

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

Individual Report

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Group No: 4

Project Title: Jam Stream

Contributions to the Project (1 page)

During the beginning of the project, I was tasked to implement the user interface (UI) design by implementing a visually appealing and user-friendly layout of the radio room main page. The layout was designed by the whole team members in Figma. I did the UI Enhancements by creating the recommended room section, a search bar for filtering rooms and an interactive button for user to join and create new room. There are also visual elements such as images and text to enhance the user interface.

Before I make the radio room main page connect with Firebase, I did help to display the radio room from the integration with Spotify API. It allows the component to fetch the information and display it about tracks and albums. Styles are defined by StyleSheetAPI to ensure a consistent and polished appearance.

After the Firebase have setup by the team members, I did help to enhanced database operations related to room management, including updating room information, retrieving individual rooms or all rooms, and removing a room. Ensured data integrity and consistency within the Firebase Realtime Database. The search function which powered by the 'updateSearchResults' and 'handleSearch' functions, work together to filter and display relevant rooms as the user types in the search bar. The dynamically filters the 'shuffledRooms' array based on the search query, ensuring that only rooms with names containing the query are displayed.

For the radio room page to grab the latest information from Firebase, real-time room updates have been implemented. This is to let users receive the latest information about available rooms. This involved integrating functions such as 'subscribeToRoomChanges' and 'unsubscribeFromRoomChanges' to track and handle changes in the database. There are also component that can dynamic rendering of room information such as room name, creator and more that show on the display radio room.

For the coding part, I have learned that some code is modular, and it is potentially for the team to reuse in other parts of the application when the code is well written with defined functions and components. The code also has considered the error handling in Firebase-related functions, it contributes to the robustness of the application.

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: Problem Analysis

Throughout the project, I have been engaging in comprehensive problem analysis to understand the requirements and challenges. The task involved implementing real-time updates in a mobile application using Firebase. I have been assessing the changes in Firebase would propagate to the user interface in real-time and ensure a smooth user experience. I carefully analyzed the existing codebase, identified areas for improvement, and addressed issues related to real-time synchronization of chat rooms. This process allowed me to break down the complex problem into manageable components, facilitating effective problem-solving. The problem analysis not only addressed the immediate requirements of the project but also laid the groundwork for future scalability and enhancements.

Point 2: Lifelong Learning

In the journey of developing the mobile application, this has been a transformative experience for me. The project provides me a lot of opportunities for continuous learning, especially in the context of integrating real-time features into this mobile application. I expanded my knowledge and skill of Firebase Realtime Database, React Native and more. These applications help to build my skills in asynchronous programming and gained practical experience in handling real-time updates beyond the theory part. Learn to build user interface, handle navigation, and real-time update was a dynamic experience for me. Embracing new technologies and frameworks has become part of my learning journey. This have push me continuously seeking ways to improve the efficiency of the codebase, were integral aspects of the learning process during the project. From the foundation concepts, this journey was testing the power of my continuous learning. New knowledges and skills were built after every bug fixed and every feature implemented. I believe that this project is not just a milestone but a living proof that learning is not confined to textbook and it needs to be hands-on.