Where To Live In Bogota

Capstone Project

IBM Data Science

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Introduction

Bogota Bullet Points:

- Capital of Colombia

- Near 10M people including metropolitan area.

- Located in South America.

- Colombia is economically centralized in Bogota.

The Problem

- A lot of companies have located their Latin America headquarters in Bogota, which makes Bogota a place for a lot of expats.

- Usually with a vast city like Bogota, expats don't know which will be the best place to live, sometimes they receive advise from local people, but don't have a data driven decision.

Data Collection

- **BOGOTA ZIP CODES:** To find the zip codes of neighborhood in Bogota, the postal code website was used, as it contains a csv file with all the required info: http://visor.codigopostal.gov.co/472/visor/Codigos_Postales_Nacionales.csv.

- **NEIGHBORHOODS SAFETY:** A report from a local government web site was found, where information need to be scrapped, as it was published as a pdf file: https://scj.gov.co/sites/default/files/documentos_oaiee/Boletin_2020_05_Reporte_bogota_2020_05.pdf

- **VENUES:** As source of venues data, foursquare will be used, taking advantage of the zip codes information.
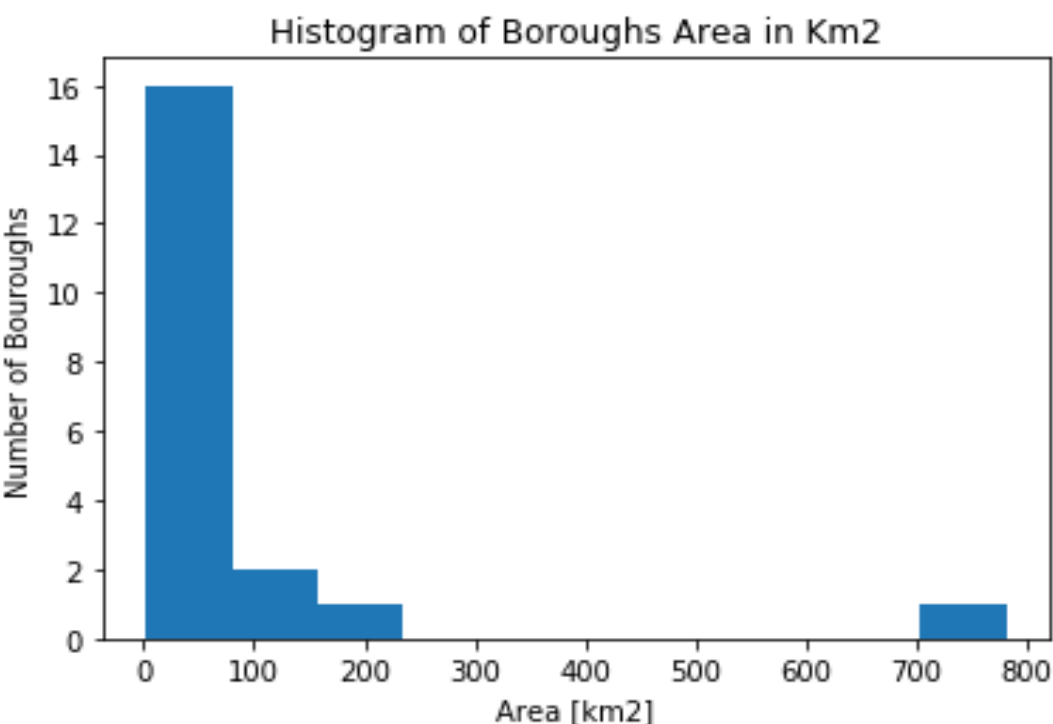
In Order To Narrow The Search Of The Neighborhood To Live In Bogota, Was Important To Look First At Safety And Populations Insights

Bogota Safety Insights
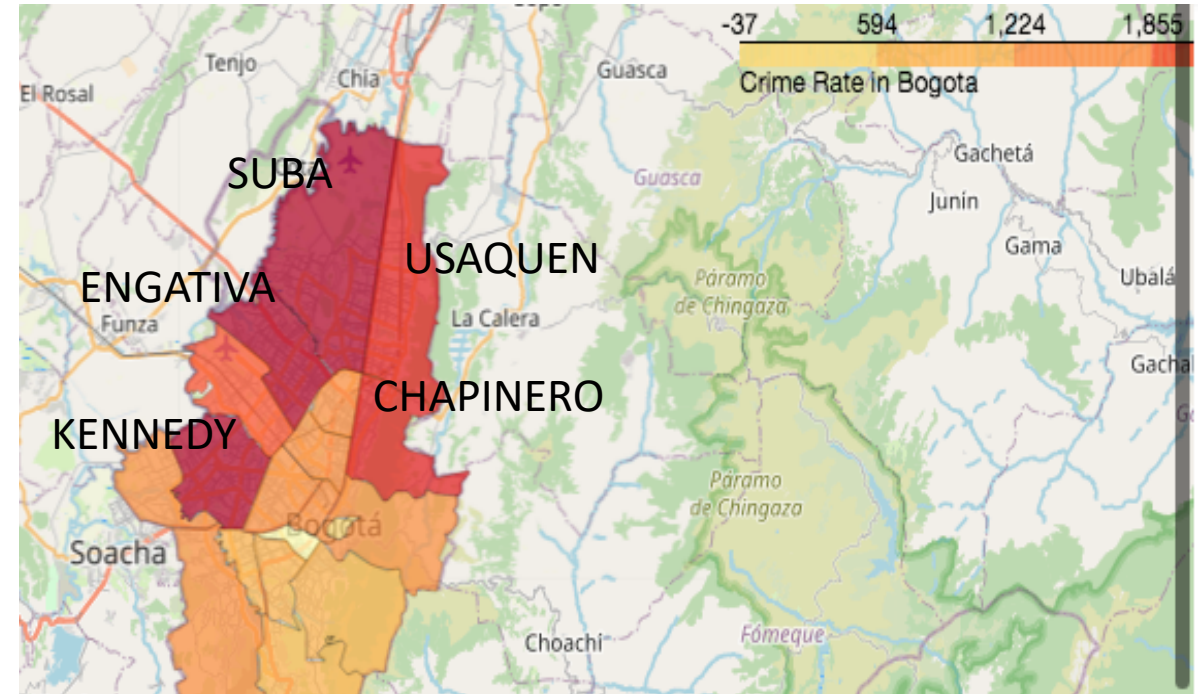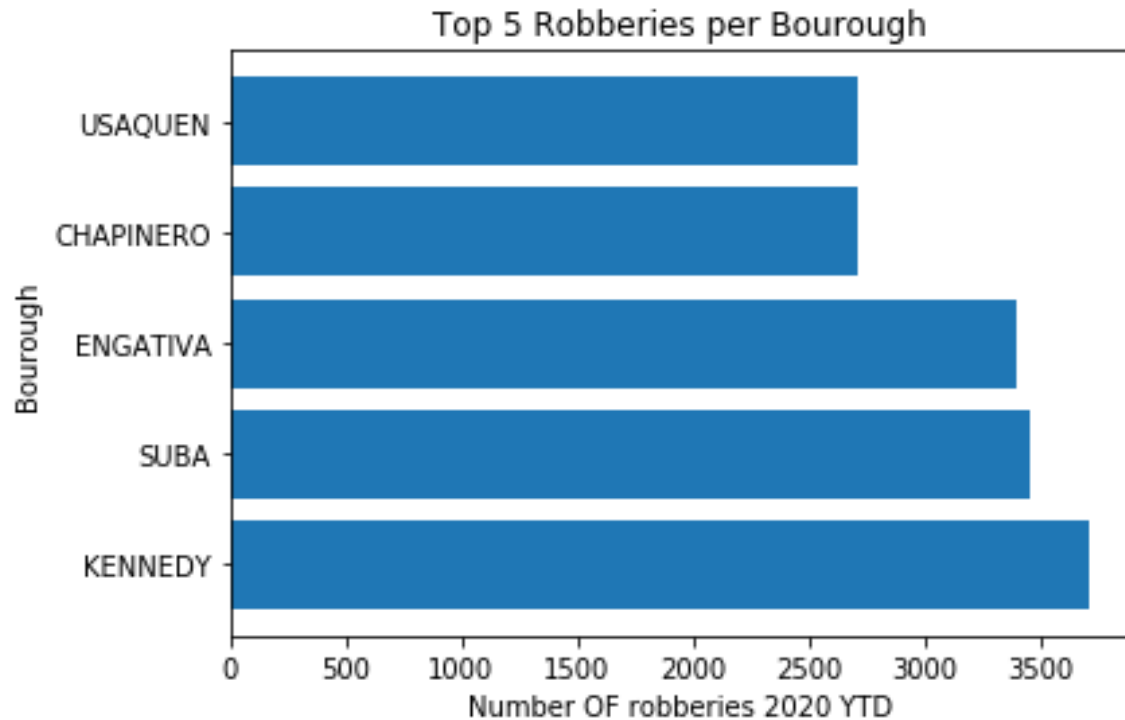
Bogota has 20 Bouroghs, where the top 5 in with robberies are Kennedy, Suba, Engativa, Chapinero and Usaquen.

Bogota Bouroughs Insights | Area

Histogram of Boroughs Area in Km2

top 5 Bouroghs by Area

Bogota bouroghs areas are in median below 100km2, even though sumapaz represents an anomaly as is above 500km2. Mean area: 81.82km2
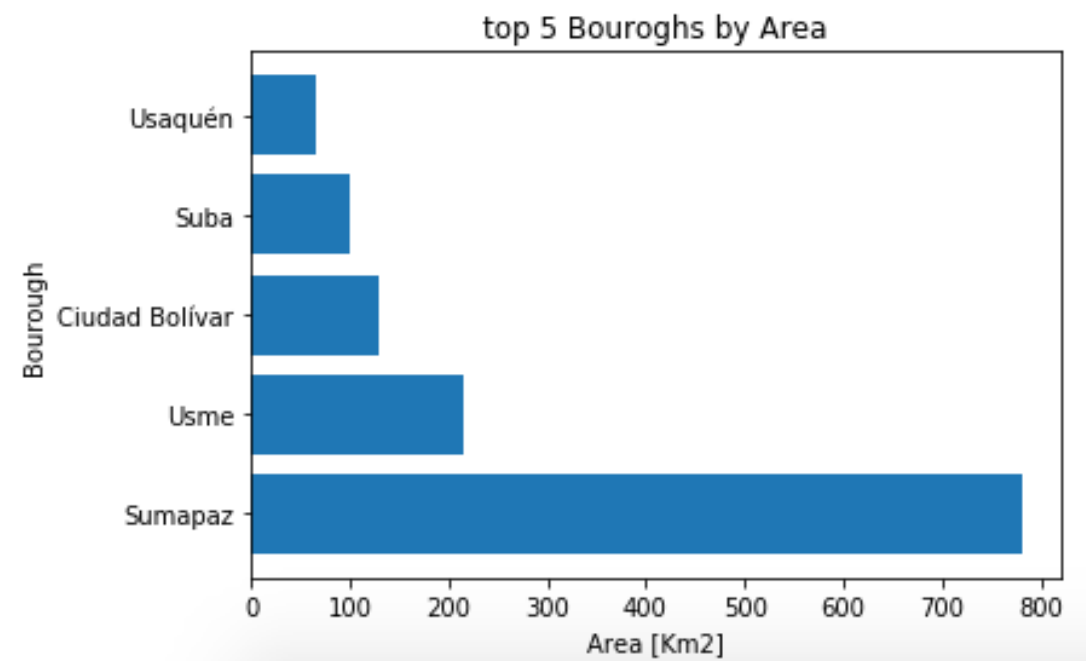
	LOCALIDAD	SUPERFICIE_KM2
19	Sumapaz	780.96
4	Usme	215.06
18	Ciudad Bolívar	130.00
10	Suba	100.56
0	Usaquén	65.31

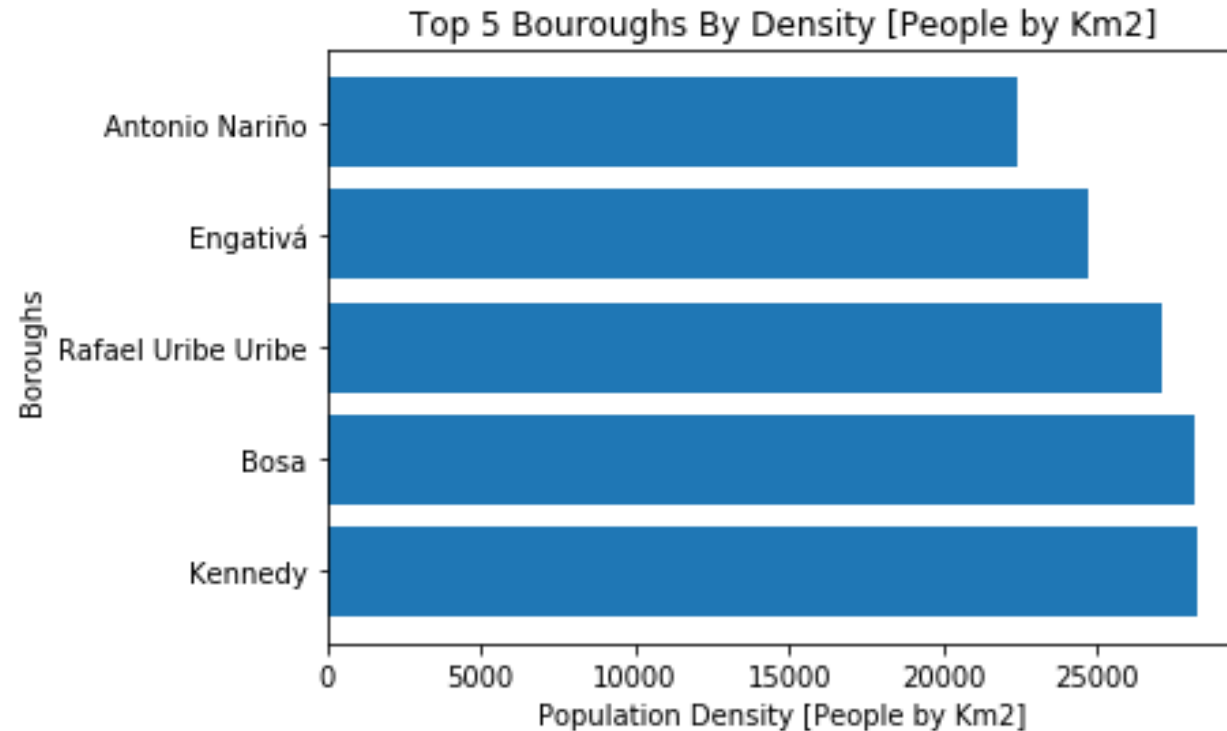# Bogota Bourough Insights | Density

Top 5 Bouroughs By Density [People by Km2]

BoxPlot Bogota Density by Bourough

Bogota has a wide range of densities for the diferent bouroughs. The less dense is Sumapaz, which is part of a national park
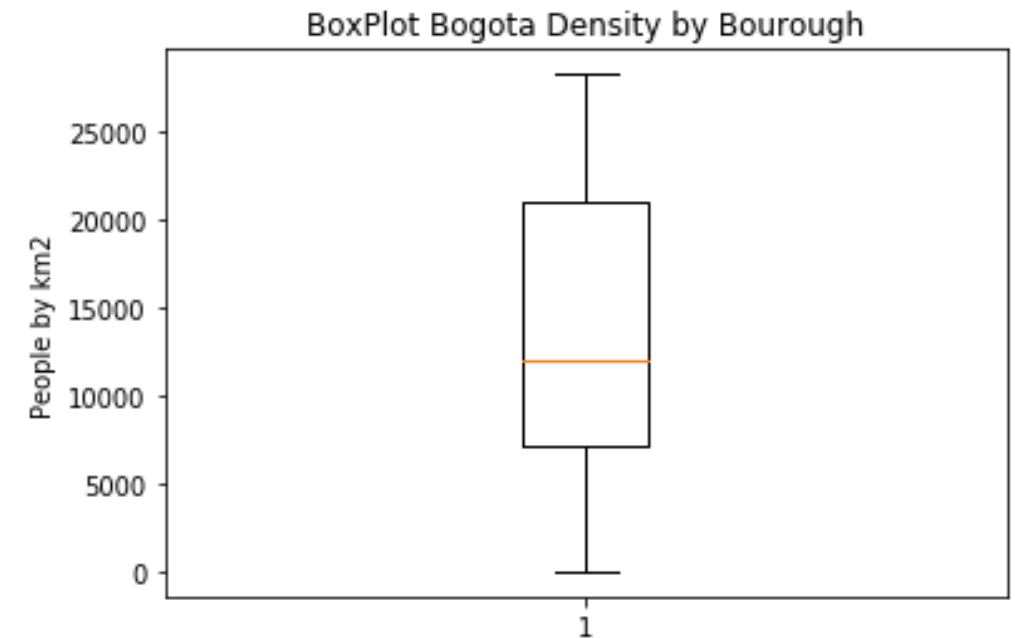
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The mean Density by km2 is: 13863.878499999997
The median Density by km2 is: 11987.84
The max Density by km2 is: 28205.31
The min Density by km2 is: 8.36
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Bogota Bourough Insights | Population
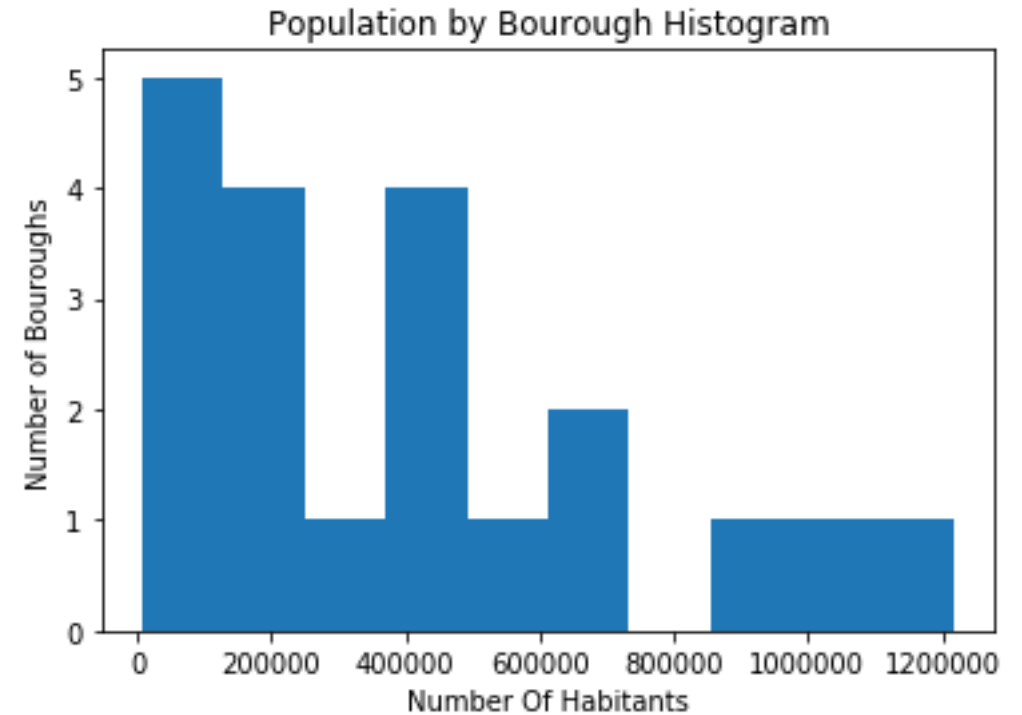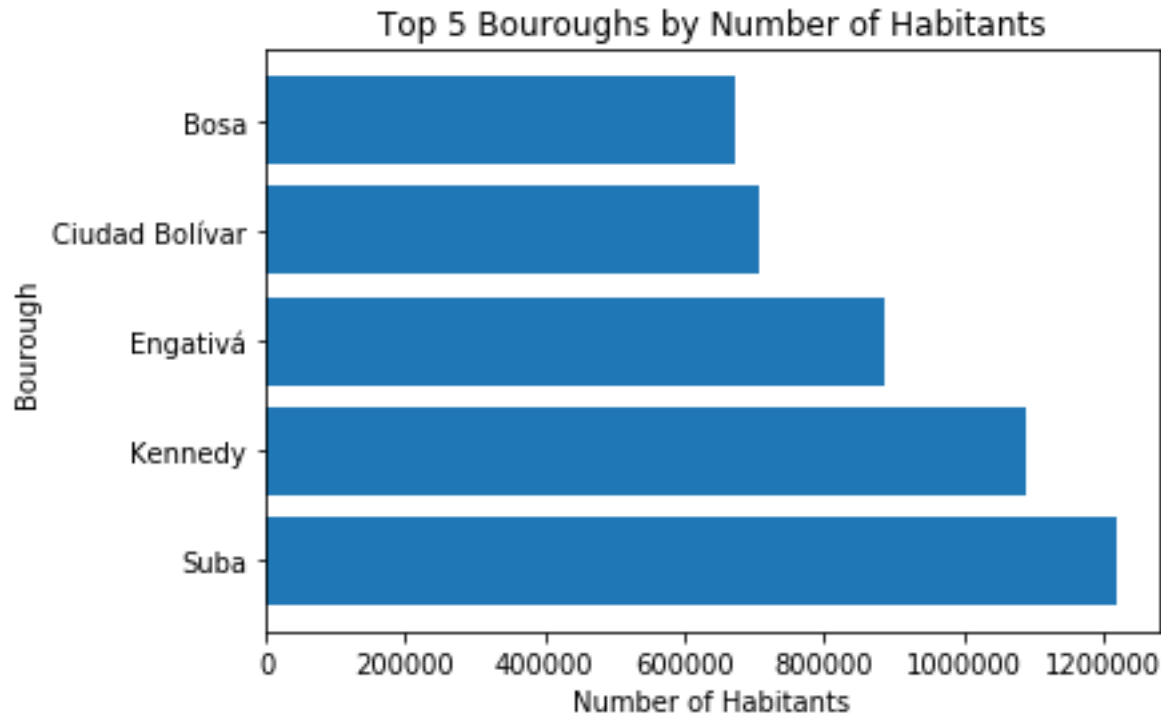
The top 5 bouroughs have more than 500k habitants, where the largest is suba with 1.2M Habitants. The top 5 bouroughs account for more than 50% of total Bogota Population.

As Seen In The Previous Slides, Bogota, With Its 20 Bouroughs Has A Wide Range Of Population And Area Distribution.

Even Though Usaquen And Chapinero Bourough Are Not The Biggest In Density And/Or Population, Are Part Of The Top 5 Robberies Due To Increase GDP Per Capita.

Clustering Bogota Neighborhoods

- K-means was used trying to cluster Bogota neighborhoods. 5 clusters were used, where is noticed that most of the city is red dotted, which is cluster 0. This cluster corresponds to places with restaurants and parks. In order to narrow clustering, the bouroughs of chapinero and usaquen were used only.

	Postal Code	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
0	111321	0.0	Restaurant	Pizza Place	Latin American Restaurant	Burger Joint	Sandwich Place
2	110931	0.0	Bar	Bakery	Theme Park	Furniture / Home Store	Cupcake Shop
4	110841	0.0	Pizza Place	Grocery Store	American Restaurant	Athletics & Sports	Cultural Center
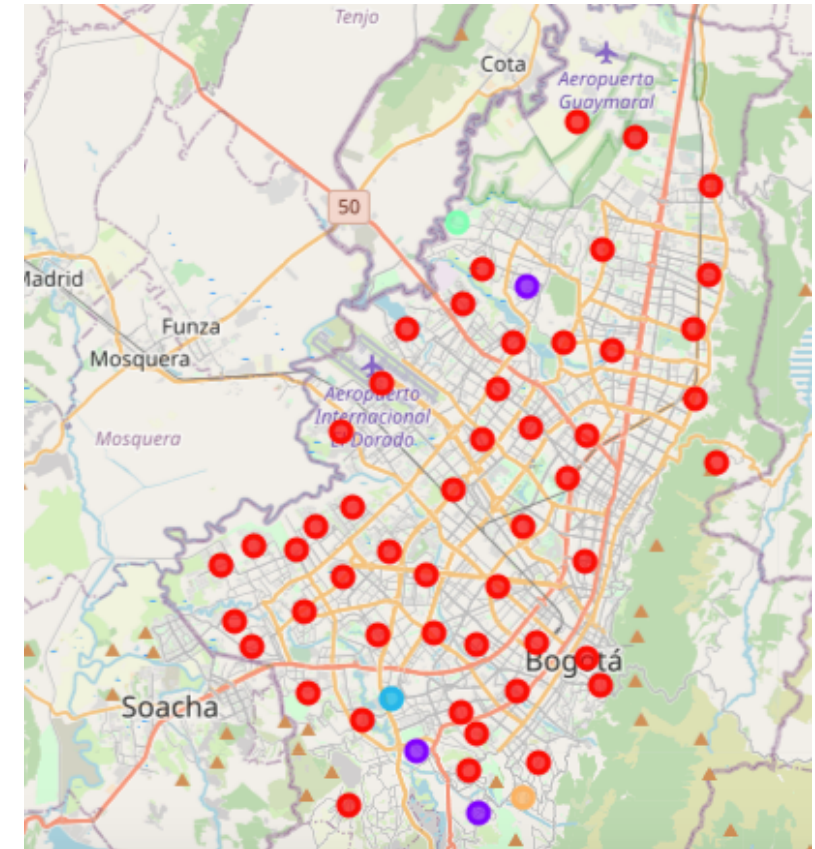
Clustering Usaquen and Chapinero Bouroughs

After applying kmeans only to chapinero and usaquen, and using 5 clusters the one more at the north was cluster 2, which is caracterized for fast food restaurants, also has bus stations which allow to communicate to the rest of the city.

Postal Code	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
110141	2.0	Fast Food Restaurant	Market	Bus Station	Clothing Store	Wings Joint

Buenavista- Canaima- El Cerezo- El Redil- El RocÃo Norte- El Vervenal- Horizontes Norte- La Estrellita- La Estrellita I- La Granja Norte- La Uribe- Mirador del Norte- San Antonio Noroccidental- San Antonio Norte- San JosÃ© de UsaquÃ©n- Tibabita- Tibabita I- Cluster 2

Clustering Usaquen and Chapinero Bouroughs

For people more bohemian, can be cluster number 4, which has flea markets as second most common venue.

Barrancas- Barrancas Norte- Barrancas Oriental-
Bosque de Pinos- Bosque de Pinos III- Caobos Salazar-
Cedro Salazar- El ToberÃn- Estrella del Norte- La Cita-
La Liberia- La Pradera Norte- Las Margaritas- Las
OrquÃdeas- San CristÃ³bal Norte- Santa Cecilia N
Cluster 4

Postal Code	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
110131	4.0	Supermarket	Flea Market	Health & Beauty Service	Skating Rink	Fast Food Restaurant

Clustering Usaquen and Chapinero Bouroughs

Cluster number 3 has a lot of places to eat, mixed with different fitness options.

Acacias Usaquen- Bella Suiza- Bosque de Pinos I-
Cedritos- Cedro Narvaez- Country Club- El Contador-
Ginebra- La Calleja- La Carolina- Lisboa- Los Cedros-
Los Cedros Oriental- PÃ¡ramo Urbano I- San Gabriel
Norte Cluster 3

Postal Code	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
110121	3.0	Fast Food Restaurant	Pizza Place	Plaza	Supermarket	Gym / Fitness Center

Clustering Usaquen and Chapinero Bouroughs

For people that want to have near by international restaurants, cluster 1 is the option.

Is a zone with a lot of hotels which represents a zone with a lot of offices.

Escuela de CaballerÃa I- Escuela de CaballerÃa II- Escuela de InfanterÃa- Molinos Norte- PÃ¡ramo- PÃ¡ramo Urbano II- PÃ¡ramo Urbano IV- RincÃ³n del ChicÃ³- San Patricio- Santa Ana- Santa Ana Occidental- Santa Bibiana- Santa BÃ¡rbara Central- Santa BÃ¡rbara Occid Cluster 1

Postal Code	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
110111	1.0	Asian Restaurant	Steakhouse	Hotel	French Restaurant	Coffee Shop

Clustering Usaquen and Chapinero Bouroughs

Another bohemian place, where people can be near by nature is cluster number 0, which mountain is the most common venue.

Postal Code	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
110211	0.0	Mountain	Wings Joint	Coworking Space	Fried Chicken Joint	French Restaurant

Conclussions

- In order to be close to offices the best cluster found was number 1, which is close to hotels and international restaurants.

- If an expat want to be closer to nature, cluster number 0 will be better, as apartments combine with the Andean mountains.

- Bogota is a city where robberies are high and precaussions must be taken. Will be interesting compare the rate of robberies with other cities with the levels of population of Bogota.