Open an Argentinian Restaurant in Bogota-Colombia

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Introduction

Bogotá has become an important city in Colombia and South America region, in this city a lot of multinational companies have their operations because the city has specified order to located business and factories, additionality we can think of other aspects to keep in mind such as social and economic organization.

Because Colombia has a social classification called (stratus), it can determine the education and financial level of the neighborhoods in the cities and town, on the other hand, Bogota has 20 districts (Localidades) where it contains the neighborhoods in the city.

And different API can take longitude and latitude of districts, it shows the main venues in through the city, in foursquare case, it takes the relevant information to create a list with enough data to process in python, therefore we can make the analysis with python tools.

Consequently, data science tools allow determining the potential districts to open an Argentinian restaurant that is a good idea, and it can have success in Bogota restaurant markets because this city is a multicultural place, currently it increases the cultural offers in our city.

Finally, when we choose the best location for an open restaurant, it ensures the partial success of the business idea and it reaches a good position in Bogotá ranking and expands through the city, therefore is important to support the decision with enough information and data science plays an essential role in this process.

Problem

Data can help us with find the main venues in Bogotá and we can determine the best locations with frequency and categories for make the best decision to open the new restaurant in the city.

Interest

The stakeholders need to determine the best locations, keeping in mind the cultural impact and potential customers to ensure the profits for the Argentinian Restaurant.

Data Acquisition and Cleaning

Data Sources

In our project we used the data source **"Georreferencia puntual por localidad"** it was taken from the follow page:

https://bogotalaburbano.opendatasoft.com/explore/embed/dataset/georeferencia-puntual-por-localidad/table/?flg=es

This page has the list of districts with longitude and latitude, it allows to find the venues in the city through foursquare API, on the other hand we changed some formats and fields name, for we can analyze the data with python.

Because some data cannot analyze with foursquare API in Spanish language, therefore the new file has been called:

https://raw.githubusercontent.com/camiolo85/Coursera-Capstone/master/Data_bogota2.csv

it was charged in GitHub to connect with Jupiter notebook and we can use all python functionalities and foursquare data these tools can make easy the Bogotá data geographic processing.

Finally, the districts "Localidades" can give us enough information about neighborhoods in the city and located the venues.

Data cleaning

In this process, we used Foursquare API with the translated data sources, and it can show the table with districts (Localidades):

	CODE	NEIGHBORHOOD	LONGITUDE	LATITUDE
0	2	CHAPINERO	-74.467	4.657
1	6	TUNJUELITO	-74.107	4.588
2	15	ANTONIO NARIÑO	-74.101	4.549
3	16	PUENTE ARANDA	-74.123	4.615
4	1	USAQUEN	-74.031	4.749
5	0	BOGOTA	-74.082	4.610
6	7	BOSA	-74.195	4.631
7	19	CIUDAD BOLIVAR	-74.154	4.507
8	18	RAFAEL URIBE URIBE	-74.116	4.565
9	8	KENNEDY	-74.157	4.627
10	12	BARRIOS UNIDOS	-74.084	4.666
11	10	ENGATIVA	-74.107	4.707
12	20	SUMAPAZ	-74.315	4.035
13	13	TEUSAQUILLO	-74.094	4.645
14	17	LA CANDELARIA	-74.074	4.594
15	3	SANTA FE	-74.030	4.596
16	11	SUBA	-74.082	4.765
17	9	FONTIBON	-74.148	4.683
18	14	LOS MARTIRES	-74.091	4.603
19	4	SAN CRISTOBAL	-74.088	4.546
20	5	USME	-74.103	4.477

Afterwards Foursquare API give us all results with the venues in the city, where the query show us 151 results and it include all categories.

```
In [18]: print(Bogota_venues.shape)
         Bogota_venues.head(20)
```

```
(151, 7)
```

Out[18]:

	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	TUNJUELITO	4.588	-74.107	Bar Pescadero Del Restrepo	4.587761	-74.107269	Seafood Restaurant
1	TUNJUELITO	4.588	-74.107	Sopas y carnes del Restrepo	4.587374	-74.103828	BBQ Joint
2	TUNJUELITO	4.588	-74.107	Asadero El Gran Rodeo	4.590334	-74.107811	Food Court
3	TUNJUELITO	4.588	-74.107	Donde Canta La Rana	4.588010	-74.106977	BBQ Joint
4	TUNJUELITO	4.588	-74.107	La mojarra roja	4.587492	-74.103530	Seafood Restaurant
5	TUNJUELITO	4.588	-74.107	Exito Centenario	4.586587	-74.110521	Grocery Store
6	TUNJUELITO	4.588	-74.107	Moto Cervantes	4.590890	-74.110298	Motorcycle Shop
7	ANTONIO NARIÑO	4.549	-74.101	Ikaii Tea	4.550597	-74.100110	Bubble Tea Shop
8	ANTONIO NARIÑO	4.549	-74.101	Parque Natural Entrenuves	4.551464	-74.101120	Campground
9	ANTONIO NARIÑO	4.549	-74.101	Heladería y Comidas Rápidas Gexx	4.551784	-74.098755	Burger Joint
10	PUENTE ARANDA	4.615	-74.123	Mercado Zapatoca	4.617210	-74.121643	Grocery Store
11	PUENTE ARANDA	4.615	-74.123	Comida con todos los juguetes NINJA	4.613147	-74.126826	Burger Joint
12	PUENTE ARANDA	4.615	-74.123	Estímulo Centro de Estimulación para el Aprend...	4.615395	-74.122512	School
13	PUENTE ARANDA	4.615	-74.123	El Corral Melgar	4.612562	-74.125731	Burger Joint
14	PUENTE ARANDA	4.615	-74.123	IRM COMPRESORES	4.616225	-74.126642	Construction & Landscaping
15	USAQUEN	4.749	-74.031	Fruvar Express	4.745783	-74.031369	Farmers Market
16	USAQUEN	4.749	-74.031	san pablo libreria	4.748461	-74.031937	Bookstore
17	USAQUEN	4.749	-74.031	Librería San Pablo	4.747612	-74.029975	Bookstore
18	USAQUEN	4.749	-74.031	Oma Universidad de San Buenaventura	4.751346	-74.030176	Café
19	BOGOTA	4.610	-74.082	Juan Valdez Café	4.610935	-74.082101	Coffee Shop

Python allows to process these kinds of data, and we create a new query to see the international restaurants in the city:

```
20]: Bogota_restaurant=Bogota_venues[Bogota_venues['Venue Category']\
                                     .str.contains('Latin American Restaurant')].reset_index(drop=True)
     Bogota_restaurant.index = np.arange(1, len(Bogota_restaurant)+1)
     Bogota_restaurant.shape
     Bogota_restaurant.head(10)
```

ut[20]:

	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
1	TEUSAQUILLO	4.645	-74.094	Chuleta y Champus	4.643392	-74.090860	Latin American Restaurant
2	TEUSAQUILLO	4.645	-74.094	Café y Aroma	4.648641	-74.093983	Latin American Restaurant
3	LA CANDELARIA	4.594	-74.074	El Son de los Grillos	4.595569	-74.072934	Latin American Restaurant
4	LA CANDELARIA	4.594	-74.074	La Puerta de la Catedral	4.597648	-74.074611	Latin American Restaurant
5	LA CANDELARIA	4.594	-74.074	Mama Lupe	4.597787	-74.074597	Latin American Restaurant
6	FONTIBON	4.683	-74.148	Piqueteadero Guadalajara	4.680663	-74.149130	Latin American Restaurant

According to the results it suggests four potential districts where we can open a new international restaurant however, we need to determine if Bogotá has an Argentinian Restaurant, therefore python can answer this question through the following query:

```
In [21]: Bogota_restaurant_tar=Bogota_venues[Bogota_venues['Venue Category']\
                                     .str.contains('Argentinian Restaurant')].reset_index(drop=True)
         Bogota_restaurant_tar.index = np.arange(1, len(Bogota_restaurant_tar)+1)
         Bogota_restaurant_tar.shape
         Bogota_restaurant_tar.head(20)
```

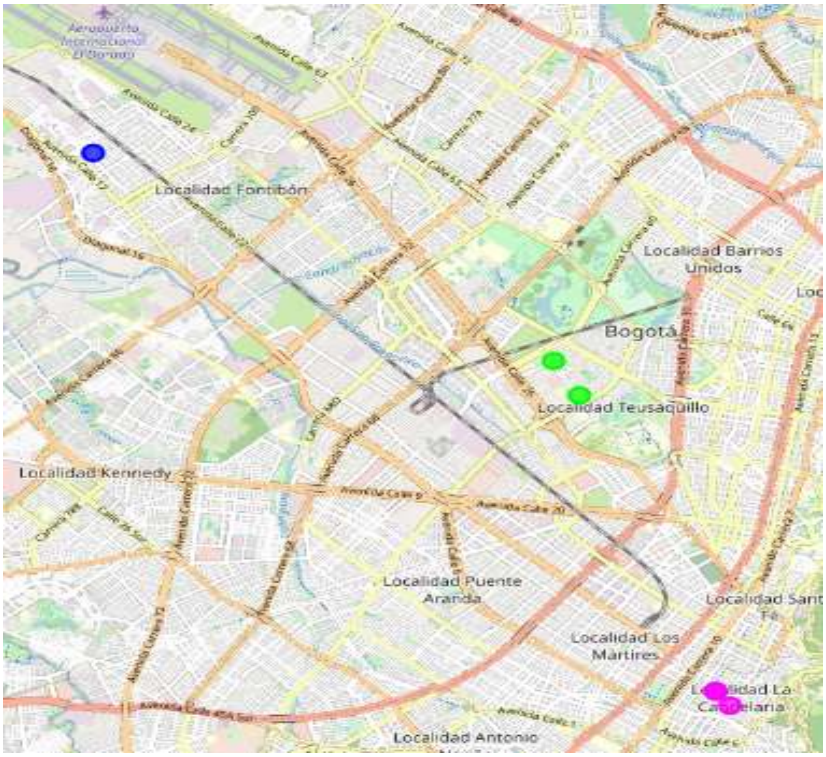
Out[21]:

	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
1	LA CANDELARIA	4.594	-74.074	Restaurante Rescoldos	4.595584	-74.073180	Argentinian Restaurant
2	LA CANDELARIA	4.594	-74.074	Mi Viejo	4.597425	-74.073957	Argentinian Restaurant
3	LA CANDELARIA	4.594	-74.074	Patagonia	4.596873	-74.074994	Argentinian Restaurant

It shows that Candelaria district has three Argentinian restaurants therefore this district can be the first option to open a new restaurant because this Candelaria districts has an excellent cultural background and it possibly get a potential customer for the restaurant.

Exploratory Data Analysis

According to the previous queries we can propose four potential districts where it has potential cultural background on the other hand, we can ensure the success restaurants. In the following map shows the location districts:



The districts that map shows are close of the main avenue in Bogotá, it called (Avenida 26), it is the main access to Dorado international Airport therefore tourists are becoming in the main potential customer and secondly the office workers and students in the city.

Because the districts that map shows has a great offer related with education and universities in overall, consequently it has offices of the big companies from Colombia and multinational companies.

On the other hand, according to the second query show that Calendaria district has three restaurants, it is in downtown city, and it become in the best option to open the restaurant.

The following map shows the restaurant location in the Candelaria restaurants:

Where it shows the location where they are locating in Candelaria districts, it has hotels, restaurants, and universities closely.

Results and discussion

The analysis shows that Bogotá has three potential districts such as Candelaria, Fontibon and Teusaquillo, where we can open an Argentinian restaurant according to the foursquare API Data.

However, we can suggest two options firstly Candelaria District is well-known as historical center located in the downtown city, it has hotels, universities, and cultural activities that it allows to get potential customers and I can a great impact in this district.

Secondly, we consider Teusaquillo district because, it close of main avenues in the city and it has hotels, universities, and cultural activities but it is well-known for residential segment in addition this neighborhood is considered as traditional in Bogotá city.

Conclusion

Bogotá has a multicultural offer, however, is very important that we can determine the best location to open Argentinian restaurant, according with analysis we can suggest two potential districts that they have a lot potential social and economic aspects to ensure the restaurant success.

But the best option to open the restaurant is Teusaquillo because this district has not these kinds of restaurants and it has an excellent cultural background, and it helps to get potential customers for the business.