Coursera Capstone Project

By: Apple li

Project Overview

Objective:

- Recommend a New York neighborhood to visitors who like food and are interested in trying different types of restaurants

Target Audience:

- Travelers, visitors / newcomers to New York, food connoisseurs

Background:

- New York is a dynamic city with diverse cultures and incredible cuisines. Many people come to New York to try its award-winning restaurants and top-ranked food.

- Among New York's 5 boroughs, Manhattan is undoubtedly the most exciting neighborhood attracting millions of visitors a year. To many visitors, food is a big component of their trips. Many end up staying in the city, like I did, for its food options unmatchable by any other city in the world.

- For visitors, in order to optimize their stay and experience more restaurants, it is important to stay in a neighborhood that has many restaurants across multiple cuisines. This project aims to find out the most desirable New York neighborhood for visitor and connoisseurs who are interested in trying different restaurants, so that they can maximize the value of their trip.

Exploratory Analysis
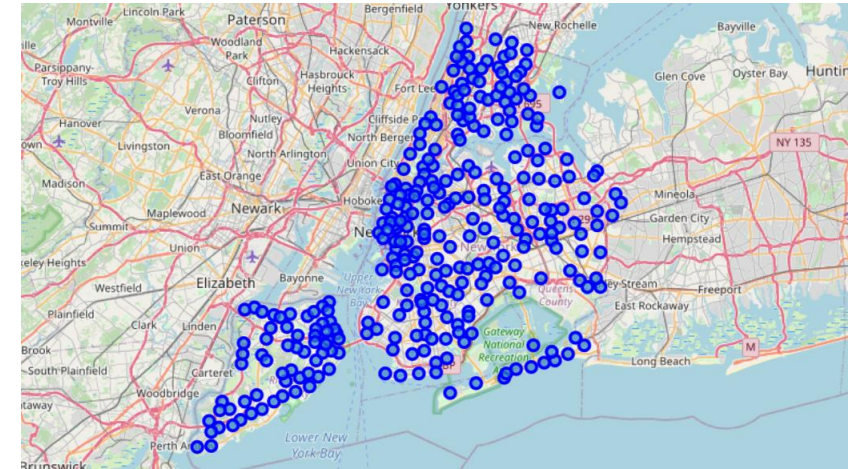
New York Neighborhoods

Data:

- New York city neighborhoods; Foursquare location data (venues in each neighborhood)
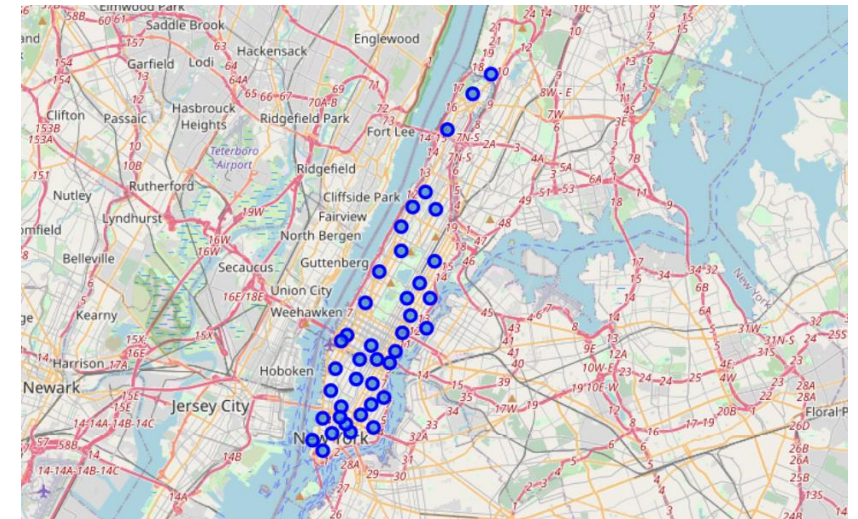
Exploratory Data Analysis:

- There are a total of 304 neighborhoods across 5 boroughs.

- Among all boroughs, Manhattan is supposedly the most representative of New York City, and most attractive to visitors. To optimize the scope of the project (and stay within Foursquare request limit), we will narrow the scope to Manhattan only.

Manhattan Neighborhoods

Exploratory Analysis (Cont.)

- Across all Manhattan neighborhoods, there are 333 unique venue categories.
- For example, in Marble Hill there are Pizza place, seafood restaurant, department store and others.
- Next step is to find the neighborhoods with the greatest number of restaurants, the most diverse cuisines, and make recommendations to visitors.

Venues in Marble Hill

Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
Marble Hill	40.876551	-73.910660	Arturo's	40.874412	-73.910271	Pizza Place
Marble Hill	40.876551	-73.910660	Bikram Yoga	40.876844	-73.906204	Yoga Studio
Marble Hill	40.876551	-73.910660	Tibbett Diner	40.880404	-73.908937	Diner
Marble Hill	40.876551	-73.910660	Starbucks	40.877531	-73.905582	Coffee Shop
Marble Hill	40.876551	-73.910660	Dunkin'	40.877136	-73.906666	Donut Shop
Marble Hill	40.876551	-73.910660	Blink Fitness	40.877271	-73.905595	Gym
Marble Hill	40.876551	-73.910660	T.J. Maxx	40.877232	-73.905042	Department Store
Marble Hill	40.876551	-73.910660	Land & Sea Restaurant	40.877885	-73.905873	Seafood Restaurant
Marble Hill	40.876551	-73.910660	Astral Fitness & Wellness Center	40.876705	-73.906372	Gym
Marble Hill	40.876551	-73.910660	Starbucks	40.873755	-73.908613	Coffee Shop
Marble Hill	40.876551	-73.910660	TCR The Club of Riverdale	40.878628	-73.914568	Tennis Stadium
Marble Hill	40.876551	-73.910660	Vitamin Shoppe	40.877160	-73.905632	Supplement Shop
Marble Hill	40.876551	-73.910660	Lot Less Closeouts	40.878270	-73.905265	Discount Store
Marble Hill	40.876551	-73.910660	Rite Aid	40.875467	-73.908906	Pharmacy
Marble Hill	40.876551	-73.910660	Baskin-Robbins	40.877149	-73.906658	Ice Cream Shop
Marble Hill	40.876551	-73.910660	Subway	40.874667	-73.909586	Sandwich Place
Marble Hill	40.876551	-73.910660	Boston Market	40.877430	-73.905412	American Restaurant
Marble Hill	40.876551	-73.910660	Five Below	40.877256	-73.904938	Discount Store

Results and Recommendations

- There are a wide range of restaurants in each neighborhood.
- Some neighborhoods are abundant with restaurants while others have only a few.
- For example, Battery Park City has only 7 restaurants that can found on Fousquare. East Village, on the other hand, has 7 times as many.

Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Restaurants
Battery Park City	7	7	7	7	7	7
Carnegie Hill	22	22	22	22	22	22
Central Harlem	16	16	16	16	16	16
Chelsea	23	23	23	23	23	23
Chinatown	39	39	39	39	39	39
Civic Center	24	24	24	24	24	24
Clinton	31	31	31	31	31	31

Results and Recommendations

- There are different types of restaurants in each neighborhood offering different types of cuisines.

- The most prevalent restaurant type is Italian, with 121 restaurants in Manhattan. The second and third most prevalent are American restaurants and Pizza place, with 73 and 71 venues, respectively.

Restaurants Neighborhood	Total Restaurants	Type of Cuisines	Afghan Restaurant	African Restaurant	American Restaurant	Arepa Restaurant	Argentinian Restaurant	Asian Restaurant	Australian Restaurant	Austrian Restaurant	Brazilian Restaurant	Cajun / Creole Restaurant
Battery Park City	7.0	6	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
Carnegie Hill	22.0	17	NaN	NaN	1.0	NaN	1.0	NaN	NaN	NaN	NaN	NaN
Central Harlem	16.0	10	NaN	3.0	2.0	NaN	NaN	NaN	NaN	NaN	NaN	NaN
Chelsea	23.0	15	NaN	NaN	4.0	NaN	NaN	1.0	NaN	NaN	NaN	NaN
Chinatown	39.0	21	NaN	NaN	3.0	NaN	NaN	2.0	NaN	1.0	NaN	NaN
Civic Center	24.0	16	NaN	NaN	2.0	NaN	NaN	1.0	1.0	NaN	NaN	1.0
Clinton	31.0	15	NaN	NaN	4.0	NaN	NaN	NaN	NaN	NaN	1.0	NaN
East Harlem	18.0	9	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN

Results and Recommendations

- Among the 40 neighborhoods in Manhattan, the top 5 neighborhoods with the greatest number of restaurants include: Greenwich Village, East Village, West Village, Chinatown, and Noho. For visitors and/or residents looking for neighborhoods that have most number of restaurants, we recommend them stay at one of these five neighborhoods.

- For people looking for variety, we recommend they check out one of these neighborhoods: East Village, Greenwich Village, Murray Hill, Upper West Side and Chinatown
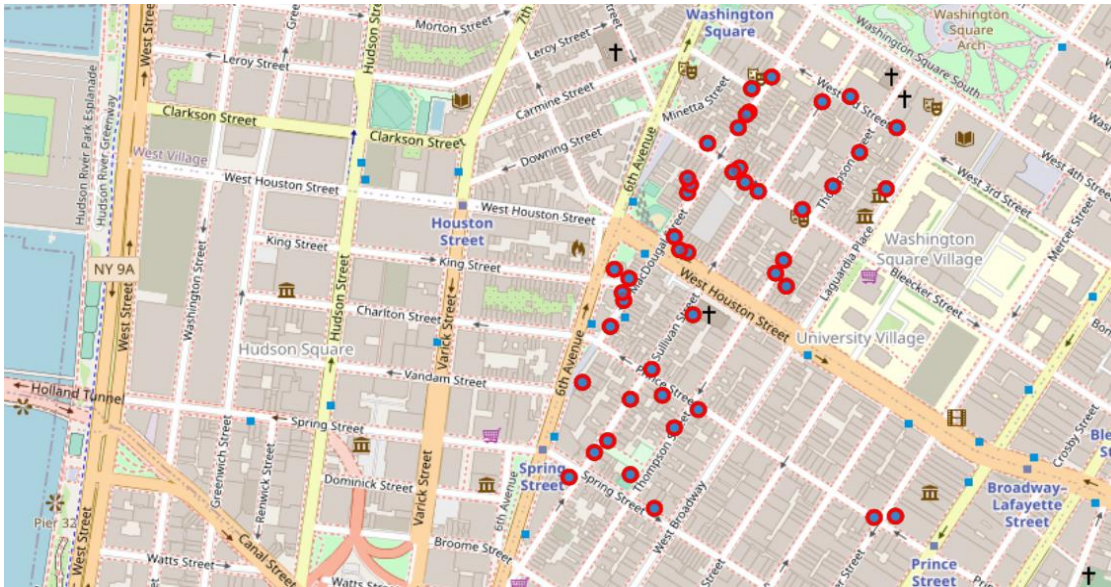
Restaurants Neighborhood	Total Restaurants	Type of Cuisines
Greenwich Village	45.0	23
East Village	43.0	25
Chinatown	39.0	21
West Village	39.0	16
Noho	38.0	21

Restaurants Neighborhood	Total Restaurants	Type of Cuisines
East Village	43.0	25
Greenwich Village	45.0	23
Murray Hill	38.0	22
Upper West Side	34.0	21
Chinatown	39.0	21

Results and Recommendations

- Considering both quantity (total number of restaurants) and variety (types of cuisines), we recommend **East Village** and **Greenwich Village** as the top 2 neighborhoods for people interested in food.

Additional Analysis And Observations

- We created a function to help people find out the best neighborhood if they are interested in a specific type of cuisine.

- For example, one can find the greatest number of Korean Restaurants in Midtown South, a neighborhood also named as Korean Town. For people interested in Italian restaurants, their best bet is Greenwich Village. Most American restaurants can be found in West Village, etc

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You can find the most Korean Restaurant in Midtown South.
You can find the most Italian Restaurant in Greenwich Village.
You can find the most American Restaurant in West Village.
You can find the most French Restaurant in Carnegie Hill.
You can find the most Mexican Restaurant in East Harlem.
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