



PROGRAMMING PROJECT

THEME: *VinUni EasyBooking Service*

Course code: COMP1020

Spring 2022

Member: Dao Duc Thinh - V202100511

Dao Chi Tuong - V202100399

Nguyen Canh Huy - V202100401

Nguyen Mau Hoang Hiep - V202100595

A. Final Report

1. Product Description

- Booking has never been an easy procedure for students since many of them do not know how to use high-tech extension like Outlook, which is the only method of requesting the authority to use library room or book office hour at VinUniversity.
- Therefore, we as a team decided to develop an app aims towards convenience for the end-users by using data collection from Firebase and GUI from Android Studio to output a friendly and cozy design activity for the audience.
- VinUni Easy Booking is a multi-functional app that combines booking services including Office Hour, Discussion Room and Check Calendar/Create Event for VinUnians (both Students and Professors).
- Link GitHub: https://github.com/Ducthinh19102003/VinUni_EasyBooking

2. Task Distribution

- The task distribution is for reference. The actual work can be overlapped and members can also support others in developing one's part.
- Dao Duc Thinh: Login and signup, Design app's structure including execution flow, logic and database query, Handle two main functions (front-end + back-end + algorithms): book discussion room and book office hour activities, Design backend in Firestore, Design most of the app interfaces, Display events in HomePage (implement nested recyclerviews), Create classes that contain the information of professors, students, rooms and implement comparable to display events in correct orders, Finalize CheckConflicts algorithms for 3

cases, Debugging.

- Dao Chi Tuong: Calendars interfaces and Code implementations, Profile and Event dialogues, Base CheckConflicts algorithm, Profile dialogues, Handling of date data types, Searching functions for Professor Tab, Change Profile Function, Back-end Designer.
- Nguyen Canh Huy: Designer Logo + Background, Implement Onclick Listener for RecyclerViews, Debugging, Drawer Navigation Bar Implementation, Report Writing, Video Editing.
- Nguyen Mau Hoang Hiep: Create Event Classes, Log Out Function, Debugging, Report Writing.

3. Project Deliverable Issue

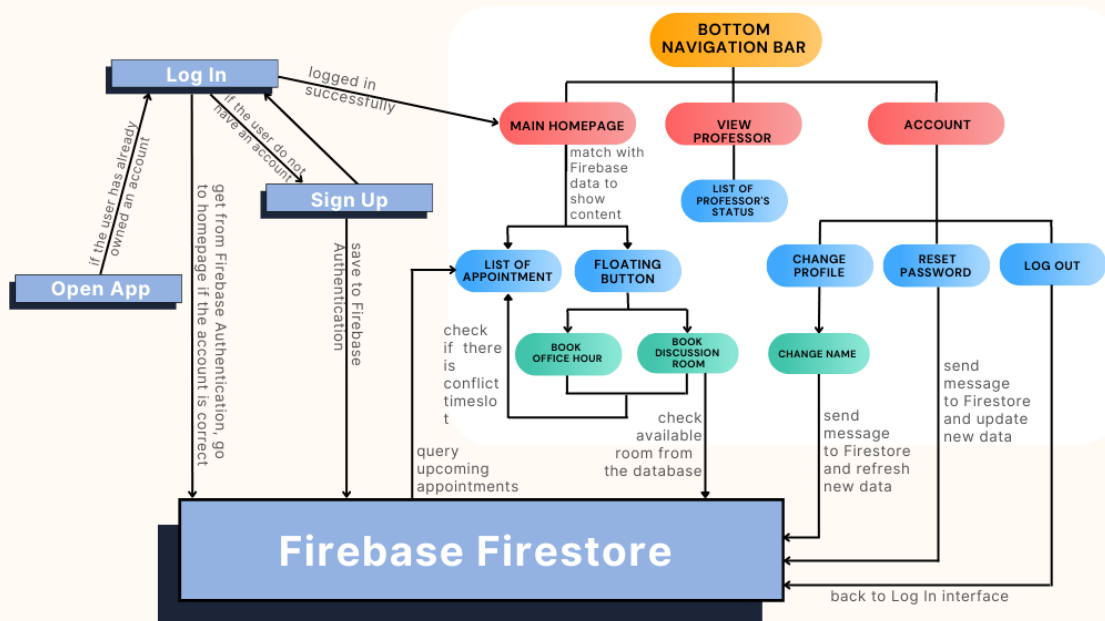
- At the beginning, our team proposed to cover booking equipment in the library and booking canteen food. However, new function requires more time-consuming process. So, we decided to build the best version of the other main functions that any VinUnian can probably deal with any day.
- It should be noted that our product does not benefit the staffs at all since they have their own office and usually work directly together, not with students. So, it our future work to plan another implementation to make them not feel abandoned.
- Another issue arising during the project is that we could not usually maintain a sustainable communication between members and it acts as a catalyst for us sometimes could not keep track of the progress.

4. Product Functionality

- VinUni Easy Booking provides 3 main functions with 2 different interfaces that support both students and professors. With the Professor model, we create a unique function is to add office hour to the database and it will show on the student's screen. With the Student interface, we code a feature to utilize the data collected from the professors to book the suitable time slot.
- Both of the 2 models contain the rest of the functionalities that any booking app MUST have which are log in/register, check account status, booking options and view appointment.

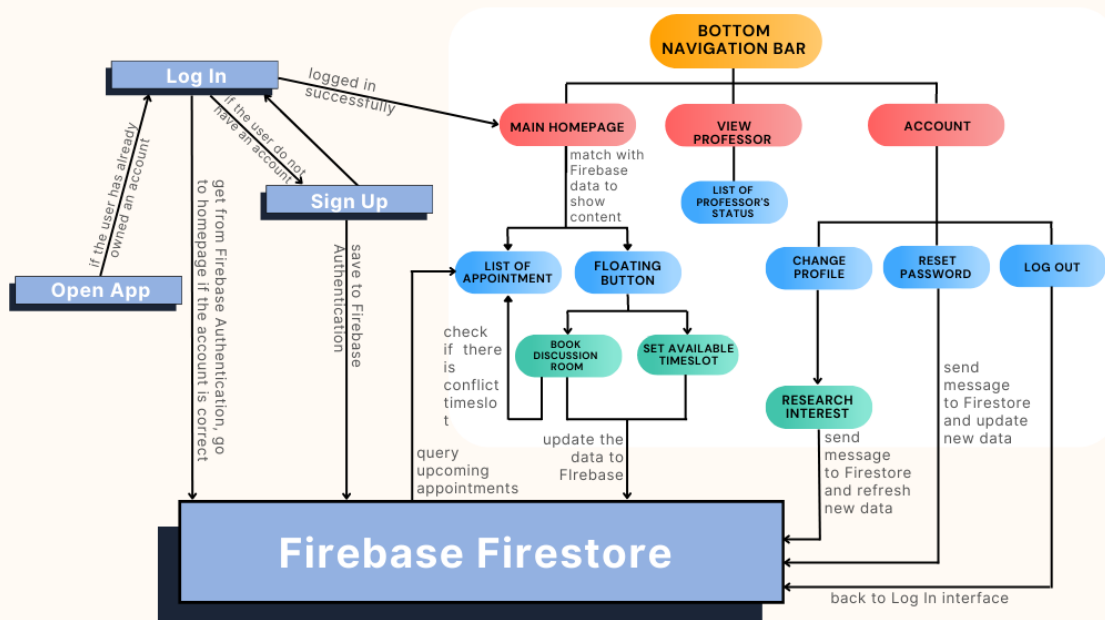
5. Architecture

Execution Flow For Student Interface



Execution Flow for Student Interface

Execution Flow For Professor Interface



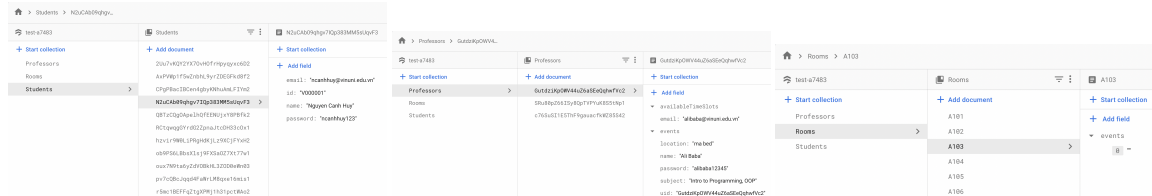
Execution Flow for Professor Interface

- Development Environment: Android Studio supported with the IDE (Integrated Development Environment) includes a selection of ready-to-use templates and examples. There-

fore, it is really helpful since we are creating an app. And, the language we are implementing is entirely Java for native application development.

- Technology: Google Firebase works as a cross-platform to build app on Android since all of the clients share one Realtime Database instance and automatically receive updates with the newest data. Data synchronization is utilised by the Firebase Firestore Database, which means that if data changes, any connected device receives the update instantly. Without worrying about networking code, it creates collaborative and immersive experiences.

+, Firebase Firestore Database to store Cloud Firestore data.



+, Firebase Authentication to get access to account managed by the Cloud.

| <input type="text" value="Search by email address, phone number or user UID"/> Add user | | | | |
|--|-----------|-------------|-------------|-------------------------------|
| Identifier | Providers | Created ↓ | Signed in | User UID |
| thucuc@vinuni.edu.vn | | 31 May 2022 | 31 May 2022 | CPgPBacIBcen4gbyKNhuAmLFiY... |
| khaichauminh@vinuni.edu... | | 31 May 2022 | 31 May 2022 | hzvir9W0LIPRgHdKJLz9XCjFYxH2 |
| daochituong@vinuni.edu.vn | | 31 May 2022 | 31 May 2022 | 2Uu7vKQY2YX7OvHofrHpyqyxc6D2 |
| tuong@vinuni.edu.vn | | 31 May 2022 | 31 May 2022 | 6xjugxJ5b7XAlb4TJy6jkgVfGMC2 |
| 21haha.huhu@vinuni.edu.vn | | 30 May 2022 | 30 May 2022 | oux7N9ta6yZdVOBkHL3ZOD0eWn... |
| ncanhuy@vinuni.edu.vn | | 30 May 2022 | 30 May 2022 | N2uCAb09qhgv7lQp383MM5sUqv... |
| ductinh@vinuni.edu.vn | | 27 May 2022 | 31 May 2022 | ob9PS6LBbsXl9j9FXSaoZ7Xl77w1 |

- Software: Java Development Kit
- Hardware: computer with programming language supporting.

6. Design (GUI design-main screenshots, UML-activity diagram).



Figure 1: Logo for VinUni Easybooking Service

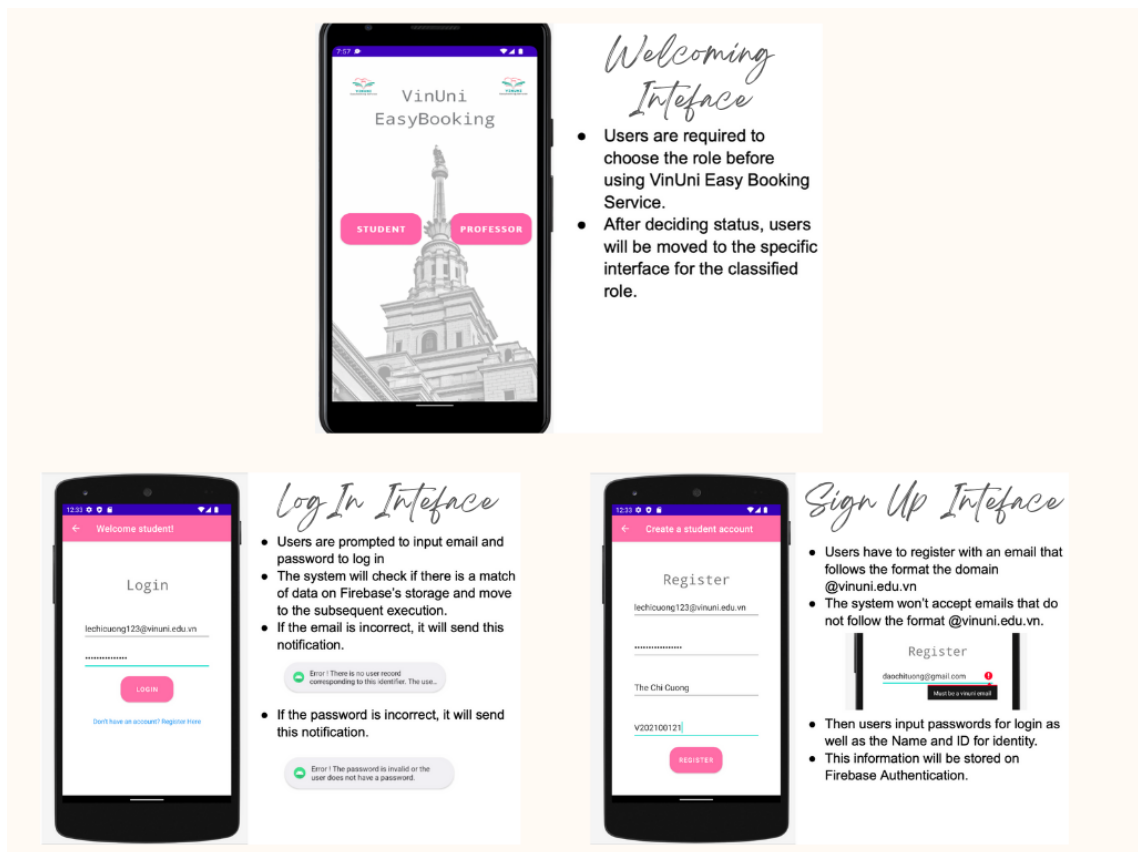


Figure 2: Welcoming Interface

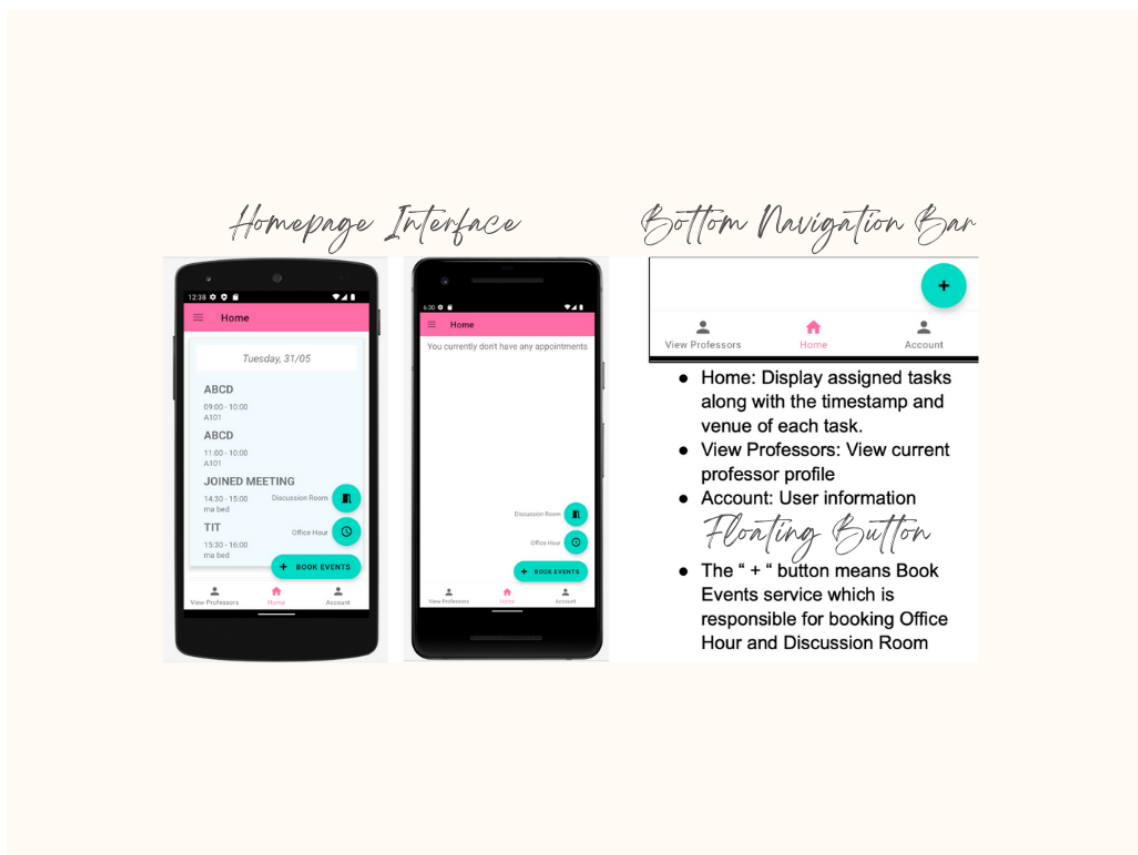


Figure 3: Homepage Interface, Bottom Navigation Bar and Floating Button

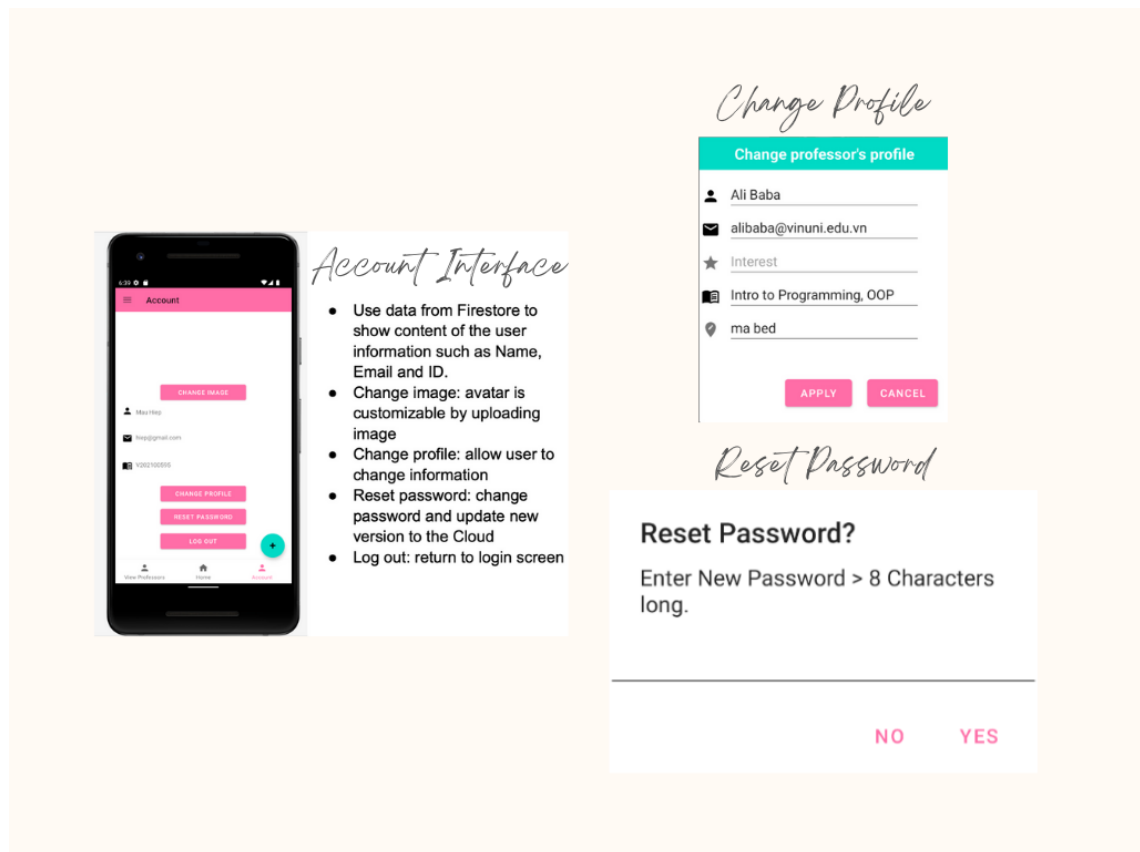


Figure 4: Account Interface

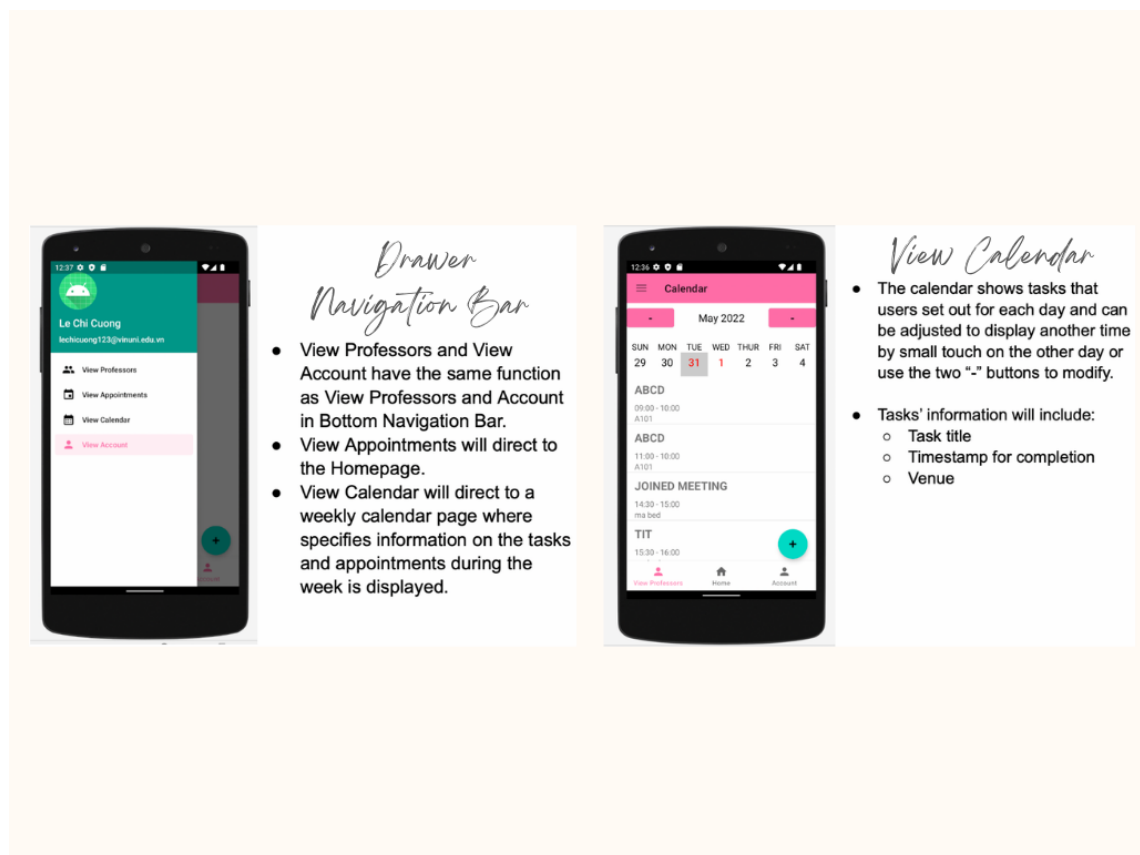


Figure 5: Drawer Navigation Bar

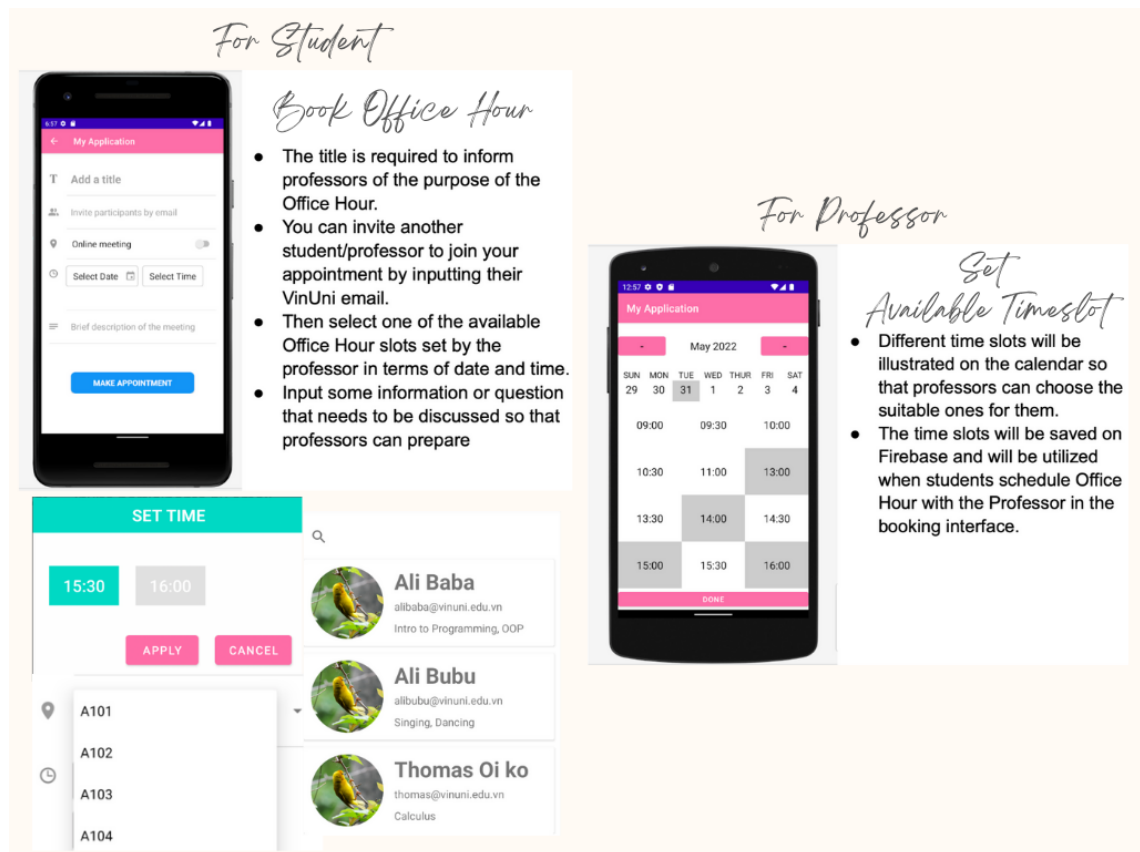


Figure 6: Unique Functionality for Student/Professor

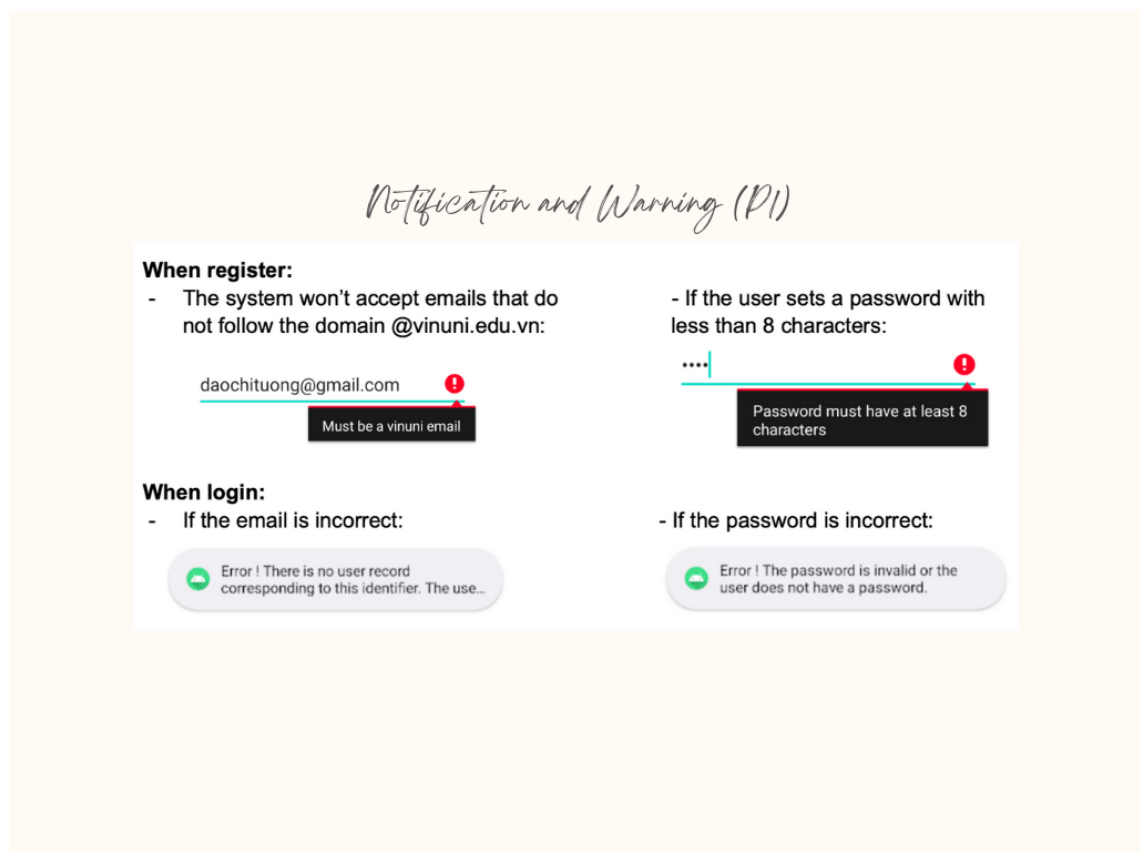



Figure 7: Notification and Warning

Notification and Warning (P2)


When booking office hours or discussion room:

- If users do not input the title and description of the meeting, it will send this notification:

T Add a title  Add meeting title!

Brief description of the meeting  Add meeting note!

- If users invite participants with an email that does not follow the domain @vinuni.edu.vn:

 Unavailable record(s): [alibaba@vinuni.edu.com]

- If users select Start Time later than Stop Time:


 Start time must be sooner than end time!

Figure 8: Notification and Warning

Notification and Warning (P3)

- If the timeslot users select interferes with another meeting:

You have conflicted events!
Chosen timeslot conflict with:
MEETING WITH THINH

OK

- If the discussion room users book was booked:

Room has conflicted events!
Chosen timeslot conflict with followings events:
Event 1: 09:00 - 11:00

OK

- If chosen timeslot users select conflict with office hours you booked:

Office hours have conflicted events!
Chosen timeslot conflict with followings timeslot for office hour:
Slot 1: 11:00 - 11:30

OK

Figure 9: Notification and Warning

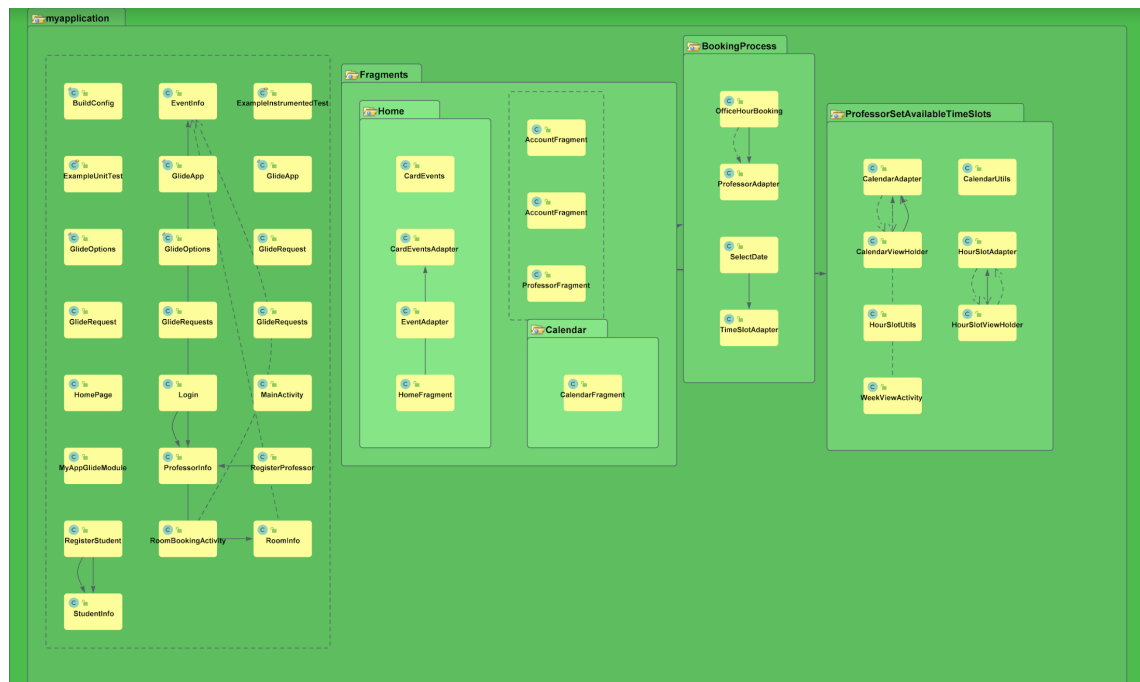


Figure 10: UML-Diagram

B. Oral Presentation

Our presentation will be conveyed through online video and posted on Facebook group CECS1010-2025 with free and open access to the class. The presentation is conducted of the group's objective, the interfaces of the product with detailed explanations of how process works.

C. Reference List

1. Build software better, together. (2013). GitHub. <https://github.com>
2. Firebase. (2019). Firebase. <https://firebase.google.com>
3. Recyclerview using LinearLayoutManager Horizontal + Cardview - [Android Lists - 03]. (2020, August 29). Wwww.youtube.com. <https://www.youtube.com/watch?v=RhXHZCV2trc>