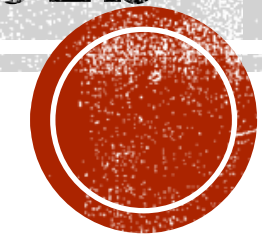
OPENING A GREEK RESTAURANT IN NEW YORK: AN EXPLORATORY ANALYSIS



A report submitted as the Capstone project for IBM Data Science course

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1. INTRODUCTION AND PROBLEM STATEMENT

As one of the most densely populated cities in the world, New York is a prime example of heavy competition when it comes to food joints and options. The food and restaurant business is a challenging yet rewarding aspect of living in New York, which stands to be a good opportunity to open a specific restaurant that will serve delicacies from a different country. More specifically, this report will provide an exploratory analysis of New York, in order to open a Greek restaurant in an area which is not served nor it has a Greek restaurant in the vicinity. In other words, this report will utilize the knowledge gathered throughout this course in order to map all of the Greek restaurants in New York, upon which an investment analysis can be made in the future.

2. DATA DEFINITION

In order to execute the goal of this report, the analysis presented hereinafter will adopt the Foursquare API information of the Greek restaurants in New York city. More specifically, the data will be gathered in the same fashion as the shown in the course, starting from the same location. However, in order to visualize the data, a different type of restaurant will be chosen. The starting location will remain the same as in the lectures. After visualizing the Greek restaurants in New York, an investment decision can be made.

3. METHODOLOGY

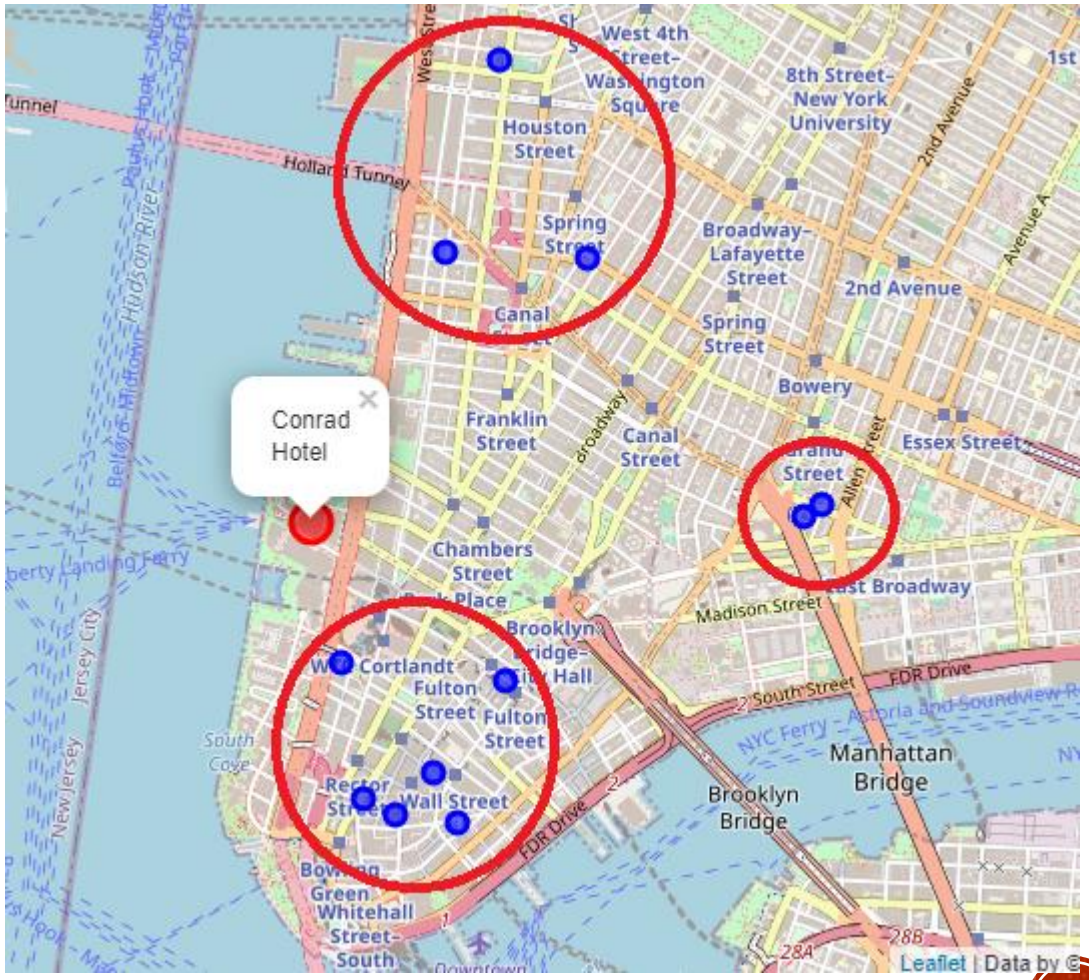
```
import requests
import pandas as pd
import numpy as np
import random

from geopy.geocoders import Nominatim

from IPython.display import Image
from IPython.core.display import HTML

from pandas.io.json import json_normalize

import folium # plotting library

print('Folium installed')
print('Libraries imported.')
```

```
filtered_columns = ['name', 'categories'] + [col for col in dataframe.columns if col.startswith('location.')] + ['id']
dataframe_filtered = dataframe.loc[:, filtered_columns]

def get_category_type(row):
    try:
        categories_list = row['categories']
    except:
        categories_list = row['venue.categories']

    if len(categories_list) == 0:
        return None
    else:
        return categories_list[0]['name']

dataframe_filtered['categories'] = dataframe_filtered.apply(get_category_type, axis=1)

dataframe_filtered.columns = [column.split('.')[-1] for column in dataframe_filtered.columns]

dataframe_filtered
```

```
venues_map = folium.Map(location=[latitude, longitude], zoom_start=13)

folium.CircleMarker(
    [latitude, longitude],
    radius=10,
    color='red',
    popup='Conrad Hotel',
    fill = True,
    fill_color = 'red',
    fill_opacity = 0.6
).add_to(venues_map)

for lat, lng, label in zip(dataframe_filtered.lat, dataframe_filtered.lng, dataframe_filtered.categories):
    folium.CircleMarker(
        [lat, lng],
        radius=5,
        color='blue',
        popup=label,
        fill = True,
        fill_color='blue',
        fill_opacity=0.6
    ).add_to(venues_map)

venues_map
```

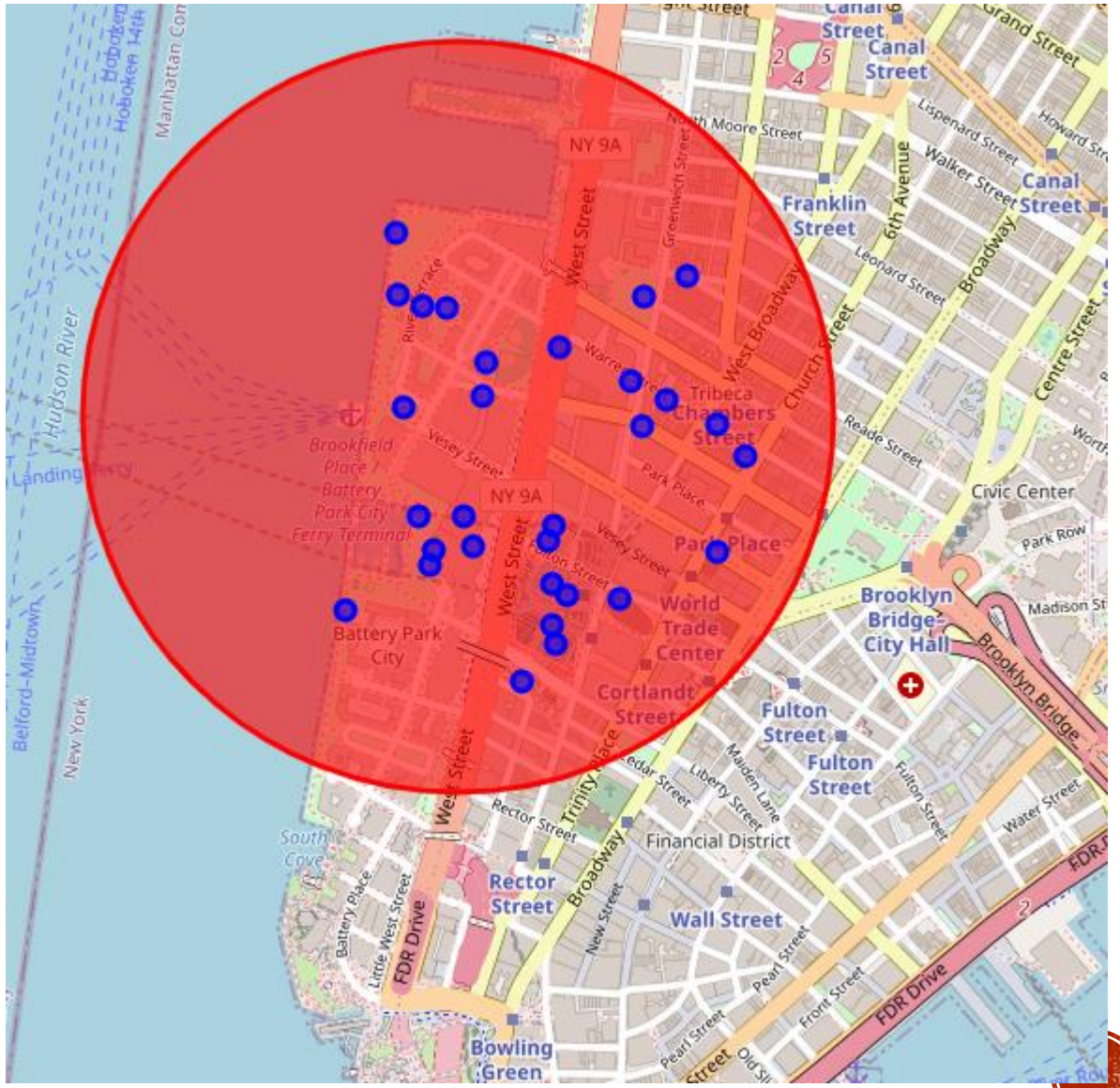
4. RESULTS

- 11 Greek Restaurants in a 2000 meters radius around Conrad Hotel
- These restaurants can easily be grouped in three clusters, leaving a significant area between them for potential investment



4. RESULTS

- Moreover, another determinant for potential success stands to be the popularity of the area
- We use the popular places as a proxy for popularity of the overall area
- It is clear that the restaurant will be opened in a popular area, thus significantly increasing the chances of success



5. DISCUSSION

The methodology adopted above aimed at determining how many greek restaurants are present in the vicinity of the Conrad Hotel. Moreover, with a clustering analysis, the results show that there are three clusters of greek restaurants in the 2000 meters radius of the hotel. Moreover, there are 11 Greek restaurants however, the results presented above show that an investment is likely plausible and will be a logical step in order to fill in the blank space in the analysed region. Since there are also many popular spaces in the vicinity, the Greek restaurant will surely be a success, either prior or post going out.

6. CONCLUSION

The purpose of this report was to create an exploratory analysis report in order to determine whether an investment in a Greek restaurant will be a successful decision. Considering the results and the discussion, it is more than clear that such an investment will be profitable or very likely to succeed, since it fills a significant hole between three clusters of Greek restaurants, in a heavily popular and populated area of New York.

THANK YOU FOR YOUR ATTENTION