Mexican food in NY

Capstone Project – The Battle of Neighborhoods

Introduction:

New York City's demographics show that it is a large and ethnically diverse metropolis. It is the largest city in the United States with a long history of international immigration. New York City was home to over 8.3 million people in 2019, accounting for over 40% of the population of New York State and a slightly lower percentage of the New York metropolitan area, home to approximately 23.6 million. Over the last decade the city has been growing faster than the region. The New York region continues to be by far the leading metropolitan gateway for legal immigrants admitted into the United States.

Throughout its history, New York City has been a major point of entry for immigrants; the term "melting pot" was coined to describe densely populated immigrant neighborhoods on the Lower East Side. As many as 800 languages are spoken in New York, making it the most linguistically diverse city in the world.

Problem:

Questions that will be answers at the end of this project:
1. Which is the best location in New York City for Mexican Food?
2. Which areas have potential Mexican Restaurant Market?
3. Which all areas lack Mexican Restaurants?
4. Which is the best place to stay if you prefer Mexican Food?

Data section

New York City's demographics show that it is a large and ethnically diverse metropolis. With its diverse culture, comes diverse food items. There are many restaurants in New York, each belonging to different categories like Chinese, Indian, and French etc. but in this project I am going to work with only Mexican food restaurants.

For this project we need the following data:

- New York City data that contains list Boroughs, Neighborhoods along with their latitude and longitude.
  - Data source: https://cocl.us/new_york_dataset
  - Description: This data set contains the required information. And we will use this data set to explore various neighbourhoods of New York City

- Indian restaurants in each neighbourhood of New York City.
  - Data source: Foursquare API
  - Description: By using this API we will get all the venues in each neighborhood. We can filter these venues to get only Mexican restaurants.

- GeoSpace data
  - Data source : https://data.cityofnewyork.us/City-Government/Borough-Boundaries/tqmj-j8zm
  - Description: By using this geo space data we will get the New York Borough boundaries that will help us visualize choropleth map.

Methodology

1. We begin by collecting the New York city data from the following link "https://cocl.us/new_york_dataset"
2. We will find all venues for each neighborhood using Foursquare API (306 Neighborhoods)

```
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

3. We will then filter out all venues with Mexican restaurant for further analysis.

```
( 288 / 306 ) Mexican Resturants in Egbertville, Staten Island:1
( 289 / 306 ) Mexican Resturants in Roxbury, Queens:0
( 290 / 306 ) Mexican Resturants in Homecrest, Brooklyn:2
( 291 / 306 ) Mexican Resturants in Middle Village, Queens:0
( 292 / 306 ) Mexican Resturants in Prince's Bay, Staten Island:0
( 293 / 306 ) Mexican Resturants in Lighthouse Hill, Staten Island:0
( 294 / 306 ) Mexican Resturants in Richmond Valley, Staten Island:1
( 295 / 306 ) Mexican Resturants in Malba, Queens:0
( 296 / 306 ) Mexican Resturants in Highland Park, Brooklyn:0
( 297 / 306 ) Mexican Resturants in Madison, Brooklyn:0
( 298 / 306 ) Mexican Resturants in Bronxdale, Bronx:1
( 299 / 306 ) Mexican Resturants in Allerton, Bronx:2
( 300 / 306 ) Mexican Resturants in Kingsbridge Heights, Bronx:1
( 301 / 306 ) Mexican Resturants in Erasmus, Brooklyn:2
( 302 / 306 ) Mexican Resturants in Hudson Yards, Manhattan:0
( 303 / 306 ) Mexican Resturants in Hammels, Queens:0
( 304 / 306 ) Mexican Resturants in Bayswater, Queens:0
( 305 / 306 ) Mexican Resturants in Queensbridge, Queens:2
( 306 / 306 ) Mexican Resturants in Fox Hills, Staten Island:0
```


Number of Mexican Resturants for each Borough in New York City
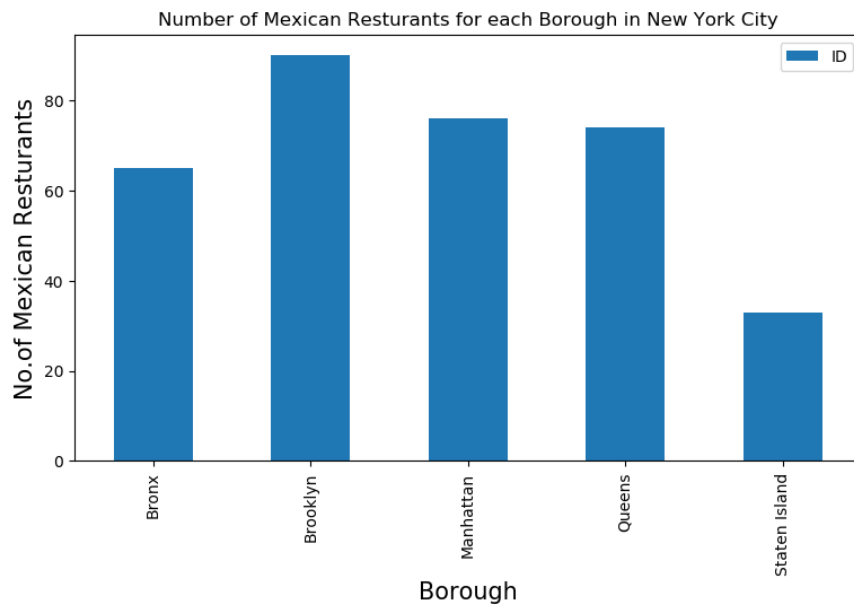
4. Next using Foursquare API, we will find the Ratings, Tips, and Number of Likes for all the Mexican Restaurants.

In [15]: mexican_rest_stats_ny.head()

Out[15]:

	Borough	Neighborhood	ID	Name	Likes	Rating	Tips
0	Bronx	Concourse Village	4b46a46ef964a5201d2626e3	Xochimilco Family Restaurant	35	8.8	8
1	Bronx	Concourse Village	58d3f7f79435a92450b97b0d	Chipotle Mexican Grill	3	7.2	0
2	Bronx	Concourse Village	5591837d498ee4167d48bb73	Cinco de Mayo	8	6.9	3
3	Bronx	Concourse Village	4c520e0a9d642d7fd10593de	La Perla Restaurant	12	7.5	8
4	Manhattan	Sutton Place	42a4e380f964a520f7241fe3	Rosa Mexicano	210	8.6	70

5. We will then sort Neighborhoods and Borough the data keeping Ratings as the constraint.

	Neighborhood	Average Rating
104	Noho	9.050000
40	East Village	9.000000
50	Flatiron	9.000000
86	Lower East Side	8.833333
83	Little Italy	8.800000
155	West Village	8.800000
133	Soho	8.800000
65	Greenwich Village	8.800000
159	Windsor Terrace	8.800000
21	Chinatown	8.750000

	Borough	Average Rating
2	Manhattan	8.125676
1	Brooklyn	7.391209
3	Queens	7.325714
0	Bronx	6.834286
4	Staten Island	6.048485

Average rating of Mexican Resturants for each Borough
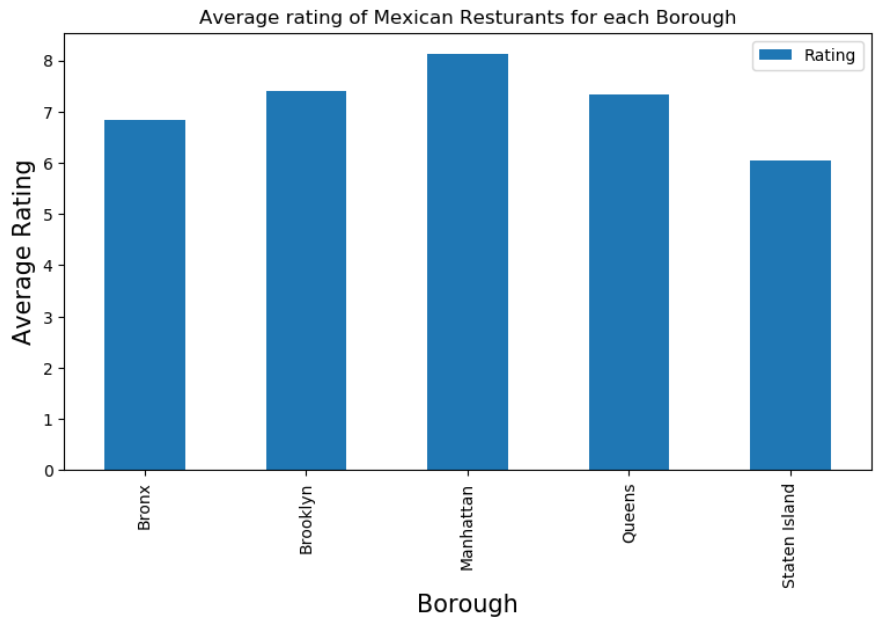
6. Next, we will consider all the neighborhoods with average rating greater or equal 8.8 to visualize on map.

	Neighborhood	Average Rating
40	East Village	9.000000
50	Flatiron	9.000000
65	Greenwich Village	8.800000
83	Little Italy	8.800000
86	Lower East Side	8.833333
104	Noho	9.050000
133	Soho	8.800000
155	West Village	8.800000
159	Windsor Terrace	8.800000

7. I will join this dataset to original New York data to get longitude and latitude.

	Borough	Neighborhood	Latitude	Longitude	Average Rating
0	Manhattan	East Village	40.727847	-73.982226	9.000000
1	Manhattan	Flatiron	40.739673	-73.990947	9.000000
2	Manhattan	Greenwich Village	40.726933	-73.999914	8.800000
3	Manhattan	Little Italy	40.719324	-73.997305	8.800000
4	Manhattan	Lower East Side	40.717807	-73.980890	8.833333
5	Manhattan	Noho	40.723259	-73.988434	9.050000
6	Manhattan	Soho	40.722184	-74.000657	8.800000
7	Manhattan	West Village	40.734434	-74.006180	8.800000
8	Brooklyn	Windsor Terrace	40.656946	-73.980073	8.800000

8. Finally, we will visualize the Neighborhoods and Borough based on average Rating using python's Folium library.
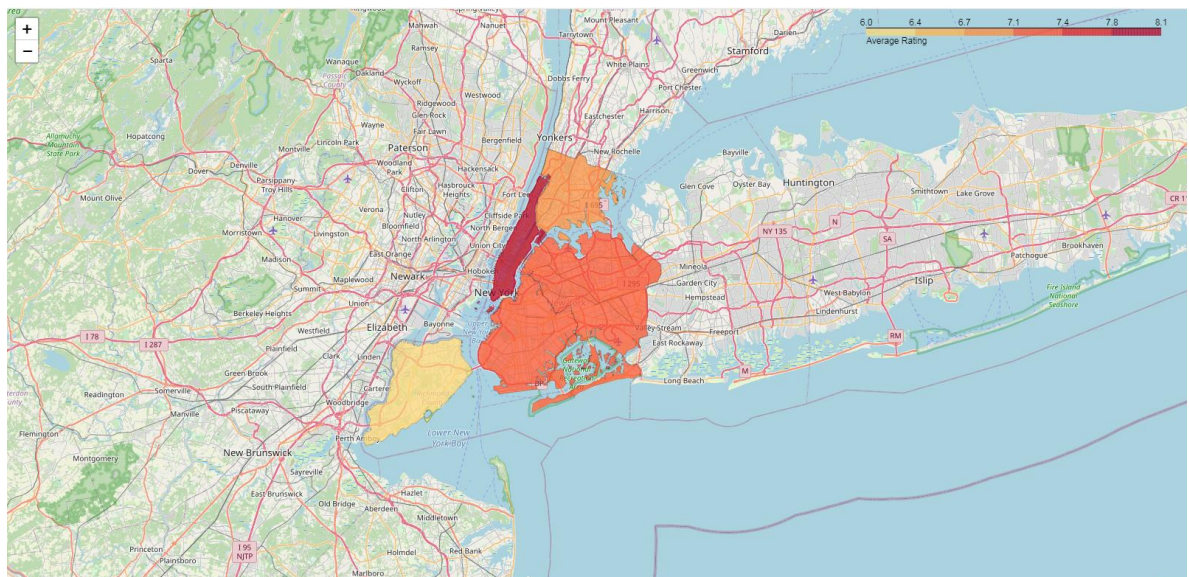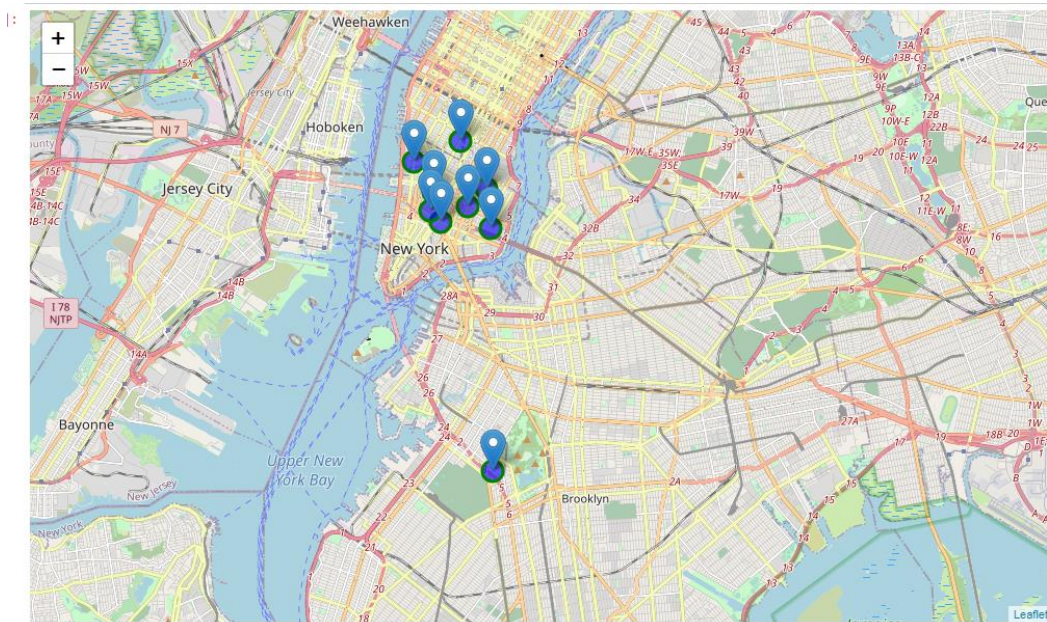
Results:

1. Which are the best locations in New York City for Mexican Food?

   A= East Village, Flatiron, Noho are some examples and most of the top rating neighborhoods are in Manhattan :D

2. Which areas have potential Mexican Restaurant Market?

A= Most of the top rating neighborhoods are in Manhattan and also in average Manhattan win

3. Which all areas lack Mexican Restaurants?

   A= Staten Island is the last in average rating of Mexican Resturants.

4. Which is the best place to stay if you prefer Mexican Food?

   A= Brooklyn is a good option with the most Mexican Restaurant but the best ranked Mexican Restaurants are in Manhattan

Conclusion

In this study, I analyzed the Foursquare feedback on the Mexican restaurant in the New York neighborhoods. I identify which Neighborhoods and Borough are the best to establish a Mexican Restaurant with a potential market in it.