



**UTM**  
UNIVERSITI TEKNOLOGI MALAYSIA

**FACULTY OF COMPUTING**

**SECP1513**

**TECHNOLOGY & INFORMATION SYSTEM**

**ASSIGNMENT DESIGN THINKING**

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## 1.0 INTRODUCTION

Design thinking represents an iterative approach employed by teams to comprehend users, question assumptions, reframe problems, and devise innovative solutions for prototyping and testing. Comprising five phases Empathize, Define, Ideate, Prototype, and Test—it is particularly valuable for addressing problems that are vague or not well-defined.

### What Is Blockchain Technology?

Blockchain is a useful technique for storing and securing data, making it challenging for hackers and external parties to manipulate and steal data in our system. A distributed ledger, or blockchain, constitutes a network of computers that replicate and disperse transactions among themselves.

Blockchain technology is a framework that utilizes multiple databases. The term "block" refers to a location where data can be stored, and the term "chain" signifies the connection by peer-to-peer nodes to store public transactional records or blocks. Typically, this storage is referred to as a 'digital ledger.'

The digital signature of the owner authorizes each transaction in this ledger, ensuring its authenticity and preventing any data manipulation and theft. As a result, the data in the digital ledger is highly secure, protecting it from hackers and ensuring data safety.

## 2.0 Detail and step descriptions

### EMPATHY

The process of design thinking starts with empathy. It contains user needs research, with the primary objective being to help problem solvers gain a better understanding of the needs, goals, and wants of the users they are targeting. During this stage, the problem solver should immerse themselves in the environment they are trying to understand and observe, engage, and empathize with the people in that environment. The empathy stage's objective is to dispel assumption and gain understanding of user needs and wants. During the interview session, we asked about personal information for us in identifying the real problems and gather information about the user's problems and needs.

### DEFINE

Define is the second stage in design thinking process which is focused on defining the problem. By applying the data acquired from the empathy process, problem solvers identify the main problem that users are encountering. Formulating a human-centered problem statement is the best strategy. By understanding and evaluating the responses given throughout the interview, we were able to correctly identify the real problem.

### IDEATE

The ideate stage comes after the problem-defining and empathy stages. Problem solvers will begin to generate ideas for encountering the problem that they identified throughout the previous two stages of the design thinking process. During this stage of the design thinking process, designers might start to generate solutions that differ from those that have been proposed or implemented in the past. In this stage, we proposed various solutions for the problems, categorized into three different groups.

### PROTOTYPE

In the prototype stage of design thinking process, it involves creating low-cost and simplified models to show the solutions identified in the previous phase. It might be a basic version of the product, incorporating ideas generated during the ideation phase. My team's prototype focused on the user interface of the trading app, designed with blockchain technology. The materials used for the prototype were A4 paper, ruler, pencils and extra.

### TEST

Program solvers test the finished product as the final phase in the design thinking process. It contains the solutions that were discovered and investigated throughout the prototype stage. Essentially, the product is tested by users to ensure it meets their requirements. Subsequently, users provide feedback on our product. Once the prototype was finished, we presented it and provided an overview of the trading application's features base on blockchain technology to the respondent. Furthermore, we inquired about her feedback on the product.

### 3.0 Detailed Description

#### PROBLEM

After the interview session, we found that the user was affected by money theft when he do transaction in trading application. Plus, the user also affected by the scams. Users received fraudulent emails, messages, or links that mimic legitimate trading platforms. When users unknowingly provide their login credentials on these fake sites, attackers can steal their information.

#### SOLUTION

After the discussion, we decided to develop a third-party app. Each time a user initiates a transaction, they will receive an OTP on their device. This functions as a double-step verification to ensure stronger protection against unauthorized access to user accounts. Additionally, users can utilize biometric verification, such as thumbprint or face ID, for logging in. This provides added security and safeguards against money theft. The app can also detect scam messages and alert us if someone tries to log in from another device. This app is designed not only for security but also to check current trading statements, making transactions more convenient.

#### TEAM WORKING

Once the assignment was assigned, our group leader, Dheshieghan, divided us into different tasks. Dheshiengan focused mainly on the interview, Pravinraj was assigned to prepare questions for the interview and shoot it, and Asyraf was tasked with editing the interview video. Following that, Alif and Dheshiengan focused on the content of the report, while Asyraf and Pravinraj were assigned to create the prototype of the trading application using blockchain technology.

Throughout the design thinking process, we faced several challenges. The primary challenge was the difficulty in finding a suitable time for the team to gather and discuss the design thinking due to various commitments after class. Additionally, we struggled to find an ideal place for our discussions because a noisy environment often disrupted our focus. Despite these challenges, we persevered as a team, supporting each other to complete the assignment. Fortunately, each team member was dedicated and helpful, leading to the successful creation of a comprehensive report and videos.

#### 4.0 DESIGN THINKING ASSESSMENT

##### 4a. DURING THE END OF THE PROJECT DEMONSTRATION

At the end of the project, we realized that design thinking is a detailed process. It involves considering things from the customer's perspective and finding solutions that really work for them. While creating a new application might seem simple, it actually requires a significant amount of effort to make sure the application meets market needs and is profitable.

##### 4b. DURING THE TRANSITION BETWEEN DESIGN THINKING PHASES

In the early stages of the Design Thinking process, we encountered several challenges. For example, we found it difficult to coordinate a suitable time for all group members to meet due to other commitments and our busy study schedules. Additionally, we struggled to find a good place for discussing the report.

Despite these challenges, we successfully completed our task within the given time frame, thanks to the team's collaborative spirit.

## 5.0 Design Thinking Evidence

### 5a The sample work



Figure 5.1 Interview in the empathy stage



Figure 5.2 Discussion for define and ideate stage



Figure 5.3 Prototype stage



Figure 5.4 Gathering feedback from responded





Figure 5.6 Homepage



Figure 5.7 Log in Page

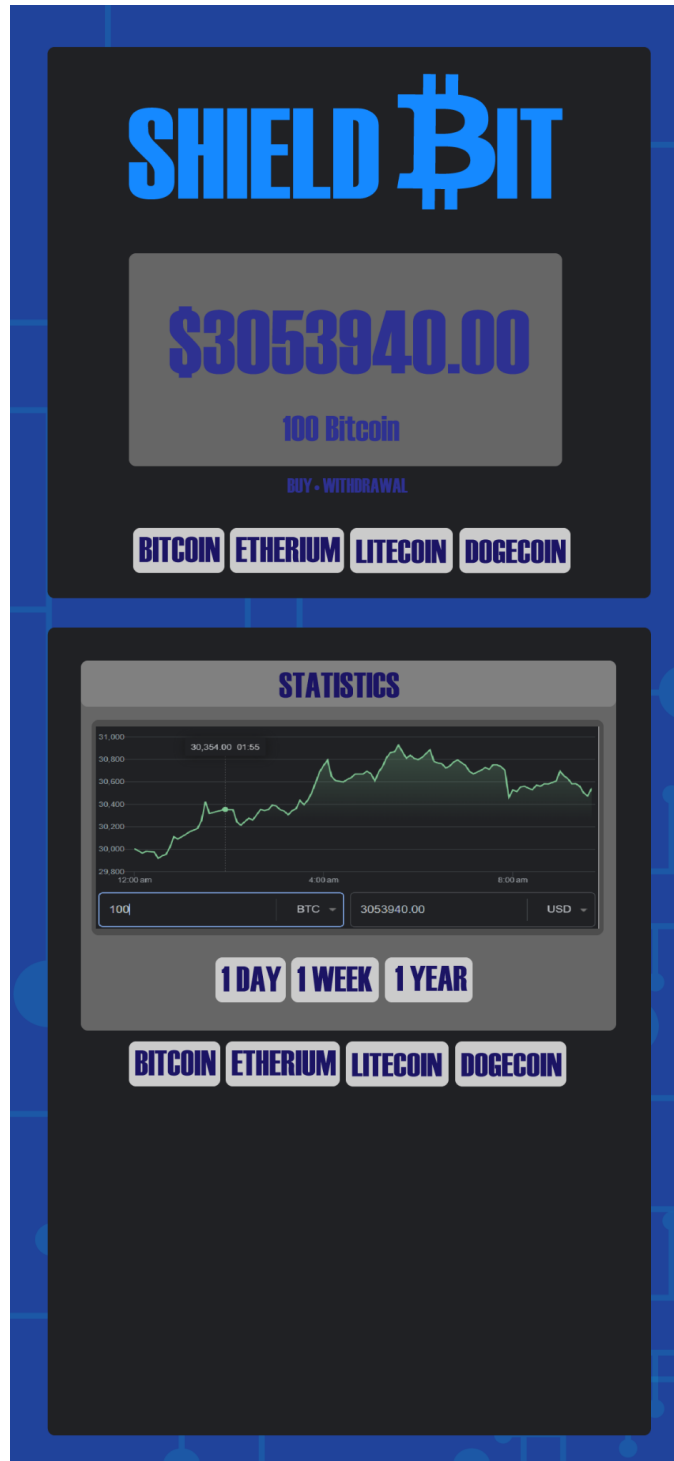


Figure 5.8 Front statistic and Balance Page

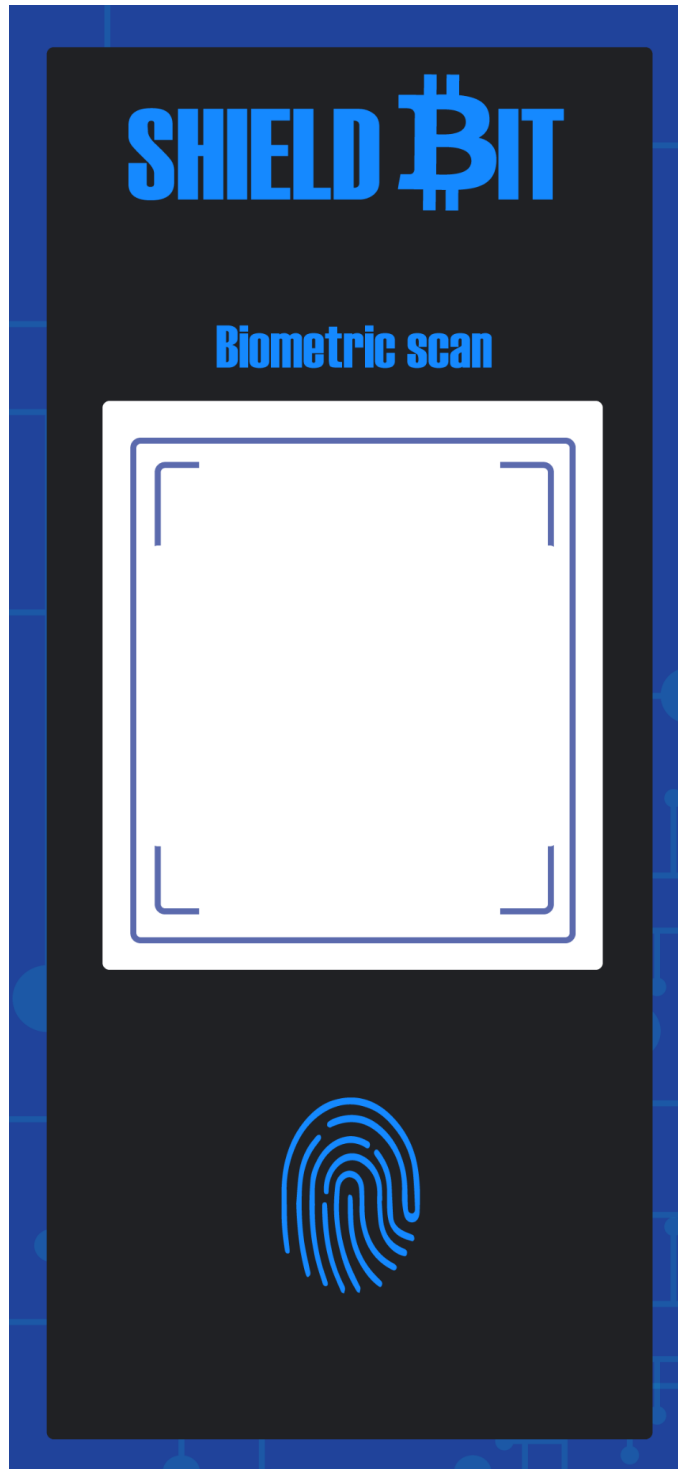


Figure 5.9 Biometric log in page

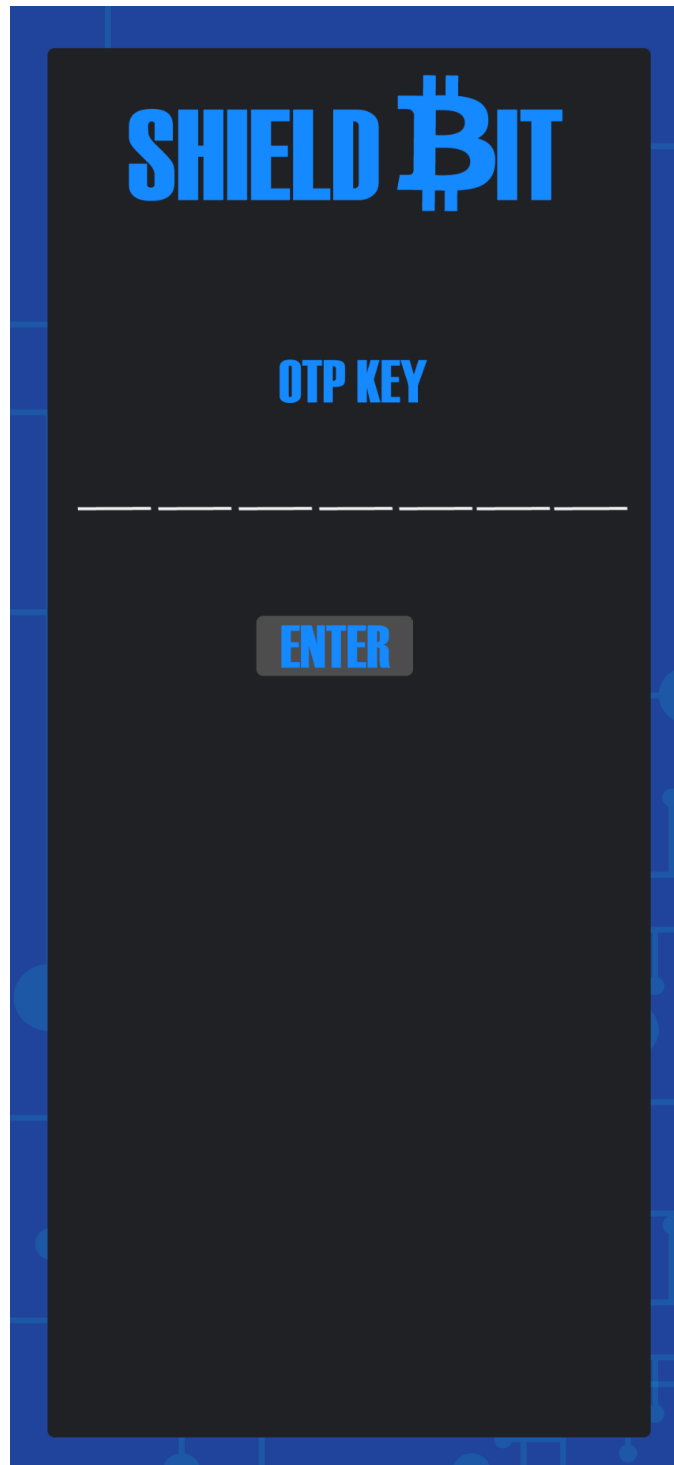


Figure 5.10 OTP Authorization page

## PROTOTYPE

In our discussion, we decided to use the intermediate category because the other category lack of viability or effectiveness. The reasons of this state below.

Table 5.4 Prototype selection

Categories	Reasons
Rational	Providing a reminder application to remind the respondent to check with their bank about the transaction and the bank statement might be the easiest ways to solve the respondent's problem, but the respondent might not stop using it because of the ignorance or forgot check with the bank and the stolen money maybe cannot be receive even after check with the bank.
Radical	Idea of modifying and upgrading the blockchain application to increase the safety cannot be use because of lack of license or permission to modify their application and lack of understanding of maintaining blockchain application.

Therefore, we decided to develop an application named "Shield Bit" which will keep the respondent's personal details safe and secure with biometric scanning, OTP security and show the bank statements after every transaction. The design of the user interface of the blockchain application is shown below.

The table below shows the characteristics of the blockchain application.

Table 5.5 Features for blockchain application

Characteristics	Description
Biometric Scanning	Security system that uses fingerprint scan and face recognition to unlock the application.
Bank Statement	Browse the history bank statement every time a transaction occurs.
OTP Security	When transaction from trading app to bank being made, the application with send OTP number to confirm the transaction.
Statistics	Display how much money have been transfer in the bank into a graph.
Money Display	Display how much money in bank account.
Currency Rate	Show the currency exchange rate in real time for traders to make it easier to trade.

## TEST

After we finished the prototype, we demonstrated our product to Mr Danush. We explained in detail about the benefits of the functions in our product to him. He gave us positive feedback that this solution would benefit him and the other traders in money security from trading.

## **5b RECORD FOR EACH PHASE**

### EMPATHY

The table below shows the questions and answers obtained from the interview.

Table 5.1: Details for interview session

Questions	Answers
What is your name and how can I address you?	Danush and you can call me Danush.
How old are you?	21 years old.
What smartphone do you use?	I'm currently using Iphone 13 pro max.
How many years have you used it?	I've been using it for 2+ years now.
Have you ever done an online trading? If yes how long have you been doing it?	Yes, I've been trading for almost a year now.
Do you trade using your mobile phone or any other devices?	For trading I usually use ipad or my laptop but to execute the trading I usually use my iphone.
I see that you are quite young, how did you the interest to trade in the first place?	Actually my friend and I started to trade during our diploma year, we were quite broke that time but we had enough capital to start trading and there were seniors who taught us how to trade and we are still doing it with interest.
What trading platforms and tools do you use and why?	Actually for trading we got two, the first one is broker and the second one is app which is Meta Trader 4 and Meta Trader 5 , I usually use meta trader 4 because its more convenient for me. For the broker part I'm using GMI which is a Malaysian broker.
Did you or any of your fellow traders had faced any money theft before when u do online trading using mobile phone or any device?	Me personally no, because I'm in community but there are a lot of them who are newbies and trusting random brokers with their personal information, this kind of things we can easily use to steal the money and everything. So my answer is yes and money theft is quite common.
Since you have mentioned that money theft is quite common, can I know how much money your friend has lost?	There is one of my friend who have lost almost rm6000 by trading scam because he was a newbie.



## DEFINE

The table shows the problem faced by the respondent.

Table 5.2: Problem faced by respondent

Problem	Descriptions
Money theft by brokers by losing your personal details.	We identified that money theft is a problem that by many blockchain technology users. Even though hacking money out rarely happens, there are a lot of users are getting scammed by various brokers or some people they trust give their information to. These are the problems mainly faced by new comers of this blockchain technology.

## IDEATE

The table shows the possible solutions that can be used to solve our respondent's problems.

Table 5.3: Recommended solutions

Rational	Intermediate	Radical
1) Provide a reminder application to remind them to check with their bank about the transactions and also the bank statements.	1) Developing an app which will keep our personal details safe and secure to make sure it doesn't fall into other people's hand. Secured with biometric scanning, otp number and also releases your bank statements after every transaction.	1) Modifying and upgrading the blockchain app to increase the safety and also to give the users more clarity about the incoming and outgoing.

## .0 REFLECTION

1) We found that nowadays, a lot of people are using blockchain transactions for money transfers and trading. Because of that, many people need more security for their money transactions so that they know whether their money is safe or not. Therefore, we need to learn more about blockchain so we can make an application that can ensure our money is safe after the transaction.

2) The prototype we built had brought us many challenges and also opportunity, we found that the prototype was not easy to design but upon completion had open up our eye on the fun of designing and coming up designs for our prototype.

3) In my perspective, blockchain is a useful technology nowadays. It can protect and keep our data safe from manipulation and theft. It has the potential to reduce cybercrime in our society. As a smart user, we should use it wisely and avoid its misuse for harmful activities.

4) Our goal is to think out of the box and listen to the word from the community to create an app where they can keep their personal information safe and also increase the security when using blockchain technology to trade. At the same time, we also would like to make sure that it would not become a tool for an unauthorized users to manipulate it to implement illegal activities to benefit themselves.

## 7.0 THE TASK FOR EACH MEMBER

NAME		DHESHIEGHAN	ALIF FATHI	PRAVIN	ASYRAF
Tasks	Interview, Discussion, Prototype and Test sections	Interview (Empathy) & Test	Producing prototype		
			Discussion for define and Ideate Stages		
	Documentation And Presentation	Slides presentation			Editing videos
	Report	Details description for each phase	Details description about problems, solution and Team working	Introduction	Details description about problems, solution and Team working
		Assessment point			Assessment point
		Design thinking evidence			
		Merge and complete the report and also reflection.	Reflection		

Youtube video link: <https://youtu.be/Zb6Tcj2Rirw?feature=shared>



Rujukkan

<https://www.indeed.com/career-advice/career-development/design-thinking-process>

<https://www.simplilearn.com/tutorials/blockchain-tutorial/blockchain-technology>

<https://www.techtarget.com/searchcio/definition/Prototyping-Model>