

VIETNAM NATIONAL UNIVERSITY OF HOCHIMINH CITY
THE INTERNATIONAL UNIVERSITY
SCHOOL OF COMPUTER SCIENCE AND ENGINEERING



MOBILE APPLICATION DEVELOPMENT

PROJECT REPORT

MOBILE TELEHEALTH SYSTEM

By

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A thesis submitted to the School of Computer Science and Engineering

in partial fulfillment of the requirements for the degree of
Bachelor of Information Technology/Computer Science/Computer Engineering

Ho Chi Minh City, Vietnam

2024

Link YouTube:

<https://www.youtube.com/watch?v=eNI5MTYQTkU>

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CHAPTER 1

INTRODUCTION

1.1. Opportunity

In the development of mobile devices, applying digital communication technologies to access and manage healthcare services, such as computers and mobile devices, is known as telehealth. Mobile telehealth has developed as a handy service in our daily lives during the COVID-19 pandemic when preserving health is essential as telehealth not only provides a simple and safe way to ask for healthcare but also decreases the spreading of the virus. With it, patients and doctors can communicate using this platform remotely. Therefore, seeing this as an opportunity and also a challenge for us, we have been motivated to finally make a mobile telehealth application that applies all knowledge that we learnt from the course.

1.2. Achieved goals

Our goal as we, after taking the course and managing this project is to understand how a mobile application works, achieve experience in making a mobile app and get the teamwork skills. The program is expected to successfully run and execute including functions such as accessing the current doctors/patients account by authentication, contacting between doctor and patient through messaging to get direct help and information about patient's health, arranging an appointment with a wishlist doctor, reading news around the world - especially world healthcare news (including updates of Coronavirus, vaccination, symptoms,...), etc.

CHAPTER 2

PROJECT INFORMATION

2.1. General information

To get a better time-saving, alternative way when asking for medical treatment, especially in emergency cases, the program is built so that it helps patients contact doctors digitally but effectively. Through the message system applied, patients can give health information to their doctors, and know the information of that doctor to proceed with the healthcare service, and vice versa. Patients can also schedule and get an arranged appointment with doctors.

2.2. Technology used

This project requires the knowledge of coding in Kotlin language, as well as knowing how the system and layers of a mobile application operate. Of course we also need to learn how to use Android Studio IDE to make the app. We have to research and implement the functions needed for a telehealth mobile app. Adding to the teamwork project, we manage it through Github, a web-based platform that helps us communicate and develop our project through states. But for some of the platform like Firebase that helps the functions work properly.

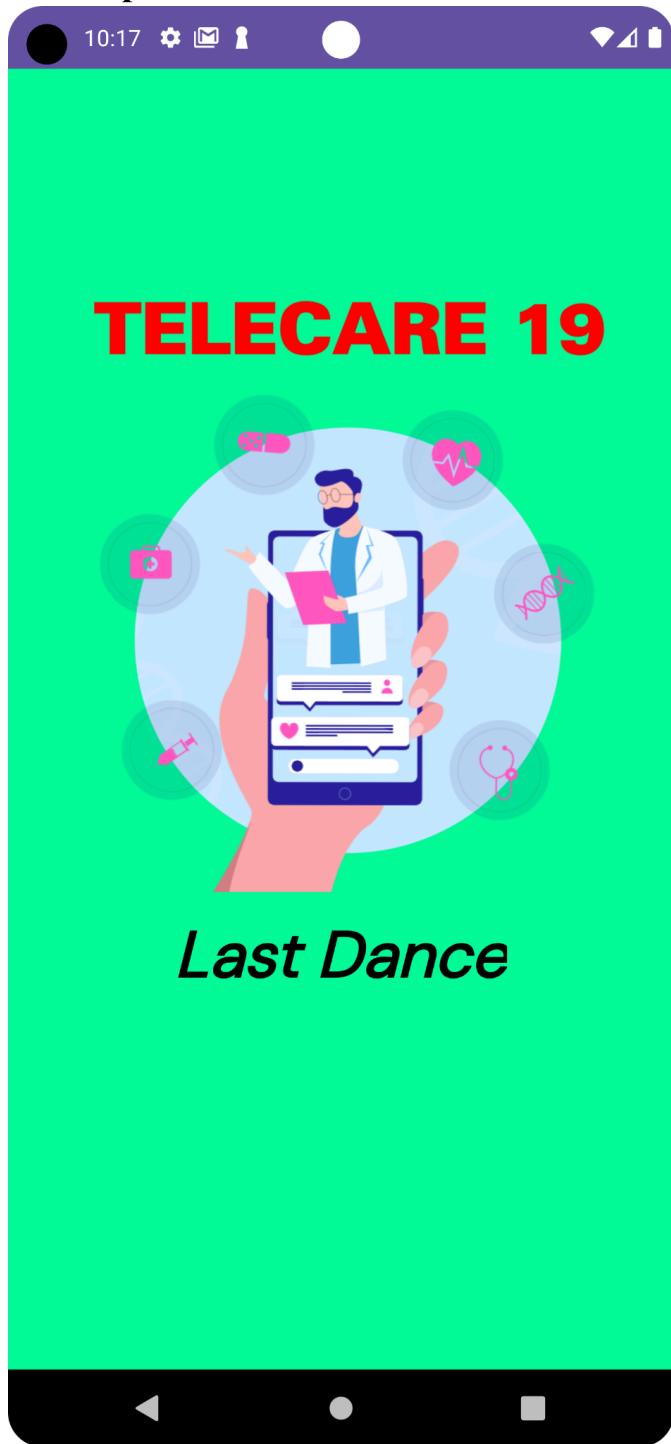
- Kotlin: with the help of Android Studio IDE, Kotlin language is needed in this project to build backend, beside XML files. Kotlin support well in implementation and design a mobile app just like what we are creating.
- Firebase: as mentioned, Firebase - a free platform that help authenticate user, by register and login their accounts, it also work as a database contain all user data, as well as appointment data, including date and time set.
- Android Studio libraries: We use some of the components like Navigation to navigate fragments, ViewModel for data storage and ViewBinding, having a binding class help manage code easily and interactively.
- Glide: Glide is an open source media management framework for Android that is fast and powerful. It help us in combining resource pooling, memory and disk caching, and media decoding in a user-friendly interface. We can now capture, extract and display photos in the app, for instance, applying in news showcases and reading news.

2.3. Approach

Our team use Kotlin for programming this app combine with Firebase and Glide to manage users' profile and adding other features such as make appointment, read news, chatting

2.4. Feature and demo

- Splash Screen:



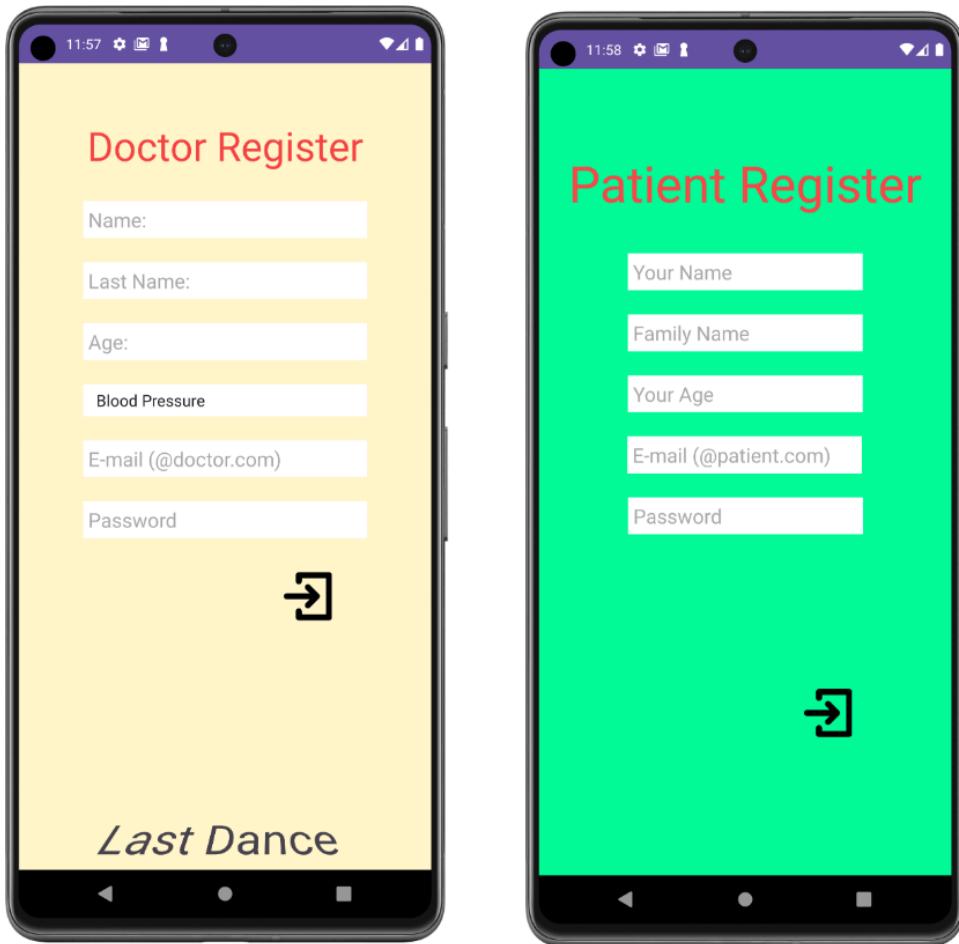
=> This is the splash screen to show an interface with our app name and our group name.

- Home page:



=> This is the homepage where doctor or patient can choose their role to interact with the app

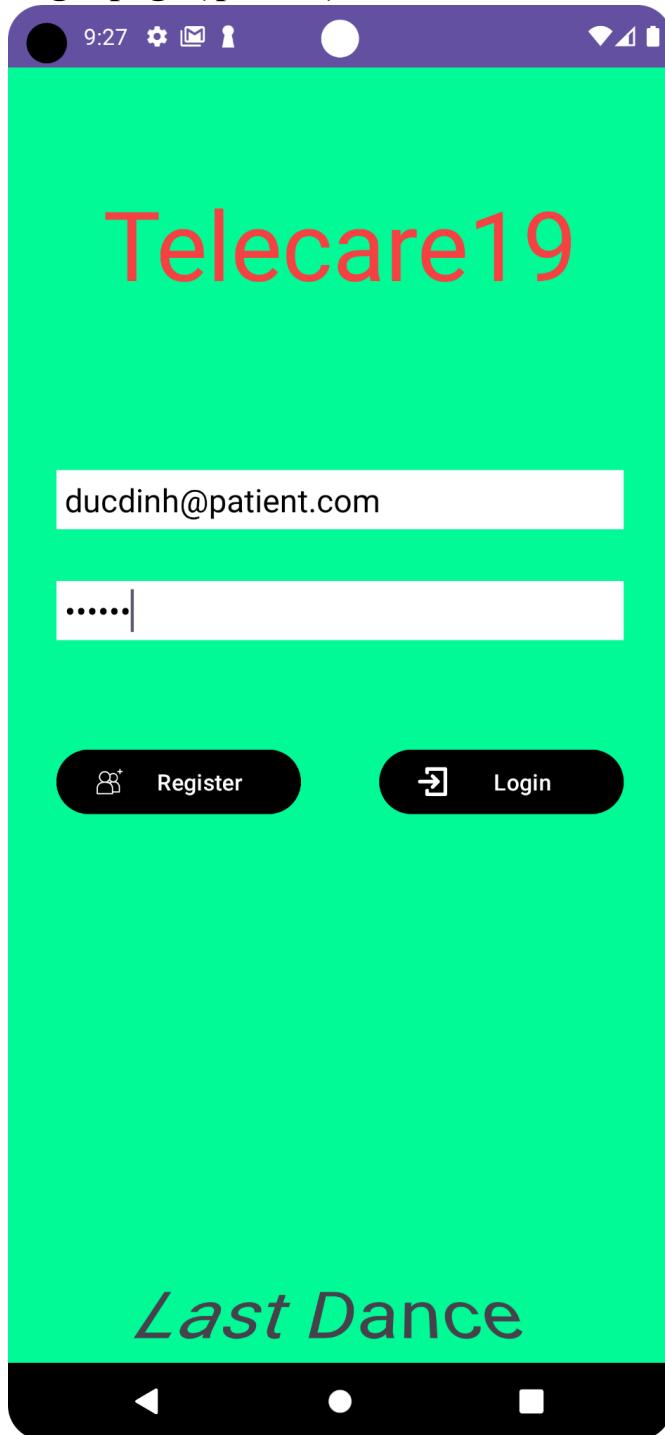
- Register page



=> User (doctor) create an account by filling information contains name, last name, age, choose their profession,email(doctor.com) and password.

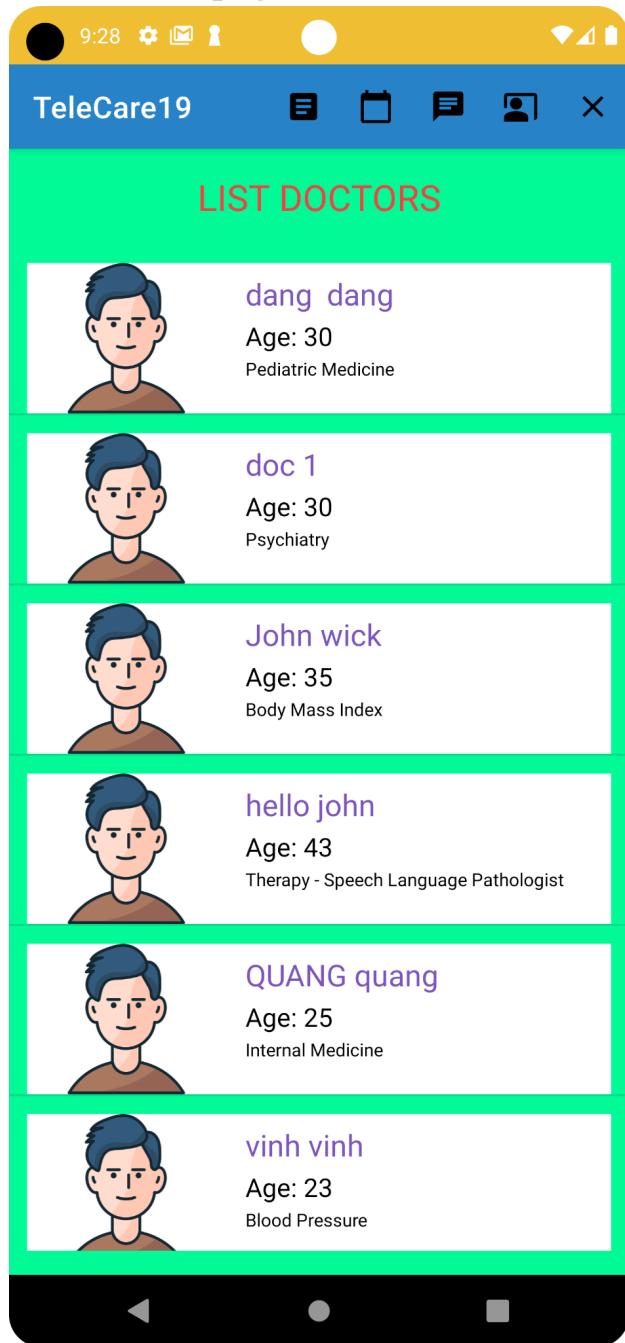
=> User (patient) create an account by filling information contains name, last name, age, email (doctor.com) and password.

- Login page (patient):



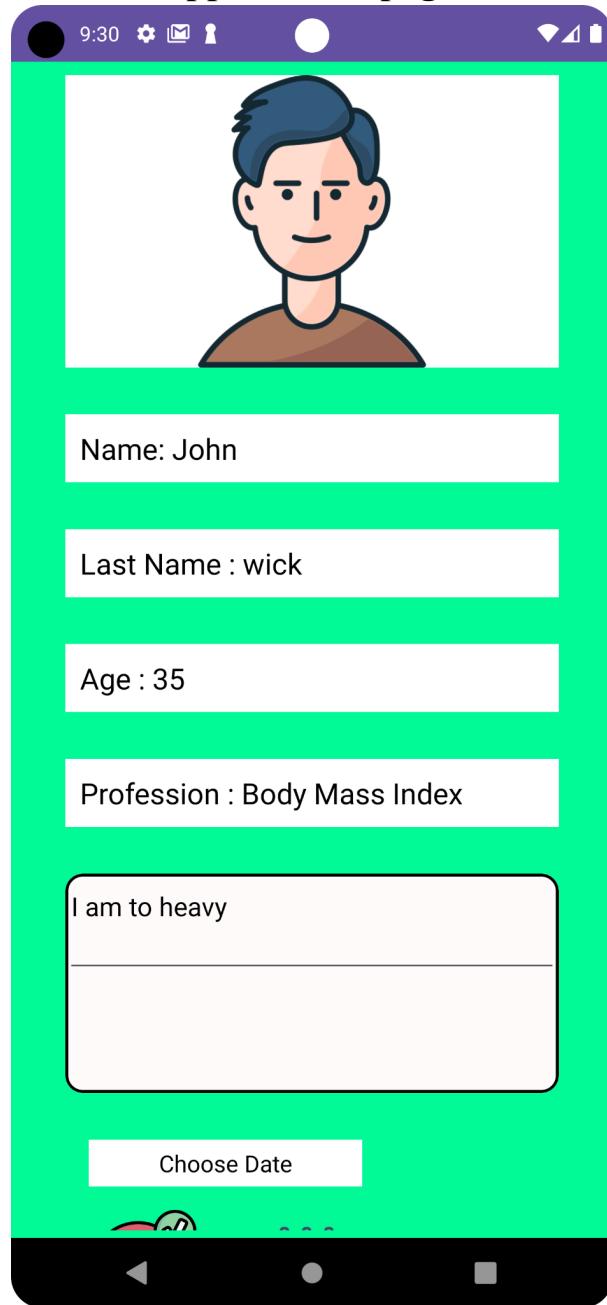
=> Users can create an account through Register, which will then be verified and through authentication, users have to login every time they use the app.

- **Doctors list page**



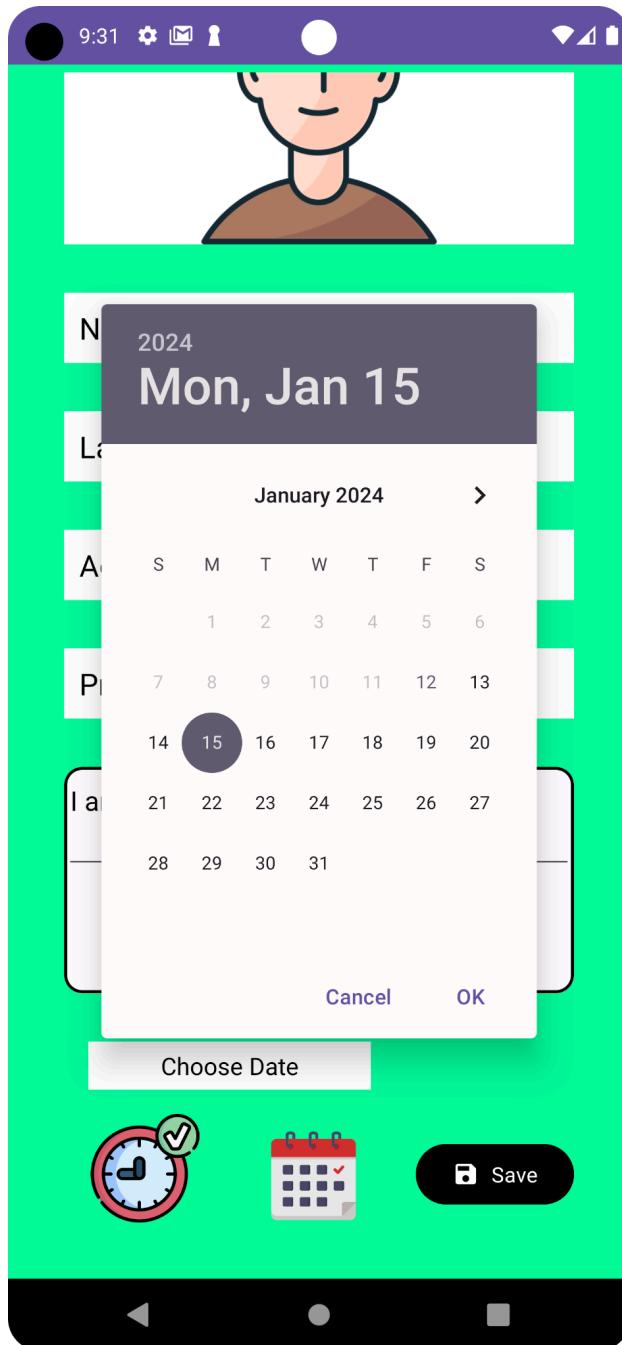
=> List of available doctors who are using this app, the user can see their information such as name, age and their expert.

- **Make an Appointment page:**



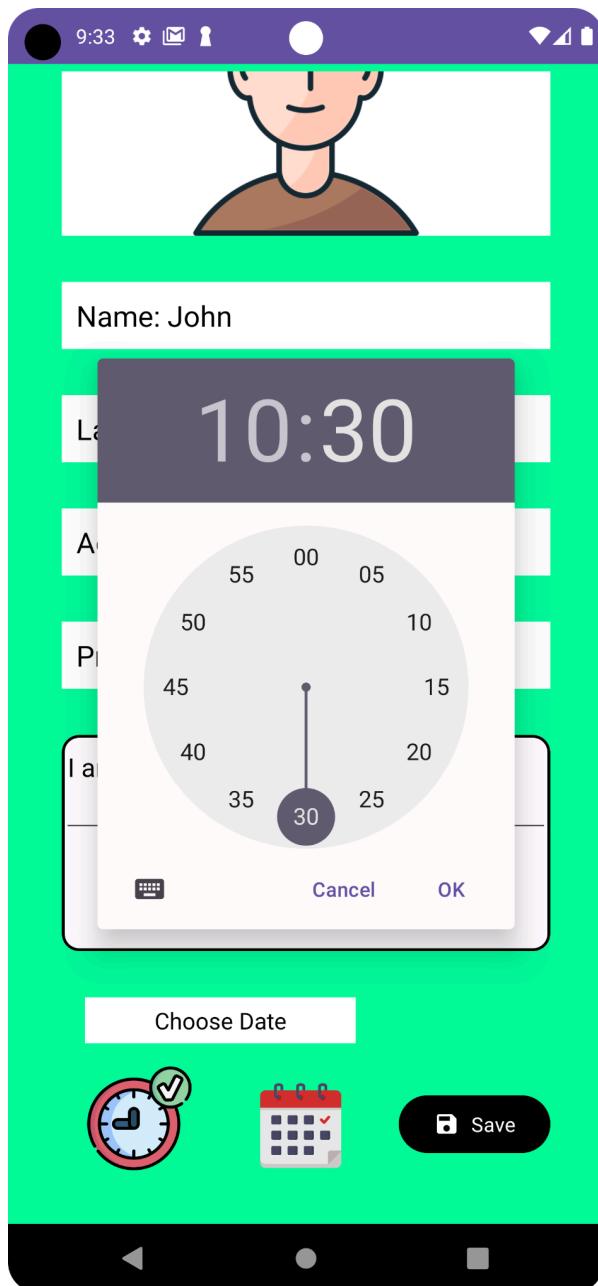
=> In the appointment page, doctor's information is available already and you will be asked to fill in a short bio (maybe what is your current health issue). This will help a lot in the treatment process.

- Choose date:



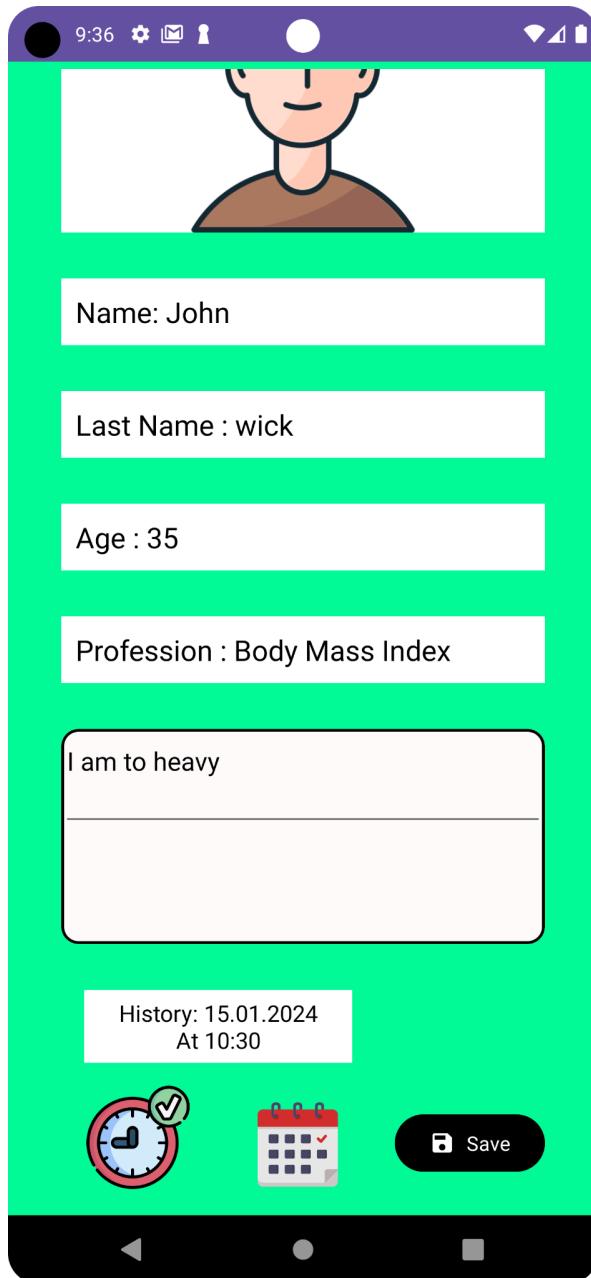
=> To schedule an appointment, you can note that by clicking Choose Date and choose the date it occurs(doctor only work from monday to saturday).

- Choose time:



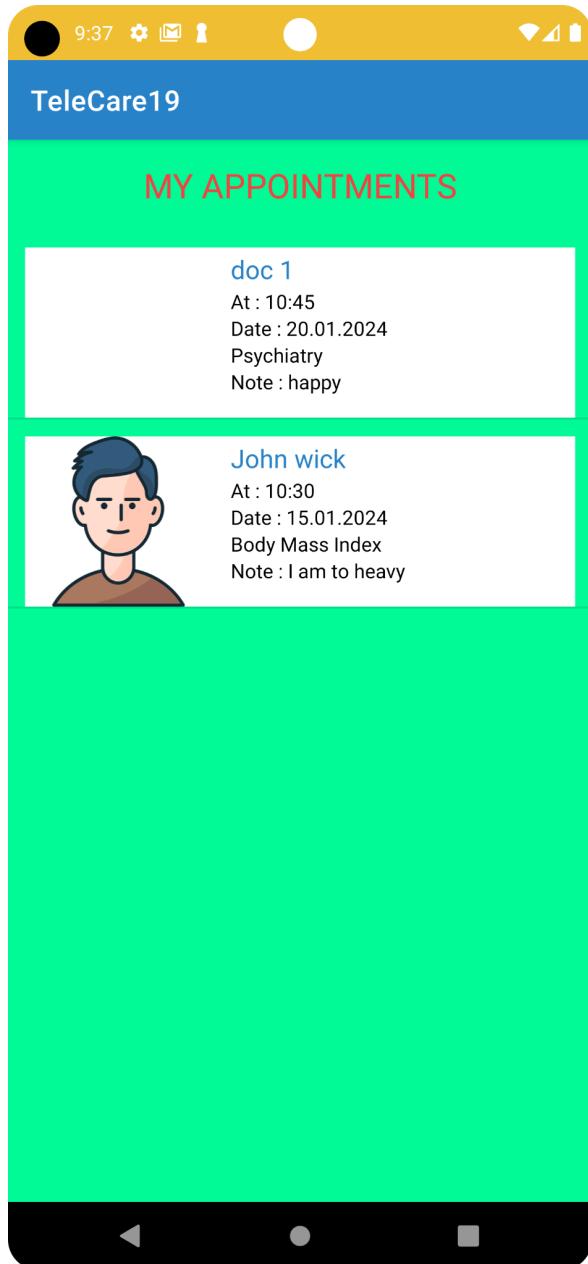
=> You can also set the time for the appointment, this will then remind you the same as your phone clock works (doctor only work from 10am to 5pm).

- Time set:



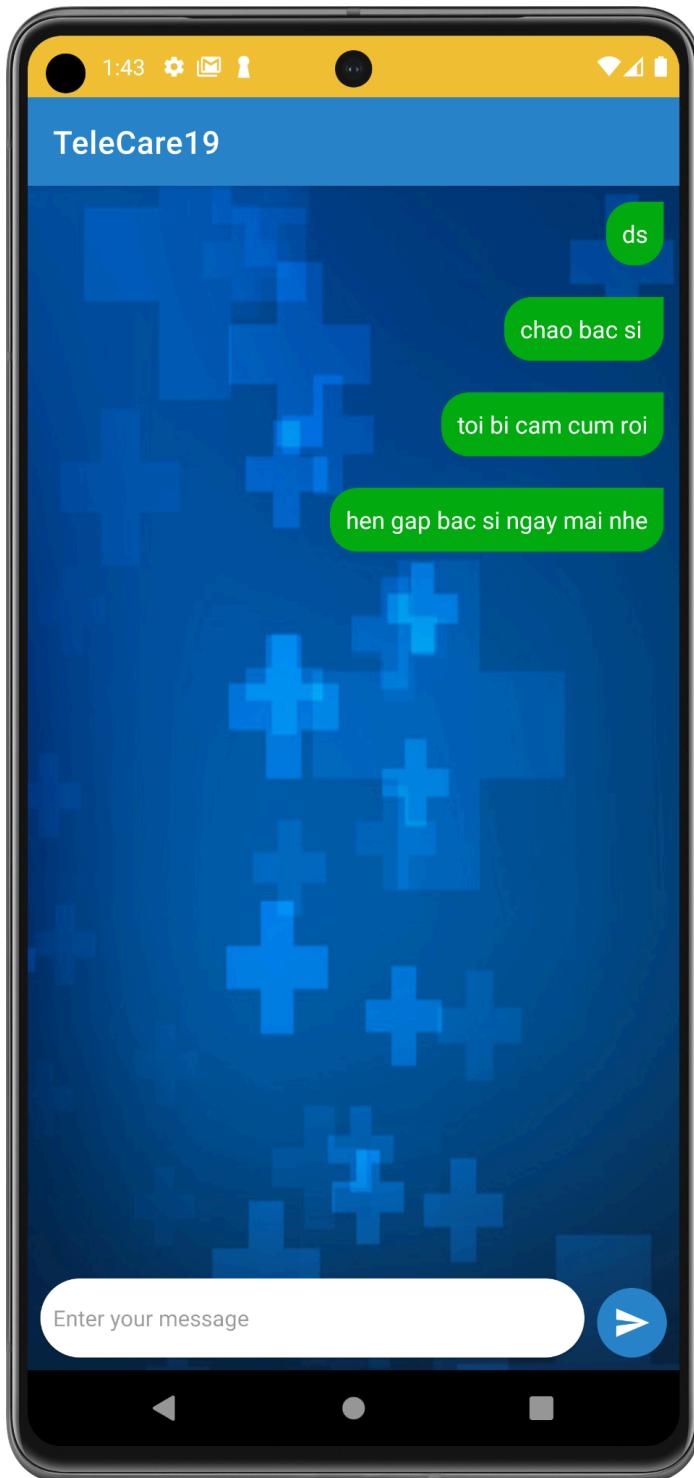
=> After setting the date and time, there will be a small box of reminder for the appointment right below your appointment page

- **Patient Appointment:**



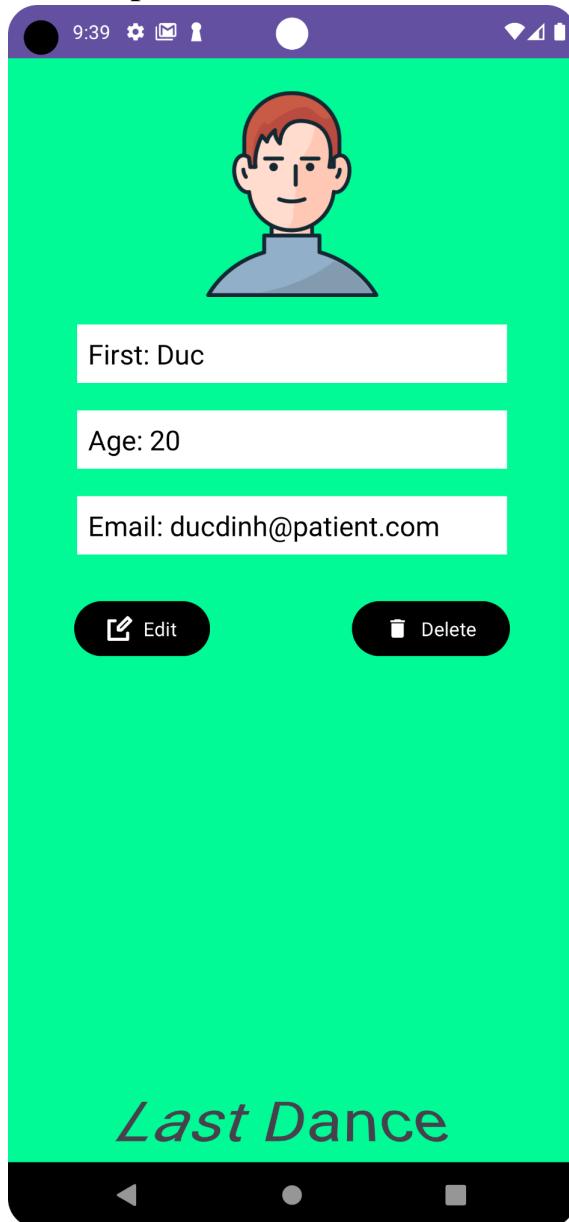
=> In the my appointments session you will see all of your current appointments information, including doctor's name, date and time, what expert and note. This will then automatically disappear after the appointment happens.

- Patient chat:



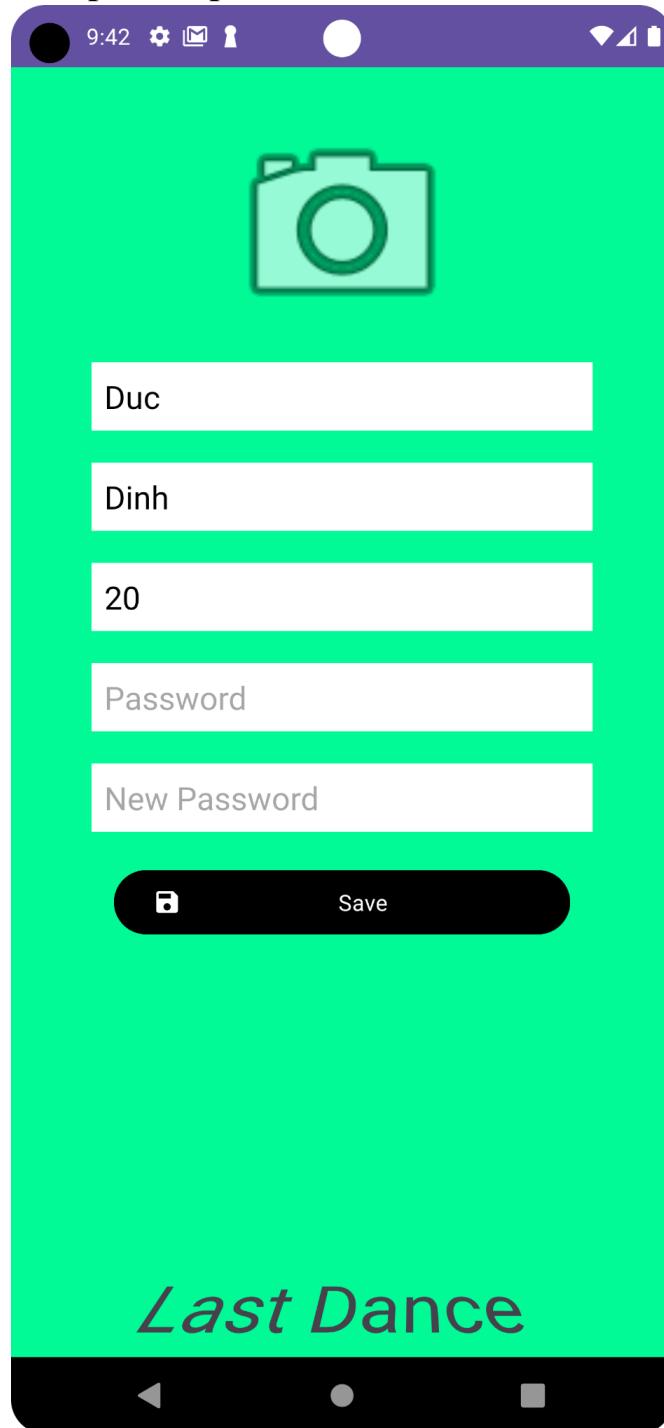
=> Patients can contact doctors through messaging, this works the same as message apps like Messenger or Zalo, by the help of Firebase platform.

- Patient profile:



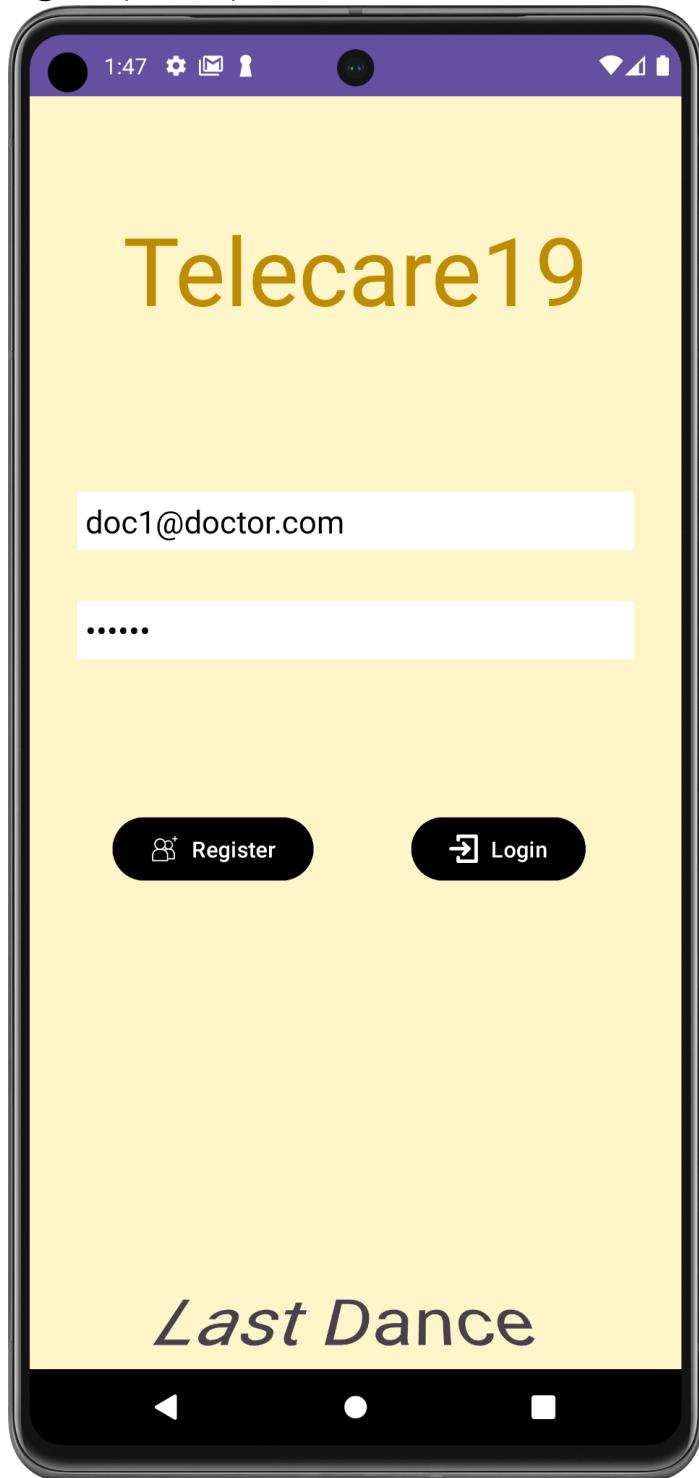
=> In your profile even after the register, add email authentication which helps keeping your account even safer

- Edit patient profile:



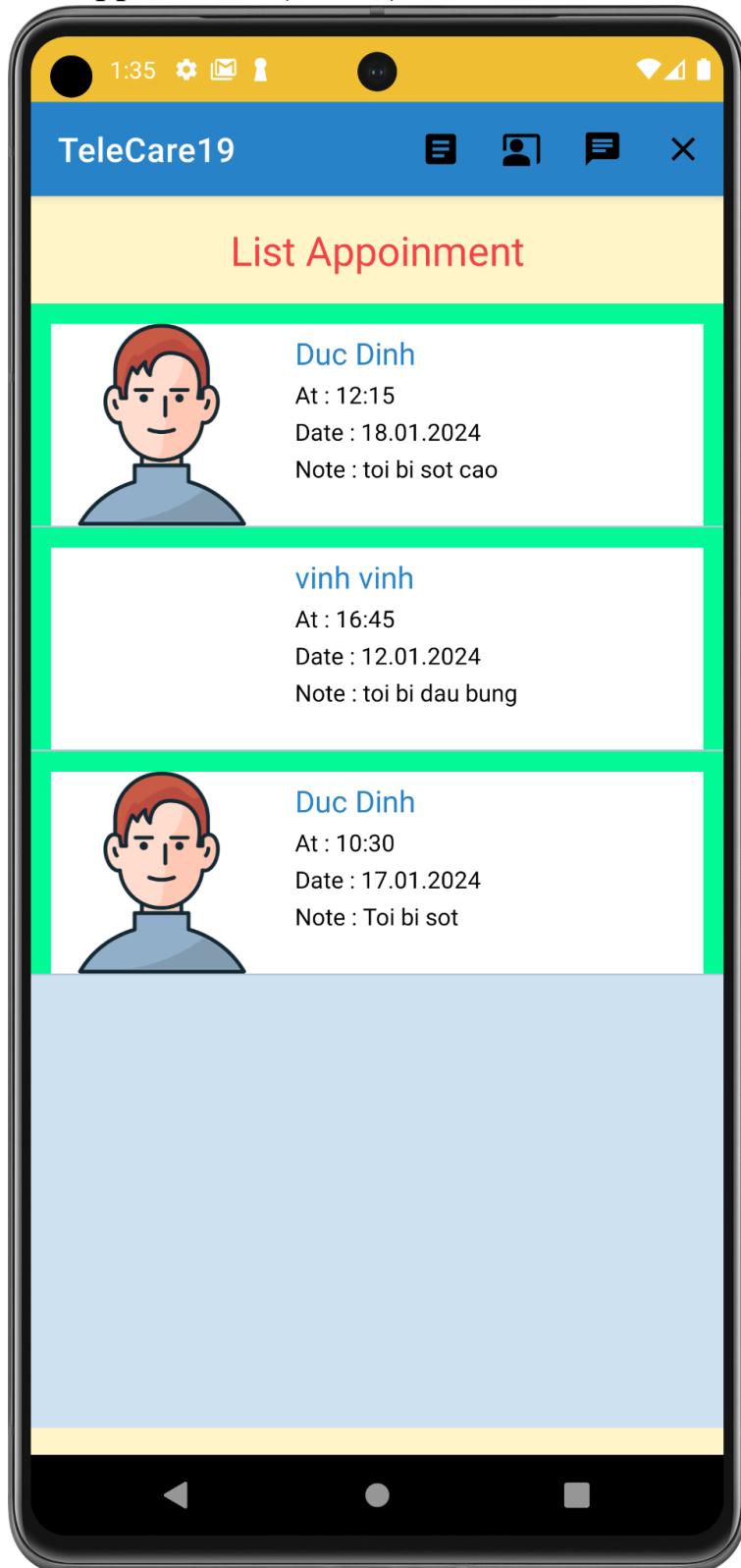
=> Edit profile after registration though ask for your password in order to proceed changing user data, this helps prevent false users from changing the data irresponsibly, illegally.

- Sign in(doctor)



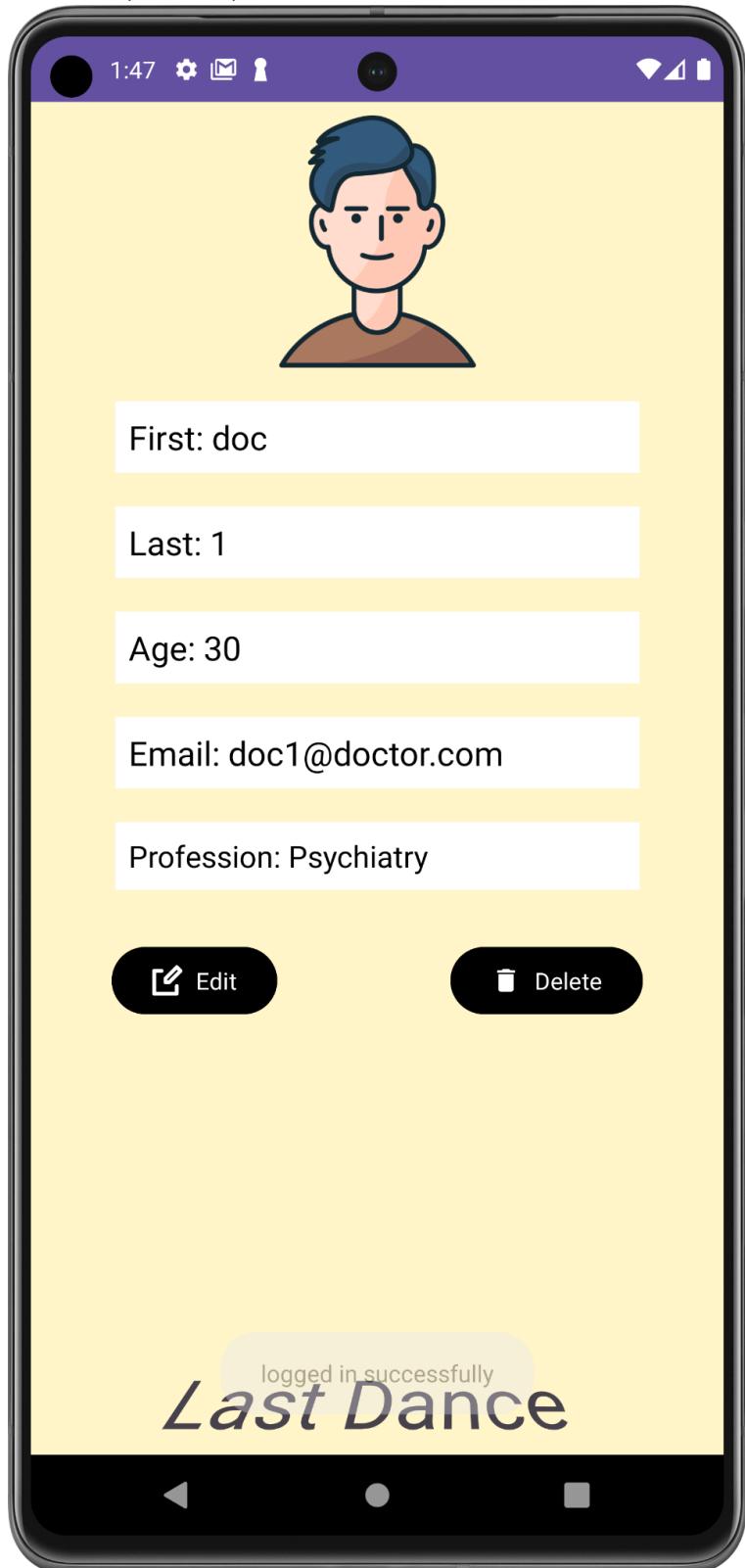
=> Login to an account as a doctor. Register to create a new account and then verify through authentications. Doctors must login every time they open the app to protect their profile

- List appointment(doctor):



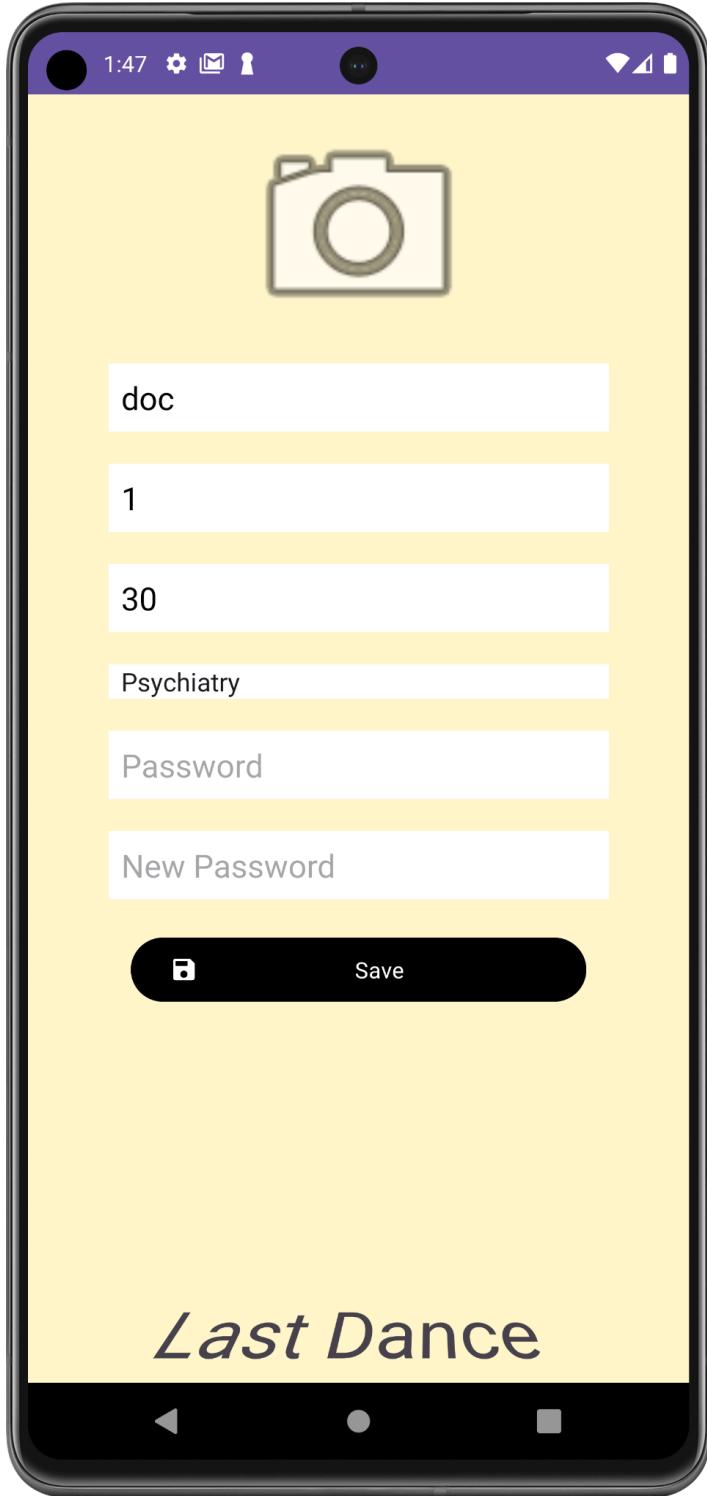
=> Doctors will see an appointment list with patients' username, symptoms and medical appointment schedule. After the patients complete medical examination, the list will disappear

- **Profile (doctor)**



=> Profile page contains full name, age, profession and email of doctor's information.

- **Edit profile(doctor):**



=> Doctors can change information as they want, they also change password in order to login with a new password

- News list:

9:44 ⚙️ 📲 🔋

Tập trung rà soát, sắp xếp đơn vị sự nghiệp, xây dựng bảng lương mới đối với cán bộ, công chức, viên chức y tế

Infographics: Khung giá dịch vụ khám bệnh tăng từ ngày 17/11/2023

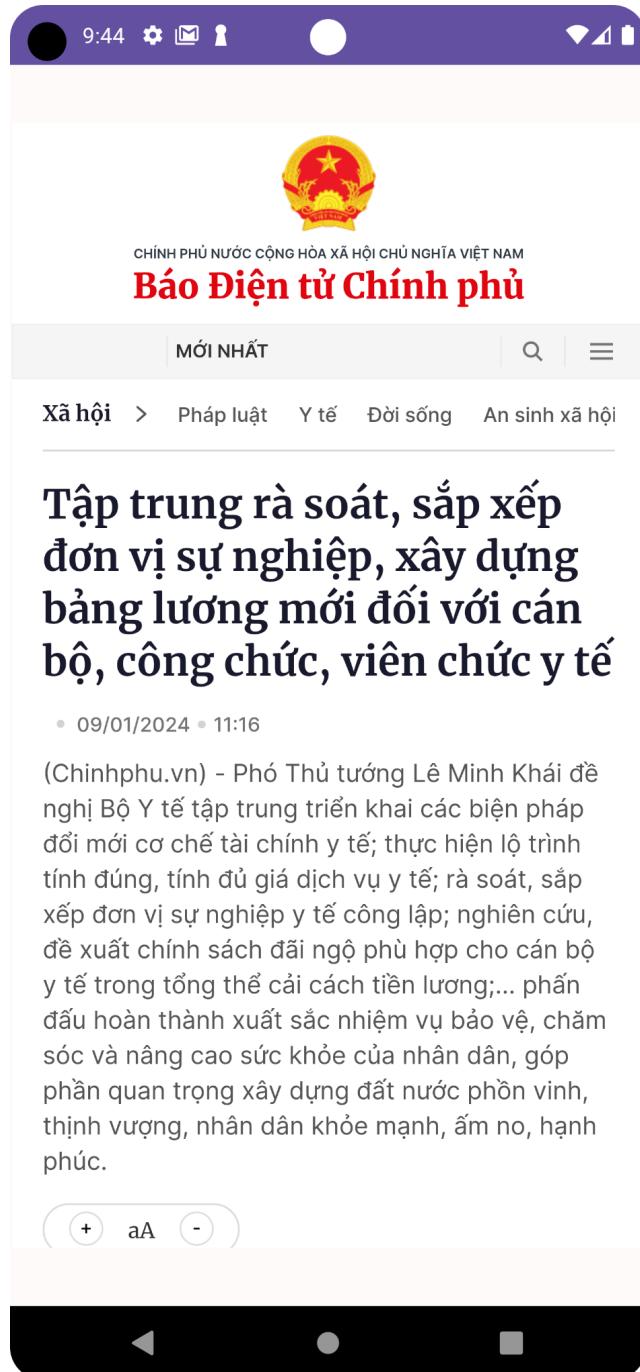
Đề nghị xây dựng Dự án Luật Phòng bệnh

Quy định đăng ký lưu hành thuốc gia công

Bổ sung phạm vi hoạt động chuyên môn với bác sĩ y học cổ truyền

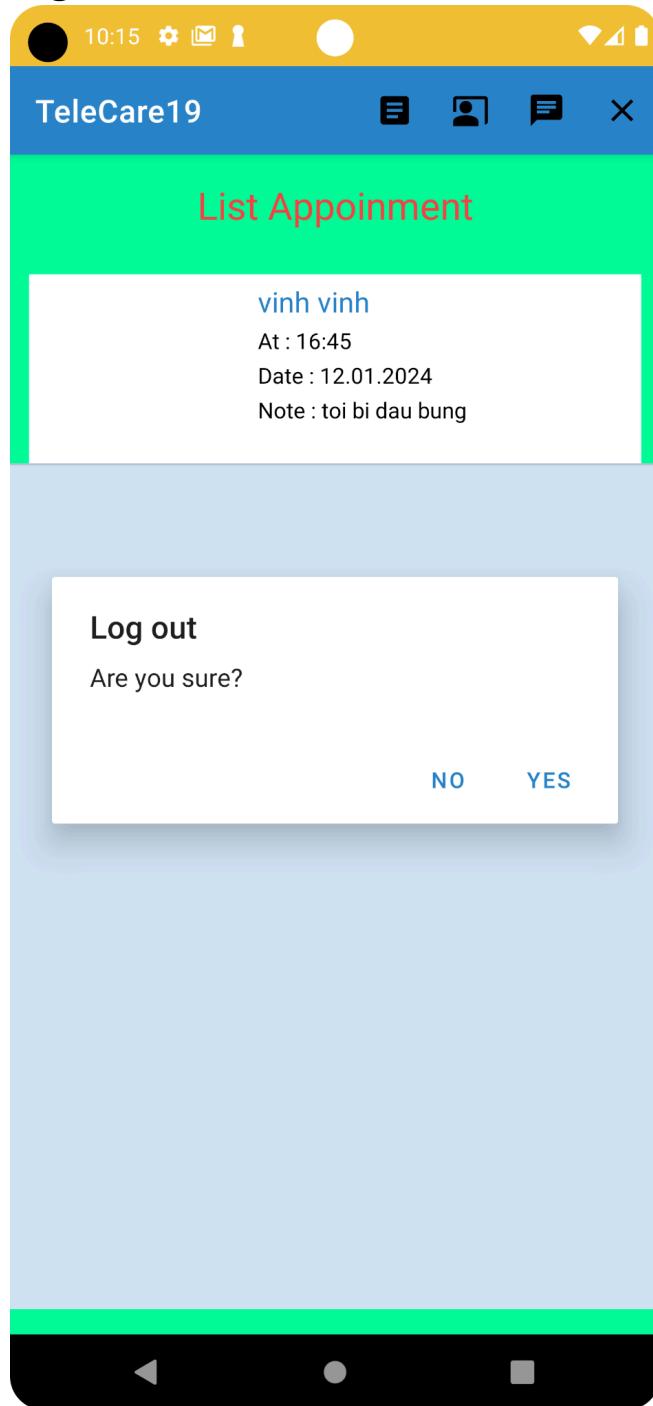
=> Beside making appointment, you can also read updated news to capture informations

- Read news:



=> When users tap a new from News list, users can see the details of the new that they tap

- **Log out:**



=> If users finish their work, users can log out by pressing the X button on the top right corner and go back to the Login page

2.5. Conclusion

In summary, the telehealth app outlined in this report serves as a comprehensive solution to connect healthcare providers and patients, incorporating essential features like appointment scheduling, real-time communication with healthcare professionals this function need to complete in the future work, user-friendly registration and login functionalities, access to relevant medical news, and effective personal profile management. This integration of functions significantly enhances healthcare accessibility, convenience, and efficiency for both doctors and patients alike.

2.6. Future Works

Future work should also focus on improving the app's user interface and experience to ensure a seamless and intuitive interaction for users of all technological backgrounds.

Continuing with the chat function, its real-time communication capability forms the cornerstone of efficient and personalized healthcare interactions within the telehealth app. Through this feature, patients can seamlessly engage with healthcare professionals, fostering direct communication channels that transcend physical barriers. Doctors, in turn, can respond promptly to patient queries, provide timely medical advice, and offer necessary support remotely.

Collaborations with healthcare institutions, regulatory bodies, and other stakeholders will be crucial to address potential privacy and security concerns, ensuring compliance with evolving healthcare standards and regulations.

2.7. Contribution

Team member	Role	Contribution
Đinh Vũ Đức	Team Leader ,Developer	22%
Đặng Quang Vinh	Developer	22%
Nguyễn Đức Anh Tài	Developer	22%
Nguyễn Trí Nhân	Developer	17%
Võ Trùng Dương	Developer	17%