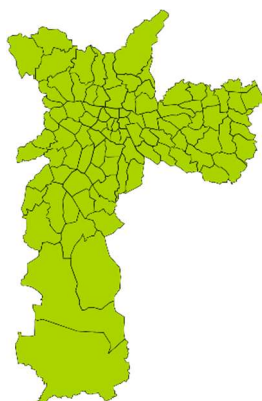


# Pet Shops Analysis in 2 Neighborhoods in São Paulo

## 1. Introduction

### 1.1 Background



São Paulo is a municipality in the Southeast Region of Brazil. The metropolis is an alpha global city (as listed by the GaWC) and the most populous city in Brazil, the Western Hemisphere and the Southern Hemisphere, besides being the largest Portuguese-speaking city in the world. The municipality is also the world's 12th largest city proper by population. The city is the capital of the surrounding state of São Paulo, the most populous and wealthiest state in Brazil.

More and more the population of São Paulo is buying or adopting Pets, consequently more Pet Shops to take care of them.

### 1.2 Interest

Find the differences between these 2 Neighborhoods for Pet Shops, and discover if those two places have enough Pet centers and if could be a good place to open a new store

## 2. Data Acquisition and cleaning

### 2.1 Data Sources

For this project, the population of each Neighborhood was used according to Wikipedia:  
([Neighborhood Population in São Paulo](#))

Geopy library to locate the neighborhoods:

([Geopy](#))

Also used this article to choose Campo Belo as the neighborhood of studied:

[Article in Portuguese](#)

Information's of Campo Belo:

[Campo Belo on Wikipedia](#)

Information of Grajaú:

[Grajaú on Wikipedia](#)

## 2.2 Data Cleaning

Starting from the São Paulo Neighborhood population we have 2 data from Population as shown below

	Posição	Distrito	População 2010	Censo 2000
0	1	Grajaú	444.593	333.436
1	2	Sapopemba	296.042	282.239
2	3	Jardim Ângela	291.798	245.805
3	4	Brasilândia	280.069	247.328
4	5	Capão Redondo	275.230	240.793

These 2 columns with the population from 2 different sources. Getting more information of these data from CENSO IBGE, it is a government research and counts each person who lives there based on a presential interview, but this data is from 2000, 20 years old. Another data is from Statistical Foundation of São Paulo Government that made in 2010, so I chose this one because they used the CENSO IBGE as initial data.

This Dataframe is in Portuguese language, so I translated to English in order to better understanding.

## 3. Exploratory Data Analysis

### 3.1 Choosing the data for the study and selecting population

In order to consider the newest data I deleted the CENSUS 2000 data and chose Population 2010 named at this Dataframe below as Population

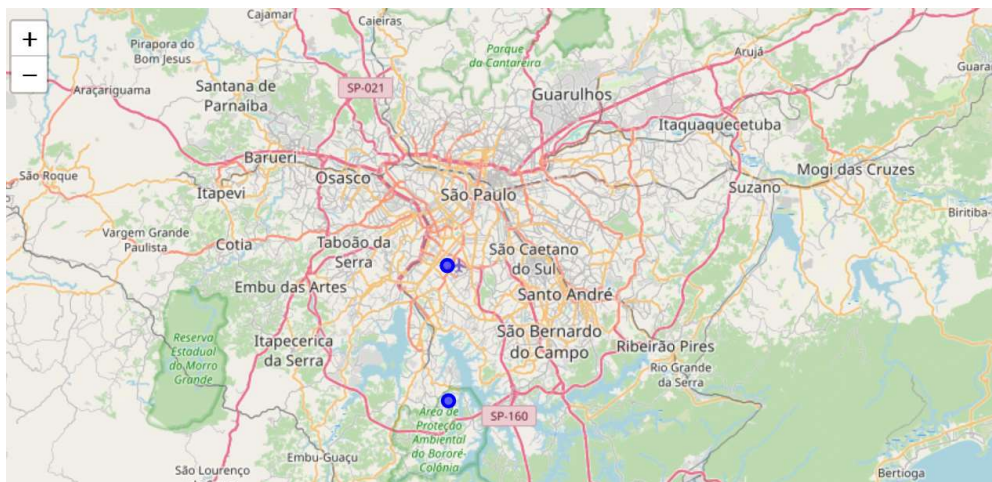
	Place	Neighborhood	Population
0	1	Grajaú	444.593
1	2	Sapopemba	296.042
2	3	Jardim Ângela	291.798
3	4	Brasilândia	280.069
4	5	Capão Redondo	275.230

The data from Wikipedia was already ordered from the Most Populated to Least Populated, so it is easier to find Grajaú, the Most Populated with 444.593 Habitants Finding the Population of

Campo Belo Neighborhood: Campo Belo is in 72<sup>nd</sup> place in São Paulo with 62.530 Habitants  
Grajaú has 7 times more habitants than Campo Belo

### 3.2 Finding the neighborhoods

Using Geopy, the coordinates of Campo Belo (-23.626730549999998, -46.669421429340844) , but when it was used Geopy to find Grajaú, it showed a wrong place; in order to get the correct place it was used data from Google Maps to the correct place (-23.626730549999998, -46.669421429340844).



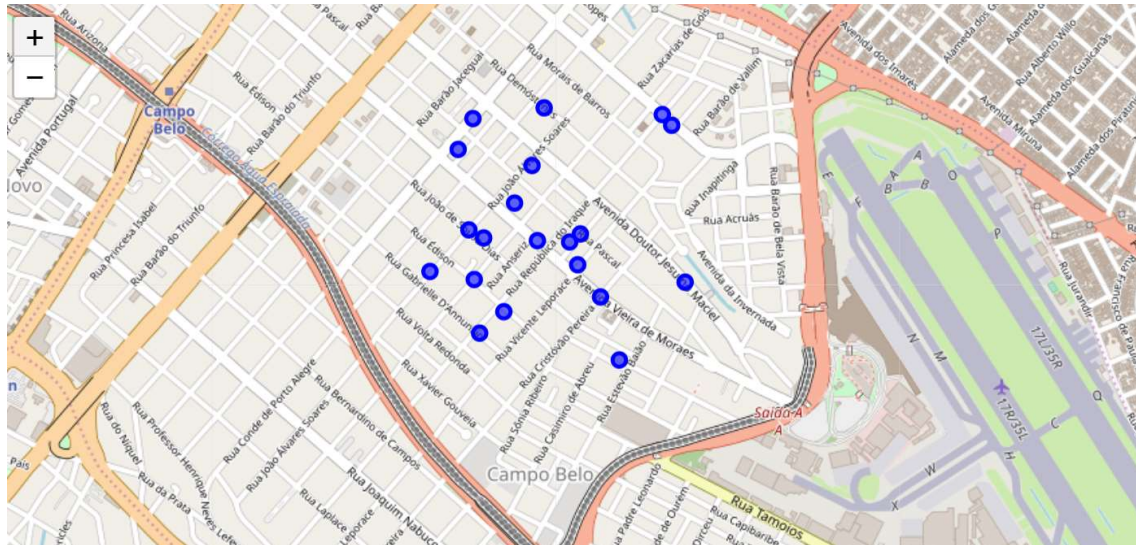
### 3.3 Additional Information's

According with Wikipedia, Campo Belo is in 16th place of HDI (Human Development Index) in São Paulo with 0,935 considered very high HDI . Grajaú is in 90th place of 96 neighborhoods with 0,75 considered as medium HDI

### 3.4 Foursquare API

With these 2 Neighborhoods data, it was searched how many Pet Shops or Clinics exist there. Using the foursquare API:

In Campo Belo Foursquare API could found 20 Places, considering the size of the neighborhood almost 1 per 2 squares.



In Grajaú Fousquare API could not find any place even if I try to extend the range of the search



## 4 Conclusion

In this study, it was analyzed the numbers of Pet Shops or Clinics in these Neighborhoods, and there are some considerations to justify the results at my point of view. The Fousquare API needs a person to register a new place and persons to make assessments. Personally, I know these places and I knew some Pet Shops in Grajaú.

So if a person would like to find a Pet Shops in Grajaú, Foursquare is not a good platform to use it, at in the other hand it would be a good idea for the Pet Shop owner to register his place in Foursquare to get more visibility of the Pet Shop.

## **5 Future Directions**

It would be a good research if the quantity of pet shops has relationship with the IDH, and if it is possible to make a Linear Regression using IDH and the number of Pet Shops in the Neighborhood.