IM3080 Design and Innovation Project (AY2023/24 Semester 2)
Individual Report

Name: Mahendran Monicka Suryaa

Group No: 1

Project Title: Moodify

Contributions to the Project (1 page)

- Developed app concept and UI/UX design with the team during the initial phase.
- Managed the project schedule and tasks using Jira, organized weekly meetings, and prepared updates for the professor.
- Designed the app icon, logo, and promotional posters.
- Researched and developed a virtual concert feature using VR:
    - Proposed a use case for the virtual concert feature to offer a unique music listening experience.
    - Selected Skybox AI for generating the concert environments after investigating various technologies.
- Created 3D environments for VR concert rooms using Skybox AI.
- Designed VR experiences for three rooms using A-frame, Sketchfab assets, and JavaScript for environmental effects like particle systems.
- Built frontend pages including the playlist, playlist details, and liked songs pages, and integrated the Spotify API.
- Implemented the React Context API to manage music playback across the app.
- Developed the music playback functionality and reusable components such as the music player bar, playlist item, song item, and progress and scrubber bars.
- Synchronized album cover rotation animation with music playback.
- Collaborated with Joel on finalizing UX/UI elements such as color schemes and backgrounds to ensure consistency with the app's theme.
- Worked with Jing Xuan to align bubble letter logo design with app's branding.
- Provided ad-hoc troubleshooting and API support to the frontend team.

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: (a) Engineering knowledge & (d) Design/Development

Throughout the project, I was deeply involved in both the design and development phases, which challenged and expanded my engineering knowledge. Initially, I volunteered for familiar roles like UI/UX design but gradually took on new challenges involving more advanced technologies. For example, I took on the task of creating modular frontend components and implementing global state management using React Context API to make it easier for the rest of the team to integrate our works more efficiently. This was particularly challenging given my initial lack of experience with React Native and only minimal exposure to JavaScript.

A big hurdle was adding virtual reality features to the app. Initially, I wanted to use Unity because I was familiar with it, but integrating Unity with React Native was too complex. With the guidance of Anh, I pivoted to learning A-frame to create the 3D experiences. I also wished to streamline the process of generating the environments and create a unique experience for each song, which lead me to explore the use of Skybox AI to generate unique environments based on text prompts suited for each song.

Point 2: (i) Individual and Team Work, (j) Communication, (k) Project Management and Finance

The project executed by a six-member team, necessitated extensive collaboration and effective communication. I realized the importance of frequent communication and updates to sync up with the efforts of the other team members. This was my first time using Git, which was crucial for managing our code updates and ensuring we all were on the same page. Regular communication, timely updates and the use of project management tools such as Jira, helped us avoid conflicts and stay on track with our project timeline. Working together to solve problems was particularly enlightening. It provided me the opportunity to learn from my teammates and consider alternative problem-solving approaches that I might not have thought of on my own. Additionally, navigating the varied coding styles, habits, and workflows of different team members taught me the significance of clear communication and adaptability. I learned to complement their work styles, which was instrumental in harmonizing our collaborative efforts. Through this project, I improved not only my coding skills but also my ability to work well in a team setting. These skills are essential for any engineering project and were particularly valuable in this collaborative effort. Overall, the project was not only a significant learning experience but also an enjoyable one.