COURSERA CAPSTONE PROJECT

THE BATTLE OF NEIGHBORHOODS

Mohamad Ali

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INTRODUCTION

I have been offered a great opportunity to work for a leader firm in Manhattan, NY.

The key question is:

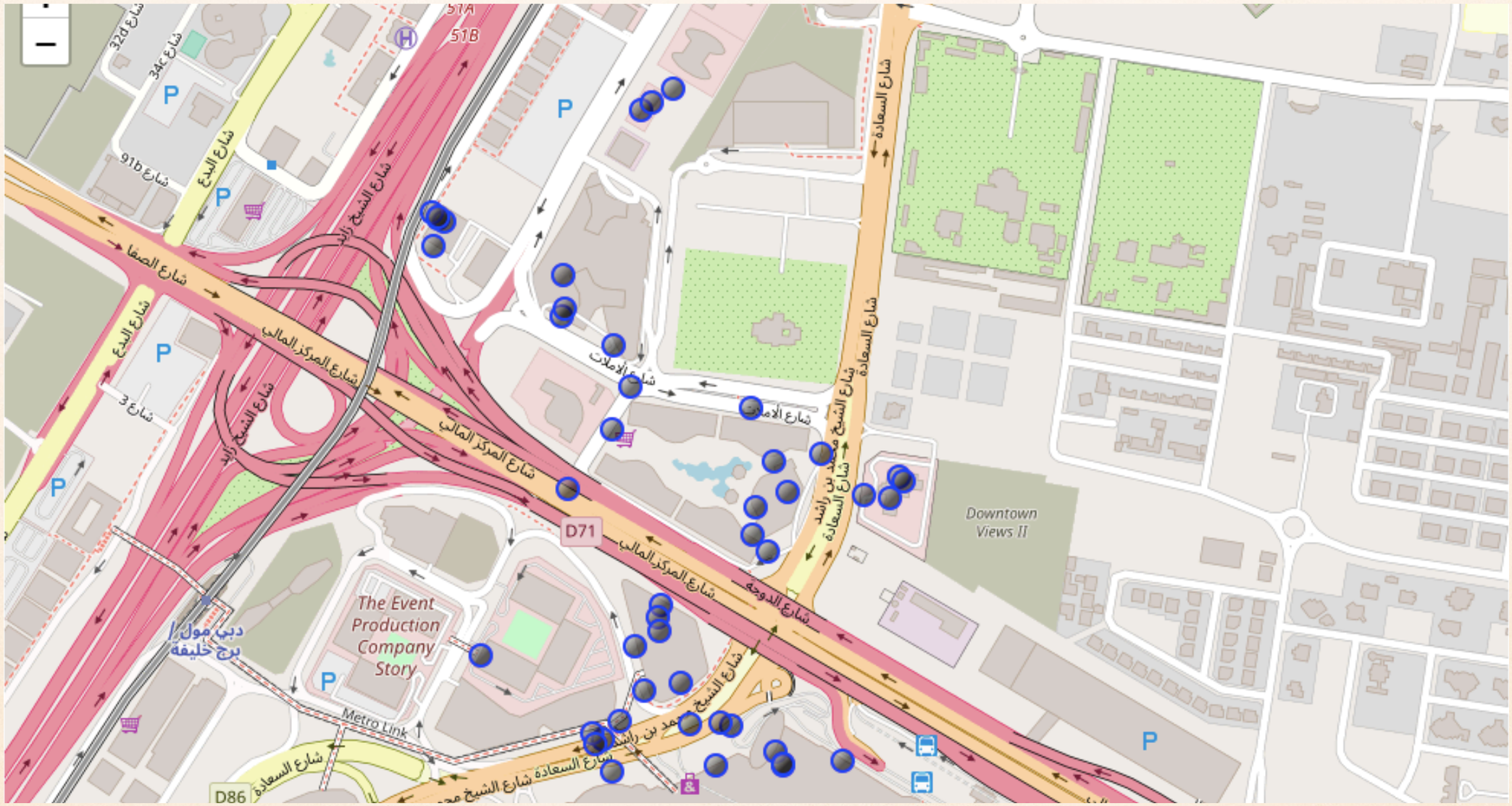
How can I find a convenient and enjoyable place similar to mine now in Dubai, UAE?

In order to make a comparison and evaluation of the rental options in Manhattan NY, I must set some basis, therefore the apartment in Manhattan must meet the following demands:

- Apartment must be 2 or 3 bedrooms
- Desired location is near a metro station in the Manhattan area and within 1.0 mile (1.6 km) radius
- Price of rent not exceed $7,000 per month
- Top amenities in the selected neighborhood shall be similar to current residence
- Desirable to have venues such as coffee shops, restaurants Asian Thai, gym and food shops

INTRODUCTION

As a reference, I have included a map of venues near current residence in Dubai



Map of venues in Dubai

DATA

Description of the Data:

The following data is required to answer the issues of the problem:

- List of Boroughs and neighborhoods of Manhattan with their geodata (lat and long).
- List of Subway metro stations in Manhattan with their address location.
- List of apartments for rent in Manhattan area with their addresses and price.
- Preferably, a list of apartment for rent with additional information, such as price, address, area, No. of bedrooms, etc.
- Venues for each Manhattan neighborhood (then can be clustered).
- Venues for subway metro stations, as needed.

DATA

How the data will be used to solve the problem

The data will be used as follows:

- Use Foursquare and geopy data to map top 10 venues for all Manhattan neighborhoods and clustered in groups (as per Course LAB)
- Use foursquare and geopy data to map the location of subway metro stations, separately and on top of the above clustered map in order to be able to identify the venues and amenities near each metro station, or explore each subway location separately
- Use Foursquare and geopy data to map the location of rental places, in some form, linked to the subway locations.
- Create a map that depicts, for instance, the average rental price per square ft, around a radius of 1.0 mile (1.6 km) around each subway station, or a similar metrics (I will be able to quickly point to the popups to know the relative price per subway area).
- Addresses from rental locations will be converted to geodata (lat, long) using Geopy-distance and Nominatim.
- Data will be searched in open data sources if available, from real estate sites (if open to reading), libraries or other government agencies such as Metro New York MTA, etc.

METHODOLOGY

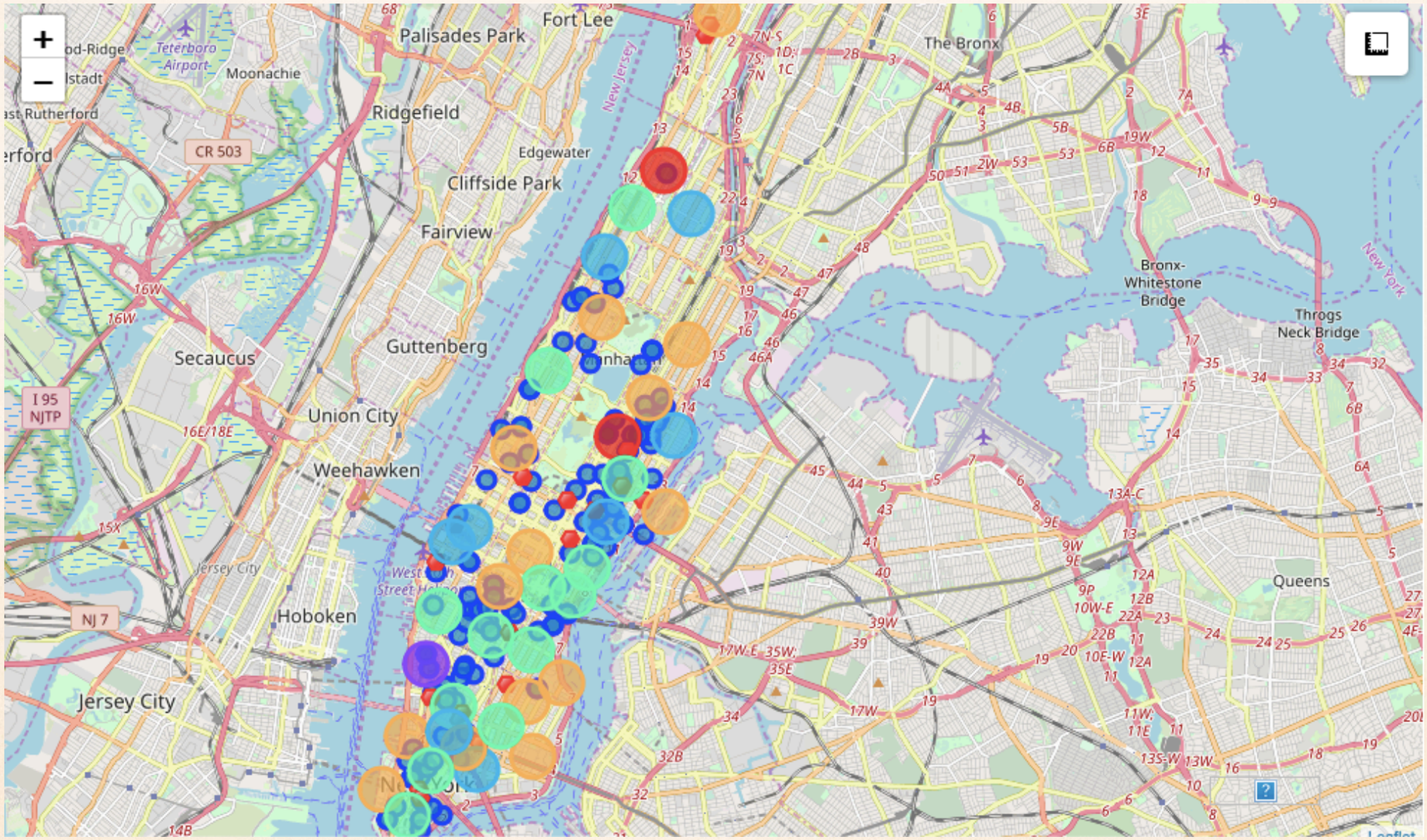
Mapping of Data:

The following maps were created to facilitate the analysis and the choice of the place to live:

- Manhattan map of Neighborhoods
- Manhattan subway metro locations
- Manhattan map of places for rent
- Manhattan map of clustered venues and neighborhoods
- Combined maps of Manhattan rent places with subway locations
- Combined maps of Manhattan rent places with subway locations and venues clusters

RESULTS

ONE CONSOLIDATE MAP (with rental places, subway locations and cluster of venues)**:**



(The “One Map” of Manhattan - Red dots are Subway stations, Blue dots are apartments available for rent, Bubbles are the clusters of venues)

RESULTS

Apartment Selection - Comparison

Using the "one map", I was able to explore all possibilities since the popups provide the information needed for a good decision.

Apartment 1:

Rent:
US7500 (slightly above the US7000 budget).

Location:
400 meters from subway station at 59th Street
600 meters away from work place (Park Ave and 53rd)

Venues:
As displayed in Cluster 2

RESULTS

Apartment Selection - Comparison (cont'd)

Apartment 2:

Rent:
US6935 (just under the US7000 budget).

Location:
60 meters from subway station at Fulton Street
But I will have to ride the subway daily to work (possibly 40-60 min ride).

Venues:
As displayed in Cluster 3.

RESULTS

Apartment Selection - Final Decision

Based on current Dubai venues, I feel that Cluster 2 type of venues is a closer resemblance to my current place.

That means: **APARTMENT 1** is a better choice since the extra monthly rent is worth the conveniences it provides.

DISCUSSION

I can positively say that this this Capstone Project presented me a great opportunity to practice and apply the Data Science tools and methodologies learned.

I have created a good project that I can present as an example to show my potential.

I feel I have acquired a good starting point to become a professional Data Scientist and I will continue exploring to creating examples of practical cases.

CONCLUSIONS

I feel rewarded with the efforts, time and money spent. I believe this course with all the topics covered is well worthy of appreciation.

This project has shown me a practical application to resolve a real situation that has impacting personal and financial impact using Data Science tools.

The mapping with Folium is a very powerful technique to consolidate information and make the analysis and decision thoroughly and with confidence. I would recommend for use in similar situations.

One must keep abreast of new tools for DS that continue to appear for application in several business fields.

THANK YOU