

A large pepperoni pizza is shown in an open cardboard box. A hand is lifting one of the slices from the top left. The pizza is covered in melted cheese and numerous slices of pepperoni. The text "Milan, Where open a pizza shop?" is overlaid in the center in a blue, sans-serif font.

Milan, Where open a
pizza shop?

THE BEST PIZZA IN ITALY



Introduction

- Pizza is one of the most famous Italian dishes. And there are so many good reasons why! As can see from previous research (i.e. Turrini et.al. 2001, Di Vita et.al. 2016), pizza is an important food for Italian's diet. And due to the famous of the pizza, almost all the tourist that came to Italy want to taste "The true Italian Pizza".

HOW TO SPEND A DAY IN MILAN



WHAT TO SEE + WHERE TO EAT

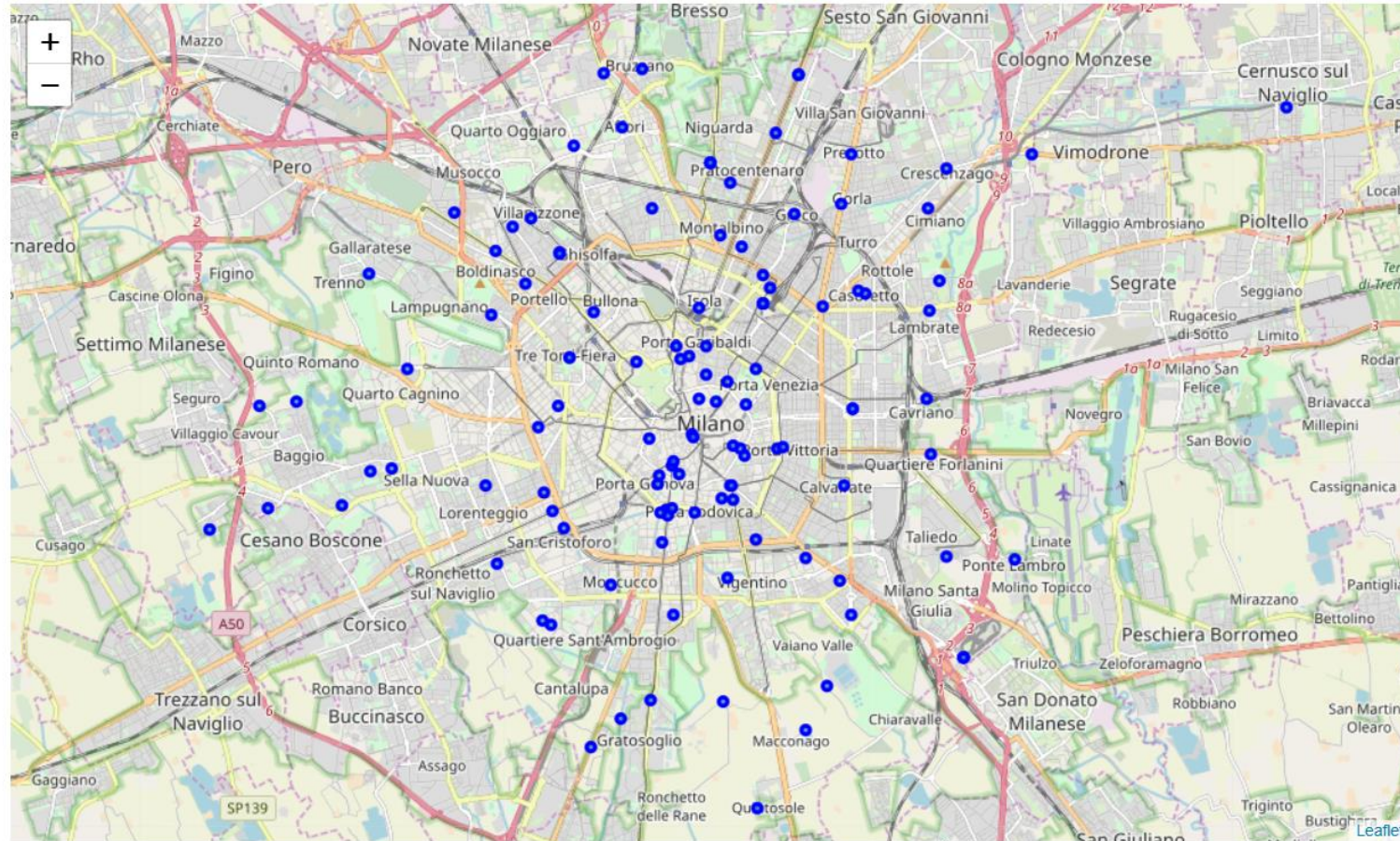
Data

Based on definition of our problem, factors that will influence our decision are:

- * number of existing restaurants in the district (any type of restaurant)
- * number of and distance to Pizza Shop in the district, if any
- * distance of neighborhood from city center

#	Denominazione	Superficie (km²)	Abitanti (31.12.2015)	Densità (ab/km²)	Quartieri compresi ^[4]
Municipio 1	Centro storico	9,67	97.403	10.072,70	Cordusio, Cinque Vie, Carrobbio, Verziere, Pasquirolo, Borgonuovo, Crocetta, Quadronno, Vetra, Sant’Ambrogio, Brera, Guastalla, Porta Tenaglia, Porta Sempione, Conca del Naviglio
Municipio 2	Stazione Centrale, Gorla, Turro, Greco, Crescenzago	12,58	159.134	12.649,76	Stazione Centrale, Loreto, Turro, Crescenzago, Quartiere Adriano, Gorla, Precotto, Ponte Seveso, Quartiere Maggiolina, Mirabello, Villaggio dei Giornalisti, Greco
Municipio 3	Città Studi, Lambrate, Venezia	14,23	142.939	10.044,91	Porta Venezia, Porta Monforte, Casoretto, Rottole, Quartiere Feltre, Cimiano, Città Studi, Lambrate, Ortica
Municipio 4	Vittoria, Forlanini	20,95	159.750	7.625,29	Porta Vittoria, Porta Romana, Cavriano, Quartiere Forlanini, Monluè, La Trecca, Taliedo, Morsenchio, Ponte Lambro, Calvaire, Gamboloita o Corvetto, Quartiere Omero, Nosedo, Castagnedo, Rogoredo, Santa Giulia, San Luigi, Triulzo Superiore
Municipio 5	Vigentino, Chiaravalle, Gratosoglio	29,87	124.903	4.181,55	Porta Vigentina, Porta Lodovica, San Gottardo, Morivione, Vigentino, Vaiano Valle, Chiaravalle, Macconago, Stadera, Chiesa Rossa, Quartiere Le Terrazze, Case Nuove, Quartiere Missaglia, Gratosoglio, Selvanesco, Quintosole, Ronchetto delle Rane, Quartiere Torretta, Conca Fallata, Quartiere Basmetto, Quartiere Cantalupa
Municipio 6	Barona, Lorenteggio	18,28	150.356	8.225,16	Porta Ticinese, Porta Genova, Conchetta, Moncucco, Barona, Quartiere Sant’Ambrogio, Quartiere Cascina Bianca, Boffalora, Quartiere Teramo, San Cristoforo, Quartiere Lodovico il Moro, Ronchetto sul Naviglio, Quartiere Villa Magentino, Arzaga, Giambellino, Lorenteggio, Villaggio dei Fiori, Creta
Municipio 7	Baggio, De Angeli, San Siro primaticcio	31,34	173.643	5.540,62	Porta Magenta, Quartiere De Angeli - Frua, San Siro, Quartiere Harar, Quartiere Vercellese, Quarto Cagnino, Quinto Romano, Figino, Molinazzo, Sella Nuova, Baggio, Quartiere Valsesia, Quartiere degli Olmi, Assiano, Muggiano
Municipio 8	Fiera, Quartiere Gallarate, Quarto Oggiaro	23,72	186.179	7.849,03	Porta Volta, Bullona, Ghisolfi, Portello, Cagnola, Quartiere Campo dei Fiori, Villapizzone, Quartiere Varesina, Boldinasco, Garegnano, Certosa, Musocco, Quarto Oggiaro, Vialba, Roserio, Cascina Triulza, Q.T.8, Lampugnano, Quartiere Gallarate, Quartiere San Leonardo, Trenno, Cascina Merlata.
Municipio 9	Stazione Garibaldi, Niguarda	21,12	186.566	8.833,62	Porta Garibaldi, Porta Nuova, Centro Direzionale, Isola, La Fontana, Montalbino, Segnano, Bicocca, Fulvio Testi, Ca' Granda, Pratocentenaro, Niguarda, Dergano, Bovisa, Affori, Bruzzano, Quartiere Comasina, Quartiere Bovisasca
Totale comune		181,76	1 380 873	7 597,23	

Districts

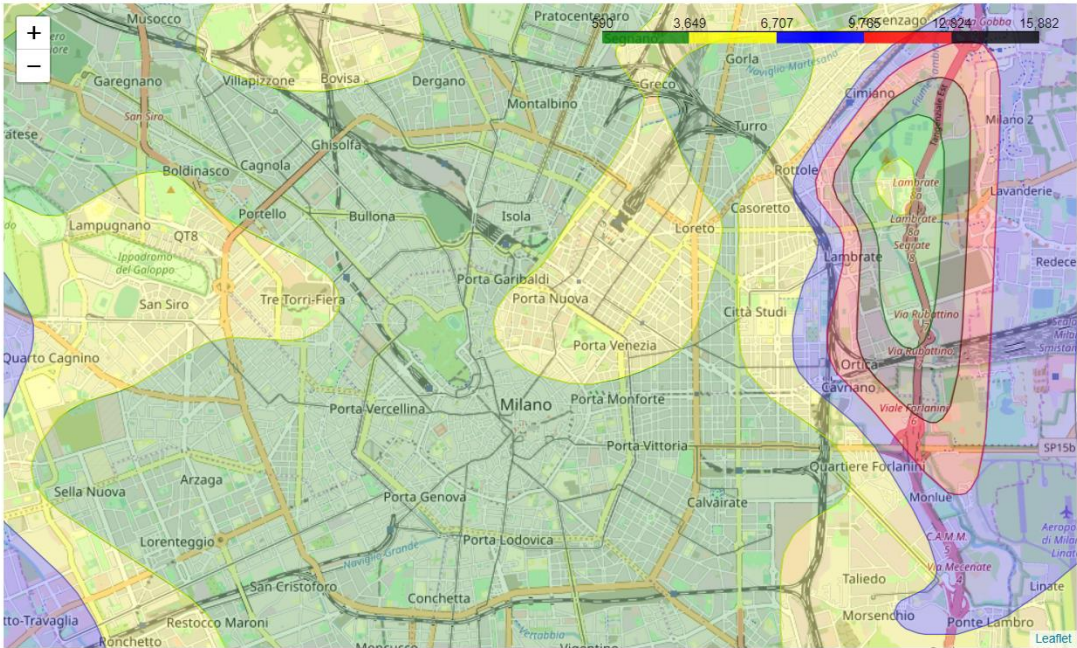


Analysis

index	Borough			Names	Area_Km2	Population	Pop_Density_hab_km2	Districts	Latitude	Longitude
0	0	Municipio 1		Centro storico	0.644667	6493	10072.70	Cordusio	45.4649	9.18589
1	1	Municipio 2	Stazione Centrale, Gorla, Turro, Greco, Cresce...		1.048333	13261	12649.76	Stazione Centrale	45.4645	9.18644
2	2	Municipio 3	Città Studi, Lambrate, Venezia		1.581111	15882	10044.91	Porta Venezia	45.4759	9.20127
3	3	Municipio 4	Vittoria, Forlanini		1.163889	8874	7625.29	Porta Vittoria	45.4625	9.19753
4	4	Municipio 5	Vigentino, Chiaravalle, Gratosoglio		1.422381	5947	4181.55	Porta Vigentina	45.4539	9.19604

	District	District Latitude	District Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	Cordusio	45.46491	9.18589	Starbucks Reserve Roastery	45.464920	9.186153	Coffee Shop
1	Cordusio	45.46491	9.18589	Ciacco. Gelato senz'altro	45.463704	9.186796	Ice Cream Shop
2	Cordusio	45.46491	9.18589	KFC	45.464281	9.187572	Fast Food Restaurant
3	Cordusio	45.46491	9.18589	Panini Durini	45.464299	9.187460	Sandwich Place
4	Cordusio	45.46491	9.18589	Granaio Caffè e Cucina	45.465692	9.188366	Italian Restaurant
5	Cordusio	45.46491	9.18589	McDonald's	45.464408	9.188457	Fast Food Restaurant
6	Cordusio	45.46491	9.18589	Granaio Caffè e Cucina	45.465794	9.185562	Italian Restaurant
7	Cordusio	45.46491	9.18589	Motta Caffè Bar Milano 1928	45.464657	9.190182	Café
8	Cordusio	45.46491	9.18589	B Café	45.462640	9.183381	Café

Costumer's Density

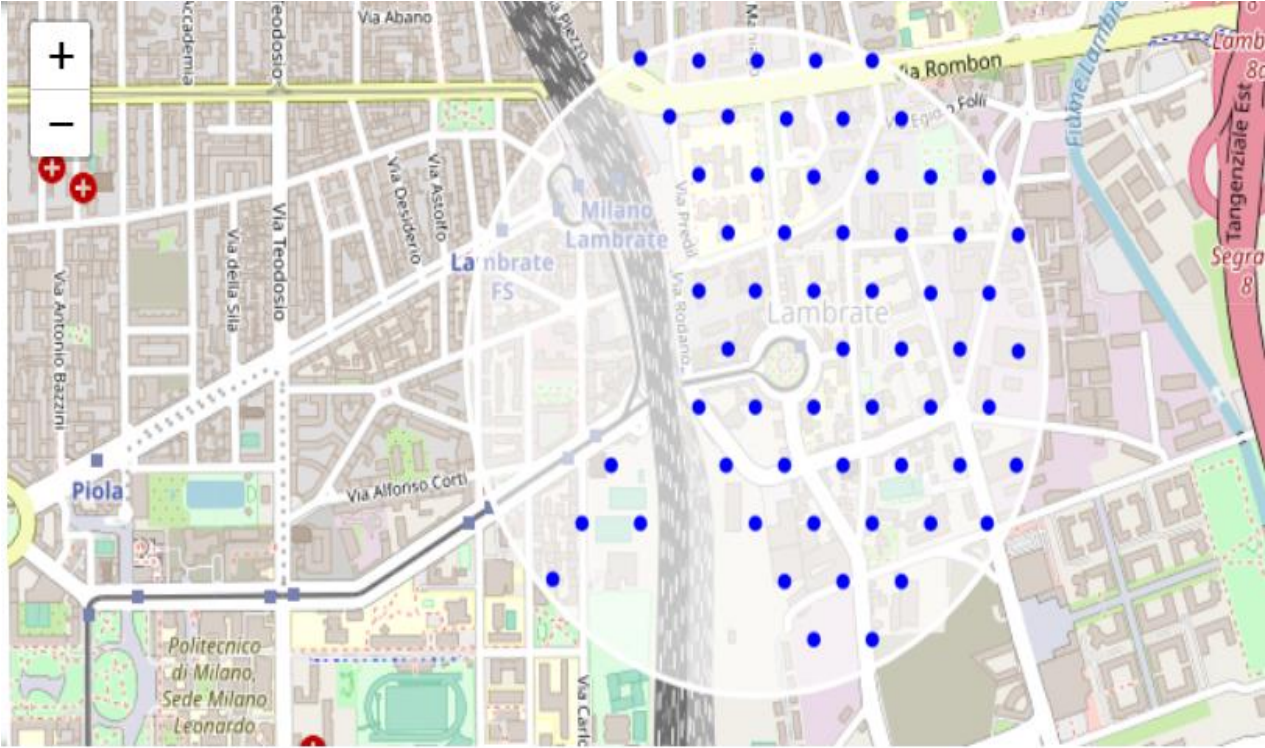


Lambrate Area

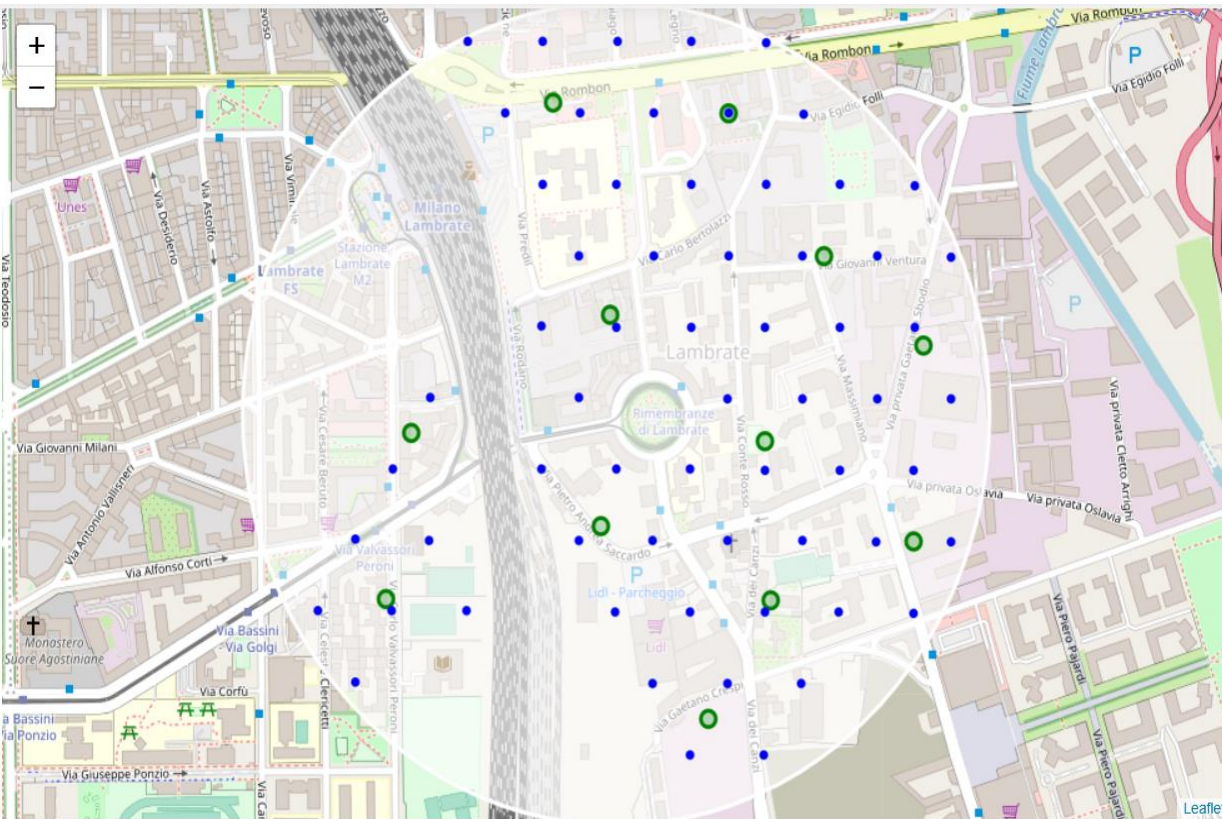
Restaurant's information

	District	District Latitude	District Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category	Venue Short Category	District_X	District_y	Venue_X	Venue_Y
24	Rimembranze di Lambrate, Milano, Italia	45.48246	9.24042	Kebap Pizza.it	45.483186	9.231525	Pizza Place	Pizza	518789	5.03658e+06	518094	5.03665e+06
31	Rimembranze di Lambrate, Milano, Italia	45.48246	9.24042	Pizzeria Spontini	45.482009	9.213112	Pizza Place	Pizza	518789	5.03658e+06	516655	5.03652e+06
36	Rimembranze di Lambrate, Milano, Italia	45.48246	9.24042	'A Tarantella	45.490889	9.233899	Pizza Place	Pizza	518789	5.03658e+06	518277	5.03751e+06
38	Rimembranze di Lambrate, Milano, Italia	45.48246	9.24042	La Cuccuma	45.482123	9.228962	Pizza Place	Pizza	518789	5.03658e+06	517894	5.03654e+06
41	Rimembranze di Lambrate, Milano, Italia	45.48246	9.24042	Piccola Ischia	45.481748	9.217081	Pizza Place	Pizza	518789	5.03658e+06	516965	5.03649e+06
42	Rimembranze di Lambrate, Milano, Italia	45.48246	9.24042	Pizzeria Piccolo Borgo	45.482743	9.230598	Pizza Place	Pizza	518789	5.03658e+06	518021	5.03661e+06
44	Rimembranze di Lambrate, Milano, Italia	45.48246	9.24042	Piccola Ischia	45.477781	9.211707	Pizza Place	Pizza	518789	5.03658e+06	516546	5.03605e+06

Possible locations



Clustering analysis



Locations from Lambrate

- Finally, let get the addresses which can be presented to stakeholders.
- Via Carlo Bertolazzi Milan IT
Rimembranze di Lambrate => 127.1m from
- Via Conte Rosso Milan IT
Rimembranze di Lambrate => 167.8m from
- Via privata Giovanni Ventura Milan IT
Rimembranze di Lambrate => 372.2m from
- Via dei Canzi Milan IT
Rimembranze di Lambrate => 340.0m from
- Via Carlo Valvassori Peroni Milan IT
Rimembranze di Lambrate => 407.7m from
- Via Riccardo Pitteri Milan IT
Rimembranze di Lambrate => 382.2m from
- Via Tommaso Pini Milan IT
Rimembranze di Lambrate => 388.0m from
- Via privata Gaetano Sbodio Milan IT
Rimembranze di Lambrate => 400.0m from
- Via Rombon Milan IT
Rimembranze di Lambrate => 401.7m from
- Via Pietro Andrea Saccardo Milan IT
Rimembranze di Lambrate => 137.7m from
- Piazza Enrico Bottini Milan IT
Rimembranze di Lambrate => 362.5m from
- Milan Milan IT
Rimembranze di Lambrate => 300.9m from

Results and Discussion

- Our analysis shows that although there is a great number of pizza shops in Milan's districts, there are pockets of low pizza shop density. We focused our attention to Lambrate area. Our attention focused to this area due to the low density of pizza shops and the high density of potential customers.
- After directing our attention to this narrower area of interest we first created a dense grid of location candidates (spaced 100m apart); those locations were then filtered so that those with more than two restaurants in radius of 250m and those with a Pizza Shop closer than 500m were removed.
- Those location candidates were then clustered to create zones of interest which contain greatest number of location candidates. Addresses of centers of those zones were also generated using reverse geocoding to be used as markers/starting points for more detailed local analysis based on other factors.
- Result of all this is 12 zones containing largest number of potential new Pizza Shop locations based on the district population, number of and distance to existing venues - both restaurants in general and Pizza Shop particularly. This, of course, does not imply that those zones are actually optimal locations for a new Pizza Shop! Purpose of this analysis was to only provide info on areas in Milan not crowded with existing restaurants (particularly Pizza Shops) - it is entirely possible that there is a very good reason for small number of restaurants in any of those areas, reasons which would make them unsuitable for a new restaurant regardless of lack of competition in the area. Recommended zones should therefore be considered only as a starting point for more detailed analysis which could eventually result in location which has not only no nearby competition but also other factors taken into account and all other relevant conditions met.

Conclusion

- Purpose of this project was to identify Berlin areas close to center with low number of restaurants (particularly Pizza Shops) in order to aid stakeholders in narrowing down the search for optimal location for a new Pizza Shop. First, we obtained the districts and population from Milan city, after that we get the coordinates of each district, then, by calculating restaurant density distribution from Foursquare data and correlated to the population of each district we choose Lambrate area. Then generated extensive collection of locations which satisfy some basic requirements regarding existing nearby restaurants. Clustering of those locations was then performed in order to create major zones of interest (containing greatest number of potential locations) and addresses of those zone centers were created to be used as starting points for final exploration by stakeholders.
- Final decision on optimal restaurant location will be made by stakeholders based on specific characteristics of neighborhoods and locations in every recommended zone, taking into consideration additional factors like attractiveness of each location (proximity to park or water), levels of noise / proximity to major roads, real estate availability, prices, social and economic dynamics of every neighborhood etc.