



# Capstone Project

## The Battle of Neighborhoods



**Foursquare data - Countries in São Paulo**  
**Marcio Sakamoto - June 2020**

# INTRODUCTION: BUSINESS PROBLEM

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Image from turistaprofissional.com

- Can we use Foursquare Restaurants data to identify regions in Sao Paulo city with more concentration of specific immigrants?



# DATA

- ▶ São Paulo District Shapefile

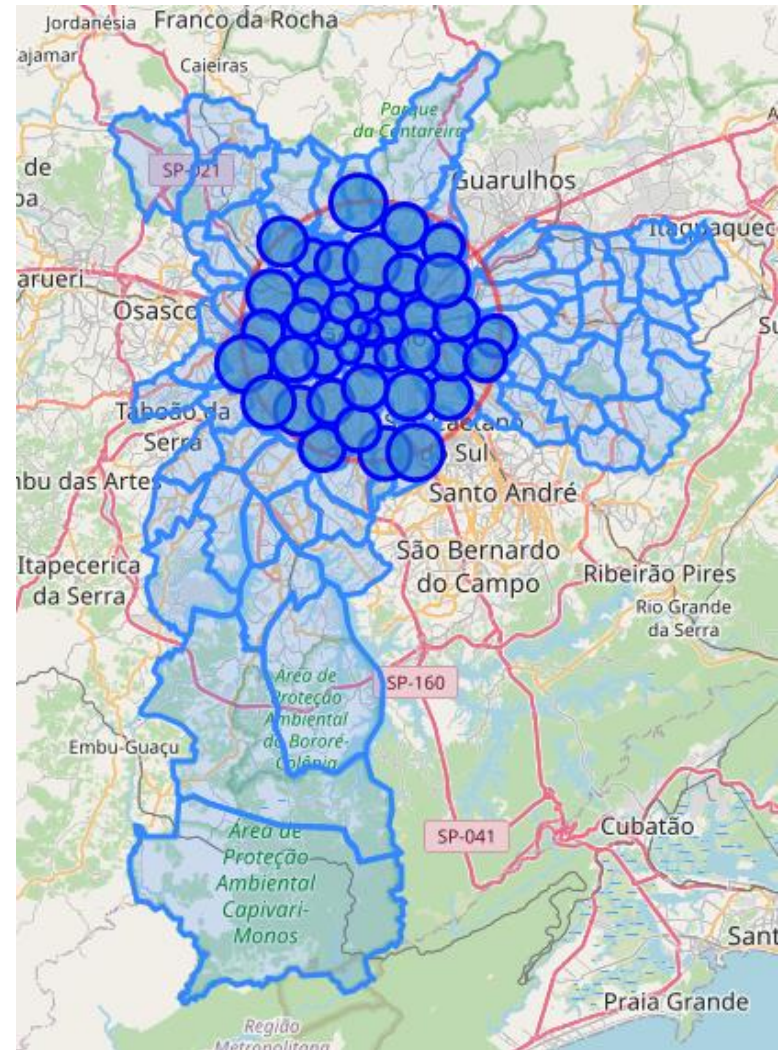
- ▶ <http://geosampa.prefeitura.sp.gov.br/>

- ▶ Search region limited by:

- ▶ 10 Km from center (red)
  - ▶ Districts area (blue)

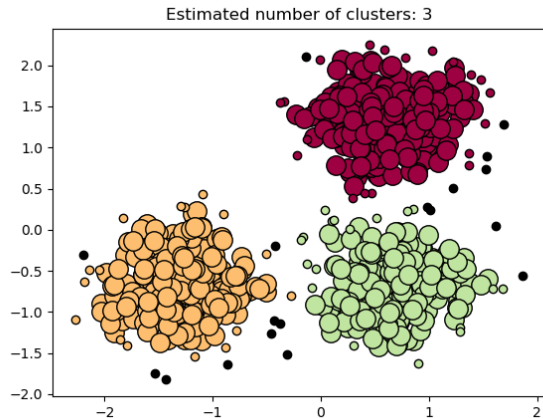
- ▶ Foursquare API

- ▶ Explore API
  - ▶ Category API



# METHODOLOGY

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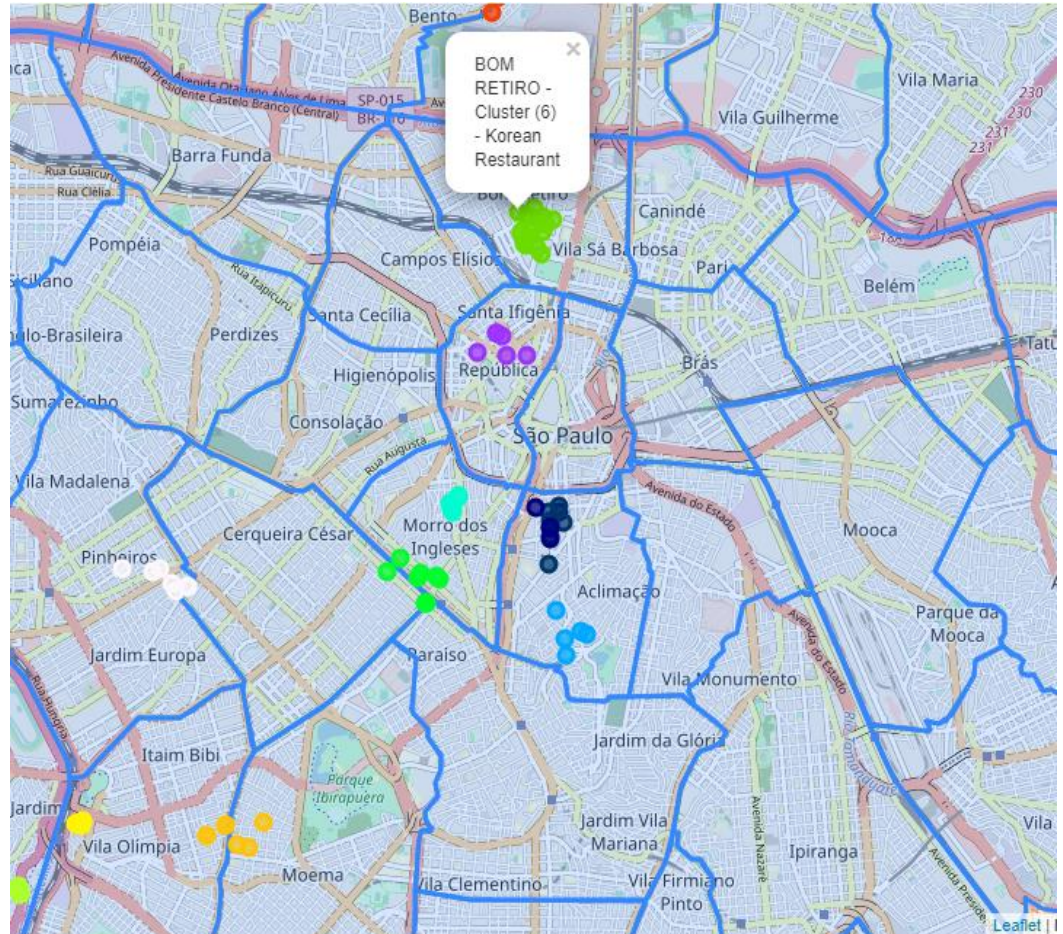
Demo DBSCAN Clustering.  
Image from <https://scikit-learn.org/>

- ▶ Clustering Algorithm
  - ▶ DBSCAN
  - ▶ **Epsilon = 0.09**
    - ▶ Determine a specified radius that if includes enough number of points within
  - ▶ **minimumSamples = 5**
    - ▶ Determine the minimum number of data points wanted in a neighborhood to define a cluster



# ANALYSIS

- ▶ Clusters
  - ▶ 13 clusters
  - ▶ in 11 Districts
- ▶ Top categories
  - ▶ Japanese
  - ▶ Italian
- ▶ Top districts
  - ▶ Itaim Bibi
  - ▶ Jd. Paulista



# RESULTS AND DISCUSSION

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## ▶ CLUSTERS

- ▶ BELA VISTA  
Japanese Restaurant cluster. Possible positive cluster of immigrants.
- ▶ Italian Restaurant cluster. Positive Cluster of immigrants.
- ▶ BOM RETIRO  
Korean Restaurant cluster. Positive cluster of immigrants.
- ▶ LIBERDADE  
Japanese, Chinese and Korean Restaurant cluster. Positive Cluster of immigrants.
- ▶ REPUBLICA  
Peruvian Restaurant cluster. Possible positive cluster of immigrants.
- ▶ MORUMBI  
Italian Restaurant cluster. False cluster of immigrants.
- ▶ PINHEIROS  
Italian Restaurant cluster. Possible False cluster of immigrants.

## ▶ SEARCH AREA

- ▶ High density of restaurants not included by algorithm
- ▶ Limited by Area but creates uncovered region

## ▶ FOURSQUARE API

- ▶ Limit of 100 results
- ▶ Search by Restaurant category



# CONCLUSION

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- ▶ Foursquare Data + DBSCAN Clustering
- ▶ Neighborhoods with concentration of specific immigrants
- ▶ Possible showing some positive identification



Korean Market in São Paulo  
Image from Google Street View