Proposed Level of Achievement: **Gemini**

Target Audience: **Members of NUS (freshmen especially)**

**Project Scope:**

An interactive android application which serves as a vehicle to allow students to book, join, and gain from various study sessions occurring across the campus. Moreover, apart from being used as a platform to organise study sessions between various groups of students across NUS. It gives NUS students, especially undergraduates and freshmen, the ability to collaborate and consolidate their strengths and weaknesses within certain areas of their academic learning.

**Bugs Squashed**

We have identified multiple bugs through out the course of testing. The following is a list of significant bugs that we have managed to squash.

Firstly, when creating a user profile, we discovered that it is possible for two users to register same username. To counter this problem, we saved every username that has been used into a database. Then, every time a new user registers, the username will be checked against a list of used usernames read from the database.

Secondly, objects in the layout of each activity does not stay in the same location in differing screen sizes. Therefore, we changed all the layout to a constraint layout, thus automatically scaling the objects.

Next, uploading an image from one’s phone consumes a large amount of space. This would cause a slowdown in time taken to load up a user profile. Therefore, whenever a user uploads his/her picture, we scale down the resolution before saving it. This lead to a reduction in load times.

Lastly, sessions do not automatically delete themselves after the session has ended. By utilising Cloud Functions by Firebase, we can deploy a script to run whenever there is a change in data. This script checks if the current time in Singapore has passed the end time for each session. If so, it automatically deletes the session from the database. This prevents the list to be congested with past sessions.

**Edge Features Developed**

* A customisable user profile page
* Ability to search for another user’s profile page
* A simple star rating system to rate the credibility of a user
* ‘Remember Me’ check box to save the user’s email and password to remove the hassle of retyping it every time the user logs out
* If a user forgets his/her password, he can press on ‘Forget Password’ to reset his/her password
* Added the feature to change password
* Sessions can be created with some information attached to it

**Problems Encountered**

Through out the duration of the project, there are many problems that we have encountered as a team. First and foremost is our inability to code in Java. We have no knowledge in the paradigm of the language, hence we took quite some time to read up on the features and basic syntax of it.

Secondly, when we learnt that Firebase have the Cloud Function feature, we also learnt that only JavaScript or TypeScript can be used and deployed. Thus, spending more time reading up on another language.

Lastly, the biggest challenge we have is the design of the UI. Without any knowledge in designing UIs, we can only rely on pictures that exists in google images. From there we try to come up with a design that is pleasing to our eyes. However, what ever we do just does not produce the message and effect we want to give to our users. This lead to us scrapping many designs repeatedly, which in turn takes up a lot of our time.

**User Testing**

Below are the test cases we used and give our close friends to test our products:

Login Page:

|  |  |  |  |
| --- | --- | --- | --- |
| **Component tested** | **Action** | **Expected Result** | **Actual Result** |
| Login Button | Pressing the button when either email or password is not typed | Not able to log in and a toast message asking for the required field will show up | Not able to log in and a toast message asking for the required field will show up |
|  | Pressing the button when both email and password is typed but doesn’t exists | Not able to log in and a toast message saying ‘Authentication Failed’ | Not able to log in and a toast message saying ‘Authentication Failed’ |
|  | Pressing the button when both email and password is typed, and user exists | Log in and proceed to Main page | Log in and proceed to Main page |
| Forget password text | Pressing the text | Goes to Forget Password activity | Goes to Forget Password activity |
| Sign up text | Pressing the text | Goes to Sign Up activity | Goes to Sign Up activity |
| ‘Remember Me’ checkbox | Checking the box | Email and password field will be filled up the next time the app is opened | Email and password field will be filled up the next time the app is opened |

Forget Password Page:

|  |  |  |  |
| --- | --- | --- | --- |
| **Component tested** | **Action** | **Expected Result** | **Actual Result** |
| Reset Password button | Pressing the button when email field is empty | A toast message will pop up, asking for the user’s email | A toast message will pop up, asking for the user’s email |
|  | Pressing the button when the email field is filled with a wrong email address | A toast message will pop up, stating that the email is invalid | A toast message will pop up, stating that the email is invalid |
|  | Pressing the button when the email field is filled correctly | An email will be sent to the email address with the necessary instructions | An email will be sent to the email address with the necessary instructions |

Sign Up Page:

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| --- | --- | --- | --- |
| **Component tested** | **Action** | **Expected Result** | **Actual Result** |
| Sign Up Button | Pressing the button when there is an empty field | Not able to sign up and a toast message asking for the required field will show up | Not able to sign up and a toast message asking for the required field will show up |
|  | Pressing the button when all the field is typed but username has been used | Not able to sign up and a toast message stating that the username has been used | Not able to sign up and a toast message stating that the username has been used |
|  | Pressing the button when all the field is filled up and username doesn’t exist | Log in and goes to main page | Goes back to log in page |

Main Page:

|  |  |  |  |
| --- | --- | --- | --- |
| **Component tested** | **Action** | **Expected Result** | **Actual Result** |
| Main Page | Swiping to the next tab | Goes to the next tab | Goes to the next tab |
| List Tab | Pressing the list tab | List of sessions will show up | List of sessions will show up |
|  | Pressing the session | An alert dialog shows up with the session information. The dialog will ask if the user wants to join the session or not. | An alert dialog shows up with the session information. The dialog will ask if the user wants to join the session or not. |
|  | Pressing yes in the dialog | Session will be added to the Join Tab list | Session will be added to the Join Tab list |
|  | Pressing no in the dialog | Goes back to the main page | Goes back to the main page |
|  | Pressing the username in the dialog | Goes to the other user’s profile page | Goes to the other user’s profile page |
| Join Tab | Pressing the join tab | List of sessions you have joined will show up | List of sessions you have joined will show up |
|  | Pressing the session | An alert dialog shows up with the session information. The dialog will ask if the user wants to leave the session or not. | An alert dialog shows up with the session information. The dialog will ask if the user wants to leave the session or not. |
|  | Pressing yes in the dialog | Session will be deleted from the Join Tab list | Session will be deleted from the Join Tab list |
|  | Pressing no in the dialog | Goes back to the main page | Goes back to the main page |
|  | Pressing the username in the dialog | Goes to the other user’s profile page | Goes to the other user’s profile page |
| Host Tab | Pressing the host tab | List of sessions you have hosted will show up | List of sessions you have hosted will show up |
|  | Pressing host button | Goes to session creation page | Goes to session creation page |
|  | Pressing the session | An alert dialog shows up asking if the user wants to edit the session or not | An alert dialog shows up asking if the user wants to edit the session or not |
|  | Pressing yes in the dialog | Goes to the edit session page | Goes to the edit session page |
|  | Pressing no in the dialog | Goes back to the main page | Goes back to the main page |
| Menu on the top right | Pressing ‘Search User’ | Goes to search user activity | Goes to search user activity |
|  | Pressing ‘Profile’ | Goes to user profile | Goes to user profile |
|  | Pressing ‘Change Password’ | Goes to change password activity | Goes to change password activity |
|  | Pressing ‘Logout’ | Logs out Goes back to log in activity | Logs out Goes back to log in activity |

Host Session Page:

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| --- | --- | --- | --- |
| **Component tested** | **Action** | **Expected Result** | **Actual Result** |
| Module field | Typing a module | Autocomplete will show up suggesting the code of the modules | Autocomplete will show up suggesting the code of the modules |
| Timing field | Pressing on either the timing to or timing from | A time picker will show up with the current time on screen | The keyboard shows up on the first tap and the time picker shows up on the second tap (Have to double tap). Shows UTC instead of Singapore time |
| Date field | Pressing the date field | A date picker will show up with the current date | The keyboard shows up on the first tap and the date picker shows up on the second tap (Have to double tap).  Date is set according to UTC instead of Singapore time |
| ‘Add information’ Button | Pressing the ‘Add information’ button | An alert dialog will show up with an EditText object to add information to the session | An alert dialog will show up with an EditText object to add information to the session |
| ‘Create’ Button | Pressing the ‘Create’ button | Goes to the main page and the newly created session will show up in both the list tab and host tab | Goes to the main page and the newly created session will show up in both the list tab and host tab |

Edit Session Page:

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| --- | --- | --- | --- |
| **Component tested** | **Action** | **Expected Result** | **Actual Result** |
| Module field | Typing a module | Autocomplete will show up suggesting the code of the modules | Autocomplete will show up suggesting the code of the modules |
| Timing field | Pressing on either the timing to or timing from | A time picker will show up with the current time on screen | The keyboard shows up on the first tap and the time picker shows up on the second tap (Have to double tap). Shows UTC instead of Singapore time |
| Date field | Pressing the date field | A date picker will show up with the current date | The keyboard shows up on the first tap and the date picker shows up on the second tap (Have to double tap).  Date is set according to UTC instead of Singapore time |
| ‘Edit information’ Button | Pressing the ‘Edit information’ button | An alert dialog will show up with an EditText object to edit information to the session | An alert dialog will show up with an EditText object to edit information to the session |
| ‘Edit’ Button | Pressing the ‘Edit’ button | Goes to the main page and the newly edited session will show up in both the list tab and host tab | Goes to the main page and the newly edited session will show up in both the list tab and host tab |
| ‘Delete’ Button | Pressing the ‘Delete’ button | Goes to the main page and the deleted session will be deleted from any list | Goes to the main page and the deleted session will be deleted from any list |

User Profile Page:

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| --- | --- | --- | --- |
| **Component tested** | **Action** | **Expected Result** | **Actual Result** |
| ‘Edit Biography’ button | Pressing the ‘Edit Biography’ button | An alert dialog will show up with an EditText object to edit personal biography | An alert dialog will show up with an EditText object to edit personal biography |
| ‘Change Image’ button | Pressing the ‘Change Image’ button | The app will ask for a photo on the phone | The app will ask for a photo on the phone |

Search User Page:

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| --- | --- | --- | --- |
| **Component tested** | **Action** | **Expected Result** | **Actual Result** |
| Search Bar | Pressing the Magnifying Glass button | A search bar will show up. Typing any letters in the bar will result in different users with usernames containing the said letters to be suggested | A search bar will show up. Typing any letters in the bar will result in different users with usernames containing the said letters to be suggested |

Other User Profile Page:

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| --- | --- | --- | --- |
| **Component tested** | **Action** | **Expected Result** | **Actual Result** |
| ‘Give Rating’ button | Pressing the ‘Give Rating’ button | An alert dialog will show up with a RatingBar and the user can rate the other user’s. The average number of stars will be reflected on the page | An alert dialog will show up with a RatingBar and the user can rate the other user’s. The average number of stars will be reflected on the page |

Change Password Page:

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| --- | --- | --- | --- |
| **Component tested** | **Action** | **Expected Result** | **Actual Result** |
| ‘Change Password’ button | Pressing the ‘Change Password’ button with one of the fields not completed | A toast message will pop-up asking for the required fields to be filed | A toast message will pop-up asking for the required fields to be filed |
|  | Pressing the ‘Change Password’ button with a wrong old password | A toast message will pop-up saying that the ‘Password Do Not Match’ | A toast message will pop-up saying that the ‘Password Do Not Match’ |
|  | Pressing the ‘Change Password’ button with all the field completed correctly | A toast message will pop-up saying that the password has been updated and goes back to the main page | A toast message will pop-up saying that the password has been updated and goes back to the main page |

**Development Plan (timeline since Orbital Ignition):**

* Week 1: finalise on ideas and meet up with advisor to consolidate our idea
* Week 2: prepare for ideation by finalising major features of the product
* Week 3: finalise the list of major software and respective technicalities needed
* Week 4: finalise initial frontend sketches and establish user authentication
* Week 5: refine initial design ideas and work extensively on backend database development
* Week 6: establish list feature for study sessions (both frontend and backend)
* Week 7: implement additional features (e.g. modules taken, create and host study sessions)
* Week 8: continue backend development, while concurrently developing frontend UI
* Week 9: finalise initial prototype of our product
* Week 10: refine both frontend and backend, with emphasis on frontend development

**Task list for designing the system:**

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| --- | --- |
| Task | Duration (Hours) |
| Lift-off Day 1 | 9 |
| Lift-off Day 2 | 9 |
| Initial ideation and testing of various software to design the product (Firebase and CRUD, Android Studio, IOS with Swift 4, Piskel, Photoshop, Illustrator, Excel) | 20 |
| Designing main frontend framework as well as structuring backend mainframe | 32 |
| Gathering data for databases to implement listing feature, as well as create database for modules in conjunction with prerequisites | 16 |
| Building and developing application, with full user-interface and backend support | 14 |
| Testing and debugging (backend, as well as after integration with frontend UI) | 40 |
| Total number of hours (tentative) | 140 |

**Necessary technologies needed:**

1. Firebase
2. Android Studio
3. Photoshop/Illustrator (for front end UI design)
4. Figma (designing User Interface panels)
5. Spark Adobe (designing FrontEnd of the application)

*Please note, these are the required technologies that will be essential for the design at this stage. If further technologies are required in the future, this list may be expanded appropriately as and when required. At this stage, we have finalised our idea, ideated which software and platforms we will be using for product development, as well as sketched a rough timeline to achieve major requirements of the solution.*