



Lakbay Mindanao: A Data-Driven Journey Through the Hidden Gems of the South

Recommender Engine for Mindanao Travel Packages

chatgpt4 | Justin, Kurt, Patrick, Shen, Zee





More attention is needed for tourist trips in Mindanao.

*Only 3% of trip listings in travel
websites are in Mindanao.*





*Mindanao needs to
highlight and
develop its other
tourist attractions.
Only five attractions are in
travel websites.*



Surigao del Norte



Davao



Siargao



Camiguin



Zamboanga





Luzon

- Porac
- Mindoro
- Batanes
- Angeles
- Subic
- Metro Manila
- Rizal
- Palawan



Visayas

- Boracay
- Negros



*More investment is
needed to develop
Mindanao to be ready
for tourism.*

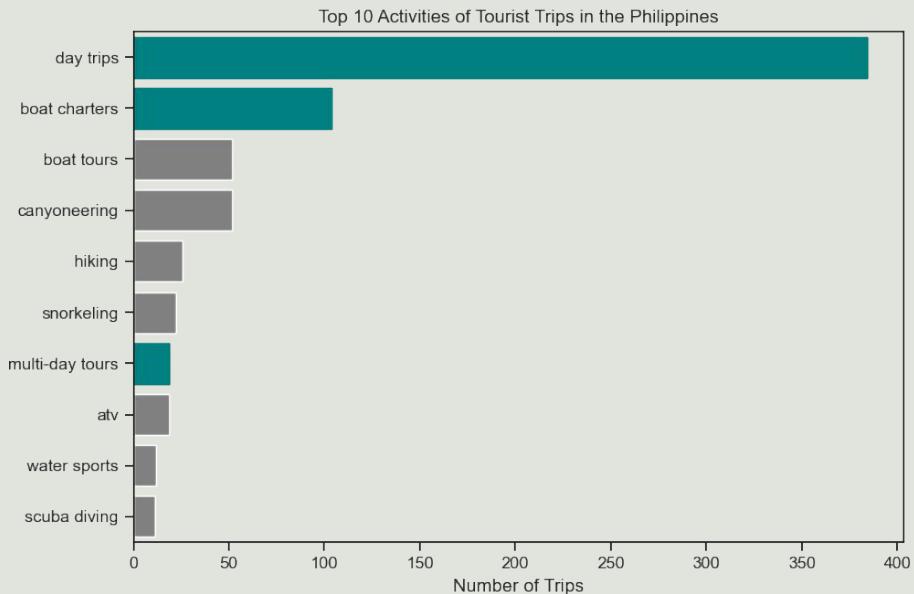
- Mindanao does not have any attraction in the ten top-rated tourist spots in the country.
- It also has the lowest rating compared to Luzon and Visayas.





There should be a variety of tourist activities in Mindanao.

*Only three of the top ten activities are
available in the island group.*





*Capitalize on unique
activities like surfing*





***Advertise
affordability.***
*Mindanao has the cheapest
average trip price among the
island groups.*



Why are most of the trips in Luzon and Visayas?

Mindanao is frequently regarded as a risky region due to perceived security issues, resulting in limited direct investment and low tourism despite its abundant natural resources. As a result, the island has not enjoyed the same level of wealth as other regions of the Philippines (Forbes,2016).



Debunking misconceptions through DOT and PHILTOA Campaign

- Philippine Tour Operators Association have declared Mindanao as a safe destination.
- The "Colors of Mindanao" aims to show the world that the island has more to offer in terms of tourist spots, culinary dishes, and culture.
- Cebu Pacific Airlines will begin operating flights from Clark International Airport to Laguindingan Airport in May 2023.





Objectives



Promote tourism in the Philippines, specifically in **Mindanao** by:

Creating a recommender engine:

- For people who want to travel more
- Where they can input their budget, desired activity and inspiration place and receive recommendations of tourist trips in Mindanao.

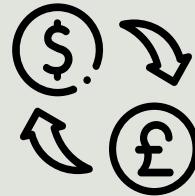




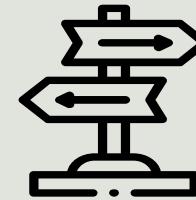
★ How is this recommender different?



Travel sites only ask for a location and give out general suggestions



More curated experience by asking the activity, budget, and duration

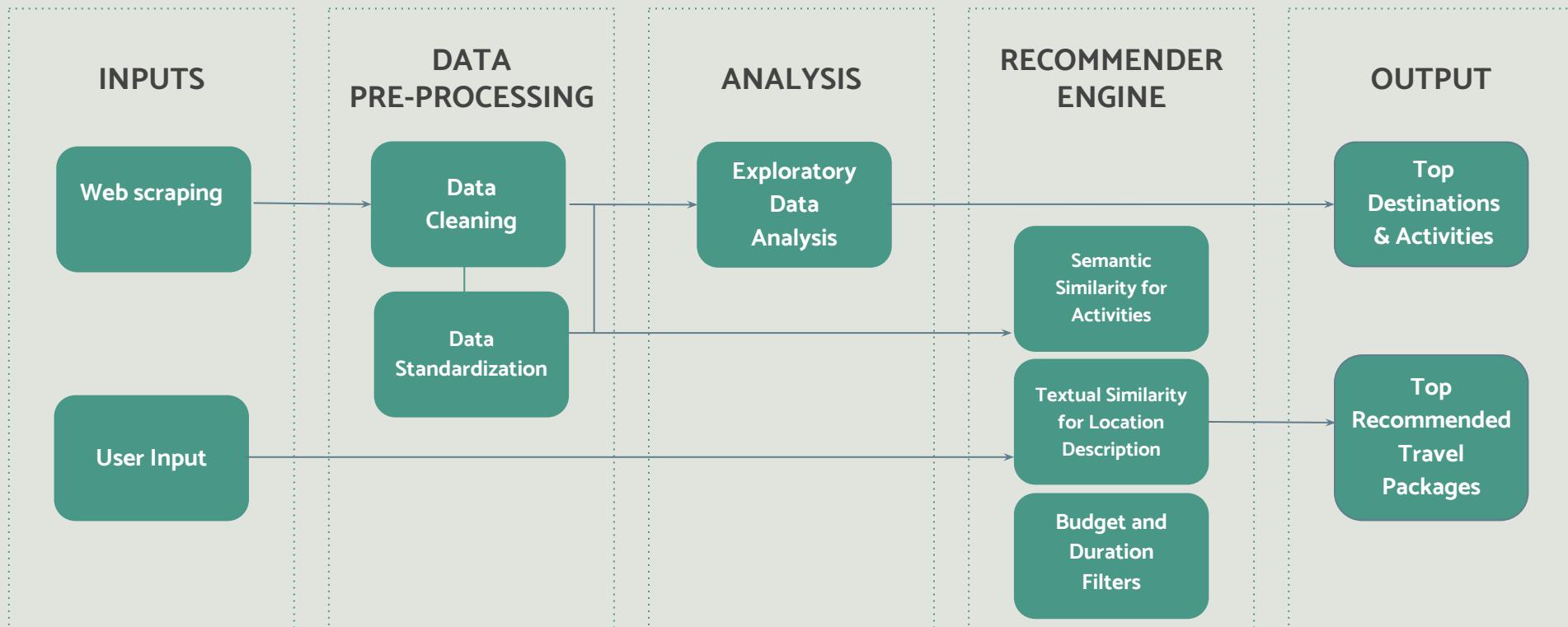


Will show available packages in Mindanao that are similar to the user preference



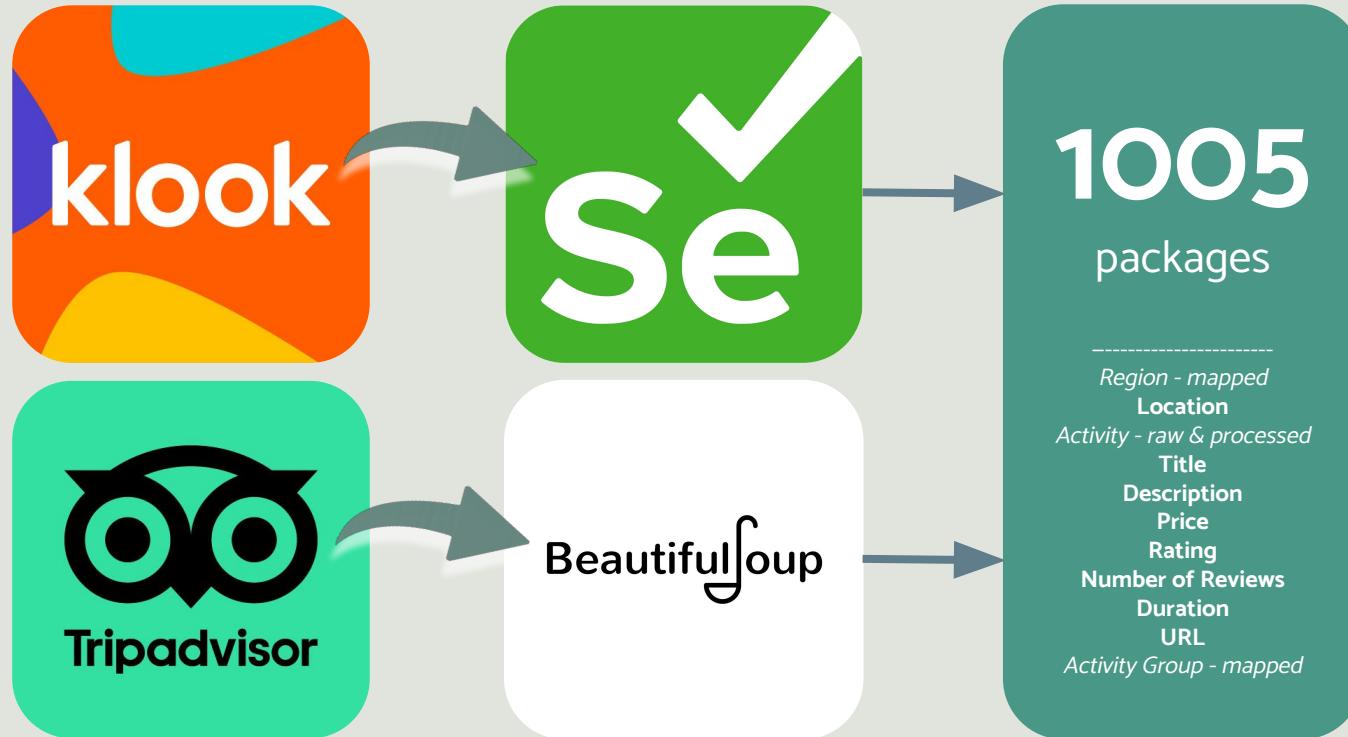


Methodology





Web Scraping





★ Data Preprocessing

Tokenization & POS

Punct. & Stop Words Removal

Lemmatization

NaN Drop and Fill

Sentence Separation

Format Standardization

Duration: 1h, 1h 30m, 2days

Review Counts: 230, 2k+

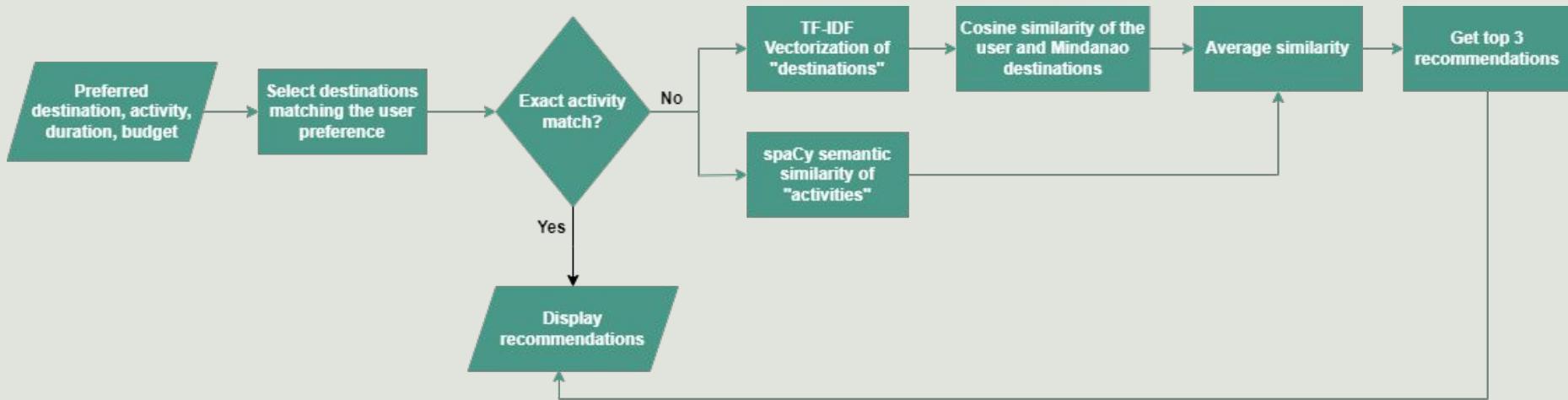
Region Mapping

Price: ? 5000

Activity Mapping



★ Recommender Engine





Recommender Engine App

Live at [chatgpt4-travel-recommender](#)



Recommendation System for Mindanao Tourist Trip Packages



This recommender system suggests travel packages in Mindanao based on the user's preferred activity, duration, budget, and previous destination. It uses a content-based approach to match their preferences with the characteristics of the destinations.

The system analyzes the textual descriptions of destinations using TF-IDF vectorization to capture important terms and computes cosine similarity to measure text similarity.

If there is an exact match between the preferred activity and a destination in Mindanao, those destinations will be recommended. Otherwise, the system will find destinations in Mindanao that are similar to the preferred destination based on their textual descriptions. It also considers the similarity between your preferred activity and the activities associated with the destinations using Spacy's similarity measure.

To get personalized recommendations, enter the previous destination, preferred activity, duration, and budget, and the system will suggest the best matches for the tourist packages in Mindanao.

Where is your travel inspiration?

Palawan



What activity do you want to do?

How much budget do you have?

5.00



How long do you want the trip to last?

0.00



Tara!





Exact Match: User Preference



Where is your travel inspiration?

Palawan



What activity do you want to do?

Day Trips

How much budget do you have?

5000.00

- +



How long do you want the trip to last?

8.00

- +

Tara!





Exact Match: Results



💎 Here's your hidden gem!

3 Islands, Secret beach and Coral Garden Full-Day Tour

📍 Location: Surigao del Norte 🚶 Activity: Day Trips 💰 Price: 3166.22 ⏳ Duration: 6.0

🔗 [Get this package now!](#)

Jellyfish sanctuary and Sohoton cove Full-Day Tour

📍 Location: Surigao del Norte 🚶 Activity: Day Trips 💰 Price: 4893.25 ⏳ Duration: 6.0

🔗 [Get this package now!](#)



Siargao Trio Island Hopping (Shared Day Trips)

📍 Location: Surigao del Norte 🚶 Activity: Day Trips 💰 Price: 2874.2 ⏳ Duration: 6.0

🔗 [Get this package now!](#)





Similarity Match: User Preference



Where is your travel inspiration?

Cebu



What activity do you want to do?

Canyoneering

How much budget do you have?

5000.00

- +



How long do you want the trip to last?

8.00

- +

Tara!





Similarity Match: User Preference



💎 Here's your hidden gem!

Sugba Lagoon Tour and Magpupungko Rock Pools

📍 Location: Surigao del Norte 🚤 Activity: Boat Charters 💰 Price: 3454.06 ⏳ Duration: 6.0

🔗 [Get this package now!](#)

Jellyfish sanctuary and Sohoton cove Full-Day Tour

📍 Location: Surigao del Norte 🚤 Activity: Day Trips 💰 Price: 4893.25 ⏳ Duration: 6.0

🔗 [Get this package now!](#)



Siargao Island Hopping

📍 Location: Surigao del Norte 🚤 Activity: Boat Charters 💰 Price: 3338.92 ⏳ Duration: 4.0

🔗 [Get this package now!](#)





Recommendations



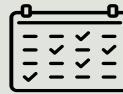
System Improvements

- **Improve data collection** to ensure that the system has a comprehensive and up-to-date dataset that includes a wide range of tourist trips in Mindanao.
- **Evaluate and optimize performance metrics** to measure the effectiveness of the recommender system.
- **Experiment with different similarity measures** to find the one that best captures the similarity between the features.
- **Explore other ranking approaches** such as weighted average, ensemble methods, and machine learning to improve the ranking of the recommendations.





Recommendations



Collaboration with NGOs and Local Communities

- Partnering with these organizations can provide valuable insights, expertise, and on-the-ground knowledge about tourism in Mindanao.
- It can also create opportunities for campaigns, initiatives, or promotion, amplifying the social impact of the recommender engine.
- We can also discuss findings from our analysis about marketing and development of tourist places in Mindanao (e.g. showcase more places, provide more activities, highlight affordability).





Recommendations



Collaboration with travel websites

- Encourage more hosts from Mindanao to list tourist packages in the websites (e.g. Klook, Tripadvisor) to get wider reach for both the locals' businesses and the websites.





Lakbay Mindanao:

A Data-Driven Journey Through the Hidden Gems of the South



Through the power of data-driven exploration, we invite you to unlock the hidden gems of Mindanao!

Experience personalized recommendations and captivating activities designed exclusively for you. Dive into the unexplored beauty of Mindanao, guided by insights that redefine your travel journey. Tayo na't maglakbay sa Mindanao!

#GandaMoPinas

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Appendix





Travel Recommender Link

<https://eskchatgpt4-travel-recommender.streamlit.app/>



Snippet of text analysis techniques for similarity matching of activities

- Tokens: Individual words or terms in the destination descriptions.
- Corpus: The entire collection of destination descriptions.
- Most important words: Words with higher relevance or significance within the corpus, typically identified using TF-IDF.

```
Enter the destination you've been to: Cebu
Enter your preferred activity: Canyoneering
Enter your preferred budget: 5000
Enter your preferred duration: 8
Number of tokens in user destination descriptions: 2241
Number of tokens in Mindanao destination descriptions: 2243
User Destination Corpus length: 38
Mindanao Destination Corpus length: 22
Most Important Words in Mindanao:
machin 2.8855228433301576
garde 1.6581370121095305
sessions 1.558986605964102
ecoadventure 1.2235589513041476
cool 1.0
mariposa 0.9396462128588493
training 0.8743700074099169
true 0.8447494135656801
bone 0.8121326996182632
ziplines 0.7434540390489464
Most Important Words in User's Destination:
machin 3.198277853893665
playing 3.1811032593876702
mariposa 2.173563351971621
countrys 1.7383105253805113
favorite 1.4474087075599522
churches 1.3898315779580912
parks 1.2894707661906573
transportation 1.2887161126140647
secret 1.256442772641233
training 1.1792776478944273
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