Exploring the Best Steakhouses in New York City
A Project for the IBM Data Science Course

Introduction
Hardly a number of cities in the US are synonymous with steak. But New York has been home to a line of steakhouses for centuries. And since then, new steakhouses have emerged to continue on with its legacy. Local or visitor, a real Big Apple experience is putting yourself into one of these spots and digging in.

Problem Description
The City of New York has a rich heritage of steakhouses. From vintage classic spots to modern day steak joints, you will find a good restaurant in NYC that offer delicious cuts. But when we are talking about shedding an ample amount of cash on a single plate of meat, you will want the best.

So, as focus of this project, we will explore and visualize which neighborhoods and boroughs have the most, as well as the best Steakhouses in NYC.

Target Audience:
The objective of this study is to locate and recommend the best Steakhouses in the city of New York. This would interest locals, tourists, food bloggers/enthusiasts and anyone who would like to explore the best tasting steak joint in the city. Also, this study can serve as a good practice to those who want to develop their skills on Data Science.

Data Section:
For this project, we will utilize the following data:
➢ New York City data that contains the list of boroughs, neighborhoods along with their latitude and longitude from https://cocl.us/new_york_dataset We will use this dataset to explore various neighborhoods of New York City.
➢ Steakhouses in each neighborhood of New York City from Foursquare API. By using this API, we can get the up-to-date location data for each borough and neighborhood that contains Steakhouses. Venue details will also be obtained using this API.
➢ GeoSpace data from https://data.cityofnewyork.us/City-Government/Borough-Boundaries/tqm j-j8zm This will provide us a better understanding of the neighborhoods and their corresponding locations in the folium map.

Methodology:

Gather the New York City data from https://cocl.us/new_york_dataset. Using FourSquare API, we will filter the venues with Steakhouse category in the neighborhood. Find ratings, tips and like counts for each Steakhouse using FourSquare API. After acquring the ratings for each restaurant, we will then try to sort the data. Finally, we will visualize the findings using matplotlib and folium for better understanding.

The processing of these data will allow us to answer the following questions:

➢ Which borough and neighborhood have the highest rating of Steakhouse in NYC?

➢ Which borough has the most number of Steakhouse in NYC

➢ Which Steakhouse has the most number of likes and tips?

➢ Which Steakhouse has the highest rating in NYC?

Results & Discussion:

New York Data showing the neighborhoods and boroughs with their corresponding latitude and longitude from https://cocl.us/new_york_dataset:

```
df_ny = get_new_york_data()

df_ny.head()
```

	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

```
df_ny.shape
```
```
(306, 4)
```

Using the FourSquare API, 52 Steakhouses in New York City were obtained. In making these calls, the category ID for Steakhouse ('4bf58dd8d48988d1cc941735') was used.

	Borough	Neighborhood	ID	Name
0	Bronx	Fieldston	46e6f285f964a520c94a1fe3	Jake's Steakhouse
1	Bronx	Kingsbridge	4dfe40df8877333e195b68fc	Parrilla Latina
2	Manhattan	Marble Hill	4dfe40df8877333e195b68fc	Parrilla Latina
3	Bronx	Baychester	560afe74498ec5e1b97a21a1	Outback Steakhouse
4	Bronx	High Bridge	4c0fd7a6f1b6a593b1ee7a27	NYY STEAK

```
steak_rest_ny.shape
```
```
(52, 4)
```

A visualization of the number of Steakhouses per Borough in New York City:

Number of Steakhouses for each Borough in New York City
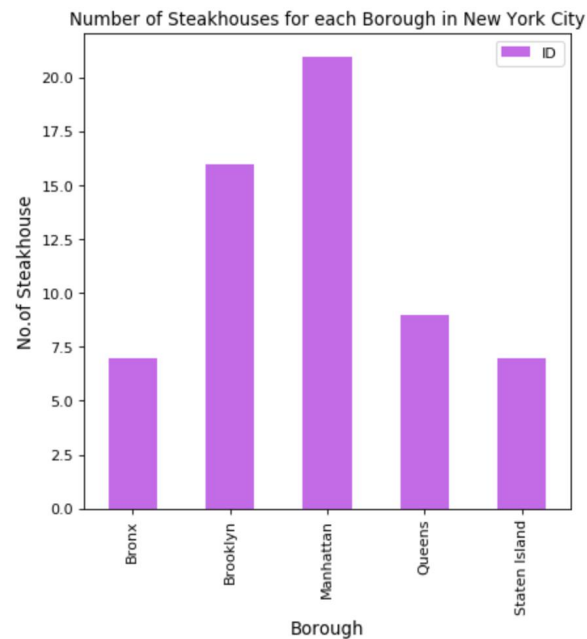
A visualization of the Average Rating of Steakhouses per Borough:

Average rating of Steakhouses for each Borough
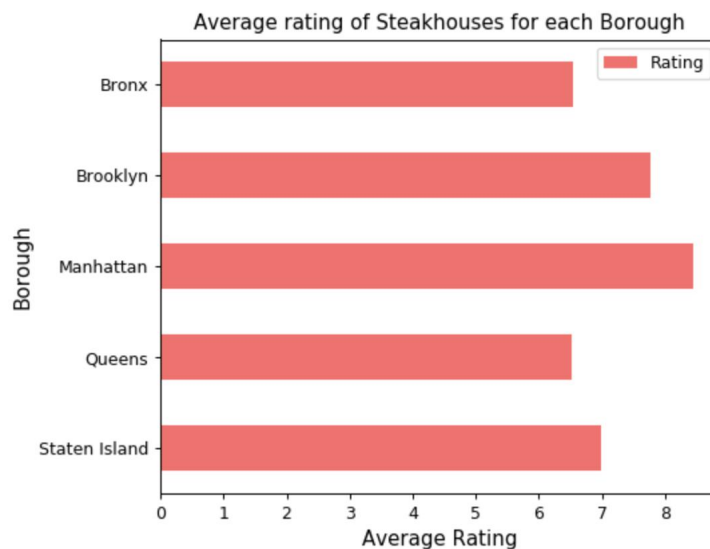
Note:

Due to limitation with the number of premium calls using Foursquare API, only 50 Steakhouses were processed among the 52. The two Steakhouses that were left were the data for T Fusion Steakhouse (Madison, Brooklyn) and M.Wells Steakhouse (Queensbridge, Queens).

```
steak_rest_stats_ny.shape

(50, 7)
```

List of Steakhouses in New York City with their corresponding Likes, Ratings and Tips:

	Borough	Neighborhood	ID	Name	Likes	Rating	Tips
0	Bronx	Fieldston	46e6f285f964a520c94a1fe3	Jake's Steakhouse	64	7.9	29
1	Bronx	Kingsbridge	4dfe40df8877333e195b68fc	Parrilla Latina	8	6.8	6
2	Manhattan	Marble Hill	4dfe40df8877333e195b68fc	Parrilla Latina	8	6.8	6
3	Bronx	Baychester	560afe74498ec5e1b97a21a1	Outback Steakhouse	19	7.0	1
4	Bronx	High Bridge	4c0fd7a6f1b6a593b1ee7a27	NYY STEAK	41	8.0	12

List of neighborhoods where the average rating of Steakhouses is 8.5 or greater:

	Borough	Neighborhood	Latitude	Longitude	Average Rating
0	Queens	Bayside	40.766041	-73.774274	8.500000
1	Manhattan	Midtown	40.754691	-73.981669	8.733333
2	Manhattan	Midtown South	40.748510	-73.988713	8.800000
3	Manhattan	Murray Hill	40.748303	-73.978332	8.500000
4	Queens	Murray Hill	40.764126	-73.812763	8.500000
5	Queens	Rockaway Park	40.580343	-73.841534	8.700000
6	Brooklyn	South Side	40.710861	-73.958001	8.700000
7	Manhattan	Sutton Place	40.760280	-73.963556	8.550000
8	Manhattan	Tribeca	40.721522	-74.010683	8.550000
9	Manhattan	West Village	40.734434	-74.006180	9.100000
10	Brooklyn	Williamsburg	40.707144	-73.958115	8.700000

Map of neighborhoods where the average rating of Steakhouses is 8.5 or greater:
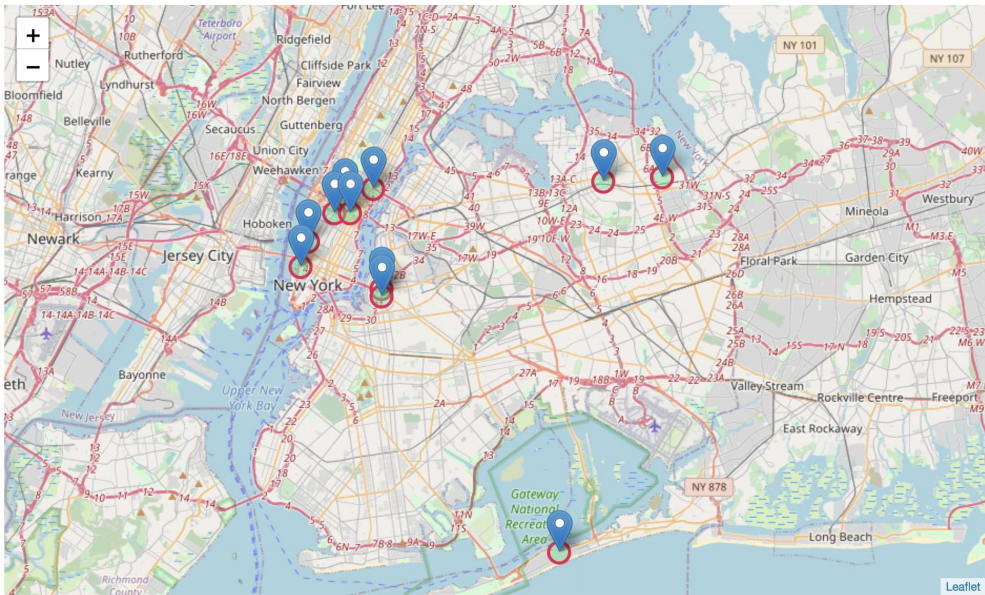
Conclusion:

Manhattan has the most number of Steakhouses in New York City per borough. They also have the highest average rating of Steakhouses. There are 6 neighborhoods in Manhattan with >=8.5 average rating of Steakhouses.

The Steakhouse with the highest rating is 4 Charles Prime Rib located at the Manhattan borough. Interestingly, the Steakhouse with the most number of likes and tips is Peter Luger Steakhouse located in Brooklyn.