

MOUNTAIN TOP

Jason Zhang



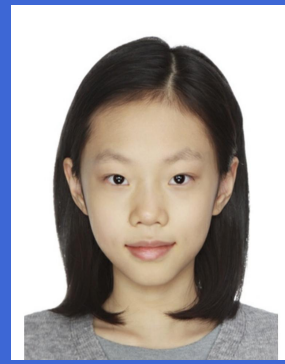
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Kingka Hu



OVERVIEW

- **App Name:** Mountain Top
- **App Description:** Mountain Top is an Android App dedicated to offering efficient, one-click trip-planning services to users with diverse requirements. Our app harnesses a suite of advanced technologies, including ChatGPT, web API, databases, and map components, and it is enhanced by your phone's built-in sensors.
- **Track:** Youth Team
- **Category:** Creativity, art & entertainment

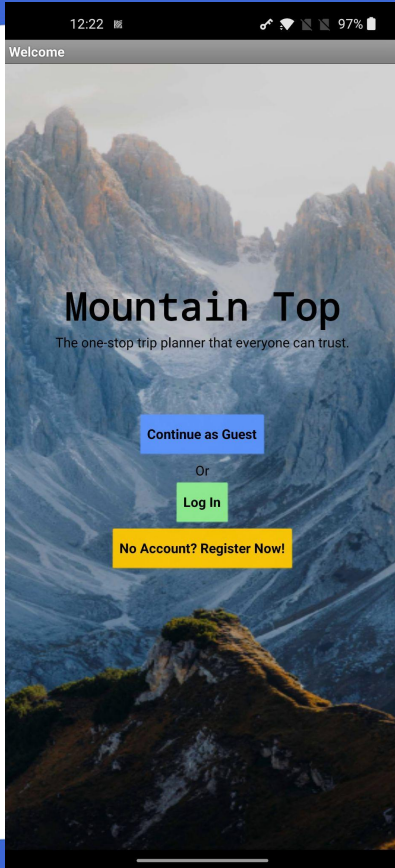


THEME

Trip planning can be overwhelming due to the abundance of online information. We conducted a user study of 10 individuals revealing planning times ranging from 30 minutes to 5 hours, with most of the participants finding the process lengthy and tedious. To address this, we developed Mountain Top: an AI powered one-stop travel planner to cut planning time to just 5 minutes. Our goal is to provide an efficient and enjoyable planning experience, automating decisions on points of interest, routes, and other essential details for all travelers while preserving maximum customizability when needed.



INSTRUCTIONS



Step 1: Welcome

- This is the first page you see on the entry. Which includes the app name, our slogan, and three options.
- In the background, the logged-in status will be set to false in tinyDB until the user login successfully.
- “Continue as Guest” allows users to generate a travel plan quickly without logging in. Most of the features will be available in this mode although not all.
- “Login” and “Register” will take you to the respective pages. Only logged-in users will get all the features unlocked.



INSTRUCTIONS



Register

Name:

Email:

Phone:

Username:

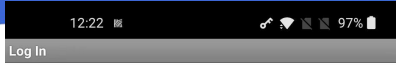
Password:

Step 2.1 Register:

- Register Once you click "Create Account!", the system will write the data into CloudDB, with your username as the tag and the rest in dictionary format as the value. (In the previous sentence, it's not clear what "the rest" refers to. If possible, you may want to specify which data is included in the dictionary format.)
- In the background, our code performs a sanity check to ensure there are no duplicate usernames in CloudDB and that all required fields are filled out. It will show an appropriate alert if any of the checks fail and stop writing content into the database.
- The "Back" button will take you back to the Welcome Page.



INSTRUCTIONS



Step 2.2: Log In

- On this page, you can enter your registration details in the provided text fields.
- CloudDB verifies the information. If successful, your logged-in status along with a copy of CloudDB data is saved in tinyDB for faster performance. Then the app will automatically proceed to the home screen.

Log In

Username:

Password:



INSTRUCTIONS



Mountain Top



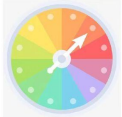
The Planner

Our classic AI planner with loads of customization options.



Pick on Map

Drop a pin on the map and let's go!



Pick for Me

Don't know where to go? Don't worry! Let's go random!



Saved Plans

Wait where did I say I was going?



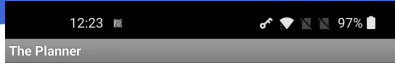
Book Tickets

Step 3: Home Page

- When you are already in the home page you will find 6 different buttons that lead to different pages with a brief introduction about every page and what the page is about.
- The different options are The planner, Pick on map, Pick for me, Saved plans, Book tickets, and Back to Welcome. We will go through each of the pages one by one.



INSTRUCTIONS



Hi ABCD, Let's Plan Your Trip Today!

Departure...
Going To...
Departure Date: Select Your Date Here
Arrival Date: Select Your Date Here
Travelers: How Many travelers?
Focus: Pick Your Focus Here
Generate Plan
Go to Saved Itinerary
Back to Home Page

Step 4.1: Trip Planner

- Customize your dream trip: Departure, Destination, Dates, Travelers, Trip focus.
- Click "Generate Plan" for a personalized itinerary.
- Discover: Top attractions, Travel routes, Recommended activities.
- Save Itinerary: Logged in? Save plans for later under "Saved Itineraries."
- Ready for More? Go back to the home page.
- Start Your Journey Now! With our AI Trip Planner, your dream trip is just a click away!



INSTRUCTIONS



Pick for Me

Rule: Click "Start" to begin, and then continuously shake the device to alter the destination. The destination will remain in flux as long as you keep shaking. It will stop changing once you cease shaking.

Your Destination:

Start

Step 4.2: Pick for Me

Can't decide where to go? Let randomness guide you!

- Shake your device to pick a random destination from our curated list of popular places.
- Keep shaking for more options!

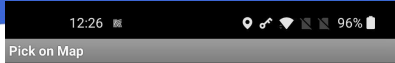
When you've found your destination:

- Click "Generate Plan" to create a travel plan using our AI Plan Generator.
- Embrace the spontaneity of your journey!

This cool feature utilizes the accelerometer and timer for a unique experience!



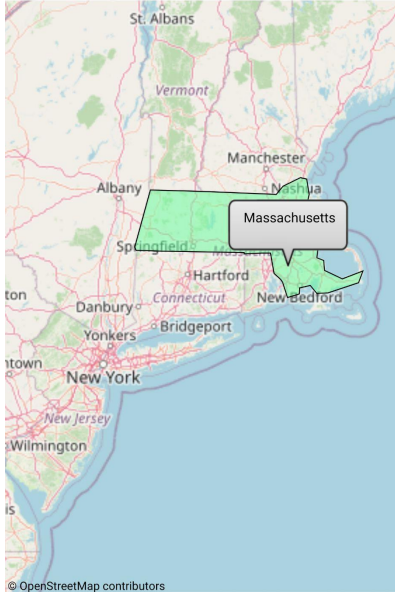
INSTRUCTIONS



Pick on Map

Tap any state of your choice on the map to drop a pin (United States Only). Click "Generate Plan" to generate a plan to visit that state, and click "To Expedia" to book the tickets.

Your Pick: **Massachusetts**



© OpenStreetMap contributors



Step 4.3: Pick on Map

Visual travelers, this one's for you!

- Map centers on your location automatically.
- "Focus on Me" feature if you get lost.

Choose your destination:

- Tap any US State to highlight it.
- Click "Generate Plan" for AI-based travel planning.

Ticket booking:

- "To Expedia" for embedded booking.
- "Home" for more options.

Explore and plan your journey with ease!



INSTRUCTIONS

12:25 97%

AI Plan Generator

Travel Plan:

Day 1: July 31, 2023 - Dalian to Los Angeles

- Depart from Dalian via a flight to Los Angeles.
- Arrive in Los Angeles and pick up a rental car.
- Drive to Santa Monica Pier and explore the beach, amusement park, and shops.
- Check-in at a hotel in Santa Monica for the night.

Day 2: August 1, 2023 - Los Angeles

- Start the day by driving to Hollywood and visit the Walk of Fame, TCL Chinese Theatre, and the Hollywood Sign.
- Drive to Griffith Observatory for panoramic views of the city and explore the exhibits.
- Head to Universal Studios for a day of theme park adventures and movie magic.
- Return to Santa Monica for another night at the hotel.

Day 3: August 2, 2023 - Los Angeles to Santa Barbara

- Leave Santa Monica and drive along the Pacific Coast Highway (PCH) towards Santa Barbara.
- Stop at Malibu and enjoy the beautiful beaches and scenic views.
- Continue the drive along PCH, passing through Ventura and Carpinteria.
- Arrive in Santa Barbara and explore the charming downtown area, visit the Old Mission, and relax on the beach.
- Check-in at a hotel in Santa Barbara for the night.

Day 4: August 3, 2023 - Santa Barbara to Los Angeles

- Start the day early and drive back to Los Angeles.
- Take a detour to visit the Getty Center, an iconic art museum with stunning architecture and breathtaking views.
- Return the rental car and spend the afternoon exploring the vibrant neighborhoods of Downtown LA, including the historic Olvera Street, Grand Central Market, and the Broad Museum.
- Check-in at a hotel in Downtown LA for the night.

Day 5: August 4, 2023 - Departure from Los Angeles to Dalian

- Depart from Los Angeles to Dalian via a flight.

Summary of Hotels and Flight Info:

Day 1 (July 31, 2023):

- Flight: Departure from Dalian to Los Angeles.
- Hotel: Santa Monica (to be booked).

Home Regenerate Save Plan To Expedia Share

Step 5: AI Plan Generator

Get ready for a personalized adventure!

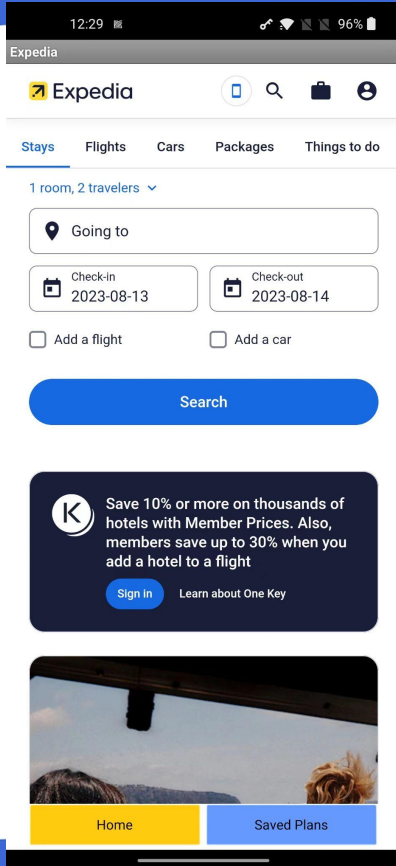
- Our custom ChatGPT API crafts unique plans based on your preferences and entry point (Trip Planner/Pick for Me/Pick on Map).
- Daily itineraries with recommended places, ideal stays, and transportation options.

Explore a range of options:

- Regenerate the plan for more ideas.
- Save it to your account for easy access on any device.
- Share it with friends on social media.
- Book tickets with Expedia.
- Return to the home page for more options.



INSTRUCTIONS



Step 6: Expedia

Seamless booking with Expedia!

- Our web viewer gives you direct access to Expedia.
- After selecting your preferred travel plans from earlier, you can easily enter the itinerary booking system.

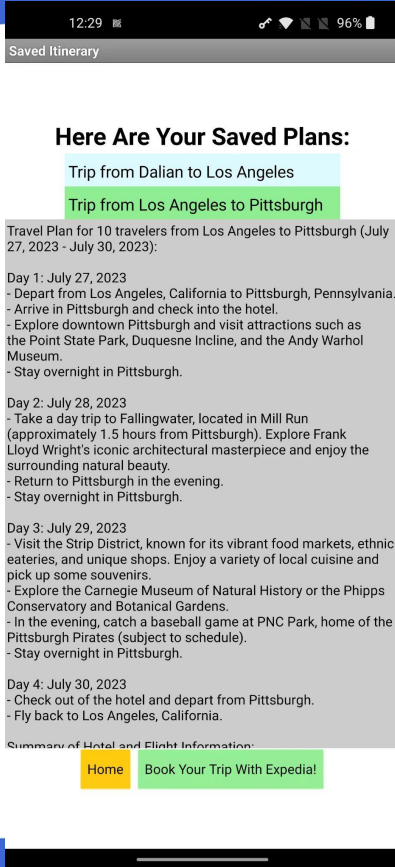
At the bottom of the page:

- Use the buttons to return to the main menu.
- Access your saved itineraries hassle-free.

Enjoy a smooth booking experience with Expedia and explore your dream destinations!



INSTRUCTIONS



Step 7: Saved Plans

Access and review your saved plans!

- If you haven't saved any plans or you're not logged in, a message will inform you that no plans are saved yet.

Saved plans are organized for your convenience:

- Each plan's title serves as the key in a dictionary format.
- Titles are presented in a user-friendly list view.
- Click on a title to expand and view the entire plan, which is scrollable for easy navigation.
- The selected title is highlighted for better visibility.

Enjoy a seamless and intuitive experience when reviewing your saved plans!



LIMITATIONS

We attempted to integrate ticket booking APIs into our plan-making process, but encountered roadblocks due to limited access for individual developers and lengthy applications. On the "Pick on Map" page, our initial goal was to pinpoint tapped cities, but the large geojson file overwhelmed MIT App Inventor, leading us to identify countries instead. Customizing the UI with stylish flat and rounded elements proved challenging in App Inventor. AI has its limitations, as unrealistic inputs like fake locations may confuse ChatGPT, resulting in whimsical responses.

Furthermore, the powerful suggestion feature of ChatGPT that provides valuable recommendations comes at the expense of longer loading times.



ACKNOWLEDGEMENTS

Acknowledgment

A big thank you to Mr. Yucheng Li from Carnegie Mellon University, our mentor extraordinaire! His brainstorming and debugging help made this platform possible. Our team owes him a huge thank you!

With much appreciation,

Mountain Top Team



ChatGPT: Why Web Component Over ChatBot

- We accessed ChatGPT via web component instead of ChatBot because
 1. We can bypass MIT's proxy and directly communicate with OpenAI's ChatGPT API, which reduces potential points of failure.
 2. We can customize a series of options which tailor to our specific use case: medium to high creativity, super long text responses, and one response each time.
 - a. temperature: Level of creativity. Set to 0.7.
 - b. max_tokens: Maximum tokens allowed to generate answer. Set to 2048 to ensure the completeness of answers.
 - c. n: number of responses generated each time. Set to 1.
 3. We improved error handling by checking and reacting to response codes other than 200.



Optimizations: CloudDB and TinyDB

- We use both CloudDB and TinyDB which drastically improved the app's availability and efficiency.
 1. CloudDB reads and write asynchronously but it is able to make the information available across all devices. TinyDB reads and writes much faster but it's only available on one device. So we decided to combine the advantage of both DBs using the following structure:
 - a. When we confirm log in information with CloudDB, we save a copy of it in tinyDB for the current session.
 - b. Then we only pass the username around pages to ensure minimum data transmission when switching pages. In return, we get smooth page switching.
 - c. When we need other potentially bulky information like name and saved itinerary, we access it from tinyDB using the username which is really fast.
 - d. When we update values like saved itinerary, we update on both CloudDB and TinyDB to ensure the high availability. The tradeoff is that this operation is relatively slow but since there is no visual effects that come with it, users will not feel laggy.
 - e. Finally, every time on app start, we clear all information in tinyDB for a fresh start.



APPENDIX: DATA SOURCE

Our Feature Collection Data Source:

<https://www.kaggle.com/datasets/pompelmo/usa-states-geojson>

