

# DETI ACCESS CONTROL SYSTEM

## TEAM 8

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- Rui Lameiras
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## Advisors:

- Prof. André Zuquete;
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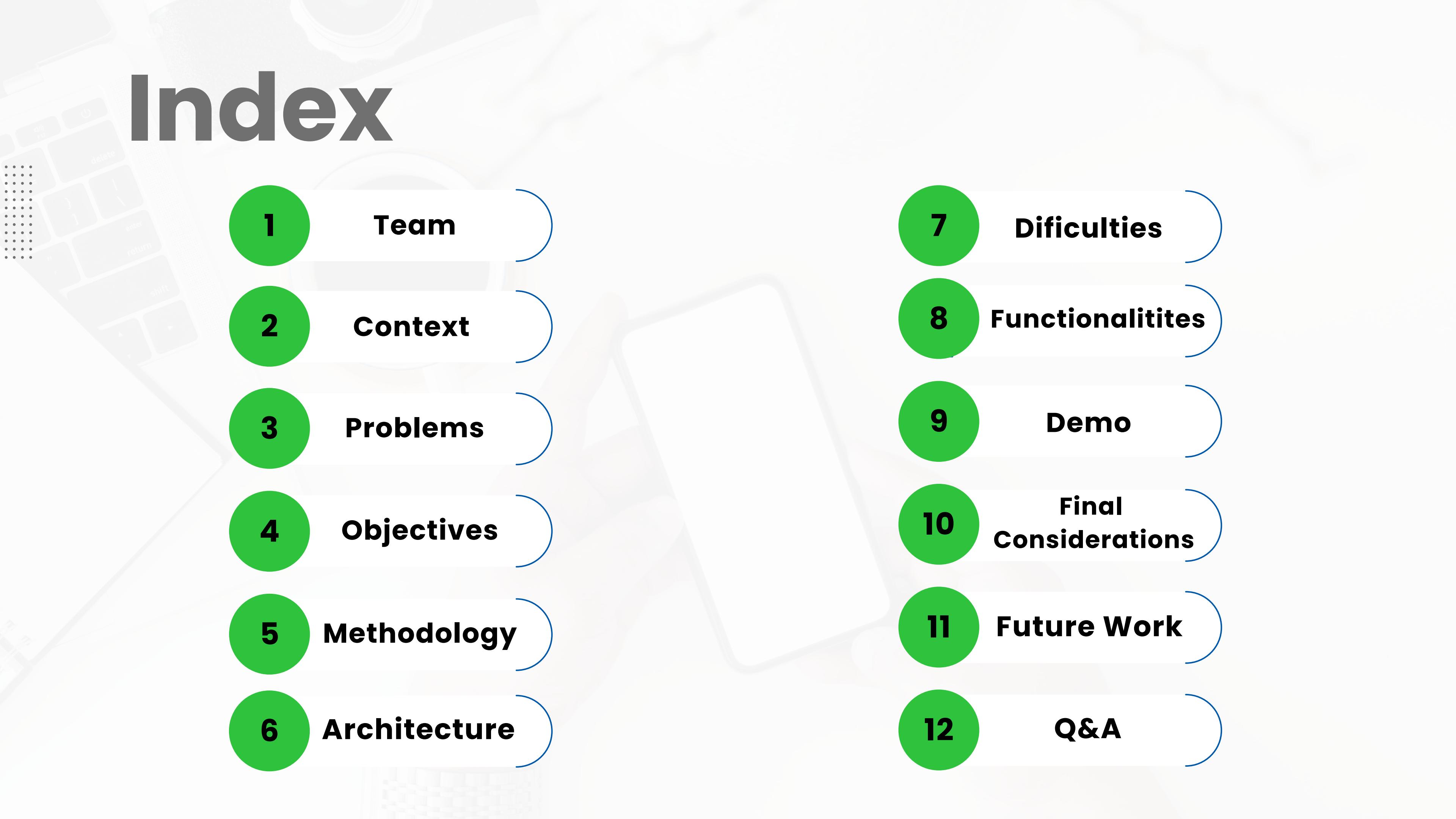
email

Password

Iniciar sessão

Registrar

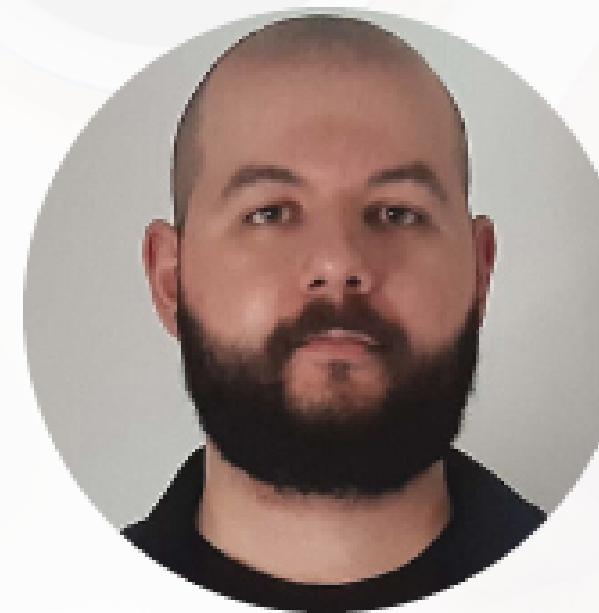
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# Our Team



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Leandro Rito



Rui Lameiras



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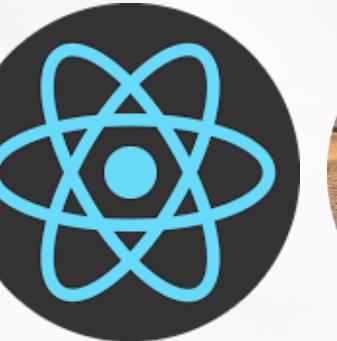
# Context

As part of our Curricular Unit PECI , our project aims to develop a system that allows opening the doors of the department using the personal smartphone of each person that have any type of access to the DETI department.

# Objectives

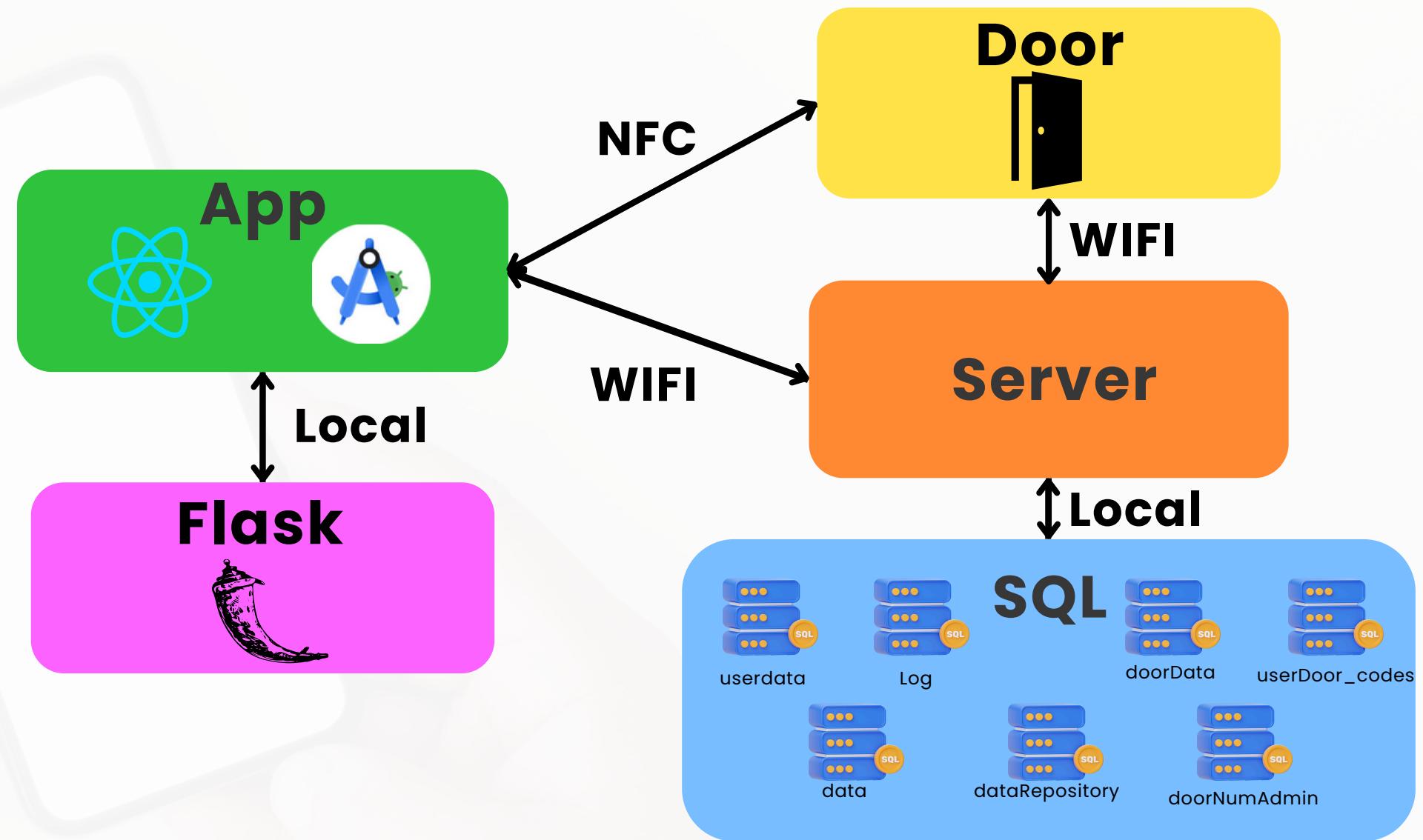
- Simple and quick system to open doors at DETI using NFC;
- Open doors remotely by the security guards or someone with higher permissions;
- Log register to keep track of who entered where;
- Have an authentication system;
- Ensure safe communications.

# Methodology

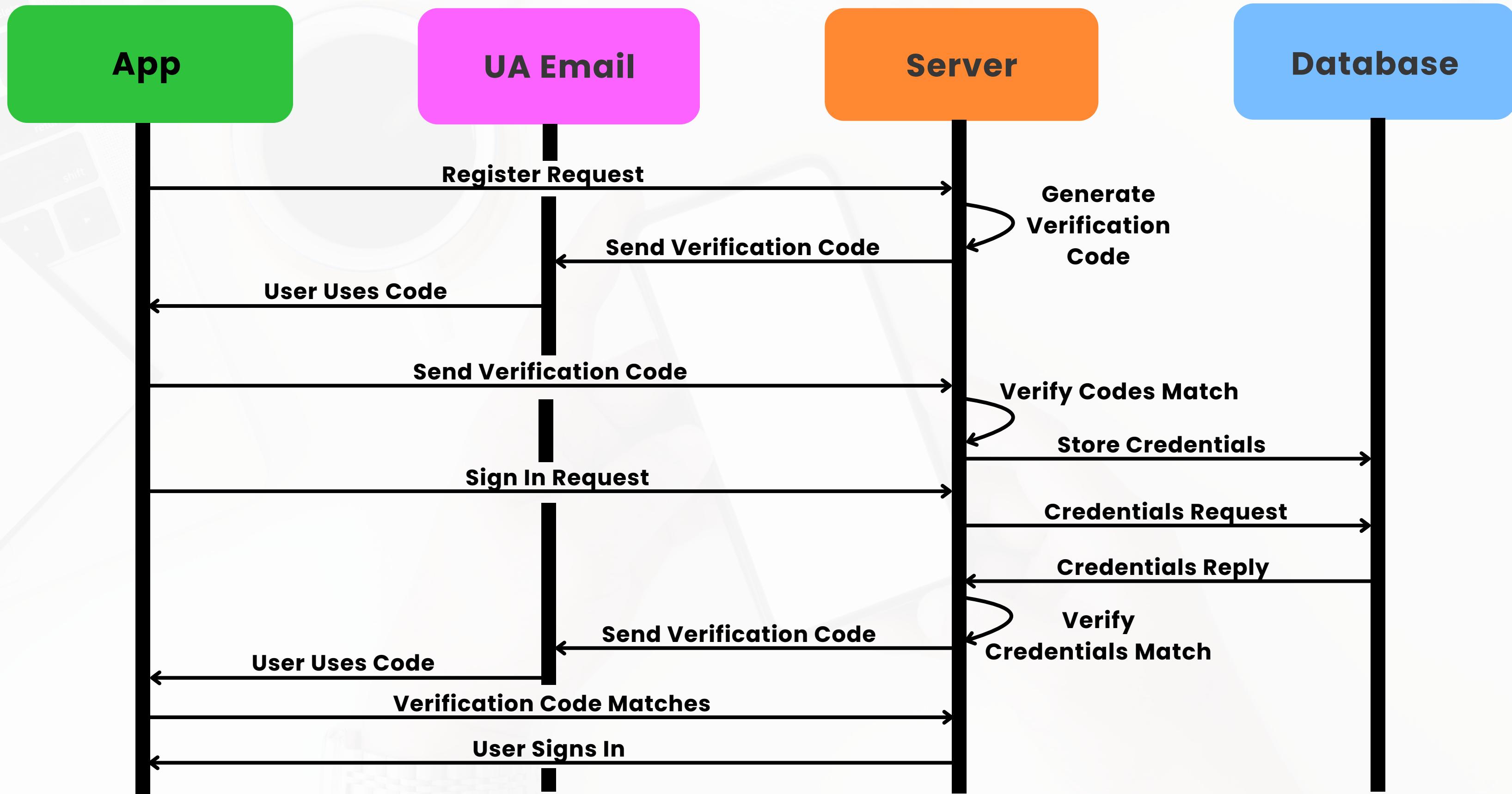


# General Architecture

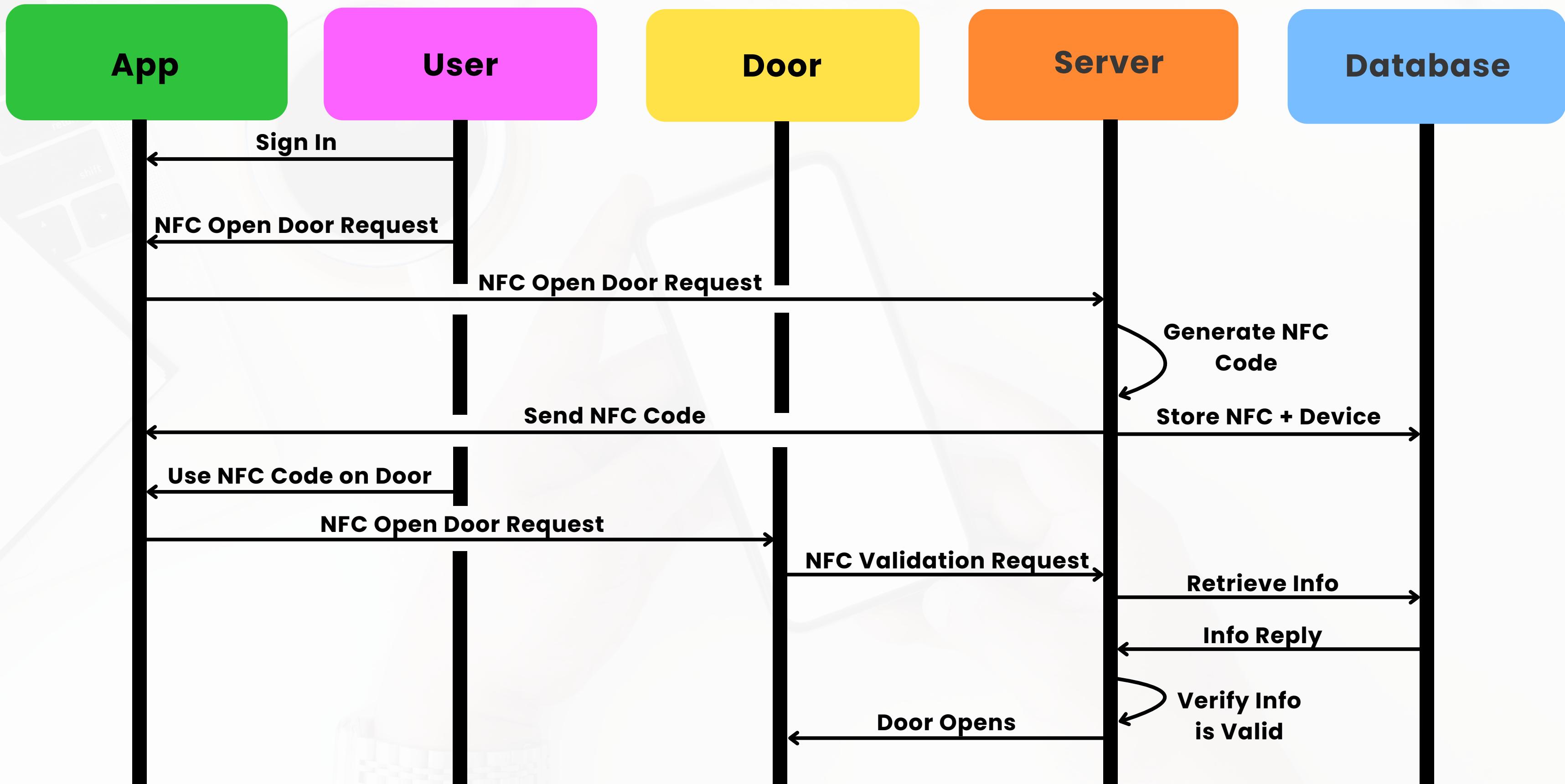
- App – Running on a personal smartphone;
- Flask – Responsible for the connection between the backend and frontend;
- Door – NFC module used to simulate a door;
- Server – Responsible for opening doors by the admin and for validating requested information using SQL databases;
- SQL Databases: Used to store all types of information needed for the system.



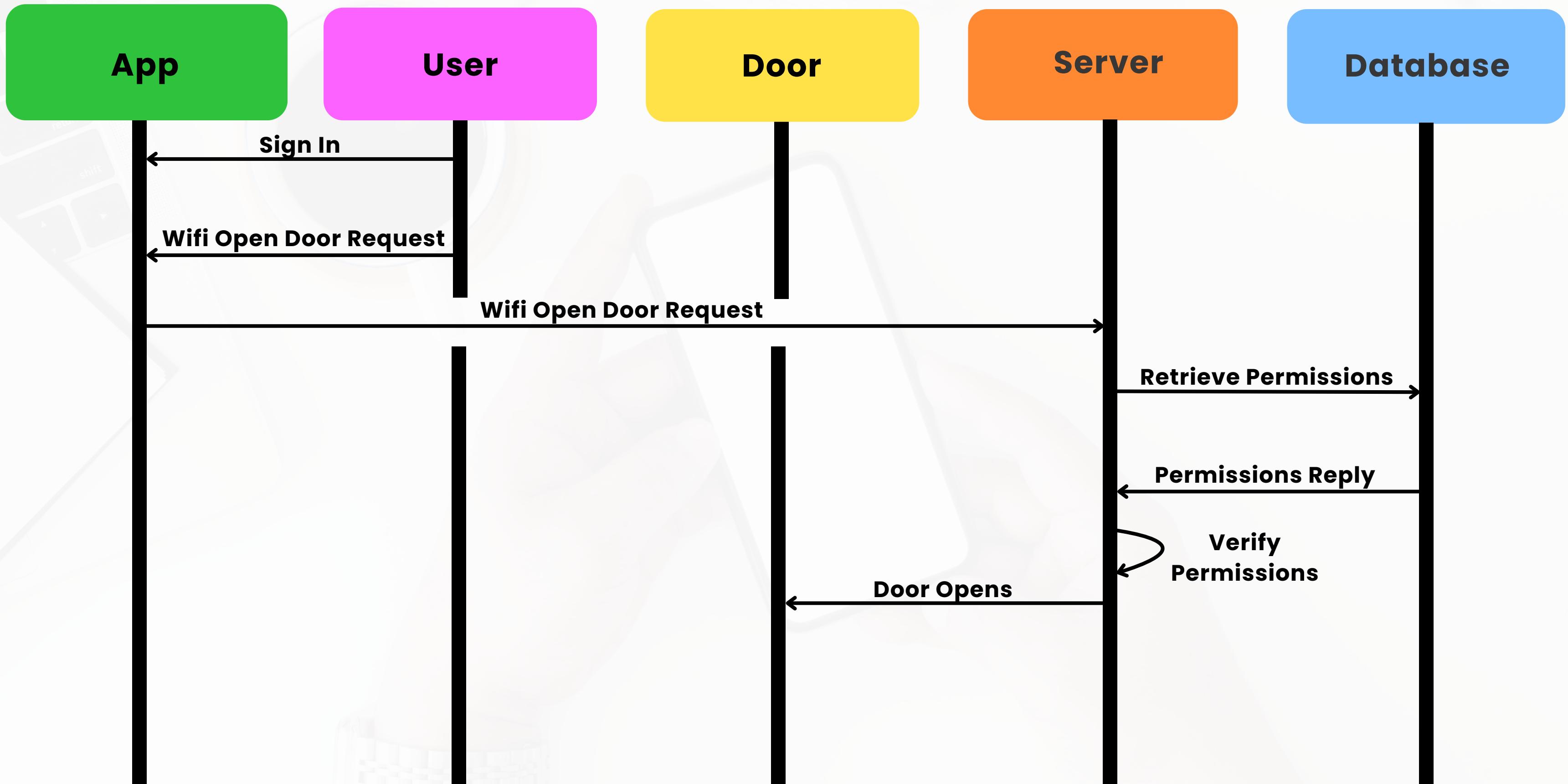
# Application Flow - Register & Sign In



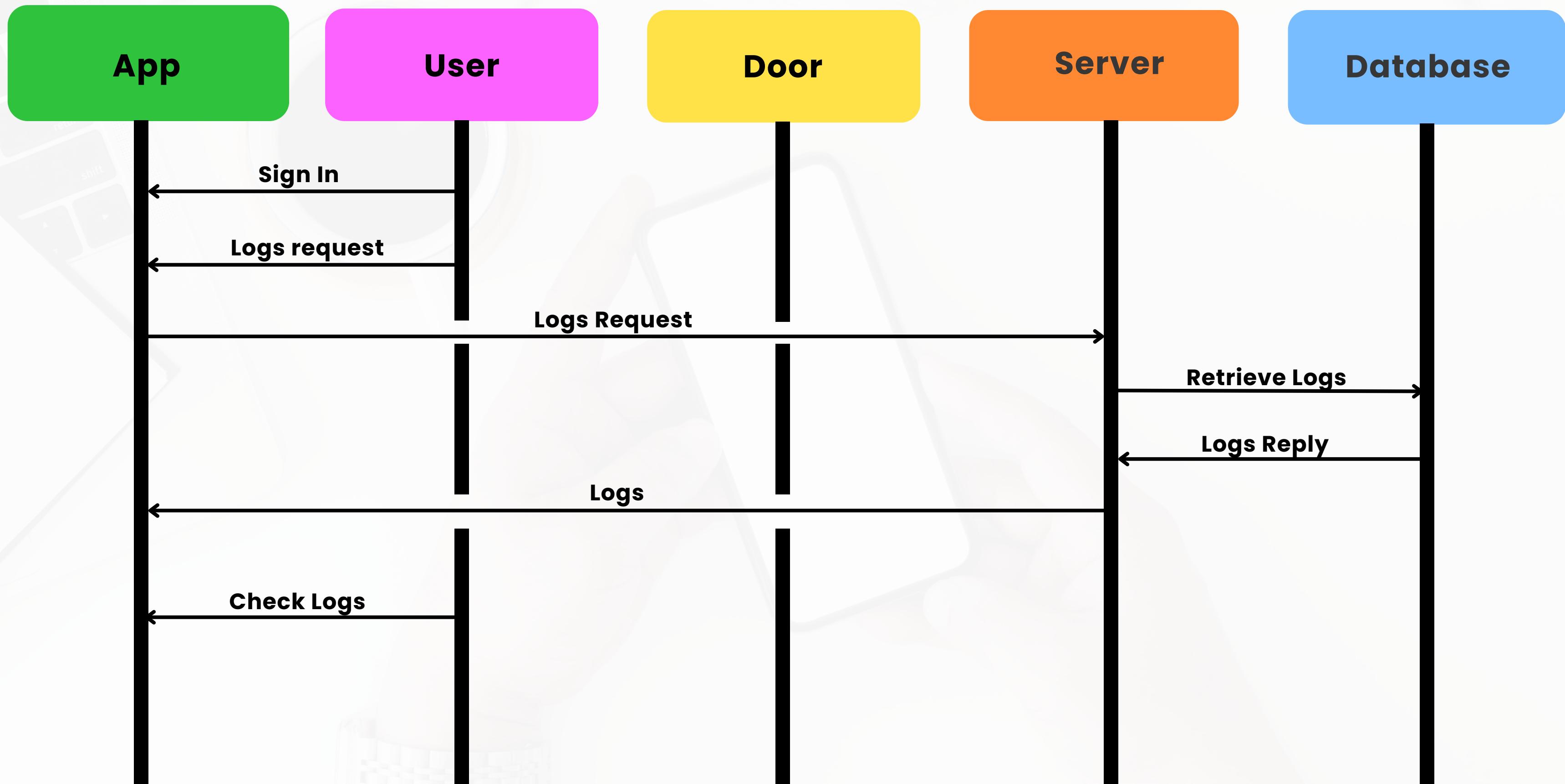
# Application Flow - NFC Open Door



# Application Flow - Wifi Open Door



# Application Flow - Check Logs



# Dificulties

- Wireless communication with NFC module that simulates the door;
- How to show the security of our system.
- Emulator vs Physical device:
  - Communications between the App on the physical device and the backend;
- NFC module technology;
- Use of UA's IDP.

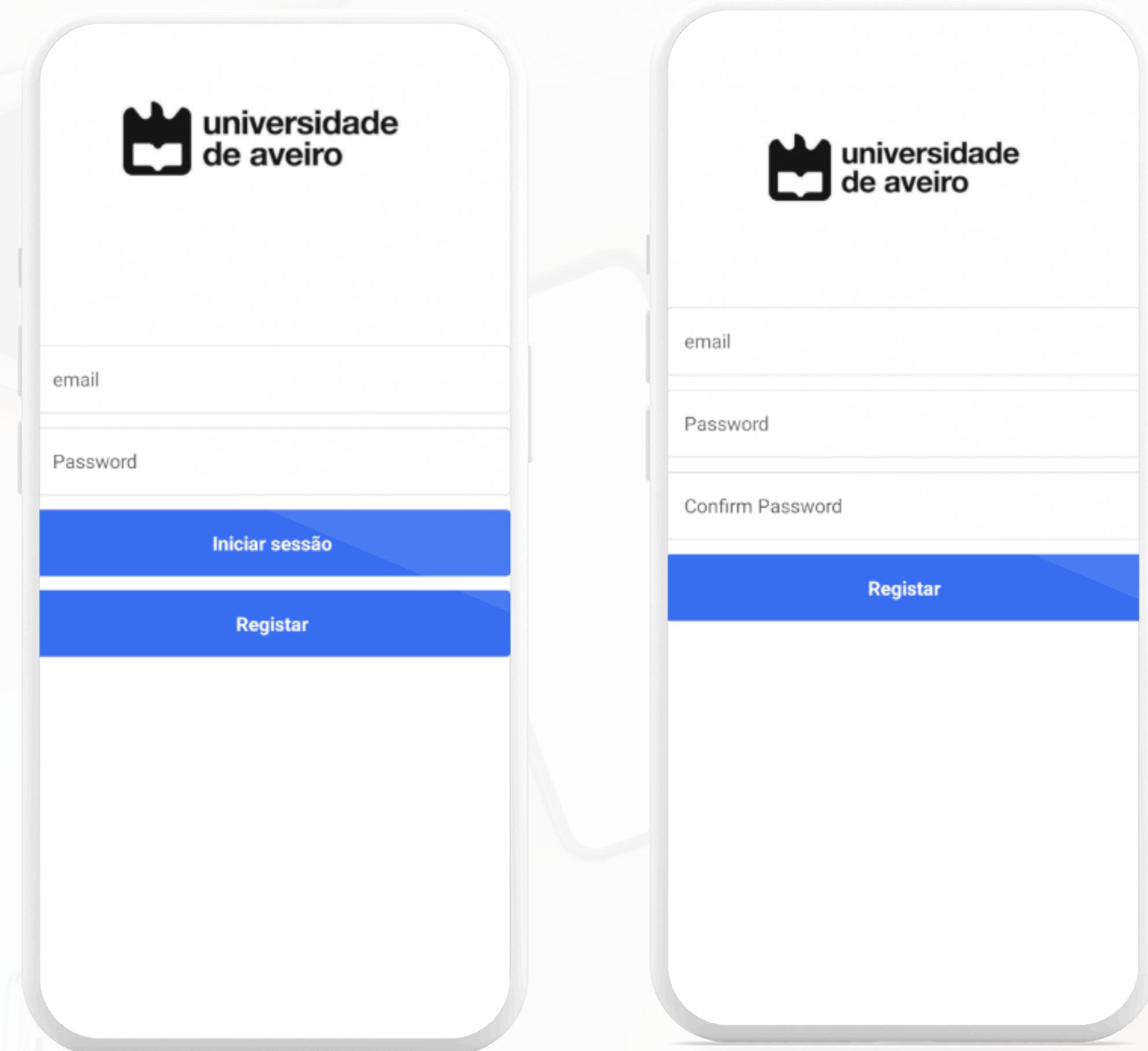
# Functionalities

## Iniciar Sessão

This will check on the databases if the credentials are correct and if that's the case further options will appear.

## Registrar

This will redirect you to a page where you will be registered to our system.



## Registrar

This will send the confirmation code to the email to be validated.

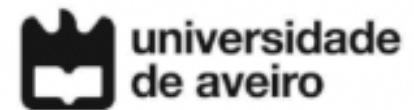
# Functionalities

## Write Tag

writes content into an NFC tag.

## Logs

When pressed it will show the users activity, meaning the rooms he entered and the time and day he did it.



Bem-vindo

Write Tag

Generate NFC

Logs

Portas

## Generate NFC

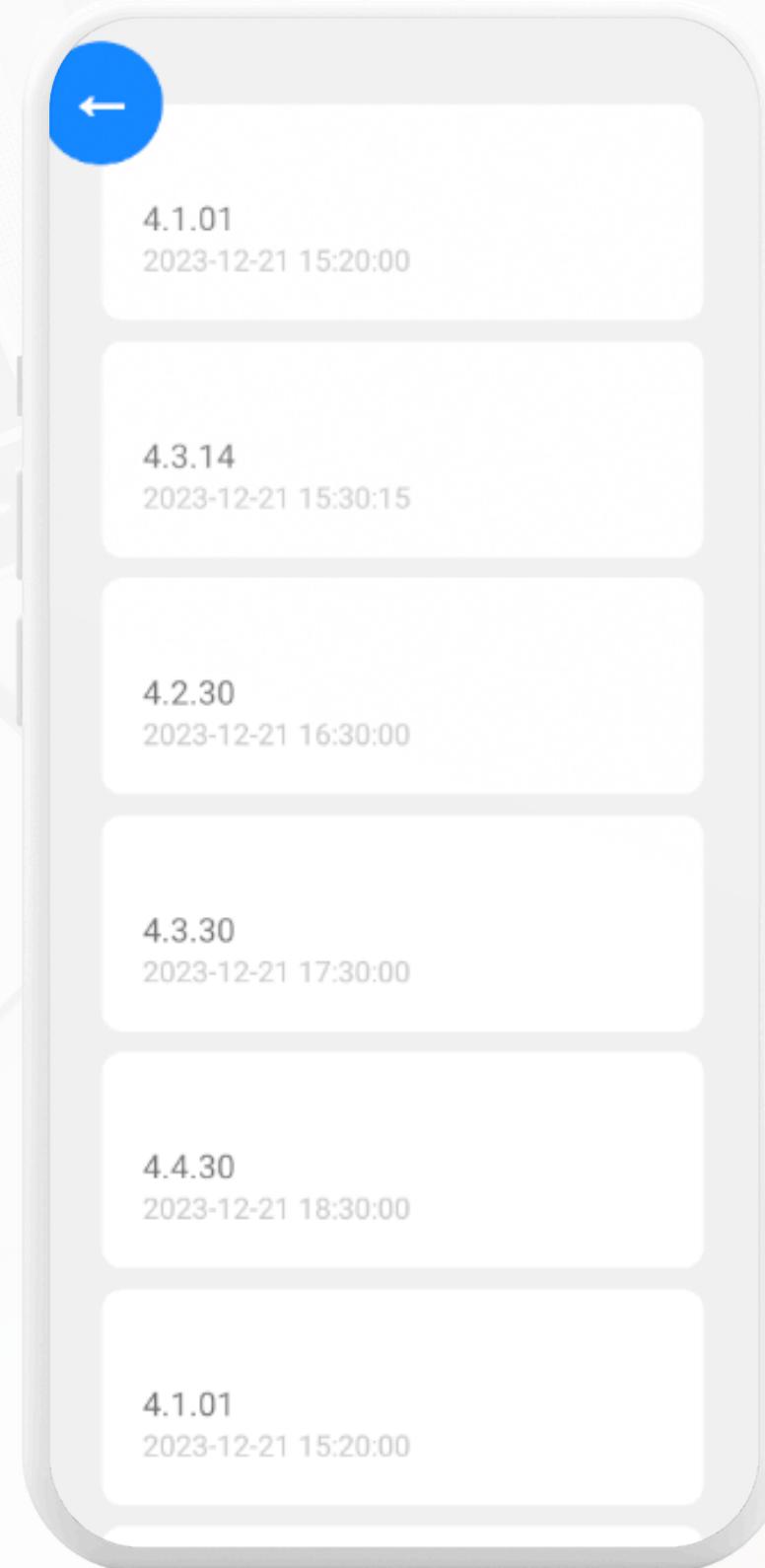
Creates a code to be read by the NFC module.

## Portas

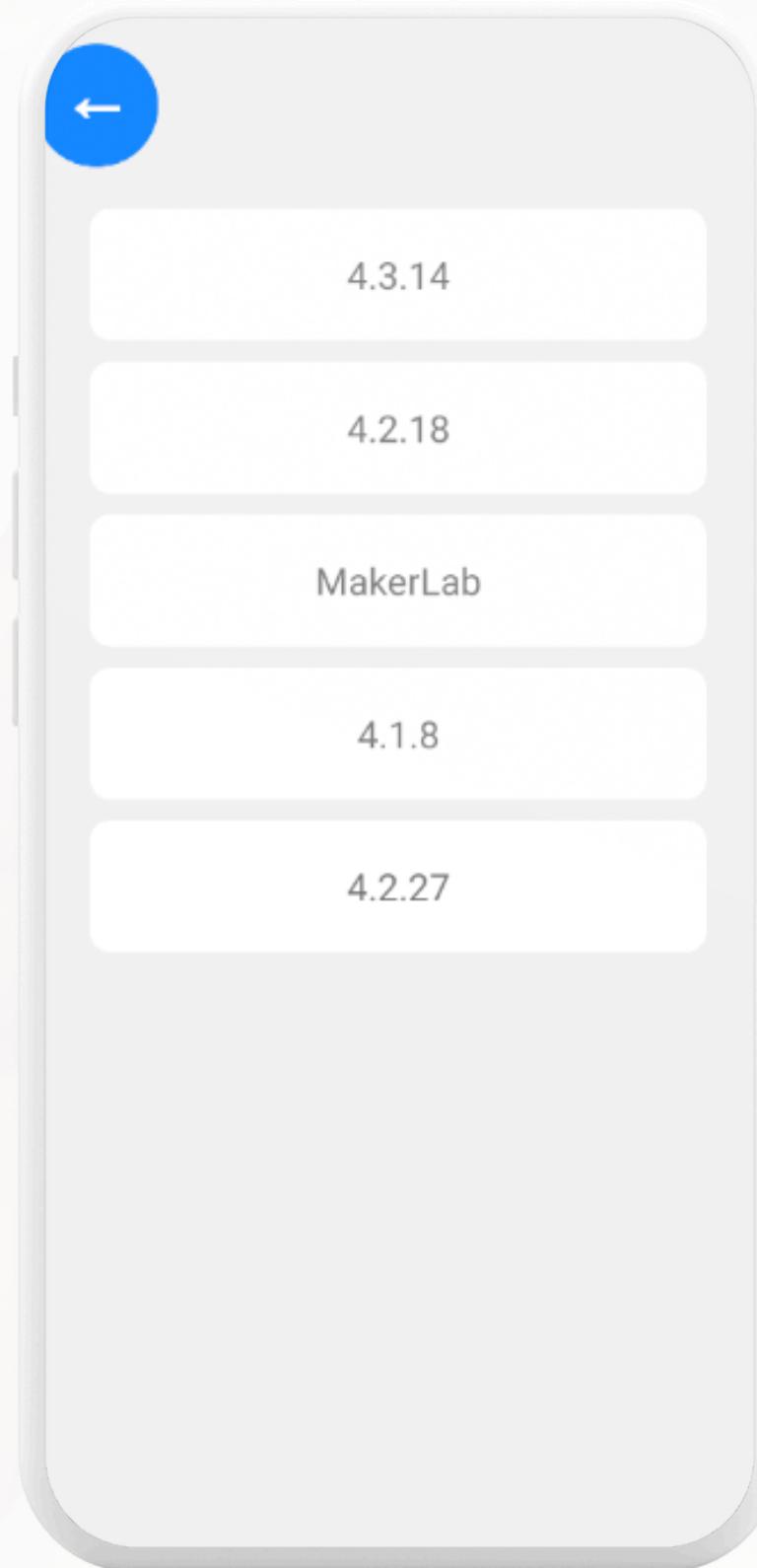
When pressed,

- user = normal person -> show the doors he have access to;
- user = admin -> show all the doors + can open all of them via WIFI.

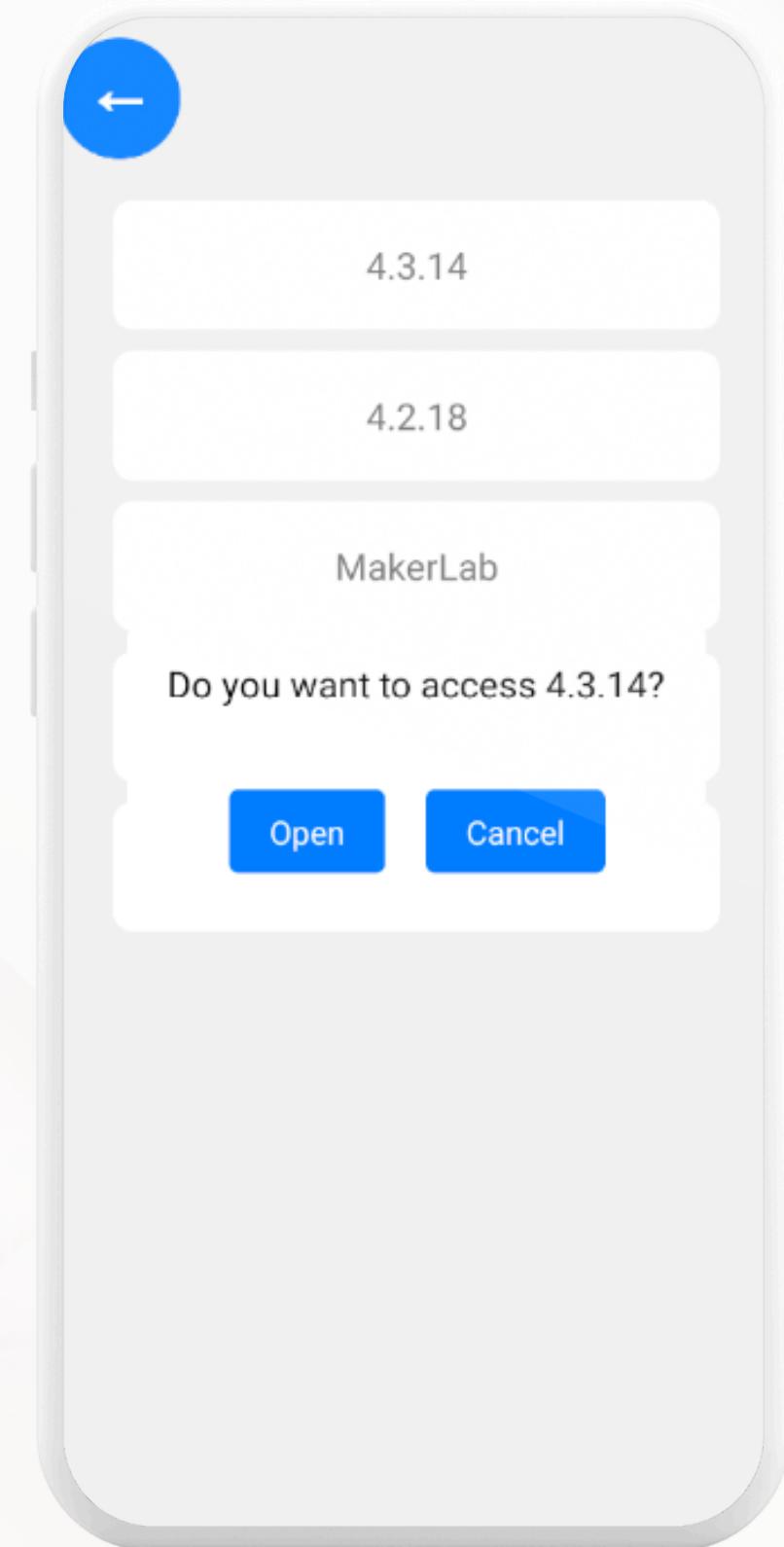
# Functionalities



Logs Screen



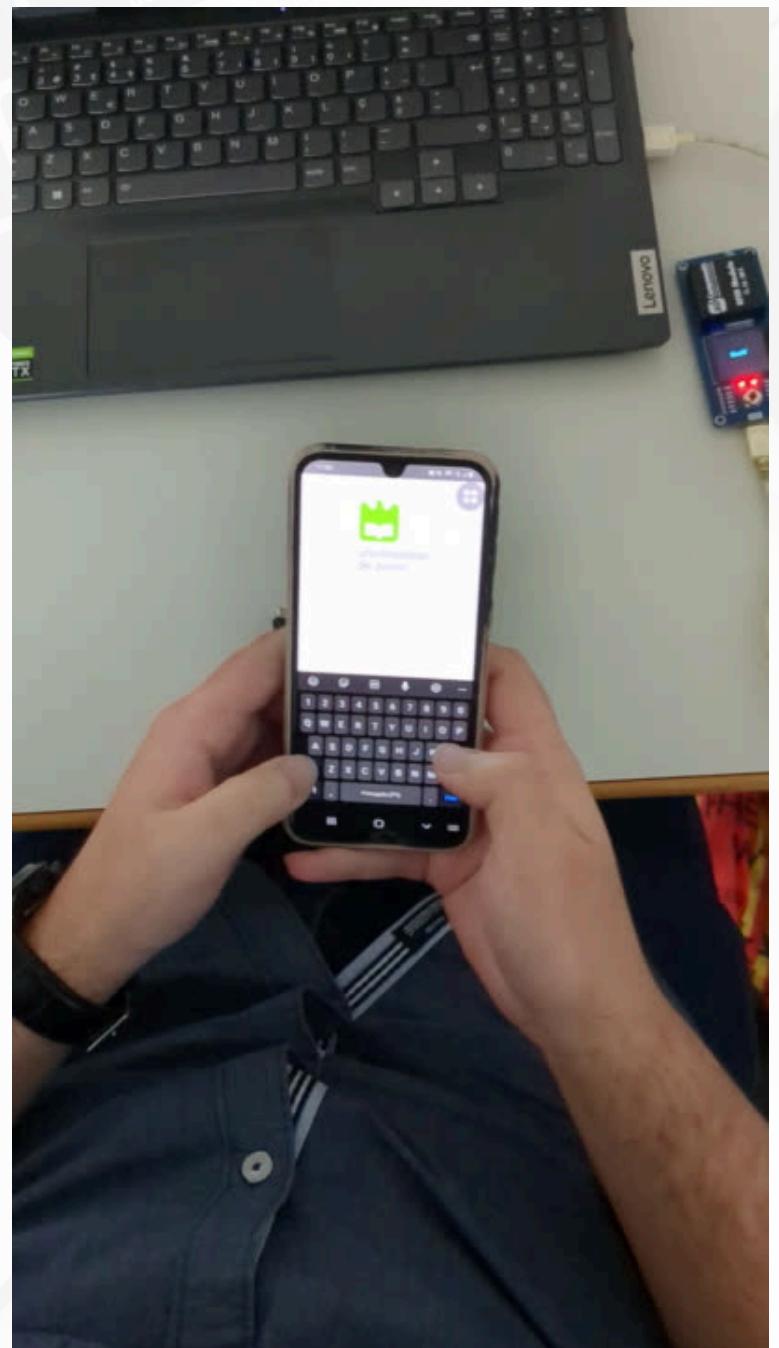
Doors Screen



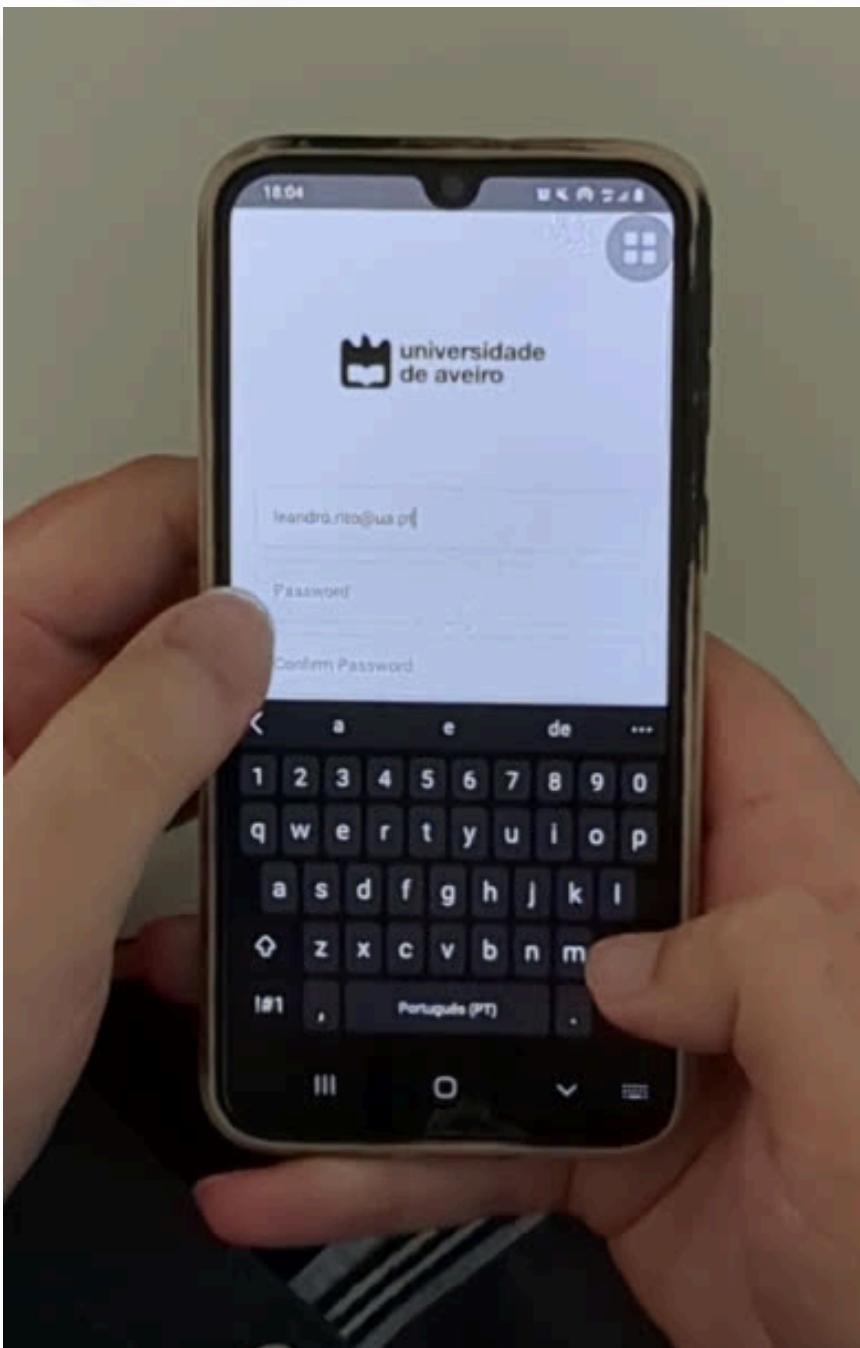
Doors Screen with  
admin permissions

# Demo

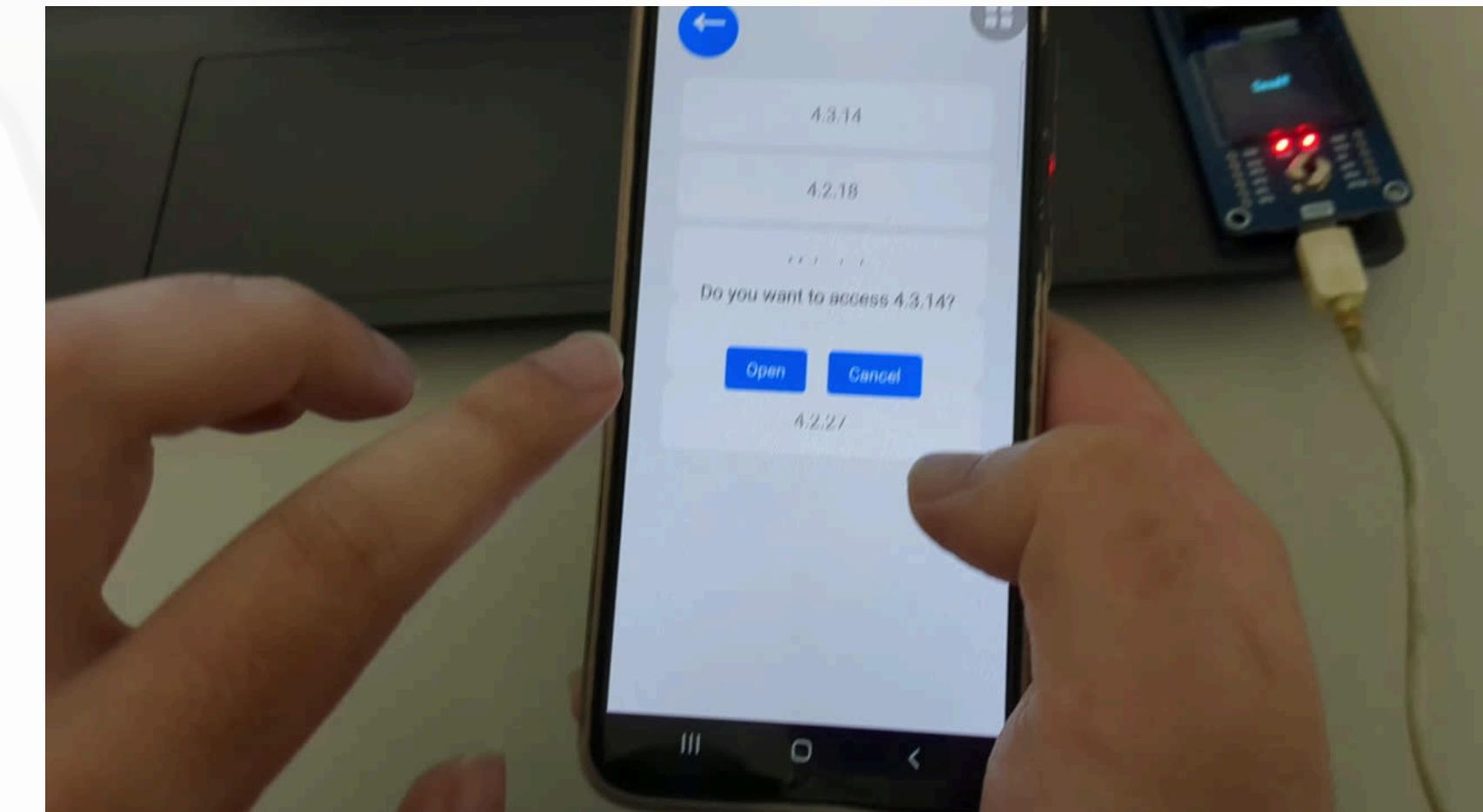
# Demo



Trying to register but there was a password mismatch.



Register into our system and then log in.



Already created account and showing the functionalities.

# Final Considerations

- A simple and quick system to open doors at DETI was created;
- The app is aesthetic and easy to use but has room for improvement;
- The communications are safe;
- We can authenticate users but unfortunately not with UA's idp;
- We could not fully implement the NFC part of the project due to the NFC module software.

# Future Work

- Implementation of UA's IDP to authenticate users;
- Improving app presentation and usability;
- Use a microcontroller with read and write capabilities;
- Find a suitable software for writing NFC with the phone;
- Admin Logs.

# Q&A

# Thank You