Coursera Capstone Project

A Cluster Analysis of Hong Kong Venues Data from Foursquare

Final Report for the IBM Applied Data Science Capstone Course via Coursera

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Table of Contents

lable of Contents	2
Executive Summary	3
Introduction	3
Data	4
Methodology	4
Results	5
Discussion	6
Conclusion	7
References	8
Acknowledgements	8
Appendices	8

Executive Summary

This report shows the results of applying cluster analysis to data about venues in Hong Kong, hereafter abbreviated to "HK".

Venues data was sourced from Foursquare, grouped by HK district and cluster analysis applied to the data using the unsupervised machine learning algorithm, K-Means, in order to group the districts into five clusters using venue type as the variable.

The results include:

- (a) An analysis of the city, which would be important for someone planning to visit or live in HK. The data is especially rich in restaurant data.
- (b) An assessment of the completeness of Foursquare data for a city well known by the report writer.

Introduction

Problem

For someone visiting or intending to live in a large new city, it is important to understand its neighbourhoods and what features they have to offer. The visitor might be keen to know about the restaurants in each area: whether the area she intended to visit contained her favourite type or restaurant, or perhaps contained a variety of cuisine types. This report is intended to help a potential visitor to HK better understand the character of its nineteen districts.

Literature review

The reader will find the Internet to be a good source of information about HK: where to stay, things to do, places to eat. At the time of writing, it seems no cluster analysis has so far been performed on venues data in HK in order to categorise its 19 districts by type of venue, so this is the gap which this report aims to begin to bridge, albeit only partially.

HK has been chosen as the subject for this report as it is a location well known by the report writer who is therefore in the position to validate the results of the unsupervised clustering process.

Data

As mentioned, this report is intended to help a potential visitor to HK better understand the character of its nineteen districts. In order to accomplish this, the following data sources are used:

- A list of the 19 districts of HK is sourced from Wikipedia at https://en.wikipedia.org/wiki/Districts of Hong Kong.
- Latitude and longitude values of the 19 HK districts are sourced from GeoCoder.
- Data about venues in HK sourced from Foursquare. Foursquare is a technology company that has built a massive dataset of crowd-sourced global location data. Users of the Foursquare app upload data about venues they visit. The HK data which has currently been uploaded to Foursquare is weighted towards eateries. The Foursquare data can be accessed using the Foursquare API.

Methodology

A Jupiter notebook is used to import and study the above data, since this provides the platform to run the code of various Python data analysis libraries and to view the results. Screenshots from the notebook's results are added to this report.

After importing a list of the 19 HK districts from Wikipedia, latitude and longitude values for these districts are captured from the GeoCoder API. The combination of these data is shown in <u>Appendix 1</u>.

With the latitude and longitude data for the districts prepared, Foursquare is queried to find what data it contains about venues in these districts. At this stage it is possible to see which are the most common venue types per district. Using the dataset of venues per district, a K-Means algorithm from scikit-learn is called in order to group the districts into clusters of districts, each cluster having a similar composition of venue types. (K-Means is an unsupervised machine learning algorithm, well-suited to finding the similarity of data like districts based on one or more features.) Since it is necessary to input the required number of clusters in advance of running K-Means then it is requested that K-Means groups the 19 HK districts into 5 clusters.

These 5 clusters are then inspected to determine their characteristics and any similarities and dissimilarities are commented on.

Finally, some comment is offered about the completeness of HK Foursquare data.

Results

This section provides a summary of the results found by following the methodology above,

Foursquare returned a total of 658 venues for HK. Here's a sample of these rows:

District	District Latitude	District Langitude	Venue	Venue Latitude	Venue Longitude	Venue Category
Central and Western	22 26519	114,14490	Caine Road Garcon (空道花園)	22,283009	114.147930	9ardan
Central and Western	22.28518	114.14486	Vaga Ram Ram	22.294453	114 147978	Vaga Studio

From these 658 venues, it was possible to determine a count of HK restaurant venues by cuisine type and the results are shown in Appendix 2.

Also it was possible to determine the top 10 venue types for 17 of the 19 districts. Two districts didn't have enough reported data. The results are at Appendix 3.

Then K-Means was run in order to classify the above dataset (the top 10 venue types for each of the 17 districts) into 5 clusters. The tabular results are at Appendix 4.

A map of the 5 clusters was drawn using Folium and the results shown at Appendix 5.

The final step was to examine the data of each cluster manually, to note which districts are in each cluster and which venue types are most common in each district. From this analysis, it is possible to determine which characteristics are common within each cluster and which are dissimilar between clusters. The composition of each cluster is shown in <u>Appendix 6</u>.

A discussion of these results follows next.

Discussion

Based on the results above, the observations drawn in this report divide into two areas:

- An analysis of the city.
- The completeness of Foursquare data.

An Analysis of the City

Looking at the data divided into 5 clusters, it is observed that:

- Out of the seventeen districts which had enough data to use, thirteen all fell into the same cluster, meaning that the top ten reported venues in these districts are more similar to each other than to other clusters.
- Since the Foursquare data is dominated by food-related venues, it
 would be reasonable to conclude that any one of these thirteen
 districts would be a similar place to visit or settle from a foodperspective.
- However, since it is known that there are interesting differences between many of these thirteen districts, this indicates that the features which distinguish them were either not captured in the list of top ten venue types per district or that a higher number of clusters should be allowed in order find those distinctions.
- The remaining 4 districts fell into 4 other clusters, making these districts more unique in their top ten values than the others. For example, Kowloon City seems to distinguish itself for hotpot restaurants.

- Regardless of their differences, all districts appear to have a good range of facilities. This means that a visitor could stay virtually anywhere in the city and not find herself stranded without something to eat!
- The top 10 venue types by cluster and district is shown in appendix 5 for the interested reader to browse the data further.

The Completeness of Foursquare Data

Also, regarding the Foursquare data, it is observed that:

- For two of the districts, "Eastern" and "Sai Kung", there was not enough venue data available from Foursquare for them to be used in this exercise.
- In fact with only 658 rows, the size of the dataset of reported venues in Hong Kong is small and perhaps the usage of Foursquare itself should be promoted in Hong Kong in order to capture more data.
- It is natural to assume that Foursquare users who have uploaded data have focussed on the type of venues they are keen to recommend. This is evidenced by the fact that most uploaded venue types are some form of eatery.
- This means however that the data is lacking in more mundane venue types like schools, clinics, hospitals, churches and temples. These are almost completely lacking in the HK dataset.

Conclusion

Regarding a visit to Hong Kong, it can be concluded from the Foursquare dataset that a visitor should have no concern about finding something to eat since there is a good variety of eateries in all districts of HK. The Foursquare data could also be used usefully to navigate to the more popular venues.

However, it is suggested that at this stage that the Foursquare data is not yet as useful as other well known sites on the Internet for researching HK generally. Perhaps the biggest finding of this analysis is that more HK venues data is needed. Perhaps Foursquare is

currently less popular in HK than in other places. It would also be useful to have a wider variety of venue types reported in HK, not just eateries, and it is hoped that this may come naturally over time as the size of the HK dataset increases.

References

- Foursquare data, see https://foursquare.com/
- Jupyter notebooks, see https://jupyter.org/
- Retrieving latlong values, see https://geocoder.readthedocs.io/ index.html
- K-Means clustering, see https://en.wikipedia.org/wiki/K-means_clustering
- Drawing maps with Folium, see https://python-visualization.github.io/folium/modules.html

Acknowledgements

This report has been compiled as part of the assessment for the Applied Data Science Capstone course provided by IBM and hosted by Coursera. For this reason, the author thanks the IBM course tutors for the idea for this assessment and for the necessary training in order to complete it.

Appendices

See below.

Appendix 1 - Hong Kong's 19 Districts with Location Data added

	District	Population	PopulationGrowth	Density	Latitude	Longitude
0	Central and Western	243266	-2.7	19391	22.282190	114.144860
1	I Fastern	555034	-2.8	30861	22.272090	114.221396
2	Southern	274994	-D.6	7080	22.258010	114.153080
3	Wan Chai	180123	-0.1	17137	22.277101	114.173837
4	Sham Shui Po	405869	11.0	43381	22.329351	114.159179
6	Kowloon City	418732	15.6	4'802	22.311130	114.133540
6	Kwun Tong	648541	10.4	57530	22.314236	114.226625
7	Wong Tai Sin	425235	0.4	45711	22.336088	114.191726
ε	Yau Tsim Mong	342970	22.3	49046	22.309739	114.168521
9	Islands	156801	14.4	886	22.314680	113.932430
10	Kwai Tsing	520572	-0.5	22307	22.314236	114.229925
11	l North	315270	12.3	2310	22.513688	114.206956
12	Sai Kung	461864	13.6	3563	22.400012	114.313797
13	Sha Tin	659794	8.6	9602	22.382036	114.202102
14	Tai Po	303926	3.5	2233	22.290868	113.952263
15	Tsuen Wan	318916	10.5	5149	22.370660	114.104790
16	Tuen Mun	489299	-2.5	5894	22.395699	113.973083
17	Yuen Long	607200	15.0	4435	22.445131	114.025732
18	Marine	1201	-60.8	0	22.276640	114.171370

Appendix 2 - Count of Reported Venues in HK: Restaurants by Cuisine type

Venue Category	Count
Chinese Restaurant	32
Cantonese Restaurant	24
Japanese Restaurant	23
Hong Kong Restaurant	22
Fast Food Restaurant	21
Ita ian Restaurant	16
Thai Restaurant	16
Vietnamese Restaurent	9
Hotpot Restaurant	9
Sushi Restaurant	8
Seafood Restaurant	6
Korean Restaurant	6
Dumpling Restaurant	6
French Restaurant	5
Vegetarian / Vegan Restaurant	5
Dim Sum Restaurant	5
Spanish Restaurant	4
Restaurant	4
Incian Restaurant	4
Beijing Restaurant	4
Middle Eastern Restaurant	4
Malay Restaurant	3
Mexican Restaurant	3
Ramen Restaurant	3
Conburi Restaurant	3
American Restaurant	3
Indonesian Restaurant	3
Asian Restaurant	3
Lebanese Restaurant	2
Greek Restaurant	2
Tapas Restaurant	2

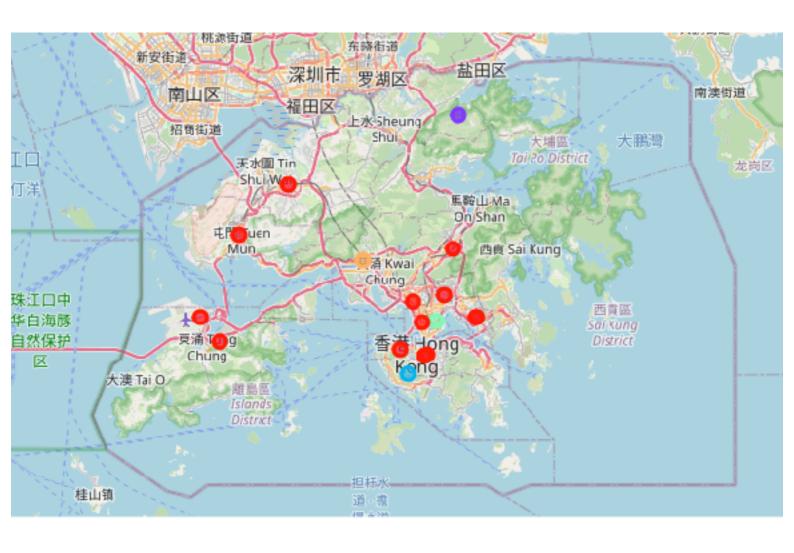
Appendix 3 - The Top 10 Reported Venue Types in HK per District

District	tet Meet Common Venue	2nd Most Common Vesue	3rd Hest Common Venue	4th Mest Common Virtue	8th Most Common Venue	6th Most Common Venue	78h Miret Common Vense	Bith Uses Common Vinue	Onhittest Common. Venue	10th Most Common Venue
Central and Western	Yoga Studio	Café	Thai Restaurant	Italian Restaurant	Mexican Restaurant	Coffee Shop	Tapus Restaurant	Noodle House	Yea Foom	Japanesi Restaurant
Islands	Airport Lourge	Coffee Shop	Basery	Clothing Store	Cockrall Bar	Electronics Store	Candy Store	Pzza Race	Chocylate Shop	Airport
Kowbon City	Hotgot Restaurant	Noode House	Bus Stop	Dessert Shop	Fast Food Restaurant	Theater	Airport	Park	Organic Grocery	Paper J Office Supplies Store
Keal Tang	Chinese Restaurant	Japanese Resignant	Cha Chaan Teng	Fast Food Restaurant	Restaurant	Sush Resaurant	Coffee Ship	Caffé	Department Store	Hong Kong Restaurant
Keun Tong	Chinese Restaurant	Japanese Restaurant	Cha Chaan Yeng	rest Food Pesterrant	Prestaurant	Justi Resigurani	Coffee 3tmp	care	Department Store	Hone Kons Restaurant
Marne	Coffee Stop	Cuntonese Restaurant	Italian Restaurant	Japanese Restaurant	Cati	Prong Along Resigurant	Hotel	Chinese Restaurant	Thai Restairant	Sakery
North	Vaterall	Airport	Performing Arts Venue	Molecular Gustroromy Restaurant	Multiplex	NoodleHouse	Organic Grocery	Paper / Office Supplies Stone	Park	Perfume Shop
Sha Tin	First Food Restaurent	Chinese Restaurant	Karaoke Bar	Hong Kong Restaurant	Neodle House	Sush Resourant	Café	Park	Truin Station	Bus Station
Shart Shul Po	soode nouse	Hong Kung Restaurant	Desirent shop	Italian Pescaurant	SMBCK PIBCE	Stopping Mail	Ramen Restaurant	Fine Market	Cha Craan Teng	Care
Southern	Vaterall	Grocery Store	Trail	Alport	Paper /Unica Supplier Store	Nobile Phone Shop	Molecula Gastonomy Restaurant	Multiplex	Noodle House	Organic Grocery
TaiPo	Bus Stop	Comenierce Store	Shopping Mail	Furniture / Home Store	Butcher	Cantonese Resourced	Park	last Food Restaurant	Bus Station	Supermarket
Town Wan	Rus Station	Past Food Pescausers	Raisey	Rus ltop	Din Sun Bestaurart	Hong Kong Freshultens	Supernaries	Noville House	Organic Connery	Paper / Office Supplies Store
Tien Nun	Shopping Nati	Coffee Shop	Fast Food Restaurant	Multiplex	Hong Kong Restaurant	Desset Ship	Cotting Store	Cantonece Restaurant	Supermarket	Stengtia Resiaurant
Wan Chal	Coffee Shop	Cantonese Restaurant	zaparese Restaurant	Notel	Hong Kong Restaurant	Caté	Chinese Restaurant	"hal Festavrant	Italian Restaurant	Sakery
Wong Tai šin	Chinese Restaurant	Noode House	Supermarket	Metro Station	Coffee Shoo	Stopping Mali	Chi Chain Teig	Cantonese Restaurant	Park	Bus itation
Vac Teim Mong	Hidel	Cuntonese Hestaurant	Desiert Shop	Chinese Restaurant	Hony Kong Hestaurant	Mini, CRR	Dim Sum Restaurant	046	Nootle House	Indian Restaurant
Tuen Long	NOODB HOUSE	Fast Food Restaurant	Chinese Restaurant	Japanese Hestaurant	эгоррид маг	wanes	come snip	'hai restavrant	Eumoling Restairant	Desset Snop

Appendix 4 - The Top 10 Reported Venue Types in HK per District with Cluster Number

District	Cluster Labels	1st Most Common Venue	2ndMost Common Yenue	3rd Mirst Common Venue	4th Most Common Vinue	SthMost Common Venue	6th Most Common /enue	7th Most Common Venue	5th Most Common Venue	9th Nost Common Venue	10th Most Common Venue
Sentral and Western	q	Yoga Studio	Ca16	Thai Restaurant	talian Restaurant	Mexican Restaurant	Coffee Shop	Tapas Restaurant	hoodle House	Tea Riom	Japanese Restaurant
Islands	a	Airport Lourge	Coffee Shop	Bakery	Clothing Stone	Cooktail Bar	Electronics Store	Cardy Store	Pizza Place	Chocolate Shop	Airport
Kowloon City	3	Hotsot Restaurant	Neodie House	tus Stop	Dessert Shop	Festaurant	Theater	Airport	Parx	Organic Grovery	Paper / Office Supplies Store
Kwai Tsing	a	Chinese Restaurant	Japanese Restaurant	Cha Chuan Teng	FastFoodRestavrant	Restaurant	Sush Restaurant	Cofee Stop	Caff	Department Store	Hong Kong Restaurant
Xwun Tong	a	Chinese Restaurant	Japanese Restaurant	Cha Chuan Teng	Fast/Food Restaurant	Restaurant	Sush Restaurant	Cofee Stop	Caff	Department Store	Hong Kong Restaurant
Narine	a	Coffee Shop	Cantonese Restourant	Italian Restaurant	Japunese Restaurant	Café	Hong Kong Restaurant	Hotel	Chinese Restaurant	Thai Restaurant	Bakery
sorth	1	Waterfall	Arport	Ferforning Arts venue	Molecular Castrosomy Restaurant	Multiplace	Noodle House	Organic-Grockry	Raper / Office suppries store	Park	Partune Stop
She Tin	a	Fast Food Restaurant	Chinese Restaurant	Karacha tari	HongKongRestavant	Hoode House	Justi Restaurani	Care	Park	Train Station	Dun Stanlan
Sham Shui Po	a	Noode House	Hung Kong Restaurant	Dessert Shop	talian Restaurant	Snack Place	Shopping Mall	Ramen Restaurunt	FleaMarket.	Cha Chaan Teng	Cifé
Southern	2	Waterfall	GroceryStore	Tall	Airport	Paper / Office Supplies Store	Nobile Phone Shop	Molecular Gastronomy Restaurant	Multiplex	Noodle House	Organic-Grockry
"ai Po	q	Bus Stop	Convenience Store	Shopping Nall	Furniture / Name Store	Butcher	Carrionese Restaurant	Park	Fast Food Restaurant	Bus Station	Supermarket
Tsues Wan	4	Bus Station	Fast Food Restaurant	Bakery	Bus Stop	Dim Sum Restaurant	Hong Kong Restaurant	Supermarket	Foodle House	Organic Grovery	Paper / Office Supplies Store
Toes Mon	0	Shopping Mall	Coffine Shop	First Food Hestaurant	Multiplay	Hong Kong Hostaulans	Dessert Shop	Clothing Sture	Cartonese execurant	Scoermarket	Shanghal Bestaurunt
wan Chal	u	Conee Stop	Cantonese Restaurant	Restaurant	notei	Restaurant	Care	Uninese Ressurent	The Resourcest	mailan kessaurant	Dakery
Wong Tail Sin	a	Chinese Restaurant	Neodie Bouse	Supermanet	Metro Station	Cofee Stop	Shopping Mail	Cha Chian Ting	Cartonese Restaurant	Park	But Station
Yas Tsim Mong	0	Hotel	Cantonese Restaurant	Dessert Shop	Chinese Restaurant	Hong Kong Postaurant	miot, ped	Dim Sum Restaurunt	Caff	Noodle House	Inden Restaurint
YuenLong	a	Noode House	Fast Food Restaurant	Chinese Restaurant	Japinese Restaurant	Shopping Mall	Market	Cofee Stop	Thei Restaurant	Dumpling Restaurant	Dessert Stop

Appendix 5 - Map of Clusters (indicated by different colours)



Appendix 6 - The Top 10 Reported Venue Types per Cluster and District

Islands ArportLounge Ceffee Shop Balary Clothing Store Cocked Bar Dectronics Store Candy Store Pizza Place Choocidate Shop Apport Restaurant Such Restaurant Such Restaurant Coffee Shop Café DepartmentStore Restaurant Sha Thin Field Convenience Store Shopping Mail Coffee Shop Restaurant Restaurant Restaurant Such Restaurant Coffee Shop Café DepartmentStore Restaurant Such Restaurant Coffee Shop Restaurant Restaurant Coffee Shop Restaurant Restaurant Such Restaurant Coffee Shop Restaurant Shopping Mail Coffee Shop Restaurant Restaurant Restaurant Place Restaurant Shopping Mail Coffee Shop Restaurant	Cluster 1										
Was Call Coffee Sup Cartinoses Resources Relationes Rel	District										
Seas Shall PV Noofs Noor Noor Noor Noor Noor Noor Noor Noo		Yoga Stud	Sio Ci	fé Thai Restaurant	t Italan Restaurant	Mexican Restaurar	nt Coffee Shop	Tapas Restaurant	Noodle House	Tea Room	
Note Tay Chiese Retauzer Restaurant Restaura	Wan Chai	Coffse Sh						Chinese Restaurant	Thai Restaurant	Italian Restaurant	Bakery
True Num - Shedard - Sheda	Sham Shui Po	Noodle Hou			Itaian Restaurant	Snack Plac	ce Shopping Mall	Ramen Restaurant	Flea Market	Cha Chaar Teng	Café
The Market State of Market Sta	Kwun Tong	Chinese Restaura					nt Sushi Restaurant	Coffee Shop	Café	DepartmentStore	
Stands ApportLongs (Part Bistalizarian) Bistalizarian	Wong Tai Sin	Chinese Restaura	nt Noodle Hou	se Supermarket	Metro Station	Coffee Sho	p Shopping Mall	Cha Chaan Teng		Park	Bus Station
Part	Yau Tsim Mong	Ho	tel Cantone Restaura	se Dessert Shop at	Chinese Restaurant				Café	Noodle House	Indian Restaurant
Sha Tin Field Common Technology (Part Section	Islands	AirportLoun	ge Coffee Sh	op Bakery	Clothing Store	Cocktail Ba	ar Electronics Store	Candy Store	Pizza Place	Chocolate Shop	Airport
Tai Po Bus Step Convenience State Shopping Mail Tai Po Bus Step Convenience State Shopping Mail Toes Municipal Shopping Munici	Kwai Tsing	Chinese Restaura					nt Sushi Restaurant	Coffee Shop	Café	DepartmentStore	
Tuen Muni Shagging Mail Ceffee Shop Fast Food Restaurant Supportment Property Common Shagging Mail Ceffee Shop Restaurant	Sha Tin			nt Karaoke Bar			se Sushi Restaurant	Café	Park	Train Station	Bus Station
Yourn Long Noodle House Fast Food Person Support Mark Common Fast Food Person Support Restaurant Plant Long Support Restaurant	Tai Po	Bus St	op Convenience Str	re Shopping Mal						Bus Station	Supermarket
Position of the Common Restaurant	Tuen Mun	Shopping M	all Coffee Sh					Clothing Store		Supernarket	Shanghai Restaurant
Cluster 2 District 1 Most Common Venus 2 Most	Yuen Long	Noodle Hou					all Market	Coffee Shop	Thai Restaurant		Dessert Shop
North Waterfall Airport Person Wenue									Chinese Restaurant	Thai Restaurant	Bakery
Cluster 3 District 1st Most Common 2nd Mest Common 3rd Mest Common 4th Mest Common Venue											
District 1st Most Common Venue	District 1st										
District 1st Most Common Venue Venue Venue Venue State Common State Common Venue Ven	District	Venue	Venue	Venue Performing Arts N	Venue Volecular Gastroromy	Venu	e Venue	Venue	Venue Paper / Office	Venue	Venue
Southern Washerfall Grocery Stone Trail Airport Paper / Office Supplies Stone Cluster 4 District 1 Most Common Versus V	District	Venue	Venue	Venue Performing Arts N	Venue Volecular Gastroromy	Venu	e Venue	Venue	Venue Paper / Office	Venue	Venue
Cluster 4 District 1st Meat Common City Holpot Restaurant Soodle House Bus Stop Dessert Shop Restaurant Soodle House Pank Common Venue Venue Pank Common Supplies Store Cluster 5 District 1st Most Common Venue Pank Common Venue Pank Common Venue Pank Common Supplies Store Cluster 5 District 1st Most Common Venue Pank Common Venue Pank Common Venue Pank Common Supplies Store Cluster 5 District 1st Most Common Venue Pank Common Venue Pank Common Venue Pank Common Venue Pank Common Supplies Store Tauen Rus Station Fast Food Russ Venue Pank Venue Pank Venue Pank Common Venue Pan	North	Waterfall	Venue	Venue Performing Arts N	Venue Volecular Gastroromy	Venu	e Venue	Venue	Venue Paper / Office	Venue	Venue
Cluster 4 District 1st Meet Common Venue Pub Meet Common City 1st Most Common Venue Pub Meet Common Supplies Store Cluster 5 District 1st Most Common Venue Pub Meet Common Venue Ven	North Cluster 3	Venue Waterfail	Venue Airport	Performing Arts Nenue	Venue **Foliation of the state	Venur Multiple	e Venue x Noodle House Sth Most Common	Venue Organic Grocery 7th Most Common	Pape / Office Supples Store	Park 9th Most Common	Perfume Shop 10th Most Common
District 1st Most Common Venue 2nd Most Comm	North Cluster 3	Waterfall Waterfall Most Common 2	Airport Airport and Mort Common 3	Performing Arts hence In Most Common Wrenze	Venue Aolecular Gastroromy Restaurant Mast Common St Venue	Multiple h Most Common (Vernor Paper / Office	e Venue x Noodle House Sth Most Common	Venue Organic Grocery 7th Wost Common Venue Molecular Gastronomy	Pape / Office Supples Store Bth Most Common Yersee	Park 9th Most Common Verve	Perfume Shop 10th Most Common Venue
Venue Venu	North Cluster 3	Waterfall Waterfall Most Common 2	Airport Airport and Mort Common 3	Performing Arts hence In Most Common Wrenze	Venue Aolecular Gastroromy Restaurant Mast Common St Venue	Multiple h Most Common (Vernor Paper / Office	e Venue x Noodle House Sth Most Common	Venue Organic Grocery 7th Wost Common Venue Molecular Gastronomy	Pape / Office Supples Store Bth Most Common Yersee	Park 9th Most Common Verve	Perfume Shop 10th Most Common Venue
City Hoops Netternant Social House But Step Design Store Cluster 5 District Int Most Common Venue Venue State Of Supplies Store Truen But Station Fast Food Balance But Step Dim Star Destaurant Hong Kong Supplies Store Restaurant Intention Among April Most Common Organic Concern Supplies Store Supplies Store Supplies Store State Most Common Venue State Most Common Venue Venue Park Common Venue Park	North Cluster 3 District 1st is	Waterfall Waterfall Most Common 2 Venue Waterfall	Airport Airport and Mort Common 3	Performing Arts hence In Most Common Wrenze	Venue Aolecular Gastroromy Restaurant Mast Common St Venue	Multiple h Most Common (Vernor Paper / Office	e Venue x Noodle House Sth Most Common	Venue Organic Grocery 7th Wost Common Venue Molecular Gastronomy	Pape / Office Supples Store Bth Most Common Yersee	Park 9th Most Common Verve	Perfume Shop 10th Most Common Venue
Cluster 5 District Ist Most Common Venue Venue 2nd Most Common Venue 4th Most Common Venue 7th Most Common Venue 4th Most Common Venue 7th Most Common Ve	North Cluster 3 District 1st 1 Southern Cluster 4	Waterfall Waterfall Most Common 2 Waterfall	Airport Ind Most Common 3 Grocery Store	Performing Arts hence Ind Most Common Ath Venue Trail Ord Most Common	Most Common St Venue Airport	Multiple Multiple Mest Common (Venue Faper / Office Supplies Store	e Venue x Noodle House Sth Mest Common Venue Moole Phone Shop	Venue Organic Grocery 7th Most Common Venue Molecular Gastronomy Resilaurant	Paper J Office Supplies Store 8th Most Common Venue Multiplex	Park 9th Most Common Venne Noodie House	Perfume Shop 10th Most Common Venue Organic Grocery
District Ist Most Common Venue 2nd Most Common Venue 3nd Most Common Venue 3nd Most Common Venue 4th Most Common Venue 3nd Most Comm	North Cluster 3 District 1st 1 Southern Cluster 4 District 1st 1 Kowloon 1st 1	Waterfall Waterfall Most Common Venue Waterfall	Airport Ind Mort Common 3 Venue Grocery Stone End Most Common Venue	Performing Arts In Menue rd Most Common 4th Yrane Trail Ord Most Gersman Venue	Venue Aliport Airport Ath Most Common Venue	Multiple Multiple Multiple Meet Common (Venue Paper / Office Supplies Store Supplies Store Sch Meet Common Venue Fast Food	e Venue x Noodle House Sth Most Common Venue dth Most Common Venue	Venue Organic Grocery 7th Most Common Venue Molecular Gastronomy Restaurant Pth Most Common Venue	Paper / Office Supplies Stone Bth Most Common Venue Multiplex	Park 9th Most Common Venner Noodle House Sth Most Common Venner Wenue	Perfume Shop 10th Most Common Venner Organic Grocery 10th Most Germon Venue Paper / Office
Venue	North Cluster 3 District 1st 1 Southern Cluster 4 District 1st 1 Kowloon 1st 1	Waterfall Waterfall Most Common Venue Waterfall	Airport Ind Mort Common 3 Venue Grocery Stone End Most Common Venue	Performing Arts In Menue rd Most Common 4th Yrane Trail Ord Most Gersman Venue	Venue Aliport Airport Ath Most Common Venue	Multiple Multiple Multiple Meet Common (Venue Paper / Office Supplies Store Supplies Store Sch Meet Common Venue Fast Food	e Venue x Noodle House Sth Most Common Venue dth Most Common Venue	Venue Organic Grocery 7th Most Common Venue Molecular Gastronomy Restaurant Pth Most Common Venue	Paper / Office Supplies Stone Bth Most Common Venue Multiplex	Park 9th Most Common Venner Noodle House Sth Most Common Venner Wenue	Perfume Shop 10th Most Common Venue Organic Grocery 10th Most Germon Venue Paper / Office
Tsuen Bus Station Fast Food Balany Bus Ston Dim Sum Bestaurant Hong Kong Sunarmarket Novelle Stone Cenanic Concern Paper / Office	North Cluster 3 District 1st 9 Southern Cluster 4 District 1st 9 Kowloon Re	Wenue Waterfall Most Common 2 Wenue Waterfall t Meat Common Venue otpot Restaurant	Airport Ind Mort Common 3 Venue Grocery Stone End Most Common Venue	Performing Arts In Menue rd Most Common 4th Yrane Trail Ord Most Gersman Venue	Venue Aliport Airport Ath Most Common Venue	Multiple Multiple Multiple Meet Common (Venue Paper / Office Supplies Store Supplies Store Sch Meet Common Venue Fast Food	e Venue x Noodle House Sth Most Common Venue dth Most Common Venue	Venue Organic Grocery 7th Most Common Venue Molecular Gastronomy Restaurant Pth Most Common Venue	Paper / Office Supplies Stone Bth Most Common Venue Multiplex	Park 9th Most Common Venner Noodle House Sth Most Common Venner Wenue	Perfume Shop 10th Most Common Venner Organic Grocery 10th Most Germon Venue Paper / Office
	North Cluster 3 District 1st 1 Cluster 4 District 1st 1 Kowloon City Ho	Wenue Waterfall Most Common 2 Wenue Waterfall Most Common Venue otpot Restaurant	Airport Ind Most Common 3 Grocery Stone End Most Common Yenue Soodle House	Performing Arts Menue Ind Most Common 4th Trail Brid Most Gersman Venue Bus Stop 3rd Most Common 4	Most Common St Venue Airport Airport Bessert Shop White Most Common Venue Dessert Shop	Multiple h Most Common Venue Paper / Office Supplies Store Supplies Store Fast Food Restaurant	e Venue x Noodle House Sth Most Common Venue 6th Most Common Venue Theater	Venue Organic Grocery 7th Most Common Venue Molecular Gastronomy Restaurant Peli Most Common Venue Airport	Paper / Office Supplies Store Bith Most Common Venue Multiplex Bith Most Common Venue Park	9th Most Common Venue Noodle House Sth Most General Organic Grocery	Perfume Shop 10th Most Common Venue Organic Grocery 10th Most Germon Venue Paper / Office Supplies Store