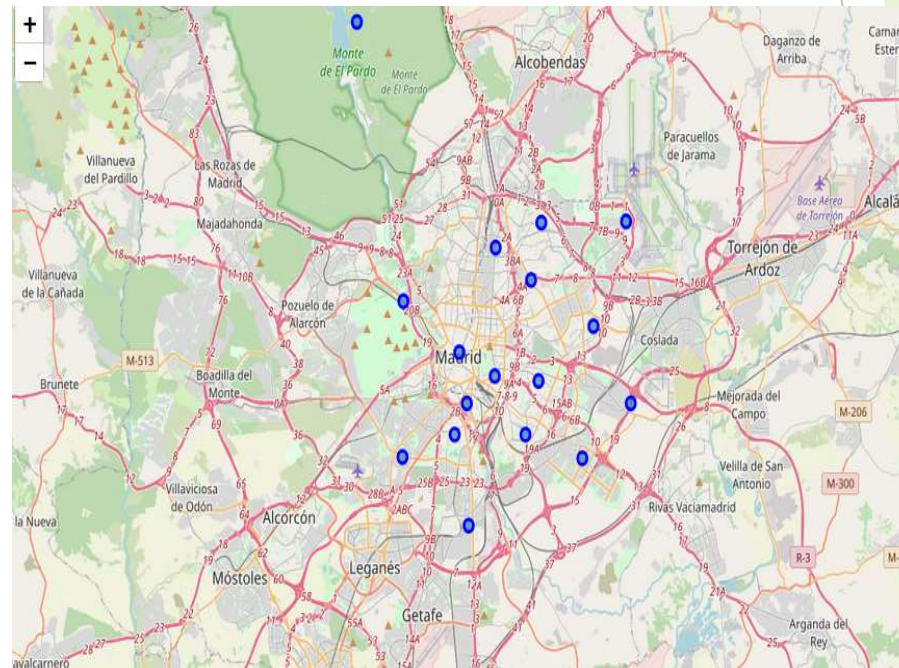# Capstone Project – The Battle of Neighborhoods in Madrid City for Food Chances

Discovering a selection of Madrid gastronomy:

- Spain was the second most visited country in the world.

- Madrid, Spain's capital, is the largest city, and a top destination for many visitors. especially with large numbers of tourists from the United Kingdom, Ireland, France, Germany, Italy, the Benelux, and the United States, among others.

- New gastronomic spaces are born in the city every little time in the city, specialty shops, cooking schools, culinary tours and, of course, establishments, make a living and highly attractive environment for visitors
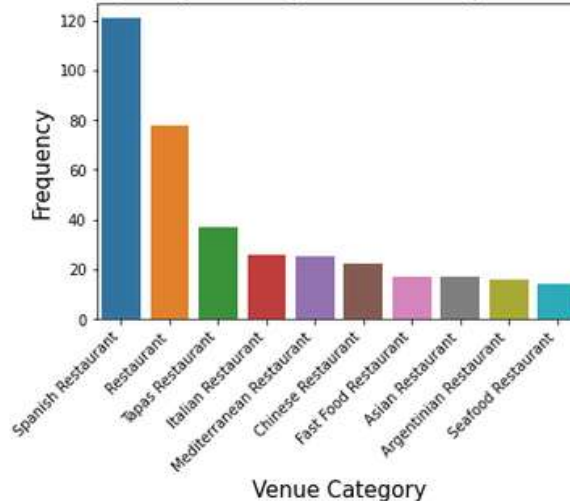
Neighborhoods of Madrid city

- to explain how to extract and to clean out the data with the unnecessary information utilizing the library in Python panda data frame.

- Information extracted from Wikipedia.

- To added geospatial data, latitude and the longitude, installing conda-forge geopy package to take geopy functions.

List of Madrid restaurant with unique categories

- getNearbyVenues function:
  - to explore the neighborhoods in Madrid and
  - to retrieve foursquare data for all venues.
- barplot function with bar chart with the 10 most frequently restaurants in the whole city using seaborn and matplotlib packages

10 Most Frequently Occuring Venues in 9 City Districts of Madrid
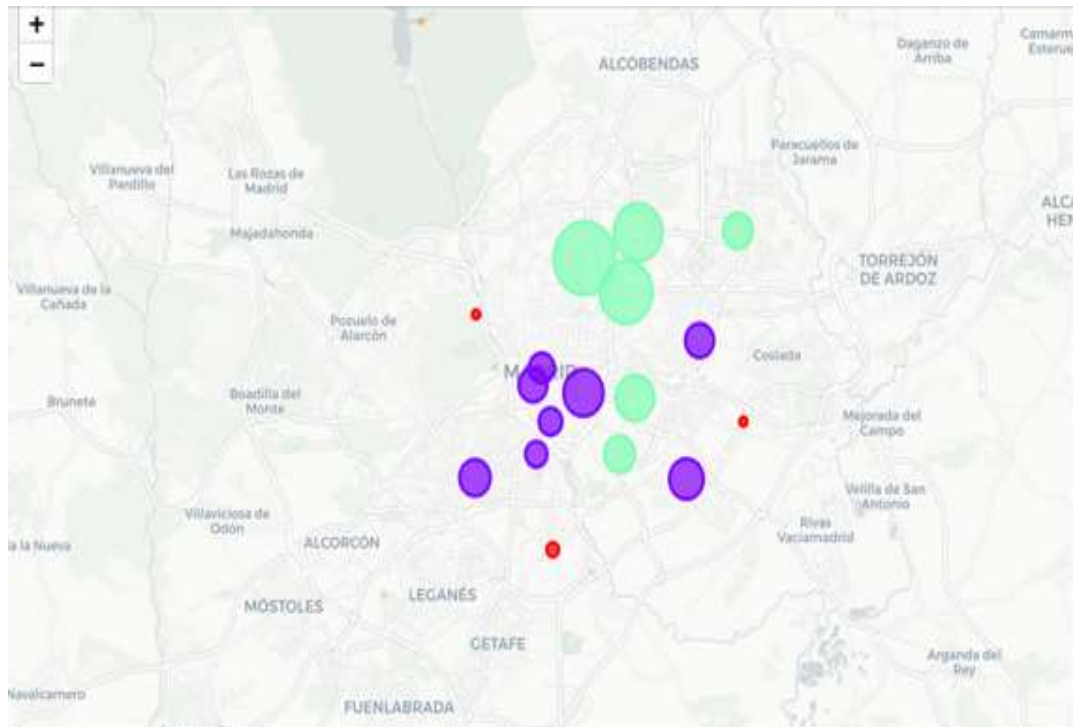
<Figure size 1296x504 with 0 Axes>

The most common restaurant venue types for each city district

▶ Data frame with restaurant venues associated to city districts by on-hot encoding to find clusters of types of restaurant in different districts of Madrid.

▶ Neighborhood grouping by the mean of each restaurant category frequency in each district.

Cluster Labels	Neighborhood	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
1	Arganzuela	Restaurant	Spanish Restaurant	Italian Restaurant	Argentinian Restaurant	Tapas Restaurant	Mediterranean Restaurant	Thai Restaurant	Sushi Restaurant
2	Barajas	Spanish Restaurant	Restaurant	Japanese Restaurant	Argentinian Restaurant	Tapas Restaurant	Chinese Restaurant	Himalayan Restaurant	Mexican Restaurant
1	Carabanchel	Spanish Restaurant	Italian Restaurant	Tapas Restaurant	Restaurant	Seafood Restaurant	Asian Restaurant	Paella Restaurant	Mediterranean Restaurant
1	Centro	Restaurant	Tapas Restaurant	Sushi Restaurant	Mediterranean Restaurant	Argentinian Restaurant	Spanish Restaurant	Seafood Restaurant	Chinese Restaurant
1	Chamartín	Spanish Restaurant	Restaurant	Japanese Restaurant	Thai Restaurant	Tapas Restaurant	Mediterranean Restaurant	Seafood Restaurant	Asian Restaurant
3	Chamberí	French Restaurant	Fast Food Restaurant	Venezuelan Restaurant	Falafel Restaurant	Japanese Restaurant	Italian Restaurant	Indian Restaurant	Himalayan Restaurant
1	Ciudad Lineal	Spanish Restaurant	Restaurant	Tapas Restaurant	Chinese Restaurant	Indian Restaurant	Asian Restaurant	Thai Restaurant	Sushi Restaurant
4	Fuencarral-El Pardo	Spanish Restaurant	Venezuelan Restaurant	Falafel Restaurant	Japanese Restaurant	Italian Restaurant	Indian Restaurant	Himalayan Restaurant	Greek Restaurant

The city districts marked by a cluster using folium function

Conclusion

- Spanish restaurants including tapas restaurants are the most frequently occurring restaurants in Madrid.

- In a second level, Italian and Mediterranean restaurants are predominant in the city.

- Another important point is the average income for each district, the higher average income is more possible to find international cuisine restaurants, the less average income is more probably to see in those districts Spanish restaurants specially tapas restaurants and fast food restaurants too.