Webscraping & ML Project

Joyce LAPILUS – ESILV A5 DIA, Class of 2025

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01

Problem Statement

The Dining Dilemma

💥 Too many choices, lack of visibility for **sustainable** dining options.

🎯 Goals:

i. Simplify restaurant discovery.
ii. Spotlight MICHELIN Green Star restaurants.
iii. Leverage AI for personalized recommendations.

02

Solution

Sustainability with MICHELIN Green Star

The Green Star recognizes restaurants with exceptional sustainability practices. Criteria include

- Sourcing local ingredients,
- Reducing waste,
- Environmental stewardship,
- etc.

Gastronaut makes these restaurants easily discoverable via dedicated filters and map highlights.

Interactive Map

Kyoto

Data Sources:

- Photon API (dynamic search bar)
- Google Places API (restaurants' additional info)
- MICHELIN Guide (main list, coordinates)

Sort By: Distance (Nearest First)

4.2

$$ · Japanese

Juu-go

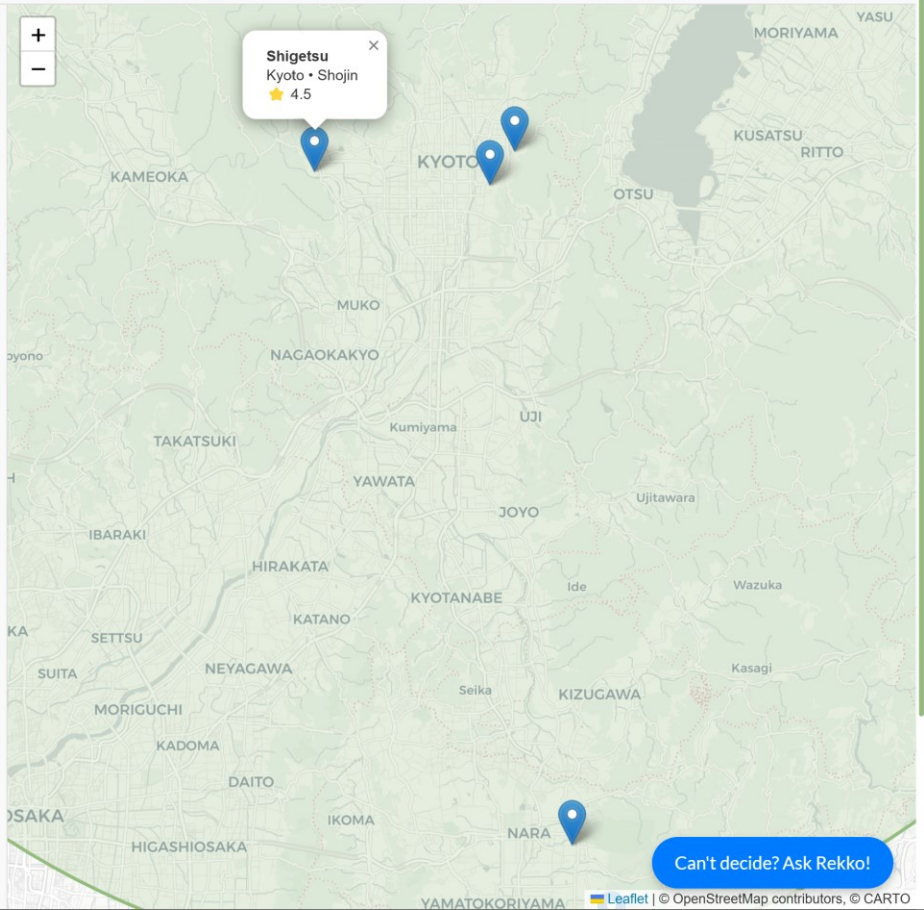
6 71, 浄土寺上南田町 左京区 京都市 京都府 606-8405, Japan

4.6

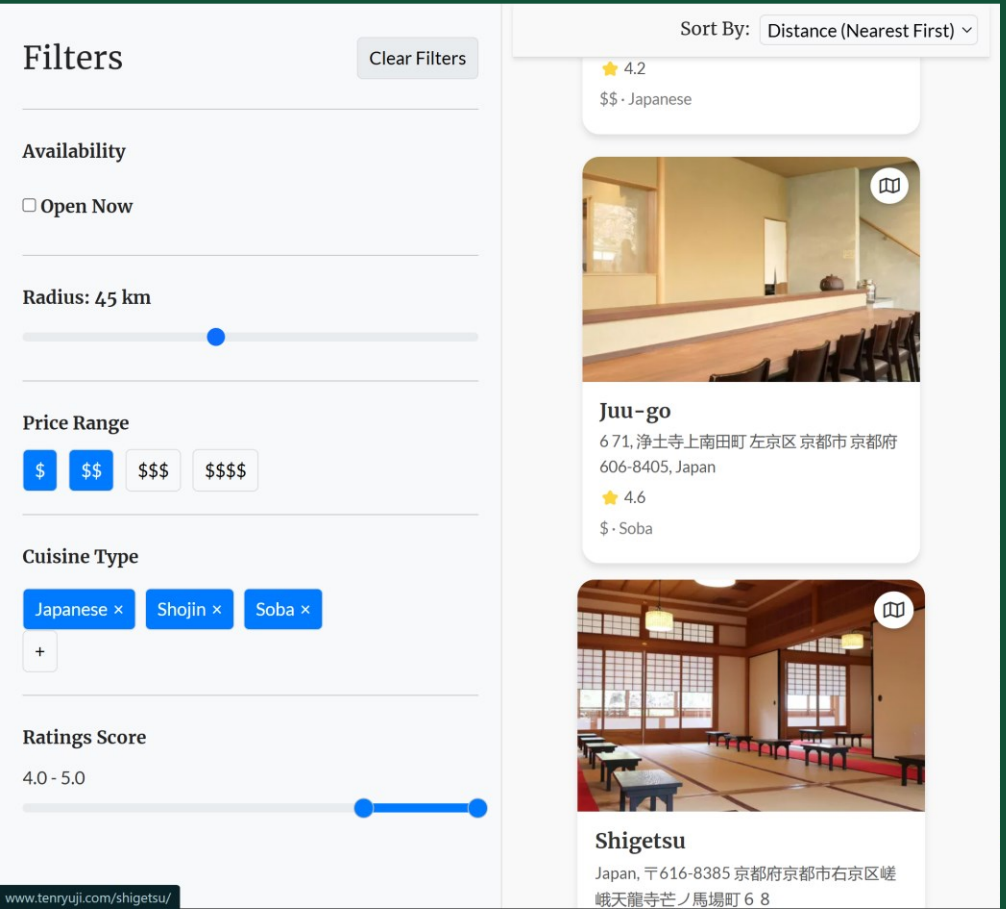
$ · Soba

Shigetsu

Japan, 〒616-8385 京都府京都市右京区嵯峨天龍寺芒ノ馬場町 6 8



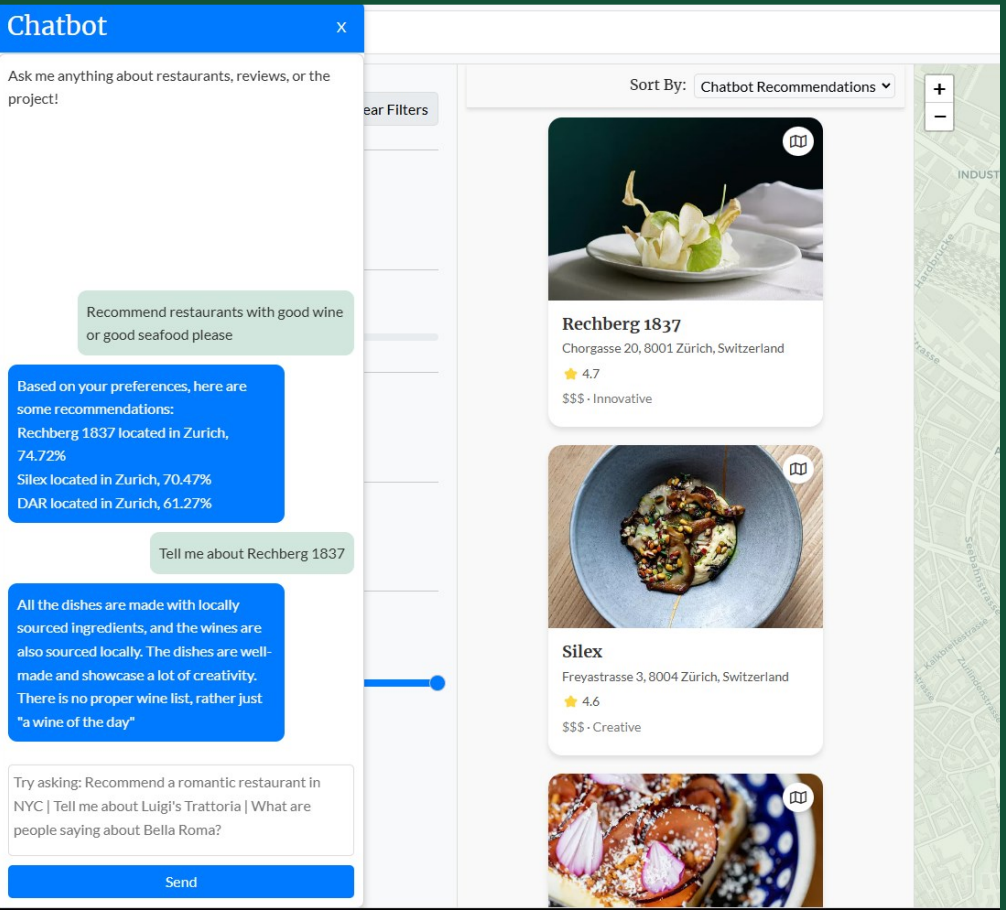
Interactive Filters



Data Sources:

- Google Places API (opening hours, ratings)
- MICHELIN Guide (prices, cuisine)

Chatbot Assistance



Data Sources for Reviews:

- Google Places API (max. 5 per place)
- Reddit API – PRAW

Natural Language Processing (NLP):

- NLTK (tokenization)
- HuggingFace's SentenceTransformers (embeddings)
- HuggingFace's pipelines (summarization, intent classification)
- BM25 (reviews' similarity for recommendations)

03

Methodology

The Tech Behind Gastronaut

Back-end & Data Scraping

- Mainly Python with Flask
- Photon API
- Google Places API
- Reddit API – PRAW
- MICHELIN Guide

Natural Language Processing

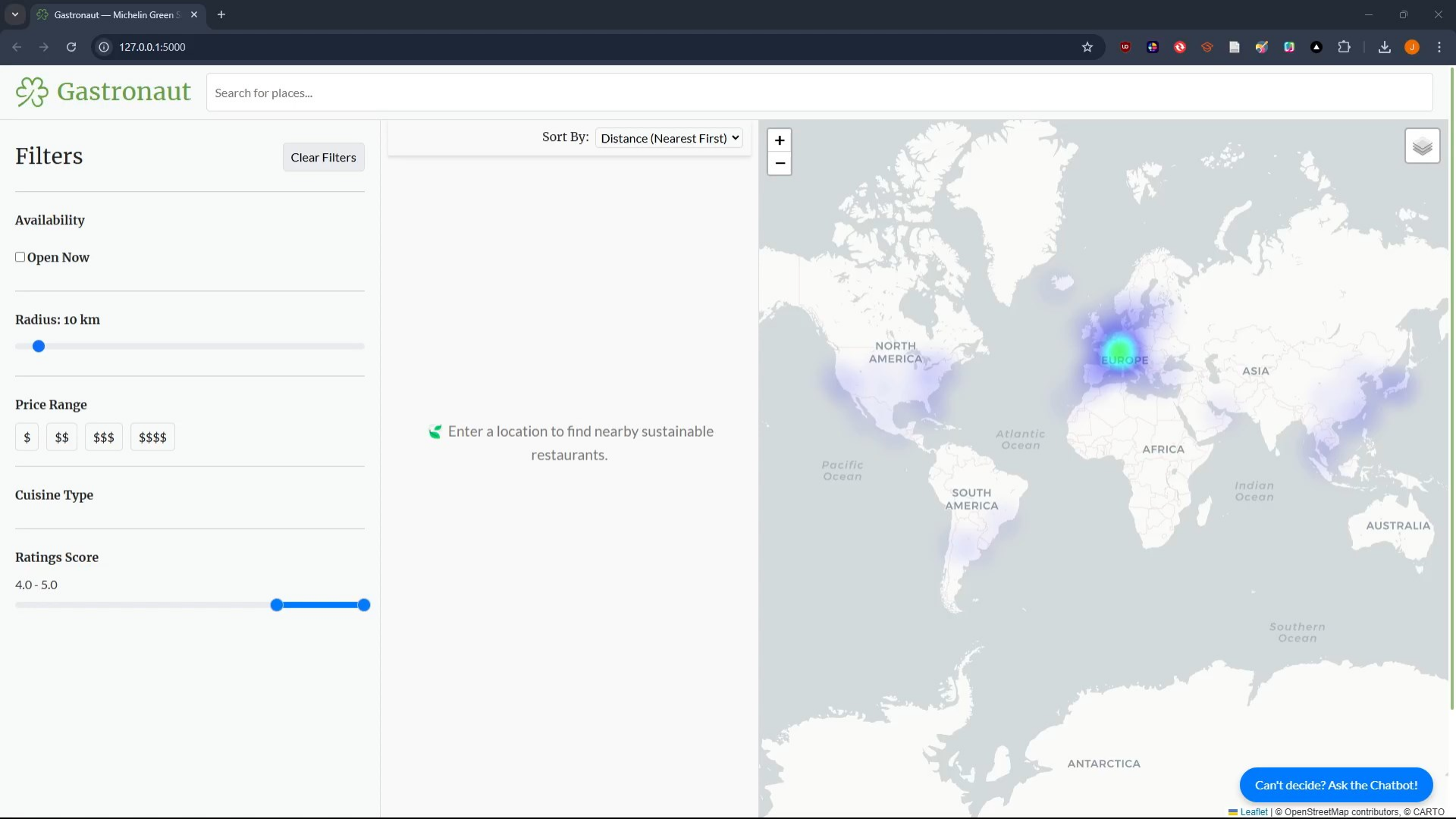
- HuggingFace's SentenceTransformers
- HuggingFace's pipelines
- BM25 Recommendation Pipeline

Front-end

- Flask
- HTML
- CSS
- JavaScript (Leaflet.js)

04

Demo


Gastronaut — Michelin Green S
127.0.0.1:5000
Gastronaut
Search for places...
Filters
Clear Filters
Availability
Open Now
Radius: 10 km
Price Range
$
$$
$$$
$$$$
Cuisine Type
Ratings Score
4.0 - 5.0
Sort By:
Distance (Nearest First)
Enter a location to find nearby sustainable restaurants.
NORTH AMERICA
EUROPE
ASIA
AFRICA
SOUTH AMERICA
AUSTRALIA
ANTARCTICA
Atlantic Ocean
Pacific Ocean
Indian Ocean
Southern Ocean
Can't decide? Ask the Chatbot!
Leaflet | © OpenStreetMap contributors, © CARTO

05

Conclusion

What was achieved?

Results

- Enhanced user experience for restaurant discovery.
- Simplified the process of finding sustainable dining options.
- Increased visibility for MICHELIN Green Star restaurants.

Challenges

- Data sourcing and cleaning for restaurants.
- Ensuring chatbot accuracy in recommendations.
- Optimizing performance with growing datasets.

Possible Improvements

- Multi-language support for chatbot.
- Expand eco-friendly metrics (e.g., carbon footprint).

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Thanks!

Do you have any questions?

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