INTRODUCTION

Opening Steakhouse Restaurant in Rio de Janeiro - BRAZIL

Rio de janeiro or simply "Rio" is the second most populous city in Brazil and the sixth-most populous in the Americas. Rio de Janeiro is the capital of the state of Rio de Janeiro, Brazil's third-most populous state.

In this project, I will determine which place is good for opening a Steakhouse Restaurant in "Rio"

DESCRIPTION

- I'll get the neighborhood from Wikipedia for

- I'll use python geocoder library to get geographical coordinates of neighborhoods

- I'll use **Foursquare API venues explore** method to get the venues of given neighborhoods of Bucharest.

- I'll use **Foursquare API venues method** to get ranks and likes of restaurants by given venue id.

WEBSCRAPPING WITH BEAUTIFULSOUP

- I took neighborhood from Wikipedia: "`https://en.wikipedia.org/wiki/List_of_Administrative_Regions_in_Rio_de_Janeiro`"

- And create Data frame with all information.

- There are 160 neighborhoods for 33 Administrative regions

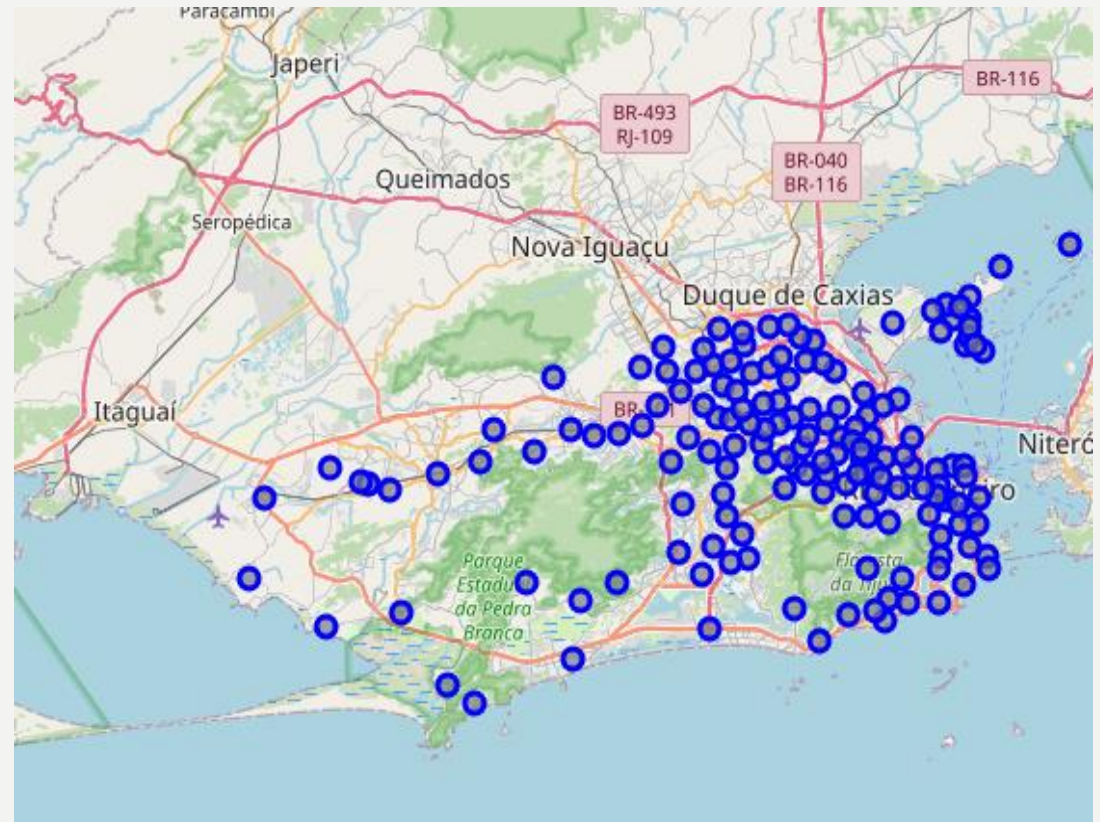|	Neighborhood	Administrative region	Population
0	Caju	Portuária	48,664
1	Gamboa	Portuária	48,664
2	Santo Cristo	Portuária	48,664
3	Saúde	Portuária	48,664
4	Centro	Centro	41,142
...	...	...	...
155	Jardim Sulacap	Realengo	243,006
156	Magalhães Bastos	Realengo	243,006
157	Realengo	Realengo	243,006
158	Vila Militar	Realengo	243,006
159	Cidade de Deus	Cidade de Deus	12,285

160 rows × 3 columns

LATITUDE AND LONGITUDE WITH GEOCODE

- Including latitude and longitute in a new data frame with Neighborhood, Administrative region, Population, Latitude and longitude.

	Neighborhood	Administrative region	Population	Latitude	Longitude
0	Caju	Portuária	48,664	-22.8803	-43.2215
1	Gamboa	Portuária	48,664	-22.8977	-43.1929
2	Santo Cristo	Portuária	48,664	-22.9008	-43.2034
3	Saúde	Portuária	48,664	-22.8972	-43.1842
4	Centro	Centro	41,142	-22.9044	-43.1831

CREATE MAP WITH FOLIUM

- Reading dataframe and creating map using Folium to show all neighborhoods in Rio.

FOURSQUARE/DEVELOPER

To use Foursquare API to get relevant information for each nearby venue.

There are 346 unique venue categories. Some of them are as below:

	Neighborhood	Latitude	Longitude	VenueName	VenueId	VenueLatitude	VenueLongitude	VenueDistance	VenueCategory
0	Caju	-22.8803	-43.2215	Vila Olímpica Mané Garrincha	536e10ce498e33148de36449	-22.880842	-43.226361	502	Athletics & Sports
1	Caju	-22.8803	-43.2215	Local Do Gol	4d0ced781f6bf04db4657a31	-22.885912	-43.227556	880	Soccer Stadium
2	Caju	-22.8803	-43.2215	Subway	56056630498ee6331dcbd640	-22.886355	-43.224254	730	Sandwich Place
3	Caju	-22.8803	-43.2215	Vila Olímpica do Caju	5135d6e6e4b0b3485627a610	-22.880273	-43.228105	677	Athletics & Sports
4	Caju	-22.8803	-43.2215	Bob's	4e836ba949012cbcd6800e24	-22.886654	-43.225478	816	Burger Joint

TOP 15 DISTINCT VENUE COUNTS

Printing Top 15 distinct venues acessing and manipulating the Neighborhood data frame.

VenueCategory	Count
Brazilian Restaurant	294
Bar	270
Bakery	191
Gym / Fitness Center	190
Pizza Place	188
Plaza	159
Gym	144
Restaurant	137
Burger Joint	123
Fast Food Restaurant	108
Japanese Restaurant	106
Snack Place	96
Food Truck	87
Sandwich Place	78
Ice Cream Shop	73

FILTER RESTAURANTS

Reading and filtering data frame per restaurants
to get the numbers and percentage

```
Total number of restaurants: 1445
Total number of Steakhouse: 55
Percentage of Steakhouse: 3.81%
```

FILTER STEAK RESTAURANTS

Reading and filtering data frame per steak restaurants

MERGE DATA FRAMES

Merging data frame Restaurants Neighborhoods with Raiting
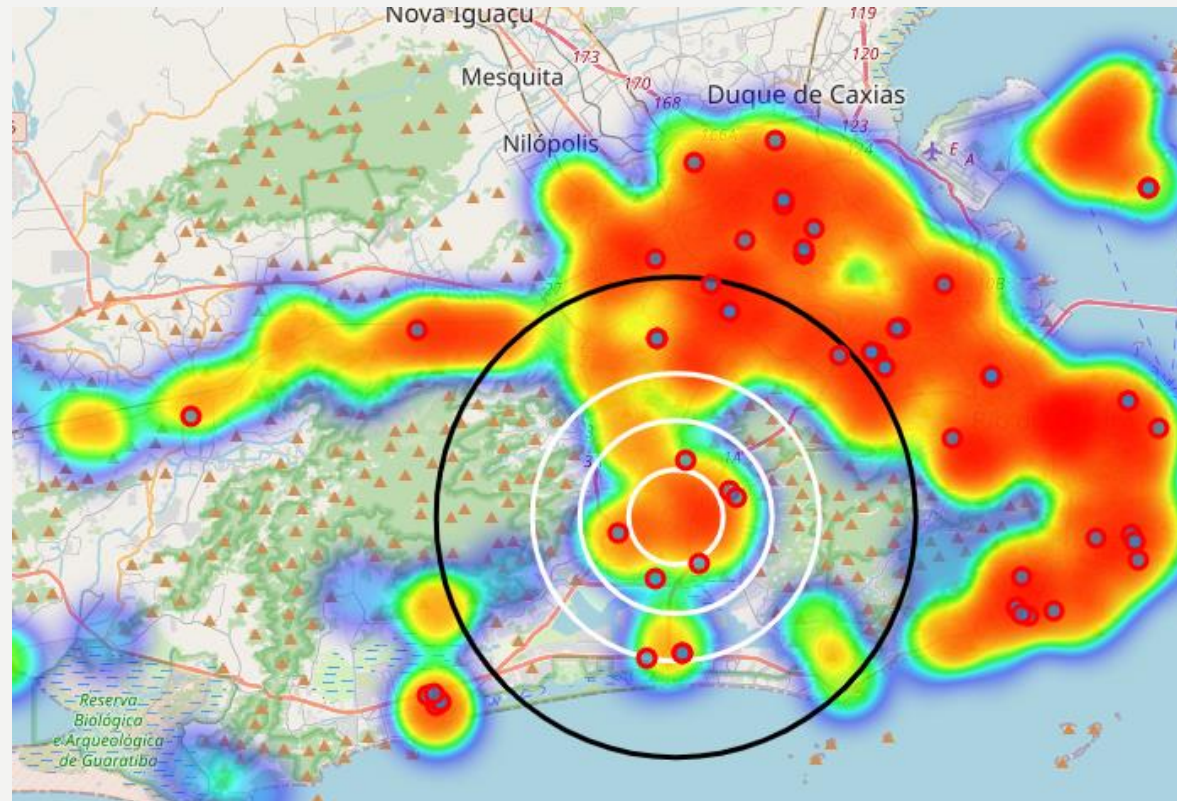
```
In [20]:  neighborhood_restaurants = neighborhood_restaurants.merge(restaurants_raitings)
          neighborhood_restaurants.head()
```

Out[20]:

	Neighborhood	Latitude	Longitude	VenueName	VenueId	VenueLatitude	VenueLongitude	VenueDistance	VenueCategory	VenueRating	VenueLikes
0	Caju	-22.8803	-43.2215	Subway	56056630498ee6331dcbd640	-22.886355	-43.224254	730	Sandwich Place	7.0	11.0
1	Vasco da Gama	-22.8915	-43.2267	Subway	56056630498ee6331dcbd640	-22.886355	-43.224254	625	Sandwich Place	7.0	11.0
2	Caju	-22.8803	-43.2215	Bob's	4e836ba949012cbcd6800e24	-22.886654	-43.225478	816	Burger Joint	6.1	16.0
3	Vasco da Gama	-22.8915	-43.2267	Bob's	4e836ba949012cbcd6800e24	-22.886654	-43.225478	553	Burger Joint	6.1	16.0
4	Gamboa	-22.8977	-43.1929	Recanto dos Sabores	4e7a27cb1f6e07f91807d442	-22.897400	-43.185289	781	Burger Joint	8.0	5.0

MAP OF STEAK RESTAURANTS

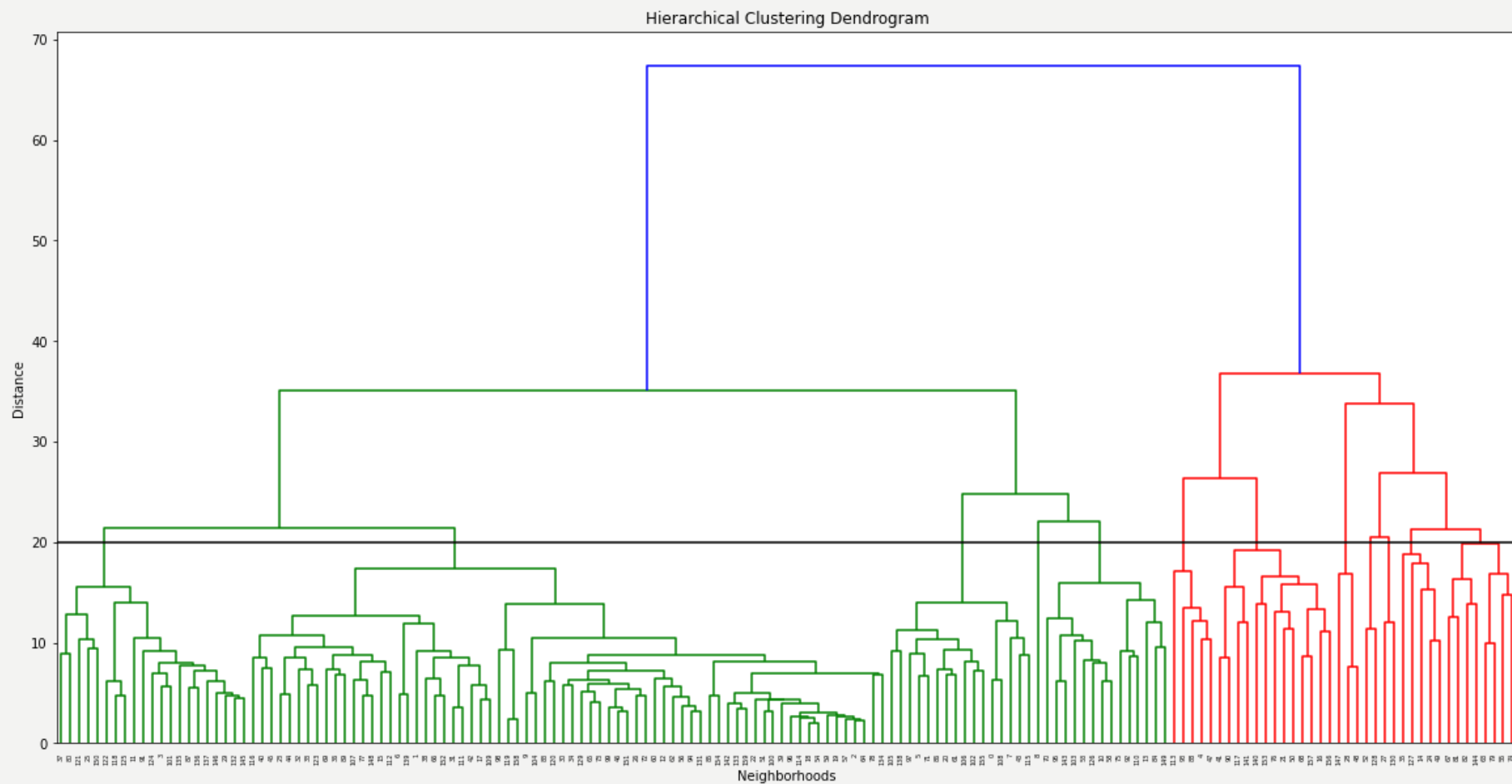- Using folium to show the steak restaurants in the map

MOST COMMON RESTAURANTS

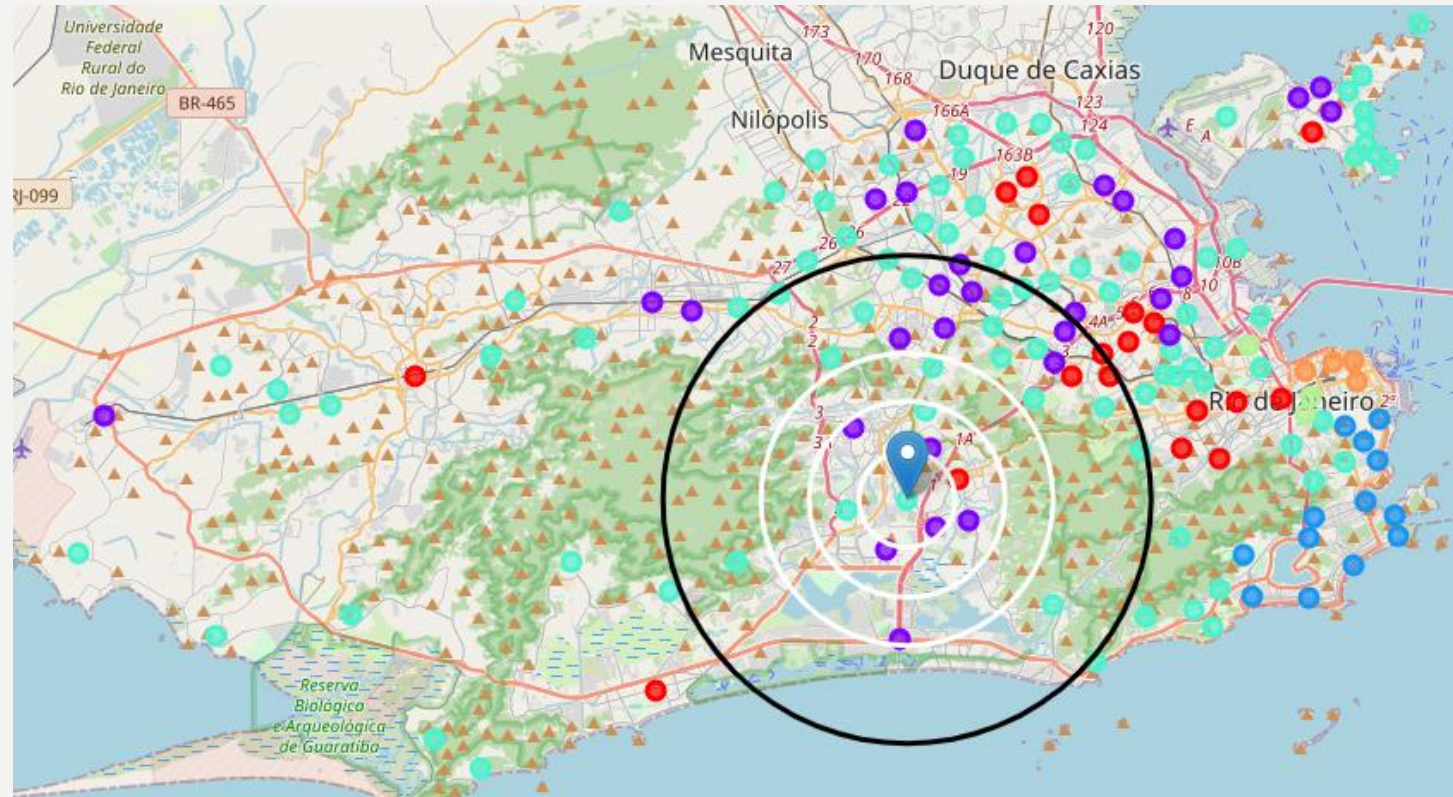- create a new dataframe with most common venue categories

Out[24]:

	Neighborhood	Total Number of Venues	1st Most Common Restaurant	2nd Most Common Restaurant	3rd Most Common Restaurant	4th Most Common Restaurant	5th Most Common Restaurant	6th Most Common Restaurant	7th Most Common Restaurant	8th Most Common Restaurant	9th Most Common Restaurant	10th Most Common Restaurant
0	Abolição	53	BBQ Joint	Food Truck	Bar	Gym	Pizza Place	Sandwich Place	Bakery	Fast Food Restaurant	Soccer Field	Restaurant
1	Acari	35	Market	Plaza	Supermarket	Pizza Place	Burger Joint	Snack Place	Wings Joint	Brazilian Restaurant	Bus Stop	Fast Food Restaurant
2	Alto da Boa Vista	3	French Restaurant	Scenic Lookout	Mountain	Hockey Field	Pet Store	Vegetarian / Vegan Restaurant	Recording Studio	Shopping Plaza	American Restaurant	Health Food Store
3	Anchieta	19	Supermarket	Fast Food Restaurant	Plaza	Gym / Fitness Center	Gym	Fruit & Vegetable Store	Restaurant	Snack Place	Nightclub	American Restaurant
4	Andaraí	66	Bar	Bakery	Gym / Fitness Center	Food Truck	Brazilian Restaurant	Pizza Place	Pharmacy	Farmers Market	Music Venue	Dive Bar

HIERACHICAL CLUSTERING DENDOGRAM

Hierarchical Clustering Dendrogram

CLUSTER MAP

Cluster 0 : Red
Cluster 1 : Purple
Cluster 2 : Blue
Cluster 3 : Cyan
Cluster 4 : Green
Cluster 5 : Orange

FINAL DECISION

- Neighborhood : **Tijuca** - Cluster 0, Region Number VIII, Population: 181810

  - I choosed Tijuca. with only 2 Steak restaurant and with big population, this neighborhood is not a poor region and a very good point to start.