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SECP 1513 TECHNOLOGY AND INFORMATION SYSTEM

DESIGN THINKING:

REPORT ON DESIGN THINKING

GROUP MEMBERS :

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Introduction

Design Thinking is the process that creating some new and innovative ideas and solving problems. Design Thinking can be applied in any field such as technology, education, and business and it does not necessarily have to be design-specific. It focuses on human needs and will come up with effective solutions to meet those needs. It also can improve the products by analysing and understanding how users interact with products and investigating the conditions in which they operate. The Design Thinking process has five phases that are Empathise, Define, Ideate, Prototype and Test.

	Empathy is a starting point for Design Thinking. It is getting to know the user and understanding their wants, needs and objectives by observing and engaging with people to understand their needs.
	Define the problem. Gathering all the problem from empathize phase and start to make sense of them: what difficulties are your users coming up against? What patterns do you observe? What is the user's problem that you and your team need to solve? In the end, you will have a clear problem statement.
	Ideate is where the creativity happens. Some ideation techniques can be used by designer are brainstorming, mindmapping, bodystorming (roleplay scenarios) and provocation. It is trying to explore new solutions and towards the end of this phase, designers will narrow few ideas with which to move forward to next stage.
	Prototype brings the solutions into version of the product. It is a rough draft of solutions to decide if these will prove beneficial for the problem. Prototype can be an app or a model to display.
	After prototyping comes testing, the results of the testing phase will often lead you back prototyping stage in reality. So, you need to redefine the original problem statement or to come up with new ideas you hadn't thought of before.

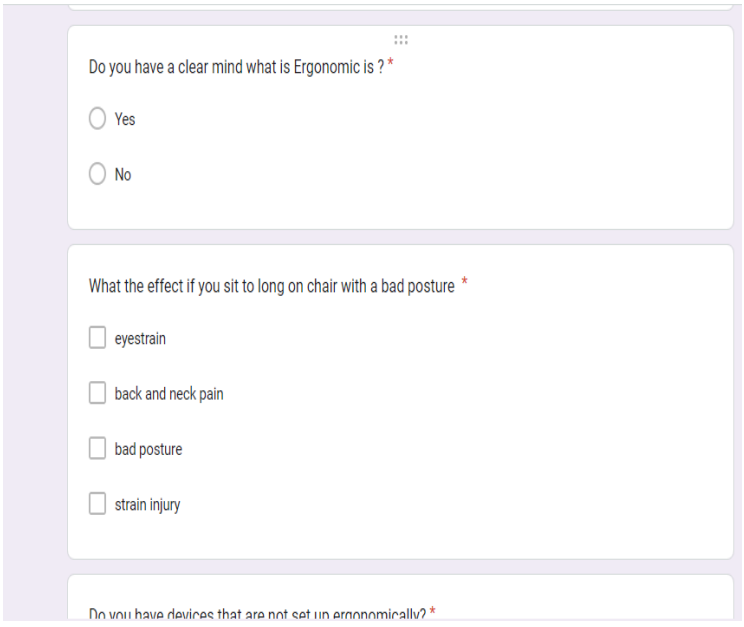
DETAILS STEP :

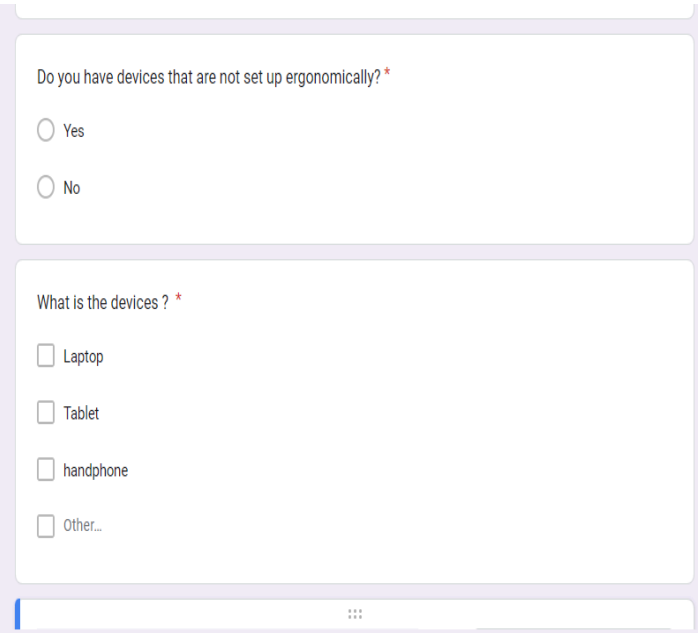
To ensure the assignment proceeds smoothly and flawlessly, the design thinking process is meticulously broken down. The focus now shifts to a thorough dissection of each phase, where we intricately outline the actions, tools, and methodologies utilised in the Empathise, Define, Ideate, Prototype, and Test stages. This section essentially acts as a guidebook, providing a detailed view of the journey from comprehending user needs to crafting and refining solutions. The process of detailing the steps involves vividly narrating how designers empathise with users, distil gathered insights, generate diverse ideas through brainstorming, create tangible prototypes, and rigorously test these prototypes. It's comparable to painting a vivid picture, emphasising the nuanced and iterative nature of the design thinking problem-solving process, ensuring not to miss any crucial brush stroke.

STEP 1 : Empathize

During the initial phase , we took the proactive measure to deeply understand the routine of UTM students and to achieve this, we have come out with google form to store the data related to our topic. The form indicates a few questions about the well-known terms which are ergonomic. By this vulnerable data, we gain the first hand perspective on how we can overcome it. Our target respondents are around 20-50 people, so that the solution will be overall achieved. The main objective of this form is to collect the data about the level of knowledge of respondents regarding Ergonomic.

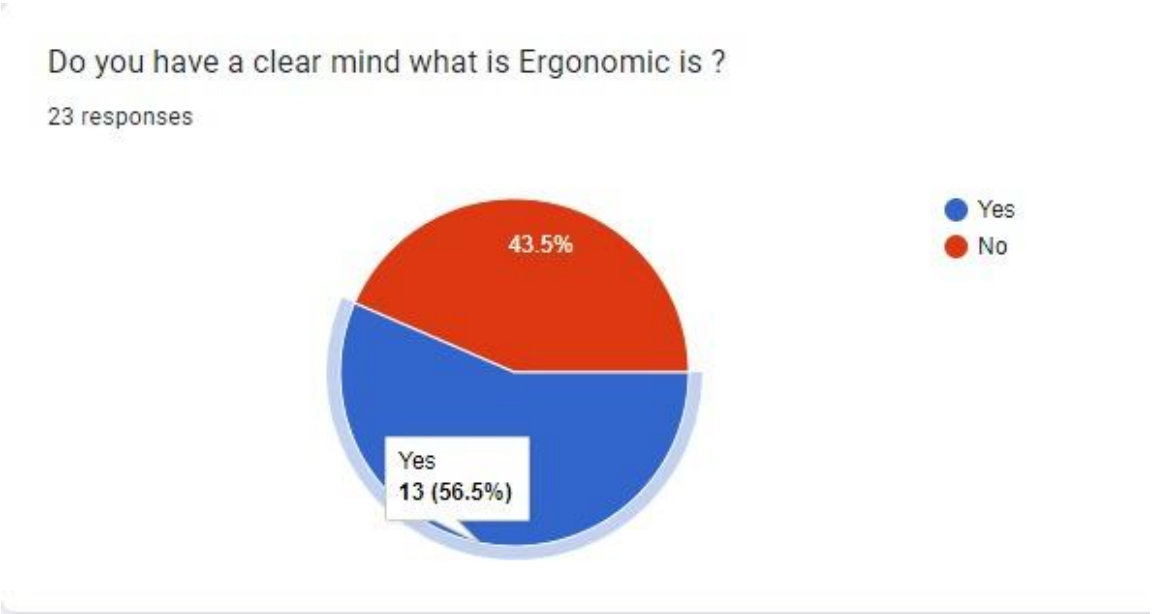
Link : https://forms.gle/3T11pA1eDxb2UBGq6

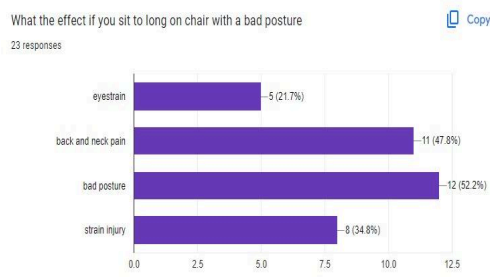


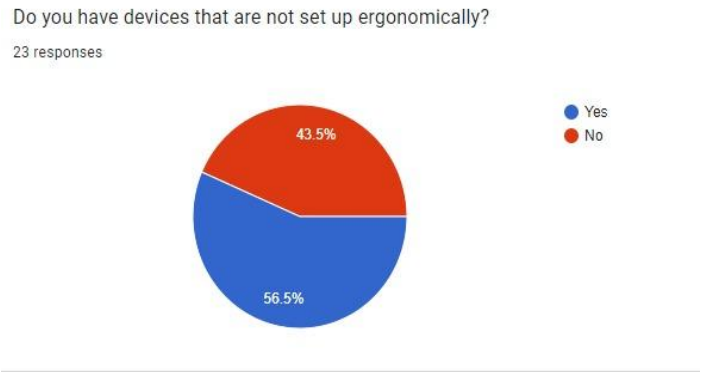


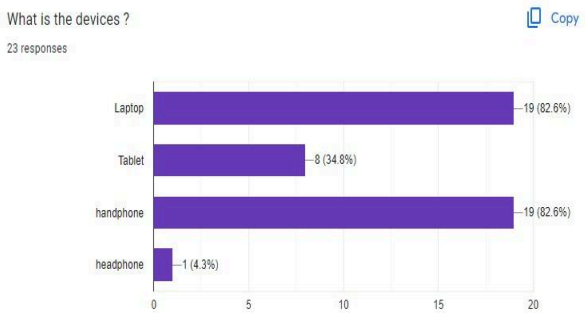
STEP 2 : Define

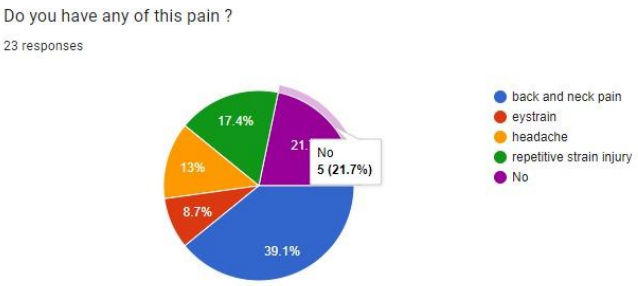
In this phase , we already collect all the data that have been keyed in by our respondents. The respondents come from different backgrounds which are students, teachers and staff. Throughout our research, we found out that many students happened to have a lot of bad effects using their devices without ergonomic aspects being prioritised. They spend a lot of time using digital gadgets such as smartphones and laptops in bad posture make their health is affected such as neck and back pain or eyestrain.











STEP 3 : Ideate

After the problem is clarified, we start to search the methods to solve it by brainstorming, mind-mapping and trial error. We try to explore as many as we can to come up with solutions to handle the problem in the use of devices among students without an ergonomic aspect. Hence, we shortlist the best solution for the problem and leave the rest to build the best prototype for the users. Therefore, we decided to create one device that keeps reminding them to fix their posture during the use of their electronic devices so their body can maintain the best performance for a long period of time.

STEP 4 : Prototype

After the solution was secured, we started to bring out the solution into a hardware to prevent the student from getting the disbenefits of the use of devices without ergonomic aspect. We are thinking of creating a rough prototype named “The Eye” by putting in the outcome to the test and highlighting any constraints and flaws to fulfil the specification for the best result.

This prototype functioned as a posture tracker that will detect the position of the users while the use of electronic devices. By using our prototype, the user will get the message pop up on the screen with a vibration to devices used for a reminder if their body posture or the screen is way too close to their eyes. This process will run continuously during the use of devices that the hardware installed to ensure the user’s body posture is in the best position to prevent any bad effects.

Detailed Description (Problem, Solution and Team Working)

The problem that all of us had discussed is about how people use electronic devices without having a thought on ergonomic thought. Everyone has their own ways on how to use their devices but health aspects must be priorities in this situation. So, we should prevent this by taking note of the ergonomic aspect on how our devices are handled. Ergonomics is an applied science concerned with designing and arranging things people use so that the people and things interact most efficiently and safely. With this aspect fulfilled, we can make sure that the users will get a better version of the way their electronic devices are being used for a long term to reduce the disbenefits.

After defining the problems, all of the members brainstorm together to find out the suitable ways and solutions to solve these problems faced, which is the lack of ergonomic aspect while using the gadgets. Since our main focus is on students, our ideas of solving this problem are based on the students' situation. We decided to come up with innovative hardware that can locate the posture of the user and the right distance of the screen with the user continuously during the installation of the prototype with the devices used by the users.

Although our group members had some small arguments and misunderstandings during the discussion session, all of us are willing to listen and accept each other's point of view and come up to a conclusion and output which all of us are satisfied with. After that, we distributed all the quests to every member like someone will be in charge of video making and others preparing the prototype and written report. Our spirit of team working makes this project to progress smoothly and to be done on time.

Design thinking Assessment Point

If we conduct a design thinking without any assessment and evaluating our outcome of discussions, we may end up with a poor decision or product. Especially, when we work as a team which may lead to many different thoughts. Groupthink is a phenomenon that occurs when the members desire for group harmony but result in dysfunctional decision-making which does not align with the original problem statement.

Hence, allocation of assessment points is very important to encounter this problem. Assessment points can be conducted during the end of the prototype demonstration or the transition between design thinking phases. In our case, assessment point was being conducted in between the phases involved to ensure all the steps were organised.

During the end of the project, reflections are being carried out to verify whether the results hit our initial intention and solve the problem effectively. In conclusion, assessment point is very essential in a group and design thinking so it can function as a guideline for us to make sure that we are on the right track during this process of design thinking prototype.

Design Thinking Evidence

1. The sample work by students working to solve the design challenge

Through our research, we found out that many students nowadays are exposed to technology gadgets for a long period of time without the ergonomic aspect being priorities. Therefore, we decided to build a hardware functioned as a tracker to monitor user body posture and distance of the screen with their eyes for a better lifestyle.

2. Record for each phase

In the first phase of the design thinking project, we need to determine the problem faced by the students nowadays in the using of electronic devices without concerned of ergonomic aspects, we managed to find all three communities which are related to the problem we investigate through the google form we shared, which are students, teachers and staff.

After that, in phase 2 which is define, we list out all the bad effects we obtained from google form distributed to all of them, we suggest the problems to make the respondent choose whether they are going through the same thing over and over, then we start to define the main cause of the problem.

In phase 3, we started to brainstorm to suggest the best solution for the problems. All the ideas are written on canva template that is shared by our lecturer and we also change our ideas with other teams to make it more interesting and challenging. After that, we refine the ideas we have in the main menu and come out with a final solution: ergonomic aspects.

In phase 4, we created a prototype of our outcome from the design thinking.We made the device using a cardboards and the screen with a manila card. We decided to use a bubble wrap for the smartphone devices used with this hardware that acts as a holder. Lastly, in the prototype test, we install this hardware into a laptop and smartphone to make it more realistic.

As evidence, there are a few pictures of the prototype with a detailed explanation. We also shared pictures of how it look like on the laptop and smartphone when the device is installed.

How it look like on the laptop

How it look like on the smartphone

Reflection (Individual):

What is your goal/dream with regarding to your course/program?

Graphic and multimedia software aims to empower students in expressing our creativity. Whether it's graphic design, video editing, or 3D modelling, these tools provide a platform for us to create visually appealing content. I personally want to be a software developer, many software developers aim to create tools that enhance efficiency and productivity in graphic and multimedia production. This can include features that streamline workflows, automate repetitive tasks, and provide a user-friendly interface. As a Malaysian, my goal is to further this course to invent some interfaces and design software used by our citizens for a better vision. *[Izz Haeil (A23CS0088)]*

My aspiration for this course or programme is to become an expert and significant player in the subject I have selected. Whether I choose to major in computer science, graphic design, or any other field, my goal is to get the information, abilities, and experiences necessary to contribute significantly to society. In order to increase my knowledge and proficiency, I hope to achieve academic success, work on real-world initiatives, and cooperate with mentors and peers. In the end, I want to use my education and experience to pursue a rewarding job where I can create, work through challenging issues, and make a significant contribution to society.. *[Abdul Barik (A20EC8024)]*

As a student in Computer Graphic and Multimedia, my goal is to become even more knowledgeable and informative in related what i have learn right now. I want to be a master in programming and 3D animation domination to achieve my long term dream which is to become a game developer. It sounds impossible as a Malaysian but if Markus Persson can do it, why can't I? So I take this as my motivation to be passionate about what I am learning right now and strive for excellence in everything that I do. For my short term goal is to hone my soft skill to be apply in real-world job. To be a master in industry standard skills like communication, leadership, team working or others is very crucial right now. Those skills are only one of my perspectives for us to be different from artificial intelligence.
[Ammar Qhawiem (A23CS0045)]

My goal for this course or program is to become proficient and make a meaningful impact in my chosen field, be it computer science, graphic design, or another discipline. I plan to attain academic success, engage in practical projects, and collaborate with mentors and peers to enhance my knowledge realistically. Recognizing that achievement requires consistent effort, I am dedicated to investing the time and effort needed to develop expertise. Ultimately, I aspire to secure a gratifying job where I can contribute meaningfully to society, understanding that the journey may involve challenges and ongoing learning.
[*Haikal (A23CS0131)*]

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

Design thinking often emphasises a user-centred approach, understanding the needs and perspectives of the end-users. As I reflect on design thinking, several key principles stand out, each contributing to a holistic and effective methodology. This empathetic approach ensures that solutions are not just technically accessible but also genuinely address real-world challenges. By immersing oneself in the user's perspective, we gain insights that go beyond surface-level requirements. The iterative nature of design thinking promotes a willingness to embrace uncertainty and learn from failures. Through successive cycles of prototyping, testing, and brainstorming, the design thinking process acknowledges that solutions evolve and improve over time. In conclusion, we study a lot from design thinking to surpass our limit and advance to another level to fulfil the specification to solve the problem effectively.
[Izz Haeil (A23CS0088)]

Emphasising creativity and cooperation, iterative problem-solving, and a user-centric mentality, it has a big influence on my program's objective and dream. It guarantees that my endeavours are not only technically sound but also really tackle real-world problems by giving end users' wants and experiences first priority. Through the iterative process of ideation, testing, and refinement, I am able to accept uncertainty, grow from setbacks, and keep becoming better. Additionally, design thinking helps me to investigate novel ideas and have a good social influence by encouraging creativity and multidisciplinary cooperation. This is closely aligned with my goals of using my degree and professional path to meaningfully benefit society.
[Abdul Barik (A20EC8024)]

Design thinking is a powerful tool for aspiring me to become a game developer. Why? It is because from practising design thinking in this course, I can apply it in a real world job to boost my creativity and innovation. From a game developer perspective, player feedback is very important. So, by design thinking can encourage rapid prototyping and testing, allow me to quickly try out different ideas and iterate based on player feedback. This leads to more refined and polished games, while preventing me from getting bogged down in features that players don't enjoy. *[Ammar Qhawiem (A23CS0045)]*

Creative ideation serves as the opening phase in the design thinking process, encompassing the generation of diverse and innovative ideas. However, it is merely the beginning of a more extensive cycle. Following creative ideation, the next steps involve the practical application of these ideas through prototyping, testing, and subsequent refinement. This iterative process is crucial for ensuring the feasibility and effectiveness of the generated concepts within the specific context of your goals. The prototypes act as tangible representations of the proposed solutions, allowing for real-world testing and validation. This phase not only assesses the viability of implementing the ideas but also evaluates how well they align with the overarching objectives you've set.[*Haikal (A23CS0131)*]

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

Regularly updating and retraining my knowledge helps me stay current with the latest information, trends, and language updates. This ongoing training process will improve my performance and relevance in various industries. Expanding my capabilities to include better handling of multimedia content, such as images, audio, and video could broaden the range of tasks to create something more creative and innovative for a better innovation during my worklife. Engaging with subject matter experts in various fields can provide valuable insights for refining my responses and ensuring accuracy in the specialised sector. In summary, improving my knowledge and expanding my skills with experiences is indeed a must before entering the industry to be on the same level as other experts. *[Izz Haeil (A23CS0088)]*

I need to put a high priority on lifelong learning, obtaining real-world experience through projects and internships, networking with business leaders, and keeping a growth attitude if I want to reach my full potential in this field. By staying current, developing a solid portfolio, growing my professional network, and viewing obstacles as chances for improvement, these activities will help me succeed in the field and eventually improve my talents. *[Abdul Barik (A20EC8024)]*

To learn more about coding languages to fulfil company demands like Python, C++, Java, or JavaScript to enhance my understanding of how these programs function behind the scenes. This deeper understanding unlocks the doors to interactive media, web design, and even game development. Other than that, by gaining real-world experience and learning the ropes of professional workflows like engage in talk, discussion or showcase experience by industry worker from now before stepping stone to industry collaboration internship in years 3. *[Ammar Qhawiem (A23CS0045)]*

Improving the model's ability to interact with users involves a multifaceted approach aimed at creating a more seamless and user-friendly experience. This encompasses refining the model's proficiency in understanding and responding to natural language queries. A key aspect of this enhancement lies in advancing the model's natural language understanding (NLU) capabilities. This entails a deepened comprehension of the intricacies, context, and intent embedded within user queries, thereby fostering more accurate and context-aware responses.*[Haikal(A23CS0131)]*

Name	Tasks
IZZ HAEIL BIN HAMISHAMSUL (A23CS0088)	● Report Writing: ○ Evidence ○ Detailed Step ○ Detailed Description ○ Assessment Point ○ Reflections ● Prototype Making
ABDUL BARIK HABIBI BIN MOHD ISKANDA (A20EC8024)	● Report Writing: ○ Editings ○ Conclusion ○ Reflections ● Prototype Making
AMMAR QHAWIEM BIN MOHD ASRAK (A23CS0045)	● Report Writing: ○ Editings ○ Evidence ○ Reflections ● Prototype Making
MUHAMMAD HAIKAL BIN JAPRI (A23CS0131)	● Report Writing: ○ Assessment Point ○ Evidence ○ Inserting Graphical Images ○ Reflections