

# Predicting the best location in Rome

Capstone Project

# Predicting the best location for a new pizzeria in Rome



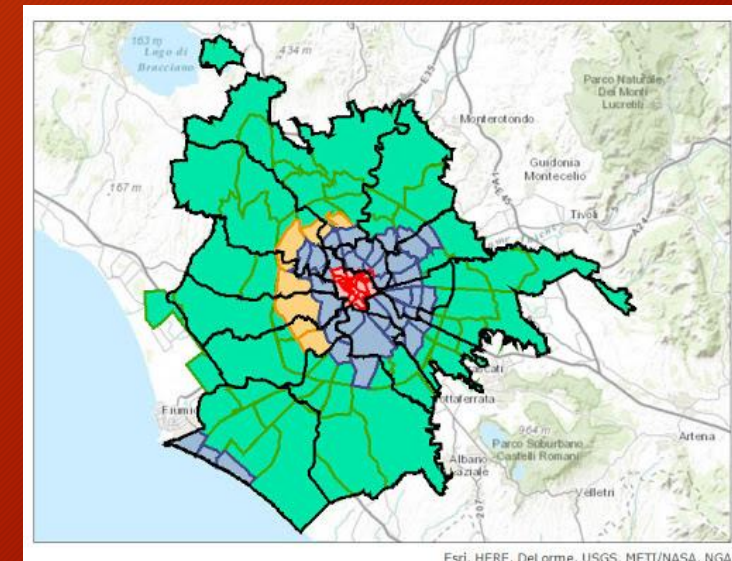
- It's interesting to evaluate the possibility of creating a new pizzeria in Rome, especially in parts of the city that are deficient in this type of structure (both in quantity and quality).
- We will use data science to generate a few most promising neighbourhoods (so called *quartieri* and *rioni* in Rome) based on this criterion.
- Advantages of each area will then be clearly expressed so that best possible final location can be chosen by stakeholders.





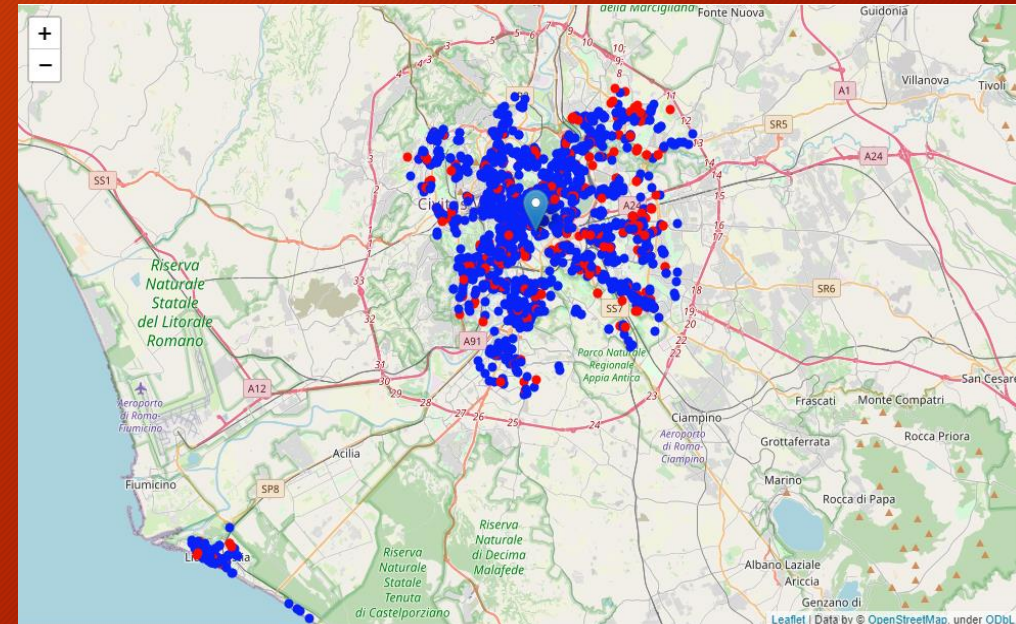
# Data acquisition and cleaning

- Demographic information taken from Wikipedia, concerning neighbourhoods and wards ([https://it.wikipedia.org/wiki/Quartieri\\_di\\_Roma](https://it.wikipedia.org/wiki/Quartieri_di_Roma) and [https://it.wikipedia.org/wiki/Rioni\\_di\\_Roma](https://it.wikipedia.org/wiki/Rioni_di_Roma))
- Centres of candidate areas obtained using **Google Maps API reverse geocoding**
- Restaurants/pizzerias and location in every neighbourhood obtained using **Foursquare API**
- Required minor cleaning operations



# Identifying most promising locations

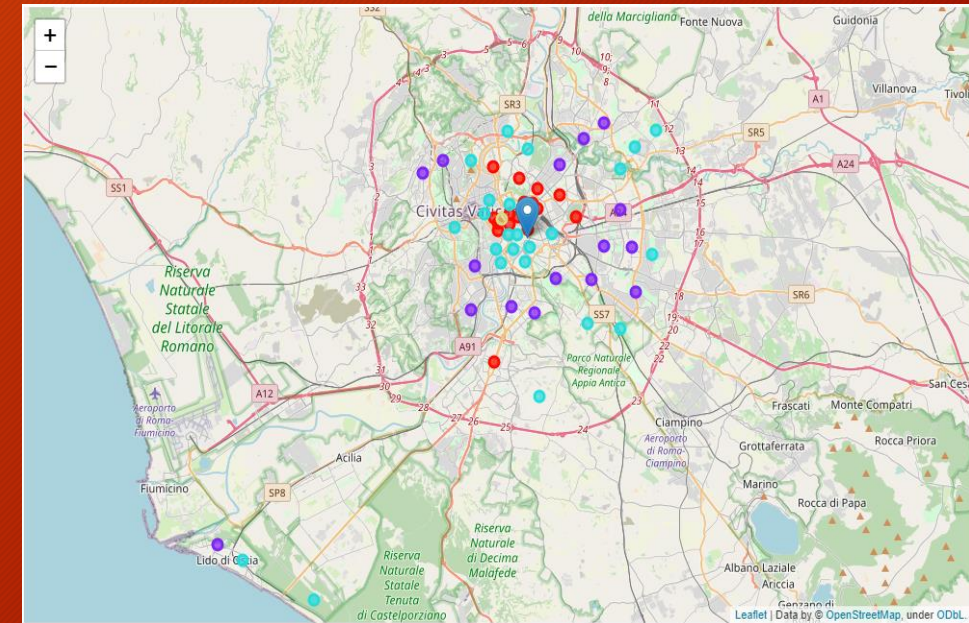
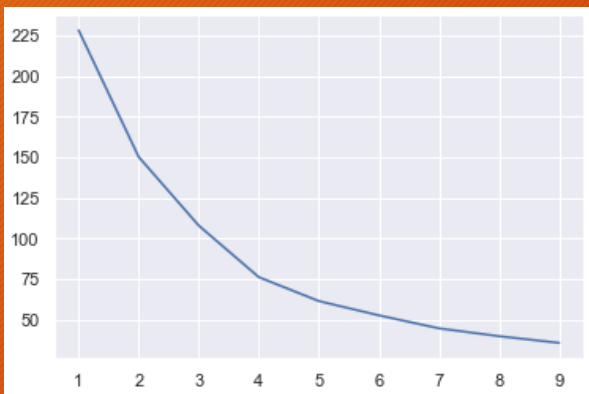
- Through joint use of geolocation of neighborhoods and Foursquare locations for food-related places, we've obtained a well defined map in Rome of existing premises (figurally divided from pizzerias, in **red** points).





# Classification algorithm: *k-means*

- Through the application of k-means to numerical features, we've found the best clustering of neighborhoods in Rome.
- The key-variable «k» identified by the *elbow method*.



# Candidates neighborhoods

- More accurate searches within the identified clusters (fewer existing pizzerias with a larger resident population) led us to the extraction of a set of neighborhoods most representative of our study

Tipo	Progressivo	Nome	Num. Abitanti	Densità	Latitude	Longitude	Num. pizzerie	Num. altro food
Quartiere	XV	Della Vittoria	36068	5847.79	41.928446	12.452388	3	53
Quartiere	XVIII	Tor di Quinto	21118	4321.26	41.942710	12.478187	2	50
Quartiere	XXX	San Basilio	22711	6005.34	41.943194	12.584311	2	15
Quartiere	XXXI	Giuliano Dalmata	21350	2672.46	41.813034	12.501125	3	7
Rione	XIX	Celio	24167	15288.80	41.885994	12.493956	3	32



# Conclusion



- We've found a set of neighborhoods as good candidates for our project.
- Our analysis shows that although there is a great number of food-related places in Rome, there are pockets of low pizzeria density.
- Focus given to the best balance between population and pizzeria/food-related places density.
- This, of course, does not imply that these zones are actually optimal locations for a new pizzeria. Purpose of this analysis was to only provide info on areas in Rome not crowded with existing restaurants.