IM3080 Design and Innovation Project (AY20xx/xx Semester x)
Individual Report

Name: Lim Jun Yang

Group No: **Group 1**

Project Title: NTUMART

Contributions to the Project (1 page)

Frontend:

Login, logout and sign up. Frontend screen, logic and calling of API for authentication and verification.

Profile page, linking to server for profile details and getting products.

JWT Token Verification and Authorization Service (client side).

Item card changes and styling.

Item card vertical display bug fixes and changes.

Home page (Did not do the whole thing, did the first draft and subsequent changes were made by other team members)

Sell service changes and bug fixes. Linking to server side to upload images correctly.

Search bar and corresponding function to search for products by name and the corresponding page to display the products. Includes calling of API. Includes showing all products

Camera inside the application for uploading images, not used.

Community tab first draft, but subsequently we used Garry's instead. Did bug fixes on the community tab done by Garry.

Backend:

JWT Token Verification and Authorization Service.

User API endpoint, login, and signup. Design and development.

[Main Service] API endpoint to get products details and images, including getting all products, filtering and sorting.

Profile Image and product upload API endpoints bug fixes and changes to save profile images and product locally.

Database schema bug fixes and changes.

Testing:

Unit and integration testing. API testing. Code review for PRs before merging to main.

System Design:

Requirements analysis and design (With other teammates)

UI:

Figma screen for chat

Design of first iteration of the app logo (depreciated)

Report:

Visualised survey results and did some sections.

Reflection on Learning Outcome Attainment

Point 1: Design/Development of solutions.

Reflecting on the journey of being a part of a team to design and develop an entire full-fledged commercial-ready application has been a profoundly insightful experience. It allowed me to appreciate the complexity and nuances involved in bringing a software project from conceptualisation to fruition.

The strategic planning phase instilled in me the importance of aligning technical goals with overarching team objectives. Understanding how our development efforts contributed to the broader success of the project added a layer of purpose to our work. It underscored the idea that a well-executed project isn't just about lines of code; it's about delivering tangible value to our users.

Collaborating closely with Professor Chua and Professor Andy was a valuable lesson in communication. The iterative feedback loops and demonstrations ensured that the product met their expectations and fostered a sense of partnership. Furthermore, Professor Chua and Professor Andy's expertise and experience in the field of software engineering proved to be invaluable throughout the collaboration. Their insights guided the project with a seasoned understanding of industry best practices, potential pitfalls, and innovative solutions. Learning from people with such a wealth of knowledge enriched my understanding of software development and added a layer of depth to the project that went beyond the technical aspects.

Furthermore, throughout the 13 weeks, the presentations allowed us to get feedback for our work and iteratively improve our product to be more closely aligned with the professors' expectations. Hence, we embraced agile methodologies to handle the changing requirements. Embracing agile methodologies taught me the importance of adaptability in the ever-evolving software development landscape. The flexibility to pivot in response to changing requirements became a cornerstone of our success. It also highlighted the significance of continuous improvement and the value of incorporating feedback into our development processes.

The commitment to quality assurance and user experience emphasized the significance of delivering not just a functional product but one that delights and engages users. It reshaped my perspective on the importance of meticulous testing and user-centric design, factors that contribute significantly to the long-term success of any application.

In essence, this project was not just an academic milestone; it was a transformative journey that deepened my understanding of software development, teamwork, and project management. It has

equipped me with valuable insights and skills that I will carry into future endeavours, shaping my approach to challenges and opportunities in the dynamic field of software engineering.

Point 2: Individual and teamwork.

Engaging in the development of a mobile application, specifically an e-marketplace tailored for university students, allowed me to explore the unique challenges and rewards inherent in aspects of individual software development as well as working as a team. While our team members are new to/inexperienced with the frameworks (Flutter and Spring Boot), languages (Java and Dart) and tools (Figma and Jira) that we used, each of us adopted a growth and open mindset to learning these tools that we used to achieve the deliverables for the project.

Individual

Individual contributions and teamwork are not mutually exclusive; rather, they complement each other in a well-functioning project. Each team member brings unique skills, perspectives, and expertise to the table. While individual contributions showcase personal strengths and capabilities, effective collaboration and individual contributions from myself my team members work together seamlessly to achieve our team goals.

In the project, I played a pivotal role in full-stack app development, engaging in both front-end and back-end aspects. My responsibilities encompassed designing user interfaces, implementing features on the client and server side, and ensuring a seamless user experience throughout the application.

On the front end, I concentrated on crafting intuitive and visually appealing user interfaces. This involved collaborating with our design team to translate wireframes and mockups into responsive and engaging user interfaces. Implementing user interactions and ensuring a consistent and user-friendly design were key aspects of my front-end responsibilities.

This project provided an opportunity to delve into the intricacies of mobile application development using Flutter for the front end. Navigating through the Flutter framework, I gained valuable insights into UI/UX design, responsive layouts, and the intricacies of creating a seamless user experience. The individual responsibilities involved not only coding but also required a comprehensive understanding of the end user's needs and preferences.

Working with Flutter allowed me to harness the power of a single codebase for both iOS and Android platforms, streamlining the development process and reinforcing the importance of efficiency in individual tasks. It was a journey of continuous learning, troubleshooting, and refining my coding skills, especially in the context of mobile application development.

Backend Development

Simultaneously, my involvement in back-end development included tasks such as designing and implementing server-side logic, managing databases, and ensuring the overall functionality of the application. I worked on optimizing responsiveness and addressing any technical challenges that arose during the development process.

I embraced the challenge of using Spring Boot for our server-side development, leveraging my background in .Net API development. Adopting a growth mindset, I dedicated myself to learning and enhancing my skill set in this new environment. My primary focus was on developing the user

authentication and verification system. I successfully implemented JWT tokens to manage authorization and verification within our project.
Additionally, I took charge of designing and implementing API endpoints for retrieving individual listings, as well as incorporating functionality for filtering and sorting these listings efficiently. This experience not only expanded my knowledge but also contributed significantly to the overall success of our project.

Teamwork:

Working on a 10-member project to develop a commercial mobile application was an enriching experience. Throughout the past 13 weeks, I had the opportunity to collaborate with a diverse and talented team, bringing together various skills and perspectives. This collaborative effort allowed us to navigate the challenges of mobile app development successfully.

The adoption of tools such as GitHub and Jira wasn't just a technical decision; it served as the digital canvas where our progress took shape. Observing the project unfold on these platforms, monitoring each commit and addressing issues, underscored the concrete impact of our collaborative work and emphasized the significance of smooth teamwork.

In the dynamic realm of mobile app development, adaptability emerged as a defining characteristic of our team. Our capacity to pivot and innovate on the go not only refined our technical expertise but also highlighted the robustness of our collective resilience.

As we move towards the final stages of the project, I reflect on the achievements and growth we've experienced as a team. This journey has not only enriched my professional skills but has also reinforced the significance of effective teamwork in delivering a successful commercial mobile application.

Embarking on the development of a university-centric e-marketplace mobile app was a transformative journey that revealed the delicate balance between individual capabilities and cohesive teamwork. In the face of unfamiliar frameworks and tools, our team's collective growth mindset and adaptability shone.

My dual role in frontend and backend development, navigating Flutter and Spring Boot, developed my technical expertise in both client and server-side development, but also ingrained in me the ability to collaborate well as a team to reach a common goal.

Point 3: **Lifelong learning.**

Finally, the journey instilled in me a mindset of continuous learning and improvement. Before this project, I was completely new to Flutter, Figma, and Java Spring boot. But during the past 13 weeks, I've not only gained a comprehensive understanding of these technologies but also honed my problem-solving skills and adaptability. The experience of working with Flutter for front-end development has broadened my perspective on creating cross-platform mobile applications efficiently.
Figma became an indispensable tool in my design process, allowing me to collaborate seamlessly with team members and iterate quickly on the user interface.
Delving into Java Spring Boot for back-end development exposed me to the robustness and scalability of the framework. The steep learning curve at the beginning transformed into a solid foundation, enabling me to develop efficient and secure server-side components for our application.

As I reflect on these past weeks, I am proud of the progress I've made and the challenges I've overcome. The mindset of continuous learning and improvement that I've cultivated will undoubtedly propel me forward in my future endeavors. I am excited to carry these skills and experiences into new projects, knowing that I am better equipped to tackle the ever-evolving landscape of technology.