

Tripinary

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<https://github.com/CMPT-276-SUMMER-2025/final-project-02-peak.git>

1. Project overview and the problem it aims to solve

Tripinary is an AI-assisted trip planning tool that generates personalized itineraries based on the user's city of choice and duration of stay. Our application uses these user inputs to generate suggestions of activities that the user can pick from. For example, the user can choose from a carousel of restaurants, outdoor activities, cultural events, etc., and the website will compile an itinerary for them based on these preferences. The itinerary will contain a list of time stamped activities that the user can follow each day, consisting of selection preferences from earlier. At the bottom of this itinerary page, there is a prompt box that allows the user to regenerate their itinerary. Once users are satisfied with their itinerary, they can press on individual activities, which will take them to a slide-out page containing a map of the activity on their itinerary and the latest five reviews of that specific activity.

Our application focuses on helping users plan trips and create daily itineraries for them to follow while on their trip. Tripinary tailors suggestions based on the users' preferences and needs. The following are some user groups that will benefit from using this app; students looking for a budget-friendly vacation, hobbyists looking for unique experiences, local residents exploring hidden gems in their city, professionals organizing business travel schedules, and avid travellers chasing their next adventure. By leveraging AI, our application serves as a fast and simple planning tool for travelers who want to avoid the hassle of researching and organizing their trips. It generates a customizable itinerary suited for each person. For more information regarding specific user groups and stories that our application addresses, please refer to User Groups & Personas in Section 4 and User Stories in Section 5.

Our team came up with this idea because our group consists of international students and travel enthusiasts who like to go on trips. We often have places we want to go, but planning certain activities at each destination can be time consuming and overwhelming. Tripinary is an important app because it allows travellers to plan trips all in one place without having to search through reviews and sites just to find a few good options. Our app has AI-generated itineraries and displays the activities on the map based on individual user preferences. This not only saves time but also encourages people to discover new destinations they might not have considered.

2. Chosen APIs and a brief description of each

Phase 1: 6 features using OpenAI and GoogleMaps API below

I - OpenAI: GPT-4o-mini

The OpenAI API provides access to AI models like GPT-4 for tasks, and developers are able to integrate this API to allow conversational AI and content creation into applications. It allows developers to generate text based on user input.

Features:

1. Timestamped Itinerary List → Creates a personalized travel itinerary based on the user's location preferences and trip duration.

2. Activity Suggestions → Recommends specific activities and places (ex: restaurants, hikes, etc.) depending on user inputs and allows users to add this to their itinerary.
3. Itinerary Regeneration → Based on the itinerary that is created from user inputs, this feature would allow users to press a regeneration button that gives them a new itinerary

Revision:

- We simplified our third feature, instead of a box that allows users to type in suggestions to regenerate their itinerary, it will now just be a regeneration button
- Optional (we will implement if time permits): Itinerary Regeneration → Based on the itinerary that is created from user inputs, allows users to type in specific things they want to change or places they want to replace/add, and regenerate the itinerary based on that.

II - Google Maps & Places API

The Google Maps Places API allows the application to search and retrieve information about places using location data. It allows developers to embed Google Maps on web pages, offering geographical data and displaying user reviews.

Features:

1. Place Search → Based on the map of the itinerary that is generated, this feature allows users to locate and search for specific places (i.e. restaurants, hikes, etc.) and display a map view of its location.
2. Place Review → Shows the latest five reviews of specific activities on the user's personalized itinerary. The place review will include star rating (out of 5), description, and name of the reviewer.
3. Map Display → This feature displays an interactive map of where each individual activity is located.

Phase 2 (Optional features):

Optional implementations that we will implement if time permits:

- Chatbot on the bottom right of each page that allows users to ask questions
- Itinerary Regeneration feature as mentioned above

Back-Ups APIs:

III - GeminiAI

Gemini API is Google's way of allowing developers to access its AI models. It is designed to process and generate content using Gemini.

Features:

1. Daily Itinerary Generation → Creates a detailed schedule with specific dates/times for each activity to be completed at.

2. Route Optimization → This feature gives users recommendations for activities that are conveniently within range of other activities in the itinerary.
3. Activity suggestions → recommends local experiences or new activities to try out based on specific categories (i.e. food, nature, etc.) based on user input.

IV - AmadeusAPI

The Amadeus API provides access to travel-related data and services, which allows developers to build applications to find cheap flight and hotel deals, and retrieve real-time information for travel recommendations.

Features :

1. Flight Search → Feature allows users to search for the best flight deals based on their specified budget and provides them with direct booking links.
2. Hotel Search→ This feature allows users to search for best hotel deals based on their specified budget and provides a direct booking link.
3. Travel Recommendations → This feature recommends activities for users to try out based on their travel destination.

3. Front-end technology stack that this project will be based on

We selected a front-end stack of React, JavaScript, HTML, and CSS. This stack allows us to build an interactive user interface that will generate and display personalized travel itineraries. React is based on components, which makes it easier to reuse certain parts. For example, we are planning to implement a carousel for browsing recommended activities (e.g., food, nature,), a slide-out page for location maps and reviews, and an itinerary page that updates with each regeneration. One of React's features is JSX, which blends JavaScript and syntax similar to HTML.

React also includes libraries such as React Router Dom, which we can use to navigate between different pages (Itinerary, Map, etc.). CSS styling allows us to control the layout, colors, etc. and allows for responsive design. For web hosting services, we will be using Vercel. Additionally, for designing the website itself, including the medium and high fidelity wireframes, we will be utilizing Figma.

4. User Groups & User Personas

i) User Group 1 - Students:

Persona:

Name: Lucas

Demographics:

Age: 23

Education: Bachelor's degree in Kinesiology

Occupation: Student

Family: Single, lives with his parents and sister

Background:

- Varsity athlete
- Enjoys hanging out and exploring nature with friends
- Lives in a busy city

Characteristics:

- Very athletic and likes to keep track of his diet
- He is not very good with making a plan but he is flexible and open to any activity

Goals:

- He wants to plan a grad trip on a budget
- Seeks convenience making an itinerary as he is busy finishing courses

Challenges:

- Has only travelled by car or road trips
- Never travelled alone
- Doesn't drive and relies on public transportation

Behaviours:

- Comes home late from school practice
- Studies as soon as arrives home

Quotes & Motivations:

- Quote: "I love pushing my physical limits and I care a lot about my health. Eating healthy and exercising is important to me."
- Motivation: Budget-friendly, convenience, scenery.

ii) User Group 2 - Locals:

Persona:

Name: Kenny

Demographics:

Age: 27

Education: Bachelor's in Computer Science

Occupation: Technical Project Manager

Family: Single. Lives alone

Background :

- Born and raised in Canada, avid backpacker
- Tech savvy, knows how to navigate web applications
- Too busy to research travel destinations

Characteristics:

- Relies a lot on to-do lists and similar apps to plan his activities
- Values more private, hidden gem areas
- Avoids places packed with tourists

Goals:

- Wants to attend pop-ups, festivals, and seasonal activities outside of his city
- Wants to be more active and explore new physical activities, like bouldering.
- aims to find new places that he should frequent

Challenges:

- He gets anxious when a place is overcrowded.
- Struggles to find something on the web that isn't catered towards tourists

Behaviors:

- Often uses google and social media apps when trying to find someplace new
- Tries to explore a new place every weekend

Quotes and Motivations:

- Quote: "I wish I could discover more understated places that have not been overly popularized by tourists and remain true hidden gems."
- Motivation: Meeting new people, time-saving, exploring new areas

iii) User Group 3 - Hobbyists:

Persona:

Name: Alex

Demographics:

Age: 48

Education: Photography certificate from a Fine Arts School

Occupation: Freelance Photographer

Family: Has a family but is not close to them, has a pet dog, Sam, who is constantly with him

Background:

- Professional photographer who is very passionate about capturing photographs in nature
- He has a blog which he posts his photos to, and loves to travel to diverse environments around the world

Characteristics:

- Artistic and very passionate about his art
- Non-picky and not financially constrained

Goals:

- Travel to diverse environments and locations around the world to take pictures of nature
- Find locations that are unique and wants to plan trips that maximize the opportunities he has to capture beautiful nature pictures

Challenges:

- Is very against going to popular, overrated travel locations where people always take nature photos
- When he travels, he needs to take photos within a certain time frame, for example, if he wants to take a picture of the New York Skyline during sunset, he would have to be in New York in the evening to capture it

Behaviours:

- Not a busy schedule and his photos are not high demand, so he is naturally a very laid back individual
- Prioritizes quality photos so is willing to be flexible with travel dates if it means capturing specific photos during a time of year

Quotes & Motivation

- Quote: "I want to capture every beautiful aspect that nature has to offer"
- Motivation: is passionate about his art and wants to photograph every aspect of nature

iv) User Group 4 - Professionals for Work/Business:

Persona:

Name: Miley

Demographics:

Age: 32

Education: Private homeschool, up to a high school diploma

Occupation: Pop star/Singer

Family: Has a big family with parents and two sisters, but is not close to them. Has a boyfriend who is also a famous country singer

Background:

- Global sensation who needs to be followed by security to protect her privacy
- Lives in Austin Texas, and when not on tour or in the studio recording an album, is in her barn house in Texas
- High demanding career, and was a child actress as well. When she is not performing or doing press, she enjoys being in a comfortable room to relax

Characteristics:

- Highly irritable and values privacy
- Has high expectations when it comes to quality service and luxury accommodations

Goals:

- Wants to book 5+ star accommodations when she is travelling between cities for press/concerts
- Wants to protect her privacy during stays, so wants hotels with high security and good service

Challenges:

- She is so popular that paparazzi and fans always find her, so she wants a place that is exclusive and will allow her to have a level of discretion

Behaviours:

- Incredibly busy schedule so she often relies on her personal assistant to book her accommodations
- Expects only luxury or high end accommodations, and expects fast and reliable service at the hotel

Quotes & Motivation

- Quote: "I need a luxury hotel that I can relax at where I won't have paparazzi interrupting my privacy"
- Motivation: Wants to relax and destress when finally getting a break between shows/press tours

v) User Group 5 - Avid Travellers:

Persona:

Name: Todd

Demographics:

Age: 29

Education: Bachelor's degree in communications, minor in public relations

Occupation: Social media influencer

Family: Single

Background:

- Lives in New York City and gained popularity through his life hack videos on TikTok and YouTube Shorts
- Tech-savvy and owns a laptop, computer, recording set, and editing tools to edit his videos
- He is self-employed as an influencer, has plenty of spare time in his day when not recording and editing

Characteristics:

- Bubbly, outgoing, and social
- Spontaneous since his day does not have much structure

Goals:

- Wants to transition into being a travel content creator
- Wants to find cheap deals on flights, and wants to travel often, so would ideally like to have back to back flights
- Wants to cram as many trips as possible within one year so his videos gain traction onto travel sites

Challenges:

- His income depends on his brand deals and views, so it is important that he save money where he can
- Struggles to find good deals on flights because the flight booking sites are too confusing

Behaviours:

- Visual learner and benefits from clear, organized information and layout
- Prioritizes views that his videos generate, so is willing to travel anywhere for views
- Tends to be spontaneous so is willing to pick up and travel any time

Quotes & Motivation

- Quote: "I wish I could have gone viral for the video that I posted in Central park at sunset, since that is a popular tourist location in the city"
- Motivation: Views/Going viral, aesthetic places, budget friendly options

5) User Stories for each feature

OpenAI API:

- Timestamped Itinerary List: Miley is a very busy popstar that travels a lot for her concerts. Her Europe tour is coming up and she wants to explore Paris and London. She is spending three days in each city but she has no time to research what places she should visit because of her concert rehearsals. She plans on using Tripinary to make herself an itinerary for places to go while in each city.
- Activity Suggestions: Alex has never been to Venice, Italy before and is not familiar with the culture. He also wants to explore and take photos of architecture around Venice. The Activity Suggestions feature will help him find which parts of Italy are tourist friendly and where the best lookout spots are.

- Itinerary Regeneration: Kenny is unsatisfied with the itinerary that the program generated for him because he thinks some places are overrated. He provides a prompt saying “find me more local activities”. Tripinary will create a new itinerary based on Kenny’s suggestions.

Google Maps + Places API:

- Place Search: Todd is an influencer taking a trip to Vancouver for the first time and he wants to find five-star Italian restaurants close to his hotel. Google Places API will show him a list of all Italian restaurants close to his hotel or any other points of interest he thinks of.
- Place Reviews: Miley is performing in Seattle for two nights and she wants to make the most of her trip during the daytime. She is a picky person and does not want to waste their time going to places that are not popular and not highly rated. The reviews feature of Places API alongside the search feature will display highly rated places around the city.
- Map Display: Alex is going to Venice for the first time and he is not familiar with the region. He wants to take photos of the Grand Canal near the Venice river to post on his photography blog. The maps embed feature from Google Maps will show the area where he is staying. The map will also show nearby restaurants and activities so he can plan his itinerary around that.

Gemini API:

- Daily Itinerary Generation: Alex is a busy professional taking a 4 day vacation and wants a timeline that organizes each day for him. He inputs the activities he wants to do and the AI will output the most efficient timeline and order of the activities to be done.
- Route Optimization: Kenny is a budget-conscious backpacker that likes exploring multiple cities, he wants more optimized travel routes between all her destinations to minimize transit costs and avoid wasting time by entering all her stops and avoids unnecessary backtracking for any destination
- Activity Suggestions: Todd is a solo travel influencer and wants the system to recommend local experiences and new activities based on his preferences, so that he can make the most of his trip by trying things he’ll enjoy and might not find on her own, he would input interests, e.g (“street food” and the system will suggest a curated list of local activities and recommendations relevant to selected location

Amadeus API

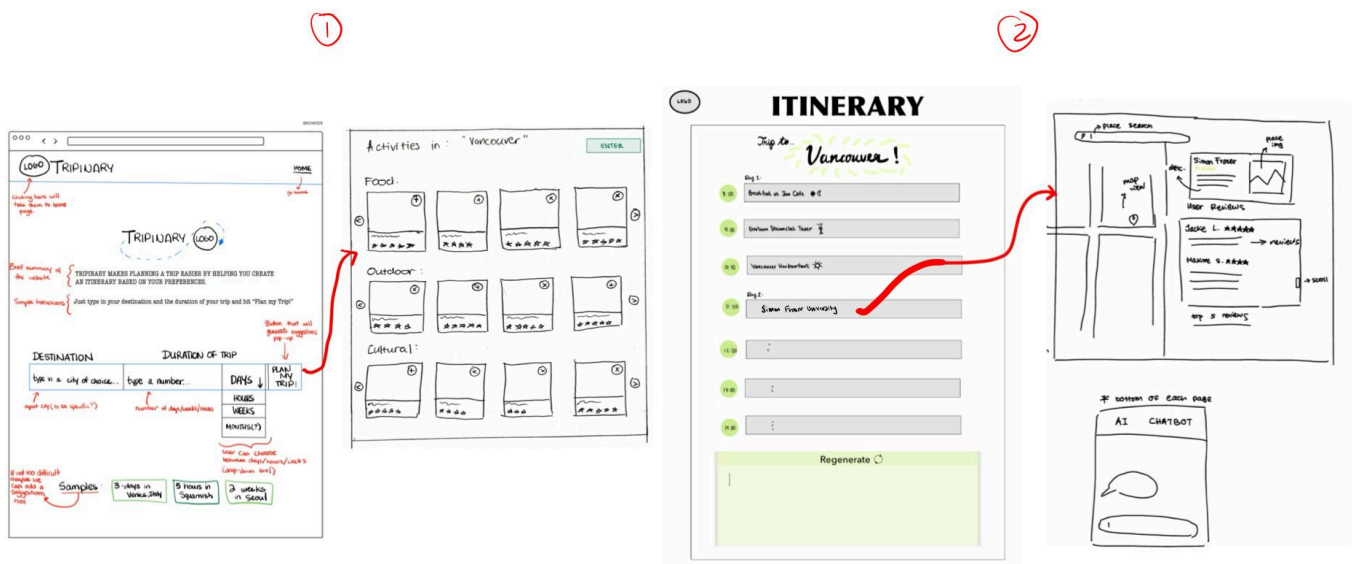
- Flight Search: Todd is a social media influencer who wants to travel to as many popular places as he can so that he can film travel content there. He does not have much structure in his life, so his goal is to fly to as many popular cities as he can while on a budget. This flight search feature will help him find the cheapest flights available, at a specific time and date range, and will allow him to book back to back trips and film as much content as he can there.
- Hotel Search: Miley is a celebrity pop star who constantly travels between concerts and press tours. Due to her busy schedule, she can be highly irritable and expects that after a long day, she can go back to a hotel that is private. She requires high-end accommodations because she does not worry about expenses. The hotel search feature will let Miley select the number of stars her hotel is rated, look at previous ratings of the hotel, and look at amenities and services provided.

- Travel Recommendations: Alex is a photographer who is in love with nature photography. He is willing to go to great lengths to capture unique photos of the wilderness for his photography blog. He has so many things he wants to take pictures of that he does not know where to begin, so the travel recommendations features will help him curate recommendations of destinations to travel, that allow for the best pictures.

6. A low-fidelity storyboard of the application interface/features

Each member of our group drew a component of the interface shown below, there will be two pages, the main page (1). Once the user inputs their preferences and clicks “Plan My Trip”, the second Activities (2) page will be shown, containing a carousel of activities in sorted categories they can choose from. From there, they can hit Enter, and our application will generate an Itinerary (3) and if they click on an activity it will take them to the Map (4).

(Clearer individual pages below!)



REVISIONS:

- Footer (at end of each page): This will include the logo, name of the website, and the date it was last updated.
- AI Chatbot (OPTIONAL): This is now marked as an optional feature that will be implemented if there is time.
- Regenerate input in Page 2 (OPTIONAL): This is now marked as an optional feature which will allow the users to customize the itinerary that was first generated.

TRIPINARY HOME

Clicking here will take them to home page.

go home

TRIPINARY **LOGO**

Brief summary of the website { TRIPINARY MAKES PLANNING A TRIP EASIER BY HELPING YOU CREATE AN ITINERARY BASED ON YOUR PREFERENCES.

Simple Instructions { Just type in your destination and the duration of your trip and hit "Plan my Trip!"

DESTINATION **DURATION OF TRIP**

type in a city of choice... type a number...

input city (to be specific?) number of days/weeks/hours

DAYS ↓

HOURS

WEEKS

MONTHS(?)

PLAN MY TRIP!

Button that will generate suggestions pop-up

user can choose between days/hours/weeks (drop-down tool)

If not too difficult maybe we can add a suggestions tool

Samples :

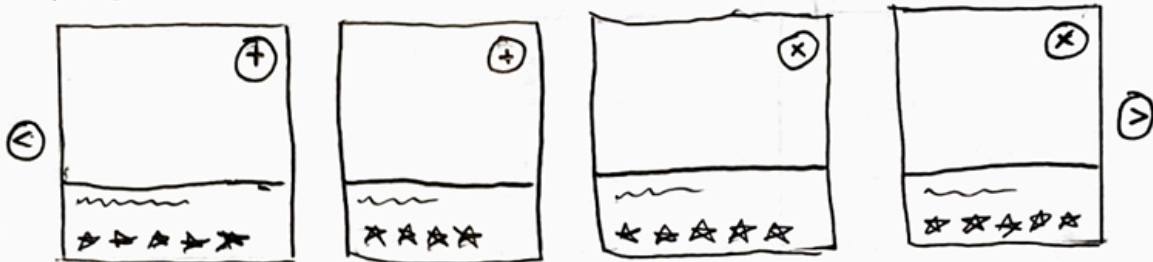
3-days in Venice, Italy

5 hours in Squamish

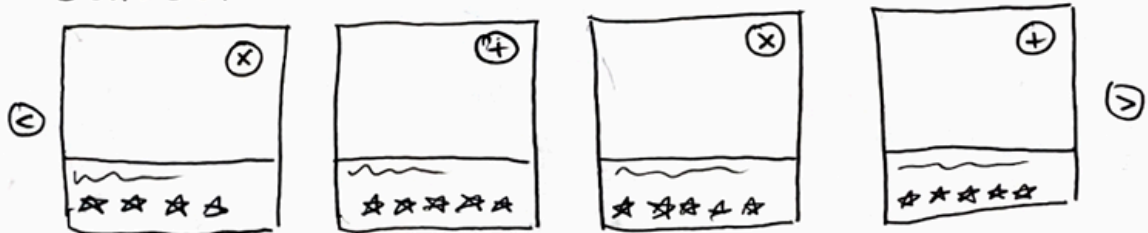
2 weeks in Seoul

Activities in : "Vancouver"

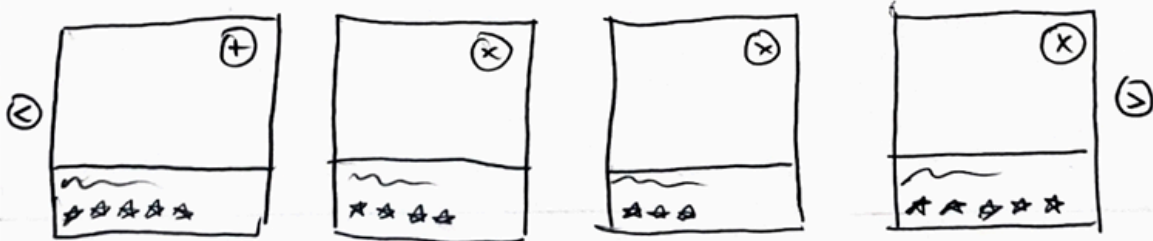
Food:



Outdoor :



Cultural :



LOGO

ITINERARY

Trip to...
Vancouver!

Day 1:

8:00

Breakfast at Jim Cafe ☕

9:00

Gastown Steamclock Tower 🕒

10:00

Vancouver Harbourfront ☀️

Day 2:

11:00

:

12:00

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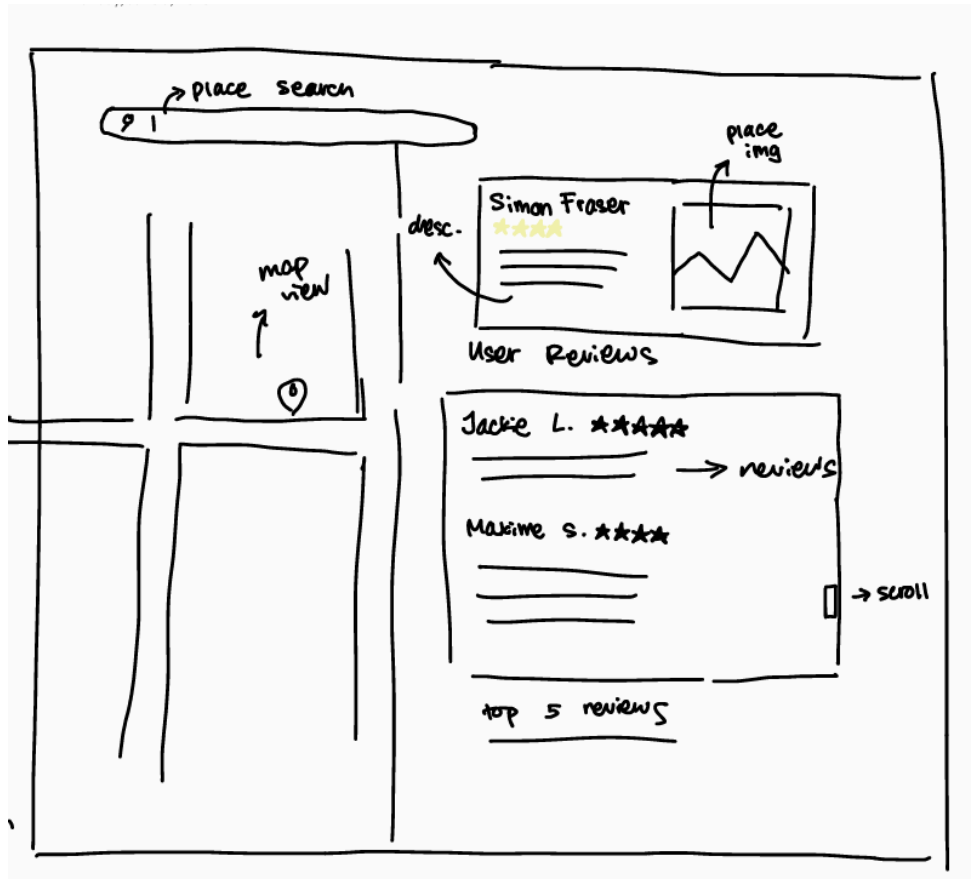
13:00

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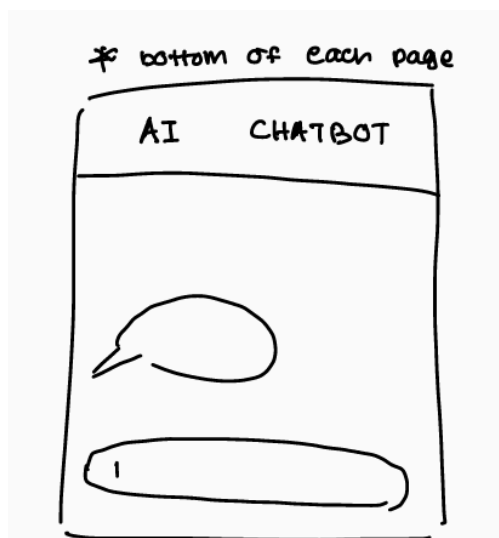
14:00

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Regenerate ↻



Page 2 - Slide-in Map (connected to itinerary page, slides open when a place on the itinerary is clicked)



AI CHATBOT - Optional