HealthSync

Phase 3 Report – Second Prototype and User Evaluation

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PART 1 - Project's idea description

The main goal of the *HealthSync* app is to empower young individuals to proactively manage their health with mindfulness and organization. Our aim is to create a platform where they can effortlessly maintain and monitor crucial medical data, such as tracking medical appointments, connecting with healthcare specialists, reviewing vaccination records, managing medications, accessing exam results and certificates, and more.

To fulfil this vision, we intend on delivering an experience tailored specifically to this demographic. We aim to go beyond the more conventional health apps by integrating elements like gamification, interactive features, and a thriving community. By infusing these aspects into our app, we aim to make the process of health management not only more engaging but also deeply rewarding for young users.

Related apps / services / systems

The Portuguese national health service app, commonly known as SNS24, is our project's main inspiration.

This app gives the user access to multiple documents like COVID-19 digital certificate, prescribed exams, medical prescriptions, vaccine card, as well as the ability to schedule online appointments. It also displays various contacts and information.

Questionnaire – Highlights

Sample Size and Demographics:

- Sample size: 22 participants
- Predominant age group: 18-25
- Predominant gender: male

We sent the questionnaire to participants mainly of this age group, since the app was made mainly for young users around this age interval.

Although we tried to diverse in terms of the gender of the participants of the questionnaire since the app was made to be used by users of any gender, the predominant gender ended up being male purely by coincidence.

Preferred Device:

- 59.1% of the participants prefer to use smartphones.
- 36.4% of the participants prefer to use computers.

Of all the devices we proposed for the app to be developed for the questionnaire participants mainly preferred the smartphone, although a considerable percentage preferred the computer. We decided to include both percentages, but since the percentage of the participants who chose smartphone was greater, we decided to design the app for that kind of device.

Healthcare App Usage:

- 18.2% have never used them.
- 89.4% found the app easy to navigate through.

We decided to ask this question to the participants to try to understand what kind of experience we could expect from possible users of our app. And from this we discovered that a small percentage of participants had never used this sort of app and a big percentage of participants had a previous experience with a similar app and found it easy to use/navigate through that app.
This made us conscious about the challenge we would have at designing the app, to meet the expectations of easier usability than the other apps the users had experienced before and make the design simple so the users that never had any contact with this sort of app, would be able to navigate easily through the app.

Patient Data Importance:

- 90.9% of the participants find useful to have all their medical data in just one app.

This question allowed us to know if we should focus the app on a few specific features, for example, focus only on the medication the users need to take and make features around that, for instance, creation of alarms to take the medication,

list of prescribed medication, etc. Or if the users would prefer a global app where they could keep every kind of their personal medical information.

And as we can observe by the results presented by the percentage of participants preferences, they indeed wanted the app to have all their medical data so it would be easier for them to keep track of it.

Notification and custom notes:

- 90.9% of the participants found helpful to have notifications to remind them to take medication on time.
- 68.2% participants think that sometimes it would be useful to be able to take custom notes about medical appointments in the app.

Most of the questionnaire participants thought it was very helpful if the app had notifications to remind them of certain events. This question helped us decide to integrate notifications in the design of our app, since we doubted the users would find them useful or annoying.

A considerable amount of the participants found useful to be able to take custom notes on the app, on certain occasions, because of that, in certain features of our app (only the ones we thought this addition would make sense) we decided to implement this possibility for the users to take custom notes.

Communication:

- 40.9% of the participants prefer to meet with healthcare professionals in person, while 31.8% prefer to text chat with them.
- 31.8% of participants find it useless to be capable to communicating with each other through the app while other 31.8% consider this feature to be of small importance.

Although we thought the participants of the questionnaire would prefer to engage with healthcare professionals through the app, we learned through this question that they actually preferred to meet with them in person. But since the percentage of users that preferred to text them via chat in the app was kind of close to the percentage of users who would prefer to meet them in person instead, we decided to include features to make those two options possible in our app.

Since most of the participants found it useless or of small relevance for the app to have a communication feature for users to be able to communicate with each other, once again proving that we were wrong about what the users would want. Because of this unexpected result, we decided to not include any communication feature between users in our app.

Engagement:

- 40.9% of participants agree there is a lack of “fun factor” in this kind of apps.

Since a significant amount of the questionnaire participants agreed that there was a lack of features that kept the users motivated to continue to use the app regularly in this sort of apps, we decided to implement in our design a few features that would stimulate fun as well as competitivity between users to keep them motivated to keep using the app more regularly.

PACT Analysis

People:

- **Learners/End Users:**
    - **Young individuals (target demographic)**: This group is the primary focus of the app. Their health management needs, technological proficiency, and engagement preferences should be at the forefront of design considerations. The app should be intuitive, engaging, and beneficial for them.
    - **Different levels of technological proficiency**: The app should cater to users with varying degrees of comfort with technology. It should be easy to navigate for beginners, while also offering advanced features for more users accustomed with technology.
    - **Some may have limited health knowledge**: The app should provide educational content to help these users understand their health better. This could include simple explanations of medical terms, health tips, and resources for further learning.
    - **Others might be health conscious**: For these users, the app could offer more detailed health data tracking, personalized health insights, and advanced health management tools.
    - **Varying levels of motivation and engagement**: The app should offer features that cater to different motivation levels. For instance, gamification and community features can help engage users who need more motivation, while straightforward health tracking and management tools might be preferred by highly motivated users.
- **Healthcare Specialists:**
    - **Doctors, nurses, specialists, and other healthcare professionals**: These individuals play a crucial role in providing medical care and support to app users. The app should offer efficient and secure communication tools, easy access to patient records, and convenient appointment management features. It's also important to consider their workflow and how the app can integrate into it without causing disruption.
    - **Need to adapt to using the app for communication and appointment management**: Training and support should be provided to help these professionals adapt to the app. Their feedback should also be considered in the app's ongoing development to ensure it meets their needs and enhances their ability to provide care.
- **App Development Team:**

- **Designers, developers, testers, and project managers**: This team is responsible for turning the app's vision into reality. They should have a deep understanding of the target demographic's needs and preferences. Regular user testing and feedback collection can help ensure the app meets its intended goals.
- **Need to understand the needs and preferences of the target demographic**: The team should engage in user research, such as interviews and surveys, to gain insights into the target demographic. This can inform the design and development process and lead to a more effective and user-friendly app.

Activities:

- **End Users:**

1. **Creating and maintaining a digital vaccine card:** This feature allows users to have a consolidated view of their vaccination history, which is especially useful in the current global health scenario.
2. **Scheduling medical appointments**: The app should provide a seamless interface for users to schedule, reschedule, and keep track of their medical appointments.
3. **Managing medications and reminders**: Users should be able to input their medication details and set up reminders to ensure they never miss a dose.
4. **Interacting with gamification elements**: Gamification can make the process of health management more engaging. Users could earn points or rewards for maintaining healthy habits.
5. **Participating in the community and competition groups**: A community feature can provide a platform for users to share experiences, learn from each other, and even participate in health challenges.
6. **Tracking daily health habits**: Users should be able to log and track various health habits like diet, exercise, sleep, etc., to get a comprehensive view of their health.
7. **Engaging with daily health tips and questionnaires**: Daily health tips can provide users with valuable information, and questionnaires can help them understand their health better.
8. **Maintaining a health journal**: A health journal can help users track their health progress over time and can be a valuable tool for discussions with healthcare professionals.

- **Healthcare Specialists**:
    1. **Communicating with patients through the app**: The app should provide a secure and efficient communication channel between healthcare specialists and patients.
    2. **Accessing patient records and appointment details**: Healthcare specialists should be able to easily access necessary patient information to provide appropriate care.
    3. **Providing guidance and support through the platform**: The app can serve as a platform for healthcare specialists to provide guidance and support to patients, enhancing the overall care process.
- **App Development Team:**
    1. **Designing and developing app features**: The team is responsible for translating user needs into functional app features.
    2. **Conducting user testing and feedback collection**: Regular user testing and feedback collection are crucial for continuous improvement of the app.
    3. **Maintaining the app's functionality and security**: Ensuring the app functions smoothly and securely is a key responsibility of the team.

Context:

- **Usage Environment:**
    - **Smartphone Access**: The app is designed for use on smartphones, ensuring compatibility and optimization for mobile devices.
    - **Seamless Functionality**: The app should work well in various settings, including home, school, and clinics, providing consistent performance across different network conditions.
- **Working Culture:**
    - **User-Centric Development**: The development team focuses on user needs, adopting a user-centric approach in design and development decisions.
    - **Promotion of App Adoption**: Healthcare organizations actively encourage their staff to use the app, fostering a culture of digital health management.
- **Resource Availability:**
    - **Funding**: Adequate resources are allocated for development, maintenance, and marketing, ensuring the app's quality and reach.

    - **Healthcare Data Access**: The app integrates with existing healthcare databases, providing users with accurate and up-to-date health information.
    - **Human Resources**: A skilled team, including designers, developers, testers, and support staff, is in place for app development and user support.
- **Constraints:**
    - **Healthcare Regulations Compliance**: The app adheres to all relevant healthcare regulations, ensuring user data is handled securely and ethically.
    - **Competition**: The app offers unique features to differentiate itself from similar apps, aiming to provide a unique value proposition to users.
    - **Technological Advancements**: The app is designed to adapt to ongoing tech advancements, ensuring it stays current and continues to meet user needs effectively.

Technologies:

- **Development Tools:**
    - **iOS and Android development tools**: The app is developed for both iOS and Android platforms, ensuring it can reach a wide range of users.
    - **Data security and privacy measures**: The app incorporates robust data security and privacy measures to protect user information.
    - **Integration with healthcare databases and systems**: The app integrates with existing healthcare databases and systems to provide accurate and up-to-date health information.
    - **Continuous improvement practices**: The development team employs practices such as agile development and continuous integration/continuous deployment (CI/CD) to ensure the app is regularly updated and improved.
- **User Interface and Experience**:
    - **Intuitive and engaging user interface**: The app features a user-friendly interface that is easy to navigate, making it accessible to users with varying levels of technological proficiency.
    - **Gamification features**: The app includes gamification elements to make health management more engaging and rewarding for users.
    - **Data security and privacy**: The app prioritizes user data security and privacy, ensuring that sensitive health information is handled securely and ethically.

Personas

Sarah Johnson

Age: 32

Education Level: BBA (Bachelor of Business Administration)

Occupation: Marketing Manager

Family: Single, No children

Location: London, UK

Preferred devices: Mobile Phone

Lifestyle

Sarah is a busy working professional who values her health and well-being. She's well-educated and tech-savvy, always looking for convenient solutions to manage her health and medical-related tasks efficiently. She lives in a bustling city and has a hectic work schedule, often making it challenging to keep track of her medical appointments, prescriptions, and vaccination records.

Needs

- Sarah wants a centralized platform to store and manage her health records, including vaccination cards, test results, and prescription details.
- She needs a feature that sends her reminders for upcoming medical appointments and allows her to schedule appointments conveniently through the app.
- Easy access to her COVID-19 vaccination certificate is essential for travel and attending events. She wants to store this digitally within the app.
- Integration with her calendar app will help her see her medical appointments and health-related tasks alongside her work and personal commitments.

Pain Points

- Sarah frequently visits various healthcare providers, leading to a pile of paperwork that's hard to organize. She often struggles to locate her vaccination card, test results, and prescription information when needed.
- With her busy life, Sarah often forgets to schedule medical appointments in advance. She needs a reminder system to keep her appointments in check.
- Sarah has a few prescription medications she takes regularly. She often forgets to refill them and sometimes misses doses due to her hectic schedule.
- With the ongoing COVID-19 pandemic, Sarah needs easy access to her vaccination records and COVID-19 certificates for travel and access to certain venues.

Richard Anderson

Age: 65

Occupation: Retired

Family: Married, 2 children

Location: Birmingham, UK

Preferred devices: Computer

Lifestyle

Richard is a retired individual who has spent most of his life working in the construction industry. He lives in a suburban neighborhood and is enjoying his retirement by pursuing hobbies like gardening, woodworking, and spending time with his grandchildren. Richard grew up in a time before smartphones and modern technology became widespread, so he may not be as tech-savvy as younger generations.

Needs

- Richard needs a straightforward and user-friendly app that helps him manage his medical appointments, prescriptions, and health records without being overly complicated.
- He wants an app that sends reminders for taking medications and refilling prescriptions to ensure he stays on top of his health.
- An option to track and manage the healthcare needs of his family members would be valuable.
- The app should be easy to use, with clear instructions and support for users like Richard, who may not be tech-savvy.

Pain Points

- As he is getting older, Richard must manage various health-related appointments, medications, and regular check-ups. Keeping track of all these can be overwhelming.
- Richard is not as comfortable with smartphones and computers as younger generations. He often finds it challenging to use apps and digital tools.
- He is also concerned about the health of his family members, including his spouse and children, and wants to keep track of their medical records and appointments.

Activity Scenarios

Activity Scenario 1

Sarah Johnson has been planning a trip to visit her family in another country. Before traveling, she needs to access her COVID-19 vaccination certificate, which can be found in the *HealthSync* app.

Sarah takes out her iPhone and opens the app to access her vaccination records.

Sarah sees her COVID-19 vaccination certificate listed. She opens it to view the certificate.

Sarah decides to save a digital copy of the certificate to her phone's gallery for easy access while traveling. She also shares a screenshot of the certificate with her airline's app as it's required for her flight.

While in the app, Sarah notices that her COVID-19 certificate will expire soon. She goes to the app's calendar and adds a reminder for herself to schedule the booster shot appointment when she gets back home.

With her COVID-19 certificate saved and a reminder set for her booster shot, Sarah feels well-prepared for her upcoming trip. She appreciates the convenience of having all her health-related information in one place with the *HealthSync* app.

Activity Scenario 2

One morning, Richard Anderson is sipping his coffee and looking at his handwritten calendar, where he's noted down upcoming medical appointments for himself. He realizes that he needs a more efficient way to manage these appointments and receive timely reminders.

Richard picks up his smartphone, opens the *HealthSync* app and enters the details of his next doctor's appointment. He adds the date, time, location, and purpose of said appointment.

Richard sets reminders to be sent to his smartphone. He chooses to receive a reminder one day before, two hours before, and 30 minutes before each appointment, ensuring he does not forget.

After adding the appointments, he sees a calendar view that displays all the appointments in a clear and organized manner.

Richard notices that he made a mistake in the location of his appointment. He taps on the appointment, edits the location, and saves the changes.

Over the next few days, Richard receives reminders on his smartphone about the upcoming appointments. He appreciates the convenience and peace of mind that the app provides.

On the day of the appointment, Richard arrives at the respective healthcare facilities on time, thanks to the timely reminders from *HealthSync*.

After the appointment, Richard updates the app with any relevant information provided by the healthcare providers, such as prescription details or next appointment dates.

Richard feels relieved that he no longer needs to rely on handwritten notes and can easily manage his family's medical appointments with *HealthSync*. He is pleased with how user-friendly and reliable the app has been in simplifying this aspect of his life.

Functionalities and tasks

Health Management

- **Digital Vaccine Card**: A secure digital repository for vaccine records.
- **Digital Certificates**: Easily accessible digital certificates for medical events.
- **Medical Appointment Scheduling**: A streamlined system to schedule medical appointments.
- **Digital Exam Results**: Instant access to exam results through the app.
- **Healthcare Specialist Contact**: Seamless communication with healthcare specialists and family doctors.
- **Medication Tracking**: Easily check prescribed medication details.
- **Medication Reminders**: Set personalized medication reminders and receive notifications to ensure timely doses.
- **Custom Reminders**: Create custom reminders for essential daily activities such as sleep, exercise, hydration, and screen time management.
- **Daily Health Habits Checklist**: Offer a simple checklist of daily health habits for users to plan and organize their day, potentially linked to the badge system. Users can choose from a predefined set of activities (e.g., 8 hours of sleep, 30 minutes of exercise, dental hygiene, etc.).

Engagement and motivation

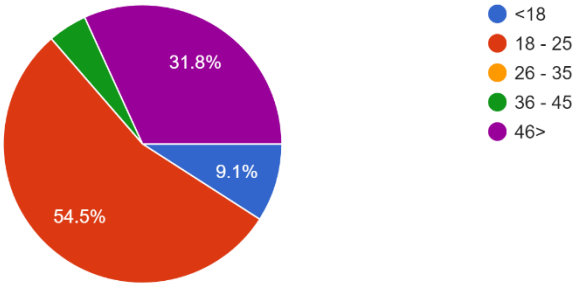
- **Gamification System**: Implement a badge and reward system throughout the app to motivate young users to be more organized and responsible with their health, fostering greater engagement.
- **Comprehensive Calendar**: A feature-rich calendar to track past and upcoming appointments, serving as both a visual checklist and contributing to the badge system.
- **Appointment Details Card**: Access detailed information about appointments, including the associated medical specialty and contact details for the attending doctor.
- **Appointment Notes**: Attach personal notes to specific appointments within the calendar.
- **Daily Health Tips**: Deliver informative and engaging daily health tips or facts, which can also contribute to the badge system.
- **Daily Mini Questionnaire**: Provide a brief daily questionnaire, possibly related to the daily health tip, allowing users to accumulate points and maintain streaks of correct answers, contributing to the badge system.
- **Health Journal**: Enable users to maintain a daily health journal, where they can write down thoughts and reflections on their health journey. This journaling activity can also be integrated into the badge system.

Community Engagement: Foster a sense of community by creating competition groups, like Apple's activity rings, where users can compete based on their daily questionnaire points over a specified period. Encourage users to share badges, accomplishments, thoughts, journal entries, and engage in messaging and chats with other users.

Annexes - Part 1

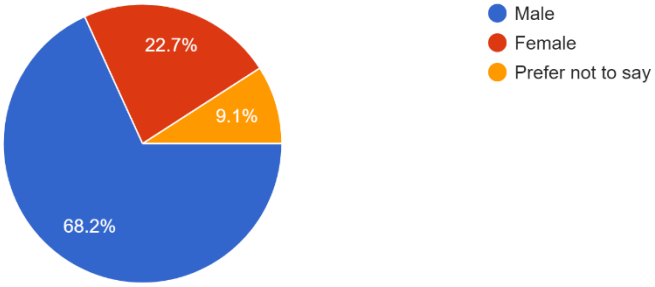
How old are you?

22 responses



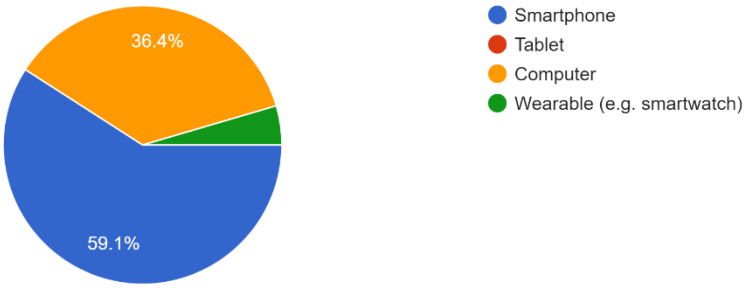
Gender

22 responses



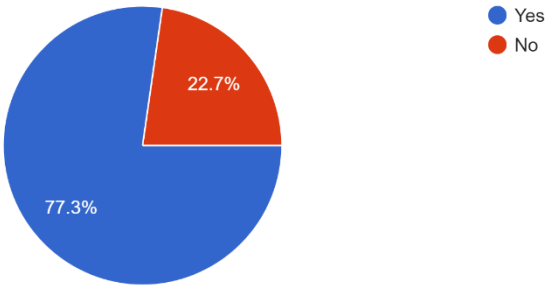
Which, out of the following devices, do you use the most ?

22 responses



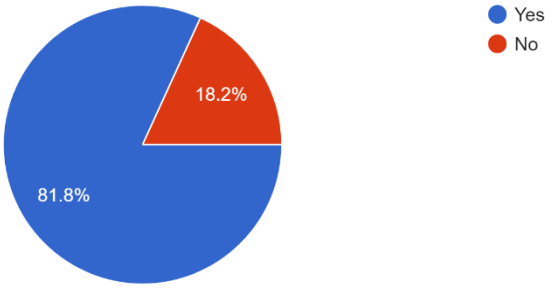
Have you ever used any healthcare/medically related apps ?

22 responses



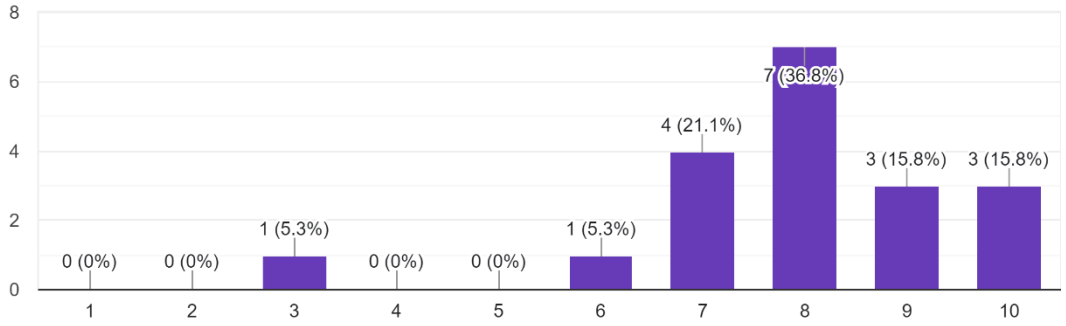
Have you ever used any app specifically for consulting medical records/info, organize appointments e.t.c (e.g. App SNS24) ?

22 responses



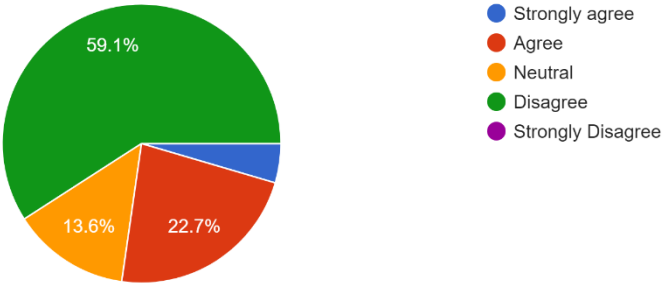
On a scale of 1 to 10 how easy it was for you to learn/use that app's interface ?

19 responses



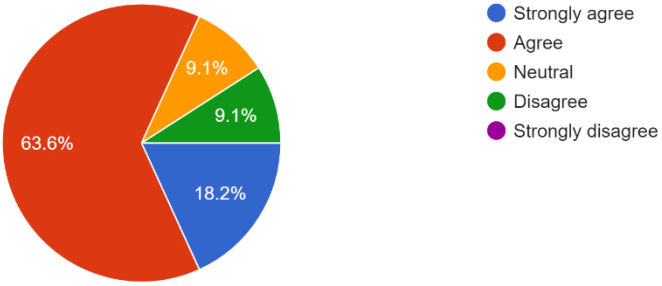
"Young people care more about their health than older people."

22 responses



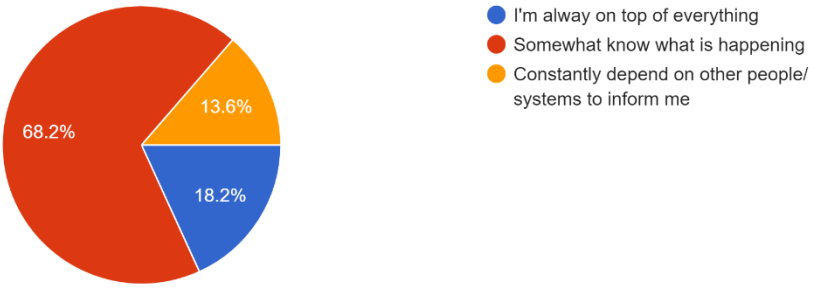
"Young people should be more mindful and organized regarding their medical life, than they are."

22 responses



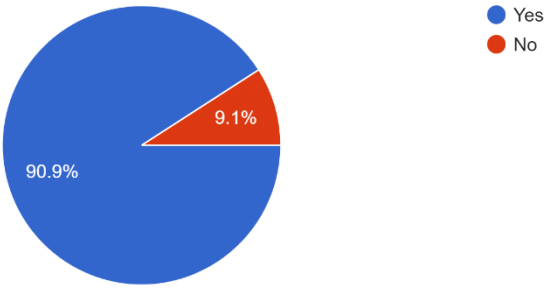
How independent/responsible are you regarding your medical life ?

22 responses



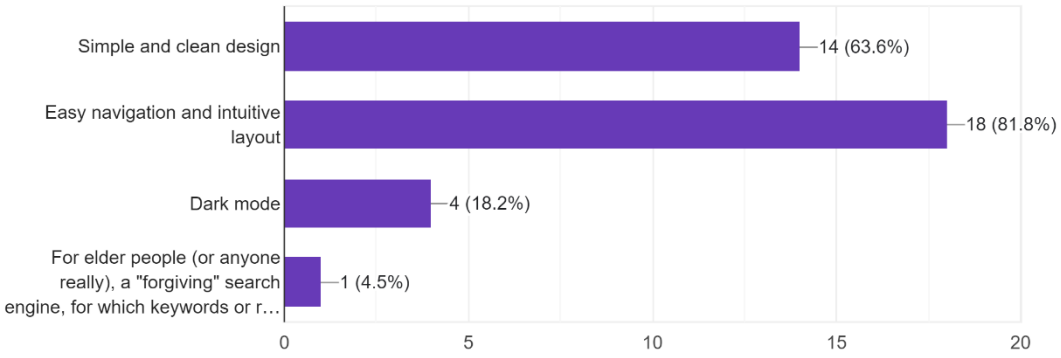
Do you think that having your medical information organized into one place, would genuinely increase your awareness/knowledge of your medical life.

22 responses



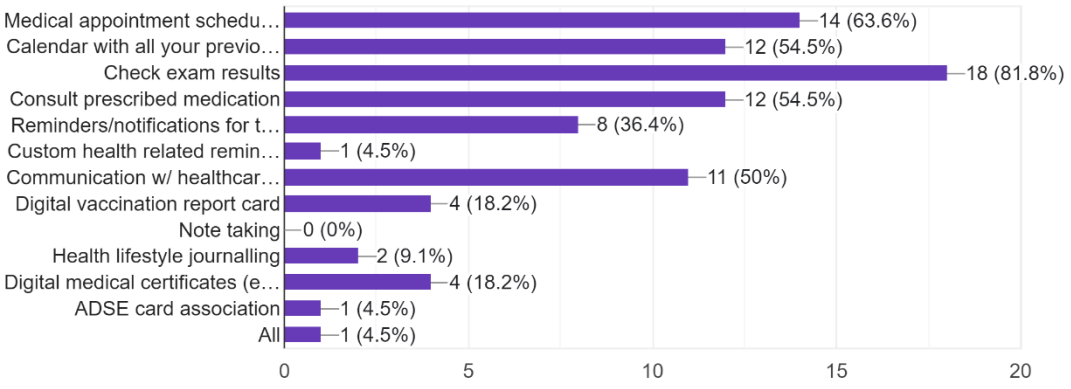
Which of these principals do you think are valuable for the user experience ?

22 responses



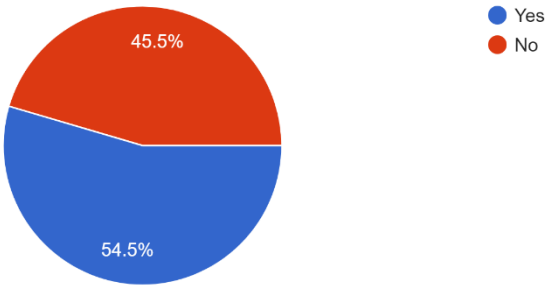
Select out of the following features, the 4 you believe to be the most important for a healthcare organization/planner type app ?

22 responses



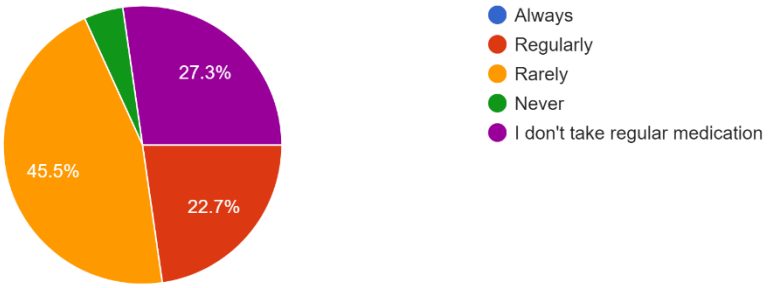
Do you take any medication regularly ?

22 responses



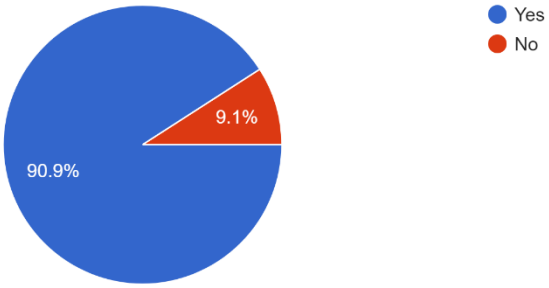
How often do you forget to take it on time ?

22 responses



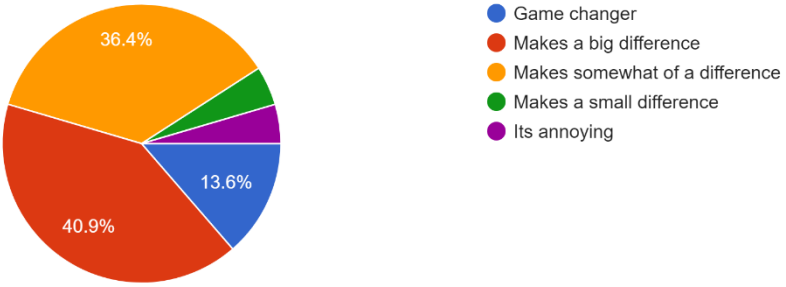
Do you think that receiving a notification from your phone could be helpful for that particular issue (even if you are not apart of that group) ?

22 responses



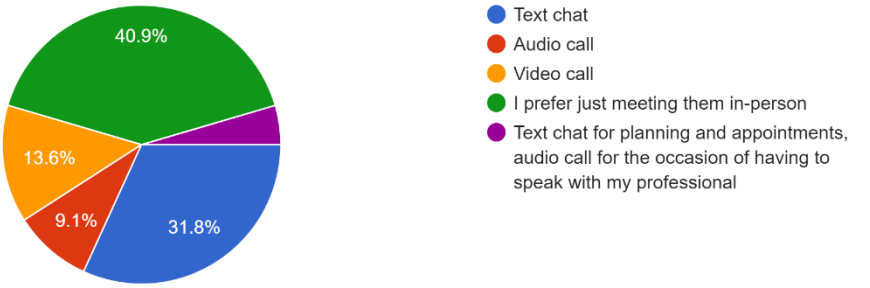
What is your opinion on using reminders/notification as a way of establishing good habits ?

22 responses



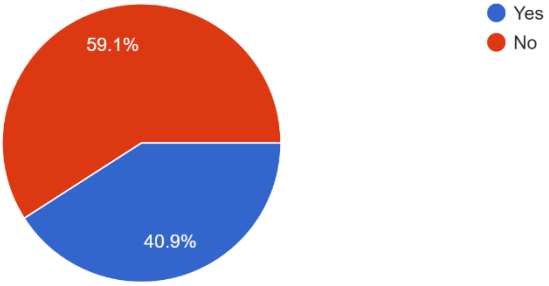
What would your preferred way of communicating with healthcare professionals through the app be ?

22 responses



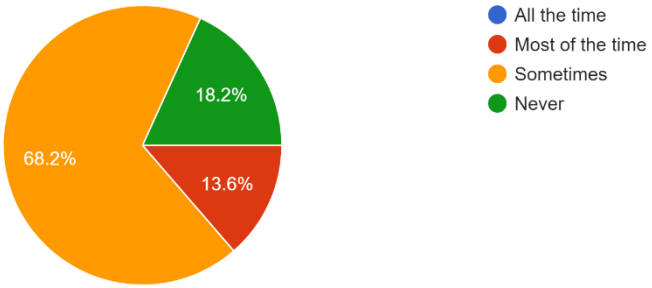
Do you use checklists as a way to plan and organize your life ?

22 responses



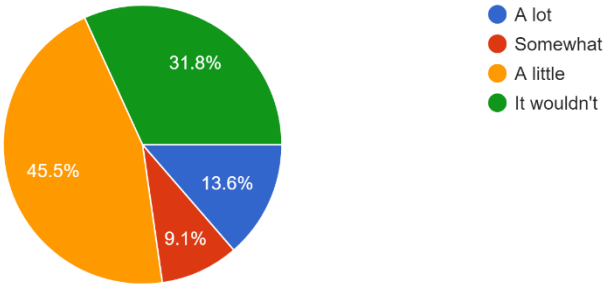
How often do you think you would make use of the ability to take notes regarding a specific medic appointment (e.g. “the doctor said it shouldn’t take long before I’m fully recovered 😳”) ?

22 responses



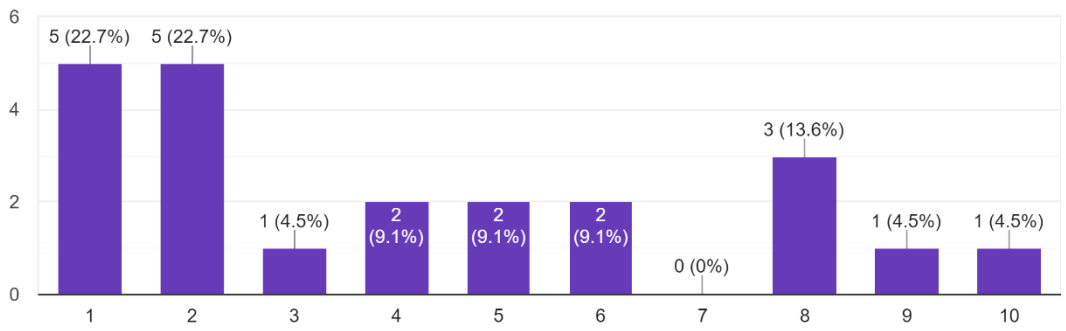
How much would you say activities like mini health quizzes or fun facts could contribute to you using the app more regularly ?

22 responses



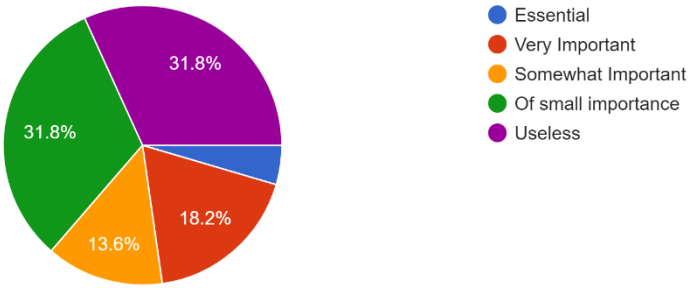
On a scale of 1 to 10 how much do you see a reward/medal system motivating you to use/interact more with the app and its features ?

22 responses



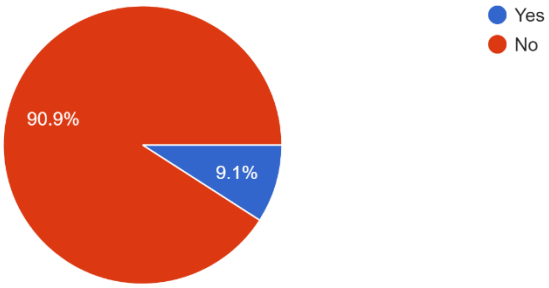
How important do you consider the ability of interacting with other users (e.g. chatting, sharing accomplishments, competing) ?

22 responses



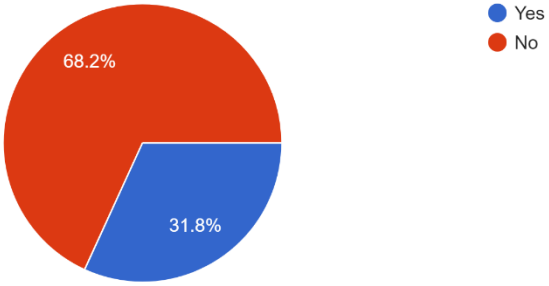
Have you ever thought about daily journaling your health/medical life, specifically ?

22 responses



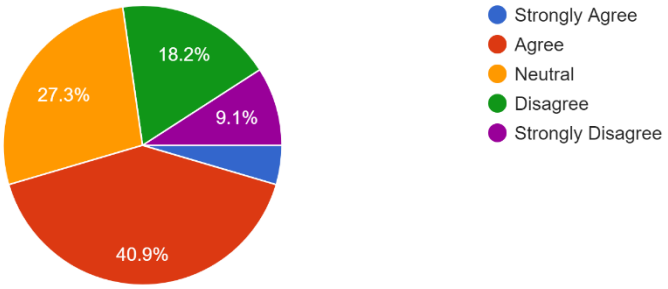
Does it sound like a cool idea ?

22 responses



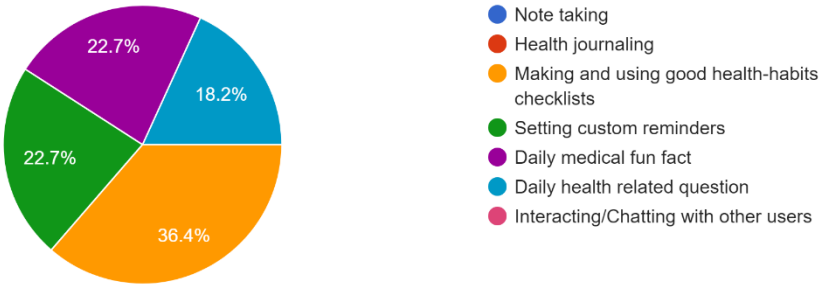
What do you think of the following statement “There is a lack of “fun factor” in general in these kinds of apps, that keeps young people, especially, from interacting with them in meaningful ways” ?

22 responses



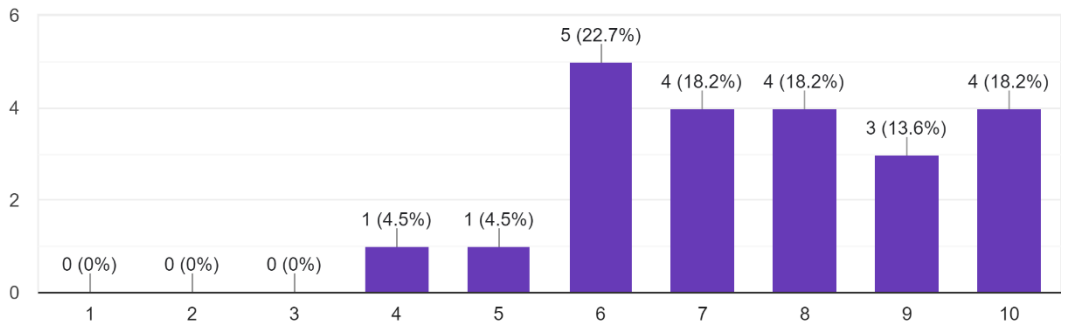
If you had to pick one, which out of these features, do you think would contribute more positively for that aspect ?

22 responses



From what you can gather, how interesting does this project seem to you ?

22 responses



PART 2 - Project abridged description

This project aims to inspire and incentivize younger individuals to maintain an organized and up-to-date approach to their health. Our platform integrates essential health functionalities in an interactive and rewarding manner, catering specifically to the preferences of the younger demographic.

At its core, the platform empowers users to proactively manage their health by providing intuitive interfaces and user-friendly tools. Through "gamification" elements, rewards systems, and personalized challenges, we aim to make health management not only a routine but an engaging experience. This approach fosters a sustainable habit of regular health check-ins, instilling a sense of responsibility and enthusiasm in users towards their well-being.

Additionally, the platform keeps users informed with the latest health and wellness developments through curated content and educational resources. By intertwining technology, interactivity, and rewards, our initiative seeks to redefine health management for the younger generation, transforming it into a positive and enriching lifestyle choice. Through this innovative app, we aim to inspire individuals to prioritize and embrace holistic well-being in a thoroughly engaging and rewarding manner.

We chose these 3 functionalities:

- Note taking for specific scheduled appointments.
- Display daily medical tips.
- Daily medical quiz with point/reward system to keep the user engaged.

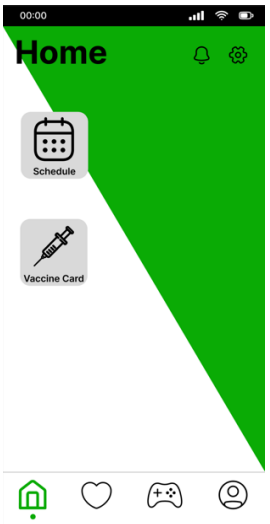
And these are the 3 tasks we elected:

- Create a note on the 13th of November on the app schedule.
- Read the daily tip.
- Answer the daily quiz and submit the answers to acquire points.

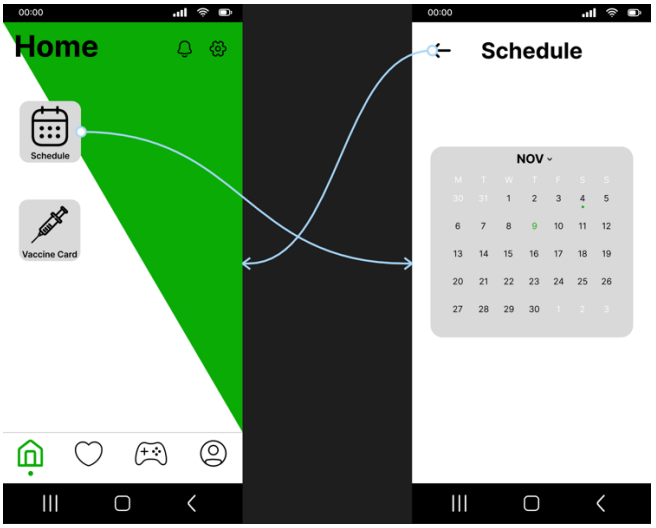
Prototype’s Wireflow

Task 1

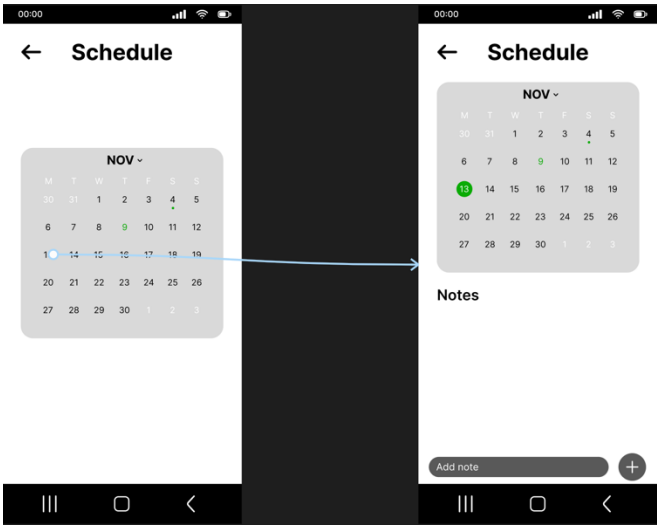
In the first task, we find ourselves at the home page, a pivotal interface where users encounter a few features such as notifications, settings, and a navigation bar. The navigation bar serves as a conduit, facilitating seamless exploration through the diverse main pages of the application. Additionally, we have introduced two noteworthy features on the home page: the 'Schedule' and 'Vaccine Card,' both of which play integral roles in enhancing user engagement and functionality. These features have been strategically positioned to provide users with immediate access to essential aspects of their health management journey, ensuring a user-friendly and intuitive experience.



Following the initial interaction at the home page, our attention is directed towards the 'Schedule' feature. Upon activation, users are seamlessly transitioned to a dedicated schedule page, meticulously designed to display the events and appointments pertinent to the current month. This intuitive design not only enhances user accessibility but also ensures a streamlined and focused presentation of scheduled activities. The 'Schedule' feature serves as a pivotal component in our commitment to providing users with a comprehensive and organized platform for managing their health-related engagements. Through this thoughtfully crafted interface, users can effortlessly navigate and stay informed about their scheduled events, thereby contributing to an enhanced user experience and proactive health management.



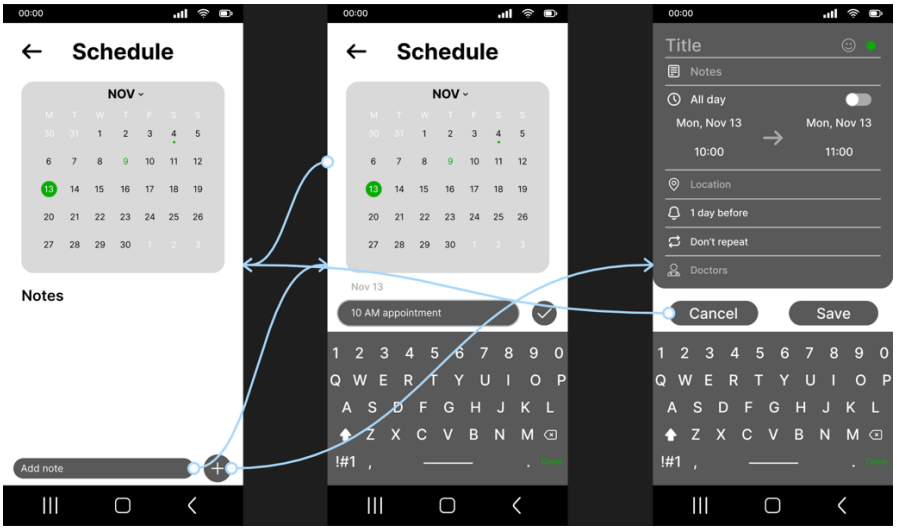
Subsequently, our engagement leads us to the selection of a specific day within the 'Schedule' feature for the purpose of adding a note. For illustrative purposes in this task, the 13th of November was chosen as an example. This deliberate selection serves to showcase the user-friendly functionality of the platform, allowing users to seamlessly input personalized notes on designated dates.



After selecting a specific date within the 'Schedule' feature, users are presented with two distinct methods for creating notes. The first option involves a process, accessible by tapping on the designated 'Add note' bar. This approach prioritizes simplicity and convenience, offering users a quick input method with fewer customization options.

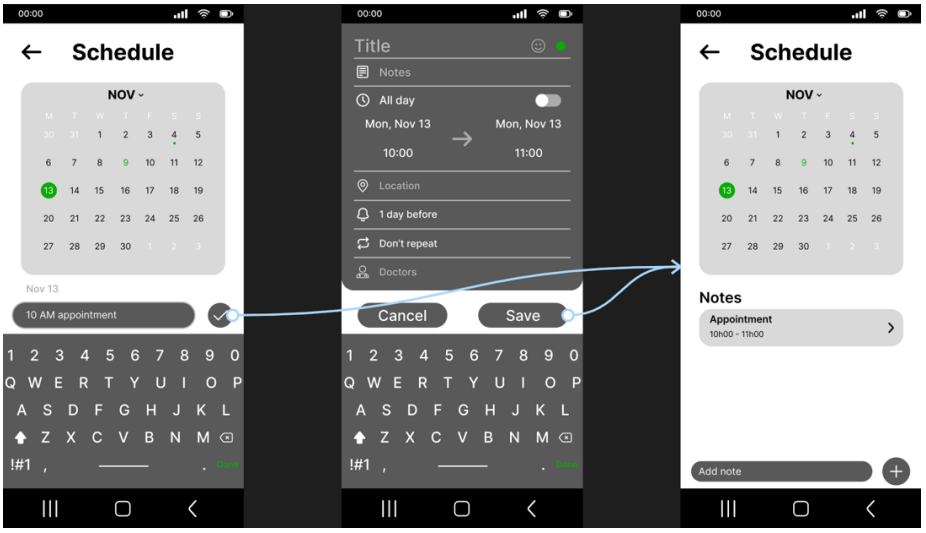
Alternatively, users can opt for the second method provided by the round '+' button. This alternative method is designed to provide a more customizable note-creation experience. By incorporating additional options and features, users opting for this approach have the flexibility to personalize their notes to a greater extent.

This dual-method approach ensures that our platform accommodates diverse user preferences, striking a balance between efficiency and customization in the note-creation process. This strategic design choice reflects our commitment to delivering a versatile and user-centric experience within the 'Schedule' feature.



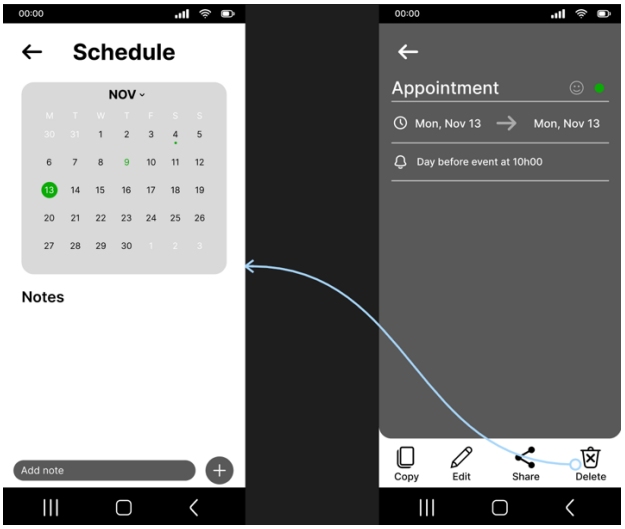
Upon completion of the note creation process, users are afforded the convenience of saving their input by either tapping the 'Check' round button or the 'Save' button, contingent upon the chosen method in the preceding task. This deliberate bifurcation in saving options provides users with a seamless and intuitive means to preserve their notes in accordance with their preferred creation pathway.

Notably, the saved note is prominently displayed on the lower section of the schedule page, contributing to an organized and easily accessible repository of health-related information. This strategic placement ensures that users can readily review and reference their notes within the context of their scheduled events, fostering a cohesive and user-centric approach to health management on our platform.



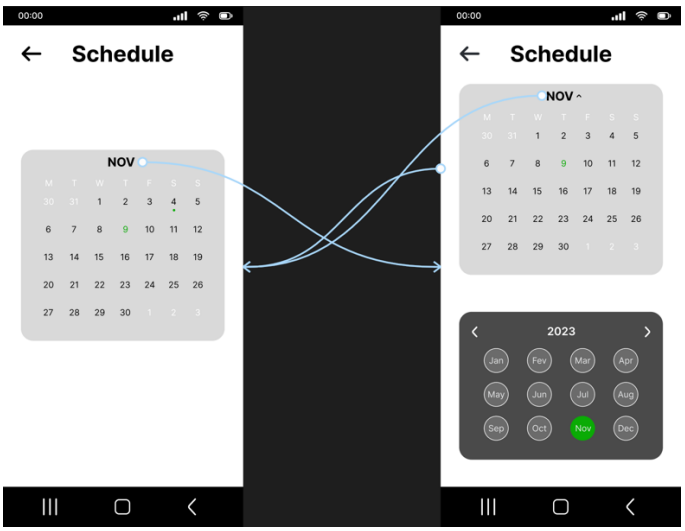
In response to feedback received during heuristic evaluations from other groups, it became evident that the incorporation of a note deletion feature was imperative. Acknowledging the significance of user input and recognizing the need for enhanced functionality, we have decided to implement a feature that allows users to seamlessly delete notes from the schedule.

The forthcoming inclusion of the note deletion feature serves as a testament to our dedication to refining and optimizing the user experience based on valuable user insights garnered from collaborative evaluations.



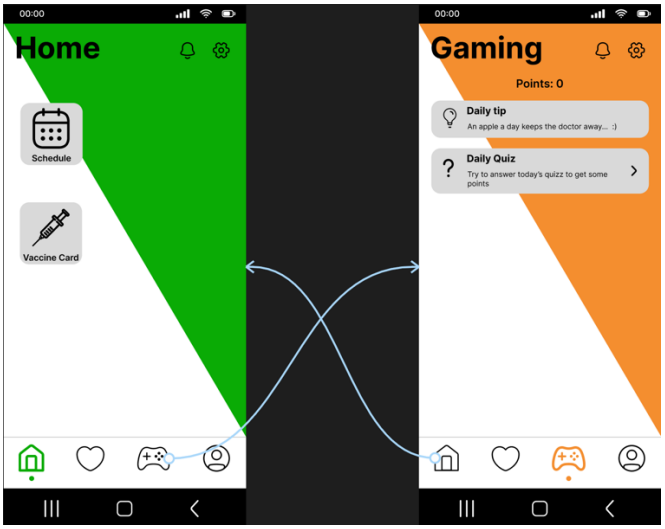
In response to user-centric considerations and in line with our commitment to providing a versatile and forward-thinking platform, we have made the decision to incorporate a feature allowing users to adjust both the year and month. This functionality is specifically designed to accommodate users who wish to proactively plan and add notes for future dates. By offering the flexibility to modify the year and month, our platform empowers users with the ability to engage in long-term health planning, fostering a proactive and comprehensive approach to health management. This enhancement aligns with our commitment to anticipating user needs

and ensuring that our platform remains a dynamic and accommodating tool for individuals seeking to manage their health in a thoughtful and strategic manner.



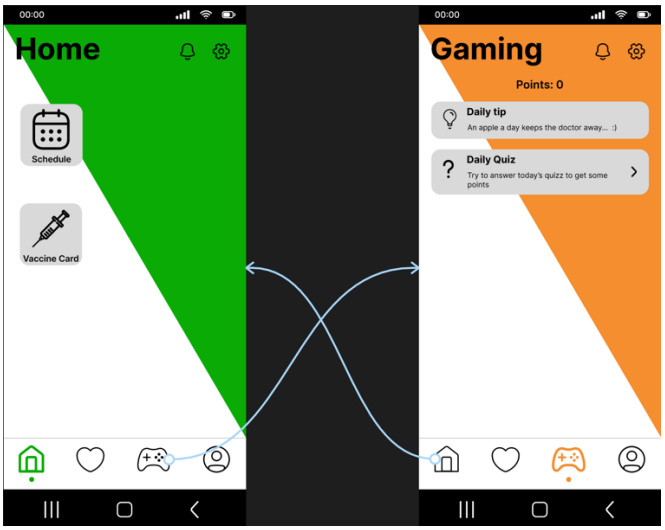
Task 2

In the context of the second task, the user's objective is notably straightforward, centered around navigation to the designated 'Gaming' page and read the 'Daily Tip.'
This streamlined task underscores the user-friendly design of our platform, as users can efficiently locate and engage with more community interactive content. The simplicity of this task serves as a testament to the intuitiveness of our navigation system and the ease with which users can access valuable health-related information. The successful execution of this task reinforces our commitment to providing a seamless and user-centric experience, particularly in the context of accessing relevant and engaging content within specific sections of the application.



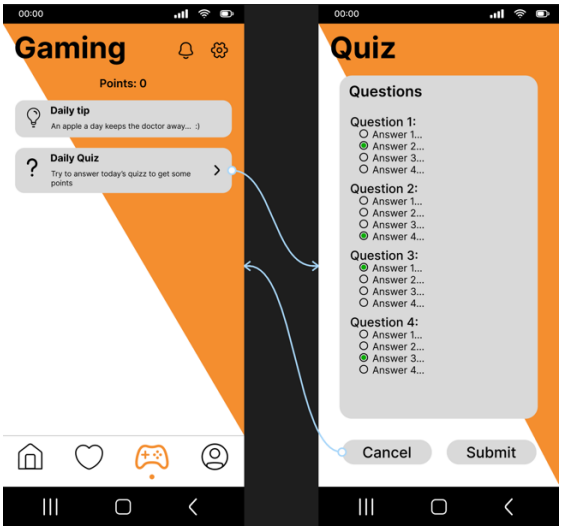
Task 3

In alignment with the precedent task, the user is directed to navigate to the 'Gaming' page in the third task. This consistent navigational requirement underscores the intuitiveness of our platform's structure. The recurrence of the 'Gaming' page as a destination reflects our commitment to providing a cohesive and predictable user experience, ensuring that users can effortlessly engage with various features and content areas within the application, as well as to reinforce the ease of navigation and user-friendly design, emphasizing the accessibility of health-related content.

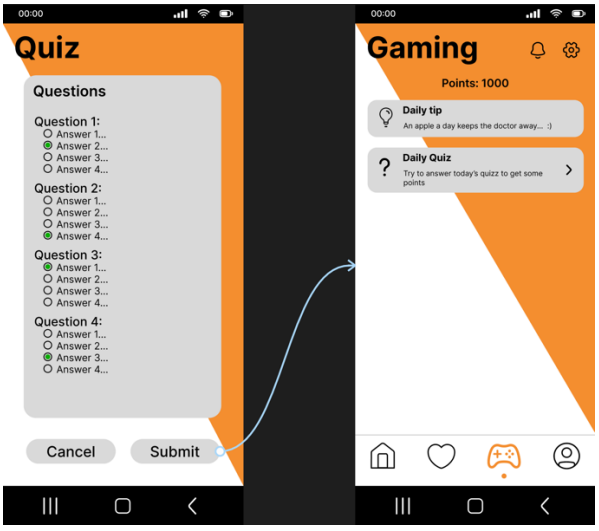


After navigating to the 'Gaming' page as stipulated in the third task, users are prompted to engage with the 'Daily Quiz' feature, necessitating active participation in answering the provided questions. Notably, a significant enhancement has been introduced based on feedback received during heuristic evaluations. Although there was divergence in opinion, a valuable observation from one of the groups prompted us to reconsider the absence of a cancel button on the quiz page.

In response to this feedback, we have incorporated a cancel button to afford users the flexibility to abort the quiz at any point and return to the previous page. This strategic addition reflects our commitment to user-centric design, acknowledging diverse user preferences and ensuring a more accommodating and responsive quiz-taking experience. The incorporation of the cancel button aligns with our continuous improvement approach, demonstrating our receptivity to user feedback and the iterative refinement of our platform for enhanced usability.



Upon completion of the quiz, users are provided with the option to submit their responses, thereby enabling them to acquire points. By incorporating a point-based system, we aim to incentivize user engagement and participation in health-related quizzes, contributing to a dynamic and rewarding user experience. The submission of the quiz serves as a strategic component in our overarching goal of encouraging users to actively participate in interactive features, fostering a sense of achievement and motivation in their health management endeavours.



Heuristic Evaluation Results

In this section, we indicate the problems pointed out by our evaluators (groups 3 and 8) We will comment on their evaluations in the *Corrections to perform in Phase 3* section of the report.

Group 3

1. Does not keep the application's bottom screen bar.
    - Heuristic: 4 – Consistency and Standards
    - Severity: 2

2. The month changing option on the calendar and where to click is not intuitive.
    - Heuristic: 6 – Recognition rather than recall
    - Severity: 2

3. The daily tip is not clearly visible, could be implemented in a different way.
    - Heuristic: 1 – Visibility of the System Status
    - Severity: 2

Group 8

1. Should show how many points each quiz can give.
    - Heuristic: 6 – Recognition rather than recall
    - Severity: 1

2. The correlation between the gaming and schedule sections is not clear.
    - Heuristic: 4 – Consistency and Standards
    - Severity: 3

Common Heuristic Evaluation

Surprisingly, both groups highlighted two similar problems. They both thought that there was a lack of clarity in the activation of the “1 day before” and “Don’t repeat” options in the schedule screen. Group 8 mentioned heuristics 7 and 10 (Flexibility and Efficiency of Use and Help and Documentation, respectively) and gave it a severity degree of 2. Group 3 mentioned heuristic 8 (Aesthetic and Minimalistic Design) and gave it a severity degree of 1, which gives us an average severity of 1.5.

They also pointed out that after creating an appointment, there is no delete button on the page. The groups mentioned heuristics 3, 5, 7 and 9 (User Control and Freedom, Error Prevention, Flexibility and Efficiency of Use and Help Users Recognize, Diagnose and Recover from Errors, respectively) and both gave the problem a degree of 3 in severity.

Corrections to perform in Phase 3

Based on the other groups heuristic evaluation's there are plenty of corrections the group must do for the third phase of the project.

As for group 3, we do not agree with the first evaluation that was pointed out. There is no necessity on any application to keep the bottom screen bar in every screen the app displays. If the group said that the page was missing a cancel/go back button, we would totally agree, and that is something our group as already fixed on the prototype. As for the second point, we acknowledge that a user does not easily understand that there is a month changing option when reaching the calendar page. Therefore, we already added a little arrow on the prototype so that it is clear there is a touchable box in that area of the page. Finally, we do not see eye to eye on the third evaluation. Although we are still going to search for a way of implementing that button differently, to us, the daily tip is clearly distinguishable from the rest of the page.

We believe that group's 8 evaluation is almost perfect. After finishing a quiz, the app effectively does not show how many points a user currently has. However, we do not really understand where their third problem comes from, as the gaming section (which we pretend to rename) has nothing to do with the schedule. On one hand, the schedule is a feature that allows the user to register and know at any given time if they have a meeting/appointment on a certain date. On the other hand, the gaming section is just a feature to entice the user to learn about his or other people's daily health problems or ways to avoid them. Our decision in including this in the app was purely informative.

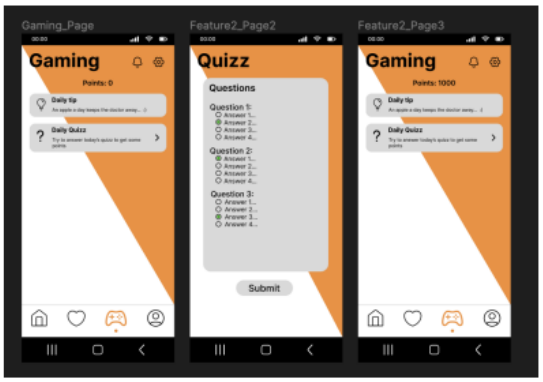
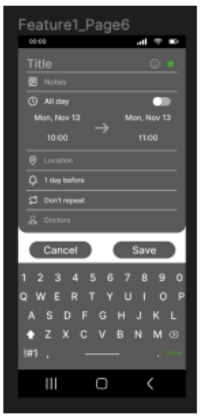
As for the common heuristic evaluation, we do not believe there is a way to make an appointment creation page more simplistic than the current page as group 3 suggests. Nevertheless, we agreed with group 8 that the way these options are currently displayed do not make it absolutely clear what they do. Our group believes that there are two courses of action here. Either change the visual of the appointment creation feature or create an app manual, where each button and its function would be thoroughly described. Finally, it is also true that there is no option to delete an appointment in the schedule and that issue needs to be addressed as soon as possible.

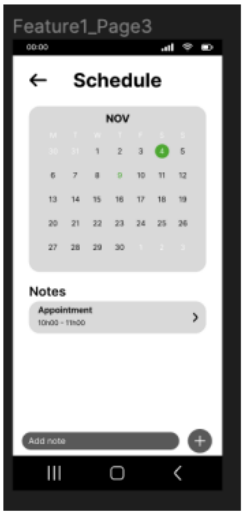
Annexes - Part 2

HCI Winter Semester 2023 - 2024

Heuristic Evaluation Report

Class Nr.: LEIC04 - 9/11/23 - Thiago Sobral
Group evaluated: 07 - HealthSync
By group: 03 (Nuno Silva e Tiago Azevedo)

Problem #	Issue (include screenshot)	Heuristic(s)	Severity (1-4)
1	Não continua com a barra inferior da aplicação. 	4	2
2	O design não está minimalista. 	8	1

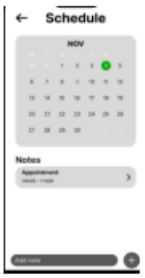
3	Após criar uma nota no calendário, não existe a opção para a apagar. 	5,9	3
4	A opção de mudança de mês no calendário não está muito intuitiva, onde clicar para se poder trocar de mês. 	6	2

5	A Daily Tip não está muito visível, poderia estar implementada de maneira diferente.  	1	2

HCI Winter Semester 2023 - 2024

Heuristic Evaluation Report

Class Nr.: LEIC04 – 9/11 – Thiago Sobral
Group evaluated: 07 – Gaming
By group: 08

Problem #	Issue (include screenshot)	Heuristic(s)	Severity (1-4)
1	Should show how many points each quiz can give 	6	1
2	Not clear how to delete an appointment 	3, 5, 7	3
3	The options “1 day before” and “Don´t repeat” activation/modification are not clear.	7, 10	2
			
4	Not clear the correlation between the gaming and schedule parts of the aplication	4	3

PART 3 - Changes to Part 1 and 2

We made some changes to the Related Services in Part 1.

We also altered the questionnaire highlights since there was just statistic values without any kind of analysis of what those statistics and question meant to the decisions, we made to elaborate the design of our app.

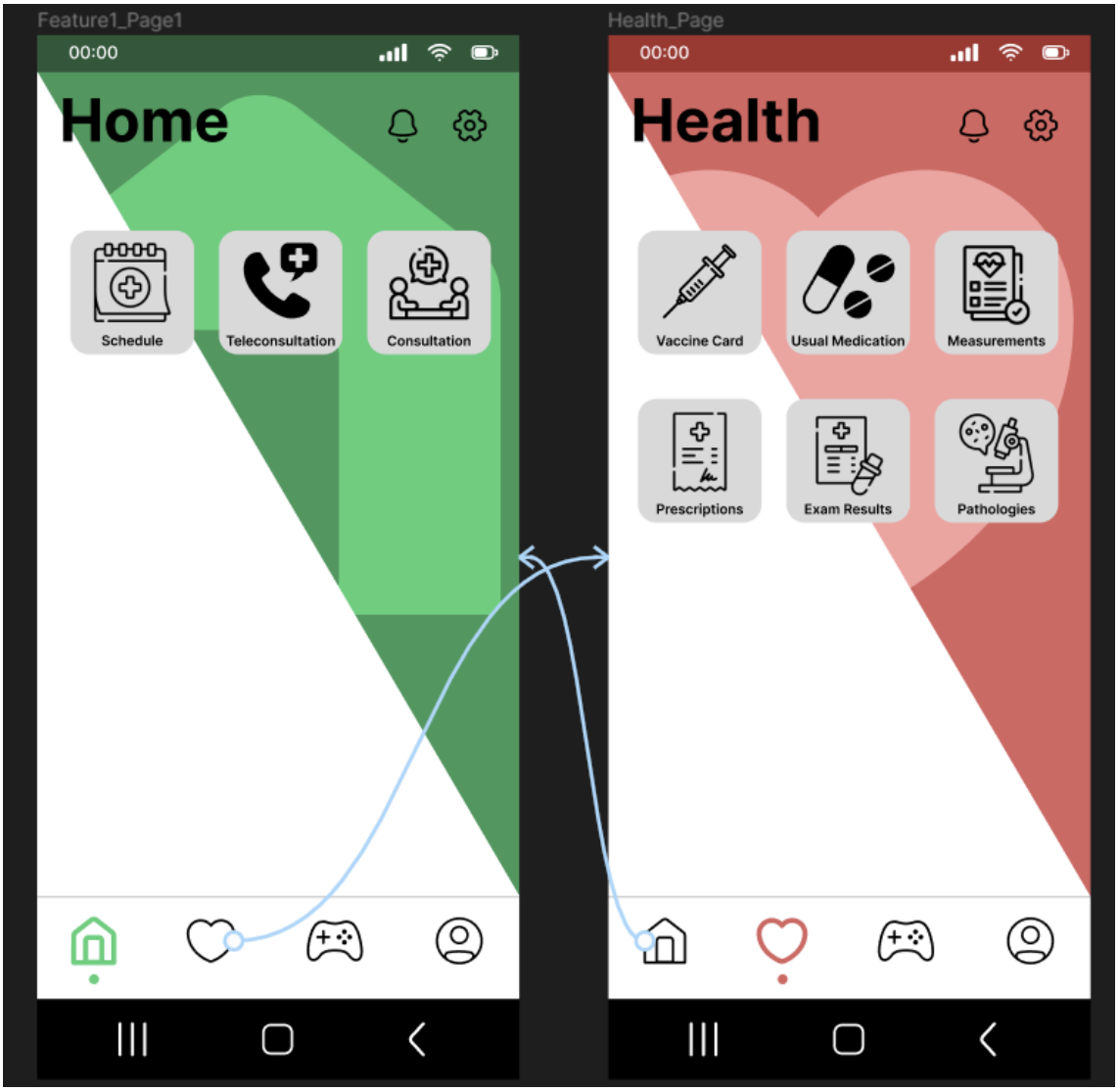
We elaborated each section of the PACT analysis

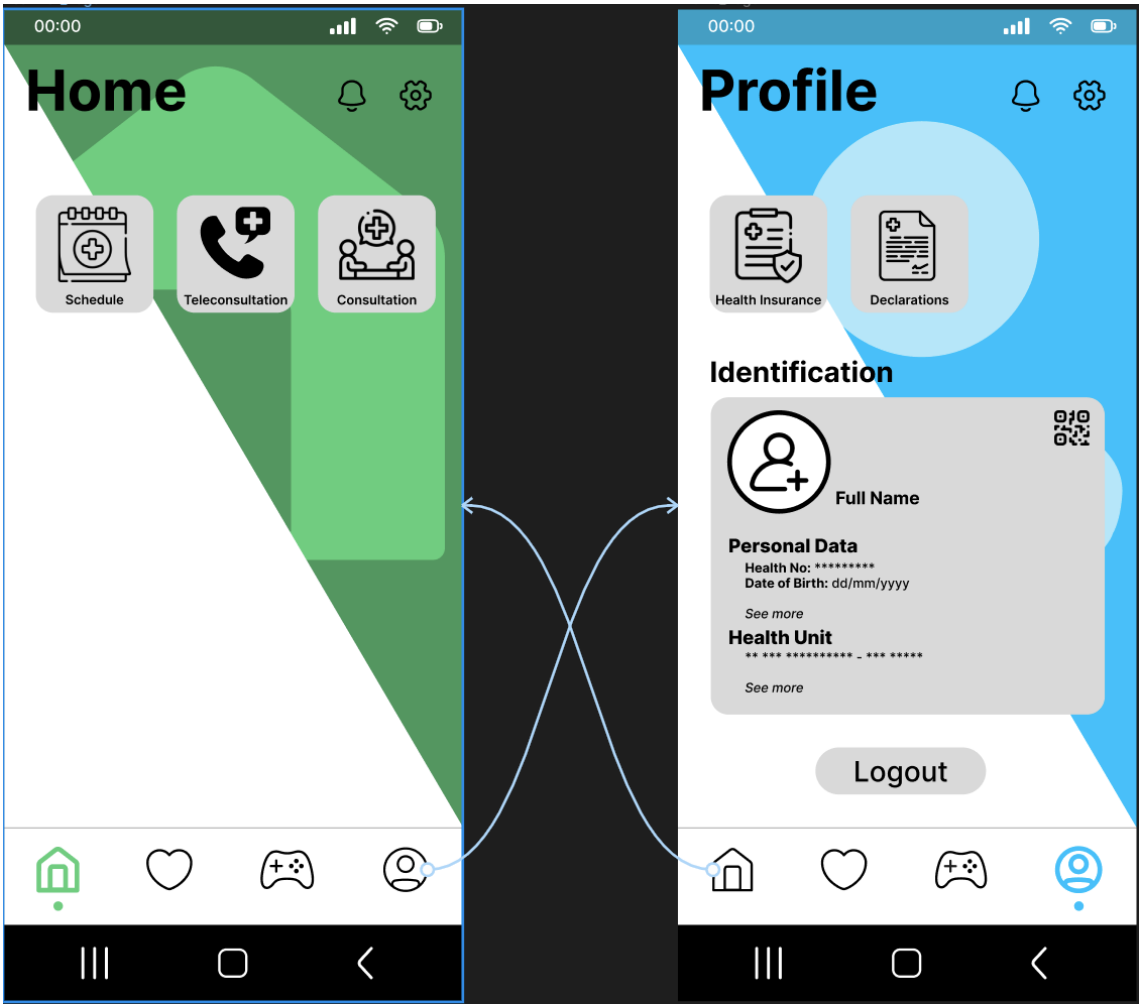
Prototype's Wireflow

https://www.figma.com/file/8bo8CYdOVRzsF4RcbEvOck/IPC-Proj---HealthSync?type=design&node-id=0%3A1&mode=design&t=IbZacNxaqJRw5Zh2-1

The Phase 2 report prototype's wireflow was already very close to the final version. In this phase of the project, we mostly made the app more realistic, added more buttons (not clickable) to fill up our pages.

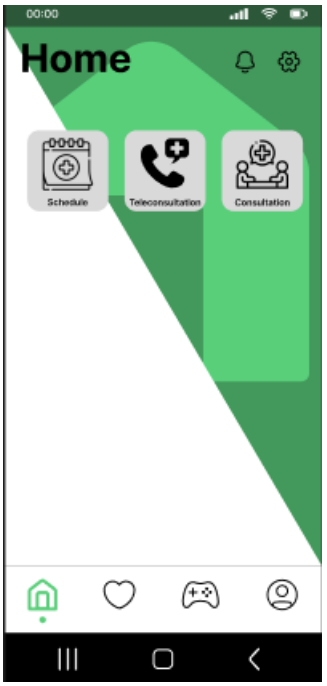
We created a health and a profile page so that the prototype seemed authentic and there were no missing pages.


Feature1_Page1
00:00
Home
Schedule
Teleconsultation
Consultation
Health_Page
00:00
Health
Vaccine Card
Usual Medication
Measurements
Prescriptions
Exam Results
Pathologies

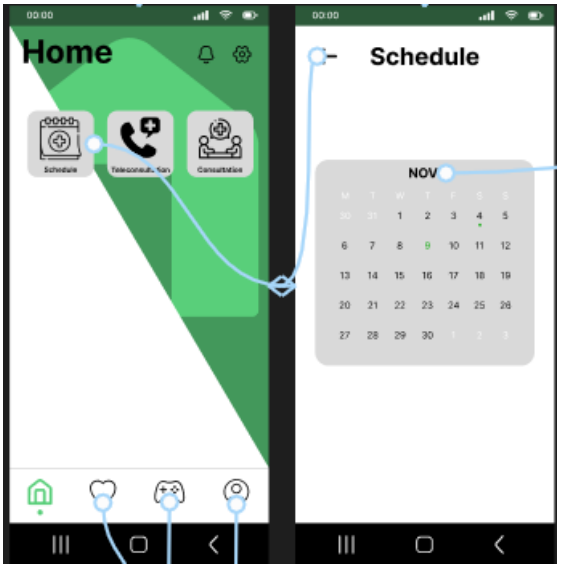

00:00
Home
Schedule
Teleconsultation
Consultation
00:00
Profile
Health Insurance
Declarations
Identification
Full Name
Personal Data
Health No: *********
Date of Birth: dd/mm/yyyy
See more
Health Unit
** *** ********** - *** *****
See more
Logout

Task 1

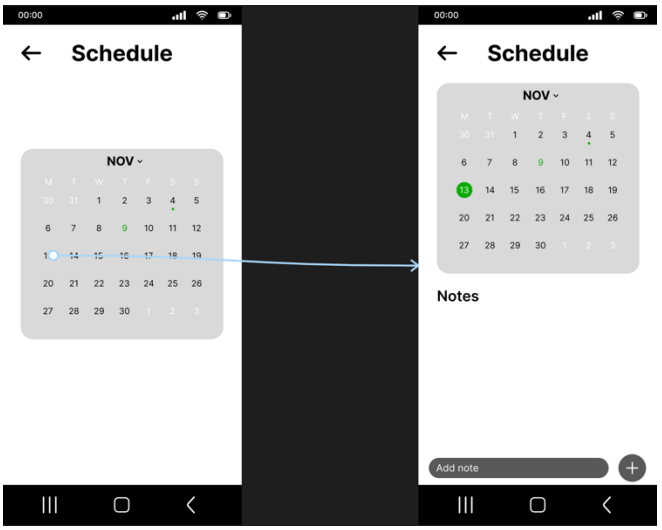
We added what could be called a loading page, that will stay on the screen for about 3 seconds and then changes to the home screen that now has more options besides the schedule.

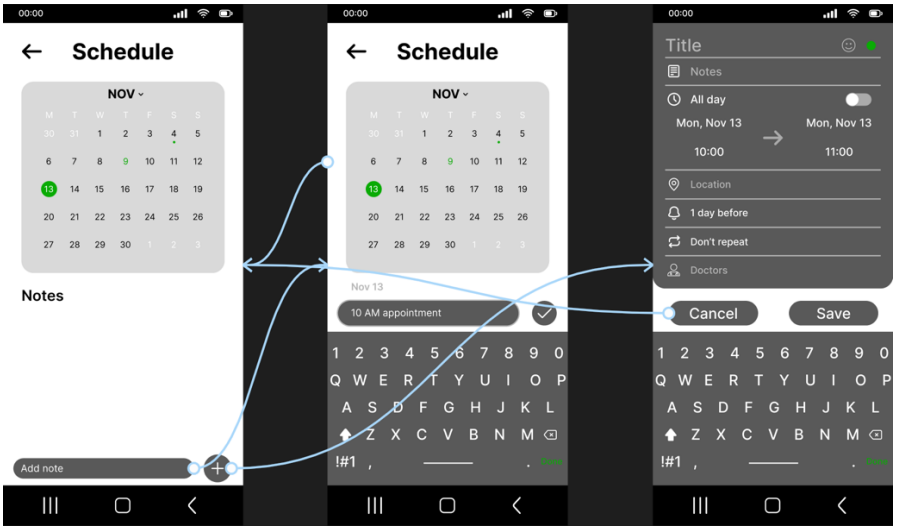


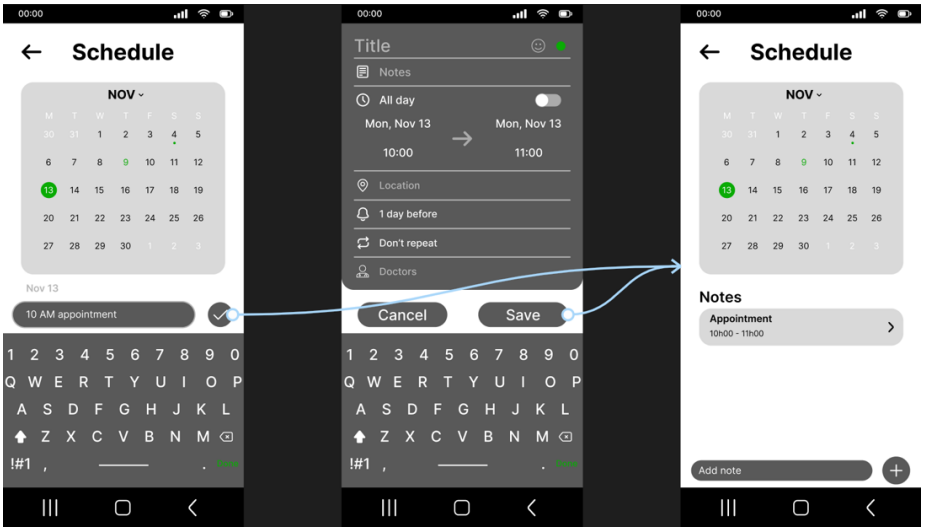
As you can see, the Home page's design changed a little bit and we added a *Teleconsultation* and *Consultation* options so that the user can later appoint these consultations through the app.

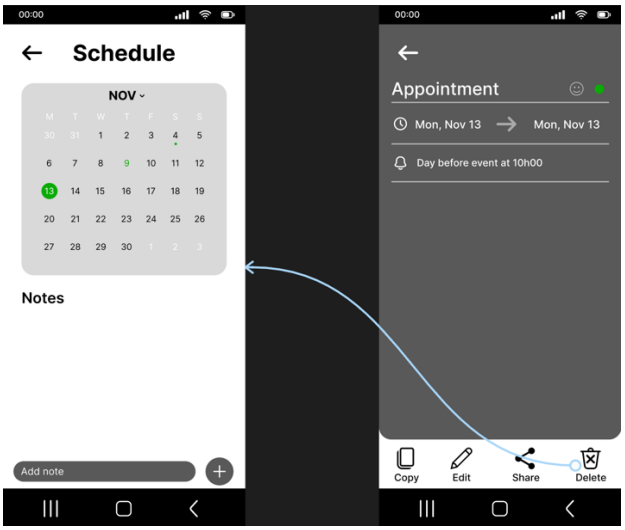


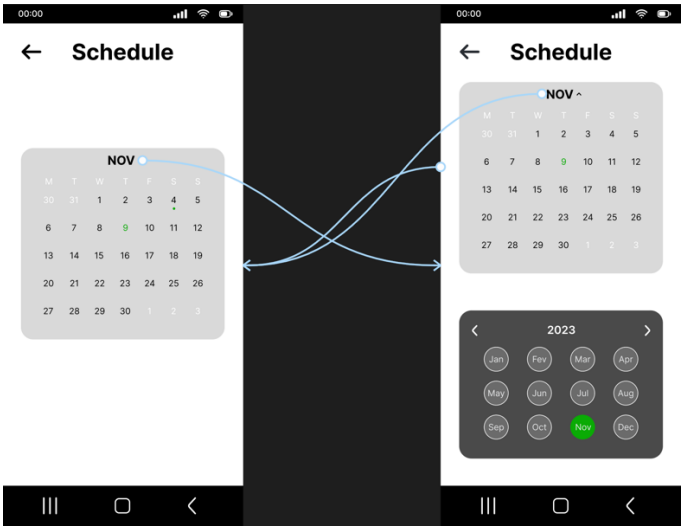
The remaining pages of the schedule task are the exact same:




Schedule
NOV
Notes
Add note
Schedule
NOV
Nov 13
10 AM appointment
Title
Notes
All day
Mon, Nov 13
10:00
Mon, Nov 13
11:00
Location
1 day before
Don't repeat
Doctors
Cancel
Save

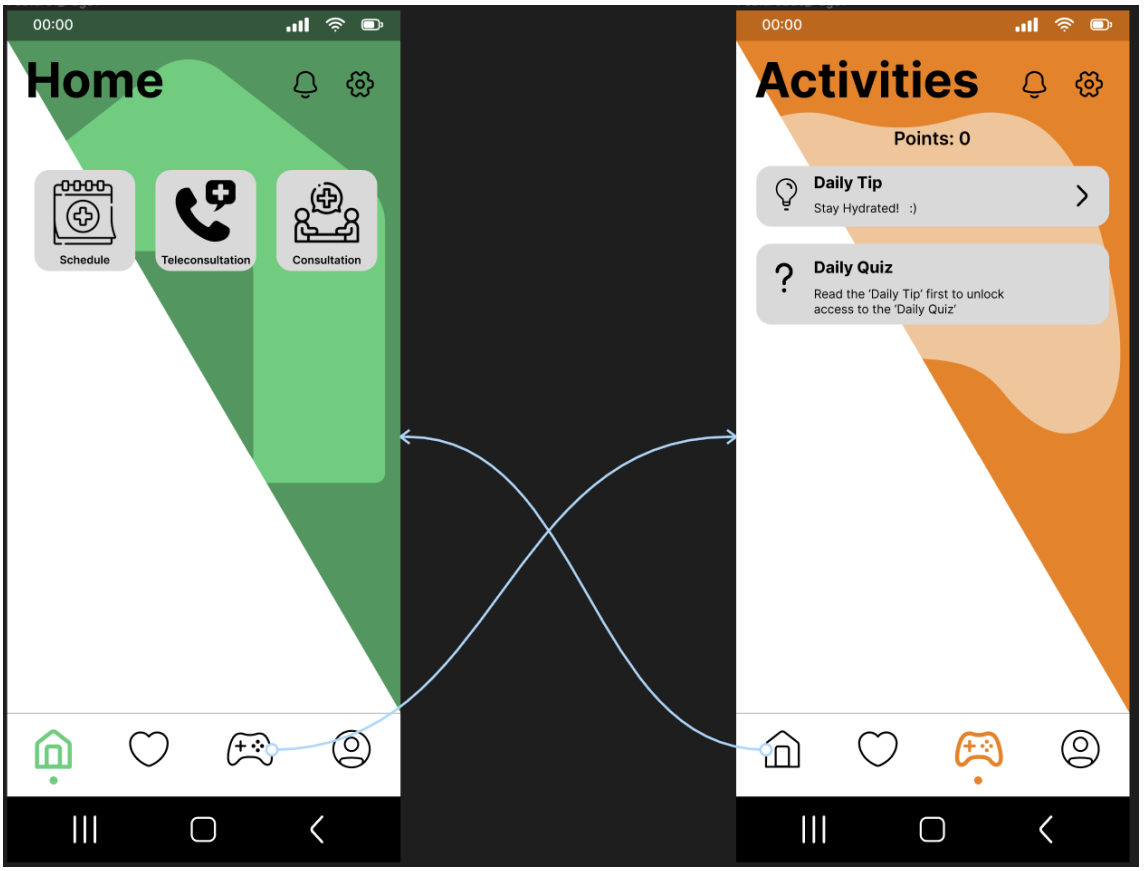

Schedule
NOV
Nov 13
10 AM appointment
Title
Notes
All day
Mon, Nov 13
10:00
Mon, Nov 13
11:00
Location
1 day before
Don't repeat
Doctors
Cancel
Save
Schedule
NOV
Notes
Appointment
10h00 - 11h00
Add note


Schedule
NOV
Notes
Add note
Appointment
Mon, Nov 13
Mon, Nov 13
Day before event at 10h00
Copy
Edit
Share
Delete

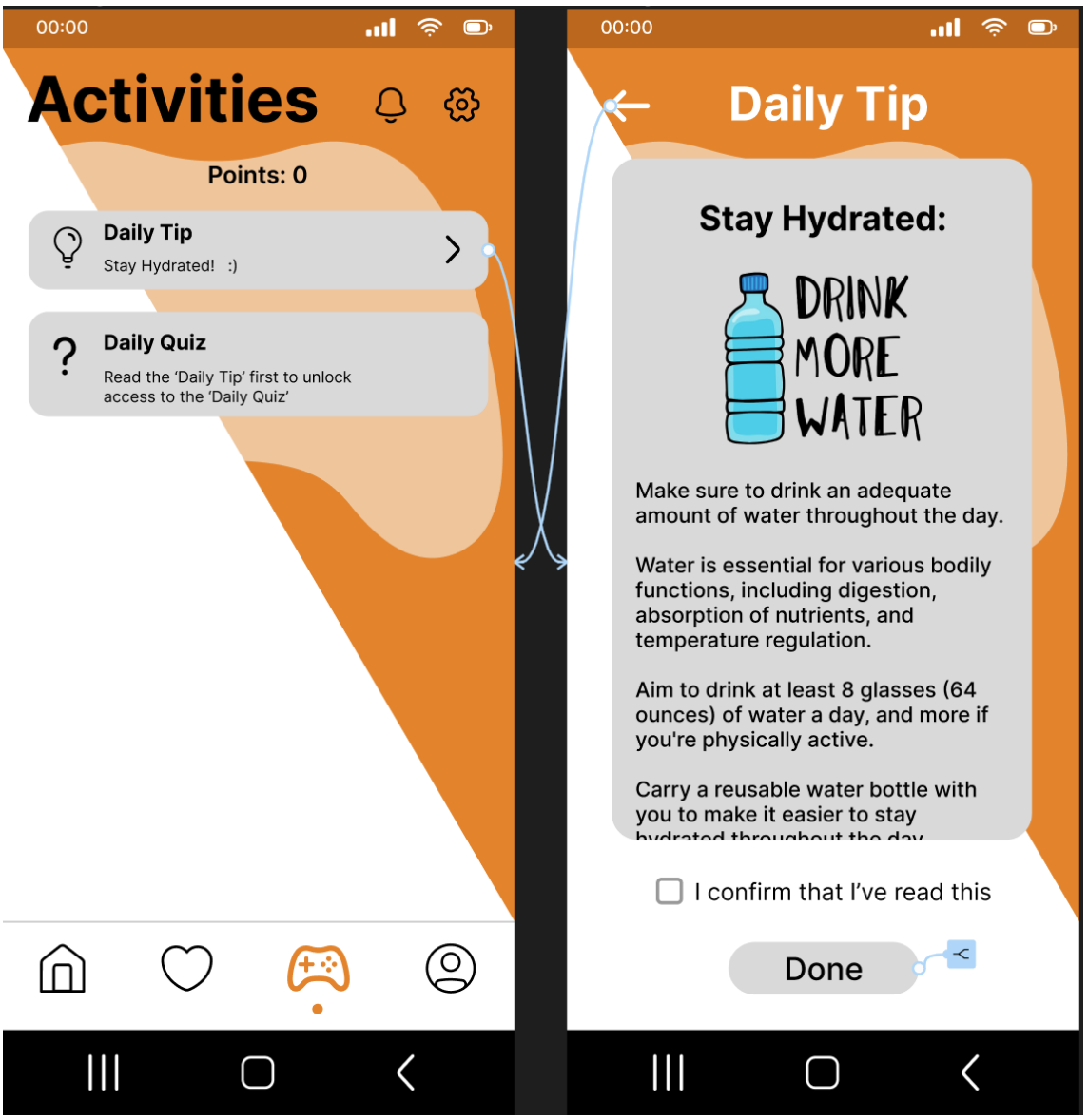

00:00
Schedule
NOV
M T W T F S S
30 31 1 2 3 4 5
6 7 8 9 10 11 12
13 14 15 16 17 18 19
20 21 22 23 24 25 26
27 28 29 30 1 2 3
00:00
Schedule
NOV
M T W T F S S
30 31 1 2 3 4 5
6 7 8 9 10 11 12
13 14 15 16 17 18 19
20 21 22 23 24 25 26
27 28 29 30 1 2 3
2023
Jan
Fev
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec

Task 2

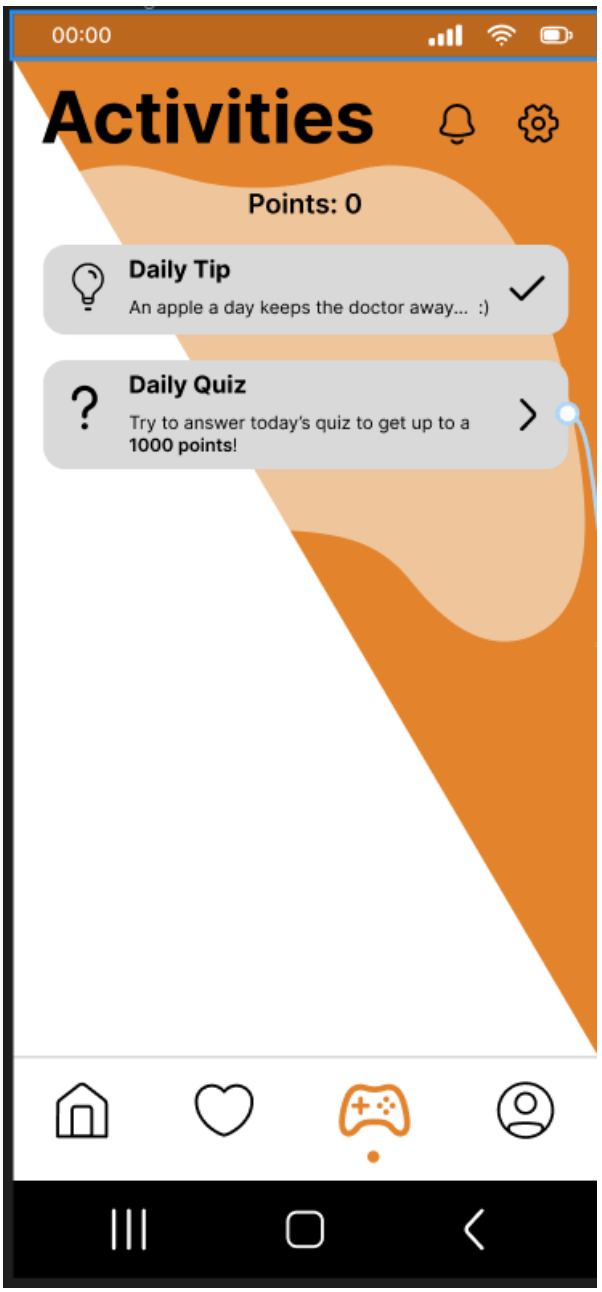
In this task, we made more changes than the first one. We renamed the *Gaming* section to *Activities*.



We also created a check button to make sure that the user has read the information that is displayed.

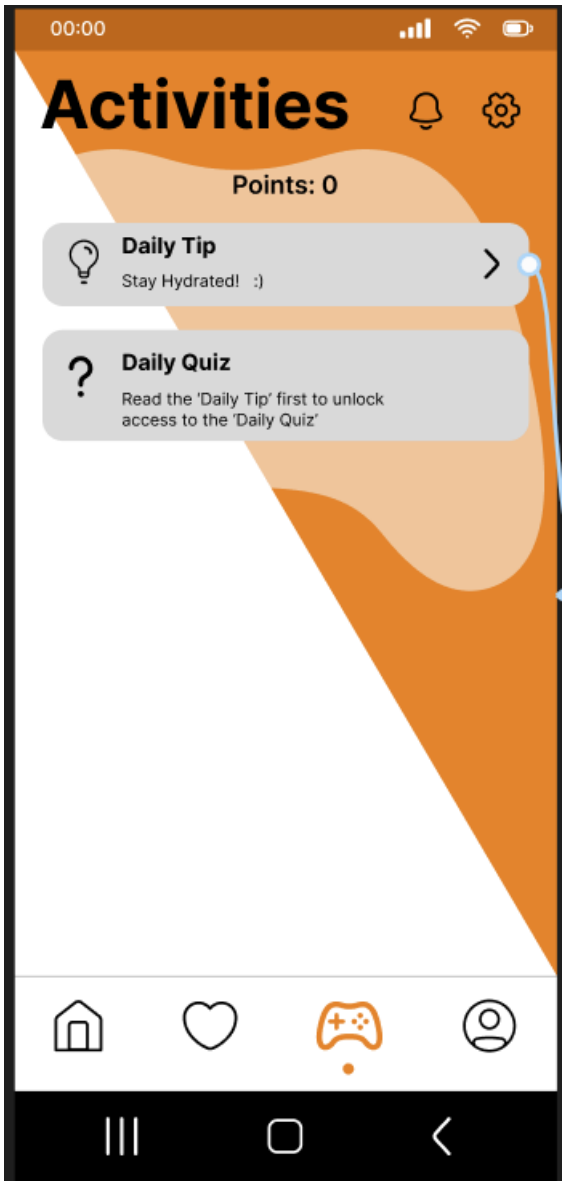


After reading the daily tip, the page will show with a tick next to it to declare to the user that it has been read.

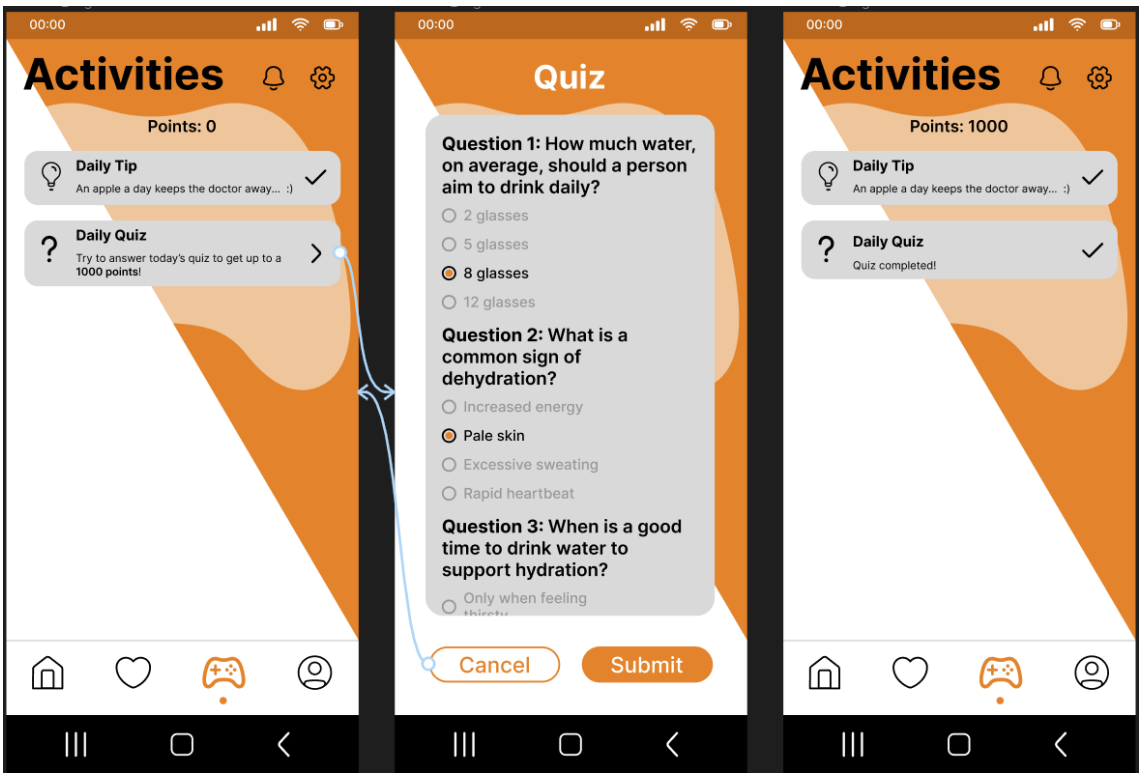


Task 3

Initially, the page will be displayed in a way that makes it impossible for the user to open the daily quiz without having read the tip first.



After reading the daily tip, the daily quiz is unlocked. After completing the quiz, both will show with a tick to demonstrate they have been done.



User evaluation protocol

Objective

The aim of our evaluation is to test the usability of our prototype in a more realistic environment with users who are unfamiliar with our application. To do this, we will collect different usability metrics in small (10-15 minute), face-to-face sessions with each participant. In a session, we will describe to the evaluated user the purpose of the tasks we want them to complete in our prototype. The user will then have the freedom to explore and use the prototype to complete the proposed tasks.

Users

Although there is no age restriction for the users who can participate in this evaluation, the group will try to broaden the age spectrum as much as possible, by including teenagers and elders. The participants do not need to be particularly tech-savvy, but we do want the test to be done by people who use smartphones daily.

Method

Firstly, the user will be introduced to the idea of the app, what it's used for, who it can help, etc.

The participants will then be asked to start the app and starting in the application's main page for every task, they will attempt to do the tasks presented below.

Tasks

1. Create a note in the schedule on the 13th of November.

   No user input will be asked (could be available in the future).

2. Find the daily tip and read what's on it.

   The participant should tick the box confirming he read the tip (not checked when clicking the 'Done' button) and then exit the daily tip page.

3. Find the daily quiz, submit it, and earn 1000 points.

   The user can choose any answer to the question, but these are not checked so the score will always be the same. The correct answers will be displayed every time the user opens the window.

Measures

We want at least 80% of the users participating in the evaluation to be able to do every mentioned task. No aid will be given by the group.

We also believe that the tasks should be done under 40 seconds, 1 minute and 1 minute and 20 seconds, respectively. Number of clicks and mistakes done by the participants will be counted and we want to keep the number as low as possible, without exceeding 3 mistakes on average per task. We consider mistakes every time a person goes to the wrong page, selects the wrong button, or does a miss click. Therefore, we would like to achieve an average of less than 2 mistakes.

We are expecting an average satisfaction rating of at least 3.5 (1-5). This rating, that will be provided by the participant when he/she finishes the tasks, should be given according to difficulty of use (1 - very hard, 5 - very easy).

Results

We gathered a sample of 11 participants. 5 of them in the age range of 10-20 years, 5 in the range of 40-50, and 1 above 80, with 6 of them being men and the other 5 women. This means that a high percentage of our participants knew their way around technology. None of the participants had prior information regarding the prototype or the tasks to be performed. Each test was conducted individually with an evaluator. For each task, the participant was given the same general presentation of the goal to be achieved to successfully complete the task, followed by non-intrusive monitoring, only collecting data for evaluation by the evaluator. An effort was made to ensure that basic ethical considerations were respected.

	User satisfaction (1 to 10)	User satisfaction (1 to 5)
User 1	9	5
User 2	9	5
User 3	9	5
User 4	8	4
User 5	9	5
User 6	8	4
User 7	9	5
User 8	Not Completed	Not Completed
User 9		3
User 10		3
User 11		5
Average	8.71	4.4
Mode	9	5
Median	9	5
Quartile 1	8.5	4
Quartile 3	9	5

As written in the evaluation protocol, we aimed for at least 3.5/5 for user satisfaction. As we can see in the table above, the average user satisfaction was far superior to what we hoped, with the participants believing that our interface was easy to use (4.4/5).

Task 1

Time spent	Task 1
User 1	30.28
User 2	29.96
User 3	17.13
User 4	21.85
User 5	15.74
User 6	18.87
User 7	26.6
User 8	Not Completed
User 9	22.85
User 10	15.6
User 11	18.75
Average	21.76
Mode	None
Median	20.36
Quartile 1	17.535
Quartile 3	25.6625
Standard Deviation	5.552649118

Margin of error	4.642130833
Lower bound	17.11786917
Upper bound	26.40213083

The participants took, on average, 21.76 seconds to complete the task. On the right of the screenshot, we calculated the upper and lower bound using a confidence interval of 95%, which gave us 26.4 and 17.11 seconds respectively. Because we proposed that a user should be able to do the task within 40 seconds, it means that we underestimated our participants adaptability to new scenarios.

No of mistakes	Task 1
User 1	0
User 2	0
User 3	0
User 4	0
User 5	0
User 6	0
User 7	0
User 8	Not Completed
User 9	0
User 10	0
User 11	0
Average	0
Mode	0
Median	0
Quartile 1	0
Quartile 3	0
Standard Deviation	0

No of clicks	Task 1
User 1	4
User 2	4
User 3	4
User 4	4
User 5	4
User 6	4
User 7	4
User 8	Not Completed
User 9	4
User 10	4
User 11	4
Average	4
Mode	4
Median	4
Quartile 1	4
Quartile 3	4
Standard Deviation	0

As we can see, no user made any mistake in the first task. Therefore, we can assume that the first task's UI is incredibly simple and does not leave room for doubts.

90.9% of the users were able to complete the first task, achieving our objective of having at least 80% of the users completing it.

Task 2

Time spent	Task 2
User 1	22.63
User 2	26.85
User 3	30.17
User 4	43.71
User 5	39.96
User 6	20.56
User 7	22.73
User 8	Not Completed
User 9	78.7
User 10	21.19
User 11	19.09
Average	32.56
Mode	None
Median	24.79
Quartile 1	21.55
Quartile 3	37.5125
Standard Deviation	18.24600379

Margin of error	15.25404091
Lower bound	17.30595909
Upper bound	47.81404091

Once again, the bounds calculated with 95% confidence interval do not contain our chosen mean value of 60 seconds in it. The users took an average of 32.56 seconds to complete the challenge, with one user taking more than the desired 60 seconds, making this second task have the biggest deviation value out of all three.

No of mistakes	Task 2
User 1	0
User 2	0
User 3	0
User 4	1
User 5	2
User 6	0
User 7	1
User 8	Not Completed
User 9	4
User 10	1
User 11	0
Average	0.9
Mode	0
Median	0.5
Quartile 1	0
Quartile 3	1
Standard Deviation	1.286683938

No of clicks	Task 2
User 1	4
User 2	4
User 3	4
User 4	5
User 5	6
User 6	4
User 7	5
User 8	Not Completed
User 9	8
User 10	5
User 11	4
Average	4.9
Mode	4
Median	4.5
Quartile 1	4
Quartile 3	5
Standard Deviation	1.286683938

As we can see, mistakes were made during this task, with an average of 0.9 mistakes, also leading to a higher number of clicks for those users, with an average of 4.9 clicks. Important to note that because the clicks table is directly influenced by the mistakes table, their standard deviations are the same (which may not happen, as you will see later).

Task 3

Time spent	Task 3		
User 1	34.76		
User 2	38.62		
User 3	43.83		
User 4	37.66		
User 5	36.77		
User 6	36.09		
User 7	35.28		
User 8	Not Completed		
User 9	35.57		
User 10	38.88		
User 11	30.41		
Average	36.79		
Mode	None		
Median	36.43		
Quartile 1	35.3525	Margin of error	2.884233273
Quartile 3	38.38	Lower bound	33.90576673
Standard Deviation	3.449953462	Upper bound	39.67423327

Finally, the third task's confidence interval of 95% does not include our proposed value of 80 seconds to complete the task. The participants took an average of 36.79 seconds to complete said task, but this time the values were very similar to each other, unlike task 2.

No of mistakes	Task 3
User 1	0
User 2	1
User 3	1
User 4	1
User 5	1
User 6	1
User 7	0
User 8	Not Completed
User 9	0
User 10	1
User 11	2
Average	0.8
Mode	1
Median	1
Quartile 1	0.25
Quartile 3	1
Standard Deviation	0.632455532

No of clicks	Task 3
User 1	11
User 2	13
User 3	13
User 4	14
User 5	13
User 6	12
User 7	11
User 8	Not Completed
User 9	12
User 10	12
User 11	13
Average	12.4
Mode	13
Median	12.5
Quartile 1	12
Quartile 3	13
Standard Deviation	0.9660917831

As shown in the tables above, some users made some mistakes in this task, mainly because they were required to do task 2 again before accessing task 3 (due to the need to start from the home screen), which most of them forgot to do. Because this task was a multiple-choice questionnaire, the number of clicks greatly increased compared to the other 2 tasks.

Conclusion

All in all, we were very satisfied with the final version of our project. Figma enabled us to produce a functional high-fidelity prototype that we believe is incredibly responsive and intuitive to the users, based on the results of our tests. We were incredibly happy with the feedback from the participants of these tests. Not only were they pleased with our prototype and its ease of use, but multiple users also gave ideas on how to improve our UI, from changing the activities icon to decreasing the menu bar icon sizes to placing some of the tasks in other places or screens so they were easier to spot, etc. We considered their opinions and, unfortunately, opted to not add them due to lack of time caused by other projects, but we were very fortunate to have such helpful and engaged participants.