

SUPPLY STORE LOCATION - BOGOTÁ D.C.

IBM - Applied Data Science Capstone

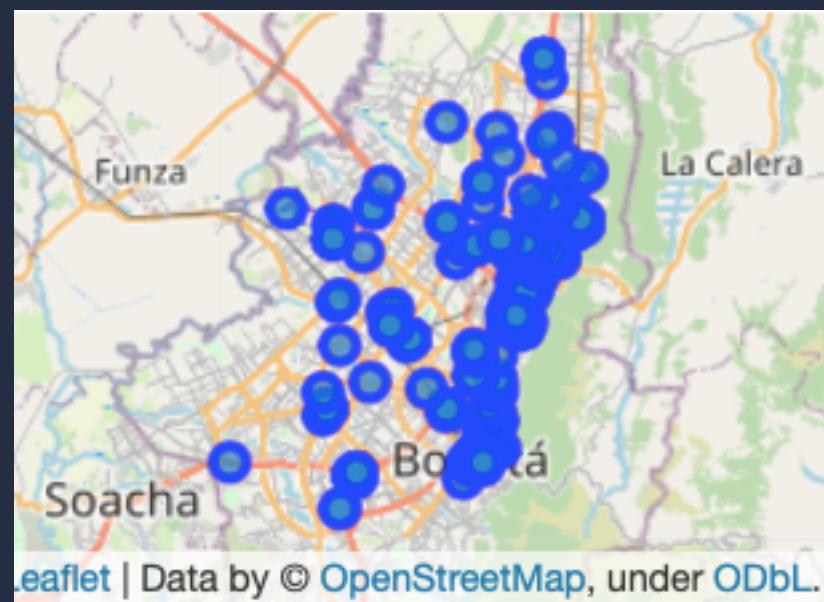
Data acquisition and cleaning

- Data of neighborhoods with major number of restaurants in Bogotá was taken from City Hall Data website. 515 x7 features : <https://datosabiertos.bogota.gov.co>
- The number of restaurants and their type and location in every neighborhood will be obtained using Foursquare API, 3549 venues.
- Repeated and nan values were drop

Restaurants/Bar Geolocation

High concentration of registered restaurants in the west of Bogota, un the Chapinero and Usquaquen Borough

				Address	Subcategory	Neighborhood	Latitude	Longitude
0	0	0	03	CHIBCHOMBIA	CL 27 # 4 - 49 P 1	L	LA MACARENA	4.613799 -74.066259
1	0	1	03	RESTAURANTE ROMULO Y REMO MACARENA	KR 4A # 26D - 90	L	LA MACARENA	4.613799 -74.066259
2	0	2	03	BOGOTA BEER COMPANY S A	KR 4A # 27 - 3	L	LA MACARENA	4.614092 -74.065890
3	0	3	03	PRESTO BTA CALLE 27	KR 7 # 27 - 38 LC 1 ED COLISEUM	L	SAN DIEGO	4.614158 -74.069222
4	0	4	03	LA HAMBURGUESERIA DE LA MACARENA	KR 4A # 27 - 27	L	LA MACARENA	4.614193 -74.066440



FOURSQUARE Data Acquisition and processing

Initial

	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	AEROPUERTO EL DORADO	4.690904	-74.134005	BBC La Bodega - Terminal Puente Aéreo	4.693785	-74.135153	Brewery
1	AEROPUERTO EL DORADO	4.690904	-74.134005	Juan Valdez Café	4.693891	-74.135197	Café
2	AEROPUERTO EL DORADO	4.690904	-74.134005	Top Sushi Wok	4.691265	-74.136686	Sushi Restaurant
3	AEROPUERTO EL DORADO	4.690904	-74.134005	Juan Valdez Café	4.693489	-74.134734	Café
4	AEROPUERTO EL DORADO	4.690904	-74.134005	Movich Buro 26	4.689655	-74.130106	Hotel



Processed

neighborhood	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
AEROPUERTO EL DORADO	Café	Airport Terminal	Sandwich Place	Donut Shop	Sushi Restaurant	Cocktail Bar	Tapas Restaurant	Bookstore	Building	Fast Food Restaurant
ANTIGUO COUNTRY	Hotel	Bar	Gym	Italian Restaurant	Japanese Restaurant	Burger Joint	Pizza Place	Ice Cream Shop	South American Restaurant	Middle Eastern Restaurant
BELLAVISTA	Restaurant	Coffee Shop	Bakery	Latin American Restaurant	Hotel	Pizza Place	Peruvian Restaurant	Ice Cream Shop	Café	Bookstore
BOCHICA II	Fast Food Restaurant	Mexican Restaurant	Sandwich Place	Burger Joint	Park	Ice Cream Shop	Shopping Mall	Multiplex	Bar	Café
CEDRITOS	Asian Restaurant	Gym / Fitness Center	Pizza Place	Plaza	Arepas Restaurant	Health Food Store	Shopping Mall	Bar	Basketball Court	Flea Market

Kmeans Clustering

Kmeans Input

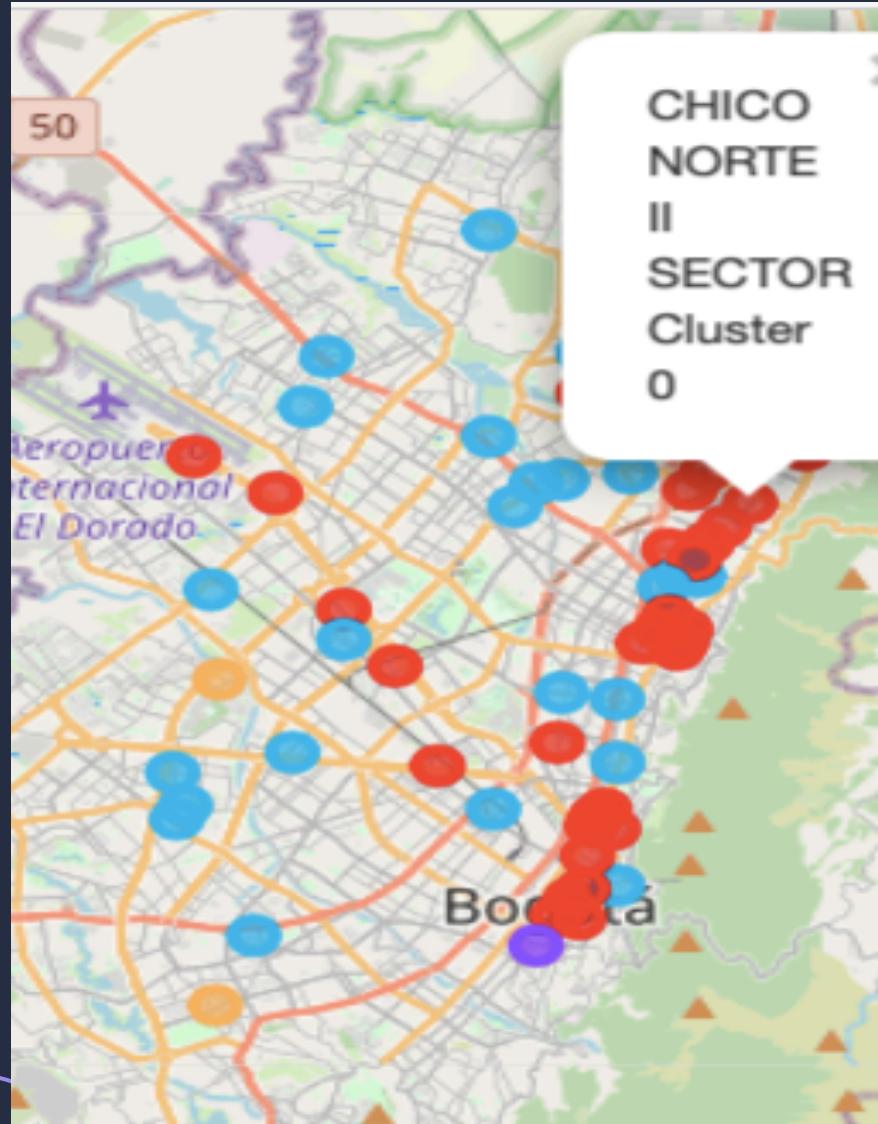
	ATM	Airport Terminal	American Restaurant	Amphitheater	Arcade	Arepa Restaurant	Argentinian Restaurant	Art Gallery	Art Museum	Arts & Crafts Store	Arts & Entertainment
0	0.0	0.08	0.00	0.0	0.0	0.000000	0.00000	0.000000	0.00000	0.000000	0.0
1	0.0	0.00	0.00	0.0	0.0	0.000000	0.00000	0.000000	0.00000	0.000000	0.0
2	0.0	0.00	0.01	0.0	0.0	0.000000	0.00000	0.000000	0.00000	0.000000	0.0
3	0.0	0.00	0.00	0.0	0.0	0.000000	0.00000	0.000000	0.00000	0.000000	0.0
4	0.0	0.00	0.00	0.0	0.0	0.071429	0.00000	0.000000	0.00000	0.000000	0.0
5	0.0	0.00	0.00	0.0	0.0	0.250000	0.00000	0.000000	0.00000	0.000000	0.0
6	0.0	0.00	0.00	0.0	0.0	0.000000	0.02381	0.011905	0.02381	0.011905	0.0



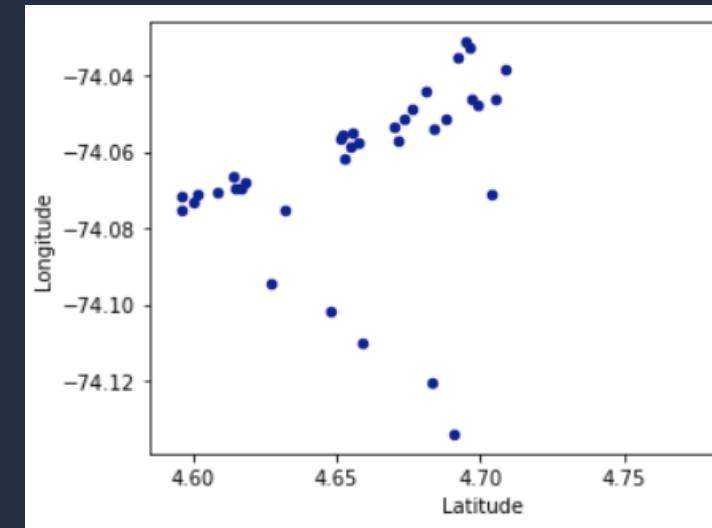
Kmeans Clusters by Venues Category in each neighborhood

	Neighborhood	Latitude	Longitude	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue
0	AEROPUERTO EL DORADO	4.690904	-74.134005	0	Café	Airport Terminal	Sandwich Place	Donut Shop	Sushi Restaurant	Cocktail Bar
1	ANTIGUO COUNTRY	4.671517	-74.057248	0	Hotel	Bar	Gym	Italian Restaurant	Japanese Restaurant	Burger Joint
2	BELLAVISTA	4.655442	-74.054903	0	Restaurant	Coffee Shop	Bakery	Latin American Restaurant	Hotel	Pizza Place
3	BOCHICA II	4.710940	-74.112074	2	Fast Food Restaurant	Mexican Restaurant	Sandwich Place	Burger Joint	Park	Ice Cream Shop
4	CEDRITOS	4.717639	-74.033637	2	Asian Restaurant	Gym / Fitness Center	Pizza Place	Plaza	Arepas Restaurant	Health Food Store
5	CEMENTERIO JARDINES APOGEO	4.597093	-74.176075	3	Coffee Shop	Arepas Restaurant	Donut Shop	Bus Station	Yoga Studio	Design Studio

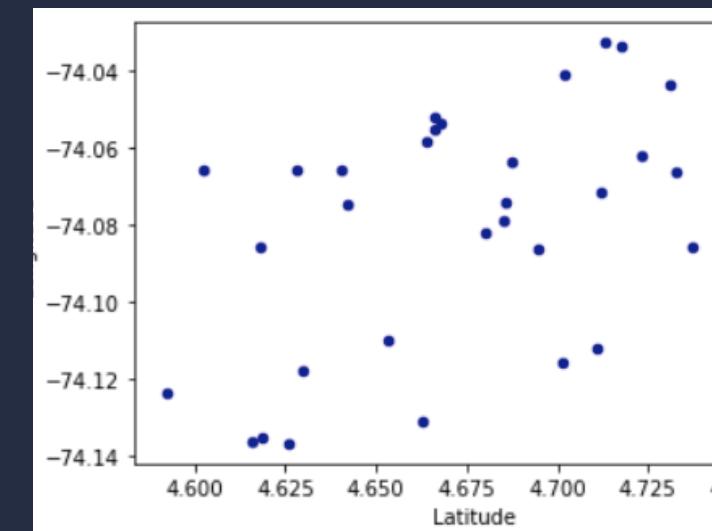
Clusters Geolocation



Cluster = 0



Cluster = 2



Results

- The analysis shows that although there is a great number of restaurants in Bogotá, there are pockets of low restaurant density on the east and north. Highest concentration of restaurants was detected on west and downtown, so we focused our attention to areas to north-west, west and south west, corresponding to boroughs Chapinero, Usaquen and Santa Fe. Another borough was identified as potentially interesting (Salitre), but our attention was focused on Chapinero and Usaquen which offer a combination of popularity among tourists, closeness to city center, strong socio-economic dynamics.

Conclusion

- After the Clustering was applied, the cluster number 1 and 4, showed a high density of restaurants of different categories, however as can be seen in the map and the scatter plot, it can be seen that the neighborhoods of cluster 1 are geographically closer, which would allow positioning the supply store that would have a greater potential market, reason why it is necessary to look for a location in one of these neighborhoods.