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Malaysia-Japan International Institute of Technology (MJIIT)

UNIVERSITI TEKNOLOGI MALAYSIA

MALAYSIA-JAPAN INTERNATIONAL INSTITUTE OF TECHNOLOGY (MJIIT)

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DESIGN THINKING

TECHNOLOGY INFORMATION AND SYSTEMS

REPORT

SECTION 15

GROUP 3

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1.0 Introduction

What is design thinking? For software engineers, it's a system development life cycle which includes 4 steps: Planning, analysis, design, and implementation. These four steps are crucial to be understood by software engineers in order to figure out what their problem is, then collaborate on finding the solution and implementing it. Each software engineer has to know his team's role for the purpose of making teamwork much more efficient which results in much more performant software in less time.

Design thinking, in a broader sense, is actually a human-centered approach to problem-solving and innovation that is applicable not only to software engineering but also to various other fields. It originated from the design field but has been widely adopted in business, education, and technology sectors.
In the context of software engineering, the traditional software development life cycle you mentioned (Planning, Analysis, Design, and Implementation) aligns with a more linear or waterfall approach. However, design thinking introduces a more iterative and collaborative process that emphasizes empathy, experimentation, and constant refinement

StellarLink Systems, a visionary force in cutting-edge technology and connectivity solutions, is a company born from a commitment to push the boundaries of innovation. However, they have encountered major challenges in their user interface design, resulting in numerous negative feedback submissions. In light of this, they are reaching out for assistance. Our goal is to collaborate and support them in the improvement of their business, helping them achieve their future objectives.

2.0 Detailed Steps, Descriptions, And Evidence of each of the 5 Phases.

Phases

Empathy: *Done on 1st of January, 2024*

Before diving into planning, analysis, design, and implementation, design thinking encourages understanding the users and their needs. This involves empathizing with the end-users to gain insights into their experiences, challenges, and preferences. This understanding becomes the foundation for developing solutions that truly address user needs. The way to do this is by asking open-ended questions during an interview, making the client talk about his background story and why he needs help. This way, the client will then start thinking that the interviewer understands his feelings, situation, and problem. Therefore, the client's trust is secured; the following phases are easier.

Define: *Done on 4th of January, 2024*
In addition to planning, design thinking emphasizes clearly defining the problem at hand. This involves synthesizing the information gathered during the empathy phase and framing the problem in a way that inspires innovative solutions. It's about ensuring that the right problem is being solved.

Ideate: *Done on the 7th of January,2024*
This step encourages brainstorming and generating a wide range of creative ideas. It encourages software engineers to think beyond the obvious solutions and explore a variety of possibilities. During this phase, collaboration within the team is crucial to gather diverse perspectives.

Prototype: *Done on the 9th of January,2024*
Rather than moving directly from design to implementation, design thinking introduces prototyping as a step to quickly visualize and test ideas. Prototypes can be simple sketches, wireframes, or even low-fidelity versions of the software. Testing early and often allows for rapid iteration and refinement.

Test: *Done on the 11th of January,2024*
Design thinking is not a linear process; it encourages iteration and refinement based on ongoing feedback. Even after implementation, the team may revisit earlier stages to incorporate new insights or address evolving user needs.

3.0 Detailed Descriptions of Problem, Solution and Team Working

Problem

Some of the key problems established by StellarLink Systems are:

1. **Navigation Complexity**

Some users have expressed difficulty navigating through the interface, encountering challenges in locating features and accessing information efficiently.

2. **Inconsistency in Design and Elements**

Inconsistencies in design, such as varying color schemes and button placements, have been reported. It is important to understand that a cohesive and intuitive design is crucial for a positive user experience.

3. **Lacking of Feedback Mechanism**

Users have pointed out instances where the system's feedback mechanisms were unclear or lacking, leaving them uncertain about the outcome of their actions.

4. **Inefficient Form Design**

Complex or poorly designed forms can result in user frustration, especially if they are time-consuming or confusing.

Solution

The following are the proposed solutions based on the problem set that was given by the client:

1. **Solution for Navigation Complexity**

Conduct interview with a user and pin point some of the main problems in navigating the website. Developing a simple website structure to give a better convenient access or navigation of the website. User feedback sessions can identify a better idea of the user preferences.

2. **Solution for Inconsistency in Design and Elements**

Establish a consistent design with standardized color schemes, button styles, and layout principles. Create a style guide that outlines design principles and usage guidelines. At the same time, enforcing a better design consistency across the system.

3. **Solution for Lack of Feedback Mechanism**

Implementing clear and contextual feedback for user actions. Providing informative tooltips and help sections to guide users through complex processes. Regularly gathering user feedback and improving the mechanisms continuously.

4. **Solution for Inefficient Form Design**

Redesign forms to be user friendly and intuitive. Provide clear instructions and tooltips to navigate through the website forms. Conduct testings to identify any remaining pain points or flaws in the mechanisms and refine accordingly.

Team Working

For this design thinking project it is important to acknowledge that teamwork is crucial in making this project to success. The process of the design thinking has really helped elevate our team communication as we explored and discussed various ideas and solutions amongst ourselves. Throughout the project, we conducted meetings and had fun discussion trying to come up with the prototype. In conclusion, this project has really made us realize that teamwork and having great minds can really create a great outcome.

4.0 Design Thinking Assessments Points

The process of design thinking also involves another crucial phase which is the assessment points. This phase is very vital to the project as it will evaluate whether the system that we created will be able to solve the client's problem. The assessments usually happen during the end and through the project transitions. Here are some key assessment points:

1. **Empathy**

In this phase, in order to identify the problem of the system, the team decided to interview the client in person. The interview gave us a lot of insights and allowed the team the ability to assess the client needs.

2. **Define**

In this stage, the team made multiple meetings and discussions to assess and clarify the problem faced by the users. The team also checked if the problem statement is rooted in the user's perspective rather than making baseless assumptions of the system.

3. **Ideate**

After defining the problem, the team had a brainstorming session. We communicate with each other and generate a variety of ideas and solutions that can be made for the system. This phase has really shown the team that collaboration is important in order to build on each other's ideas and come up with a solution.

4. **Prototype**

The most crucial stage of the design thinking where the team will generate a low fidelity prototype to actualize the ideas that has been made. The team also collaborated with several other users to gather some feedback for refinement purposes.

5. **Testing**

The final part is to test the prototype. This is to get the user validation and assess the extent which the solutions address the actual need of the client/users. In this phase the team was able to evaluate and iterate the solutions based on the given feedback.

Apart from the design thinking phases, there are also other assessments points that should be taken into consideration such as;

- Implementation of the project
- Adaptability
- Team Communication

5.0 Design Thinking Evidence

Throughout the project, our team has managed to capture pictures of the progress that has been made for each phase. Below is the following evidence for each phase of the design thinking process:

Stage 1: Empathy
An interview was done with our client to further identify their problems with their organization's website and to record their opinions in that regard.

(Interview with the client)

Below are some of the snippets of the questions and answers from the interview:

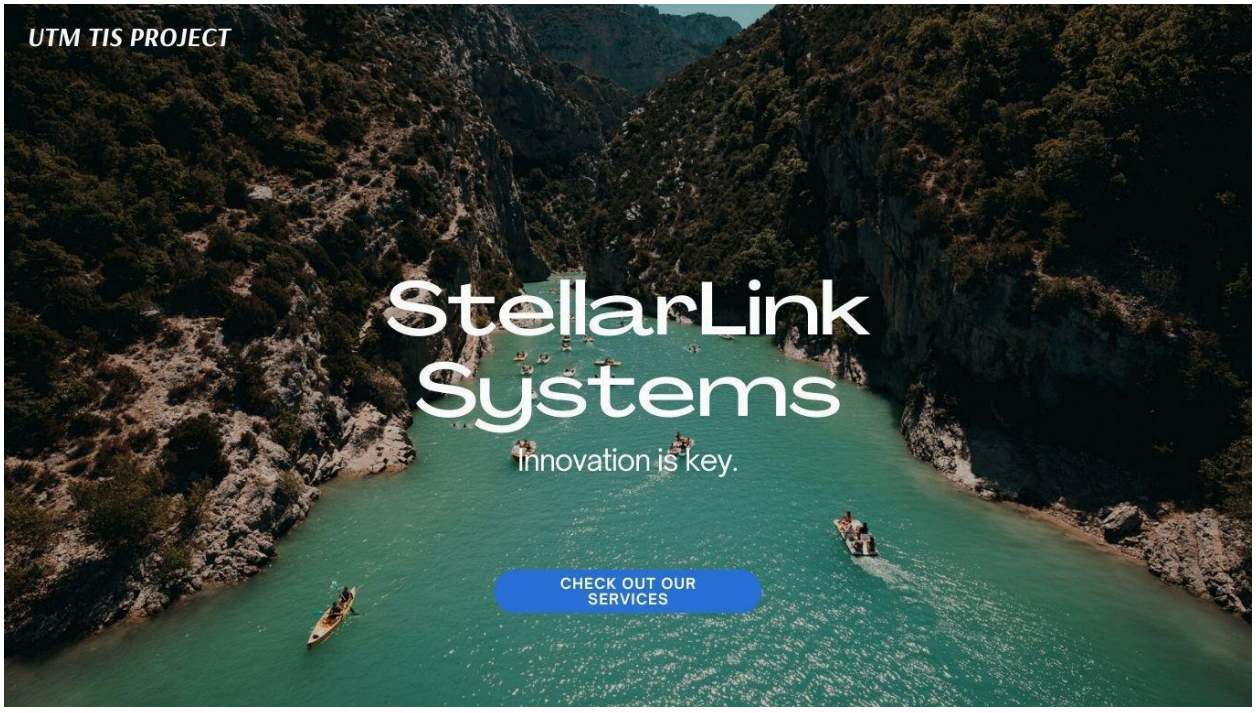
Q: How many users often visit your website?
A: Unfortunately, there aren't as many users as we expected to have. We made the website expecting a lot of users to experience our services but unfortunately there hasn't been many yet.

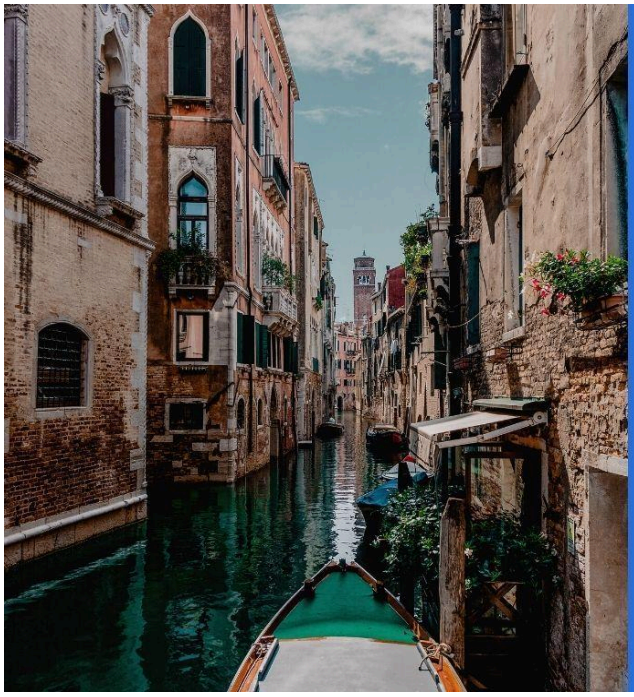
Q: Do you check the user feedback on your website?
A: Yes, we do check the user feedback. Some of the responses are positive and others are negative such as the user has a hard time navigating through our website.

The following is the attachment of the video link:
(https://youtu.be/xnW8wR6b57I)

Stage 2: Define

Below are the images of the old website for reference:





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London N1 4JX
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stellarlink@gmail.com

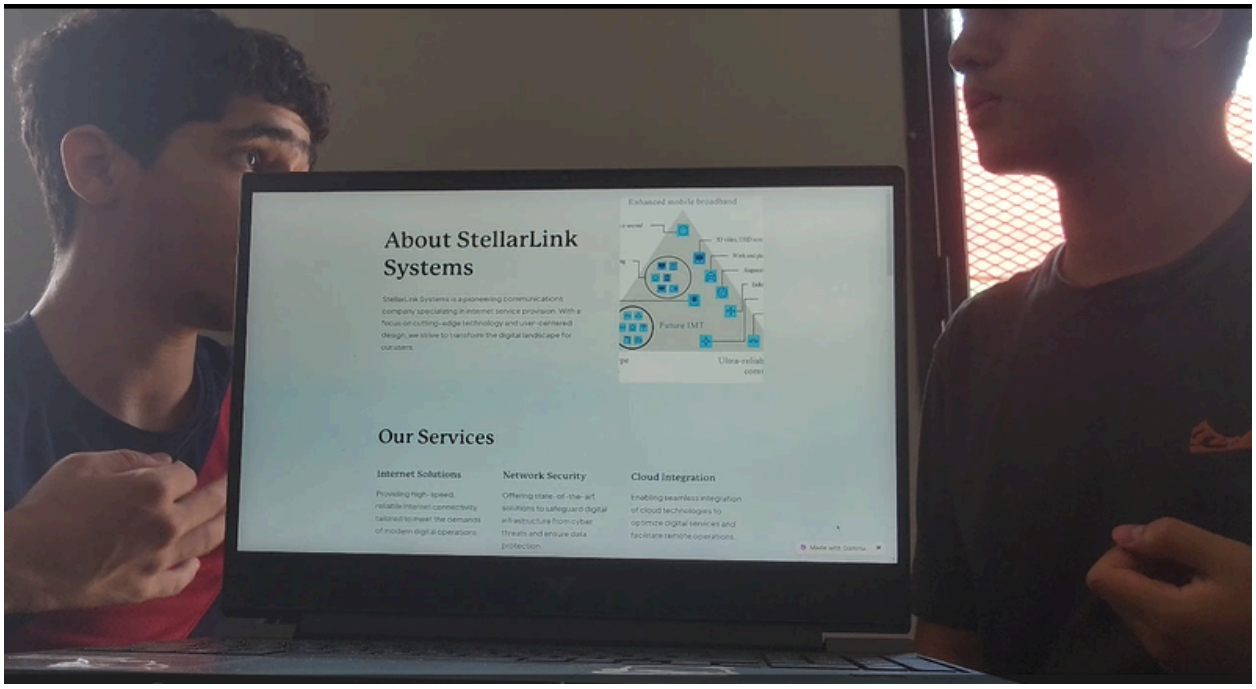
Stage 3: Ideate

The ideate stage where the team came up with several ideas and solutions to the problem. Here are some to the discussed context:

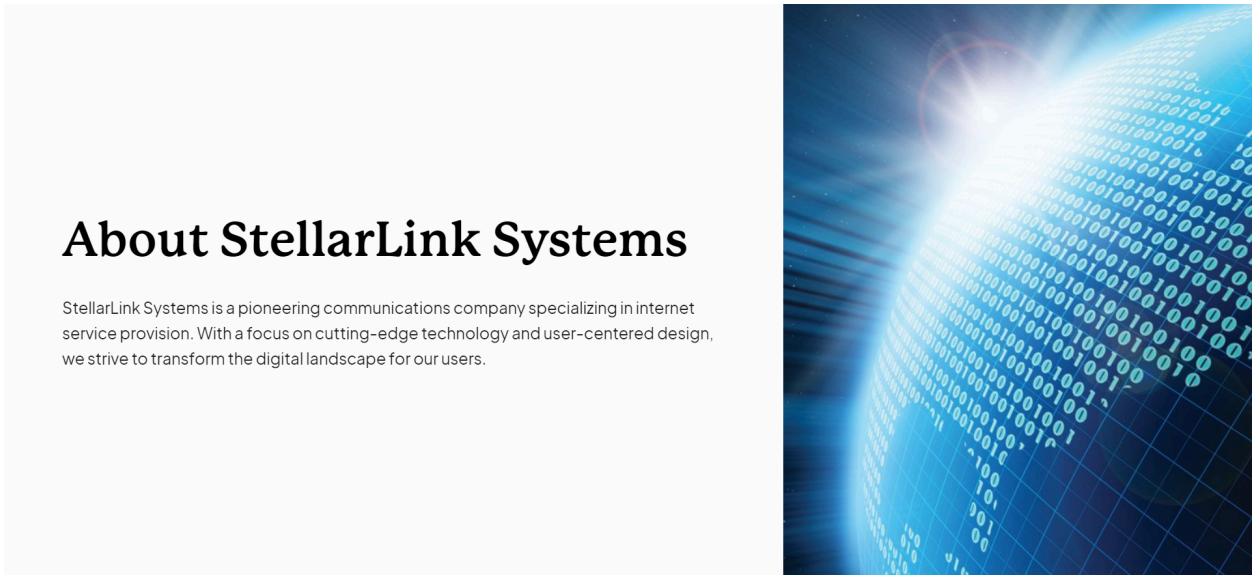
No.	Solution	Explanation	Accepted/Rejected	Reason
1.	Implementing good access features such as navigation to the next page and redirection of the website.	The user has stated to have difficulty in accessing information on the webpage. Therefore, the website needs better implementations in the access functions	*Accepted*	Relevant to the given problem statement and user requirements.
2.	Providing better design and elements to the website.	The users have indicated that the website lacks proper elements and having the difficulty to stay interested and piqued about the website which could ruin user experience.	*Accepted*	Relevant to the given problem statement and user requirements.
3.	Adding extra elements and complex button functions in the website.	Adding more elements and more button functions that can give access to other extra information to boost website networking.	*Rejected*	Irrelevant and rejected as we only need to focus on what the user wants to have and fulfill their requirement based on their needs.

Stage 4: Prototyping

The prototype is the experimental stage where we start to create the desired product that the client needs. At this stage, we made a temporary website that aligns with the client requirements.



(Presentation of prototype to the client)



(Picture 1 from the prototype)

(Picture 2 from the prototype)

The following is the attachment of the prototype presentation link:
(https://youtu.be/l0jC26mY2IU)

Stage 5: Test

For this stage we are required to stay in contact with clients to observe the implemented website. The company had developed a form to observe user feedback to the new website. The goal for this phase to remain updated on the responses to solve any minimal issues that may have gone undetected during the past phases.

Here are a few examples of the responses we received:

I have been a customer of this company from the beginning, and I am proud to see how far you have come. Keep up the good work.

This new interface is splendid!! It is truly a vast improvement to the last one.

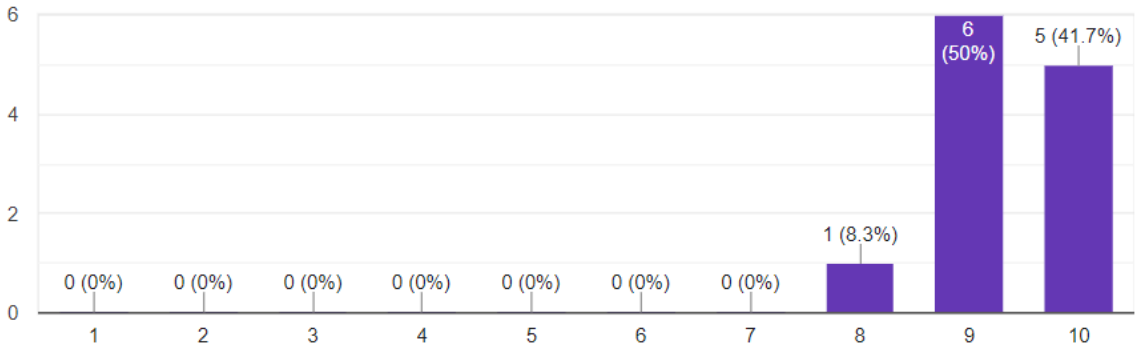
This new system is wonderful, nothing negative to say about it.

Within only half an hour of releasing the form, they've received positive ratings, some of which appeared to be new users. Below are screenshots of some of the form results:

On a scale of 1-10, with 1 being the worst, and 10 being the best, rate your experience with navigation through the website.

Copy

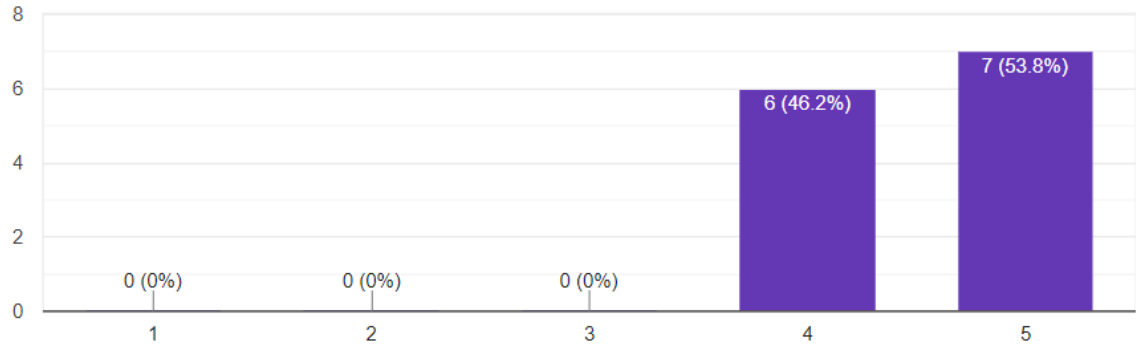
12 responses



How would you rate the overall ease of use of our user interface? (1 being the worst, 5 being the best)

Copy

13 responses



The results appear to be overwhelmingly positive, but the team will continue to monitor in case any more issues arise.

The following is the link for the form:
https://forms.gle/dHKanPcpMCLWTZA99

6.0 Reflections

Mahmoud:

a) **<u>What is your goal/dream with regard to your course/program?</u>**
Developing applications and games.

b) **<u>How does this design thinking impact on your goal/dream with regard to your program?</u>**
I learned how to strategize when it comes to planning on making a program for clients

c) <u>What is the action/improvement/plan necessary for you to improve your potential in the industry?</u>
Experience by trying to actually have some clients and help them with their problems

Jayotshna:

a) <u>What is your goal/dream with regard to your course/program?</u>
My goal is to gain more experience working on real life software projects and to further understand the reason and importance of the design thinking process.

b) <u>How does this design thinking impact on your goal/dream with regard to your program?</u>
The design thinking process involves a couple of stages which is essential in order to understand the clear approach of a feasible solution for a problem. Therefore, I believe that learning these stages is important as it can help me think and approach a problem better.

c) <u>What is the action/improvement/plan necessary for you to improve your potential in the industry?</u>
The most efficient way would be to get involved in more real life projects as much as we can in order to implement this knowledge and help build more innovative and creative generations in the future industry.

Jomana:

a) <u>What is your goal/dream with regard to your course/program?</u>
To gain more insight into how real projects would work, and the general flow of the Design thinking process.

b) <u>How does this design thinking impact on your goal/dream with regard to your program?</u>
This approach helps me understand how to empathize with users, clearly define problems, brainstorm innovative solutions, prototype new features, and test them to improve user experience.

c) **What is the action/improvement/plan necessary for you to improve your potential in the industry?**
Via experience, by volunteering for every opportunity that comes my way if it involves innovative thinking and problem solving. In addition, by learning from others who are more knowledgeable than me and applying that knowledge onto my own future work, I think I can find my seat in the industry.

Asha:

1) **What is your goal/dream with regard to your course/program?**
Goals that we want to achieve regard to this program is we want to be able to face any kind of problem in the future of our life, improving our studies, skills, and insight, get better future, and better career, use our knowledge to help anyone, useful in any kind of environment, since we are in network & security area we also want to help people protect their identity in this digital era.
2) **How does this design thinking impact on your goal/dream with regard to your program?**
This project required us to think in a critical way to solve some kind of problem, so from this project we learn to make solutions from people's problems in some cases, we learn how to work as a team and accept any kind of suggestion. These impacts will build us to have better skills when we enter the corporate world.
3) **What is the action/improvement/plan necessary for you to improve your potential in the industry?**
Action that necessary to improve is need to be more creative, innovative, having a better communication skills, work as hard as we can, trying to fit in any condition even the hardest condition and can solve any kind problem. These improvements are needed because in the future those skills will be considered as a requirement to getting a job.

Video link for design thinking:

https://youtu.be/7uWEwL6Tmb8?si=VpO9tEsG32fLoo4u

7.0 Task Distribution

TASK	DONE BY
Introduction	Jomana, Mahmoud
Detailed Steps, Descriptions, And Evidence	Jayotshna, Jomana, Mahmoud
Detailed Descriptions of Problems, Solution	Jayotshna, Jomana, Mahmoud

And Team Working	
Design Thinking Assessments Points	Jayotshna
Design Thinking Evidence	Jomana, Mahmoud
Reflections	Jayotshna, Mahmoud, Jomana, Asha
Task Distribution	Jomana