

# **IM3080 Design and Innovation Project (AY2021/22 Semester 2)**

## **Individual Report**

Name: Marcus Leong Yu Zhen

Group No: 1

Project Title: Focus ---A Highly Customizable One-Stage Time Management App

### **Contributions to the Project (1 page)**

#### Idea Generation:

1. Introduced the idea of virtual characters moving about in a space which lead to the current implementation in the game section.
2. Brainstorming and deciding on the main inspiration for the basis of our app which is the uWave Timetable

#### Prototyping:

1. Figma design for the game component

#### Coding:

1. Coded the main bottom navigation bar to switch between the Timetable, Me, Motivation, Game tabs and the Plus button navigation.
2. Creating the firebase database, establishing the connection between the app and the database.
3. Code to Create, Read, Update and Delete the objects stored in the different tables in the database.
4. Code to update the display of the different events in the timetable screen in real time as the user adds or deletes events in the database
5. Code to show the existing events, category in the add events page and deleting the objects from the database for each entry
6. Code to query from the database asynchronously for the number of tasks completed in the pass week to visualize in the chart in the me page

#### Report:

1. Review of technology
2. Use-Case Diagram
3. Sequence Diagram
4. User Guide

## 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: Modern Tool Usage

This project has exposed me and allow to experience multiple tools and frameworks that are commonly used in software engineering like GitHub, visual studio code, npm, expo, metro bundler, React Native and Firebase. This project lets me have hands on experience combining multiple tools, frameworks and libraries in order to build an app with modern framework and designs that is also capable of developing for multiple platforms like Android and iOS without needing to do it separately. Besides tools for the coding part of the project, there were other tools that helped in project management like notion for keeping track of task allocated and task that are completed or to do for each member. There are also tools for prototyping like Figma which allows us to create the layout and wireframe to visualize the app before any coding has been done to serve as the goal for what the software engineer needs to create using code. All these tools have helped in the different stages of the software development life cycle.

### Point 2: Design/development of solutions

It became apparent that for this app to work properly, a database is required to store the different events the user has added to schedule, the position of avatars, number of tasks completed for each day and for the whole week as well as the user details. After some research we decided to use choose Google's Firebase to store all our required data. I then proceeded to create the different tables in the database and defined the type of data stored in each field for the 1<sup>st</sup> entry in each table. As the data is stored in the cloud and we are currently using the free plan, there are certain drawbacks like the limits of the number of reads and writes to the database is limited to 50k every 24 hours. To solve this issue, I increased the interval between each time the database is queried to update the display.

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