Capstone Project -The Battle of Neighborhoods

**Introduction**

New York City is the most populated city in the United States with a population of 17,990,455. The city is divided into five boroughs, Manhattan, Brooklyn, the Bronx, Queens, and Staten Island. The city’s physical setting is a complex assortment of lands and islands.

Being a multi-cultural city, New York comprises a diverse range of restaurants, each belonging to various categories like French, Indian, Chinese and Italian. New York is the hub of interactions between ethnicities and brings many opportunities for entrepreneurs to start or grow their business. The objective of this project is to use Foursquare location data to determine what might be the suitable neighborhood in New York to open an Italian restaurant.

# Data

To complete this project, the following data will be needed:

* List of Boroughs & Neighborhoods in New York City with coordinates, latitude & longitude: <https://cocl.us/new_york_dataset>
* Italian restaurants in each neighborhood of the New York City: Foursquare API.
* GeoSpace data to get the New York Borough boundaries: <https://data.cityofnewyork.us/City-Government/Borough-Boundaries/tqmj-j8zm>

# Methodology

# To analyze and find the best neighborhood in New York City in order to start an Italian restaurant, data set from <https://cocl.us/new_york_dataset> is used to explore various neighborhoods of the New York City. Foursquare API is used to find all venues for each neighborhood, determine ratings, tips and count for each Italian Restaurants. The ranking of neighborhoods is visualized using foliam library. The following questions will be addressed.

1. What is / are the best location(s) for Italian cuisine in New York City?
2. In what Neighborhood and/or borough should I open an Italian restaurant to have the best chance of being successful?

# Libraries used

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

# 

# Functions used

# Function to get the geocodes, that is, latitude and longitude of a given location using geopy.

# 

# Function to get the New York City data such as Boroughs, Neighborhoods along with their latitude and longitude.

# 

# From determining New York City data, the following plot indicates number of neighborhood per borough.

# 

# Code to collect number of Italian restaurants for each Borough is given below and it’s observed that Manhattan has the most Italian restaurants.

# 

# 

# Code to determine the number of Italian restaurants per neighborhood. Its observed that Belmont has the highest number.

# 

# 

# Code to determine the rankings of restaurants.

# 

# 

# Below are the top neighborhoods with top average rating of Italian restaurants.

# 

# Average rating of Italian restaurants for each borough.

# 

# We visualized the map of neighborhoods with an average rating greater than or equal to 8.

# 

# Results and Conclusion

# Queens and Manhattan comprise the top rated Italian restaurants on average. Bronx and Queens have the lowest number of Italian restaurants. Nevertheless, the neighborhood of Belmont in Bronx has the most Italian Restaurants across all New York City. Even though Manhattan comprises the lowest amount of neighborhoods in all five boroughs, it has the most Italian restaurants. From these observations, I would say that Queens and Manhattan are the best boroughs for Italian cuisine in the New York City. The final location I would choose to open an Italian restaurant is Queens because even though it has fewest Italian restaurants, it has the good overall rating and this would also be good to avoid competition.