

IM3180 Design and Innovation Project (AY2023/24 Semester 1)

Individual Report

Name: Wong Yu Hao

Group No: 7

Project Title: Duelingo

Contributions to the Project (1 page)

Backend

- Initial settings and connection to Firebase
- Database schema of users' friend list
- Design of REST APIs
 - o Authentication: Login, sign-up, logout
 - o CREATE user data, friend lists
 - o READ user data, friend lists, friend data
 - o UPDATE friends
 - o DELETE friends

Frontend

- Landing page
 - o Responsive user interface
- Login page & Sign-up page
 - o Responsive user interface
 - o Input validation
 - o Tracking of states using Hooks
 - o Sending of requests to API
 - o Showing of error messages
- Friends page & Add friends page
 - o Responsive user interface
 - o Tracking of states using Hooks
 - o Sending of requests to API
 - o Displaying of data received from API response (i.e., from database)
 - o Dynamic filtering of data based on user inputs

Miscellaneous

- Formal Presentation (Week 6, 11, and Final)
- Final report writing (Chapter 4.1.2, 4.1.3, 4.2.2.1, 4.3.5)

Reflection on Learning Outcome Attainment

Reflect on your experience during your project and the achievements you have relating to at least two of the points below:

- (a) Engineering knowledge
- (b) Problem Analysis
- (c) Investigation
- (d) Design/development of Solutions
- (e) Modern Tool Usage
- (f) The Engineer and Society
- (g) Environment and Sustainability
- (h) Ethics
- (i) Individual and Team Work
- (j) Communication
- (k) Project Management and Finance
- (l) Lifelong Learning

Point 1: Design/development of Solutions

Through the project, I have gained knowledge of mobile app development using React Native. This is my first time using React Native, but I have prior experience in React which is similar. Nevertheless, I have learned to pay attention to some tiny details that I previously would not noticed when working alone in my personal project. For example, the optimisation of code is essential because of two things: (i) my code will be studied and used by all of the other group members, and (ii) in a large-scale project with a lot of data to deal with, performance/loading speed of the app will be greatly affected by my code quality. To tackle these problems, my code must be (i) simplified and turned into reusable components as much as possible, and (ii) the number of database queries must be minimised. I am very grateful to have realised the importance of these software practices during DIP, which will definitely be very helpful in workplace in the future.

Point 2: Modern Tool Usage

Another thing that I have learned through DIP is the usage of Firebase. Firebase is a cloud computing platform that provides a variety of services including authentication and databases. By leveraging Firebase, I am able to develop backend functions in a serverless manner, i.e., I do not need to have servers and database management systems running on my device for my mobile app to work. As long as my mobile devices are connected to the Internet, the app will work. This brings huge convenience to users. Firebase also provides packages that I can utilise to develop REST APIs rapidly. I believe cloud computing will continue to be trending for the next few years, and I will be able to apply what I learned through DIP from this day forward.