Technology and Information System (SECP1513)

2023/2024 Semester 1

Design Thinking: Report on Design Thinking

Title: Enhanced UTM Smart

Lecturer: Ts. Dr. Sarina binti Sulaiman

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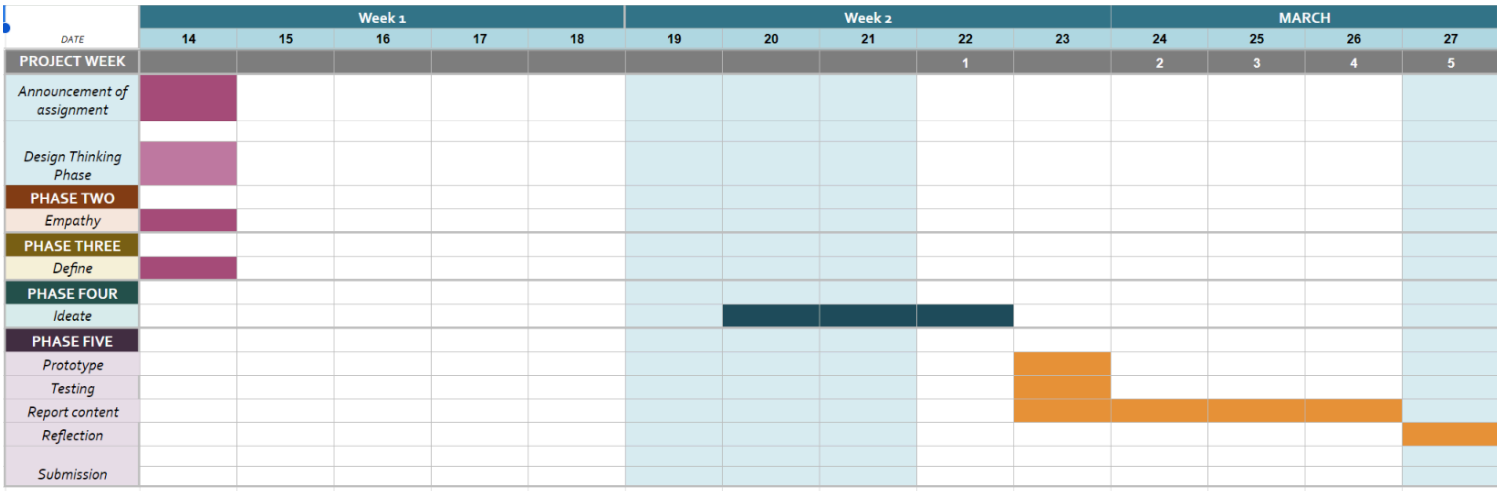
1.0 Introduction

The chapter given to our group is about Software. In this chapter, it has discussed system software, application software, programming software and malicious software. All of these are very important in our daily usage of devices, whether it is computer, laptop, smartphone or tablet. However, there still exist certain problems that we can find within this software. For example, not all system software is free and compatible with all the application software released. In terms of application software, most of them are closed source and usually free applications do not have the most complete tools. Malicious software can be spread easily as most of them can disguise themselves as regular application software, bypassing antivirus and harming our computers.

A few problems related to this chapter were identified. Firstly, software being overpriced with limited function, also not user-friendly. Next up, software with limited efficiency and lack of maintenance. Not to mention, some software is buggy and crashes easily, also lacks UI and UX designing. In addition, software that has poor options for localization. At last, the first problem has been chosen.

2.0 Timeline



Timeline:
finish canva by : 22/1
print and assemble until 24/1
cari orang utk test : 25
report buat sikit-ii daripada 20/1

3.0 Detailed Description

3.1 Empathize

In the empathize stage, we interview users who use our school app, UTMSmart to understand the problem when they are using the app and have their ideas on how we can enhance the app. We wanted to get different thoughts and really know what's important to them. During the interview session, 3 UTM students, Chua Jia Lin, Yeong Jin Wen, and Lim Xin Rou, generously shared their thoughts and experiences. Through these interviews, we acknowledge the problems they faced while using the current version of the UTMSmart.

Question during the interview:
1. What is your name? 2. What faculty are you from? 3. In your opinion, what do we need to improve for UTMSmart? 4. What kind of problem do you face when using UTMSmart?

3.2 Define

In the define stage, we looked closely at the problems users face with UTMSmart. We express these issues in a way that focuses on what users want or need.

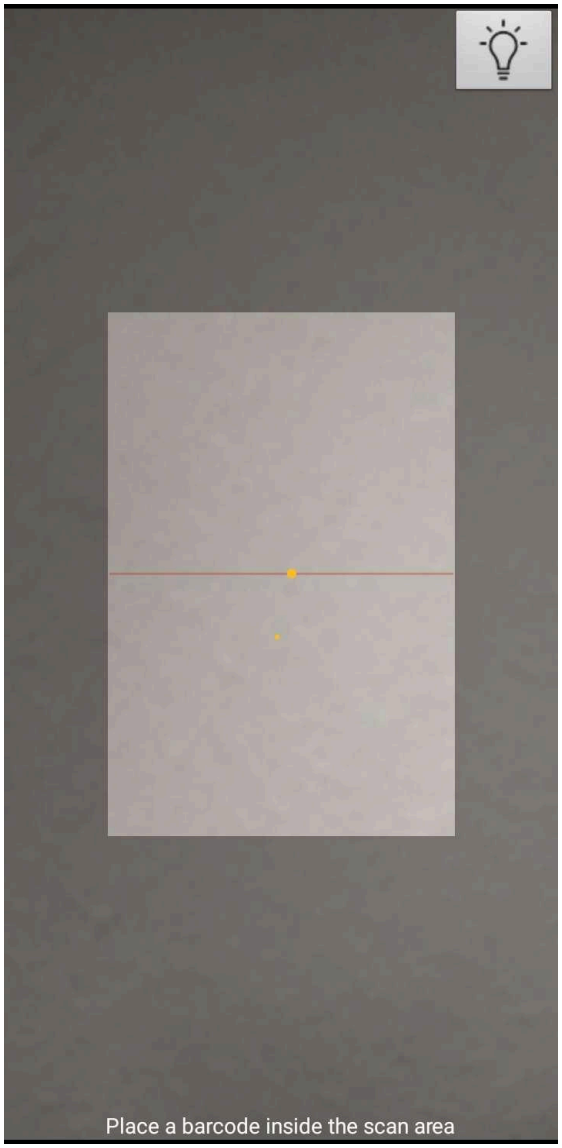
Original Issues:

1. Merit display
2. QR scan functionality
3. Bus tracker
4. Online transactions

Rephrased Issues:

1. Users wish for a way to check their merit.
2. Users need the QR scan feature to work better, with zoom and sharpen options, and the ability to scan from the gallery. For example, the QR is too far away to be able to scan or when the QR is sent in Whatsapp or Telegram.
3. Users would like a feature that helps them to track the school bus. For example, the bus is not on time, so we need to track it to know when it will arrive.
4. Users find it inconvenient to make online transactions for academy fees on the app due to an extra fee. Additionally, the users wish to print or save the transaction receipts to help them maintain payment records.

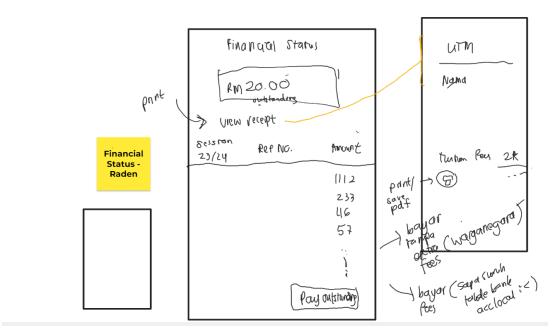
This way of stating the problems keeps the focus on what users are doing and what they want, making it simpler to understand and address in the next steps of our project.

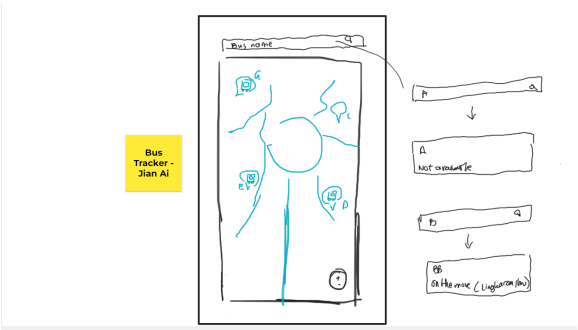


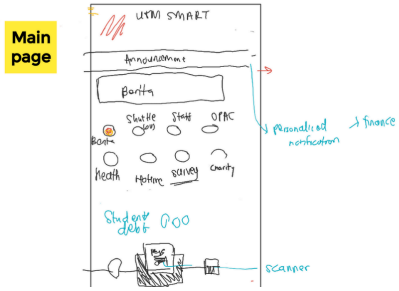
-No option to scan from gallery

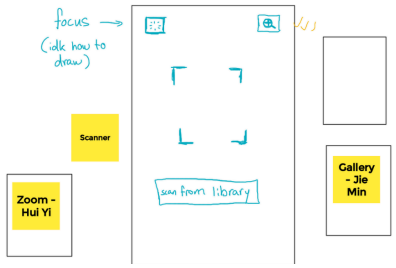
3.3 Ideate

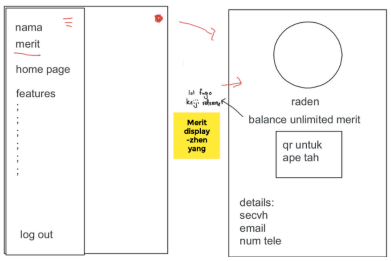
In the ideate stage, we all got together for a brainstorming session using Google Meet and a digital tool called Jamboard, an online whiteboard that helped us share ideas.

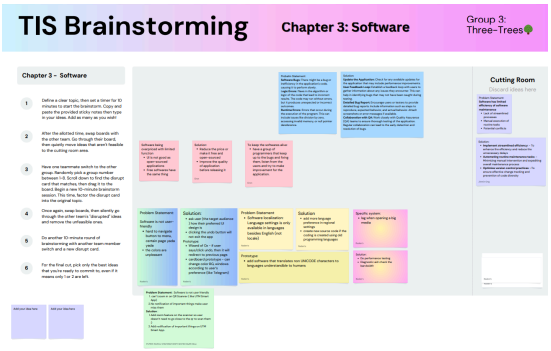






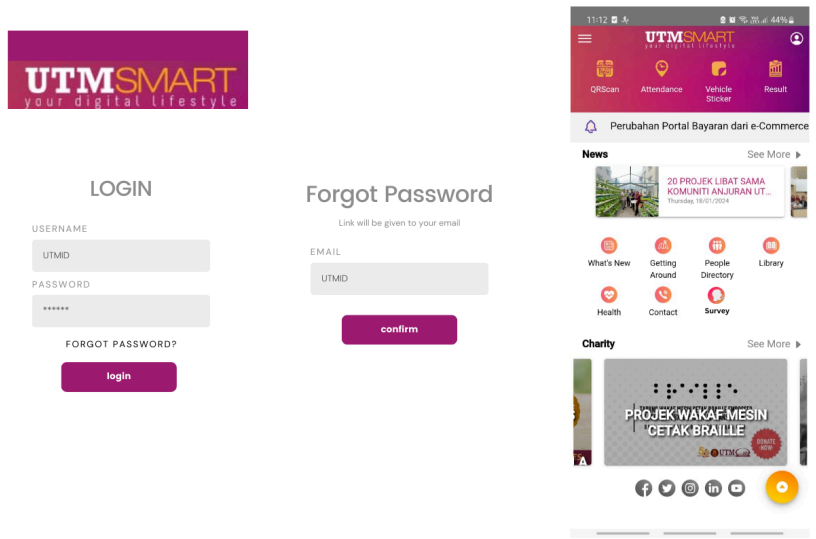
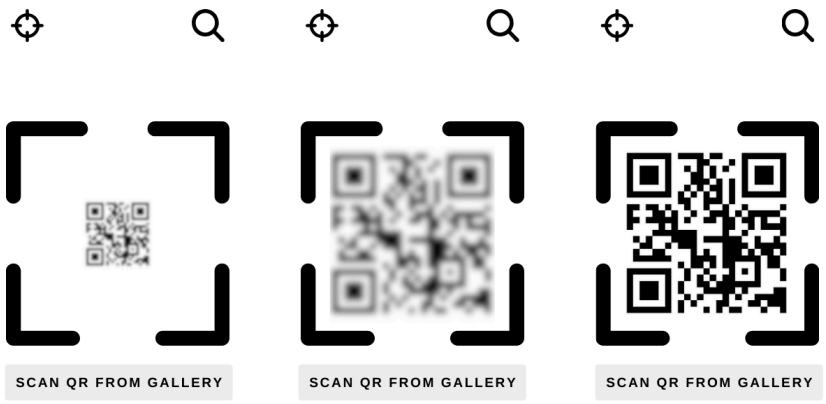


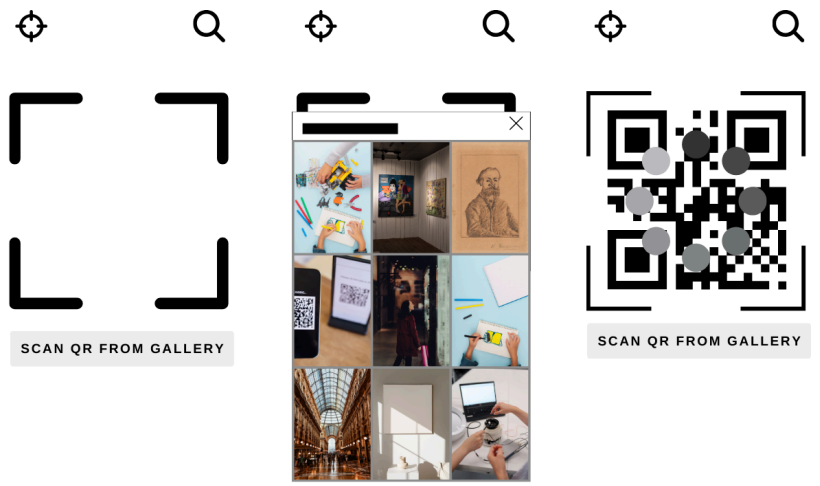
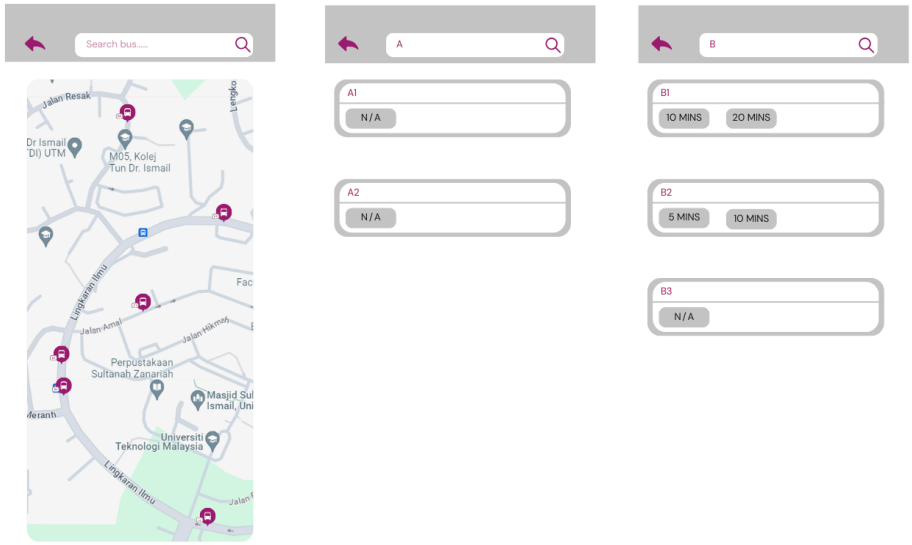


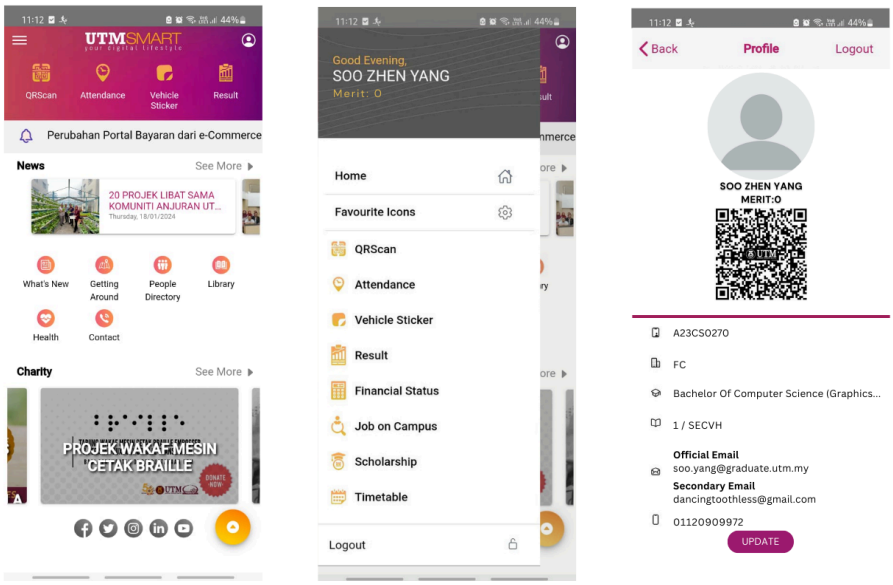
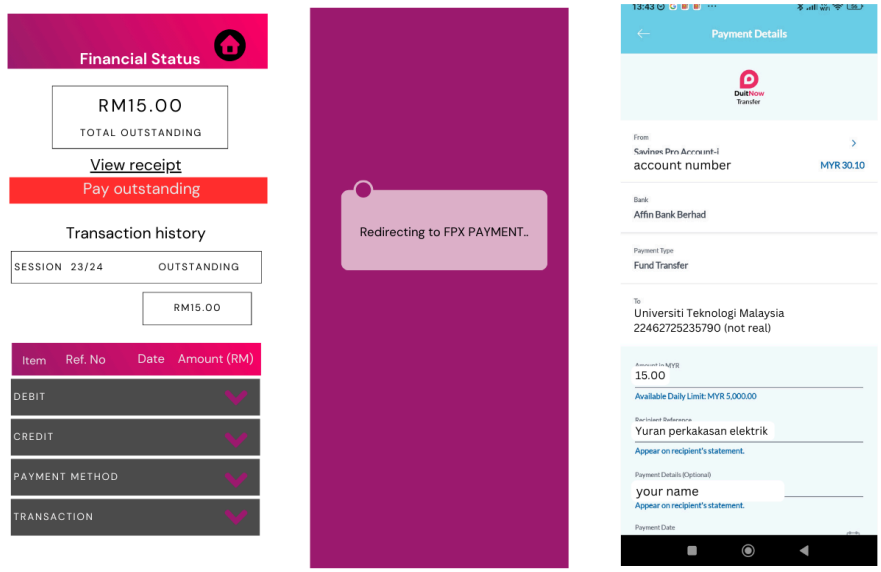


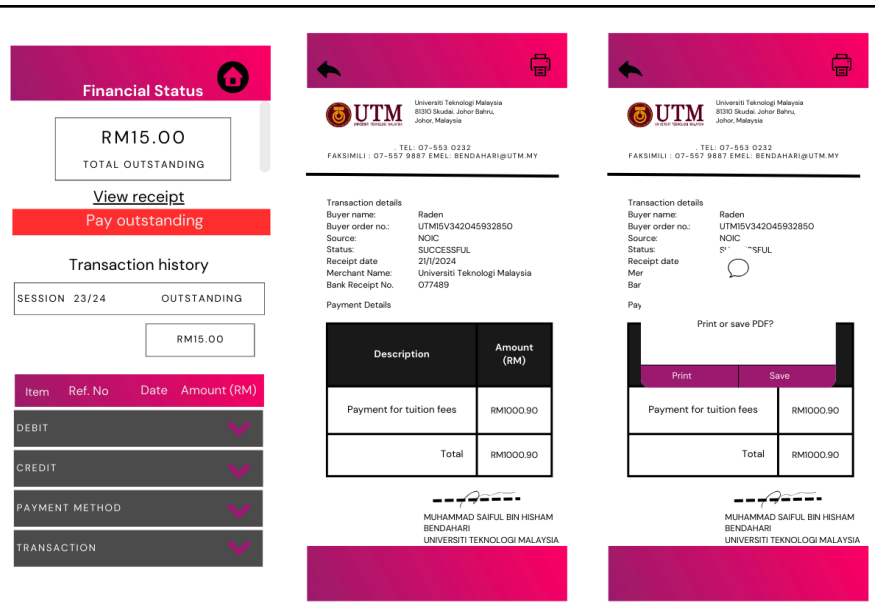
3.4 Prototype

The prototype was made on Canva using the template for existing phone prototypes.

Prototype	Functions
	Home Page 1. Display the cleaner look of login and forgot password pages. 2. Home page for main page
	QR scanner 1. Can zoom in from far distances. 2. Cna sharpen the image.

	QR scanner 1. Can scan from the phone's gallery.
	Bus tracker 1. Locate the bus's whereabouts in real-time 2. Checks for the available bus at the moment and ETA for the bus available.

	Merit display 1. Shows merit that has been collected.
	Financial status 1. Allows for FPX payment, which requires no charge fees



Financial status

1. Allows printing and saving the receipt to the user's phone.

The box was cut with a rectangular shape to indicate the phone's screen. We have made the other features such as camera lenses and the logo of our brand (Three-Trees) at the back of our prototype. Our logo is drawn with three trees with the biggest in the middle, and the small ones at its side.

3.5 Test

The testing phase was done as soon as possible and we successfully did a follow-up to the users we have interviewed. The interviewer, Raden Salma Humaira asked them whether the users were satisfied with the prototype.

They were overall satisfied with the prototype as we guided them through how to use the prototype and to access the features they have problems with previously. They just have to slide out the paper to go to another page. One of them mentioned that the merit display is not enough as it was unclear which of the activities that contribute to the merits we gained. This is the only improvement that we were able to attain.

4.0 Problem and Solutions

Many UTM students found it difficult to use our school app, UTMSmart. During our interview session with them, they told us about several problems when using the app especially with the QR scan feature. They mentioned inconvenience when the QR is too far away or when it is not very clear. This is because the app lacks a zoom-in or sharpen feature when scanning QR, and the app also doesn't allow scanning QR codes from the phone gallery. So our solution is to make things better by adding these features.

Additionally, the interviewer mentioned problems with knowing where the bus is when it is late. They also mentioned there's no way to know how much merit they have in the app. To fix these problems, we plan to add a bus tracker. This way, users can track the bus location for better knowing when it is going to arrive. We are also to put a total merit display on the main page menu and in the profile section.

Moreover, there are some problems when performing online transactions. Interviewer mentioned that when she wanted to pay for her academic fees or hostel fees online, the online transactions charged her for the processing fees. The interviewer also said that the online transaction receipt can't be printed or saved. Hence, we decided to get rid of the processing fees and add a feature where students can view their transaction receipt and print or save it.

5.0 Assessment

Our group did a great job on work distribution and time management. For example, during the time the lecturer gave out a briefing about this design project, we did preliminary brainstorming by writing down a few ideas on Canva. After that, we had an online meeting to discuss our project. We discussed possible problems when using our school app, UTMSmart. We give out several solutions using Jamboard and make a prototype for better understanding. Afterward, each group member was assigned specific tasks and worked hard on their given tasks. For example, some of us who stay at school will do interviews with students while others will start writing reports. After all the hard work, we completed this assignment by 27/1 before the due time.

6.0 Reflection

Raden Salma Humaira Binti Muhammad Mun'im:

1. My goal is to collaborate with industry professionals to create impactful games. This aspiration aims to challenge common perceptions about games and foster a positive shift in their view. As a UTM student, each course empowers me to make a difference. I believe in helping others and bringing them closer to a higher purpose through various means, not just via formal studies.

Creativity, wisdom, and understanding the audience are powerful tools. The younger generation, immersed in technology, needs responsible applications like games, virtual reality, productivity apps, and more, for guidance. I am committed in creating these tools responsibly for the common good.

2. The assignment has profoundly shaped my approach to system development, emphasizing responsiveness to user feedback for continuous improvement. In my technology-focused course, I prioritize problem-solving and advancing technology to enhance people. I learnt that implementing and emphasizing a holistic approach from planning to execution in system development is very important to ensure optimization in an organization.

3. My strategy is to do continuous learning even after finishing my undergraduate studies. I will also search for opportunities to work with colleagues and collaborators for projects that will help expand my portfolio and increase my marketability in the industry.

Another thing to note is the communication skill as the essential tool to nourish our thinking skills, because only then ideas will be able to expand when we share and subjugate the irrelevant ideas to reality. Looking ahead, I aspire to shed light on overlooked benefits in the computer science industry, contributing to its growth while advancing personally.

Ong Jie Min:

1. My goal within this course is to emerge as a versatile and ethical technology professional, equipped with a profound understanding of information systems and their pivotal role in organizational dynamics. My dream is to be at the forefront of technological advancements, driving transformative initiatives that positively impact businesses and society.

I envision applying the knowledge, skills, and ethical awareness gained from this course to real-world scenarios. My dream is to be actively involved in projects that push the boundaries of technological innovation while adhering to ethical standards.

2. The focus that design thinking places on understanding and empathy fits in well with my objective of working in technology and developing solutions that are both significant and focused on the needs of users. I hope to contribute to the creation of information systems that solve real-world demands and issues and improve the user experience overall. Design thinking equips me with a mindset that values continuous improvement.

The design thinking methodology's inherent adaptability and flexibility align with my aspiration to actively participate in revolutionary projects. In summary, design thinking influences how I study, solve problems, and contribute to the field within this course.

3. To enhance my potential in the industry, I have devised a comprehensive plan that prioritizes continuous learning, skill development, networking, and a commitment to ethical and innovative practices. I intend to stay abreast of emerging technologies, industry trends, and best practices by actively participating in courses, certifications, and workshops. Practical experience will be gained through involvement in real-world projects and contributions to open-source initiatives.

By methodically putting this plan into action, my goal is to consistently boost my capabilities in the industry. This involves staying adaptable, encouraging innovation, and upholding a solid ethical foundation in the continually changing field of technology.

Loh Hui Yi:

1. My goal is to work as a skilled web developer or designer in the ever-evolving technology field. I see myself being able to create websites on my own and maintaining a lifelong dedication to expanding my technological expertise. My interest has always been coding, and I'm committed to mastering the debugging process. Despite the possibility that fixing one defect could cause others to appear, I find the process to be both educational and stimulating.

My ultimate goal is to graduate from this course as a fully skilled person with all the necessary knowledge and abilities required by the rapidly changing technology industry. I can't wait to take on the difficulties, never stop learning, and eventually make a significant contribution to the technological industry.

2. My goals have been greatly influenced by design thinking, which has given me insightful knowledge on how to create and apply creative solutions to practical problems. It presents a comprehensive viewpoint on the process of producing something new and has a strong emphasis on using it to improve living standards and solve issues. I see myself using these ideas in my web development and design projects as I progress through my academic life, making sure that the solutions I provide are not just technically sound but also deeply ingrained in my knowledge of user needs and experience.

3. To stay relevant in this rapidly changing field, I understand how important it is to always be curious and eager to learn new things. It is critical to keep up with new programming languages, cutting-edge techniques, and emerging technologies in a world where change is happening at an accelerated rate. I'm determined to foster an attitude that values continuous learning and is thriving on discovery.

Furthermore, I understand how important it is to improve my communication abilities. The key to success in any collaborative work environment is adept communication. Enhancing my communication skills and gaining a better grasp of my colleagues' viewpoints will not only increase the effectiveness of our teamwork but also reduce the possibility of miscommunication. Essentially, the basis of my professional growth strategy is my dedication to a mindset of continuous learning and the improvement of my communication abilities.

Soo Zhen Yang:

1. For now, my goal is simply to graduate from this course with decent knowledge and understanding in the programming field. I didn't pick this course because I want to become a programmer. It's more because I love games and it gets me interested in learning coding. It is a very fun activity to just design a simple program/minigame and code it out in free times, and share with friends that have the same hobby after finishing it.

2. Learning about design thinking has had a big impact on how I see my goals in this program. This project gave me an opportunity to learn more about the difficulty of creating an application for our daily use. It has taught me to think about the people who will use what I create, to figure out what they really want and need.

3. In my opinion, I recognize the importance of continuous learning, practical experience, and proactive engagement. I plan to expand my skill set through ongoing education and training, seeking out opportunities to deepen my understanding of programming languages, software development methodologies, and emerging technologies. Additionally, I believe if I keep working hard, I will reach my goals and make a difference in the industry.

Lee Jian Ai:

1. My goal for this course is to become a proficient programmer, particularly in computer graphics and design. I've always been fascinated by computer games, especially when they have impressive graphics and user interfaces. I aspire to work on a team that creates games that appeal to a wide audience, including non-gamers. The games I played during my childhood, like Wii Fit and Pokemon White 2, sparked my passion for game design. Design thinking is a process that allows me to turn my dreams into reality. I enjoy identifying flaws in computer designs and finding effective solutions. Creating prototypes of these fixes is a rewarding experience. My ultimate goal is to develop applications and programs that are nearly flawless. If there are any errors, I am open to feedback and reviews to help me continuously improve.

2. Design thinking is a crucial aspect of our program. The process of empathizing, defining, ideating, prototyping, and testing is essential for any design, whether it's a device or an application. Empathy with users is necessary to analyze the problems they face. Defining these issues and finding appropriate solutions is the next step. To avoid function overlap, careful planning is required during the ideation phase. Prototypes are then created to test the solutions in the real world. Beta testers play a vital role in uncovering any hidden flaws during the testing stage. Personally, I believe design thinking is essential for problem-solving. It has opened my mind and will forever change my approach to designing and similar challenges in the future.

3. I want to enhance my understanding of project management and programming to become a better potential programmer in the industry. The competition within the science and technology field has become extremely intense, with everyone striving to secure positions at top companies. To position myself for success, I am committed to acquiring the same knowledge and skills as others through crash courses, seminars, and paid courses. Additionally, I am dedicated to self-learning, which allows me to explore a wide range of materials beyond traditional textbooks, such as online resources and the latest books in libraries. Keeping up with the latest technologies is essential not only for academic excellence but also to become a proficient programmer.

7.0 Task Distribution

No.	Members	Tasks (Individual)	Tasks (All)
1.	Raden Salma Humaira binti Muhamma d Mun'im	1. Physical prototype assemble 2. Financial status prototype 3. Phase: Test 4. Interviewer 5. Editing videos 6. Appendixes	1. Reflection
2.	Ong Jie Min	1. Giving idea through problems 2. Making prototype in canva 3. Making and test touchable prototype 4. Record interview session 5. Editing videos	

3.	Loh Hui Yi	1. Giving ideal for the prototype in Canva 2. Making touchable prototype 3. Interview session 4. Record interview video 5. Editing videos 6. References	
4.	Soo Zhen Yang	1. Empathize 2. Define 3. Ideate 4. Problem and Solutions 5. Assessment	
5.	Lee Jian Ai	1. Introduction 2. Timeline 3. Assisted in Define 4. Helped in Ideate 5. Prototype on Canva	

8.0 References

1. Dam, R. F., & Siang, T. Y. (2024, January 27). 5 Common Low-Fidelity prototypes and their best practices. *The Interaction Design Foundation*. https://www.interaction-design.org/literature/article/prototyping-learn-eight-common-methods-and-best-practices

2. *How to write an academic report*. (2021, November 5). The Classroom | Empowering Students in Their College Journey. https://www.theclassroom.com/write-academic-report-5453496.html

9.0 Appendixes

Video link: [Video prototype-making and testing]