Predicting the best location for a Steakhouse Branch in Rio de Janeiro

Scenario

- Rio is the 2nd more populous city in Brazil and the 6th in the Americas (~6.750.000 citizens). With an area of 1,221 km² (486.5 sq mi).
- Rio has 162 neighborhoods with enormous variation in the social and economic aspects (GDP, IDH, etc.)
- There are strong competition in the steakhouse market
- There's a significant rise in meat prices due to exportation demand US$25 to US$43 for the "arroba"(15Kg)

Problem

Select the best neighborhoods to a steakhouse branch

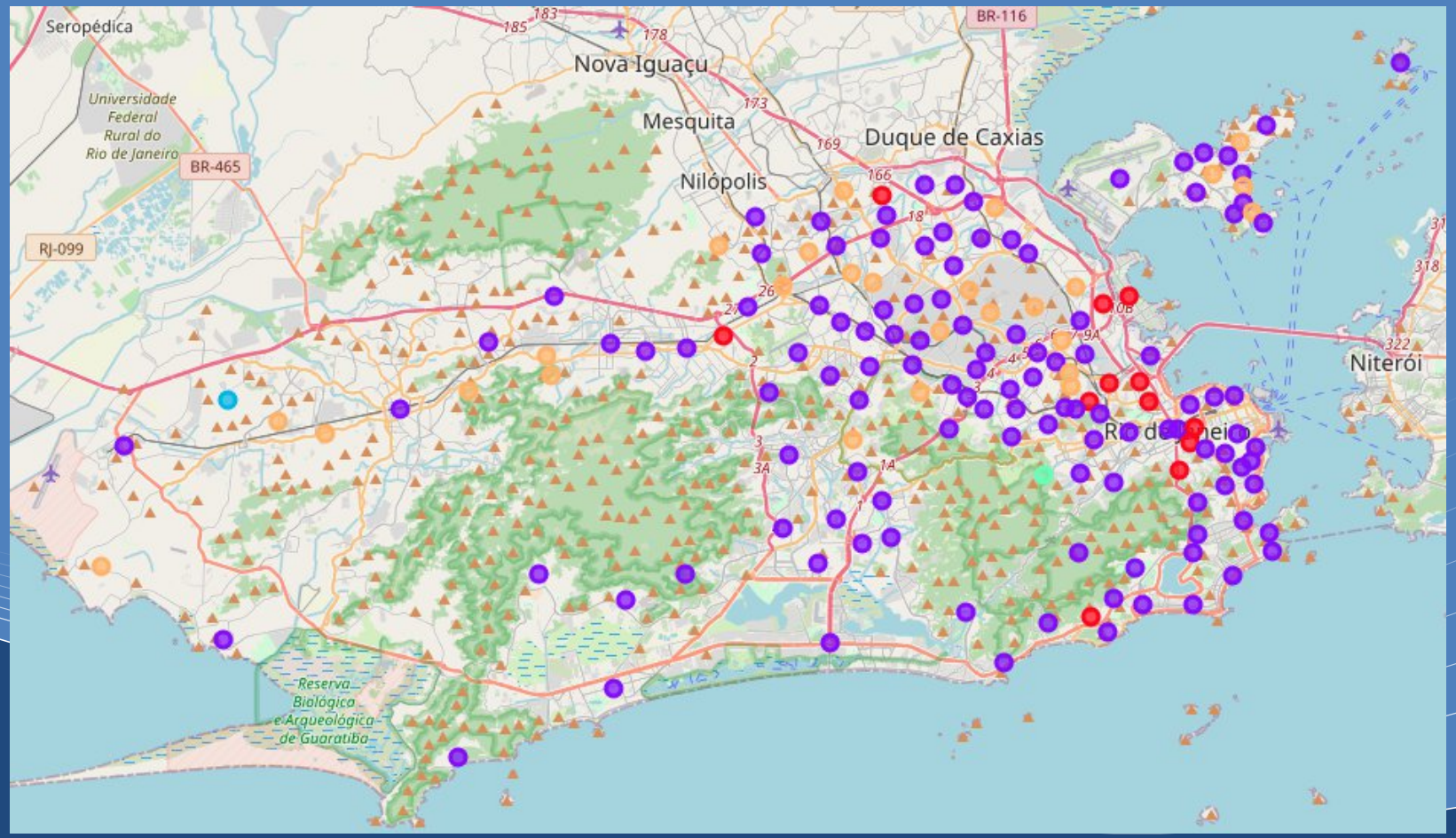
Data Sources

- Data Rio API (https://data.rio)
- Wikipedia (social indicators)
- Geolocator API

Neighborhood distribution

Clustering with K-Means

After retrieving the venues data using Foursquare API, the data was hot-encoded and submitted to k-means clustering



Cluster Analysis

Clusters 0 and 1 are clearly the ones with greater concentration of restaurants (> 50%) between the 3 most common columns.

Cluster	Restaurants / Venues	Steakhouses and BBQ
0	21 / 36 (58,3%)	1
1	87 / 159 (54,7%)	5
2	1 / 3 (33,3%)	0
3	1 /3 (33,3%)	0
4	19 / 81 (23,4%)	0

Candidate List

The remaining clusters neighborhoods
Problem: this regions are mostly "false positive"
Poor social conditions is the main cause of low restaurant concentration in this areas

Bancários	Jardim Carioca	Pavuna	Cordovil	Praia da Bandeira
Zumbi	Guadalupe	Parque Anchieta	Honório Gurgel	Rocha Miranda
Ramos	Vila Kosmos	Paciência	Engenho da Rainha	Complexo do Alemão
Senador Camará	Cavalcante	Higienópolis	Quintino Bocaiúva	Senador Vasconcelos
Cosmos	Jacarezinho	Inhoaíba	Jacaré	Tanque
Grajaú	Sepetiba	Deodoro	Jabour	

Social Filtering

After submit the candidate list to a filter with the third quarter of income statistics of the city as the intersection factor, just one neighborhood showed both low restaurant concurrency and high social potential.

Grajaú