REPORT DESIGN THINKING

TECHNOLOGY AND INFORMATION SYSTEM SECP1513(04)

ABDULLAH FAISAL N ALHUJAILI	A20EC4010
ABDULAZIZ TAWFIK OTHMAN	A20EC4004
MUHAMMAD SYAHIR BIN SULAIMAN	A20EC0101
NUR SYAKIRAH BINTI MOHD SHUKRI	A19EM0384

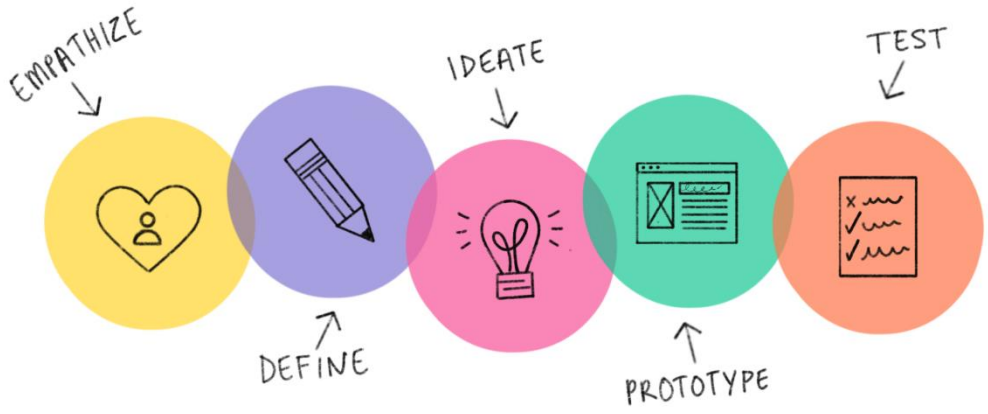
Introduction

Design thinking is a problem solving framework. It very effective for addressing the problem faced especially now days increasingly complex organizations. Design thinking was developed by Stanford Professor David Kelly who is also founder of the design agency IDEO. Professor Terry Winograd and Larry Leifer were influencing him at the d.school in Stanford University. Based on my research there is no single person, agreed on definition of Design thinking. However most of the definition are mostly same meaning. From Wikipedia, Design thinking means it refers to the cognitive, strategic and practical processes by which design concepts are developed. In design thinking, we have a few phase must go through which are **Empathize, Define, Ideate, Prototype and Test.**

Design thinking phases

There are variety of Design thinking process in use today, they have three until seven phases or stages. However all the stages of the Design thinking are quit similar. We will focus on the five phase model proposed by the Hasso-Plattner Institute of Design at Stanford, which also known as d.school. We have chosen d.school's approach because they are at the forefront of applying and teaching Design thinking.(INTERACTION DESIGN FOUNDATION)

The five phases are as follows:



EMPHATIZE

The first process is get to know the user and understanding their problem, what their want and also objectives. This mean we are going to observe and engage the people in order to under their psychological and emotional level. Designer need to seeks their assumptions and gather real insights about the user.

DEFINE

The second stage in Design thinking is defining the problem. We need to gather all our findings from the first stage and start to make sense towards users: what difficulties and barriers are we coming up against? What patterns we observe? What the big problem's user faced? By the end of the define phase, we will figure out what the problem statement.

IDEATE

Based on our understanding from the problem statement that we have found, it's time to start working on potential solutions. This third stage which is ideate, we can found the creativity happens and also the crucial to point out that the ideation stage is a judgement-free zone. There are many different types of ideation technique that we can use. We can use brainstorming to mindmapping(can discuss among group members) and provocation. In the end of ideation phase, we can narrow down a few ideas to move forward.

PROTOTYPE

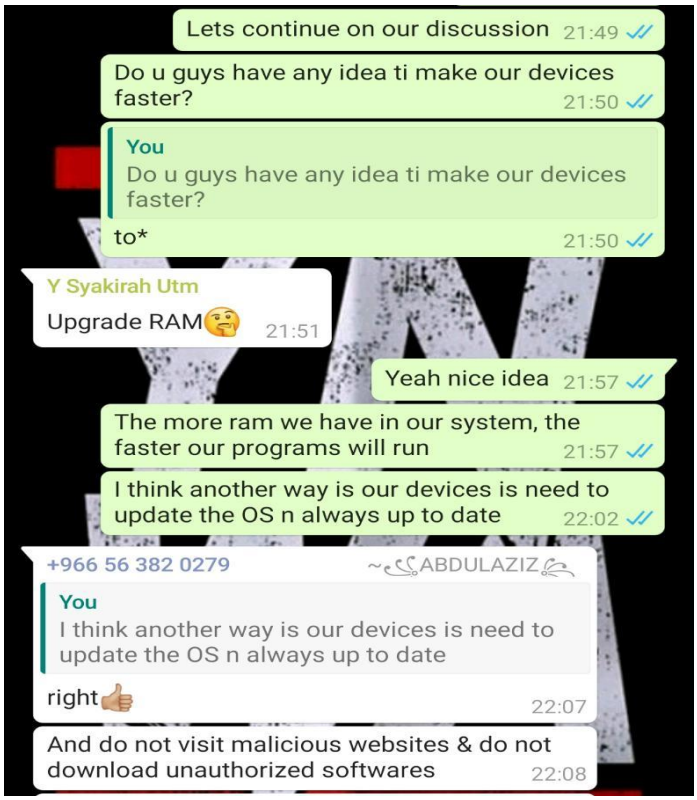
The fourth step is all about experimentation and turning ideas into tangible product. Prototype work as scaled-down version of the product which incorporates the potential solutions identified in previous phase. The key for this step is putting each solution to the test also highlighting any constraints and flaws. Throughout this prototype, our purposed solutions may be accepted, improved, redesigned or rejected. It depending on how we fare in prototype form.

TEST

Test is the final step in Design thinking process. After we have done prototyping, we will go through the test. However, the result of testing phase will often lead us back to previous step, providing the insight we need to redefine the problem statement or come up with new ideas that we never thought before.

3. DETAILED DESCRIPTIONS

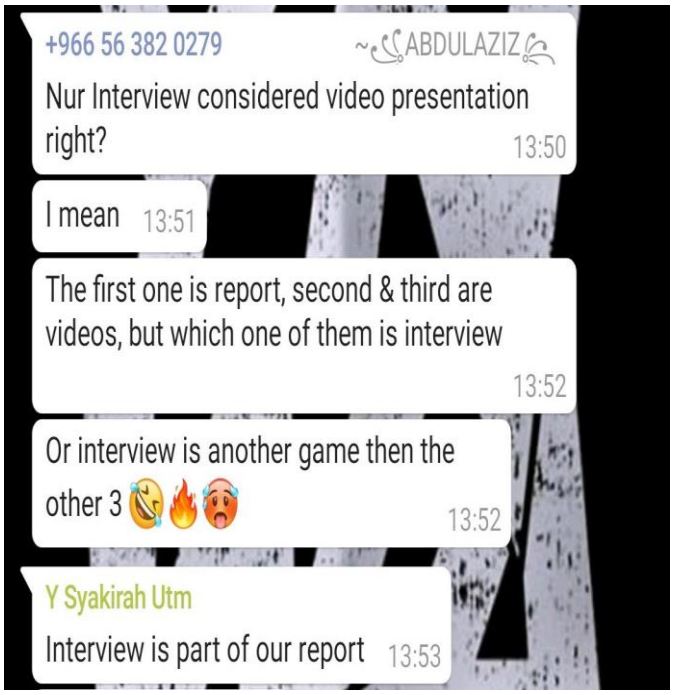
Nowadays, for many users, a lagging device is a painfully familiar problem. There may be many factors why our device is slow. To restore performance back to normal, it is important to identify these issues early on. Everyone hates lagging with a vengeance on our devices. Gamers dislike it because it interrupts their battles in their game, developers hate it because it cuts off their ideas, and everyone else hates it because in order to bring our devices back to speed, we will need to reboot it. Whether it happens suddenly or every time, it can be seriously frustrating to try dealing with a slow device. So, our group come out with ideas to cope this problem and user do not need to buy a new device to overcome this issue.



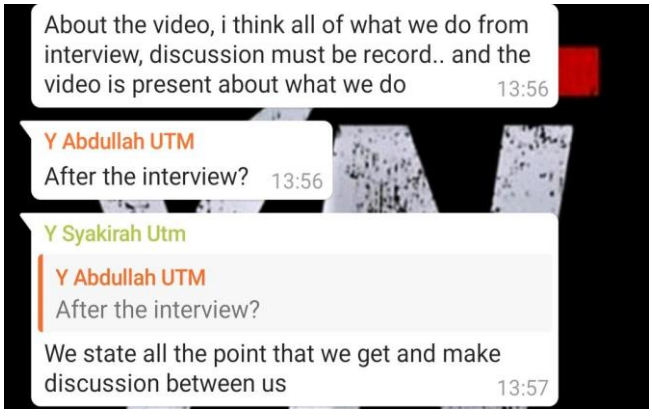
The picture above shows that we discuss each other to overcome the slow device issue. The first idea is from Syakirah, she stated that upgrade RAM onto our device can make our device faster. Second idea came out from me, to overcome slow device issue we need update the Operating System and keep it up to date. Next, it came out from Abdul Aziz, he stated that the user must not visit malicious websites and do not download unauthorized software.

4a) Design thinking evidence

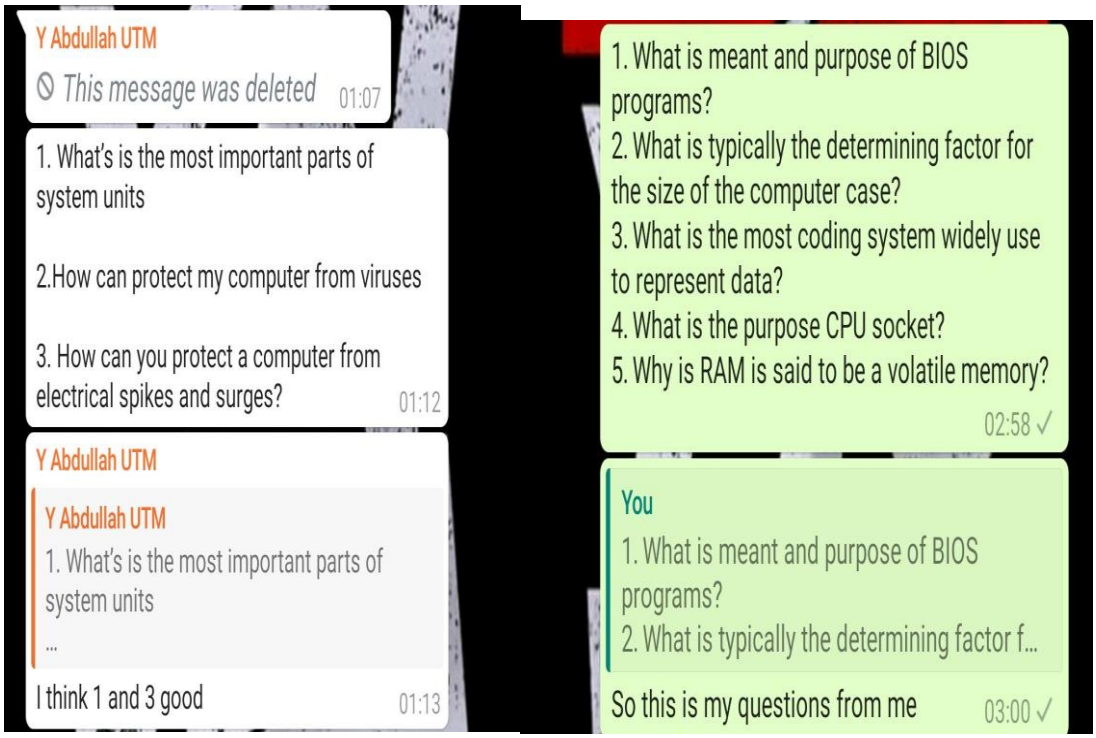
When we got this project, we analyze and discuss first what exactly the project we need to do in depth.

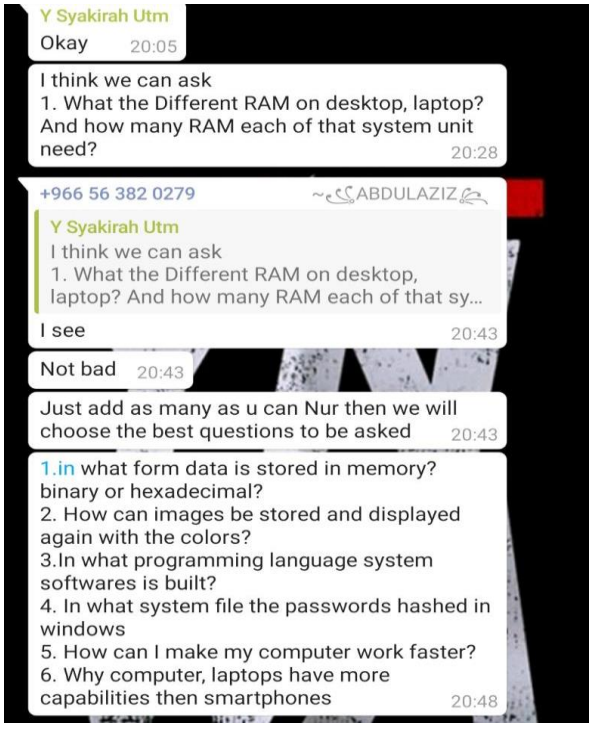


First, this project need us to interview UTM staff to solve the design challenge related to our chapter given. During the interview, discussion must be recorded and we state all the points that we got.

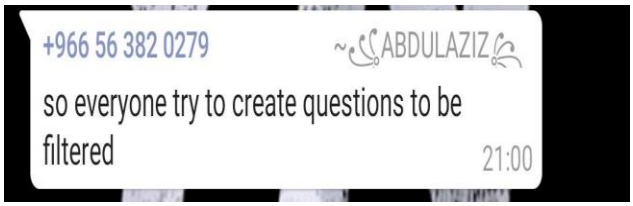


After that, we prepared for the questions to ask the interviewer. All the questions are related to our topic given which is system unit, so we need to focus on this scope during the interview process.

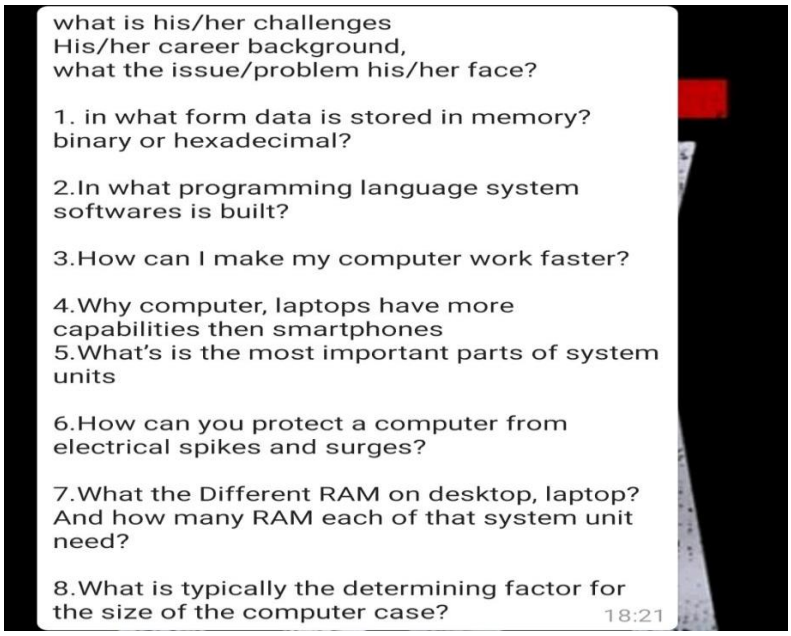




After that, we discussed to filter each question to produce the best questions



During interview session, we started with the questions related to the interviewer's life such as about experience in his career, his challenges and problem he has faced. Then we continued to our agenda.



After the interview, we discussed together an give the ideas to overcome our problem which is how to make slow a device faster. After that, we go through to the next stage which is make a prototype for problem user. And we tested the prototype to ensure whether it can use or not.

4b) Design thinking phase

Empathy

At the beginning of the interview session, our asked questions to user to introduce himself, tell about his career and the challenges he had faced.

User's answer: "My name is Mohamad Murtadha Bin Mohamad. I am a associate professor. I work in school of computing in faculty of engineering. At the moment, I

am appointed as a deputy director for division of digital innovation in UTM digital services department."

Next, we go through to the experience in his career where did he ever experience design a mobile application before and the challenges he faced.

User's answer: "Yes, my team in UTM digital innovation have designed a mobile application before, one of our core development is UTM Smart, to be honestly previously we failed three time to develop this application because lack of experience and technical capabilities. It is not easy to build mobile application for enterprise because the user already reaches 26000 and this is not really simple to make it."

Define

For the define part, we ask him directly a question about the user's opinion on technological problems in our life. It is about how to make his devices faster, not lagging and not stuck when use in his daily life.

User's answer: Your devices must always keep it up to date, make a space for the memory and install cleaners to clean unwanted files as well as do not visit malicious or suspicious websites.

Ideate

In the ideation stage, our group members are focus more to design an idea together to solve our problem and it is called as brainstorming process. The first idea is about the user must upgrade RAM to make their devices work faster. Generally, the more RAM in our system in our system, the faster the program in our device work. Adding RAM cause our processor can read data from RAM faster than from our hard drive. Next, update the software and Operating System (OS) to speed up our device. We have heard before that keeping our software up to date is a great idea to help our device's performance. This is true and it also good for security in our device's system. For the software, it can also affect the speed of our devices. Our device may experience slow when running some program, it can also be caused by our software is not written to be effective or it contains bugs. The last idea is do not visit malicious websites and do not download unauthorized software. Malicious website is a site that attempts to install malware onto our devices. Malware is a general term that is used to describe malicious programs that could damage our devices.

Prototype

After the ideas has been chosen, we decide to develop the prototype for the user. So, the device we choose is smartphone where the user always spends an entire day on their phone. We did not buy a new smartphone to develop the prototype, but we used an existing problem smartphone belonging to the user who complained about problems with his smartphone. From the first idea, we installed 16gb RAM onto the smartphone. It can support the smartphone's processing capacity. With the smartphone, we can do anything such as messaging, playing games and watching videos. However, each of these apps consume a lot of processing capacity and memory. So, smartphone with high RAM can run many applications efficiency at the same time. Next, most users are afraid of being attacked by a malware on their phone. We can protect your phone by running antivirus and antimalware software like Norton onto your phone. This software can block virus and malware from being installed onto your phone. For the last step, we update the latest version of operating system onto the smartphone. Updating our smartphone's software definitely worth it, new software can updates fix bugs and glitches that can slow down our phone. It will make it easier for users to do the basic things in our daily life without any lag especially when doing work, messaging, playing games and watching videos.

TEST

Finally, after we have finished the prototype, we tested the prototype to ensure whether it really work to solve a problem or not. We started the test with playing a game and we noticed there are not has any lag on the phone. Then we tested multitasking work on the phone with open many application at the same time and the result we found that the phone can run many apps in the background at the same time.