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

**Individual Report**

Name: Low Jun Qian

Group No: Group 2

Project Title: Float

**Contributions to the Project** (1-2 page)

1. Provided subject matter experience on AWS cloud related topics
   1. I was AWS Solutions Architect Associate certified.
2. Identified suitable backend for the needs of the team
   1. Mentioned in reflections
3. Implemented the backend architecture for the mobile app
   1. Using the AWS Amplify framework, one can quickly setup the respective services on the cloud through CloudFormation. AWS Cogito, DynamoDB and Lambda function are created though the framework
4. Setup authentication system using AWS Cognito
   1. The authentication feature was mostly implemented by me with the help of Joven and Violin. With this, the app will be able to track the user usage of the app thus, giving the user insight into their mental wellbeing. The user can login, logout, delete account, change user information and password manage.
5. Designed data pipelines using GraphQL API using APPSync
   1. Storing of video duration information was implemented by me
   2. APPSync created through AWS Amplify framework
   3. Lambda function to create user instance in database
6. Designed backend schema on DynamoDB NoSQL database
   1. Using Amplify Web UI simplified the process
7. Organised the foundation groundwork as the team leader from week 1-3
   1. GitHub was created by me Team was briefed on GitHub processes
   2. Google drive was created by me for team to facilitate workflow
   3. Universal docs/wiki for teammates to refer to
   4. Organised team into smaller speciallised subgroup
   5. Team was briefed on GitHub processes with help by Violin

**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:**

1. Engineering knowledge
2. Problem Analysis
3. Investigation
4. Design/development of Solutions
5. Modern Tool Usage
6. The Engineer and Society
7. Environment and Sustainability
8. Ethics
9. Individual and Team Work
10. Communication
11. Project Management and Finance
12. Lifelong Learning

**Point 1: Engineering knowledge/Individual and Teamwork/Communication**

I was AWS Solutions Architect Associate certified. Implemented and built multiple projects for various hackathons on AWS cloud. I am glad to have to the chance to implement some of my experience on projects again.

I opted to be the team leader for the first 3 weeks since everyone was nervous and did not know each other. I had to break the ice. After the initial pleasantries, I persistently threw out probing questions. I also start sharing my stories and at times even made jokes at my expense, careful to listen to my teams’ questions and concerns. In the first week, I determined my teammates' interests and strengths and quickly put them into specialised workgroups. Through open communications, some of my teammates decided to step up and be sub-leaders for each workgroup.

**Point 2: Problem Analysis/ Investigation/Communication**

During initial discussion and planning, everyone had decided to use Firebase as our backend (BE) system. Even though there was nobody that had the relevant experience to implement and use it. I was put in charge of the BE needs. I did not agree with the teams’ decisions. So, I experimented on various BE implementation like Firebase, websocket.io and stream. None of it suited the needs of our team as our team had various levels of technical knowledge. I finally landed on AWS Amplify as I had prior exposure to the framework. AWS had the simplest method of setting up authentication plus the documentations are well-written. I chose it because my team would be able to find proper documentation on the various subject. Additionally, I would be the subject matter expert to assist with more difficult problems. So, I rapidly prototyped a login page and recorded a video to show my team the working prototype.