



New Restaurant in Vietnam What and Where to Start

APPLIED DATA SCIENCE CAPSTONE

IBM DATA SCIENCE PROFESSIONAL CERTIFICATION

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Problem

- ▶ Ha Noi an Ho Chi Minh City is two biggest city in Vietnam, which have a lot of restaurants.
- ▶ Each areas in both cities have specific cuisines and its customer base.
- ▶ Business Problem: A business man wants to open a brand new restaurant in Vietnam, he doesn't know in what areas he would establish his restaurant and which cuisine it would serve.

Data

- ▶ DATA SOURCES:

- ▶ Foody.vn: a food recommendation and restaurants listings in Vietnam
- ▶ Postcodequery.com: website for post location

- ▶ NAME, LOCATION, CUISINE, NUMBER OF REVIEW AND ITS RATING: FOODY.VN

- ▶ LATITUDE AND LONGITUDE OF EACH NEIGHBORHOOD: POSTCODEQUERY.COM

Data

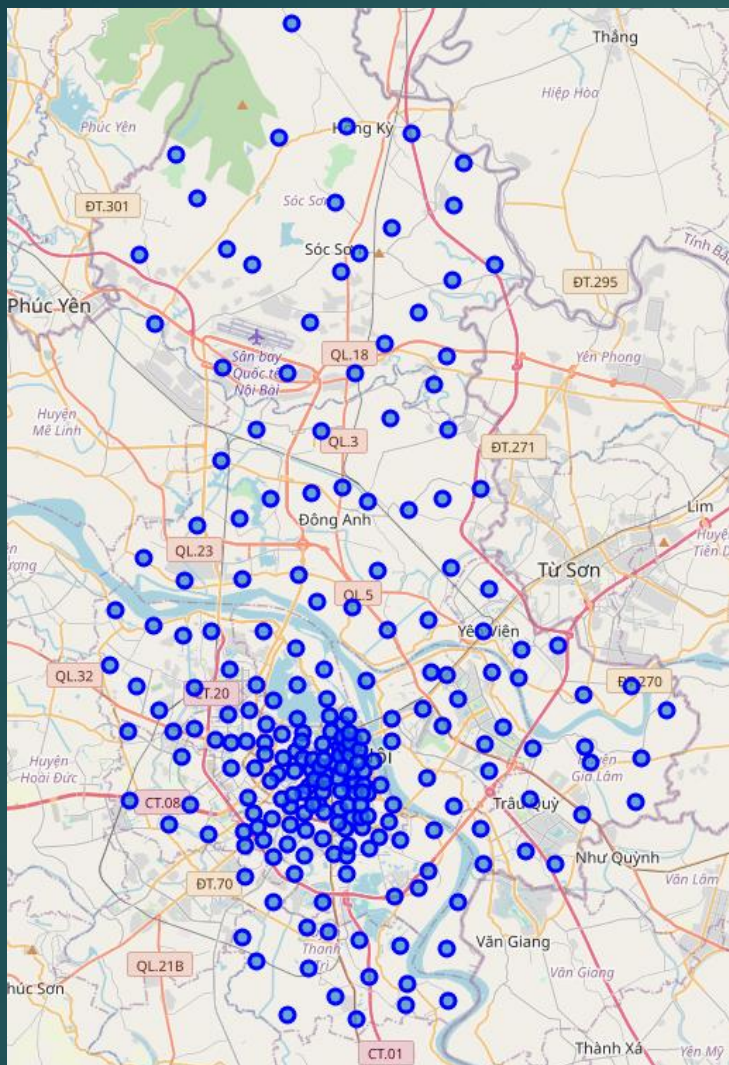
► Sample for restaurants data

	Name	Address	District	City	Rating	Cuisine	Latitude	Longitude	Total Check-in
0	Pizza 4P's - Pizza Kiểu Nhật - Lê Thánh Tôn	8/15 Lê Thánh Tôn, P. Bến Nghé	Quận 1	TP. HCM	8.0	Ý	10.781878	106.705055	516
1	Pizza 4P's - Pizza Kiểu Nhật - Thủ Khoa Huân	8 Thủ Khoa Huân, P. Bến Thành	Quận 1	TP. HCM	8.4	Ý	10.773458	106.697516	53
2	Pizza 4P's - Pizza Kiểu Nhật - Nguyễn Văn Linh	Lô MD2, Nguyễn Văn Linh, P Tân Phú	Quận 7	TP. HCM	8.1	Ý	10.731467	106.715654	59
3	Pizza 4P's - Pizza Kiểu Nhật - Hai Bà Trưng	151 Hai Bà Trưng	Quận 3	TP. HCM	8.2	Món Nhật	10.783351	106.697177	36
4	Pizza 4P's - Pizza Kiểu Nhật - Saigon Centre	01 - 2 Lầu 6 Saigon Centre, 65 Lê Lợi, P. Bến ...	Quận 1	TP. HCM	8.5	Món Nhật	10.773726	106.700877	26

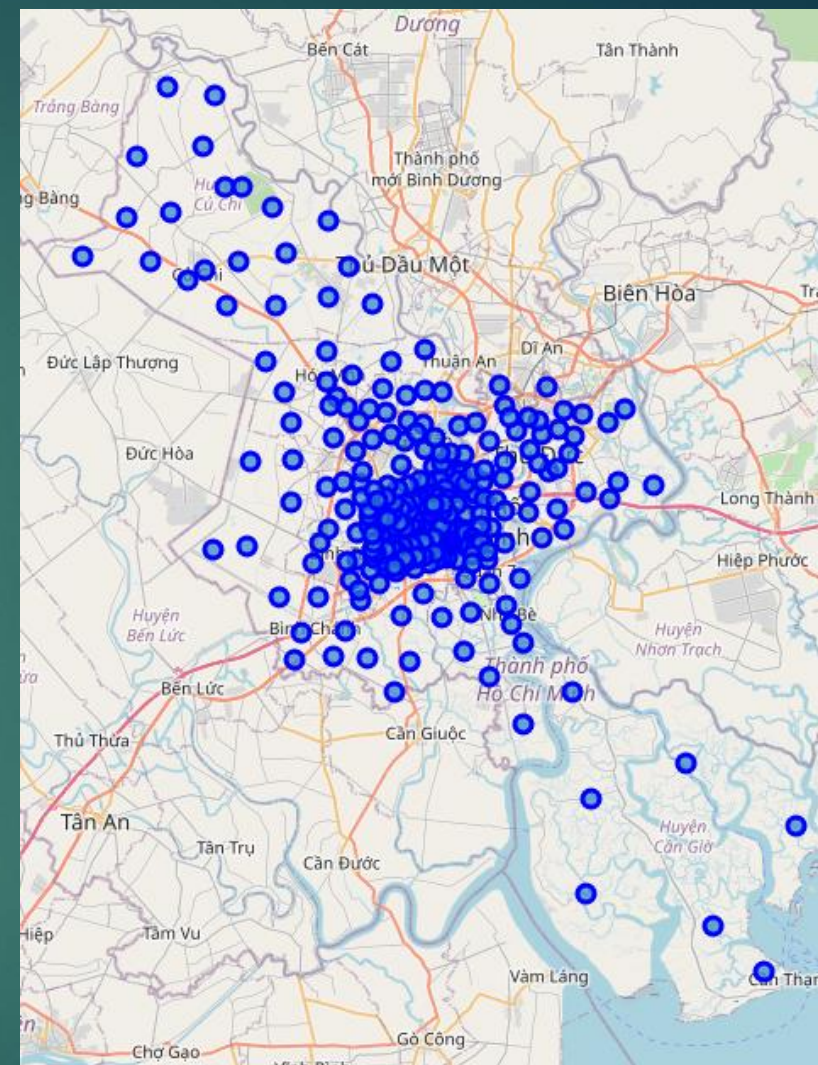
Data

- ▶ Sample for posts (pins) data

	Pin	Latitude	Longitude
0	Cong Vi, Ba Dinh, Ha Noi (21.03482, 105.80894)	21.03482	105.80894
1	Giang Vo, Ba Dinh, Ha Noi (21.02755, 105.81743)	21.02755	105.81743
2	Kim Ma, Ba Dinh, Ha Noi (21.03080, 105.82352)	21.03080	105.82352
3	Lieu Giai, Ba Dinh, Ha Noi (21.03836, 105.81676)	21.03836	105.81676
4	Ngoc Ha, Ba Dinh, Ha Noi (21.03872, 105.82751)	21.03872	105.82751



Pins map in Ha Noi

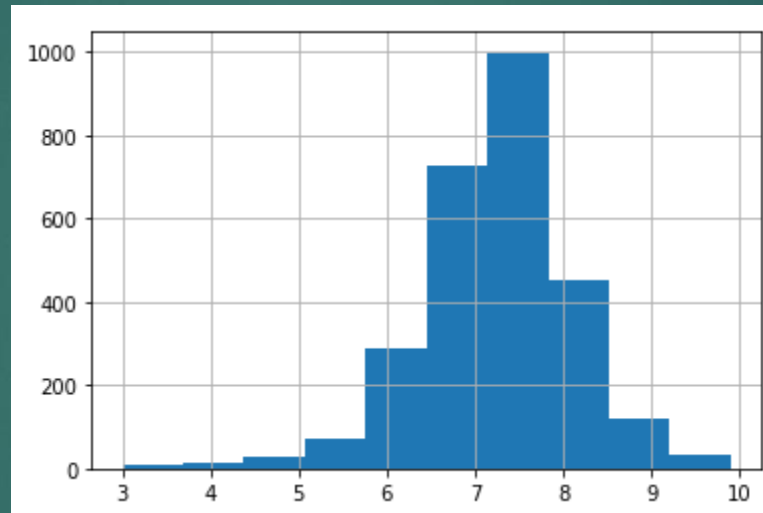


Pins map in Ho Chi Minh City

Methodology

- ▶ Get restaurants data from Foody and pin locations data from Postcodequery.
- ▶ Group restaurants in 1 km radius of pin locations to find out what is most common, most favourite and highest rating in areas.
- ▶ Cluster pin locations using K-means.

Analysis

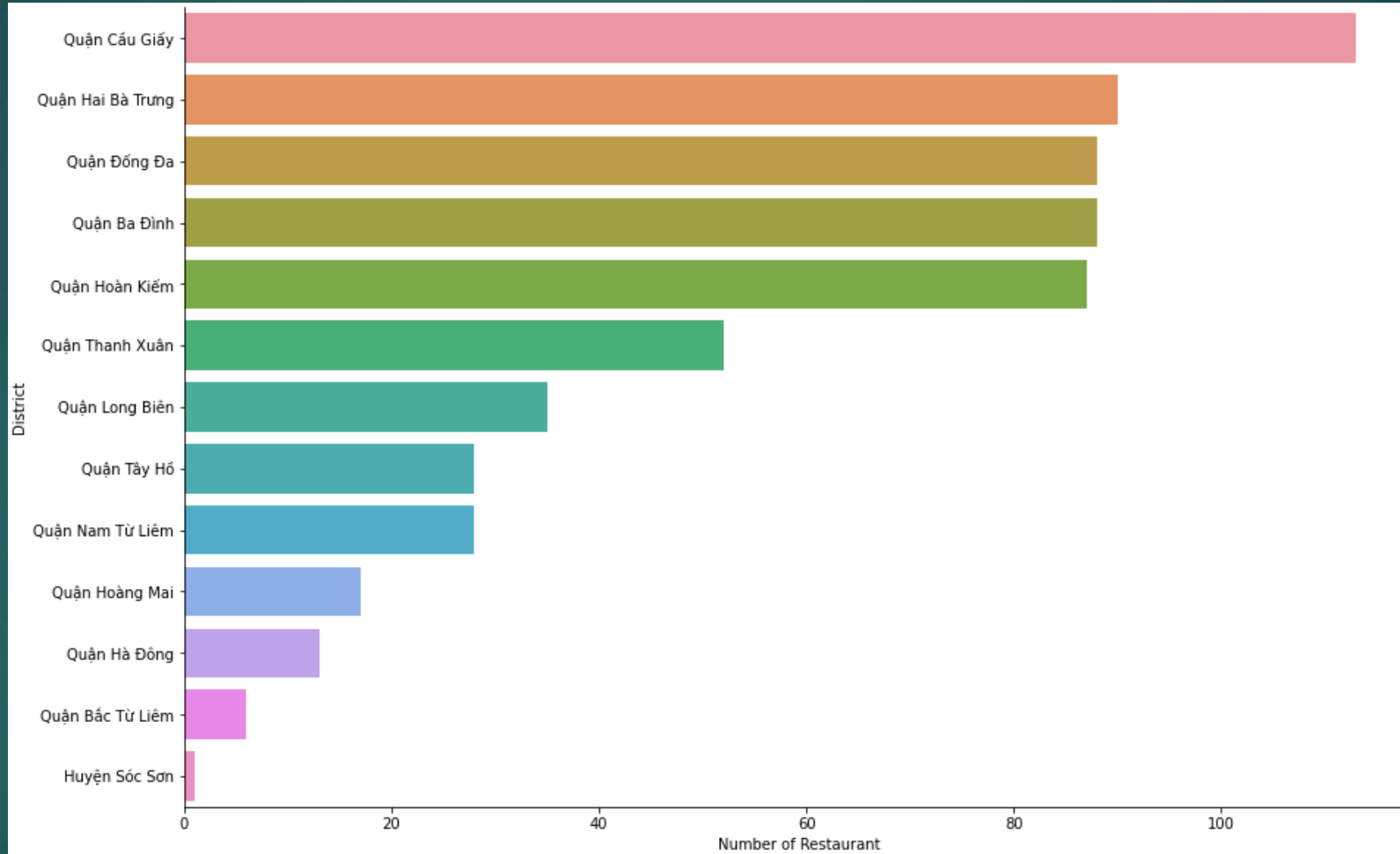


Histogram of rating score per restaurants

Analysis

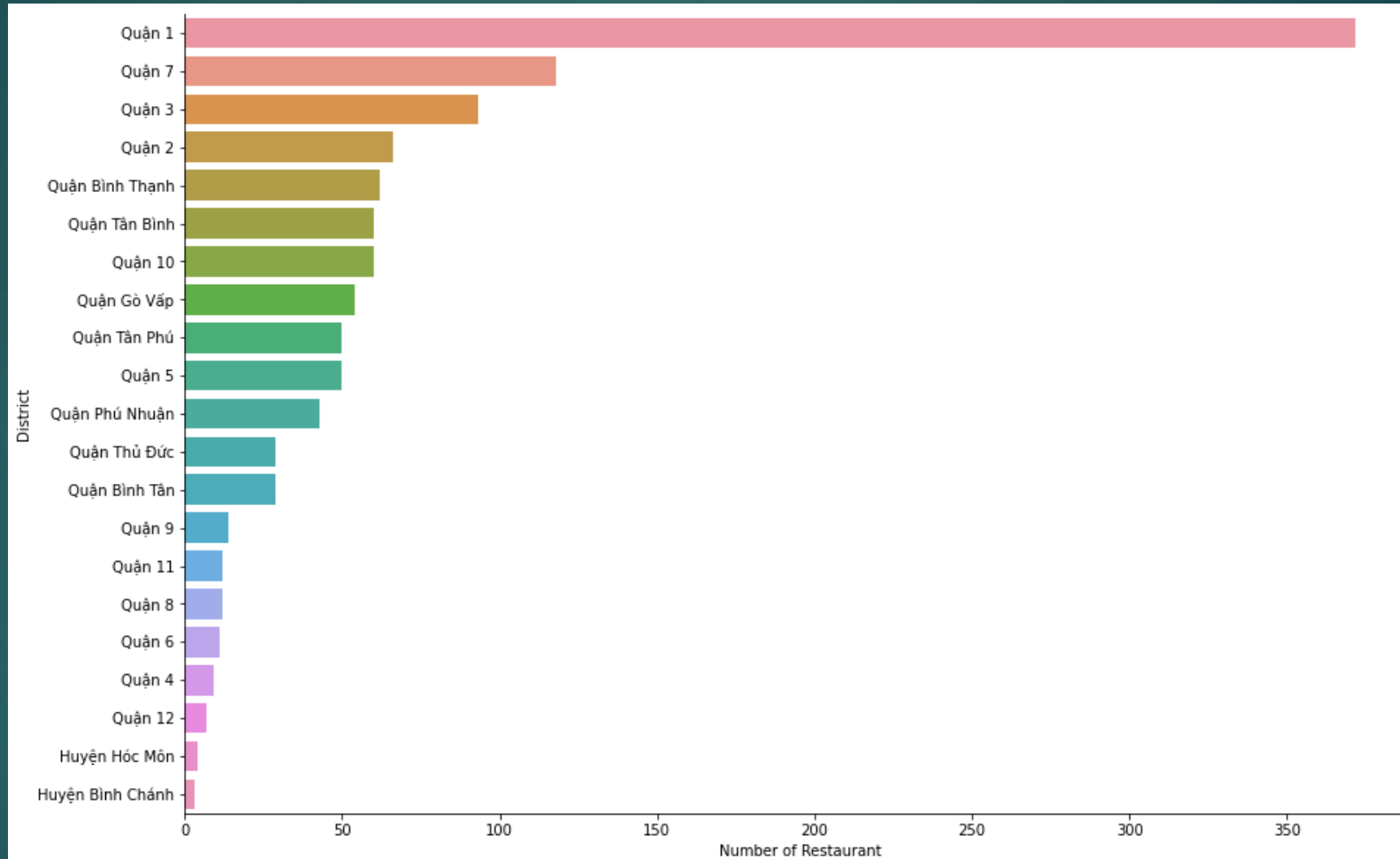
City	Number of Restaurants	Average Rating	Total review
Ha Noi	922	7.27	44646
Ho Chi Minh City	1816	7.30	130249

Analysis



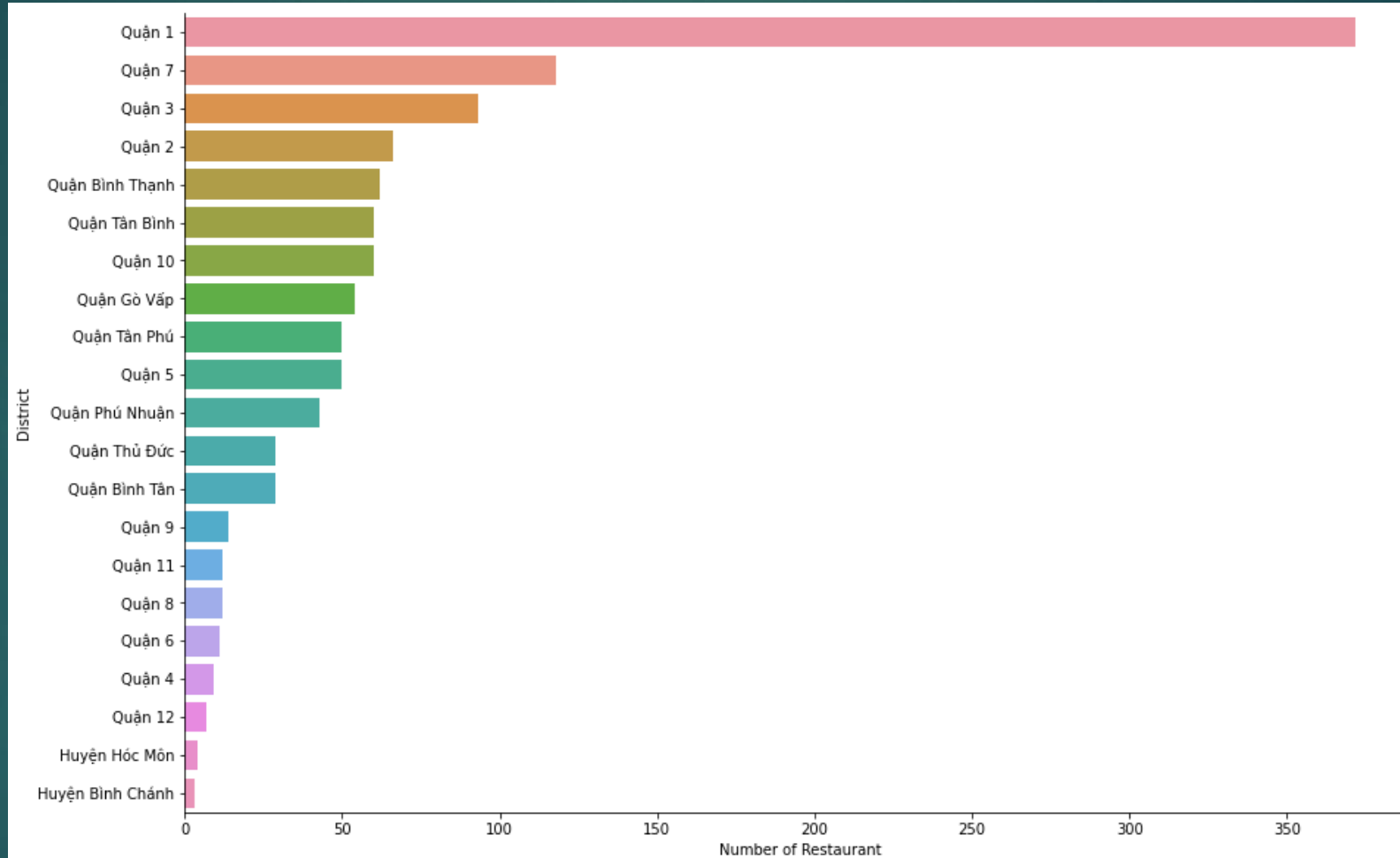
Number of restaurants by district in Ha Noi

Analysis



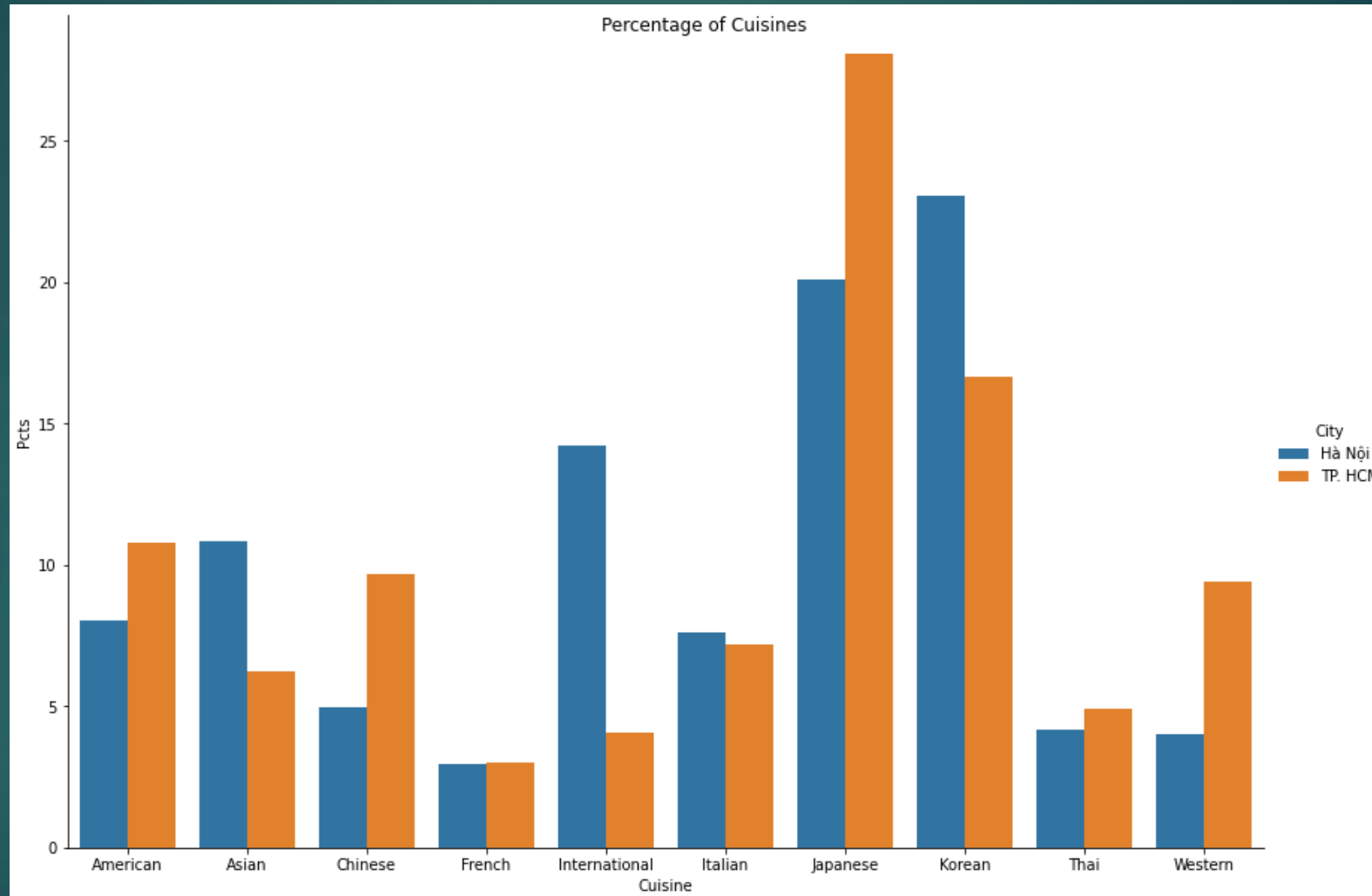
Number of restaurants by district in Ho Chi Minh City

Analysis



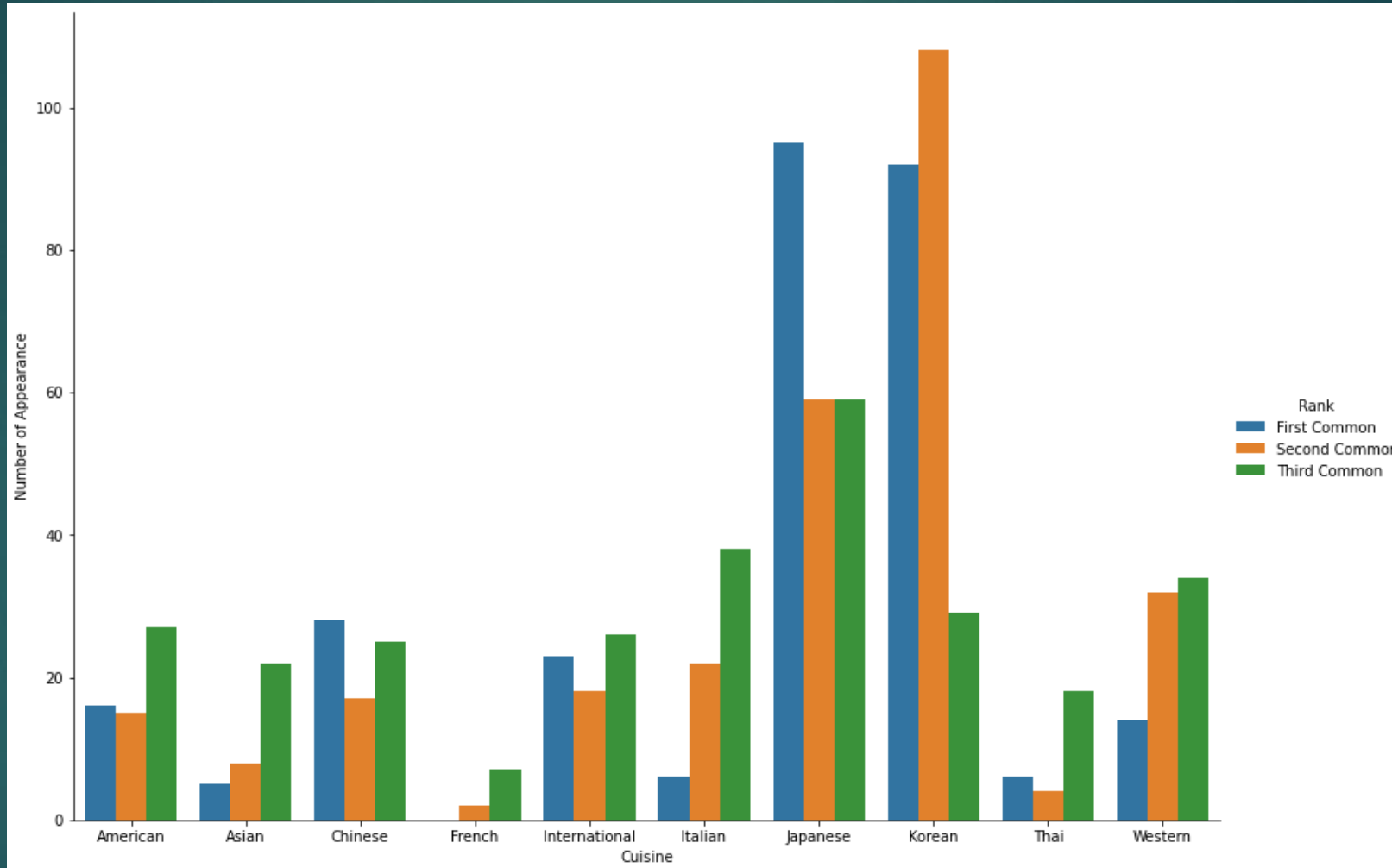
Number of restaurants by district in Ho Chi Minh City

Analysis



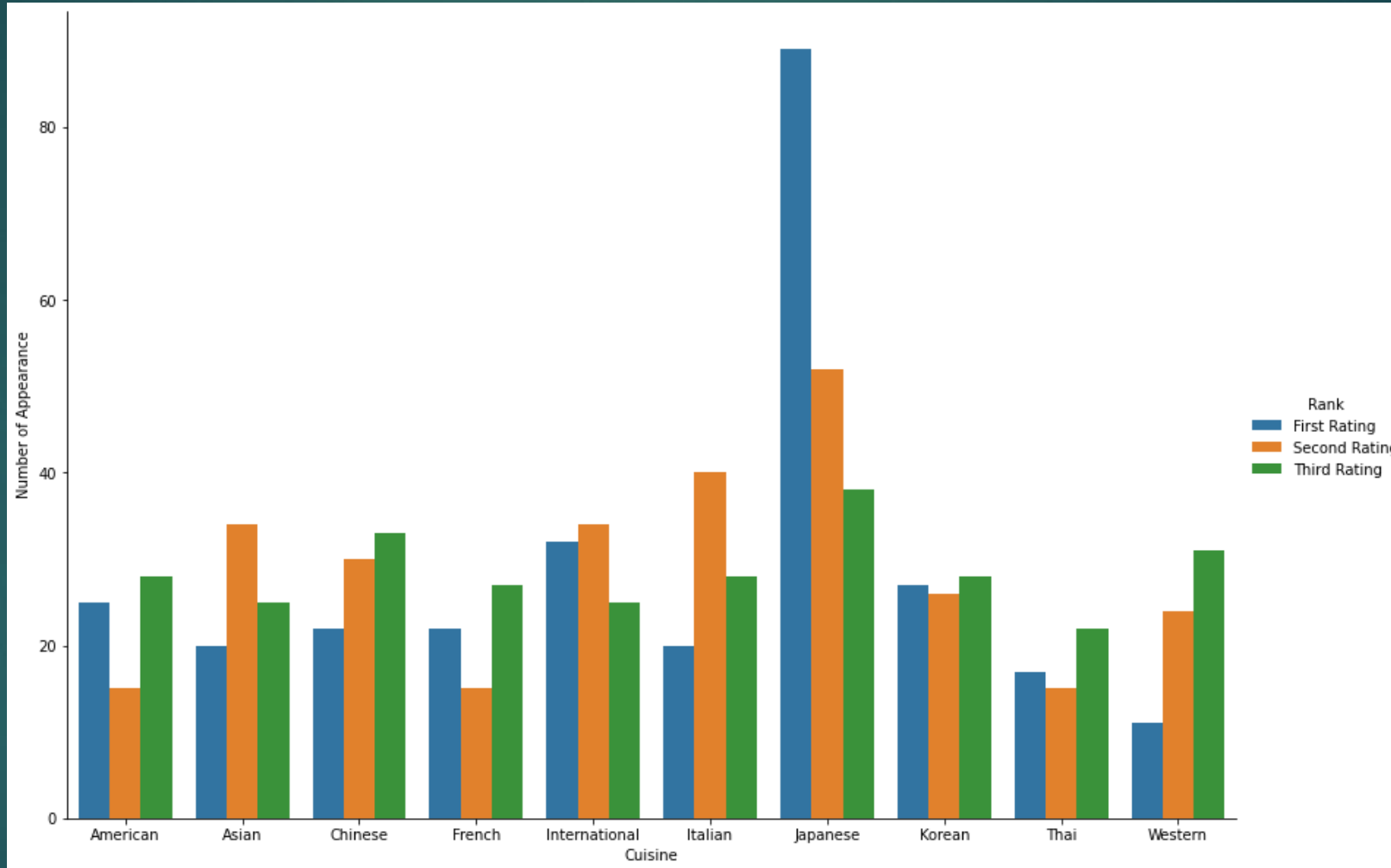
Number of restaurants by cuisines

Analysis



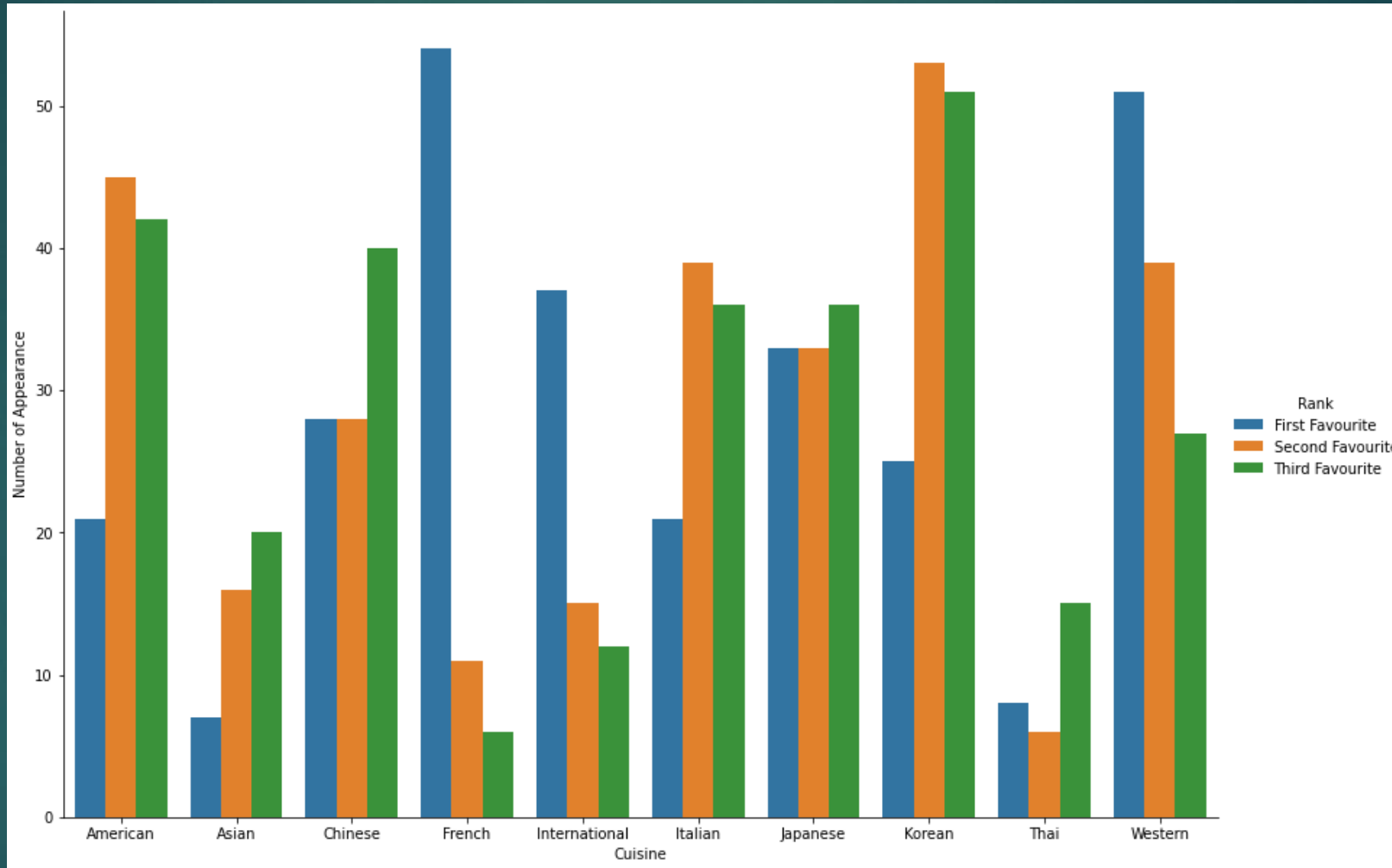
Most common cuisines by areas rank chart

Analysis



Highest rating by areas rank chart

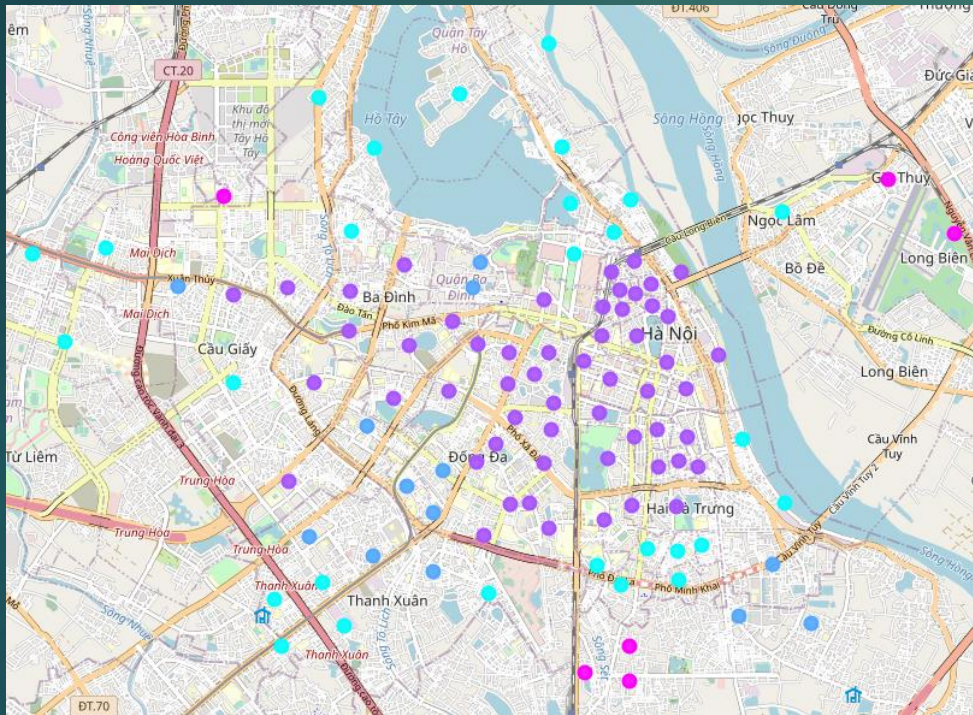
Analysis



Most favourite cuisines by areas rank chart

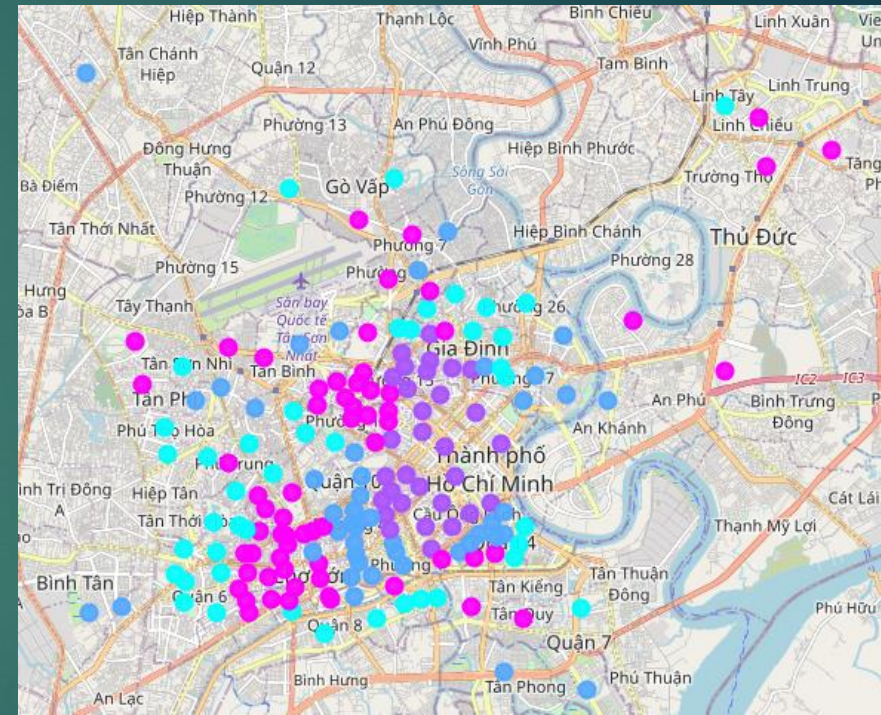
Clustering

Cluster 1
Cluster 3



Clusters map in Ha Noi

Cluster 2
Cluster 4

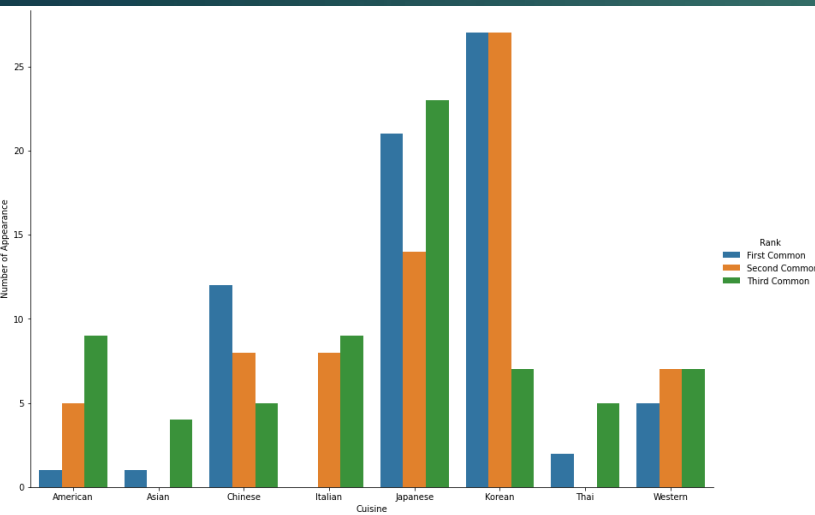


Clusters map in Ho Chi Minh City

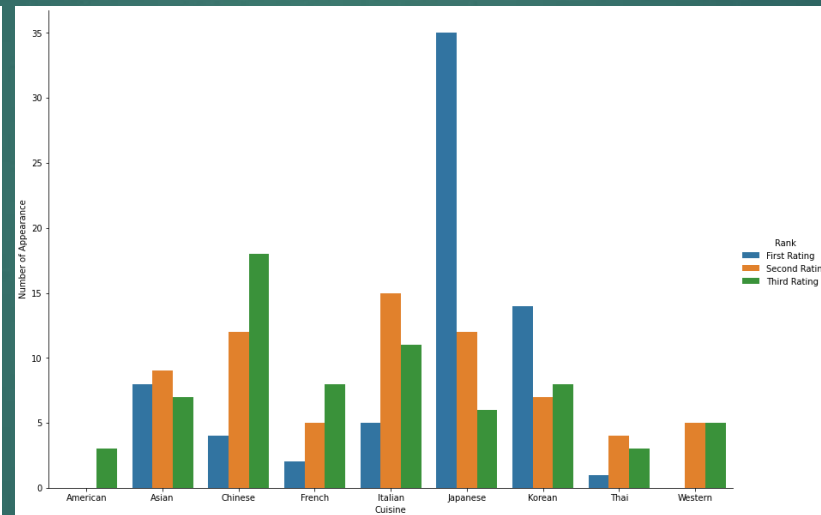
Clustering

Clusters 1:

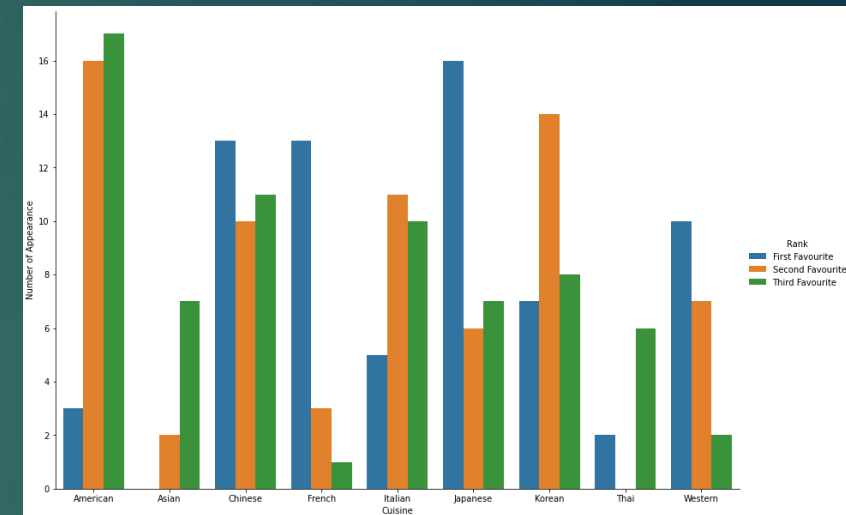
Crowded areas of the city - Middle-end Asian, Italian restaurants



Most common cuisines



Highest rating



Most favourite

Clustering

Clusters 2:

Farthest areas of the city – Korean and American fast food

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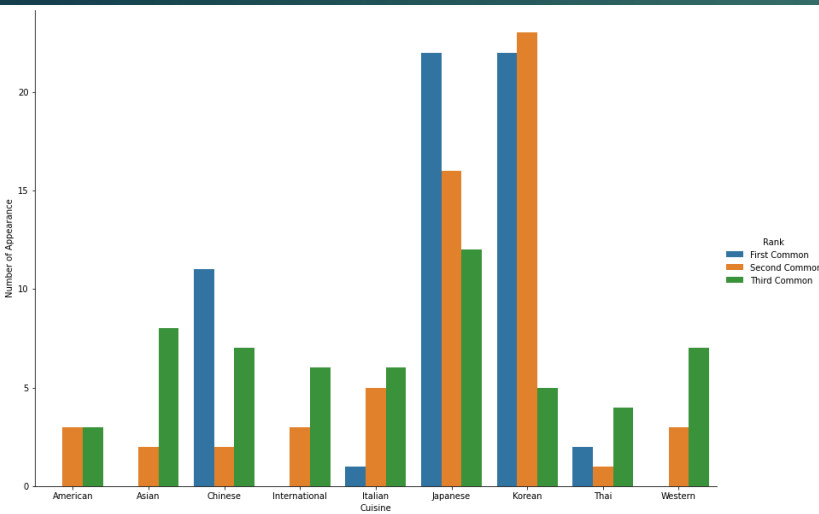
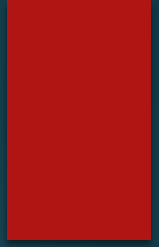
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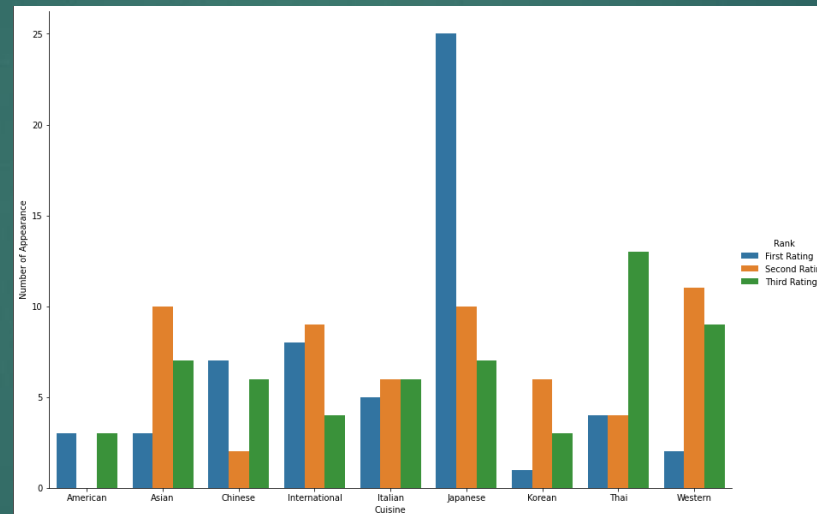
Clustering

Clusters 3:

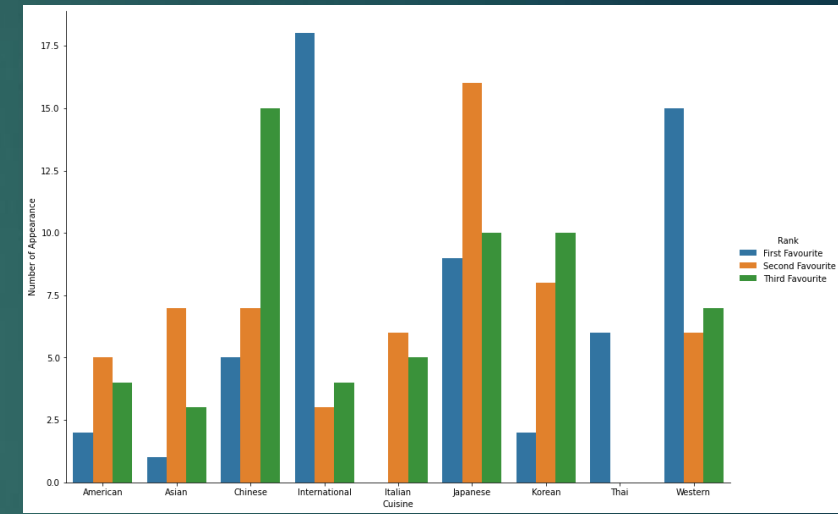
Balance of all things – Japanese and Western cuisines



Most common cuisines



Highest rating

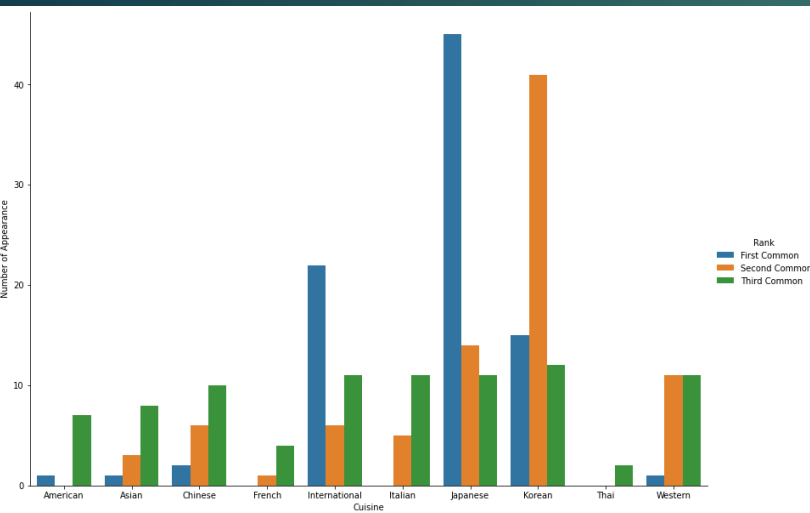


Most favourite

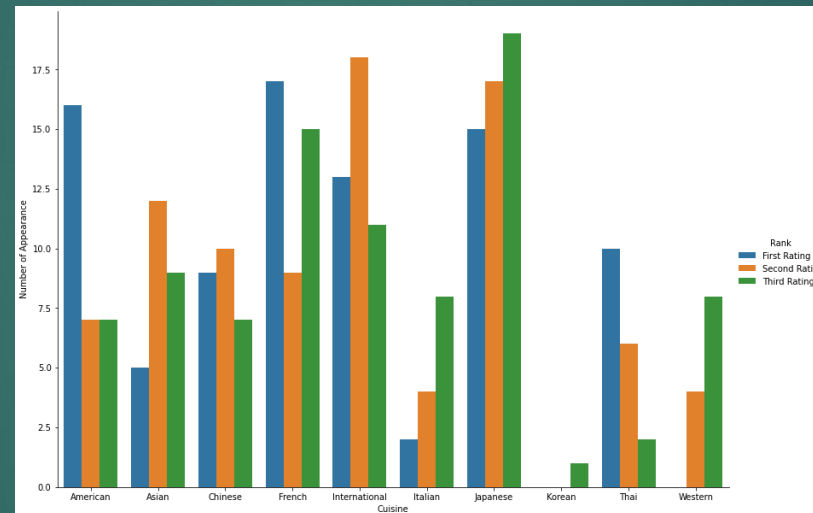
Clustering

Clusters 4:

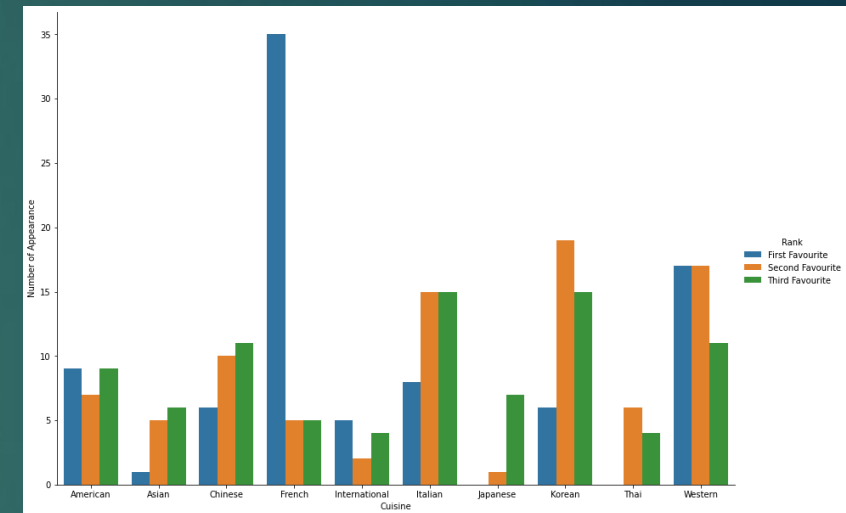
City center – High-end French restaurants



Most common cuisines



Highest rating



Most favourite

Conclusion

- ▶ Depend on what the stakeholders want, the optimal place to open new restaurant:
 - ▶ High-end, luxury restaurant: City center (Hoan Kiem District in Ha Noi, District 1, 3 in Ho Chi Minh City) – French and Japanese cuisines
 - ▶ Middle-end restaurant: Crowded areas with lots of residents and students (Ha Noi: Hoang Mai District , Ho Chi Minh city: District 8, District 11, Thu Duc District) – Asian (Korean) and Italian restaurants
 - ▶ Fast food restaurant: Can open everywhere, but farther areas from city center is more favourite – Korean and American fast food is best choice here.



Thank you for your attendtion!