

**SECP1513 - TECHNOLOGY AND INFORMATION SYSTEM**

**DESIGN THINKING PROJECT**

**INFORMATION SYSTEM**

**SECTION 02**

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# [Introduction](#_Toc20341336)

Design thinking can be defined as a creative problem solving process that allows us to practice a better problem-solving skills. It includes five elements which are empathy, define, ideate, prototype and testing.

Empathy is the first step as we try to understand the feelings of others by trying to put ourselves in their situation. One of the best way to empathize is interacting with others to find out the problems that they face. The information gathered during the empathy stage is interpreted to find out the core problems. This process is the Define stage which can be explained as the step to show clearly the edge of the problem.

At this moment, we are ready to proceed to Ideate stage which ideas are generated. The problems are viewed in an alternative way to find out innovative solutions. Prototypes which are the experimental models of the project will be created to show the products to be developed in the future. Lastly, the prototype of the best solution will be tested. The processes of design thinking might be repeated after the testing stage to gain the best solution.

An information system is a set of component for collection, storing and processing the information. It is commonly used by a business firm and other organizations to carry out and manages their operations. It includes a main components of computer hardware and software, database and data warehouse, telecommunications and human resources. Information system refers to the transfer of information from lower level to the higher one.

There are several types of information system. First and foremost is Transaction Processing Systems (TPS). It that can be explained as a process of recording day to day transactions to support supervisors. Transaction processing systems accumulate the data in databases and data warehouses that are necessary for the higher-level information systems.

Next, Management Information Systems (MIS) receive information from TPS and encapsulate it into a series of management reports. Generally, the reports will focus on past and present activities, rather than projecting future performance. It provides routine but detailed information reports specific to each manager’s areas of responsibility. This system is normally used by first-level supervisors.

As the information is constantly being interpreted in the previous levels, it will eventually turns into Big Data form. Decision Support Systems (DSS) is developed to analyse the massive collections of data. Lastly, the information will be passed to Executive Support System which allows the management team to provide support to the business and design a strategic settlement. At this stage, a detailed future performance will be projected.

Information

# Detailed Steps

There are five stages of Design Thinking which are empathize, define, ideate, prototype, and test. It will be describe as shown in table below:

|  |  |
| --- | --- |
| **Stages** | **Description** |
| Empathize | On 1st October 2019, we divided our group into two teams to have an interview session with our two interviewee, Encik Helmi Bin Yaakob and Dr Rashidah Binti Kadir. We decided to have an interview session to investigate about the problems that the users face regarding Information System and we concerned about it. |
| Define | After we synthesize our empathy stage findings, we could see that most of the students couldn’t understand the use of Information System since it’s hard for them to get reliable information. |
| Ideate | We had a brainstorming session and focus on how to overcome the problems that they face. We decided to develop a software that can solve their problems. |
| Protoype | We started to build our prototype by using a recycle box, papers and some colourful permanent markers and highlighters. We started with the logo of our application that is called “King IS”. Then we proceed to the contents in the application. |
| Testing | When the prototype is ready, we tried to test our prototype for improvements |

# Detailed Description

**Problems**

* Untrusted sources of notes

Nowadays, there are a lot of irresponsible authors who publish articles with inaccurate information on websites. These authors have insufficient knowledge and experience in Information System. Many users will usually use the notes without filtering it. In this case, misinterpret of knowledge could happens.

* Complicated procedure to get accurate information

Students are lazy to get the information on themselves as there are a lot of procedures before they obtain the information. To ensure that they get correct contents, they have to filter the information before they use it. They have to check from difference sources to compare and ensure the reliability of information obtained.

* Expensive fees

Some of the websites require users to sign up and pay fees to access the information published. Since the registration fees are usually relatively expensive for a student, they decided to get the notes from unsecured and unreliable websites which mostly contain inaccurate information.

**Solution**

After we amalgamate the problems given by the interviewee, we decided to do a brainstorming session between our group members. There’s a lot of ideas that had been discussed. However, we chose the idea that has been agreed by our lecturer, Dr Aryati Binti Bakri which is to develop a software that provides notes, slideshows and also some quizzes.

We decided to develop the software because it could help students to find some information much easier since we already provide notes and slideshows with citation. Hence, the students won’t have to worry about the precision of our notes and information. This is because, the notes provided are filtered before it is being uploaded to our software. In this case, we could avoid some inaccurate notes and information as the author of notes in our software are well educated and have sufficient knowledge in Information System.

There are tons of notes and slideshow in our software. However, we arrange the notes topic by topic so that the users can choose the topic they want to open. Lastly, it is free of charge so it is user friendly and is suitable to all kind of users.

**Team Working**

On our first meeting, we divided ourselves into 3 groups which focus on video making, report writing and prototype building so that everyone has their own tasks to ensure this project runs smoothly. We had a discussion session on our topic, Information Systems. We made sure each of us understand this topic so that we can share the knowledges with other students during the coming presentation.

Next, we sent our draft which covered some of the interview questions to our lecturer. We recorded information, experiences and problems that has been mentioned by our interviewees. After that, we had brainstorming session on how we’re going to solve the problems. We provided our best ideas that we have and in the end, we came to an agreement to develop a software. The idea is then approved by our lecturer.

Then, we started to discuss about the design of our prototype before we proceed to create it. Once the prototype is ready, we tested it’s suitability tor users.

As a conclusion, our team worked excellently as we helped each other without any hesitation. We showed responsibility, punctuation and determination while conducting our tasks.

**Design Thinking Assessment**

At the beginning of our design thinking process, which is the empathy stage, we couldn’t find any suitable interviewee. After considering several choices, we decided to try on the technicians and lecturers of our faculty. At last, we came to Encik Helmi Bin Yaakob and Dr Rashidah Binti Kadir who are willing to be interviewed. Besides that, we found it to be difficult to prepare our interview questions. We overcame the problem with the guide of our lecturer, Dr Aryati Binti Bakri. Throughout the process of interviewing both of the interviewees, we tried our best to gain more information from them. Gladly, the interview sessions went smooth.

However, we found it to be difficult to extract the contents of our interview as the recordings were not clear. After the hard work of our video editor, we proceed to the next stage which is define step. We discussed about the information we gain and successfully identified the problems. Immediately, we proceed to the ideate stage. We had a brainstorming session and focus on how to overcome the problems that they face. Despite the quarrel during the discussion, we came to an agreement to develop a software that could solve their problems.

Next, we start to search and think of the design of our prototype. As software is an in-device application, we decided to create a prototype of tablet displaying our software “King IS”. We searched for the materials needed and keep on modifying our design to make it in a better look. Lastly, we tested it manually to ensure the prototype is reasonable and is able to solve the users’ problems.

As the conclusion, although we encountered various problems, we are able to overcome it unitedly.

# Design Thinking Evidence

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| --- | --- |
| **Phase** | **Description** |
| Empathy:  C:\Users\Home\AppData\Local\Microsoft\Windows\INetCache\Content.Word\IMG_20191001_095912.jpg | Having an interview session with Senior of IT Office CICT, Mr Helmi Bin Yaakob. The content of interview includes his experience on developing Information System. For example, he developed a Management Information System for Persatuan Pesara on 2009. |
| Define :  Screenshot_20191006-213729 | We discussed about the exact problems faced by Information System developers in terms of making students understand about the scope of education. |
| Ideate:  Screenshot (3) | Brainstorming session was held on 2nd October 2019. We literally discussed about the best way to overcome the problems by developing an application to help the students to understand and gained some knowledge about Information System. |
| Prototype:  Screenshot (5) | Our prototype was made by using recycle box, permanent marker, tape and blade. So we basically developed an application that can be used for both parties Android user and iOS user so that the students could gained some knowledge easily and trusted information instead of finding it on internet without knowing the author and validity of the information. |
| Testing:Screenshot (8) | Later on, we tested our prototype to ensure that the system works in a good condition where users has to register before continue to access the notes provided by experienced author. The author that we provide in our apps basically got an experienced on developing Information System. |

# Reflection

**Nor Armirani Binti Mohd Mazlan**

After doing this design thinking project,it enables me to experience something new and obtains more information regarding this topic.As someone who are interested in becoming data engineer,i can use the knowledge gained as future references.By doing this project,i can improve my social life as I need to work as a team and interview other people.So,in other way it also improves my communication skills and as we all know,soft skills is something important when we entered the career world.Other than that,planning this project helps me to be a better person as we need a proper planning in order for the project to work.All the skills and knowledge gained from this project can be used when I am doing my job in the future as data engineer also have to design something similar to this project.

**Nalini A/P Vijayan**

Based on this project, I have learned so much about design thinking. Design thinking allows me to think and approach a problem systematically and pragmatically. This allows for a proper and wholesome solution to any problem given. Besides that learning about information system has granted me crucial insight on what is needed and how it has evolved over the years.This also allows me to learn from it and come up with an innovative idea for the future when my skills are better and upgraded. Besides that, conducting interviews taught me how to properly approach and talk to people. The formal way of interviewing someone is different from the usual and I’m more than lucky to have been able to learn that. Besides that, working in a group has taught me communication and teamwork, important qualities employers look for when finding for people to hire. These skills cannot be learnt in any other way and I’m grateful I was able to learn them in this project. This team also enhanced my skill as a team player and a person in general as it helped me think more critically and more creatively, both important criteria to have as a data engineer.

**Tee Hui You**

As a fresher of Computer Science student, I hope I can manage to learn and develop myself to become a creative and productive Data Engineers in the future. I hope to gain more skills to increase my productivity in the industry.

This Design Thinking project gave me a chance to practise an alternative way of problem-solving skills. In short, this project allowed me to think outside of the box to solve the problems I face. By practising design thinking skills, I learned to think and do things step by step. I had also realised that the core ideas of design thinking are actually related to the decision-making process in our daily routine. I believe that I will be a more reasonable person by following the design thinking steps.

I have also gained some impacts after completing this design thinking project. Most of the industries would prefer data engineers with reasonable and organised thinking as they can solve the problems more efficiently. Hence, acquiring design thinking skills will obviously increase my future competitiveness in the workplace. As a conclusion, I would practise more on design thinking skills to achieve my goal of being a creative and productive Data Engineer.

**Nor Hafiyzha bt. Md Husni**

Throughout this design thinking project, it somehow strengthens my goals in this course which is to be one of the top undergraduates in town by taught me how to be a critical thinking person. It shows when we had a discussion on ideate and create something new to overcome our problems. It somehow sharpens my critical thinking and creative skills. As we know, to become an excellent data engineers we should have a great communication skills since the working scope are mostly in group so by doing this project, somehow it taught me on how to communicate with people and stand out as a leader. I planned to improve my potential in the industry by training myself to be a futuristic person so that I could develop something new and can be used for the industry in next 10 to 20 years from now.

**Task for Each Members**

* **Nor Armirani Binti Mohd Mazlan**

Video maker, Videographer and also involved in one of our interview session.

* **Tee Hui You**

Responsible in report writing, prototype and also interview some of the lecturers.

* **Nor Hafiyzha Binti Md Husni**

Responsible in making an appointment with the interviewee and report writing.

* **Nalini A/P Vijayan**

Prototype maker and provide several questions for interview session

**Reference**

1. Yu Siang, T., & Interaction Design Foundation (2019, July ). Design Thinking. Retrieved October 6, 2019, from <https://www.interaction-design.org/literature/article/5-stages-in-the-design-thinking-process>
2. Vladimir, Z. (2017, Dec 28). Information system . Retrieved October 5, 2019, from <https://www.britannica.com/topic/information-system/Management-support>
3. Link of the video:

<https://youtu.be/VON1ZHu5ntg>