

# Tokyo Restaurants Recommender

NLP / RECOMMENDER

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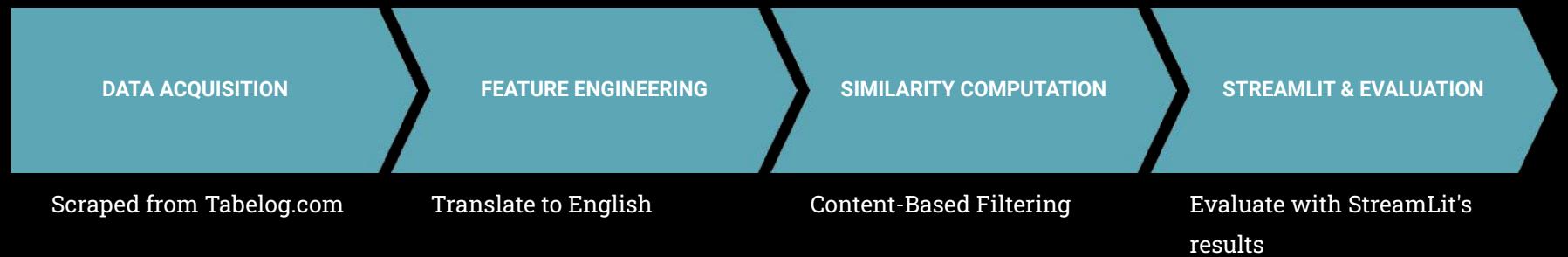
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# Process Flow

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# 1) Background & Problem





# The Modern Gastronomic Landscape

- **Abundance of Choices:** Digital platforms offer numerous and diverse restaurant options.
- **Challenge:** Traditional selection based on reviews or ratings isn't enough.
- **Need:** A personalized recommendation system tailored to individual diner preferences.

# Business Goal

To enhance the dining experience of our users by streamlining their decision-making process.



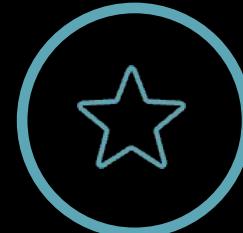
# User Needs in Dining Recommendations



Personalization



Location-centric



Quality Assurance



Diverse Cuisine



Broad Food Choices

## 2) Data Acquisition & EDA



# Data Acquisition

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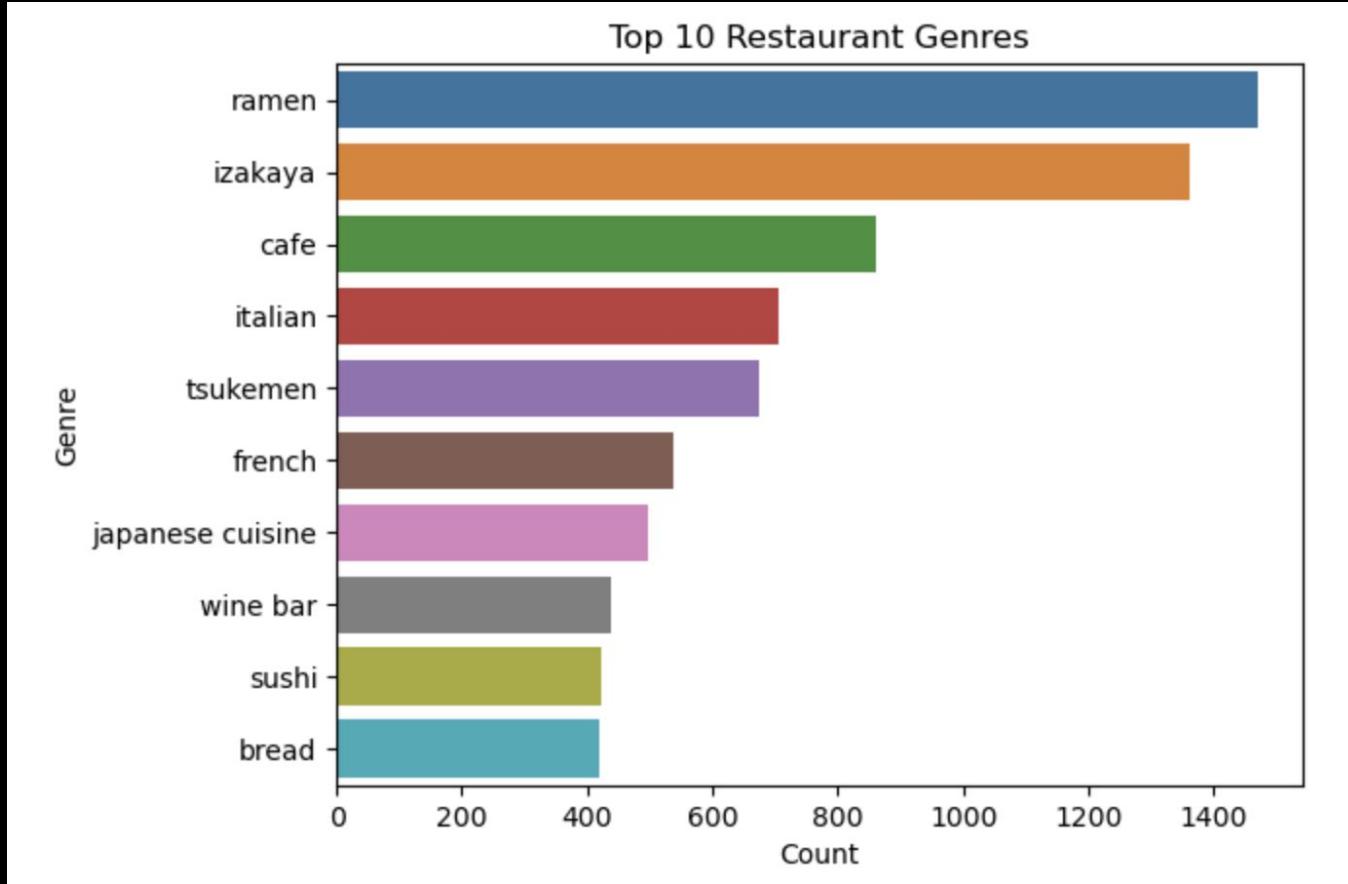
This dataset from Kaggle.com consists of aggregated data on restaurants in Japanese scraped from Tabelog.com



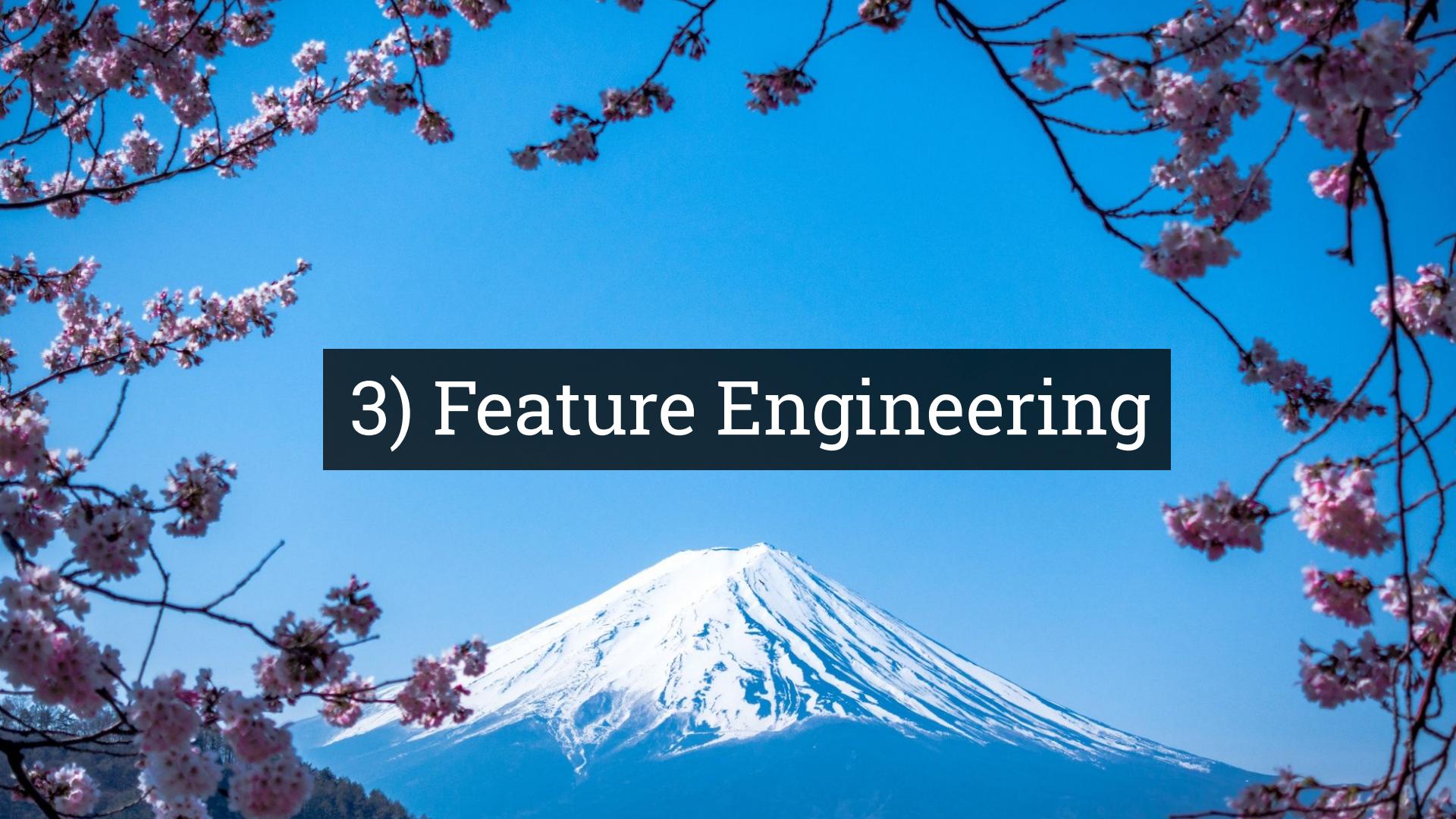
Tabelog is Japanese local's trusted restaurant review site. Its user-based ratings offer authentic insights. We use this data to give a full view of Japan's dining scene.

# EDA

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### 3) Feature Engineering



<b>name</b>	<b>genre</b>	<b>rating_val</b>	<b>nearest_station</b>	<b>address</b>
日本橋蛎殻町 すぎた	寿司	4.71	水天宮前駅	東京都中央区日本橋蛎殻町1-33-6 ピューハイツ日本橋 B1F
新ばし 星野	日本料理	4.63	御成門駅	東京都港区新橋5-31-3
松川	日本料理	4.63	六本木一丁目駅	東京都港区赤坂1-11-6 赤坂テラスハウス 1階
東麻布 天本	寿司	4.61	赤羽橋駅	東京都港区東麻布1-7-9 ザ・ソノビル 102
アカ	スペイン料理、モダンスパニッシュ	4.61	三越前駅	東京都中央区日本橋室町2-1-1 三井2号館

## Initial Data

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The data we first gathered from Tabelog was in Japanese, posing a challenge for non-Japanese speakers.



NAME



GENRE



NEAREST STATION

# Google Cloud Translation AI

Utilizes advanced machine learning models to provide fast and dynamic translations.

**GOODLE CLOUD API**

My api key is: "lgJni2MDMSv..NOPE"

**BATCH-BASED DATA TRANSLATION**

Batched strategy for progress tracking & resource management

**FURTHER DATA CLEANING**

Lowercasing the translated texts for uniformity

<b>name</b>	<b>genre</b>	<b>rating_val</b>	<b>nearest_station</b>	<b>address</b>
nihonbashi kakigaracho suita	sushi	4.71	suitengumae station	東京都中央区日本橋蛎殻町1-33-6 ピューハイツ日本橋 B1F
shinbashi hoshino	japanese food	4.63	onarimon station	東京都港区新橋5-31-3
matsukawa	japanese food	4.63	roppongi itchome station	東京都港区赤坂1-11-6 赤坂テラスハウス 1階
higashiazabu amamoto	sushi	4.61	akabanebashi station	東京都港区東麻布1-7-9 ザ・ソノビル 102
red	spanish cuisine, modern spanish	4.61	mitsukoshimae station	東京都中央区日本橋室町2-1-1 三井2号館

## Finalized Data

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After refining the data, it became more comprehensible. Address column is kept in Japanese to prevent translation errors



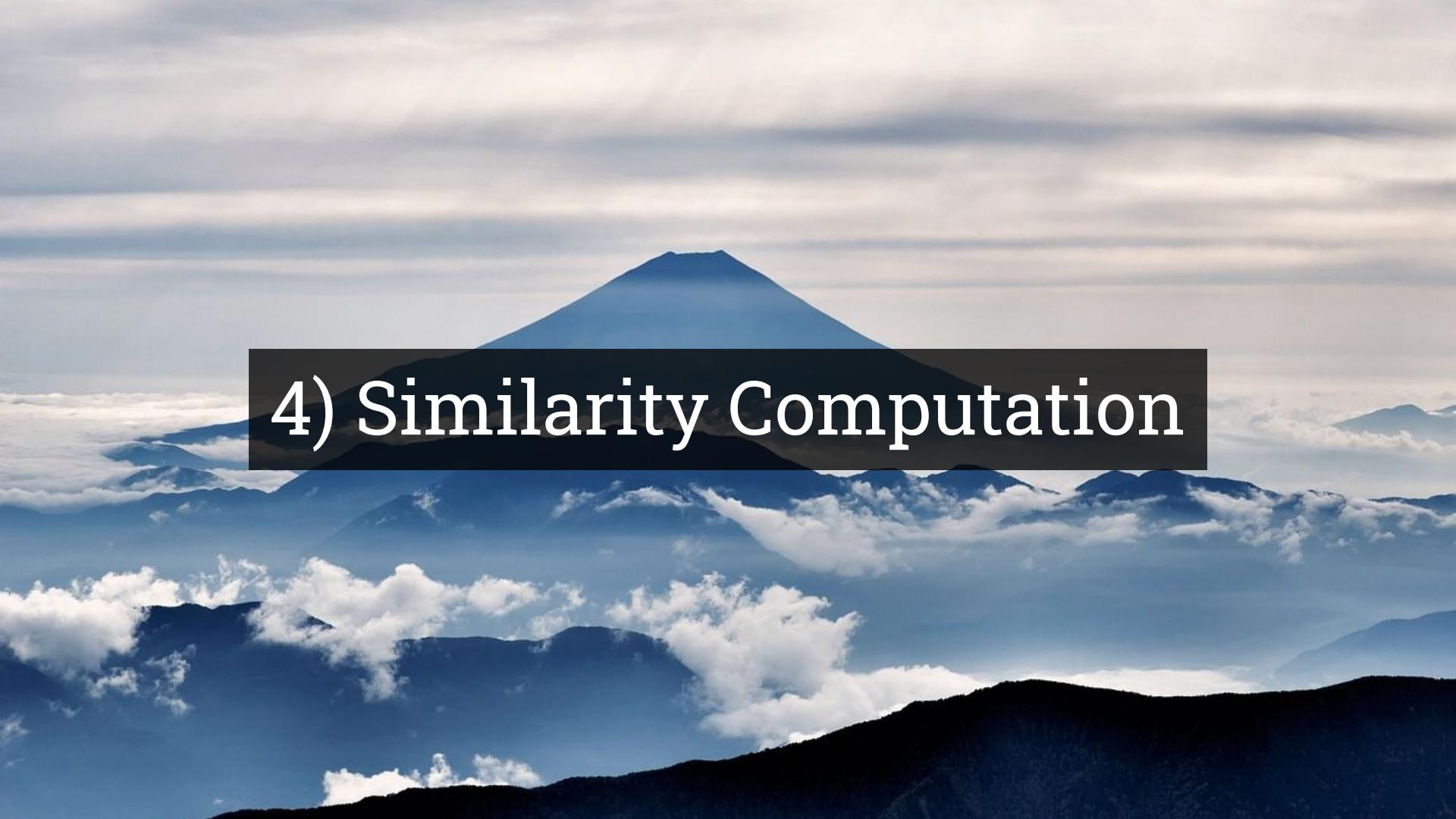
NAME



GENRE



NEAREST STATION



## 4) Similarity Computation



# Content-Based Filtering

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## ITEM ATTRIBUTES

Restaurants come with details like genre, location, and ratings. Content-based filtering uses these to tailor recommendations to user likes.

## DIVERSE RECOMMENDATIONS

Unlike collaborative filtering that often suggests just popular items, content-based filtering offers a wider variety of restaurant recommendations.

## USER INDEPENDENCE

Content-based systems work on an individual's profile and can provide immediate recommendations, even for new users without needing prior data.



# Feature Selection

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our company

them

them

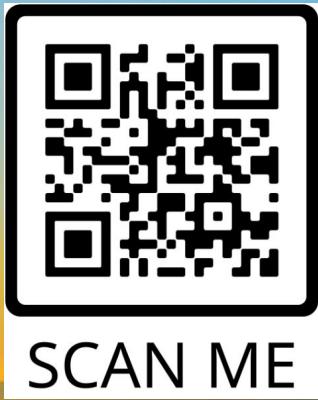
NAME	GENRE	RATINGS	NEAREST STATION	ADDRESS
nihonbashi kakigaracho suita	sushi	4.71	suitengumae station	東京都中央区日本 橋蛎殻町1-33-6 ビューハイツ日本 橋 B1F
shinbashi hoshino	japanese food	4.63	onarimon station	東京都港区新橋 5-31-3
matsukawa	japanese food	4.63	roppongi itchome station	東京都港区赤坂 1-11-6 赤坂テラス ハウス 1階
la vita	italian	3.46	yotsuya sanchome station	東京都新宿区四谷 3-4-9 白井ビル 1F



# Creating Genre Cosine Similarity

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NAME	SUSHI	JAPANESE FOOD	PIZZA	SPANISH CUISINE	ITALIAN
nihonbashi kakigaracho suita	1	0	0	0	0
shinbashi hoshino	0	1	0	0	0
matsukawa	0	1	0	0	0
la vita	0	0	0	0	1



## 5) Evaluation & StreamLit Deployment

<https://tokyo-restaurants.streamlit.app/>

# Validate Locations Accuracy

Select genres to get restaurant recommendations:

ramen ×

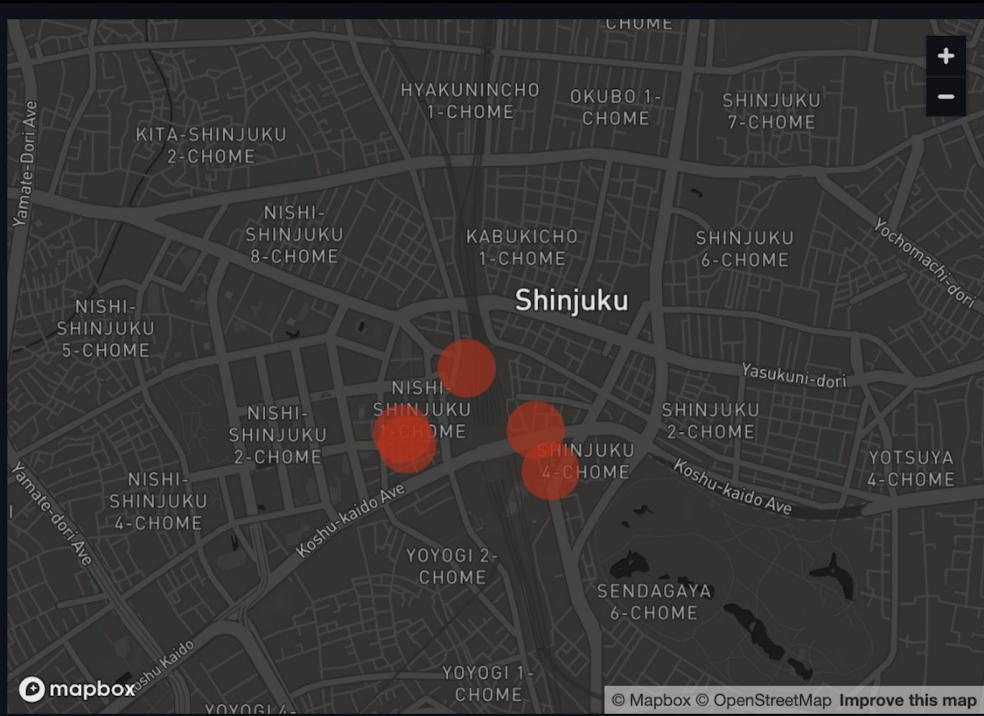
×

Choose a nearby station:

shinjuku station

Recommend

	Name	Rating	Nearest Station
0	menya kaijin shinjuku branch	3.7600	shinjuku station
1	menchow san francisco	3.7100	shinjuku station
2	guangzhou market nishi-shinjuku	3.5900	shinjuku station
3	yokohama ramen machidaya shinjuku south exit	3.5700	shinjuku station
4	yokohama ramen yamamotoya	3.5500	shinjuku station



# Validate with Google Maps

Select genres to get restaurant recommendations:

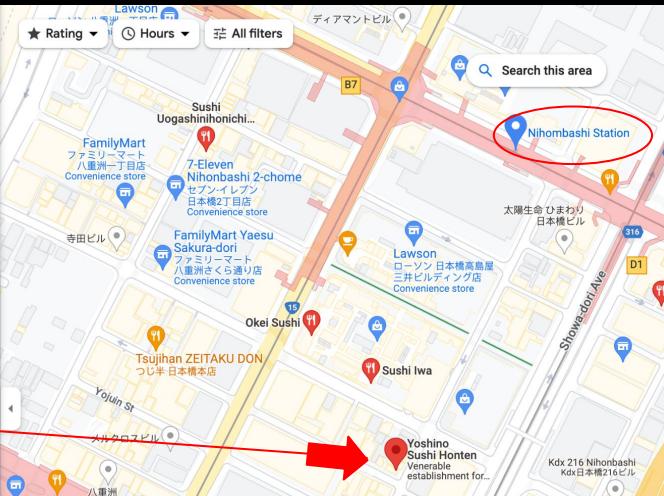
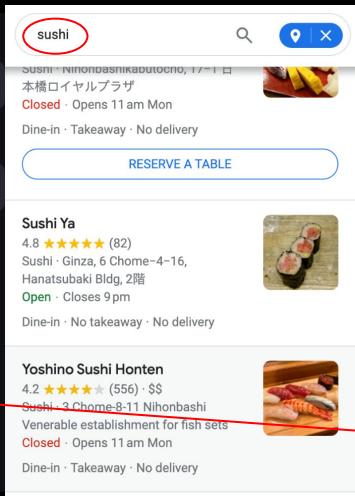
sushi x

Choose a nearby station:

nihonbashi station

### Recommend

	Name	Rating	Nearest Station
0	yoshino sushi main store	3.5600	nihonbashi station
1	sakurai	3.4700	nihonbashi station
2	sushi midori tachikui nihonbashi	3.4600	nihonbashi station



# Validate with TripAdvisor

Select genres to get restaurant recommendations:

cafe x

Choose a nearby station:

ueno station

Recommend

	Name	Rating	Nearest Station
0	kyobashi sembikiya atre ueno	3.5200	ueno station
1	cafe suiren	3.5200	ueno station
2	brasserie lecan cafe space	3.5000	ueno station
3	la cocorico ueno main store	3.4900	ueno station

## Sembikiya Atre Ueno Unclaimed

 4 reviews | #25 of 36 Desserts in Ueno | Dessert

 7-1-1 Atre Ueno West 1F, Ueno, Taito 110-0005 Tokyo Prefecture

 +81 3-5826-5836

 Website ↗

 + Add hours

## Cafe Suiren Unclaimed

 48 reviews | #4 of 6 Coffee & Tea in Uenokoen | \$\$ - \$\$\$, Cafe

 7-7, Uenokoen, Taito Tokyo Prefecture

 +81 3-5814-2891

 Website ↗

 Menu ↗

 Closed now: See all hours  ⓘ

## Brasserie L'ecrin Unclaimed

 82 reviews | #33 of 867 Restaurants in Ueno | \$\$ - \$\$\$, French

 7-1 Atre Ueno Retro Bldg. 1F, Ueno, Taito 110-0005 Tokyo Prefecture

 +81 3-5826-5822

 Website ↗

 Menu ↗

 Closed now: See all hours  ⓘ

## Café & Rotisserie La Cocorico Ueno Unclaimed

 84 reviews | #29 of 867 Restaurants in Ueno | \$\$ - \$\$\$, French, European

 7-7-1 Hotel Sunroute Stella Ueno, Ueno, Taito 110-0005 Tokyo Prefecture

 +81 3-5826-3571

 Website ↗

 Menu ↗

 Closed now: See all hours  ⓘ

# Multi-Genre Supported Recommender

Select genres to get restaurant recommendations:

seafood ✕ ramen ✕ sushi ✕

Choose a nearby station:

tsukiji station

Recommend

	Name	Rating	Nearest Station
0	sushi restaurant yamato	4.0000	tsukiji station
1	sushi keita	3.7900	tsukiji station
2	grilled fish ishikawa	3.6100	tsukiji station
3	this species	3.5700	tsukiji station
4	sushi nakamura	3.5400	tsukiji station
5	tsukiji sushi university main building	3.5400	tsukiji station
6	kasaoka ramen taketonbo	3.5200	tsukiji station
7	tsukiji sushi dai annex	3.5000	tsukiji station
8	tsukiji suzutomi sushitomi	3.4900	tsukiji station
9	tsukiji sushi ichiban 4-chome outer market store	3.4600	tsukiji station

Select genres to get restaurant recommendations:

indian curry ✕ indian food ✕

Choose a nearby station:

hatchobori station

Recommend

	Name	Rating	Nearest Station
0	shinkawa delhi	3.7800	hatchobori station
1	trunk cafe	3.4700	hatchobori station

## 6) Conclusion & Future Works



# Conclusions

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- **AUTHENTIC RATINGS**

True sentiments of local Japanese diners highlighted.

- **UNIQUE FEATURE**

Recommends diverse genres, diving deep into Japan's culinary diversity.

- **LIMITATIONS**

Speed, storage, and real-time updates impacted by Streamlit and GitHub constraints.

- **USER EXPERIENCE**

Optimised vast data to guide users efficiently without overwhelming.



# Future Works

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## FEEDBACK LOOP

Users can rate their experience with the recommender.

## ENHANCED USER PROFILING

Specific dietary preferences

## IMPROVED USER INTERFACE

Mobile friendly with directions integrated.

## SOCIAL FEATURES

Introduce users to create their own recommendations and share it online.



TOKYO RESTAURANTS RECOMMENDER

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# Thank You!

