

RENT APARTAMENT IN SÃO PAULO

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PREDICTING APARTMENT FOR RENT IN SÃO PAULO

When searching for a property you need to consider a number of important aspects that include both negotiating and choosing the property itself, including the best neighborhood for your needs.

DATA

Factors that will influence our decision to rent a apartment in Sao Paulo are:

- Safe place;
- Distance from work;
- Near the subway;
- Rent price;
- Neighborhood Facilities.

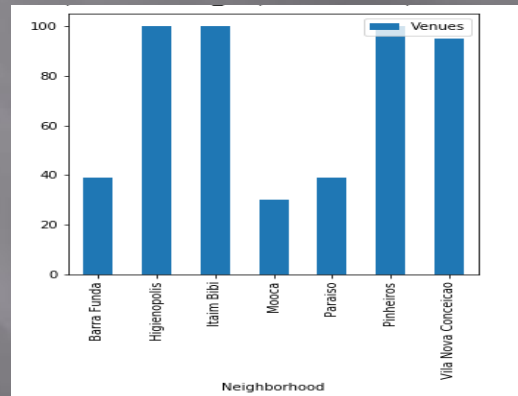
Following data sources will be needed to extract/generate the required information:

- ✓ 7 safe neighborhoods were chosen to live in search on the site survey <https://meulugar.quintoandar.com.br/bairros-mais-seguuros-de-sao-paulo/>. The neighborhoods are Paraíso, Itaim Bibi, Vila Nova Conceição, Barra Funda, Higienopolis, Mooca and Pinheiros. It is necessary to mention who I live in Paraíso.
- ✓ The Google maps was used to find the latitude and longitude of places, distance from work and distance from the subway.
- ✓ The neighborhood facilities like example restaurant, hospital, pharmacy were obtained Foursquare API.
- ✓ The price of the apartment for rent was found on the website www.quintoandar.com.br

ANALYSIS

	Neighborhood	Latitude	Longitude	Distance Work	Distance Metro	M2 price rent
0	Paraiso	-23.574218	-46.639347	2580	310	46
1	Itaim Bibi	-23.584194	-46.681096	6430	1000	67
2	Vila Nova Conceicao	-23.596479	-46.668131	6400	1600	68
3	Barra Funda	-23.527149	-46.669275	4680	250	33
4	Higienopolis	-23.544800	-46.656316	2660	650	34
5	Mooca	-23.549403	-46.594401	3650	1340	26
6	Pinheiros	-23.562716	-46.690196	6240	614	51

Create a dataframe with the seven locations to rent, then list the locations obtained by fourSquare for the purpose of creating 3 Clusters.



Use FourSquare API to get.



Dataframe with 10
comon Venues.

	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
0	Barra Funda	Brazilian Restaurant	Music Venue	Restaurant	Residential Building (Apartment / Condo)	Bookstore	Boutique	Farmers Market	Salon / Barbershop	Fair	Café
1	Higienópolis	Italian Restaurant	Bakery	Café	Coffee Shop	Pizza Place	Middle Eastern Restaurant	Jewelry Store	Bar	Pastry Shop	Food & Drink Shop
2	Itaim Bibi	Italian Restaurant	Restaurant	Bar	Japanese Restaurant	Brazilian Restaurant	Burger Joint	Hotel	Coffee Shop	Steakhouse	French Restaurant
3	Mooca	Bar	Pizza Place	Steakhouse	Pet Store	Bakery	Gym / Fitness Center	Farmers Market	Burger Joint	Plaza	Fried Chicken Joint
4	Paraisópolis	Coffee Shop	Hostel	Middle Eastern Restaurant	Tennis Court	Spa	Hotel	Restaurant	Gym	Nightclub	Music Venue

CLUSTER

```
# Cluster 0
saopaulo_merged.Neighborhood[saopaulo_merged['Cluster Labels'] == 0]

5      Mooca
Name: Neighborhood, dtype: object

# Cluster 1
saopaulo_merged.Neighborhood[saopaulo_merged['Cluster Labels'] == 1]

0      Paraiso
1      Itaim Bibi
2      Vila Nova Conceicao
4      Higienopolis
6      Pinheiros
Name: Neighborhood, dtype: object

# Cluster 2
saopaulo_merged.Neighborhood[saopaulo_merged['Cluster Labels'] == 2]

3      Barra Funda
Name: Neighborhood, dtype: object
```

Create 3 cluster using k-means for the 7 places.

RESULTS

	Neighborhood	Latitude	Longitude	Distance Work	Distance Metro	M2 price rent	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue
0	Paraiso	-23.574218	-46.639347	2580	310	46	1	Coffee Shop	Hostel	Middle Eastern Restaurant	Tennis Court	Spa	Hotel
1	Itaim Bibi	-23.584194	-46.681096	6430	1000	67	1	Italian Restaurant	Restaurant	Bar	Japanese Restaurant	Brazilian Restaurant	Burger Joint
2	Vila Nova Conceicao	-23.596479	-46.668131	6400	1600	68	1	Furniture / Home Store	Gym / Fitness Center	Italian Restaurant	Bakery	Supermarket	Pharmacy
4	Higienopolis	-23.544800	-46.656316	2660	650	34	1	Italian Restaurant	Bakery	Café	Coffee Shop	Pizza Place	Middle Eastern Restaurant
6	Pinheiros	-23.562716	-46.690196	6240	614	51	1	Bar	Dessert Shop	Farmers Market	Burger Joint	Art Gallery	Pet Store

It will be discarded the locations: Itaim Bibi, Vila Nova Conceicao and Pinheiros due to the price and distance from work and subway. We will work with two locations Paraíso and Higienópolis.

CONCLUSION

The paper presents the use of python language, use of Foursquare API to explore Sao Paulo with machine learning techniques to find a place to rent according to the variables: safe place, distance from work, near the subway, close price and neighborhood facilities. Also, it should be clear that using artificial intelligence will help in choosing, but choosing a property to rent is not an easy task that depends on your lifestyle.