own design.

Each team member chose 1-3 apps (8 total) to analyze for the competitive analysis. We analyzed popular fitness and diet applications on the app store, and took note of each app's target user, unique features, and motivators, and wearable compatibility. Additionally, we looked for any apps with cross-compatibility with fitness and diet tracking.

Apps analyzed:

- Diet:
 - My Diet Coach
 - Weight Watchers
 - MyFitnessPal
- Running
 - Nike Run Club
 - Run Keeper
- Exercise
 - Keep
- Lifting
 - Strong
 - 5x5 Stronglifts

In-depth Analysis

My Fitness Pal

MyFitnessPal is an app most similar to our vision of helping users improve their overall health experience. It has features to help users monitor both dietary and fitness habits through logging food, syncing wearable devices, and viewing progress. There is an extra emphasis on weight in the app, which is a common theme among many dieting apps. Although the app has the capability to monitor diet and fitness habit, the diet portion of the app contains most of the features. There is a wearable version of the app, which is good for tracking calories.

Target User

The main user is likely an individual who wants to achieve a new level of health and wellness through changing either dietary or fitness habits.

Primary Features

Users have the ability to scan foods via barcodes, and add foods from restaurants. They can create custom foods if they are unable to find their meal in MyFitnessPal's catalogue. The app does not have any outstanding features related to fitness, but it includes the ability to monitor lifts, and log cardio activities.

App Motivation

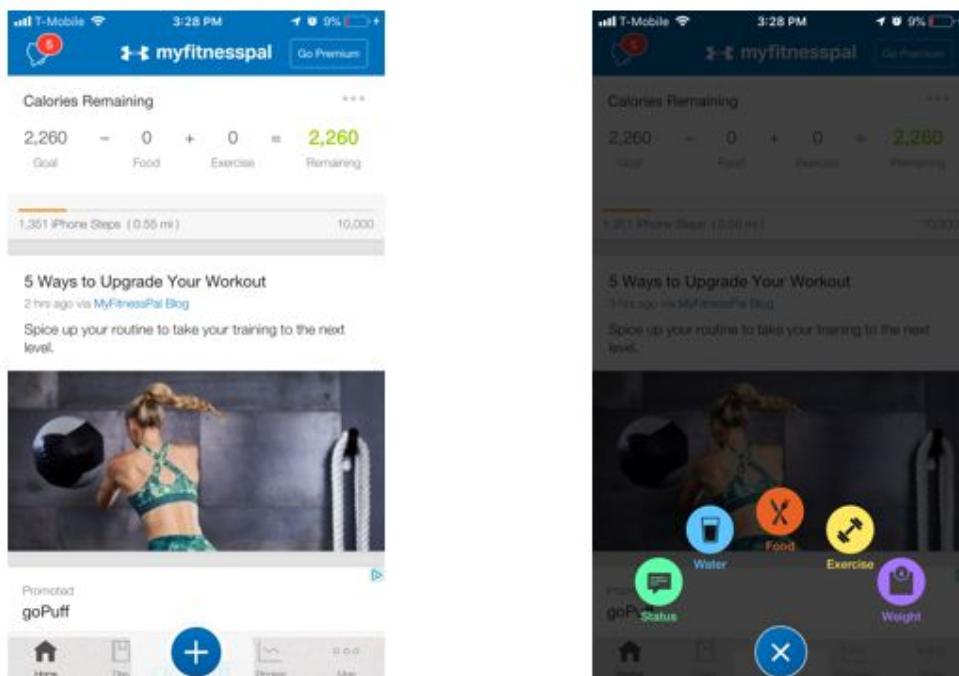
Streaks and congratulatory notifications are used to encourage the user while they are in and away from the app. It is also easy to visualize progress through graphs, which could be another motivating factor.

Strengths

MyFitnessPal has an incredible information architecture. Because it has caters to users who are interested in monitoring diet and fitness habits, there is a large amount of information and options accessible to the user at all times. MyFitnessPal does a good job of making all the information accessible, and organizing the application so the location of features are intuitive.

Weaknesses

The design of the app, though simplistic, is not very appealing for users. Though this is a minor gripe, we hope to create an application that is appealing to users with our visuals and content. Additionally, progress in the app is heavily geared towards weight. This could exclude many users who are simply interested in monitoring their habits to improve their overall health.



iPhone T-Mobile 3:28 PM 9% 🔋

Breakfast

Search for a food

Recent	Frequent	My Foods	Meals	Recipes
Fries ✓ Chick fil a, 1 box				400
Peppers - Sweet, green, sauteed ✓ 100 g				127
Jumbo Eggs Trader Joe's, 4 Egg				360
Sweet Onion ✓ Sweet Onion, 1 oz				9
Apples ✓ Apples, 1 medium apple				80
Sweet Potato ✓ 0.8 cup (133 g)				86
Whole Grain Bread Trader Joe's, 1 slice (43g)				90
Large Waffle Fries Chili's, 4 waffles				520

Settings Multi-add



iPhone T-Mobile 3:29 PM 10% 🔋

Add Food

Jif Natural Crunchy
Jif, 2 tbsps

190 Calories		Carbs 16% 8g Fat 71% 16g Protein 14% 7g
Serving Size	2 tbsps	
Number of Servings	1	
Time		
Percent of Daily Goals	Go Premium	
8% Calories	Carbs	Fat
Calories	190	
Fat (g)	16	
Saturated (g)	3	
Polyunsaturated (g)	0	

iPhone T-Mobile 3:29 PM 11% 🔋

Add Food

Jif Natural Crunchy
Jif, 2 tbsps

4,560 Calories		Carbs 16% 192g Fat 71% 384g Protein 14% 168g
Serving Size	1 cup(s)	
Number of Servings	3	
Time		
Percent of Daily Goals	Go Premium	
2029% Calories	Carbs	Fat
Calories	4,560	
Fat (g)	384	
Saturated (g)	72	
Polyunsaturated (g)	0	

Nike Run

Nike Run is a mobile application used to monitor users' running habits. It has the ability to measure the distance of a run through GPS functionality, and also monitor pace. Users have the ability to participate in community challenges created by Nike, and gain achievements based on a variety of requirements. There is a wearable version of the app, which functions as either a standalone app, or as an attachment to the mobile app.

Target User

Users who are interested in maintaining a certain level of exercise through running, or any variation of such.

Primary Features

The app can automatically start and stop tracking your run when you do. Additionally, it has GPS tracking features that can map your run precisely. Guided runs is a feature which included a trainer coaching you as you run, which can be helpful motivation to finish. The community aspect is helpful to provide you with exercise goals if you don't have one.

App Motivation

The app relies on community and achievements as a primary method of motivation. Users have the ability to add friends and view their running achievements alongside their friends. This could be useful to create a feeling of friendly competitions to see who can run the most in a month. Additionally, there are a myriad of achievements available for users to unlock as they exercise.

Strengths

The app has a achievements feature, which ensure the user will always have milestones and achievement to unlock. Additionally, the ability to participate in community activities provides goals for users who may overall want to increase their level of activity. Lastly, the ability to "compete" against friends in its own way establishes a support system, which might encourage friends to run together and hold each other accountable.

Weaknesses

The friendly competition might prove problematic if users value comparison too highly. For example, I might feel discouraged if I see a friend ran 5 more miles than me this month. Additionally, the app is very geared towards users who run, which may not be the primary goal for all users. Lastly, the apps design is nice, but also very simple. Nike purposefully narrowed the scope of their app to focus solely on running, so it's difficult to envision how their design could fit more complicated information architectures.

The image shows the Nike+ mobile application interface. At the top, there are two status bars: the left one shows 'T-Mobile' signal, '3:26 PM', battery level at 16%, and a Nike logo; the right one shows 'T-Mobile' signal, '3:26 PM', battery level at 15%, and an 'ACTIVITY' tab selected.

Top Left (Quickstart):

- QUICKSTART (selected)
- GUIDED RUNS
- MY COACH
- Basic

Top Right (Activity):

- HISTORY (selected)
- ACHIEVEMENTS
- RUN LEVELS

Middle Section:

57.24

Total Miles

30 Total Runs 799 Avg. NikeFuel 9'50" Avg. Pace

History Section (NOVEMBER 2018):

- Thursday Morning Run (2.73 mi, 9'30"/mi, 26:00)
- 11/23/18 (2 runs, 9'29"/mi, 6.93mi)

Bottom Left (Club):

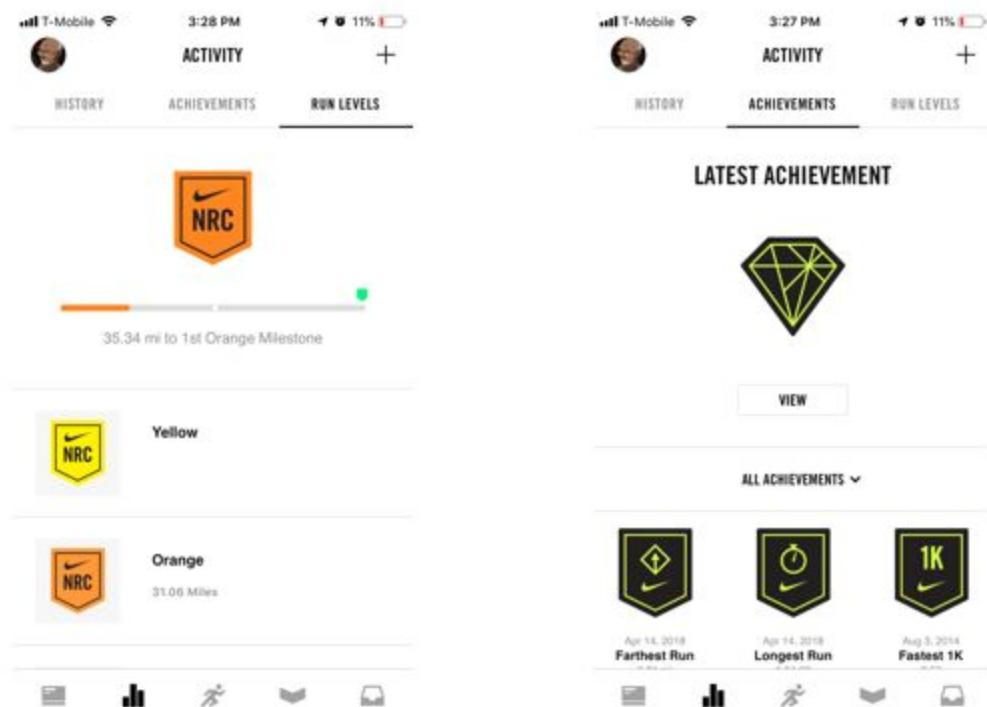
- T-Mobile signal, 3:26 PM, 15% battery
- CLUB (selected)
- LEADERBOARD
- CHALLENGES
- EVENTS

Bottom Right (Club):

- T-Mobile signal, 3:26 PM, 14% battery
- CLUB (selected)
- LEADERBOARD
- CHALLENGES
- EVENTS

Join a Challenge:

- 15K (8h 34m left)
- November Weekly Challenge (Run 9 miles this week)
- 29 days left
- Challenge Prize and Terms



Application	Type	Target User	Unique part	Compatibility w/ diet info	App motivation	Wearable version of app
My Diet Coach	Diet	People who want to lose weight	Avatar creation and customization	Good	Reward Points, Daily challenges, motivational quotes	Both for Apple Watch and Fitbit
Weight Watchers	Diet	People who want to lose weight	Browsing through restaurant menu	Good	Rewards Points Motivational quotes; community support,	Only available for Apple Watch
MyFitnessPal	Diet	Weight loss, healthy Eating, Fitness	Integration between fitness & diet	Good	Goals, challenges, friends, notifications	Both for Apple Watch and Android Wear
Nike Run Club	Fitness	Running lovers	Audio guided runs	None	Friends, playlists, achievement	Only available for Apple Watch
Run Keeper	Fitness	Running lovers	Running data in precise figures	None	Set challenge goals	Both for Apple Watch and Android Wear
Keep	Fitness	People who like working out (fitness, running, yoga, cycling)	In-app community, lessons with videos	Limited	Community, achievement	Only available for Apple Watch
Strong	Fitness	People who are interested in tracking their workouts.	Smooth flow to track workout	None	Poor	Both for Apple Watch and Android Wear
5x5 Stronglifts	Fitness	People who are interested in tracking their workouts.	Suggestion of work-out menus, encouragements	None	Workout progress	Only available for Android Wear

Overall Results:

1. Diet apps usually have a good way to collect diet data and provide related tips for the users, while fitness apps usually do not integrate diet information within the app.
2. These apps utilize achievement features, social connection (friends & community), goal settings, and motivational quotes to motivate the users.
3. Not all apps are compatible with a variety of wearable devices, which may cause inconvenience to the user.

User Interviews

Setup

Prior to conducting research, we decided we would focus on three areas of interest: diet, fitness, and wearables. Deciding areas of interest allowed us to create questions around these topics, and gave us a solid basis for data analysis following the interviews. We also developed sub-themes for each topic based on our goals for the interviews. We were interested in learning descriptive details about participants' fitness and dietary habits, pain points they might have, and any technology or methods they might use to monitor their wellness habits. Additionally, we were not only interested in interviewing individuals who cared about their physical wellness, but also users who did not. We hypothesized interviewing users who do not would provide valuable insight about deterrents for adopting healthy eating and fitness habits.

Creating the Script

Once we had a good understanding of topics and sub-themes, we began to form questions around each one. The themes for our script dealt with general health habits, eating habits, fitness habits, and wearable device usage. The majority of the questions created are purposefully open-ended, so the user can answer as freely as possible. However, we did add a few Likert scale questions to gather some quantitative data during the user interview. The script in its entirety can be viewed in the appendix.

Conducting Interviews

Convenience sampling was used to recruit interview participants. A total of 11 interviews were conducted across one week. Each interview consisted of an introductory period to get the user acclimated to the environment and debrief them on the purpose of the interview. Informed consent was taken at the beginning of the interview, and all interviews were recorded to allow for transcription retroactively. Each interview lasted between 30 minutes and 60 minutes.

Demographics

Between the users interview, we had an near even split of male ($n = 6$) and female ($n = 5$), but our participants did skew younger ($M = 5$). Overall, when asked to rate their general concern about health and wellness on a scale of 1 - 5, all participants answered a three or higher. Participants generally cared about, and saw the importance of good diet and fitness habits, but tended to put more effort into eating healthy over physical exercise. Lastly, half of users reported currently or previously owning a wearable device.

All the interview answers were logged into mural. Below is the picture of some interview responses organized in Mural. All the responses can we seen using [this link](#).



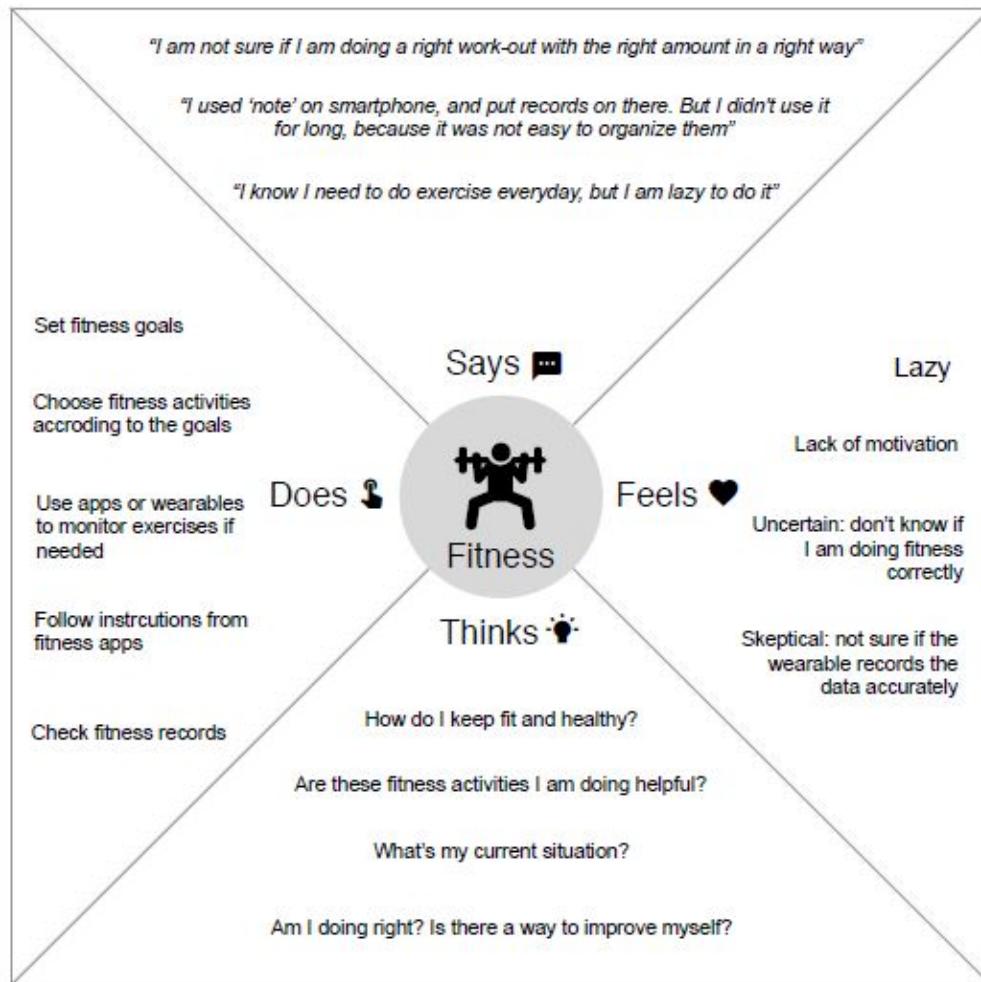
Figure 3: Participant responses organized in using Mural.co

Analysis

Empathy Mapping

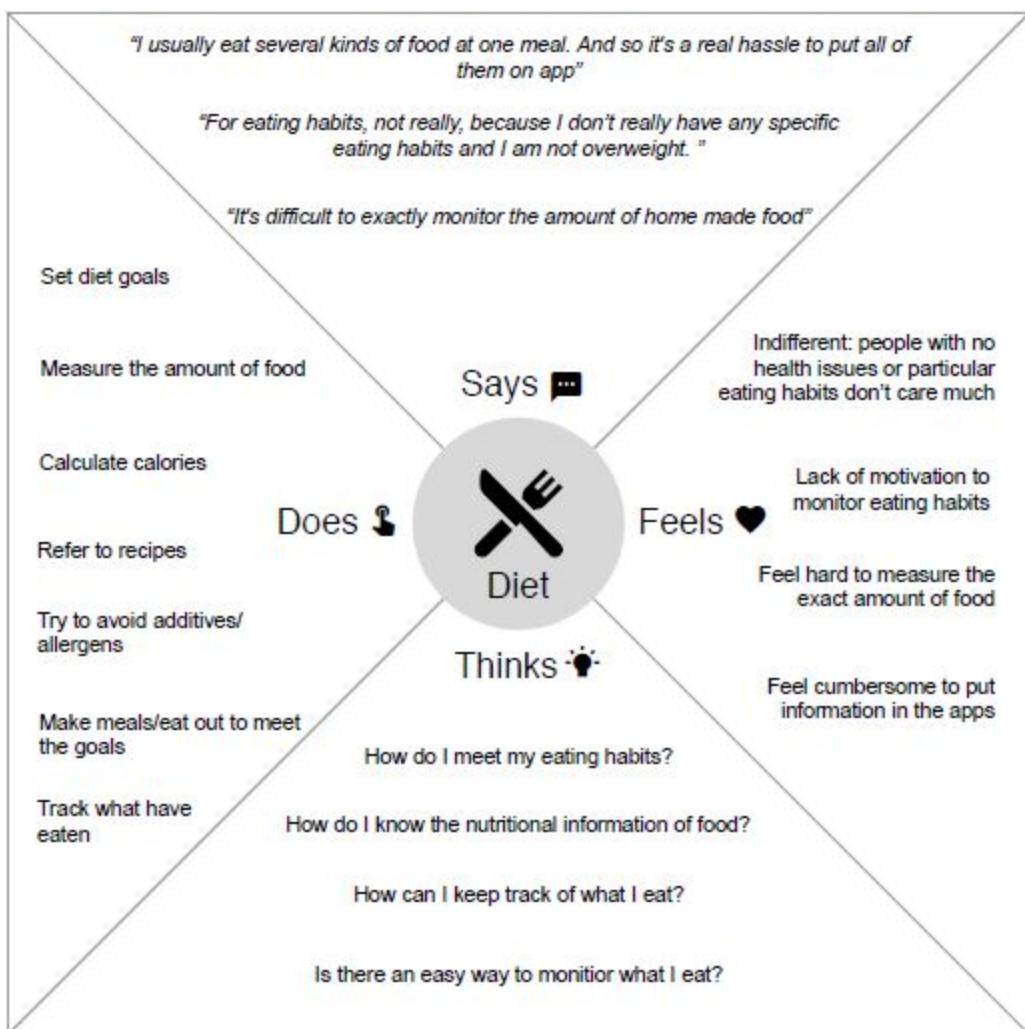
From the above responses we did empathy mapping for fitness, diet and wearable as shown below

Fitness Empathy Map



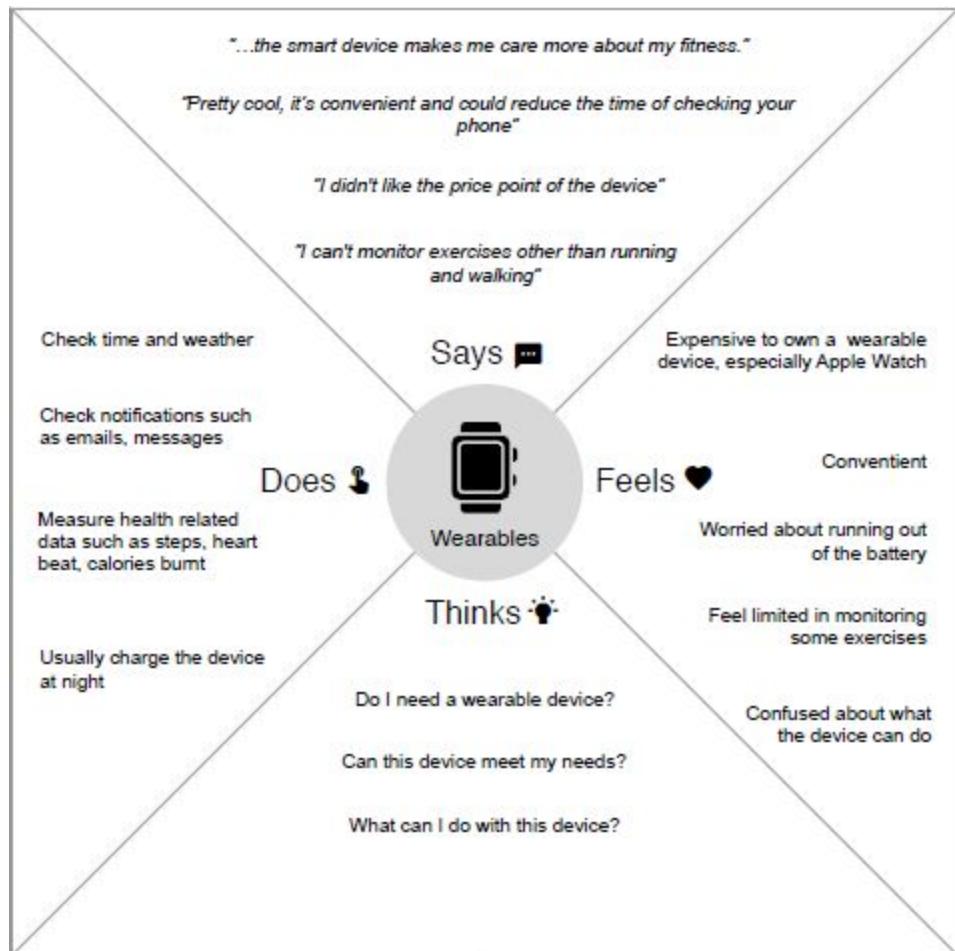
Pain Points 😞	Opportunities 😊
<ol style="list-style-type: none">1. People often feel lazy and lack motivation so they fail to meet their fitness goals.2. People feel it difficult to monitor or keep track of their fitness activities.3. People are not sure if they are doing exercises correctly.4. Some are skeptical about the accuracy of data using the wearables.	<ol style="list-style-type: none">1. Use methods like community engagement, rewards, challenges to keep people motivated.2. Design easy-to-use monitor features.3. Provide customized fitness instructions within the app.4. Improve the accuracy through advanced technology.

Diet Empathy Map



Pain Points ☹	Opportunities ☺
<ol style="list-style-type: none"> 1. People have a hard time recording what they eat in detail through current apps. 2. Some dietary goals cannot be easily met without the help of technology. 3. Lack of motivation in keeping track of eating habits. 	<ol style="list-style-type: none"> 1. Create an easy way to record detailed and various types of information through technology. 2. Enforce user's motivation to monitor their eating habits through design.

Wearable Devices Empathy Map



Pain Points ☹	Opportunities ☺
<ol style="list-style-type: none"> 1. Generally people think wearable devices are expensive and they don't feel it worth the money. 2. Some devices can't monitor a variety of exercises and have little options for monitoring diet. 3. Devices may run out of battery and lose data. 4. Confused about what the device can do. 	<ol style="list-style-type: none"> 1. Control the cost and cut down the price. 2. Add more useful features to the device to need the user goals. 3. Provide suggestions and instructions for users.

Affinity Diagram

For a more traditional user experience data analysis, we created an affinity diagram using Google Sheets. The process was much like creating an affinity diagram physically using post-it notes, but with less trees involved. We separated each of the interview quote into separate cells, and sorted through all quotes to uncover patterns and create groups. We used our initial topics of general health, diet habits, fitness habits, and wearable usage as a foundation of our groupings.

Pain Points			
<ul style="list-style-type: none">- It's difficult to track certain types of food (i.e. culturally specific, mixes, fresh food)- It's difficult to measure food and determine serving sizes- It's not easy/convenient to track food.- Users don't care to track what they eat- Users may not think it's healthy to count calories			
Logging Foods	Measuring Food	Motivation	Misc
It didn't work very well with fresh foods (Andy)	Tried to monitor but failed. Too inconvenient to quantify the scale of food. (Hanning)	I never monitor my eating habits. It's time consuming and I really don't care about what I eat (Lucia)	I don't think it's healthy to count calories because of societal pressure (Andy)
The app was in English. And I did not know how to name Asian foods there (Maya)	Feel hard to measure on a scale for every meal when there are two person because they go out a lot. (Gracie)	I have tried, but I feel I am too lazy to do it. Monitoring is not my style. (Maya)	Most people just cut down meat and cook without knowing how much meat. (Hanning)
I usually eat several kinds of food at one meal. And so it's a real hassle to put all of them on app (Maya)	You need to focus on your phone and it's too much to weigh your food. (Gracie)	I was too lazy to put my notes on app (Maya)	My former app do send me notifications but I don't feel like to open it. (Hanning)
	It was difficult to figure out serving size. I think this was the biggest pain point with the app (Andy)	Never, it's too complicated, I think it is necessary to some degree but I don't have that habit. (Yifei)	
	It would be easier if I had a scale but I can't carry that around with me (Andy)		
	It's difficult to exactly monitor the amount of home made food (Hope)		

Figure 4: Pain points of maintaining dieting habits

Results

From the analysis, we were able to derive user needs, user pain-points, and potential opportunities for our product.

Fitness

Summary

Most participants participated in some form of physical activity, usually a form of cardio (running, swimming, treadmill, etc...). Additionally, participants had a variety of methods to monitor their fitness habits, including notebook style apps and wearable devices. As for motivation, users primarily noted physical appearance (skinniness/gaining muscle) and social factors.

Needs and Pain Points

Participants listed automation and personalization as big needs in their fitness applications. Participants want the ability to automatically record an exercise, and track progress and improvements. Additionally, users want something like a coach to give customized plans, introductory videos, and challenges. Lastly, community features were seen to be a need, as multiple participants mentioned it as a motivation to be fit. Analysis yielded some pain points specifically related to fitness. General motivation was a major deterrent to maintaining healthy fitness habits. Additionally, participants noted difficulty with their workout applications, and their environmental blockers (terrain & weather) when discussing difficulties working out.

Opportunities

Based on the interviews, we have multiple opportunities to directly address participant's pain points. Specifically, because automation and personalization were listed as primary needs by participants, we can ensure those features are implemented in our product design. Incorporating motivational features in our app to encourage fitness habits will directly address the pain points related to user's difficulty staying motivated. Lastly, because participants mentioned community playing a role in their fitness habits, we'll be sure to implement social and community features in our product's experience.

Diet

Summary

Nearly all participants mentioned being somewhat cautious of their eating habits, and attempting to eat healthy foods. Monitoring in this context was varied across participants. Some participants kept track of what they ate mentally, while others resorted to using apps to track what they ate. Cooking meals at home was a prominent trend, as most participants made home cooked meals multiple times a week. When asked about motivation for eating healthy, weight loss, general health, and pre-existing conditions were cited as motivators. Additionally, users didn't always care about hitting a specific goal when it came to eating healthy.

Pain points

The two largest pain points, as it relates to tracking food, were difficult logging certain foods (fresh foods, home cooked meals, culturally specific foods), and the inconvenience of logging foods. Users noted logging foods was difficult and took a lot of time, especially if the majority of foods are fresh foods, compared to foods with scannable barcodes. Additionally, they noted it was hard to measure the amounts of fresh foods, even if there is a serving size listed on the package.

Opportunities

Based on the research, we have a unique opportunity to address a gap in the current market by creating an easier method of monitoring eating habits, as well as implementing motivational mechanisms to monitor eating habits through design.

Wearable Devices

Summary

About half of the participants who we interviewed currently or previously owned a wearable device. Of those, the majority of them used the device to monitor their activity throughout the day. When asked about the potential uses and benefits of owning a wearable device, they cited convenience, activity tracking, and data visualization as the main benefits. One user mentioned owning one made them care more about their fitness. Additionally, those who owned one mentioned frequently interacting with it on a daily basis.

Needs and Pain Points

Because wearable technology is relatively new, and is still undergoing frequent changes, users mentioned multiple downsides related to the current state of wearable technology. Specifically, cost and lack of need were frequently mentioned deterrents when asked what they didn't like about wearable technology. Commonly mentioned needs of wearable technology included automated recording and predictions, and connectivity with other devices. Lastly, they wanted wearable devices to be as unobtrusive as possible.

Opportunities

The data does present multiple opportunities to meet user's needs and alleviate pain points, but many of these opportunities are dependent on available technology, rather than design decisions. Of these opportunities, we were sure to prioritize ones that could be implemented through design decisions (automated recording and prediction).

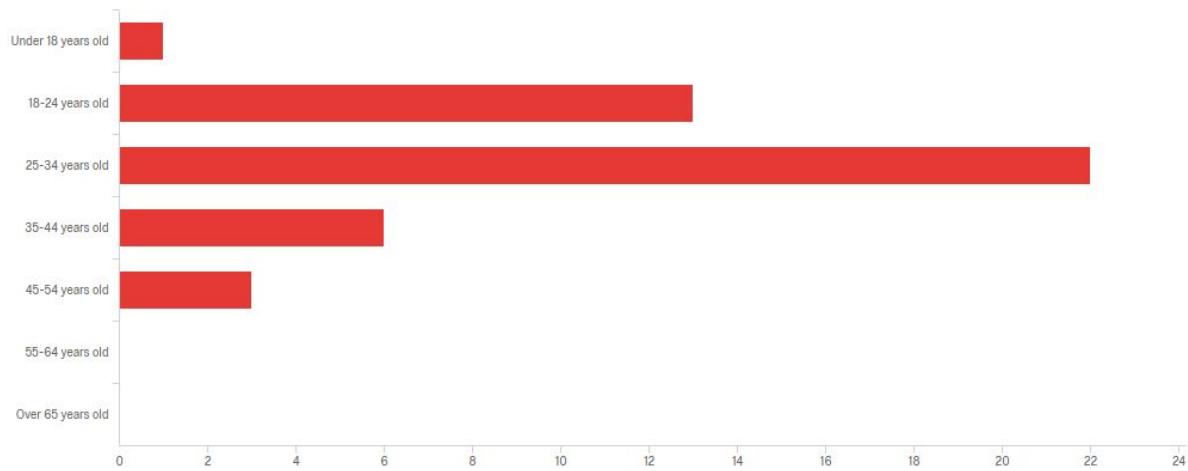
Survey

Following our interviews, we created a survey to get a quantitative perspective on the interview gathered in our user interviews. The survey questions were created in a manner similar to our interview questions. We began with the same higher level themes, and created question related to each themes. For multiple choice questions, we referenced data gathered from the user interview to inform multiple choice options, and made sure to include short text options for users to enter qualitative data. All questions included in the survey, as well as a link to the survey can be viewed in the appendix.

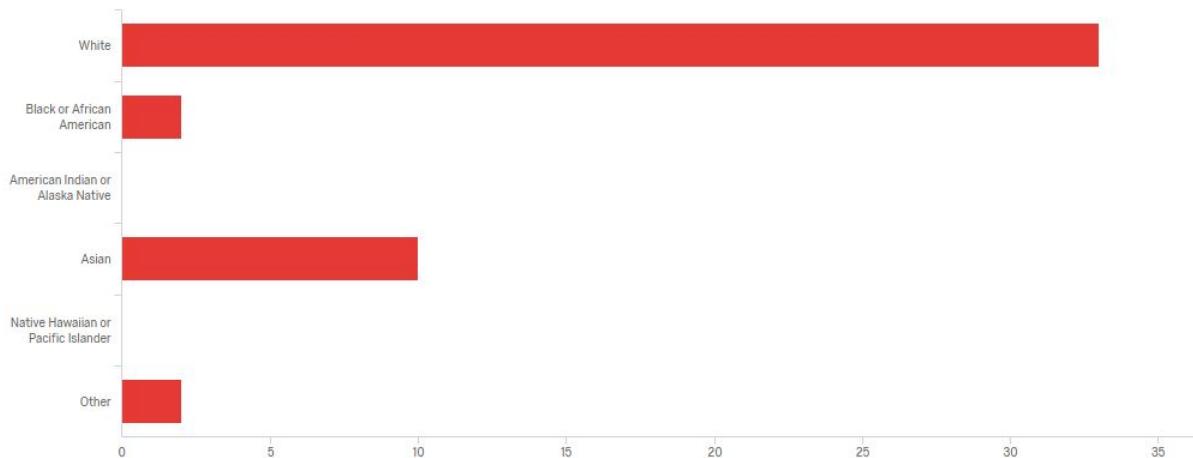
Survey respondents were primarily recruited through the University of Texas at Austin, School of Information listserv. Total we had 52 responses to our survey questions.

Demographics

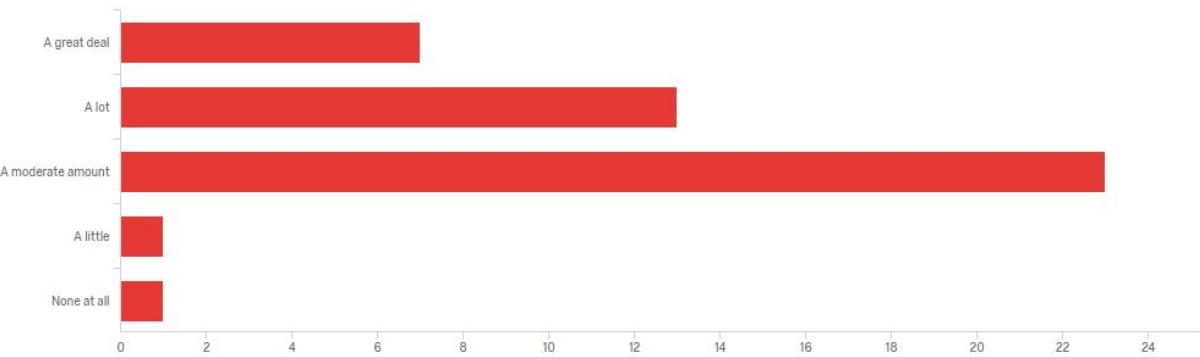
Age: Majority of the participants were between the age 24 - 35 (n = 22)



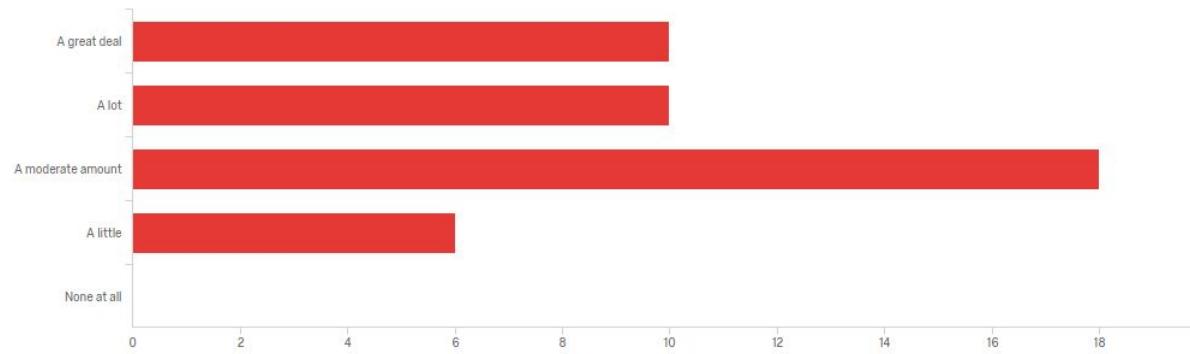
Ethnicity: Majority of participants identifying as white (n = 33) and



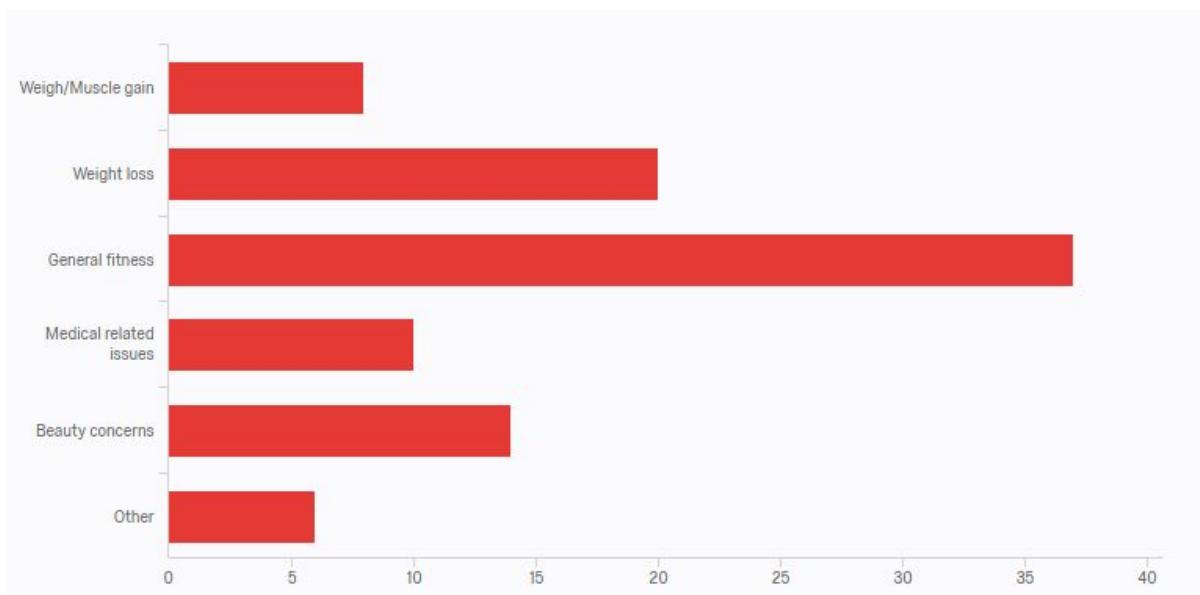
Caring about their eating habits, over 95% of participants mentioned reported to care about it in moderate amount or higher.



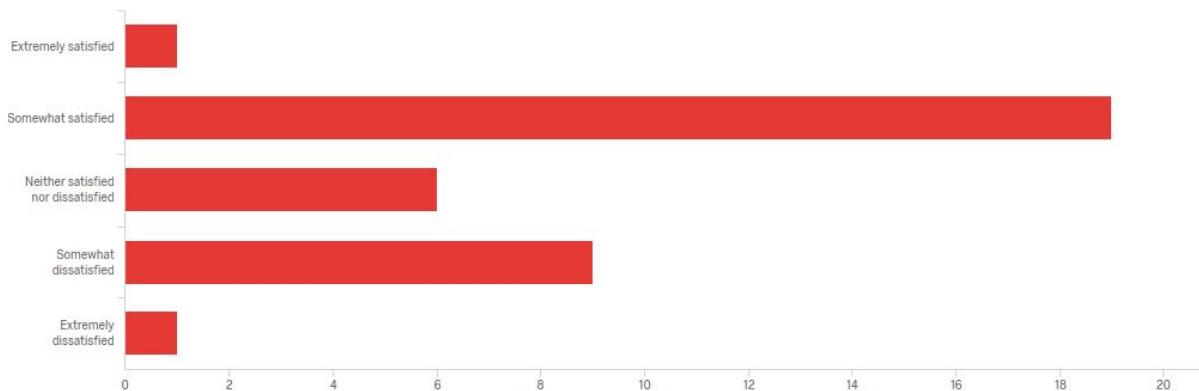
Likewise, over 85% reported a 3 or higher when asked how much they care about their fitness habits.



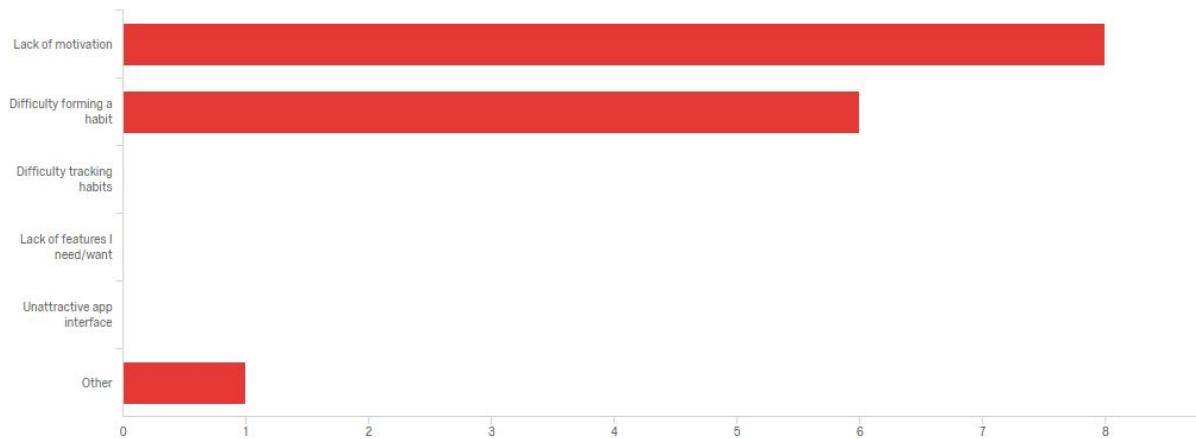
The most common motivator for caring about either fitness or diet habits was general health, followed by weight related goals and beauty concerns.



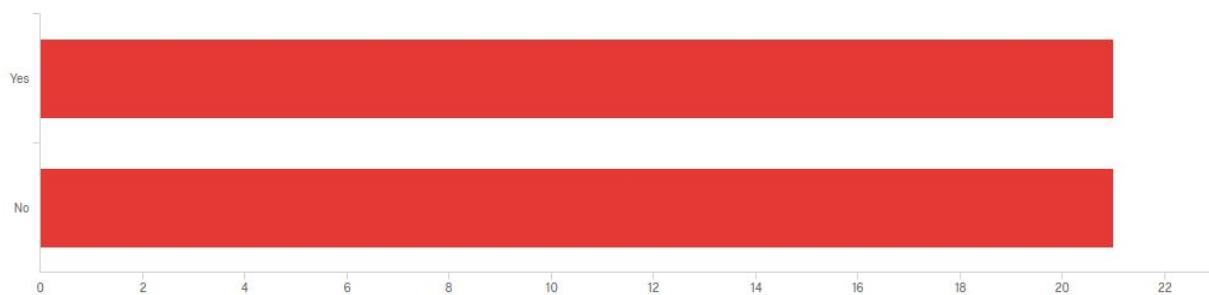
90% of the applicants have tried monitoring eating habits daily. Related to applications, less than 70% or participants rated they were satisfied with apps used to monitor fitness, while less than 60% mentioned being satisfied with apps used to monitor dieting habits.



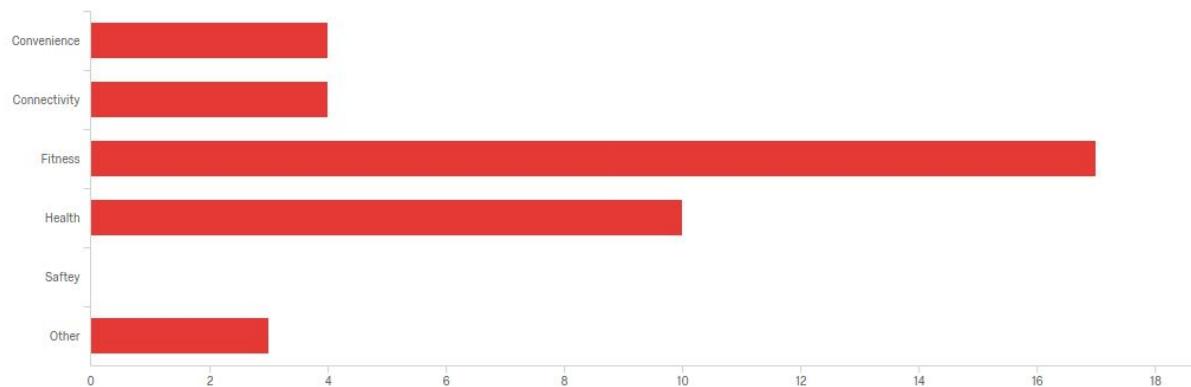
When asked about difficulties tracking fitness and diet habits, lack of motivation was a commonly cited pain point across diet and exercise.



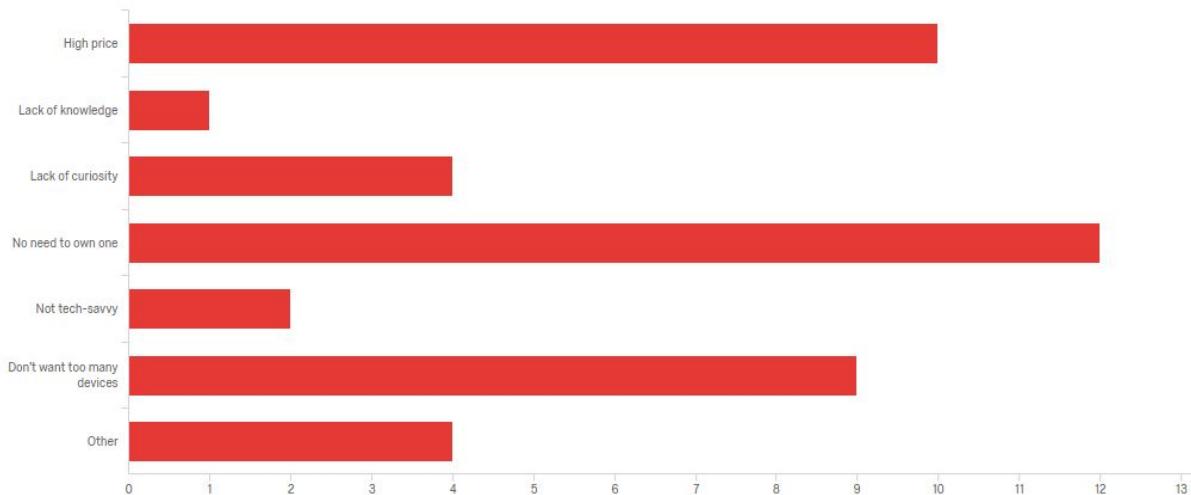
Specific to fitness, respondents mentioned having difficulty forming a workout regimen. Users who stopped tracking their eating habits mentioned difficult tracking meals as their biggest deterrent. As for wearable devices, about 50% of respondents ($n = 21$) reported currently or previously owning a wearable device.



Additionally, over 70% of participants mentioned fitness and health as the primary reason for owning a wearable device as shown below



Of the users who didn't own a wearable device, over 50% cite both high cost and lack of need as obstacles.



Findings

The majority of our survey findings are consistent with our qualitative analysis. Specifically, we found that wearable devices, though not very prominent, are significant enough to warrant designing for that market. Additionally, we see dissatisfaction was more prominent with diet apps compared to fitness apps, but both markets show there are unaddressed needs and pain points. Survey data showed lack of motivation, difficulty forming habits, and difficulty tracking meals as major pain points experienced by users.

Research Deliverables

Personas

With all the data gathered from the research, we aimed to represent our results using personas. These personas would be aggregations of all needs, pain points, preferences, and habits uncovered through our interviews and survey. Based on our observations, we created three personas: one main persona of an individual focused on both diet and fitness habits, a sub persona of an individual focused mainly of diet habits, and a sub persona of an individual focused mainly on fitness habits. However, in the interest of time and scope, we primarily focused on designing for our main persona, as they included habits which applied to both sub personas.

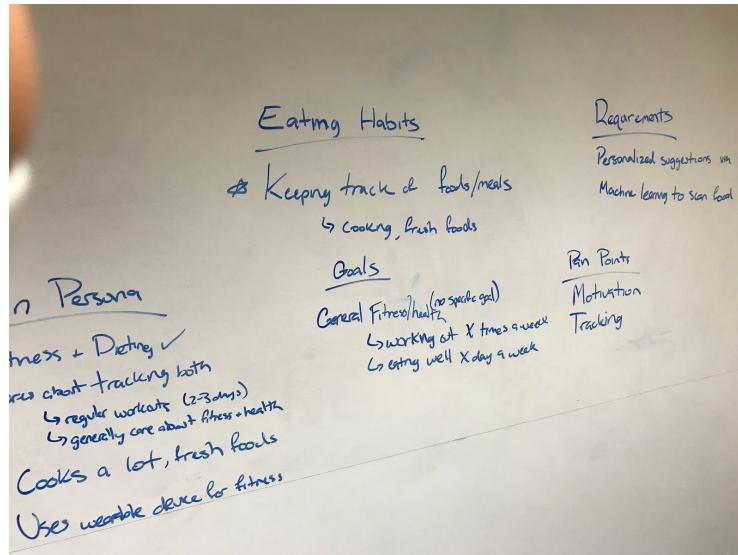


Figure 5: Brainstorming session to create personas



ALYSSA LIU

25 years old
Marketing person
Born and raised in Austin, TX

DESCRIPTION	INTEREST
Although she is busy for her work, she is trying to care about her fitness and dietary. She is not heavily into working out, but works out 2-3 times a week. (primarily cardio). For eating, she often buys fresh foods from grocery store, and cook a lot of meals at home. To stay healthy, she monitors her fitness and eating habit with wearable devices.	<input type="checkbox"/> Less interested <input checked="" type="checkbox"/> More interested <input type="checkbox"/> Less interested <input checked="" type="checkbox"/> More interested <input type="checkbox"/> Less interested <input checked="" type="checkbox"/> More interested <input type="checkbox"/> None <input checked="" type="checkbox"/> Everyday <input type="checkbox"/> Less Active <input checked="" type="checkbox"/> Active <input type="checkbox"/> Monitor
GOALS	PAIN POINTS
No specific goals, but wants to maintain a general level of fitness and health - Work-out twice a week. Right amount and types of fitness. - Eat well four days a week. Right amount and types of foods.	<ul style="list-style-type: none"> - Difficulty tracking workouts and different activities - Difficulty monitoring/tracking meals Lack of motivation to continue eating healthy - Lack of motivation to continue working out

Figure 6: Primary persona for our project

Requirements

Before we moved into sketching screens and potential designs, we made sure to pull requirements from the qualitative data and brainstorm feature sets around each requirement. This was a collaborative process that involved isolating all needs, pain points, and preferences mentioned in the interviews and survey that could be solved through design decisions, reducing our list to the most important requirements, and then brainstorming potential solutions as we went through the list. We began with mindset of infinite resources and possibilities (thank you “Deep Dive”), with the intention of reducing the scope of our ideas further on. We also made sure to tie each requirement to the quote(s) it was pulled from. Listed below is the list of requirements, accompanied with the quote, and the list of potential features created during the brainstorming session.

1. Motivators to help users stay on track and meet their goals

- *Quotes*
 - "(When I was using a monitoring app,) I felt I was too lazy to put my notes on the app
- *Features*
 - not rewarding (rewarding cannot create sustainable motivation and it costs a lot to buy some gifts for users.)
 - by showing their progress in a good way, users feel accomplished and keep using it.
 - emphasize accumulation
 - community points/support
 - sending motivational quotes and messages
 - virtual medals or badges for milestones
 - highlight small victories

2. Users can easily and quickly monitor their eating habits

- *Quotes*
 - "Tried to monitor but failed. Too inconvenient to quantify the scale of food"
 - "I liked that the app had a scan option"
- *Features*
 - scan using food scanner
 - scan foods using barcode
 - scan foods by taking picture
 - find foods from restaurants
 - adding fixed recipes
 - add food manually

3. Users can monitor a variety of workouts easily

- Quotes
 - "Note app was not a good place to organize work-out menus"
- Features
 - automatically tracking running, swimming, biking, yoga, ect... (find technology!)

4. Users can know what they should do, and if they are doing in the right way.

- Quotes
 - "I am not sure if I am doing a right work-out with the right amount in the right way"
- Features
 - our app can suggest the exercise
 - include action guide for different exercises
 - our app can sense their movement so that can judge how they are doing.
 - notifications/suggestions about fitness activities in the city
 - suggestions for certain situations for running/outdoor fitness

5. Users can see their progress with beautiful visualization

- "I really liked the visualization in data" [wearable device]

6. Users can see the recommended recipes on what I buy

- Quotes
- "If the app could know what and how much i eat, I will keep using it."
- Features
 - Recommendation of recipes
 - Recommendations based on what I buy
 - Recommendation based on personal habits (eating & fitness)
 - Recommendation of menus / restaurants
 - Take a picture of food in my fridge and receive suggestions on recipes
 - Take a picture of a meal & receive recipe

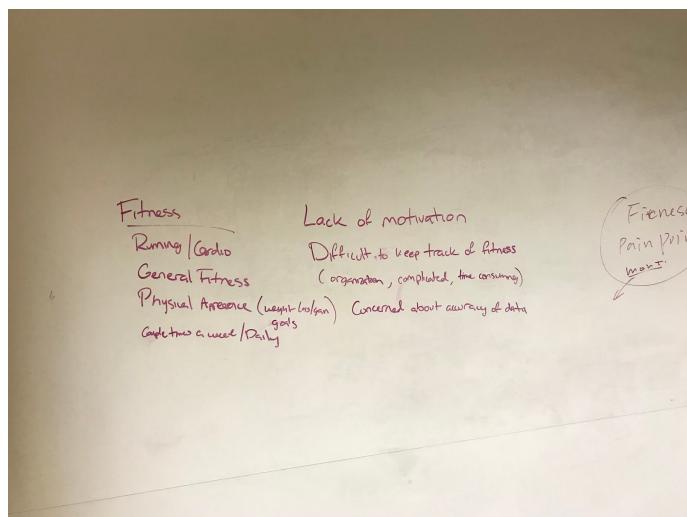


Figure 7: Brainstorming to pull requirements from interview data

Design & Prototyping

Phase 1: Brainstorming, Sketching, Low Fidelity, and Testing

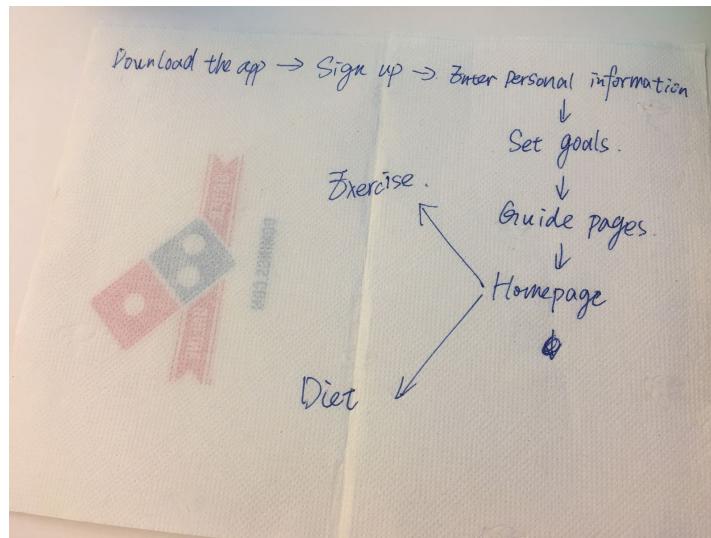
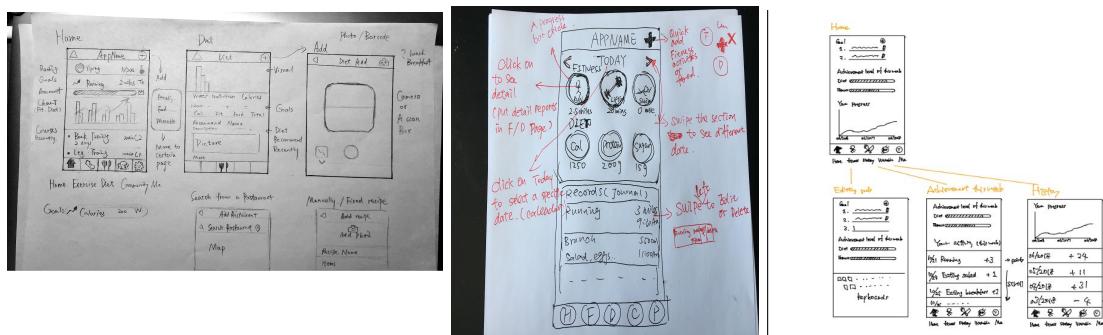


Figure 8: Initial brainstorming of screens, features, and app flow

Sketching

Before creating prototypes using a digital software, we wanted to establish a design foundation. This included having a set list of workflows we wanted to design, and establishing a basic information architecture for the app.

We decided we would each sketch a basic flow for onboarding, and adding an entry for either diet or fitness information into the app. A few of our initial sketches can be seen below, with the rest in Initial Sketches appendix.



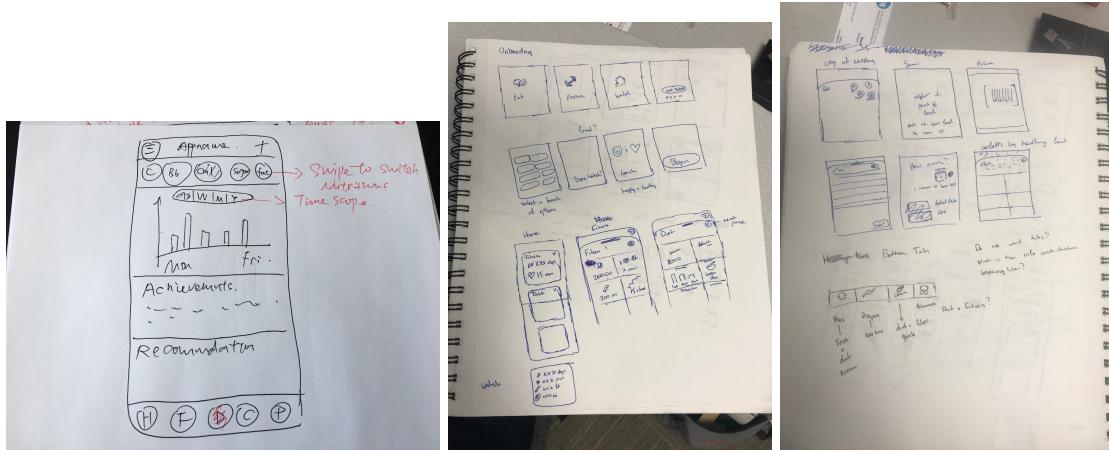


Figure 9: Initial sketches of our app

From there, we all met to discuss the interactions, user interface, and design decisions of each of our sketches. Doing so helped us understand the purpose of a button or interactive element, and it made it easier for us to select parts from each sketch to create a cohesive (but rough) final sketch. Outside of design elements, the sketches were useful to determine what information would be present on each. We could visualize how information and the user would flow through the app. With the design roughly decided, and the information architecture throughout, we moved to creating our mockups.

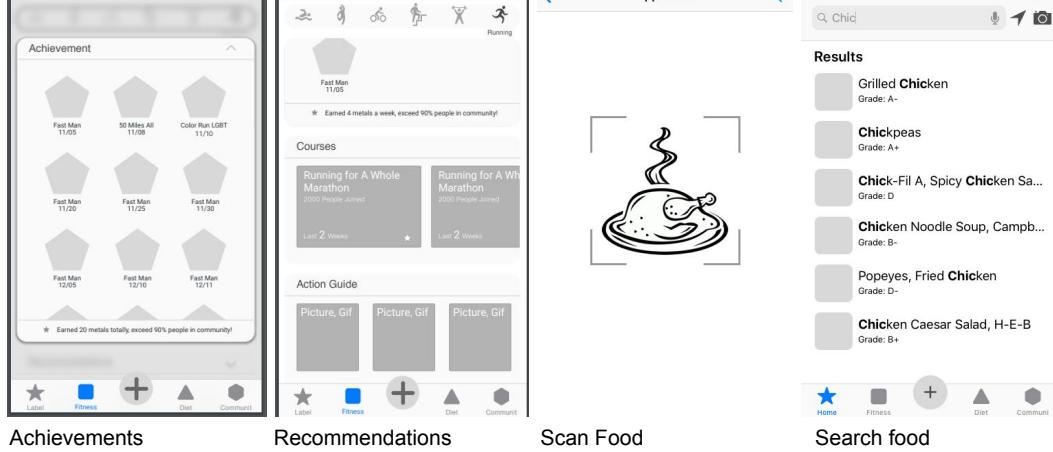
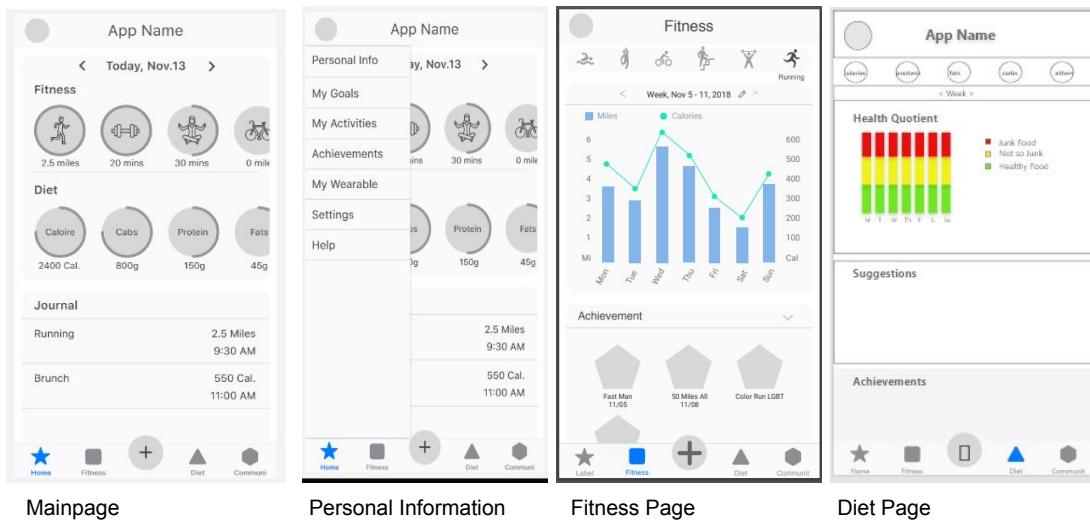
A difficulty we faced was attempting to translate all the information we found in the initial research into a rough design we could agree on. According to the our user research, not all the users were interested in measuring their diet habits in terms of calories. Then the question arose, if not calories, what measuring unit should be used, which could effectively determine the food eaten and could make more sense for the users. In the end, we were unable to find a measure which we felt would clearly communicate healthiness that did not involve calories.

Basic Feature Designs

- Main page represents the statistics of the day(both fitness and diet) with the bubbles showing the type of activity or the type of food.
- Show all the details of the diet and the fitness in graphical representation rather than just the number comparison
- Bar graphs made more sense for the graphical representation as was easy to interpret as well as analyse across different days and weeks
- Represent the food in terms of health rather than calories; for this we selected to represent food under three categories, healthy,not so healthy, junk represented by the green, yellow and red respectively.
- Suggestions should be there for food as well as diet along with the graphical representations, so that users can understand the graphs in a better way

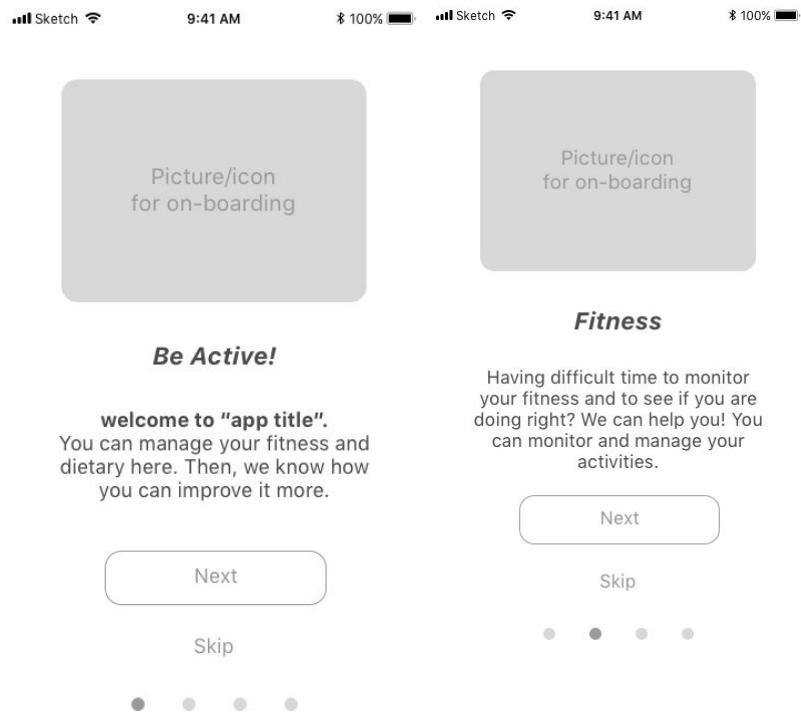
Low Fidelity

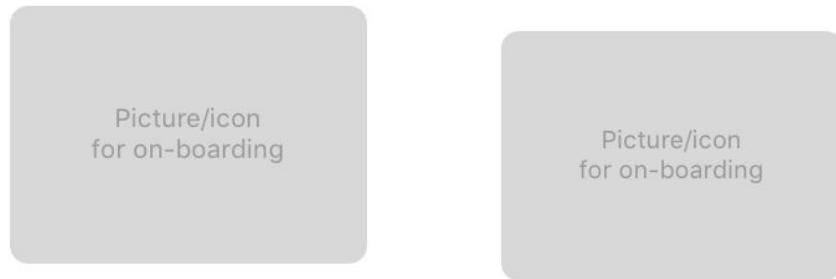
Our low fidelity prototypes were created using a variety of prototyping software. Once the important details of the prototype were decided, we divided the screens amongst the 5 of us to design on our own. We did not have to worry about consistency because we established the important design decisions and information architecture in the sketches. Between the five of us, four group members created their screens using Sketch, and one created their screens using Adobe XD. The compatibility of XD across operating systems allowed us to make changes to the XD files when necessary. Some of the images of our initial design are as below. All the images can be seen in the appendix.



Overall, the process for designing screens was smooth. We integrated all the screens together and then we worked towards creating a the basic design consistency for all of our screens. From there we moved on to create an interactive prototype ready for first round of user testing.

The interactive prototype was created using Invision. Some of our final screens for first round of user testing are as below





Dietary

Having difficult time to monitor your dietary and to see if you are eating right? We can help you! You can monitor and manage your dietary.

Next

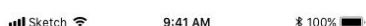
Skip



Wearable Device

Technology of wearable devices enables you to monitor your fitness and dietary much more easily.

Get started!



Set your goals!

Your weight goal?: _____

How many times per week you want to work out?



How many days per week do you want to eat healthy?



All set!

App Name

9:41 AM * 100%

Fitness

Today, Nov.13

Fitness

- 2.5 miles
- 20 mins
- 30 mins
- 0 mile

Diet

- Calorie: 2400 Cal.
- Cabs: 800g
- Protein: 150g
- Fats: 45g

Journal

Running	2.5 Miles
	9:30 AM
Brunch	550 Cal.
	11:00 AM

Home **Fitness** **+** **Diet** **Communi**

Fitness

Week, Nov 5 - 11, 2018

Miles: Miles

Calories: Calories

Day	Miles	Calories
Mon	3.5	500
Tue	3.0	350
Wed	5.5	600
Thu	4.5	500
Fri	2.5	300
Sat	1.5	200
Sun	3.5	450

Summary

5 Total miles

Running: 4 miles
Swimming: 1 miles

Achievement

Fast Man 11/05

50 Miles All 11/08

Color Run LGBT 11/10

Fast Man 11/05

* Earned 4 metals a week, exceed 90% people in community!

Diet

Overall

< Week, Nov 5 - 11, 2018 >

Healthy Food: Green
Not so Junk: Yellow
Junk Food: Red

Day	Cal	Healthy Food	Not so Junk	Junk Food
Mon	250	200	50	50
Tue	200	150	50	50
Wed	250	180	50	70
Thu	200	150	50	50
Fri	200	150	50	50
Sat	200	150	50	50
Sun	250	200	50	50

Journal

Brunch	550 Cal
Omelet	9:30 AM
Dinner	550 Cal
	6:00 PM

Home **Fitness** **+** **Diet** **Communi**

Recommendations

Running With Delicious and Healthy Salads

2000 People Joined

Last 2 Weeks ★

Running With Delicious and Healthy Salads

2000 People Joined

Last 2 Weeks

Courses

Running for A Whole Marathon

2000 People Joined

Last 2 Weeks ★

Running for A Whole Marathon

2000 People Joined

Last 2 Weeks

Action Guide

Picture, Gif

Picture, Gif

Picture, Gif

Home **Fitness** **+** **Diet** **Communi**

Testing Setup

Task analysis was used to assess the usability of our prototype. We chose to do this portion of testing in person, and reserve remote usability testing for higher fidelity prototypes. Recruitment was done through convenience sampling, with the goal of recruiting two participants per group member. For task analysis, we created a list of seven tasks, including adding a food item and viewing overall dieting habits. As users walked through the tasks, we encouraged them to speak aloud when possible, and always say what was on their mind. Following the tasks, they were asked more general questions about their experience using the application, including how they viewed their overall experience within the prototype, and what aspects of the prototype, if any, would they change.

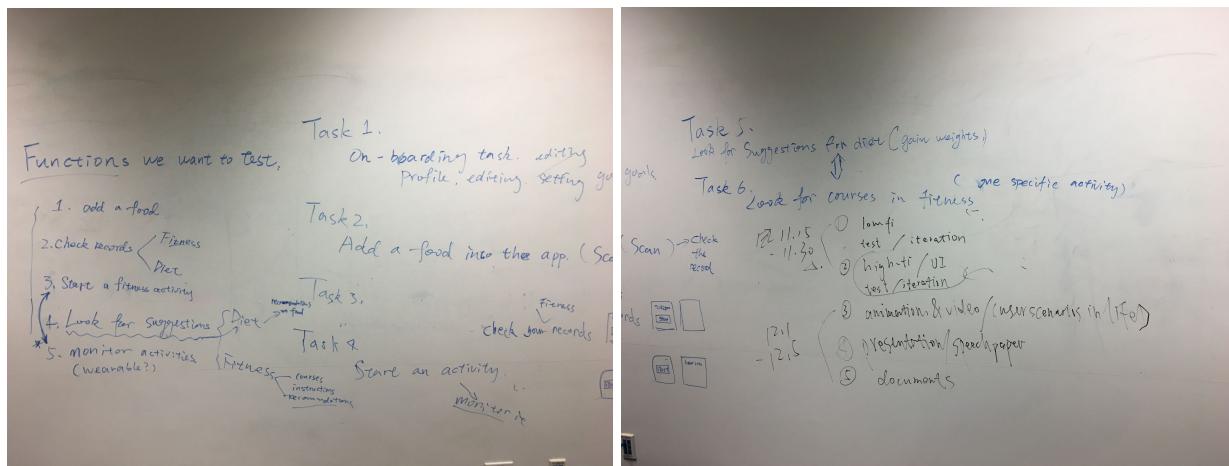


Figure 10: Whiteboarding session to decide tasks for the interviews

Functions we want to test:

1. Onboarding for new user
2. Add a food (scan)
3. Start a fitness activity and monitor it
4. Check records (both fitness and diet)
5. Look for suggestions (diet: food recommendations, fitness: courses, instructions, recommendations)

Tasks

In order to test the functions mentioned above, we created the below tasks and scripts

Mindset Users should have

Imagine you've been thinking about getting serious about your overall wellness, and want to start keeping track of your fitness and diet habits. You've been looking for an application that will help you meet your dieting and fitness goals, and maintain a healthy lifestyle. You find this app called FiDi, and the reviews look pretty good. You download it to your phone and are ready to start your wellness journey!

Task 1 : Create an account

You download it to your phone, open it up and land on [the home screen]. Before you can start using the app on your phone, you need to sign up and create an account. Show me how you would create an account and sign up.

Task 2 : Add a food item

You've created an account and you've started exploring a few features of the app. One of the reasons you downloaded the app is because you want to easily track your eating habits easily. So today, you're sitting down at your table and eating some grilled chicken for lunch (with seasoning of course). Please me how you would record your meal in the app.

Task 3 : View your past fitness records

You've been running for the whole week, and you want to check your running record this week. Please show us how you would do that.

Task 4: View your past dieting records

You've been pretty good at logging your eating habits throughout the week, and you would like to see the records of what you've eaten, and your progress for the week. Could you show me how you would do that using the prototype?

Task 5 : Begin an activity

It's a new week and you're excited to continue your running streak. You've just stepped and you're ready to start running. Could you show me how you would start your run using the app?

Task 6 : Locate diet suggestion

You are trying to gain some muscle, but you're not sure what you need to eat to do so. Could you show me how you find suggestions in the app for the food items that you can eat to gain muscle?

Task 7 : Locate fitness course suggestions

You are trying to gain muscle, and you have a pretty good idea of the foods you need to eat. However, you are unsure what exercise you could be doing. Could you show me how you would locate fitness suggestions in the app?

Low Fidelity Testing Results

In total we conducted moderated usability testing with nine participants. For ease of analysis, we used a spreadsheet to track data for each task across participants, and outline any trends that occurred during our interviews. Overall, there were apparent patterns, some of which arose from difficulty conveying interactions in prototypes, and some of which were critical usability issues with our prototype.

Create an account

For this task most of the users said it was easy to do and the flow was smooth, one of the user's mentioned that it there should be an option to swipe to the back screen, incase someone did not read everything at first.

Add a food item/fitness activity

Of all the tasks the users were instructed to walkthrough, interacting with the adding function was the most difficult part. Specifically, users often had trouble adding foods using the prototype, and one user mentioned having issues adding a fitness activity. One user mentioned being confused by the "recent" and "favorites" lists on the search page as it was their first time using the app.

Additionally, a few users failed to notice the option to add a food by taking a picture through the app. Although we simply asked users to add a food using our app, we hypothesized users' fixation on the search bar may have been due to the wording of the question. However, our hypothesis changed when one user complete the task, and then mentioned she would prefer the ability to add via a picture, rather than manually searching. This led us to believe the options to add by taking a picture of a meal is not visible enough for the user.

Lastly, an information architecture issue related to adding a food was revealed through task analysis. Users often navigated to either the fitness or diet sections of the app when tasked with starting an activity or adding a food, respectively. They instinctively expected add functionality for fitness and diet habits to be located under the respective sections, rather than the plus button in the task bar.

Home screen

Two primary issues were apparent on the home screen, the progress indicators, and the calendar options. For progress indicators, users were not sure how to interact with them. Users mentioned the completed indicators looked like buttons, and often attempted to click on it. Additionally, users did not like the date feature used at the top of the home screen (and on other

screens). They were unsure why they would want to track fitness or diet progress one day at a time.

Diet page

A few tasks required users to interact with the information listed under the diet, there was a bit of confusion with the information presented in the diet tab. A common issue related to the icons presented at the top of the tab. Unlike fitness, where there are distinct icons for various activities, such as running, swimming, and lifting, food has many potential icons to represent different categories, such as calories, carbs and proteins. Users were confused by the eggs icon, which represented protein, and the icon for overall. Additionally, on the graph, users did not like the rating scale used for food. Green represented healthy, which was quickly understood by users. However, the vocabulary not so junk food and junk food were unappealing and not easy to comprehend. Users did have positive feedback about the display, and loved the the information presentation used for the diet information.

Recommendation and actions:

One task instructed users to view fitness and diet suggestions, as well as find fitness course recommendations. Rather than searching the fitness and diet tabs for this information, an overwhelming amount of users looked to the community tab. Although it wasn't built out for this stage of our prototype, it was apparent many users expected the information to be located under community by both voicing their frustrations and repeatedly tapping on the disabled community tab. Additionally, one user voiced concerns when she saw suggestions located under the progress. She was worried how a user might perceive suggestions if they are listed immediately following her progress.

Phase 2: Medium Fidelity and UserTesting.com

Iteration & Medium Fidelity

Following analysis, we were able to identify key issues that were significant enough to warrant design changes prior to the next round of testing. For each issue identified in the previous round of testing, we brainstormed potential solutions, and discussed how these solutions might impact the medium fidelity prototype. For the sake of time, we tried as hard as possible to keep design changes to a minimum to prevent scope creep, and also to reduce time spent on iteration before the next round of testing.

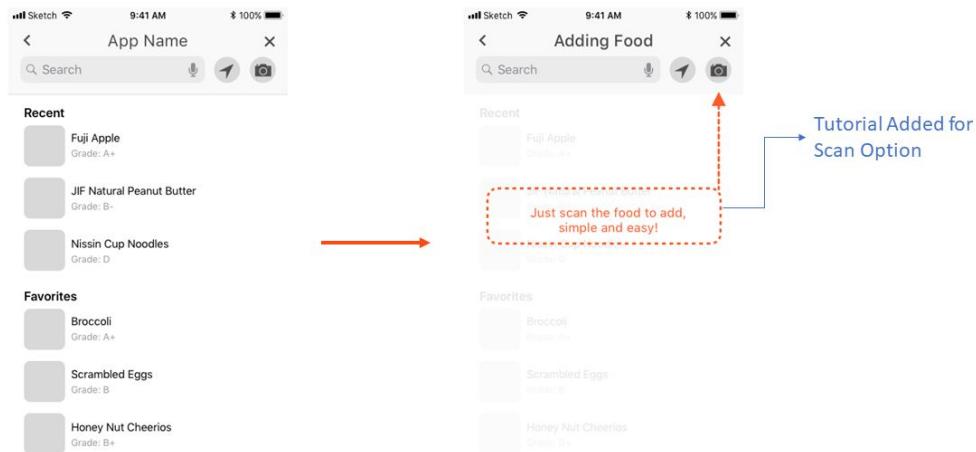
Adding Food

Takeaways

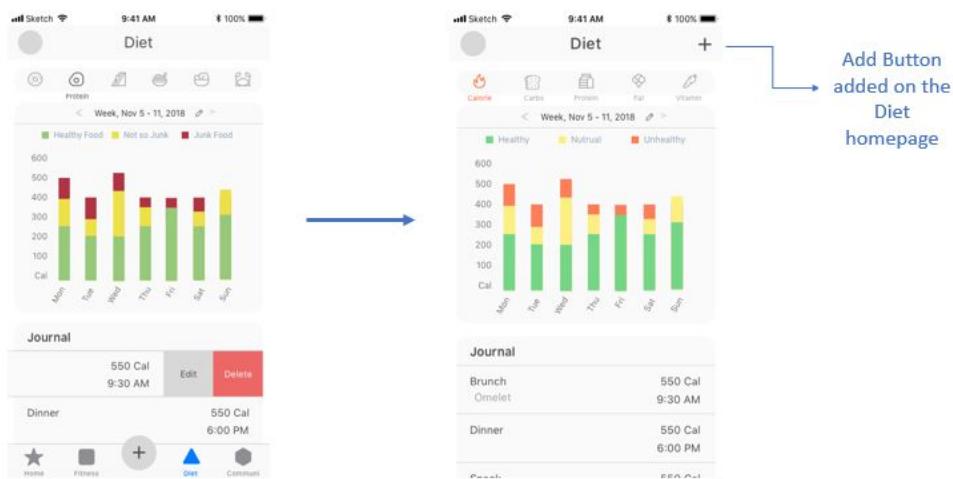
- Option to take a picture is not visible
- Users first instinct to add a food is to search
- Users look into the fitness and diet tabs to add food as well

Design Solutions

- To address the issue of finding the specific food a user was attempting to add, we included tutorial screens for the scan option and searching according to location for a new user. That way, they would be aware of all adding features before they have a chance to complete that action. Users will still have the option to search if they choose to do so, but we expect increase in the amount of users who use the picture feature following this design change.



- As a result of users navigating to the fitness and diet tabs in an attempt to add food, we added functionality from the fitness and diet tabs at the top right of the screen. We chose this spot because it wasn't occupied by another feature, and other apps commonly include adding features near the top of the screen.



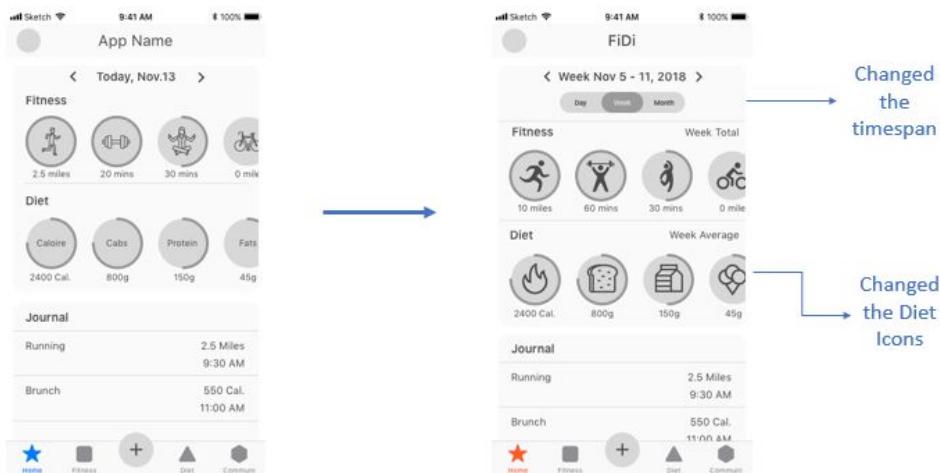
Home Screen

Takeaways

- The progress timespan was not useful for users
- The progress indicators were unclear

Design Solutions

- To solve the issue with timespan used, we used a design similar to Apple Health, where users have the option to switch between day, month, and year using buttons. Including this on the home screen would prevent them from switching between screens to view weekly or monthly overviews of their fitness and diet progress.
- We made some changes to the icons used on the progress indicators to better represent them to the users. In the next iteration of our app, we plan on conveying the progress better through design elements, as a few users assumed the indicators were buttons



Recommendations

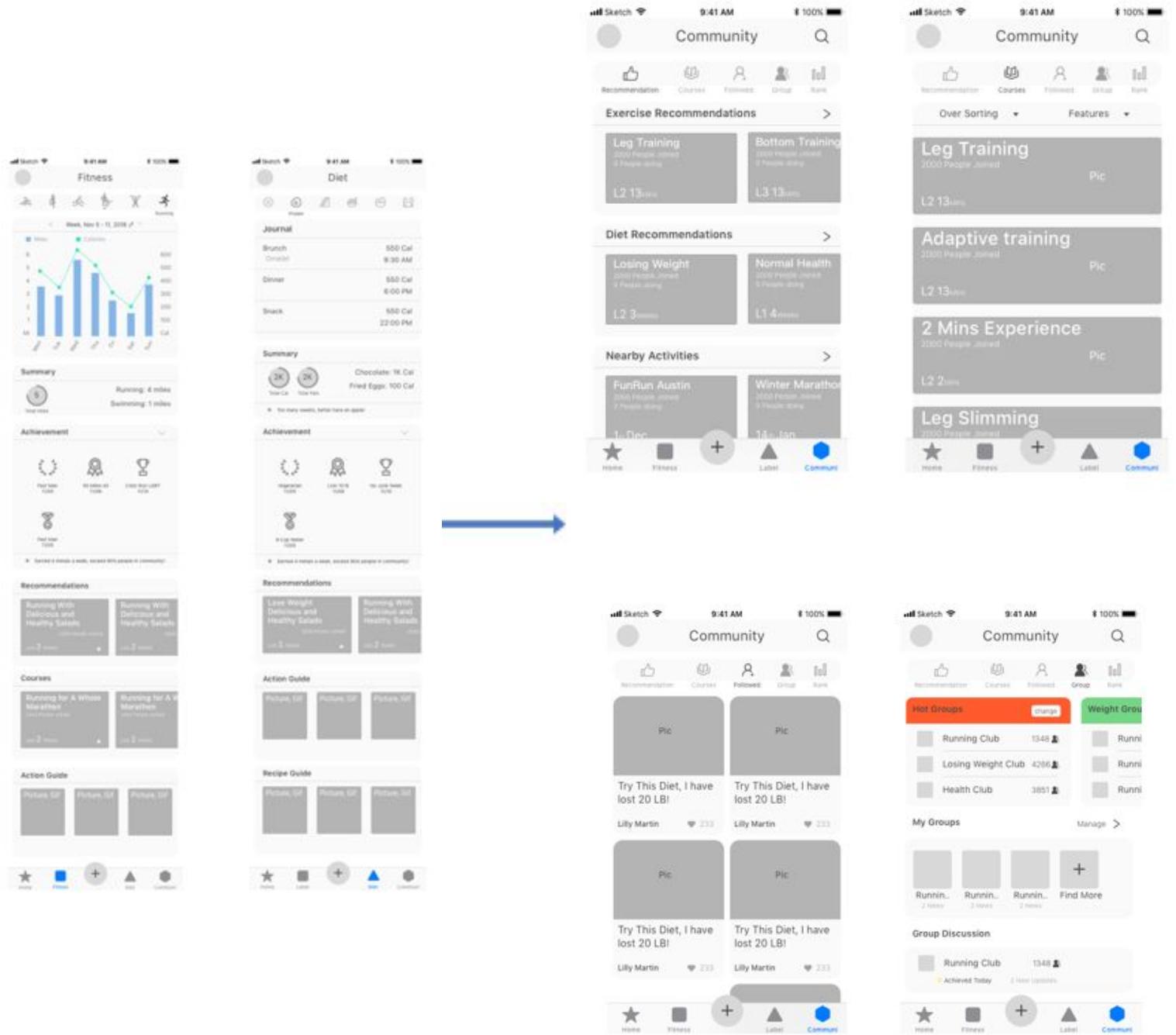
Takeaways

- Users expect recommendation and suggestion information under the community tab
- Including suggestions immediately after user records may be discouraging

Design Changes

- We chose to include the recommendations in both the community section, as well as the fitness and diet sections. Though some users mentioned they expected to find it in community, looking in the fitness and diet tabs of the app was still natural for users.
- Although we did have a user who referred to recommendations in the fitness and diet sections as discouraging, we decided to leave it because many users expected the information to be there. However, we are exploring alternative wording for this section, to prevent the user from feeling discouraged while browsing the page.

Below are the pictures of the community page added with all the recommendations, which were earlier added in the Diet and the Fitness Pages.



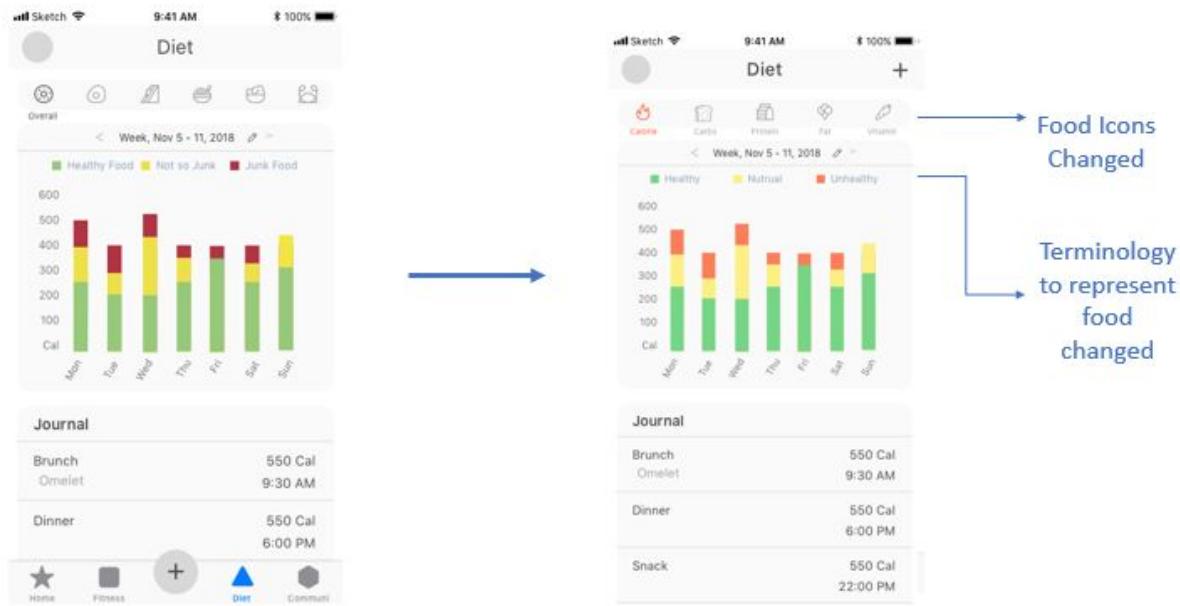
Diet Overview

Takeaways

- The icons used for different food categories are unclear
- The vocabulary used to classify healthiness is confusing

Design Solutions

- To reduce confusion, we made a few changes to the icons. First, we changed a few of the icons to better represent the information we wanted to convey. Additionally, we added text under each icon to further clarify. Through the next round of testing, if we see users clearly understand the icons used, we'll remove the text under each to allow for more real estate on the screen.
- On the graph, users mentioned liking the colors used, but did not like the vocabulary used in the legend. In this iteration of the design, we moved to a more balanced vocabulary of healthy, neutral, and unhealthy to describe different food groups.



UserTesting.com

During this round of testing, we wanted to expand upon the information uncovered in the low fidelity tests, with the hopes of correcting previous issues and uncovering new ones. For consistency, we chose to use the same seven tasks created for the low fidelity testing. We did create new screens for the medium fidelity prototype, but all new screens were created in response to feedback given during the previous round of testing. Because the test is unmoderated, we were careful to add enough context to the tasks without making them too lengthy. We added only one general question following each task to give participants the

opportunity to elaborate on any issues or concerns related to task completion. Ideally we wanted to add task specific questions, but were concerned about harming participant engagement if the test was too long, so we only included one general question. Lastly, following all the tasks, we included four general usability questions suggested by UserTesting.com to gauge participant's general attitudes and thoughts about our prototype.

UserTesting Unmoderated Script

Imagine your goal is to improve your overall health and wellness, and you want to start by tracking your fitness and diet habits. You find our app and you download it to your phone to test out.

Please be mindful that you will be using a prototype. That means your interactions with the screen will be limited and links, buttons, or features may not work right. Please refrain from swiping left and right on the screen, as that isn't possible with this prototype. You can still scroll vertically and click anywhere you like to do the tasks. Lastly, please remember to always talk aloud throughout the test, and say whatever is on your mind! You won't hurt our feelings:)

Task 1

- Imagine you just downloaded our app to your phone. You open it up and see you need to sign up and create an account before you can use the app. Please show me how you would sign up and create an account.
- Overall did you find anything confusing? If yes, then what would you change?

Task 2

- One of the reasons you downloaded the app is because you want to easily track your eating habits. Imagine you're sitting down at lunch, and eating grilled chicken. Please me how you would record your meal in the app.
- Overall did you find anything confusing? If yes, then what would you change?

Task 3

- Imagine you've become more active lately, and you've been running more than usual. You're curious about your progress, and you want to check your running records for week. Please show me how you would do that in the app.
- Overall did you find anything confusing? If yes, then what would you change?

Task 4

- You've been tracking your meals lately, and you want to check meal log for the week. Please show me how you would do that in the app.
- Overall did you find anything confusing? If yes, then what would you change?

Task 5

- Imagine you just stepped outside and you're ready to start running. You want to use the app to help you track your workout. Please show me how you would start recording your run using the app.
- Overall did you find anything confusing? If yes, then what would you change?

Task 6

- Imagine you have a good understanding of your exercise routine, but you're not sure what you need to eat to be eating. Please show me how you would find eating recommendations in the app.
- Overall did you find anything confusing? If yes, then what would you change?

Task 7

- Imagine you're familiar with what you need to eat to be healthy, but you're unsure of what exercises you can do. Please show me how you would find fitness and exercise recommendations using the app.
- Overall did you find anything confusing? If yes, then what would you change?

Results

Onboarding and Sign-Up

From this round of testing, we noticed many participants having issues with the onboarding procedure in the prototype. A recurring issue arose as participants answered the question included in our onboarding process. Specifically, there was confusion when participants were asked to answer the question "How active are you for dietary?". We are attempting to mirror the previous question "How active are you?", and include similar language, but participants did not react well. Additionally, we included two selectors on the sign-in screen: one for a new user, and another for returning users to login. Although all users would eventually progress past this section, there were many instances where users would either attempt to tap the currently filled selector. Other users were also confused why there would be two selector options, as most apps usually show username and password. Lastly, users were confused by the flow of the onboarding process. It was easy to understand the information, however a few screens had information already filled out on it, which affected the flow of the screens.

Adding Food

In our test there were two primary issues with this task. Initially we added a tutorial screen to highlight certain features in our app. However, these screens were troublesome in the context of our prototype. Users sometimes were unsure how to move past the tutorial screen, and resorted to frantically tapping around the screen and swiping back and forth to progress. Additionally, there was not consensus on how users wanted to add food and exercise. Some users quickly hit the add button in the task bar, and others moved to the diet or fitness tab to add. Overall, users felt the process of adding food was simple.

Diet & Fitness Suggestions

For our first three participants, our scenario included information about suggestions for gaining muscle, which was not included in our prototype. As a result, users were often able to find suggestions diet and fitness suggestions, but assumed the task was incomplete because they couldn't find information related to gaining muscle. In the subsequent three user tests, we reworded the task and made it less specific. We found much better results with the new wording, compared to the old. Overall, for suggestions and recommendations, we saw an even

split between users who go to the community tab, compared to users who look in the diet or fitness tab.

Phase 3: Higher-Medium Fidelity & UserTesting.com

Iteration & Higher-Medium Fidelity

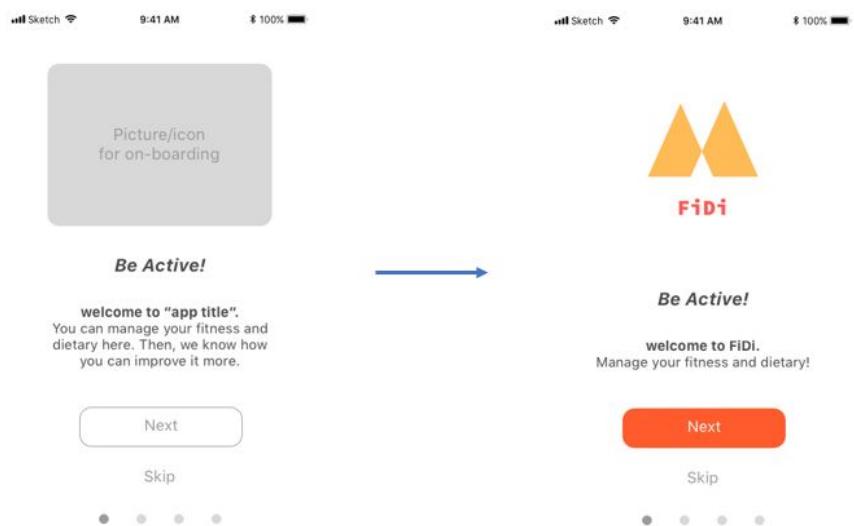
Onboarding & Sign-Up

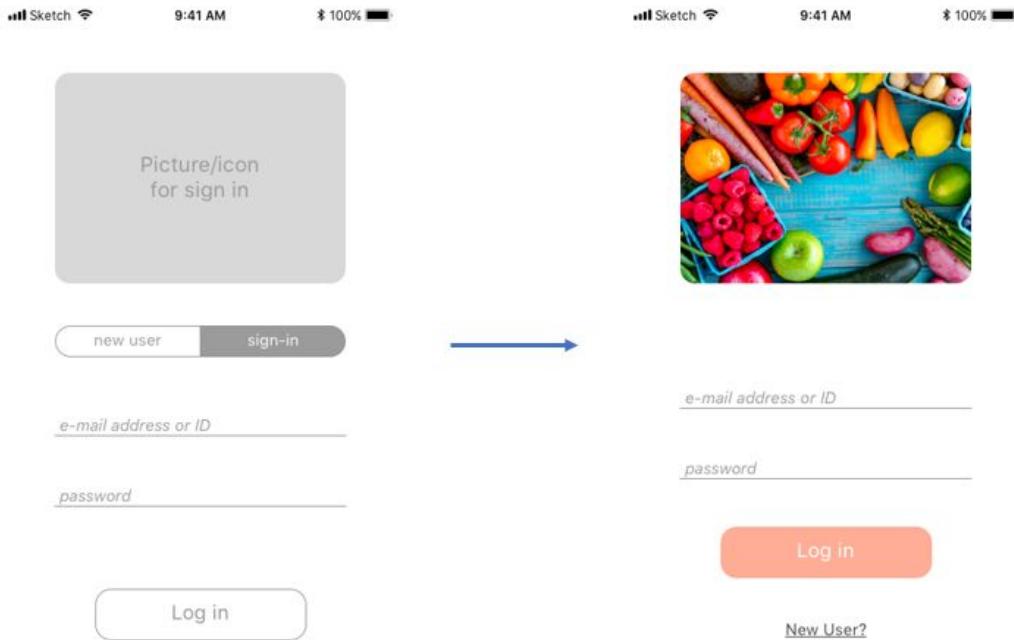
Takeaways

- The new users vs returning user login screen was confusing for participants
- The wording of diet questions was confusing for participants
- Users felt the flow of the onboarding was difficult to understand

Design Solutions

- We updated the images for the onboarding process, and also added a logo for the home screen. Additionally, we reduced the amount of text on the onboarding screens, as many users simply rushed through the screens without reading.
- For sign in, we mirrored many current apps by allowing users to login on the default screen, and including an option to registers under the login button. We hypothesized that this change would cut down on the amount of confusion, and improve the flow through the onboarding process.
- For the questions regarding personal information, we duplicated the screens so we could add a transition from an empty question screen, to a screen with the questions filled out. This would make the flow during the onboarding process feel smoother, and hopefully cut down on participant confusion. Additionally, we edited the wording of dietary questions to better gauge the users current diet habits.





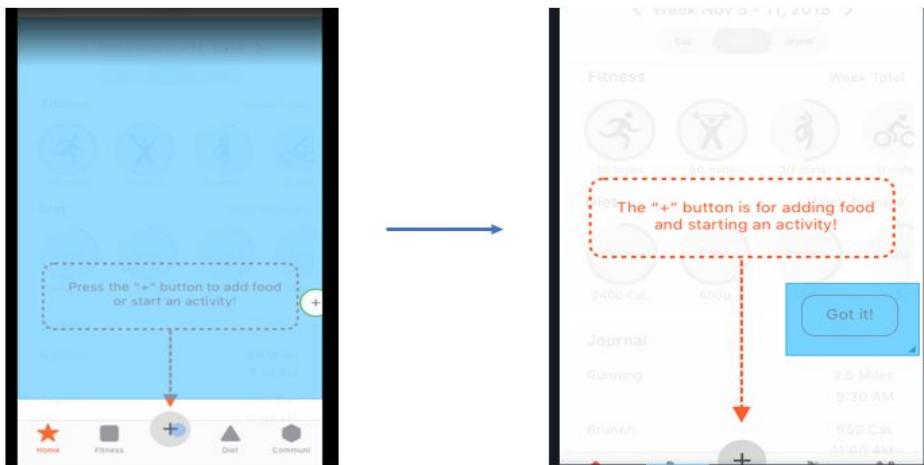
Adding Food

Takeaways

- The tutorial screen was troublesome for users
- Users looked to either the add button in the task bar or the food/diet page

Design Solutions

- We decided to leave the adding food and activity options on the fitness/diet page as well as the task bar because there was not a consensus on which location users preferred more.
- We altered the hotspot for the tutorial page to cover the entire screen, so if the user tapped anywhere the flow would progress. After the first three participants, we altered the hotspot to fit the whole screen, and the next three participants had no issue continuing through the flow.



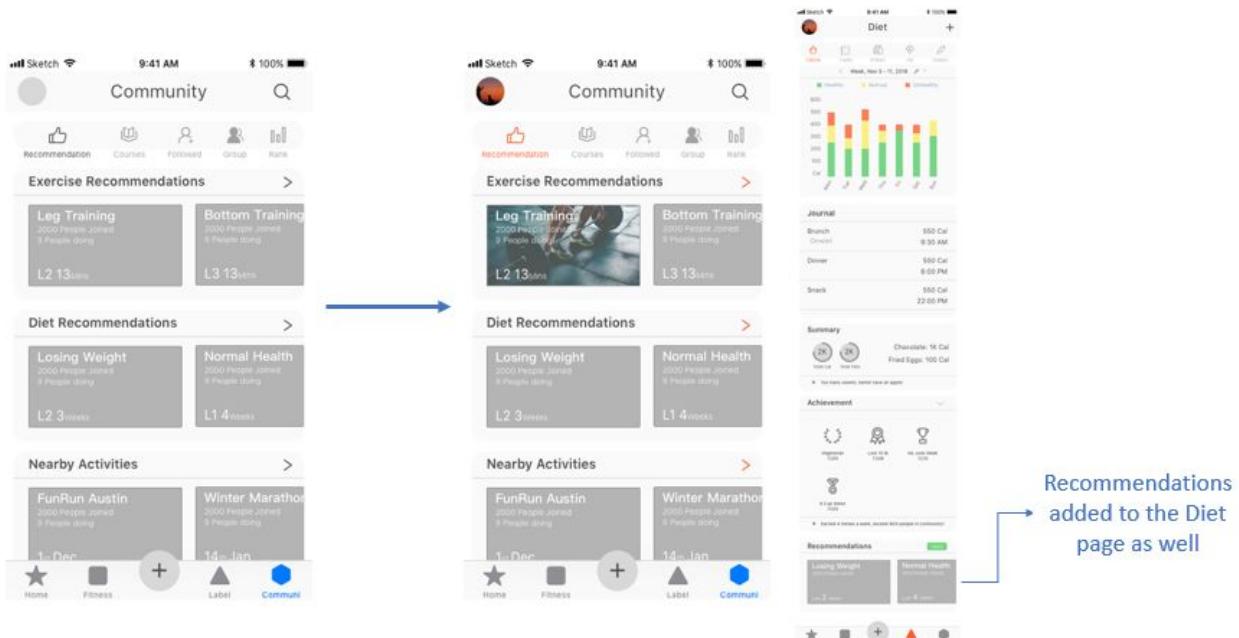
Diet & Fitness Suggestions

Takeaways:

- Users looked for suggestions under the diet/fitness tabs and on the community page

Design Solutions

- We validated our previous design decision of including diet and fitness recommendations in both community and their respective tabs. The issue of redundancy was brought up as we brainstormed different ideas, so we decided to continue to include recommendations in both areas of the app, but reduce the amount of recommendations in the diet and fitness tabs, compared to the community tab.



Phase 4: UserTesting & High Fidelity Comps

We conducted our final round of testing with the intention of solving any major issues that might still exist in our prototype. We also wanted to get a better understanding of what users thought about the information on the diet and fitness screens. In the test script for this phase, we altered the post task questions to focus on the information on screens, rather than the task at hand. All tasks for this phase however were the same, as no new screens warranted creating a new task. We were pretty confident in the quality of our medium fidelity designs, so we moved to creating higher fidelity mockup as these tests were being conducted. In all, we had six participants in this round of testing.

During this round of testing, we wanted to expand upon the information uncovered in the low fidelity tests, with the hopes of correcting previous issues and uncovering new ones. For consistency, we chose to use to use the same seven tasks created for the low fidelity testing. We did create new screens for the medium fidelity prototype, but all new screens were created in response to feedback given during the previous round of testing. Because the test is unmoderated, we were careful to add enough context to the tasks without making them too lengthy. We added only one general question following each task to give participants the opportunity to elaborate on any issues or concerns related to task completion. Ideally we wanted to add task specific questions, but were concerned about harming participant engagement if the test was too long, so we only included one general question. Lastly, following all the tasks, we included four general usability questions suggested by UserTesting.com to gauge participant's general attitudes and thoughts about our prototype.

Results

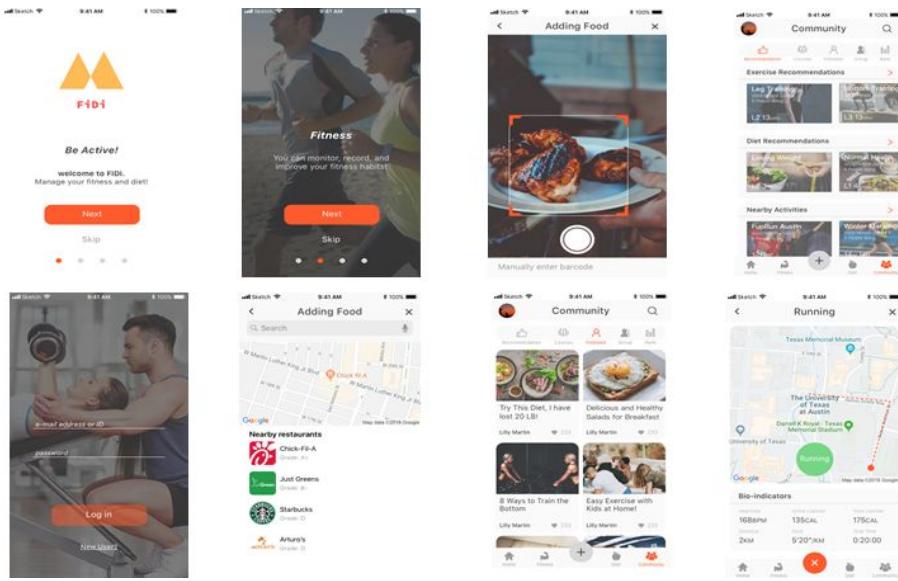
From this round of testing we did not receive any feedback which would lead to major changes. In fact, for most tasks, users were able through progress through the flow quickly, with little to no resistance. There were still decisive patterns of behaviors amongst participants. Participants still either went to the diet/fitness tab, or the add button in the taskbar to add a meal in the app. Additionally, for recommendations users were drawn to either the diet/fitness tab, or the community tab. In both instances, it was clear users did not have a unanimous opinion on where the content or feature should be located.

Overall, the feedback in this round of testing was minimal. As a result, we decided to shift our focus to improving our prototype design and creating high fidelity prototypes. Our final round of testing persuaded us to leave the add feature in the taskbar and the fitness/diet tabs. Additionally, we decided to keep diet and fitness content in multiple areas of the app, rather than consolidating it under the community section.

Creating High-Fidelity Screens

Because we had three rounds of iteration, the prototype we created for the last round of testing was very close to high fidelity. Progressing to higher fidelity mockups included transition from

generic to detailed content about fitness and dieting, and incorporating stock images throughout the prototype. We also heavily reworked the onboarding process to mimic apps which use live pictures rather than vector images. Lastly, we added our accent orange colors throughout the app. We unfortunately did not have time to test the high fidelity prototype, but the lack of feedback in the previous round of testing gives us confidence that our prototype is usable. All high fidelity screens can be viewed in our invision prototype ([LINKED HERE](#)), and in the High Fidelity appendix. Some of the Final High Fidelity screens are as below



Conclusion

Many project based classes like Interaction Design have shown the holistic research and design process to be a difficult and arduous one. However, if done right, it can be very rewarding, which was the case in our project. Having the ability to choose a broad topic, and use more generative research methods allowed us to directly address a problem we did not explicitly set out to solve. The initial interviews were arguably the most important aspect of the project because they laid the groundwork for our entire project. One aspect of the process that is important is the connectivity between each stage. We made sure to justify and explain nearly every research and design decision using evidence found in the previous stages of the process. It helped us stay within the scope determined from the initial interviews, and it was useful for maintaining steady progress throughout the semester. Transition from the research to the design phase was a large process as well, as it involved a lot of data analysis and brainstorming. But once we agreed on initial designs, it was quick to transition to the prototyping and integration phase of the project. Unmoderated usability testing was a great method to recruit participants and gather feedback to quickly iterate. Given our time crunch, this method of testing allowed us to do three total rounds of testing, one moderated round of interviews and two unmoderated rounds using UserTesting.com. In the end, the final prototype was a clear

representation of the many hours that went into researching the problem space and designing solutions.

Future Directions

We initially set out with the idea of somehow incorporating wearable devices into our app design. However, time constraints prevented us from further exploring this avenue. We still think it is a viable avenue to explore, as close to 50% of interview and survey participants mentioned previously or currently owning a wearable device. Conducting exploratory interviews to focus exclusively on how wearable devices are used to monitor health and wellness goals. Additionally, in our interviews, we found the option to scan food was not as big of a delighter as we thought it would be. For future directions, we would explore why this might be and see if there is a way to either improve the feature or increase its prominence in the prototype. Another difficult feature to test which we saw was important in the interviews was automation. Being able to predictively record fitness and dietary activities was an important need for participants. We were unable to effectively design and test automated features given our resources. In the future, we would like to run more moderated usability tests so we can create more realistic scenarios, and test automated features in their intended context.

Lessons Learned

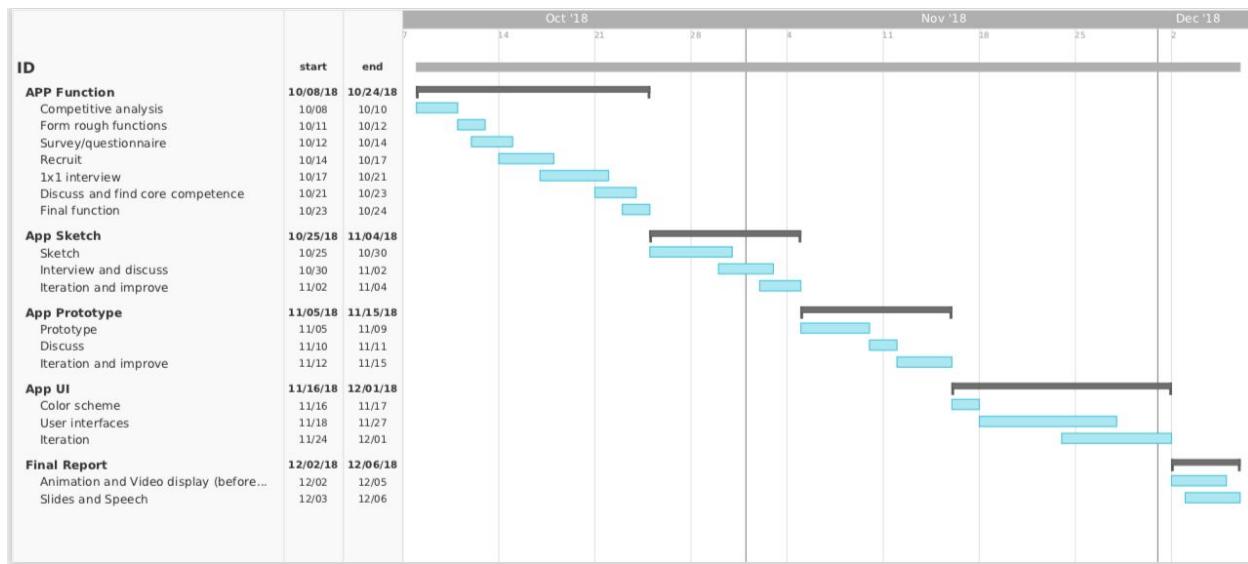
Although research is important, we may have devoted a bit too much time to the initial interviews and surveys at the beginning of the project. In the grand scheme, initial research occupied about half of the whole project, when in hindsight would have been better to have more time for designing. Our finished prototype was still very good in the end, but much of the unmoderated testing data could not be fully analyzed by the team due to time constraints. Additionally, we were forced to heavily segment tasks near the end, which reduced the freedom each group member had to work on multiple parts of the project. In all, it would have been beneficial to enforce a stricter timeline for research, and allocate more time to prototyping and testing.

Additionally, we started our low fidelity design by dividing different screens to different team members in order to make the prototyping process quick. However, we didn't create a comprehensive guideline at first for everyone to follow so all the screens looked different. We have to make them all consistent again, which caused us extra time and delayed our schedule. It would have been much easier and time-saving for us if we could decide on the fonts, button size and so on at the beginning.

Good competitive analysis accelerates the design phase. As we had a hard time visualizing some features and functions, we could always refer to the related applications and get inspirations from them. Those applications got their lay-out tested by millions of users, so it's

safe and easy for us to learn from their design. It was extremely helpful when all of us couldn't think up a way to present the information we want to present and got stuck.

Schedule



To put it nicely, our initial schedule was ambitious. We assumed we could quickly finish research and move into design by late October/early November. In reality, research spilled over into early November due to analysis and survey setup taking longer than anticipated. Additionally, we did not account for an additional round of testing in the original calendar, which extended the early interaction stages by a bit. Lastly, we neglected to adjust for the holiday break, and we reached a point in the project where group collaboration was required. As a result, we had to wait until the break ended to convene, which set us back a couple days. In all, the motto "under promise, over deliver" rang true, as extending the time of a few sections would have been ideal. However, we were still able to complete our project in the allotted time.

Appendix

User Testing Cheat Sheet

Link to Prototype - <https://invis.io/MEP6GEATSDW>

Task 1 : Create an account

- Tap next to move through the onboarding screens
- Tap the email address line to autofill the information
- Tap register to move forward
- Tap any of the questions to auto fill the information, then select next
- Tap any of the questions to auto fill the information, then select next
- Tap all set to land on the home screen

Task 2 : Add a food item

You've created an account and you've started exploring a few features of the app. One of the reasons you downloaded the app is because you want to easily track your eating habits easily. So today, you're sitting down at your table and eating some grilled chicken for lunch (with seasoning of course). Please me how you would record your meal in the app.

- Tap "got it" to move past the tutorial screen
- Tap the plus button in the add in the task bar, then select "add food"
- Tap the screen three time to move past the tutorial screens
- Select "scan to create", then take a picture of the chicken
- Select done on the screen
- Select done again to go back to the home screen

Task 3 : View your past fitness records

You've been running for the whole week, and you want to check your running record this week. Please show us how you would do that.

- Tap on fitness the fitness tab in the taskbar

Task 4: View your past dieting records

You've been pretty good at logging your eating habits throughout the week, and you would like to see the records of what you've eaten, and your progress for the week. Could you show me how you would do that using the prototype?

- Tap on diet in the taskbar

Task 5 : Begin an activity

It's a new week and you're excited to continue your running streak. You've just stepped and you're ready to start running. Could you show me how you would start your run using the app?

- Tap on the plus in the task bar, and select "start an activity"

- Select running
- Select the start button overlayed on the map

Task 6 : Locate diet suggestion

You are trying to gain some muscle, but you're not sure what you need to eat to do so. Could you show me how you find suggestions in the app for the food items that you can eat to gain muscle?

- Select the diet tab in the task bar
- Scroll to the bottom of the page to view recommendation
- Alternatively, select the community tab in the task bar

Task 7 : Locate fitness course suggestions

You are trying to gain muscle, and you have a pretty good idea of the foods you need to eat. However, you are unsure what exercise you could be doing. Could you show me how you would locate fitness suggestions in the app?

- Select the fitness tab in the task bar
- Scroll to the bottom of the page to view recommendation
- Alternatively, select the community tab in the taskbar to view exercise recommendations

User Research Interviews

Introduction

First of all, thank you so much for taking the time to speak with us. My name is _____, I'm a graduate student at UT Austin. This is my team (introduce team members and briefly describe each person's role). We're working on a project for a class called Interaction Design and would like to ask you some questions about your experience with eating habits and fitness habits. We have about 1 hour together.

During this time, we want to learn as much as possible about your experience. Eventually, we want to build on this knowledge to design a product or service that works for you to meet a distinct and relevant need. If you have any additional materials or simply want to draw a diagram to illustrate a point, please feel free to do so. We would love this experience to be as interactive as possible. I'll be leading most of the activities today. While we talk, my team members will be taking notes and making sure we have everything we need, so that I can focus on our conversation.

(If it's a one-on-one interview)

Also, I want to point out that we would like to record this session. You are going to talk faster than we can take notes, so the recording is our fail safe! The audio, and any information you provide, will only be used internally for research on a class project, not for marketing or other types of activities. Do I have your consent to record the audio of this session?

Have you ever participated in anything like this before?

- One the most important things to keep in mind is that we are not evaluating you, only trying to better understand your job and your experiences.
- Please be as candid as possible, both positive or negative.
- Also, this is a completely voluntary activity. You do not have to answer any questions that you do not want to and can stop at any time.

Sound good? do you have any questions for me before we begin?

Demographic Information

Name:

Age:

School/Job/Profession:

General Health

- What is your attitude toward health? Do you care a lot or not much? How much do you care about your health on a scale of 1 to 5? (1 - do not care at all, 5 - very care)
Please note that health includes both physical and dietary wellness.
 - *Please explain your answer*
- Do you have any concerns about your health? What kind of concerns about health do you have?
 - Do you have any concerns about fitness?
 - Do you have any concerns about dietary habits?
 - Is there a reason why you care so much about health?
- Overall, how active are you?
- Have you ever owned or used a wearable device?

Eating Habits

- What is your eating habit? - open-ended (Interviewee can talk about it freely)
 - Could you talk to me about your eating habits? (Diet? Vegetarian? Allergies?)
Please describe it as much as you feel comfortable.
 -
 - Do you often make(cook) your own meals?
 - How do you decide what to make? (e.g. trying to get more vegetables, portions...)
- Do you, or have you ever monitored your eating habits?
 - If yes:
 - What did you use to keep monitor?
 - What was your motivation to monitor your eating habits?
 - How engaged/frequently do you monitor your eating habits?
 - How would you describe your experience monitoring eating habits?
 - If possible, could you tell me about a time when you had trouble monitoring your eating habits?
 - App specific:
 - What are some features of the app you use frequently?
 - What do you like/dislike about the app?
 - Magic wand - Is there anything that you would change or improve about the app?
 - Are there any other apps or methods you used before [current app]?
 - If not anymore:
 - What did you use to keep monitor?
 - Why do you give up, do you have any problems keep eating habits?
 - What was your motivation to monitor your eating habits?
 - How engaged/frequently did you monitor your eating habits?
 - If no:

■ Why not? (conversational)

Fitness Habits:

- Overall, how active are you? Have you ever been active?
 - What types of fitness do you do?
- Do you, or have you ever monitored your fitness habits? (digital app, physical calendar, etc...)
 - If yes:
 - What did you use to keep monitor?
 - What was your motivation to monitor your fitness habits?
 - How engaged/frequently do you monitor your fitness habits?
 - How would you describe your experience monitoring fitness habits?
 - If possible, could you tell me about a time when you had trouble monitoring your fitness habits?
 - App specific:
 - What are some features of the app you use frequently?
 - What do you like/dislike about the app?
 - Magic wand - Is there anything that you would change or improve about the app?
 - Are there any other apps or methods you used before [current app]?
 - If not anymore:
 - Why is that? Genuine lack of interest? Pain point preventing them from being active?
 - Breeze over yes questions, phrase in past tense
 - *Try to find pain points of why they stopped monitoring fitness*
 - If no:
 - Why is that? Genuine lack of interest? Genuine pain point preventing them from being active?

Wearable Device:

- Do you have a wearable device?
 - How long have you owned it?
 - How often do you use it? How often do you interact with it on a daily basis?
 - What do often use it for? (activity tracking, bio-info, time, or just for cool)
 - How has your experience been owning/using a wearable device?
 - Is there anything about the wearable device you enjoy?
 - If you had unlimited resources and technology, what would you change about the device? (features, functions, size, shape, etc...)
- Fitness & Diet specific questions

- Have you used your wearable device for health purposes? [participant might have mentioned this above]
- If so...
 - Ask about their experience using [x] apps/software?
- If no...
 - Why not?
 - Have you thought about using any apps?

Questions about needs:

- How is the experience of tracking what you eat?
- Do you often look for recipes and cooking suggestions?
- How important is having health information in one place?
- Do users care about healthy eating? If no:
 - Why don't users care? Is it genuine or because of difficulty?

Survey Questions and responses

All the Survey Questions and responses can be found under [this link](#)

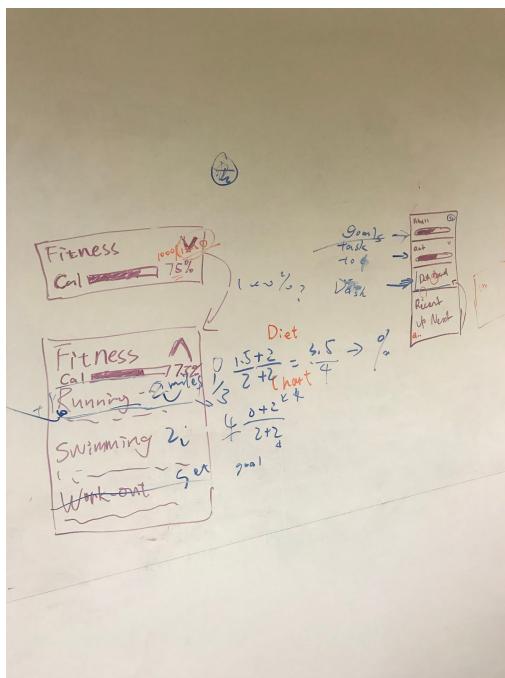
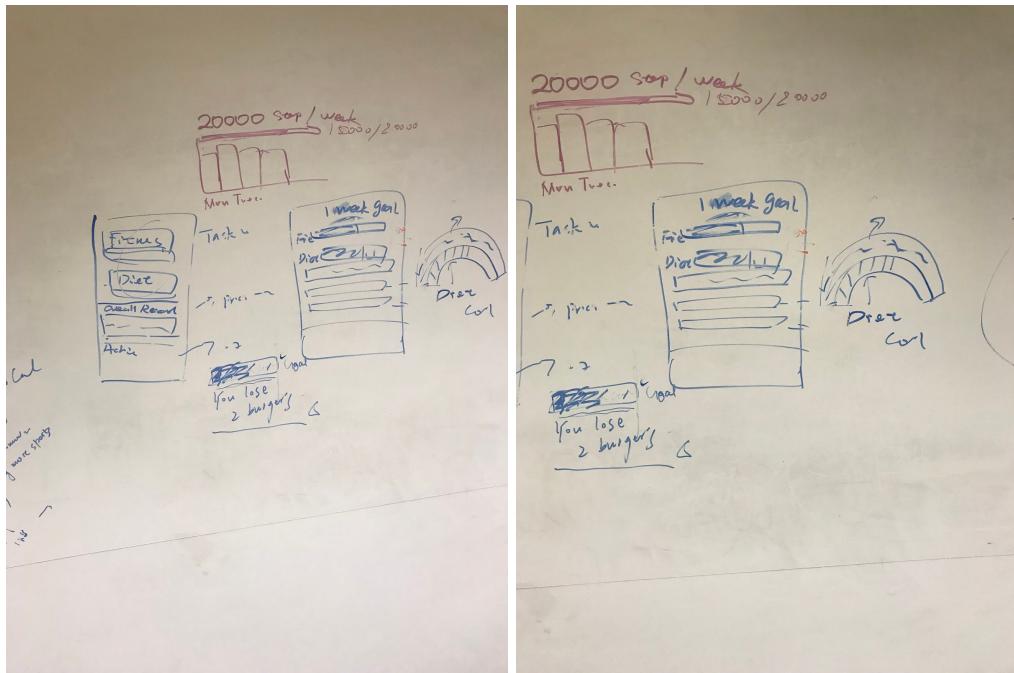
Affinity Diagrams

All the Affinity Diagrams can be found in [this link](#)

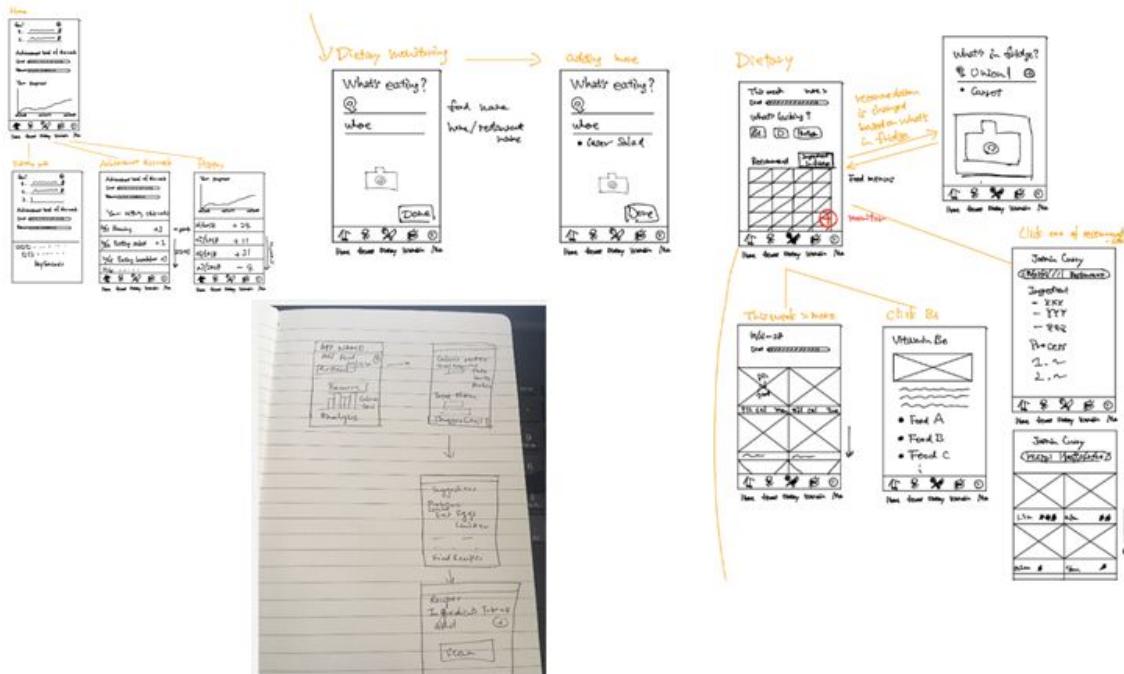
Usability testing Results

The results of all phases of user testing can be found in [this link](#)

Brainstorming



Initial Sketches



Phase 1 Screens

The image displays a 4x3 grid of screenshots from a mobile application, likely a fitness and nutrition tracker. The screenshots are arranged in four rows, each representing a different day: Yesterday, Nov. 12; Today, Nov. 13; Tomorrow, Nov. 14; and Today, Nov. 13 again.

- Row 1 (Yesterday, Nov. 12):**
 - Fitness:** Shows a bar chart for the week of Nov. 5-11, 2018. The Y-axis is 'Cal' (Calories) ranging from 0 to 1000. The X-axis shows days from Monday to Sunday. Blue bars represent daily activity levels.
 - Diet:** Shows a journal with entries for Brunch (Omelet, 550 Cal, 9:30 AM), Dinner (550 Cal, 6:00 PM), and Snack (550 Cal, 22:00 PM). A summary section shows Chocolate: 1K Cal and Fried Eggs: 100 Cal.
 - App Name:** Shows a summary for Yesterday, Nov. 12. Fitness: 2 miles, 20 mins, 60 mins, 5 ml. Diet: 2000 Cal, 800g Carbs, 221g Protein, 45g Fats.
- Row 2 (Today, Nov. 13):**
 - Fitness:** Shows a journal with entries for Running (4 miles, 9:41 AM) and Swimming (1 miles).
 - Achievement:** Shows various achievement icons like '100 Miles Total', '100 Miles in 100 Days', '100 Run 100% Complete', and '10 Cup Water Total'.
 - App Name:** Shows a summary for Today, Nov. 13. Fitness: 0 miles, 0 mins, Add new. Diet: 2400 Cal, 800g Carbs, 150g Protein, 45g Fats.
- Row 3 (Tomorrow, Nov. 14):**
 - Fitness:** Shows a journal with entries for Running (2.5 Miles, 9:30 AM) and Brunch (550 Cal, 11:00 AM).
 - Diet:** Shows a journal with entries for Breakfast (400 Cal, 9:40 AM) and Brunch (550 Cal, 11:00 AM).
 - App Name:** Shows a summary for Tomorrow, Nov. 14. Fitness: 0 miles, 0 mins, 0 mins, 0 ml. Diet: 0 Cal, 0g Carbs, 0g Protein, 0g Fats.
- Row 4 (Today, Nov. 13 again):**
 - Fitness:** Shows a journal with entries for Running (2.5 Miles, 9:30 AM) and Brunch (550 Cal, 11:00 AM).
 - Diet:** Shows a journal with entries for Breakfast (400 Cal, 9:40 AM) and Brunch (550 Cal, 11:00 AM).
 - App Name:** Shows a summary for Today, Nov. 13. Fitness: 2.5 miles, 20 mins, 30 mins, 0 miles. Diet: Water 800ml, Vitamins 60mg, Add new.

Bottom Center Screenshot:

Diet

Week, Nov 5 - 11, 2018

Legend: Healthy Food (Green), Not so Junk (Yellow), Junk Food (Red)

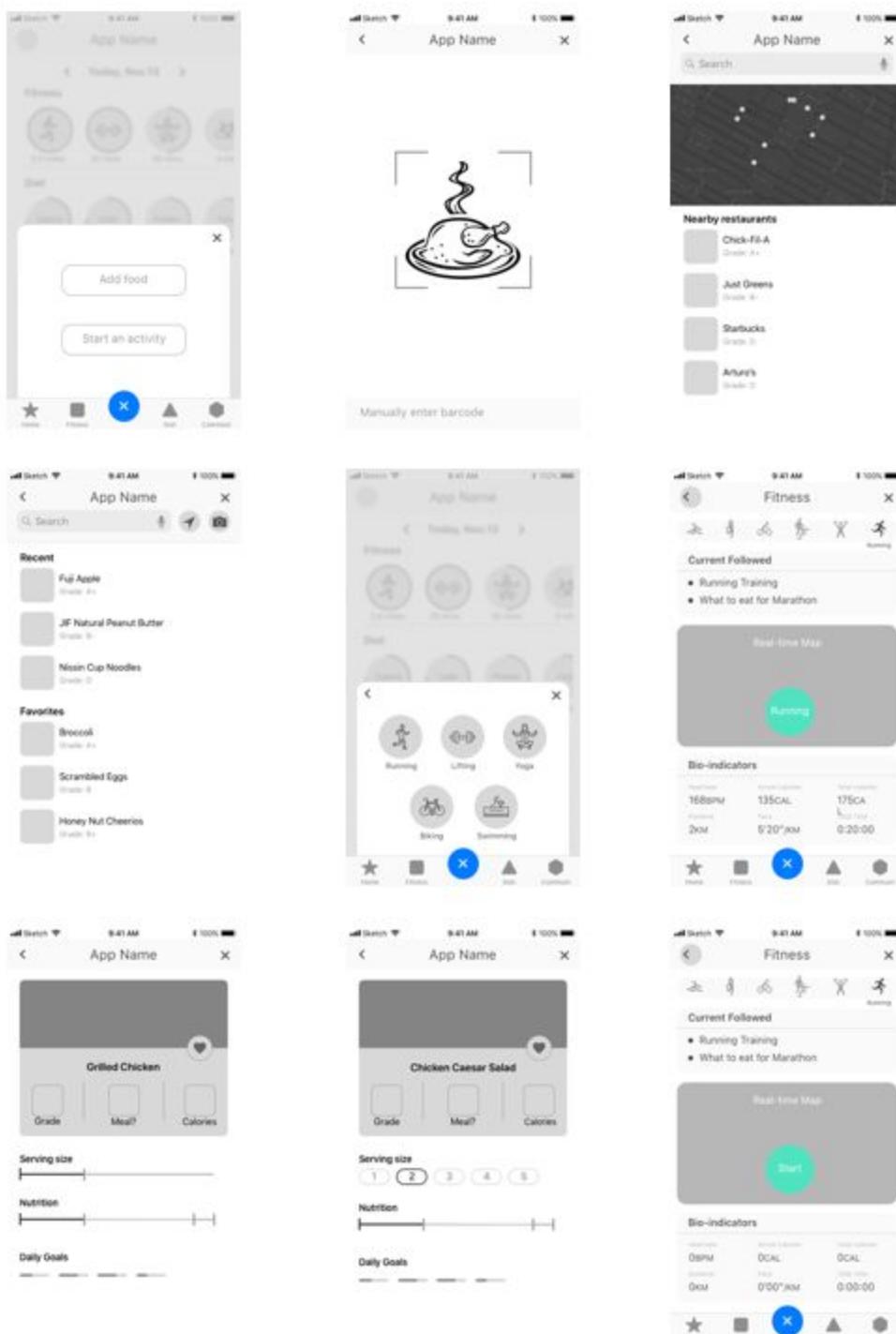
Calories

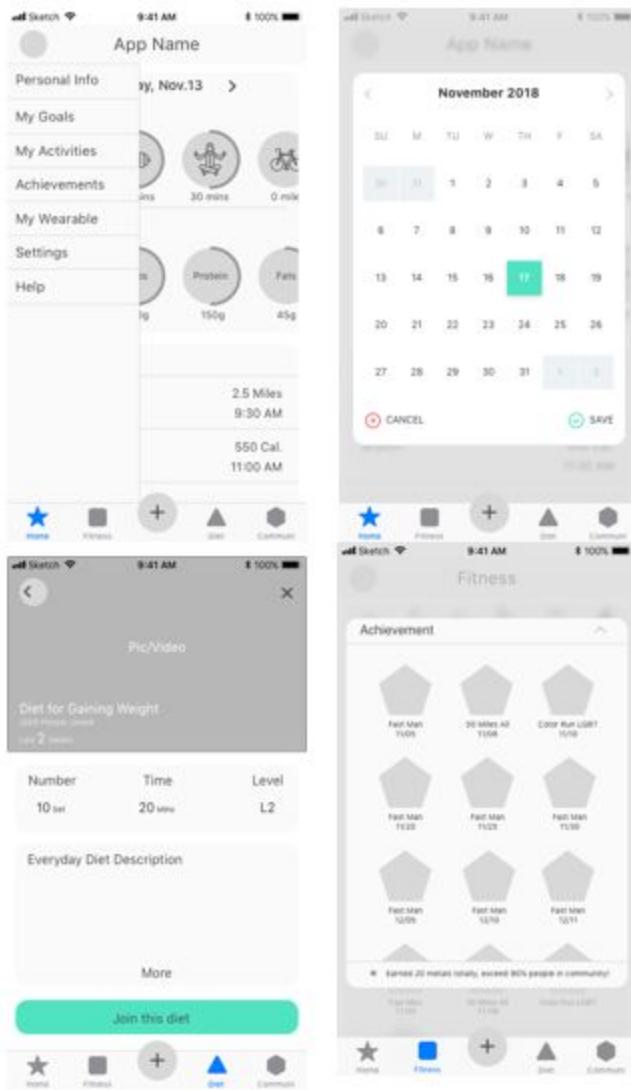
Journal

- Brunch: Omelet 550 Cal 9:30 AM
- Dinner 550 Cal 6:00 PM

Home **Fitness** **+** **Diet** **Common**

Phase 1 Screens





Phase 2 Screens

The image displays a grid of 12 mobile application screens, likely from a design sketching phase. The screens are arranged in three rows:

- Row 1:** Fitness summary (bar chart), Diet summary (bar chart), Sign-in screen (with 'Picture/icon for sign in' placeholder), and Wearable Device screen (with 'Picture/icon for on-boarding' placeholder).
- Row 2:** Achievement section (Running 4 miles, Swimming 1 miles), Journal section (Brunch: 550 Cal, Dinner: 550 Cal, Snack: 550 Cal), and a registration form for a wearable device.
- Row 3:** Recommendations section (Running With Delicious and Healthy Salads, Running for A Whole Marathon), Action Guide section (Placeholder cards), and a 'Tell us more about you...' survey section.

Wearable Device Screen (Top Right):

Technology of wearable devices enables you to monitor your fitness and dietary much more easily.

Registration Form (Row 2, Middle Right):

Get started!

Survey Section (Row 3, Bottom Left):

Tell us more about you...

What is your weight? _____

What is your height? _____

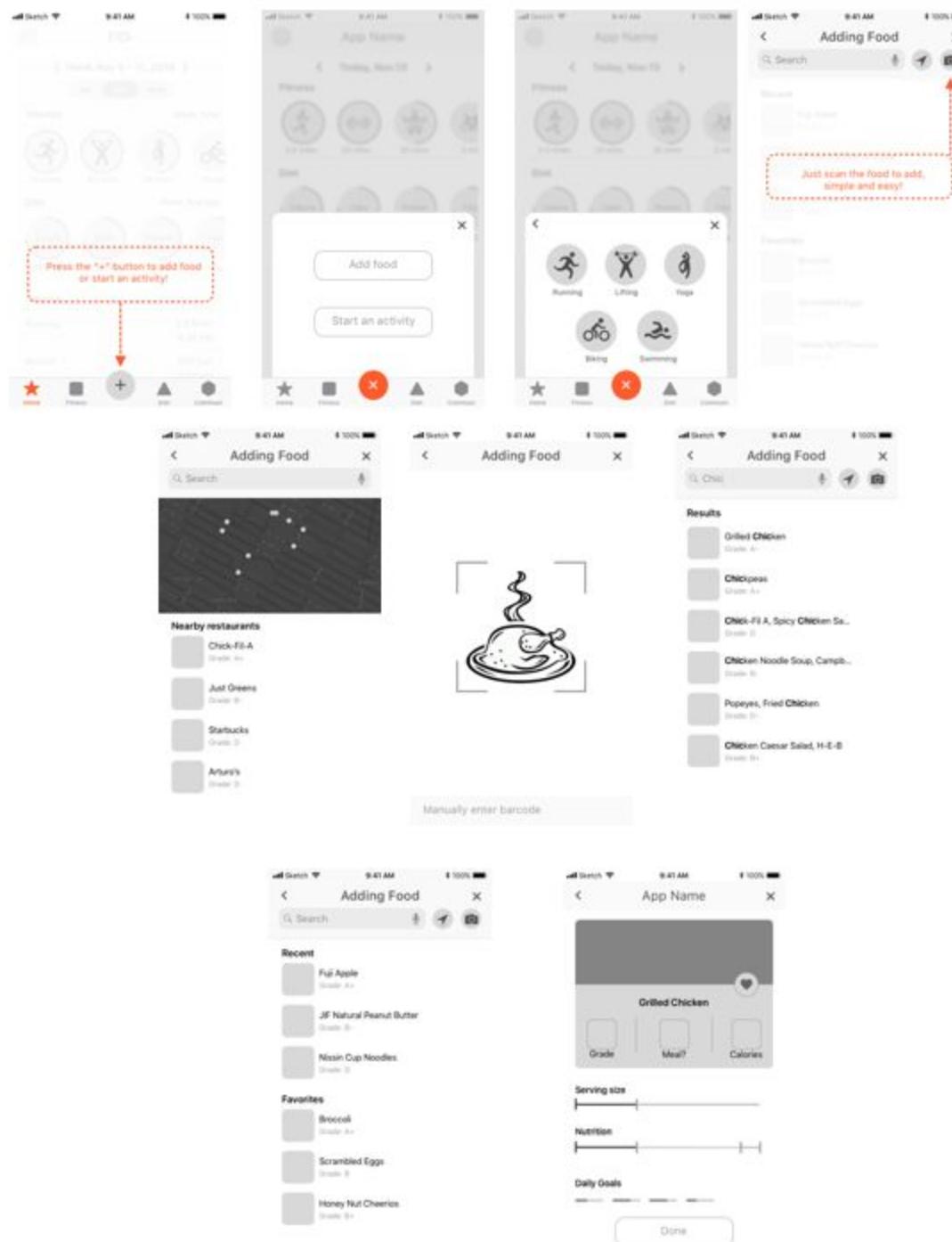
How often do you work-out per week? _____

How active are you for dietary? _____

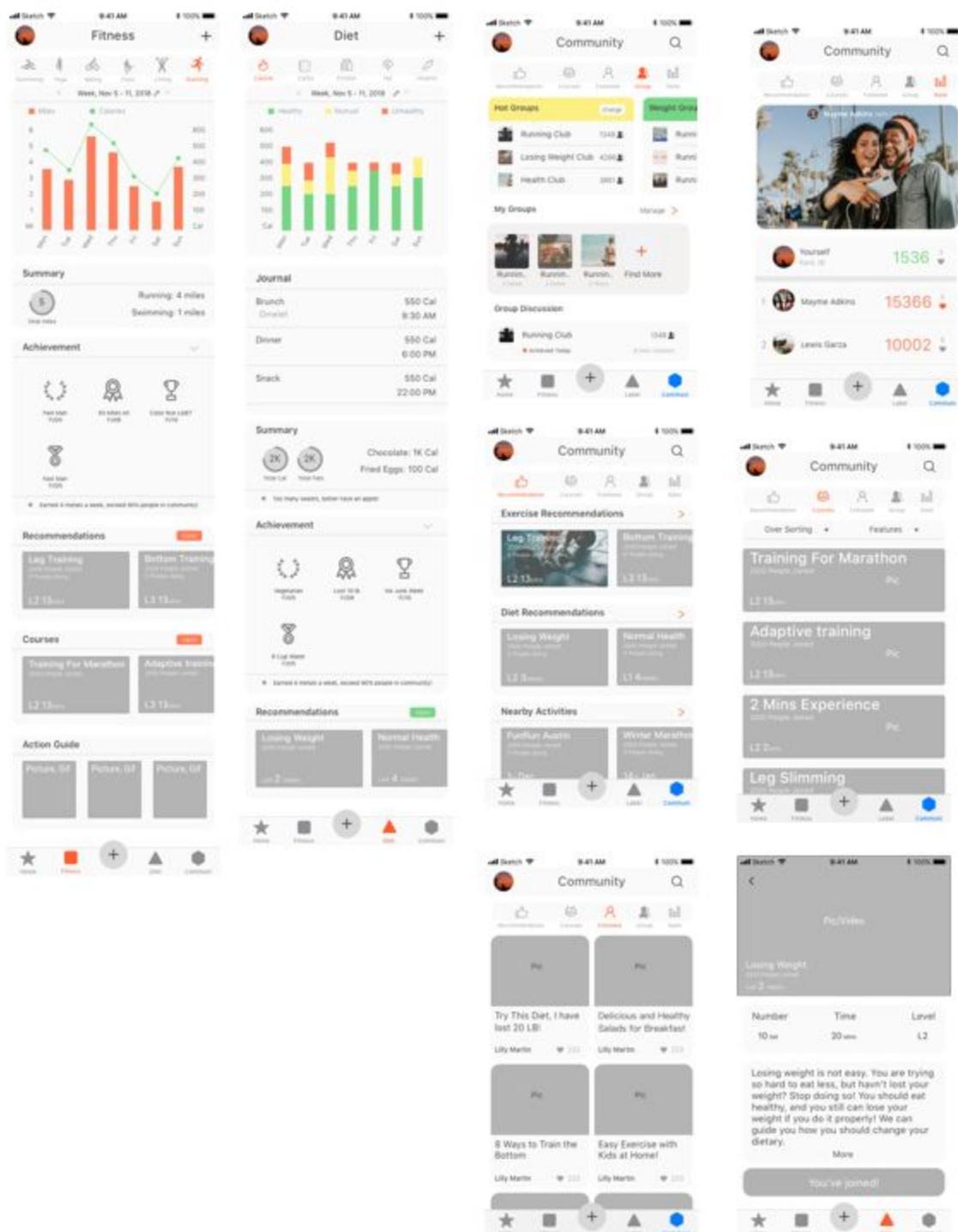
Action Guide Section (Row 3, Bottom Right):

All set!

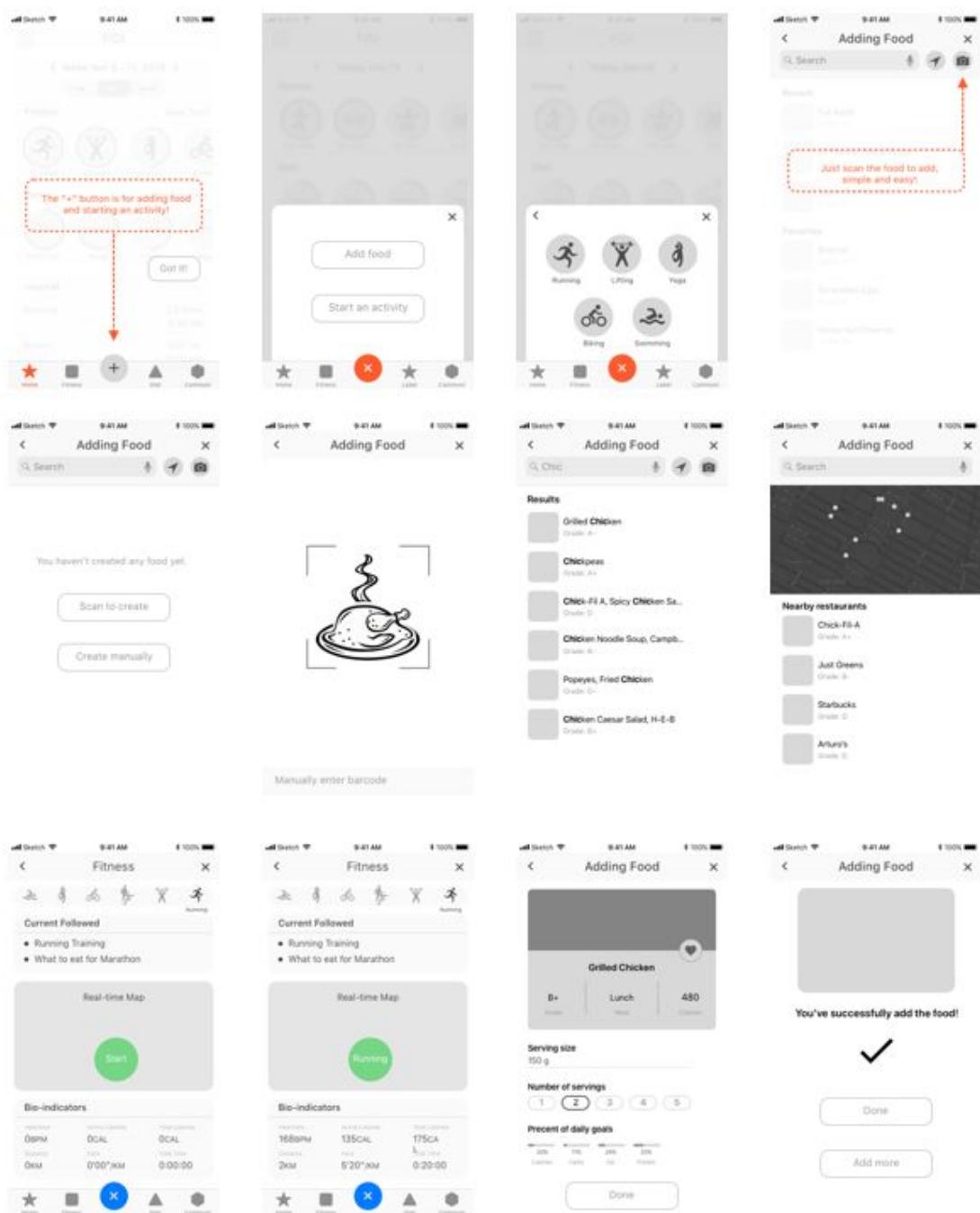
Phase 2 Screens



Phase 3 Screens



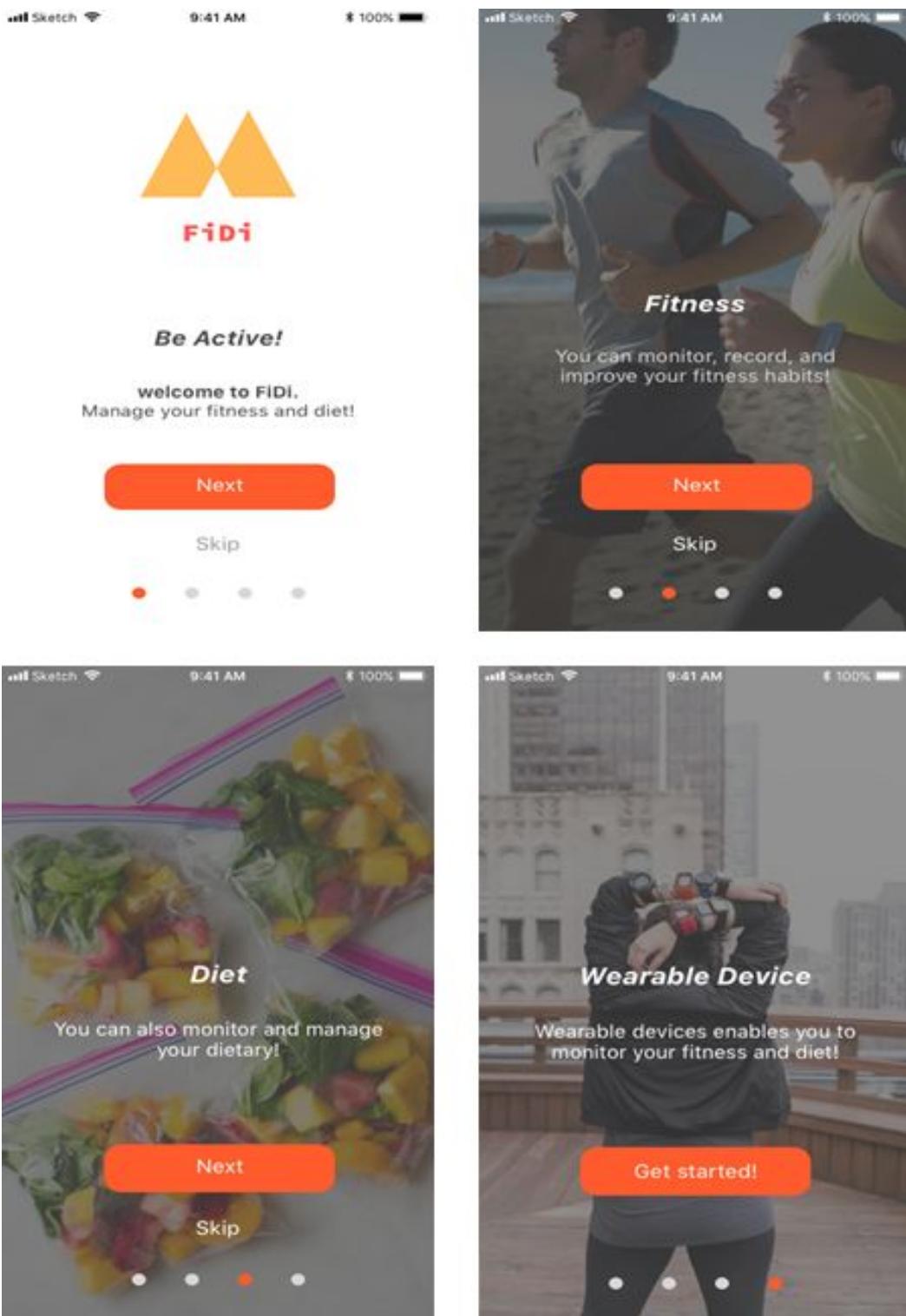
Phase 3 Screens



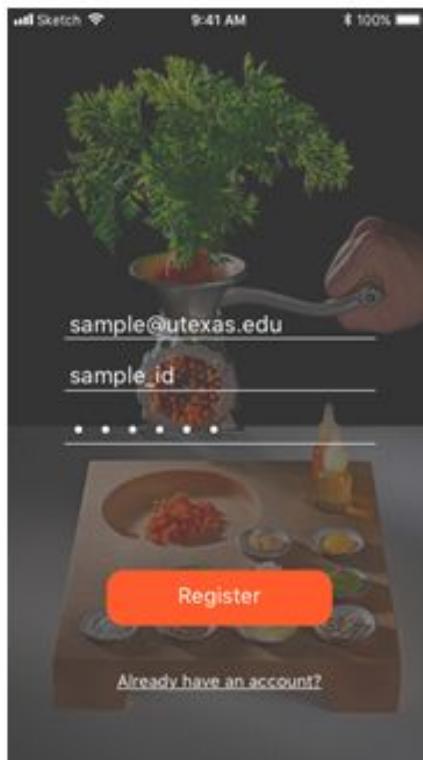
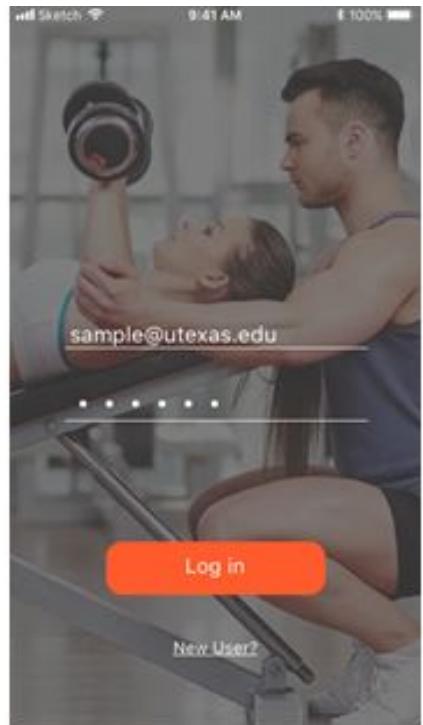
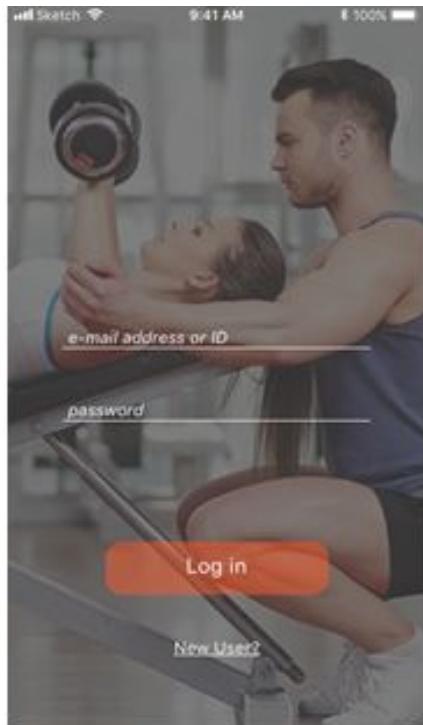
The image displays a sequence of screenshots from the FiDi mobile application, illustrating its user interface and features:

- Onboarding Screens:** The first four screenshots show the initial setup process. The first screen features the FiDi logo with the tagline "Be Active!". It includes a welcome message: "welcome to FiDi. Manage your fitness and dietary!" with "Next" and "Skip" buttons. The second screen shows a "Dietary" section with a photo of healthy food and a "Next" button. The third screen shows a "Wearable Device" section with a photo of a smartwatch and a "Get started!" button. The fourth screen shows a "Log in" section with fields for "e-mail address or ID" and "password".
- Goal Setting Screen:** The fifth screenshot shows the "Set your goals!" section. It asks for "Your weight goal?" (149 lbs) and "How many times per week you want to work out?" (5). It also asks "How many days per week do you want to eat healthy?" (4).
- Profile Setup Screen:** The sixth screenshot shows the "Tell us more about you..." section. It asks for "What is your weight?" (155 lbs), "What is your height?" (5ft 6in), "How active are you on a scale of 1-7?" (5), and "How healthy do you eat?" (5).
- Dashboard Screens:** The last two screenshots show the main dashboard. The left dashboard shows "Personal Info" (Nov 5 - 11, 2018), "My Goals", "My Activities", "Achievements", "My Favorites", "My Wearable", "Settings", and "Help". It also displays "Week Total" activity icons (Run, Bike, Walk, Cycle) and a "Week Average" section. The right dashboard shows "Fitness" and "Diet" sections with weekly totals (e.g., 10 miles run, 1200 Cal diet) and a "Journal" section with entries for "Running" and "Brunch".

High Fidelity Comps



High Fidelity Comps



High Fidelity Comps

Sketch 9:41 AM 100% Sketch 9:41 AM 100%

Tell us more about you...

What is your weight?: _____

What is your height?: _____

How active are you on a scale of 1-7?

1 4 7

How healthy do you eat?

1 4 7

Next

Later

Tell us more about you...

What is your weight?: 155 lbs

What is your height?: 5ft 6in

How active are you on a scale of 1-7?

1 4 7

How healthy do you eat?

1 4 7

Next

Later

Sketch 9:41 AM 100% Sketch 9:41 AM 100%

Set your goals!

Your weight goal?: _____

How many times per week you want to work out?

1 4 7

How many days per week do you want to eat healthy?

1 4 7

All set!

Later

Set your goals!

Your weight goal?: 149 lbs

How many times per week you want to work out?

1 4 7

How many days per week do you want to eat healthy?

1 4 7

All set!

Later

High Fidelity Comps

The image displays four high-fidelity wireframes for a mobile fitness application, likely created in Sketch, showing different screens and interactions.

- Home Screen:** Shows a weekly summary for Nov 5 - 11, 2018. It includes sections for Fitness (10 miles, 80 mins, 30 mins, 0 miles), Diet (2400 Cal., 800g, 150g, 45g), and Journal (Running: 2.5 Miles at 9:30 AM, Brunch: 550 Cal. at 11:00 AM). A central '+' button allows adding new entries. Navigation tabs at the bottom include Home, Fitness, Diet, and Community.
- Fitness Sub-Screen:** A modal or detailed view of the Fitness section, showing icons for Running, Lifting, Yoga, Biking, and Swimming, each with a red 'X' icon to remove.
- Journal Screen:** A detailed view of the journal entry for Running on Nov 5 at 9:30 AM. It shows a callout bubble pointing to the '+' button with the text: "The '+' button is for adding food and starting an activity!". A 'Got it!' button dismisses the callout.
- Fitness Details Screen:** A screen showing current followed activities: Running Training and What to eat for Marathon. It includes a map from Google Maps showing a route from "Start" to "The University of Texas". Below the map are bio-indicators for heart rate, active calories, and total calories.

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Diet

Calorie Intake by Day (Nov 5 - Nov 11, 2018)

- Day 1: 500 Cal (Healthy)
- Day 2: 400 Cal (Neutral)
- Day 3: 550 Cal (Unhealthy)
- Day 4: 350 Cal (Healthy)
- Day 5: 400 Cal (Neutral)
- Day 6: 350 Cal (Healthy)
- Day 7: 400 Cal (Neutral)
- Day 8: 350 Cal (Healthy)
- Day 9: 400 Cal (Neutral)
- Day 10: 350 Cal (Healthy)

Journal

Meal	Calories	Time
Brunch Omelet	550 Cal	9:30 AM
Dinner	550 Cal	6:00 PM
Snack	550 Cal	22:00 PM

Summary

- Total Cal: 2K
- Total Fats: 2K
- Chocolate: 1K Cal
- Fried Eggs: 100 Cal

Achievement

- Vegetarian: 11/10
- Lost 10 lb: 11/10
- No Junk Week: 11/10
- 8 Cup Water: 11/10

Recommendations

- Losing Weight
- Normal Health

Community

Exercise Recommendations

- Leg Training: 2000 People Joined, 8 People Doing, L2 13 mins
- Bottom Training: 2000 People Joined, 8 People Doing, L3 13 mins

Diet Recommendations

- Losing Weight: 2000 People Joined, 8 People Doing, L1 4 mins
- Normal Health: 2000 People Joined, 8 People Doing, L1 4 mins

Nearby Activities

- FunRun Austin: 2000 Participants, 8 People Doing
- Winter Marathon: 2000 Participants, 8 People Doing

Losing Weight Challenge

2000 People Joined, 8 People Doing, 2 weeks

Number: 10 set, Time: 20 mins, Level: L2

Losing weight is not easy. You are trying so hard to eat less, but haven't lost your weight? Stop doing so! You should eat healthy, and you still can lose your weight if you do it properly! We can guide you how you should change your dietary.

More

Join

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The image displays two side-by-side high-fidelity wireframe prototypes for a fitness application.

Left Screen: Fitness

- Top Bar:** Shows signal strength, Sketch logo, 9:41 AM, battery level at 100%.
- Section Headers:** Fitness, Swimming, Bike, Walking, Hiking, Lifting, Running.
- Graph:** Miles (red bars) and Calories (green line) over time. Data points include: Nov 5: Miles ~4.5, Calories ~500; Nov 6: Miles ~3.0, Calories ~350; Nov 7: Miles ~5.5, Calories ~600; Nov 8: Miles ~2.5, Calories ~300; Nov 9: Miles ~1.5, Calories ~200; Nov 10: Miles ~4.0, Calories ~450.
- Summary:** Total miles: 5. Running: 4 miles, Swimming: 1 miles.
- Achievement:** Icons for Fast Run (110s), 50 Min AF (100s), and Best Run LOST (110s).
- Recommendations:** Leg Training (2000 People Joined, L2 13 mins) and Bottom Training (1348 People Joined, L3 13 mins).
- Courses:** Training For Marathon (2022 Pre-Run, L2 13 mins) and Adaptive training (L3 13 mins).
- Action Guide:** Squats, Head Over Heels, High Bridge.
- Bottom Navigation:** Home, Fitness (highlighted), Diet, Community.

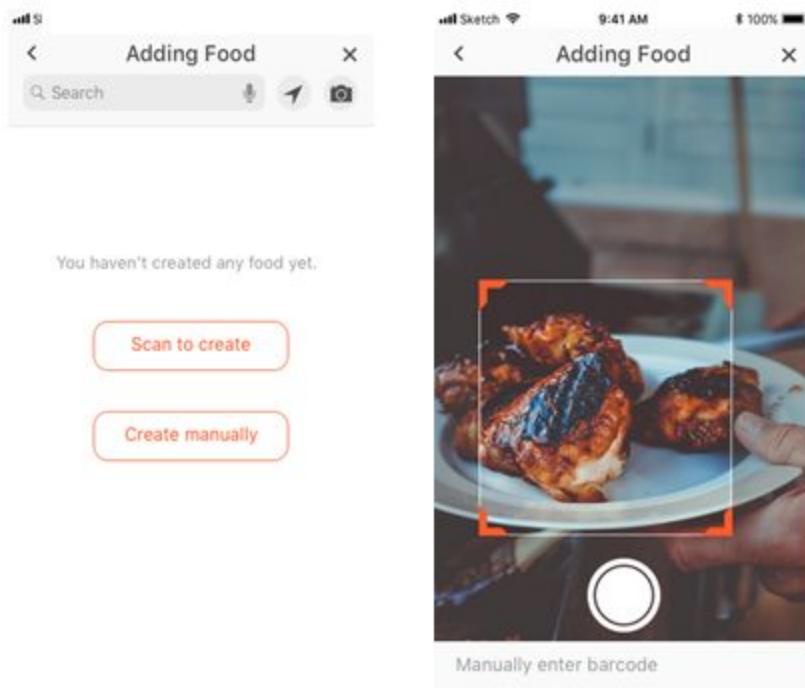
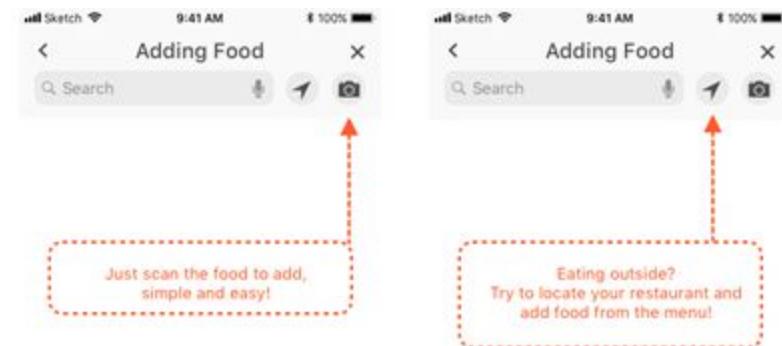
Right Screen: Running

- Top Bar:** Shows signal strength, Sketch logo, 9:41 AM, battery level at 100%.
- Section Headers:** Running.
- Map:** A map showing a running route from Texas Memorial Museum to Darrell K Royal - Texas Memorial Stadium, passing by The University of Texas at Austin. A green circle labeled "Running" is on the map.
- Bio-indicators:**

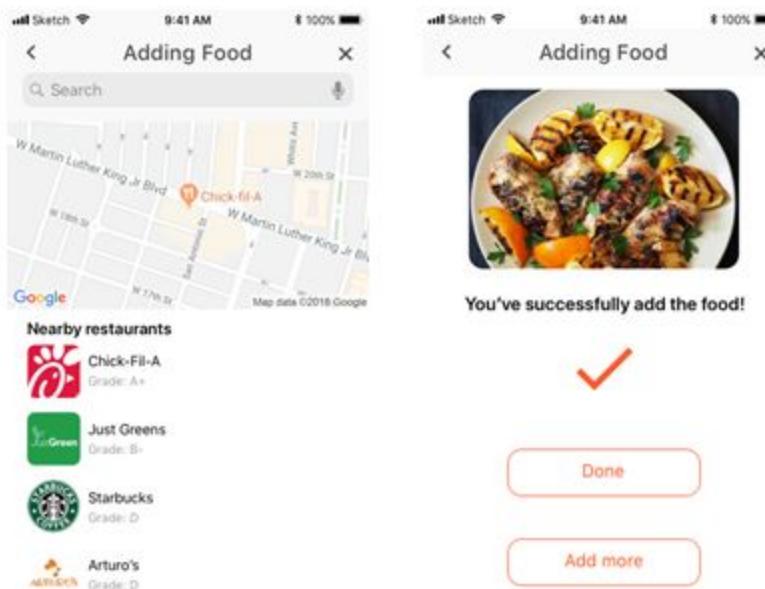
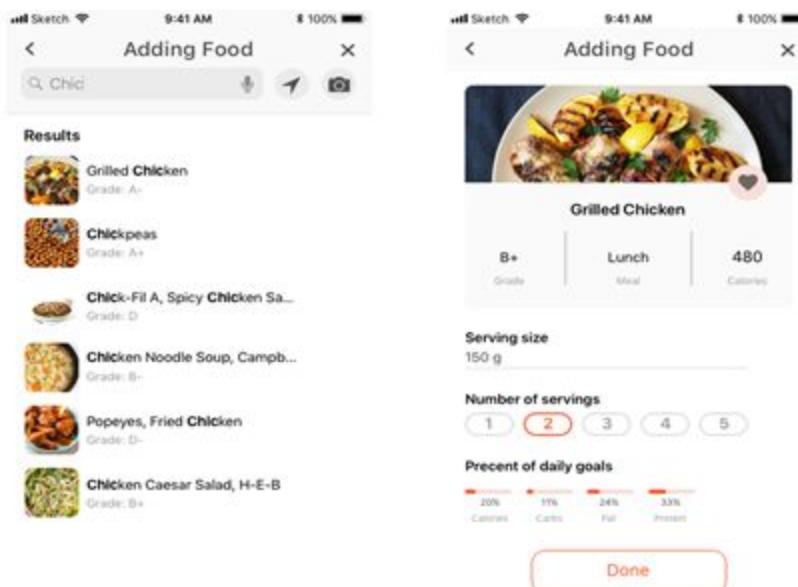
Heart Rate	Active Calories	Total Calories
168BPM	135CAL	175CAL
Distance: 2KM	Speed: 5'20"/KM	Total Time: 0:20:00
- Bottom Navigation:** Home, Fitness (highlighted), Diet, Community.
- Inset Screen: Leg Training**
 - Image:** A man performing a leg exercise on a machine.
 - Text:** Leg Training, 2000 People Joined, L2 13 mins.
 - Table:**

Number	Time	Level
10 set	10 Mins	L2
 - Text:** Are you interested in gaining more muscle in your legs? If you don't do it in a right way, you won't gain muscle, and in the worst case, you will get injured. We invite three specialists to instruct us to learn how to train legs in a right way!
 - Buttons:** More, Join.
 - Bottom Navigation:** Home, Fitness (highlighted), Diet, Community.

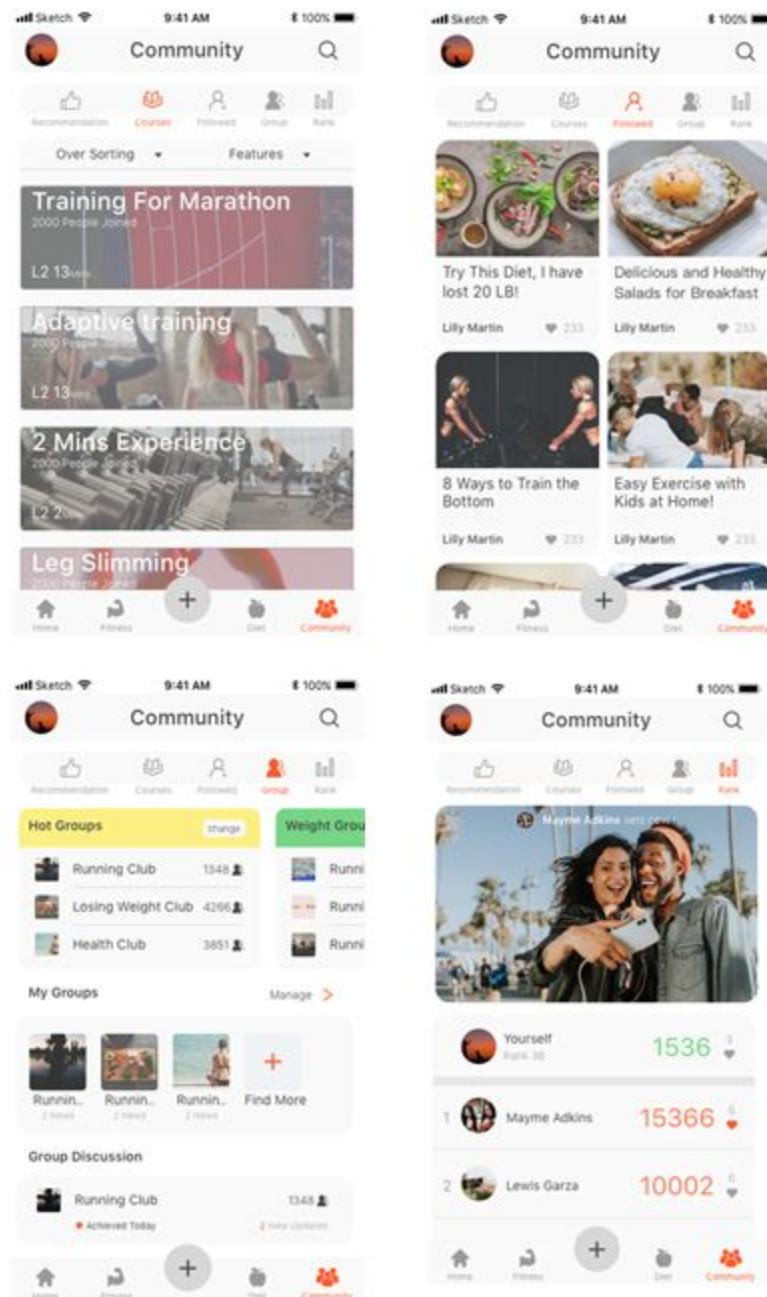
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Wearable Hi-Fi Prototype

