

## Predicting where to open an italian restaurant in Milan, Italy

### AIM

A prospective italian restaurant owner aims at opening a new italian restaurant in the city of Milan, Italy. The city is the italian financial hub, is vibrant and full of new opportunity. He has a total budget of 100000k€ to buy the place and wants a 100sqm restaurant

### TOOLS

As a data science, I was asked to select the best neighborhood where to buy the place for the restaurant. The global tools I used are:

- 1) Map of Milan neighborhoods, provided by italian statistical department. Freely downloaded.
- 2) Average prices for square meters, provided by italian statistical department. Freely downloaded.
- 3) Distribution and categorization of business activities in the different areas, provided by Foursquare by its API.

### TECHNIQUES USED

- 1) *Data wrangling*:
  - a. Only commercial areas prices where selected. Since lowest and highest prices extremes were available, their values where averaged.
  - b. Location data where available in polygon form. To describe neighborhoods, the centroids have been considered.
- 2) *Data analysis*:

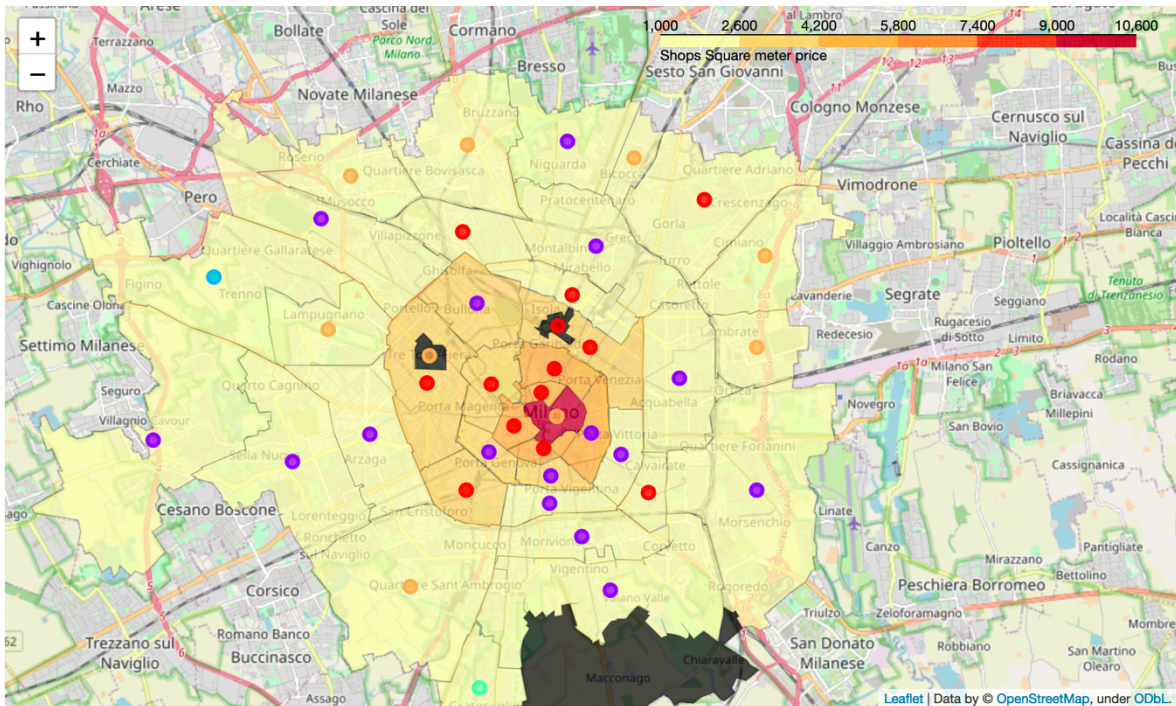
K-clustering technique has been used. It allows to group busisess activities within each area together. The selection allowed to get a small selection.

Comparison of average price per square meter and distribution of recreational and restaurant-related spaces were made to select the best area.

### RESULTS

The resulting Milan map with activities grouping and prices per square meter is shown below.

Additional exploring of the single groupings allows to select group 4 as the most interesting: italian restaurants and other restaurant-reletaed business activities do not show up as the most common activities. Lastly area D13 was selected: the average price allows the business owner to buy around 57sqm, which seems reasonable for a small business. At the same time the area has many recreational activities around (theatres, etc) and no italian restaurants: people can go to the restaurant immediately before or after a show!



Map with prices and grouping

	CODZONA	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	Average price
2	D13	Theater	Plaza	Buffet	Steakhouse	Supermarket	Café	Nightclub	Electronics Store	Farmers Market	Fast Food Restaurant	1725.0
16	E8	Sports Club	Park	Plaza	Playground	Bar	Historic Site	Food Court	General Entertainment	Gay Bar	Gastropub	1225.0
22	B12	Boutique	Plaza	Italian Restaurant	Hotel	Ice Cream Shop	Monument / Landmark	Clothing Store	Coffee Shop	Dessert Shop	Art Museum	14475.0
30	D21	Theater	Farm	Soccer Field	Bakery	Trattoria/Osteria	Café	Farmers Market	Fast Food Restaurant	German Restaurant	General Entertainment	1575.0
31	D32	Café	Ice Cream Shop	General Entertainment	Park	Hostel	Convenience Store	Supermarket	Cocktail Bar	Health Food Store	Gym / Fitness Center	1625.0
32	D34	Café	Italian Restaurant	Plaza	Steakhouse	Piadineria	Sandwich Place	Sushi Restaurant	Multiplex	Shopping Mall	Gym	1475.0
37	D10	Dog Run	Park	Italian Restaurant	Soccer Field	Performing Arts Venue	Bookstore	Food Court	Gay Bar	Gastropub	Gaming Cafe	1900.0
38	D28	Nightclub	Racecourse	Bed & Breakfast	Outdoor Sculpture	Cocktail Bar	Golf Course	Burger Joint	Grocery Store	Seafood Restaurant	Optical Shop	1250.0

Dataframe about group 4. D13 is the selected neighborhood