IM3080 Design and Innovation Project (AY2021/22 Semester 1)
Individual Report

Name: _CHUA JI XIANG_____

Group No: __6_____

Project Title: _Cohab_____

Contributions to the Project (1-2 page)

During the first 3 weeks, each of us came up with our own wireframe of the app and pitched to the team. Once we have conceptualized on an idea that we were working for this project, we next used Figma which is a platform for mobile application designers to design prototypes. I was responsible for designing the user interface (UI) and experience (UX) for the Finance screen, which is one of the main functions in our app. In week 3, I adjusted the UI/UX of the app so that the colors, typography, design and styles are uniform across all the screens.

It was also during first 3 weeks that I taught my team how to use Git and GitHub for collaboration. In week 2 and week 3, I guided them on using command prompt to upload their work so that everybody on the team can see each other's progress. Some of the basics that I taught them were git add, commit, push, fetch, merge, pull, clone and branch. I also helped my team members to set up their git environment on their laptop before we start implementing the app using codes.

The next phase was during week 4 to week 6. I do have some experience in using React Native to develop mobile applications. In week 4, I taught my team members on the basic concepts of React such as app lifecycle, hooks and using JSX (JavaScript XML) to implement the user interface. Together with Justin, we set up our project with expo and taught the team members on how to use expo to run the application.

I was assigned to work in the development team as I am more familiar with programming. As a group, we have decided to use React Native as our frontend framework, Apache Tomcat as our backend sever and MySQL for our database. I am responsible for developing the frontend UI/UX implementation according to our Figma prototype design during this phase.

The main app screens that I worked on were the Finance, Calendar and Group Select screen. To implement the UI for these 3 screens, I used React Native documentation to provide me with the information about the components and properties available. I also helped to set up the App navigation using React Stack Navigator from the very first Login screen and navigate to all the different screens that supported the individual functions throughout the app. Together with Justin, we redefined our app's navigation route and also integrated React Drawer Navigator as part of the user experience.

In week 6, I was responsible for our group presentation together with Khin and Shu Ting. I was assigned to present on our group progress for front end and back end development.

Thereafter, the next phase was week 7 to 8. Our team was adjusted such that everybody will be doing coding to further speed up our development process. This time, I was assigned to work on the full implementation of the Finance screen which includes the UI/UX and also the functionality of every buttons. On top of what has been discussed in our Figma, I created more micro functions for the Finance screen, such as donut chart, roommate payment screen, group payment screen and other minor functionalities and details that were crucial to the operation of the app. In the process, I researched for APIs, libraries and documentations that I could use to implement the common functions that we see in today's mobile app such as modal screen and bottom sheets. At the end of week 8, I focused on making all my codes in the Finance screen dynamic, in terms of removing hard coded contents, making all these data interchangeable and dynamic so that it is ready to sync with the database. I encapsulated all the data that were required to be stored and retrieved from the database in JavaScript objects. I worked with Zi Yi during this period to parse JavaScript objects into JSON object to store in the database and vice-versa when I needed to retrieve them from database into the mobile application.

Next phase was from week 9 to the end of the project submission date. After finishing Finance screen, I moved on to implementing the Home screen. Here, I worked together with Bryce and Khin. They were responsible for producing the UI and 3D graphics while my role was to integrate those graphics into the application using code. At the same time, I implemented the customization function for the home screen where the users can choose what furniture they want, which app functions they would like to link to and add it to the room. The idea is to allow users to customize their own room such that it is unique to them. After integrating the graphics into the app, I worked closely with Bryce to resolve some bugs and issues with regards to the graphics on android and iOS. Then, I also implemented a zoomable view so that users can zoom in and out to see the graphics on our home screen.

Moving on, I started working on the front-end implementation of the Group Select screen. Again, my role was to integrate those graphics produced by Bryce and Khin into the application. I implemented the group screen to change graphics with the time of the day. For example, at 9 am, the Group Select screen will be bright daylight while at 9 pm, the Group Select screen will be showing a night sky with stars. Also, I incorporated the car animation file produced by Khin into the Group Select Screen.

Furthermore, I implemented the splash screen animation done by Shu Ting into the application using codes. Next, I recoded the graphics on our Login and Register screen but did not change the original functionality. Around the same time, I researched and implemented the avatar tutorial function using a third-party library. I helped to set up the environment and the necessary codes for Ophelia and Rachel to implement the contents for the user guide tutorial.

Lastly, I was involved in the final presentation team, group report as well as the video team. For the video team, I was the video director, in charge of screen photography during filming. I was also responsible for the post-production where I edited and sequenced the shots using Adobe Premiere Pro and also Adobe After Effects to achieve the mobile apps animation as seen in the video.

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: Managed project and gained experience in development
State the area: Project Management, Design and Development of Solutions, Modern Tool Usage

I felt that the Software Engineering course that we learned in year 2 was very applicable to this project. Instead of learning the theory and concepts, DIP allowed me to apply what I learned into the project so that I can better manage, plan the schedule and analyze the potential risk and issues that may arise during the development phase. In our project, we applied the prototype model development method as a lot of us are not experience in mobile application development. There were many changes made to the project. With proper time scheduling, I was able to adapt to these project changes and still able to stay on our schedule. I also learned how to use Figma to develop a mobile application prototype which was a time-efficient method to show clients the look of the app before coding it. I was also able to learn and implement the user interface and components using React Native through the use of third-party libraries that I have not come across before. Most importantly, these exposures to industry code standard in GitHub and npm package manager have allowed me to gain knowledge beyond school's curriculum. Finally, in this industry, software engineers must be able to adapt and learn quickly as technology continue to advance. Through this course, I learned how to be independent in my own learning, adapting to different situations quickly and able to solve those software issues that may arise during the development phase. I believe that the hands-on experience I gained in mobile application development would be my greatest achievement for this project.

Point 2: Working with 11 people in a group
State the area: Communication, Individual and Teamwork

I feel that working with 11 people in a group is not easy. A lot of times, many members would raise many different interesting ideas and suggestions and it was really difficult to settle down on an idea since everyone believes that their suggestion was the better one. Through this experience, I learned how to work with people that I am not familiar with and how I could communicate effectively with them while achieving the same project goals. For instance, I worked a lot with Justin on the handling and implementation of the project and helped to analyze what are the different tasks we needed to complete each week. Along the project timeline, I also communicated with other members on the programming details required for the implementation. I also learned that it was important to know

each individual team member's progress so that we can help out each other and stay on the project schedule. Despite not having meeting physically with my groupmates, we have regular zoom meetings and telegram chats to communicate and give frequent project updates to each other. Afterall, I believe that communication among the team is the key to a project success in terms of delivery and quality of software. Knowing how to communicate effectively and work together efficiently were my main takeaway from this DIP experience.