FACULTY OF COMPUTING
UTM Johor Bahru

Report on Design Thinking Project

Subject : Technology and Information Systems (SECP 1513)

Section : 01

Name of Lecturer : Dr. Azurah A Samah

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Title of Design Thinking Product : Finance4U

Video Link (youtube): https://youtu.be/MuO2i1nlMSA?feature=shared

Group Profile

 Name: NUR ARISHA BINTI AMYRUL NAIM Matric Number: A23CS0154 E-mail: nurarisha@graduate.utm.my Phone number: 0199310854 Course: Computer Network & Security GitHub E-Portfolio: https://github.com/ar1sha55/nurarisha	 Name: LOKE PEI EN Matric Number: A23CS0242 E-mail: lokeen@graduate.utm.my Phone number:0125527815 Course: Computer Network & Security	<Photo> Name: Matric Number: E-mail: Phone number Course
 Name: MUHAMMAD HILMI HIJAZI BIN JAMAL Matric Number: A23CS0303 E-mail: muhammadhilmihijazi@graduate.utm.my Phone number: 01120632045 Course: Bioinformatics	 Name: MUHAMMAD NAZMI BIN MOHD SAIFULIZAM Matric Number: A23CS0135 E-mail: nazmi-04@graduate.utm.my Phone number: 0177518744 Course: Computer Network & Security GitHub E-Portfolio: https://mnzmii.github.io	

Comments by Grader:

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1.0 Introduction

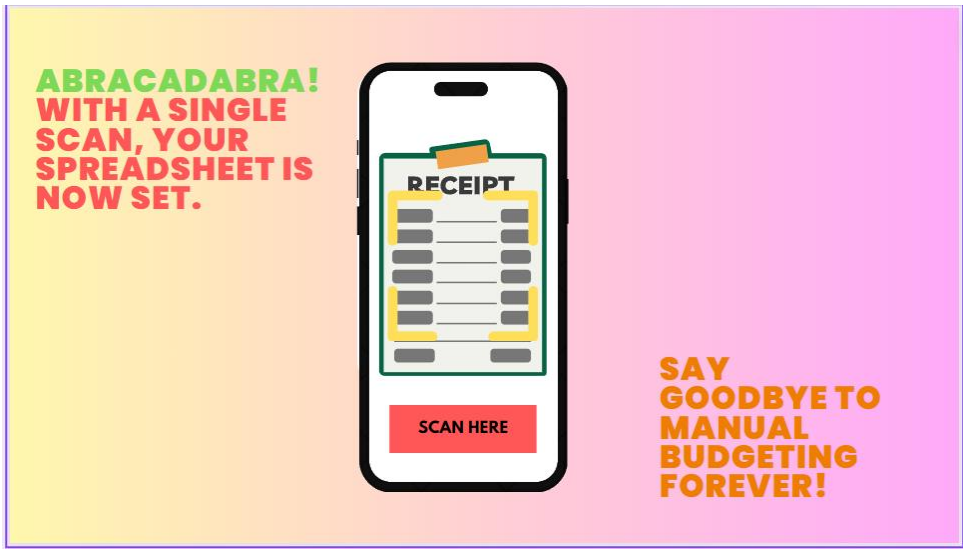
Design Thinking is like solving a puzzle. It understands based on what people need. To start with, we will listen to users in the Empathize stage. Next, in the Define stage, we figure out what is the main problem that we want to solve. After that, in the Ideate stage, we come up with lots of creative ideas from all group members. Then, the simpler version of among the best ideas will be made in Prototype stage. Finally, in the Test stage, we will ask users to give some feedback to improve our ideas in the future. This way of working together helps us create solutions that potentially benefit people. All in all, Design Thinking indeed could solve human problems as well as fulfil their needs in these days.

By implementing Design Thinking, we have decided to solve one of crucial nowadays crucial problem. In this modern era, majority of people are underestimated about the necessity of financial planning in everyone's everyday lives. Financial planning is important for everyone, especially teens, because it involves everyday finances, savings, investments, and insurance. It promotes financial responsibility and offers several benefits. It enables people to keep track of their spending, set budgets, define personal objectives, improve savings, and execute sound investment methods. This practise helps people understand their spending habits, identify opportunities for savings, and motivates goal-setting, all of which promote disciplined money management. Furthermore, it promotes long-term savings and investments, leading to financial security as well as financial freedom. Therefore, individuals need to take control over their financial well-being and set the road for a more secure future by practicing proper financial planning.

2.0 Detail Step and Description

2.1 Detailed step

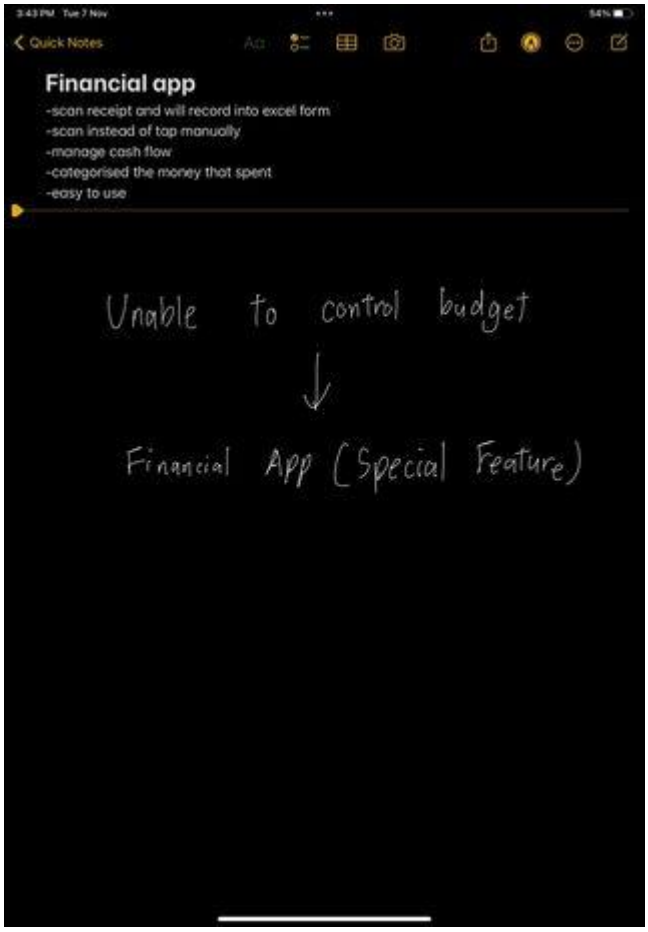
Get receipt and scan it, data will be recorded in excel form



2.2 Team Progress

- NUR ARISHA BINTI AMYRUL NAIM: Designing user interface, interviewing
- LOKE PEI EN: Making prototype
- ABDALLAH: Video Editing
- HILMI: Interviewing
- NAZMI: Designing user interface

2.3 Brainstorm Idea



3.0 Detailed Description

In this section, we will define more detailed about our project.

3.1 Problem

When it comes to financial planning, there are a lot of problems faced by everyone's daily life. The most common problem we observe is that people spend their money extravagantly and carelessly. Usually, this problem is caused by impulsive buying where someone makes a hasty decision to buy something without fully planning. Social pressure from around them can also be one of the factors. They tend to overspend things that are not too important to them for their satisfaction according to his will. If this happens continuously, they will have a high possibility of facing financial problems in the future. For example, they will experience problems if an emergency involving the use of a lot of money occurs suddenly. This can lead them to act irrationally in solving the problem such as going into debt with illegal moneylenders which will eventually destroy themselves.

Besides, people especially young people are lack of knowledge about financial planning which to be more specific, on how to manage their monthly spending budget, debt, doing investment and set up their financial goals. They are often lack the knowledge and skills needed to effectively manage their finances due to a lack of financial education and awareness. For example, poor spending habits can be caused by a lack of financial education in school curriculum and inadequate encouragement from their parents since childhood. As a result, they may struggle with keeping track of income, costs, and savings objectives if they do not understand how to build and keep to a budget, leaving them exposed to negative consequences like impulsive spending and financial instability. Additionally, someone also will find it difficult to save or invest their money, have outstanding commitments and piles of debt weighing them down. Indirectly, it will affect a person's mental health such as stress and depression leading to unforeseeable actions.

In addition, majority of people pay their bills after the due date, which means that they are usually late. This happen because of they might forgetting the date of last payment can be made. As a result, they will be fined by the authorities which usually in the form of extra charges as penalty in their bills. If this problem continues, their bills will increase over times. For examples is water and electricity bill. They will then feel pressured and overburdened by their own bills.

3.2 Solution

Our main concern is to let people have a good financial plan and set up so that it will benefit them by getting financially independent in the future. Therefore, we have found the solution by creating simple financial app which can help people in managing their finances wisely. There are many features provided in this app such as budgeting and expenses tracking, financial education, and investment suggestions.

First and foremost, our app will help individuals set their own budget and track their expenses. Users can scan the receipt of payments so that the integrated AI will analyse it and categorized what kind of expenses it is. They also can calculate their net income using calculator provided by this app. Therefore, they can make a better and more organized budgets of each category. For instances, the users will have enough budget for daily needs, emergency fund as well as existing commitments such as house and transport. This indirectly prevent users from experiencing negative cash flow and other financial problems in the future.

Next, the educational contents about financial is also one of the features provided by this app. It will be useful for the beginner with zero knowledge especially teenagers to learn about how to manage money wisely. We will put the education to many parts that specifically focused on financial planning, saving and investing so that the users can easily understand about the explanation of each topic. Therefore, users will be more interested in making good financial plan especially in saving and grow their money by times. At the end of the day, it can ensure users in achieve financial freedom and at the same time have enough wealth and assets when they are getting older and retire.

Furthermore, there are also bill payment reminder feature provided in this app which helps users manage their bills effectively and avoid late payments. This feature allows users to input information about their bill such as bill name, due date and amount due. They can schedule automatic payments for their bills which users need to set up specific date to initiate the payments. Or the users also can set up reminders for upcoming bill due dates if they are not into automatic bill payments. The reminders can be customized depend on the user's preferences. For examples, the users can decide and choose the notification channels such as push notification, emails or even SMS. Thus, the users will never experience missing the payment due date for their bills and maintain their financial commitments.

3.3 Team Working

Our team is working together to complete this project. we have agreed to divide each part of the task fairly and equitably. **Muhammad Nazmi bin Mohd Saifulizam** is responsible for making the user interface of this project and make part 1 (Introduction) and 3 (Detailed Description) in the report which consists of problems, solutions and team working. For **Abdallah**, he helped in brainstorming ideas about this project and was assigned to make a video, manage the presentation and prepare the Part 7 (Members and Task) in the report. Next, **Muhammad Hilmi Hijazi Bin Jamal** helped in making part 4 (Design Thinking Assessment Points) and some breakdowns in Part 5 (Design Thinking Evidence) namely Empathy and Define in the report. He is also involved in video editing and user interface creation. Then, **Loke Pei En** contributed to giving ideas, dividing tasks, making Part 2 (Detailed Step and Description) consisting of Detailed Step, Team Progress and Brainstorm Ideas in the report. Finally, **Nur Arisha Binti Amyrul Naim** also helped in the creation of the user interface. She was also tasked with other breakdowns of Part 5 (Design Thinking Evidence) which is Ideate, Prototype and Test in the report.

4.0 Design Thinking Assessment Points

End of Project Assessment Points:

At the conclusion of this design thinking project, our team manage to finish this project. We worked together by dividing our task voluntarily. We successfully finished each of our assigned task perfectly. We learnt that teamwork is very important to carry out our job. We did group discussions to express our opinions to improve our plans and ideas for our design thinking project. Besides that, we learned that design thinking helped solving problems in our life. Furthermore, we knew that developing financial app is hard.

Transition between Design Thinking Phases:

During the transition phase, we did face with lots of challenges such as finding the perfect solution for our users' problem. We also struggled with how to implement our solution to help our users. However, with teamwork and design thinking we managed to overcome this problem. In short, design thinking is important to help solve problems.

5.0 Design Thinking Evidence

5.1 Empathy

Oxford Dictionary stated that empathy is the ability to share someone else's feelings or experiences by imagining what it would be like to be in that person's situation

Thus, we interviewed a student named Tan Su Shi, a UTM local student that is currently studying in Bachelor of Chemical Process Engineering with Honours as to enhance our understanding of their situation in managing their financial situation.

Q: Do you face any problems when managing your finances?

A: Yes. I don't remember about how much of my budget are left after I do my shopping.

Q: Do you have any solution for that?

A: No.

Q: Do you think this financial app managed to help you overcome that problem?

A: Yes, this app helps me to keep track of my budget whenever I finished my shopping.

Q: When you use this app, do you notice any differences between when you use and didn't use it in your daily life?

A: Yes, when I use this app, I am always reminded of the limit of my budget clearly by this app, so I don't go overbudget.

Q: Do you see any other benefits when using this financial app? If yes, then what are they?

A: No.

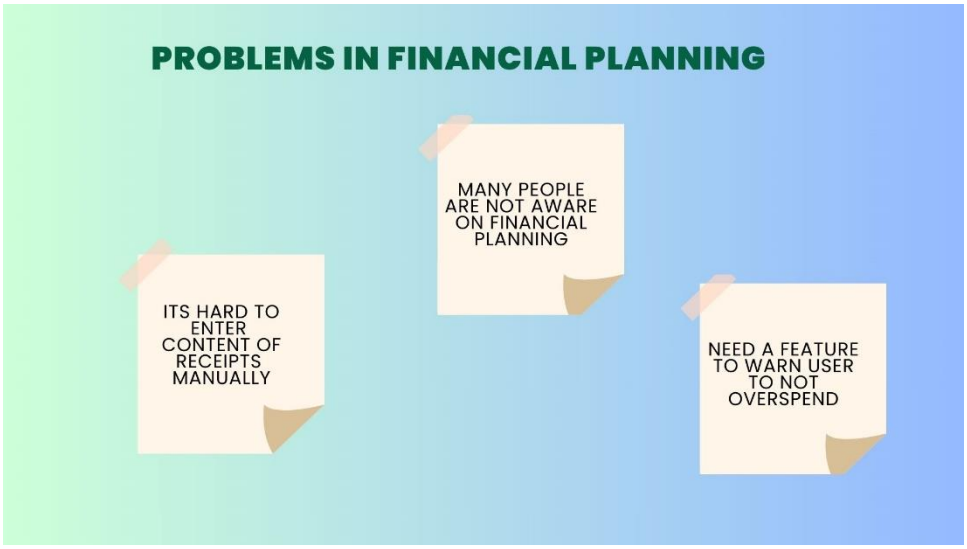
5.2 Define

We sat together observing the app performance. Then, we continue with our discussion about the feedback from the interview and expressing our opinion to further improve our financial app just like in the Figure below. This process is vital as to know the weaknesses that we found from our investigation.

5.3 Ideate

Ideation phase is where we came up with the ideas to help solve the problems from problem identification. In the define phase, we have pinpoint user's requirement based on their suggestion and feedback during the interview. The use sticky note method is extremely productive as we can come up with the solution for each problem, which help ease our progress in prototype phase later.

The combination of our ideas alongside the user's response were valued carefully to ensure that the solution is relevant to the problem, and we tried our best to eliminate any possible error to guarantee the best user experience.



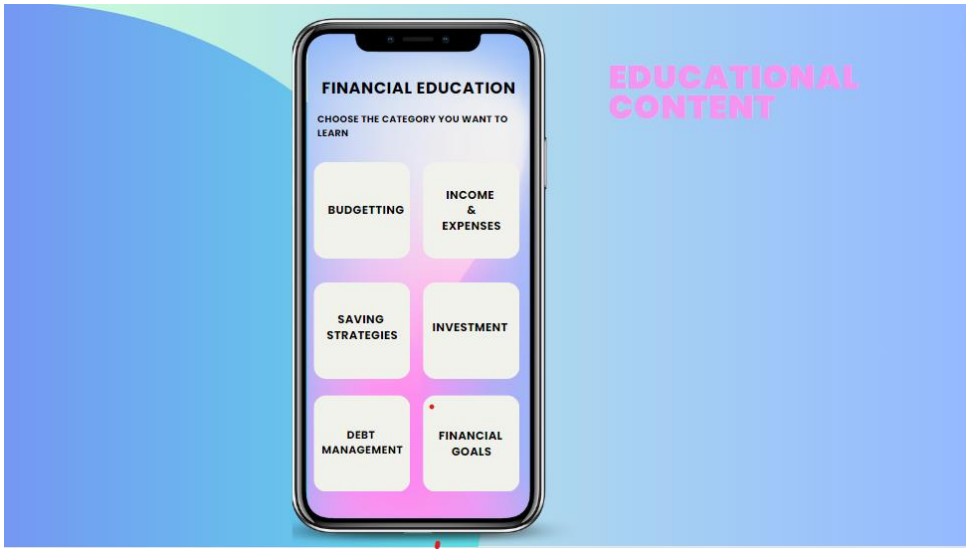
5.4 Prototype

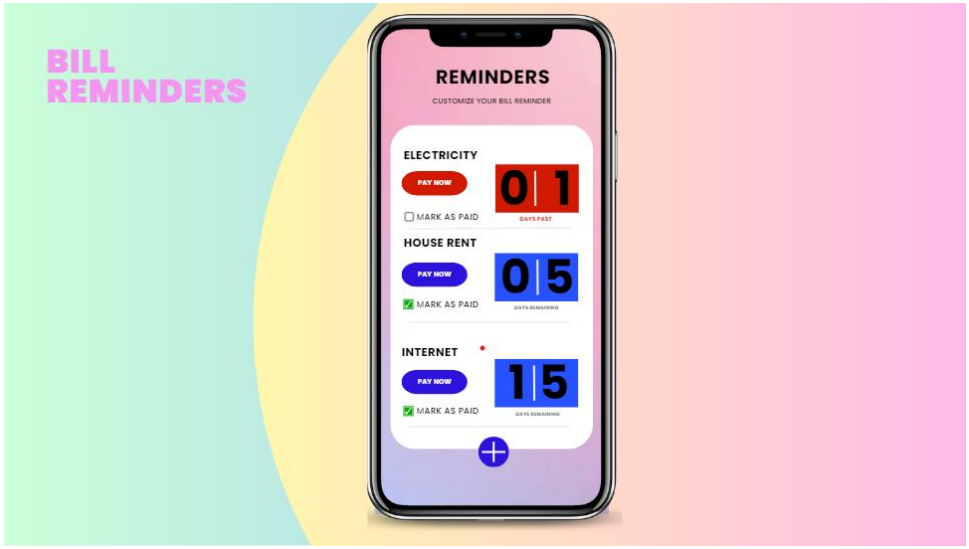
In this phase, we create a prototype based on all phases. The prototype is a basic yet complete user interface to display all the features we discussed in the earlier phases which includes the problems and solution. We also consider of user's feedback to make sure this prototype is user friendly. In this prototype, we include the main feature, which is the spreadsheet feature, enabling user to plan their finance properly in an organized manner where they will be able to view their expenses in a duration chosen by user; weekly, monthly and annually.

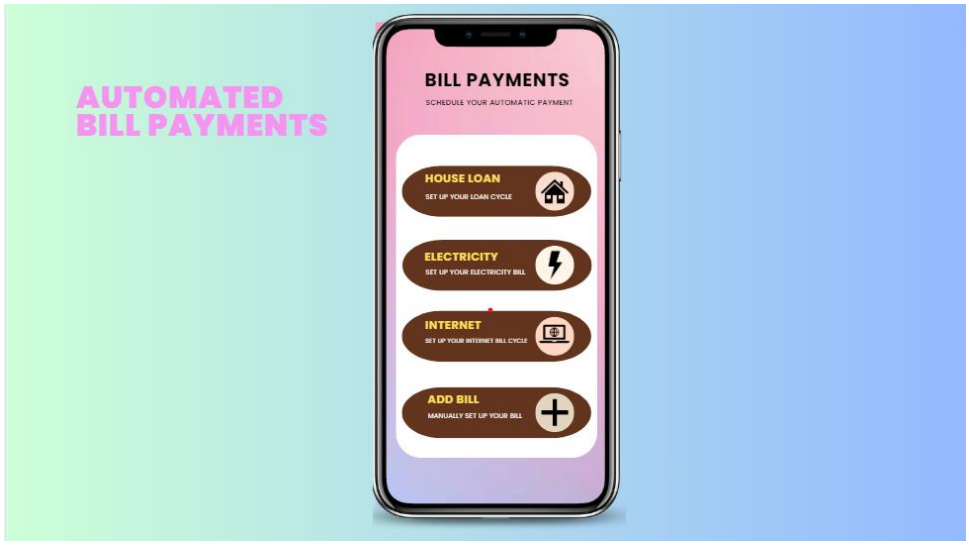
Besides, we have a special feature that is not yet to be found in any financial planning application. This prototype allows user to scan their receipt and the camera includes a text reading feature like the one in iOS in which the content in user's receipt will be automatically inserted. This will eliminate the hassle of user manually typing each food or items they bought with the price which can be the reason why people are lazy to do financial planning even when they have an online application for it.

This prototype's other feature is budget planning where user can view their expenses monthly, asserted to the suitable category using artificial intelligence (AI). AI will identify the words from the receipt and identify which category they belong to; food, travelling and so on. The expenses will be displayed in chart form, where user can choose which type of chart they desire; pie chart, bar chart etc.

The prototype also includes educational content, where user can choose the content, they want to learn such as budgeting, investment and debt management. User can also pay their bills through this app, which can ease their daily life affairs. Finally, we try to be as comprehensive as possible by also including bill payments in this application, which is very beneficial to help user stay updated within their budget monthly. This feature is combined with a reminder to pay their bills, one of the features being displaying if they are past their due for the bills or if they are ahead of it. All these features combined makes for a comprehensive and efficient financial planning application, suitable for all kinds of people especially students.


FINANCIAL EDUCATION
CHOOSE THE CATEGORY YOU WANT TO LEARN
BUDGETTING
INCOME & EXPENSES
SAVING STRATEGIES
INVESTMENT
DEBT MANAGEMENT
FINANCIAL GOALS
EDUCATIONAL CONTENT


BILL REMINDERS
REMINDERS
CUSTOMIZE YOUR BILL REMINDER
ELECTRICITY
PAY NOW
01
DAYS PAST
MARK AS PAID
HOUSE RENT
PAY NOW
05
MARK AS PAID
INTERNET
PAY NOW
15
MARK AS PAID


AUTOMATED BILL PAYMENTS
BILL PAYMENTS
SCHEDULE YOUR AUTOMATIC PAYMENT
HOUSE LOAN
SET UP YOUR LOAN CYCLE
ELECTRICITY
SET UP YOUR ELECTRICITY BILL
INTERNET
SET UP YOUR INTERNET BILL CYCLE
ADD BILL
MANUALLY SET UP YOUR BILL

5.5 Test

As the final step, we must test the prototype to check if it fulfils all user's requirements and all the features work perfectly. After doing several try and errors, we have identified that the prototype is complete.

We tested the prototype to a student in UTM by explaining each feature in our financial apps prototype. Our group member, Hilmi carefully explained features such as budget planning, educational content, bill payments and the reminders of the payments. Consequently, we asked for her feedback in which she responded that she believes the app is convenient.

6.0 Reflection

ABDALLAH MOHAMED MAHMOUD (A23CS0003)

6.1 What is your goal/dream with regard to your course/program?

My aspiration within the framework of this financial planning course/program is to develop a deep and well-rounded expertise in financial management and planning. I am driven by the desire to become highly proficient in evaluating financial strategies, identifying sound investment opportunities, and effectively managing risk.

Through this course, I aim to gain the knowledge and skills necessary to guide individuals and organizations in making well-informed financial decisions that align with their goals and objectives. Furthermore, I dream of contributing to financial stability and growth in both personal and professional contexts, empowering people to achieve their financial aspirations and secure their financial future.

By combining the principles of financial planning with the innovative methodologies of design thinking, I look forward to cultivating a unique approach to solving financial challenges, fostering creativity and adaptability in this critical field. This course represents an opportunity to unlock the potential for financial empowerment and success, both for myself and the clients I hope to serve.

6.2 How does this design thinking impact on your goal/dream with regard to your program?

Design thinking profoundly influences our aspirations within this program. It serves as a dynamic framework that enriches my approach to financial planning and management. By integrating design thinking principles, I can address financial challenges with a fresh perspective, fostering innovative solutions and enhanced creativity.

The impact of design thinking on my goal is significant; it enables me to not only understand financial concepts but also to apply them in more practical and innovative ways. Design thinking encourages me to think beyond traditional boundaries, pushing me to explore uncharted territories within financial planning.

As a result, my dream of becoming an adept financial planner is bolstered by design thinking. It equips me with the ability to adapt to changing financial landscapes, develop creative strategies, and approach problem-solving with a forward-thinking mindset. The synthesis of financial planning and design thinking empowers me to realize aspirations and make a meaningful difference in the financial well-being of individuals and organizations.

6.3 What is the action/improvement/plan necessary for you to improve your potential in the industry?

To enhance my potential in the field of financial planning, it is essential to recognize the dynamic nature of the financial industry and adapt accordingly. This necessitates a multifaceted approach that combines continuous education, the incorporation of cutting-edge technology, a wholehearted commitment to a client-centric approach, a constant endeavour to improve communication skills, the expansion of my professional network, the unwavering maintenance of high ethical standards, the sharpening of analytical skills, and the development of effective business strategies.

Continuous education is the peak of professional growth in the financial planning sector. Staying updated with the latest regulations, market trends, and investment strategies is imperative. Continuous learning equips financial planners with the tools and knowledge needed to navigate the ever-evolving financial landscape effectively.

NUR ARISHA BINTI AMYRUL NAIM (A23CS0154)

6.1 What is your goal/dream with regard to your course/program?

My goal about my program in cybersecurity is fundamentally to help giving back to the society. Society plays a major role in helping to shape our future especially young children. I hope that by the end of this programme, I can add more skills and knowledge that I can share to help make the world a better place, especially in term of technology focusing on the cybersecurity field.

Besides, cybersecurity field is unavoidable for everyone since technology has been an inevitable part in our life. Cybersecurity plays a significant role to maintain the security of your personal information, your finance such as online banking to the extent of protecting the national security to avoid data breaching by harmful individuals or organizations.

6.2 How does this design thinking impact on your goal/dream with regard to your program?

To begin, the design thinking has helped to enhance my skills in problem solving skills as well as my critical thinking skills. Design thinking is a fundamental skill that is needed for everyone especially in the computer science field. Computer science is a field that requires us to solve complex problems constantly, hence design thinking is the perfect expertise to have.

Design thinking also helps to boost creativity and helps students to think of new ideas especially in this field where technologies are constantly evolving and the advancement of technology is inevitable. Hence, we need to think of innovative ideas to help staying relevant and helps to contribute to the society.

Lastly, our program which is Networking & Computer Security requires us to interact with users constantly. Design thinking helps us to address their problems and finding the right solution that appropriate to their requirement and desire. An accurate solution is vital to avoid any possible errors and upcoming problem since cybersecurity is a very delicate and complex field.

6.3 What is the action/improvement/plan necessary for you to improve your potential in the industry?

In order to stay relevant in this constantly evolving field, it is necessary for us to stay updated with the advancement of technology for instance the Internet and many other futuristic fields that will help us immensely in the future such as Artificial Intelligence (AI), quantum computing, 5G and edge computing. These fields are becoming increasingly popular since there has been an increase in demand and they have been proven to be advantageous in various non-technology field such as medical, business and education.

It is also necessary to do a lot of hands-on to practice our skills and try to focus on specific niche to help us become an expert in the skill to we are more in high demand rather than having too many focuses at one time.

LOKE PEI EN (A23CS0242)

6.1 What is your goal/dream with regard to your course/program?

My intention of creating this programme is to let others able to manage money quickly and conveniently. I hope can solve others problem by developing an app or a web. By using knowledge of network course, I would be able to apply knowledge in real scenario since I gain practical experience by participating in cybersecurity challenge.

Apart from that, this course help to develop soft skills. Communication, teamwork and problem-solving skills that are important for field of cybersecurity. I hope that many quality apps or web can be created by me in my future.

6.2 How does this design thinking impact on your goal/dream with regard to your program?

Design thinking help me to get more idea in creating this app.I learn how to generate ideas and choose the best solution to solve the problem. Applying design thinking principles to your cybersecurity program can enhance our ability to understand, address, and innovate in the complex and dynamic landscape of cybersecurity.

Last but not least, design Thinking encourage collaboration Impact on Goal. Cybersecurity is often a team effort. Design thinking promotes collaboration among everyone, fostering better communication and teamwork, which are critical in addressing complex security challenges.

6.3 What is the action/improvement/plan necessary for you to improve your potential in the industry?

To improve my potential in industry, I will have self-learning to improve my soft skills. Seek opportunities to collaborate on cross-functional projects and practice effective communication in both technical and non-technical contexts will give me a better help.

Besides, I will try to identify the skills and qualifications needed for my desired role and map out a career progression plan. I will regularly review and adjust my career plan based on industry changes, personal development, and evolving interests.

MUHAMMAD NAZMI BIN MOHD SAIFULIZAM (A23CS0135)

6.1 What is your goal/dream with regard to your course/program?

My goals regarding my course which is Computer Networks and Security are I hope I can learn many new things about my course and at the same time upgrading my knowledge and skill. This will help me give a good competition with others when entering the job market in the future. Next, my dream is to be employed by a big company and protect their important data can be realized after fully graduated and make my parents proud with me as their son.

6.2 How does this design thinking impact on your goal/dream with regard to your program?

Design thinking helps me break down the problems I'm trying to solve into smaller components. As a result, more specific solutions will be able to be developed for every aspect of the problems. For example, the application's features then will be developed using the generated solution. Therefore, this will increase my critical thinking skills in solving the problems that I faced, especially when working in a company.

Also, this design thinking helped me to think better and make decent decisions towards things. Therefore, this will produce good results in my work. For instance, the feature-rich apps that my team and I have created will definitely benefit people and solve their common problems in this modern world. Hence, I will not doubt the final decision I made and become more confident in what I am doing.

6.3 What is the action/improvement/plan necessary for you to improve your potential in the industry?

To increase my potential in the industry, I will never stop learning new things and gaining more knowledge as it will never end. This will improve my skills and improve my way of thinking when solving future problems. As a result, it keeps me relevant in the industry so that my position is not replaced by others, instead employers will be more attentive and think of promoting me to a better position with a higher salary.

Besides, I will make sure my soft skill is in good condition. For example, in team building, giving opinion as well as deciding. It is because when we are focusing on knowledge and hard skills only this will make the employers think twice about employing us. Thus, my soft skills will enhance my industry potential and enable me to work on major projects and will help the business achieve its goals.

MUHAMMAD HILMI HIJAZI BIN JAMAL (A23CS0303)

6.1 What is your goal/dream with regard to your course/program?

My goal/dream about Bioinformatics is to learn lots of new skills to help in improving the development of technology in this world. I want to explore more about science computer such as machine learning, algorithms and many more.

Moreover, I want to learn in a fun environment so that I can pursue my career joyfully. I want my journey to be something I really look forward to so that I won't give up on achieving my dream to become a science computer engineer.

6.2 How does this design thinking impact on your goal/dream with regard to your program?

Design thinking helps me to do projects by firstly getting the feeling of the person who is in trouble. After that, I think step by step on how to picture the problems one by one. Then, I think about the solution for the problems with my team and discuss it with them to get agreement and improve my insight about the problem. Those are the criteria needed to create the technology to fulfill the solution needed by the customer.

Furthermore, design thinking requires cooperation as this is a group project. Without cooperation, the project won't proceed anywhere, and everything will go awry. Advices from other members are also important as they might have more ideas to help improve the technology that we are going to create.

6.3 What is the action/improvement/plan necessary for you to improve your potential in the industry?

To improve myself, I need to learn a lot of new skills and use them to the fullest in the industry. I will try to join more clubs to broaden my knowledge. I must learn more about the global market so as to get more ideas on how other companies attract customers, making their products and services and everything else.

Besides that, I need to be more socially active so that I can understand more about the feelings of others. I need to know how to converse with others to learn more information about someone and respond appropriately. I must watch their behavior as well because sometimes you can't express something with words only.

7.0 Members and Task

ARISHA (Leader)	**PEI EN (Member)**	**ABDALLAH (Member)**	**HILMI (Member)**	**NAZMI (Member)**
Designing user-interface	Idea contributor	Video creator	Design Thinking Assessment Points	Introduction
Ideate	Brainstorm	Idea contributor	Empathy	Problem
Prototype	Distribute task	Members and Task	Define	Solution
Test	Detailed Step & Description	Presentation Manager	Video editing	Teamwork
Video Editing	Video Editing		Designing User Interface	Designing User Interface