

Human Computer Interaction

PlanItFit

Final Report

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Group 6 Class 9

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Contents

1	Project's Idea Description	1
2	Related apps, services and systems	2
3	Questionnaire - Highlights	4
4	PACT Analysis	7
5	Personas	9
5.1	Lila Sterling	9
5.1.1	Objectives/Needs	9
5.1.2	Frustrations	10
5.2	Carlos Barbosa	10
5.2.1	Background	10
5.2.2	Current Situation	10
5.2.3	Goals	10
5.2.4	Additional Information	11
6	Activity scenarios	12
6.1	Lila Sterling:	12
6.2	Carlos Barbosa:	12
7	Project Abridged Description	13
7.1	Elevated User Experience Through Distinctive Functionalities	13
7.1.1	Tailored Account Personalization	13
7.1.2	Precision in Personalized Training and Effort Measurement	14
7.1.3	Post-Workout Insights	14
8	Prototype's Wireflow	16

8.1	Account Personalization	16
8.2	Precision in Personalized Training and Effort Measurement	17
8.3	Post-Workout Insights	17
9	Heuristic Evaluation Results	19
9.1	Missing Button to return to Home page after start of training session	19
9.2	Missing customization of user account information	20
9.3	Outdated Overall Design	21
9.4	Inability to return to exercise in report screen	21
9.5	Overshadowing of the Exercise Video	21
10	Corrections to Perform in Phase 3	23
10.1	Things that were previously changed	23
10.2	Things for the next iteration	23
11	Prototype's Wireflow	24
11.1	Account Personalization	24
11.2	Precision in Personalized Training and Effort Measurement	25
11.3	Post-Workout Insights	26
12	User evaluation protocol	28
12.1	Objective	28
12.2	Users	28
12.3	Method	28
12.4	Tasks	29
12.5	Measures	29
13	Results	30
13.1	Sample characterization	30
13.2	Statistical Analysis	31
13.2.1	Task 1	31
13.2.2	Task 2	32
13.2.3	Task 3	33
13.2.4	T-Student Distribution overview	33
14	Conclusion	34

Chapter 1

Project's Idea Description

In response to the surging demand for convenient and personalized fitness solutions, our dedicated team is thrilled to introduce an advanced web TV application. This cutting-edge platform utilizes state-of-the-art motion and infrared sensor technology to understand users' movements and performance, offering an inclusive solution for a diverse audience seeking effective home-based exercise options.

Our innovative web TV app empowers users to take control of their fitness with a variety of customizable training programs that can be easily executed in the comfort of their homes. Recognizing the varied needs and lifestyles of our potential users, our application accommodates a range of fitness goals and schedules, ensuring flexibility and accessibility.

In an age where technology and wellness converge, our platform aims to provide an engaging and interactive fitness experience, appealing to individuals of all ages and backgrounds. We prioritize adaptability and inclusivity, understanding that each user is unique with distinct preferences, constraints, and fitness objectives.

Our web TV app leverages the latest advancements in motion and infrared sensor technology, providing real-time feedback and analysis of users' movements, guaranteeing precision and effectiveness in every exercise. This responsive and immersive fitness experience maximizes the benefits of each workout.

Our commitment to inclusivity extends beyond fitness objectives and schedules, ensuring accessibility to a wide-ranging audience. With user-friendly interfaces, comprehensive tutorials, and responsive customer support, we prioritize user satisfaction.

As we embark on this exciting journey at the intersection of technology and wellness, we invite you to join us in revolutionizing your fitness experience. Our web TV app is more than just a tool; it's a partner in your health and fitness, empowering you to achieve your goals on your terms. Welcome to a new era of personalized, convenient, and transformative fitness with our web TV application.

Chapter 2

Related apps, services and systems

When it comes to monitoring and managing training sessions through applications, several options are available. Here are some specific choices:

- **Mobile Apps:** These applications empower users to efficiently oversee training-related aspects. Examples like "Couch to 5K" and others serve as tools for checking training schedules and obtaining various statistics. However, it's important to note that most of these apps lack the capability to evaluate effort levels comprehensively, as they can't provide the users with accurate heart rate, body temperature or other measurements without using third party accessories, such as smart watches. In Figure 2.1, we observe Adidas's specialized workout app, focusing on running.

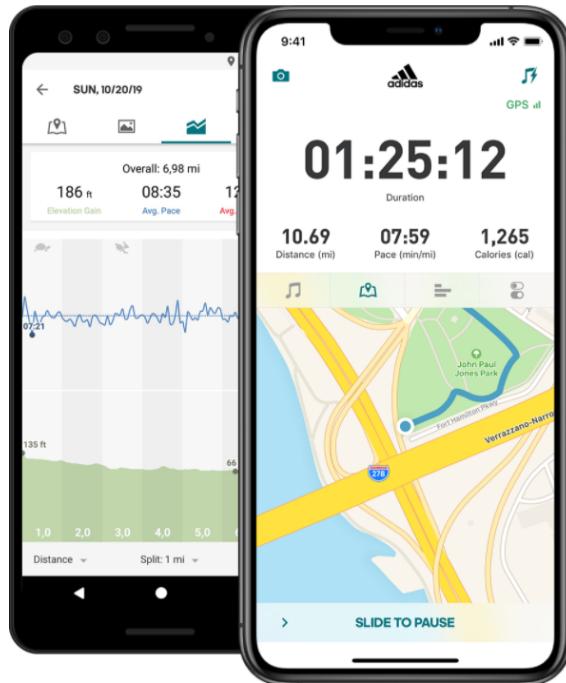


Figure 2.1: Adidas's Runtastic App¹

- **TV Apps:** These apps have advantages when compared to mobile apps, such as the ability

to have the workout displayed on a bigger screen. However, most of them suffer from the same limitations. Some examples: "Gaiam", "Peloton" (Figure 2.2) and "Daily Burn".

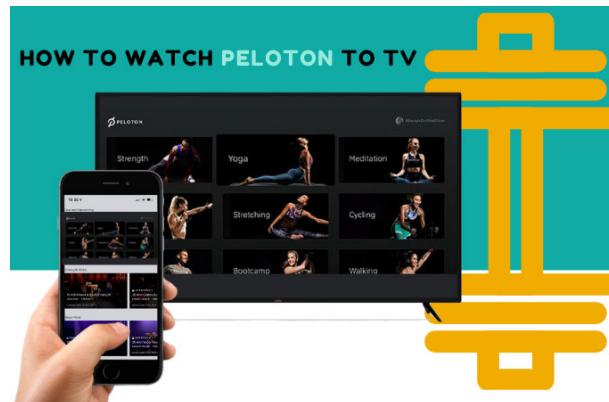


Figure 2.2: Peloton SmartTV App

- **Sports Bands:** Sports bands, such as smartwatches, come equipped with sensors that enable users to track certain effort-related statistics. Nevertheless, these apps may not offer a complete set of statistics, and some may not support the creation or use of training plans due to their limited screen size. In Figure 2.3, we observe one of the most popular sports bands, the Mi Band by Xiaomi.



Figure 2.3: Xiami's Mi Band 5

Chapter 3

Questionnaire - Highlights

In our pursuit of deeper insights into the preferences and requirements of our target audience, we conducted a comprehensive survey via WhatsApp to assess the public's familiarity with fitness applications and their levels of satisfaction. Our study encompassed a diverse sample of 47 respondents, comprising 63.8% males and 36.2% females. Notably, an overwhelming 85.1% of our respondents fell within our primary demographic, aged between 18 and 29. Furthermore, the majority of participants, totaling 63.8%, identified themselves as students, with an astonishing 97.9% reporting no physical disabilities.

One intriguing discovery from our study was the significant prevalence of smart TV ownership among our respondents, as illustrated in Figure 3.1. This observation suggests a heightened receptiveness to emerging technologies within our surveyed population, given that smart TVs represent a relatively recent addition to the consumer electronics landscape.

Do you own a smartTV?

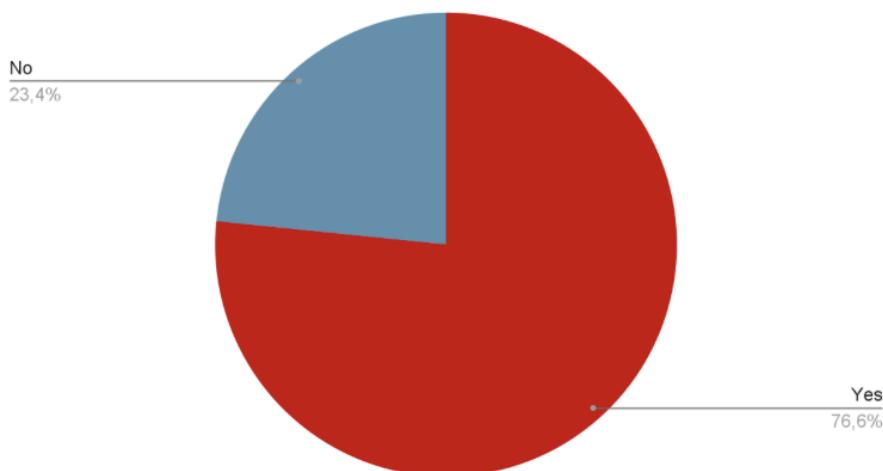


Figure 3.1: Statistics on Smart TV Ownership

Our data reveals a substantial portion of the population (17%), as depicted in Figure 3.2, does not engage in regular exercise. Among those who do, a significant proportion (39%) face challenges in accurately gauging their effort levels, as shown in Figure 3.3. These findings present a promising opportunity for our fitness application. It can serve as a motivating tool

for individuals leading a sedentary lifestyle, encouraging them to initiate home-based exercise routines. Simultaneously, it offers assistance to those who struggle to interpret their body's signals effectively.

How regularly do you exercise?

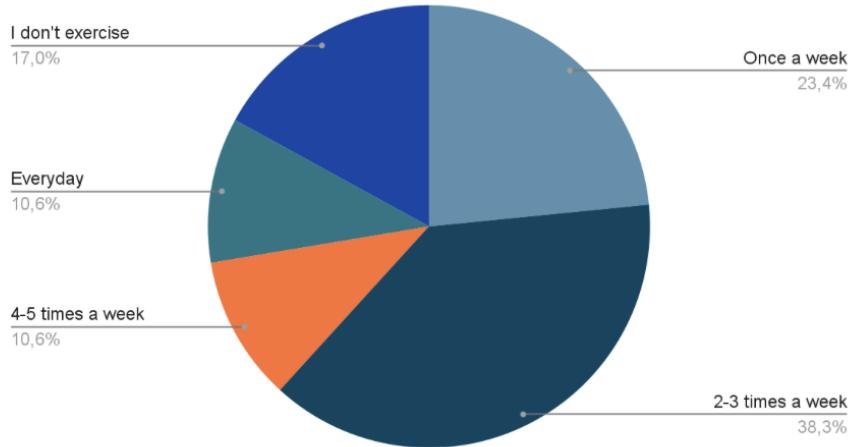


Figure 3.2: Exercise Statistics

If you train, do you have any problem measuring your effort levels?

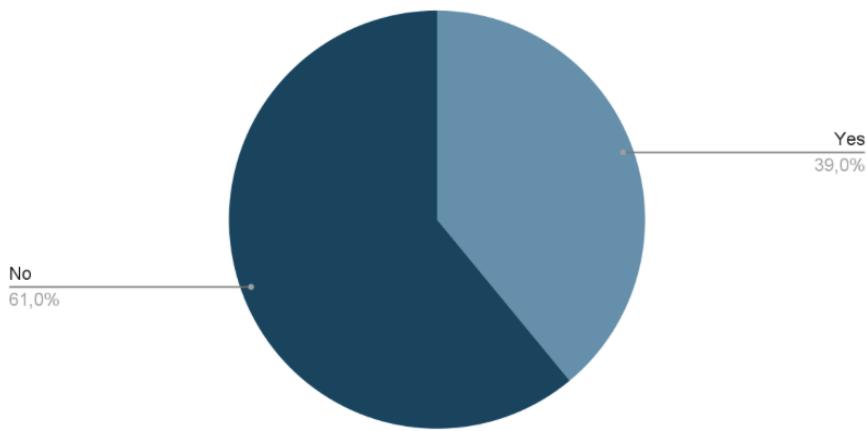


Figure 3.3: Effort Statistics

Perhaps most significantly, nearly 75% of respondents, as indicated in Figure 3.4, expressed a high level of interest (4 or 5 out of 5) in an application capable of measuring their effort levels. This signifies a substantial demand and underscores a clear gap in the market that we are well-positioned to address.

Furthermore, another data point that strengthens our thesis is the overwhelming importance placed on personalization in the fitness plans individuals are following, as stated by the majority of respondents in Figure 3.5. This underscores the critical role that personalization plays in achieving successful fitness outcomes.

On a scale between 1 and 5, classify your interest in having tools that would allow to measure that same effort level:

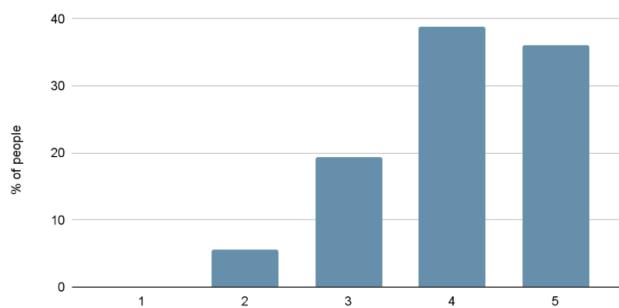


Figure 3.4: Statistics on Interest in Measurement Tools

How important is the customization of your training plan to you?

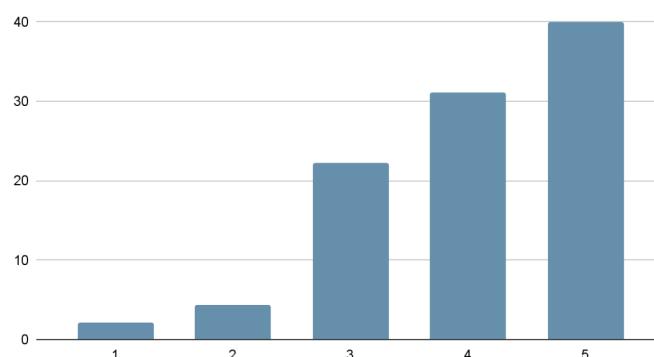


Figure 3.5: Statistics on the Importance of Customization

In summary, there is a compelling market demand for an application of this nature. The feedback we have received from individuals emphasizes that personalized training plans are among the most highly sought-after features, solidifying the necessity for our product.

Chapter 4

PACT Analysis

People

The target market for this app primarily comprises young adults seeking convenient indoor sports and fitness options. The app's most frequent users are expected to be university students who often face time constraints and find it challenging to commute to a gym. Additionally, our aim is to attract individuals of middle age and older age groups, ensuring inclusivity for users of all ages and fitness levels. This app is designed to benefit everyone, providing an accessible and efficient means of exercise, allowing users to monitor their progress and generating comprehensive reports for analysis at the end of each training session.

Activities

In the modern fitness landscape, individuals enjoy a diverse range of exercise options, spanning conventional gym workouts, active sports like football and swimming, and the growing popularity of yoga and pilates. These activities can be pursued either individually or as part of group sessions, ranging from weekly commitments to daily routines. Alternatively, there is a growing cohort of individuals who prefer the convenience of home-based exercise. They can choose from a variety of options, including streaming workout sessions on platforms like YouTube or selecting predefined workouts from dedicated fitness apps. Moreover, the integration of wearable fitness trackers, smartwatches, and fitness apps has also facilitated the exercising aspect in people's lives.

Context

This app aims to enable individuals to exercise conveniently from their homes, saving them valuable time. Moreover, it offers a level of personalized training akin to what one would receive from a personal trainer in a gym setting. Additionally, it addresses common challenges faced by traditional gym-goers, including the high costs of personalized training and scheduling constraints. With this app, users have the flexibility to exercise at their preferred times. Moreover, it caters to individuals who may not feel comfortable exercising in public spaces, creating a private and supportive environment for their fitness journey.

Technologies

As mentioned in chapter 2, there are many smartTV apps that allow their users to exercise from home, even allowing them to personalize their training plans, like "Gaiam", "Peloton" and "Daily Burn". These are more advantageous than regular mobile or pc apps, as they can make use of the TV's enhanced video and audio capabilities. However, none of these take into account your physical and psychological needs, as they have pre-made workout plans and no way of

reading your biological signature as you're exercising. This is where PlanItFit steps in. We differentiate ourselves because of our cutting edge technology, that couples the infrared rays built in the TV with a motion sensor that reads your heart rate to measure your performance and alter your exercises for you.

Chapter 5

Personas

5.1 Lila Sterling



Name: Lila Sterling

Age: 20

Work/Occupation: University student

Location: Lisbon, Portugal

Hobbies: Physical activity, mainly going to the gym

Characteristics: Busy, outgoing, and active

Since Lila can remember, she's always loved exercising. It wasn't just a means of staying fit, it was her way of relaxing and maintaining focus in school. Lila discovered that exercise had a calming effect on her mind, allowing her to excel academically. Moreover, it was an opportunity to connect with her friends who shared the same love for staying active.

Recently, she has been doing gym workouts as a way to keep active, challenge herself physically and stay healthy. The gym is the place that allows her to maintain the balance she wants in her busy life.

However, with the school year starting, she is finding even less time to do what she loves, which is making her look for a way to quit going to the gym but still exercise in order to keep healthy and active.

5.1.1 Objectives/Needs

- Lila seeks an app to exercise conveniently at home during her limited free time.
- She would like a personalized training, similar to what she'd receive at a gym.
- She seeks an app that can track her progress, helping her stay motivated and monitor her fitness improvements.

5.1.2 Frustrations

- As a university student she has a lot of expenses so she would like to find a budget-friendly fitness app that is not more expensive than a gym.
- Because of her busy life, Lila doesn't always have time for traditional long workouts, that can span 45 minutes to an hour. Therefore she would like an app that provides short but effective training sessions that she can finish (15-25 minutes).

5.2 Carlos Barbosa



Name: Carlos Barbosa

Age: 23

Work/Occupation: Software Developer

Location: Vilarinho de Negrões, Montalegre, Portugal

Hobbies: Reading, exploring nature

Characteristics: Introverted, tech-savvy

5.2.1 Background

Carlos Barbosa, a 23-year-old software developer, hails from Porto but recently moved to Vilarinho de Negrões, Montalegre, one of the most secluded villages in Portugal. He yearned for a change in lifestyle and sought to get closer to nature after completing his Informatics and Computing Engineering course at FEUP (Faculty of Engineering, University of Porto).

5.2.2 Current Situation

This marks Carlos's inaugural year in the workforce, and he is absorbed in his work, leaving him with limited time for activities he used to enjoy. Unfortunately, the nearest gym to Carlos's location is a 45-minute drive away, making it impractical for him to maintain a regular fitness routine. This has become a concern for Carlos, as he values his health and well-being but doesn't want to compromise his professional growth.

5.2.3 Goals

- **Professional Growth:** Carlos aspires to excel in his career as a software developer. However, he is determined not to sacrifice his health and well-being in the process. He seeks a balance between career success and maintaining a healthy lifestyle.
- **Fitness Tracking:** Carlos is keen to find a way to monitor his physical activity and effort levels without having to commute to a distant gym. He needs a solution that fits seamlessly into his remote work routine, enabling him to stay fit and healthy within the confines of his remote location.

- **Nature Exploration:** Carlos is passionate about nature and would like to explore the natural beauty of his new surroundings. He hopes to integrate outdoor activities into his lifestyle, combining his love for technology with his appreciation for the great outdoors.

5.2.4 Additional Information

Carlos is tech-savvy and open to leveraging technology to address his challenges. He owns a smartTV and is comfortable with using various apps and gadgets. He enjoys quiet evenings reading books and escaping into the world of video games to unwind. He values his solitude and appreciates the tranquility of his rural environment.

Chapter 6

Activity scenarios

6.1 Lila Sterling:

After a long day of university classes, Lila returns home feeling mentally and physically exhausted. Despite her fatigue, she's determined to unwind and relieve stress through a gentle workout. She turns on her smart TV, logs into PlanItFit and chooses a relaxing 25-minute yoga workout. This allows her to maintain her daily exercise routine without overexerting herself or spending excessive time in front of the TV.

6.2 Carlos Barbosa:

Carlos wakes up on the 5th of October, a national holiday in Portugal, meaning he doesn't have to go to work. Feeling the absence of his family, he decides to visit them. At his mother's house, he eats some of his favourite sweets. After he gets home, he realizes he made a mistake and wants to burn some calories. He could always go for a run or a bike ride, but it's getting late and it's dark outside. Therefore, he opens PlanItFit, and has a high intensity crossfit workout, burning a lot of calories and achieving a satisfying sense of accomplishment.

Chapter 7

Project Abridged Description

In the realm of fitness innovation, our project stands as a beacon of progress, introducing a groundbreaking web TV app poised to revolutionize home-based workouts. This chapter delves into the abridged description of our venture, shedding light on the core elements that set us apart. We base our approach on the fusion of customizable training programs with cutting-edge sensor technology, elevating the user experience to unprecedented heights. Through meticulous attention to detail and a commitment to flexibility, we have crafted a platform that not only caters to diverse fitness goals but also adapts greatly to individual preferences and schedules. Join us as we forge a new path through our distinctive functionalities, designed to redefine the fitness landscape and usher in a new era of personalized and interactive well-being.

7.1 Elevated User Experience Through Distinctive Functionalities

In our unwavering commitment to setting our app apart, we have meticulously crafted essential features designed to enhance the user experience. Below, we present a comprehensive breakdown of our key functionalities.

7.1.1 Tailored Account Personalization

Our platform prides itself on a heightened sense of personalization. Beyond basic details such as name, age, and preferred language, individuals can curate their accounts to a remarkable degree.

When it comes to shaping their workout experience, users wield significant flexibility. They can fine-tune their preferences to ensure that the curated content aligns precisely with their choices. This customization spans an extensive array of workout categories, encompassing everything from yoga and pilates to home-based gym routines and beyond.

Moreover, users hold the power to define the duration of their workouts, setting both minimum and maximum time limits. This wide-ranging customization allows them to tailor the time spent on each workout, granting them unparalleled control over their fitness routines. This adaptability ensures that the platform perfectly integrates with their unique preferences and schedules.

7.1.2 Precision in Personalized Training and Effort Measurement

In addition to the personalized video content on each user's homepage, our platform employs sophisticated algorithms that continuously learn and adapt to individual preferences. The user's age, chosen categories, and preferred time frame serve as the foundation for a dynamic content recommendation system, ensuring that the videos presented align with their evolving fitness goals and interests.

The integration of cutting-edge infrared and motion sensors represents a groundbreaking leap in the realm of interactive fitness. These sensors work in tandem to monitor users' movements with unparalleled precision, allowing our platform to gauge the effectiveness of their exercises. By capturing real-time data on body temperature and heart rate, our system goes beyond traditional fitness tracking, providing users with immediate and detailed insights into the physiological impact of their workouts.

Imagine receiving instant feedback on the intensity of your exercise routine, with personalized recommendations for optimizing your performance based on your body's response. Whether you're pushing your limits in a high-intensity interval training session or engaging in a calming yoga practice, our platform adapts to your unique needs, offering guidance that evolves with your fitness path.

This innovative approach not only fosters a sense of accountability but also pushes users to make informed decisions about their health and well-being. The personalized feedback serves as a virtual fitness companion, helping users refine their techniques, set realistic goals, and track their progress over time.

Furthermore, the data collected from these sensors contributes to ongoing research and development, enhancing our understanding of individualized fitness requirements. This commitment to innovation ensures that our platform remains at the forefront of the fitness industry, continually refining its capabilities to meet the diverse needs of our users.

In summary, by blending personalized video content with state-of-the-art sensor technology, our platform redefines the fitness experience. It goes beyond conventional workout platforms, providing users with not just a collection of exercises, but a comprehensive and adaptive fitness solution that responds to their unique physiology and goals. Welcome to a new era of fitness where every movement is an opportunity for growth, guided by the precision of cutting-edge technology.

7.1.3 Post-Workout Insights

Giving our users a personalized fitness experience, our platform integrates their workout preferences into their accounts. Whether it's the desired duration of each session or the frequency of their workouts, individuals have the capability to fine-tune their fitness routine according to their unique goals and lifestyle.

After each workout session, our platform goes beyond the ordinary by providing users with a detailed and insightful post-workout report. This comprehensive report serves as a testament to their dedication and progress, offering a consolidated view of performance metrics and noteworthy achievements. It's more than just numbers – it's a celebration of milestones reached and goals surpassed.

But our commitment doesn't stop there. We understand that a truly holistic fitness

journey requires continuous improvement. That's why our post-workout report doesn't just stop at showcasing accomplishments; it also delivers tailored recommendations for ongoing enhancement. These personalized insights are designed to guide users on their fitness goals, suggesting adjustments and modifications that align with their evolving goals.

In essence, our platform isn't just a tool for tracking workouts; it's a dynamic companion that adapts to the unique needs of each user. By seamlessly integrating preferences, delivering comprehensive post-workout reports, and offering tailored recommendations, we ensure that every step of the fitness progress is a step towards a healthier, stronger, and more fulfilled life.

Chapter 8

Prototype's Wireflow

8.1 Account Personalization

To customize their account, users can navigate to the menu and choose to access their account. Here, they have the opportunity to input personal details such as their name and age, and choose their preferred language for the app.

Users can also personalize their workout experience. Specifically, they can determine the duration of their workouts and select preferred workout categories. The wireframe below illustrates this capability. By accessing their account through the menu, users can incorporate weights into selected categories alongside pilates, yoga, and gym workout. This is achieved by utilizing the "Add More" button, followed by selecting the specific category they wish to add.

This level of customization not only enhances user engagement but also aligns perfectly with the app's core objective of delivering personalized and effective workout suggestions.

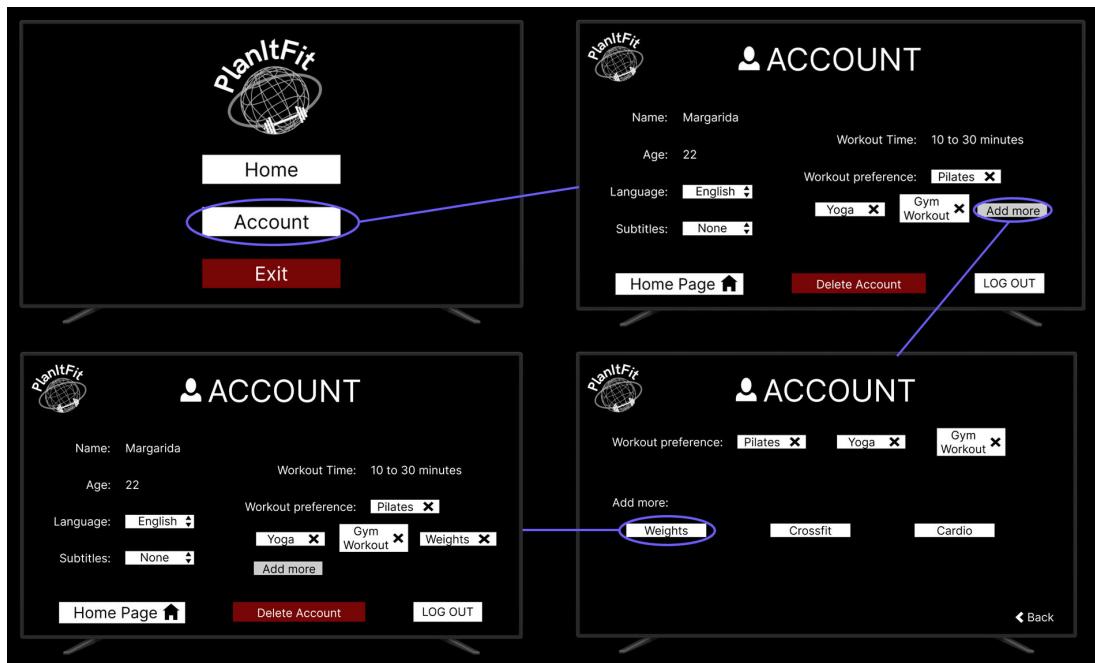


Figure 8.1: Personalize Account

8.2 Precision in Personalized Training and Effort Measurement

To access personalized video suggestions based on their preferences, users can navigate to the Home Page by clicking the dedicated button. Here, they can find curated workout videos tailored to their individual choices. Upon selecting a video, their workout begins.

In our pursuit of creating an informative and personalized experience, we've incorporated not only the workout video but also a detailed description of each exercise on the side. A notable innovation of our app is the real-time display of the user's heart rate and body temperature during the workout. This feature enables us to gauge if the user is exerting more effort than recommended and analyze their performance accordingly.

To provide users with flexibility, we've included a "Hide Description" button. This allows users to focus solely on the effort measurements and the video, providing a customizable experience that caters to individual preferences.

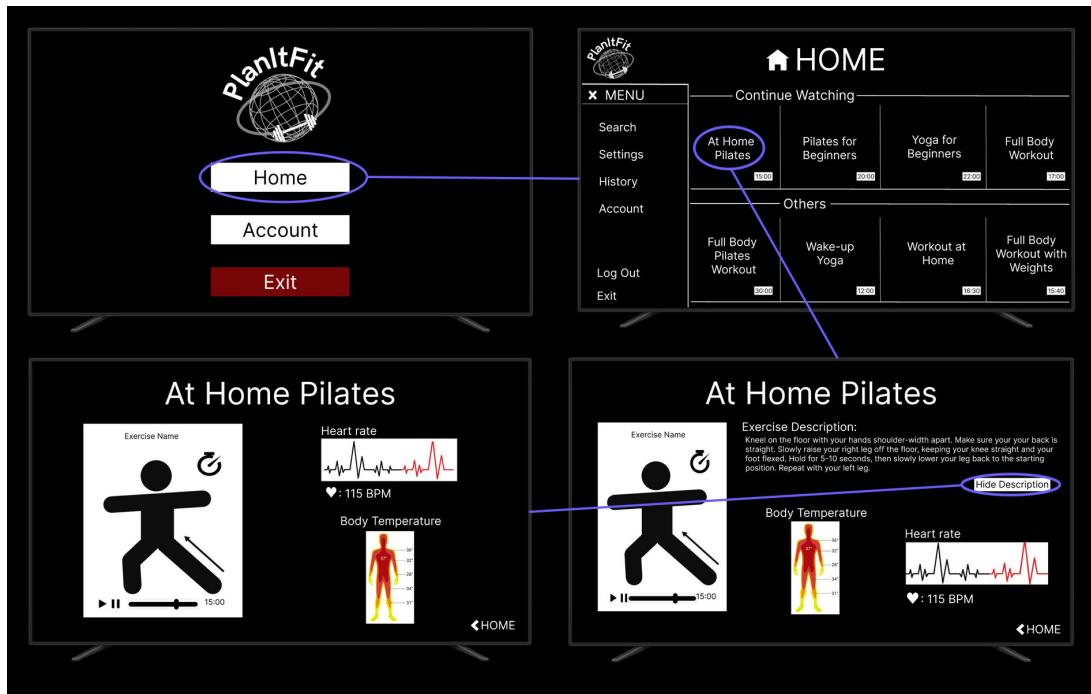


Figure 8.2: Personalized Videos and Effort Measurement

8.3 Post-Workout Insights

To receive the workout report, the user begins by selecting a workout video from the options displayed on their Home Page.

Post-workout, the user can click on the workout image, presenting them with the option to either view the detailed report of the completed workout or return to the Home Page. Opting for the first choice grants the user access to comprehensive insights into their workout session. However, it's important to mention that in the final version of the app, this additional step of clicking on the workout image to reach the end of the workout would be eliminated. As the workout concludes, the options to view the report or return to the Home Page would automatically appear.

This streamlined process ensures that users can effortlessly track their progress and learn valuable information about their fitness journey.

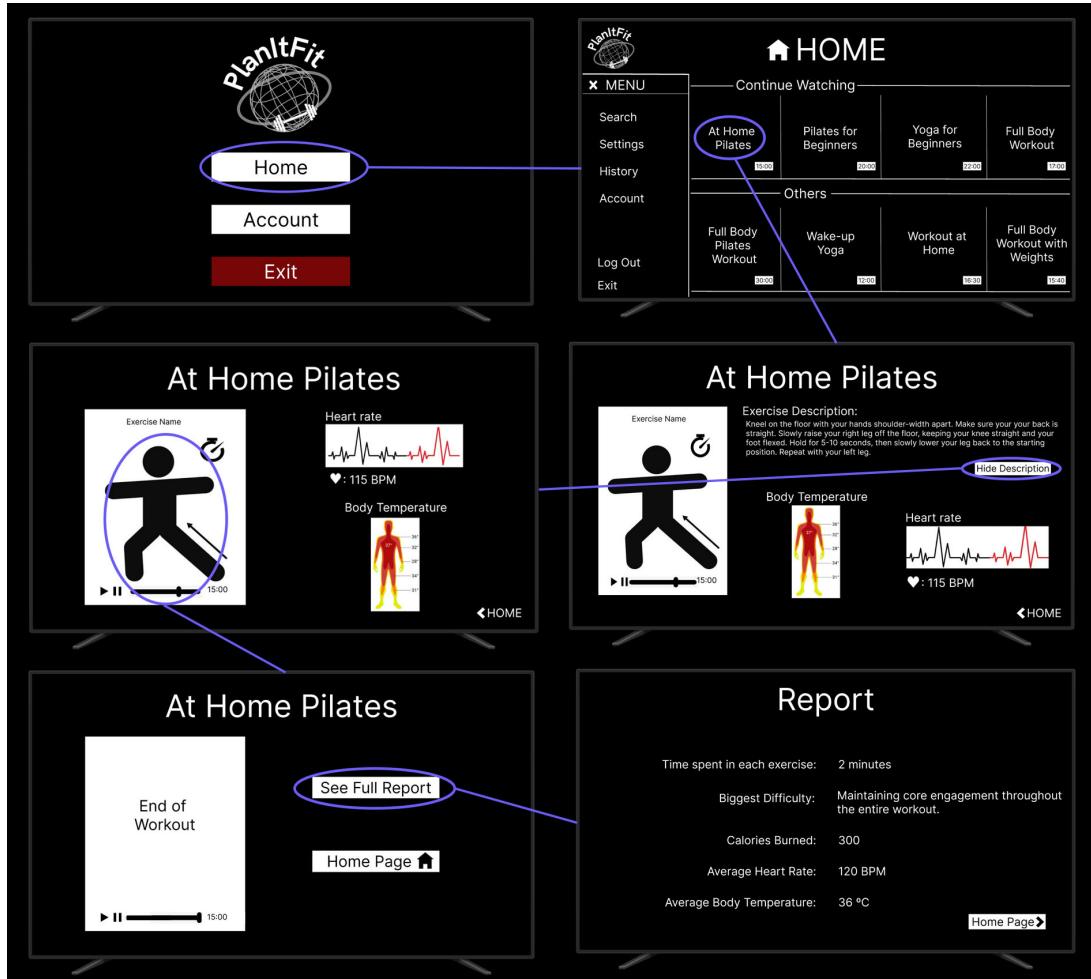


Figure 8.3: Receive Report

Chapter 9

Heuristic Evaluation Results

Our heuristic evaluations were conducted by groups 2 and 5.

In this section, we will expand on their conclusions. The complete document that was brought to us is in the appendix C of this documents.

9.1 Missing Button to return to Home page after start of training session

Both groups pointed out this design failure (check Figure 9.1), and gave it the same severity, 3/4. According to them, the Violated Heuristics were the following: **Visibility of System Status, User Control and Freedom, Consistency and Standards and Flexibility and Efficiency of use.**

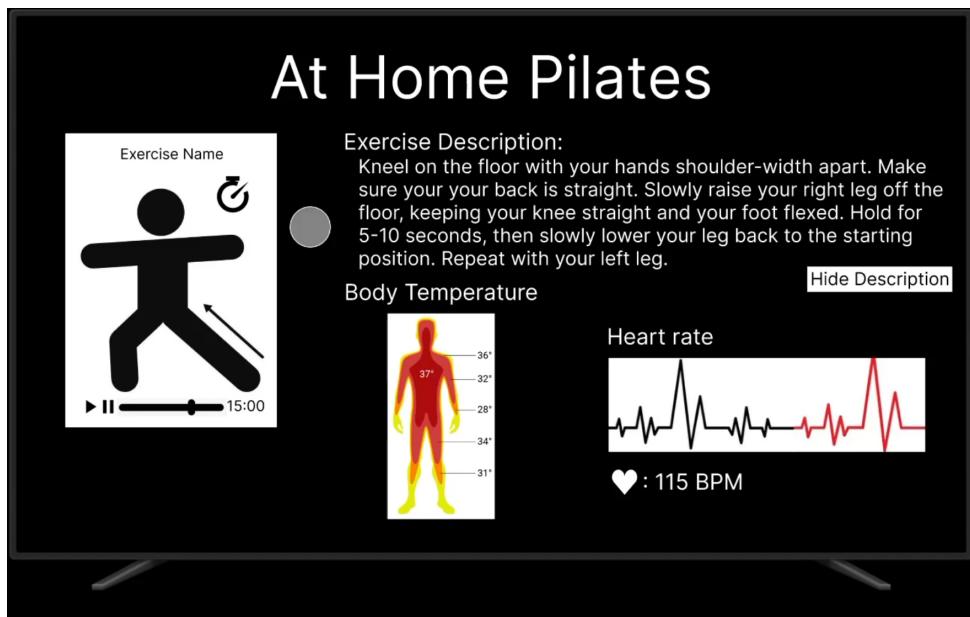


Figure 9.1: Start of training session without the back button

Our Point of View: This point was very useful for our application to be more usable. With that, we totally agree and have changed the application in order to make the user experience with the application easier, as we can see in Figure 9.2.

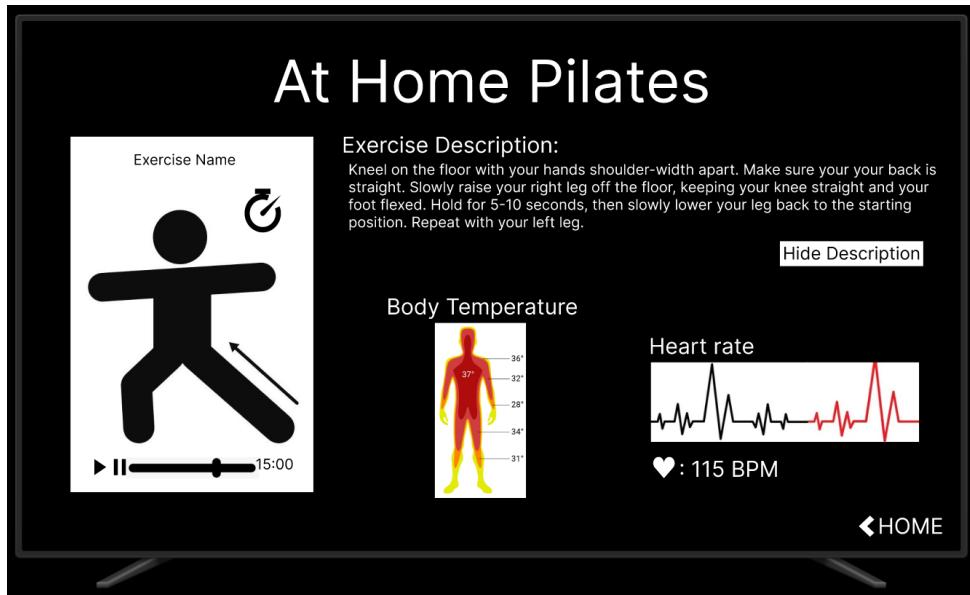


Figure 9.2: Revised Start of training session with the back button

9.2 Missing customization of user account information

Group 2 pointed out that it was not possible to alter the account info in the dedicated page. They attributed this failure a severity of 2/4. According to them, the Violated heuristics were **User Control and Freedom** and **Flexibility and Efficiency of use**.

Our Point of View: Our opinion converges with this, even though we have never thought about it. This error had to be corrected because it could violate the requirements that were made for our application. Therefore, we have already implemented it, as seen below.

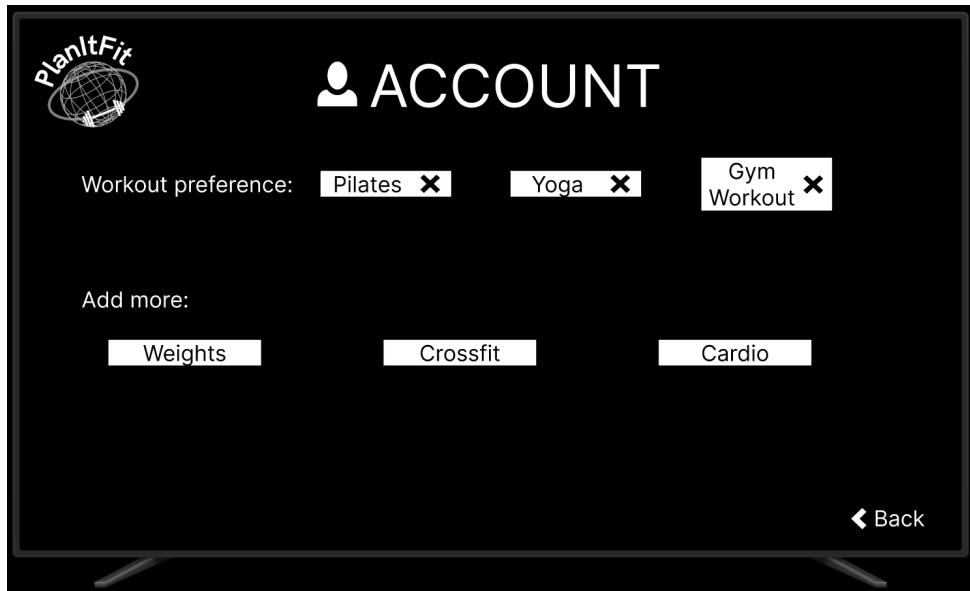


Figure 9.3: Customize Account

9.3 Outdated Overall Design

Group 2 considered our design outdated, and gave this violation a severity of 2/4. According to them, the **Aesthetic and Minimalistic Design** heuristic was violated. In figure 9.4 it is possible to see the homepage as a representation of the overall design of our application.

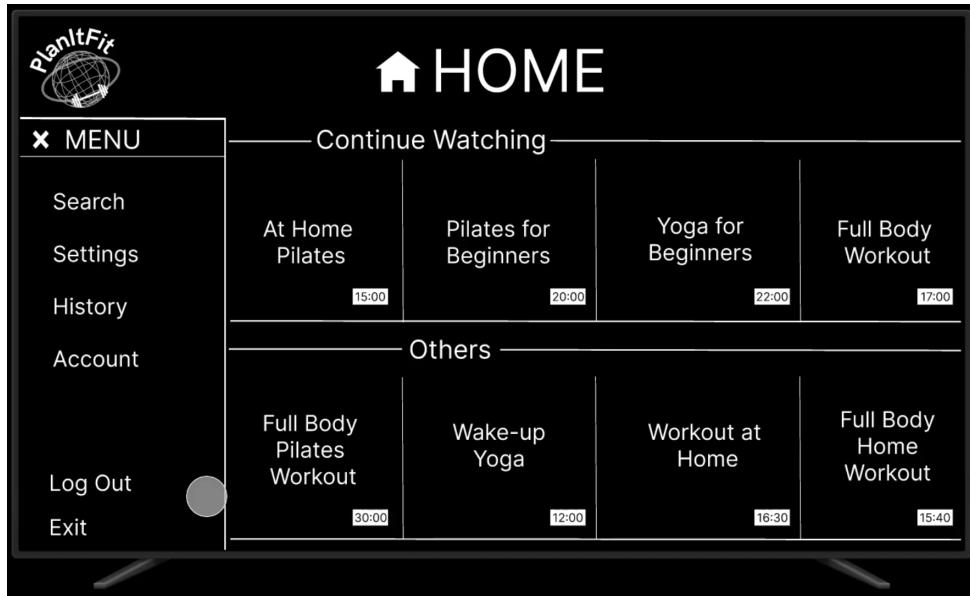


Figure 9.4: Homepage of the application

Our Point of View: We agree with this evaluation. However, we think that it was not the intent of this iteration of the project. This iteration was focused on a Low fidelity prototype and the design was a little out of scope of this iteration

9.4 Inability to return to exercise in report screen

Group 5 suggested we add a button to return to and repeat the corresponding exercise, in the report screen. They attributed a severity of 3/4 and considered we violated the **Flexibility and Efficiency of use** heuristic.

Our opinion: We disagree with this, and will not make this change because of two points:

- This does not apply to the scope of our project.
- If a user wants to do so, they can go back to the main menu and repeat the process.

9.5 Overshadowing of the Exercise Video

Group 5 considered that the exercise video was overshadowed by other elements on the screen, such as the heart rate. This violation was given a severity of 4/4, and violates the **Aesthetic and Minimalistic Design** heuristic.

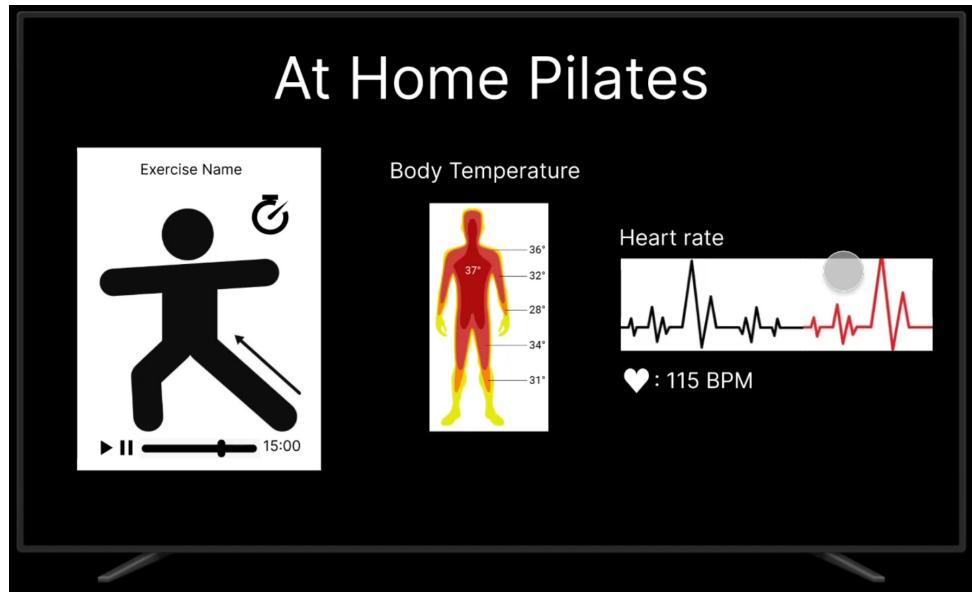


Figure 9.5: Application running an exercise

Our Opinion: We agree with this appointment and we have already made changes to guarantee that the focus of our application, the exercise, is highlighted as it must be. The alterations can be seen in the Figure below.

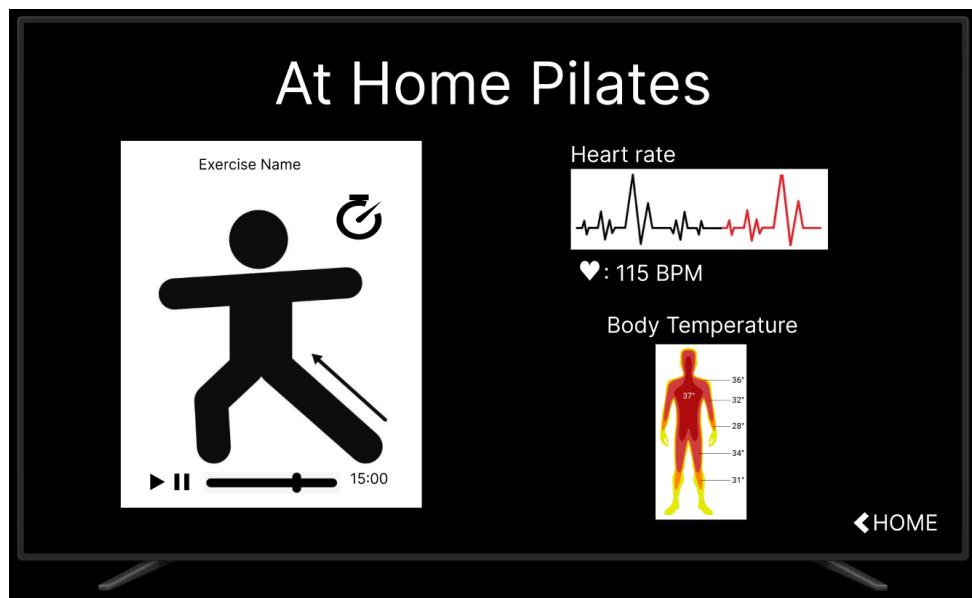


Figure 9.6: Revised Application running an exercise

Chapter 10

Corrections to Perform in Phase 3

Before discussing what we will improve for the next phase, we would like to point out what we have already fixed, using the results of the heuristic evaluation.

10.1 Things that were previously changed

Corrections that have been performed with Heuristic Evaluation feedback:

- **Back button:** We have included a dedicated button to allow users to easily navigate back to the previous page
- **Customizable Parameters:** This will allow empowering users to modify their account settings according to their preferences.
- **Highlight the training video:** This ensures it garners appropriate attention within the interface.

10.2 Things for the next iteration

Corrections that will be performed on the next iteration:

- **Focus on Design:** For the next phase, we will work on improving our design, making it more aesthetically pleasing and guaranteeing it follows every heuristic. This also lead us into our next point.
- **High Fidelity Prototypes:** With a higher focus on design, we will be able to make a high-fidelity prototype, that will display every feature of the app in a pleasant manner.

Chapter 11

Prototype's Wireflow

The wireflows presented in this chapter specifically showcase the tasks we have defined. However, for a more comprehensive view of our application's functionalities, we invite you to explore additional features accessible through this [link](#).

11.1 Account Personalization

One of the functionalities of our application involves personalized account settings. To initiate this process, the user clicks on the "Sign In" button and provides the necessary credentials to access their account. Once logged in, the user gains the ability to tailor their workout experience by adjusting the workout duration and selecting preferred workout categories.

In the illustrated wireflow below, the user is shown customizing their account by setting a minimum workout time of 15 minutes by interacting with the time settings. Furthermore, he is also adding the "Weights" category to his existing selections, which include yoga, pilates, and gym workouts, by clicking on the "Add more" button.

Such a high degree of customization not only boosts user involvement but also perfectly aligns with the app's fundamental goal of providing tailored workout recommendations.

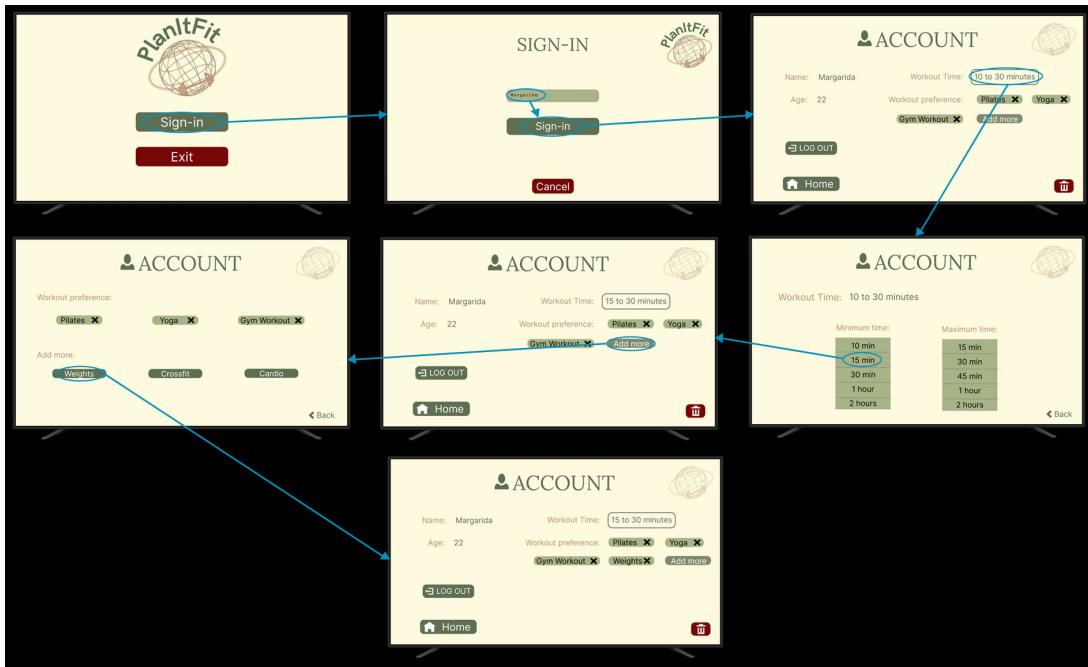


Figure 11.1: Personalize Account

11.2 Precision in Personalized Training and Effort Measurement

To receive customized workout videos tailored to their preferences, the user, having personalized their account, navigates to the Home page by clicking on the "Home" button. Accessing a workout is as simple as choosing one of the available videos, initiating the workout with ease.

Throughout the workout, users can monitor both their body temperature and heart rate, conveniently displayed on the screen in real time. This allows the users to understand their efforts and analyse their performance accordingly.

Additionally, we've incorporated a "Show Details" button allowing users to access detailed descriptions of the exercises.



Figure 11.2: Personalized Videos and Effort Measurement

11.3 Post-Workout Insights

In order to receive the report after the training session, the user first needs to complete a workout.

Post-workout, they have the option of going back to the Home page by clicking on the "Home" button or seeing the report by clicking on the corresponding button. By choosing this last one, the user receives the report of the workout session they just concluded with all the insights they may need to analyse their performance.

This user-friendly process not only enables progress tracking but also facilitates a clear understanding of one's fitness journey.

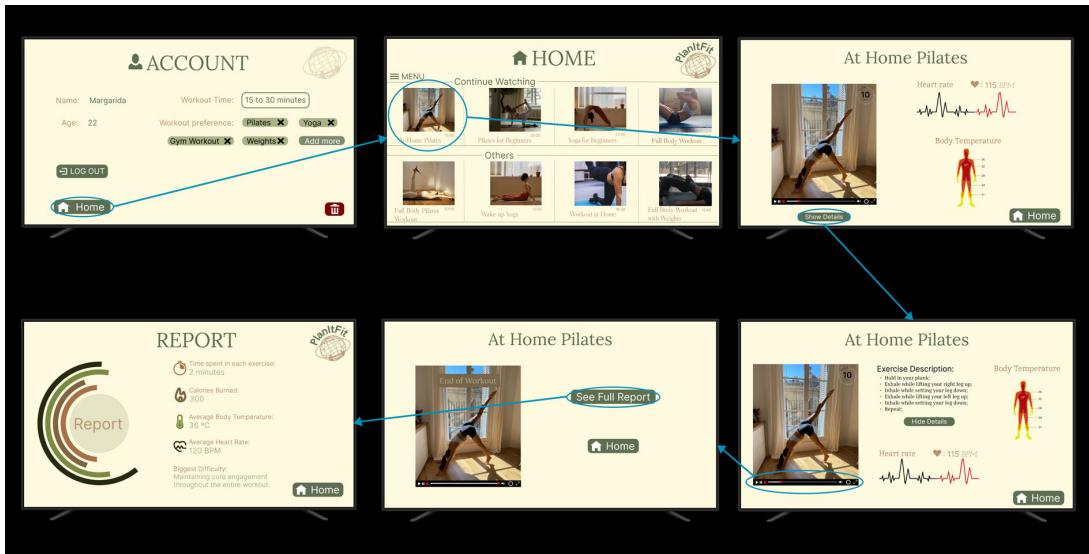


Figure 11.3: Receive Report

Chapter 12

User evaluation protocol

12.1 Objective

The objective of our evaluation was to gather user feedback and insights on our prototype's usability and functionality. We aimed to assess user interactions, element placements, and overall user experience to refine our design.

For this, we defined a clear protocol consisting of:

- **Profiling Questionnaire:** We created a questionnaire with questions that allowed us to understand who we were working with - Age, Gender and Tech Skills, among other parameters;
- **Task Evaluation:** We provided users with specific tasks that they had to realize - this will be expanded upon in Tasks subsection - while we collected data for the statistical analysis - Measures;
- **Feedback Questionnaire:** The same questionnaire mentioned above had 2 parts. The second part allowed the users to provide feedback about their app-testing experience.

12.2 Users

As defined in previous iterations of this project, our target audience is young adults, specifically university students. For this reason, we decided that we should target people of that demographic for the testing we wanted to conduct.

We set out to find at least 10 people. In our sample, we looked to have men and women, in the 18-30 age range, with high/very high tech skills.

We intended to look within our friend circles, and have them evaluate the app in-person.

12.3 Method

We start by asking the user to sit and have them answer the first part of the profiling questionnaire. After they've done that, we very briefly describe what the task they are about

to realize. We only tell them what the end result should be, not how to get there. We do this for all three tasks. After all have been done, we ask the user to answer the second part of the questionnaire, where they provide feedback about their experience. Once they've finished, we thank them, and send them on their way.

12.4 Tasks

We chose three tasks for users to realize:

- **Alter Min Workout Time to 15 minutes and Add 'Weights' to Workout Preferences;**
- **Have a 'At-Home Pilates' Workout Session;**
- **View Reports and Video History.**

For all, we had the user start at the login page. This page has since been altered, so results would be different now.

12.5 Measures

While the users did the Tasks, the evaluators took note of the following:

- **Time to Complete Task:** We took note of how long the users took to do each task, from the moment we said 'Start' to the moment the desired outcome was reached;
- **Number of Clicks:** We counted the number of clicks the user needed to complete the task
 - This does not include the number of misclicks. It does however include clicks needed to get out of a situation created by a misclick;
- **Number of Misclicks:** We counted misclicks as clicks that lead to an unwanted situation. Clicks needed to get out of said unwanted situation were not counted as misclicks, unless they lead to another unwanted situation.

The feedback questionnaire measured the following:

- **Level of Ease for Each Task:** We asked users to rate how easy they thought each task was to accomplish on a scale of 1-5;
- **Rating of App's Behaviour for Each Task:** We asked users to rate what they thought of the app's behaviour for each task, including placement of elements on screen and responsiveness, on a scale of 1-5;
- **Level of Confidence whilst Using App:** We asked users to rate how confident they felt using the app on a scale of 1-5;
- **Satisfaction with how the App Looked:** Users were asked to rate the looks of the app on a scale of 1-5.

Results and analysis of these measures can be found in the Results section of this report.

Chapter 13

Results

The User evaluation protocol (presented in the previous chapter), has led to some results which will be presented now:

13.1 Sample characterization

It was asked for users to do the three already presented tasks. Those interviews were done presently with 14 people, most of them students (Figure 13.3). The participants are between 18 and 25 years old (Figure 13.1), of which 87.5% of the people are from the male gender and 12.5% are from the female gender (Figure 13.2).

Most of the interviewed people are comfortable with Tech and consider themselves as people with good tech skills.

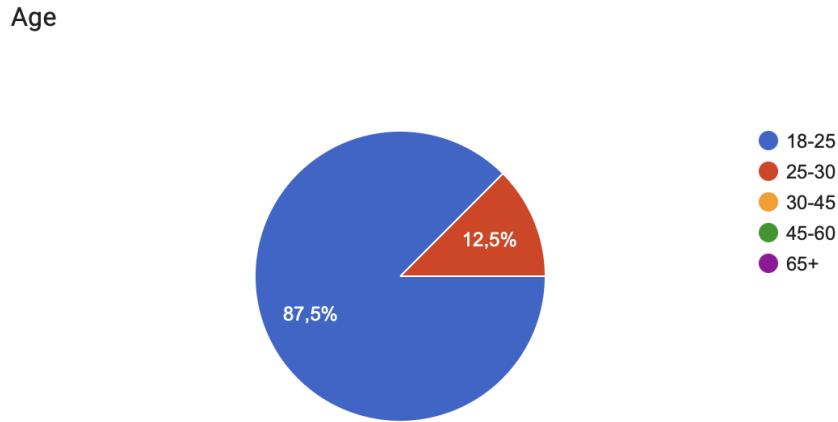


Figure 13.1: Age of the Interviewed People

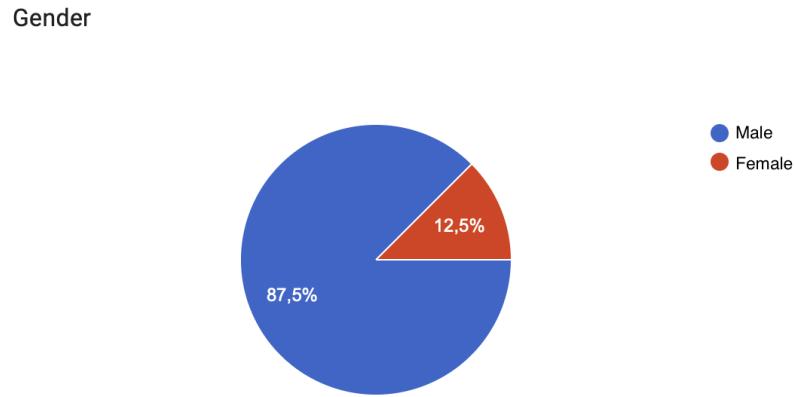


Figure 13.2: Gender of the Interviewed People

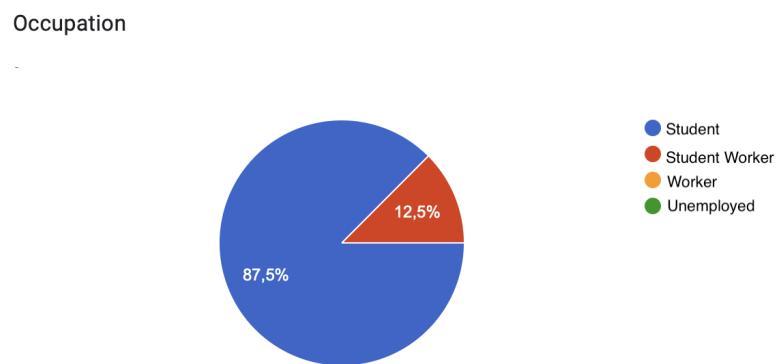


Figure 13.3: Occupation of the Interviewed People

On a scale of 1 to 5, indicate how comfortable you feel with technology.

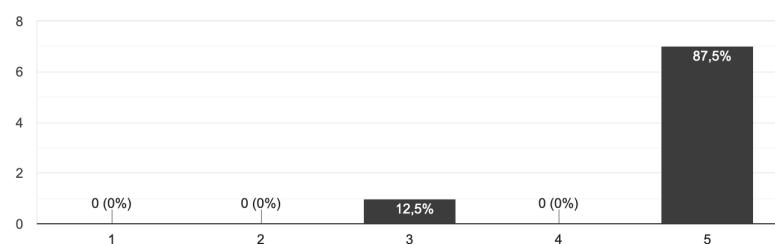


Figure 13.4: Tech Experience of the Interviewed People

13.2 Statistical Analysis

13.2.1 Task 1

For the initial task, participants were assigned the challenge of "Alter Min Workout Time to 15 minutes and Add 'Weights' to Workout Preferences", and the comprehensive results are

available in the provided appendixes D and E. The level of ease of this task was evaluated at 4.5/5 and the enjoyment as 4/5.

Time Needed

The metric evaluating the time participants required to complete the task showed an average (μ) of approximately 25 seconds with a standard deviation (σ) of about 21.7 seconds. The resulting 90% Confidence Interval, (15.461, 34.539) seconds, aligns with our initial expectation of around 20 seconds. This suggests that the time metric corresponds well with the anticipated performance.

Number of Clicks

Analyzing the number of clicks, participants demonstrated an average (μ) of around 6.5 clicks with a standard deviation (σ) of 1.3. The 90% Confidence Interval, (5.933, 7.067), is consistent with the expected value of approximately 6 clicks. This finding supports the notion that participants met the anticipated interaction level for this metric.

Number of Misclicks

The metric gauging the number of misclicks yielded an average (μ) of about 0.5 with a standard deviation (σ) of 2.7. The resulting 90% Confidence Interval, (-0.668, 1.668), considering a success threshold of approximately 1 second, indicates that the results are in line with our predefined objectives. This suggests that the misclicks metric aligns well with the intended success criteria.

13.2.2 Task 2

In the second task, participants were presented with the challenge of "Have a 'At-Home Pilates' Workout Session", and the outcomes are detailed below. The level of ease of this task was evaluated at 5/5 and the enjoyment as 5/5.

Time Needed

The time metric for Task 2 revealed an average (μ) completion time of around 19 seconds with a standard deviation (σ) of 7.5 seconds. The 90% Confidence Interval, (15.721, 22.279) seconds, reinforces the notion that participants performed within the expected time frame (25 seconds). The performance is better than our expectations.

Number of Clicks

Participants, on average, clicked approximately 4 times with a standard deviation (σ) of 1.4. The 90% Confidence Interval, (3.36, 4.62), aligns well with the anticipated value of about 4 clicks, indicating successful completion of this aspect of the task.

Number of Misclicks

The metric evaluating misclicks in Task 2 showed an average (μ) of 0 with a standard deviation (σ) of 2.16. The 90% Confidence Interval, (-0.952, 0.952), suggests that participants successfully avoided misclicks according to our predefined success threshold (1).

13.2.3 Task 3

For the third task, participants were given the challenge of "View Reports and Video History", and the results are outlined below. The level of ease of this task was evaluated at 5/5 and the enjoyment as 4/5.

Time Needed

The time metric for Task 3 demonstrated an average (μ) completion time of approximately 16.5 seconds with a standard deviation (σ) of 8.0 seconds. The 90% Confidence Interval, (12.977, 20.023) seconds, implies that participants successfully completed the task within the expected time range. The expected value was about 15 s.

Number of Clicks

On average, participants clicked around 5 times with a standard deviation (σ) of 1.9. The 90% Confidence Interval (90%), (4.178, 5.822), aligns well with the expected value of about 5 clicks, indicating successful completion of the clicking aspect of the task.

Number of Misclicks

The misclick metric for Task 3 showed an average (μ) of approximately 0.5 with a standard deviation (σ) of 1.5. The 90% Confidence Interval, (-0.156, 1.156), suggests that participants generally adhered to the success threshold for misclicks in this task. The expectation was somewhere around 1 misclick.

13.2.4 T-Student Distribution overview

Upon employing the t-student distribution in our analysis of the provided data, we utilized sample means and standard deviations to construct 90% Confidence Intervals for various metrics such as time needed, number of clicks, and number of misclicks across the three tasks. These confidence intervals allowed us to estimate the range within which the true population parameters, such as the population mean for each metric, are likely to fall with 90% confidence. By relying on the t-distribution, which accounts for the uncertainty due to limited sample sizes, we derived insights into the expected performance levels and adherence to predefined success criteria across the tasks.

Chapter 14

Conclusion

Throughout the project's evolution, we not only prototyped the app but also delved into understanding the needs of potential users. By keeping the development focus on the prototype rather than the full implementation, we had the flexibility to incorporate more features and explore their interactions, gaining deeper insights into challenges and refining our approach.

The structured development in three phases proved effective, enabling us to tackle crucial aspects of the app systematically. In the initial phase, we defined the app's objectives and its intended integration environment. Subsequently, the development of a low-fidelity prototype in the second phase emphasized interactions within the app over intricate design details. In the final phase, we concentrated on refining the app's design, ensuring it is intuitive and appealing to potential users. We also conducted an analysis to understand how potential users would interact with the app, allowing us to assess its intuitiveness.

In summary, this project provided valuable insights into the significance of prototyping an application. It emphasized the diverse ways in which users interact with the application, highlighting the critical importance of understanding these varied needs for the app to thrive.

Appendix A

Questionnaires

In this comprehensive appendix, we provide the complete set of questions that constituted our research questionnaire, which was administered via Google Forms. These questions were thoughtfully designed to fulfill specific research objectives, providing us with valuable insights into both our study participants and the overarching purpose of our research. By sharing these questions, we aim to enhance transparency in our research methodology and offer a glimpse into the data collection process that underpins our study.

PlanItFit

up202004846@g.upporto.pt [Change Account](#)

 Not shared

 Rascunho guardado

* Indicates a mandatory question

Gender *

Male

Female

Age *

<18

18-29

30-45

46-60

>60

Occupation *

Student

Working-Student

Employee

Freelancer

Unemployed

Retired

Do you own a smartTV? *

Yes

No

Do you have any physical disabilities? *

Yes

No

How regularly do you exercise? *

Once a week

2-3 times per week

4-5 times per week

Everyday

I don't exercise regularly.

If you train, do you have any problem measuring your effort levels?

Yes

No

On a scale between 1 and 5, classify your interest in having tools that would allow to measure that same effort level:

1 2 3 4 5

Not Interested

Very Interested

If applicable, which of the following have you partook in?

Gym

Organized Sports (team or individual)

Mobile or web app that encouraged the practice of physical exercise

Home workouts

Other _____

On a scale from 1-5, rate how important personalizing your training plans is to you

1 2 3 4 5

Not Important

Very Important

Do you like the idea of having access to training plans you can execute at home, * personalized according to your biometric data?

Yes

No

If you answered yes to the previous question, tell us the types of exercises you'd be interested in.

- Pilates
- Yoga
- Crossfit
- Weight training
- Other _____

If you've used training apps before, tell us what you value most.

Your answer

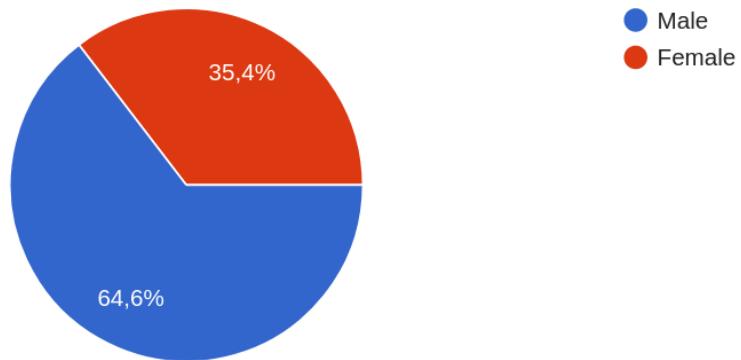
Appendix B

Summary of Results

In this appendix, we offer a comprehensive summary of the results obtained from our research questionnaire. Each figure presented corresponds to a specific question from the questionnaire, providing a visual representation of the responses we collected. This section serves as a key component of our research findings, offering readers a clear and organized overview of participant insights and responses.

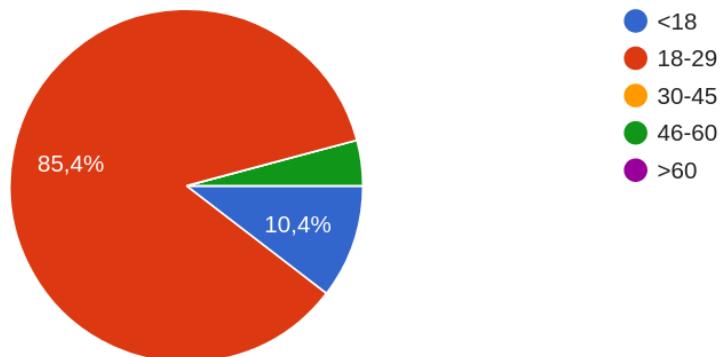
Gender

48 answers



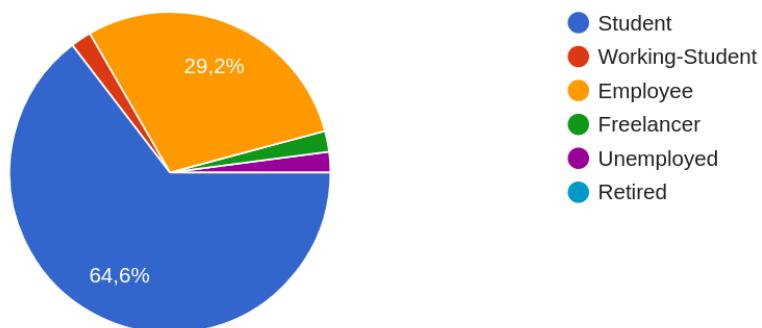
Age

48 answers



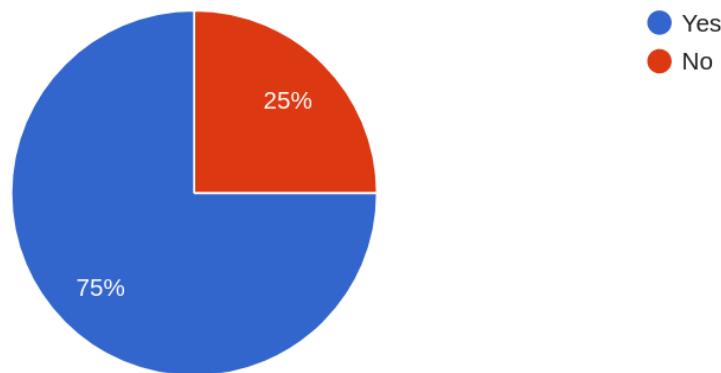
Occupation

48 answers



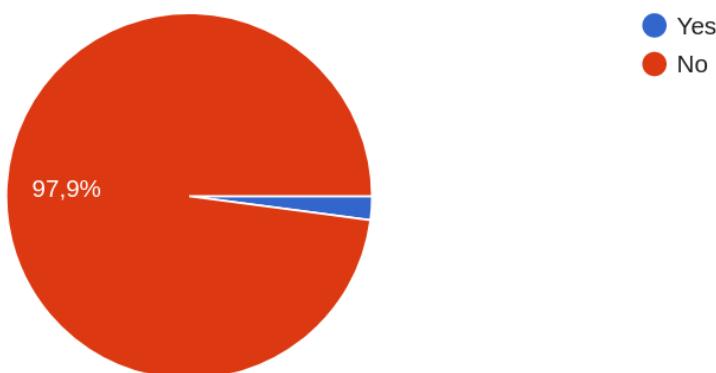
Do you own a smartTV?

48 answers



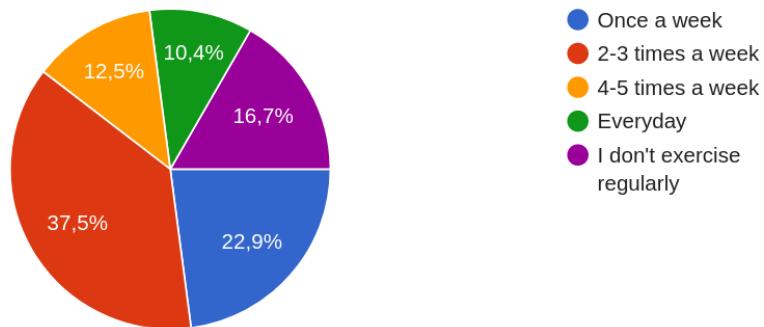
Do you have any physical disabilities?

48 answers



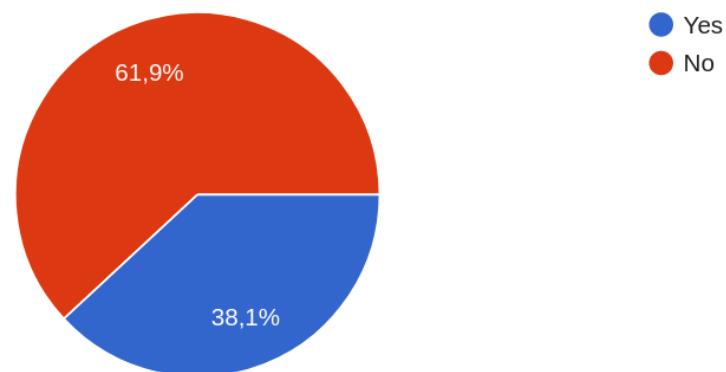
How regularly do you exercise?

48 answers



If you train, do you have any problem measuring your effort levels?

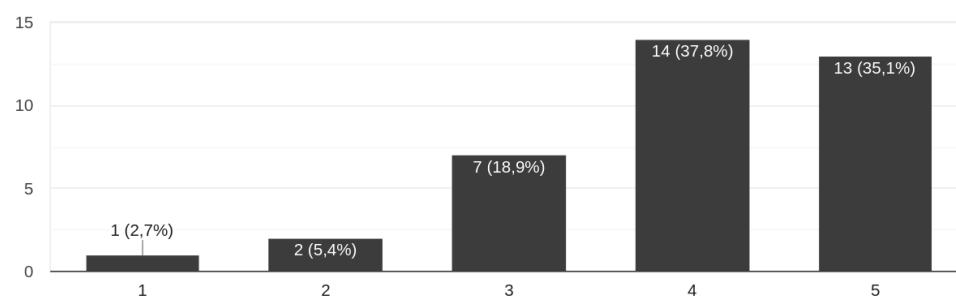
42 answers



On a scale between 1 and 5, classify your interest in having tools that would allow to measure that same effort level.

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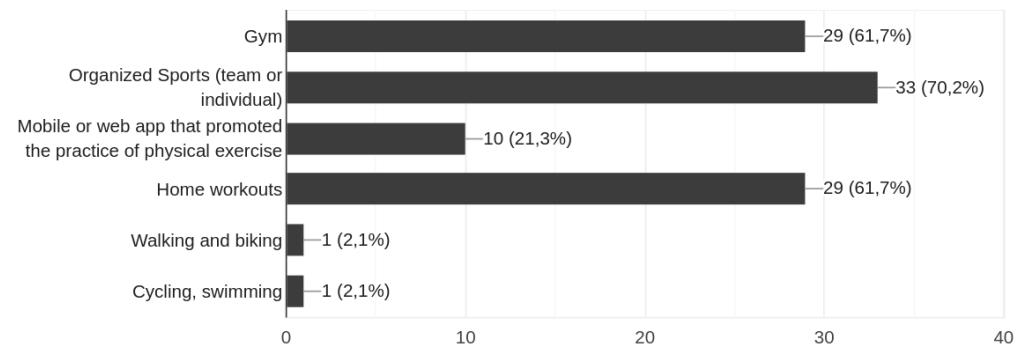
37 answers



If applicable, which of the following have you partook in?



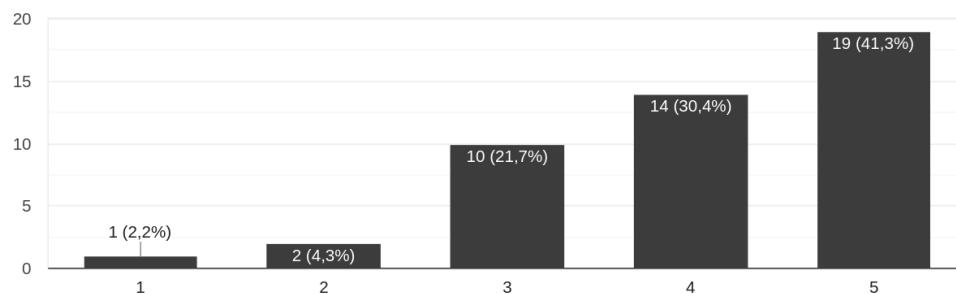
47 answers



On a scale from 1-5, rate how important personalizing your training plans is to you

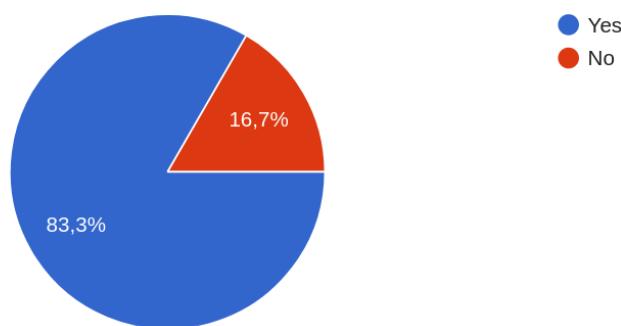


46 answers



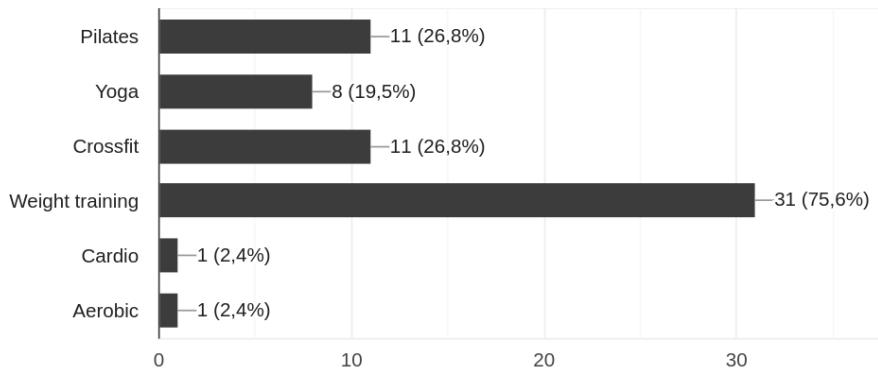
Do you like the idea of having access to training plans you can execute at home, personalized according to your biometrical data?

48 answers



If you answered yes to the previous question, tell us the types of exercises you'd be interested in.

41 answers



If you've used training apps before, tell us what you value most.

13 answers

Planos de treino

Strava. Gosto do aspeto social e de poder ver um histórico completo de todas as minhas atividades.

Bons vídeos de demonstração

Informação correta, variedade de exercícios, exemplos práticos desses exercícios e recomendações de execução dependentes dos nossos objetivos, por exemplo variantes dependendo da nossa aptidão física

variedade de exercícios e medição adequada do esforço

Appendix C

Heuristic Evaluation

Throughout the progression of our project, we extended invitations to other groups, specifically Group 2 and Group 5, to conduct a heuristic evaluation of our work. The ensuing evaluation yielded the following results:

Heuristic Evaluation Report

Class Nr.: LEIC09 - 09/11/23 - Thiago Sobral

Group evaluated: 06 - PlanItFit

By group: 02

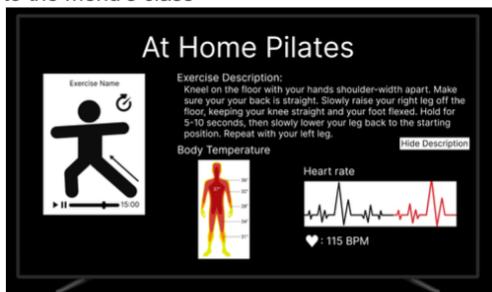
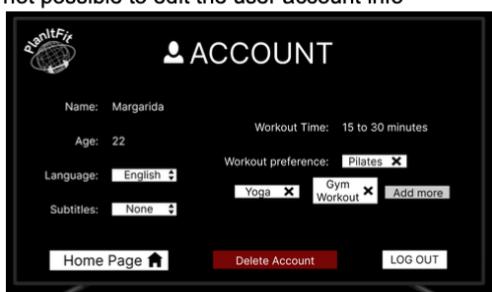
Problem #	Issue (include screenshot)	Heuristic(s)	Severity (1-4)
1	<p>After entering a class is not possible to go back to the menu's class</p> 	1, 3, 4, 7	3
2	<p>It is possible to open the account page, but it is not possible to edit the user account info</p> 	3, 7	2

Figure C.1: Heuristic Evaluation from Group 2 - Page 1

3	Overall Design looks a bit outdated	8	2
			

Figure C.2: Heuristic Evaluation from Group 2 - Page 2

Heuristic Evaluation Report

Class Nr.: LEIC09 - Date - Thiago Sobral

Group evaluated: 06 - PLANITFIT

By group: 05

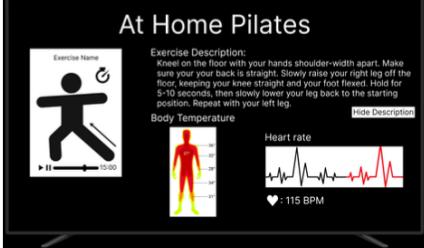
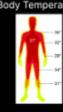
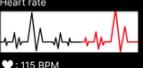
Problem #	Issue (include screenshot)	Heuristic(s)	Severity (1-4)
1	 <p>Report</p> <p>Time spent in each exercise: 2 minutes</p> <p>Biggest Difficulty: Maintaining core engagement throughout the entire workout.</p> <p>Calories Burned: 300</p> <p>Average Heart Rate: 120 BPM</p> <p>Average Body Temperature: 36 °C</p> <p>Home Page</p> <p>After doing the exercise and accessing their personalized report, the user does not have the opportunity to return and repeat the exercise.</p>	7	3
2	 <p>At Home Pilates</p> <p>Exercise Name: </p> <p>Exercise Description: Kneel on the floor with your hands shoulder-width apart. Make sure your back is straight. Slowly raise your right leg off the floor, keeping your knee straight and your foot flexed. Hold for 5-10 seconds, then slowly lower your leg back to the starting position. Repeat with your left leg.</p> <p>Body Temperature: </p> <p>Heart rate: </p> <p>Heart rate: 115 BPM</p> <p>After accessing an exercise video, the user has no option to return to the home page, in case he regrets his choice of video.</p>	7	3

Figure C.3: Heuristic Evaluation from Group 5 - Page 1

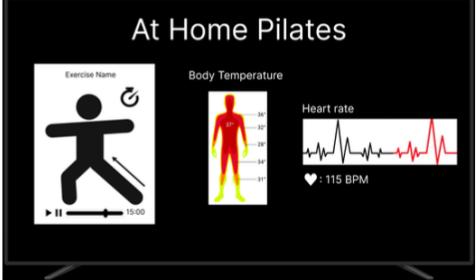
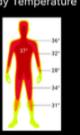
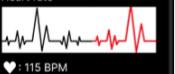
3	 <p>At Home Pilates</p> <p>Exercise Name: </p> <p>Body Temperature: </p> <p>Heart rate: </p> <p>▶ II 15:00</p>	8	4
4			
5			

Figure C.4: Heuristic Evaluation from Group 5 - Page 2

Appendix D

User Evaluation Questionnaire

Task 2					
<p>This task consists of carrying out an "At Home Pilates" training session, viewing its details</p>					
<p>Rate, on a scale of 1-5, how easy it was for you to complete the task. *</p>					
1	2	3	4	5	
Very Hard	<input type="radio"/> Very Easy				
<p>Rate, on a scale of 1-5, your level of satisfaction with the application's behavior while carrying out the task (responsiveness, positioning of buttons or other elements on the screen) *</p>					
1	2	3	4	5	
Not at all satisfied	<input type="radio"/> Very satisfied				

Task 3

This task consists of viewing a training report

Rate, on a scale of 1-5, how easy it was for you to complete the task. *

1 2 3 4 5

Very Hard

 Very Easy

Rate, on a scale of 1-5, your level of satisfaction with the application's behavior while carrying out the task (responsiveness, positioning of buttons or other elements on the screen) *

1 2 3 4 5

Not at all satisfied

 Very satisfied

Final Feedback

In this section, we ask questions more related to the experience of using the application in general.

On a scale of 1-5, indicate your level of confidence using the application. *

1 2 3 4 5

Not Confident

Very Confident

Did you need technical help using the application? *

Yes

No

Do you feel that users with less technological knowledge would need a long time * to adapt to use the application successfully?

Yes

No

Does the application seem inconsistent? *

No

In some minor aspects

In some major aspects

In all aspects

On a scale of 1-5, indicate your level of satisfaction with the appearance of the application. *

1 2 3 4 5

Not Satisfied

Very Satisfied

Would you use this application? *

Yes

No

Tem algum feedback específico?

A sua resposta

Situation Questions

The following questions allow us to frame you demographically.

Age *

- 18-25
- 25-30
- 30-45
- 45-60
- 65+

Gender *

- Male
- Female

Occupation *

- Student
- Student Worker
- Worker
- Unemployed

On a scale of 1 to 5, indicate how comfortable you feel with technology. *

1 2 3 4 5

Not at all comfortable

Very comfortable

Task 1

This task consists of editing the user account, setting the training session interval to 15-30 minutes, and adding "weights" to training preferences

Rate, on a scale of 1-5, how easy it was for you to complete the task. *

1 2 3 4 5

Very Hard

very Easy

Rate, on a scale of 1-5, your level of satisfaction with the application's behavior while carrying out the task (responsiveness, positioning of buttons or other elements on the screen)

1 2 3 4 5

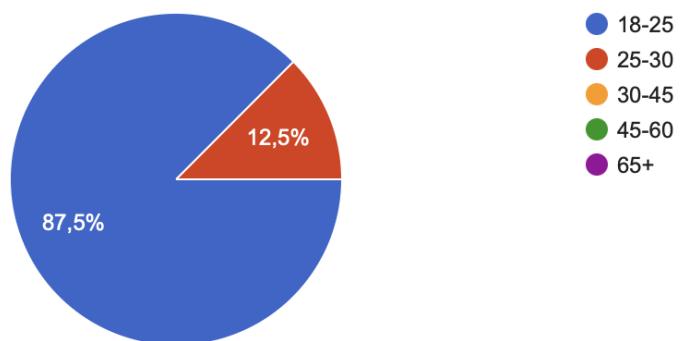
Not at all satisfied

Very satisfied

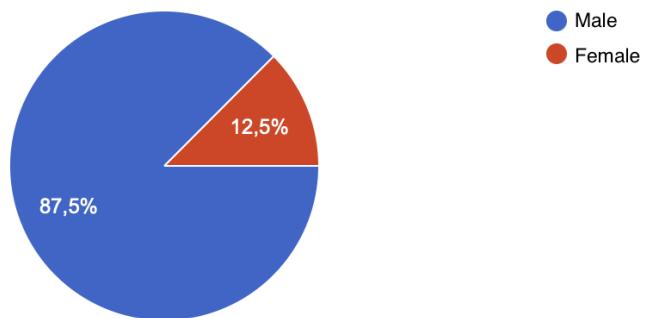
Appendix E

Post User Evaluation Questionnaire Results

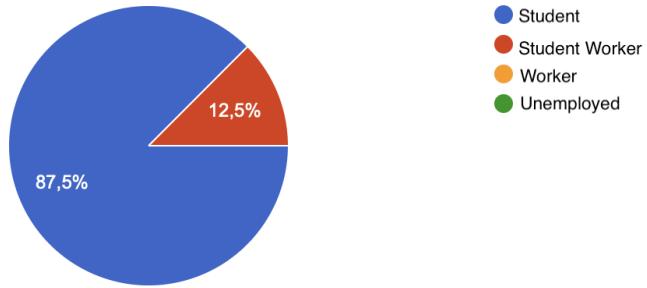
Age



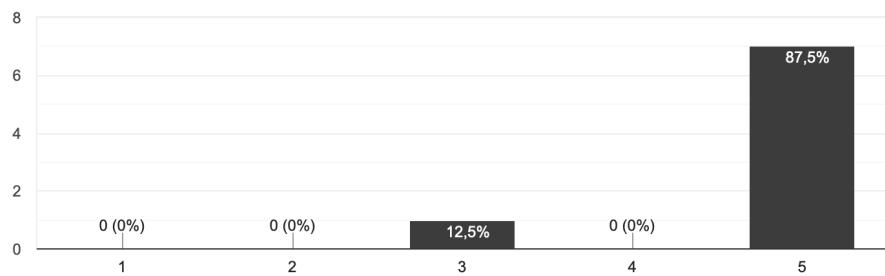
Gender



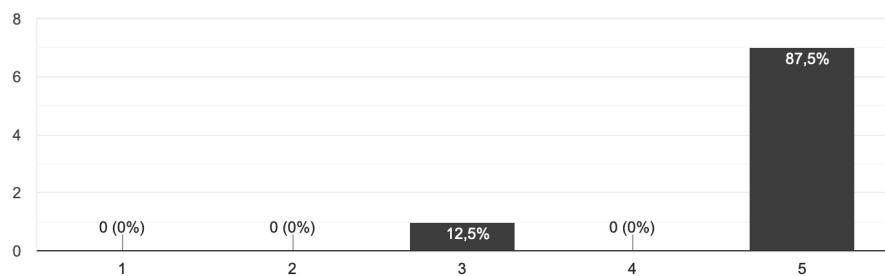
Occupation



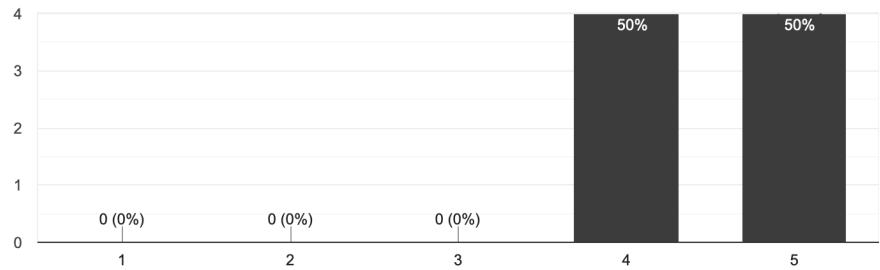
On a scale of 1 to 5, indicate how comfortable you feel with technology.



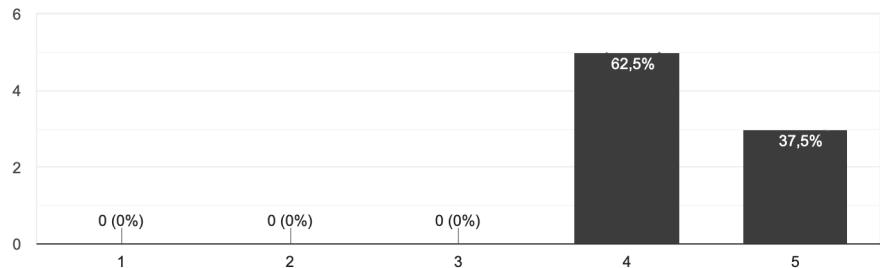
On a scale of 1 to 5, indicate how comfortable you feel with technology.



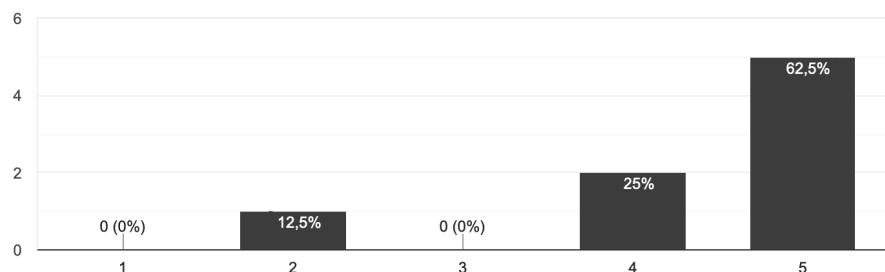
Rate, on a scale of 1-5, how easy it was for you to complete the task.



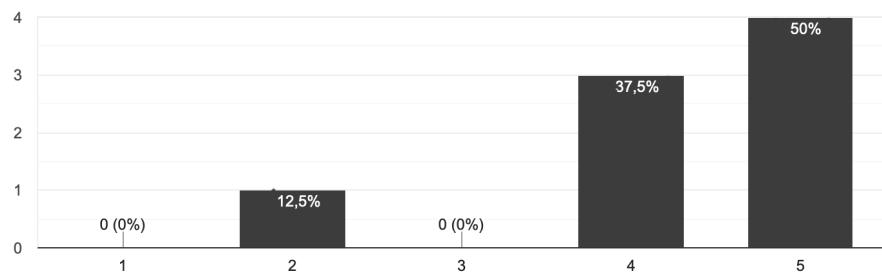
Rate, on a scale of 1-5, your level of satisfaction with the application's behavior while carrying out the task (responsiveness, positioning of buttons or other elements on the screen)



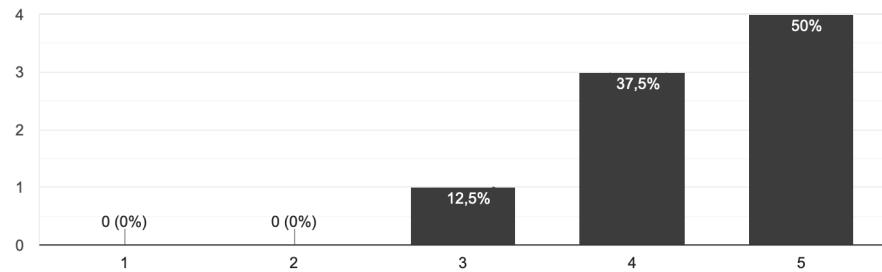
Rate, on a scale of 1-5, how easy it was for you to complete the task.



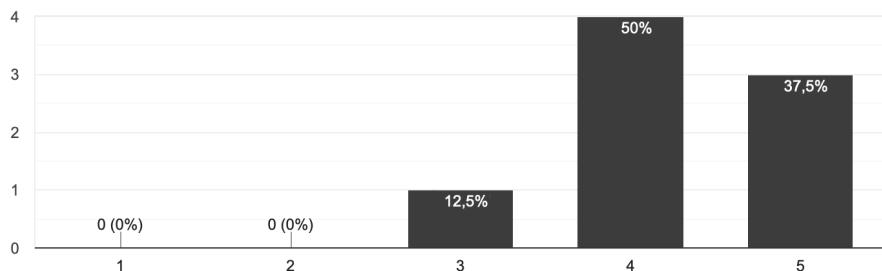
Rate, on a scale of 1-5, your level of satisfaction with the application's behavior while carrying out the task (responsiveness, positioning of buttons or other elements on the screen)



Rate, on a scale of 1-5, how easy it was for you to complete the task.



Rate, on a scale of 1-5, your level of satisfaction with the application's behavior while carrying out the task (responsiveness, positioning of buttons or other elements on the screen)



Appendix F

Useful Links

There is a video with a sequence of steps in the wireframes. Check here: https://drive.google.com/file/d/1HW2VTwNc2oMAg8ei6anrlCdDpNTWb1DM/view?usp=share_link

The prototype link in figma can be found here: <https://www.figma.com/proto/tcqfOTDSGd0VM2jXrHYDP1/Figma-basics?node-id=561-66&mode=design&t=12G24qIQ8EVuIQd0-1>

The full results of the User task analysis can be found here: <https://docs.google.com/spreadsheets/d/1SsFHalV0To1ncun-0daKUMZvXQks6ERfSJ0iQTPMjL8/edit?usp=sharing>