VirtualGym

Phase 3 Report – Final Report and Presentation

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Indice

Introduction

The VirtualGym's goal is to facilitate the life of gym goers, that want to keep track of their fitness journey.
The main functionalities of VirtualGym are:
- Creating customized workouts
- Keeping track of your meals
- Setting reminders for physical activities

Part I - User and Task Analysis

1. Project's idea description

The main idea behind this project is, as the name suggests, a kind of virtual gym with video and images explaining to users how to carry out the proposed exercises.

The application will have personalised training plans for the different needs of users (toning, losing weight or working out in general) and will also have various nutritional plans available.

To maintain user focus throughout their fitness journey, our app will offer the ability to set personalized goals for body weight and calorie targets. Additionally, users can conveniently schedule workout reminders to ensure they stay committed to their fitness routines without forgetting.

In short, our main goal is to make this application accessible to everyone's wants and needs.

2. Related apps/ services

While researching services that offer similar capabilities to our app, we encountered several options. The feature of providing diverse training plans tailored to the user's goals is a common trait among many fitness apps, with Fit Star and Boost Plan serving as prime examples. In terms of nutrition planning, both the Nike Training Club and 8Fit Workout & Meal Planner apps stand out for their personalized plans and comprehensive nutrition guidance. Additionally, apps like Freeletics and Gym Life excel in progress tracking and offer a variety of workout options.

In conclusion, our investigation revealed various services that encompassed our app's different functionalities but within a broader context. However, we did not find any single service that comprehensively covered all the functionalities we offer.

3. Questionnaire – Highlights

In order to meet the target audience of our app, we developed a questionnaire with some questions that we considered to be important for data collection.
We received a total of 25 answers.
After an analysis of the data obtained, we concluded that most of the students:

- 25 answers
- 76% have age between 20 and 30 and the other 24% have less than 20 years old
- 60% are male and the other 40% are female
- 48% workout 3-4 times a week, 28% 1-2 times a week, 12% 5-6 times a week and the other 12% don't workout at all
- The main fitness goal is muscle gain with 40%, weight loss with 36% and maintaining fitness with 24%
- 88% don't follow any specific workout programs or routines
- 76% don't track their workout, 16% track with fitness app, 4% with wearables and the other 4% with "Avaliação com PT"
- 84% prefer a gym app with pre-made workout plans than customizable plans
- 80% prefer workout instructions in video rather than image
- 88% would you like the app to offer personalised workout and nutrition recommendations based on your fitness goals, preferences, and restrictions

4. PACT Analysis

People:

- The target audience for this fitness application includes people of all ages, but mostly between 16 and 40 years old. It's essential to consider the diverse needs and preferences of this broad demographic.

Activities:

- The primary activities supported by the application are physical exercise practice and maintaining a balanced diet. It's important to assess how these activities align with the goals and expectations of the users.
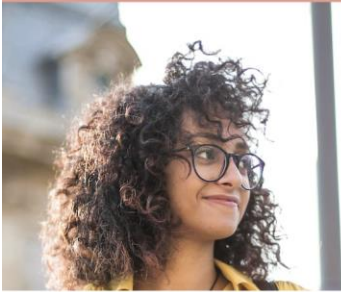
Contexts:

- Users can engage with the application in two main contexts: at their home or at the gym. Understanding the different settings in which users will utilize the app is crucial for designing a user-friendly experience.

Technologies:

- The application leverages several technologies, including access to the user's camera, photo gallery, and internet. Assessing the implications of these technologies on user experience, privacy, and data security is vital.

5. Personas

We've created two personas which fit the audience of this app, Sofia and Lucas:
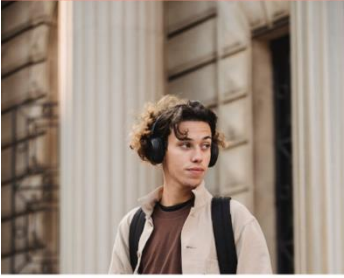
Gym App / Ideal User Persona

Sofia Silva

Customer Profile: A very likeable person, always ready to make friends. One of her passions is sports, she used to play volleyball when she was younger but have to quit. Nowadays, she go to the gym to stay active even though she has a busy schedule because she has to manage her student life and her personal life. Another passion of her is travelling, she loves getting to know new cultures and meeting new people. At university, when working in groups, she wants everything to be organized ensure that everything is well done on time.

- Age: 20
- Education Level: Undergraduate
- Work/Occupation: Student
- Family: Single
- Location: Porto, Portugal
- Technological proficiency: Above average
- Preferencial devices: Mobile phone, laptop

- Personality Trail 1: Extroverted
- Personality Trail 2: Energetic
- Personality Trail 3: Creative

Objectives/Needs

- Need a proper daily routine time table for the exercise.
- Find an effective training plan.

Frustrations/ Pain Points

- The gym is far from university.
- The schedule is very tie and sometimes she forgets to exercise.
- Find a good workout plan.

Gym App / Ideal User Persona

Lucas Oliveira

Customer Profile: Lucas knows, as a software developer, that his job involves much time in front of computer, so he makes up by spending at least one hour a day in the nearby gym.
For the past few months, he has been very interested in his health and performance. He wants to track how his eating and exercise habits affects his well being.

- Age: 25
- Education Level: Master's Degree
- Work/Occupation: Software Developer
- Family: Girlfriend
- Location: Lisbon, Portugal
- Technological proficiency: Above average
- Preferencial devices: Mobile phone, laptop

- Personality Trail 1: Introvert
- Personality Trail 2: Responsible
- Personality Trail 3: Energetic

Objectives/Needs

- He wants to improve his physical health and maintain his fitness ability.
- To set goals and make positive impacts on his life.

Frustrations/ Pain Points

- Bad recommendations in other fitness apps.
- He needs a training program.
- He doesn't have enough statistics about his training.

6. Activity Scenarios

We create two scenarios for each persona.

6.1 *Activity Scenario 1 – Sofia Silva*

- Sofia is at the gym and wants to keep tabs on her workout using her app.

- She opens the app and selects "Start Workout." Sofia inputs her exercise details, like what she's doing, sets, reps, and weights. The app provides a timer and records her workout as she goes.

- After each set or exercise, she updates the app. Once she's done, Sofia saves her workout, and the app stores her data for future reference.

6.2 *Activity Scenario 2 – Sofia Silva*

- Sofia loves to travel and wants to stay active while on the go. She uses the app to find a suitable travel workout plan.

- Sofia opens the app, selects the "Travel Workout Plan"

- The app generates a workout plan with exercises that can be done in hotels or outdoors.

- She reviews the exercises, watches instructional videos, and downloads the plan for offline use.

- During her trip, Sofia follows the plan to stay active and enjoy her travels without missing her workouts.

6.3 *Activity Scenario 1 – Lucas Oliveira*

- Lucas gets home from work and wants to start his daily workout. He opens his fitness app on his phone.
- The app shows him today's workout plan with details like exercise type and duration. Lucas saw one exercise that he don't like so he swaps it with other suggested exercise.
- Lucas reads through the workout instructions and heads to his workout area.
- Using the app, he follows the exercises, and it helps him with timers and reps. After finishing, Lucas records his progress in the app to track his fitness journey.

6.4 *Activity Scenario 2 – Lucas Oliveira*

- Lucas checks his app dashboard to see how he's been doing. He realizes he's made progress but can do better.
- He looked at a report showing his calorie intake, workout intensity, and sleeping patterns over the past few months and noticed that he had some weeks that have not been consistently.
- Lucas is happy to see that some changes in his diet have boosted his energy and recovery but is eager to improve even more.
- With this info, he tweaks his workout and meal plan and sets new goals.

7. Functionalities and tasks

- Functionalities:
  - Register in the app, adding a profile picture (optional), a name, an email and a password.
  - Remove and edit the profile picture.
  - Change the different needs of the users.
  - Access to nutritional programs
  - See progress over time.

- Tasks:
  - Choose the workout that you want.
  - Set goals.
  - Set reminder to workout.
  - Change exercises in the workout

8. Conclusions

In summary, our project aims to create a user-friendly fitness app with personalized training and nutrition plans. We've conducted research on similar apps and found that none offer the exact set of features we do. Our survey results indicate a strong interest in personalized plans, with most users looking to gain muscle or lose weight. Pre-made workout plans are preferred, and users appreciate personalized recommendations.

Our PACT analysis showed that we need to consider a wide range of user needs and preferences, align activities with user goals, and make sure our app works well in different contexts and with various technologies.

We've also created user personas, to illustrate how our app can seamlessly integrate into people's daily routines and help them track progress and adjust their fitness plans.

In conclusion, our project is well-suited to meet the diverse needs of users seeking personalized fitness and nutrition guidance. We're excited to continue developing the app and are committed to delivering a user-friendly and effective solution to help people achieve their fitness goals.

## Annexes:

Questionnaires
- What is your age?
  - Less than 20
  - 20-30
  - 31-40
  - More than 40
- What is your gender?
  - Male
  - Female
  - Other (Open answer):
- How many times a week do you usually work out?
  - None
  - 1-2
  - 3-4
  - 5-6
  - 7
- What are your main fitness goals?
  - Weight Loss
  - Muscle Gain

- Maintaining Fitness
- Other(Open answer):
- Do you currently use any fitness or health-related apps?
  - Yes
  - No
- If yes, which ones?
  - Open answer
- Do you follow any specific workout programs or routines?
  - Yes
  - No
- If yes, which ones
  - Open answer
- How do you track your workout?
  - I don't track my workout
  - Fitness app
  - Wearables
  - Other (Open answer)
- Would you prefer a gym app with pre-made workout plans or customizable plans?
  - Pre-made workout plans
  - Customizable plans
- Would you prefer a gym app with pre-made workout plans or customizable plans?
  - Pre-made workout plans
  - Customizable plans
- What features do you consider essential in a gym app?
  - Open answer
- Would you like the app to offer personalised workout and nutrition recommendations based on your fitness goals, preferences, and restrictions?
  - Yes
  - No
- Would you be willing to pay for a gym app?
  - Yes
  - No
- Please provide any additional comments or suggestions you would like to see in the gym app.
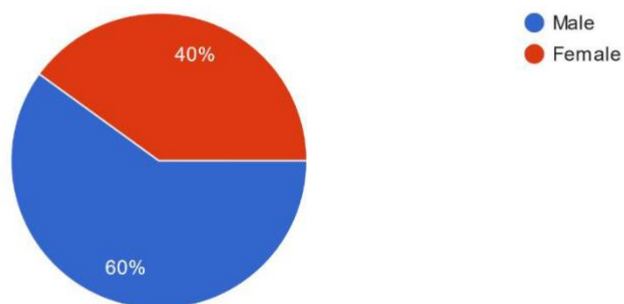 - Open answer
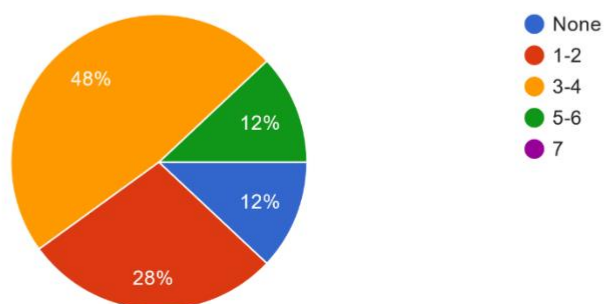
Summary of results

What is your age?
25 respostas

- Less than 20
- 20-30
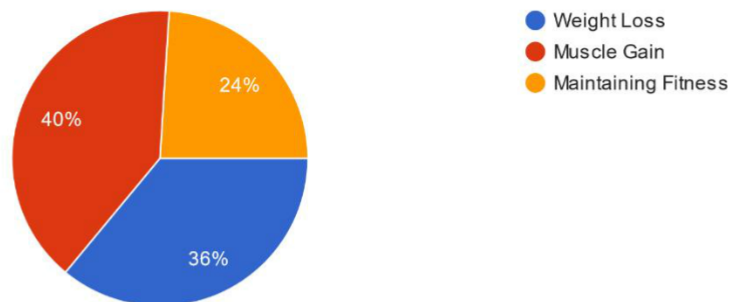- 31-40
- More than 40

76%

24%
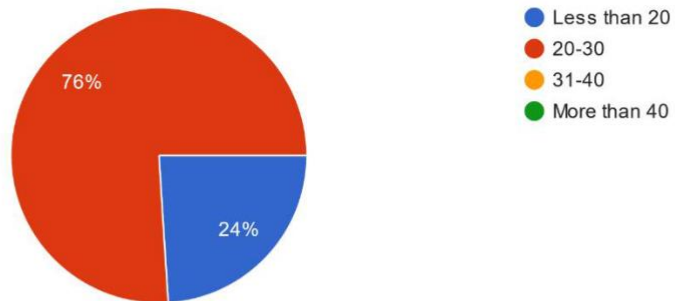
What is your gender?
25 respostas

- Male
- Female

40%

60%

How many times a week do you usually work out?
25 respostas

- None
- 1-2
- 3-4
- 5-6
- 7

48%

12%

12%

28%

What are your main fitness goals?

25 respostas

- ● Weight Loss
- ● Muscle Gain
- ● Maintaining Fitness

40%
24%
36%

Do you currently use any fitness or health-related apps?

25 respostas

- ● Yes
- ● No

88%
12%
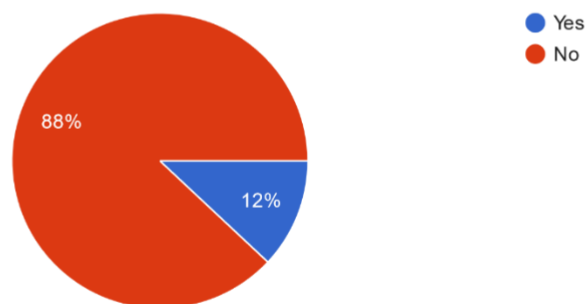
If yes, which ones?

2 respostas

App do meu ginasio

Myfitnesspal

Do you follow any specific workout programs or routines?
25 respostas

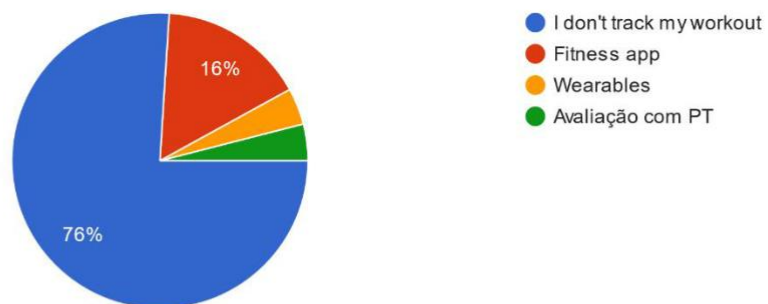- ● Yes
- ● No

88%

12%
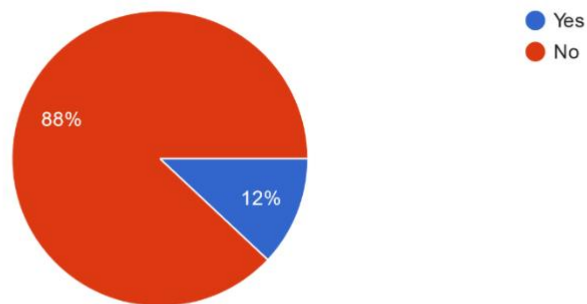
If yes, which ones?
1 resposta

Plano de treino do PT

How do you track your workout?
25 respostas

- ● I don't track my workout
- ● Fitness app
- ● Wearables
- ● Avaliação com PT

16%

76%

Would you prefer a gym app with pre-made workout plans or customizable plans?
25 respostas

- ● Pre-made workout plans
- ● Customizable plans

84%

16%
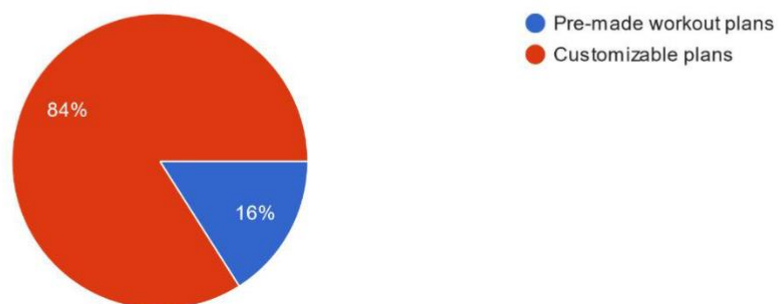
Do you prefer workout instructions in video or image?
25 respostas
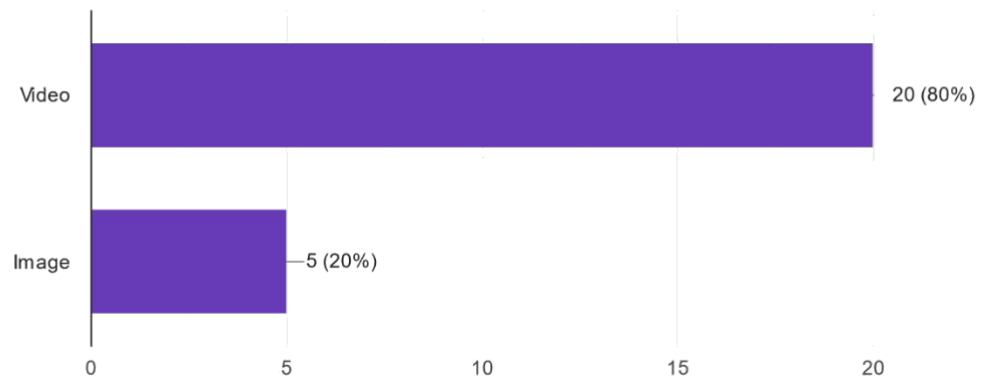
Video	20 (80%)
Image	5 (20%)

(Bar chart: Video = 20 (80%), Image = 5 (20%); x-axis 0 to 20)
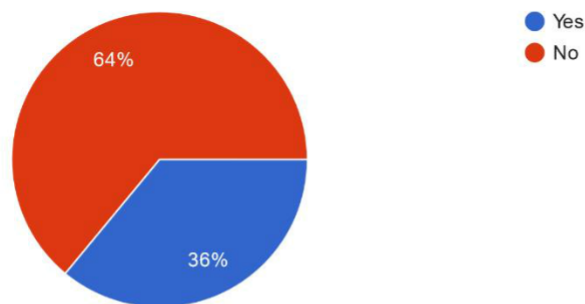
Would you like the app to offer personalised workout and nutrition recommendations based on your fitness goals, preferences, and restrictions?
25 respostas

(Pie chart: Yes 88%, No 12%)

- Yes
- No
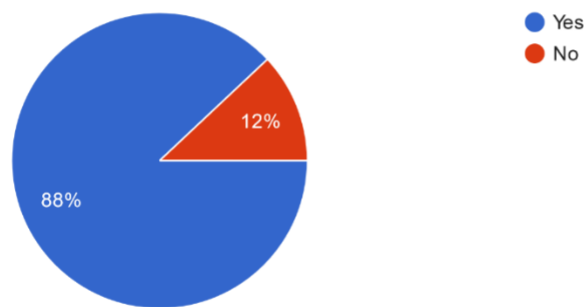
Would you be willing to pay for a gym app?
25 respostas

(Pie chart: No 64%, Yes 36%)

- Yes
- No

Please provide any additional comments or suggestions you would like to see in the gym app.
1 resposta

What features do you consider essential in a gym app?

Price shouldn't be above 1,99€ p/month

easy to use and minimalist

Indicador de peso, altura, forma de funcionamento de máquinas/exercicios

Planos de nutrição

Keeping track of my fitnesse journey

Keep track of your progress, meal planning

Planos de treino grátis adequados ao tipo de corpo

Videos informativos

Treinos, planos de nutrição, horário de funcionamento

contagem de calorias

Guardar dados de peso etc..

Informaçoes sobre a Tecnica dos Exercícios

Workout plans in video

Exercises

Videos do exercícios, dicas nutricionais

The progress of the athlete

Cronômetro e contador de perda de calorias

Providing nutricion information, monitoring heart rate and counting steps or km

Easy ways to attract people to workout

Be intuitive

Vídeo aulas

Temporizador

Informações sobre os exercícios e máquinas

plano de treinos e plano alimentar baseado no imc, peso e altura de cada pessoa

Customizable workout plans and nutrition plans

workout customization and timers

Part II - First Prototype and Heuristic Evaluation

1. Project's abridged description

VirtualGym's goal is to facilitate the life of people that want to keep track of their fitness journey. It provides many features such as personalized workouts, reminders for the tasks you must do and tracking of your meals.

In this prototype, we aimed to display the main functionalities of VirtualGym mentioned above and defined three tasks with the intent of exploring these features:
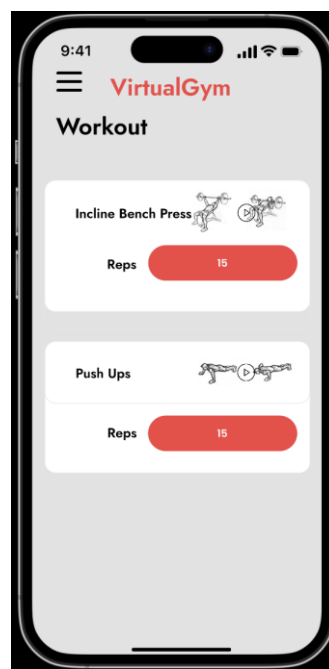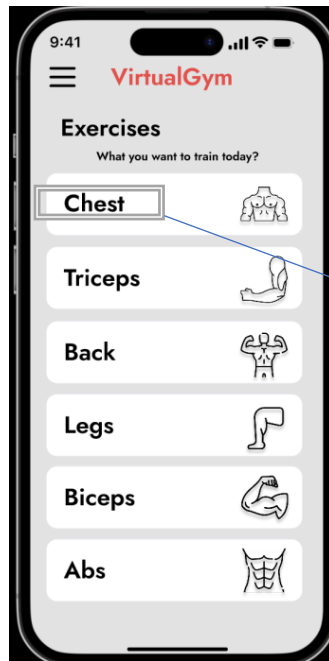
- Add two chest exercises, "Flat Bench Press" and "Push Ups", both with 15 repetitions.
- In nutrition, add "Cereals and milk" to the breakfast.
- Create a reminder for 11/11 at 9:30 AM named "Workout".
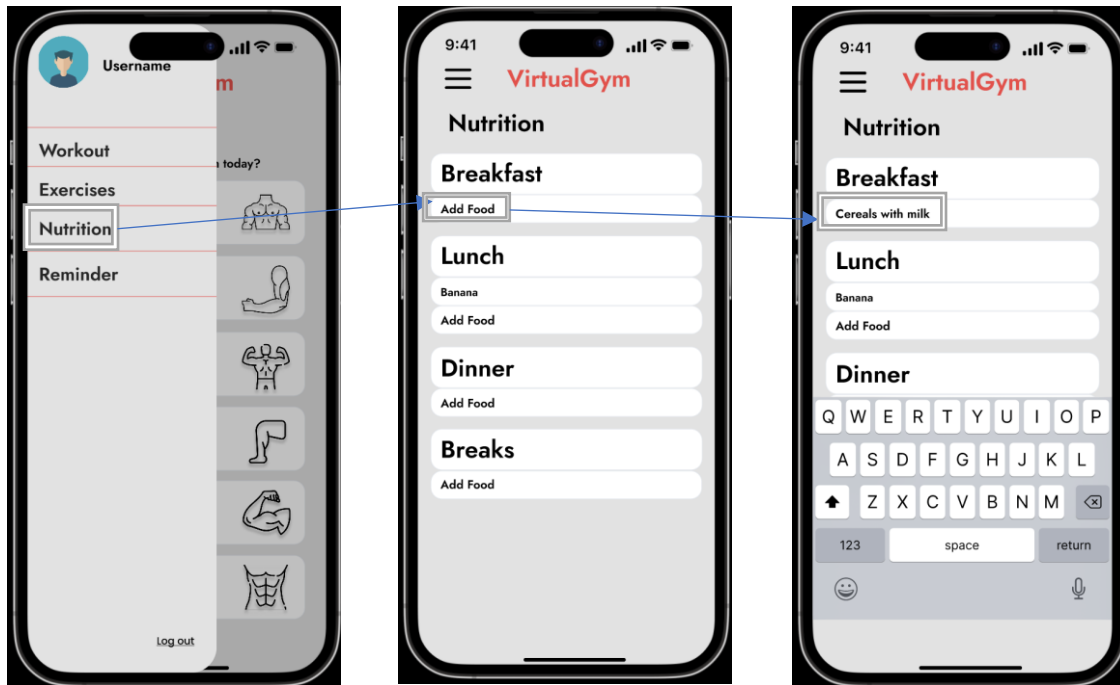
2. Prototype's Wireflow

2.1 Exercises

Task 1: Add two chest exercises, "Flat Bench Press" and "Push Ups", both with 15 repetitions.
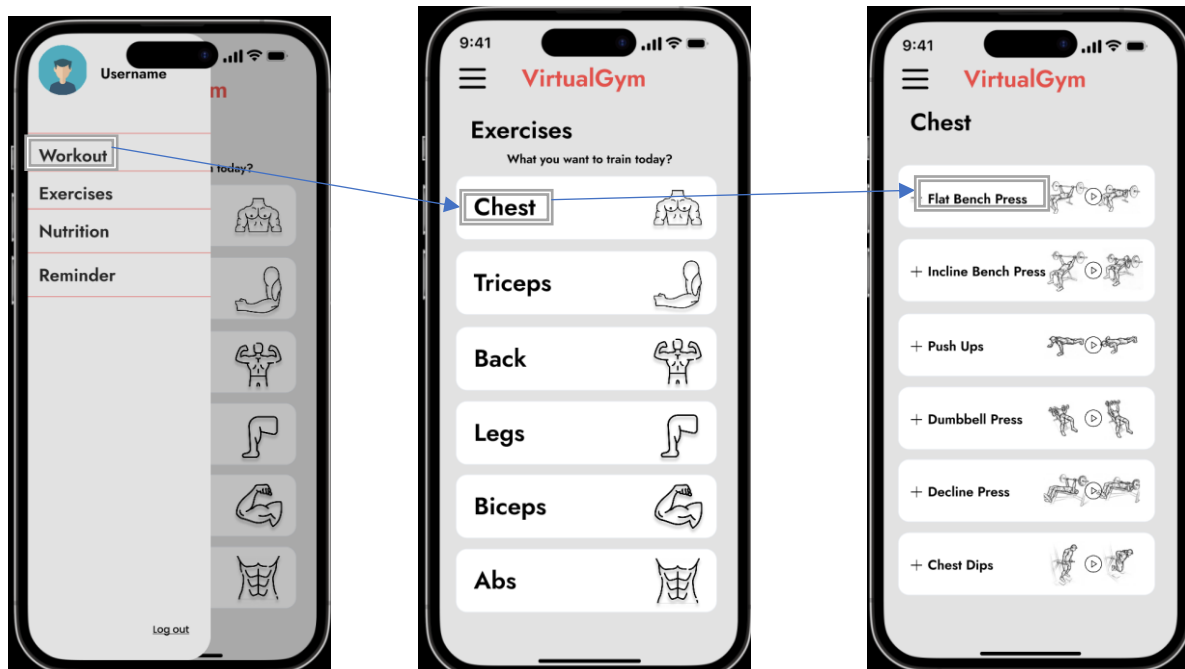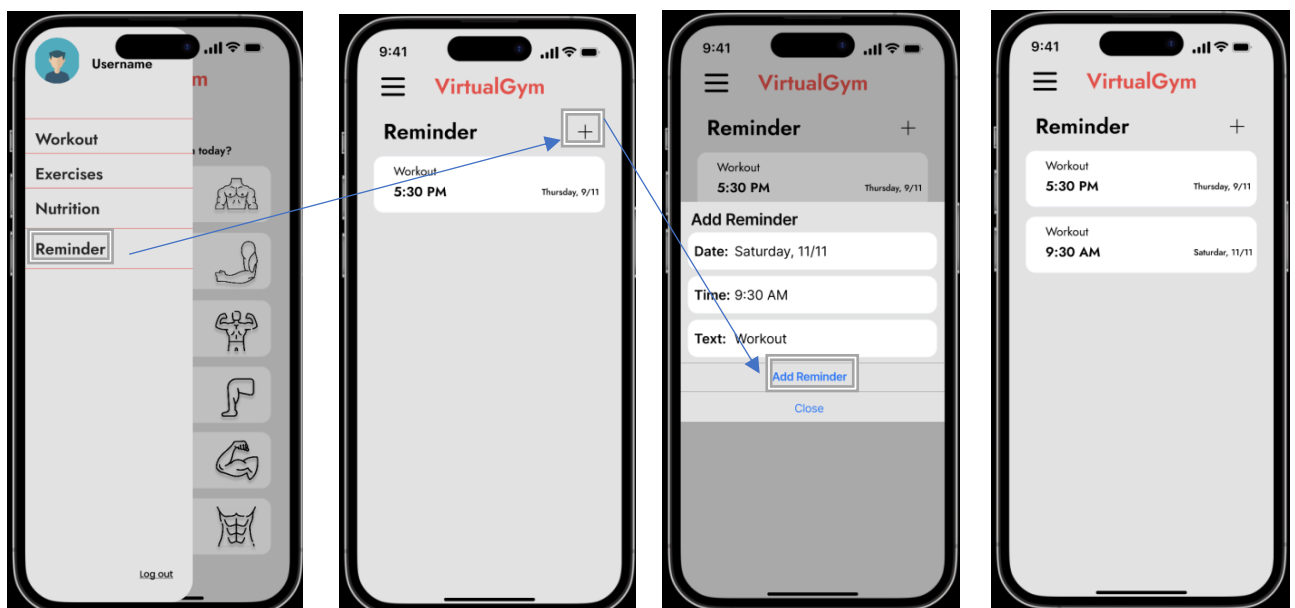
2.2 Nutrition

Task 2: In nutrition, add "Cereals and milk" to the breakfast.

2.3 Reminders

Task 3: Create a reminder for 11/11 at 9:30 AM named "Workout".

3. Heuristic Evaluation Results

The main problems identified by the groups were:

- When adding both chest exercises to your training plan, do not it is possible to choose a different number for both despite the application suggests this possibility. Both keep the number of repetitions selected in the second exercise. (Severity 2)
- When selecting the Flat Bench Press option in the application, it opens the Incline Bench Press exercise. (Severity 2)
- On the Workout page there should be a note saying to add exercises to your Exercises page, as the user confused about how to do it in your first contact with the application. Furthermore, press Exercises present there do nothing. (Severity 1)
- Unappealing design on the page dedicated to the user's meals. (Severity 1)
- It should be possible to create more training plans, so that the user can organize plans by muscle, for example. (Severity 2)

- No HomeScreen when we start the prototype (We don't know where we are). If we click the slogan instead of jumping to the homepage we jump to the exercises. (Severity 4)
- We don't know the difference between workout and exercises, because when we pick an exercise, we jump directly to workout. It is better to have only one workout and have a button to add exercises instead of separating both of those things. (Severity 3)
- For the nutrition page, we don't know if the information changes everyday, maybe it is better to have an history of the nutrition, because the user didn´t know how long the felt out areas are staying. (Severity 3)
- The picture with the play button is very confusing. The user didn´t know if there is a picture or a video you can click on. Because a play button is normally a standard for a video. (Severity 2)
- The date of the reminder is a little bit too small. Date and Time is even important so it should be the same size. (Severity 1)

4. Corrections to perform in Phase 3

Based on the heuristic evaluation of both groups prior to our presented prototype, we concluded we must fix the most critical issues with it:
- **User Experience**: Create a register/login page, that leads into an intuitive home page.

- **Workout Customization**: Clarify the concept behind the personalized workouts and the exercises already defined for each muscle group, also fixing the rep counting button.
- **Nutrition Page**: Add a history feature on the nutrition page, to help with the tracking of the user's diet.

Regarding the design aspects (severity 1), we acknowledge that it can improve, so we'll take care of that in the next phase, with a slightly lower priority.
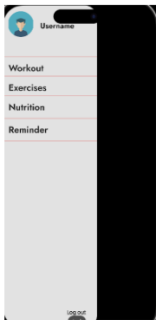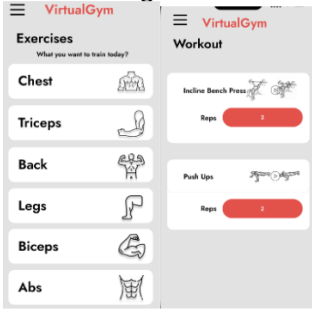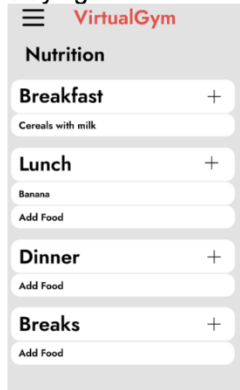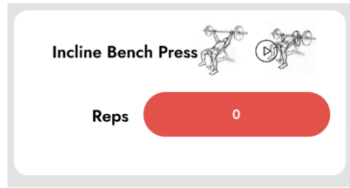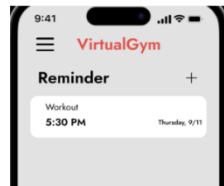
Annexes

Heuristic Evaluation Report
Class Nr.: LEIC06 - 09.11.2023 - Daniel Mendes
Group evaluated: 05 - VirtualGym
By group: 06

Problem #	Issue (include screenshot)	Heuristic(s)	Severity (1-4)
1	No HomeScreen when we start the prototype (We don't know where we are). If we click the slogan instead of jumping to the homepage we jump to the exercises.	1	4

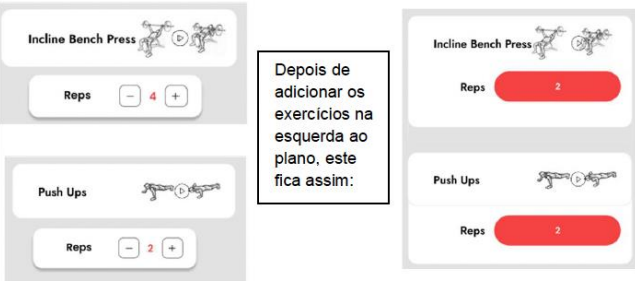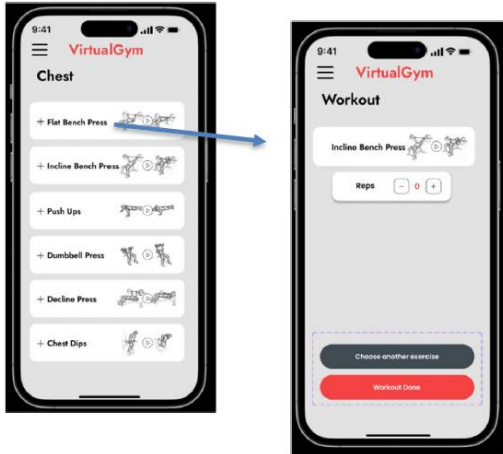| 2	We don't know the difference between workout and exercises, because when we pick an exercise we jump directly to workout. It is better to have only one workout, and have a button to add exercises instead of separating both of those things.	4	3

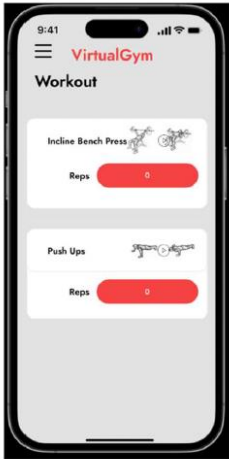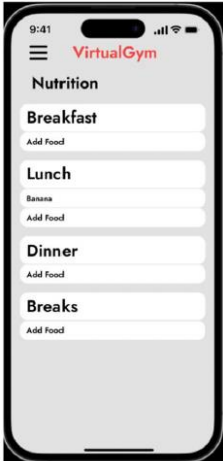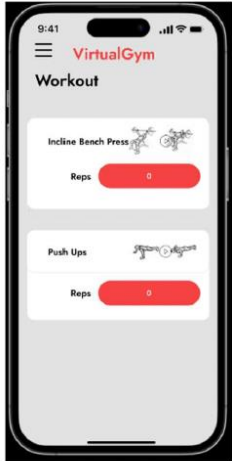| 3	For the nutrition page, we don't know if the information changes everyday, maybe it is better to have an history of the nutrition, because the user didn´t know how long the felt out areas are staying.	2	3
4	The picture with the play button is very confusing. The user didn´t know if there is a picture or a video you can click on. Because a play button is normally a standard for a video.	4/8	2
5	The date of the reminder is a little bit too small. Date and Time is even important so it should be the same size.	8	1

Heuristic Evaluation Report

Class Nr.: LEIC06 - 09.11.2023 - Daniel Mendes
Group evaluated: 04 - VirtualGym
By group: 06

Problem #	Issue (include screenshot)	Heuristic(s)	Severity (1-4)
1	Ao adicionar os dois exercícios de peito ao plano de treino, não é possível escolher um número diferente para ambos apesar da aplicação sugerir essa possibilidade. Ambos ficam com o número de repetições selecionado no segundo exercício. 	5	2
2	Ao selecionar a opção *Flat Bench Press* na aplicação, abre o exercício *Incline Bench Press*. . 	5	2

3	Na página *Workout* devia ter uma nota a dizer para adicionar exercícios na página *Exercises,* visto que o utilizador fica confuso de como o fazer no seu primeiro contacto com a aplicação. Para além disso, carregar nos exercícios lá presentes não faz nada.		6	1
4	*Design* pouco apelativo na página dedicada às refeições do utilizador.		8	1
5	Deveria ser possível criar mais planos de treino, de forma a que utilizador possa organizar os planos por músculo, por exemplo.		7	2

Part III - Second Prototype and User Evaluation

1.1 Prototype's Wireflow

1.1.1 Create a personalize workout

VirtualGym

Workout

Leg Day

Add Workout

Name: Mixed Day

Add Workout

Close

VirtualGym

Workout

Leg Day

Mixed Day

Add workout

VirtualGym

Exercises

What you want to train today?

Chest

Triceps

Back

Legs

Biceps

Abs

VirtualGym

Chest

+ Flat Bench Press

+ Incline Bench Press

+ Push Ups

+ Dumbbell Press

+ Decline Press

+ Chest Dips

VirtualGym

Exercises

Flat Bench Press

Reps — 12 +

Add another exercise

Workout Done

VirtualGym

Exercises

What you want to train today?

Chest

Triceps

Back

Legs

Biceps

Abs

VirtualGym

Biceps

+ Preacher Curl

+ Spider Curl

+ Barberll Curl

+ Hammer Curl

+ Incline Curl

+ Concentration Curl

VirtualGym

Exercises

Flat Bench Press

Reps — 12 +

Barberll Curl

Reps — 12 +

Add another exercise

Workout Done

Screen 1 — Exercises

9:41

VirtualGym

Exercises
What you want to train today?

- Chest
- Triceps
- Back
- Legs
- Biceps
- Abs

Screen 2 — Back

9:41

VirtualGym

Back

- + Bent Over Row
- + Shrugs
- + T-Bar Row
- + Lat Pulldown
- + Face Pull
- + Cable Row

Screen 3

9:41

VirtualGym

Flat Bench Press
Reps − 12 +

Barberll Curl
Reps − 12 +

Bent Over Row
Reps − 12 +

Add another exercise

Workout Done

Screen 4 — Exercises

9:41

VirtualGym

Exercises
What you want to train today?

- Chest
- Triceps
- Back
- Legs
- Biceps
- Abs

Screen 5 — Triceps

9:41

VirtualGym

Triceps

- + Dips
- + Bar Pushdown
- + Skull Crushers
- + Bench Dips
- + Close-Grip Bench Press
- + Overhead Extension

Screen 6

9:41

VirtualGym

Barberll Curl
Reps − 12 +

Bent Over Row
Reps − 12 +

Bar Pushdown
Reps − 12 +

Add another exercise

Workout Done

Screen 7 — Exercise Summary

9:41

VirtualGym

Exercise Summary

Flat Bench Press
Reps 12

Barbell Curl
Reps 12

Bent Over Row
Reps 12

Bar Pushdown

1.1.2 Add breakfast in nutricion
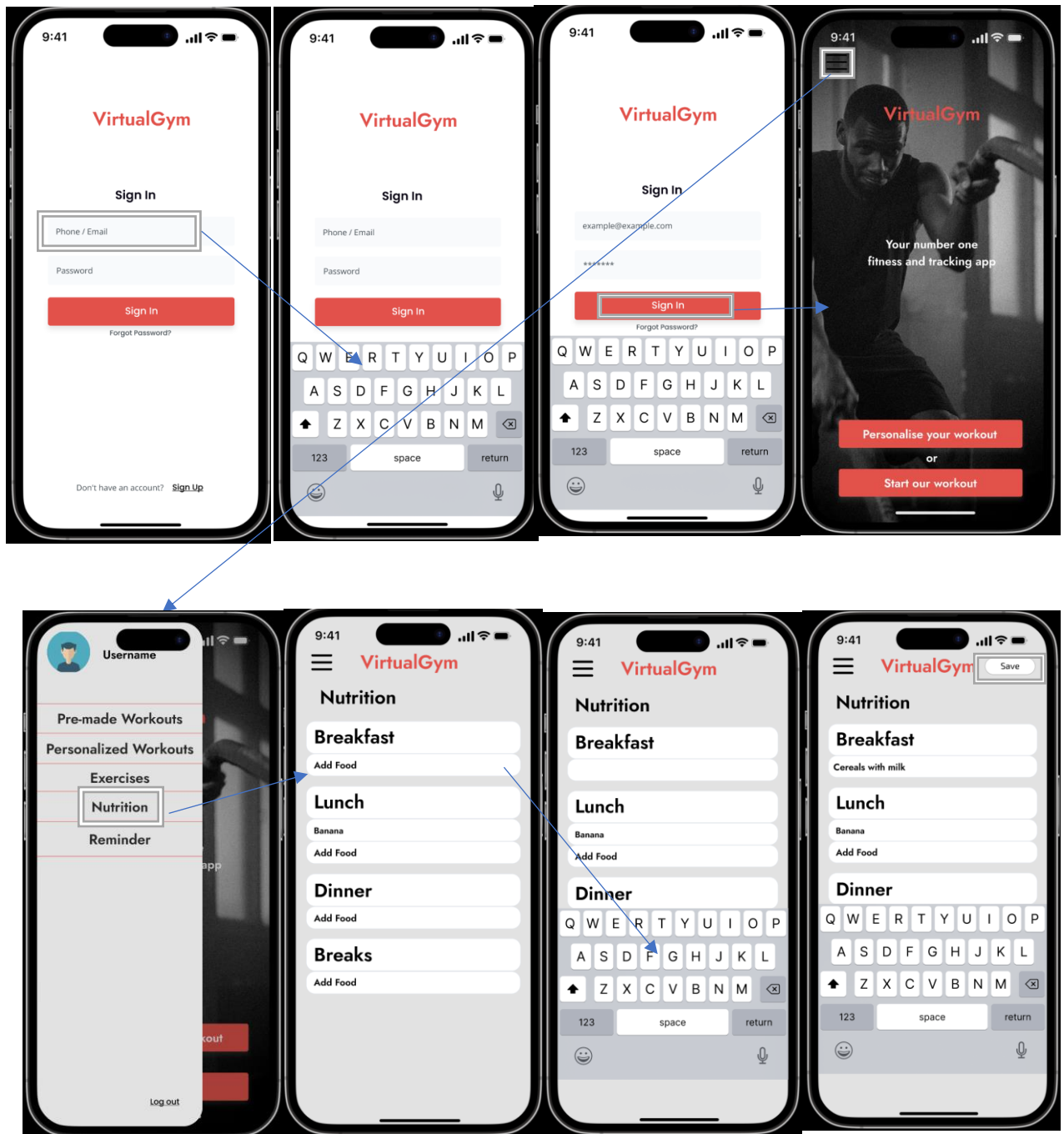
1.1.3 Create a reminder
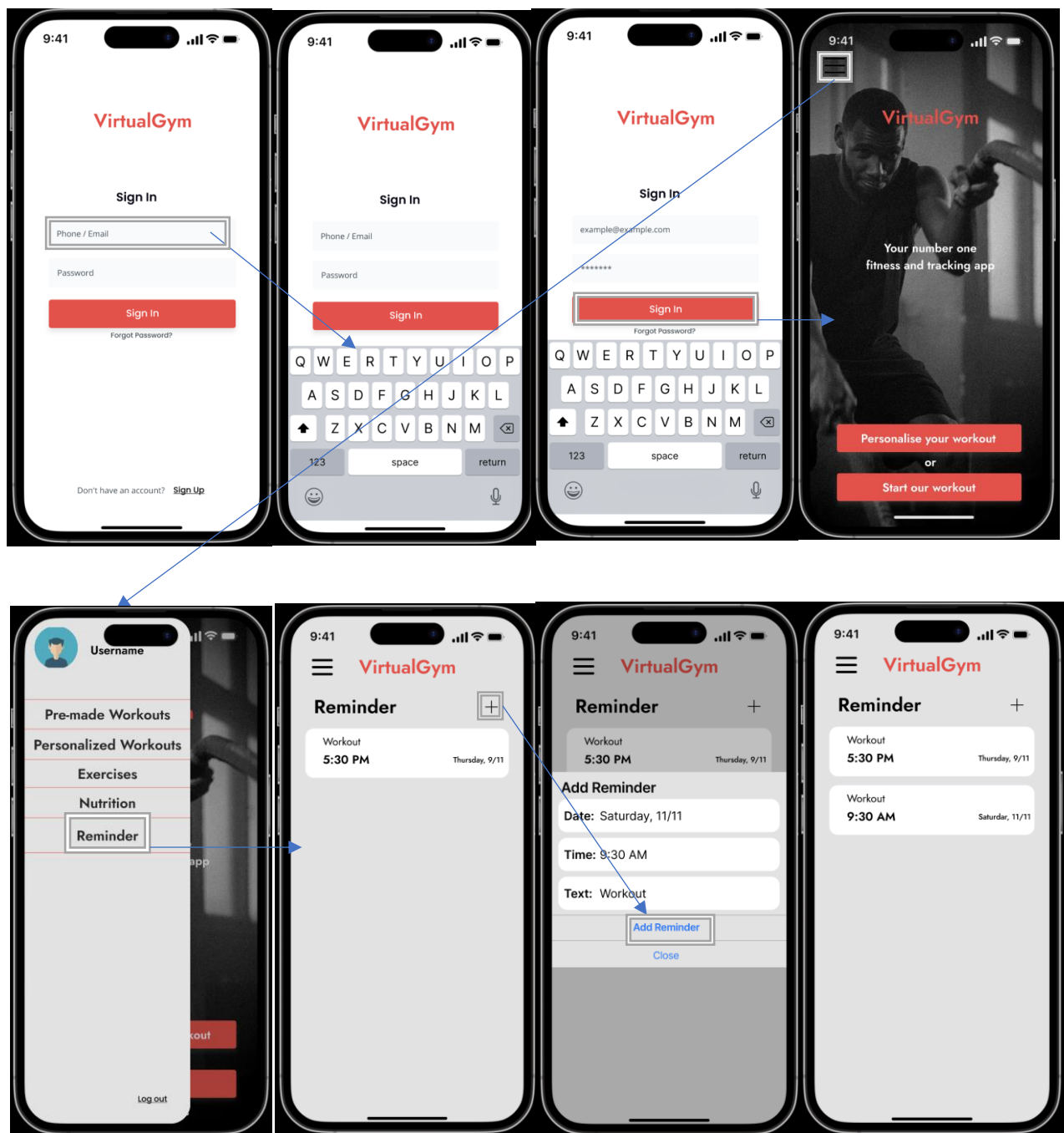
2. URL for live version

4. User Evaluation Protocol

To evaluate the success of our application, a usability test was carried out, which is a summative evaluation involving users where an analysis of their level of performance in carrying out three predefined tasks is done in a natural environment.

First, we'll give you a brief introduction to the application and its purpose, then we'll talk about the features it offers, which you can access via the menu.

1. Task 1 - Create a "Mixed Days" workout with the exercises "Flat Bench Press", "Barbell Curl", "Bent Over Row" and "Bar Pushdown" all with 12 repetitions.
5. Task 2 - In nutrition, add "Cereals and milk" to the breakfast.
6. Task 3 - Create a reminder for 11/11 at 9:30 AM named "Workout".

At the end of each task, we asked the user to fill in a questionnaire to rate the quality of the user interface that the task involved, the intuitiveness in completing the task and the quality of the task (whether boring or fun) from one to five.

In this usability test, a collection of the duration of each user performing each task and the number of errors was also recorded from the sign in page.

After completing all the tasks, we asked the user to answer some questions considering the overall picture like the evaluation of the experience of using the application, the quality of the user interface and the features offered, the relevance of them and the likelihood of using the application.
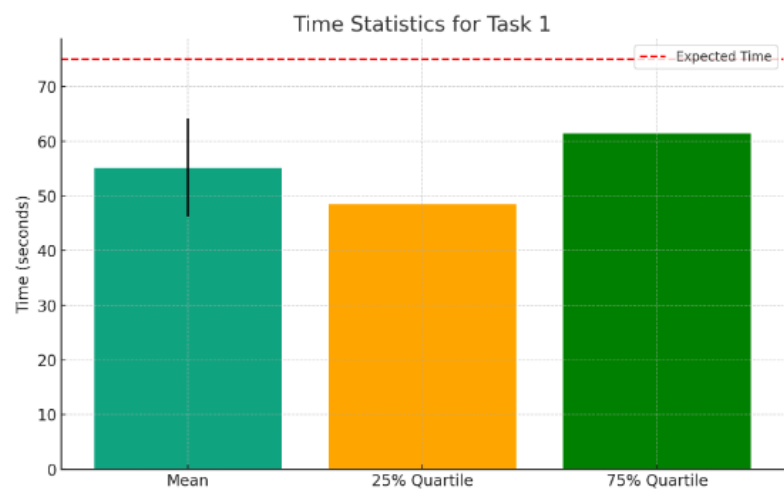
4. Results

With the data collected in the usability test as described above, it was possible to make a statistical analysis to draw the appropriate conclusions from the usability test.
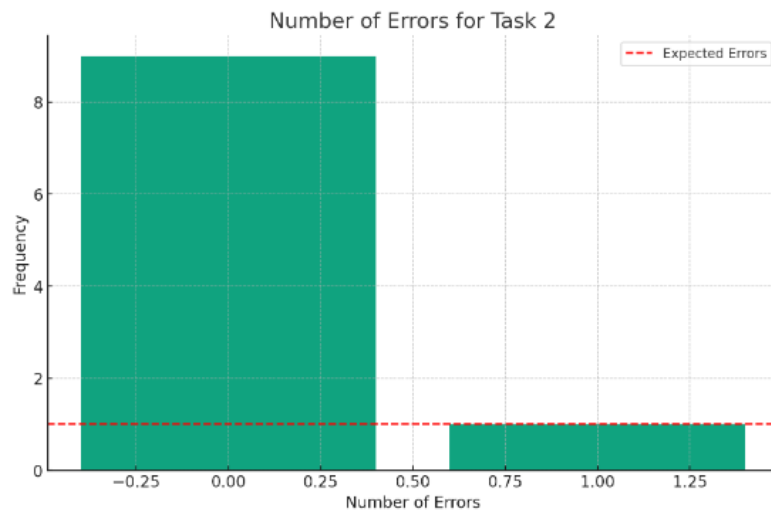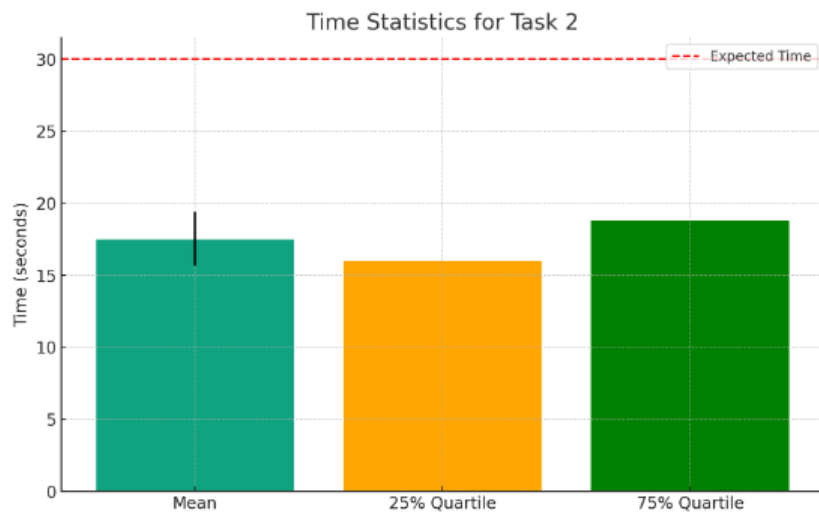
5. Statistical Analysis

Users	Time to complete the task 1	Number of errors	Users	Time to complete the task 2	Number of errors	Users	Time to complete the task 3	Number of errors
1	42	1	1	16	0	1	7	0
2	70	0	2	17	0	2	11	0
3	55	1	3	15	0	3	8	0
4	45	0	4	16	0	4	10	0
5	48	1	5	18	1	5	9	0
6	60	0	6	19	0	6	12	1
7	53	2	7	20	0	7	9	0
8	67	1	8	17	1	8	10	0
9	50	0	9	16	0	9	13	0
10	62	1	10	21	0	10	8	0

As it can be seen above, we measure the duration that each user took to perform each task. We calculated the mean, median, standard deviation and the first and third quartiles for each task, which we show below. We also present a graph duration with the data from all the users so we can analyse in a better way the distribution of that data.
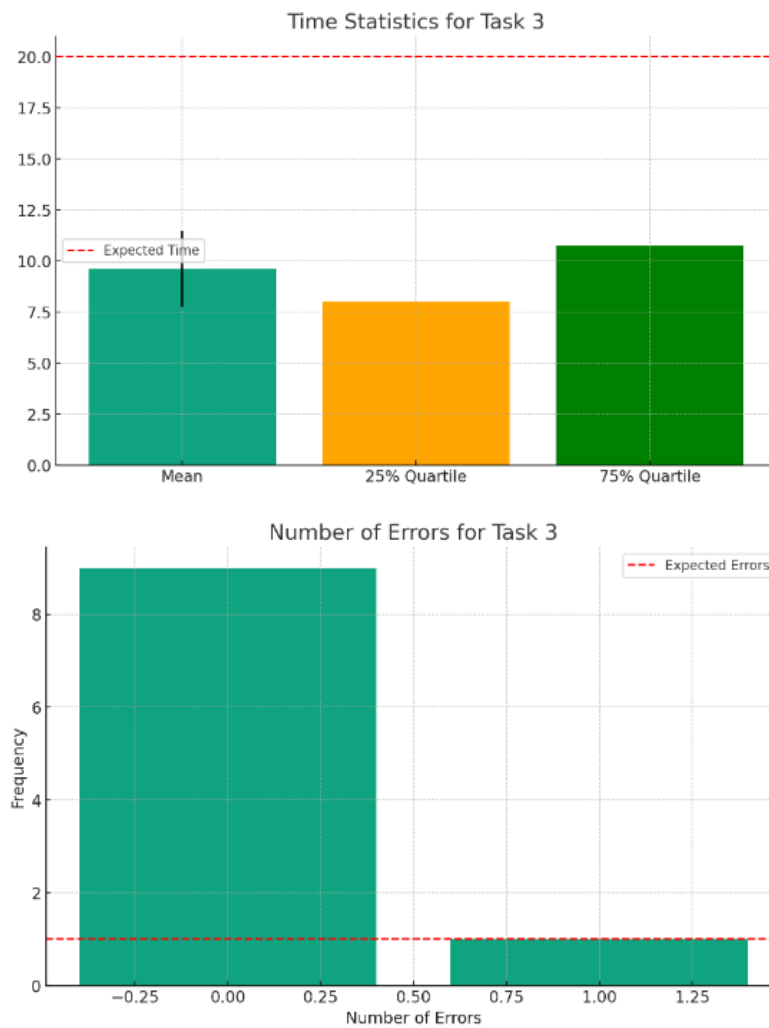
Task 1:

Time Statistics for Task 1

Number of Errors for Task 1

Task 2:

Time Statistics for Task 2

Number of Errors for Task 2

Task 3:

Time Statistics for Task 3

Number of Errors for Task 3

Through the data collected for each task, it was possible to calculate the confidence interval with alpha=0.05 and compare it with the data that we had predicted in the previous phases.

	Confidence interval		Time Expected	
	Time	Errors	Time	Errors
Task 1	[48.5-61.9]	[0.22 - 1.18]	75 seconds	3
Task 2	[16.1 - 18.9]	[-0.1 - 0.5]	30 seconds	1
Task 3	[8.35-11.05]	[-0.13-0.33]	20 seconds	1

1. Data analysis of task one:

For the first task as it can be seen above the value we predicted for the duration of the task and the number of errors was a bit high, as the users completed the task in less time, which is a very good indicator.

2. Data analysis of task two:

Regarding the second task, the duration was, once again, much less than we had anticipated.

3. Data analysis of task three:

Finally, regarding the third task, the duration was again shorter than expected, thus revealing a good understanding of the users for all tasks.

User feedback regarding tasks: Regarding the comments on each task regarding its difficulty, in task one user found the task difficult and two of them suggested a change and in task two and in task three no one found the task difficult.

7. Data related to overall satisfaction

In the final questionnaire, we asked the user five questions about satisfaction with the application and its features with the answer being on a scale of one to five. In all questions, the mode and the median were both four which indicates a good satisfaction with the application. At the end, we also asked if the user would use the app and the responses were also very positive.

8. Conclusions

This phase was very helpful because we got an idea of the feedback our app would receive in a real context, and by carrying out a summative assessment involving users, it is possible to verify the areas where we could have improved our application and the features.

The usability tests allowed us to get a different view of what we've done up to this stage because it's the first time that our application is being used by someone who had no influence on its development and with these tests we can see if the requirements that we had anticipated were failed or not.

In general, we were satisfied with the results of this phase. We realized that users had a positive reaction on our application and that most of them were able to finish tasks without difficulty.