

# The Battle of Neighbourhoods Capstone Project

## Where will be the biggest cluster of Middle Eastern Restaurant in US

- **Introduction:**

You are a business man and your job sometimes require attending dinner meetings with clients from all over the world. One of your customers is from the middle east, Now you want to pay him a visit to a state where you can find a high density of Middle Eastern Restaurant. We are going to analyze the best 5 places in US with the highest density of Middle Eastern Restaurant.

- **Data Section:**

I will be using the FourSquare API to collect data about locations of Middle Eastern Restaurant in of the most famous US cities (New York, Chicago, San Francisco, Boston).

- **Methodology:**

My main target here is to asses which city would have the highest Middle Eastern Restaurant density. I used the Four Square API through the venues channel. I used the near query to get venues in the cities. Also, I use the CategoryID to set it to show only Middle Eastern Restaurant Places.

An Example of my requests:

[https://api.foursquare.com/v2/venues/explore?&client\\_id=&client\\_secret=&v=20180605&New York, NY&limit=100&categoryId= 4bf58dd8d48988d115941735](https://api.foursquare.com/v2/venues/explore?&client_id=&client_secret=&v=20180605&New York, NY&limit=100&categoryId= 4bf58dd8d48988d115941735)

That 4bf58dd8d48988d115941735 is the Id of the Middle Eastern Restaurant Place Category. Also, Foursquare limits us to maximum of 100 venues per query.

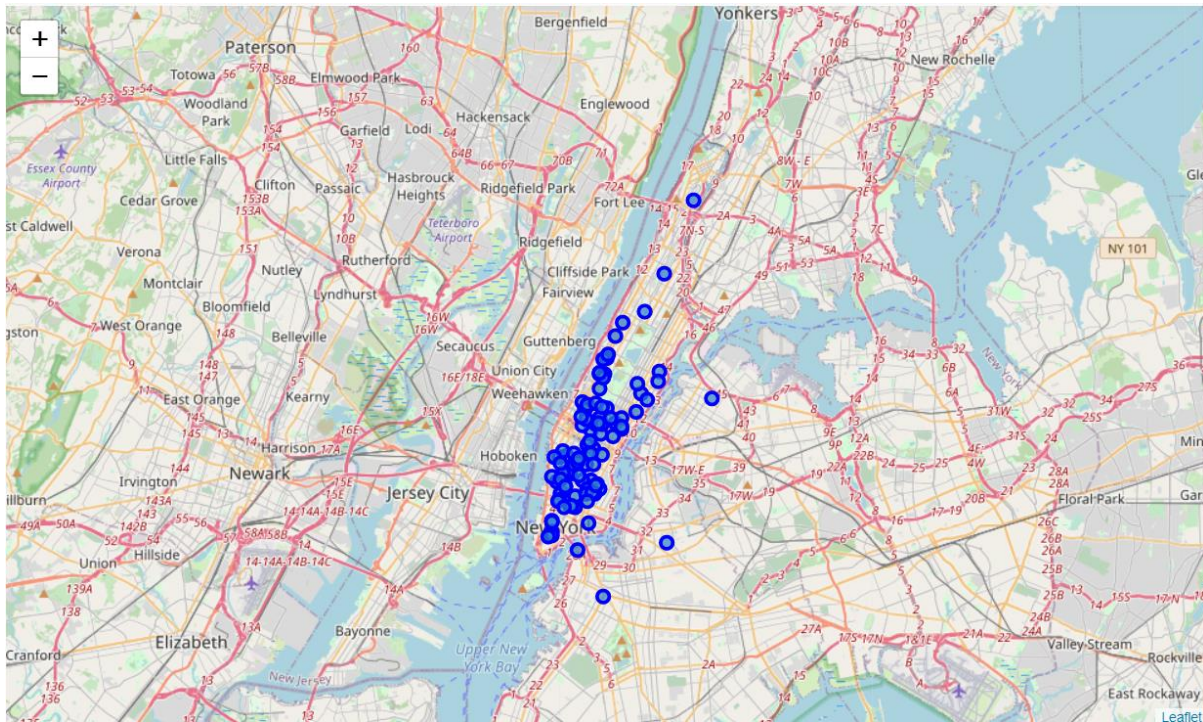
Moreover, I repeated this request for the 4 studied cities and got their top 100 venues. I saved the name and coordinate data only from the result and plotted them on the map for visual inspection.

Next, to get an indicator of the density of Middle Eastern Restaurant Places, I calculated a center coordinate of the venues to get the mean longitude and latitude values. Then I calculated the mean of the Euclidean distance from each venue to the mean coordinates. That was my indicator; mean distance to the mean coordinate.

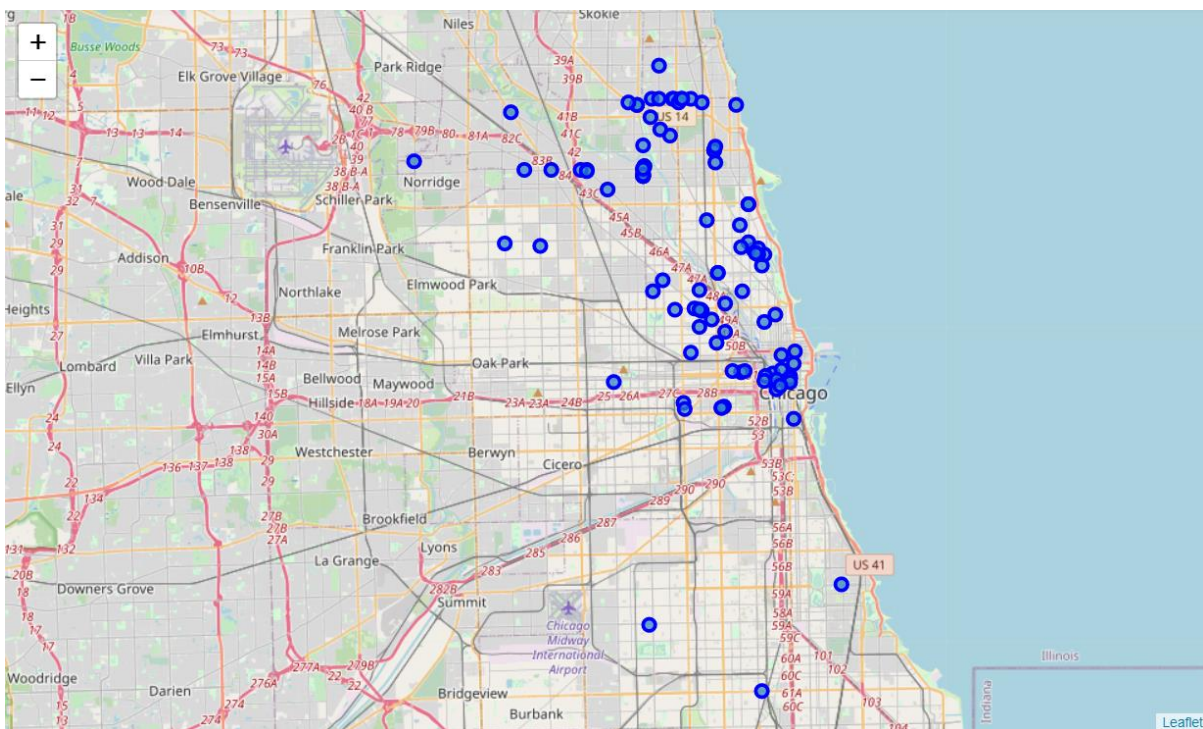
- **Results:**

For our initial visual inspection we see that they all have multiple Middle Eastern Restaurant places and often more than Foursquare would like to supply us. The following here are the pictures of the geoplot generated with folium:

## New York

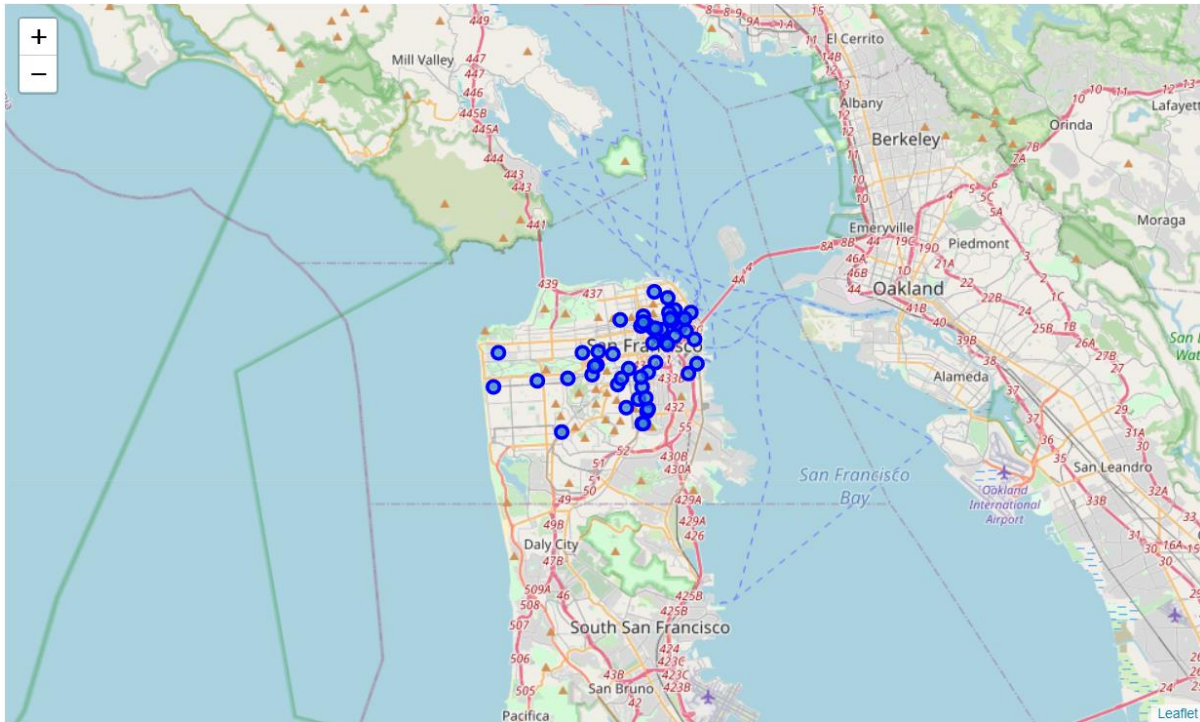


## Chicago

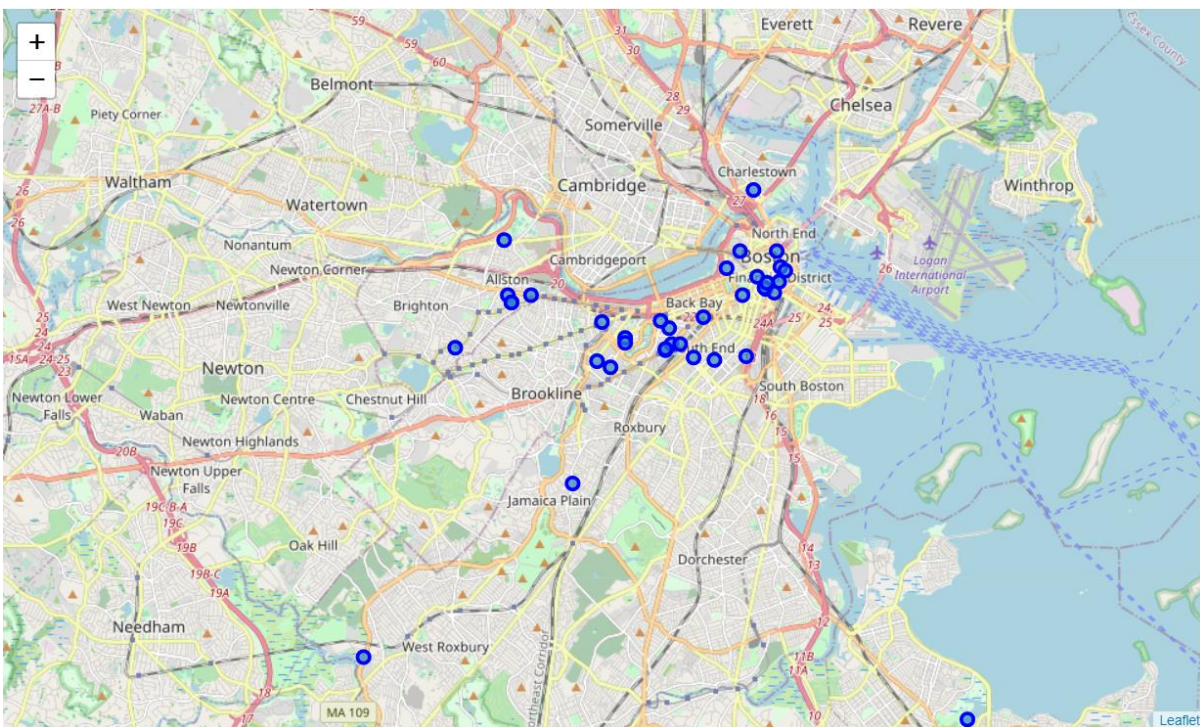




## San Francisco



## Boston

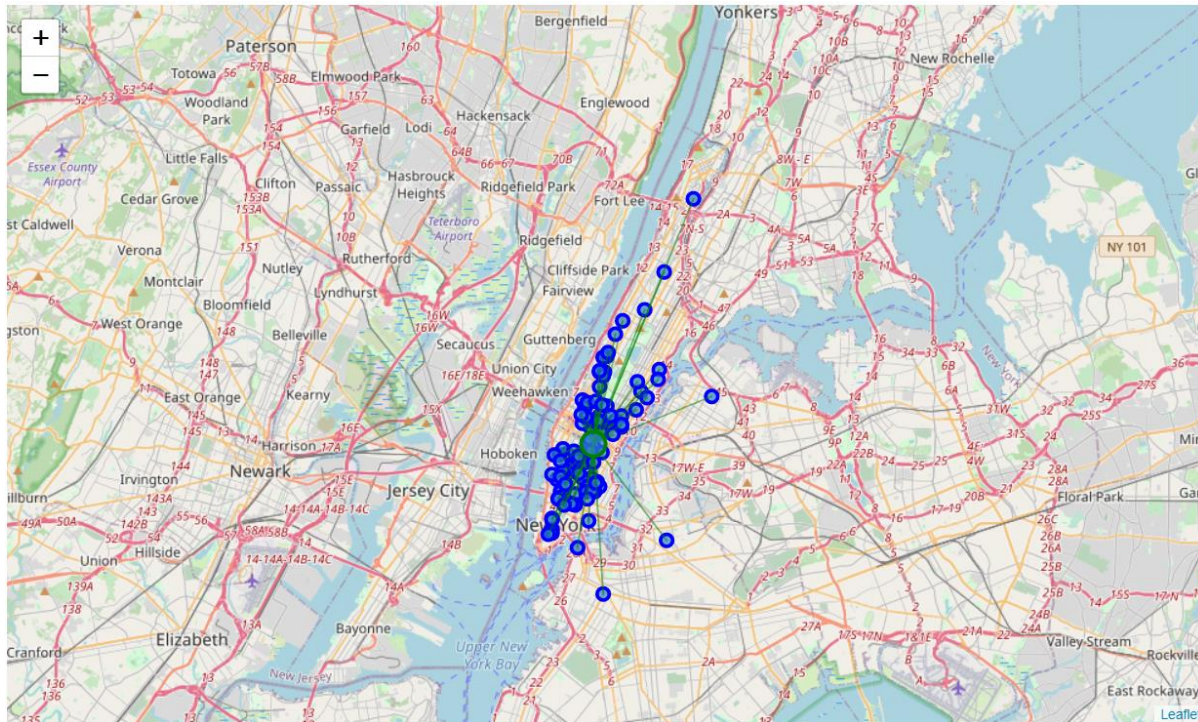


Upon First inspection we see that New York, Chicago and San Francisco are the most densely cities.

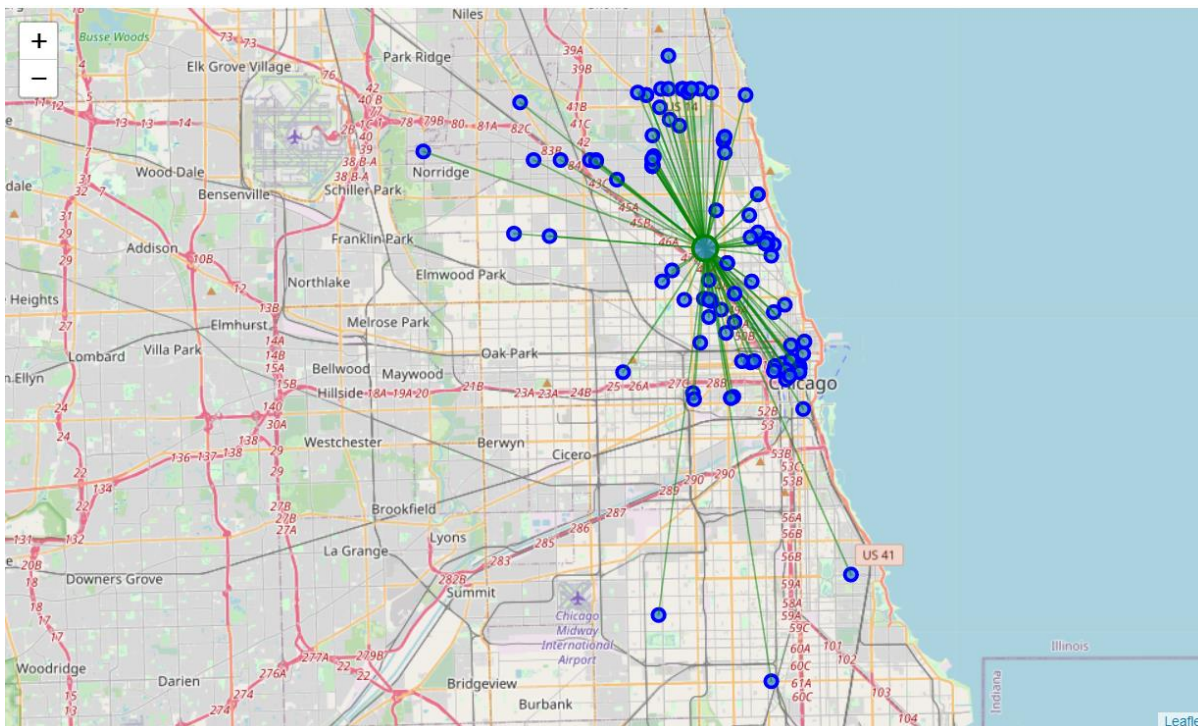
In the next phase we Calculate the Mean coordinate and the mean distance to mean coordinate (MDMC). We represent the mean coordinate with a big green circle and distances with green lines.



## New York (MDMC: 0.025446)

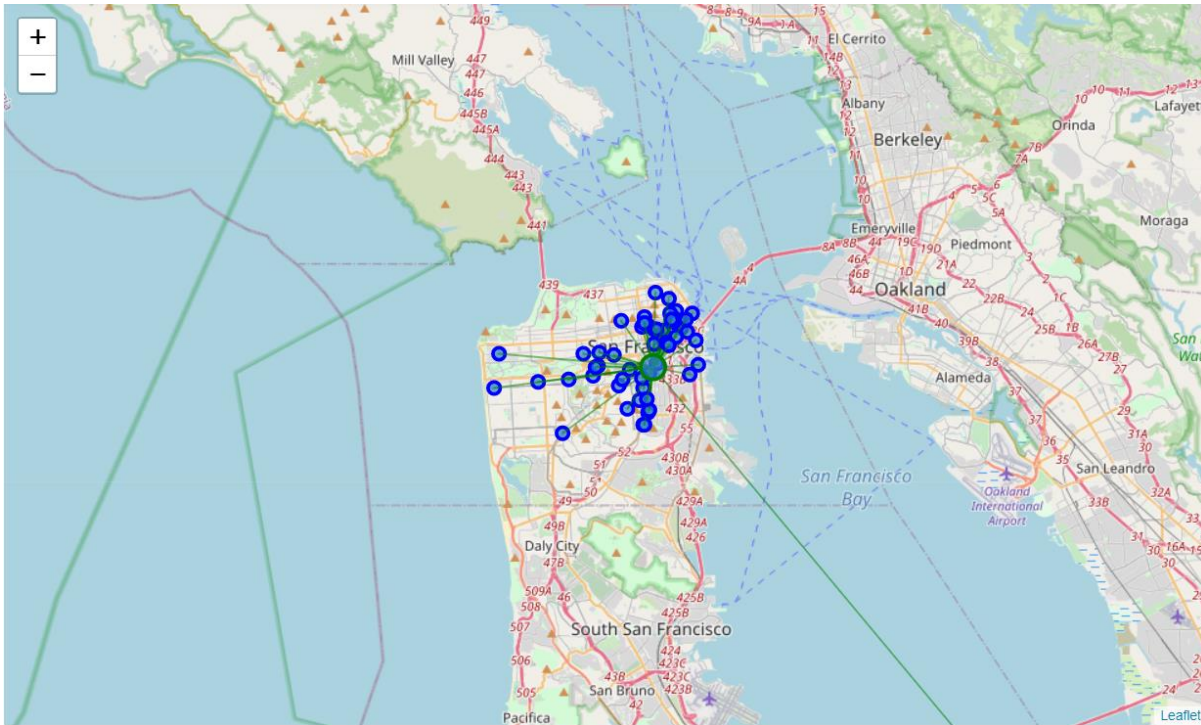


## Chicago (MDMC: 0.057923)

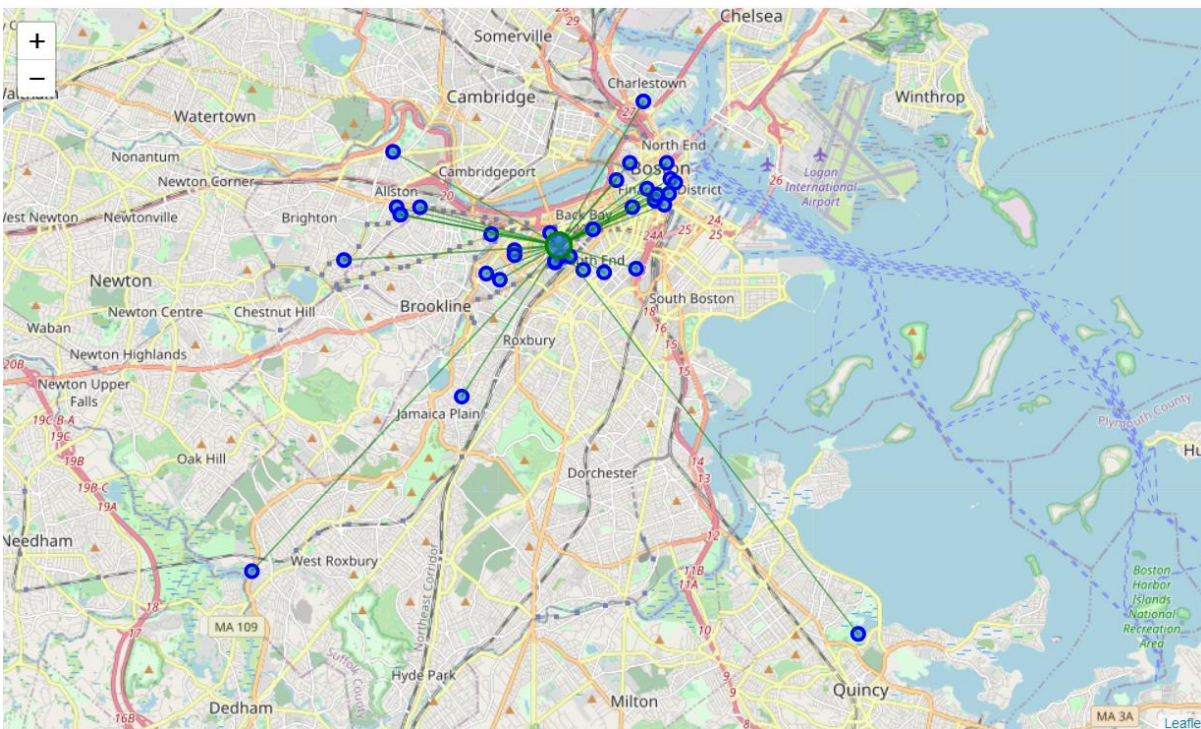




### San Francisco (MDMC: 0.034691)



### Boston (MDMC: 0.029599)



Therefore, our results are:

1. New York
2. Boston
3. San Francisco
4. Chicago

**Conclusion:**

Now there is no doubt that New York is the best place to try many Middle Eastern Restaurant Places in the US. Also, if our tourist is done with all the New York he can cross to Boston for more.

Also, we would recommend that our tourist book a hotel close to the mean coordinate.