

A wine lover in Milan

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Introduction: Business Problem

In this project we will try to find an optimal neighborhood for a wine lover in Milan. Specifically this project will be target to people who love wine and are willing to relocate to Milan and also would love to have many wine bars in their neighborhood. There are many types of venues for wine, like restaurants, bars, cocktail bars and so on, but we're looking for specialized venues where you have a broader choice of wines. We will use our data science powers to generate the most promising neighborhoods based on this criteria.

Data

The only factor that will influence our decision is the number of existing wine bars in the neighborhood (only specialized wine bars). We'll take the neighborhood geo-data (neighborhood name, latitude, longitude) scrapping from the municipality website that contains all these information. After that we'll need to leverage the power of Foursquare to identify all the wine bars included in the selected distance from the center of the neighborhood. Then we'll analyse the results and get the conclusions of the research.

From the Milan municipality website we've scraped the list of Neighborhoods with relative latitudes and longitudes, as briefly shown below.

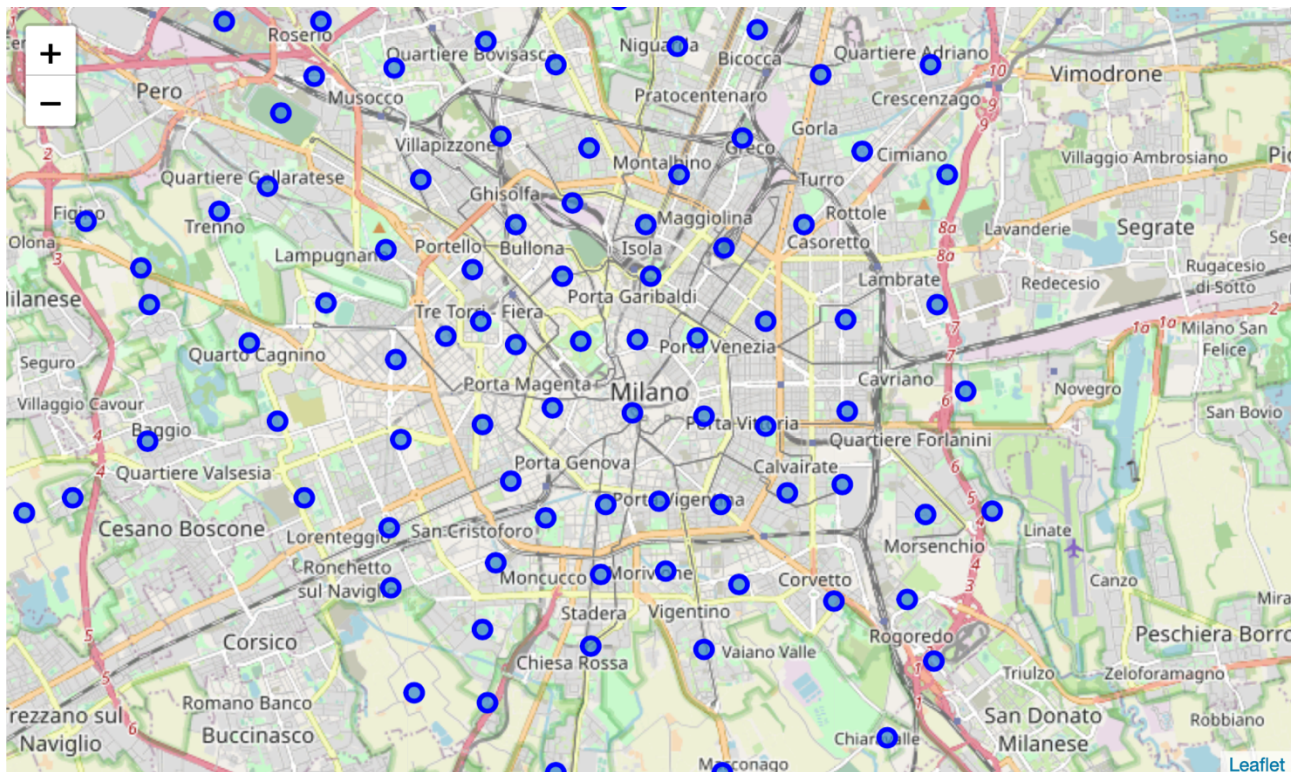
	Neighborhood	Longitude	Latitude
0	RONCHETTO SUL NAVIGLIO - Q.RE LODOVICO IL MORO	9.137260	45.438460
1	TRENNO	9.101675	45.492822
2	PORTELLO	9.153947	45.484490
3	BOVISASCA	9.156731	45.517433
4	PARCO NORD	9.184235	45.523514

Methodology

In this project we will direct our efforts on detecting the neighborhoods of Milan that have high wine bars density. We will limit our analysis to 500m around each neighborhood center. We've collected the neighborhoods data with longitudes and latitudes. We'll plot the map of Milan identifying the neighborhoods centers. Then we'll leverage Foursquare power building a dataframe containing all wine bars venues for each neighborhood. Finally we'll analyse the results grouping by neighborhood and identifying the number of wine bars, plotting it in a bar chart showing the solution.

Using Folium we've identified the geographical coordinates of Milan which are 45.4668, 9.1905.

Now we can plot the neighborhoods of Milan using their geo-coordinates in a map.



Analysis

That's probably our most important step. Now we need to perform the merger between our neighborhoods coordinates and the selected venues in Foursquare. We've identified the ID category of wine bars, but we need to check whether all the results are compliant with our research. Than we'll group by neighborhood counting the number of wine bars present in each one and finally we'll plot the results in a bar chart. The result of the merger is shown below.

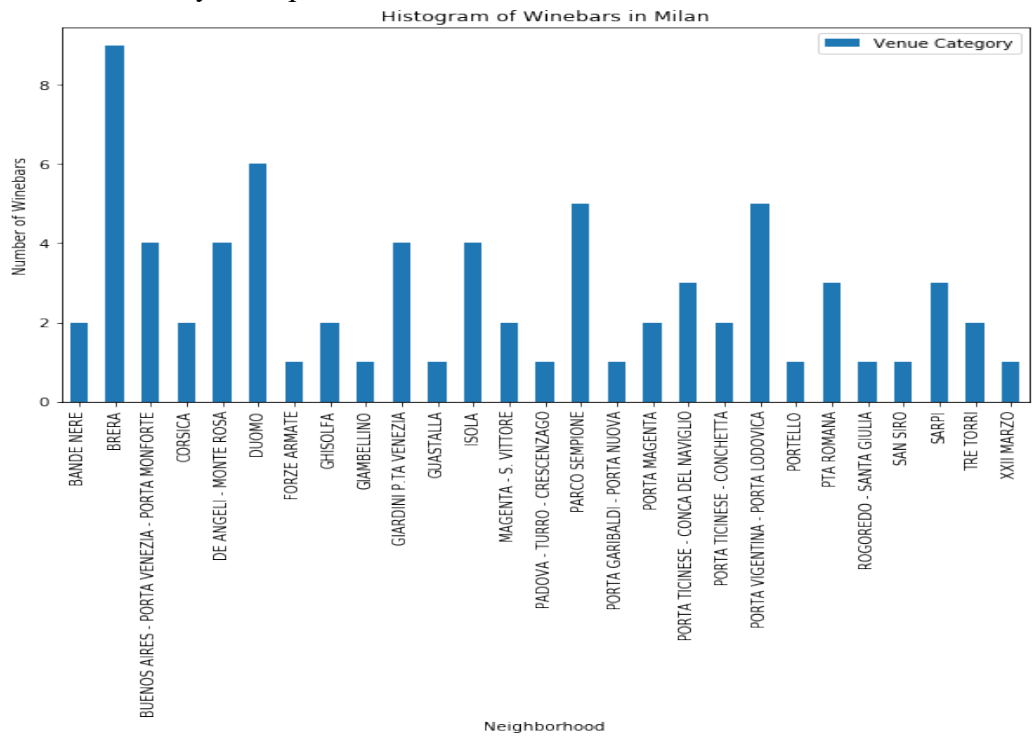
	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	PORTELLO	45.484490	9.153947	Urban Food	45.487050	9.155120	Wine Bar
1	ISOLA	45.490894	9.189617	Il Borsieri	45.489456	9.189092	Wine Bar
2	ISOLA	45.490894	9.189617	Cantine Milano	45.490012	9.190418	Wine Bar
3	ISOLA	45.490894	9.189617	Ebrezza	45.488365	9.189756	Wine Bar
4	ISOLA	45.490894	9.189617	Frida	45.488718	9.187129	Cocktail Bar

We can see that the are a certain number of venues which are not specifically wine bars. So let’s find for each neighborhood how many wine bars are there.

Neighborhood	Venue Category
BANDE NERE	2
BRERA	9
BUENOS AIRES - PORTA VENEZIA - PORTA MONFORTE	4
CORSICA	2
DE ANGELI - MONTE ROSA	4
DUOMO	6
FORZE ARMATE	1
GHISOLFA	2
GIAMBELLINO	1
GIARDINI P.TA VENEZIA	4

	Venue Category
Neighborhood	
GUASTALLA	1
ISOLA	4
MAGENTA - S. VITTORE	2
PADOVA - TURRO - CRESCENZAGO	1
PARCO SEMPIONE	5
PORTA GARIBALDI - PORTA NUOVA	1
PORTA MAGENTA	2
PORTA TICINESE - CONCA DEL NAVIGLIO	3
PORTA TICINESE - CONCHETTA	2
PORTA VIGENTINA - PORTA LODOVICA	5
PORTELLO	1
PTA ROMANA	3
ROGOREDO - SANTA GIULIA	1
SAN SIRO	1
SARPI	3
TRE TORRI	2
XXII MARZO	1

A chart can maybe help us to better visualize the results.



Results and discussion

Our analysis show that we have only 27 out of 83 neighborhoods including at least one wine bar. We can see that there is a higher concentration of wine bars in the most central neighborhoods like Duomo, Brera, Parco Sempione, Porta Venezia that are also very turistic. The winner neighborhood is Brera, which is located in the central area 1 of Milan and is a very elegant and artist neighborhood, now also a wine lover paradise.

Conclusion

Purpose of this project was to identify Milan areas with an high density of wine bars so that a wine lover who is looking to relocate in Milan can find his/her optimal location to live and spend some time. By calculating the number of wine bars for each neighborhood we can conclude that the best solution will be to live near the city center, between Brera and Duomo.