Back ground

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 nearly 8.5 million people in 2014, 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. English remains the most widely spoken language, although there are areas in the outer boroughs in which up to 25% of people speak English as an alternate language, and/or have limited or no English language fluency. English is least spoken in neighborhoods such as Flushing, Sunset Park, and Corona.

Introduction

With it's diverse culture , comes diverse food items. There are many restaurants in New York City, each belonging each belonging to different categories like Chinese , Indian , French etc. So as part of this project , we will list and visualize all major parts of New York City that has great Indian restaurants.

Queries that can be answered using this project?

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

Data – Sources

1. Data source : https://cocl.us/new_york_dataset

Description - his data set contains the required information. And we will use this data set to explore various neighborhoods of new york city. Indian restaurants in each neighborhood of New York city.

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2. 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 Indian Restaurants.

3. 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 to visualize choropleth map.

Project – Approach

- Collect the New York city data from https://cocl.us/new_york_dataset

- Using FourSquare API we will find all venues for each neighborhood.

- Filter out all venues that are Indian Restaurants.

- Find rating , tips and like count for each Indian Restaurants using FourSquare API.

- Using rating for each restaurant , we will sort that data.

Libraries used in project

- Pandas and numpy for handling data.

- Request module for using FourSquare API.

- Geopy to get co-ordinates of City of New York.

- Matplotlib for visualizing Graphs

- Folium for real time Map

- Load data from https://cocl.us/new_york_dataset in pandas Dataframe.

- Getting Latitude and Longitude for each address geopy library.

	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

Number of neighborhoods in each Borough

Number of Neighborhood for each Borough in New York City
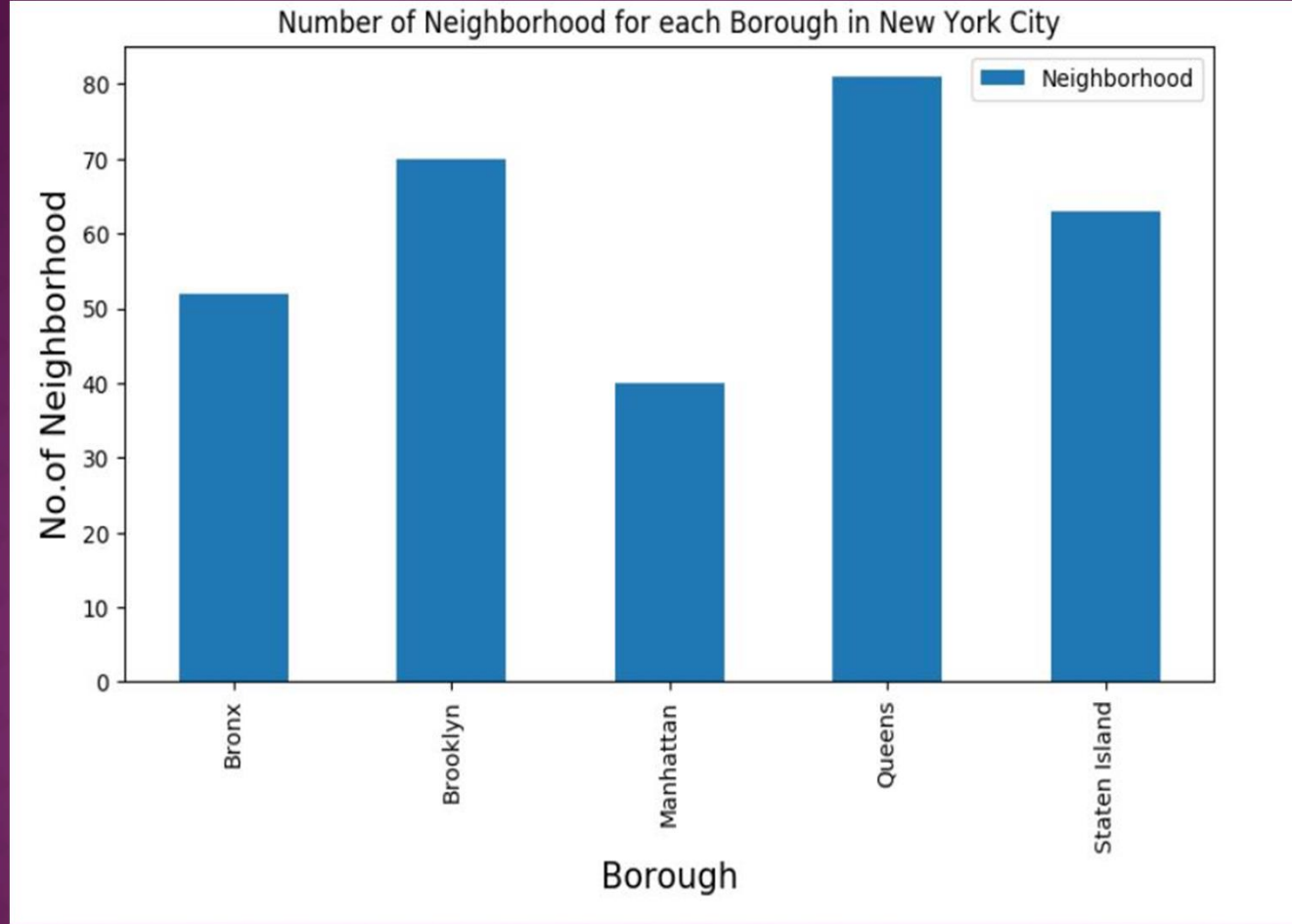
STEP2 – List of Indian Restaurants

- Filter out which Borough and Neighborhood have maximum number of Indian Restaurants using FourSquare API

Number of Indian Resturants for each Borough in New York City
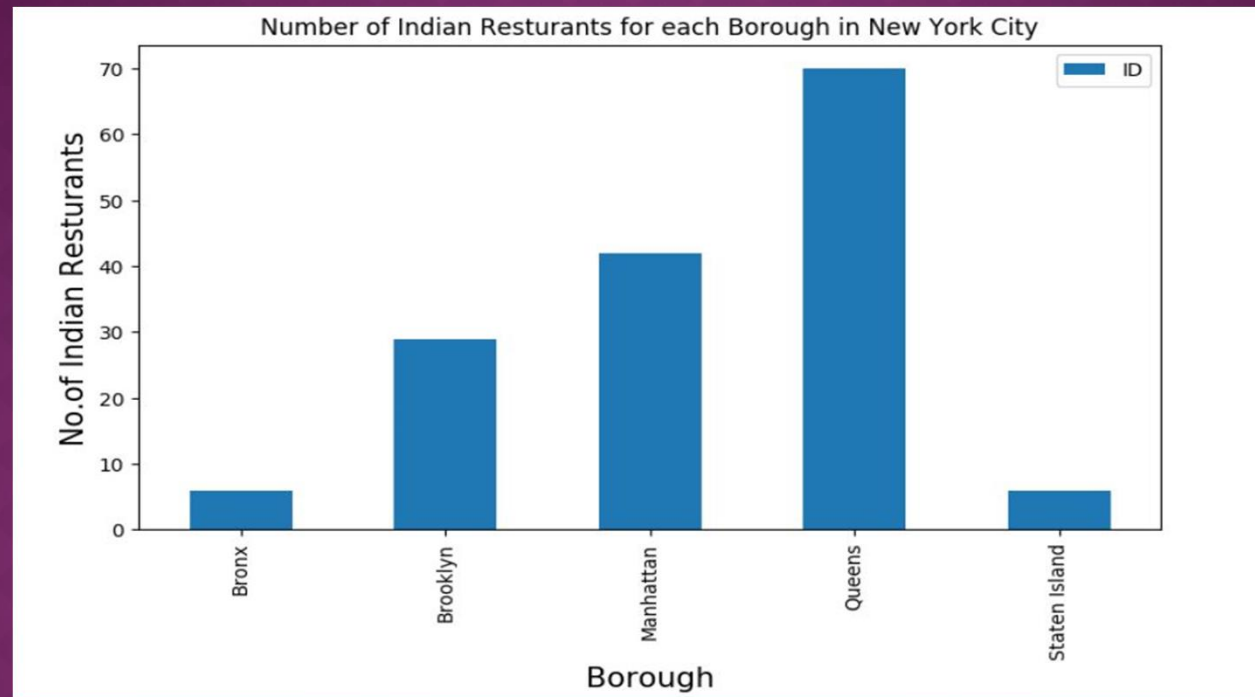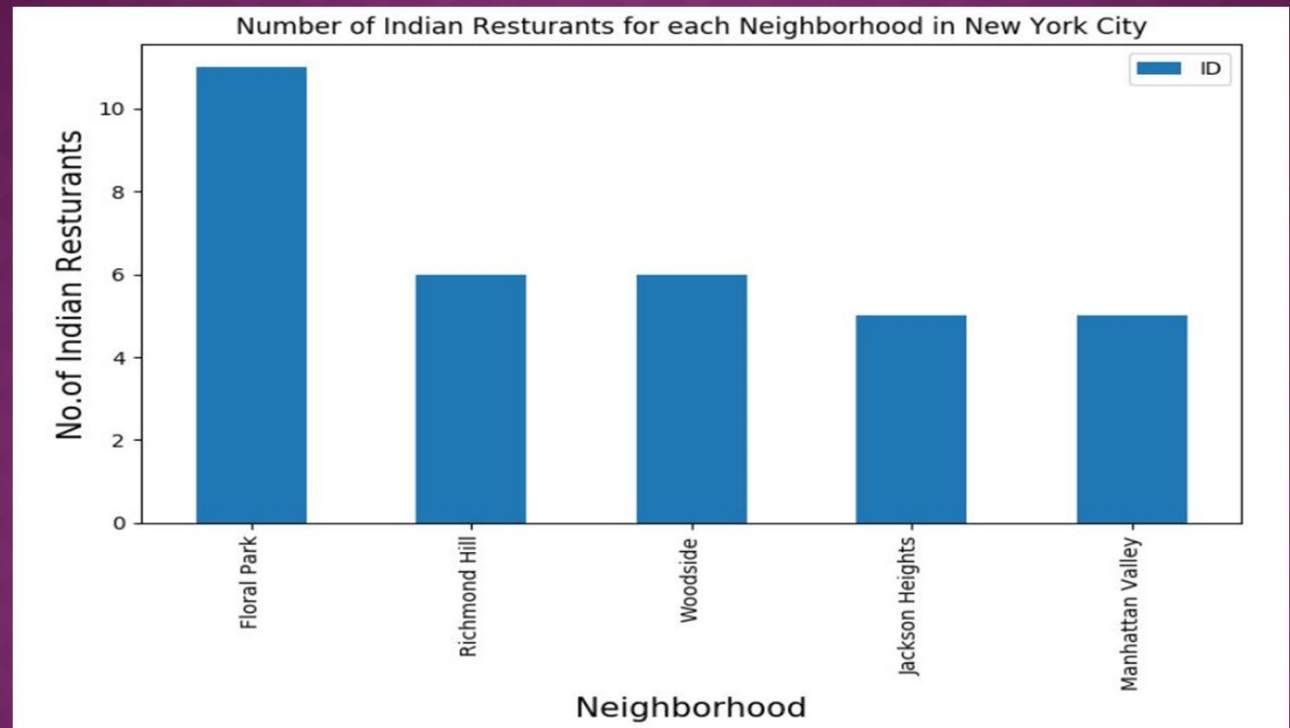
- **Result** – Queens has maximum number of Restaurants

STEP2

- Filter out which Borough and Neighborhood have maximum number of Indian Restaurants using FourSquare API.

Number of Indian Resturants for each Neighborhood in New York City

Result – Floral Park has maximum number of Restaurants

List of Restaurants in Floral Park

	Borough	Neighborhood	ID	Name
103	Queens	Floral Park	4e4e3e22bd4101d0d7a5c2d1	Kerala Kitchen
104	Queens	Floral Park	4b647b56f964a520c4b62ae3	Usha Foods & Usha Sweets
105	Queens	Floral Park	527ffc0811d2d329d5e49abd	Jackson Diner
106	Queens	Floral Park	4b787c49f964a5209cd12ee3	Santoor Indian Restaurant
107	Queens	Floral Park	4c0c01e0bbc676b00d6b4cd5	Mumbai Xpress
108	Queens	Floral Park	4c76ff35a5676dcb72671721	Flavor Of India
109	Queens	Floral Park	4df0f39dd4c04d0392c853ea	Sagar Chinese
110	Queens	Floral Park	571af96a498e9e392d8d3786	Namaste Authenic Indian Cuisine
111	Queens	Floral Park	55d68c1b498ecf05fa196fe1	Namaste Restaurant and Cafe
112	Queens	Floral Park	4c3e17f2ca012d7f82022fbe	Mushin's Halal Food [Gyro Cart]
113	Queens	Floral Park	4e6bfe1c7d8b2c711b17bbe5	Surya sweets and snacks

STEP 3

- Get likes, ratings, tips on each of Indian Restaurant using FourSquare API

	Borough	Neighborhood	ID	Name	Likes	Rating	Tips
0	Bronx	Woodlawn	4c0448d9310fc9b6bf1dc761	Curry Spot	4	8.1	11
1	Bronx	Parkchester	4c194631838020a13e78e561	Melanies Roti Bar And Grill	3	6.0	2
2	Bronx	Spuyten Duyvil	4c04544df423a593ac83d116	Cumin Indian Cuisine	13	6.1	9
3	Bronx	Concourse	551b7f75498e86c00a0ed2e1	Hungry Bird	8	6.9	3
4	Bronx	Unionport	4c194631838020a13e78e561	Melanies Roti Bar And Grill	3	6.0	2

RESULT

- Restaurant with maximum like

```python
# Resturant with maximum Likes
indian_rest_stats_ny.iloc[indian_rest_stats_ny['Likes'].idxmax()]
```

```
Borough                        Manhattan
Neighborhood                     Midtown
ID               49d91c12f964a520015e1fe3
Name               The Kati Roll Company
Likes                                836
Rating                               8.8
Tips                                 259
Name: 41, dtype: object
```

RESULT

- Restaurant having maximum Rating


```
# Resturant with maximum Rating
indian_rest_stats_ny.iloc[indian_rest_stats_ny['Rating'].idxmax()]
```

```
Borough                        Manhattan
Neighborhood                     Tribeca
ID               4bbb9dbded7776b0e1ad3e51
Name                    Tamarind TriBeCa
Likes                                586
Rating                                 9
Tips                                 145
Name: 45, dtype: object
```

Conclusion

Astoria(Queens), Blissville(Queens), Civic Center(Manhattan) are some of the best neighborhoods for indian cuisine.

Manhattan have potential Indian Restaurant Market

Staten Island ranks last in average rating of Indian Restaurants.

Manhattan is the best place to stay if you prefer Indian Cuisine.

Future Development

- As seen from the results we could predict the preferable places to stay according to Indian cuisine in New York.

- In similar way using the same data analysis approach we can predict the best place to stay according to Indian supermarkets, Indian localities for other parts of country.

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