

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 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.

With its diverse culture, comes diverse food items. There are many restaurants in New York City, 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.

Data

Data 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 neighborhoods of New York City. Indian restaurants in each neighborhood 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 Indian restaurants. GeoSpace data Data source : <https://data.cityofnewyork.us/City-Government/Borough-Boundaries/tgmj-j8zm> Description : By using this geo space data we will get the New York Borough boundaries that will help us visualize choropleth map.

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 Restaurant using Foursquare API.
- Using rating for each restaurant, we will sort that data.
- Visualize the Ranking of neighborhoods using folium library (python)

Queries that can be answered using above dataset

- 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 ?

Analysis

Required Libraries

- pandas and numpy for handling data.
- request module for using FourSquare API.
- geopy to get co-ordinates of City of New York.
- folium to visualize the results on a map

```
#Required Libraries
#pandas and numpy for handling data.
#request module for using FourSquare API.
#geopy to get co-ordinates of City of New York.
#folium to visualize the results on a map
```

```
import pandas as pd
import numpy as np
pd.set_option('display.max_columns', None)
pd.set_option('display.max_rows', None)
import requests
import sys
from bs4 import BeautifulSoup
import geocoder
import os
import folium # map rendering library
from geopy.geocoders import Nominatim
import matplotlib.pyplot as plt
import matplotlib.cm as cm
import matplotlib.colors as colors
%matplotlib inline

print('Libraries imported.')
```

Libraries imported.

Now we define a function to get the geocodes i.e latitude and longitude of a given location using geopy.

```
def geo_location(address):
    # get geo location of address
    geolocator = Nominatim(user_agent="ny_explorer")
    location = geolocator.geocode(address)
```

```

latitude = location.latitude
longitude = location.longitude
return latitude,longitude

```

We define a function to interact with FourSquare API and get top 100 venues within a radius of 1000 metres for a given latitude and longitude. Below function will return us the venue id , venue name and category.

```

def get_venues(lat,lng):

    #set variables
    radius=1000
    LIMIT=100
    CLIENT_ID = 'RSBCJGPGPV4XY2CGIM315212REWGPGCGWTVJ51RSKTCG2KCV' # changed my Foursquare ID
    CLIENT_SECRET = 'BGEYGLLFUSUBOSCI5BGKWDIDJSX0Y0WADCEVA40P5XQY2QBM' # changed Foursquare Secret
    VERSION = '20180605' # Foursquare API version

    #url to fetch data from foursquare api
    url = 'https://api.foursquare.com/v2/venues/explore?&client_id={}&client_secret={}&v={}&ll={},{}&radius={}&limit={}'.format(
        CLIENT_ID,
        CLIENT_SECRET,
        VERSION,
        lat,
        lng,
        radius,
        LIMIT)

    # get all the data
    results = requests.get(url).json()
    venue_data=results["response"]["groups"][0]["items"]
    venue_details=[]
    for row in venue_data:
        try:
            venue_id=row['venue']['id']
            venue_name=row['venue']['name']
            venue_category=row['venue']['categories'][0]['name']
            venue_details.append([venue_id,venue_name,venue_category])
        except KeyError:
            pass

    column_names=['ID','Name','Category']
    df = pd.DataFrame(venue_details,columns=column_names)
    print("done")
    return df

```

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.

```

def get_venue_details(venue_id):

    CLIENT_ID = 'RSBCJGPGPV4XY2CGIM315212REWGPGCGWTVJ51RSKTCG2KCV' # changed my Foursquare ID

```



```

}, ignore_index=True)
    'Longitude': neighborhood_lon

    return new_york_data

```

We will call the above function to get the new york city data.

```

# get new york data
new_york_data=get_new_york_data()
new_york_data.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

```

new_york_data.shape
(306, 4)

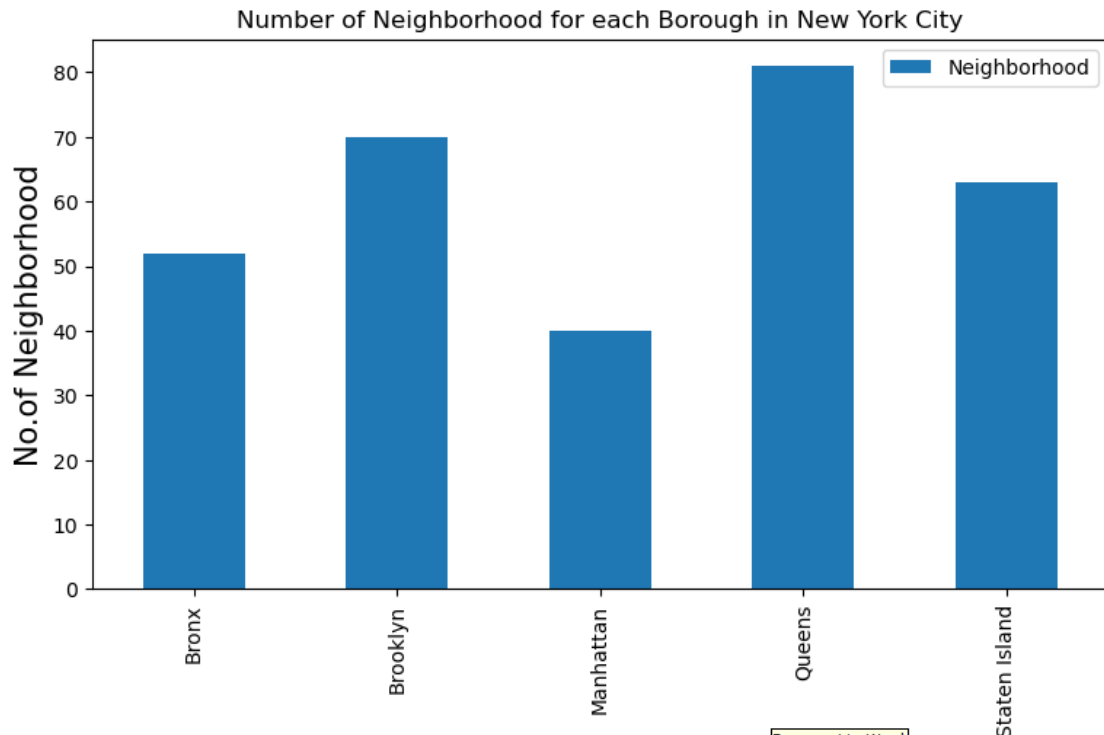
```

So there are total of 306 different Neighborhoods in New York

```

plt.figure(figsize=(9,5), dpi = 100)
# title
plt.title('Number of Neighborhood for each Borough in New York City')
#On x-axis
plt.xlabel('Borough', fontsize = 15)
#On y-axis
plt.ylabel('No.of Neighborhood', fontsize=15)
#giving a bar plot
new_york_data.groupby('Borough')['Neighborhood'].count().plot(kind='bar')
#legend
plt.legend()
#displays the plot
plt.show()

```



We see that Queens has highest number of neighborhoods
 Now we will collect Indian resturants for each Neighborhood

```
# prepare neighborhood list that contains indian resturants
column_names=['Borough', 'Neighborhood', 'ID','Name']
indian_rest_ny=pd.DataFrame(columns=column_names)
count=1
for row in new_york_data.values.tolist():
    Borough, Neighborhood, Latitude, Longitude=row
    venues = get_venues(Latitude,Longitude)
    indian_restaurants=venues[venues['Category']=='Indian Restaurant']
    print('(' ,count, '/', len(new_york_data), ')','Indian Resturants in '+
    Neighborhood+', ' +Borough+ ':' +str(len(indian_restaurants)))
    for resturant_detail in indian_restaurants.values.tolist():
        id, name , category=resturant_detail
        indian_rest_ny = indian_rest_ny.append({'Borough': Borough,
                                                'Neighborhood': Neighbo
                                                rhood,
                                                'ID': id,
                                                'Name' : name
                                                }, ignore_index=True)
    count+=1
```

```
done
( 1 / 306 ) Indian Resturants in Wakefield, Bronx:0
done
( 2 / 306 ) Indian Resturants in Co-op City, Bronx:0
done
( 3 / 306 ) Indian Resturants in Eastchester, Bronx:0
```

done
(4 / 306) Indian Resturants in Fieldston, Bronx:0
done
(5 / 306) Indian Resturants in Riverdale, Bronx:0
done
(6 / 306) Indian Resturants in Kingsbridge, Bronx:0
done
(7 / 306) Indian Resturants in Marble Hill, Manhattan:0
done
(8 / 306) Indian Resturants in Woodlawn, Bronx:1
done
(9 / 306) Indian Resturants in Norwood, Bronx:0
done
(10 / 306) Indian Resturants in Williamsbridge, Bronx:0
done
(11 / 306) Indian Resturants in Baychester, Bronx:0
done
(12 / 306) Indian Resturants in Pelham Parkway, Bronx:0
done
(13 / 306) Indian Resturants in City Island, Bronx:0
done
(14 / 306) Indian Resturants in Bedford Park, Bronx:0
done
(15 / 306) Indian Resturants in University Heights, Bronx:0
done
(16 / 306) Indian Resturants in Morris Heights, Bronx:0
done
(17 / 306) Indian Resturants in Fordham, Bronx:0
done
(18 / 306) Indian Resturants in East Tremont, Bronx:0
done
(19 / 306) Indian Resturants in West Farms, Bronx:0
done
(20 / 306) Indian Resturants in High Bridge, Bronx:0
done
(21 / 306) Indian Resturants in Melrose, Bronx:0
done
(22 / 306) Indian Resturants in Mott Haven, Bronx:0
done
(23 / 306) Indian Resturants in Port Morris, Bronx:0
done
(24 / 306) Indian Resturants in Longwood, Bronx:0
done
(25 / 306) Indian Resturants in Hunts Point, Bronx:0
done
(26 / 306) Indian Resturants in Morrisania, Bronx:0
done

(27 / 306) Indian Resturants in Soundview, Bronx:0
done
(28 / 306) Indian Resturants in Clason Point, Bronx:0
done
(29 / 306) Indian Resturants in Throgs Neck, Bronx:0
done
(30 / 306) Indian Resturants in Country Club, Bronx:0
done
(31 / 306) Indian Resturants in Parkchester, Bronx:1
done
(32 / 306) Indian Resturants in Westchester Square, Bronx:0
done
(33 / 306) Indian Resturants in Van Nest, Bronx:0
done
(34 / 306) Indian Resturants in Morris Park, Bronx:0
done
(35 / 306) Indian Resturants in Belmont, Bronx:0
done
(36 / 306) Indian Resturants in Spuyten Duyvil, Bronx:1
done
(37 / 306) Indian Resturants in North Riverdale, Bronx:0
done
(38 / 306) Indian Resturants in Pelham Bay, Bronx:0
done
(39 / 306) Indian Resturants in Schuylerville, Bronx:0
done
(40 / 306) Indian Resturants in Edgewater Park, Bronx:0
done
(41 / 306) Indian Resturants in Castle Hill, Bronx:0
done
(42 / 306) Indian Resturants in Olinville, Bronx:0
done
(43 / 306) Indian Resturants in Pelham Gardens, Bronx:0
done
(44 / 306) Indian Resturants in Concourse, Bronx:1
done
(45 / 306) Indian Resturants in Unionport, Bronx:1
done
(46 / 306) Indian Resturants in Edenwald, Bronx:0
done
(47 / 306) Indian Resturants in Bay Ridge, Brooklyn:2
done
(48 / 306) Indian Resturants in Bensonhurst, Brooklyn:0
done
(49 / 306) Indian Resturants in Sunset Park, Brooklyn:0
done
(50 / 306) Indian Resturants in Greenpoint, Brooklyn:0

done
(51 / 306) Indian Resturants in Gravesend, Brooklyn:0
done
(52 / 306) Indian Resturants in Brighton Beach, Brooklyn:1
done
(53 / 306) Indian Resturants in Sheepshead Bay, Brooklyn:0
done
(54 / 306) Indian Resturants in Manhattan Terrace, Brooklyn:0
done
(55 / 306) Indian Resturants in Flatbush, Brooklyn:2
done
(56 / 306) Indian Resturants in Crown Heights, Brooklyn:0
done
(57 / 306) Indian Resturants in East Flatbush, Brooklyn:1
done
(58 / 306) Indian Resturants in Kensington, Brooklyn:2
done
(59 / 306) Indian Resturants in Windsor Terrace, Brooklyn:0
done
(60 / 306) Indian Resturants in Prospect Heights, Brooklyn:0
done
(61 / 306) Indian Resturants in Brownsville, Brooklyn:0
done
(62 / 306) Indian Resturants in Williamsburg, Brooklyn:0
done
(63 / 306) Indian Resturants in Bushwick, Brooklyn:0
done
(64 / 306) Indian Resturants in Bedford Stuyvesant, Brooklyn:0
done
(65 / 306) Indian Resturants in Brooklyn Heights, Brooklyn:0
done
(66 / 306) Indian Resturants in Cobble Hill, Brooklyn:0
done
(67 / 306) Indian Resturants in Carroll Gardens, Brooklyn:0
done
(68 / 306) Indian Resturants in Red Hook, Brooklyn:0
done
(69 / 306) Indian Resturants in Gowanus, Brooklyn:1
done
(70 / 306) Indian Resturants in Fort Greene, Brooklyn:1
done
(71 / 306) Indian Resturants in Park Slope, Brooklyn:0
done
(72 / 306) Indian Resturants in Cypress Hills, Brooklyn:0
done
(73 / 306) Indian Resturants in East New York, Brooklyn:0
done

(74 / 306) Indian Resturants in Starrett City, Brooklyn:0
done
(75 / 306) Indian Resturants in Canarsie, Brooklyn:0
done
(76 / 306) Indian Resturants in Flatlands, Brooklyn:0
done
(77 / 306) Indian Resturants in Mill Island, Brooklyn:0
done
(78 / 306) Indian Resturants in Manhattan Beach, Brooklyn:0
done
(79 / 306) Indian Resturants in Coney Island, Brooklyn:0
done
(80 / 306) Indian Resturants in Bath Beach, Brooklyn:0
done
(81 / 306) Indian Resturants in Borough Park, Brooklyn:0
done
(82 / 306) Indian Resturants in Dyker Heights, Brooklyn:0
done
(83 / 306) Indian Resturants in Gerritsen Beach, Brooklyn:0
done
(84 / 306) Indian Resturants in Marine Park, Brooklyn:0
done
(85 / 306) Indian Resturants in Clinton Hill, Brooklyn:2
done
(86 / 306) Indian Resturants in Sea Gate, Brooklyn:0
done
(87 / 306) Indian Resturants in Downtown, Brooklyn:0
done
(88 / 306) Indian Resturants in Boerum Hill, Brooklyn:0
done
(89 / 306) Indian Resturants in Prospect Lefferts Gardens, Brooklyn:2
done
(90 / 306) Indian Resturants in Ocean Hill, Brooklyn:2
done
(91 / 306) Indian Resturants in City Line, Brooklyn:1
done
(92 / 306) Indian Resturants in Bergen Beach, Brooklyn:0
done
(93 / 306) Indian Resturants in Midwood, Brooklyn:0
done
(94 / 306) Indian Resturants in Prospect Park South, Brooklyn:3
done
(95 / 306) Indian Resturants in Georgetown, Brooklyn:0
done
(96 / 306) Indian Resturants in East Williamsburg, Brooklyn:0
done
(97 / 306) Indian Resturants in North Side, Brooklyn:1

done
(98 / 306) Indian Resturants in South Side, Brooklyn:1
done
(99 / 306) Indian Resturants in Ocean Parkway, Brooklyn:0
done
(100 / 306) Indian Resturants in Fort Hamilton, Brooklyn:1
done
(101 / 306) Indian Resturants in Chinatown, Manhattan:0
done
(102 / 306) Indian Resturants in Washington Heights, Manhattan:1
done
(103 / 306) Indian Resturants in Inwood, Manhattan:0
done
(104 / 306) Indian Resturants in Hamilton Heights, Manhattan:2
done
(105 / 306) Indian Resturants in Manhattanville, Manhattan:2
done
(106 / 306) Indian Resturants in Central Harlem, Manhattan:2
done
(107 / 306) Indian Resturants in East Harlem, Manhattan:1
done
(108 / 306) Indian Resturants in Upper East Side, Manhattan:0
done
(109 / 306) Indian Resturants in Yorkville, Manhattan:1
done
(110 / 306) Indian Resturants in Lenox Hill, Manhattan:0
done
(111 / 306) Indian Resturants in Roosevelt Island, Manhattan:1
done
(112 / 306) Indian Resturants in Upper West Side, Manhattan:3
done
(113 / 306) Indian Resturants in Lincoln Square, Manhattan:0
done
(114 / 306) Indian Resturants in Clinton, Manhattan:0
done
(115 / 306) Indian Resturants in Midtown, Manhattan:1
done
(116 / 306) Indian Resturants in Murray Hill, Manhattan:1
done
(117 / 306) Indian Resturants in Chelsea, Manhattan:1
done
(118 / 306) Indian Resturants in Greenwich Village, Manhattan:1
done
(119 / 306) Indian Resturants in East Village, Manhattan:0
done
(120 / 306) Indian Resturants in Lower East Side, Manhattan:0
done

(121 / 306) Indian Resturants in Tribeca, Manhattan:1
done
(122 / 306) Indian Resturants in Little Italy, Manhattan:0
done
(123 / 306) Indian Resturants in Soho, Manhattan:0
done
(124 / 306) Indian Resturants in West Village, Manhattan:2
done
(125 / 306) Indian Resturants in Manhattan Valley, Manhattan:5
done
(126 / 306) Indian Resturants in Morningside Heights, Manhattan:2
done
(127 / 306) Indian Resturants in Gramercy, Manhattan:3
done
(128 / 306) Indian Resturants in Battery Park City, Manhattan:0
done
(129 / 306) Indian Resturants in Financial District, Manhattan:1
done
(130 / 306) Indian Resturants in Astoria, Queens:1
done
(131 / 306) Indian Resturants in Woodside, Queens:6
done
(132 / 306) Indian Resturants in Jackson Heights, Queens:5
done
(133 / 306) Indian Resturants in Elmhurst, Queens:1
done
(134 / 306) Indian Resturants in Howard Beach, Queens:0
done
(135 / 306) Indian Resturants in Corona, Queens:0
done
(136 / 306) Indian Resturants in Forest Hills, Queens:0
done
(137 / 306) Indian Resturants in Kew Gardens, Queens:2
done
(138 / 306) Indian Resturants in Richmond Hill, Queens:6
done
(139 / 306) Indian Resturants in Flushing, Queens:0
done
(140 / 306) Indian Resturants in Long Island City, Queens:3
done
(141 / 306) Indian Resturants in Sunnyside, Queens:1
done
(142 / 306) Indian Resturants in East Elmhurst, Queens:0
done
(143 / 306) Indian Resturants in Maspeth, Queens:0
done
(144 / 306) Indian Resturants in Ridgewood, Queens:1

done
(145 / 306) Indian Resturants in Glendale, Queens:0
done
(146 / 306) Indian Resturants in Rego Park, Queens:1
done
(147 / 306) Indian Resturants in Woodhaven, Queens:0
done
(148 / 306) Indian Resturants in Ozone Park, Queens:1
done
(149 / 306) Indian Resturants in South Ozone Park, Queens:0
done
(150 / 306) Indian Resturants in College Point, Queens:0
done
(151 / 306) Indian Resturants in Whitestone, Queens:0
done
(152 / 306) Indian Resturants in Bayside, Queens:3
done
(153 / 306) Indian Resturants in Auburndale, Queens:0
done
(154 / 306) Indian Resturants in Little Neck, Queens:0
done
(155 / 306) Indian Resturants in Douglaston, Queens:0
done
(156 / 306) Indian Resturants in Glen Oaks, Queens:4
done
(157 / 306) Indian Resturants in Bellerose, Queens:1
done
(158 / 306) Indian Resturants in Kew Gardens Hills, Queens:0
done
(159 / 306) Indian Resturants in Fresh Meadows, Queens:1
done
(160 / 306) Indian Resturants in Briarwood, Queens:3
done
(161 / 306) Indian Resturants in Jamaica Center, Queens:3
done
(162 / 306) Indian Resturants in Oakland Gardens, Queens:0
done
(163 / 306) Indian Resturants in Queens Village, Queens:0
done
(164 / 306) Indian Resturants in Hollis, Queens:0
done
(165 / 306) Indian Resturants in South Jamaica, Queens:0
done
(166 / 306) Indian Resturants in St. Albans, Queens:0
done
(167 / 306) Indian Resturants in Rochdale, Queens:0
done

(168 / 306) Indian Resturants in Springfield Gardens, Queens:0
done
(169 / 306) Indian Resturants in Cambria Heights, Queens:0
done
(170 / 306) Indian Resturants in Rosedale, Queens:0
done
(171 / 306) Indian Resturants in Far Rockaway, Queens:0
done
(172 / 306) Indian Resturants in Broad Channel, Queens:0
done
(173 / 306) Indian Resturants in Breezy Point, Queens:0
done
(174 / 306) Indian Resturants in Steinway, Queens:1
done
(175 / 306) Indian Resturants in Beechhurst, Queens:0
done
(176 / 306) Indian Resturants in Bay Terrace, Queens:0
done
(177 / 306) Indian Resturants in Edgemere, Queens:0
done
(178 / 306) Indian Resturants in Arverne, Queens:0
done
(179 / 306) Indian Resturants in Rockaway Beach, Queens:0
done
(180 / 306) Indian Resturants in Neponsit, Queens:0
done
(181 / 306) Indian Resturants in Murray Hill, Queens:0
done
(182 / 306) Indian Resturants in Floral Park, Queens:11
done
(183 / 306) Indian Resturants in Holliswood, Queens:1
done
(184 / 306) Indian Resturants in Jamaica Estates, Queens:3
done
(185 / 306) Indian Resturants in Queensboro Hill, Queens:0
done
(186 / 306) Indian Resturants in Hillcrest, Queens:0
done
(187 / 306) Indian Resturants in Ravenswood, Queens:1
done
(188 / 306) Indian Resturants in Lindenwood, Queens:0
done
(189 / 306) Indian Resturants in Laurelton, Queens:0
done
(190 / 306) Indian Resturants in Lefrak City, Queens:0
done
(191 / 306) Indian Resturants in Belle Harbor, Queens:0

done
(192 / 306) Indian Resturants in Rockaway Park, Queens:0
done
(193 / 306) Indian Resturants in Somerville, Queens:0
done
(194 / 306) Indian Resturants in Brookville, Queens:0
done
(195 / 306) Indian Resturants in Bellaire, Queens:1
done
(196 / 306) Indian Resturants in North Corona, Queens:0
done
(197 / 306) Indian Resturants in Forest Hills Gardens, Queens:0
done
(198 / 306) Indian Resturants in St. George, Staten Island:0
done
(199 / 306) Indian Resturants in New Brighton, Staten Island:1
done
(200 / 306) Indian Resturants in Stapleton, Staten Island:0
done
(201 / 306) Indian Resturants in Rosebank, Staten Island:0
done
(202 / 306) Indian Resturants in West Brighton, Staten Island:0
done
(203 / 306) Indian Resturants in Grymes Hill, Staten Island:0
done
(204 / 306) Indian Resturants in Todt Hill, Staten Island:0
done
(205 / 306) Indian Resturants in South Beach, Staten Island:0
done
(206 / 306) Indian Resturants in Port Richmond, Staten Island:0
done
(207 / 306) Indian Resturants in Mariner's Harbor, Staten Island:0
done
(208 / 306) Indian Resturants in Port Ivory, Staten Island:0
done
(209 / 306) Indian Resturants in Castleton Corners, Staten Island:0
done
(210 / 306) Indian Resturants in New Springville, Staten Island:0
done
(211 / 306) Indian Resturants in Travis, Staten Island:0
done
(212 / 306) Indian Resturants in New Dorp, Staten Island:1
done
(213 / 306) Indian Resturants in Oakwood, Staten Island:0
done
(214 / 306) Indian Resturants in Great Kills, Staten Island:0
done

(215 / 306) Indian Resturants in Eltingville, Staten Island:0
done
(216 / 306) Indian Resturants in Annadale, Staten Island:0
done
(217 / 306) Indian Resturants in Woodrow, Staten Island:0
done
(218 / 306) Indian Resturants in Tottenville, Staten Island:0
done
(219 / 306) Indian Resturants in Tompkinsville, Staten Island:1
done
(220 / 306) Indian Resturants in Silver Lake, Staten Island:0
done
(221 / 306) Indian Resturants in Sunnyside, Staten Island:0
done
(222 / 306) Indian Resturants in Ditmas Park, Brooklyn:4
done
(223 / 306) Indian Resturants in Wingate, Brooklyn:0
done
(224 / 306) Indian Resturants in Rugby, Brooklyn:0
done
(225 / 306) Indian Resturants in Park Hill, Staten Island:1
done
(226 / 306) Indian Resturants in Westerleigh, Staten Island:0
done
(227 / 306) Indian Resturants in Graniteville, Staten Island:0
done
(228 / 306) Indian Resturants in Arlington, Staten Island:0
done
(229 / 306) Indian Resturants in Arrochar, Staten Island:0
done
(230 / 306) Indian Resturants in Grasmere, Staten Island:0
done
(231 / 306) Indian Resturants in Old Town, Staten Island:0
done
(232 / 306) Indian Resturants in Dongan Hills, Staten Island:0
done
(233 / 306) Indian Resturants in Midland Beach, Staten Island:0
done
(234 / 306) Indian Resturants in Grant City, Staten Island:1
done
(235 / 306) Indian Resturants in New Dorp Beach, Staten Island:0
done
(236 / 306) Indian Resturants in Bay Terrace, Staten Island:0
done
(237 / 306) Indian Resturants in Huguenot, Staten Island:0
done
(238 / 306) Indian Resturants in Pleasant Plains, Staten Island:0

done
(239 / 306) Indian Resturants in Butler Manor, Staten Island:0
done
(240 / 306) Indian Resturants in Charleston, Staten Island:0
done
(241 / 306) Indian Resturants in Rossville, Staten Island:0
done
(242 / 306) Indian Resturants in Arden Heights, Staten Island:0
done
(243 / 306) Indian Resturants in Greenridge, Staten Island:0
done
(244 / 306) Indian Resturants in Heartland Village, Staten Island:0
done
(245 / 306) Indian Resturants in Chelsea, Staten Island:0
done
(246 / 306) Indian Resturants in Bloomfield, Staten Island:0
done
(247 / 306) Indian Resturants in Bulls Head, Staten Island:0
done
(248 / 306) Indian Resturants in Carnegie Hill, Manhattan:1
done
(249 / 306) Indian Resturants in Noho, Manhattan:0
done
(250 / 306) Indian Resturants in Civic Center, Manhattan:1
done
(251 / 306) Indian Resturants in Midtown South, Manhattan:1
done
(252 / 306) Indian Resturants in Richmond Town, Staten Island:0
done
(253 / 306) Indian Resturants in Shore Acres, Staten Island:0
done
(254 / 306) Indian Resturants in Clifton, Staten Island:0
done
(255 / 306) Indian Resturants in Concord, Staten Island:0
done
(256 / 306) Indian Resturants in Emerson Hill, Staten Island:0
done
(257 / 306) Indian Resturants in Randall Manor, Staten Island:0
done
(258 / 306) Indian Resturants in Howland Hook, Staten Island:0
done
(259 / 306) Indian Resturants in Elm Park, Staten Island:0
done
(260 / 306) Indian Resturants in Remsen Village, Brooklyn:0
done
(261 / 306) Indian Resturants in New Lots, Brooklyn:0
done

(262 / 306) Indian Resturants in Paerdegat Basin, Brooklyn:0
done
(263 / 306) Indian Resturants in Mill Basin, Brooklyn:0
done
(264 / 306) Indian Resturants in Jamaica Hills, Queens:4
done
(265 / 306) Indian Resturants in Utopia, Queens:0
done
(266 / 306) Indian Resturants in Pomonok, Queens:0
done
(267 / 306) Indian Resturants in Astoria Heights, Queens:1
done
(268 / 306) Indian Resturants in Claremont Village, Bronx:0
done
(269 / 306) Indian Resturants in Concourse Village, Bronx:1
done
(270 / 306) Indian Resturants in Mount Eden, Bronx:0
done
(271 / 306) Indian Resturants in Mount Hope, Bronx:0
done
(272 / 306) Indian Resturants in Sutton Place, Manhattan:3
done
(273 / 306) Indian Resturants in Hunters Point, Queens:0
done
(274 / 306) Indian Resturants in Turtle Bay, Manhattan:3
done
(275 / 306) Indian Resturants in Tudor City, Manhattan:2
done
(276 / 306) Indian Resturants in Stuyvesant Town, Manhattan:0
done
(277 / 306) Indian Resturants in Flatiron, Manhattan:0
done
(278 / 306) Indian Resturants in Sunnyside Gardens, Queens:1
done
(279 / 306) Indian Resturants in Blissville, Queens:1
done
(280 / 306) Indian Resturants in Fulton Ferry, Brooklyn:0
done
(281 / 306) Indian Resturants in Vinegar Hill, Brooklyn:0
done
(282 / 306) Indian Resturants in Weeksville, Brooklyn:1
done
(283 / 306) Indian Resturants in Broadway Junction, Brooklyn:0
done
(284 / 306) Indian Resturants in Dumbo, Brooklyn:0
done
(285 / 306) Indian Resturants in Manor Heights, Staten Island:0

```
done
( 286 / 306 ) Indian Resturants in Willowbrook, Staten Island:0
done
( 287 / 306 ) Indian Resturants in Sandy Ground, Staten Island:0
done
( 288 / 306 ) Indian Resturants in Egbertville, Staten Island:0
done
( 289 / 306 ) Indian Resturants in Roxbury, Queens:0
done
( 290 / 306 ) Indian Resturants in Homecrest, Brooklyn:0
done
( 291 / 306 ) Indian Resturants in Middle Village, Queens:0
done
( 292 / 306 ) Indian Resturants in Prince's Bay, Staten Island:0
done
( 293 / 306 ) Indian Resturants in Lighthouse Hill, Staten Island:0
done
( 294 / 306 ) Indian Resturants in Richmond Valley, Staten Island:0
done
( 295 / 306 ) Indian Resturants in Malba, Queens:0
done
( 296 / 306 ) Indian Resturants in Highland Park, Brooklyn:0
done
( 297 / 306 ) Indian Resturants in Madison, Brooklyn:0
done
( 298 / 306 ) Indian Resturants in Bronxdale, Bronx:0
done
( 299 / 306 ) Indian Resturants in Allerton, Bronx:0
done
( 300 / 306 ) Indian Resturants in Kingsbridge Heights, Bronx:0
done
( 301 / 306 ) Indian Resturants in Erasmus, Brooklyn:1
done
( 302 / 306 ) Indian Resturants in Hudson Yards, Manhattan:0
done
( 303 / 306 ) Indian Resturants in Hammels, Queens:0
done
( 304 / 306 ) Indian Resturants in Bayswater, Queens:0
done
( 305 / 306 ) Indian Resturants in Queensbridge, Queens:2
done
( 306 / 306 ) Indian Resturants in Fox Hills, Staten Island:1
```

Now that we have got all the indian resturants in new york city , we will analyze it

```
indian_rest_ny.head()
```

	Borough	Neighborhood	ID	Name
0	Bronx	Woodlawn	4c0448d9310fc9b6bf1dc761	Curry Spot
1	Bronx	Parkchester	4c194631838020a13e78e561	Melanies Roti Bar And Grill
2	Bronx	Spuyten Duyvil	4c04544df423a593ac83d116	Cumin Indian Cuisine
3	Bronx	Concourse	551b7f75498e86c00a0ed2e1	Hungry Bird
4	Bronx	Unionport	4c194631838020a13e78e561	Melanies Roti Bar And Grill

```
indian_rest_ny.shape
(151, 4)
```

We got 151 Indian Resturants across New York City

```
plt.figure(figsize=(9,5), dpi = 100)
# title
plt.title('Number of Indian Resturants for each Borough in New York Cit
y')
#On x-axis
plt.xlabel('Borough', fontsize = 15)
#On y-axis
plt.ylabel('No.of Indian Resturants', fontsize=15)
#giving a bar plot
indian_rest_ny.groupby('Borough')['ID'].count().plot(kind='bar')
#legend
plt.legend()
#displays the plot
plt.show()
```



We see that Queens has the largest number of indian resturants

```
plt.figure(figsize=(9,5), dpi = 100)
# title
plt.title('Number of Indian Resturants for each Neighborhood in New York City')
#On x-axis
plt.xlabel('Neighborhood', fontsize = 15)
#On y-axis
plt.ylabel('No.of Indian Resturants', fontsize=15)
#giving a bar plot
indian_rest_ny.groupby('Neighborhood')['ID'].count().nlargest(5).plot(kind='bar')
#legend
plt.legend()
#displays the plot
plt.show()
```

```
indian_rest_ny[indian_rest_ny['Neighborhood']=='Floral Park']
```

	Borough	Neighborhood	ID	Name
110	Queens	Floral Park	527ffc0811d2d329d5e49abd	Jackson Diner
111	Queens	Floral Park	4b647b56f964a520c4b62ae3	Usha Foods & Usha Sweets
112	Queens	Floral Park	4e4e3e22bd4101d0d7a5c2d1	Kerala Kitchen
113	Queens	Floral Park	4b787c49f964a5209cd12ee3	Santoor Indian Restaurant
114	Queens	Floral Park	4c0c01e0bbc676b00d6b4cd5	Mumbai Xpress
115	Queens	Floral Park	4c76ff35a5676dc72671721	Flavor Of India
116	Queens	Floral Park	4df0f39dd4c04d0392c853ea	Sagar Chinese
117	Queens	Floral Park	4cc642ed306e224b5bf2a76c	Shahi Darbar
118	Queens	Floral Park	4e6bfe1c7d8b2c711b17bbe5	Surya sweets and snacks

So Floral Park in Queens has the highest number of Indian Resturants with a total count of 9.
Now we will get the ranking of each resturant for further analysis.

```
# prepare neighborhood list that contains indian resturants
column_names=['Borough', 'Neighborhood', 'ID', 'Name', 'Likes', 'Rating', 'Tips']
indian_rest_stats_ny=pd.DataFrame(columns=column_names)
count=1

for row in indian_rest_ny.values.tolist():
    Borough,Neighborhood,ID,Name=row
    try:
        venue_details=get_venue_details(ID)
        print(venue_details)
        id,name,likes,rating,tips=venue_details.values.tolist()[0]
    except IndexError:
```

```

print('No data available for id=',ID)
# we will assign 0 value for these restaurants as they may have
been
#recently opened or details does not exist in FourSquare Database
se
id,name,likes,rating,tips=[0]*5
print('(',count, '/',len(indian_rest_ny),')','processed')
indian_rest_stats_ny = indian_rest_stats_ny.append({'Borough': Boro
ugh,
                                                    'Neighborhood': Neighbo
rhood,
                                                    'ID': id,
                                                    'Name' : name,
                                                    'Likes' : likes,
                                                    'Rating' : rating,
                                                    'Tips' : tips
                                                    }, ignore_index=True)
count+=1

```

	ID	Name	Likes	Rating	Tips
0	4c0448d9310fc9b6bf1dc761	Curry Spot	4	8.1	11
(1 / 153) processed					

	ID	Name	Likes	Rating	Tips
0	4c194631838020a13e78e561	Melanies Roti Bar And Grill	3	6.0	2
(2 / 153) processed					

	ID	Name	Likes	Rating	Tips
0	4c04544df423a593ac83d116	Cumin Indian Cuisine	13	6.1	9
(3 / 153) processed					

	ID	Name	Likes	Rating	Tips
0	551b7f75498e86c00a0ed2e1	Hungry Bird	8	6.9	3
(4 / 153) processed					

	ID	Name	Likes	Rating	Tips
0	4c194631838020a13e78e561	Melanies Roti Bar And Grill	3	6.0	2
(5 / 153) processed					

	ID	Name	Likes	Rating	Tips
0	4b5a4dc8f964a520a2bb28e3	Taj Mahal	38	8.2	26
(6 / 153) processed					

	ID	Name	Likes	Rating	Tips
0	545835a1498e820edc6f636f	Bombay Grill	14	7.2	4
(7 / 153) processed					

	ID	Name	Likes	Rating	Tips
0	4af0d31bf964a5207ddf21e3	Pak Nasheman	9	7.2	4
(8 / 153) processed					

	ID	Name	Likes	Rating	Tips
0	52213c4211d295d4c57a607c	Ashoka Grill	8	7.2	14
(9 / 153) processed					

	ID	Name	Likes	Rating	Tips
0	564d283d498e6e851df79d87	Great Indian Curry	3	6.8	2
(10 / 153) processed					
	ID	Name	Likes	Rating	Tips
0	512a9ea9e4b004fb8eeb84e5	Silver Krust	12	8.2	3
(11 / 153) processed					
	ID	Name	Likes	Rating	Tips
0	4db0f4371e729fcc56497f20	Mashallah	19	7.4	7
(12 / 153) processed					
	ID	Name	Likes	Rating	Tips
0	4b718914f964a520c04b2de3	Madina Restaurant and Sweets	17	7.0	12
(13 / 153) processed					
	ID	Name	Likes	Rating	Tips
0	52f18573498ec2c34e830ffd	Kanan's Indian Restaurant	23	7.8	8
(14 / 153) processed					
	ID	Name	Likes	Rating	Tips
0	57596dad498e732300496b23	Dosa Royale	73	8.6	22
(15 / 153) processed					
	ID	Name	Likes	Rating	Tips
0	57596dad498e732300496b23	Dosa Royale	73	8.6	22
(16 / 153) processed					
	ID	Name	Likes	Rating	Tips
0	568d3902498e619efcbc3f58	Spice & Grill	19	7.7	6
(17 / 153) processed					
	ID	Name	Likes	Rating	Tips
0	4bb93b70cf2fc9b6fe64a002	Gandhi Fine Indian Cuisine	80	8.8	46
(18 / 153) processed					
	ID	Name	Likes	Rating	Tips
0	4ec80587d3e3e131f2e72835	Bayleaf	7	7.1	7
(19 / 153) processed					
	ID	Name	Likes	Rating	Tips
0	5539753f498edbace4746b67	Tandoori Masala	12	8.0	2
(20 / 153) processed					
	ID	Name	Likes	Rating	Tips
0	4f6cae2ee4b0d4a5afcef5c0	Delhi Heights	22	8.1	8
(21 / 153) processed					

Empty DataFrame

Columns: [ID, Name, Likes, Rating, Tips]

Index: []

No data available for id= 4e4e4c8fbd4101d0d7a726b3

(22 / 153) processed

	ID	Name	Likes	Rating	Tips
0	519ff6c8498e1300ddcbd45c	Anarkali Indian Cuisine	14	7.7	8

(23 / 153) processed

	ID	Name	Likes	Rating	Tips
0	4db0f4371e729fcc56497f20	Mashallah	19	7.4	7

(24 / 153) processed

	ID	Name	Likes	Rating	Tips
0	4b718914f964a520c04b2de3	Madina Restaurant and Sweets	17	7.0	12

(25 / 153) processed

	ID	Name	Likes	Rating	Tips
0	5631511b498e3d6d7e0a4df0	Tikka Indian Grill	94	8.6	26

(26 / 153) processed

	ID	Name	Likes	Rating	Tips
0	5631511b498e3d6d7e0a4df0	Tikka Indian Grill	94	8.6	26

(27 / 153) processed

	ID	Name	Likes	Rating	Tips
0	545835a1498e820edc6f636f	Bombay Grill	14	7.2	4

(28 / 153) processed

	ID	Name	Likes	Rating	Tips
0	4ae7876ef964a5201eac21e3	Kismat Indian Restaurant	45	7.8	24

(29 / 153) processed

	ID	Name	Likes	Rating	Tips
0	54c2bd96498eaf5142e3fe92	Clove Indian Restaurant & Bar	29	7.6	

Tips

0 15

(30 / 153) processed

	ID	Name	Likes	Rating	Tips
0	5914ff32b23dfa207eca38de	Mumbai Masala	13	7.4	6

(31 / 153) processed

	ID	Name	Likes	Rating	Tips
0	529d382a11d2dd5ef107e641	Chapati House - NYC	73	8.0	18

(32 / 153) processed

	ID	Name	Likes	Rating	Tips
0	54c2bd96498eaf5142e3fe92	Clove Indian Restaurant & Bar	29	7.6	

Tips

0 15

(33 / 153) processed

	ID	Name	Likes	Rating	Tips
0	56d87f3d498ee215abee5724	Delhi Masala	13	8.7	3

(34 / 153) processed

	ID	Name	Likes	Rating	Tips
0	54c2bd96498eaf5142e3fe92	Clove Indian Restaurant & Bar	29	7.6	

Tips

0 15
(35 / 153) processed

ID	Name	Likes	Rating	Tips
0 519fe6f5498e30595d370c44	Bawarchi	9	7.7	4

(36 / 153) processed

ID	Name	Likes	Rating	Tips
0 5272ca4511d22488f6895caf	Drunken Munkey	206	8.4	61

(37 / 153) processed

ID	Name	Likes	Rating	Tips
0 4fe4fb50c2eee335e4fea69d	Moti Mahal Delux	184	8.4	81

(38 / 153) processed

ID	Name	Likes	Rating	Tips
0 591890f43abcaf1ddca66e85	Ashoka	19	8.4	9

(39 / 153) processed

ID	Name	Likes	Rating	Tips
0 4b0dec08f964a520ae5223e3	Alachi Masala	18	7.7	17

(40 / 153) processed

ID	Name	Likes	Rating	Tips
0 42489a80f964a5208b201fe3	Swagat	105	8.3	38

(41 / 153) processed

ID	Name	Likes	Rating	Tips
0 49d91c12f964a520015e1fe3	The Kati Roll Company	836	8.8	259

(42 / 153) processed

ID	Name	Likes	Rating	Tips
0 59fcd48c464d6567ed2f5e37	The Kati Roll Company	17	8.7	2

(43 / 153) processed

ID	Name	Likes	Rating	Tips
0 4b4aab62f964a520978c26e3	Dil-e Punjab Deli	104	8.8	42

(44 / 153) processed

ID	Name	Likes	Rating	Tips
0 5b5a2c9e66f3cd002ca0aab5	The Drunken Munkey	22	8.9	3

(45 / 153) processed

ID	Name	Likes	Rating	Tips
0 4bbb9dbded7776b0e1ad3e51	Tamarind TriBeCa	586	9.0	145

(46 / 153) processed

ID	Name	Likes	Rating	Tips
0 5b5a2c9e66f3cd002ca0aab5	The Drunken Munkey	22	8.9	3

(47 / 153) processed

ID	Name	Likes	Rating	Tips
0 591794df2be42556988e4a8e	Rahi	97	8.8	15

(48 / 153) processed

ID	Name	Likes	Rating	Tips
0 4d24b812836f5481518645f7	Doaba Deli	41	7.6	13

(49 / 153) processed

ID	Name	Likes	Rating	Tips
----	------	-------	--------	------

```
0 424de080f964a520ae201fe3 Manhattan Valley 42 7.9 30
( 50 / 153 ) processed
```

```
-----
KeyError                                Traceback (most recent call last)
```

```
<ipython-input-24-10411ff430c3> in <module>
```

```
     8     Borough,Neighborhood,ID,Name=row
     9     try:
--> 10         venue_details=get_venue_details(ID)
    11         print(venue_details)
    12         id,name,likes,rating,tips=venue_details.values.tolist()[0]
```

```
<ipython-input-23-23b735210f73> in get_venue_details(venue_id)
```

```
    14     # get all the data
    15     results = requests.get(url).json()
--> 16     venue_data=results['response']['venue']
    17     venue_details=[]
    18     try:
```

```
KeyError: 'venue'
```

```
indian_rest_stats_ny.head()
```

	Borough	Neighborhood	ID	Name	Likes	Rating	Tips
0	Bronx	Woodlawn	4c0448d9310fc9b6bf1dc761	Curry Spot	5	7.4	10
1	Bronx	Parkchester	4c194631838020a13e78e561	Melanies Roti Bar And Grill	3	6.0	2
2	Bronx	Spuyten Duyvil	4c04544df423a593ac83d116	Cumin Indian Cuisine	13	5.9	9
3	Bronx	Concourse	551b7f75498e86c00a0ed2e1	Hungry Bird	8	6.7	3
4	Bronx	Unionport	4c194631838020a13e78e561	Melanies Roti Bar And Grill	3	6.0	2

```
indian_rest_stats_ny.shape
```

```
(50, 7)
```

```
indian_rest_stats_ny.shape
```

```
(151, 4)
```

So we got data for all restaurants. Now let's save this data to a CSV sheet. In case we by mistake modify it. As the number of calls to get details for venue are premium call and have limit of 500 per day, we will refer to saved data sheet CSV if required.

```
indian_rest_stats_ny.to_csv('indian_rest_stats_ny.csv', index=False)
```

Let's verify the data from saved CSV file

```
indian_rest_stats_ny_csv=pd.read_csv('indian_rest_stats_ny.csv')
```

```
indian_rest_stats_ny_csv.shape
```

```
(50, 7)
```

```
indian_rest_stats_ny_csv.head()
```

	Borough	Neighborhood	ID	Name	Likes	Rating	Tips
0	Bronx	Woodlawn	4c0448d9310fc9b6bf1dc761	Curry Spot	5	7.4	10
1	Bronx	Parkchester	4c194631838020a13e78e561	Melanies Roti Bar And Grill	3	6.0	2
2	Bronx	Spuyten Duyvil	4c04544df423a593ac83d116	Cumin Indian Cuisine	13	5.9	9
3	Bronx	Concourse	551b7f75498e86c00a0ed2e1	Hungry Bird	8	6.7	3
4	Bronx	Unionport	4c194631838020a13e78e561	Melanies Roti Bar And Grill	3	6.0	2

```
indian_rest_stats_ny.info()
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 50 entries, 0 to 49
Data columns (total 7 columns):
#   Column          Non-Null Count  Dtype
---  -
0   Borough         50 non-null    object
1   Neighborhood     50 non-null    object
2   ID              50 non-null    object
3   Name            50 non-null    object
4   Likes           50 non-null    object
5   Rating          50 non-null    float64
6   Tips            50 non-null    object
dtypes: float64(1), object(6)
memory usage: 2.9+ KB
```

We see that values like Likes, Tips are strig values. We would need to convert them into float for further analysis

```
indian_rest_stats_ny['Likes']=indian_rest_stats_ny['Likes'].astype('float64')
indian_rest_stats_ny['Tips']=indian_rest_stats_ny['Tips'].astype('float64')
indian_rest_stats_ny.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 50 entries, 0 to 49
Data columns (total 7 columns):
#   Column          Non-Null Count  Dtype
---  -
0   Borough         50 non-null    object
1   Neighborhood     50 non-null    object
2   ID              50 non-null    object
3   Name            50 non-null    object
4   Likes           50 non-null    float64
5   Rating          50 non-null    float64
6   Tips            50 non-null    float64
dtypes: float64(3), object(4)
memory usage: 2.9+ KB
```

Now the data types looks correct

```
# 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              830
Rating             8.7
Tips              255
Name: 41, dtype: object
```

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

```
Borough           Manhattan
Neighborhood       Midtown
ID                 49d91c12f964a520015e1fe3
Name               The Kati Roll Company
Likes              830
Rating             8.7
Tips              255
Name: 41, dtype: object
```

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

```
Borough           Manhattan
Neighborhood       Midtown
ID                 49d91c12f964a520015e1fe3
Name               The Kati Roll Company
Likes              830
Rating             8.7
Tips              255
Name: 41, dtype: object
```

```
ny_neighborhood_stats=indian_rest_stats_ny.groupby('Neighborhood',as_index=
False).mean()[['Neighborhood','Rating']]
ny_neighborhood_stats.columns=['Neighborhood','Average Rating']
```

```
ny_neighborhood_stats.sort_values(['Average
Rating'],ascending=False).head(10)
```

	Neighborhood	Average Rating
29	Tribeca	9.10
14	Greenwich Village	8.90
23	Prospect Heights	8.80
33	West Village	8.80
3	Chelsea	8.70
19	Midtown	8.65
9	East Village	8.60
20	North Side	8.50
27	South Side	8.50
11	Fort Greene	8.40

Above are the top neighborhoods with top average rating of Indian restaurant

```
ny_borough_stats=indian_rest_stats_ny.groupby('Borough',as_index=False).mean()
ny_borough_stats.columns=['Borough','Average Rating']

ny_borough_stats.sort_values(['Average Rating'],ascending=False).head()
```

	Borough	Average Rating
2	Manhattan	8.213636
1	Brooklyn	7.813043
0	Bronx	6.400000

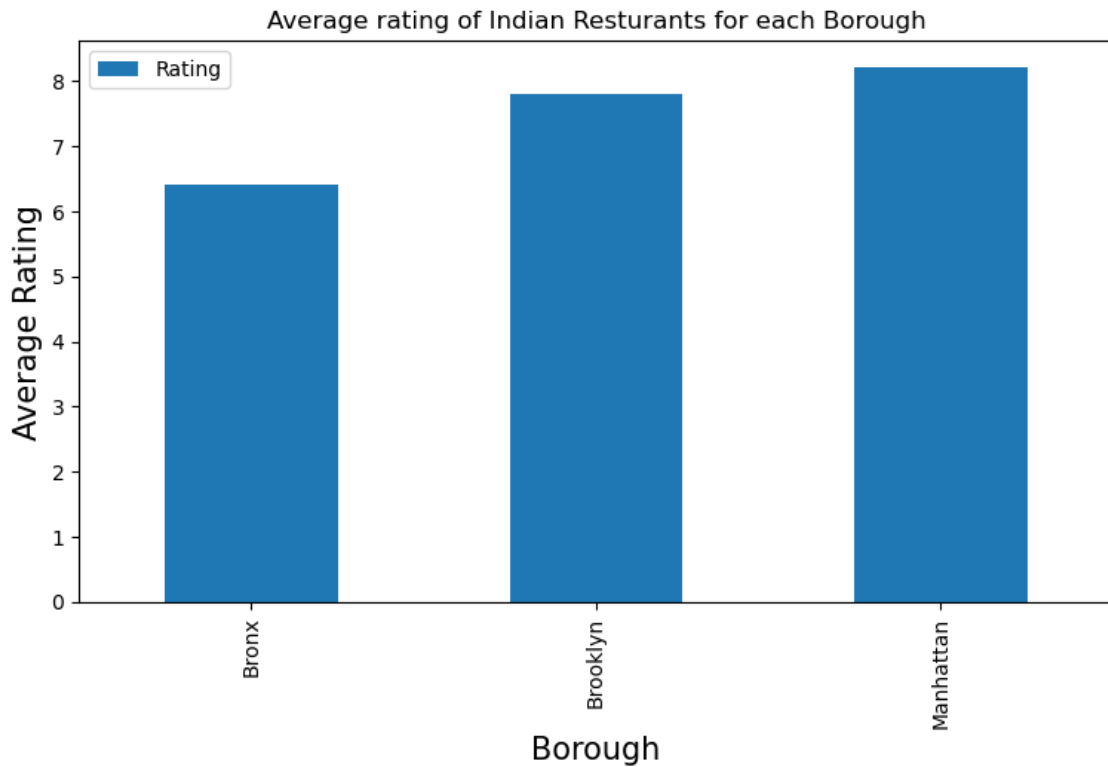
Similarly these are the average rating of Indian Resturants for each Borough
Lets visualize it

```
plt.figure(figsize=(9,5), dpi = 100)
# title
plt.title('Average rating of Indian Resturants for each Borough')
#On x-axis
plt.xlabel('Borough', fontsize = 15)
```

```

#On y-axis
plt.ylabel('Average Rating', fontsize=15)
#giving a bar plot
indian_rest_stats_ny.groupby('Borough').mean()['Rating'].plot(kind='bar')
#legend
plt.legend()
#displays the plot
plt.show()

```



We will consider all the neighborhoods with average rating greater or equal 9.0 to visualize on map

```

ny_neighborhood_stats=ny_neighborhood_stats[ny_neighborhood_stats['Average
Rating']>=9.0]

```

```

ny_neighborhood_stats

```

	Neighborhood	Average Rating
28	Tribeca	9.1

We will join this dataset to original new york data to get lonitude and latitude

```

ny_neighborhood_stats=pd.merge(ny_neighborhood_stats,new_york_data,
on='Neighborhood'

```

```
ny_neighborhood_stats=ny_neighborhood_stats[['Borough', 'Neighborhood', 'Latitude', 'Longitude', 'Average Rating']]
ny_neighborhood_stats
```

	Borough	Neighborhood	Latitude	Longitude	Average Rating
0	Manhattan	Tribeca	40.721522	-74.010683	9.1

Now we will show this data on a map

```
# create map and display it
```

```
!conda install -c conda-forge folium=0.5.0 --yes # uncomment this line if you haven't completed the Foursquare API Lab
import folium # map rendering library
```

```
Collecting package metadata (current_repodata.json): done
Solving environment: failed with initial frozen solve. Retrying with flexible solve.
Collecting package metadata (repodata.json): done
Solving environment: failed with initial frozen solve. Retrying with flexible solve.
Solving environment: /
```

```
ny_map = folium.Map(location=geo_location('New York'), zoom_start=12)
# instantiate a feature group for the incidents in the dataframe
incidents = folium.map.FeatureGroup()
```

```
# loop through the 100 crimes and add each to the incidents feature group
for lat, lng, in ny_neighborhood_stats[['Latitude', 'Longitude']].values:
    incidents.add_child(
        folium.CircleMarker(
            [lat, lng],
            radius=10, # define how big you want the circle markers to be
            color='yellow',
            fill=True,
            fill_color='blue',
            fill_opacity=0.6
        )
    )
```

Lets add a new field to dataframe for labeling purpose

```
ny_neighborhood_stats['Label']=ny_neighborhood_stats['Neighborhood']+',
'+ny_neighborhood_stats['Borough']+(' '+ny_neighborhood_stats['Average
Rating']).map(str)+' )'
```

```
# add pop-up text to each marker on the map
for lat, lng, label in
ny_neighborhood_stats[['Latitude', 'Longitude', 'Label']].values:
    folium.Marker([lat, lng], popup=label).add_to(ny_map)
# add incidents to map
ny_map.add_child(incidents)
```

Now that we have visualized the Neighborhoods. Lets Visualize Boroughs based on average Rating

```
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')
```

Conclusion

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

Manhattan have potential Indian Resturant Market

Staten Island ranks last in average rating of Indian Resturants.

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

Limitations

The ranking is purely on basis of rating of resturants

The accuracy of data depends purely depends on the data provided by FourSquare

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