



FACULTY OF COMPUTING
SEMESTER 1 2024/2025

SECP1513 - TECHNOLOGY & INFORMATION SYSTEM

SECTION 01

DESIGN THINKING REPORT

LECTURER: DR AZURAH A SAMAH

THEME: INNOVATION FOR DISADVANTAGED GROUP

PROJECT TITLE: “EVERCARE” HEALTHCARE APP FOR ELDERLY PEOPLE

Video: <https://youtu.be/Ezl3K3Tl5U0>

GROUP 5

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1.0 INTRODUCTION

Design thinking is a way of approach to solving problems that emphasizes the understanding of creating a product that fits the user's need and desire, encouraging inventiveness and also developing innovation as a solution for some analyzed obstacles. This is quite crucial as design thinking is more to human-centered innovation which is highly focused on empathy where the innovators need to analyze the problem that is being faced by some of the targeted groups and come up with a mind-blowing solution that relieves the burden of the user. There are five phases of design thinking that should be considered to make this project successful.

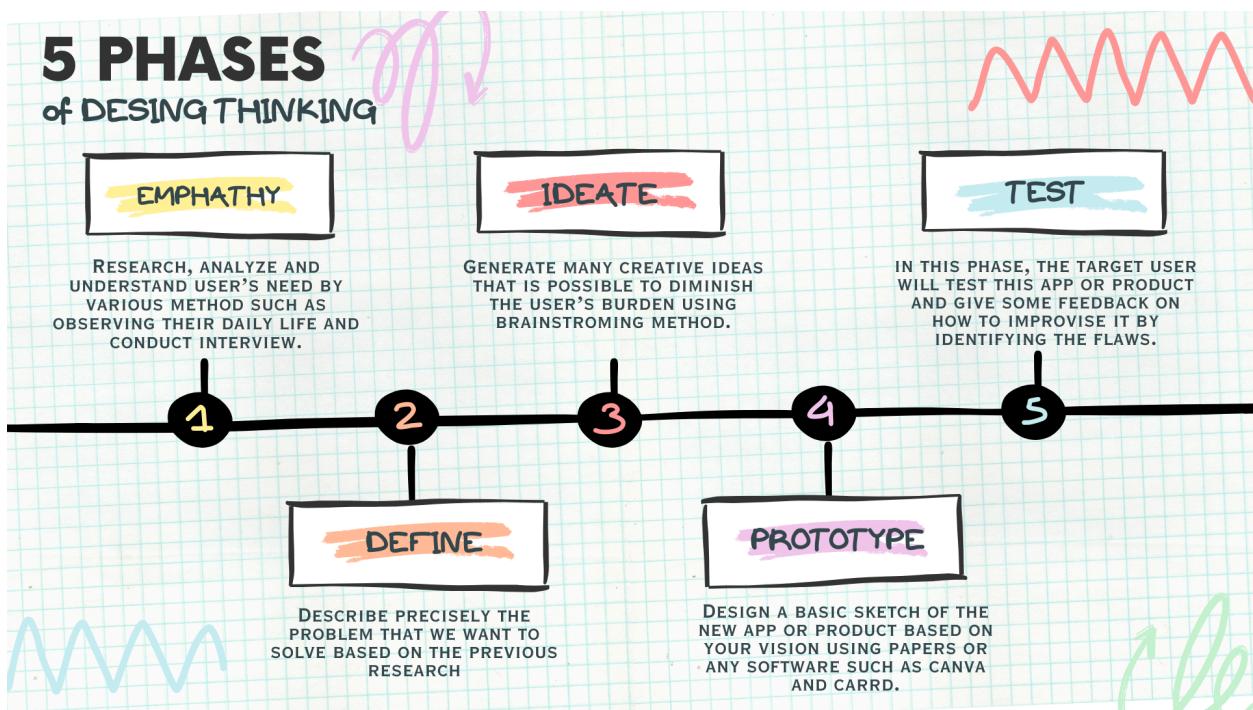


Figure 1:
5 phases of Design Thinking

Did you know that most elderly people used to avoid their health because they were facing some difficulties in remembering their health details and medical appointments? This problem seems to be rising without a solution for a long time which we got to know when observing some elderly people closely. After going through an interview session with some elderly people, we got to know some of their problems. So we came up with a great solution for them after brainstorming our ideas. By utilizing modern technology, the EVERCARE app strives to offer holistic healthcare solutions that are very effective and user-friendly for senior citizens.

2.0 TIMELINE

DATE	TASK
27/10/2024	Briefing by Dr. Azurah about the design thinking assignment
3/11/2024	Discussing the target person to choose
10/11/2024	Discussing the interview
19/11/2024	Interview session with an elderly
20/11/2024	Research on the problem reported by the interviewee
25/11/2024	Discussing about main problem and solution
3/12/2024	Create prototype
12/12/2024	Report writing - Introduction
12/12/2024	Report writing - Detailed description (Empathize, Define, Ideate, Prototype)
15/12/2024	Report writing - Detailed description (Testing, Problem and Solution)
17/12/2024	Report writing - Assessment, Reflection, the task for each member, References
20/12/2024	Video making
10/1/2025	Video and report checking by Dr. Azurah
16/1/2025	Report finalize

Task	27/10/24	10/11/24	19/11/24	20/11/24	25/11/24	3/12/24	12/12/24	17/12/24	20/12/24	22/12/24
Briefing by Dr. Azurah										
Discussing about the interview										
Interview session with an elderly										
Research on problem reported by										
Discussing about main problem and solution										
Create prototype										
Report writing										
Video making										

3.0 DETAILED DESCRIPTION

3.1 EMPATHIZE

In this stage, we utilized the interview method to understand the challenges faced by elderly individuals in managing their health and overall well-being. During the interview session, we spoke with an elderly individual, Beh Ken Seong. Through this discussion, we identified specific difficulties he encounters, including insufficient parking spots and long queues when accessing healthcare services. Furthermore, he expressed interest in a healthcare app that could track blood sugar levels, blood pressure, and cholesterol levels, alongside tools to aid in relaxation and improve the quality of his sleep. These valuable insights provided a solid foundation for designing an effective and user-friendly healthcare solution tailored to the needs of senior citizens.

Example questions during the interview session:

1. What is your name?
2. What are the most common health issues you face daily?
3. What features would you want in a healthcare app?
4. What non-medical issues like transportation or finding the right services make it harder to manage your health?
5. If you could create a tool to improve your healthcare experience, what would it be?

The interview was held on 19 November 2024, from 2.00 p.m. to 3.00 p.m..



Figure 2:
Interview session with Beh Ken Seong

3.2 DEFINE

From our interview, we identified several key challenges faced by elderly individuals in managing their healthcare. These include difficulties in accessing healthcare services due to insufficient parking spaces and long waiting times, as well as a desire for tools to monitor vital health indicators like blood sugar, blood pressure, and cholesterol levels. Additionally, relaxation aids were highlighted as a critical feature for improving their overall healthcare experience.

After analyzing these findings, we defined our problem statement as follows:

“How might we create a healthcare app that not only tracks vital health indicators but also simplifies access to services and incorporates relaxation tools to enhance the quality of life for elderly individuals?”

This problem statement serves as the guiding focus for developing a comprehensive solution tailored to the specific needs of senior citizens.



Figure 3:
Challenges in Elderly Healthcare

3.3 IDEATE

Soon after our primary issue was identified, we discussed how to overcome this through in-person meetings and online discussions. After a few discussions were held, we all reached an agreement to develop an application to allow the elders to detect their potential diseases based on their signs and symptoms. Other than that, they can also book an appointment at the nearest clinics or hospitals depending on the illness or disease and how chronic it is. Moreover, we have come up with some features to further assist the elders by including reminders for their medication intake and an Artificial Intelligence (AI) chat box in case they have some health-related questions or even concerns regarding the app. Health records of the user and emergency contact were also considered during our discussion.



Figure 4
First meeting: interview session

3.4 PROTOTYPE

After our discussion session, we created the EVERCARE smartphone app. Some of the guidance to use our app is stated below.

Once EVERCARE is installed on a smartphone, the user needs to log in and provide some health information so that the system can continuously monitor health status to remind about appointments and times for medicines. Honestly not only that, our invention has a lot more features which will be very beneficial to the elderly people such as determining heartbeat and blood pressure through the smartwatch, virtual lab test report, and also smart doctor which the user can consult virtually and immediately with the doctor about their health.

Additionally, in case of an emergency, we have an icon named “emergency,” which will immediately send a message to the hospital nearby to get an ambulance to the user’s place. If the user accidentally presses the icon, they do have some seconds to cancel it, as we provide that feature too because we consider users to be elderly people, and mistakes can happen anytime.

Plus, we also provide a selection of relaxing music that helps senior users remain calm and stable in stressful situations to prevent them from hyperventilation. This absolutely works well as per psychological research because soothing music can effectively slow down breathing, distract users from stress, and also lower heart rate to normal rate.

Last but not least, we also offer a caregiver to monitor each of the senior user’s accounts so that the user is well cared for by our innovative invention.

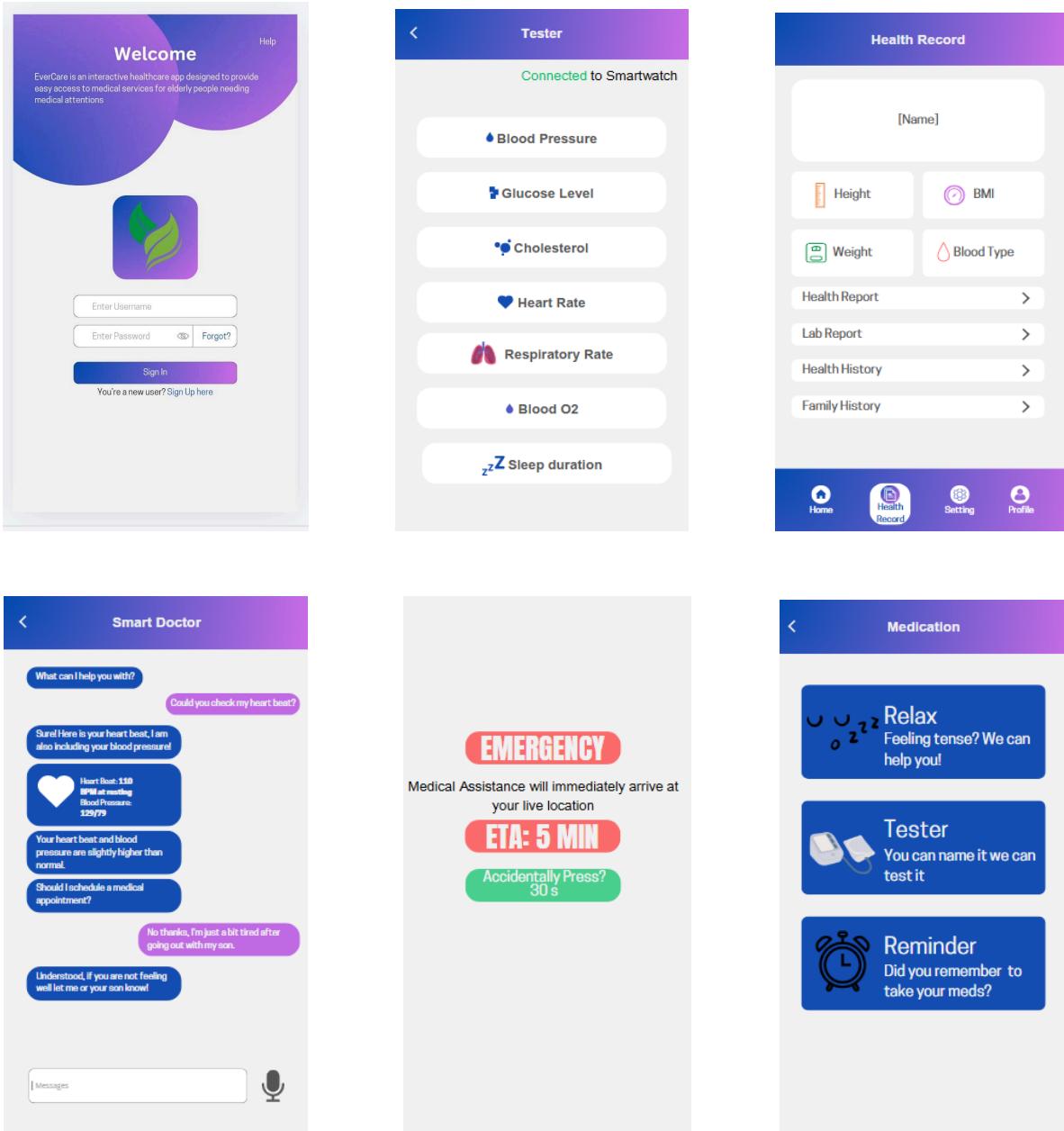
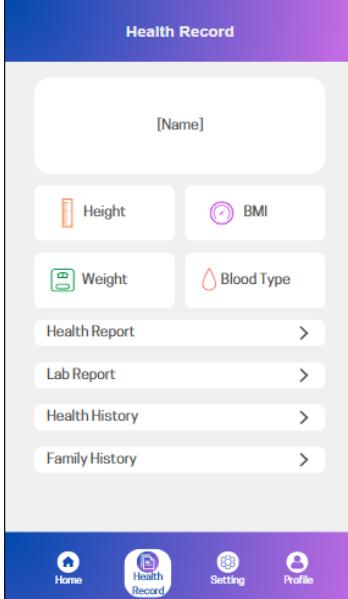
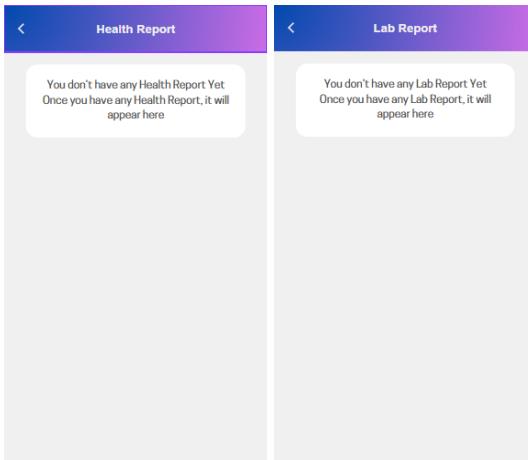
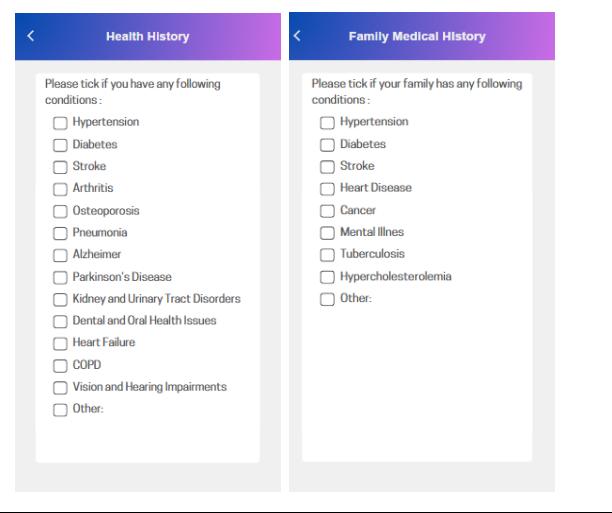
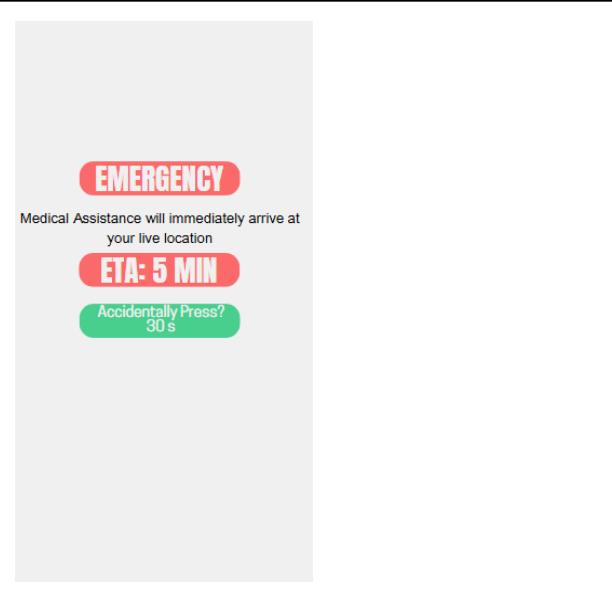
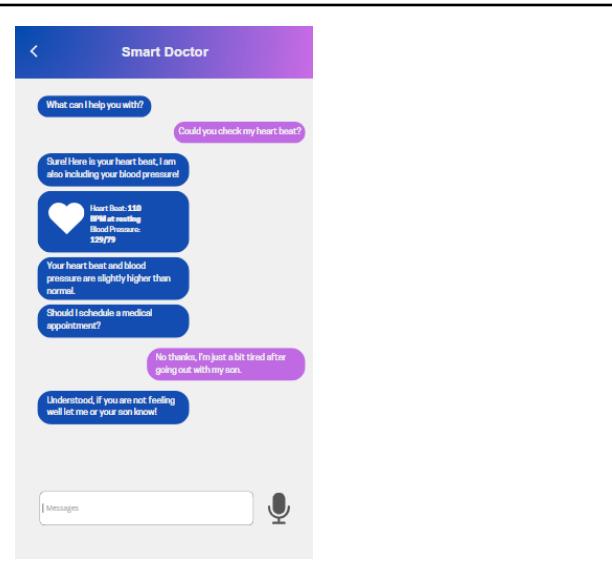


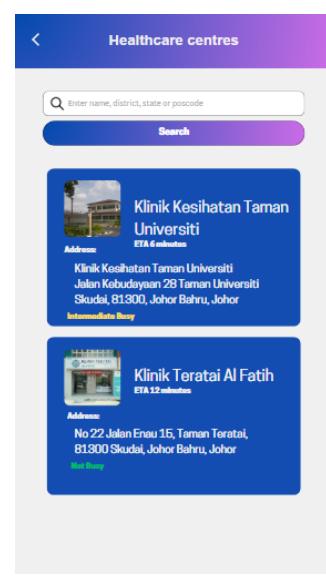
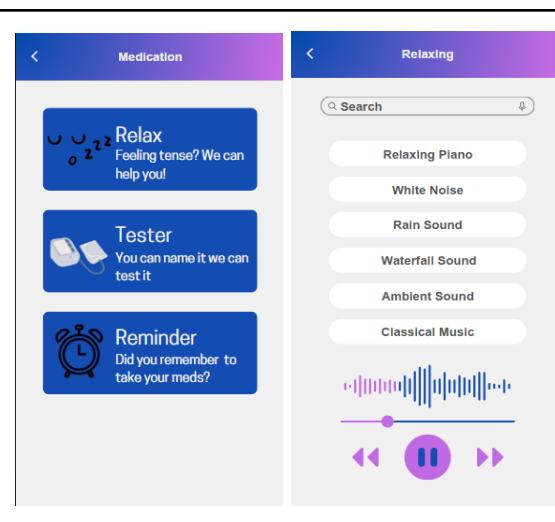
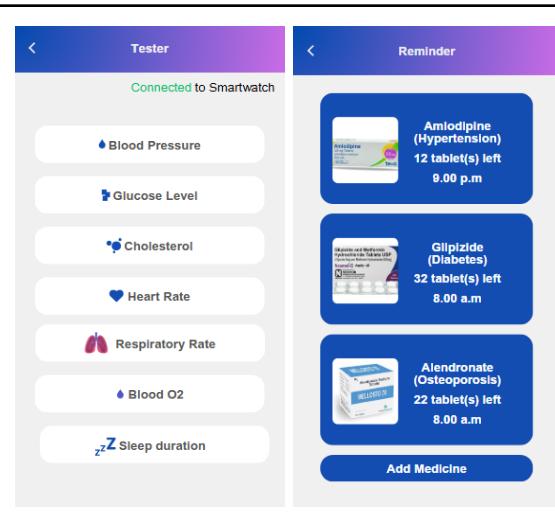
Figure 5:
Screen displays for the prototype

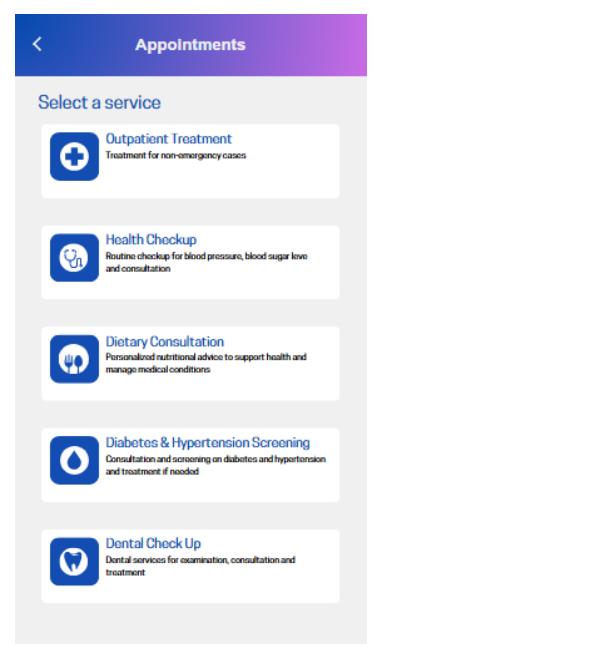
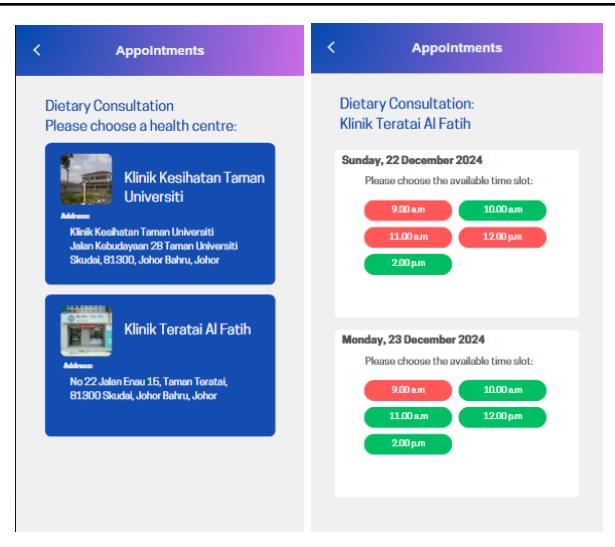
3.5 TEST

To ensure the efficiency and usability of EVERCARE, we conducted a thorough testing process. The detailed testing allowed us to observe how the app performs in real-world scenarios and identify areas where improvements might be needed. By analyzing how the app works, we were able to evaluate the app's functionality and usability, particularly for users who may have unique accessibility requirements. This step is essential in ensuring the app is user-friendly for all demographics and meets users' needs.

FEATURES	DESCRIPTION
	HEALTH RECORD <ul style="list-style-type: none"> Store all health information of the user for easier use of the app This feature enables users to keep track of their health records and doctors to know their health history for a more accurate and effective diagnosis.
	HEALTH/LAB REPORT <ul style="list-style-type: none"> Contains the results of all health and lab tests users have taken.

	<h3>HEALTH HISTORY</h3> <ul style="list-style-type: none"> Ask users about their health history and family medical history Determine the risk of getting any potential diseases
	<h3>EMERGENCY OPTION</h3> <ul style="list-style-type: none"> Appear when the user presses the emergency button on the upper right side of the home page. Immediately alert the medical assistant at the nearest clinic or hospital This feature is used when the user is in an emergency state and requires immediate treatment In some cases where users accidentally press the button, they have 30 seconds to cancel it.
	<h3>ARTIFICIAL INTELLIGENCE (AI) CHAT BOX</h3> <ul style="list-style-type: none"> Enables user to ask any questions regarding the app or their health concerns Can detect the heart rate and blood pressure of the user through the linked smartwatch Can give medical advice based on the symptoms or illness that the user experiences

	<h3>HEALTHCARE CENTRES</h3> <ul style="list-style-type: none"> Location of the closest clinics or hospitals in case the user wants to visit for health check-ups Inform the user whether the healthcare centre is busy or available for a visit. Making it easier for users to visit and eliminating the need to wait long at the centre
	<h3>MEDICATION</h3> <ul style="list-style-type: none"> Helps the user in various ways such as relaxing methods, tester, and medication intake reminder <h3>RELAX</h3> <ul style="list-style-type: none"> Helps the user to relax through music Users can choose from a variety of sounds or music to help them fall asleep or simply relax and unwind.
	<h3>TESTER</h3> <ul style="list-style-type: none"> Users can track their heart rate and much more here This feature is linked to the user's smartwatch for accurate result <h3>REMINDER</h3> <ul style="list-style-type: none"> Assist the user by reminding them of medication intake Convenient for users who tend to forget to take them

	<h3>APPOINTMENTS</h3> <ul style="list-style-type: none"> • This feature offers many types of appointments that may be available for users. • Users need to select an appointment that they want to book
	<h3>APPOINTMENTS</h3> <ul style="list-style-type: none"> • Shows the user the closest health centre where they can book the appointment • Ask the user to select the available time slot based on the user's convenience. • Automatically schedule the appointment for users.

4.0 PROBLEMS, SOLUTIONS, AND TEAMWORKING

4.1 PROBLEMS

Based on the interview we conducted, the main problem is that the majority of elderly people are unaware of the illnesses they might have based on the symptoms they experience. They simply consider their pain as normal and do not seek health check-ups at clinics or hospitals. This can be fatal for them if the illness they have turns out to be chronic and requires immediate treatment. Furthermore, some of them face transportation issues, making it inconvenient for them to visit the hospitals for medical check-ups. Additionally, the long queues in the clinics or hospitals can also take a toll on their body as it can exhaust them with how much time the queue takes.

4.2 SOLUTIONS

Our team discussed further the problem and also the potential solutions. As a result of our brainstorming, we came up with an idea to develop an application to help elderly people with their health concerns. Key features of our app include an Artificial Intelligence (AI) chat box, the location of the closest clinics or hospitals, booking appointments, medication intake reminders, and many more. For instance, if an elderly woman wants to check her heart rate, she can link her smartwatch to the app for easier access. The app will inform her about the heartbeat rate and even her blood pressure, determine whether the results are normal, and advise her if a check-up is needed.

4.3 TEAMWORKING

Throughout the brainstorming process, our team encountered some challenges such as the limitation of holding in-person meetings. Due to the busy schedule each team member has, we only managed to meet face-to-face a few times. However, we did not let the obstacles hinder us. If everyone is not available to meet up, we discussed the development of the app through WhatsApp. Tasks were assigned to each member and fortunately, everyone gave their full cooperation.

5.0 ASSESSMENT

After Dr.Azurah gave some briefing about the design thinking project, we started to make our own Whatsapp group to discuss this project in detail. On November 3rd, we got to know that this project focused on disadvantaged groups. Each of the team members works really hard on their assigned tasks. We also used many software such as Canva, Google Docs, and Microsoft Word to collaboratively contribute to the report and prototype. Besides, the interview session was incredibly insightful as it helped us to identify some challenges faced by users. Based on the results from the interview, we decided to develop a healthcare app that satisfied the needs of the targeted group which is elderly people. Afterwards, some of our important meetings were held in person while small discussions were held through our Whatsapp group. Thanks for effective task allocation and efficiency in our teamwork which were the biggest achievements for us and helped us indirectly complete and submit our assignment as scheduled.

6.0 CONCLUSION

All in all, working on the EVERCARE app has been an eye-opening experience for our team. It allowed us to learn more about the difficulties elderly people have to deal with on a daily basis, such as keeping track of appointments, managing their health, and providing healthcare services. By applying the design thinking approach, we gained a deeper understanding of these issues and developed a useful and significant solution.

We developed an app with features like medication reminders, symptom analysis, an AI chatbot, and even an emergency alert system to help elderly people live simpler lives through brainstorming and teamwork between each member. Despite obstacles like juggling hectic schedules and few in-person meetings, we managed to overcome them with cooperation and effective communication with each other.

This project reminded us of the power of technology to improve lives and gave us valuable skills that we'll carry forward in our future careers. Most importantly, it showed us the importance of empathy and creating solutions that truly make a difference.

7.0 REFLECTION

Along the journey of finishing the project, every team member has reflected on themselves from various points of view. We considered our strengths, weaknesses, and areas for growth, gaining valuable perception into our personal and professional development. These reflections enhanced our contributions and strengthened the team's collective effort. Each challenge faced became an opportunity to learn and adapt, fostering a deeper understanding of collaboration. The team grew closer by sharing their experiences and lessons learned, building a foundation of trust and mutual respect. Below are each of the members' reflections.

Tey Xin Yi

While doing this project, it gives me the chance to immerse myself in the perspective of disadvantaged people, in our case, elderly people. They are the minority that are usually ignored by society, this inspired me to have the responsibility to innovate more applications that can tackle problems that we advantaged people usually won't realize. Other than that, this project gave me the opportunity to learn and improve my skills such as video editing skills, problem-solving skills, and soft skills.

Muhammad Nasyat

My goal for my course/program is to improve my communication skills and improve my analytical skills for the next level. In this design thinking project, it shows how important are communication skills and analytical skills in group projects. Coordination between group members is important to make sure every task is evenly given. During the design thinking project, it really tested my communication skills and analytical skills to make sure every decision I made could be accepted by my group members and aligned with the project's needs. In this project, I realized that not everything can be done according to plan. Knowing which task needs to be prioritized first is important to help us in arranging the task. To make myself eligible in the feature industry, I will work with my communication skills, analytical skills, and time management. Lastly, this project gives us a significant impact in developing these skills. We will continue to improve these skills to help us in the industry in the future.

Fakhira Anisa

My goal for this program is to enhance my critical thinking, technical skills, and ability to analyze problems and provide a solution. This project has shown me how bioinformatics can create practical solutions to improve lives. Working on this project has made me more grateful, as it opened my eyes to the struggles faced by a disadvantaged group like the elderly.

Design thinking has been crucial in helping me empathize with users, identify their needs, and create an app to help them. Testing the app thoroughly with real users will ensure it meets their needs effectively. To improve my potential in the industry, I will refine my bioinformatics skills, particularly in data analysis and technical areas. Additionally, I will focus on gaining hands-on experience through projects to help me relate bioinformatics with real-world applications.

Dasneem Banu Binti Haja

In my interpretation, my major goal in this project is to gain more knowledge about problem-solving and analytical skills which are the main abilities that are needed in my course. As per my knowledge, Bioinformatics requires a strong analytical skill along with troubleshooting skills because it is highly used in analyzing sequences or even for handling large sets of data. I strongly believe that a design thinking project definitely encourages me to achieve my goals because indirectly it develops my analytical and creative thinking skills which I can use in my course as well as when I pursue my career later. Undoubtedly, I will ensure that I gain full potential before venturing into this rapidly growing, competitive industry.

Nur Syafiqah binti Abdul Malek

This project gave me insight into the struggles of the elderly and the importance of addressing their needs through technology. Working on this project has been a great learning experience. It gave me a chance to understand the struggles of the elderly and come up with creative solutions to help them. The interviews helped us connect with their needs better, and teamwork made it easier to deal with the challenges we were facing like managing everyone's schedules. Even though we couldn't meet often, good communication kept things on track. Testing the app helped improve its usability. In conclusion, this project showed me how important it is to design with the user in mind and how important teamwork is.

8.0 THE TASK FOR EACH MEMBER

Everyone was assigned tasks efficiently and through fair distribution. This ensured everyone's skills were put to good use, creating a sense of teamwork and shared responsibility, where everyone felt their role was important. Knowing that tasks were divided thoughtfully motivated the team to give their best effort. It also helped keep things organized, reducing confusion and keeping the project moving smoothly.

MUHAMMAD NASYAT BIN MOHAMAD NASIR

Mainly tasked with creating prototype and feedback questions:

- i) Design a UI/UX for prototype
- ii) Design core functionalities of the prototype
- iii) Create interview questions
- iv) Create user feedback questions

FAKHIRA ANISA BINTI MOHD RADZI

Mainly tasked with reporting and prototype testing:

- i) Identified the problems faced by elderly people
- ii) Proposed a solution, which is an application to assist them
- iii) Contributed to brainstorming features like symptom analysis and medication reminders
- iv) Reviewed the prototype and tested the features to ensure the functionality of the app

NUR SYAFIQAH BINTI ABDUL MALEK

Mainly tasked with reporting and prototype testing:

- i) Created a Google form asking for feedback from the user
- ii) Created a comprehensive Gantt chart to organize and schedule the project's activities effectively
- iii) Wrote the report for the Empathize phase, detailing the insights gained from user research and understanding their needs
- iv) Wrote the report for the Define phase, outlining the problem statements and project goals derived from the empathize findings

TEY XIN YI

Mainly tasked with interview and video editing:

- i) Interview a person that is in the disadvantaged group to collect problems they faced that are health issue related
- ii) Create and edit a 3 minute video to introduce our innovation based on the theme given by lecturer
- iii) Contributed to brainstorming features like relaxing musics to treat insomnia
- iv) Reviewed the prototype based on point of view of interviewee

DASNEEM BANU BINTI HAJA

Mainly task with documenting, assessing and evaluating the overall effectiveness of the project.

- i) Generate ideas to address the challenges faced by elderly people.
- ii) Summarize problems and overall goals of the project in introduction.
- iii) Reporting about the developed prototype.
- iv) Analyze the factors that contribute to the effectiveness of the application.

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