

# Capstone Project - The Battle of Neighborhoods

Course: Coursera - Applied Data Science Capstone



Made by: Fernando Luiz Baptista Pinto

### Question 1 - Description of the problem

São Paulo is one of the main cities in Brazil in terms of local culture, leisure and fun options. A scene of the most comprehensive and diverse culture in the country. A tourist hub where people from all over the country come to watch music, theater, museums and parks

#### **Problem:**

Despite having several cultural options in the city, there is a concentration of these options in certain more central districts and greater economic power, leaving a large portion of the population who have less resources to use for leisure and culture, especially those who live in the outskirts of the city. without many cultural options near their homes.

#### **Objective of the work:**

The purpose of this paper is to demonstrate the differences in culture options between some districts of the city, using the analysis tools presented in these courses, and how this can be useful for the São Paulo City Public Agencies, responsible for taking care of cultural activities. can focus and more efficiently direct their resources to the neediest areas of the city.

### Question 2 - Description of the data

For this work the following data source was used:

#### **City of São Paulo City Hall website.**

Geographic and population information about the districts and neighborhoods of the city.

[https://www.prefeitura.sp.gov.br/cidade/secretarias/subprefeitura/subprefeitura/dados\\_demograficos/index.php?p=12758](https://www.prefeitura.sp.gov.br/cidade/secretarias/subprefeitura/subprefeitura/dados_demograficos/index.php?p=12758)

These data were used to identify and select some districts for our work.

#### **foursquare.com**

I was used for inquiries regarding establishments registered on the foursquare.com website. The data were accessed via API (REST) and used to identify establishments that are interesting from the point of view of this work. Unfortunately, foursquare is not widely used in Brazil, the database is very small and not updated often.

### 3 - Methodology

Select 6 districts belonging to the city of Sao Paulo, which have different characteristics of population and region of the city where they are located.

Identify among Foursquare data which Venues are relevant to this study.

Analyze individually given district chosen.

Analyze and compare data between chosen districts.

# 4 - Results

study execution details

*Import Libraries*  
Libraries imported.

*Import Data from City of São Paulo*

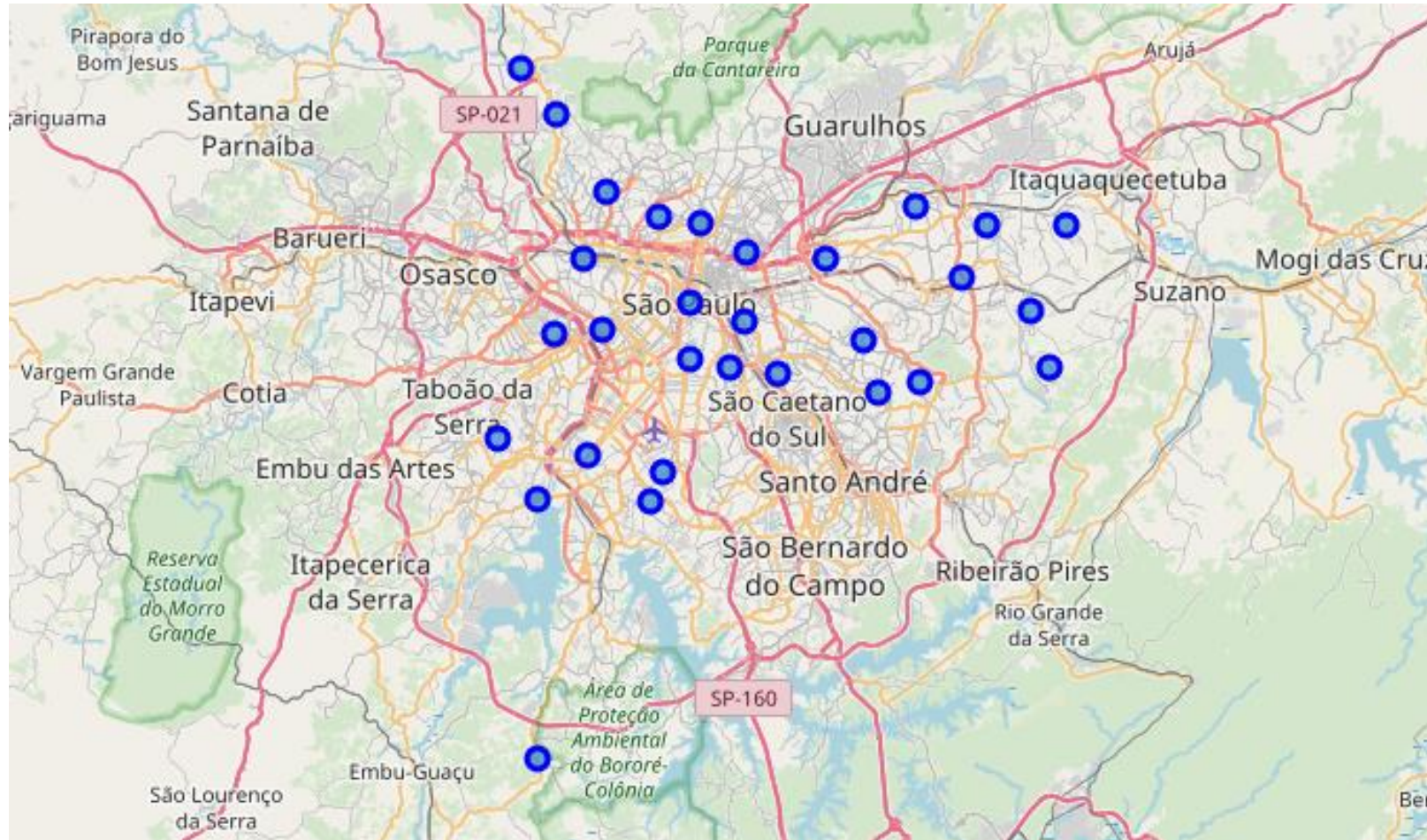
Borough	lat	Ing	Área	População	Densidade	
0	Aricanduva	-23.5726	-46.5183	21.5	267702	12451.00
1	Butantã	-23.5691	-46.7219	56.1	428217	7633.00
2	Campo Limpo	-23.6326	-46.7597	36.7	607105	16542.00
3	Casa Verde	-23.4991	-46.6541	26.7	309376	11587.00
4	Cidade Ademar	-23.6692	-46.6588	30.7	410998	13388.00
5	Cidade Tiradentes	-23.5892	-46.3964	15.0	211501	14100.00
6	Ermelino Matarazzo	-23.4917	-46.4841	15.1	207509	13742.00
7	Freguesia-Brasilândia	-23.4835	-46.6871	31.5	407245	12928.00
8	Guaianases	-23.5557	-46.4093	17.8	268508	15085.00
9	Ipiranga	-23.5893	-46.6062	37.5	463804	12368.00
10	Itaim Paulista	-23.5035	-46.3855	21.7	373127	17195.00
11	Itaquera	-23.5352	-46.4542	54.3	523848	9647.00
12	Jabaquara	-23.6521	-46.65	14.1	223780	15871.00
13	Lapa	-23.5243	-46.7034	40.1	305526	7619.00
14	M'Boi Mirim	-23.6689	-46.7337	62.1	563305	9071.00
15	Mooca	-23.5617	-46.5971	35.2	343980	9772.00
16	Parelheiros	-23.8248	-46.7331	353.5	139441	394.00
17	Penha	-23.5237	-46.5438	42.8	474659	11090.00
18	Perus	-23.4085	-46.7436	57.2	164046	2553.00
19	Pinheiros	-23.5664	-46.6906	31.7	289743	9140.00
20	Pirituba-Jaraguá	-23.4368	-46.7205	54.7	437592	8000.00
21	Santana-Tucuruvi	-23.5021	-46.6265	34.7	324815	9361.00
22	Santo Amaro	-23.6425	-46.6999	37.5	238025	6347.00
23	São Mateus	-23.5983	-46.4817	45.8	426794	9319.00
24	São Miguel Paulista	-23.5029	-46.4383	24.3	369496	15206.00
25	Sapopemba	-23.6046	-46.5098	13.5	284524	21076.00
26	Sé	-23.5504	-46.6334	26.2	431106	16.00
27	Vila Maria-Vila Guilherme	-23.5202	-46.596	26.4	297713	11.00
28	Vila Mariana	-23.5837	-46.6327	26.5	344632	13.00
29	Vila Prudente	-23.5923	-46.575	19.8	246589	12.45

# Capstone Project - The Battle of Neighborhoods

## 4 - Results

### *Locating the borhoods in the city*

The geograpical coordinate of São Paulo are -23.5506507, -46.6333824.





# Capstone Project - The Battle of Neighborhoods

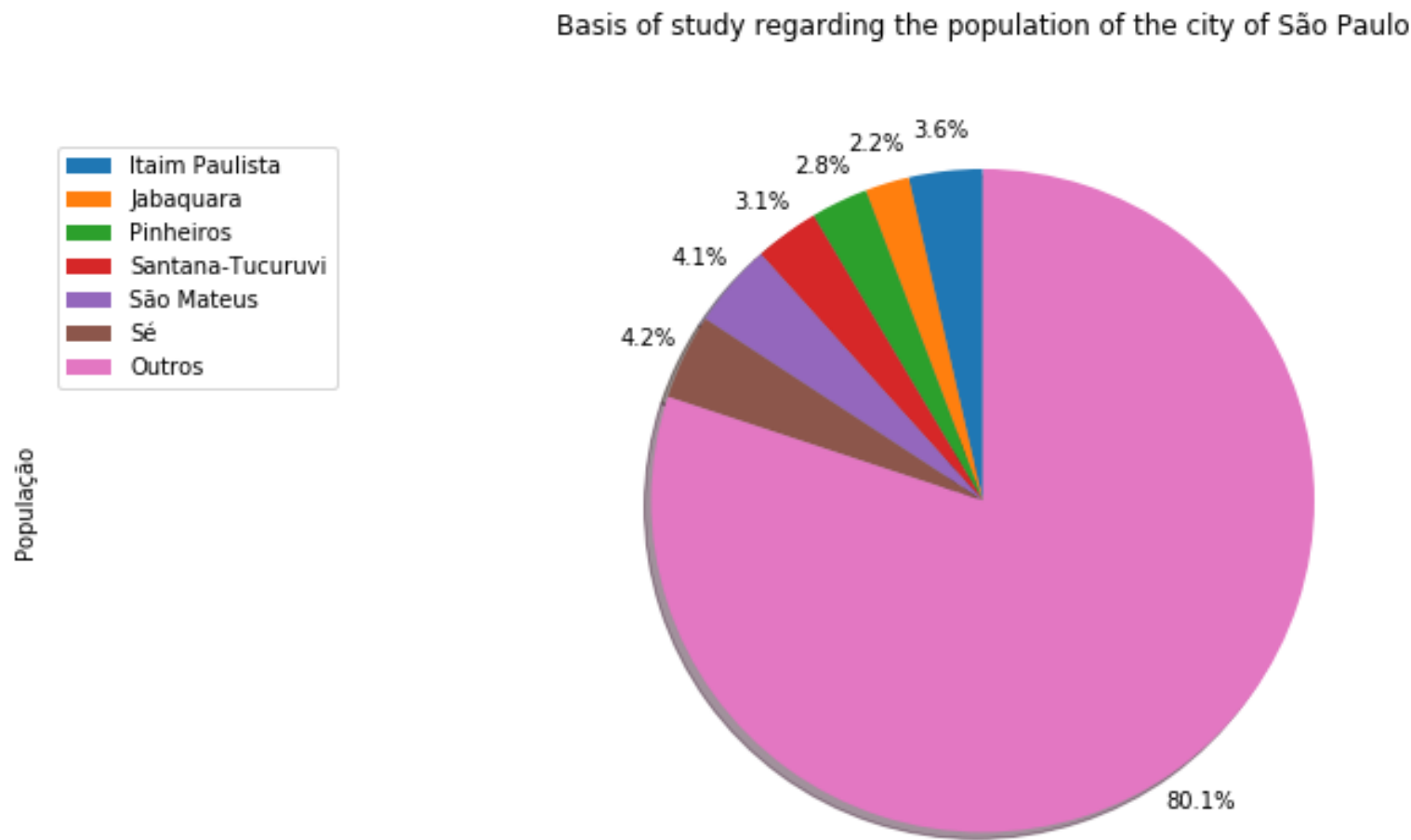
## 4 - Results

Districts Analyze  
*Selecting neighbor for sampling*  
Sé, Jabaquara, Itaim Paulista, São Mateus, Pinheiros, Santana-Tucuruvi

	Borough	lat	lng	Área	População	Densidade	ID
0	Itaim Paulista	-23.5035	-46.3855	21.7	373127	17195.0	NaN
1	Jabaquara	-23.6521	-46.65	14.1	223780	15871.0	NaN
2	Pinheiros	-23.5664	-46.6906	31.7	289743	9140.0	NaN
3	Santana-Tucuruvi	-23.5021	-46.6265	34.7	324815	9361.0	NaN
4	São Mateus	-23.5983	-46.4817	45.8	426794	9319.0	NaN
5	Sé	-23.5504	-46.6334	26.2	431106	16.0	NaN
6	Outros	NaN	NaN	1136.5	8315341	7316.0	33.0

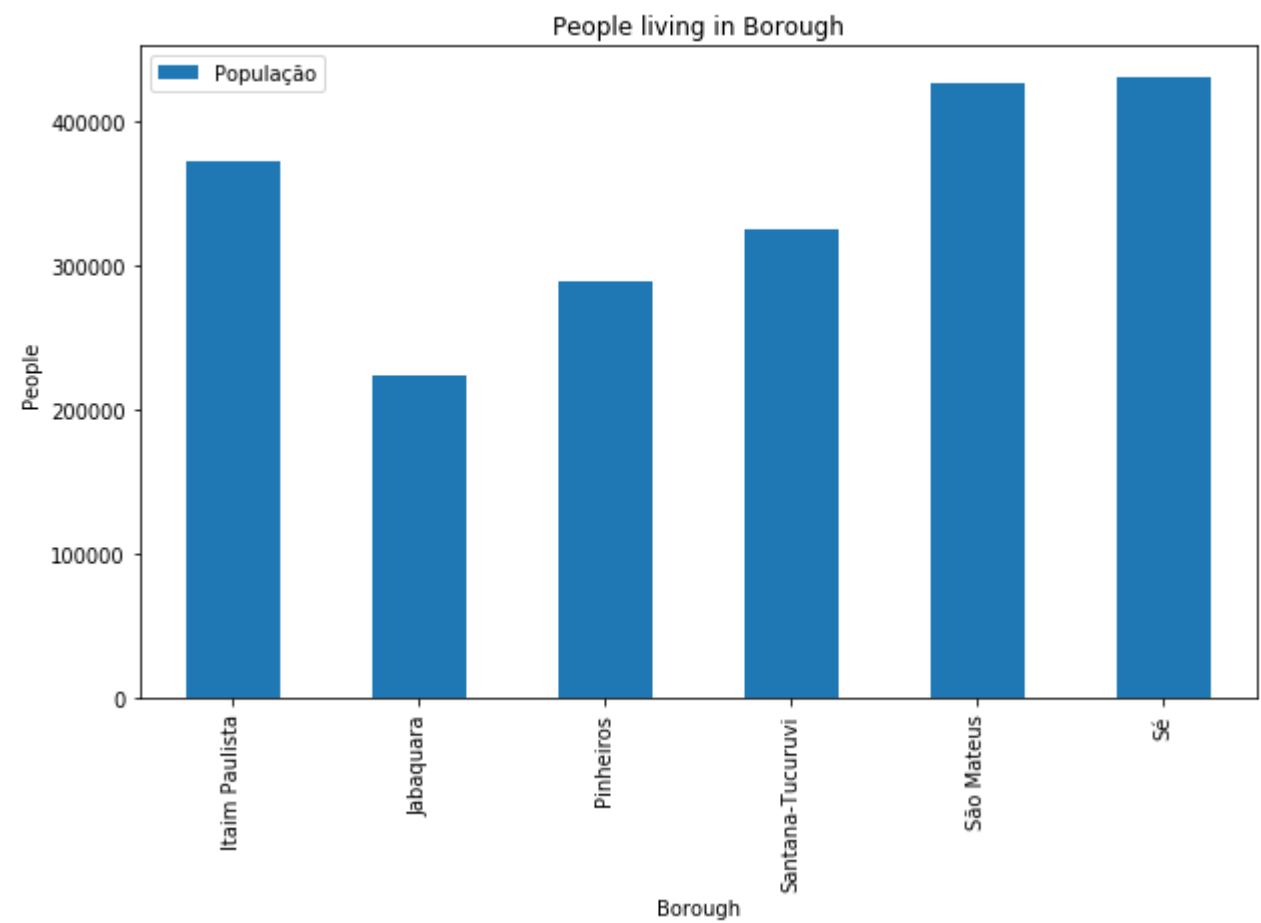
4 - Results

Basis of study regarding the population of the city of São Paulo





4 - Results



# Capstone Project - The Battle of Neighborhoods

## 4 - Results

1 - Borough

**Sé**

*Getting data from Foursquare*

categories	Art Gallery	Art Museum	Concert Hall	Cultural Center	History Museum	Music Venue	Plaza	Theater
Borough	2	2	1	6	1	1	1	6

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## 4 - Results

2 - Borough

### Santana-Tucuruvi

Getting data from Foursquare

	name	id	categories	lat	lng	Borough
95	Outback Steakhouse	573dff78498ea0b8c7019212	Steakhouse	-23.483351	-46.644936	Santana-Tucuruvi
96	Bio Ritmo	4d276b97888af04d0426bcaf	Gym	-23.482626	-46.644335	Santana-Tucuruvi
97	Pizzaria Monte Verde	4bd391eaa8b3a593c55e6a5f	Pizza Place	-23.523207	-46.642154	Santana-Tucuruvi
98	Coco Bambu	583f68711b36d478b30adef3	Seafood Restaurant	-23.512750	-46.653575	Santana-Tucuruvi
99	Grão Espresso	4d57fb01de8f6dcb23e50591	Café	-23.507119	-46.600528	Santana-Tucuruvi

categories	Cultural Center	Music Venue	Theater
Borough	1	1	1

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## 4 - Results

3 - Borough

**Pinheiros**

*Getting data from Foursquare*

	name	id	categories	lat	lng	Borough
0	Sede261	5a511417d69ed05523946774	Wine Bar	-23.566272	-46.688749	Pinheiros
1	Napoli Centrale	5762d0d5498e45b44c294c05	Pizza Place	-23.565690	-46.692568	Pinheiros
2	Ambar Cervejas Artesanais	56c79311cd10aa917ff1d5eb	Beer Bar	-23.567264	-46.690404	Pinheiros
3	Izakaya Matsu	54933e45498ecffa717eabda	Japanese Restaurant	-23.566377	-46.689701	Pinheiros
4	Escandinavo	5b37af61d48ec1002c76c691	Scandinavian Restaurant	-23.563618	-46.690248	Pinheiros

categories	Art Gallery	Art Museum	Plaza	Theater
Borough	2	1	3	1

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## 4 - Results

4 - Borough

**Itaim Paulista**

*Getting data from Foursquare*

	name	id	categories	lat	lng	Borough
0	Flex Academia	504416f8d86c6dbc11b8f55e	Gym	-23.509623	-46.382097	Itaim Paulista
1	Burger King	5865a60f45c3ed1e7dd9dc71	Fast Food Restaurant	-23.494154	-46.390150	Itaim Paulista
2	Supermercado Rossi	58378701a6118c60b5d03b34	Supermarket	-23.501462	-46.384776	Itaim Paulista
3	Softness Doceria	50c643ede4b0e2b40df25651	Snack Place	-23.498153	-46.401145	Itaim Paulista
4	Padaria Mandala	4daaff8b6a2303012f199a95	Bakery	-23.505116	-46.397723	Itaim Paulista

categories	Plaza
Borough	1

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## 4 - Results

5 - Borough

Jabaquara

Getting data from Foursquare

	name	id	categories	lat	lng	Borough
0	Chuletão	4bc2192cf8219c74ea45b410	Brazilian Restaurant	-23.651597	-46.657876	Jabaquara
1	Sodiê Doces	51cb4b17498e70e1f5e040e0	Dessert Shop	-23.651698	-46.659281	Jabaquara
2	Casa do Cigano	51573bc8e4b03dbb55c5fc42	Department Store	-23.642533	-46.644193	Jabaquara
3	Just Fit - Leonardo da Vinci	56d74db8498ed2ca5d28cf42	Gym / Fitness Center	-23.640058	-46.640387	Jabaquara
4	Dona Linda	5123a0d1e4b021660538fc7f	Restaurant	-23.645483	-46.664401	Jabaquara

categories	Music Venue
Borough	1

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## 4 - Results

6 - Borough

São Mateus

Getting data from Foursquare

	name	id	categories	lat	lng	Borough
0	Sorvetes Capricho	4fa40bc0e4b098f42a2c06b7	Ice Cream Shop	-23.594139	-46.488128	São Mateus
1	Qshape Academia	53b5237d498e06cf1e56ad48	Martial Arts Dojo	-23.596814	-46.475840	São Mateus
2	Agutoli's	4f08ec66e4b0ad9c25c64311	Burger Joint	-23.598220	-46.477048	São Mateus
3	Fábrica de Cultura Sapopemba	4e05f31e52b165b7d7a4943f	General Entertainment	-23.614776	-46.485794	São Mateus
4	Feira Livre Sapopemba - Sábado	4ed0482561af476c08778a69	Food Truck	-23.596132	-46.481148	São Mateus

categories	Theater
Borough	1



### 5 - Discussion / Conclusion

#### Cultural places by districts

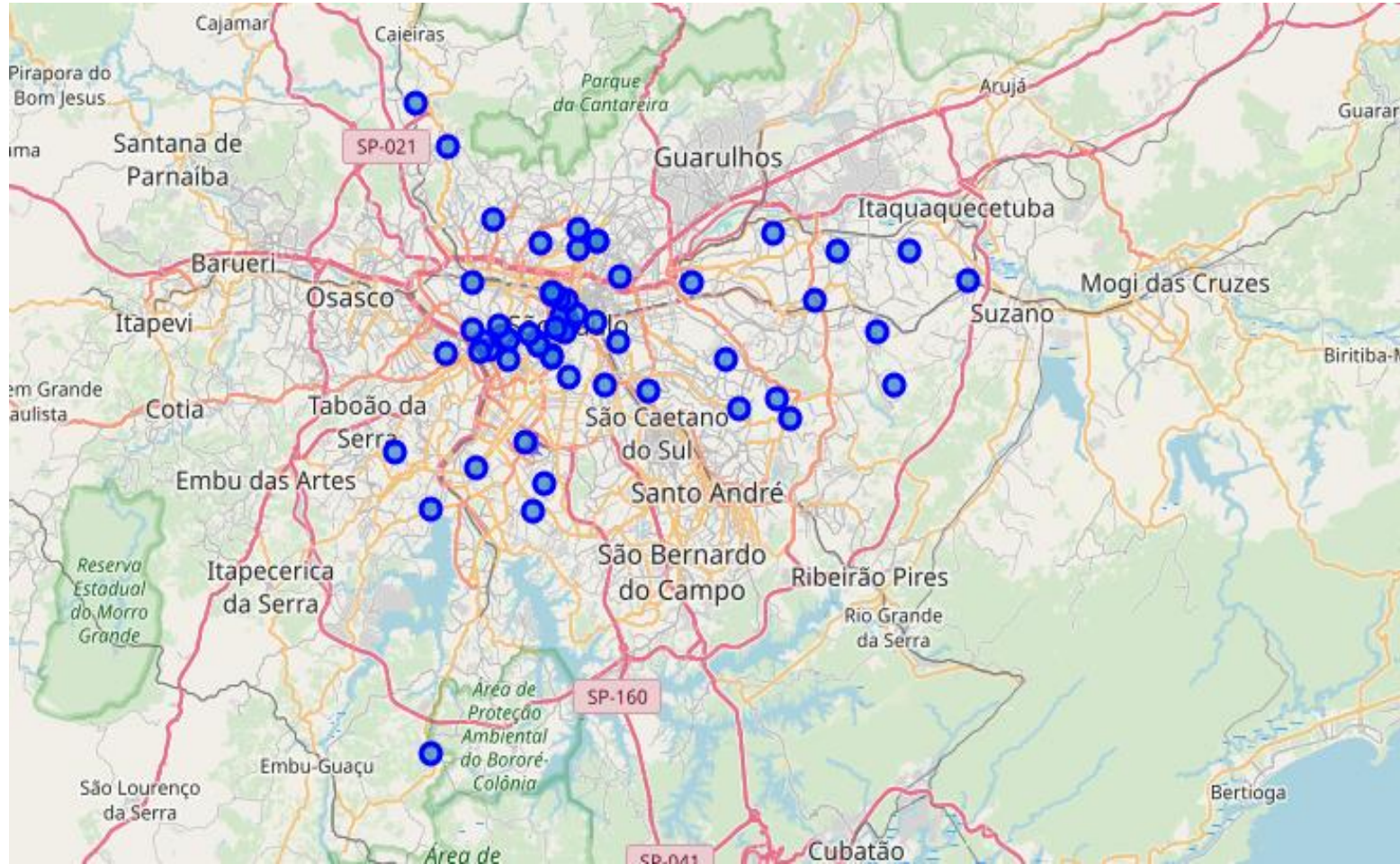
*When we analyze the distribution of culture and entertainment establishments by district, it is easy to identify the large concentration in some districts of the city, leaving the outskirts of the city lacking in terms of these establishments.*

*We note that the population distribution does not differ so much compared to the differences in the types of sites analyzed.*

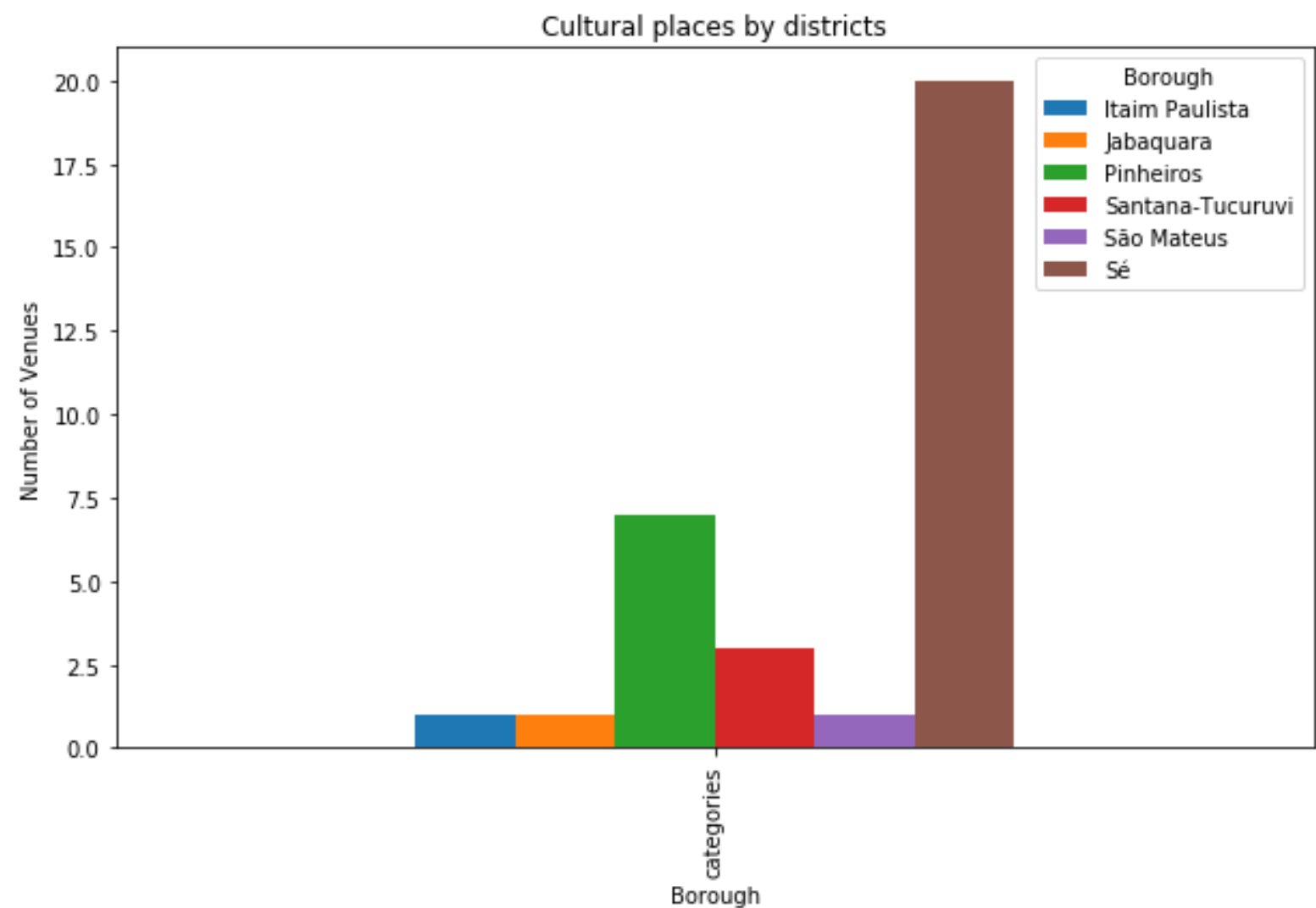
#### Location Venues

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## Location Venues



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