

Thai Restaurants in New York City

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1.Introduction & Business Problem :

The New York city is the one of popular city in the world. It is diverse and is the biggest city in USA. And this city has multicultural so this is strong point, It can provide a lot of business opportunities and business friendly environment. It has attracted many people into the market. New York is a hub of business and commerce of the world. With a major center for banking and finance, retailing, food, transportation and tourism in the United States.

Throughout its history, New York City has been a major point of entry for immigrants in last 200 years; the term "melting pot" was coined to describe densely populated immigrant neighborhoods on the Lower East Side. As many languages are spoken in New York, making it the most linguistically diverse city in the world.

From its diverse culture, comes diverse food menus. There are many restaurants in New York City, each belonging to different categories like Chinese , Japanese ,Thai, Indian , French, Italian etc.

1.Introduction & Business Problem :

Problem Description:

The goal for this is to list and visualize all major parts of New York City that has Thai restaurants.

Questions that can be asked.

- What is best location in New York City for Thai Cuisine ?
- Which areas have potential Thai Restaurant Market ?
- Which all areas lack of Thai Restaurants ?
- Which is the best place to stay if I prefer Thai Cuisine ?

2. Data

- New York City data that contains list Boroughs, Neighborhoods along with their latitude and longitude.
- Thai restaurants in each neighborhood of new york city.
- Geo Data.

Approach

1. Collect the new york city data from https://cocl.us/new_york_dataset
2. Using FourSquare API we will find all venues for each neighborhood.
3. Filter out all venues that are Thai Restaurants.
4. Find rating , tips and like count for each Thai Restaurants using FourSquare API.
5. Using rating for each restaurant , then we will sort that data.
6. Visualize the Ranking of neighborhoods using folium library

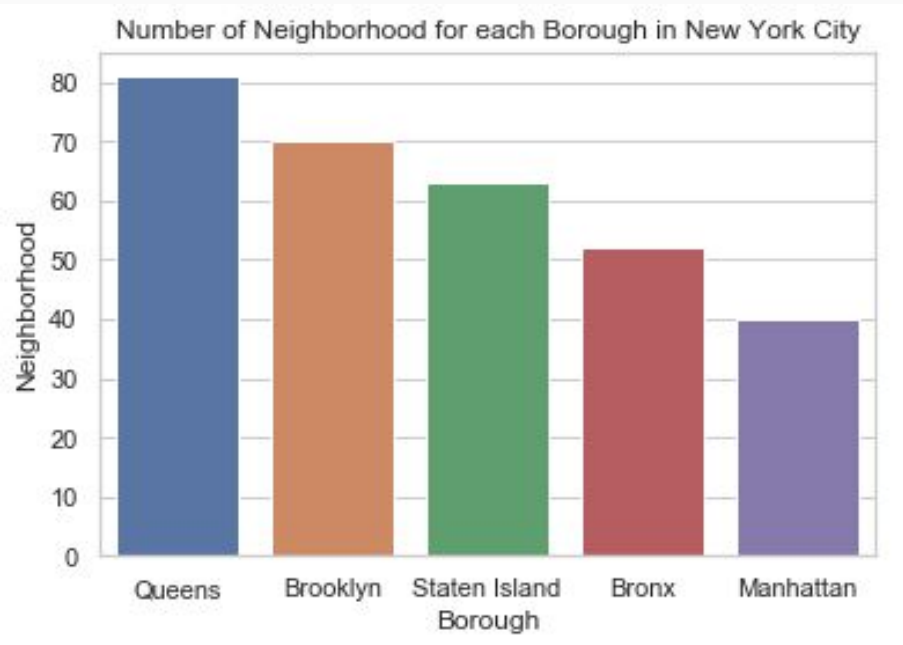
Processing Dataset :

New York city neighbourhood has 5 boroughs and 306 neighborhoods. we will essentially need a dataset that contains the 5 boroughs and the neighborhoods that exist in each borough as well as the the latitude and longitude coordinates of each neighborhood.

	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.Methodology

When we already put dataset into pandas dataframe. exploratory data analysis on this dataset show that Queens Borough contains highest number of neighbourhoods.



Using Foursquare API to get Thai Restaurants in each borough

Next step is define a function to interact with FourSquare API and get Thai Restaurants within a radius of 1000 metres for a given latitude and longitude. function will return us the venue id , venue name and category.

	Borough	Neighborhood	ID	Name
0	Bronx	Riverdale	4b94a4a2f964a520787f34e3	Nam Thai
1	Bronx	Kingsbridge	4b94a4a2f964a520787f34e3	Nam Thai
2	Manhattan	Marble Hill	4a739e29f964a520f5dc1fe3	Siam Square
3	Bronx	Country Club	4b4c90d3f964a52046b626e3	Honey's Thai Pavilion
4	Bronx	Parkchester	5585c948498e0bd8a8a706f1	Thai No. 1

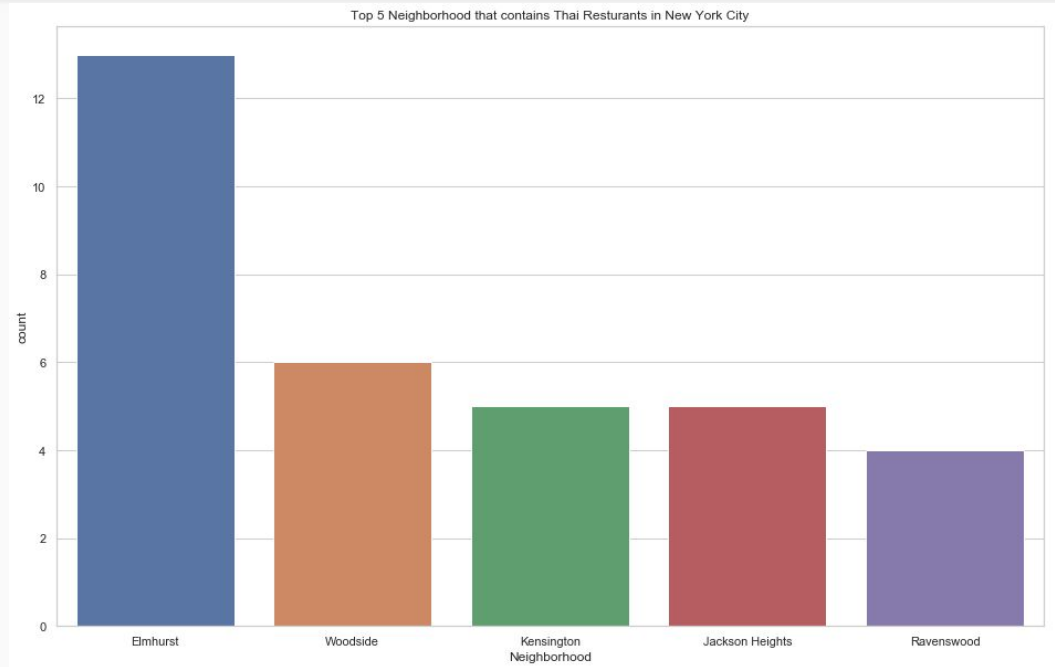
Using Foursquare API to get Thai Restaurants in each borough (Continue)

Therefor the target is to find neighbourhood that contains top number of Thai Restaurants. and dataframe make us knew that Elmhurst have highest number of Thai Restaurants

	index	Neighborhood	count
0	20	Elmhurst	13
1	80	Woodside	6
2	40	Kensington	5
3	36	Jackson Heights	5
4	57	Ravenswood	4

Using Foursquare API to get Thai Restaurants in each borough (Continue)

Dataframe that contains TOP 5 number of Thai Restaurants in each neighbourhood



Using Foursquare API to get Thai Restaurants details

Now we will define a function to get venue details like like count , rating , tip counts for a given venue id. This will be used for ranking. All details that we will show each ranking by different attribute that contained in Thai Restaurants. Foursquare API has limitations for using their data, For this reason I can get only 100 Thai Restaurants details

	Borough	Neighborhood	ID	Name	Likes	Rating	Tips
0	Bronx	Riverdale	4b94a4a2f964a520787f34e3	Nam Thai	3	7.0	5
1	Bronx	Kingsbridge	4b94a4a2f964a520787f34e3	Nam Thai	3	7.0	5
2	Manhattan	Marble Hill	4a739e29f964a520f5dc1fe3	Siam Square	15	7.2	13
3	Bronx	Country Club	4b4c90d3f964a52046b626e3	Honey's Thai Pavilion	19	7.4	28
4	Bronx	Parkchester	5585c948498e0bd8a8a706f1	Thai No. 1	17	7.9	1
5	Bronx	Van Nest	5585c948498e0bd8a8a706f1	Thai No. 1	17	7.9	1
6	Bronx	Spuyten Duyvil	4a739e29f964a520f5dc1fe3	Siam Square	15	7.2	13
7	Bronx	Spuyten Duyvil	4b94a4a2f964a520787f34e3	Nam Thai	3	7.0	5
8	Bronx	Pelham Bay	4b4c90d3f964a52046b626e3	Honey's Thai Pavilion	19	7.4	28
9	Brooklyn	Bay Ridge	50e8d45ae4b06202fbc39b08	Top Thai	14	7.2	11
10	Brooklyn	Sunset Park	4accd335f964a520a8c920e3	Mai Thai	10	7.2	9
11	Brooklyn	Greenpoint	4ac3a58ef964a5202d9c20e3	Ott	62	7.6	34
12	Brooklyn	Flatbush	5903f2d9c21cb14daa03993f	Corthaiyou	26	7.4	7
13	Brooklyn	Flatbush	593b1eabfc9e940adf8a5da1	Mondayoff By Plant Love House	23	7.3	9

Analysis from Thai Restaurants details

- Thai Restaurant with maximum Likes is **Uncle Boons**
- Thai Restaurant with maximum Rating is **Up Thai**
- Thai Restaurant with maximum Tips is **SriPraPhai**

Neighborhood with Average Rating

Visualize neighborhood with maximum average rating of Thai restaurants to show that what neighborhood have high average rating from all Thai restaurants in that neighborhood. Lenox neighborhood got highest rank of average rating that mean overall of Thai restaurants become popular.

	Neighborhood	Average Rating
25	Lenox Hill	9.150000
38	Soho	9.050000
26	Little Italy	9.050000
5	Chinatown	9.050000
14	East Williamsburg	8.900000
39	South Ozone Park	8.900000
20	Gowanus	8.850000
49	Yorkville	8.800000
6	Clinton	8.750000
4	Carroll Gardens	8.733333
0	Astoria	8.700000
18	Fort Greene	8.600000
31	Park Slope	8.600000
8	Cobble Hill	8.500000
11	Downtown	8.400000
22	Jackson Heights	8.380000
15	Elmhurst	8.338462

Boroughwith Average Rating

And we zoom out to Borough that average rating of Thai restaurants is decreasing from neighborhood view and Manhattan got high rating

	Borough	Rating
2	Manhattan	8.443478
3	Queens	8.164706
1	Brooklyn	8.068571
0	Bronx	7.350000

Map with High rating Thai Restaurants

After we create map using Folium that will display Thai restaurants that got rating over 8.5. So we saw Thai restaurants with high rating bunched together in Manhattan



Choropleth map with average rating

So now we need to create choropleth map using folium, With New York Geodata we will get boundaries materials for create map. Then we create map and fill color shade comparing Average rating

