

## **Battle of Neighborhoods**

### Introduction

- Background

Barcelona is recognized as a global city for its cultural, touristic and financial importance. There are more than 3.5 million of tourist coming to the city each year. But, apart from going for a holiday, there is also a large number of people that move to this city to look for job opportunities.

- Business problem

From my experience living in this city, I have realized that there is a large community of Italians in Barcelona. From my point of view, this can be due to the similarity between Spanish and Italian culture, what makes attractive to this group of people to move to this Catalan city. Nevertheless, I am sure that some Italians will prefer to live in a neighborhood with a strong presence of Italian culture. For this reason, I thought that it could be useful to study which borough and which neighborhood has a stronger presence of Italian culture. To do so, I will analyze the number of Italian restaurants in each place, and from this data, I will derive the conclusion.

### Acquisition of data

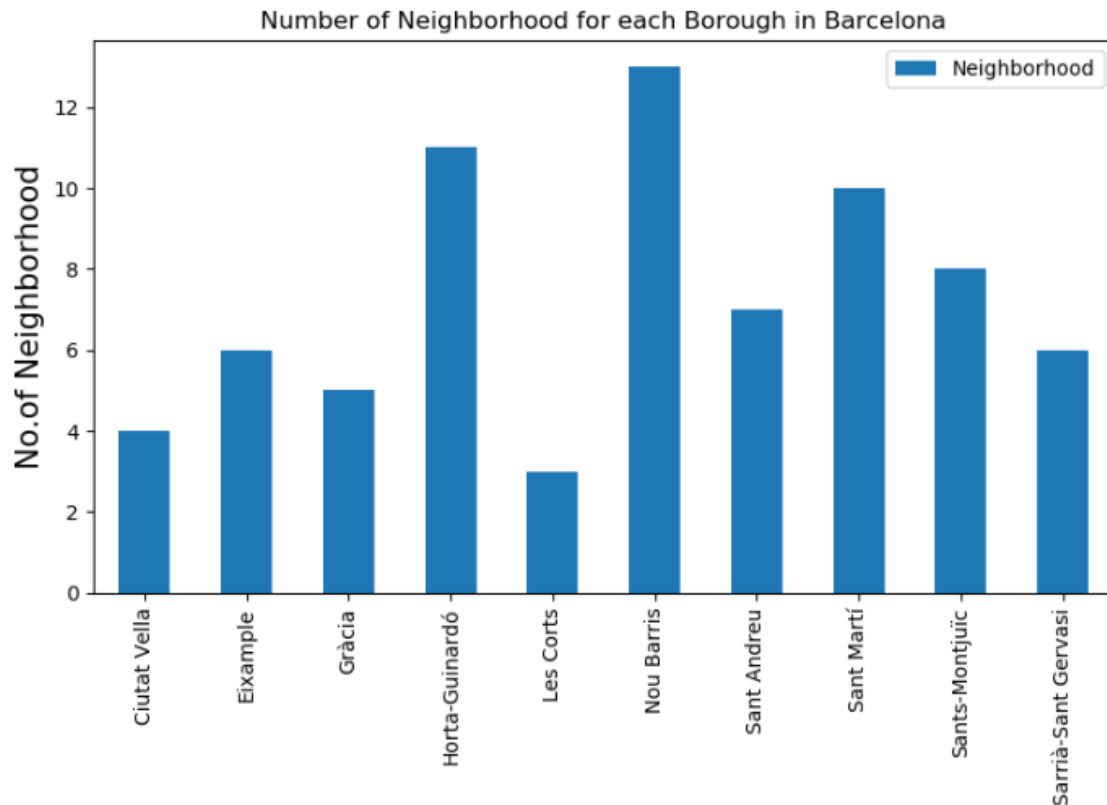
- The database used is from the Catalan government page. It contains the name of the Boroughs of Barcelona as well as its neighborhoods. Nevertheless, I didn't find a database with the altitude and latitude included so I will have to add this data after. As the column names are displayed in Catalan, I will translate it to English to obtain the following table:

	Borough	Neighborhood	Latitude	Longitude
0	Ciutat Vella	el Raval		
1	Ciutat Vella	el Barri Gòtic		
2	Ciutat Vella	la Barceloneta		
3	Ciutat Vella	Sant Pere		
4	Eixample	el Fort Pienc		
...	...	...	...	...
68	Sant Martí	Diagonal Mar i el Front Marítim del Poblenou		
69	Sant Martí	el Besòs i el Maresme		
70	Sant Martí	Provençals del Poblenou		
71	Sant Martí	Sant Martí de Provençals		
72	Sant Martí	la Verneda i la Pau		

In this table, I have also dropped the columns that were not useful for my project. I add the altitude and longitude of each neighborhood using a geocode and obtained the following table:

	Borough	Neighborhood	Latitude	Longitude
0	Ciutat Vella	el Raval	41.3795	2.16837
1	Ciutat Vella	el Barri Gòtic	41.3834	2.17691
2	Ciutat Vella	la Barceloneta	41.3807	2.18993
3	Ciutat Vella	Sant Pere	41.3883	2.17741
4	Eixample	el Fort Pienc	41.3959	2.18232
...	...	...	...	...
68	Sant Martí	Diagonal Mar i el Front Marítim del Poblenou	41.4032	2.21338
69	Sant Martí	el Besòs i el Maresme	41.415	2.21388
70	Sant Martí	Provençals del Poblenou	41.4124	2.20489
71	Sant Martí	Sant Martí de Provençals	41.4165	2.19897
72	Sant Martí	la Verneda i la Pau	41.4232	2.20294

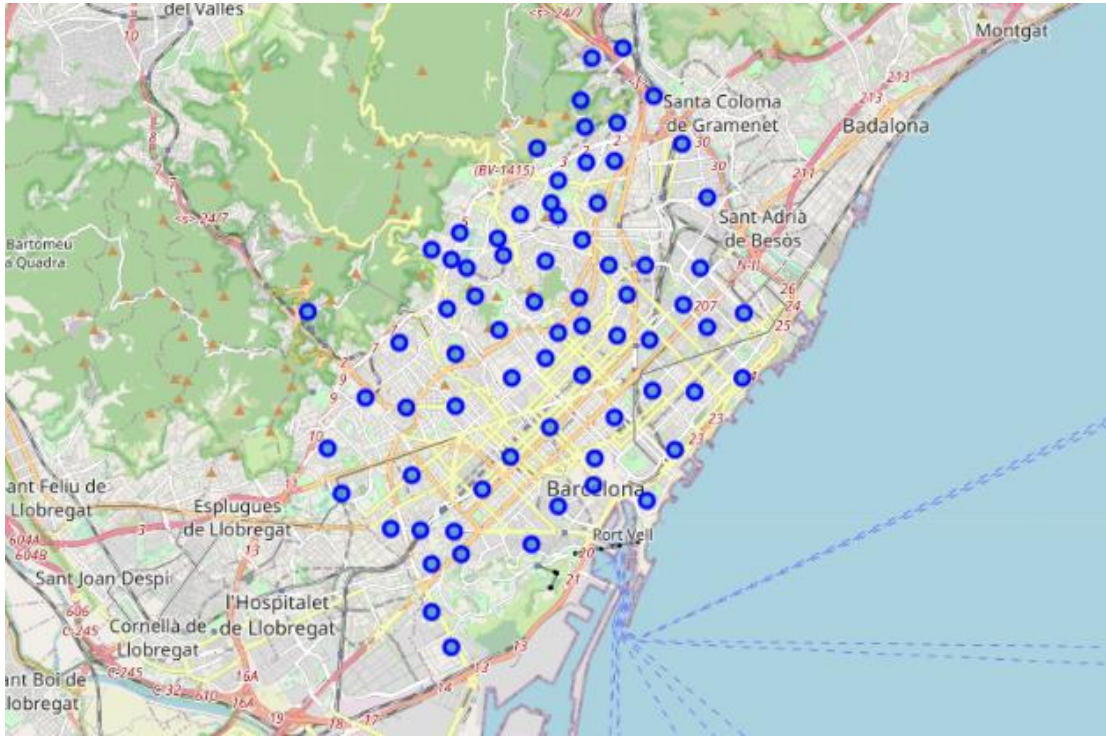
To have an approximate idea of how the borough and the neighborhoods are structured I will plot a bar char.



- The second source of data will be Foursquare to find the nearby venues of each neighborhood in order to determine the number of Italian restaurants and solve the business question

### Methodology

To start, we plot a map of all the neighborhoods in Barcelona to have an idea of how are distributed.

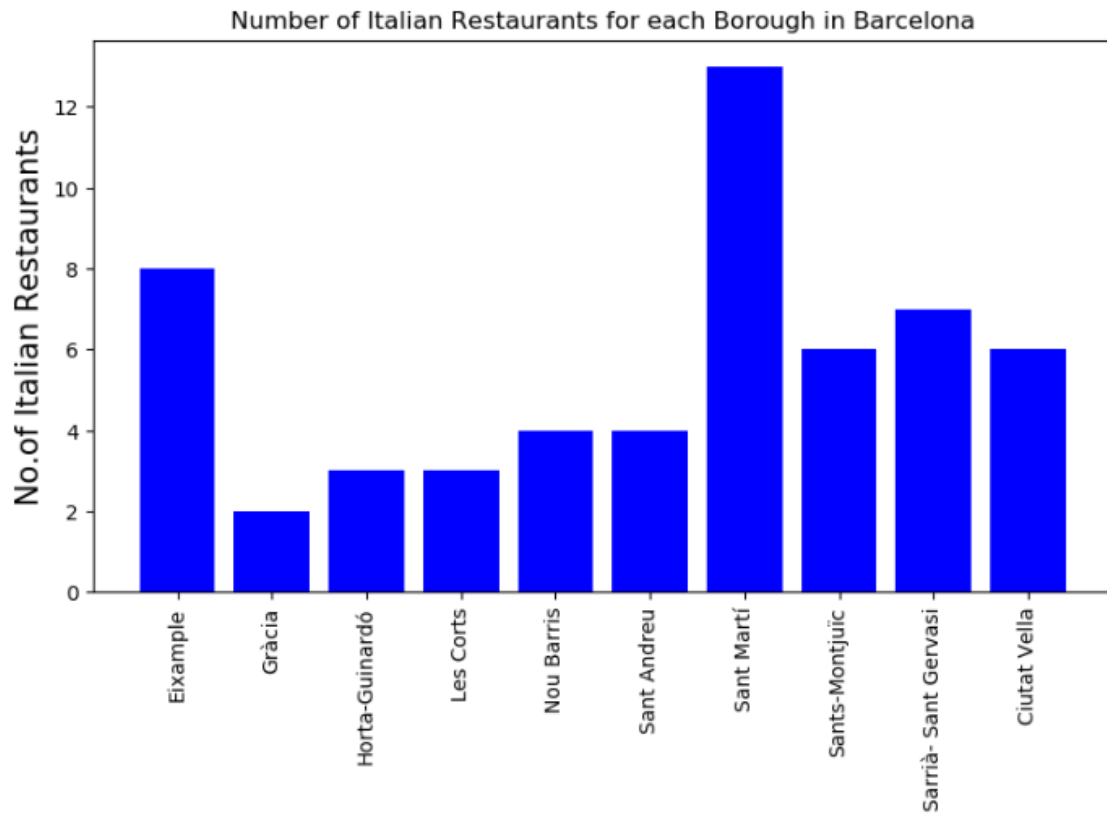


Now, we will use Foursquare to obtain the nearby venues on each neighborhood and we obtain this table:

	Borough	Neighborhood	Latitude	Longitude	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	Ciutat Vella	el Raval	41.3795	2.16837	41.379518	2.168368	La Robadora	41.379500	2.170463	Gastropub
0	Ciutat Vella	el Raval	41.3795	2.16837	41.379518	2.168368	Chulapio	41.379264	2.165905	Cocktail Bar
0	Ciutat Vella	el Raval	41.3795	2.16837	41.379518	2.168368	Robadors 23	41.379581	2.170603	Jazz Club
0	Ciutat Vella	el Raval	41.3795	2.16837	41.379518	2.168368	Las Fernández	41.378183	2.166354	Mediterranean Restaurant
0	Ciutat Vella	el Raval	41.3795	2.16837	41.379518	2.168368	Cera 23	41.378947	2.166180	Spanish Restaurant

### Results

We create a new data frame to count the number of Italian restaurants in each borough and we put the results in a bar chart graph:



From this graph we see that the borough with more Italian restaurants is Sant Martí. So, now we will analyze which neighborhood in Sant Martí has the more Italian restaurants to answer the original question.



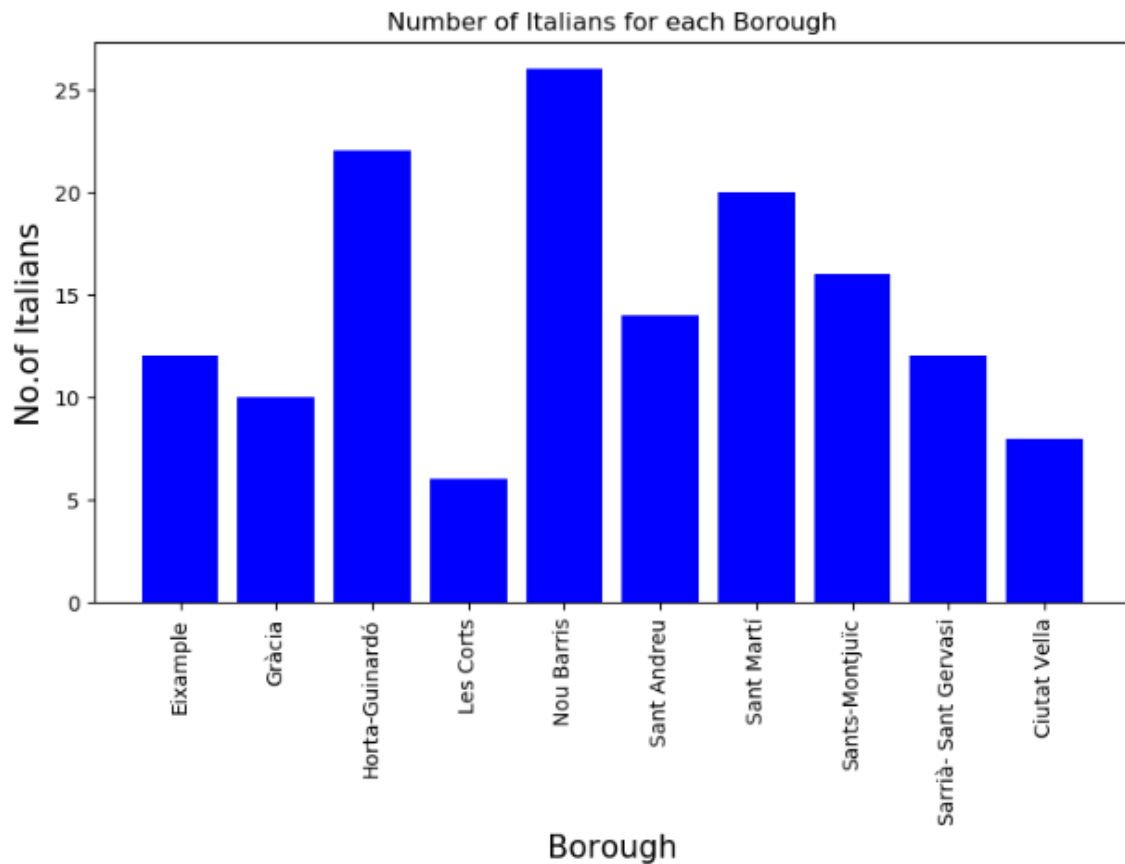
We see that the Neighborhood in Sant Martí with more Italian food options is el Poble Nou.

### Discussion

To proof our results and to investigate further, I thought that will be interesting to study who many people with Italian nationality are each in borough of Barcelona. For this reason, I have upload a new dataset from the same source as the last one (Catalan government page) that contains the information we need to complete this analysis.

	Borough	Neighborhood	Sex	Nacionality	Number
0	Ciutat Vella	el Raval	Dona	Espanya	11666
1	Ciutat Vella	el Barri Gòtic	Dona	Espanya	4214
2	Ciutat Vella	la Barceloneta	Dona	Espanya	4801
3	Ciutat Vella	Sant Pere, Santa Caterina i la Ribera	Dona	Espanya	6570
4	Eixample	el Fort Pienc	Dona	Espanya	13074

Using the data of this table, we have plot graph with the number of Italian people in each borough.



### Conclusions

From all the visualization plots and analysis we have done, we can see that the neighborhood with more Italian restaurants and Pizza places is el Poblenou, which can be found in the borough of Sant Martí. We also see that the presence of people with Italian

nationality in Sant Martí is quite strong, which kind of proofs our conclusion. Of course, the number of Italian people is not a determining factor as there are a lot more things that should be taken into account before moving to a neighborhood. Therefore, answering the business question that has been raised at the beginning, the neighborhood with a stronger presence of Italian culture is Poblenou.