



UTM
UNIVERSITI TEKNOLOGI MALAYSIA

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 BINTI ABU SAMAH

Date : 30/11/2023

Title of Design Thinking Product : SmartMoney

Video Link (youtube) : <https://youtu.be/cZAL4Etp4-s>

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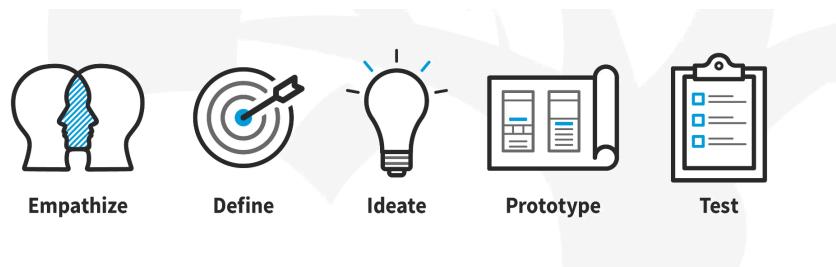
Table of content

No	Index	Page
1	Introduction	4
2	Log Jurnal	5
3	2.0 Detail steps and descriptions in design thinking	6-7
4	3.0 Detailed descriptions include problem, solution, and team working	7-9
5	4.0 Design thinking assessment points	10
6	5.0 Design Thinking Evidence	11-23
7	6.0 Reflection	24-25
8	7.0 Delegation of task	26

1.0 Introduction

In a world of challenges and complexities, balancing budgets and tracking expenses consistently stands out as a persistent challenge that individuals must confront. This challenge requires thoughtful consideration and practical solutions.

To ensure the success and effectiveness of solving this problem, we apply the design thinking methodology. Design thinking is a mindset and innovative problem-solving anchored around human-centered. Design thinking can create new things or modify the existing application to fulfill the user's requirements. Here are the five phases.



SmartMoney results from a design thinking journey, a powerful tool to be your trustworthy financial partner. SmartMoney is a practical answer to a pervasive issue that plagues students, professionals, and families. SmartMoney is more than just an app; it's your dependable financial partner. With this powerful tool, you will find managing your money to be less of a headache and more of a hassle-free experience.

Log Jurnal

Date	Description
23/10/2023	<ul style="list-style-type: none">• Try to understand the assignment by looking at the rubric given• Distribution of task
25/10/2023	<ul style="list-style-type: none">• Discussion on empathize phasePlanning on how to shoot the interview
30/10/2023	<ul style="list-style-type: none">• Online meeting to see everyone's progress
2/11/2023	<ul style="list-style-type: none">• Discussion of define phase• Try to identify the problem and solution from the empathize phase
9/11/2023	<ul style="list-style-type: none">• Discussion on the ideate part• Brainstorm on every possible idea on the application features• Draw out some draft for the user Interface
10/11/2023	<ul style="list-style-type: none">• Discussion of prototype• Use canvas to design the user interface
15/11/2023	<ul style="list-style-type: none">• Test the prototype and show it to the users• Conduct google form to get review and feedback to improve
17/11/2023	<ul style="list-style-type: none">• Start to write the report and video
23/11/2023	<ul style="list-style-type: none">• Online meeting to update everyone's progress
30/11/2023	<ul style="list-style-type: none">• Ready to submit

2.0 Detail steps and descriptions in design thinking

2.1 Empathize

Through insightful interviews, we embarked on a journey to empathize with individuals' experiences in managing their finances. The result shows that most of them are dealing with challenges in effectively handling their money and need more information and guidance. People opened up and shared their stories, showing us that money does affect everything that is important to their lives and sometimes it's pretty emotional. This interview helps us see the real obstacles that folks face in dealing with their finances. We're using these stories to shape solutions to reach the real needs of our target audience.

2.2 Define

Define is the stage where we identify the problems faced by the respondent from the interview session. During this phase, we thoroughly review the data collected during the interview sessions and try to look for patterns, common themes, and key insights. We analyze and understand all the problems faced by the respondents to have a clear idea of which problem we will solve so that we can turn the problems into a problem statement. From the problem statement, we discuss together the best solution that will come out with the best prototype for the user that meets the users' satisfaction when using our app.

2.3 Ideate

For the third process of design thinking we have ideate where we generate ideas from the stated problems that we identified before. We sat together and brainstormed the possible features that could be developed in the app by writing down our ideas on A4 papers. Furthermore, we intend to have a better visual view so we also tried drafting what would the app look like.

2.4 Prototype

In the prototype phase, we are supposed to turn our ideas into a physical prototype. During this process, there might be possibilities of us not using all of the ideas that we brainstormed during the ideate phase. We would only choose the best and necessary features. We are trying to develop an application that helps with financial management. Hence, we used Canva to design our application interface. By using Canva, it can help to better demonstrate our product to the user.

2.5 Test

During the testing phase, we will look for parts that can be improved. To identify what can be improved, we will conduct the testing phase and then get feedback from users. After getting feedback from users, we will use the result to redefine further problems. By

implementing this phase, our team gets to go back to previous steps to make further refinements so that our product can be better.

3.0 Detailed descriptions include problem, solution, and team working

3.1 Problem Statement

After conducting our survey on why people have a hard time managing their finances. We have concluded three main reasons.

- Lack of Financial Knowledge

Many individuals faces challenges in managing their finance due to a lack of budgeting concepts which leads to mismanagement of expenses, overspending, and debt accumulation.

- Inefficient tracking and budgeting

It is known that maintaining a good habit of tracking and budgeting takes time. Many individuals find it hard to prioritize essential expenses because of the lack of motivation to keep them from continuing this habit.

- Limited access to suitable tools

Existing financial tools might be too complex, expensive, and not tailored for every individual resulting in mismanagement of finances.

Students, professionals, and families need help managing their finances. Those who are unable to manage their finances are often led to stress. The absence of affordable, user-friendly, and comprehensive apps designed explicitly leads to suboptimal financial management, hindering their ability to budget and track expenses effectively. Addressing this gap by developing an app specifically for financial management is crucial to enhancing their capacity to manage expenses efficiently.

3.2 Solution

To conquer this problem, our team has come out with an app called SmartMoney. Smart Money is an app that allows individuals to categorize their daily expenses to allow them to see how their money flows which enables them to manage it well. This app provides a user-friendly surface that allows individuals to manage their expenses efficiently. The main point of this app is to encourage and motivate individuals to maintain a good habit of managing their expenses. This is why our app specializes and is focused on how to help individuals continuously manage their expenses well. Our app only has simple and necessary functions so that users would not find it complicated to use.

- A space to share financing knowledge

Create a space to allow people to share thoughts and knowledge about managing their expenses. People without financing knowledge can receive guidance from others. By creating this community, people can better understand and control their finances. People can also motivate and encourage each other to stick to their budgeting and saving plans.

- User-friendly interface

Creating an app that is easy to use might help people ease their burden in managing their finances. Our main goal is to keep the navigation simple and ensure people can easily track their finances. An app to let people feel that managing their finances is easy. Hence, they will feel motivated and try to make this a habit.

- Provide essential functions

A straightforward app that provides a clean design and only focuses on essential features. We intend to create an app that avoids any complexity to ensure people understand and can use the app easily. We will also consider implementing a straightforward onboarding process to gather people's basic information on finance. This can help us customize the app to every individual's needs.

Team Working Evidence



30/10/2023
Online meeting to see everyone's progress



23/11/2023
Online meeting to update everyone's progress



Physical Discussion

4.0 Design thinking assessment points

a. During the end of the project demonstration

At the end of the project demonstration, this is the most important part where we assess if our solution correctly works based on the feedback we get from the users. It is normal to return to the two understanding phases, empathize, and define if our prototype still does not satisfy the users' needs. This is because the test phase is where we learn about our users, uncover insights that redefine the problems, and create new ideas for the project. Based on what we discovered during the testing, we revised the design. After that, we design a new prototype and repeat the process till we are satisfied with our best app for users. In the end, to wrap up, design thinking is an iterative, non-linear process that focuses on collaboration between designers and users. It brings innovative solutions to life based on how real users think, feel, and behave. Design thinking is important because it offers a structured approach to problem-solving that prioritizes human needs and fosters innovation.

Throughout the project, our team exhibited excellent collaboration, working together seamlessly. At the project demonstration's conclusion, we collectively put forth our best effort to convey our problem solution to respondents, receiving positive feedback. Despite a few members lacking interpretation skills, we effectively communicated and presented our ideas.

b. During the transition between design thinking phases

In the transition between design thinking phases, our team's detailed plan. Fortunately, proceeded without a hitch. For example, we successfully conducted interviews with three respondents in a single day, despite some team members being occupied with academic commitments. Thanks to our team's effective collaboration, we excelled in every design thinking phase, ultimately reducing the overall project timeline.

5.0 Design Thinking Evidence

Empathize

To successfully execute the empathizing phase, we interviewed three students to gather their opinions on financial challenges, and from these interviews, we were able to identify the main issues they facing more precisely.

1. Ho E-Sian, 19, Bachelor Degree of Nuclear Engineering



Q: Do you find maintaining a good habit of tracking and budgeting seemed like a struggle to stay motivated?

A: The short answer would be yes, because life can get pretty hectic, can get busy with classes or with my life. And I do tend to forget other priorities that i have to maintain, other than recording my financial and other stuff.

2. Jocelyn, 19, Bachelor Degree of Computer Science



Q: Have you encountered challenges in understanding effective management in finance strategies?

A: Yes, sometimes I feel like it's very difficult in managing finance and I think I need more guidance and information about it

3. Alya Maisarah, 4th-year student, Bachelor Degree of Mechanical Engineering



Q: Have you ever felt that the tools available for managing finances are just too complicated or costly?

A: Yes, I have. For me (the tools) it's too complex and expensive, which doesn't fit my situation. And it led to serious mismanagement in my finances

Define

We sat together and synthesized all the problems faced by the respondents so that we could list down the main problems. From the list of problems, we discuss how we will solve them to help the user meet their needs.



Online meeting for update on progress



Physical discussion

Based on the interview session, there are several main problems the respondent has while managing their expenses.

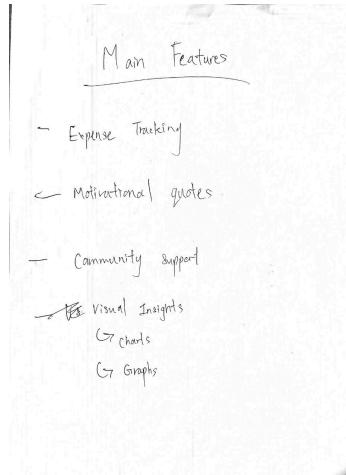
The first main problem is that many individuals tend to overspend and end up in debt because of poor knowledge of budgeting. The solution is to expose each user to a community that has knowledge and experience in managing their expenses so that users can receive guidance from others. A space to share financing knowledge is important to make sure every user of the app can share suggestions and motivations with each other.

Another problem is that many individuals are not able to track and budget their expenses well because they are more used to spending their expenses on unnecessary things. It is hard for them to keep track of and budget their expenses as a habit. The solution is to make the smart money app look simple and easy to use to trick people into thinking tracking and managing their expenses is easy.

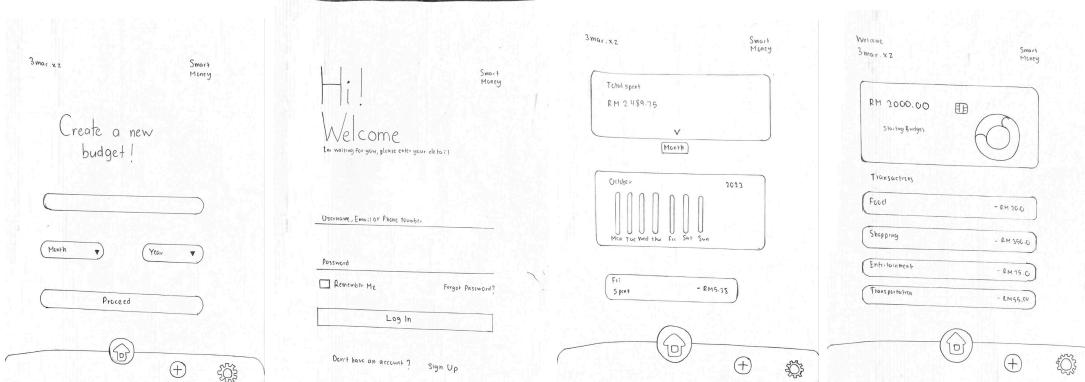
Moreover, the problem is limited access to suitable tools from their previous financial tools or apps. For example, the app has complex navigation and a user interface. Besides, maybe there are some that need a subscription to get access to an advanced feature. The solution is to make our Smart Money app straightforward and only focus on essential functions to prevent the user from becoming confused about using all the features of the app, while at the same time trying to create a straightforward onboarding process to gather people's basic information on finance.

Ideate

We had our discussion on WhatsApp, Google Meet, and also offline in the library. We discussed suitable features and improvements that could be made to the app. We also used the survey from students as the main reference to come out with good opinions. After the discussion, Wafi drew some basic prototypes of the features on paper. The sketches included appropriate suggestions from the survey and suitable features that are useful for the users. Once we reached an agreement for the sketches, we began to make the prototype on Canva.



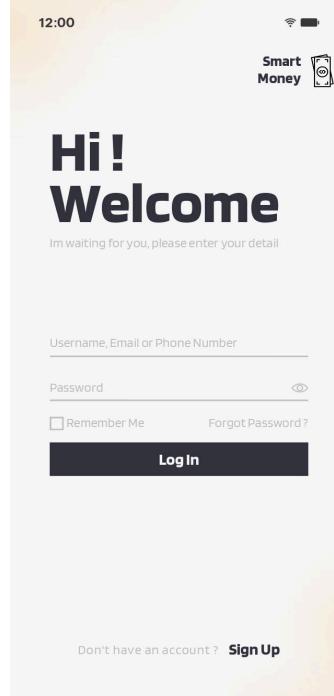
Brainstorming on features



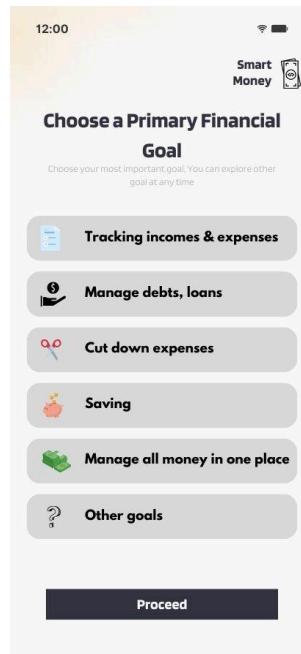
Draft for User Interface Design

Prototype

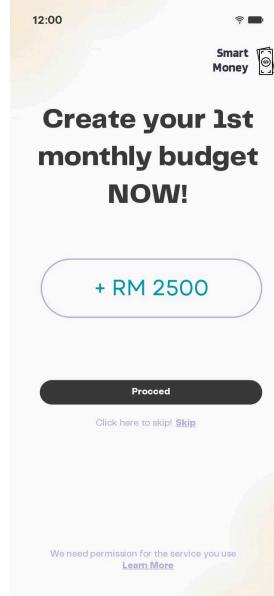
- **Login page.** This is where the user is required to log in in order to proceed.
-includes: Username and Password.



- **Inquire on the primary financial goal.** This is where users are required to choose a primary goal so that the app can better help them when managing their expenses.



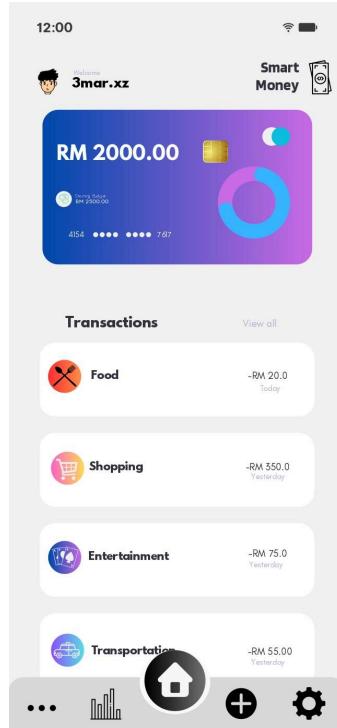
- **Create a budget page.** This is a special page that only shows when a new user registers in the app. It asks the user to start their experience by first adding a budget limit.



- **Home Page.** This page shows the credit card connected along with the budget limit set by the user.

-Includes:

- **Wheel:** Visualize your budget in real-time with an interactive wheel that dynamically displays the percentage of money spent.
- **Transactions:** how much was spent, and precisely when transactions occurred, all within the context of your ongoing budget.



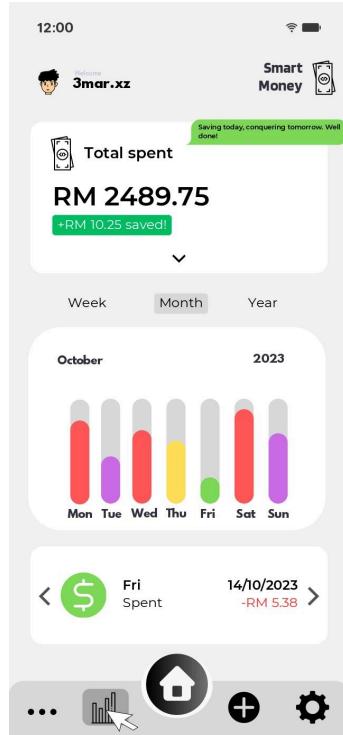
- **Statistics page.** Includes:

-Bar graph illustrating spending patterns for the ongoing or previous month, week, or year.

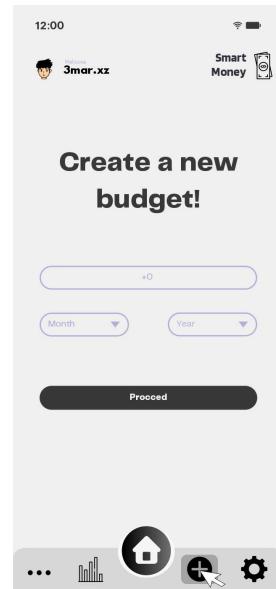
The bottom section displays individual dates with corresponding spending amounts.

The top section highlights the total amount spent within the selected timeframe.

-Inspirational quotes are featured at the top of the page each time a user successfully saves money.



- **Create a new budget page.** On this page, users can create additional or new budgets for an upcoming month and year.



- **Additional Features.** Includes:

- Daily Allowance Calculator:**

- Calculates daily allowance based on the ongoing budget, aiding users in effective financial planning.

- Savings:**

- Allows users to track and view their total savings conveniently.

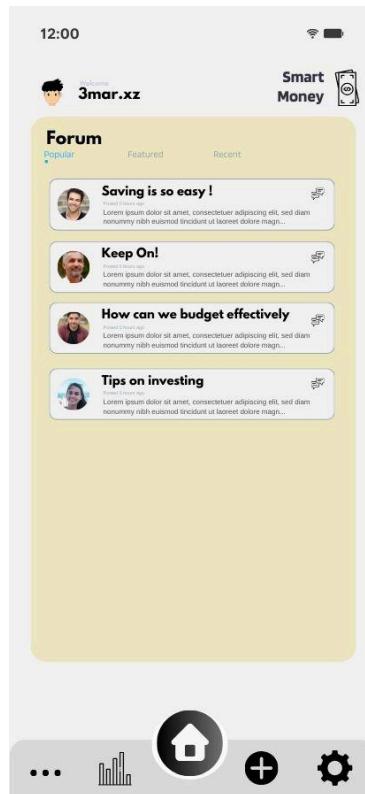
- Recommended Plans:**

- Provides financial management plans recommended by trusted creators for users seeking effective strategies.



-Community and Support:

-A platform where individuals can come together to share their insights and receive recommendations on financial matters.



- **Settings.** Includes:

-Card Info:

Edit or delete card information for user convenience.

-Notifications:

Manage notification preferences easily.

-Account Info:

Edit or delete account information as needed.

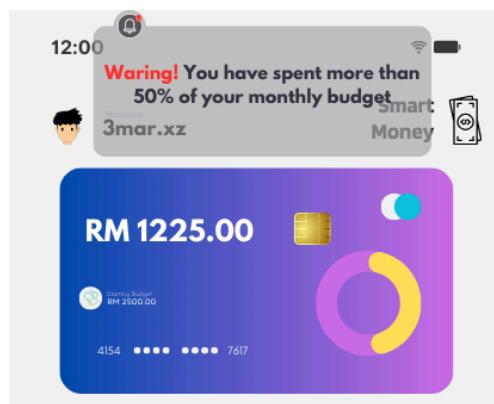
-Language:

Change to any language you like



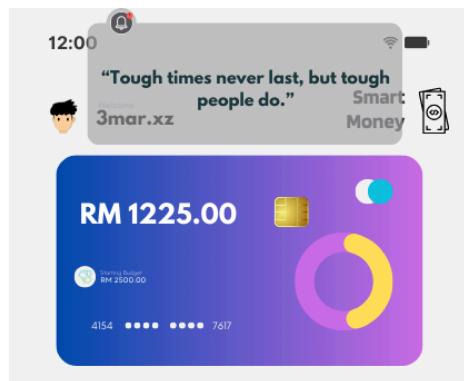
- **Budget Exceeded Alert.**

Triggers a pop-up notification when users surpass their budget limit(50% by default). Limits can be changed in the notification settings.



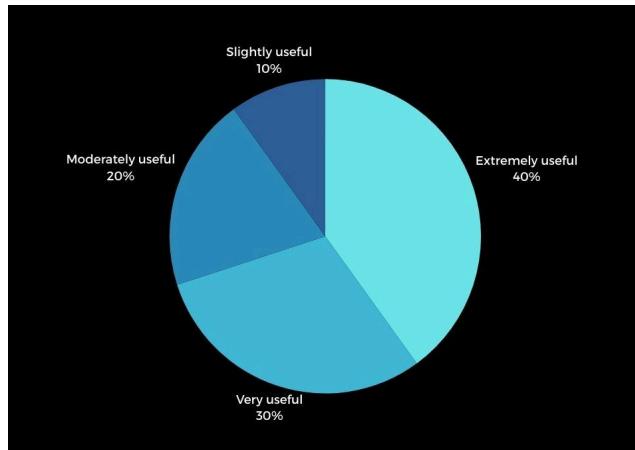
- **Motivational quotes**

To encourage continued expense management, distribute motivational quotes or words of encouragement to users.



Test

After showing the user how the application works, we ask the user to give their feedback so that we can refine our app.



From this pie chart, we can see that the majority of the users are satisfied with the app as it is useful for them.

Michelle
The UI is sleek and user-friendly. Navigating through the app is a breeze, and the layout is intuitive. The design is clean, making it easy to find and use key features.

Alex
The budgeting tools are basic at best, and the expense tracking is often inaccurate, leading to skewed financial insights.

Jessalyn
The initial impression of the UI is positive, with a clean and modern look. However, as I delved deeper into the app's features, I found that the clarity I expected wasn't consistently maintained. Some sections lack clear labels or tooltips, leaving users guessing about the purpose of certain icons or buttons.

Naveen
One of the strong points of the UI is its responsiveness. Actions are generally executed swiftly, and the app feels smooth in terms of performance. This contributes positively to the overall user experience.

Some suggestions made by the user

- Enhance the expense tracking system to be more efficient and can be further detailed so users can have a better insight into their financial expenses.
- More detail labels on every icon so that users can navigate easily in the app
- Overall few features and the interface can be improved by giving it more detail

6.0 Reflections

Cheah Zi Feng

The design thinking skill enhances my thinking skill in solving problems and helps me to interact more people to solve the problem easier. I have also learned to ask for help in problems that I cannot solve by myself and work in a group for a more effective and efficient solution. I hope to learn more about computers in this course to help me find a suitable job based on computers.

Fadlin Afina

During the execution of this project, I found that its success relies on the cooperation and bonding within my team. They have actively participated in resolving challenges professionally. Throughout this project, I have come to realize that financial management is far from a simple matter, and solving this problem isn't easy. But I find design thinking very helpful. And I have learned that addressing certain issues can be done in a more organized and thoughtful manner.

Abdul Wafi bin Suhuri

Regarding the course that I studied, which is computer network and security, my ambition is to become the top data analyst in Malaysia. In order to achieve my biggest goal, I need to realize that the key to being a good data analyst is technical skills such as programming languages such as Phyton and SQL, data visualization tools like Tableau, and database management tools. Thus, I must be able to analyze and draw insights from the data. Despite that, I need to always keep up with the latest technology to make sure my chances of getting a job as a data analyst are higher. These design thinking projects have a big impact on my goal to become a competent data analyst. This project expanded my vision of how I can solve problems and the correct way to analyze problems by identifying common patterns among all the problems listed. By applying defined phases in design thinking, I am able to create problem statements and have a clear vision of what problems I should solve in order to generate the best solution. Apart from that, this assessment developed my critical thinking skills on another level. I never thought that just following the five steps—empathy, define, ideate, prototype, and test—in design thinking could produce an efficient solution to a problem. The knowledge and experience I gain from applying design thinking will surely help me a lot to analyze and draw insights from the data in the most efficient and systematic way. As a result, I will be able to perform better in my work as a data analyst. I have many plans to improve myself in the industry, like taking online courses and attending workshops like the Jazari workshop at the University of Technology Malaysia, UTM. Other than that, I can also participate in industry conferences, and the easiest thing I can do is keep reading relevant books and articles. All of this is to make sure that I stay up-to-date with the latest tools, techniques, and technologies since this field is rapidly evolving.

Ammar Yasser

My involvement in the design thinking project for our app, which manages expenses and budgets, was an unforgettable journey that highlighted the need of money management in day-to-day living. The project made clear how important it is to provide people with the resources they need to manage their finances and grow in confidence and independence. What truly made the experience better for me was how easy it was to work together with my group members. Each person brought their unique perspectives and skills to the table, creating an interesting interaction that sparked our imagination. To cut a long story short, I think we were able to achieve what we were hoping for!

Manisha a/p Kumarevelan

It was a truly amazing experience for me during this assignment as I got to experience different types of tasks. I faced a few challenges during this assignment due to the lack of experience and preparation but I still overcame it well with the help of my teammate and lecturer. I learned that to produce a good quality product is through a good design thinking process. I understand that every step in the design thinking should be handled as detailed as possible to avoid any unwanted mistakes that will bring bad outcomes at the end of the process. This might actually cause the whole project to restart everything from zero because of carelessness during the early stages. This made me realize the importance of design thinking. I now understand the usage of it and surely will use this method in a better in future.

7.0 Delegation of Task

Name	Task
MANISHA A/P KUMAREVELAN	<ul style="list-style-type: none">● Report writing<ul style="list-style-type: none">○ Testing phase○ Reflection○ Detailed descriptions include problem, solution, and team working● Demonstration on testing phase● Task Coordinator
FADLIN AFINA BINTI DAUD	<ul style="list-style-type: none">● Report writing<ul style="list-style-type: none">○ Empathize phase○ Introduction○ Reflection● Planner for interview section
AMMAR YASSER SALAH	<ul style="list-style-type: none">● Report writing<ul style="list-style-type: none">○ Prototype phase○ Reflection● Prototype designer● Tester
CHEAH ZI FENG	<ul style="list-style-type: none">● Report writing<ul style="list-style-type: none">○ Ideate phase○ Reflection● Prototype designer
ABDUL WAFI BIN SUHURI	<ul style="list-style-type: none">● Report writing<ul style="list-style-type: none">○ Define phase○ Design thinking assessment○ Reflection● Videographer