



Capstone Project - The Battle of Neighborhoods (Week-2)

Explore and visualize all borough and neighborhoods that has great middle eastern food and dishes in New York





Introduction and background

- New York city is largest city in the US. New York is also the most populated city in the country. According to the “worldpopulationreview.com” web site New York population in 2019 reached **19.88 million**.
- With such a diverse population, people from all races live in the state of New York, and different ethnic identities have make a rich culture diversity in the city.
- New York officials reports that over 200 nationalities were be a part of New York.
- With its diverse culture and nationalities, comes diverse food dishes. There are many restaurants in New York city, each belongs to different race and ethnics like middle eastern, Italian, French, German, Chinese, Indian etc.
- So, as for this project, we will search, explore and visualize all borough and neighborhoods that has great **middle eastern food and dishes**.



Data Source

- New York city data sets that contains list of countries, neighborhoods along with their latitude and longitude (https://cocl.us/new_york_dataset)
- Foursquare API data, we will use this Foursquare API to fetch all venues and places in each neighborhood. By filtering the results and get only middle eastern restaurants
- Geo Space Data, This map will visualize the results of top middle east restaurants in New York neighborhoods

New York City Data Summary (Boroughs, Neighborhood, Latitude and Longitude)

```
In [6]: new_york_data=get_new_york_data()
```

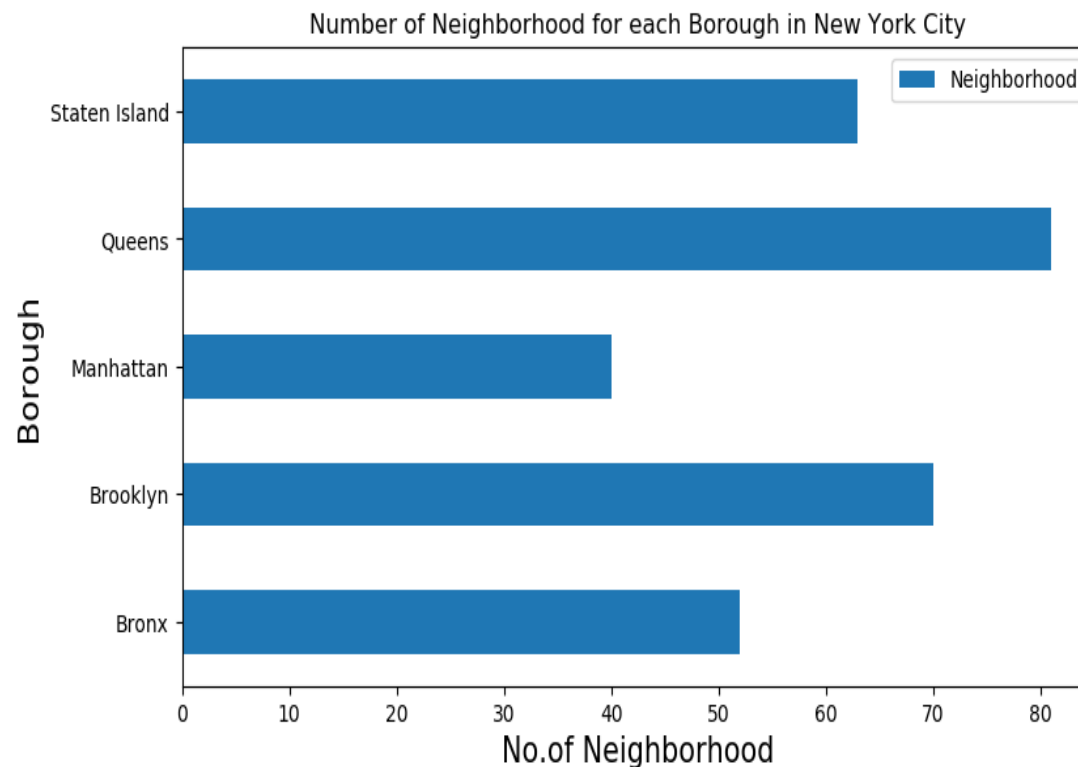
```
In [7]: new_york_data.head()
```

Out[7]:

	Borough	Neighborhood	Latitude	Longitude
0	Bronx	Wakefield	40.894705	-73.847201
1	Bronx	Co-op City	40.874294	-73.829939
2	Bronx	Eastchester	40.887556	-73.827806
3	Bronx	Fieldston	40.895437	-73.905643
4	Bronx	Riverdale	40.890834	-73.912585

```
In [8]: new_york_data.shape
```

Out[8]: (306, 4)



Neighborhood list that contains Middle Eastern Restaurants

(By using API Foursquare, we retrieved sixty nine restaurant grouped in five borough)

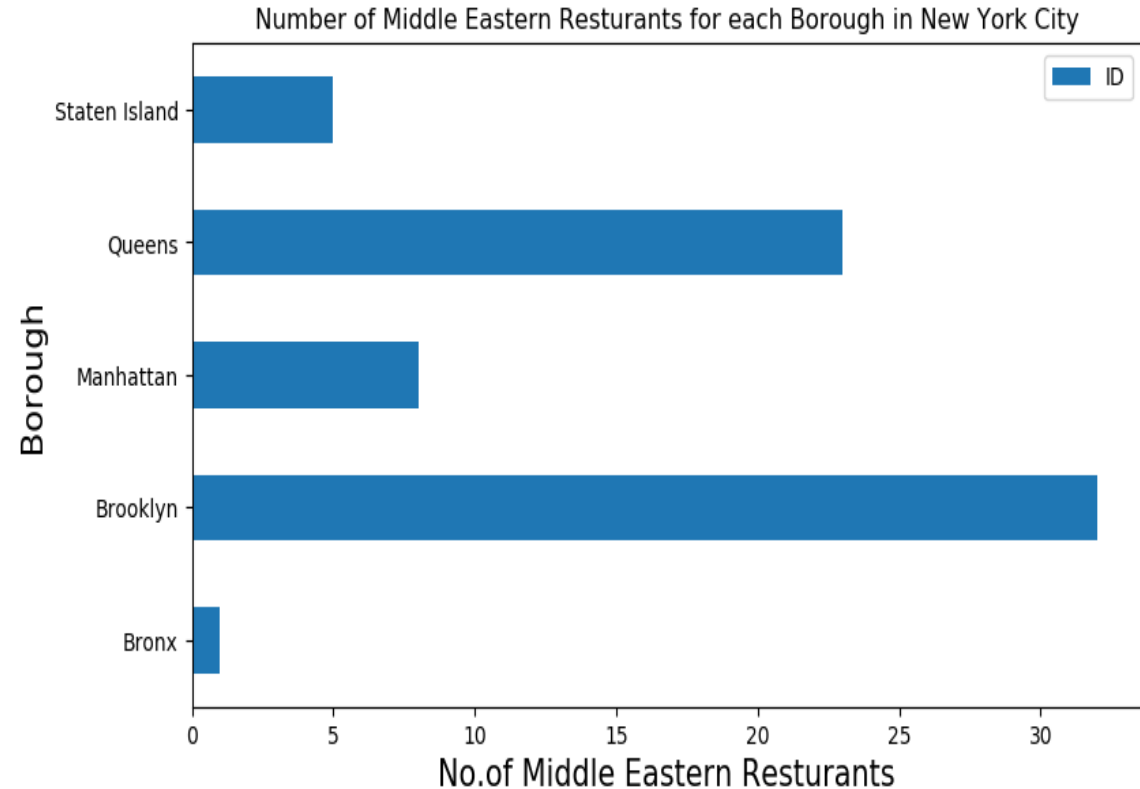
```
In [42]: middle_eastern_ny_rest.head()
```

```
Out[42]:
```

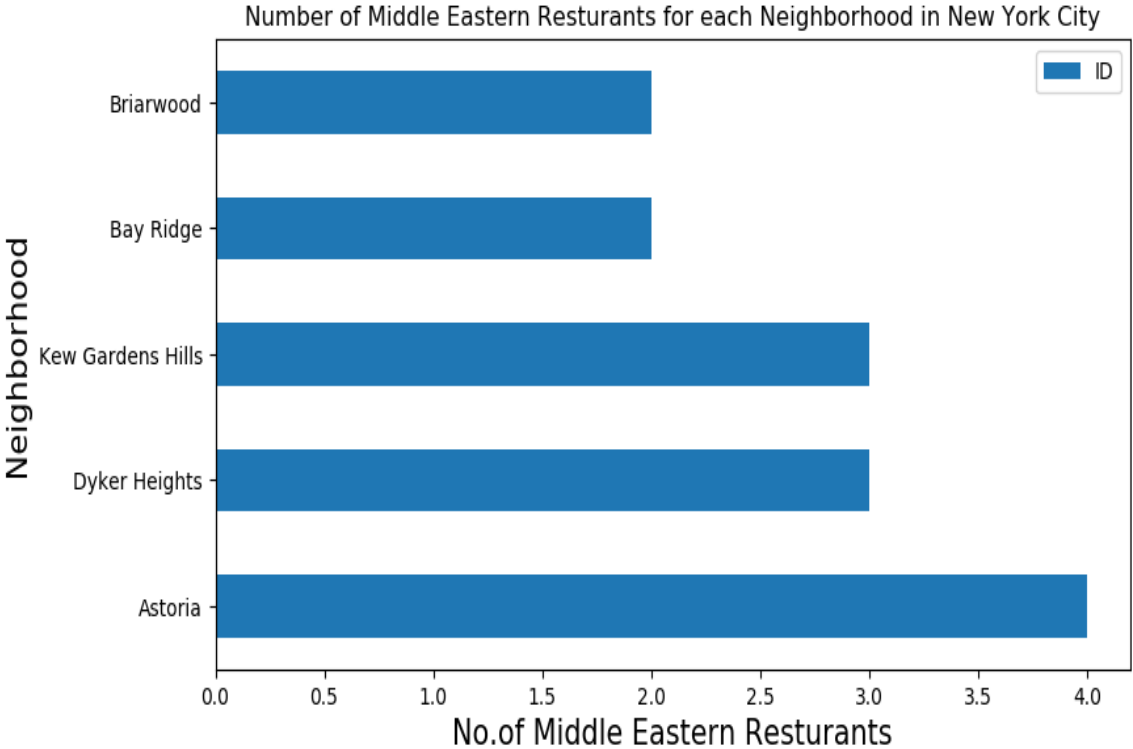
	Borough	Neighborhood	ID	Name
0	Bronx	Morris Heights	4b298f71f964a520eba024e3	Golan Heights
1	Brooklyn	Bay Ridge	4b6785d6f964a520aa532be3	Karam
2	Brooklyn	Bay Ridge	58bee70d5804ea784f84ad53	Ruzana
3	Brooklyn	Manhattan Terrace	4cd2f57125ee6dc7054470f	Aksaray Gyro
4	Brooklyn	Flatbush	4d90d33b5091a1cdf601c401	Gyro King

```
In [43]: middle_eastern_ny_rest.shape
```

```
Out[43]: (69, 4)
```



Number of Middle Eastern Restaurants for each Neighborhood in New York City



```
In [45]: middle_eastern_ny_rest[middle_eastern_ny_rest['Neighborhood']=='Astoria']
```

Out[45]:

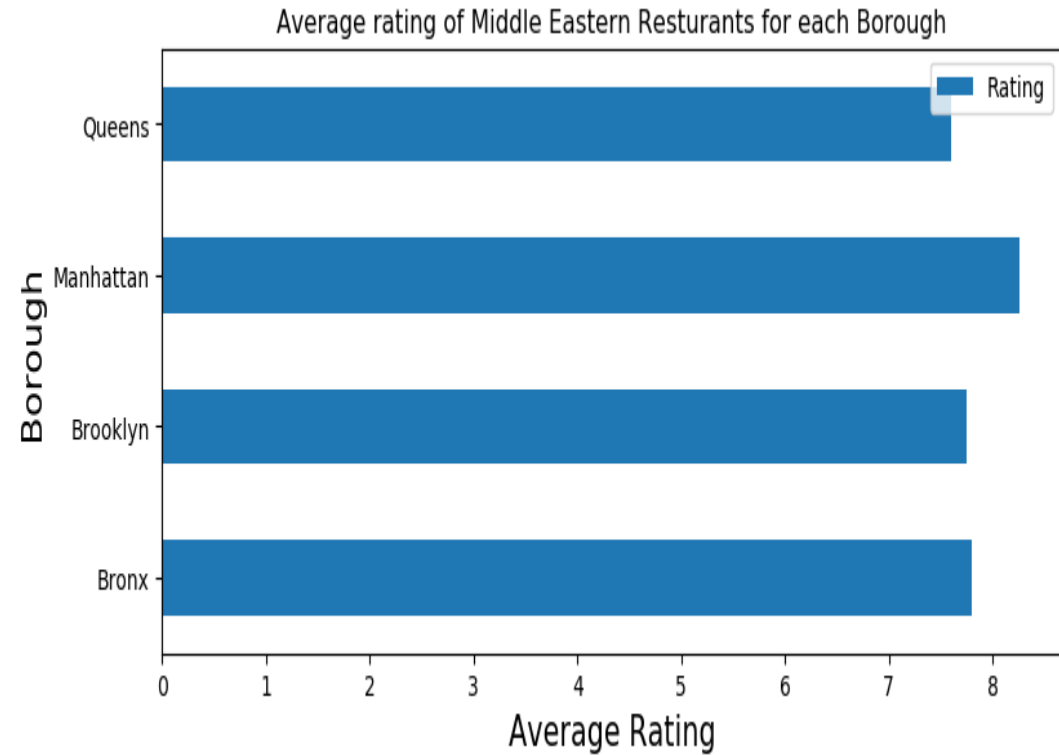
	Borough	Neighborhood	ID	Name
36	Queens	Astoria	4ba58abaf964a520d01039e3	Al-sham Sweets and Pastries
37	Queens	Astoria	578837cecd108caad4364993	King of Falafel and Shawarma
38	Queens	Astoria	4276bf00f964a5208e211fe3	Mombar
39	Queens	Astoria	4b726a56f964a520467a2de3	Halal Sandwich Shop

Likes, Rating and Tips for middle eastern restaurant

(from the histogram we notice that average rating is eight so we choose the restaurants with equal or higher than eight)

Out[45]:

	Borough	Neighborhood	ID	Name
36	Queens	Astoria	4ba58abaf964a520d01039e3	Al-sham Sweets and Pastries
37	Queens	Astoria	578837cecd108caad4364993	King of Falafel and Shawarma
38	Queens	Astoria	4276bf00f964a5208e211fe3	Mombar
39	Queens	Astoria	4b726a56f964a520467a2de3	Halal Sandwich Shop





Final List of Middle Eastern Restaurant in New York List

(we retrieved seventeen restraints from five borough)

```
In [40]: ny_neighborhood_stats.head()
```

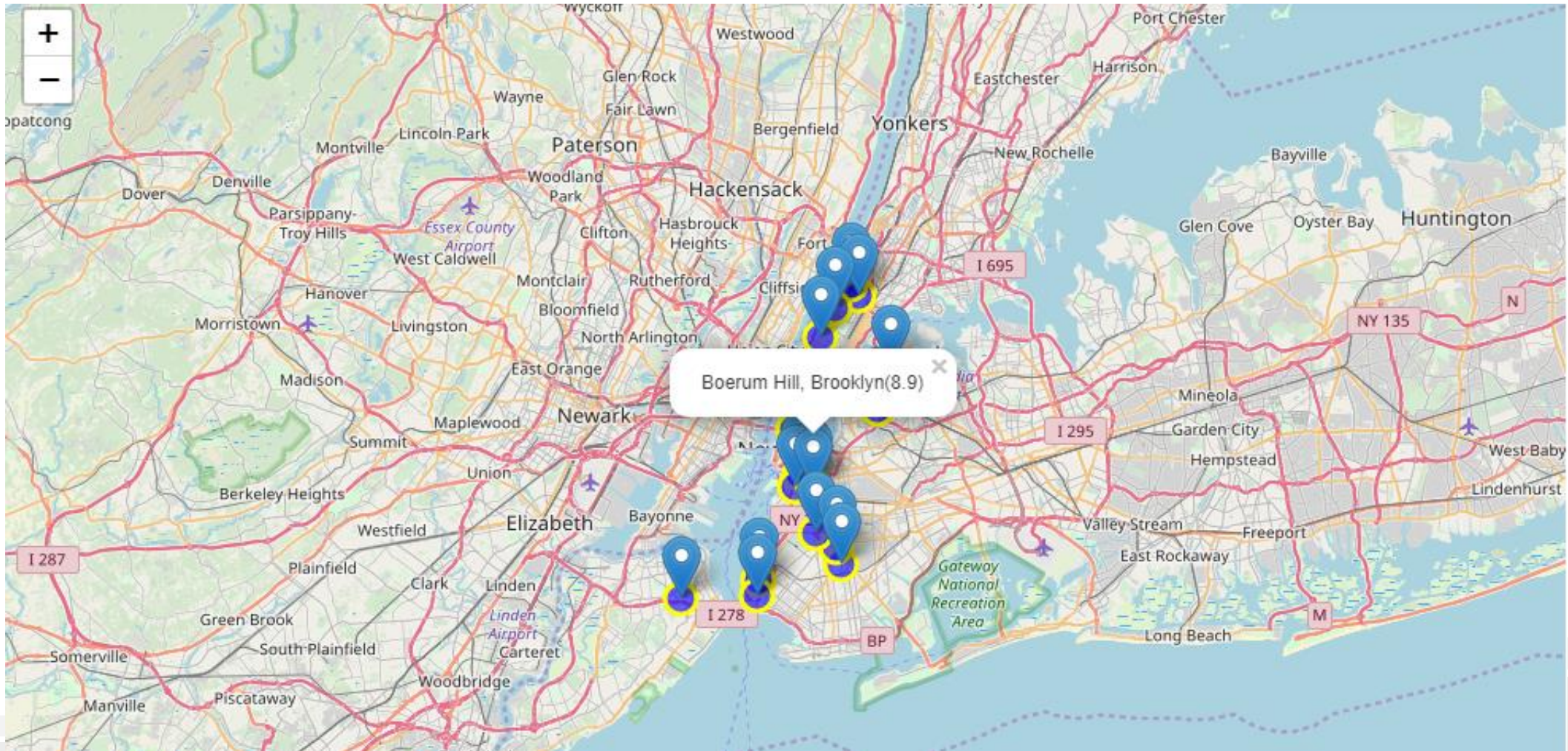
```
Out[40]:
```

	Neighborhood	Average Rating	Borough	Latitude	Longitude
0	Astoria	8.00	Queens	40.768509	-73.915654
1	Bay Ridge	8.25	Brooklyn	40.625801	-74.030621
2	Boerum Hill	8.90	Brooklyn	40.685683	-73.983748
3	Brooklyn Heights	8.65	Brooklyn	40.695864	-73.993782
4	Central Harlem	8.10	Manhattan	40.815976	-73.943211

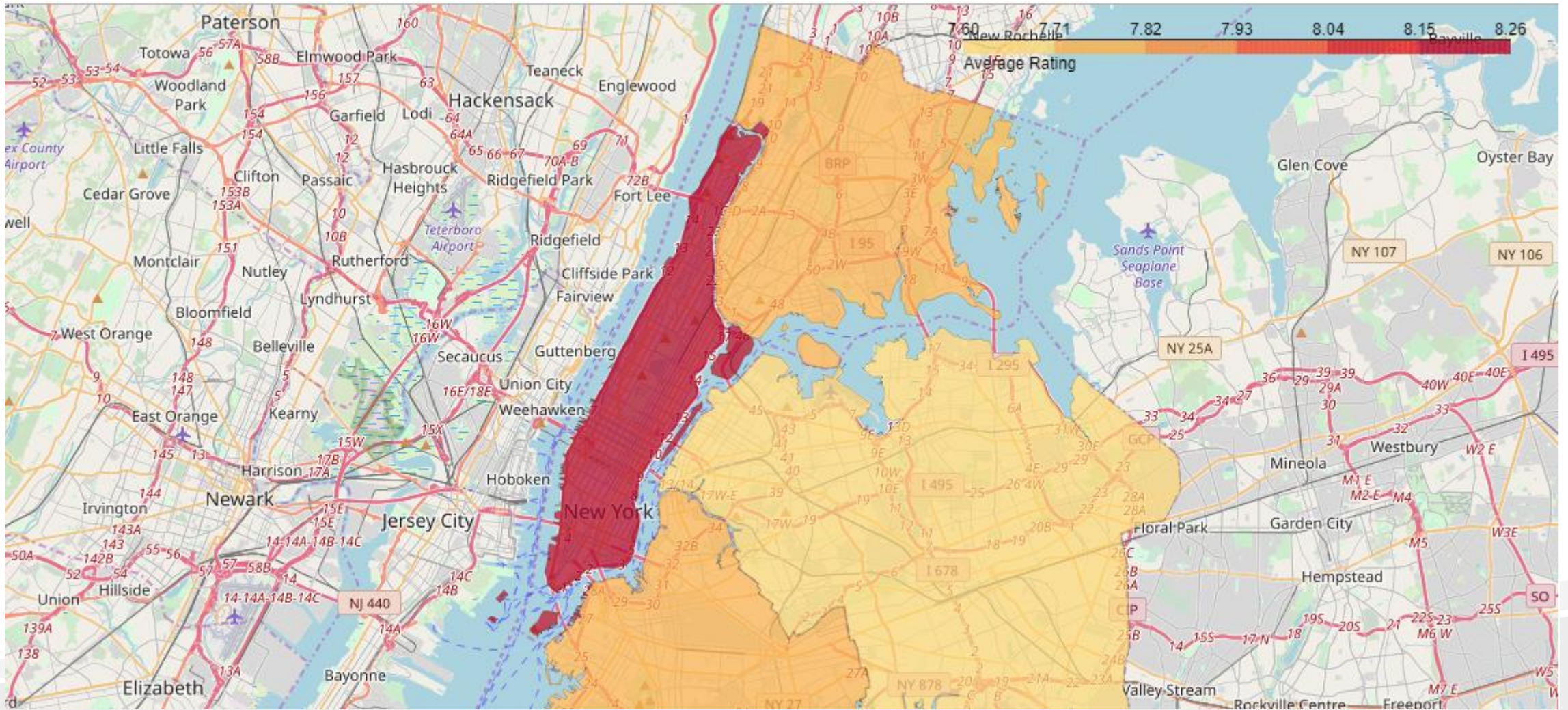
```
In [38]: ny_neighborhood_stats.shape
```

```
Out[38]: (17, 5)
```


Map with pop-up text for Top Reviewed Middle Eastern Restaurant in New York City (using folium library)



Choropleth Map with Borough Boundaries for Top Reviewed Middle Eastern Restaurant in New York City (using folium and ploty library)





Conclusion and future directions

Conclusions and Limitations

- Build useful map to show top rating middle eastern restaurants in new York city boroughs and neighborhood.
- Manhattan rated top venue for middle eastern food
- Other venues are almost share the same market for middle eastern food
- The accuracy of data associated with data provided by Foursquare

Ideas Include:

- Build more physical data to improve the accuracy of data
- Using clustering techniques to compare different New York boroughs and neighborhoods based on financial and other related data (medical, population, crime rates, etc.)