

# CAPSTONE PROJECT: BATTLE OF THE NEIGHBORHOODS, JAKARTA

## *Jakarta Food Lover Recommendation*

### I. PURPOSE

This document provides the details of work of Capstone Project IBM Data Science Certified program.

### II. BACKGROUND

Jakarta is capital on Indonesia with a population of 10,075,310 as of 2014. A population with mix of cultures – Arab, Chinese, Javanese, Malay, Indian and European – has influenced its architecture, language and cuisine. With more than 200 districts (“kecamatan”) combine with regular traffic jam anywhere in the area, recommendation system would be beneficiary for visitor or traveler to save time during Jakarta visit.

The goal of this project to provide a data driven recommendation that can supplement many website and YouTube video. This report utilized data provided by Jakarta open data, geopy, FourSquate API venue.

Jakarta multi-cultural background providing variety of restaurant reflecting dishes from many provinces and international. For the food lover it would be ideal to have food recommendation system on each neighborhood.

### III. DATA ACQUISITION

This report using data acquire and compile from following website:

- Jakarta Open Data, <http://data.jakarta.go.id/>
- Indonesia Province, district, subdistrict and postal code.
  - <https://github.com/edwin/database-kodepos-seluruh-indonesia>
- Goeocoding Web service to extract the location of each subdistricts
  - <https://geopy.readthedocs.io/en/stable/>
- Foursquare

## IV. DATA PROCESSING

DKI Jakarta consists of 144 districts and 267 sub-districts. In 2017, the population is estimated to reach 10,333,926 people with a total area of 664.01 km<sup>2</sup>

### Data Cleanup and Visualization

The retrieved contains some un-wanted value and needs some cleanup. In this step data was

- Check again missing values
- Translate column header to English

Data cleanup and grouped.

	Subdistricts	District	Regency	Province	PostalCode
0	GAMBIR	GAMBIR	JAKARTA PUSAT	DKI JAKARTA	10110
1	KEBON KELAPA	GAMBIR	JAKARTA PUSAT	DKI JAKARTA	10120
2	PETOJO UTARA	GAMBIR	JAKARTA PUSAT	DKI JAKARTA	10130
3	DURI PULO	GAMBIR	JAKARTA PUSAT	DKI JAKARTA	10140
4	CIDENG	GAMBIR	JAKARTA PUSAT	DKI JAKARTA	10150

Area Location Retrieved

Coordinate of the area retrieve using geolocator function below:

```
# Query for coordinate
```

```
import time
```

```
geolocator = Nominatim()
```

```
jakarta_df3=jakarta_df2
```

```
idx=-1
```

```
for kelurahan, kecamatan, kabupaten in
```

```
zip(jakarta_df2['Subdistricts'],jakarta_df2['District'],jakarta_df2['Regency'] ):
```

```
idx= idx+1     alamat = kelurahan + ", " + "Jakarta, Indonesia"
```

```
try :
```

```

location = geolocator.geocode(alamat)
rowIndex = jakarta_df3.index[idx]
print(rowIndex)
print(alamat)
print("====>", location)
print("====>", (location.latitude, location.longitude))
jakarta_df3.loc[rowIndex, 'Latitude'] = location.latitude
jakarta_df3.loc[rowIndex, 'Longitude'] = location.longitude
jakarta_df3.loc[rowIndex, 'Note'] = alamat
time.sleep(1)
except:
    continue

```

*Sample Api result:*

0 GAMBIR, Jakarta, Indonesia

====> Gambir, JKT, Indonesia

====> (-6.1711625, 106.816743889205)

1 KEBON KELAPA, Jakarta, Indonesia

====> Kebon Kelapa, Gambir, JKT, 10120, Indonesia

====> (-6.1635065, 106.824465586586)

2 PETOJO UTARA, Jakarta, Indonesia

====> Petojo Utara, Gambir, JKT, Indonesia

====> (-6.1651065, 106.815410616044)

3 DURI PULO, Jakarta, Indonesia

====> Duri Pulo, Gambir, JKT, Indonesia

====> (-6.16165985, 106.808113962265)

4 CIDENG, Jakarta, Indonesia

====> Cideng, Tanah Sereal, Tambora, Jakarta Barat, JKT, 11120, Indonesia

====> (-6.1570734, 106.8109855)

5 PETOJO SELATAN, Jakarta, Indonesia

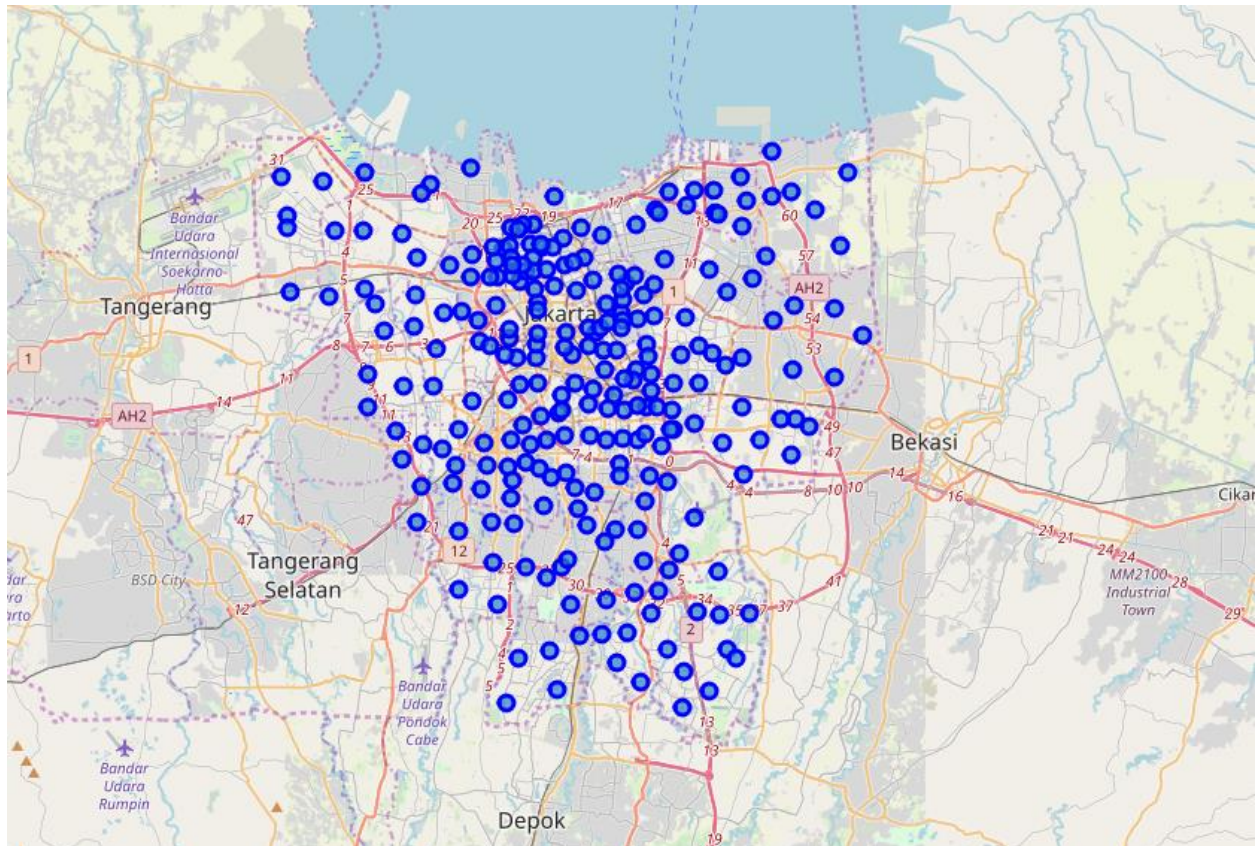
====> Petojo Selatan, Gambir, JKT, 10160, Indonesia

====> (-6.17480065, 106.816405449364)

	Sub-districts	District	Regency	Province	Postal Code	Latitude	Longitude	Note
0	GAMBIR	GAMBIR	JAKARTA PUSAT	DKI JAKARTA	10110	- 6.171163	106.816744	GAMBIR, Jakarta, Indonesia
1	KEBON KELAPA	GAMBIR	JAKARTA PUSAT	DKI JAKARTA	10120	- 6.163507	106.824466	KEBON KELAPA, Jakarta, Indonesia
2	PETOJO UTARA	GAMBIR	JAKARTA PUSAT	DKI JAKARTA	10130	- 6.165107	106.815411	PETOJO UTARA, Jakarta, Indonesia
3	DURI PULO	GAMBIR	JAKARTA PUSAT	DKI JAKARTA	10140	- 6.161660	106.808114	DURI PULO, Jakarta, Indonesia
4	CIDENG	GAMBIR	JAKARTA PUSAT	DKI JAKARTA	10150	- 6.157073	106.810986	CIDENG, Jakarta, Indonesia
5	PETOJO SELATAN	GAMBIR	JAKARTA PUSAT	DKI JAKARTA	10160	- 6.174801	106.816405	PETOJO SELATAN, Jakarta, Indonesia

## Data Visualization

Cleaned Jakarta neighborhood data than merge with coordinate of each area. Geo location web service provided latitude and longitude of the area.



### FourSquare Food Venue Rating

Foursquare API providing Score rating for each venue base on venue ID. Unfortunately, free version retrieved max 500 request per day only. Therefore, data was retrieved in span of days then combined. However, only 35% of Jakarta venue retrieved.

Sample of retrieved venue and score.

	Unna med: 0	Neigh borho od	Neigh borho od Latitu de	Neigh borho od Longit ude	Venu elD	Venu e	Venu e Latitu de	Venu e Longit ude	Venu e CatID	Venu e Categ ory	Venu e Score
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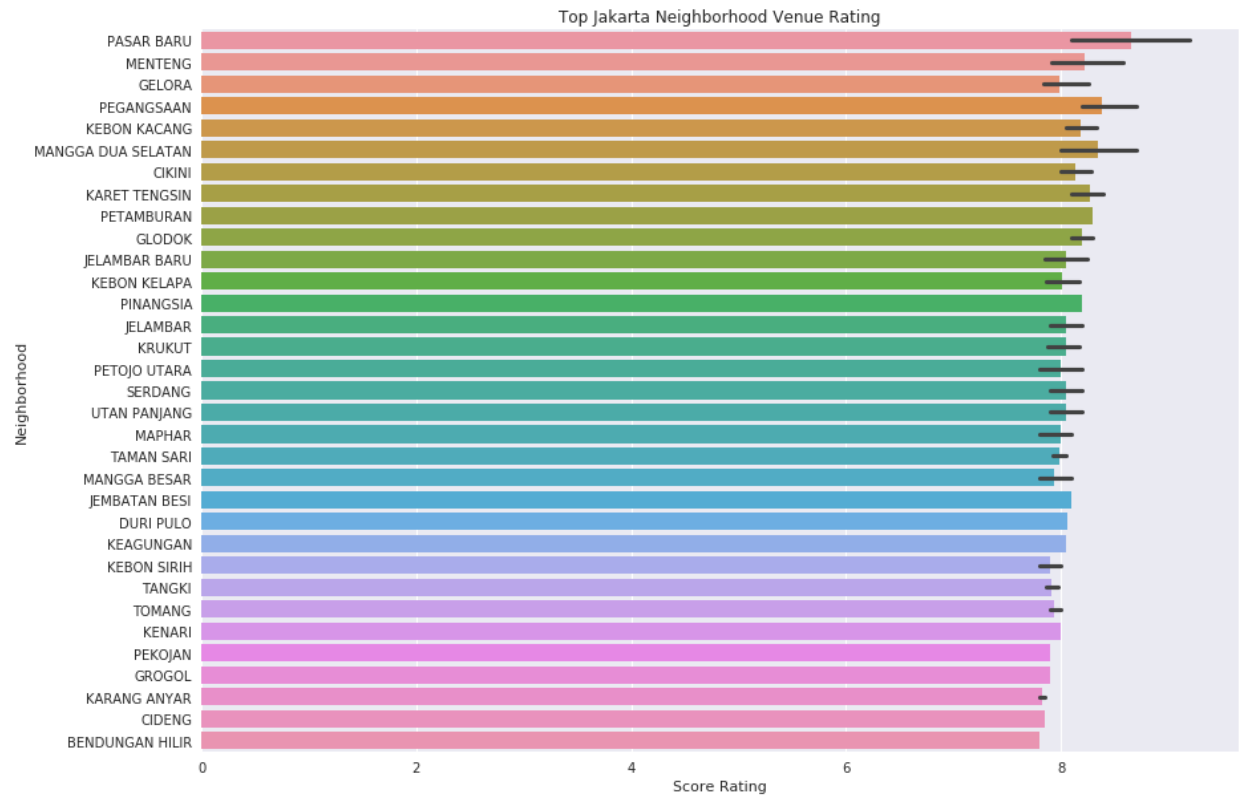
0	0	GAM BIR	- 6.175 811	106.8 26906	4e8a3 ffbd3 e3304 c8afc a029	Natio nal Monu ment Park	- 6.175 331	106.8 27047	4bf58 dd8d 48988 d1639 41735	Park	7.4
1	1	GAM BIR	- 6.175 811	106.8 26906	4fa48 7c2e4 b0244 33604 1fe7	Joggin g Track MON AS	- 6.175 537	106.8 27134	4bf58 dd8d 48988 d1069 41735	Track	7.3
2	2	GAM BIR	- 6.175 811	106.8 26906	4b849 44df9 64a52 0ac3c 31e3	Muse um Nasio nal Indon esia	- 6.176 353	106.8 22830	4bf58 dd8d 48988 d1819 41735	Muse um	8.3
3	3	GAM BIR	- 6.175 811	106.8 26906	4ed1a 2a1f5 b9832 adbbc ff90	Lapan gan Silang Mona s	- 6.177 649	106.8 26851	4bf58 dd8d 48988 d1649 41735	Plaza	7.1
4	4	GAM BIR	- 6.175 811	106.8 26906	4c68d f8fd7 509c7 4b7cf faa2	Tama n Mera h Putih	- 6.175 397	106.8 27165	4bf58 dd8d 48988 d1679 41735	Skate Park	6.9

Some of the venue is Not a food or restaurant related. To produced more food related data-frame, blacklist keyword applied. Word like “restaurant”, “coffee shop”, “noodle house” are used. More food related data-frame then produce as sample below.

	Unna med: 0	Unna med: 0.1	Neig hbor hood	Neig hbor hood Latit ude	Neig hbor hood Longi tude	Venu eID	Venu e	Venu e Latit ude	Venu e Longi tude	Venu e CatID	Venu e_Ca tegor y	Venu e Score
5	5	5	GAM BIR	- 6.175 811	106.8 2690 6	5104 7707 e4b0 059c e06c 2cf0	Starb ucks	- 6.177 147	106.8 3081 8	4bf5 8dd8 d489 88d1 e093 1735	Coffe e Shop	7.3
8	8	8	GAM BIR	- 6.175 811	106.8 2690 6	4e16 b2f1 b0fb	Sate Sena yan	- 6.176 699	106.8 2901 2	4dee fc054 765f	Indo nesia n	6.5

						42f9 8734 fc9d				8361 3cdb a6f	Resta urant	
<b>9</b>	9	9	GAM BIR	- 6.175 811	106.8 2690 6	5599 1939 498e 83c3 be4c 3731	Bakm i GM	- 6.177 536	106.8 3101 7	4bf5 8dd8 d489 88d1 d194 1735	Nood le Hous e	6.9
<b>10</b>	10	10	GAM BIR	- 6.175 811	106.8 2690 6	4be6 da09 9100 20a1 10ad d414	Ropit a Anek a Rasa	- 6.177 792	106.8 3095 4	4bf5 8dd8 d489 88d1 cb94 1735	Food Truck	6.6
<b>12</b>	12	12	GAM BIR	- 6.175 811	106.8 2690 6	56c7 2378 cd10 80d7 a152 57d6	McD onald 's	- 6.177 294	106.8 3089 0	4bf5 8dd8 d489 88d1 6e94 1735	Fast Food Resta urant	6.4

Top 100 rating venue per neighborhood produced by grouped data-frame neighborhood, category and venue score. Jakarta top neighborhood: Menteng, Pasar Baru, Gelora, Pengangsaan, Kebon Kacang are receiving score rating 8.7 and up.



PASAR BARU	Coffee Shop	9.2
MENTENG	Restaurant	9.1
GELORA	American Restaurant	8.9
MENTENG	Steakhouse	8.9
PEGANGSAAN	Restaurant	8.7
KEBON KACANG	Dessert Shop	8.7
MANGGA DUA SELATAN	Food Truck	8.7
KEBON KACANG	Sushi Restaurant	8.65
KEBON KACANG	Vietnamese Restaurant	8.5
MENTENG	Chinese Restaurant	8.5
KEBON KACANG	Indian Restaurant	8.4
CIKINI	Restaurant	8.4
KARET TENGSIN	Steakhouse	8.4
KEBON KACANG	Coffee Shop	8.357142857142858
PETAMBURAN	Food Truck	8.3
GLODOK	Coffee Shop	8.3
KEBON KACANG	Snack Place	8.3
JELAMBAR BARU	Coffee Shop	8.3
KARET TENGSIN	Dim Sum Restaurant	8.3
KEBON KELAPA	Seafood Restaurant	8.233333333333334

Completed list of top venue score in Jakarta can be found on dataset directory.

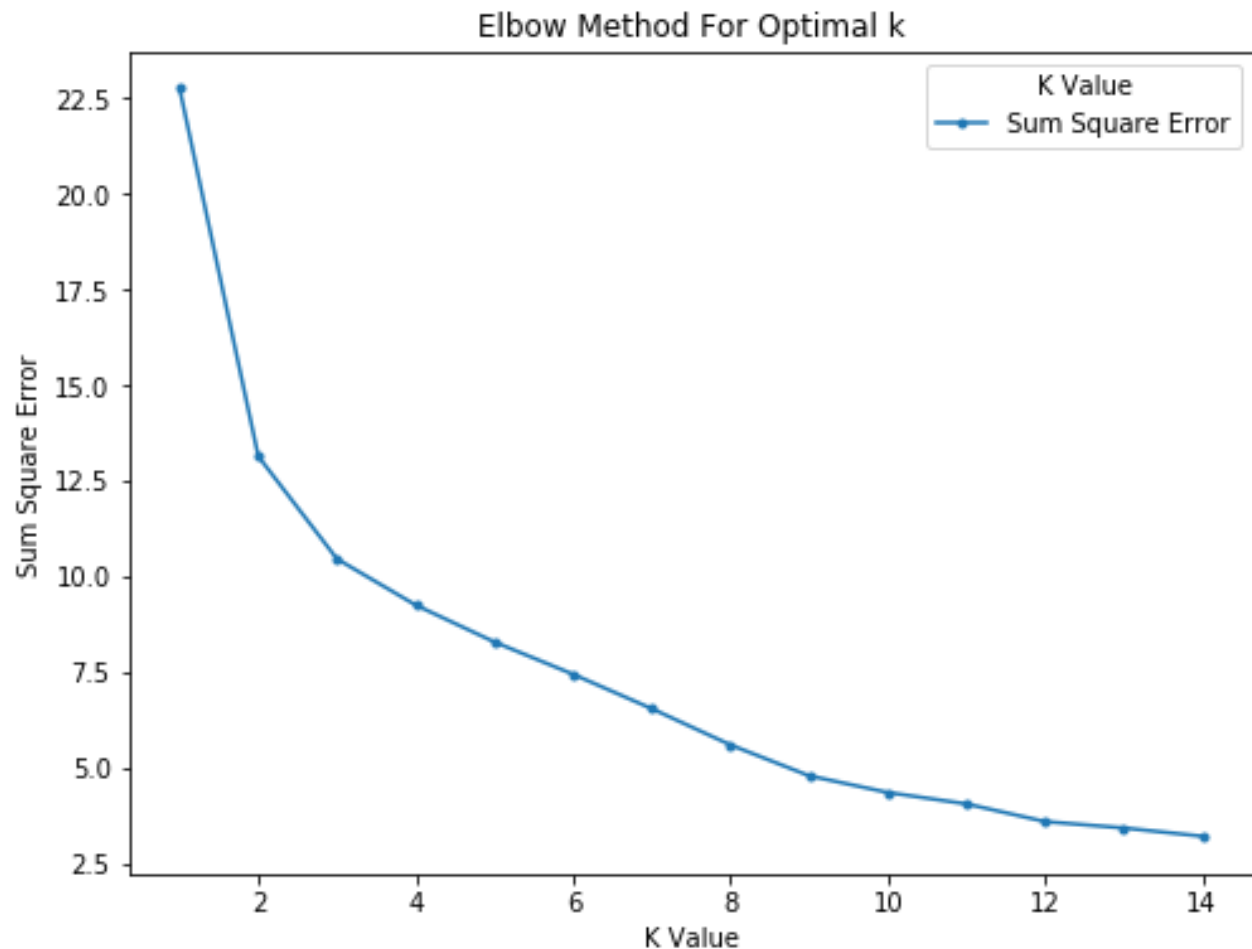


<https://github.com/courseralab/ds-capstone/tree/master/dataset>

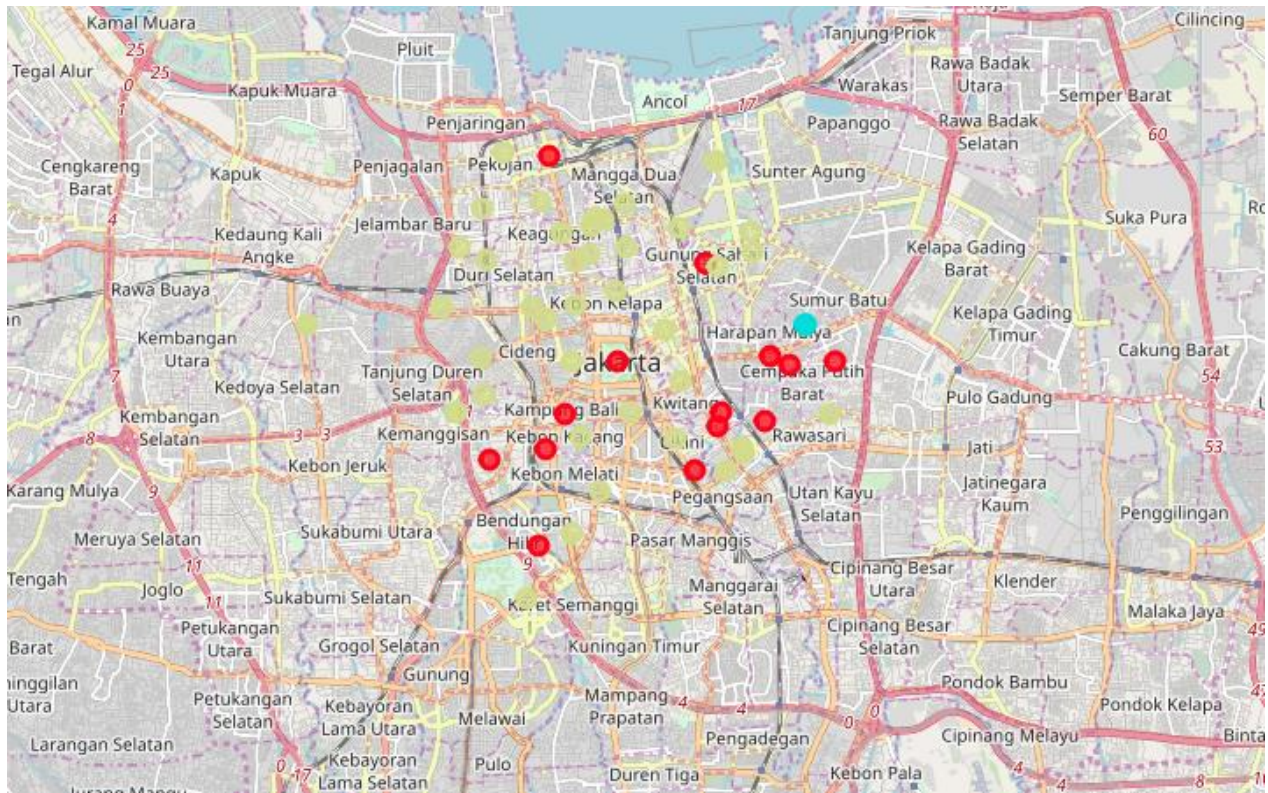
## V. JAKARTA AREA CLUSTERING

Using the Foursquare API to get the most common venue categories in each neighborhood. The data then group and cluster per most venue per neighborhood.

Simple K mean machine learning algorithm use to group neighborhood to number of clusters. Optimal k number use elbow method by calculating the sum of square error of each feature. K from 1 to 17 was scanned. Ideal K for this iteration would be 4.



Jakarta food venue divided to 4 clusters. Folium Map visualization below :



**Cluster 1 :**

Post alCo de	Sub dist ricts	Reg enc y	1st Mos t Co mm on Ven ue	2nd Mos t Co mm on Ven ue	3rd Mos t Co mm on Ven ue	4th Mos t Co mm on Ven ue	5th Mos t Co mm on Ven ue	6th Mos t Co mm on Ven ue	7th Mos t Co mm on Ven ue	8th Mos t Co mm on Ven ue	9th Mos t Co mm on Ven ue	10th Mos t Co mm on Ven ue	Clus ter Lab els	
0	101 10	GA MBI R	JAK ART A PUS AT	Indo nesi an Rest auran t	Fast Foo d Rest auran t	Foo d Truc k	Sou p Plac e	Cup cake Sho p	Coff ee Sho p	Noo dle Hou se	Japa nese Rest auran t	Win e Bar	Chin ese Rest auran t	0
6	102 10	BEN DU NG AN HILI R	JAK ART A PUS AT	Indo nesi an Rest auran t	Pizz a Plac e	Ace hnese Rest auran t	Foo d Truc k	Sou p Plac e	Sna ck Plac e	Rest auran t	Coff ee Sho p	Bistr o	Café	0

8	10230	KEBONMELATI	JAKARTA PUSAT	Soup Place	Indonesian Meatball Place	Indonesian Restaurant	Wine Bar	Chinese Restaurant	Dumpling Restaurant	Donut Shop	Dim Sum Restaurant	Dessert Shop	Cupcake Shop	0
10	10250	KAMPUNG BALI	JAKARTA PUSAT	Indonesian Restaurant	Café	Bed & Breakfast	Fast Food Restaurant	Food Truck	Betawi Chinese Restaurant	Food Court	Asian Restaurant	Beer Garden	Bakery	0
11	10260	PETAMBURAN	JAKARTA PUSAT	Indonesian Restaurant	Middle Eastern Restaurant	Coffee Shop	Indonesian Meatball Place	Food Truck	Asian Restaurant	Bakery	Cupcake Shop	Dumpling Restaurant	Donut Shop	0
14	10320	PEGANGSARAN	JAKARTA PUSAT	Indonesian Restaurant	Food Truck	Coffee Shop	Café	Fast Food Restaurant	Donut Shop	Asian Restaurant	Snack Place	Vietnamese Restaurant	Restaurant	0
19	10420	KWITANG	JAKARTA PUSAT	Indonesian Restaurant	Noodle House	Fast Food Restaurant	Asian Restaurant	BBQ Joint	Dumpling Restaurant	Donut Shop	Dim Sum Restaurant	American Restaurant	Dessert Shop	0
22	10450	KRAMAT	JAKARTA PUSAT	Indonesian Restaurant	Noodle House	Donut Shop	Café	Dumpling Restaurant	Dim Sum Restaurant	Dessert Shop	Cupcake Shop	Coffee Shop	Chinese Restaurant	0
25	10520	CEMPAKA PUTIH BARAT	JAKARTA PUSAT	Indonesian Restaurant	Café	Steakhouse	Indonesian Meatball Place	Bistro	Chinese Restaurant	Dumpling Restaurant	Donut Shop	Dim Sum Restaurant	Dessert Shop	0

26	10530	GALUR	JAKARTA PUSAT	Indonesian Restaurant	Café	Steakhouse	Chinese Restaurant	Wine Bar	Dumpling Restaurant	Donut Shop	Dim Sum Restaurant	Dessert Shop	Cupcake Shop	0
27	10540	TANTINGGI	JAKARTA PUSAT	Indonesian Restaurant	Pizza Place	Noodle House	Café	Coffee Shop	Asian Restaurant	Indonesian Meatball Place	Fast Food Restaurant	Wine Bar	Donut Shop	0
29	10560	JOHARBARU	JAKARTA PUSAT	Fast Food Restaurant	Wine Bar	Food Truck	Dumpling Restaurant	Donut Shop	Dim Sum Restaurant	Dessert Shop	Cupcake Shop	Coffee Shop	Chinese Restaurant	0
31	10610	GUNUNGSAHARISELATAN	JAKARTA PUSAT	Indonesian Restaurant	Wine Bar	Chinese Restaurant	Fast Food Restaurant	Dumpling Restaurant	Donut Shop	Dim Sum Restaurant	Dessert Shop	Cupcake Shop	Coffee Shop	0
44	11110	PINGSI A	JAKARTA BARAT	Café	Indonesian Restaurant	Fast Food Restaurant	Seafood Restaurant	Coffee Shop	Chinese Restaurant	Dumpling Restaurant	Donut Shop	Dim Sum Restaurant	Dessert Shop	0

### Cluster 2 :

	Post alCo de	Sub dist ricts	Reg enc y	1st Mos t Co mm on Ven ue	2nd Mos t Co mm on Ven ue	3rd Mos t Co mm on Ven ue	4th Mos t Co mm on Ven ue	5th Mos t Co mm on Ven ue	6th Mos t Co mm on Ven ue	7th Mos t Co mm on Ven ue	8th Mos t Co mm on Ven ue	9th Mos t Co mm on Ven ue	10th Mos t Co mm on Ven ue	Clus ter Lab els
--	--------------------	----------------------	-----------------	--	--	--	--	--	--	--	--	--	---	---------------------------

17	103 50	GO NDA NG DIA	JAK ART A PUS AT	Bak ery	Win e Bar	Chin ese Rest aura nt	Fast Foo d Rest aura nt	Du mpli ng Rest aura nt	Don ut Sho p	Dim Sum Rest aura nt	Des ert Sho p	Cup cake Sho p	Coff ee Sho p	1
23	104 60	BUN GUR	JAK ART A PUS AT	Bak ery	Win e Bar	Chin ese Rest aura nt	Fast Foo d Rest aura nt	Du mpli ng Rest aura nt	Don ut Sho p	Dim Sum Rest aura nt	Des ert Sho p	Cup cake Sho p	Coff ee Sho p	1
28	105 50	KA MP UN G RA WA	JAK ART A PUS AT	Bak ery	Win e Bar	Chin ese Rest aura nt	Fast Foo d Rest aura nt	Du mpli ng Rest aura nt	Don ut Sho p	Dim Sum Rest aura nt	Des ert Sho p	Cup cake Sho p	Coff ee Sho p	1
52	112 10	TAN AH SER EAL	JAK ART A BAR AT	Bak ery	Win e Bar	Chin ese Rest aura nt	Fast Foo d Rest aura nt	Du mpli ng Rest aura nt	Don ut Sho p	Dim Sum Rest aura nt	Des ert Sho p	Cup cake Sho p	Coff ee Sho p	1
53	112 20	TA MB ORA	JAK ART A BAR AT	Bak ery	Win e Bar	Chin ese Rest aura nt	Fast Foo d Rest aura nt	Du mpli ng Rest aura nt	Don ut Sho p	Dim Sum Rest aura nt	Des ert Sho p	Cup cake Sho p	Coff ee Sho p	1
54	112 30	ROA MAL AKA	JAK ART A BAR AT	Bak ery	Win e Bar	Chin ese Rest aura nt	Fast Foo d Rest aura nt	Du mpli ng Rest aura nt	Don ut Sho p	Dim Sum Rest aura nt	Des ert Sho p	Cup cake Sho p	Coff ee Sho p	1
58	112 70	DUR I SEL ATA N	JAK ART A BAR AT	Bak ery	Win e Bar	Chin ese Rest aura nt	Fast Foo d Rest aura nt	Du mpli ng Rest aura nt	Don ut Sho p	Dim Sum Rest aura nt	Des ert Sho p	Cup cake Sho p	Coff ee Sho p	1
59	112 70	DUR I UTA RA	JAK ART A BAR AT	Bak ery	Win e Bar	Chin ese Rest aura nt	Fast Foo d Rest	Du mpli ng Rest	Don ut Sho p	Dim Sum Rest aura nt	Des ert Sho p	Cup cake Sho p	Coff ee Sho p	1

							aura nt	aura nt						
<b>60</b>	113 10	KALI ANY AR	JAK ART A BAR AT	Bak ery	Win e Bar	Chin ese Rest aura nt	Fast Foo d Rest aura nt	Du mpli ng Rest aura nt	Don ut Sho p	Dim Sum Rest aura nt	Des sert Sho p	Cup cake Sho p	Coff ee Sho p	1
<b>62</b>	113 30	AN GKE	JAK ART A BAR AT	Bak ery	Win e Bar	Chin ese Rest aura nt	Fast Foo d Rest aura nt	Du mpli ng Rest aura nt	Don ut Sho p	Dim Sum Rest aura nt	Des sert Sho p	Cup cake Sho p	Coff ee Sho p	1
<b>63</b>	114 10	SLIP I	JAK ART A BAR AT	Bak ery	Win e Bar	Chin ese Rest aura nt	Fast Foo d Rest aura nt	Du mpli ng Rest aura nt	Don ut Sho p	Dim Sum Rest aura nt	Des sert Sho p	Cup cake Sho p	Coff ee Sho p	1

**Cluster 3:**

	Post alCo de	Sub dist ricts	Reg enc y	1st Mos t Co mm on Ven ue	2nd Mos t Co mm on Ven ue	3rd Mos t Co mm on Ven ue	4th Mos t Co mm on Ven ue	5th Mos t Co mm on Ven ue	6th Mos t Co mm on Ven ue	7th Mos t Co mm on Ven ue	8th Mos t Co mm on Ven ue	9th Mos t Co mm on Ven ue	10th Mos t Co mm on Ven ue	Clus ter Lab els
<b>34</b>	106 40	CE MP AKA BAR U	JAK ART A PUS AT	Coff ee Sho p	Win e Bar	Foo d Truc k	Fast Foo d Rest aura nt	Du mpli ng Rest aura nt	Don ut Sho p	Dim Sum Rest aura nt	Des sert Sho p	Cup cake Sho p	Chin ese Rest aura nt	2
<b>35</b>	106 40	HAR APA N MU LYA	JAK ART A PUS AT	Coff ee Sho p	Win e Bar	Foo d Truc k	Fast Foo d Rest aura nt	Du mpli ng Rest aura nt	Don ut Sho p	Dim Sum Rest aura nt	Des sert Sho p	Cup cake Sho p	Chin ese Rest aura nt	2

36	10640	SUMURBATU	JAKARTA PUSAT	Coffee Shop	Wine Bar	Food Truck	Fast Food Restaurant	Dumpling Restaurant	Donut Shop	Dim Sum Restaurant	Dessert Shop	Cupcake Shop	Chinese Restaurant	2
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#### Cluster 4:

	Postal Code	Sub districts	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	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue	Cluster Labels
1	10120	KEBONKELAPA	JAKARTA PUSAT	Chinese Restaurant	Seafood Restaurant	Noodle House	Asian Restaurant	Indonesian Meatball Place	Beer Garden	Steakhouse	Snack Place	BBQ Joint	Dessert Shop	3
2	10130	PETJO UTARA	JAKARTA PUSAT	Noodle House	Donut Shop	Fast Food Restaurant	Restaurant	Asian Restaurant	Coffee Shop	Indonesian Restaurant	Japanese Restaurant	Chinese Restaurant	Bed & Breakfast	3
3	10140	DURI PULO	JAKARTA PUSAT	Soup Place	Indonesian Restaurant	Café	Food Truck	Pizza Place	Noodle House	Chinese Restaurant	Donut Shop	Indonesian Restaurant	Restaurant	3
4	10150	CIDENG	JAKARTA PUSAT	Noodle House	Indonesian Restaurant	Food Truck	Soup Place	Pizza Place	Donut Shop	Café	Seafood Restaurant	Bakery	Restaurant	3

5	10160	PET OJ SEL ATAN	JAK ART A PUS AT	Indo nesi an Rest aura nt	Foo d Cou rt	Foo d Truc k	BBQ Join t	Rest aura nt	Noo dle Hou se	Coff ee Sho p	Chin ese Rest aura nt	Du mpli ng Rest aura nt	Don ut Sho p	3
7	10220	KAR ET TEN GSI N	JAK ART A PUS AT	Japa nes e Rest aura nt	Coff ee Sho p	Indo nesi an Rest aura nt	Asia n Rest aura nt	Rest aura nt	Win e Bar	Sus hi Rest aura nt	Café	Pizz a Plac e	BBQ Join t	3
9	10240	KEB ON KAC AN G	JAK ART A PUS AT	Coff ee Sho p	Chin ese Rest aura nt	Japa nes e Rest aura nt	Rest aura nt	Asia n Rest aura nt	Sus hi Rest aura nt	Stea kho use	Café	Pizz a Plac e	Des ert Sho p	3
12	10270	GEL ORA	JAK ART A PUS AT	Café	Japa nes e Rest aura nt	Rest aura nt	Coff ee Sho p	Bak ery	Indo nesi an Rest aura nt	Chin ese Rest aura nt	Win e Bar	Sus hi Rest aura nt	Amer ican Rest aura nt	3
13	10310	ME NTE NG	JAK ART A PUS AT	Coff ee Sho p	Stea kho use	Bak ery	Rest aura nt	Indo nesi an Rest aura nt	Itali an Rest aura nt	Fast Foo d Rest aura nt	Café	Chin ese Rest aura nt	Win e Bar	3
15	10330	CIKI NI	JAK ART A PUS AT	Indo nesi an Rest aura nt	Café	Bak ery	Coff ee Sho p	Noo dle Hou se	Bet awi nes e Rest aura nt	Japa nes e Rest aura nt	Mid dle East ern Rest aura nt	Asia n Rest aura nt	Des ert Sho p	3
16	10340	KEB ON SIRI H	JAK ART A PUS AT	Indo nesi an Rest aura nt	Coff ee Sho p	Japa nes e Rest aura nt	Café	Sna ck Plac e	Sea food Rest aura nt	Asia n Rest aura nt	Bee r Gard en	Don ut Sho p	Chin ese Rest aura nt	3
18	10410	SEN EN	JAK ART A	Coff ee Sho p	Japa nes e Rest	Asia n Rest	Indo nesi an Rest	Amer ican Rest	Sou p Plac e	Itali an Rest	Sea food Rest	Foo d Truc k	Indo nesi an Mea	3



			PUS AT		aura nt	aura nt	aura nt	aura nt		aura nt	aura nt		tbball Plac e	
<b>20</b>	104 30	KEN ARI	JAK ART A PUS AT	Frie d Chic ken Join t	Rest aura nt	Fast Foo d Rest aura nt	Don ut Sho p	Indo nesi an Rest aura nt	Coff ee Sho p	Foo d Cou rt	Foo d Truc k	Bee r Gar den	Bet awi nes e Rest aura nt	3
<b>21</b>	104 40	PAS EBA N	JAK ART A PUS AT	Indo nesi an Rest aura nt	Asia n Rest aura nt	Fast Foo d Rest aura nt	Frie d Chic ken Join t	Rest aura nt	Coff ee Sho p	Café	Noo dle Hou se	Foo d Cou rt	Stea kho use	3
<b>24</b>	105 10	CE MP AKA PUT IH TIM UR	JAK ART A PUS AT	Fast Foo d Rest aura nt	Asia n Rest aura nt	Rest aura nt	Indo nesi an Rest aura nt	Coff ee Sho p	Café	Foo d Cou rt	Noo dle Hou se	Frie d Chic ken Join t	Bet awi nes e Rest aura nt	3
<b>30</b>	105 70	RA WA SARI	JAK ART A PUS AT	Foo d Truc k	Seaf ood Rest aura nt	Rest aura nt	Pizz a Plac e	Indo nesi an Mea tball Plac e	Mid dle East ern Rest aura nt	Kor ean Rest aura nt	Japa nes e Rest aura nt	Win e Bar	Bistr o	3
<b>32</b>	106 20	KE MA YOR AN	JAK ART A PUS AT	Foo d Cou rt	Foo d Truc k	Fast Foo d Rest aura nt	Du mpli ng Rest aura nt	Don ut Sho p	Dim Sum Rest aura nt	Des ert Sho p	Cup cake Sho p	Coff ee Sho p	Chin ese Rest aura nt	3
<b>33</b>	106 30	KEB ON KOS ON G	JAK ART A PUS AT	Indo nesi an Mea tball Plac e	Foo d Truc k	Bak ery	Seaf ood Rest aura nt	Cup cake Sho p	Foo d Cou rt	Coff ee Sho p	Fast Foo d Rest aura nt	Du mpli ng Rest aura nt	Don ut Sho p	3
<b>37</b>	106 50	SER DAN G	JAK ART A	Pizz a Plac e	Noo dle Hou se	Fast Foo d Rest	Asia n Rest	BBQ Join t	Du mpli ng Rest	Don ut Sho p	Dim Sum Rest	Des ert Sho p	Cup cake Sho p	3

			PUS AT			aura nt	aura nt		aura nt		aura nt			
<b>38</b>	106 50	UTA N PAN JAN G	JAK ART A PUS AT	Pizz a Plac e	Noo dle Hou se	Fast Foo d Rest aura nt	Asia n Rest aura nt	BBQ Join t	Du mpli ng Rest aura nt	Don ut Sho p	Dim Sum Rest aura nt	Des sert Sho p	Cup cake Sho p	3
<b>39</b>	107 10	PAS AR BAR U	JAK ART A PUS AT	Win e Bar	Coff ee Sho p	Don ut Sho p	Indo nesi an Rest aura nt	Itali an Rest aura nt	Japa nes e Rest aura nt	Chin ese Rest aura nt	Bak ery	Bee r Gar den	Bet awi nes e Rest aura nt	3
<b>40</b>	107 20	GU NU NG SAH ARI UTA RA	JAK ART A PUS AT	Rest aura nt	Coff ee Sho p	Chin ese Rest aura nt	Win e Bar	Café	Fast Foo d Rest aura nt	Du mpli ng Rest aura nt	Don ut Sho p	Dim Sum Rest aura nt	Des sert Sho p	3
<b>41</b>	107 30	MA NG GA DUA SEL ATA N	JAK ART A PUS AT	Chin ese Rest aura nt	Des sert Sho p	Noo dle Hou se	Fast Foo d Rest aura nt	Asia n Rest aura nt	BBQ Join t	Don ut Sho p	Foo d Truc k	Café	Coff ee Sho p	3
<b>42</b>	107 40	KAR AN G ANY AR	JAK ART A PUS AT	Asia n Rest aura nt	BBQ Join t	Indo nesi an Rest aura nt	Foo d Truc k	Sala d Plac e	Rest aura nt	Noo dle Hou se	Win e Bar	Chin ese Rest aura nt	Don ut Sho p	3
<b>43</b>	107 50	KAR TINI	JAK ART A PUS AT	Café	Chin ese Rest aura nt	Cup cake Sho p	Foo d Truc k	Fast Foo d Rest aura nt	Du mpli ng Rest aura nt	Don ut Sho p	Dim Sum Rest aura nt	Des sert Sho p	Coff ee Sho p	3
<b>45</b>	111 20	GLO DOK	JAK ART A BAR AT	Noo dle Hou se	Chin ese Rest aura nt	Indo nesi an Rest aura nt	Foo d Truc k	Coff ee Sho p	Asia n Rest aura nt	Du mpli ng Rest aura nt	Des sert Sho p	Foo d Cou rt	Fast Foo d Rest aura nt	3

46	111 30	KEA GU NG AN	JAK ART A BAR AT	Chin ese Rest aura nt	Asia n Rest aura nt	Noo dle Hou se	Coff ee Sho p	Stea kho use	Sou p Plac e	Bak ery	Rest aura nt	Fast Foo d Rest aura nt	Foo d Truc k	3
47	111 40	KRU KUT	JAK ART A BAR AT	Chin ese Rest aura nt	Noo dle Hou se	Foo d Truc k	Asia n Rest aura nt	Bak ery	Fast Foo d Rest aura nt	Indo nesi an Rest aura nt	Don ut Sho p	Stea kho use	Bistr o	3
48	111 50	TA MA N SARI	JAK ART A BAR AT	Chin ese Rest aura nt	Noo dle Hou se	Asia n Rest aura nt	Foo d Truc k	Coff ee Sho p	Sou p Plac e	Don ut Sho p	Des ert Sho p	Indo nesi an Rest aura nt	Fast Foo d Rest aura nt	3
49	111 60	MA PHA R	JAK ART A BAR AT	Chin ese Rest aura nt	Noo dle Hou se	Foo d Truc k	Asia n Rest aura nt	Bak ery	Bistr o	Indo nesi an Rest aura nt	Japa nese Rest aura nt	Kor ean Rest aura nt	Fast Foo d Rest aura nt	3
50	111 70	TAN GKI	JAK ART A BAR AT	Noo dle Hou se	Foo d Truc k	Asia n Rest aura nt	BBQ Join t	Chin ese Rest aura nt	Indo nesi an Rest aura nt	Don ut Sho p	Des ert Sho p	Rest aura nt	Fast Foo d Rest aura nt	3
51	111 80	MA NG GA BES AR	JAK ART A BAR AT	Noo dle Hou se	Chin ese Rest aura nt	Foo d Truc k	Asia n Rest aura nt	Indo nesi an Rest aura nt	Sou p Plac e	Bak ery	Dim Sum Rest aura nt	Fast Foo d Rest aura nt	Café	3
55	112 40	PEK OJA N	JAK ART A BAR AT	Chin ese Rest aura nt	Noo dle Hou se	Foo d Truc k	Stea kho use	Asia n Rest aura nt	Don ut Sho p	Japa nese Rest aura nt	Du mpli ng Rest aura nt	Dim Sum Rest aura nt	Des ert Sho p	3
56	112 50	JEM BAT AN LIM A	JAK ART A BAR AT	Foo d Truc k	Win e Bar	Fast Foo d Rest	Du mpli ng Rest	Don ut Sho p	Dim Sum Rest aura nt	Des ert Sho p	Cup cake Sho p	Coff ee Sho p	Chin ese Rest aura nt	3

						aura nt	aura nt							
<b>57</b>	112 60	KRE NDA NG	JAK ART A BAR AT	Indo nesi an Mea tball Plac e	Bee r Gar den	Win e Bar	Chin ese Rest aura nt	Fast Foo d Rest aura nt	Du mpli ng Rest aura nt	Don ut Sho p	Dim Sum Rest aura nt	Des sert Sho p	Cup cake Sho p	3
<b>61</b>	113 20	JEM BAT AN BESI	JAK ART A BAR AT	Fast Foo d Rest aura nt	Chin ese Rest aura nt	Asia n Rest aura nt	Sea food Rest aura nt	Indo nesi an Rest aura nt	Coff ee Sho p	Du mpli ng Rest aura nt	Don ut Sho p	Dim Sum Rest aura nt	Des sert Sho p	3
<b>64</b>	114 20	KOT A BA MB U SEL ATA N	JAK ART A BAR AT	Pizz a Plac e	Foo d Truc k	Asia n Rest aura nt	Don ut Sho p	Indo nesi an Mea tball Plac e	Noo dle Hou se	Chin ese Rest aura nt	Du mpli ng Rest aura nt	Dim Sum Rest aura nt	Des sert Sho p	3
<b>65</b>	114 20	KOT A BA MB U UTA RA	JAK ART A BAR AT	Pizz a Plac e	Foo d Truc k	Asia n Rest aura nt	Don ut Sho p	Indo nesi an Mea tball Plac e	Noo dle Hou se	Chin ese Rest aura nt	Du mpli ng Rest aura nt	Dim Sum Rest aura nt	Des sert Sho p	3
<b>66</b>	114 30	JATI PUL O	JAK ART A BAR AT	Don ut Sho p	Indo nesi an Mea tball Plac e	Itali an Rest aura nt	Win e Bar	Chin ese Rest aura nt	Du mpli ng Rest aura nt	Dim Sum Rest aura nt	Des sert Sho p	Cup cake Sho p	Coff ee Sho p	3
<b>67</b>	114 40	TO MA NG	JAK ART A BAR AT	Coff ee Sho p	Indo nesi an Rest aura nt	Chin ese Rest aura nt	Des sert Sho p	Noo dle Hou se	Ame ric an Rest aura nt	Foo d Truc k	Sou p Plac e	Sna ck Plac e	Itali an Rest aura nt	3
<b>68</b>	114 50	GRO GOL	JAK ART A	Noo dle Hou se	Foo d Cou rt	Rest aura nt	Frie d Chic ken	Chin ese Rest	Stea kho use	Asia n Rest	Sna ck Plac e	Des sert Sho p	Indo nesi an Mea	3

			BAR AT				Join t	aura nt		aura nt			tball Plac e	
<b>69</b>	114 60	JELA MB AR	JAK ART A BAR AT	Chin ese Rest aura nt	Noo dle Hou se	Pizz a Plac e	Indo nesi an Rest aura nt	Coff ee Sho p	Indo nesi an Mea tball Plac e	Japa nes e Rest aura nt	Dim Sum Rest aura nt	Frie d Chic ken Join t	Foo d Truc k	3
<b>70</b>	114 60	JELA MB AR BAR U	JAK ART A BAR AT	Chin ese Rest aura nt	Noo dle Hou se	Indo nesi an Rest aura nt	Sna ck Plac e	Seaf ood Rest aura nt	Bak ery	Coff ee Sho p	Pizz a Plac e	Indo nesi an Mea tball Plac e	Win e Bar	3

## VI. CONCLUSION

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 types 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 on cluster4.

Top rating venue like Menteng Steakhouse and Gelora American Restaurant included in Cluster 4. All of this 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 full version.

Thank you,

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