Coursera Capstone Project

A new restaurant in Quito: What is the best location of the city?

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Background and problem

- Quito is a city that is characterized by its gastronomy.

- Most of the citizens know which are the best restaurants in the city and it's by their rating than others can go to these restaurants hoping good food and service.

- When someone open a new restaurant in a new place, it's important to know if the place it's very visited and has good ratings, because if the place has not good restaurants around, some people will prefer go to otter parts of the city.

Data description

- Factors that will influence for opening a new restaurant are:

  - The number of restaurants in the three parts of the city

  - The amount of ratings

  - The number of reviews

- We decided to use a data base of the neighborhoods in Quito to obtain the different restaurants around of them. Following data sources will be needed to extract / generate the required information:

  - Number of restaurants in the city and their location using Foursquare API.

  - Ratings and reviews of restaurant throughout the city using Google Maps.

Data Analysis
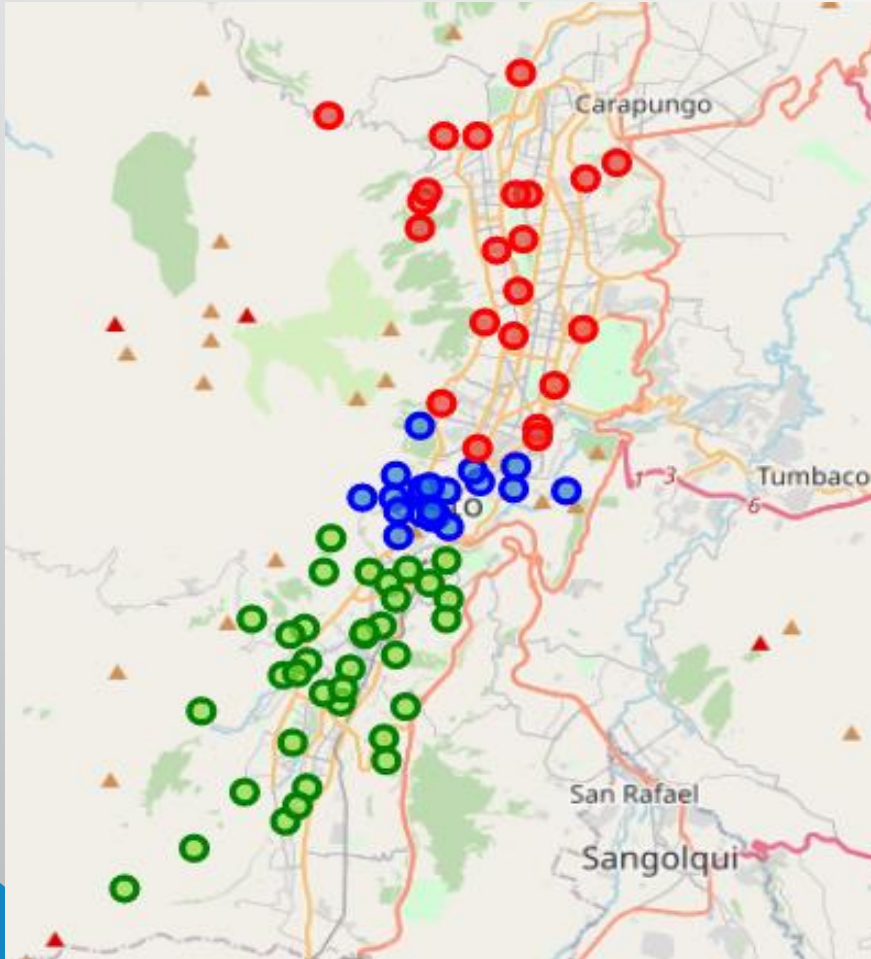
- Neighborhoods in the North are represented by color red

- Neighborhoods in the South are represented by color green

- Neighborhoods in the Centre are represented by color blue

| Name	Rating	Review	Latitude	Longitude
Café Plaza Grande	4.5	8	-0.219723	-78.512227
La Colmena	4.2	167	-0.219759	-78.513558
San Ignacio Restaurant	4.4	387	-0.221389	-78.513862
La Casona De La Ronda	4.6	174	-0.224727	-78.513618
Casa Los Geranios	4.5	390	-0.225019	-78.513576

Methodology

- We found what restaurants correspond to each neighborhood.

  - Restaurants in the North are represented by color red

  - Restaurants in the South are represented by color green

  - Restaurants in the Centre are represented by color blue
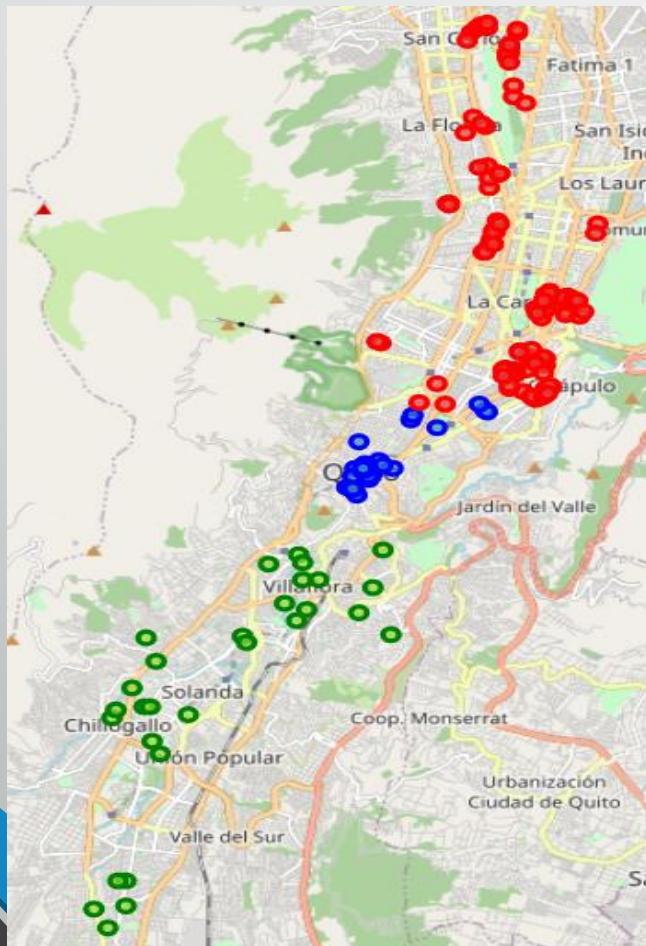

Restaurants through Quito City

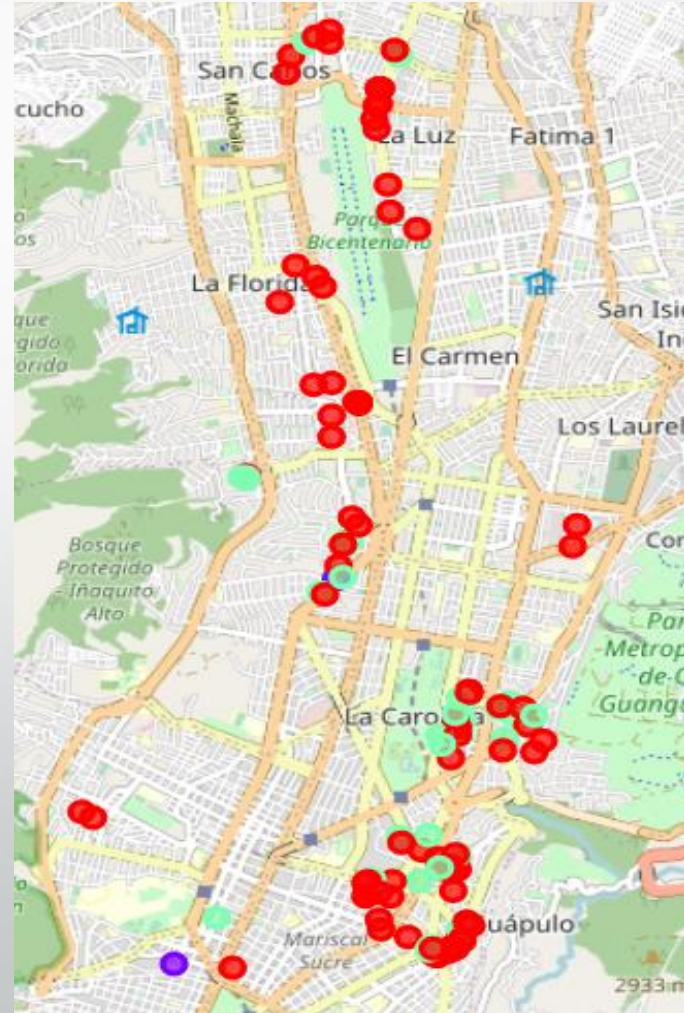|	Number of restaurants
Centre	32
North	130
South	29

Methodology – Analysis

Restaurants ratings
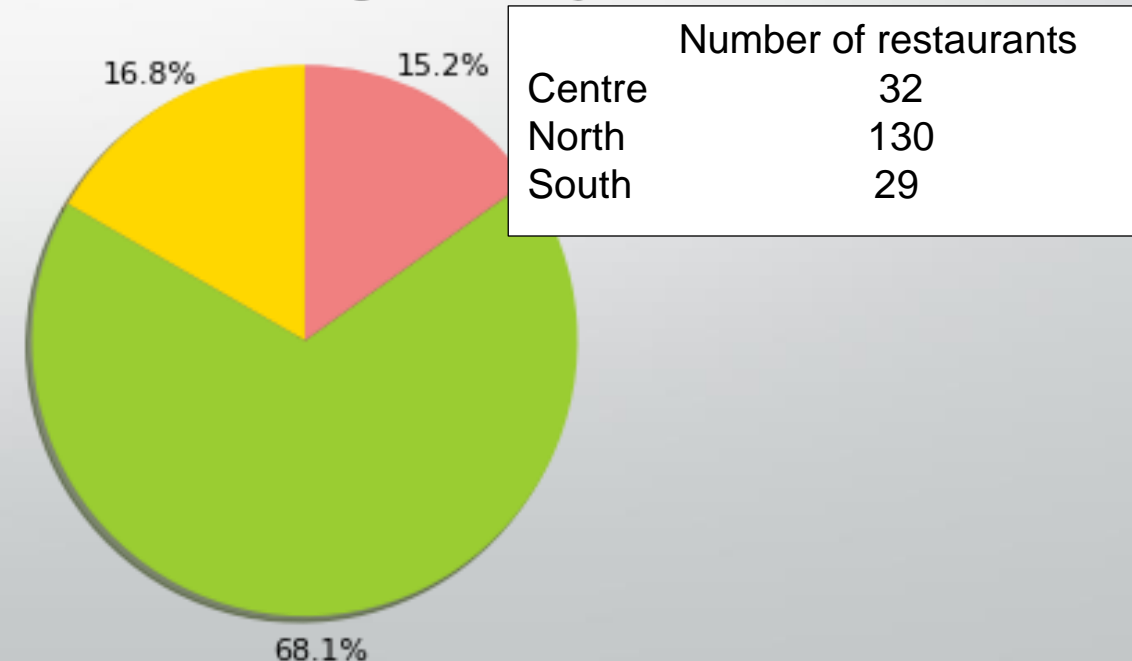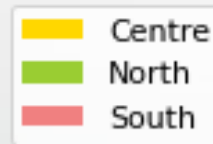
Restaurants reviews
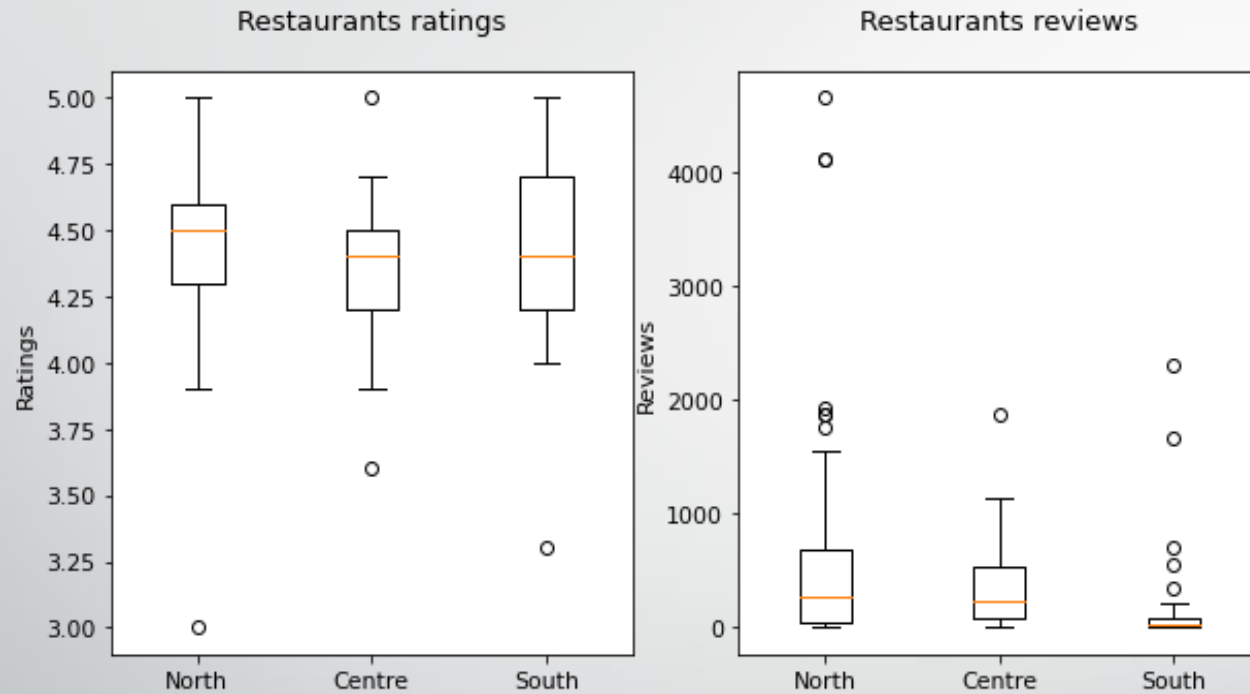
We can realize that in the North of the city exist more restaurants than the other parts.

	Restaurants	Rating (mean)	Review (mean)
Quito North	130	4.45	738
Quito Center	32	4.36	358
Quito South	29	4.42	224

Methodology – Analysis


The Elbow Method showing the optimal k
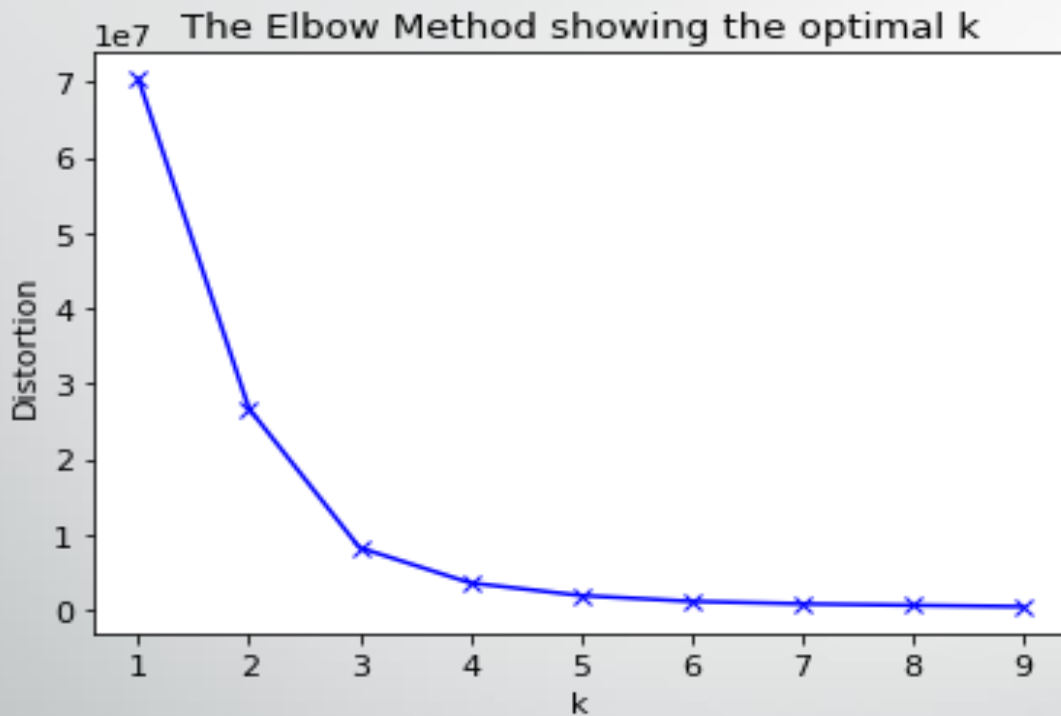
We can observe that the "elbow" is the number 3 which is optimal for this case

Methodology – Analysis

	Number of restaurants	Mean Rating	Mean Review
Cluster 1	90	4.43	184
Cluster 2	3	4.30	4289
Cluster 3	37	4.49	1023

- Cluster 3 is a middle point between Cluster 1 and Cluster 2 because it has a good number of restaurants and reviews, and the best Mean Rating Thus, Cluster 3 is the best option. Now we have to rank the neighborhoods where we can open a new restaurant based on this cluster
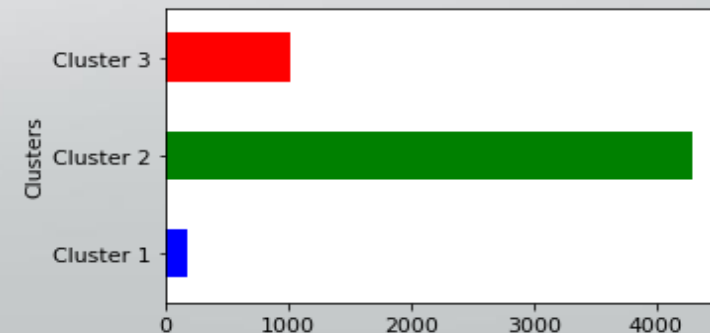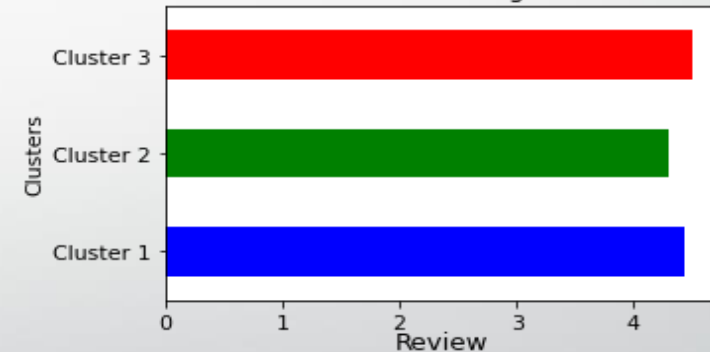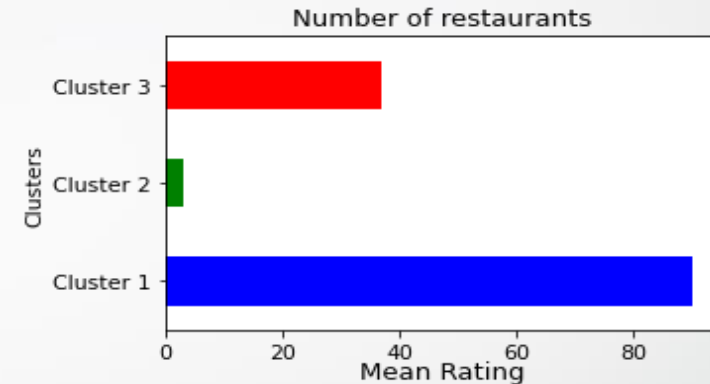
Methodology – Analysis

	Number of restaurants	Mean Rating	Mean Review
Neighborhood			
Quito Norte	8.0	4.48	818
Rumiñahui	5.0	4.62	727
Bellavista	14.0	4.42	726
Guápulo	20.0	4.43	718
Iñaquito	5.0	4.40	581
Quito Tennis	1.0	4.50	568
El Inca	8.0	4.42	545
Kennedy	3.0	4.56	464
El Batán	2.0	4.40	349
La González Suárez	17.0	4.28	266

we can see the best neighborhoods in the north of Quito that would be good option for opening a new restaurant.

Results and Discussion

- Our analysis shows that there are a large number of restaurants throughout Quito, however the classification to find a suitable place in the three parts of the city (north, south and center) were made taking into account the ratings and reviews made by different people.

- It was observed that the most desirable area to open a restaurant is the north of the city, since it has a balance between the number of restaurants, ratings and reviews.

- On the other hand, a total of 13 neighborhoods were found in the north of the city, which are a good option to open a new restaurant, but the best 10 were chosen.

Conclusion

- As proposed at the beginning of this project, the different restaurants throughout the city of Quito were examined. Classifying each of these restaurants based on a database of the neighborhoods of Quito. In this way, the restaurants were grouped by sectors (north, south and center) facilitating the analysis. Through the graphs of pie and box plots, it was concluded that the north of the city is the most desirable area to open a new restaurant. However, by using K-means, I can get more in-depth. Resulting in the different neighborhoods where we can open restaurants based on the ratings and reviews.