

A Recommender System for Jakarta Food Lover

Data Science Capstone

IBM Data Science Professional Certificate

Winter, 2019. Author : M.Rahim

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Synopsis

Part 1: Problem Description

Jakarta, Indonesia's massive capital, sits on the northwest coast of the island of Java. A historic mix of cultures – Javanese, Malay, Chinese, Arab, Indian and European – has influenced its architecture, language and cuisine, with a population of 10,075,310 as of 2014.

Jakarta Visitor who want to experience cultural food would need recommendation where to go.

Synopsis

Part 2: Identifying Jakarta Postal Codes

	id	kelurahan	kecamatan	kabupaten	provinsi	kodepos
0	1	GAMBIR	GAMBIR	JAKARTA PUSAT	DKI JAKARTA	10110
1	2	KEBON KELAPA	GAMBIR	JAKARTA PUSAT	DKI JAKARTA	10120
2	3	PETOJO UTARA	GAMBIR	JAKARTA PUSAT	DKI JAKARTA	10130
3	4	DURI PULO	GAMBIR	JAKARTA PUSAT	DKI JAKARTA	10140
4	5	CIDENG	GAMBIR	JAKARTA PUSAT	DKI JAKARTA	10150

Synopsis

Part 3: Data Acquisition

We will need geo-locational information about that specific borough and the neighborhoods in Jakarta. Using Geolocator API, Jakarta Coordinate is retrieved.

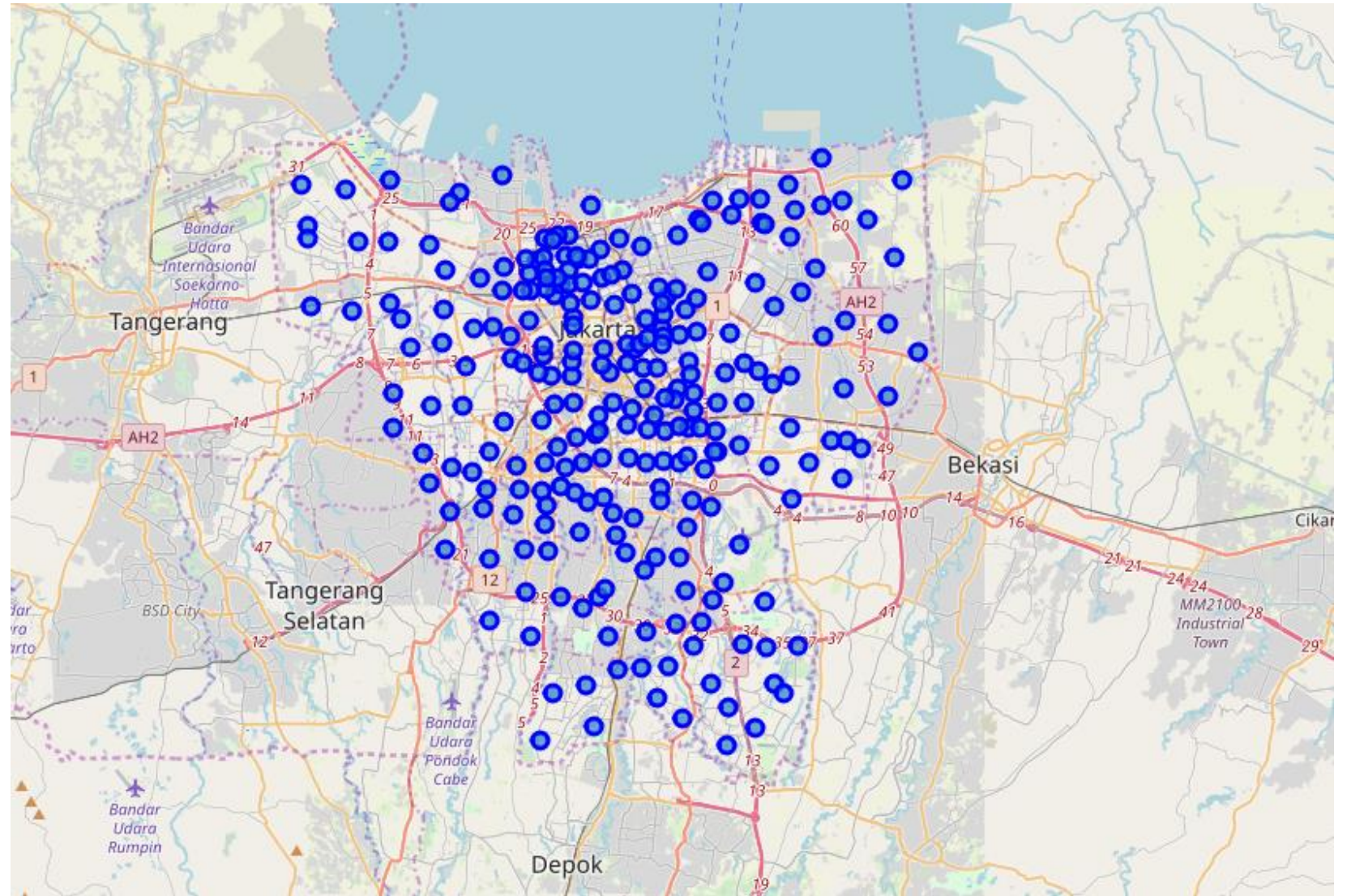
Jakarta, Indonesia

Latitude : -6.1753942,

Longitude : 106.827183

Synopsis

Part 4: Jakarta Coordinate Visualization



Synopsis

Part 5: Venue Data Acquisition

FourSquare API provided venue around the neighborhood base on coordinate on the location. There are 4286 venue in Jakarta.

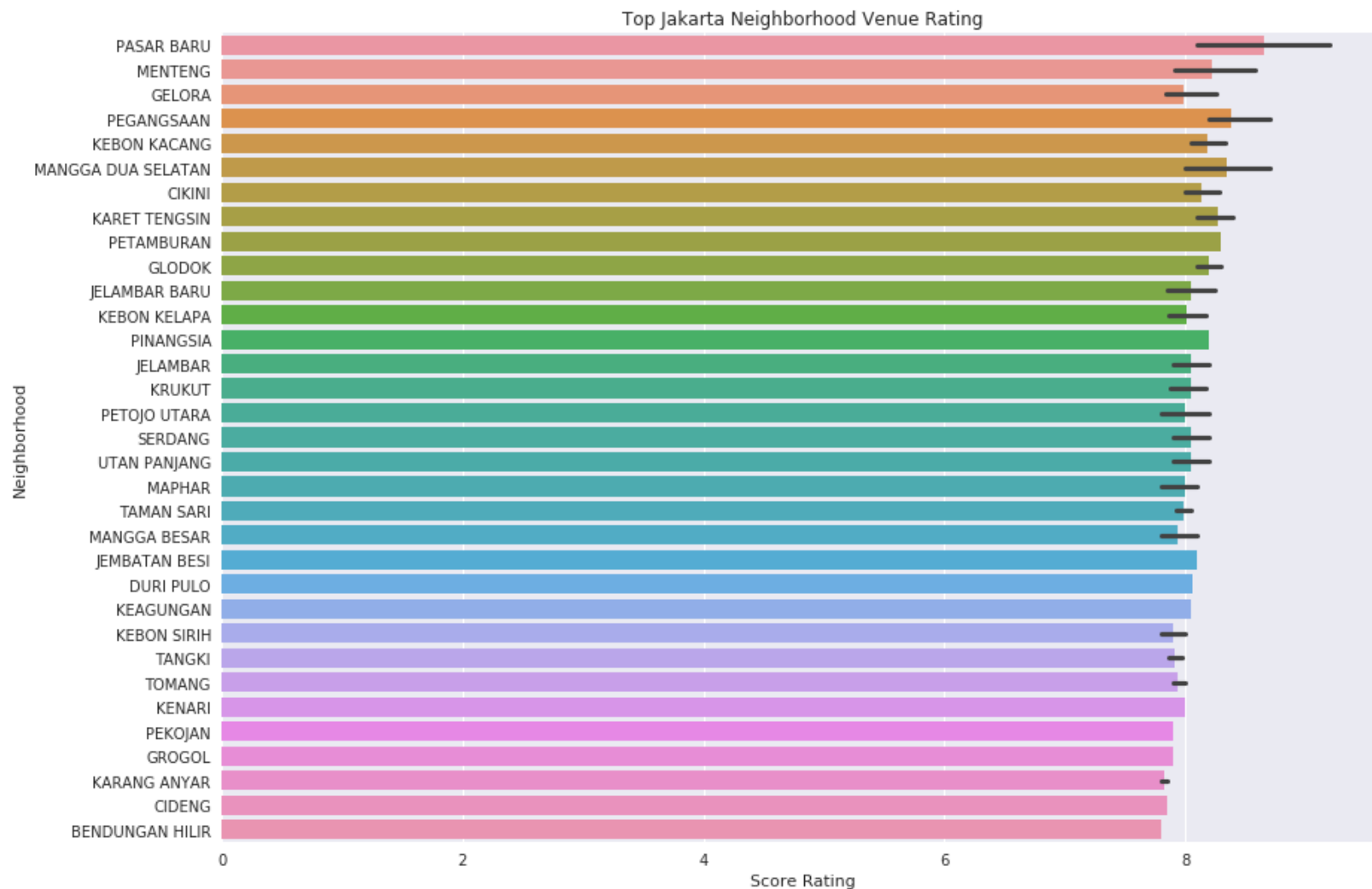
	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	VenueID	Venue	Venue Latitude	Venue Longitude
0	GAMBIR	-6.175811	106.826906	4e8a3ffbd3e3304c8afca029	National Monument Park	-6.175331	106.827047
1	GAMBIR	-6.175811	106.826906	4fa487c2e4b0244336041fe7	Jogging Track MONAS	-6.175537	106.827134
2	GAMBIR	-6.175811	106.826906	4b84944df964a520ac3c31e3	Museum Nasional Indonesia	-6.176353	106.822830
3	GAMBIR	-6.175811	106.826906	4ed1a2a1f5b9832adbcbcf90	Lapangan Silang Monas	-6.177649	106.826851

Synopsis

Part 6: Venue Data Filtering

From 4286 venue in Jakarta with multiple categories. Trim down to Food related venue only.

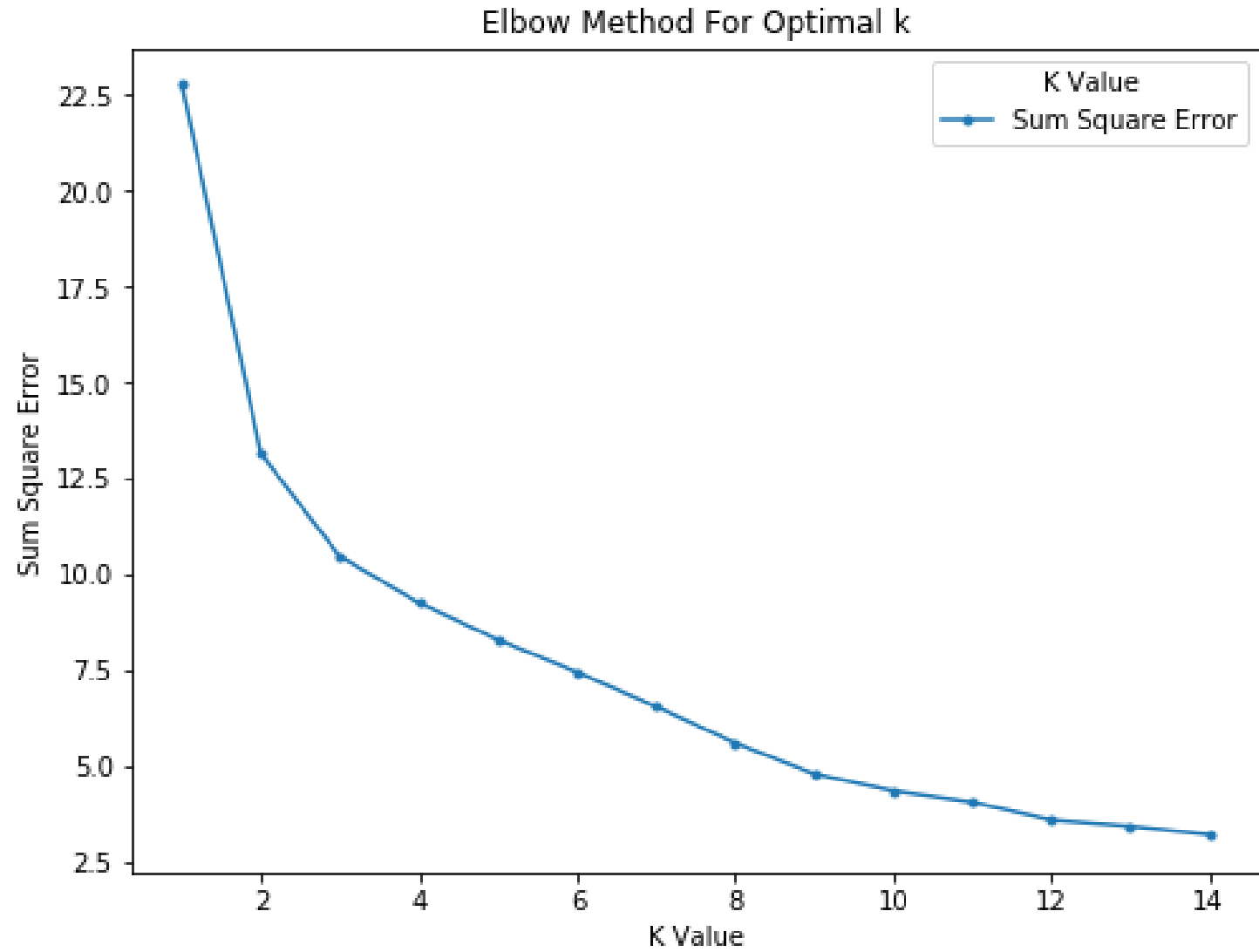
Venue sorted and grouped based on customer rating per neighborhood.



Synopsis

Part 7: Neighborhood Segmentation and Clustering

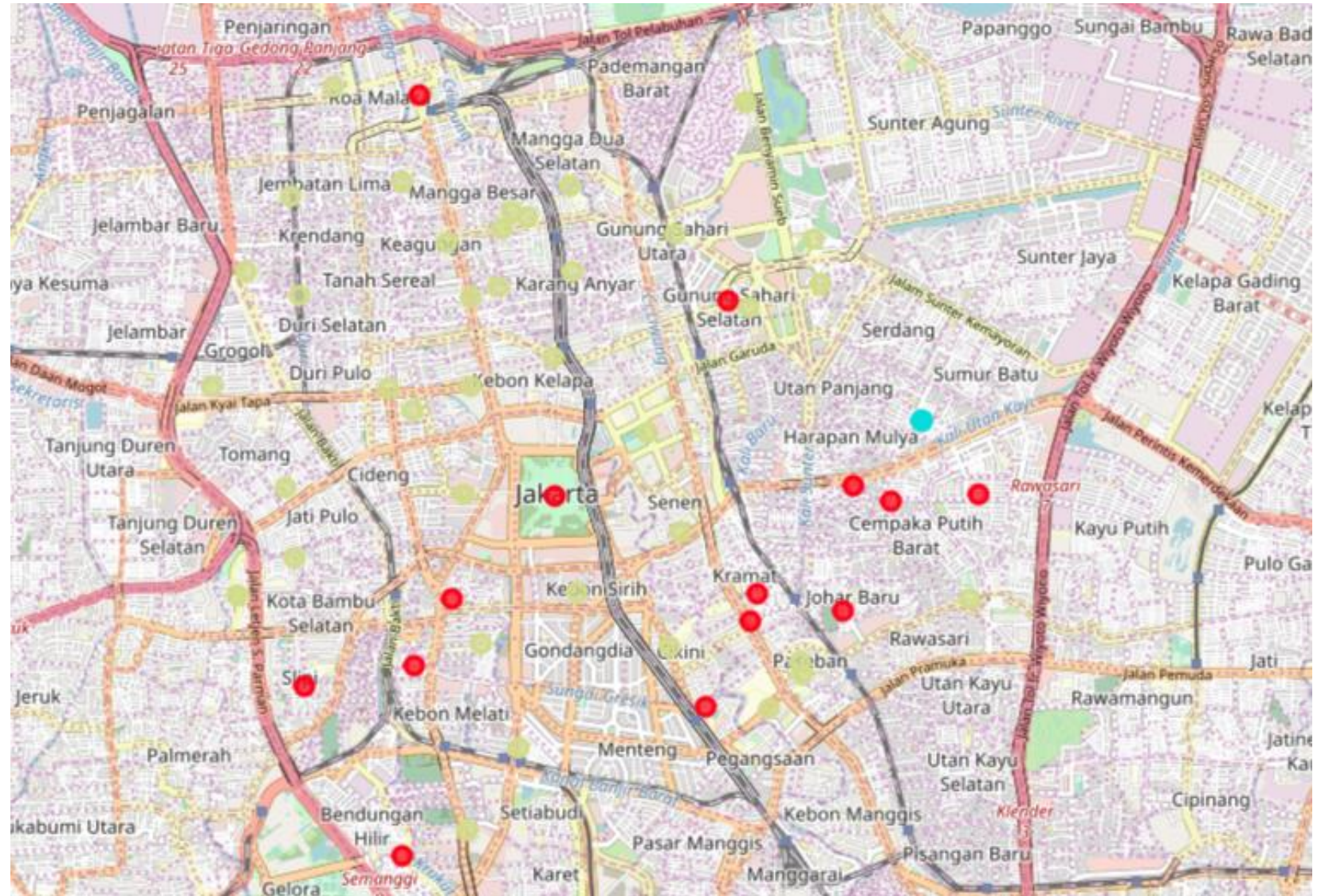
Using K Mean machine learning Algorithm.
Neighborhood clustering to 4 cluster.



Synopsis

Part 8: Neighborhood Segmentation and Clustering

Clusters map



Synopsis

Part 9: Neighborhood Segmentation and Clustering Clusters 1

	PostalCode	Subdistricts	Regency	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue
0	10110	GAMBIR	JAKARTA PUSAT	Indonesian Restaurant	Fast Food Restaurant	Food Truck	Soup Place	Cupcake Shop	Coffee Shop	Noodle House
6	10210	BENDUNGAN HILIR	JAKARTA PUSAT	Indonesian Restaurant	Pizza Place	Acehnese Restaurant	Food Truck	Soup Place	Snack Place	Restaurar
8	10230	KEBON MELATI	JAKARTA PUSAT	Soup Place	Indonesian Meatball Place	Indonesian Restaurant	Wine Bar	Chinese Restaurant	Dumpling Restaurant	Donut Shop
10	10250	KAMPUNG BALI	JAKARTA PUSAT	Indonesian Restaurant	Café	Bed & Breakfast	Fast Food Restaurant	Food Truck	Betawinese Restaurant	Food Court
11	10260	PETAMBURAN	JAKARTA PUSAT	Indonesian Restaurant	Middle Eastern Restaurant	Coffee Shop	Indonesian Meatball Place	Food Truck	Asian Restaurant	Bakery
14	10320	PEGANGSAAN	JAKARTA PUSAT	Indonesian Restaurant	Food Truck	Coffee Shop	Café	Fast Food Restaurant	Donut Shop	Asian Restaurar
19	10420	KWITANG	JAKARTA PUSAT	Indonesian Restaurant	Noodle House	Fast Food Restaurant	Asian Restaurant	BBQ Joint	Dumpling Restaurant	Donut Shop
22	10450	KRAMAT	JAKARTA PUSAT	Indonesian Restaurant	Noodle House	Donut Shop	Café	Dumpling Restaurant	Dim Sum Restaurant	Dessert Shop
25	10520	CEMPAKA PUTIH BARAT	JAKARTA PUSAT	Indonesian Restaurant	Café	Steakhouse	Indonesian Meatball Place	Bistro	Chinese Restaurant	Dumpling Restaurar

Synopsis

Part 10: Neighborhood
Segmentation and Clustering
Clusters 2

	PostalCode	Subdistricts	Regency	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue
17	10350	GONDANGDIA	JAKARTA PUSAT	Bakery	Wine Bar	Chinese Restaurant	Fast Food Restaurant	Dumpling Restaurant	Donut Shop	Dim Sum Restaurant
23	10460	BUNGUR	JAKARTA PUSAT	Bakery	Wine Bar	Chinese Restaurant	Fast Food Restaurant	Dumpling Restaurant	Donut Shop	Dim Sum Restaurant
28	10550	KAMPUNG RAWA	JAKARTA PUSAT	Bakery	Wine Bar	Chinese Restaurant	Fast Food Restaurant	Dumpling Restaurant	Donut Shop	Dim Sum Restaurant
52	11210	TANAH SEREAL	JAKARTA BARAT	Bakery	Wine Bar	Chinese Restaurant	Fast Food Restaurant	Dumpling Restaurant	Donut Shop	Dim Sum Restaurant
53	11220	TAMBORA	JAKARTA BARAT	Bakery	Wine Bar	Chinese Restaurant	Fast Food Restaurant	Dumpling Restaurant	Donut Shop	Dim Sum Restaurant
54	11230	ROA MALAKA	JAKARTA BARAT	Bakery	Wine Bar	Chinese Restaurant	Fast Food Restaurant	Dumpling Restaurant	Donut Shop	Dim Sum Restaurant
58	11270	DURI SELATAN	JAKARTA BARAT	Bakery	Wine Bar	Chinese Restaurant	Fast Food Restaurant	Dumpling Restaurant	Donut Shop	Dim Sum Restaurant
59	11270	DURI UTARA	JAKARTA BARAT	Bakery	Wine Bar	Chinese Restaurant	Fast Food Restaurant	Dumpling Restaurant	Donut Shop	Dim Sum Restaurant
60	11310	KALI ANYAR	JAKARTA BARAT	Bakery	Wine Bar	Chinese Restaurant	Fast Food Restaurant	Dumpling Restaurant	Donut Shop	Dim Sum Restaurant

Synopsis

Part 11: Neighborhood
Segmentation and Clustering

Clusters 3

	PostalCode	Subdistricts	Regency	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue
34	10640	CEMPAKA BARU	JAKARTA PUSAT	Coffee Shop	Wine Bar	Food Truck	Fast Food Restaurant	Dumpling Restaurant	Donut Shop	Dim Sum Restaurant
35	10640	HARAPAN MULYA	JAKARTA PUSAT	Coffee Shop	Wine Bar	Food Truck	Fast Food Restaurant	Dumpling Restaurant	Donut Shop	Dim Sum Restaurant
36	10640	SUMUR BATU	JAKARTA PUSAT	Coffee Shop	Wine Bar	Food Truck	Fast Food Restaurant	Dumpling Restaurant	Donut Shop	Dim Sum Restaurant

Synopsis

Part 12: Neighborhood Segmentation and Clustering

Clusters 4

	PostalCode	Subdistricts	Regency	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue
1	10120	KEBON KELAPA	JAKARTA PUSAT	Chinese Restaurant	Seafood Restaurant	Noodle House	Asian Restaurant	Indonesian Meatball Place	Beer Garden
2	10130	PETOJO UTARA	JAKARTA PUSAT	Noodle House	Donut Shop	Fast Food Restaurant	Restaurant	Asian Restaurant	Coffee Shop
3	10140	DURI PULO	JAKARTA PUSAT	Soup Place	Indonesian Restaurant	Café	Food Truck	Pizza Place	Noodle House
4	10150	CIDENG	JAKARTA PUSAT	Noodle House	Indonesian Restaurant	Food Truck	Soup Place	Pizza Place	Donut Shop
5	10160	PETOJO SELATAN	JAKARTA PUSAT	Indonesian Restaurant	Food Court	Food Truck	BBQ Joint	Restaurant	Noodle House
7	10220	KARET TENGSIN	JAKARTA PUSAT	Japanese Restaurant	Coffee Shop	Indonesian Restaurant	Asian Restaurant	Restaurant	Wine Bar
9	10240	KEBON KACANG	JAKARTA PUSAT	Coffee Shop	Chinese Restaurant	Japanese Restaurant	Restaurant	Asian Restaurant	Sushi Restaurant
12	10270	GELORA	JAKARTA PUSAT	Café	Japanese Restaurant	Restaurant	Coffee Shop	Bakery	Indonesian Restaurant
13	10310	MENTENG	JAKARTA PUSAT	Coffee Shop	Steakhouse	Bakery	Restaurant	Indonesian Restaurant	Italian Restaurant

Synopsis:

Conclusion

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- Recommendation based on top 100 food venue in Jakarta has been presented above. Jakarta multi-cultural background population would be perfect for food lover who want to experience many kind of food.
- Jakarta neighborhood segmented to 4 cluster based on recommendation of machine learning algorithm. On cluster 1, Indonesian restaurant dominate top venue, bakery for cluster2, coffee shop for cluster 3, and chinese-japanese-noodle house-restaurant on cluster4.
- Top rating venue like Menteng Steakhouse and Gelora American Restaurant included in Cluster 4. These venue, received score 8.9 and up.
- I have collected around 35% top ranking food venue in Jakarta due to limitation of free version of Foursquare API. The result might significantly different from presented above when using a full version.