

IM3080 Design and Innovation Project (AY2023/24 Semester 1)

Individual Report

Name: **Lim Xian Long**

Group No: **7**

Project Title: **Duelingo**

Contributions to the Project (1 page)

The diagram consists of a vertical dashed line on the left with five circular nodes. From top to bottom, the nodes contain: a wrench and screwdriver icon, a notepad with a checkmark icon, a rocket icon, and a miscellaneous icon. To the right of each node is a text block describing the contribution.

Realtime database

Since our main feature was the multiplayer function, we decided to use Firebase's Realtime Database which I was part of setting up.

Backend

I was apart of writing code that enabled the initial backbone multiplayer function to work. e.g. CRUD to and from database

Graphic Design

I designed our project's logo, advertisement poster and 15 unique avatars for users to choose from.

Advertisement Video

I planned, directed, filmed and edited together the 2 minute advertisement video for our mobile app

Miscellaneous

I also helped here and there with other group member's frontend and backend codes when I was needed.

U2121830E
Lim Xian Long's
Contributions

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

I have learned many things throughout the course of this module. Since I have never worked on a project with such a large group of 10 people before, it was essential that we first dissected out solutions into manageable compartments so that we could split the work and be more efficient. We did this using a new project management workflow tool called Jira that I am certain will come in very useful in my future group projects as it keeps track of our progress as a group. After we have our own assigned tasks for each week, I found that I have managed to learn to use many tools new to me such as Figma to ideate solutions for features we wanted to implement and create a prototype for our app, and firebase realtime database storage that enabled us to implement our multiplayer functionality through real-time data synchronization. In the development of the solutions itself, there was a lot of trial and error to debug the code, especially since I had no prior experience in real-time data synchronization before this module, but after many strenuous hours, I would feel great satisfaction once the code was able to work.

Point 2: Modern Tool Usage

From the beginning of the project till now, I have utilised a wide variety of modern tools that I previously did not get a chance to use. For project management, it is crucial to have a workflow and progress tracking tool such as Jira or Trello that makes collaboration much more efficient. For my projects in Intro to Design & Project, I was using apache tomcat and MySQL for backend but coming into this new project which required real-time data synchronization, I had to learn Firebase's Realtime Database, which provided a more seamless and scalable solution for our backend. Of course, I faced many challenges but overcoming them allowed me to expand my knowledge. Initially, I wanted to find a way to implement generative AI into our app so I explored available options out there such as Stable Diffusion for image generation and Google's PaLM 2 for Large Language Models. In the end, I was met with a lot of paywalls as the services are not cheap, as well as the time constraint that I faced. As for graphic design, I made use of Adobe Photoshop to craft unique avatars and advertisement poster for our project, learning how to use their robust tools enabled me to bring my artistic vision to life. I also experimented with Photoshop's new generative AI tool and even though it is revolutionary, I opted to not use it as the results were not the look I was going for. Since I was also tasked with creating the advertisement video for our app, I had to learn how to use a video editing software called CapCut and their many features such as transition effects, voice changers, video effects, audio mixing. Additionally, for the final part of our video, I also utilized an AI generated voiceover to showcase our app.