2022-2023

HUMAN-COMPUTER INTERACTION- PROJECT

[210]

LogBook

This document is the logbook of our mobile gym application

2022-2023

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TEAM IDENTIFICATION

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TASK 01: GENERAL IDEA DESCRIPTION

iGym is an app that aims to enhance and assist the gym experience by providing users with a personalised workout plan, nutritional guidance, exercise tips, fitness progress tracking and safety advisories. This app is for all gym-goers to improve their fitness goals by tailoring the entire experience to their unique needs and preferences.

Thanks to AI technology, this app can create personalised workouts and nutrition plans that are ideal for the user's level. Furthermore, it provides detailed instructions and safety warnings to help users perform exercises correctly and get the most out of their workouts.

The app also includes a fitness tracker that allows users to monitor their progress over time and receive feedback on their performance. The statistics helps users stay motivated and focus on their fitness journey.

Overall, this app is an excellent choice for anyone looking to boost their gym experience and get the most immersive and complete workouts.

COMPETITORS

There are many similar applications available, but none of them have these specific features that are based on artificial intelligence. iGym is the only app that offers support and security to all the users thanks to the advanced camera system.

Apps like MadMuscles or Fitness are outdated compared to iGym technology and integrated user experience.

TASK 02: USER CHARACTERISATION

PERSONAS

John Doe, 20 years old college student

Name: John Doe

Age: 20

Occupation: College student

Personality Traits: John is an outgoing and social person who enjoys meeting new people and making new friends. He is determined and goal-oriented, and he always strives to achieve his objectives. John can be a bit impulsive at times, but he is generally a level-headed person who thinks before he acts. He is also very competitive, and he enjoys pushing himself to be the best he can be.

Fitness Goals: John is just starting to exercise at the gym, and his primary fitness goal is to build muscle and get in shape. He has been inspired by fitness influencers on social media and wants to achieve a similar physique. He plans to work out four to five times a week and follow a structured weightlifting routine.

Challenges: John is new to the gym environment, and he may feel intimidated by the experienced gym-goers, moreover he can't afford a personal trainer to teach him the basics. He is also a bit self-conscious about his current level of fitness, and he worries that he may not be able to keep up with the other gym-goers. Additionally, John struggles with maintaining a healthy diet, and he often gives in to cravings for unhealthy foods.

Motivations: John is motivated by the desire to improve his physical appearance and become more confident in his body. He also wants to improve his overall health and increase his energy levels. Additionally, John believes if he can get a guide that tells him how to perform certain exercises, how to follow a properly structured training programme and provide him with a good meal/diet plan, that he won't lose motivation to work out any time soon.

TASK 03: CHARACTERISATION OF USE (SCENARIOS)

SCENARIOS

John installs the app "iGym"

John has been going to the gym for quite some time now, but he says that he isn't seeing results.
John decides that to improve his gains he needs help, so he installs the app "iGym".
Upon installing the app, the user inserts his physical data and his end goals.
To the extent of use, the app generates suggestions for foods that meet the caloric intake requirements.
Now John is ready to start his workout routine and see some results!

John arrives at the gym for a workout

John already has the app installed in his smartphone, in order to help him through his workout.
Before heading to the gym, John weighs himself, to keep track of his progress during his training regimen.
John checks the workout for today, the first exercise consists of a warm-up on the treadmill, an easy run to get the blood flowing.
He goes to the treadmill and connects his phone via Bluetooth to it, the phone stays in a small platform right in front of John, so as to be easier to check pertinent data such as, pace, heart beats per minute, number of steps, stride frequency, calories burned, etc...
John's phone will emit a sound or buzz, to notify him that the warm-up is over. Then, John has the option to do a few more minutes on the treadmill (because he might feel he didn't warm up well enough or he simply wants to do a few more minutes on the treadmill), or he can simply switch to the next exercise on his list.
The next exercise consists of a bicep curl, the app informs John of how much repetitions should he do to benefit from muscle hypertrophy. Again, the app will inform John when he has done enough reps to satisfy the requirements of the exercise proposed to him, additionally the app will also tell John if he is doing the exercise correctly.
John spent 1.5 hours in the gym, after he is done with his workout, the app will store all statistics recorded during training, then the app will give John a feedback based on those statistics. Also, he makes sure that he eats the food that the app proposes to him, in order to achieve maximum muscle gains.
There is also the possibility of John overtraining, in this case the app will tell John to have x days of recovery.
On the other hand, there is the possibility of John having an unproductive workout, the app will tell John to go harder the next time he works out.

John tries a difficult exercise

John has to do a deadlift for his next exercise; however, he isn't sure how to do the lift properly. Since this is a compound lift many things can go wrong if he doesn't adopt a proper form.
He tries to do the lift, but the cameras and the sensors installed at the gym immediately notice that he is doing the exercise with a bad form, John gets notified with a buzz or a sound that tells him to stop doing the exercise.
John grabs his phone, and the app shows him a video tutorial on how to do a deadlift with proper form without risking any type of injury.
However, if the form isn't completely dubious, instead of stopping the exercise completely, there is a voice guide that may tell John some tips on how to perfect his form, for example the guide may tell John to flatten his lower back, or to get his legs a bit closer to the barbell, or to adopt a narrower stance.
Now that John learned how to do exercise, he can keep training safely.

TASK 04A: REQUIREMENTS

Priority	Requirement
Low	**Introduction/Quick Onboarding:** The app starts with a quick introduction about its features. • App name • An introductory text about the app • A quick setup for the user's biometric data, such as their gym experience level (beginner, intermediate, or advanced), date of birth, height, weight, and gender.
Low	**Sign in/Register:** The user is presented with options to sign in or register for an account. • Field to fill in the user's name or email and password. • Button to create an account if the user does not have one. • Option to reset forgotten password.
Low	**Dashboard/Home:** The user is taken to a dashboard where they can easily access all the functionalities of the app. • A header with the user's image and name. • 7 square buttons that link to their respective pages, which are: training plan, training stats, meal plan, weight, schedule, settings, and support. • A button with a message that displays the tip of the day.
High	**Training Plan:** This page allows the user to start tracking their exercises to know the number of exercises they have completed and if they have finished their workout. The app automatically connects with gym equipment to track exercise performance and provide feedback on proper form through videos and instructions. There is also an option to view exercises organized by body part. • Image of one of the exercises of the day. • Information about which day and week the workout belongs to. • List of exercises that make up the workout of the day. • Button next to each exercise that allows you to go to the page with more information about that exercise. • Start button to begin the workout.
Medium	**Meal Plan:** The user can access their daily meal plan, which includes images of each meal and the foods included. They can also switch to view the meal plan for the next day or make modifications as needed. • Images of each meal. • Ingredients and preparation method for each meal. • Option to change the day we want to view the meal plan.

Medium	**Exercises:** Show all the exercises in the workout with more details, including the number of repetitions, weight, sets, or time. • Images of each exercise. • Name of the exercise and more specific information about how the workout will be. • "See more" option that redirects to the exercise page.
Medium	**Exercise information:** This page shows detailed information about an exercise, including a video on how to do the exercise, how we should do it, and comments from other people about the exercise. • Image or video of the exercise. • Button to like or share. • Number of stars the exercise has. • Image, name, and comments of people.
Low	**Schedule:** This page includes a calendar that allows the user to add notes for important milestones or reminders for exercises that require special attention or goals to achieve. These notes are generated by artificial intelligence. • Monthly calendar. • Option to change the month being viewed. • Notes section, with the day number of the month and the corresponding note for the day.
Medium	**Tips:** The user can access various tips on how to improve their exercise performance and other related advice. • List of various tips, each with a hyperlink for more information about the tip. • On the specific tip page, there is an image and a text about the tip.
High	**Training Stats:** This page provides information on the user's progress in their workouts, including text summaries generated by artificial intelligence and graphical representations of their progress. • User progress chart and respective legend. • Option to change the day for which we want to view the statistics. • A brief text about how the plan is going and what we should do to improve.
Low	**Settings:** The user can access various settings to customize the app's functionalities and update default biometric values. • Several fields to fill in with our date of birth, height, weight, gender (male or female), and our level of fitness.

Low	**Timer Status:** Show the current time that we are exercising, if we are doing an exercise such as running, it shows the minimum time we should run, but if we run more than the minimum time, that extra time is recorded in the application. • A stopwatch that shows the current time. • Information on what the minimum time is. • A button to start and stop the stopwatch. • Option to view the history of times.
Low	**Weight:** This page allows the user to connect with a smart scale to track their daily weight. • Field to fill in with daily weight. • Option to change the day. • A short text that provides feedback on the weight.
Low	**Support:** The user can access support for any issues or questions they may have. • 2 fields to fill in with our email and describe our problem. • A button to send the message.
Low	**Bottom tabs:** On all pages of the app, there are icons in the bottom corner that allow for quick navigation to any of the app's pages, such as the meal plan and tips. • Footer with 6 icons, each of which has a corresponding hyperlink that leads to each of the 6 main pages of the application. These are: schedule, meal plan, home, training stats, training plan.

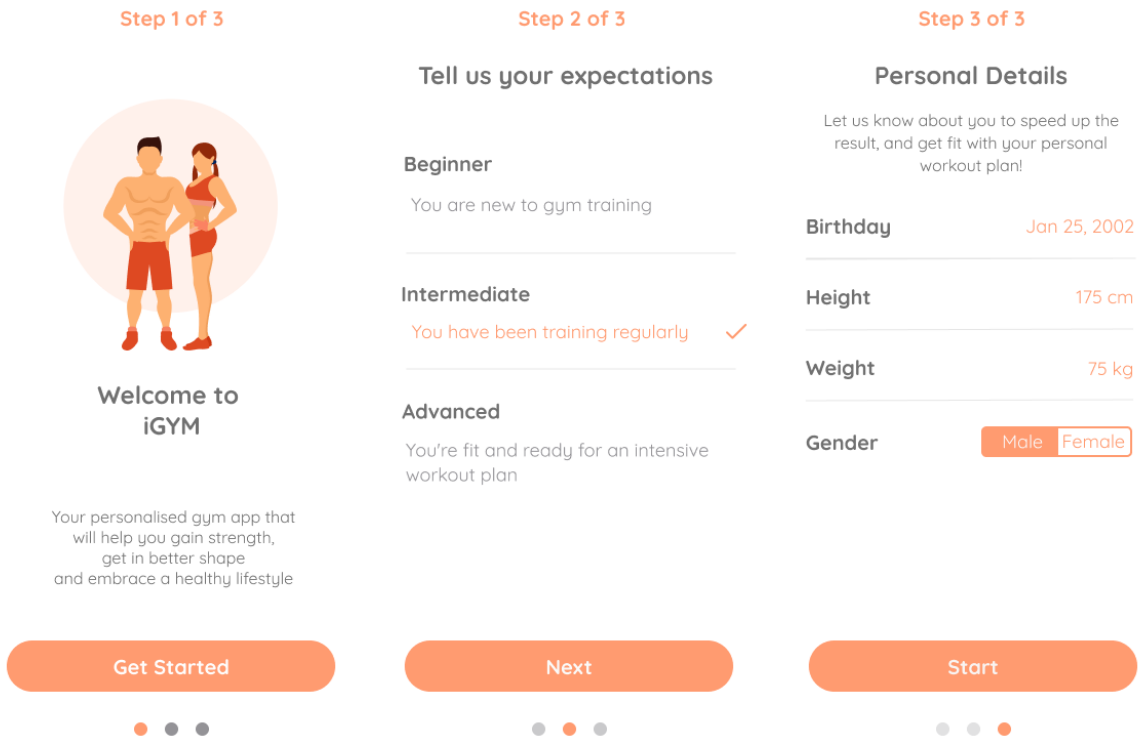
TASK 04B: CONSOLIDATED IDEA

Based on our user research and requirements, we have decided to develop our interactive exercise system as a mobile app. The app will be compatible with both Android and iOS operating systems. We will also incorporate cameras and other sensors in the gym to provide real-time feedback of the exercises to the app. The user will interact with the system through a user-friendly interface, similar to other gym apps, and we will use technologies such as artificial intelligence to provide personalised information to the user.

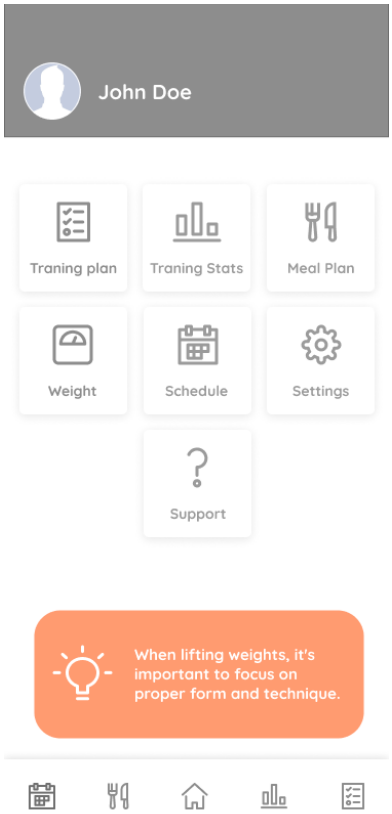
TASK 05: LOW-FIDELITY MOCKUP – THE PAPER PROTOTYPE

We designed the mockup on Figma in order to allow it to be tested by the users on a real device, giving them a more realistic experience of our app and also providing more accurate feedback and evaluation results.

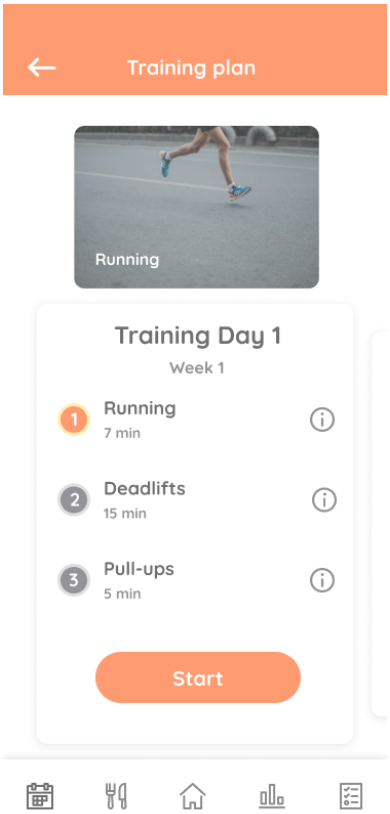
The dynamic mockup can be accessed on the link:
https://www.figma.com/proto/6dpjmXg6bka4VLmyw3u8U5/iGym-App?page-id=0%3A3&node-id=0-420&viewport=443%2C594%2C0.42&scaling=scale-down&starting-point-node-id=0%3A1260



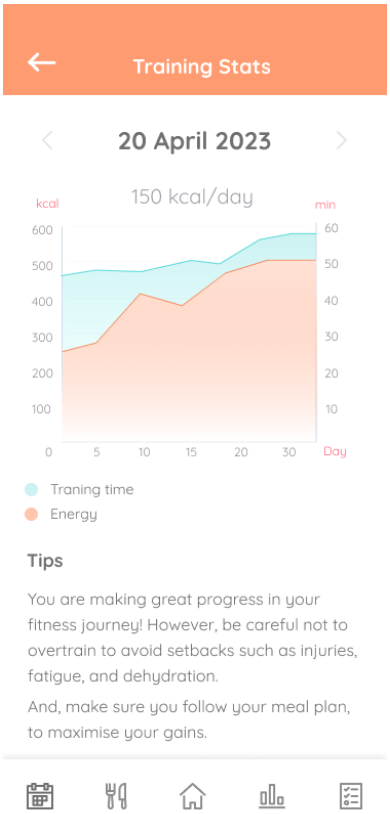
First three screens correspond the user onboarding on the app



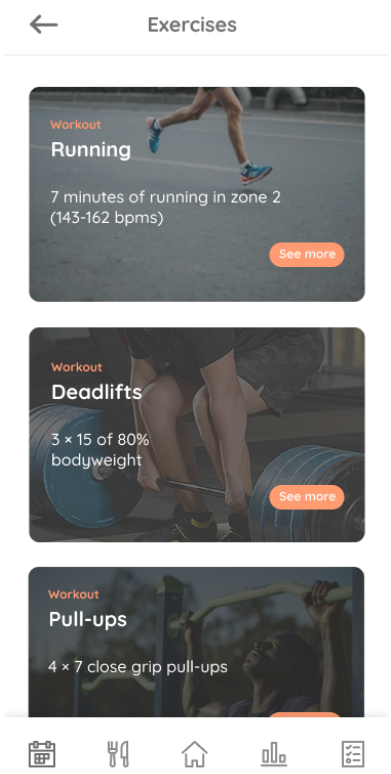
Dashboard screen



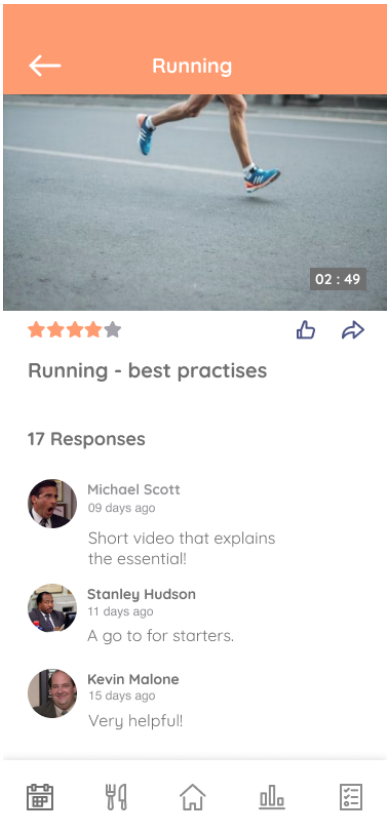
Training plan screen



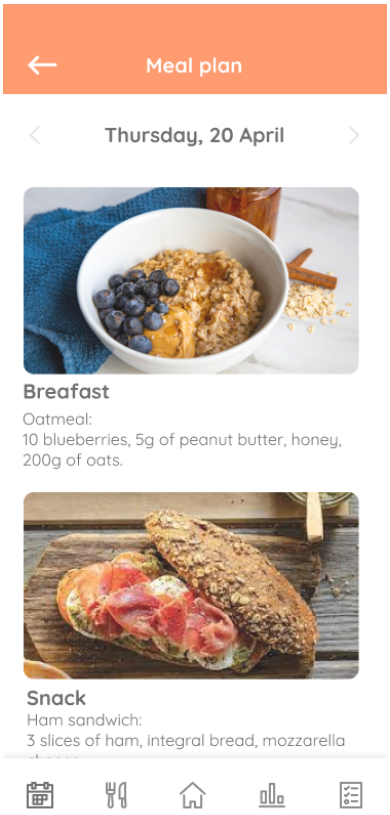
Training stats screen



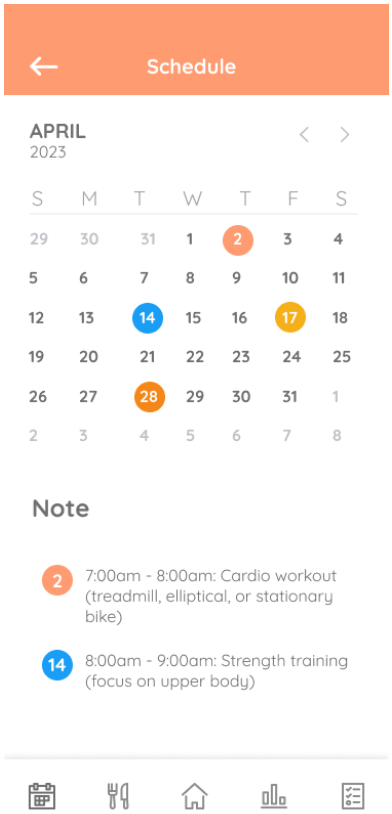
Training detail screen



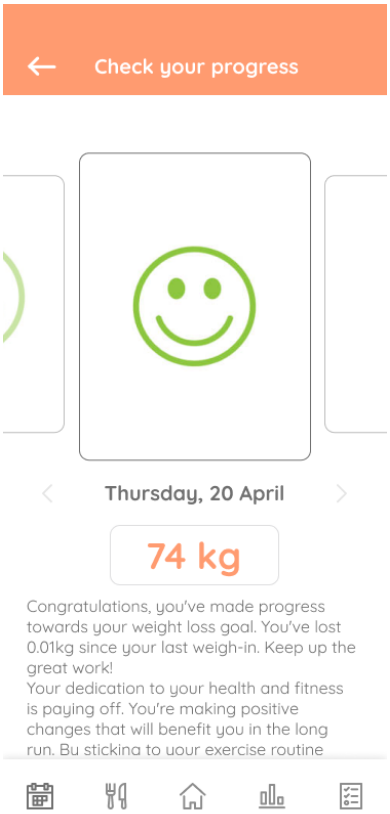
Exercise detail screen



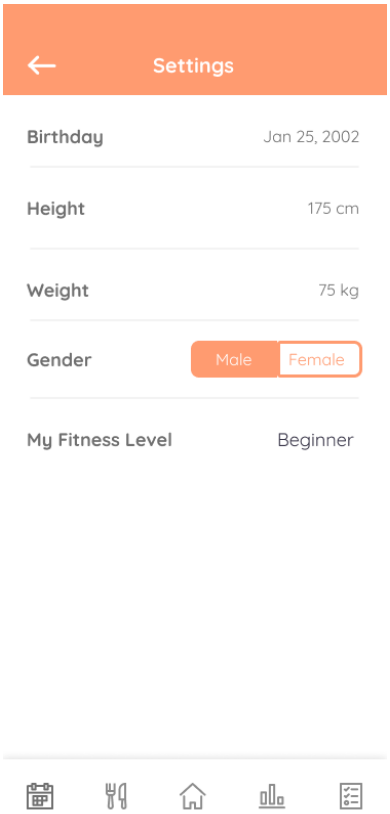
Meal plan screen



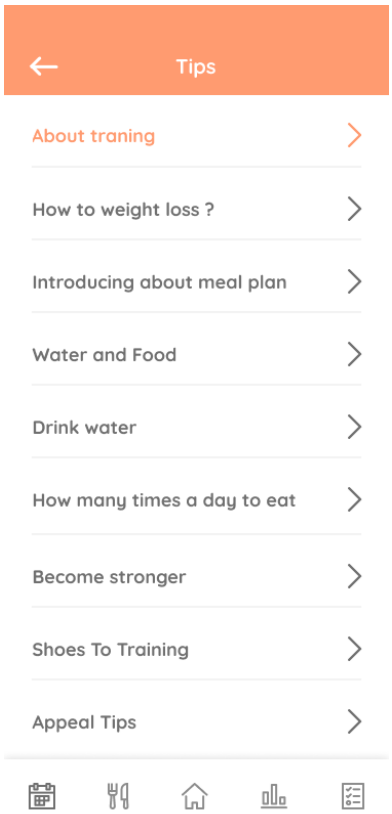
Schedule screen



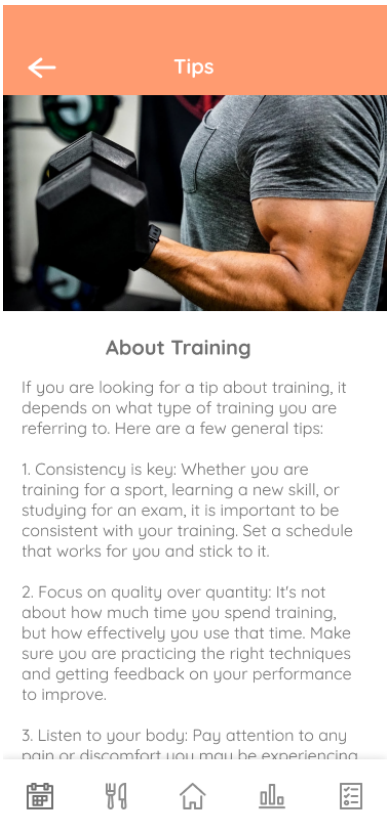
Weight screen



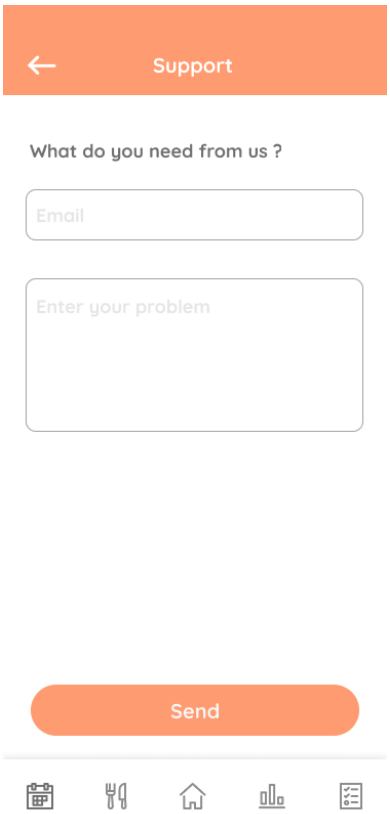
Settings screen



Tips screen



Tips detail screen



Support screen

TASK 06: USABILITY TESTING PREPARATION

METHODS

Checklist for performing usability evaluation with a participant

This checklist is intended as a guide for applying an evaluation protocol and includes all the steps to consider for each participant.

1. Welcome the participant and perform an overall presentation of your system and how the evaluation will be carried out.
2. Present the consent form to be read and signed, then, collect the signed consent form and ask if there is any question.
3. Deliver the tasks list to the participant and explain its structure and what is to be done for each task. Do not forget to explain how to use the scale to rate perceived difficulty.
4. Instruct the participant that he/she should think aloud while using the prototype.
5. Take note of any difficulty, notable comments, and any relevant behavior while the user is trying to perform each task. Do not forget to rate how difficult you think the task was for the participant
6. When the participant finishes all tasks, provide the SUS to be filled
7. After SUS completion, talk with the participant to understand if he/she has any additional comment or feedback about the system
8. Thank the participant

LIST OF TASKS

- Check the daily plan for breakfast.
- Record current weight.
- Check the progress of the training.
- Verify the difficulty level and tutorial for performing an exercise.
- See the tip of the day.

usability.gov Improving the User Experience

Consent Form (Adult)

I agree to participate in the study conducted by the [Agency/Organization].

I understand that participation in this usability study is voluntary and I agree to immediately raise any concerns or areas of discomfort during the session with the study administrator.

Please sign below to indicate that you have read and you understand the information on this form and that any questions you might have about the session have been answered.

Date:_____

Please print your name: _____

Please sign your name: _____

Thank you!

We appreciate your participation.

USER TABLE

Teste com utilizadores
Exemplo

Teste 1:
Aplicação sobre treino em ginásio

Tarefa 1	*[Consultar o plano diário para o pequeno almoço]* ---------- Nada Fácil 1 2 3 **4** 5 Muito Fácil
Tarefa 2	*[Registar o peso atual]* ---------- Nada Fácil 1 2 3 **4** 5 Muito Fácil
Tarefa 3	*[Consultar a evolução do treino]* ---------- Nada Fácil 1 2 3 **4** 5 Muito Fácil
Tarefa 4	*[Consultar agenda]* ---------- Nada Fácil 1 2 3 4 **5** Muito Fácil
Tarefa 5	*[Consultar dica]* ---------- Nada Fácil 1 2 3 **4** 5 Muito Fácil

OBSERVER TABLE

NI de utilizador: _____ **Guião do Observador**

Tarefa	Nº cliques	Completou a Tarefa?	Tempo Máximo Tempo observado (mm:ss)	Cometeu erros?	Sentiu-se perdido?	Solicitou ajuda	Grau de facilidade observada 1 – Nada Fácil 5 – Muito Fácil
1		não _| sim _|	2m __:__	não _| poucos _| muitos _|	não _| pouco _| muito _|	não _| sim _| qual?	1 2 3 4 5
2		não _| sim _|	2m __:__	não _| poucos _| muitos _|	não _| pouco _| muito _|	não _| sim _| qual?	1 2 3 4 5
3		não _| sim _|	2m __:__	não _| poucos _| muitos _|	não _| pouco _| muito _|	não _| sim _| qual?	1 2 3 4 5
4		não _| sim _||	2m __:__	não _| poucos _| muitos _|	não _| pouco _| muito _|	não _| sim _| qual?	1 2 3 4 5
5		não _| sim _|	2m __:__	não _| poucos _| muitos _|	não _| pouco _| muito _|	não _| sim _| qual?	1 2 3 4 5

Observações

_____
_____
_____

POST-TASKS QUESTIONNAIRE

Please enter your participant number: _____

System Usability Scale (SUS)

This is a standard questionnaire that measures the overall usability of a system. Please select the answer that best expresses how you feel about each statement after using the website today.

	Strongly Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Strongly Agree
1. I think I would like to use this tool frequently.	☐	☐	☐	☐	☐
2. I found the tool unnecessarily complex.	☐	☐	☐	☐	☐
3. I thought the tool was easy to use.	☐	☐	☐	☐	☐
4. I think that I would need the support of a technical person to be able to use this system.	☐	☐	☐	☐	☐
5. I found the various functions in this tool were well integrated.	☐	☐	☐	☐	☐
6. I thought there was too much inconsistency in this tool.	☐	☐	☐	☐	☐
7. I would imagine that most people would learn to use this tool very quickly.	☐	☐	☐	☐	☐
8. I found the tool very cumbersome to use.	☐	☐	☐	☐	☐
9. I felt very confident using the tool.	☐	☐	☐	☐	☐
10. I needed to learn a lot of things before I could get going with this tool.	☐	☐	☐	☐	☐

How likely are you to recommend this website to others? (please circle your answer)

Not at all likely 0 1 2 3 4 5 6 7 8 9 10 Extremely likely

TASK 07: PROTOTYPE EVALUATION

On April 20, the test and evaluation were carried out by members of other groups who were called one at a time to test the system and then carry out the evaluation using a quiz and giving their opinions to help improve our project.

PARTICIPANTS

Five students between 19 and 22 years old participated in our prototype evaluation, all of them students and all of them familiar with using similar interactive systems.

SUS score:

João Gaspar 90%

João Santos 95%

Tomás Coutinho 95%

Anderson Lourenço 80%

João Oliveira 90%

Overall, the average SUS score was 90 which is quite satisfactory for the first test phase with the feedback we received we tried to improve the prototype considering the errors we got with the evaluation.

EVALUATION RESULTS

	Task 1	Task 2	Task 3	Task 4	Task 5
João Gaspar	5	5	5	5	4
João Santos	5	5	5	5	5
Tomás Coutinho	5	5	5	5	4
Anderson Lourenço	4	4	4	4	4
João Oliveira	5	5	5	5	5
Average rating	4.8	4.8	4.8	4.8	4.4

Upon evaluation we mainly tried to solve the problems of task 5 and take into account the tips we were given to improve the layout in the final version.

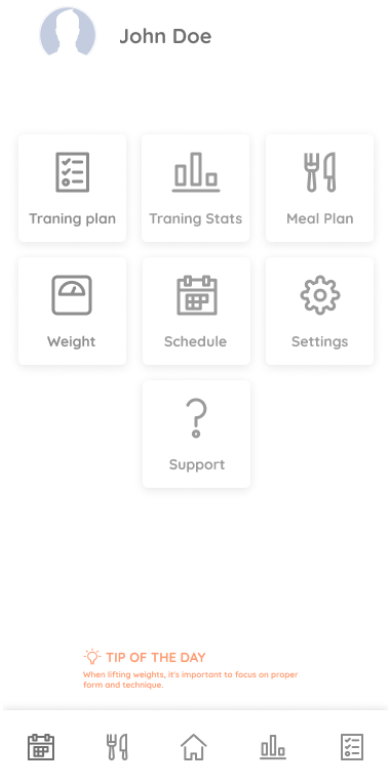
EVALUATION DISCUSSION

In general, based on our evaluation of the prototype, there were no major problems with its use, only some participants did not find some icons very intuitive and therefore took longer to complete the task. Therefore, we only changed the icons as well as the way to access the tips page.

TASK 08: REFINED MOCKUP

Overall, the evaluation of our prototype by the users was extremely positive and all the tasks that were intended were accomplished by the users so we haven't find the need to change much our app mockup.

Still we decided to change our Dashboard screen a bit, making it more simple and clean, changing the user area, removing the grey background and the "Tip of the day" button giving it a new look, by adding a title to make it more clear and also removing the button background making the Dashboard visually lighter.



TASK 09: CRITICAL ANALYSIS OF THE PROJECT

STRENGTHS

Our project has a very simple and easy to use interface, and it was idealised to be used by all ages.

WEAKNESSES

A negative point of our project was not being able to do more tests and evaluations and expand our idea even further, which would allow us to improve even more.

WORKLOAD

N. Mec.	Name	% of Work	Description
103162	Miguel Marques	8%	• General project idea and Logbook review
108980	Rodrigo Carrusca	23%	• General Idea Description • Helped a bit with the Scenarios • User tables • Post -Task Quiz and SUS • Prototype evaluation
103320	Bruno Gomes	23%	• User Characterization • Characterization of Use • Helped to analyse the prototype • Helped to record the evaluation of the prototype in class
65750	Sérgio Fontora	23%	• Description of the Persona • Prototype design and execution • Logbook formatting and final assembling
107484	Joaquim Rascão	23%	• Requirements • Helped a bit doing the prototype • Consolidated idea • Usability testing preparation

Self-evaluation of the work (and why): 16

Overall, we believe to have accomplished the main goals of the project and presented a working concept of an application within the requirements.