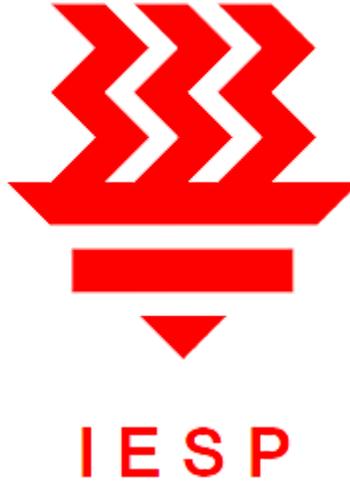


Project Group Category 09-02



BetterUI

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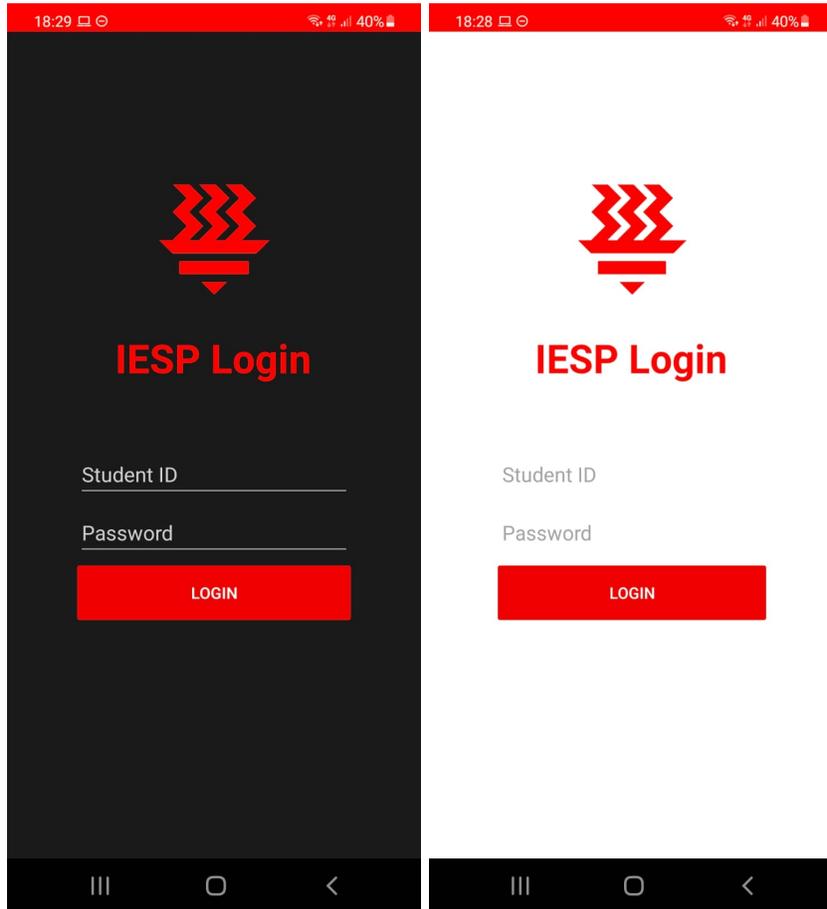
Project Work Mentor: Mr Yong Jong Shyan

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Annex A

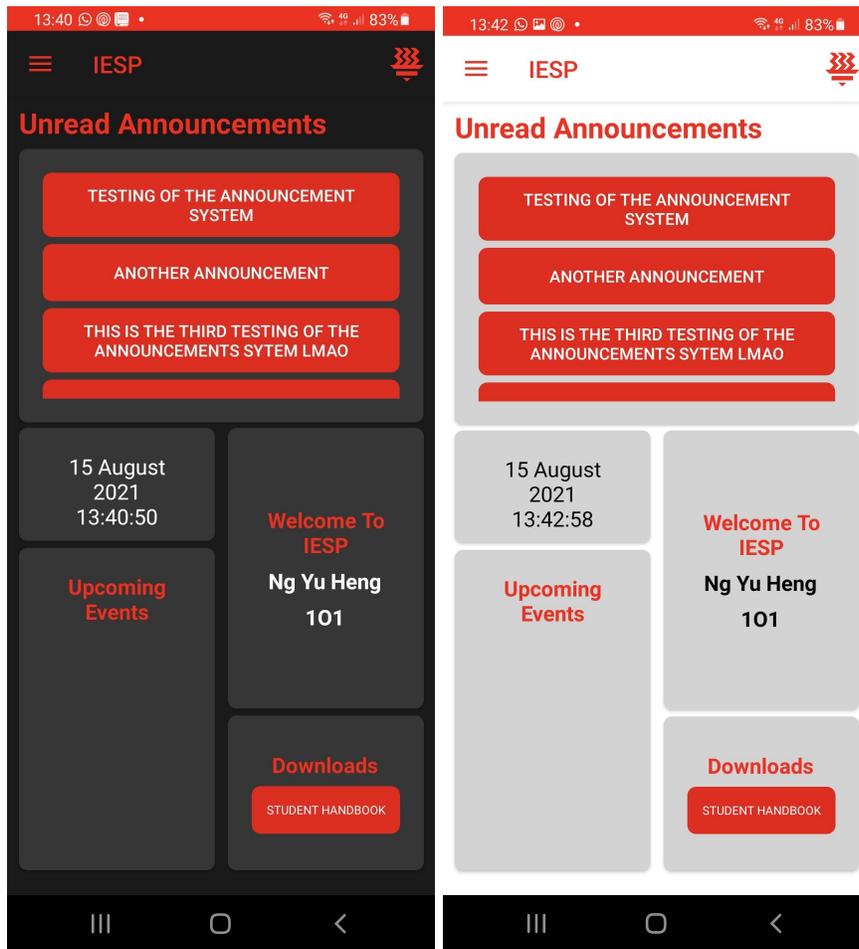
Screenshots

Fig. 1



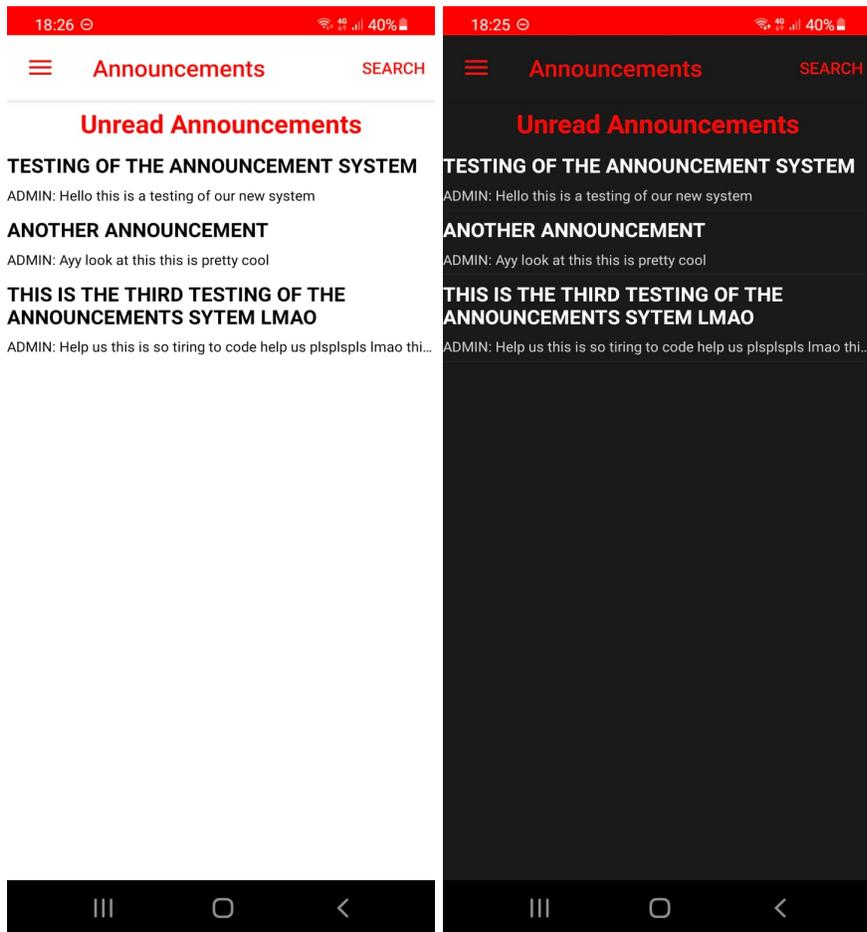
Login Menu

Fig. 2



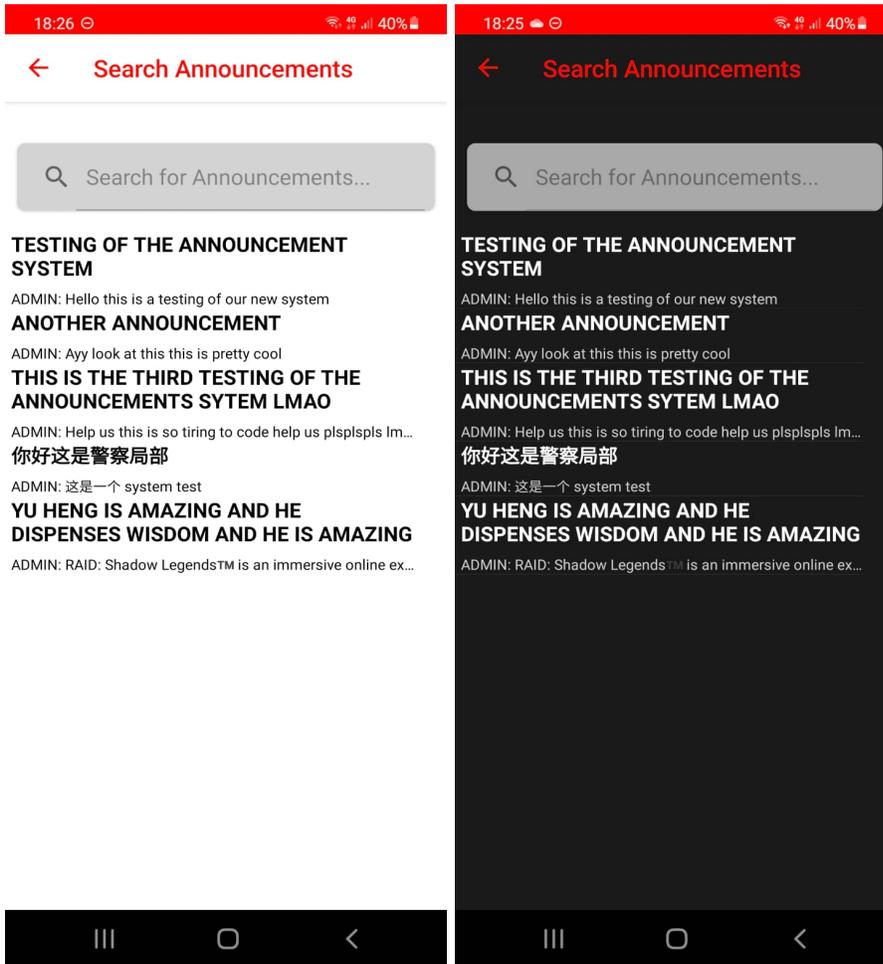
Home Page

Fig. 3



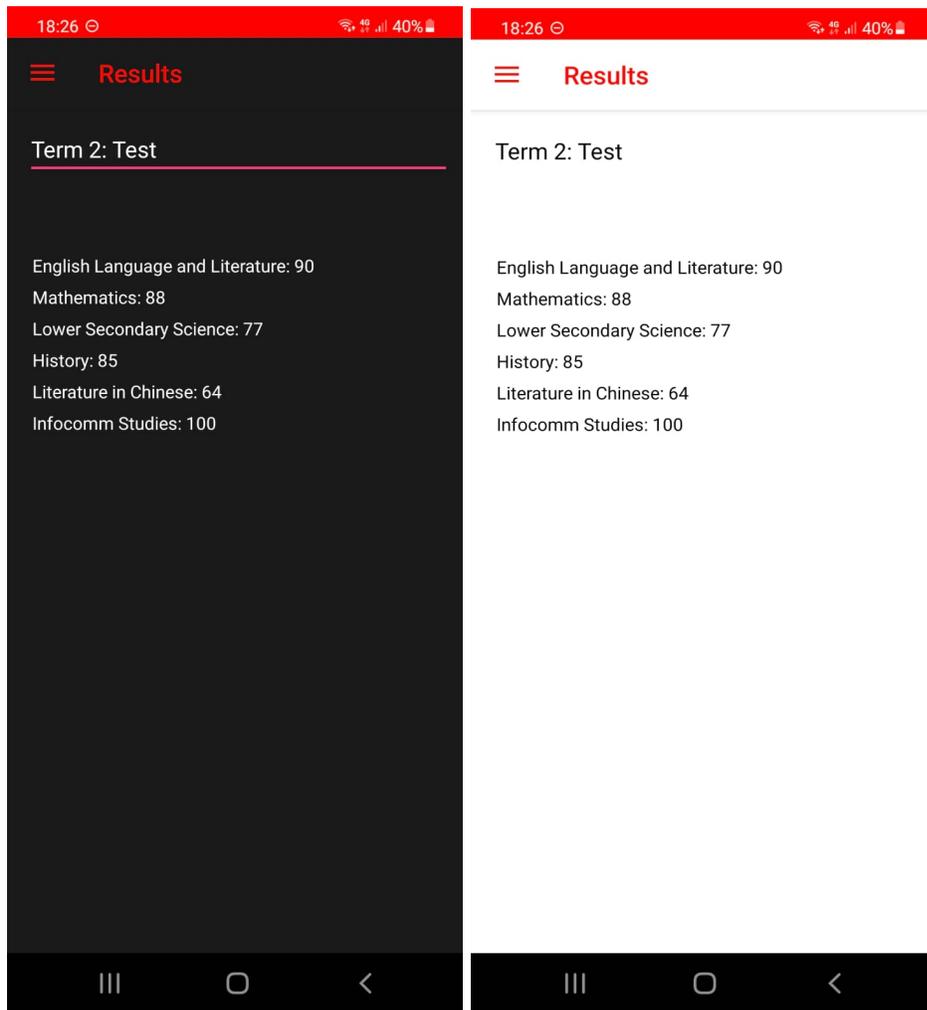
Unread Announcement

Fig. 4



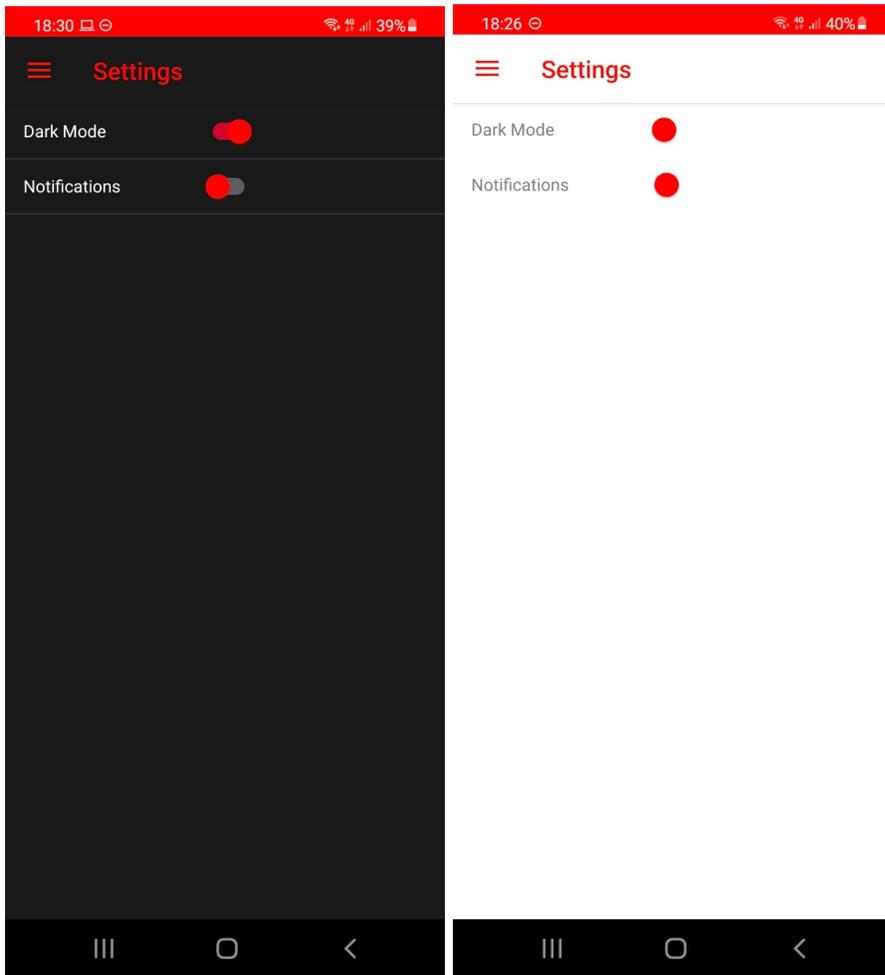
All Announcements

Fig. 5



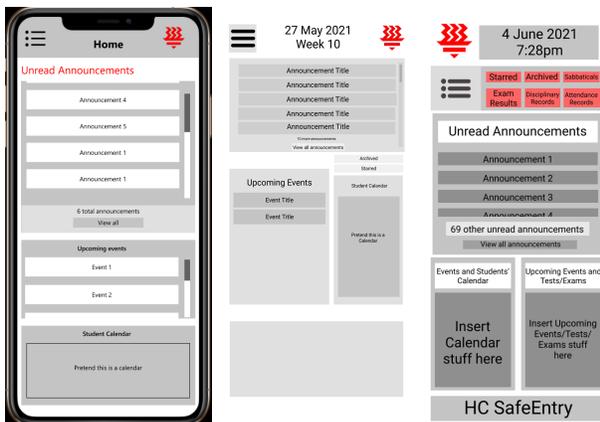
Results

Fig. 6



Settings

Fig. 7



Original Home Designs

1. Introduction

1.1 Description of Project

BetterUI is a project aimed at ensuring an all round better experience for the users of both iEMB and ISP. With the input of students who regularly use both services, we are able to gather information on what students want with the School Services. With that data, we can create an application which fits the needs of students when using iEMB and ISP, called IESP (Integrated Electronic School Program)

1.2 Rationale of Project

While the student services (iEMB and ISP) both function well as in their jobs of allowing students to receive and check information wherever they are, there have been remarks from students, complaining about the dated look of the services and the difficulties found in navigating the services.

1.3 Focus and Significance of the Project

BetterUI aims to improve the experience of the students when using the school services, allowing them to feel more comfortable with using the school services, ensuring that the school services will be used more often, and thus serve as a reliable way to transfer information from the school to students without the worry that the students will ignore or forget about the services, which as a whole will affect the school environment well due to better communication between the two parties.

1.4 Scope of the project

Unfortunately, due to time constraints, we are unable to create the application for teachers as well. This application is designed solely for students. However, with enough time and research, we will be able to design the application so that teachers are also able to use it to send announcements and communicate with the students.

2. Literature Review

2.1 Positioning of current study in the wider literature/context (Case studies)

Programming Language: We decided to use C# and Xaml (Xamarin.Forms), due to our familiarity with the languages.

Problems faced: The database to be used was somewhat of a problem for us due to the lack of understanding in the field of databases.

Our Solution: We decided to use Google Sheets API. While it is clearly not viable in the long run, we decided to use it as it was the best we could do as of developing the application. This will ensure a level of reliability.

2.2 References/practices cited to support ideas/issues raised

We realised that many people in the school do not enjoy using the student services, complaining that they were too outdated/ugly and were hard to use. Thus, in order to improve the experience of the user, our group decided to create IESP.

3. The Study and Methodology

3.1 Ideation and description of study

Upon entry into the school, our project group realized that the design of the school services were outdated, with some students even suggesting that it was “from the 90s”. Thus in order to find out how many students disliked the design of the services, our group created a survey which surveyed 76 students from different levels and consortiums on their opinions of the features found in the student services.

3.2 Investigations and Surveys*

Firstly, we asked the students surveyed on what upgrades they would like to see. 52.6% said they wanted iEMB and ISP to be combined into one service. 47.4% of the students wanted a combined mobile app version of the student services. 51.2% of the students wanted the services to be combined and redesigned.

Secondly, we asked the students surveyed on difficulties faced when using the student services. 52.6% of the students said that the services were too hard to navigate. 50% of the students said

that the services were too ugly. 53.9% of the students said that it was hard to find past announcements. Our team concluded that the reason the services are hard to navigate was due to the design of the interface not being ideal, and the reason it was hard to find past announcements was due to the search feature in iEMB being quite slow.

Essentially, we will develop an app with select features from IEMB and ISP and create a better UI along with a better announcement search function.

In order to find out the ideal UI design, we created 3 designs. Although they are far from ideal, with the data collected from the survey, we are able to find out what the students wanted. (e.g Blocky Design, scroll down announcement window) and designed the final design:

*Refer to Annex A Fig. 7

With both surveys completed, our group is now ready to start designing and developing the application.

3.2 Job allocations and timeline

The simple principle in which our group members are allocated is to split the group into two teams:

- The Designing Team
- The Programming Team

In order to attempt to complete as much as possible, the designing team would create the final design of the application while the programming team would research on developing the application. When the design is completed, the programming team would then start developing the application while the designing team starts working on the Project slides and report. By overlapping the design process of the application, we are making the whole process a lot more efficient.

3.3 Proposed Methods

While a multitude of programming languages would be suitable for the development of the application, we decided to use Xamarin.Forms due to our familiarity with it. Additionally, as mentioned in section we decided to use Google's Developer Sheets API.

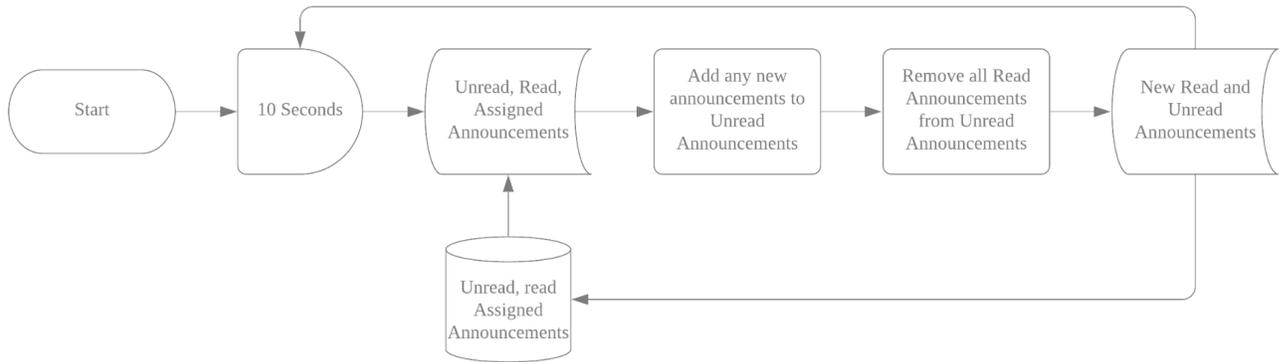
In order for us to use google sheets as a database. We needed to install the Google Sheets API (<https://developers.google.com/sheets/api>). The sheets will be storing all the information which would be used by the application.

We also used <https://github.com> to pull and push changes to the application as this is coded by more than one person, while also keeping track of our progress. The link to the public repository is <https://github.com/PW-BetterUI>.

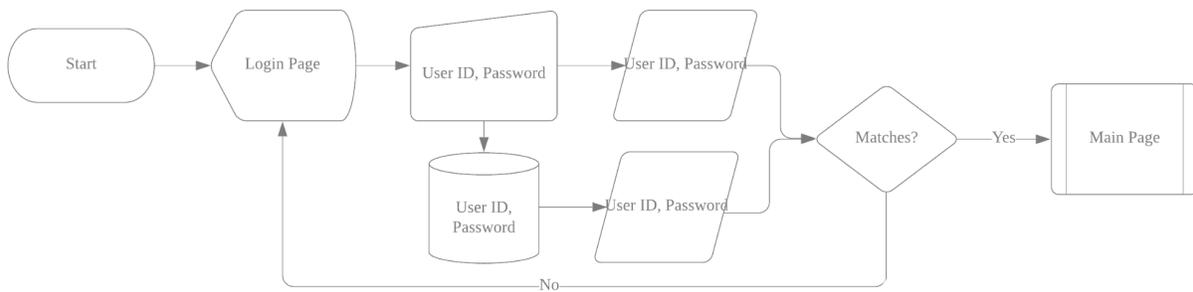
4. Outcomes, Analysis and Discussions

4.1 Flowchart of the System

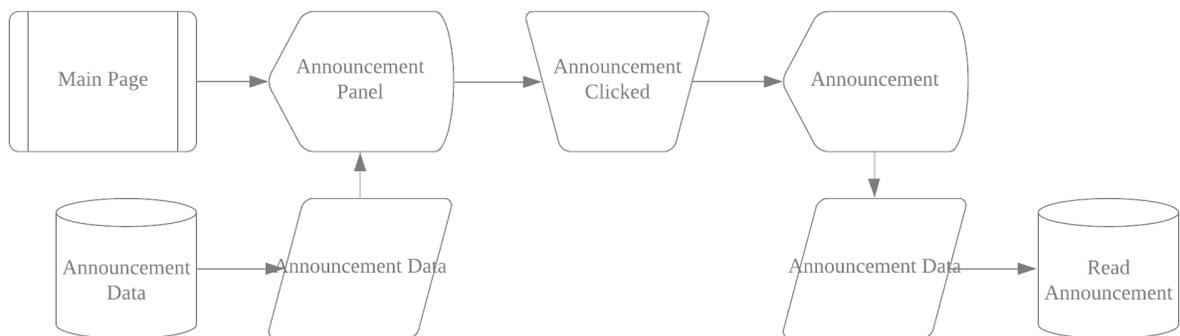
Google Sheets API Console Process



Login Process



Show Announcement Process



4.2 Features*

As both iEMB and ISP contain many features, our team will have to be selective of the features that would be kept in our final application to ensure we can complete the project in time. The features included are:

- Login Page
- Home Page
- Announcement Page
- Results
- Upcoming Events
- SafeEntry
- Settings

Login Page

This is where the user will key in his credentials.

*Refer to Annex A Fig. 1

Home Page

The features included in the home page were selected with utmost care and serve a both cosmetic and utilitarian purpose. They were based on what users found to be the most important. For instance, 93.2% of users found the Announcements to be important and hence, we added it to the Home Page. This careful selection of features to include ensures a more streamlined user experience.

*Refer to Annex A Fig. 2

Announcement Page

The announcement page will be able to show all unread announcements and register when those announcements have been read. The application will wait for around 5 seconds before setting that specific read announcement as “read”. There is also a search function to find all previous announcements.

*Refer to Annex A Fig. 3 and 4

Results

This shows the user their past examination results. Its functions similar to the current one in ISP

*Refer to Annex A Fig. 5

Upcoming Events

Shows upcoming school events. Shows events within one week. (Might not work on some devices)

SafeEntry

Allows the user to scan a qr code and check in to school facilities. Quicker and more efficient than using google forms.

Settings

Allows the user to customize their app. Currently it only changes from dark to light mode.

*Refer to Annex A Fig. 6

5. Implications and Recommendations

5.1 Areas of Improvement

In order to ensure that our final product is up to standard, we invited a total of 7 beta testers to test out our application. Some feedback we received:

- The application crashed after we viewed the announcement
 - We found out that the cause of this was due to our teammate sending an earlier unstable build of IESP
- The announcement page looks cluttered
 - This can be fixed easily by adding a larger margin between the listview items in the announcement page

5.2 Additional features to be added

Due to time constraints, we were unable to implement certain features. While we have started work on these features, we were unable to fully implement them. These features include:

- Saved Announcements
- Offline Viewing of Announcements
- Project Work
- Sabbaticals

6. Conclusion

Through the process of designing and developing the application, we have all learnt how to deal with failure. For example, the programming team faced many difficulties in trying to get their code to work, with failure after failure, however they managed to push through and eventually succeed in building most of the project.

7. Bibliography

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StackOverflow:

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