The Restaurant Battle
of Manhattan Neighborhoods

INTRODUCTION

A pair of restaurant owners want to **expand operations to high density locations** that are most ideal location to open up a chain of profitable restaurants.

Their **growth strategy is to be able to open sustainable franchises** domestically in the northeast region of the United States and then other major cities across the nation in the future.

The owners want to **target Manhattan in New York City** first.

By **exploring each neighborhood, their venues, and analyzing trends**, the owners will be able to effectively **gauge optimal locations** that will yield the best possible success, sustainability, and growth for their restaurant expansion.

DATA ACQUISITION AND CLEANING

Dataset 1: New York City borough, neighborhood, latitude, and longitude data
https://cocl.us/new_york_dataset

Dataset 2: Manhattan neighborhood, venue, venue latitude, venue longitude, venue category. Accessed via Foursquare API - https://api.foursquare.com/v2/venues/explore?

Final dataset includes Borough, Neighborhood, Latitude, and Longitude
- 306 neighborhoods among the 5 New York City boroughs (Brooklyn, Bronx, Manhattan, Staten Island, and Queens)
- 40 neighborhoods in the Manhattan borough
- 342 different venue categories in the Manhattan borough

METHODOLOGY & ANALYSIS

The K-Means clustering algorithm was used to form clusters of the Manhattan neighborhoods and their venues data to further segment our analysis

5 clusters of neighborhoods were created to narrow down the neighborhoods and ultimately select one for additional synthesis.
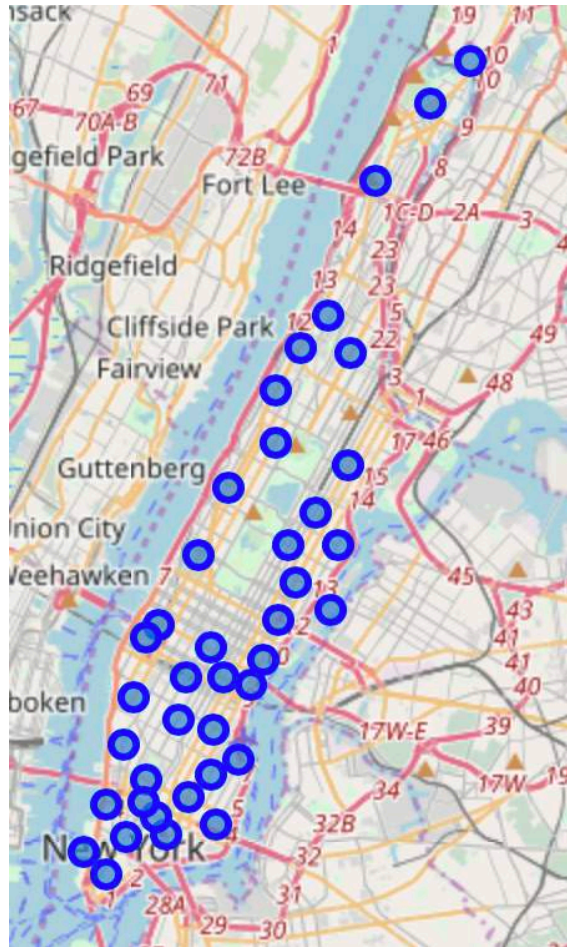
Cluster 3 yielded the lowest Restaurant/Neighborhood ratio and was selected for optimal density distribution.

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Total number of neighborhoods in cluster 3 is 4
Total number of restaurants in this cluster is 13
Ratio of Restaurant/Neighborhood in this cluster is 3.25
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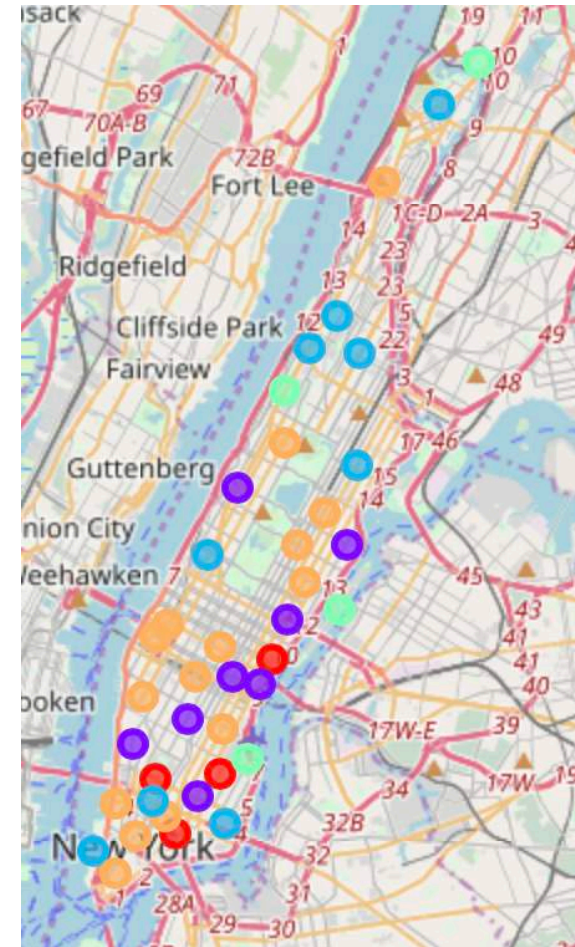
VISUALIZATION

All Manhattan neighborhoods

Manhattan neighborhoods segmented into 5 clusters

VISUALIZATION

Map displaying the 3 resulting Manhattan neighborhoods depicted by the blue dots:

- **Morningside Heights**
- **Roosevelt Island**
- **Stuyvesant Town**

CONCLUSION

The purpose of this project was to **identify neighborhoods in Manhattan**, New York with a low number of restaurants in order **to aid stakeholders** in narrowing down the **search for optimal location(s) for a new restaurant**.

By analyzing restaurant density distribution from Foursquare data, we identified the **five most common nearby venues** of each neighborhood.

With the help of clustering techniques and further analysis, we were able to narrow down to three neighborhoods - **Morningside Heights, Roosevelt Island, and Stuyvesant Town** - that fit the density criteria yielding ideal candidate locations for opening up a new restaurant.

Thank You