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College of Engineering & Computing Sciences

A CoECS **Interim Undergraduate Report submitted** for

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Instructor Name: Wenjia li

Group Members

Muhammad Usman (Student ID: 1299708)

Michael Aryeetey (Student ID: 1284978)

Elsabeth Assaye (Student ID: 1294216)

Gurpinder Singh (Student ID: 1289903)

Title: HealthBoost

A Personalized Nutrition and Workout App for Improved Health and Wellness.

Introduction:

The need for personalized nutrition and workout plans has become increasingly important in today's society as people are becoming more health-conscious. Health-Boost is a cutting-edge web and mobile application that provides personalized nutrition and workout plans to individuals looking to improve their health and wellness. The purpose of this interim report is to present an update on the progress of the development of the Health-Boost app. This report will provide an overview of the big picture, motivation behind the app, and key technologies used in its development.

Big Picture:

The big picture of the Health-Boost app is to provide a comprehensive wellness solution for individuals and businesses. The app aims to offer personalized and optimized plans based on the individual's dietary restrictions, health goals, fitness level, and personal preferences. Health-Boost offers a unique and innovative solution for users to improve their health and wellness through customized nutrition and workout plans.

Motivation:

The motivation behind developing the Health-Boost app is to address the growing need for personalized nutrition and workout plans. The app aims to provide users with a comprehensive wellness solution that meets their specific needs and preferences. The app's personalized nutrition and workout plans are based on the user's dietary restrictions, health goals, and fitness level, making it easier for users to achieve their health and wellness goals.

Key Technologies:

The Health-Boost app is being developed using several key technologies, including React Native for the front end and Node.js for the back end. React Native is a popular open-source framework that allows for the development of mobile and web applications using a single codebase. Node.js is a popular backend technology that provides a scalable and efficient way to build web applications. The database for the app is powered by SQL, a popular relational database management system. RESTful API is used to communicate between the frontend and backend, ensuring secure and efficient data transfer.

Detailed Key Technologies (How/Why we used):

React Native: *React Native is a JavaScript framework for building mobile applications that allow for efficient development and deployment of cross-platform apps. We are using React Native to develop the front end of HealthBoost because it provides a seamless user experience on both web and mobile devices. Additionally, React Native allows for easy customization of UI components, which is important for creating a user-friendly and intuitive interface.*

Node.js: *Node.js is a JavaScript runtime built on Chrome's V8 JavaScript engine that allows for efficient server-side scripting. We are using Node.js to build the backend of the HealthBoost app because it provides a fast and scalable server-side environment. Node.js also allows for non-blocking I/O operations, making it ideal for handling a large volume of requests and data.*

SQL: *SQL (Structured Query Language) is a standard language for managing relational databases. We are using SQL to build the database for the HealthBoost app because it provides a reliable and efficient way to manage data. SQL databases are known for their scalability, security, and ease of use, which are all important factors for a health and wellness app that requires storing and managing sensitive user data.*

RESTful API: *REST (Representational State Transfer) is a standard architectural style for building web services. We are using RESTful API to communicate between the front end and back end of the HealthBoost app. RESTful API provides a lightweight and scalable way to transmit data between different components of the app. It also supports a wide range of programming languages and platforms, making it easy to integrate with other tools and services.*

Similar Apps (Related Works):

There are several similar apps in the market that offer personalized nutrition and workout plans to users. Some of the notable ones include:

- **EasyTiger**
- **Zero**
- **FastEasy**
- **LoseIt**
- **Happy Scale**
- **Noom**

EasyTiger [1] :

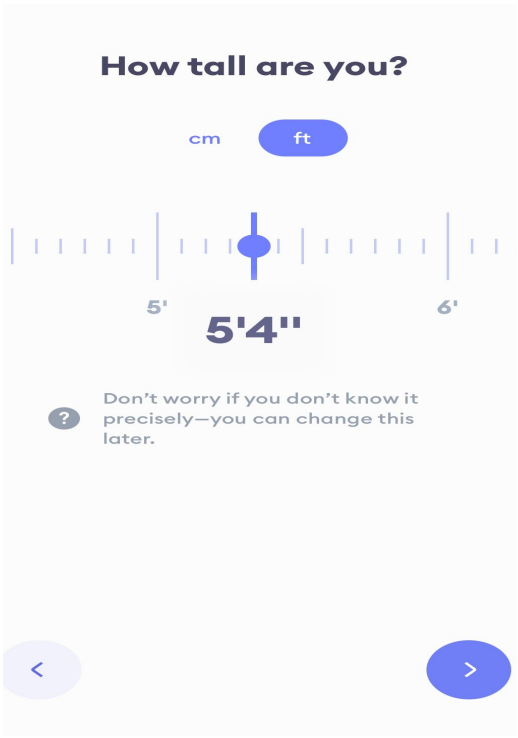
A personalized nutrition and workout app can be a useful tool to help improve health and wellness. Here are some potential features, pros, and cons of such an app:

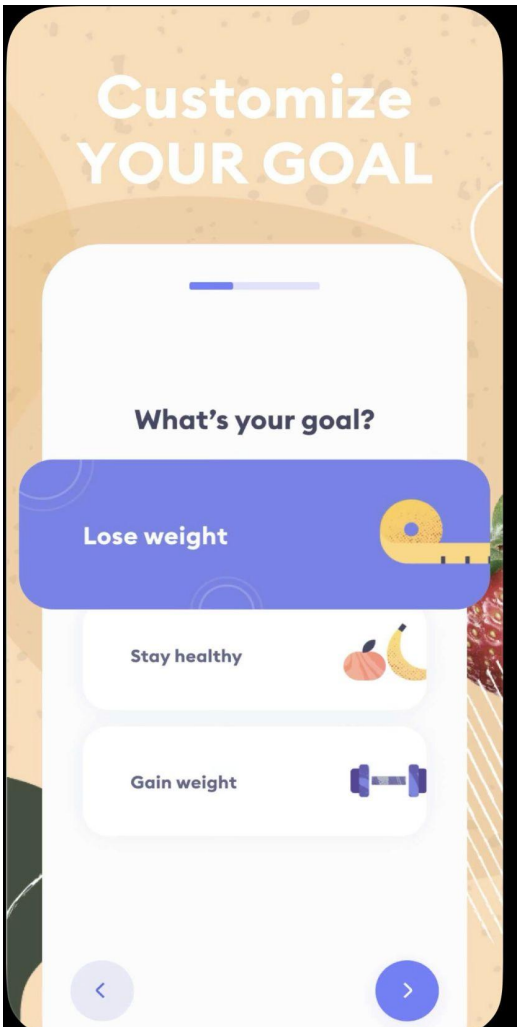
Pros:

1. Customizable to individual needs: Users can set personalized goals, track progress, and choose from a variety of weight loss plans, making it easier to find a plan that works for them.
2. Provides visual representation of progress: The app provides graphs and charts that show your progress over time, which can help you stay motivated and track your success.

Cons:

1. May not be effective for everyone: While the app may be helpful for some users, it may not be effective for everyone in achieving their weight loss goals, as successful weight loss depends on factors beyond just calorie tracking.
2. The app primarily focuses on calorie tracking, which may not be suitable for users with specific dietary needs, such as those following a low-carb, keto or low-fat diet.





Zero [2] :

Zero fasting and health tracker is an app that allows users to track their fasting schedules, water intake, weight, and other health metrics. Here are some potential features, pros, and cons of such an app:

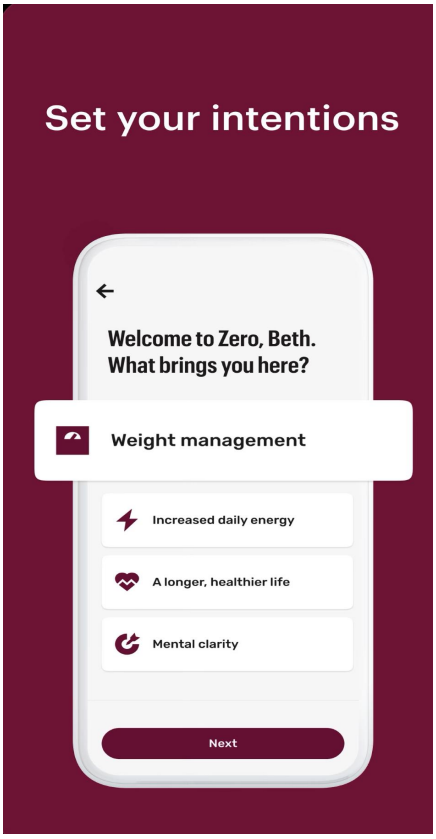
Pros:

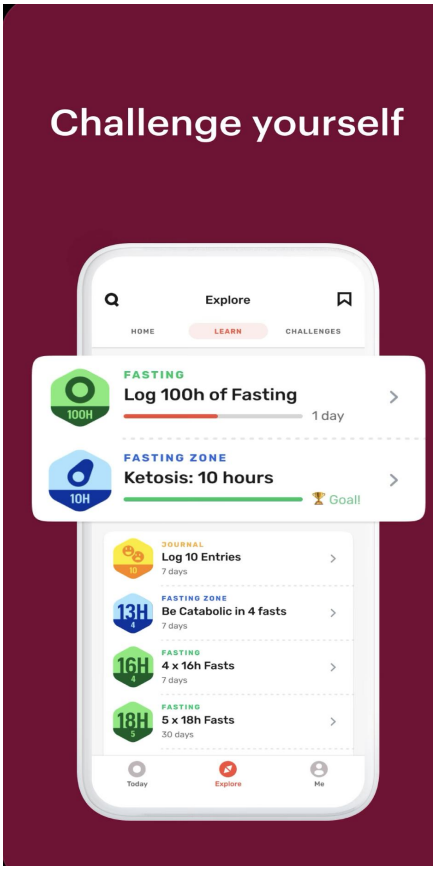
1. Health metrics tracking: The app allows users to track their weight, body measurements, and other health metrics, which can help them monitor their progress and make adjustments to their fasting plans.

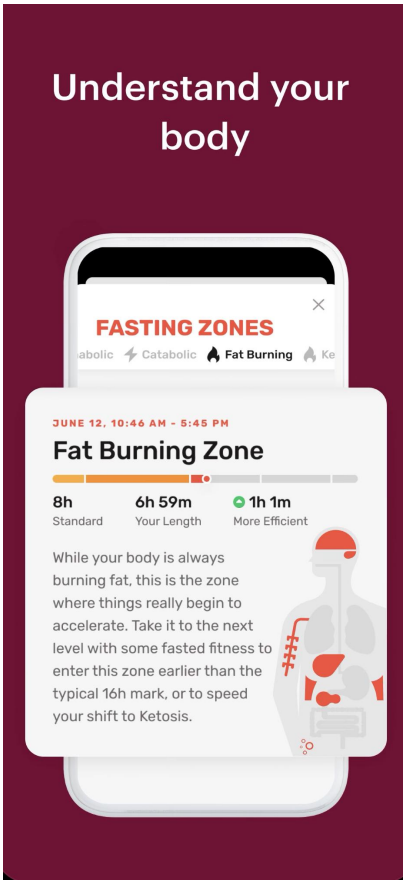
2. Customizable fasting plans: The app allows users to customize their fasting plans based on their goals and preferences, such as the duration and frequency of fasting.

Cons:

1. Potential for unhealthy behaviors: Some users may develop unhealthy behaviors or attitudes towards food or fasting, such as binge-eating, eating disorders or obsessive fasting. It's important to use the app in a healthy and balanced way.
2. Cost: The app may require a subscription or payment for certain features, which may be a barrier for most users.







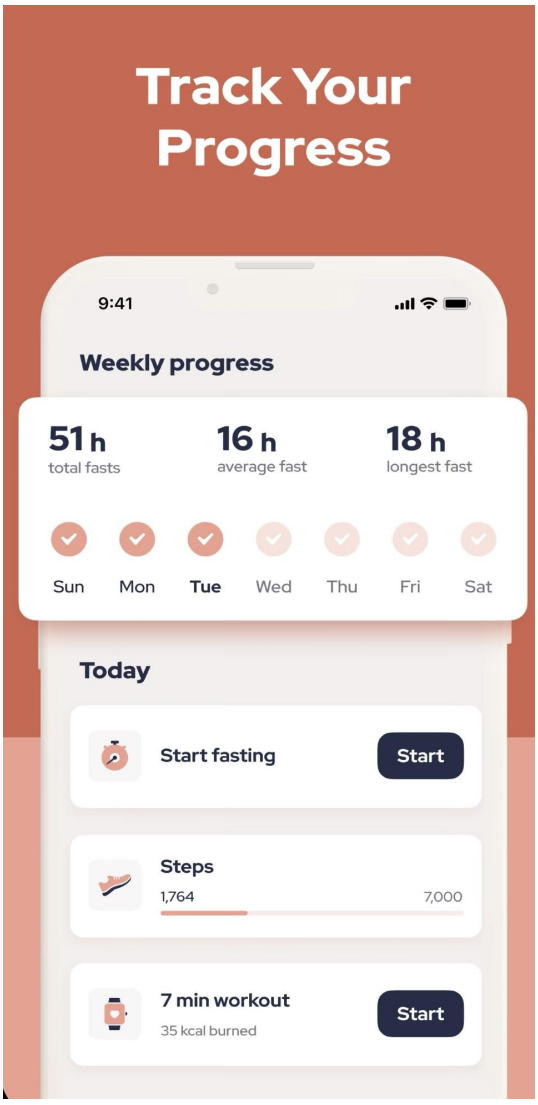
FastEasy [3] :

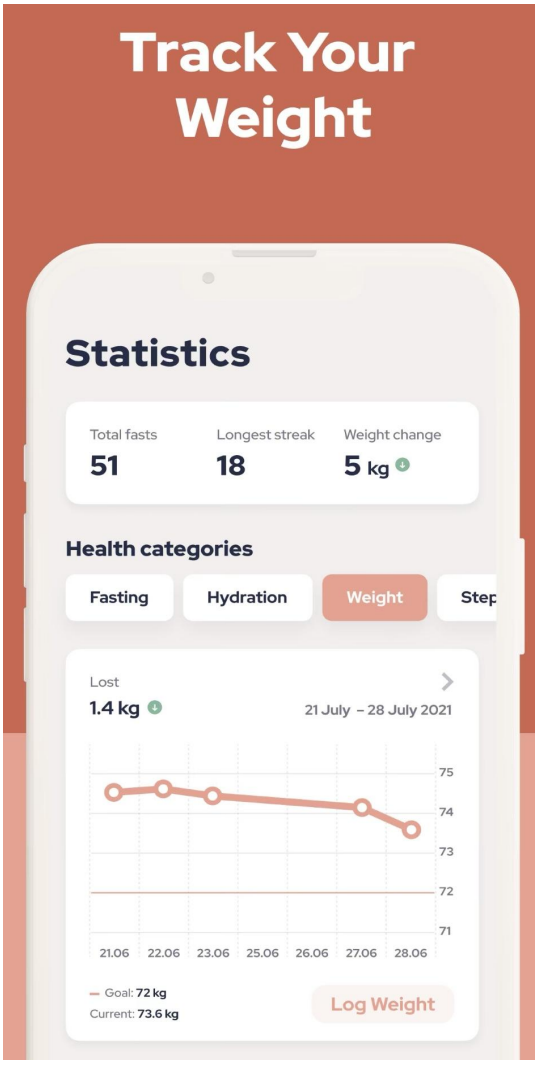
FastEasy: Intermittent Fasting is an app designed to help users with their intermittent fasting goals. Here are some potential features, pros, and cons of such an app:
Pros:

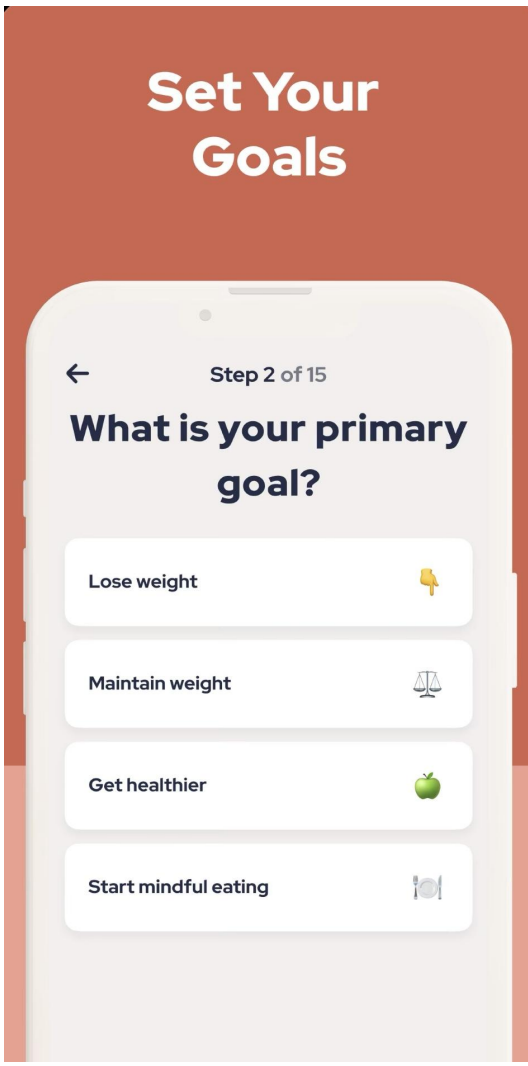
1. Easy to use: The app is user-friendly and straightforward, making it easy for users to track their fasting schedules and progress.
2. Customizable fasting plans: The app allows users to customize their fasting plans based on their goals and preferences, such as the duration and frequency of fasting.

Cons:

1. Potential for unhealthy behaviors: Some users may develop unhealthy behaviors or attitudes towards food or fasting, such as binge-eating or obsessive fasting.
2. Limited guidance: The app may not provide enough guidance or support for users who are new to intermittent fasting or who have questions about their fasting plans.







LoseIt [4]

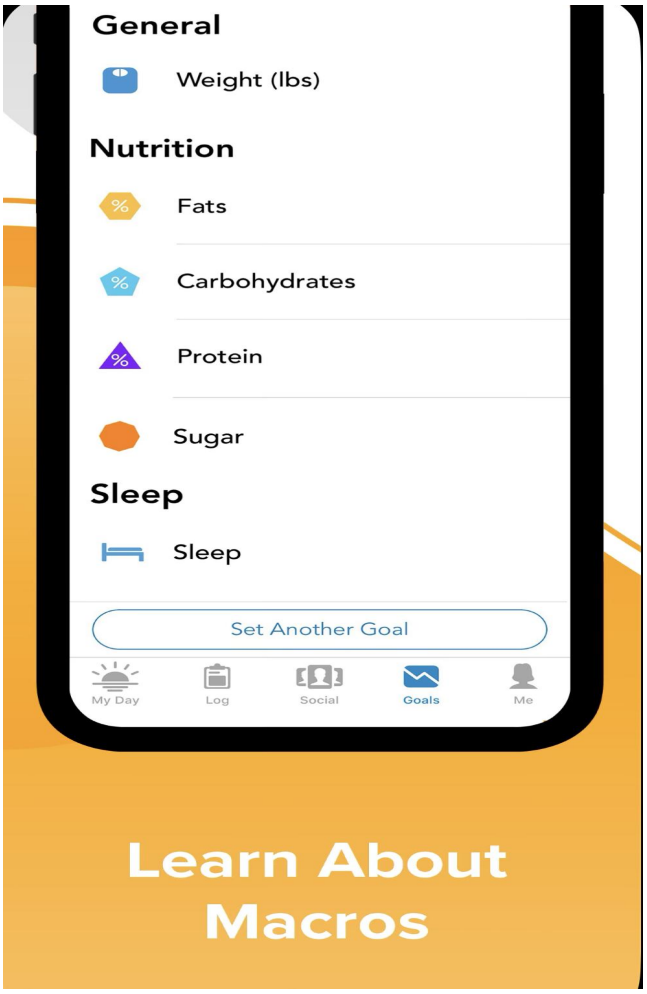
Lose It! is a popular calorie counting app that can help users achieve their weight loss goals. Here are some potential features, pros, and cons of such an app:

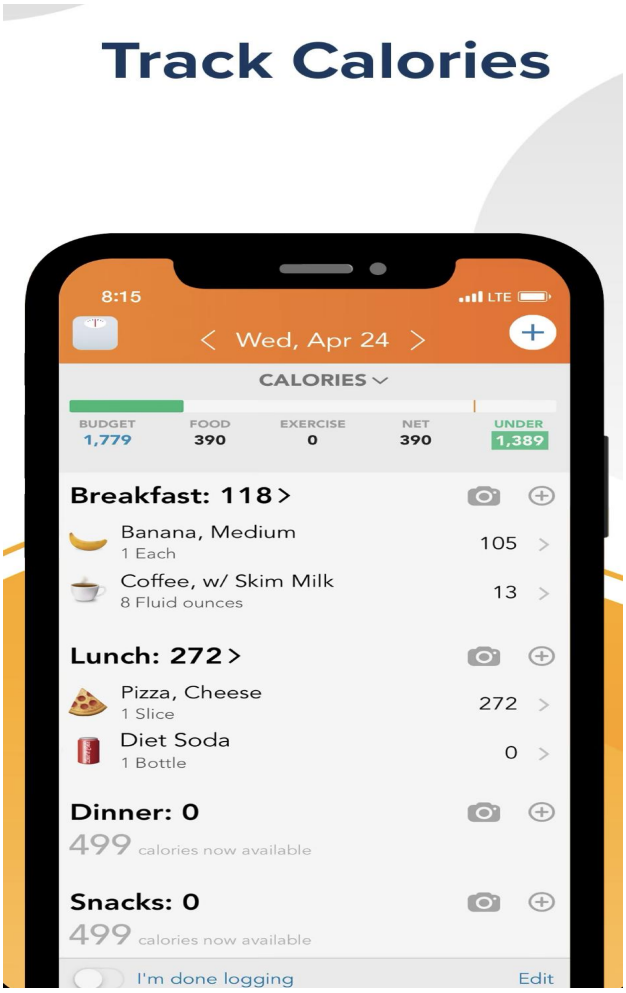
Pros:

1. Easy to use: Lose It! has a user-friendly interface that makes it easy to track calories and monitor progress.
2. Customizable goals: Users can set customized goals for weight loss and track progress towards those goals.

Cons:

1. Limited free version: The free version of the app is somewhat limited in terms of functionality, and users may need to upgrade to the premium version to access all features.
2. Can be time-consuming: Tracking every meal and snack can be time-consuming, and some users may find it difficult to stick to the app's calorie-tracking requirements over the long term.





Happy Scale [5]

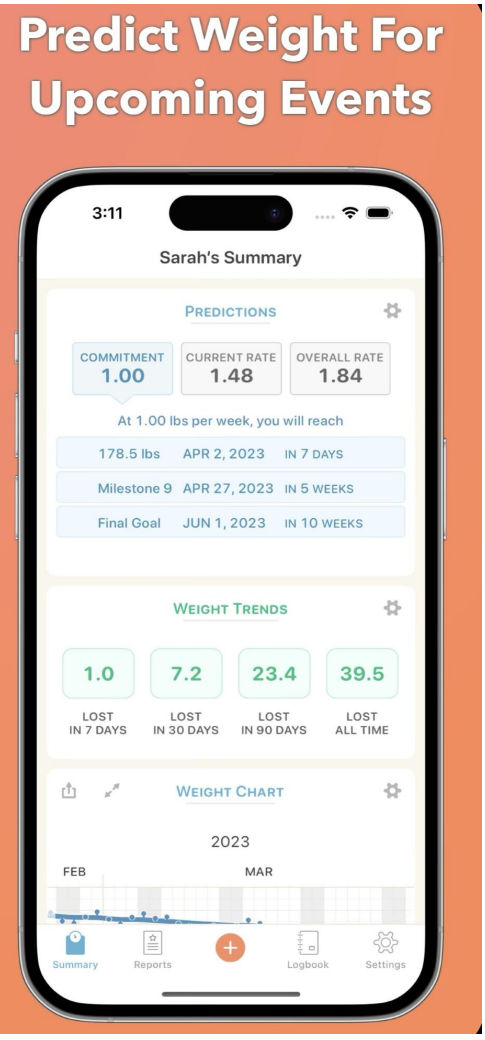
Happy Scale is an app that helps users track their weight loss progress and provides tools to stay motivated.

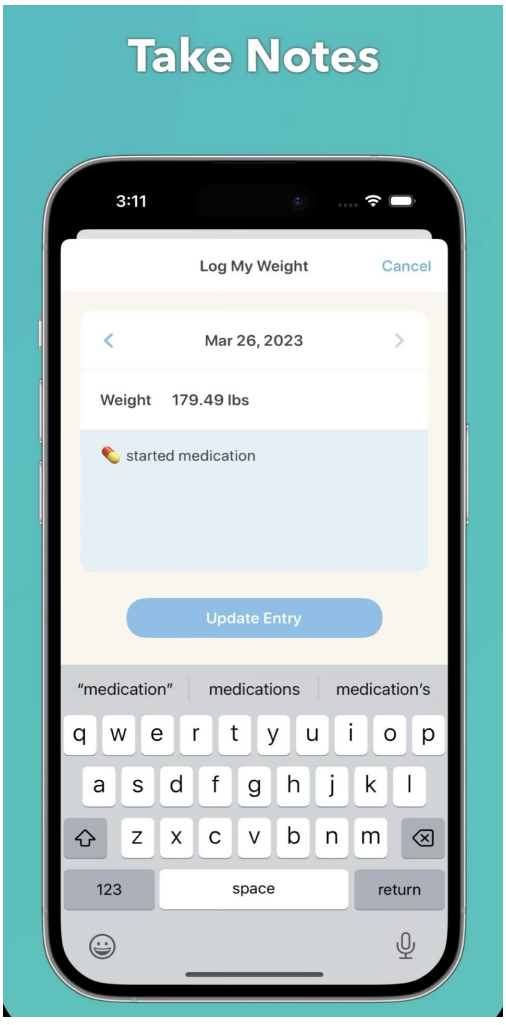
Pros:

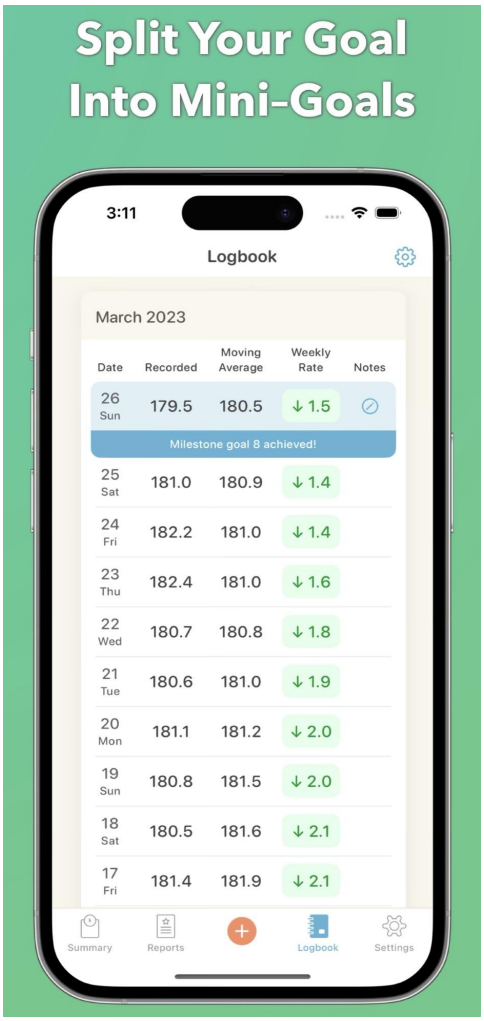
1. Customizable goals: Users can set customizable weight loss goals and track their progress towards those goals.
2. Weight trends analysis: Happy Scale provides users with detailed analysis of their weight trends over time, which can be helpful in identifying patterns and making adjustments to their weight loss plans.

Cons:

1. Paid features: Some of the more advanced features of the app, such as the ability to sync with other health apps or export data, require a paid subscription.
2. Limited social support: While Happy Scale allows users to share their progress with friends and family, it doesn't have a built-in social support community like some other weight loss apps.







Noom [6]

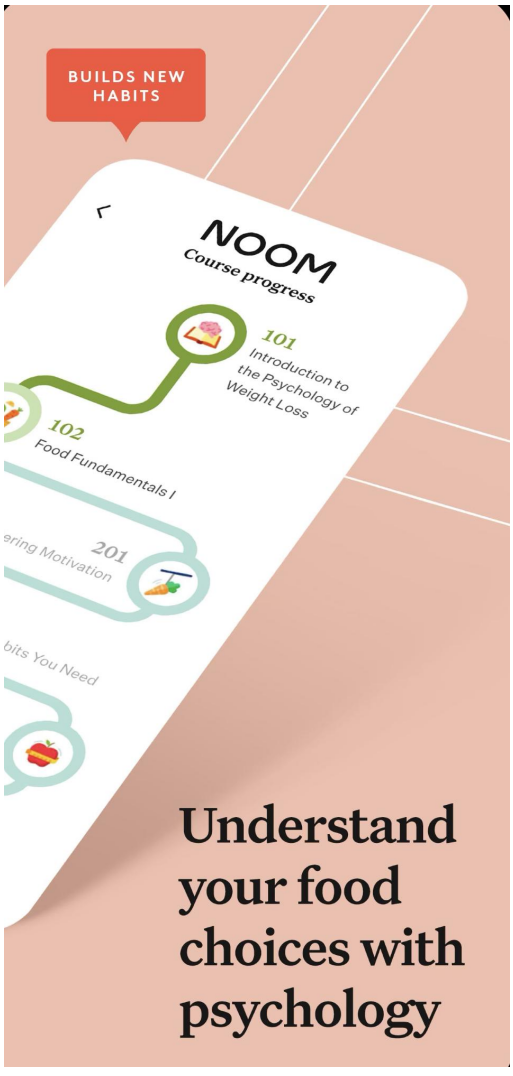
Noom is a popular weight loss app that uses a behavioral approach to help users make healthier choices and develop sustainable habits.

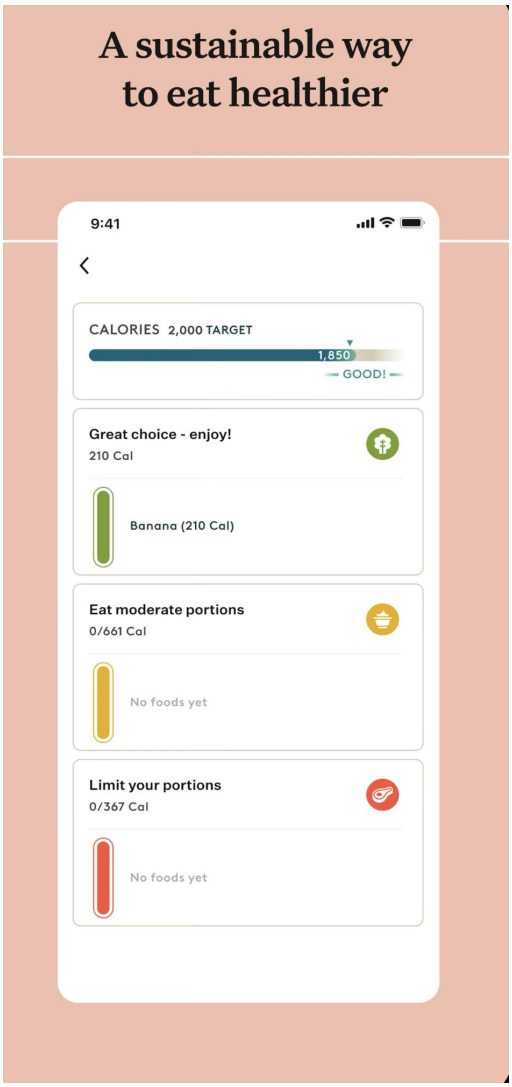
Pros:

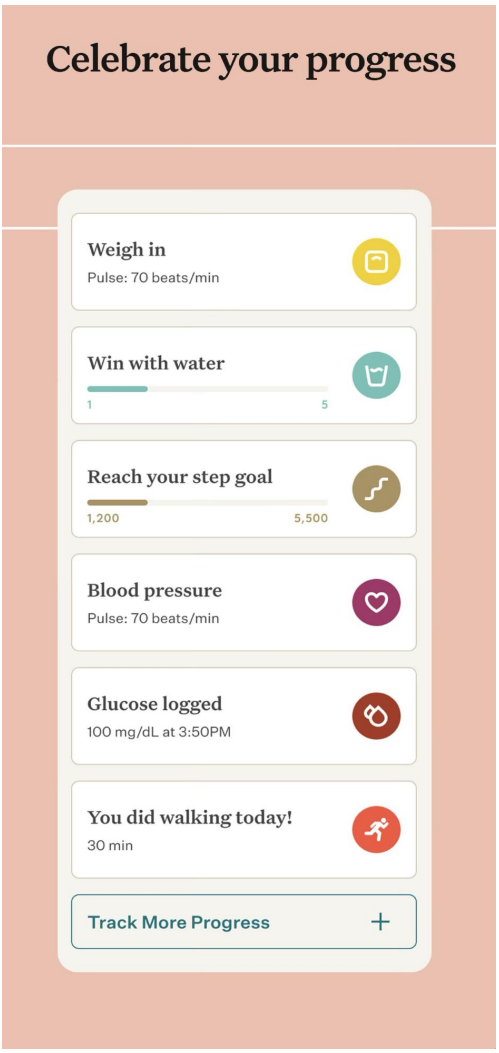
1. Behavioral coaching: The app provides users with daily coaching and support from a certified coach, who helps them identify and overcome barriers to weight loss.
2. Food logging: Noom includes a food logging feature that allows users to track their meals and snacks, and provides feedback on the nutritional value of their choices.

Cons:

1. Expensive: Noom is a paid app that requires a subscription, which can be expensive for some users.
2. Limited customization: Noom's program is relatively rigid, and may not provide enough customization for users with unique goals or needs.







While there are several similar apps in the market, Health-Boost aims to differentiate itself by offering a comprehensive wellness solution that integrates personalized nutrition and workout plans with progress tracking and premium content. The app's unique features, such as nutritional assessments, real-time progress tracking, recipe recommendations, meal planning, integration with fitness tracking devices and apps, and premium content, provide users with a comprehensive wellness solution that is tailored to their specific needs and preferences.

Overall Design:

Relational Schema

Create_Acc (userid, fl_name, email, pssword, date_birth)
Login (loginid, email, pssword)
UserInfo (userid, age, gender, height, weight, activity_lvl, goal, bmi)

ER Diagram & Explanation

create_acc
Userid (PK)
fl_name
Email (unique)
pssword
date_birth

login
Loginid (PK)
Email (FK)
pssword

userinfo
Userid (FK)
age
gender
height
weight
activity_lvl
goal
bmi

This current ER diagram consists of three tables; Create Account, Login and UserInfo.

The “create_acc” table holds information required at the point of account creation and this info includes: A pre-assigned and auto-incrementing user id number(also the primary key) that is unique to each account, full name, a DOB, and an email and password. The email is assigned to be unique to ensure that no two accounts share the same email address.

The “login” table stores user login information, including a pre-assigned and auto-incrementing login id (also the primary key) that changes per login attempt. The ‘username’ column is a foreign key that references the username column in the “create_acc” table, signifying that a login entry must correspond with a user account

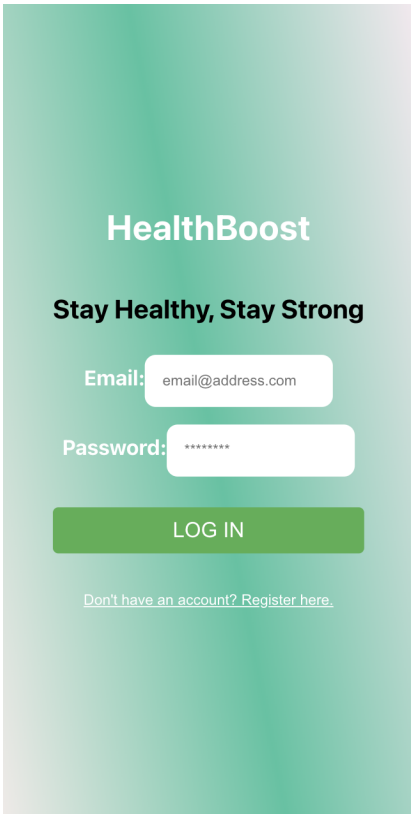
The “userinfo” table stores additional information about users, ranging from their ages, to genders, and trickles all the way down to calculated respective BMI results using collected data. The “userid” column is a foreign key that references the “userid” column in the “create_acc” table, indicating that the user information belongs to a specific user account.

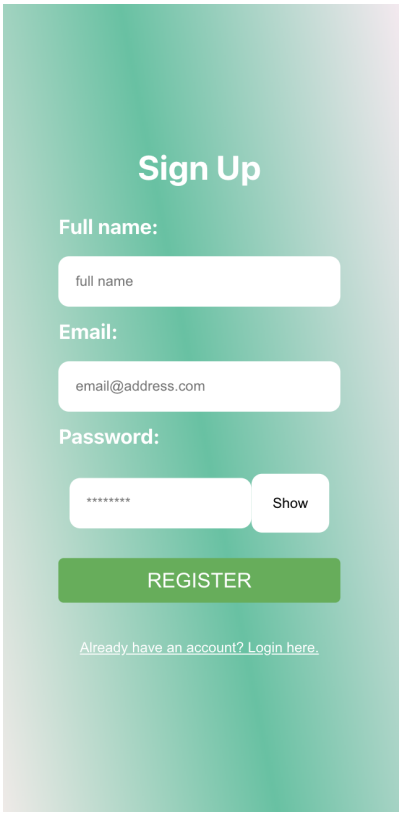
The ER diagram also indicates the relationship between the tables:

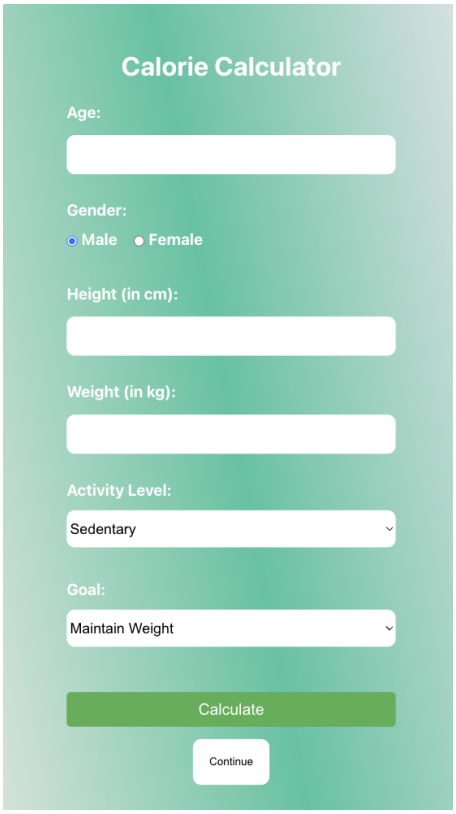
- There's a one-to-one relationship between the "create_acc" and "login" tables since an email can only be used to create one account and when logging in, both emails have to correlate. The "create_acc" and "login" tables also have a one-to-many relationship since each user can have several login attempts.

- There's a one-to-many relationship between the "create_acc" and "userinfo" tables since one user account can be linked to multiple userinfo entries considering the app also tracks the users progress.

Screenshots of our Front End







Conclusion:

In conclusion, HealthBoost is a web and mobile application that provides personalized nutrition and workout plans to users based on their dietary restrictions, health goals, fitness levels, and personal preferences. The app offers a unique and innovative solution for individuals and businesses looking to improve their health and wellness.

The app's advanced algorithm analyzes users' dietary information and generates customized nutrition plans that meet their specific needs. Users can track their progress in real-time through a dashboard that displays their progress toward their health goals. The app also provides recipe recommendations based on users' dietary restrictions and preferences, and allows them to plan and schedule their meals in advance, making it easier for them to stick to their nutrition plan.

The app's integration with popular fitness tracking devices and apps provides a comprehensive wellness solution. Subscribers to the app have access to exclusive premium content, including expert advice, additional workout plans, and meal-planning tools.

HealthBoost's user-friendly interface, built using React Native, and secure backend, powered by Node.js and SQL, guarantee a seamless and efficient user experience. The app's subscription-based model for businesses provides a unique and innovative way for users to reach their health goals through personalized and optimized plans.

Future Directions:

In the future, HealthBoost can be further enhanced to include additional features to improve the user experience. For example, the app can include social features to allow users to connect with like-minded individuals and share their progress. The app can also incorporate machine learning and AI algorithms to provide even more personalized nutrition and workout plans.

Another direction for HealthBoost is to expand its reach to a global audience by offering customized plans tailored to different cultures and regions. This can be achieved by collaborating with local nutritionists and fitness experts to provide localized content.

Furthermore, HealthBoost can integrate with wearable devices such as smartwatches and fitness trackers to provide real-time feedback and coaching. The app can also incorporate gamification elements to make the experience more engaging and motivating for users.

In summary, HealthBoost is a cutting-edge web and mobile application that provides personalized nutrition and workout plans to individuals and businesses looking to improve their health and wellness. With its advanced algorithm, real-time progress tracking, recipe recommendations, meal planning, integration with fitness tracking devices and apps, premium content, and user-friendly interface, HealthBoost offers a comprehensive wellness solution. The future directions for HealthBoost include incorporating machine learning and AI algorithms, expanding its reach to a global audience, integrating with wearable devices, and incorporating gamification elements to make the experience more engaging and motivating for users.

References

[1] Easy Tiger Apps, LLC, Exerprise, Both in App and Google Play Store. March 2023 (Last Updated).

[2] Zero: Fasting & Health Tracker, Both in App and Google Play Store. April 2023 (Last Updated).

[3] FastEasy: Intermittent Fasting, Peloton, Both in App and Google Play store. March 2023 (Last Updated).

[4] Lose It! - Calorie Counter, Both in App and Google Play store. March 2022 (Last Updated)

[5] Happy Scale -Weight Loss Tracker, Both in App and Google Play store. February 2023 (Last Updated)

[6] Noom - Healthy Weight Loss, Both in App and Google Play store. March 2023 (Last Updated)