



The best place for an Italian
Restaurant in Rome

An Applied Data Science Capstone Project

We will try to find an optimal location fro an italian restaurant in Rome, Italy.

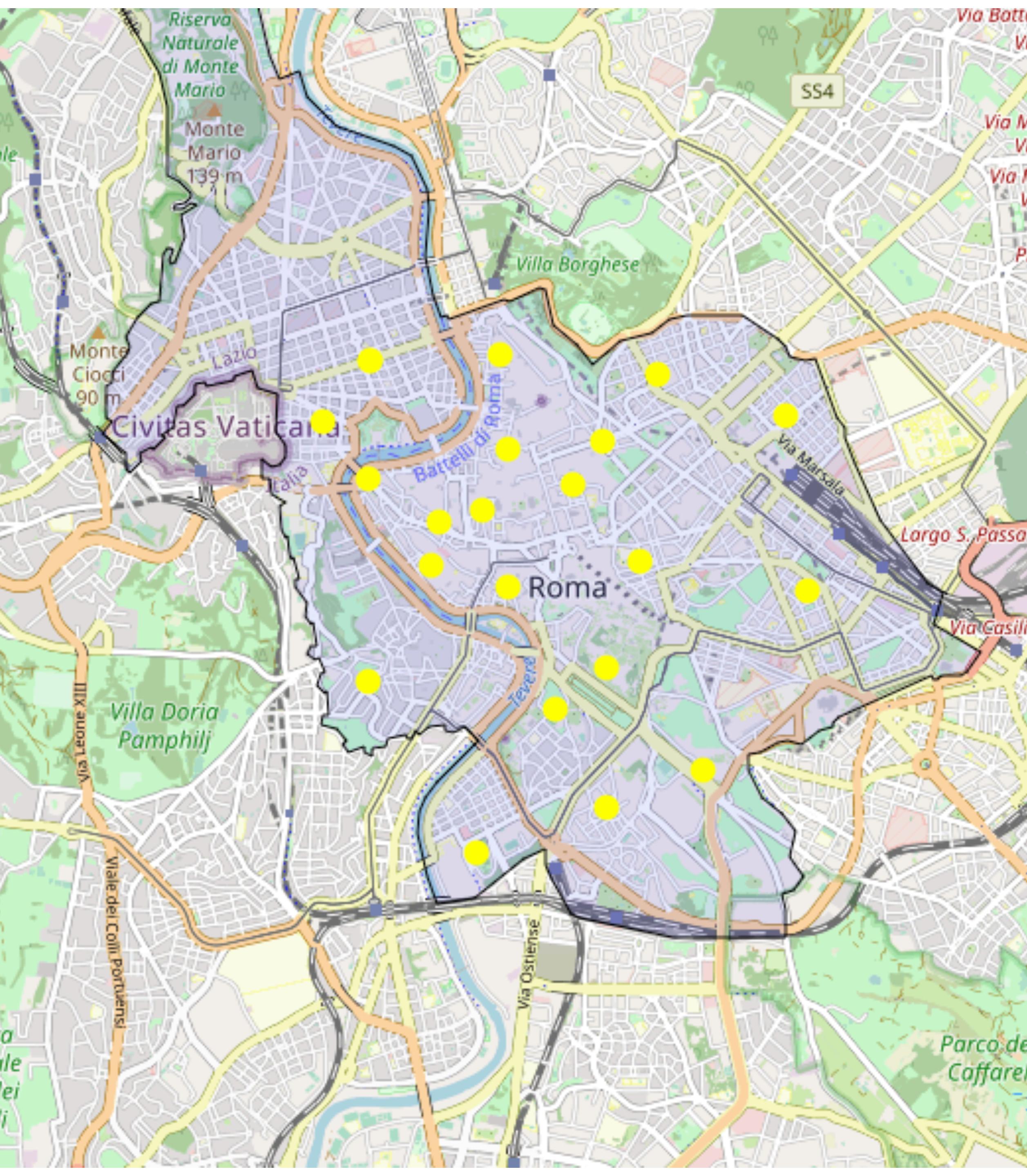
Basic requirements:

- **Locations that are not already crowded with italian restaurants**
- **Areas close to the historical centre of Rome**



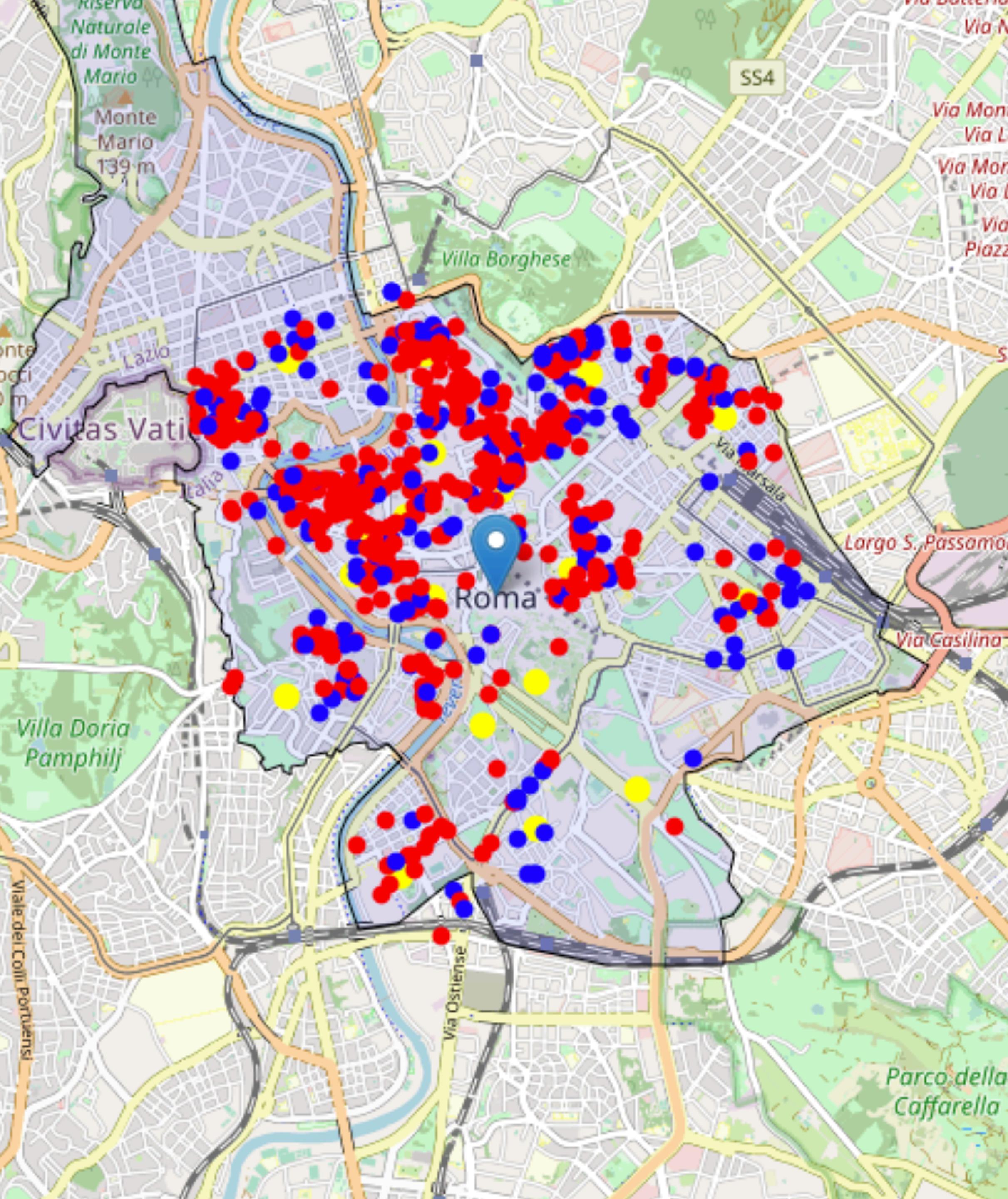
Data acquisition and Cleaning

- The main municipality in Rome: Municipal I
https://it.wikipedia.org/wiki/Municipi_di_Roma and its geographical limits <https://geonue.com/mappa-interattiva-municipi-di-roma/>
- The 22 areas, “rioni” composing the municipality under exam https://it.wikipedia.org/wiki/Rioni_di_Roma
- Number of restaurants and their type and location in every “rione” obtained using Foursquare API



Foursquare API

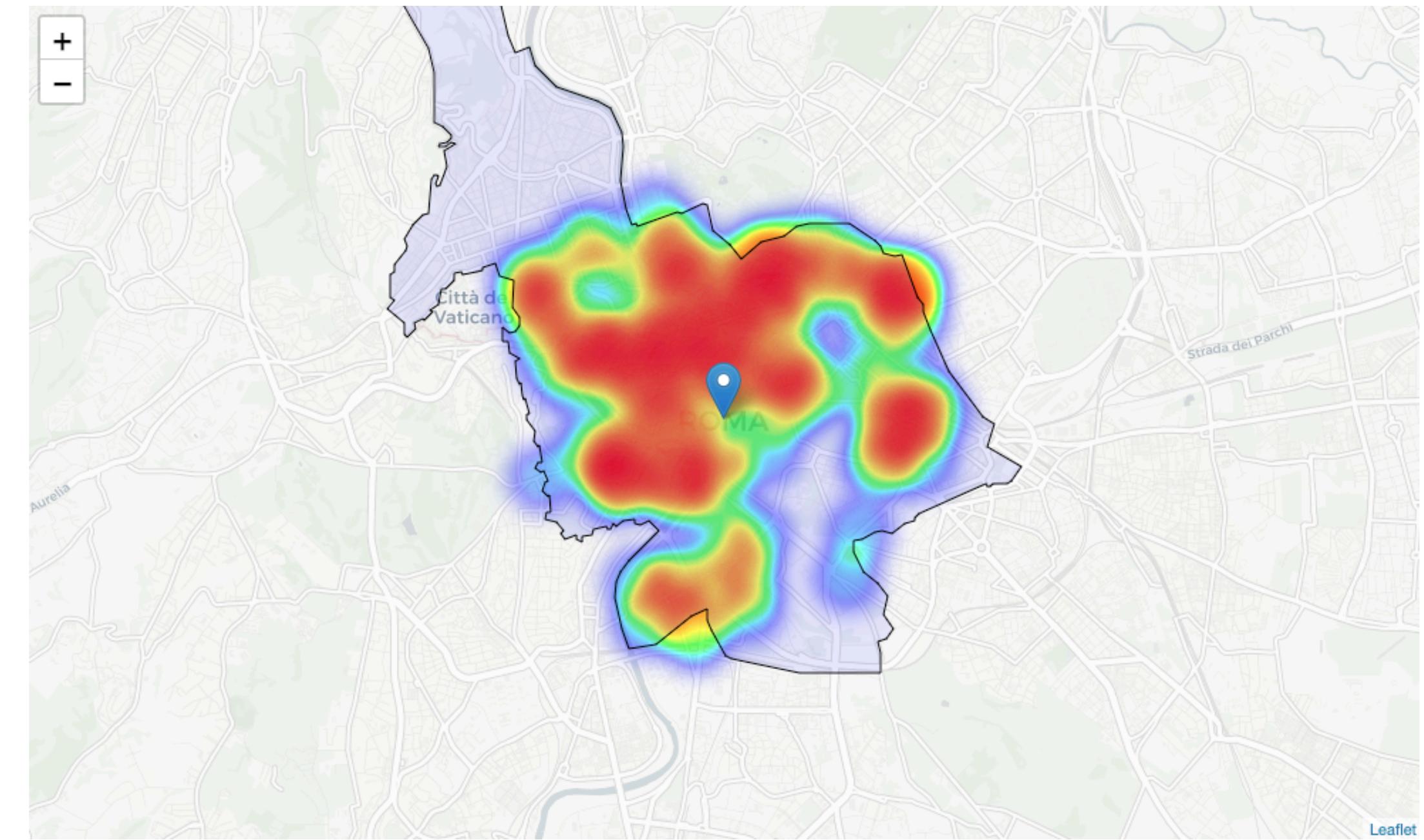
- Once the locations candidates were defined, Foursquare API was used to get info on restaurants in an area of radius 500 meters from each “rione”
- Red circle for italian restaurants
- Blue circle for not-italian restaurants



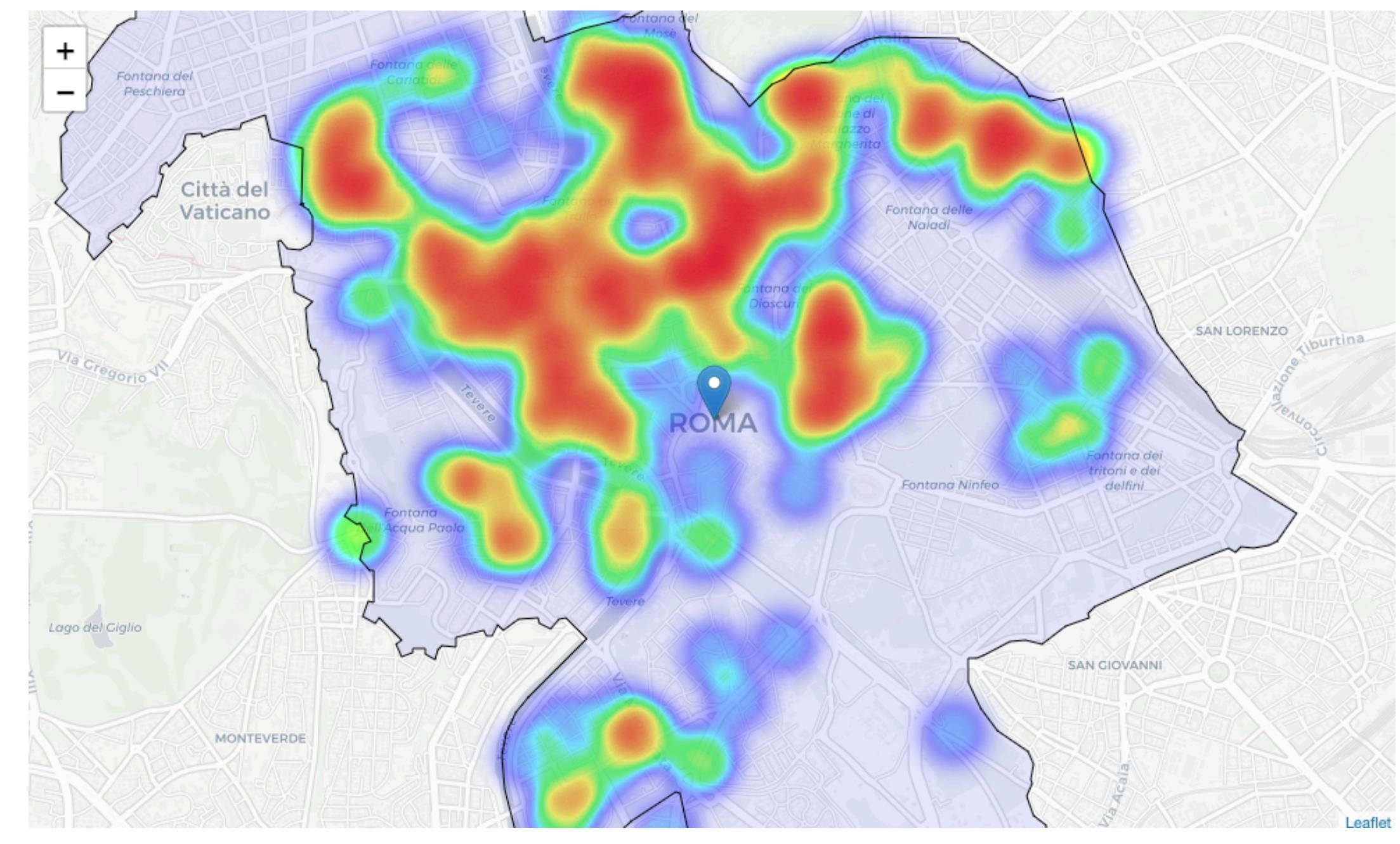
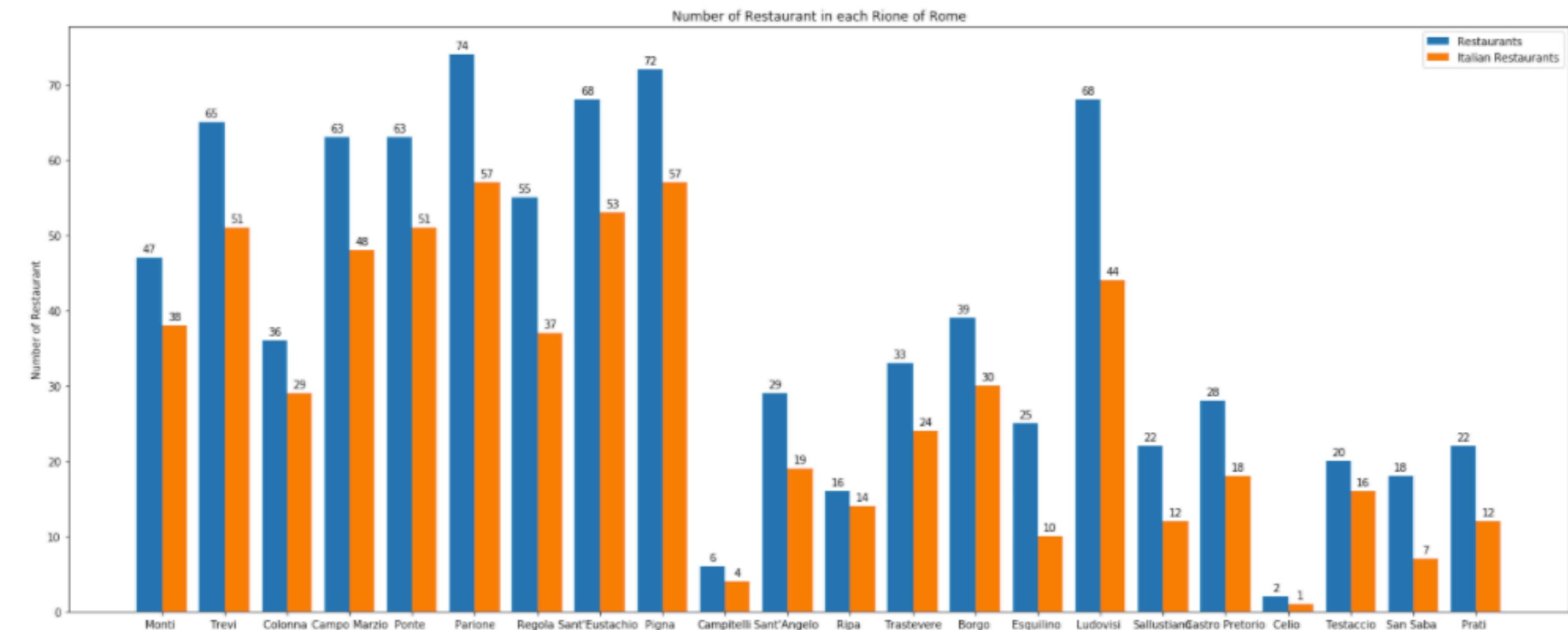
Restaurant Density across different areas of Rome

In the figure above: density of restaurant

In the figure below: density of italian restaurant



Number of restaurant in each “rione”



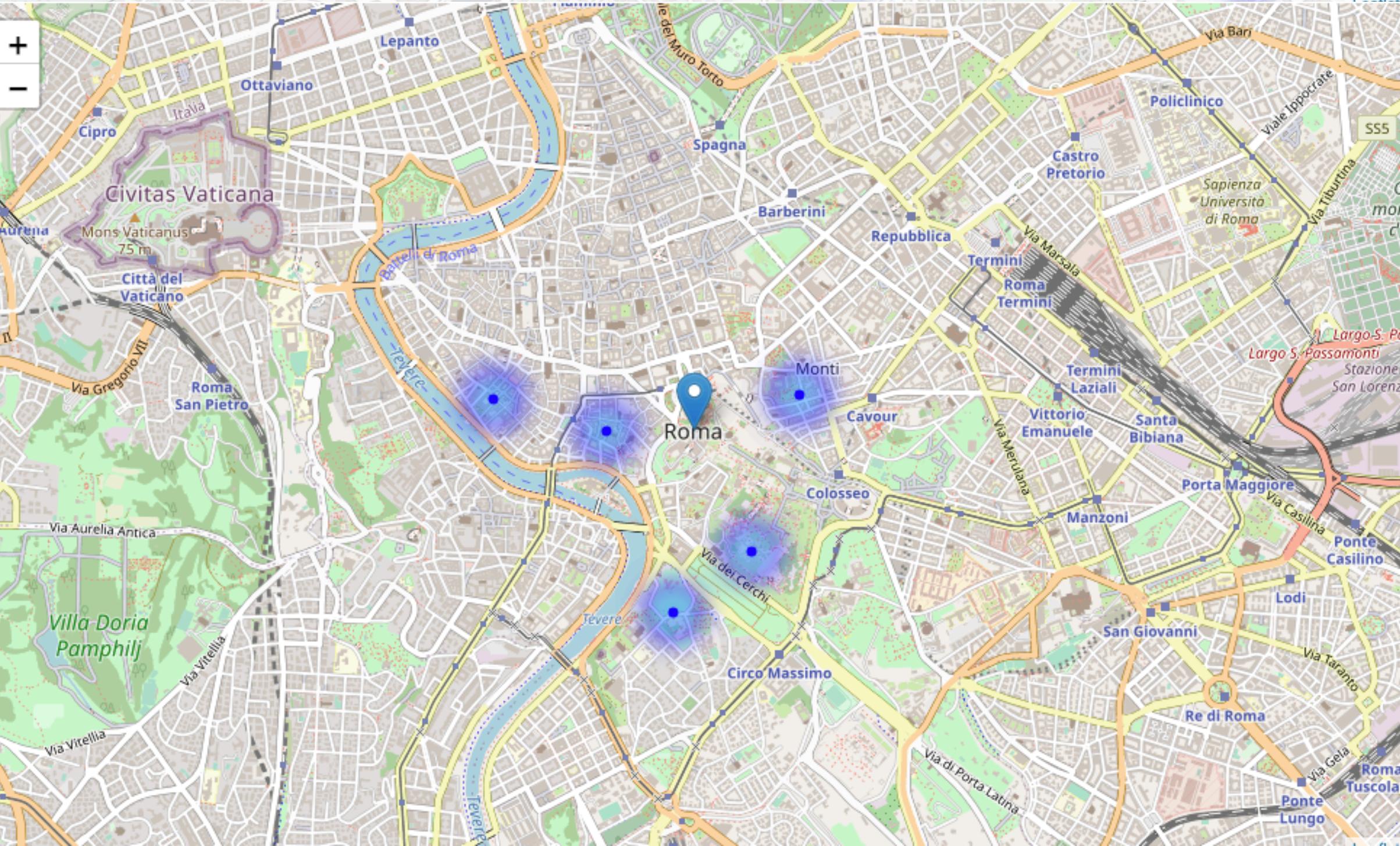
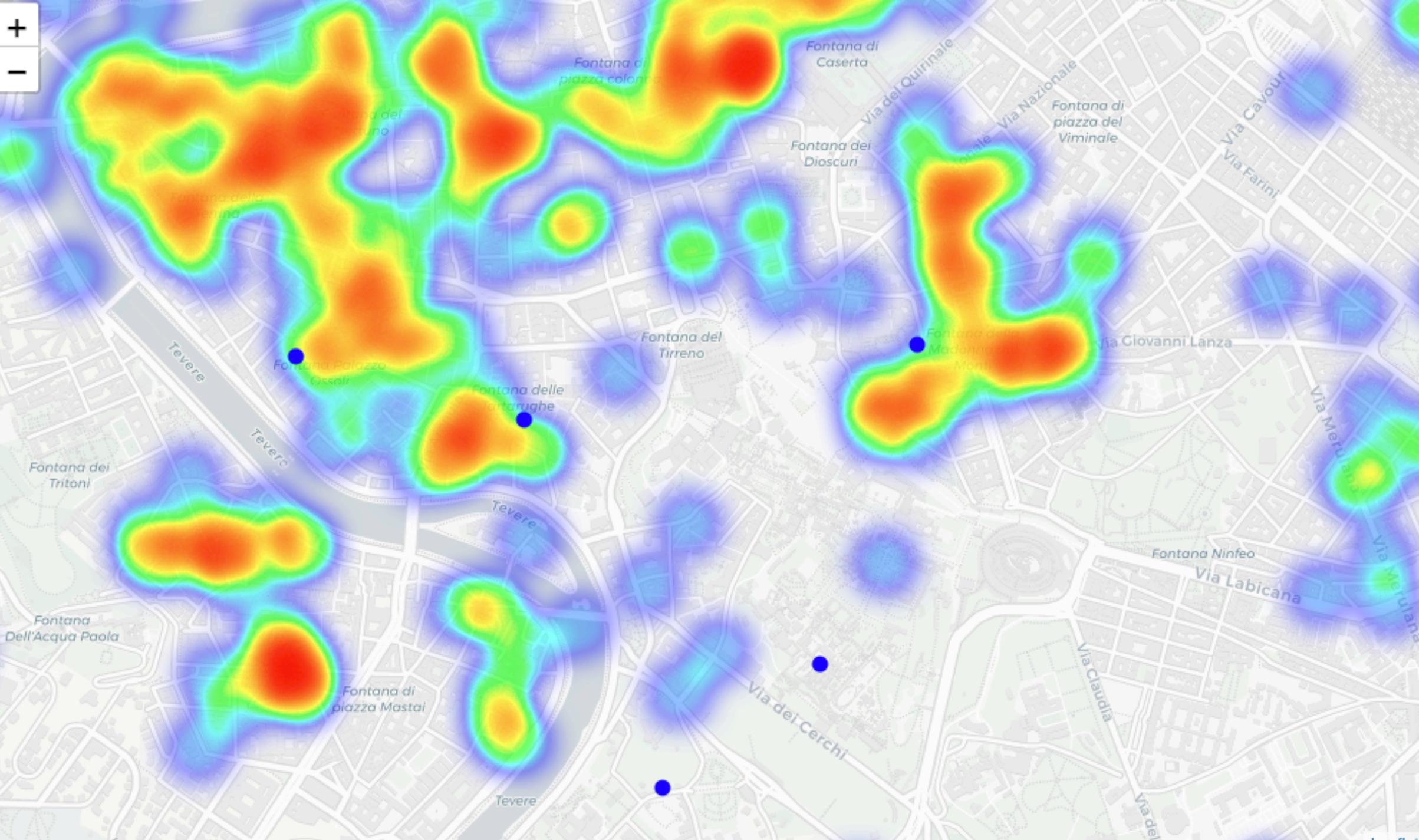
Analysis

We obtained a bunch of locations

- **fairly close to the center (less than 1km)**
 - **no more than 50 italian restaurants in radius of 500m.**

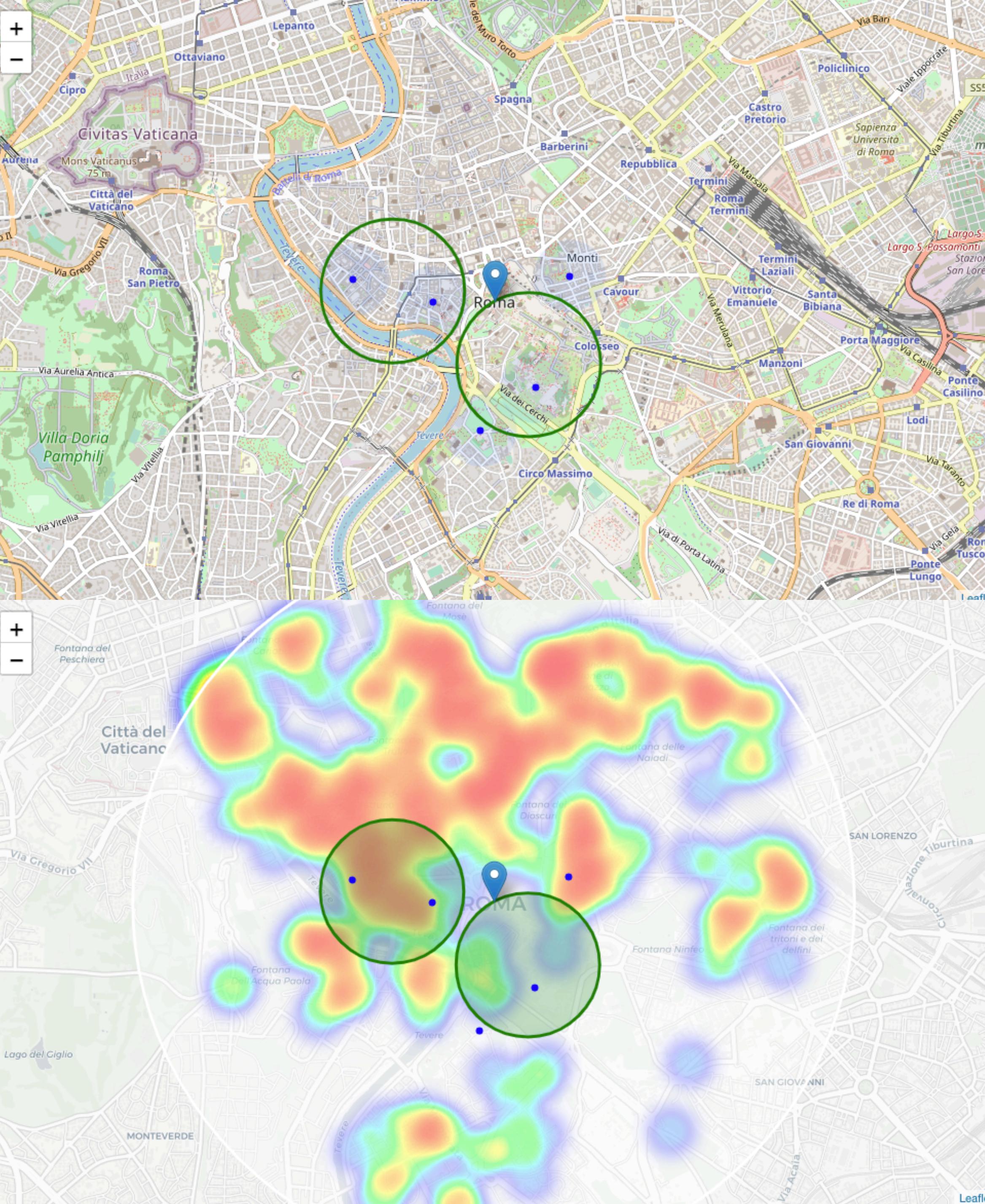
Any of those locations is a potential candidate for a new Italian restaurant, at least based on nearby competition.

	Rioni	Latitude	Longitude	Restaurants in area	Italian Restaurants in area	Distance from Center
0	Monti	41.894962	12.489225	47	38	0.551934
6	Regola	41.894722	12.471111	55	37	0.990785
9	Campitelli	41.888030	12.486391	6	4	0.654231
10	Sant'Angelo	41.893333	12.477778	29	19	0.426619
11	Ripa	41.885346	12.481799	16	14	0.891649



Clusterization - KMeans

- Finally we clustered those locations to create centers of zones containing good locations.
- The optimal number of clusters was estimated to be 2
- The cluster centers can be considered only as a starting point for exploring area in search for potential restaurant locations.
- Most of the zones are located around “rioni” **Campitelli, Ripa, San'Angelo**, which we have identified as interesting due to being popular with tourists, fairly close to city center and well connected by public transport and very close to the main monuments



Result and Discussion

- Our analysis shows that although there is a great number of restaurants in Municipio I of Rome there are pockets of low restaurant density fairly close to city center. Highest concentration of restaurants was detected north and west from the city centre.
- After directing our attention to this more narrow area of interest we looked to the **rioni**; those locations were then filtered so that those with more than 50 Italian restaurants in radius of 500m and those with a distance greater than 1Km from the Rome Center were removed. Those location candidates were then clustered to create zones of interest which contain greatest number of location candidates.
- Result of all this is 2 zones containing largest number of potential new restaurant locations based on number of existing venues. This, of course, does not imply that those zones are actually optimal locations for a new restaurant!
- Purpose of this analysis was to only provide info on areas close to Rome center but not crowded with existing restaurants (particularly Italian) - 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 Rome areas close to center with low number of restaurants (particularly Italian restaurants) in order to aid stakeholders in narrowing down the search for optimal location for a new Italian restaurant.
- By calculating restaurant density distribution from Foursquare data we 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)
- 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.