

# OPEN AN ITALIAN RESTAURANT IN BARCELONA

## Business Problem

The objective of this project is to recommend to an entrepreneur the best location for an ITALIAN restaurant in BARCELONA (SPAIN) given 3 options of localization. The recommendation will be given by using Data analysis, and machine learning algorithms like clustering.

## Target Audience

The entrepreneur who wants to find the location to open a reliable Italian restaurant.

## Data

To solve the problem, we need the following data: List of 3 suggested locations List of nearby italian restaurants given the 3 locations List of Barcelona popular avenues close to the locations

## Extracting the data

Using foursquare API: Retrieve the restaurants by each location Retrieve Barcelona's most popular avenues Retrieve Barcelona's Restaurant locations and cluster them by type

## How to use the data

Clustering the venues with or without Italian restaurant using K-means. Suggest a cluster where might be suitable to place the new successful italian restaurant.

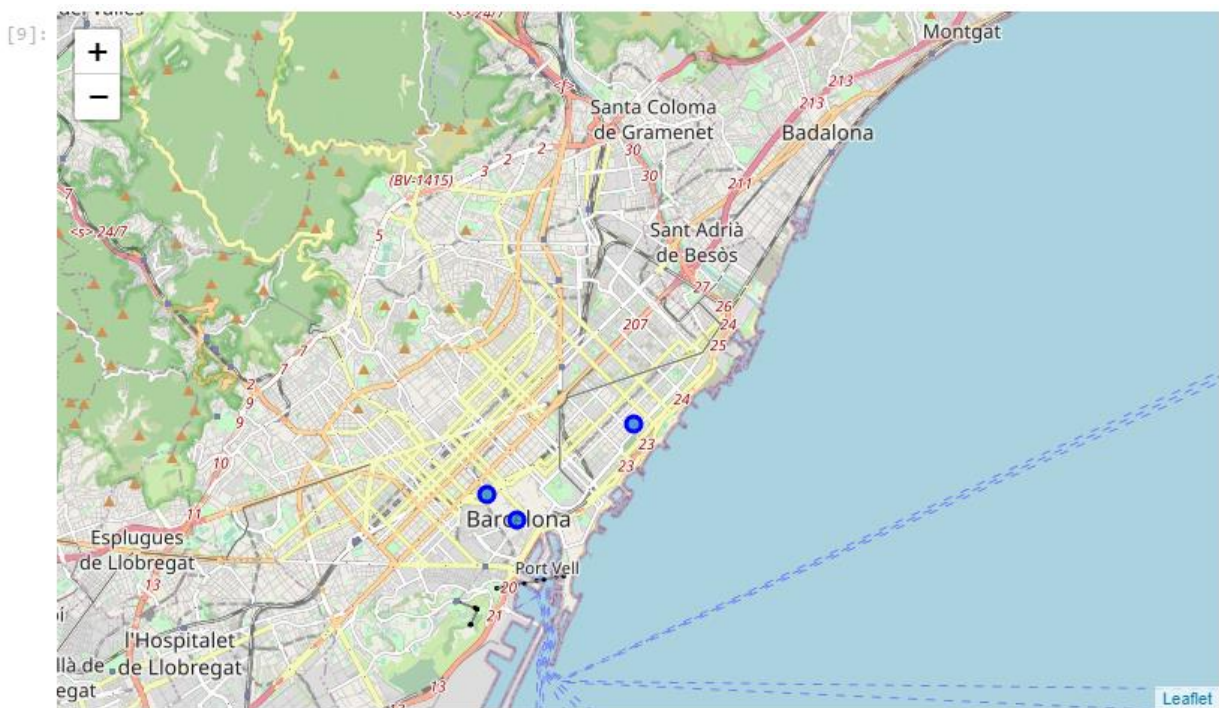


Here I develop the code for extracting data

```
[7]: #We retrieve the data from the desired locations
url = 'https://raw.githubusercontent.com/Arinca/Training/master/Restaurants.csv'
Restaurants = pd.read_csv(url)
Restaurants.head()
```

```
[7]:
```

	Restaurant	Latitude	Longitude	Area
0	A	41.382778	2.176944	Barri Gotic
1	B	41.387027	2.170024	Barri de Gràcia
2	C	41.399167	2.203889	Poblenou

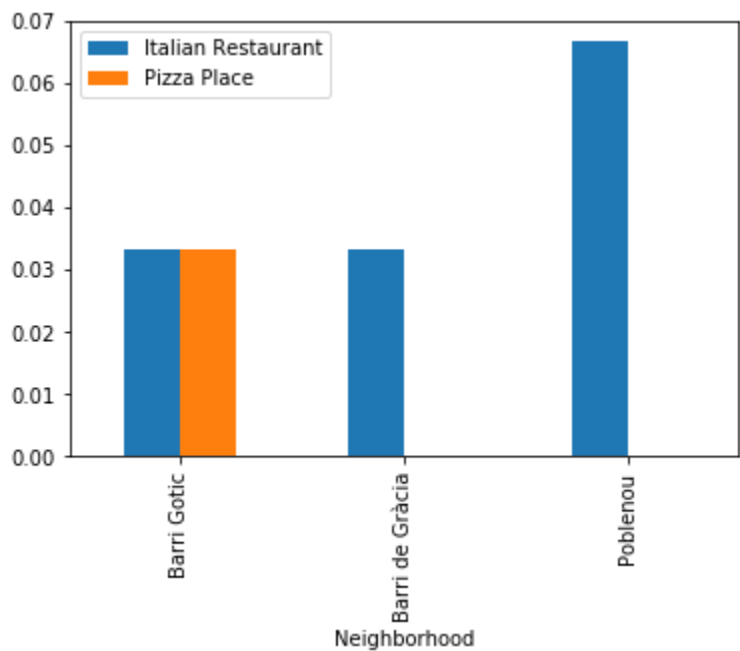


We perform the studies on the Italian places per Neighborhood.

----Barri Gotic----			----Barri de Gràcia----		
	venue	freq		venue	freq
0	Plaza	0.17	0	Hotel	0.27
1	Ice Cream Shop	0.10	1	Bookstore	0.10
2	Tapas Restaurant	0.07	2	Ice Cream Shop	0.07
3	Dessert Shop	0.07	3	Plaza	0.07
4	Wine Bar	0.03	4	Vegetarian / Vegan Restaurant	0.03
5	Cocktail Bar	0.03	5	Clothing Store	0.03
6	Spanish Restaurant	0.03	6	Fountain	0.03
7	Pizza Place	0.03	7	Art Gallery	0.03
8	Organic Grocery	0.03	8	Electronics Store	0.03
9	Italian Restaurant	0.03	9	Donut Shop	0.03
10	Hotel	0.03	10	Italian Restaurant	0.03
11	Hot Dog Joint	0.03	11	Coffee Shop	0.03
12	Greek Restaurant	0.03	12	Mediterranean Restaurant	0.03
13	Coffee Shop	0.03	13	Gourmet Shop	0.03
14	Fabric Shop	0.03	14	Burger Joint	0.03

----Poblenou----		
	venue	freq
0	Spanish Restaurant	0.07
1	Mediterranean Restaurant	0.07
2	Italian Restaurant	0.07
3	Ice Cream Shop	0.07
4	Gastropub	0.07
5	Wine Bar	0.03
6	Cultural Center	0.03
7	Road	0.03
8	Plaza	0.03
9	Park	0.03
10	Kebab Restaurant	0.03
11	Hotel	0.03
12	Hostel	0.03
13	Fruit & Vegetable Store	0.03
14	Empanada Restaurant	0.03



	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	Barri Gotic	Plaza	Ice Cream Shop	Dessert Shop	Tapas Restaurant	Fabric Shop	Hotel	Baby Store	Beer Bar	Bridge	Burge Join
1	Barri de Gràcia	Hotel	Bookstore	Ice Cream Shop	Plaza	Italian Restaurant	Clothing Store	Donut Shop	Electronics Store	Fountain	Burge Join
2	Poblenou	Ice Cream Shop	Spanish Restaurant	Italian Restaurant	Mediterranean Restaurant	Gastropub	Vegetarian / Vegan Restaurant	Café	Empanada Restaurant	Cupcake Shop	Cultura Cente

## CONCLUSION

The final recommendation is to open an Italian place in the Barri de Gràcia as where the lesser ratio is found.