**Capstone Project - The Battle of The Neighbourhoods (Final Report)**

## Introduction/Business problem

New York is a large and ethnically diverse city. It is the largest city in the United States with a long history of international immigration. New York City was home to over 8.3 million people in 2019, 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. 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. New york is also known for having good food. With its diverse culture comes plenty of restaurants that serve foods from all over the world. There are many restaurants in New York each belonging to different categories like Indian, Chinese, Arabic, Hispanic etc. Let’s take a look at the best way to open up an Arabic (Lebanese to be specific) restaurant in New York.

## Problem

To Find the answers to the following questions:

* List and visualize all major parts of New York that have great Arabic (Lebanese) restaurants
* What is the best location in New York for Arabic (Lebanese) food?
* Which areas are good for opening your own Arabic (Lebanese) restaurant?
* Which areas lack Arabic (Lebanese) restaurants?
* Where is the best place to live if you love (Lebanese) food?

## Data Section

For this project we need the following data:

* New York city data that contains list of Boroughs, Neighbourhoods, and longitude and latitude of those neighbourhoods.
  + Data Source: <https://cocl.us/new_york_dataset>
  + Description: This data set has the required information. we will use this data to explore different neighbourhoods in New York
* Arabic restaurants (Lebanese to be exact) in each neighbourhood in New York
  + Data Source: Foursquare API
  + Description: Foursquare API will allow us to explore each neighbourhood and obtain information on venues in these neighbourhoods. we will also be able to filter these venues to narrow it down to only Arabic restaurants.
* GeoSpace Data
  + Data Source: <https://data.cityofnewyork.us/City-Government/Borough-Boundries/tqmj-j8zm>
  + Description: By using this GeoSpace Data it will allow us to get the New York city borough boundaries which will help us be able to visualize our choropleth map

## Methodology

1. we begin by downloading all the dependencies that we will need

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1. Getting latitude and longitude of New York city

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1. Verify our foursquare id and secret

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1. Retrieve venues and venue details In New York city from Foursquare

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1. Collecting data of new york city and graphing the data

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**This Data shows that Manhattan has lowest # of neighbourhoods**

1. We then filtered out all the venues with Lebanese restaurants for further analysis.

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1. We then found out that Manhattan was the only borough that has a Lebanese restaurant in a radius of 400. The restaurant was located in the neighbourhood called Greenwich Village. We also obtained the name. ID and rating of the restaurant.

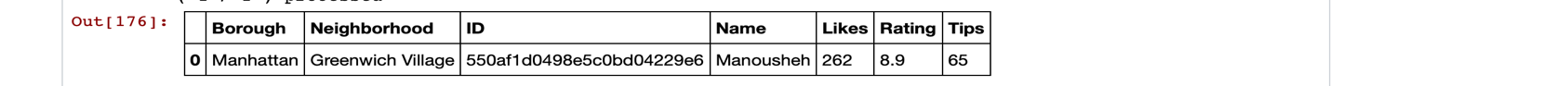
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1. We figured out the ratings and tips of our Lebanese restaurant from foursquare



1. We then tried to retrieve data on Lebanese restaurants from all boroughs and neighbourhoods with an average rating > 8.0. we only got one result which is the Restaurant we found above since this is the only one we found based on our search.
2. We then created a map showing the location of the restaurant

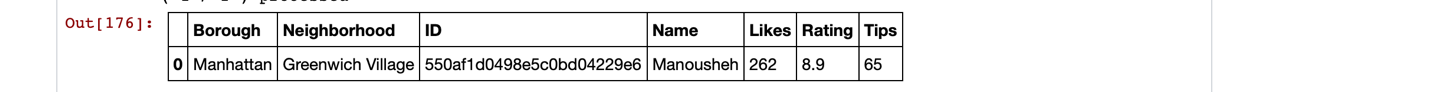
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## Results

Now we can answer the questions mentioned earlier in our problem section

* List and visualize all major parts of New York that have great Arabic (Lebanese) restaurants



* What is the best location in New York for Arabic (Lebanese) food?

The best location would be Greenwich village since the only restaurant we found was in this location.

* Which areas are good for opening your own Arabic (Lebanese) restaurant?

The areas that are good for opening your own Lebanese restaurant would be any neighbourhood in the Bronx, Brooklyn, queens and Staten island. The best location would be queens because it has the most # of neighbourhoods out of the 4.

* Which areas lack Arabic (Lebanese) restaurants?

The areas that lack Lebanese restaurants are the Bronx, Brooklyn, Queens, and Staten Island

* Where is the best place to live if you love Arabic (Lebanese) food?

The best place to live if you love Lebanese food would be Greenwich Village

## Conclusion

Manhattan has the best rated Lebanese restaurants. Greenwich Village is the neighborhood in all of NYC with the most Lebanese Restaurants. Despite Manhattan having the least number of neighborhoods in all five boroughs, it has the most Lebanese restaurants. Based on this information, I would state that Manhattan is the best locations for Lebanese Restaurants in NYC. To have the best shot of success, I would open a Lebanese restaurant in Queens. Queens has the most number of neighbourhoods, which means there are more people and this means a higher chance of success for the business. Finally, I would go to Manousheh in Manhattan for the best Lebanese food based on its 262 likes and 8.9 rating. As a final note, all of the above analysis is depended on the adequacy and accuracy of Foursquare data. A more comprehensive analysis and future work would need to incorporate data from other external databases.