



## Design Thinking Report

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Course Code: **SECP1513**

Lecturer's Name: **DR SURIATI BINTI SADIMON**

Group's Number: **2**

Title: **Smart Travel-Planning Assistant**

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## **Introduction**

Design thinking is a crucial tool for problem-solving through collaboration, innovation, and design. The world is becoming a global village, and travelling has now become a part of modern-day living, but the planning part still has many fragmented activities. This design thinking process allows the students to choose the group that needs teamwork, problem-solving, analysis and critical thinking more than ever before.

Our project used the design thinking process to convey a major issue facing travellers in this generation, who are preparing their itinerary using various social media apps and links.

The problem of “Information Fragmentation” and “Manual Data Entry” was identified by our team and resolved using the Design Thinking tool for the development of the “Smart Travel Planning Assistant” mobile app that can generate a functional itinerary for travelling using social media links. By this, we managed to come up with a unique way to organise the travel into a perfect itinerary without hassles.

# Design Thinking Process

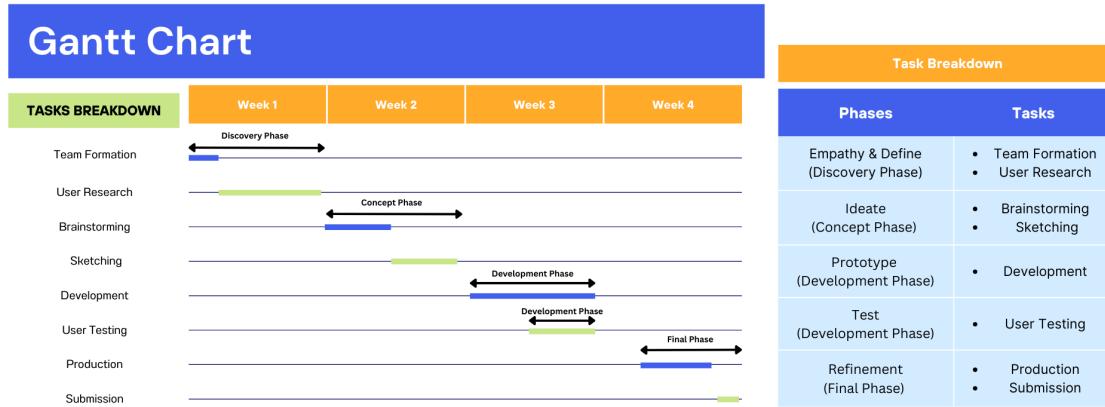
## Methodology Overview

We utilised the Design Thinking Process as a dynamic approach and embraced the five-stage structure.

- **Empathy:** Recognising the requirements of the user through observation and interviews.
- **Define:** Combining information to generate a precise problem statement.
- **Ideate:** Selecting the most suitable features and generating a list of potential solutions.
- **Prototype:** Creating a high-fidelity mockup of the application is known as a prototype.
- **Test:** Getting input and validating the solution with actual users.

## Project Timeline (Team Progress)

The project completed by our team was finished within a challenging four-week period.



**Week 1 (Discovery Phase):** We chose the "Travel" domain. We developed the main problem statement and defined our target audience through research.

**Week 2 (Concept Phase):** We created preliminary wireframes for the user flow and discussed the fundamental "Link Extraction" feature.

**Week 3 (Development Phase):** Using Canva, we develop the UI/UX. We spent the most effort developing the real interface during this phase.

**Week 4 (Final Phase):** We settled the video recording of this project and put together this report in time for the deadline of January 9.

## Workflow & Collaboration Tools

To ensure the team working, we utilised digital tools to manage our workflow:

- **Communication:** We used WhatsApp for quick updates. We also used Google Meet for a brainstorming session.
- **Documentation:** Canva was used to maintain our Gantt Chart as a log journal, and Google Docs was used to draft this report collaboratively.
- **Design & Brainstorming:** Canva was also used to allow us to visualise our "Ideate" session and build our prototype screens.

### Evidence of Collaboration:



Figure 1: A screenshot of our team discussing the first phase.



- *Figure 2: A photo of our group discussion on our base prototype sketching*

## Problem & Solution Snapshot

- **The Problem:** "Information Fragmentation" is a problem that many travellers face most of the time. The idea of travel is confined to an Instagram Reel or TikTok Playlist. They also encounter "Tedious Manual Data Entry" difficulties while attempting to include everything in an itinerary.
- **The Solution:** Links from Instagram and TikTok may be copied and pasted using the **Smart Travel-Planning Assistant**. After the system has extracted the location's name and operating hours, the user drags and drops things into a prepared foldered schedule. *This helps the individual plan a stress-free travel itinerary.*

# **Phase 1: Empathy**

The purpose of the Empathy Phase is to gain a deep understanding of users by identifying their behaviours, pain points and unmet needs related to travel planning. This phase focuses on observing and collecting user insights to ensure the solution is deeply aligned with user needs.

## **1.1 User Identification**

The proposed application targets modern, tech-savvy travellers, including:

- Student Abroad
- General Travelers
- Weekend Explorers

These users prefer convenience, speed and efficiency when planning trips. They frequently discover travel destinations through social media platforms such as TikTok and Instagram, or the links shared by their friends.

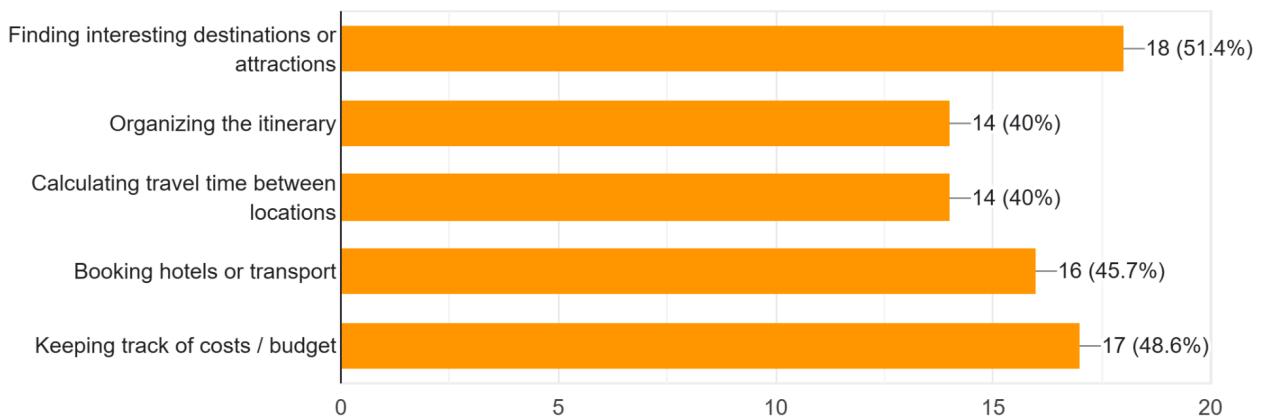
## **1.2 Survey Question and User Insights**

To better understand users' needs and challenges, a Google Form was conducted.

- Pain Point:

Which of the following do you struggle with when planning a trip?

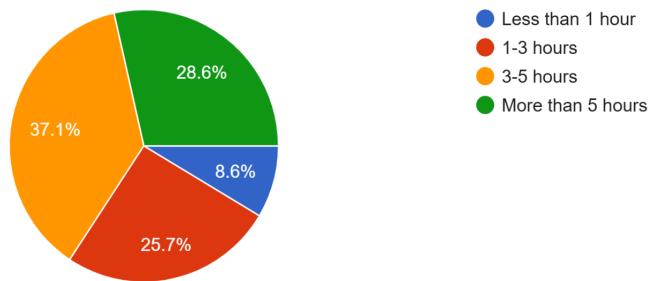
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- Time Consumption:

How much time do you usually spend planning a trip?

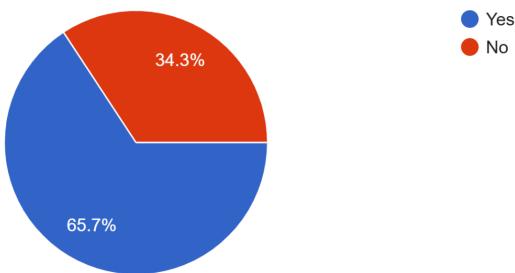
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- Frustrating Levels:

Have you ever abandoned a trip plan because planning was too complicated?

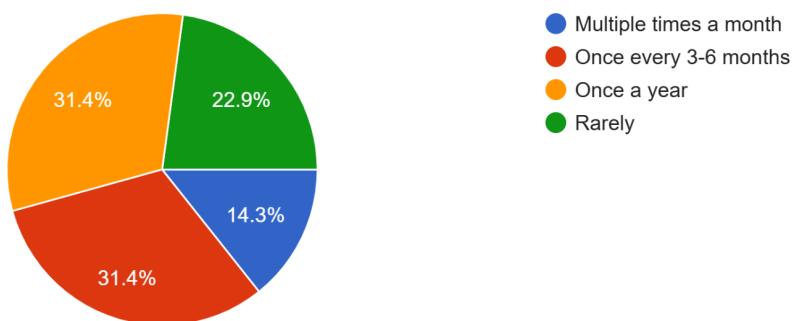
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- Travel Habit:

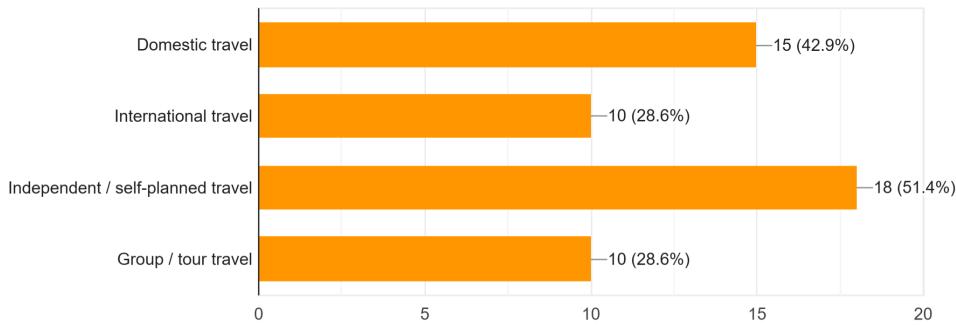
How often you go for a travel?

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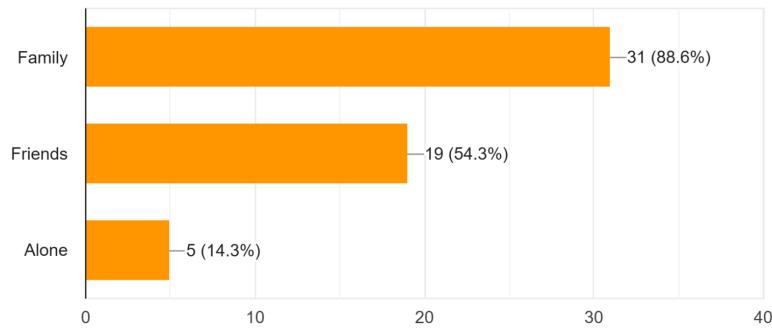
What type of trips do you usually take?

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Who do you usually travel with?

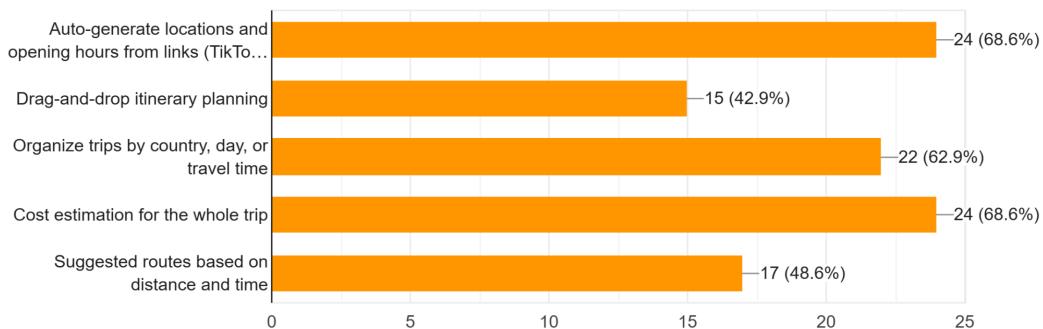
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### ● Feature Preference:

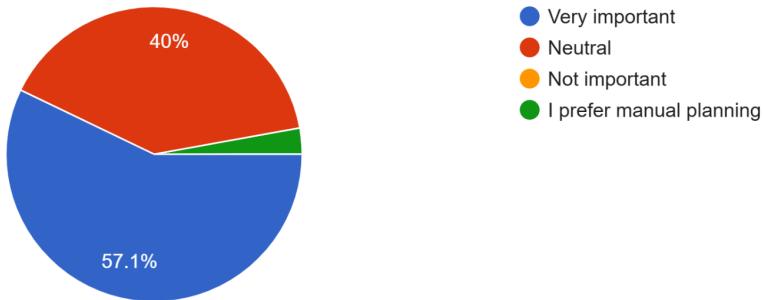
Which of these features would make planning trips easier for you?

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How important is automation in planning your trip?

(35 条回复)



### 1.3 Composite Character

User Persona: "The Overwhelmed Student Explorer"

#### Profile Summary

- **Demographics:** A female student (60%) in her 1st year of study (54.3%), likely from the Faculty of Computing (42.9%).
- **Device Preference:** Split nearly evenly, but leans slightly toward **iOS** (51.4%).
- **Travel Habits:** She travels with **Family** (88.6%) or **Friends** (54.3%) and prefers **independent, self-planned trips** (51.4%) rather than tours.

#### Behavioral Patterns

- **Frequency:** She travels roughly once every 3–6 months or at least once a year.
- **Planning Intensity:** She is a "heavy" planner, typically spending **3 to 5 hours** (37.1%) or even more than 5 hours (28.6%) preparing for a single trip.
- **Frustration Point:** Despite the effort, she has likely **abandoned a trip plan** in the past (65.7%) because the process became too complicated.

## **Phase 2: Define**

### **2.1 Problem Statement**

Nowadays, people often experience messy travel data and disorganised logistics when planning trips. Travel inspiration is often scattered across multiple platforms, especially on social media, which requires users to manually extract information such as location, opening hours and travelling distance. This process, which is boring and complicated, leads to frustration and causes people to abandon travel plans.

### **2.2 Re-framed Challenge (Point of View)**

People need an automated and convenient way to convert messy travel data into a tidy, structured and visual itinerary, because manually entering data takes a lot of time, and they cannot just focus on enjoying the travel experience itself.

### **2.3 Key User Needs**

**Automation:** The system automatically extracts and converts shared links into actionable location data, including place names, addresses, and operating hours. This eliminates the need for manual input, reduces mental effort, and allows users to focus on enjoying their trip.

**Organization:** Users can efficiently group and arrange locations by country or travel day using tools such as drag-and-drop. This flexibility makes it easy to adjust plans according to personal preferences or schedule changes, improving clarity during the planning process.

**Efficiency:** The system will calculate travel distances and estimated travel times between locations. By automatically optimizing routes and providing real-time travel insights, users can avoid backtracking, save time, and visit more places.

## **Phase 3: Ideate**

### **3.2 Solutions**

#### **1. Link to Itinerary Converter**

**Problem:** Messy and sometimes lack of informative travel data.

**Solution:**

Users can paste the links from any social media regarding anything travel related. The app would automatically then extract all the information related to the place from the Internet.

**Effect:**

Makes it easier for users to plan their trip by reducing the tedious work of manual data entry.

#### **2. Auto Generated Itinerary**

**Problem:** Disorganised travel arrangements.

**Solution:**

A visual itinerary is automatically generated by the app. It would create a timeline consisting of each day. A map based view of the location is also created.

**Effect:**

Increases clarity and makes it easier for users to quickly plan their travel flow.

#### **3. Click and Drag Itinerary Editor**

**Problem:** Obstacles faced by users when rearranging plans.

**Solution:**

Click and drag allows users to change their plans with ease. A user can simply click, drag and drop to rearrange locations.

**Effect:**

Offers flexibility and makes it easier for users to modify their plans.

#### **4.Smart Route Optimiser**

**Problem :**Time wasted as a result of inadequate travel planning.

**Solution:**

The app determines the shortest and most convenient route between locations.

**Effect:**

Reduces backtracking and increases the amount of time spent at destinations.

#### **5. Travel Time and Distance Estimator**

**Problem :**Uncertainty in travel time and distance.

**Solution:**

The app would display the travel time and distance once a location is entered.

**Effect:**

Help users to save their time.

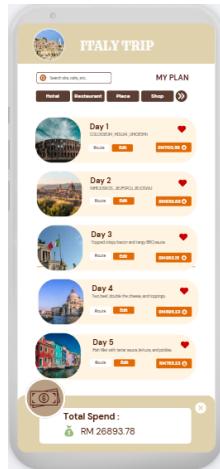
## Phase 4: Prototype (Development process)



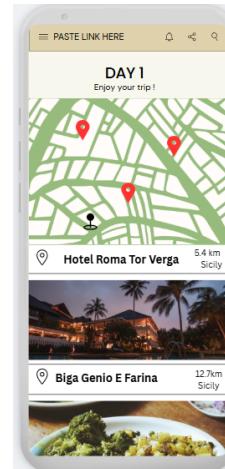
**Figure 3.1:** The login screen allows users to enter their username and password to access the application. It includes input fields for user ID and a password.



**Figure 3.2:** Users will be met with the home screen of the app where the user can input a link, start a new travel plan, edit an already made plan, or review past travel plans.



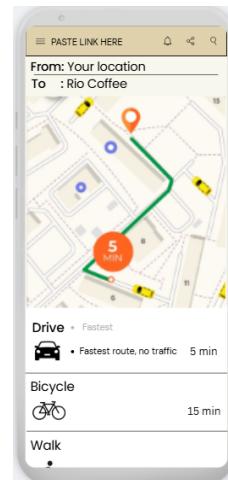
**Figure 3.3:** A travel itinerary is sorted into an organised order according to the plan that was inputted by the user.



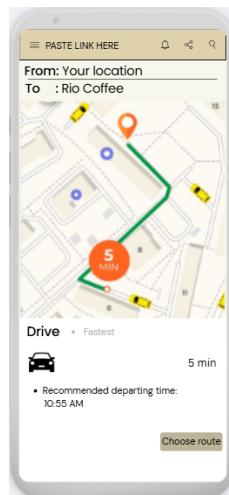
**Figure 3.4:** User can add any sort of links regarding a location that the user wanted to go or get suggestions from the app itself.



**Figure 3.5:** The app will prepare an information window of the location extracted from the pasted link. It will display information regarding the location such as pictures of the shop, description, operating hours, ratings and reviews, as well as the average cost per person.



**Figure 3.6:** The app is able to optimize the fastest route for users to the chosen location. It can also accommodate according to the user's preferred transportation.



**Figure 3.7:** Once a user has chosen the preferred way of transportation, the app can recommend a departing time for users to save time.

## **Phase 5: Test (User Feedback & Results)**



- *Figure 4: A photo of a user testing the prototype*

We have tested the application with a user who has had trouble with planning a trip before. The user, Chloe Khoo, had identified the application's strengths and areas for improvement. The feedback received was generally positive, with the user finding the application easy to use. Suggestions were made to improve clarity and functionality, which will be considered in future development.

We have also gotten a few responses from the Google Form with positive feedback.

Is the "Link Input" feature helpful for user experience?

Yes it is very helpful. The feature isn't hard to use and you only need to paste a link into the app for it to give you information about the place you are looking into

Does the app make it easier to plan a trip?

Yes it's the easiest way to plan a trip compared to my previous experiences. The app basically does the rest for you when planning a trip so it saves a lot of my time spent on planning.

Users have given feedback that the feature was simple to use and beneficial. The application had made it easier for users to form a plan for their travels while not wasting too much time trying to decide the itinerary.

# **Assessment Framework:**

## **Milestones & Evaluation Points**

### **Milestone 1:Emphasise**

Targeted users clearly identified	✓
Valid method used to evaluate (Survey:Google Docs)	✓
Insights are relevant to the problem	✓

### **Milestone 2:Define**

Clearly written problem statements.	✓
Problems based on user feedback (not assumptions).	✓
Problem scope is realistic .	✓

### **Milestone 3:Ideate**

Multiple solutions generated	✓
Ideas directly address the defined problem from Phase 2:Define.	✓
Creativity demonstrated.	✓

### **Milestone 4:Prototype**

Key features explained clearly.	✓
Prototype matches the selected solutions in Phase 3:Ideate.	✓
Prototype is easy to understand.	✓

### **Milestone 5:Test**

Prototype tested by users.	✓
Feedback collected and documented.	✓
Improvements suggested based on feedback.	✓

### ***Individual Reflection***

<b>BONG JING RU (A25CS5040)</b>	<p>My goal is to integrate the Software Development Lifecycle with Research Methodology to create solutions that are desirable, feasible, and viable. Design Thinking has transformed my approach by prioritizing empathy and user personas, ensuring that I define the Point of View before jumping into technical implementation. To improve my industry potential, I plan to utilize brainstorming and paper prototyping to materialize ideas quickly, allowing for continuous feedback and improvisation.</p>
<b>KISYORRAN GUNASEKARN (A25CS5023)</b>	<p>By having the opportunity to do this Design Thinking Project, my skills in utilising the process as a dynamic approach have helped me to make the job much more efficient. What I find most intriguing about this project is that we get to build an idea from A to Z, which helps us to do all the critical thinking and helps to expand it. This has sparked an interest in me to become more curious and find out how many more theories like this are on the internet. I find it to be very satisfying to learn all these new theories.</p>
<b>SOFEA QISTINA BINTI AHMAD FATHUL JOHARI (A25CS5025)</b>	<p>After going through the process of the Design Thinking Project, I have learned a lot while working on it. This project has reshaped the way I approach problem-solving by teaching me to not go too fast, understand the user's perspective, and refine ideas through continuous testing rather. Learning and applying new concepts were both engaging and rewarding. It has motivated me to continue developing these skills for future academic and professional projects.</p>
<b>GAN ZHI KWAN (A25CS5008)</b>	<p>My goal in design thinking is to learn about technology and information systems so that I can design practical, user-centered solutions. I hope that I can use the skills I learned about problem-solving to create systems or applications in future times. By focusing on empathy, ideation, and design thinking trains me to think from the user's perspective. To improve, I plan to strengthen both my technical and soft skills, which include practicing programming consistently, teamwork and communication skills.</p>
<b><u>SASHWIN RAJAGOPAL</u> (A25CS5031)</b>	<p>My aim being on this programme is to learn more about the use of technology in the industry. Day by day, technology in the industry keeps on evolving, so should we by learning it. This design thinking project helped me by teaching me to think like a problem solver and focus on figuring out what real users need and to come up with useful and new solutions. To be better in my career, I need to work on my technical skills through hands-on projects, improve my communication skills, learn more about this evolving industry and keep up with the latest technologies and trends.</p>