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

Name: Jeremy Lee Qi Jie

Group No: 7

Project Title: Duelingo

Contributions to the Project (1 page)

Everyone helped each other on this Design Innovation Project.
Every member was doing their part as we divided our work into groups. My task was to:

1. Conduct market research on available language apps. Identify market gaps that our project could fill.

2. Create a user flow chart so that we can plan our user interface and experience on Figma.

3. Research the backend database - how to incorporate Google Firebase's real-time database into our backend design.

4. Mobile application programming - settings page user interface/experience using typescript.

5. Multiplayer Research - Design of the multiplayer feature in the program. How to connect two players to challenge each other from two different mobile devices.

6. Creating the final report

Reflect on your experience during your project and the achievements you have relating to <u>at least two</u> 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: Engineering Knowledge.

Participating in this project has been helpful in enhancing my engineering knowledge and skill set. As an undergraduate student with little background in front-end and back-end programming, the primary goal of creating a mobile app for language learning has given me a useful outlet. Learning React Native (typescript) programming has been an incredibly rewarding experience. The Design Innovation Project's hands-on approach helped me better understand the complexities of mobile app development and improved my frontend and backend skills.

In addition, this project has greatly expanded my knowledge of system architecture and software engineering principles. A comprehensive approach to software development was required for the design and implementation of a functional language-learning app, taking user experience, scalability, and effective data handling into account. Overcoming these obstacles has improved my theoretical understanding and given me useful advice on how to design scalable, reliable software systems.

This project has highlighted the value of teamwork and efficient communication in addition to its technical aspects. Working with peers has shown me how important teamwork is to overcome obstacles and completing projects, especially in areas where I had little prior experience. All things considered, this practical experience with software engineering and developing mobile apps has been extremely helpful in molding my comprehension of practical applications and getting me ready for new challenges in the ever-evolving engineering industry.

Point 2: Project Management

I actively participated in some aspects of project planning, execution, and monitoring as a team member. Using Agile approaches successfully throughout the project lifecycle was one noteworthy accomplishment. Our team was able to quickly adjust to evolving requirements by embracing Agile principles, which resulted in a more dynamic and responsive development process. Frequent sprint reviews helped us achieve continuous improvement by allowing us to quickly resolve issues and streamline our processes. For instance, during week four, we had to completely redo our project idea.

Furthermore, efficient time management has become a crucial achievement in project management. A coordinated effort was required to develop a language-learning mobile app, and wise time resource allocation became essential. The team successfully met deadlines and milestones by using project management tools and techniques like Gantt charts and task prioritization. This experience confirmed my understanding of the complex relationship between effective time management and project outcomes and emphasized the significance of strategic planning.

All in all, the project has given me useful knowledge about project management techniques, stressing the importance of flexibility and clear communication of a well-executed project. These abilities are not limited to this project; they can also be applied to other engineering-related projects in the future.