Capstone Project – Final report

1 Introduction Section:

Discussion of the business problem and the audience who would be interested in this project.

1.1 Scenario and Background

I am a current resident of Paris, France. My current apartment offers me many advantages and assets, and the most important one is **the proximity** to many amenities and venues in the area, both for practical daily life matters (shops, gyms) and for entertainment (cafés, restaurant..).

We will consider a hypothetical scenario where i had been offered a job opportunity in Manhattan, NY. Although I am excited about it, I am concerned about the change that this implies, and I am mindful in keeping my same current. So, I need to find, in Manhattan, a comparable place where I can move in.

Instead of spending many hours reading articles and posts in google, I decided to use a data analysis approach based on exploration and clustering of both my current city (Paris) and the city I am planning to move in (NY), with the objective of f

1.2 Problem to be resolved:

The challenge to resolve is being able to **find a neighborhood** in Manhattan NY that offers similar characteristics and benefits to my current situation. Therefore, in order to set a basis for comparison, I want to place subject to the following conditions:

- Top amenities in the selected neighbourhood shall be similar to current residence (See item 2.1)
- Desirable to have venues such as coffee shops, restaurants Asian Thai, wine stores, gym and food shops
- As a reference, I have included a map of venues near current residence in Paris.

1.3 Interested Audience

This analysis might be of a good use (or at least inspiring) to each person or entity considering a similar move. The approach and methodologies used here are applicable in variety of cases. The use of FourSquare data and mapping techniques combined with data analysis will help resolve the key questions arisen.

2   Data Section:

Description of the data and its sources that will be used to solve the problem

2.1   Data of Current Situation

I Currently reside in the 14 th district of Paris, I use Foursquare to identify the venues around the area of residence which are then shown in the Paris map shown in methodology and execution in section 3. It serves as a reference for comparison with the desired future location in
Manhattan NY

2.2   Data Required to resolve the problem

In order to make a good choice of a similar neighbourhood in Manhattan NY, the following data is required:
- List/Information on neighbourhoods which form Manhattan with their Geodata (latitude and longitude)
- Venues and amenities in the Manhattan neighbourhoods (e.g. top 10)

2.3   sources and manipulation

The list of Manhattan neighbourhoods is worked out during LAB exercise during the course. A csv file was created which will be read in order to create a dataframe and its mapping. The csv file 'mh_neigh_data.csv' has the following below data structure. The file will be directly loaded to the Jupiter Notebook. The clustering of neighbourhoods and mapping will be shown however. An algorithm was used to determine the geodata from Nominatim. The actual algorithm coding may be shown in 'markdown' mode because it takes time to run.

2.4   How the data will be used to solve the problem

The data will be used as follows:
- Foursquare and geopy data to map top 10 venues for all Manhattan neighbourhoods and clustered in groups (as per Course LAB)

2.5 Mapping of Data

The following maps were created to facilitate the analysis and the choice of the palace to live.

- Manhattan map of Neighbourhoods
- Manhattan map of clustered venues and Neighbourhoods

3 Methodology section:

This section represents the main component of the report where the data is gathered, prepared for analysis. The tools described are used here and the Notebook cells indicates the execution of steps.

The analysis and the strategy:

The strategy is based on mapping the above described data in section 2.0, in order to facilitate the choice of a candidate places for accommodation. The choice is made based on the demands imposed: similar venues to Louis Morard, Paris, France. This visual approach and maps with popups labels allow quick identification
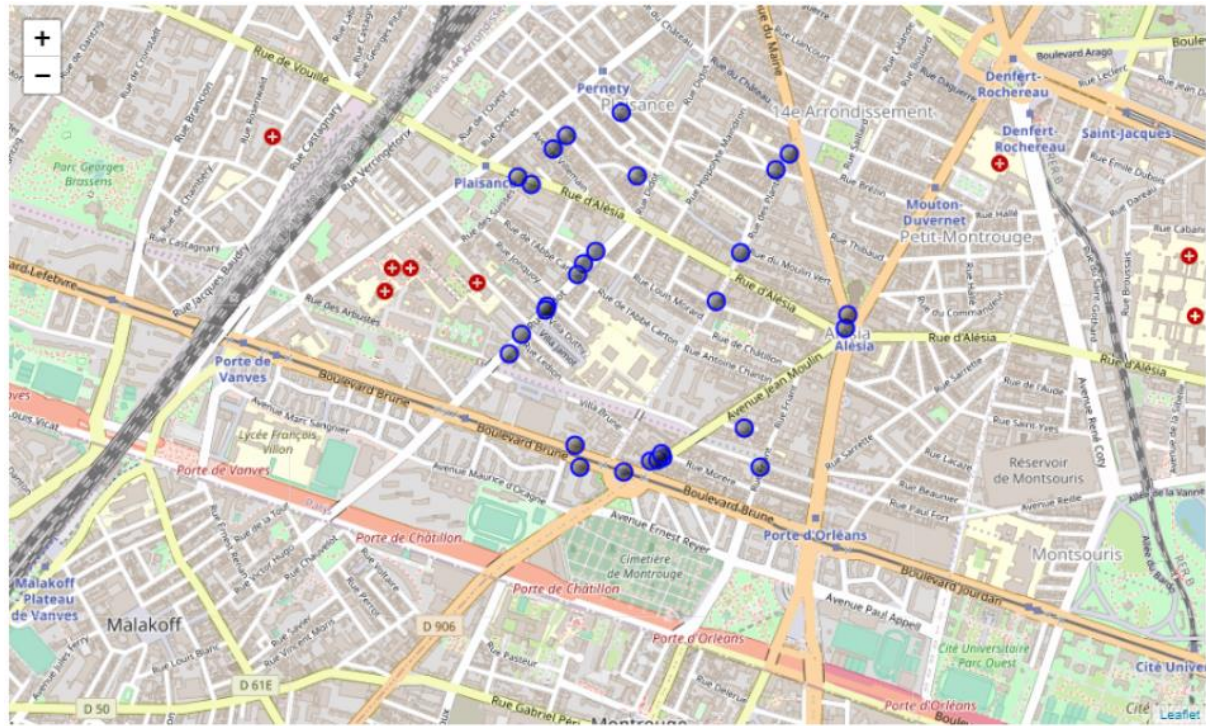of location, thus making the selection very easy.
The processing of these DATA and its mapping will allow to answer the key questions to make a decision:

- What are the venues of the best place to live?
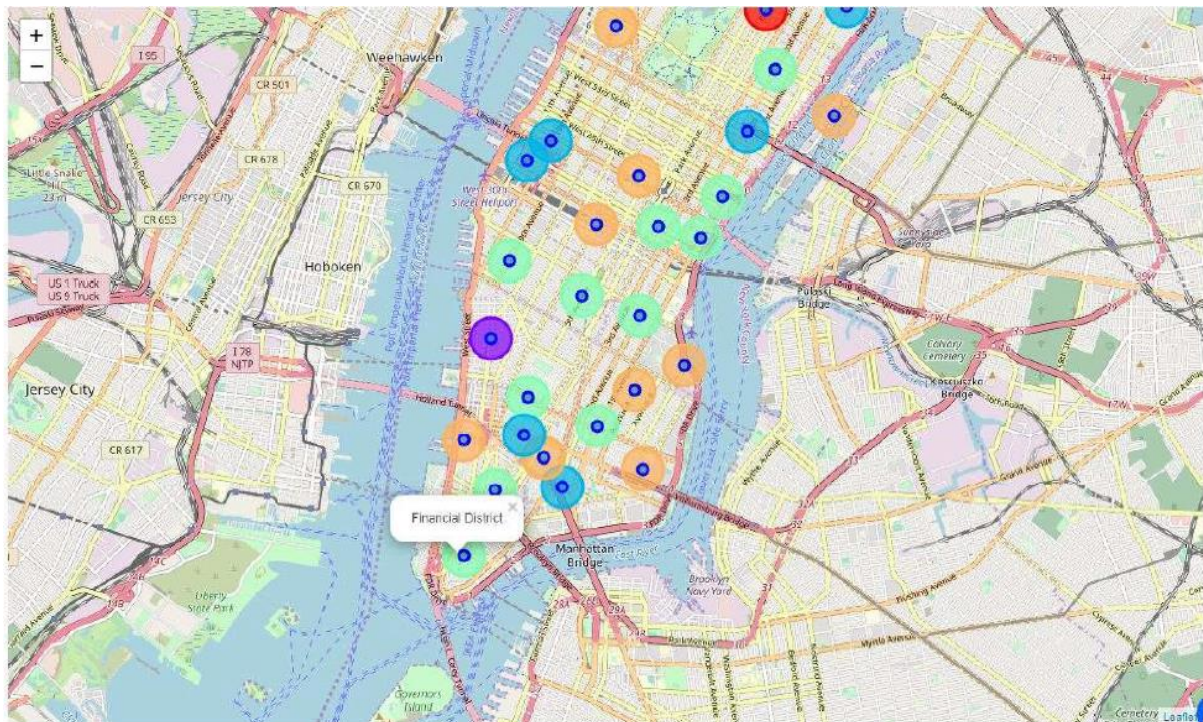- How venues distribute among Manhattan neighbourhoods?

4 Results

	name	categories	lat	lng
0	Les Petits Plats	French Restaurant	48.828652	2.322138
1	Le Jeroboam	Modern European Restaurant	48.829527	2.317492
2	Chez Kim Ly	Vietnamese Restaurant	48.828537	2.316201
3	La Régalade	French Restaurant	48.825026	2.320244
4	Le 14 Juillet	French Restaurant	48.828450	2.316137
5	Au Moulin Vert	French Restaurant	48.829773	2.323024
6	Le Petit Baigneur	French Restaurant	48.831712	2.324259
7	Le Severo	French Restaurant	48.832074	2.324704
8	Citadines Didot Montparnasse	Hotel	48.827892	2.315296
9	Place Victor et Hélène Basch	Plaza	48.828033	2.326719

Clusters of Neighbourhoods in Manhattan

On Careful Examination, Financial District in Cluster 3 resembles in amenities to our Current Residence

	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue
3	Inwood	Mexican Restaurant	Lounge	Pizza Place	Café	Wine Bar	Bakery	American Restaurant	Park	Frozen Yogurt Shop
5	Manhattanville	Deli / Bodega	Italian Restaurant	Seafood Restaurant	Mexican Restaurant	Sushi Restaurant	Beer Garden	Coffee Shop	Falafel Restaurant	Bike Trail
10	Lenox Hill	Sushi Restaurant	Italian Restaurant	Coffee Shop	Gym / Fitness Center	Pizza Place	Burger Joint	Deli / Bodega	Gym	Sporting Goods Shop
12	Upper West Side	Italian Restaurant	Bar	Bakery	Vegetarian / Vegan Restaurant	Indian Restaurant	Coffee Shop	Cosmetics Shop	Wine Bar	Mexican Restaurant
16	Murray Hill	Sandwich Place	Hotel	Japanese Restaurant	Gym / Fitness Center	Coffee Shop	Salon / Barbershop	Burger Joint	French Restaurant	Bar
17	Chelsea	Coffee Shop	Italian Restaurant	Ice Cream Shop	Bakery	Nightclub	Theater	Art Gallery	Seafood Restaurant	American Restaurant
18	Greenwich Village	Italian Restaurant	Sushi Restaurant	French Restaurant	Clothing Store	Chinese Restaurant	Café	Indian Restaurant	Bakery	Seafood Restaurant
27	Gramercy	Italian Restaurant	Restaurant	Thrift / Vintage Store	Cocktail Bar	Bagel Shop	Coffee Shop	Pizza Place	Mexican Restaurant	Grocery Store
29	Financial District	Coffee Shop	Hotel	Gym	Wine Shop	Steakhouse	Bar	Italian Restaurant	Pizza Place	Park
31	Noho	Italian Restaurant	French Restaurant	Cocktail Bar	Gift Shop	Bookstore	Grocery Store	Mexican Restaurant	Hotel	Sushi Restaurant

Venue Selection
- Using the "one map" above, I was able to explore all possibilities since the popups provide the information needed for a good decision.
- Financial District having Gyms, Hotels and Restaurants similar to Paris residence is my preferable choice for a future residence.
- Based on current Paris venue, I feel that Cluster 3 type of venues is a closer resemblance to my current place. That means that Financial District is a

better choice since it has Gyms, Hotels and Restaurant and is worth the conveniences it provides.