

Locating Afghan Restaurants in New York

Introduction

As a part of my final Report I have decided to search and locate for Afghan restaurants in the city of New York to help those who have had to seek asylum due to the ongoing wars and acts of terror in Afghanistan.

This final project explores the best locations for Afghan restaurants throughout the city of New York. New York is a major metropolitan area with more than 8 million(2016) people living within city limits. Due to the many wars and ongoing fights with the Taliban there are a number of asylum seekers coming into New York who need jobs and food. This report explores which neighbourhoods and boroughs of New York have the most as well as the best Afghan restaurants, to help people who have come from a war torn country feel a little accepted.

Additionally, I will attempt to answer the questions “Where should I open an Afghan Restaurant ?” and “Where should I stay If I want great Afghan food?”

Data

In order to answer the above questions, data on New York City neighbourhoods, boroughs to include boundaries, latitude, longitude, restaurants, and restaurant ratings and tips are required.

New York City data containing the neighborhoods and boroughs, latitudes, and longitudes will be obtained from the data source: https://cocl.us/new_york_dataset All data related to locations and quality of Afghan restaurants will be obtained via the FourSquare API utilized via the Request library in Python.

Methodology

In Brief:-

Data will be collected from https://cocl.us/new_york_dataset and cleaned and processed into a dataframe and New York City data containing neighborhood boundaries will be obtained from the data source: <https://data.cityofnewyork.us/City-Government/Borough-Boundaries/tqmj-j8zm>

FourSquare be used to locate all venues and then filtered by Afghan restaurants. Ratings, tips, and likes by users will be counted and added to the dataframe.

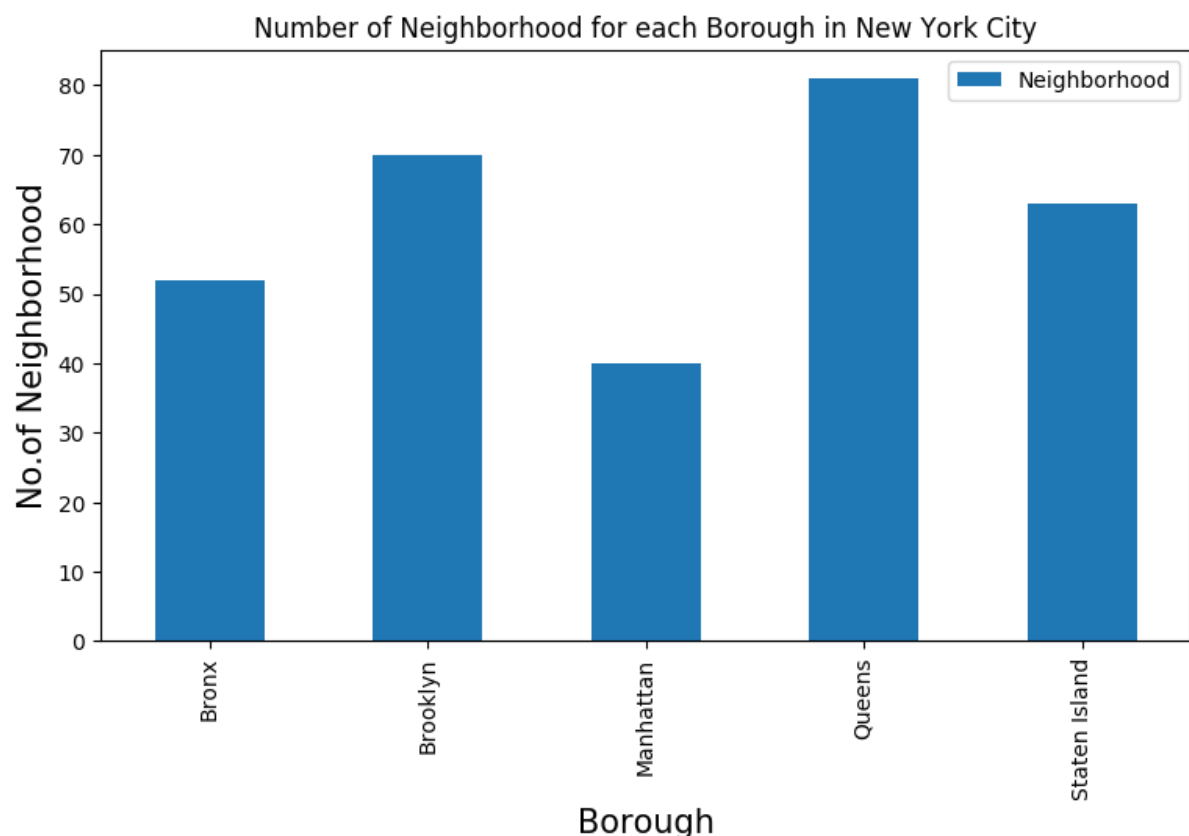
Data will be sorted based on rankings

Finally, the data be will be visually assessed using graphing from various Python libraries.

Results:-

1-Obtaining the Data

- We obtained a data frame consisting of the various Neighbourhoods and Boroughs in New York along with its respective Longitude and Latitude.
- On analysing the data we found out that there were a total of 306 Neighbourhoods and five Boroughs.
- A bar chart was plotted to analyse the number of neighbourhoods in each Borough.

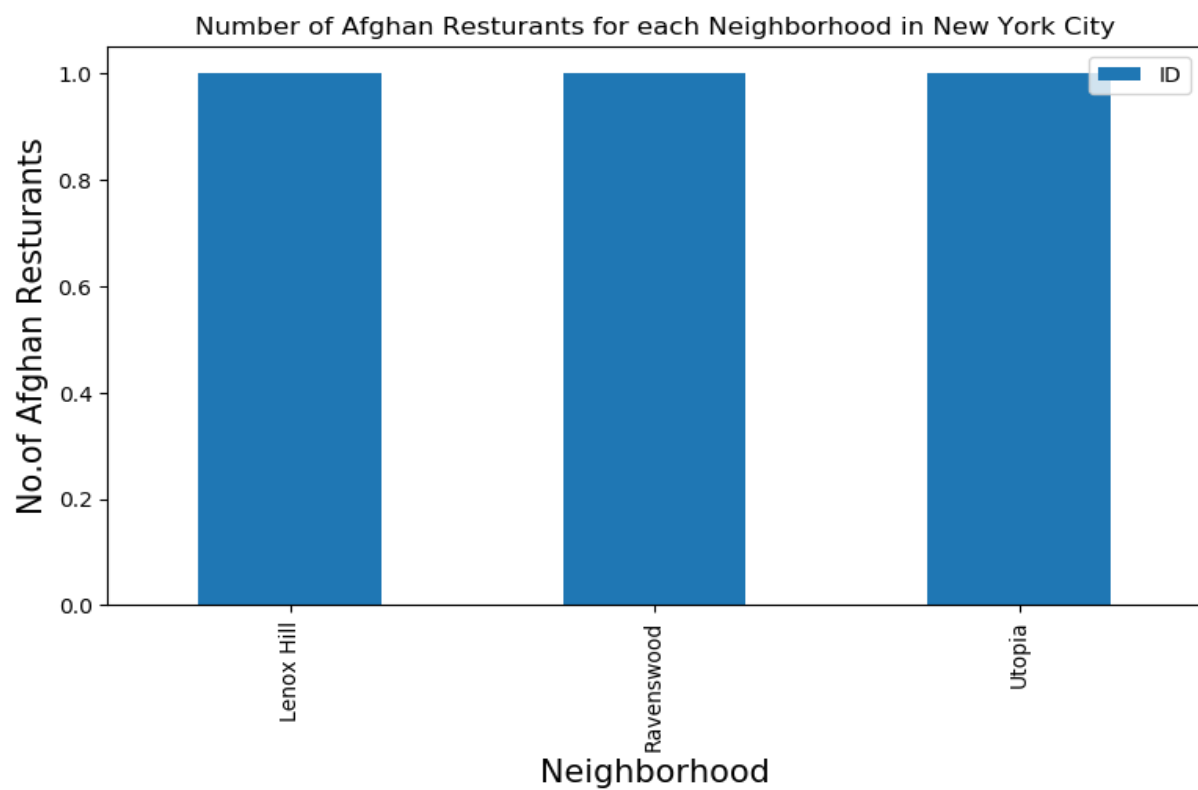
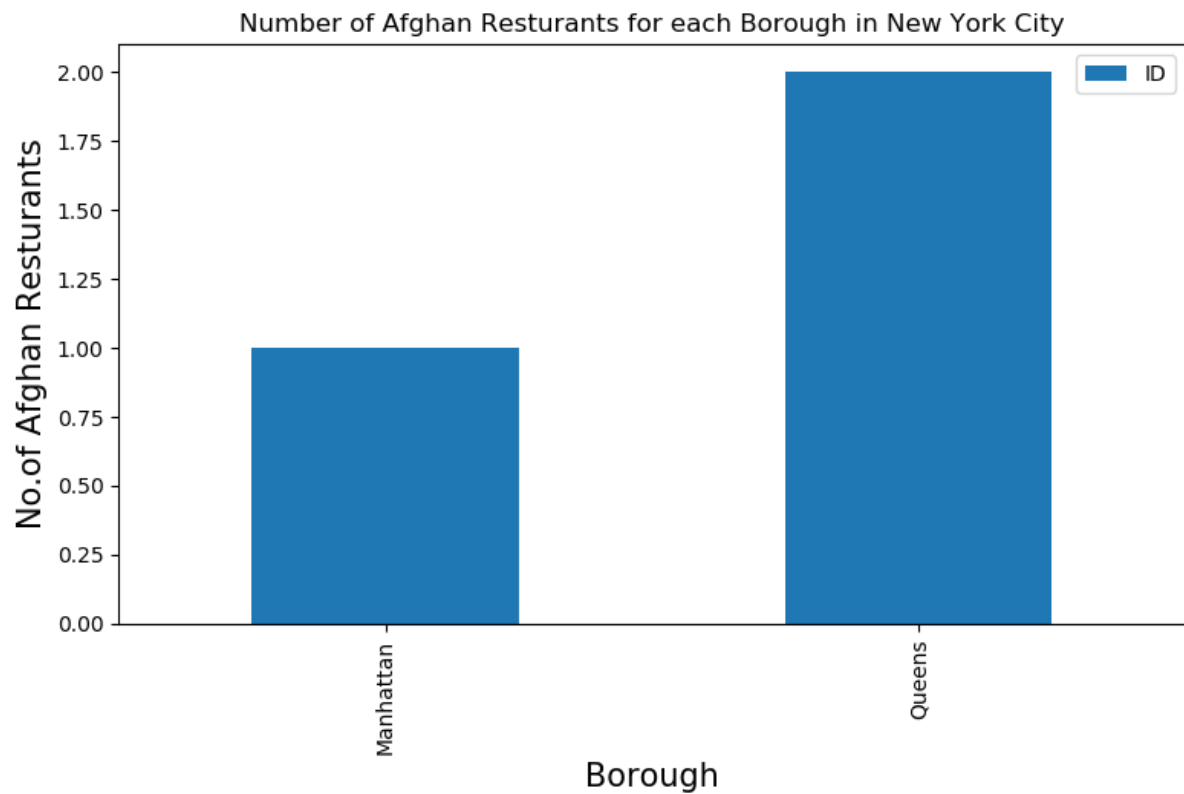


We see that Queens has highest number of neighbourhoods.

2. Collecting Information about the respective Afghan restaurants in New York

- For the following the foursquare API is called and we search under the venue category provided by the foursquare API ("Afghan Restaurant").
- The results showed that there were only three restaurants in the New York that come under the category of Afghan Restaurants.
- Even after trying multiple times the foursquare API gave only 3 restaurants under this sub-category of Food.

3. Analysing our Data to understand where it is located and which are the best places



On analysing the bar plots we can see that there is one restaurant in Manhattan and two in Queen and below we see the Neighbourhoods they are located in.

4. Now we will get the ranking of each restaurant for further analysis.

- For this we call the foursquare API to get the tips, Venues and ratings for the restaurants
- We know Obtain restaurants with the most likes, ratings and tips respectively:

1. Most Likes

Borough	Queens
Neighborhood	Utopia
ID	4b6740aaf964a520fb432be3
Name	Bakhter Afghan Halal Kababs
Likes	23
Rating	7.3
Tips	21

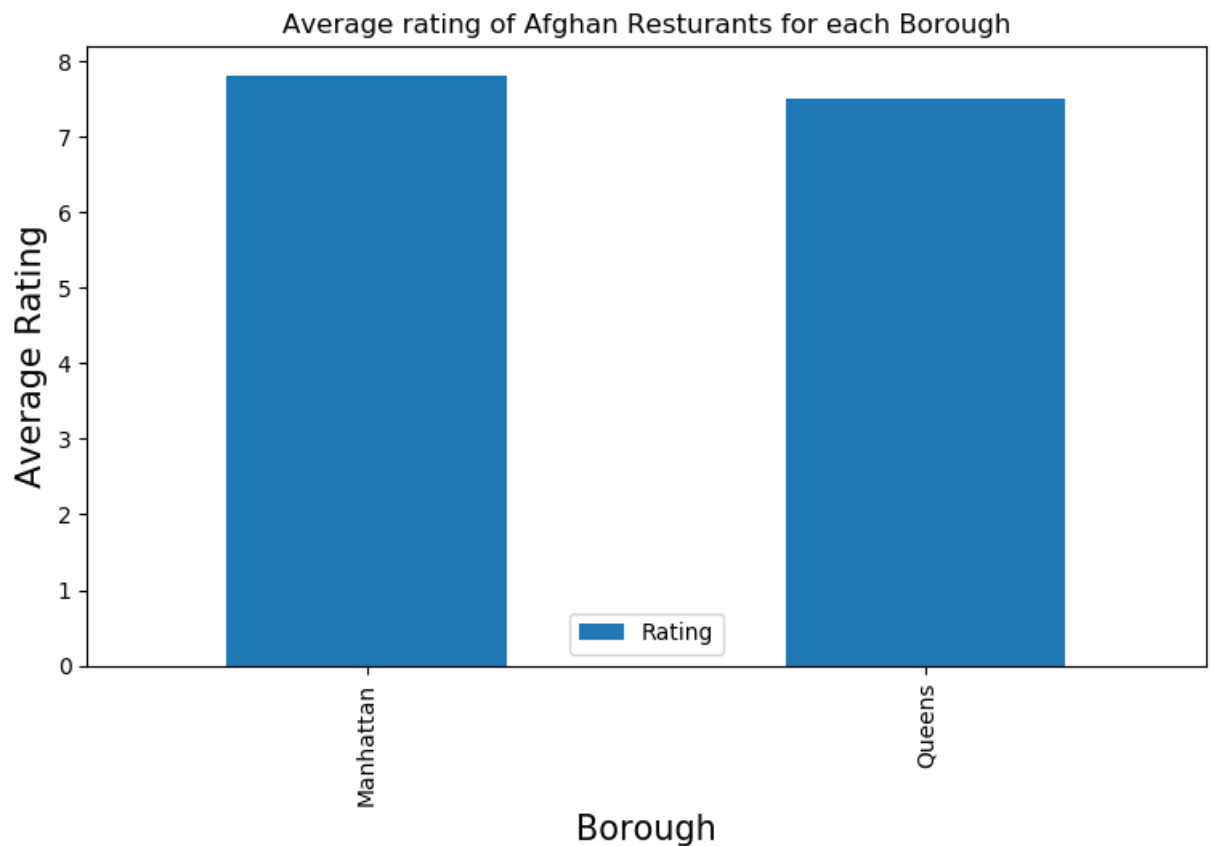
2. Highest Rating

Borough	Manhattan
Neighborhood	Lenox Hill
ID	4b22ec71f964a520685024e3
Name	Afghan Kebab House II
Likes	19
Rating	7.8
Tips	11

3. Most tips

Borough	Queens
Neighborhood	Utopia
ID	4b6740aaf964a520fb432be3
Name	Bakhter Afghan Halal Kababs
Likes	23
Rating	7.3
Tips	21

- We obtain the average rating of restaurants in each borough.



Data Visualisation and ML(using Choropleth Maps)

- We will consider all the neighborhoods with average rating greater or equal 7.5 to visualize on map

- We will also consider a choropleth map.

The code used to generate it is given below.

```
ny_map = folium.Map(location=geo_location('New York'), zoom_start=12)
```

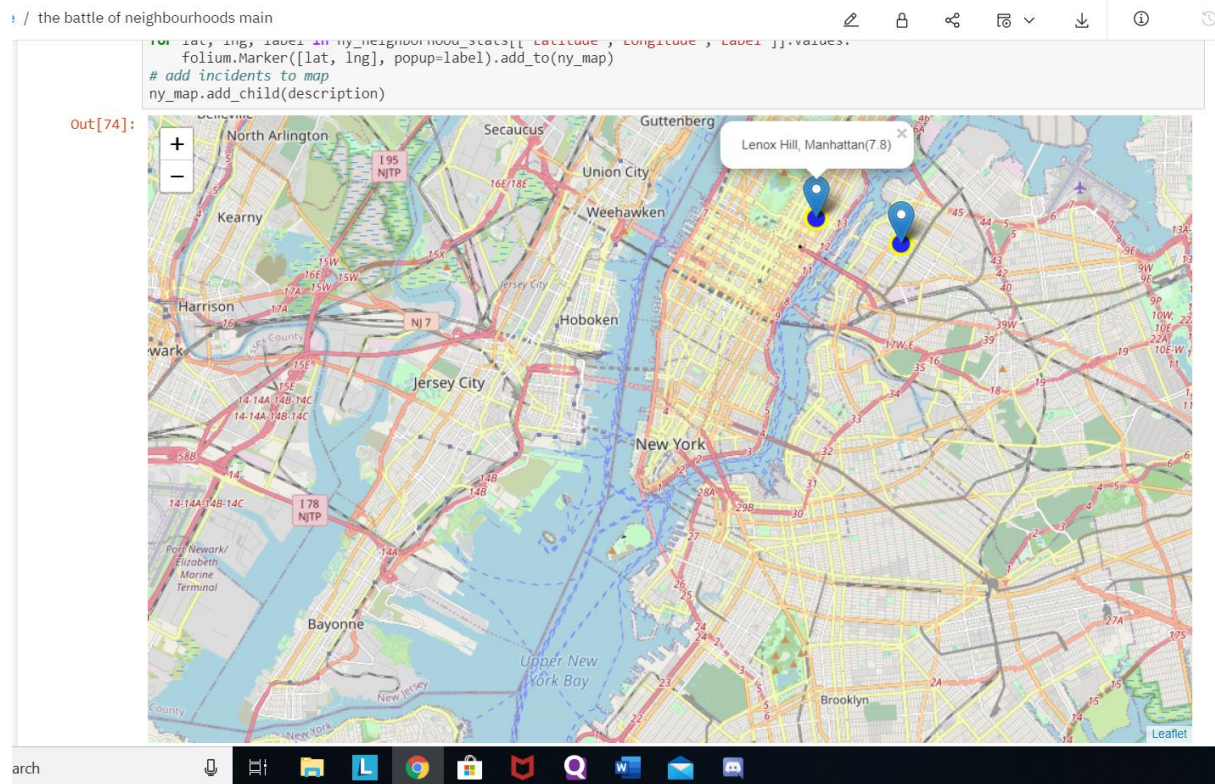
```
ny_geo = r'Borough Boundaries.geojson'
```

```
ny_map.choropleth( geo_data=ny_geo, data=ny_borough_stats,
columns=['Borough', 'Average Rating'],
key_on='feature.properties.boro_name',
fill_color='YlOrRd',
fill_opacity=0.7,
line_opacity=0.2,
legend_name='Average Rating' )
```

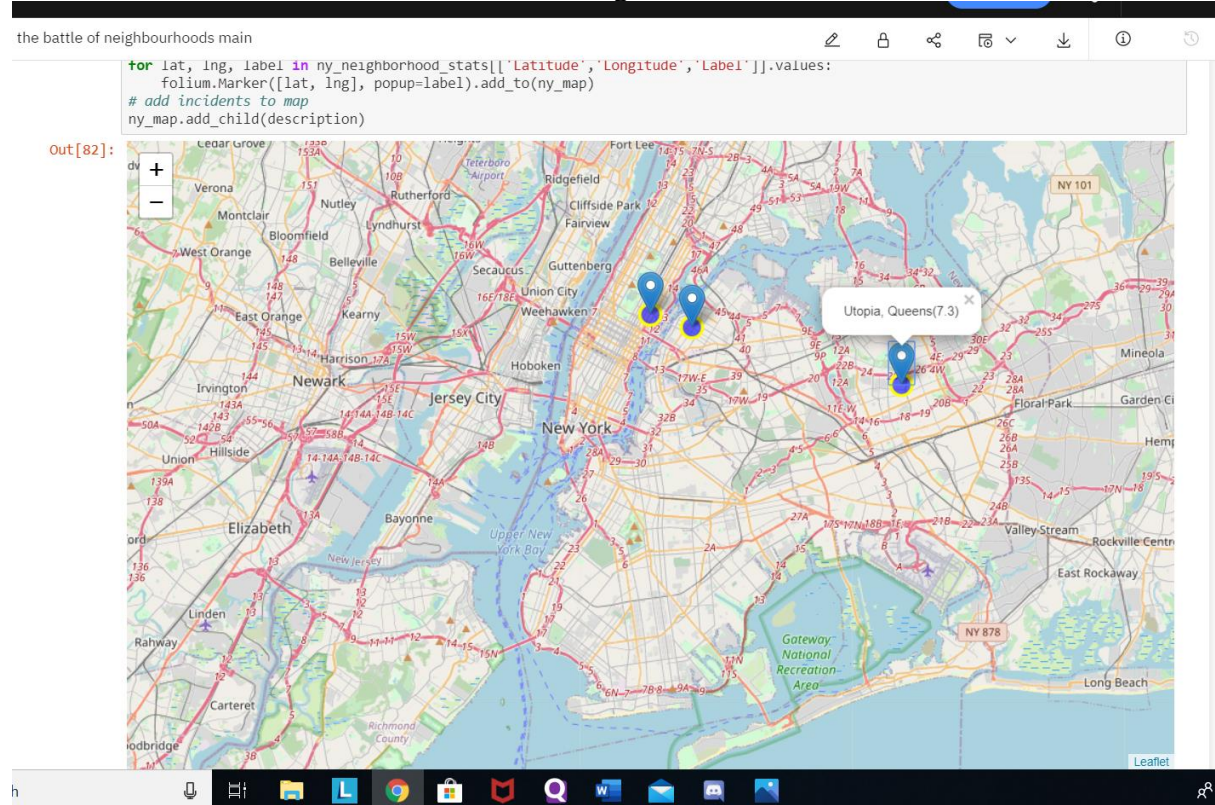
```
display map # as this is huge map data , we will save it to a file
ny_map.save('borough_rating.html')
```

Note:

The following Code can be used if we use a different API which can provide more restaurants, but since the number of restaurants are so few we just displayed all the map with the locations itself.



The visualisation of the restaurants with a rating above 7.5.



The restaurants being displayed on the map of New York.

Discussion Section:-

- Though machine learning techniques such as K-means Clustering, using a choropleth map were planned out and a lot of time and effort was spent on learning how to go about this project, due to the lack of information provided by the API we were only able to do our analysis to a certain extent.
- The ranking is purely on basis of rating of restaurants. The accuracy of data depends purely depends on the data provided by FourSquare.
- It is seen that for someone who has come to this country from Afghanistan as an asylum seeker, there are very few options in terms of Authentic home food available in the city.
- There is a good opportunity to start Afghan restaurants as they are popular, but however they haven't been well established which implies there is a lack of competition.

Conclusion Section:

- Ravenswood(Queens), Lenox Hill(Manhattan) are some of the best neighbourhoods for Afghan cuisine.
- Utopia(Queens) is an Afghan Restaurant with the lowest rating.
- Queens have potential Afghan Restaurant Market(As Queens has a couple of restaurants that are successful but yet not rated very highly).
- Manhattan is the best place to stay if you prefer Afghan Cuisine as it has the highest rated restaurants as well as is close to other restaurants located in the nearby Borough(Queens)