COURSERA IBM DATA SCIENCE CAPSTONE PROJCT

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Introduction Section

- 1.1 Scenario and Background

  - I am a data learner Hanoi Vietnam. I currently live within walking distance Hanoi Opera House to many amenities and venues in the area, such as various international cuisine restaurants, cafes, Hotel, food shops and entertainment.

  - I have been offered a great opportunity to work in Manhattan, NY. Although, I am very excited about it, I am a bit stress toward the process to secure a comparable place to live in Manhattan. Therefore, I decided to apply the learned skills during the Coursera course to explore ways to make sure my decision is factual and rewarding. Of course, there are alternatives to achieve the answer using available Google and Social media tools, but it rewarding doing it myself with learned tools.

- 1.2 Problem to be resolved:

  - The challenge to resolve is being able to find an apartment unit 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 neighborhood shall be similar to current residence (See item 2.1)

  - Desirable to have venues such as opera, Restaurants, wine stores, and food shops

  - As a reference, I have included a map of venues near current residence in Hanoi, Vietnam.

- 1.3 Interested Audience

  - I believe this is a relevant project for a person or entity considering moving to a major city in Europe, US or Asia, since the approach and methodologies used here are applicable in all cases.

  - The use of FourSquare data and mapping techniques combined with data analysis will help resolve the key questions arisen.

  - Lastly, this project is a good practical case toward the development of Data Science skills.
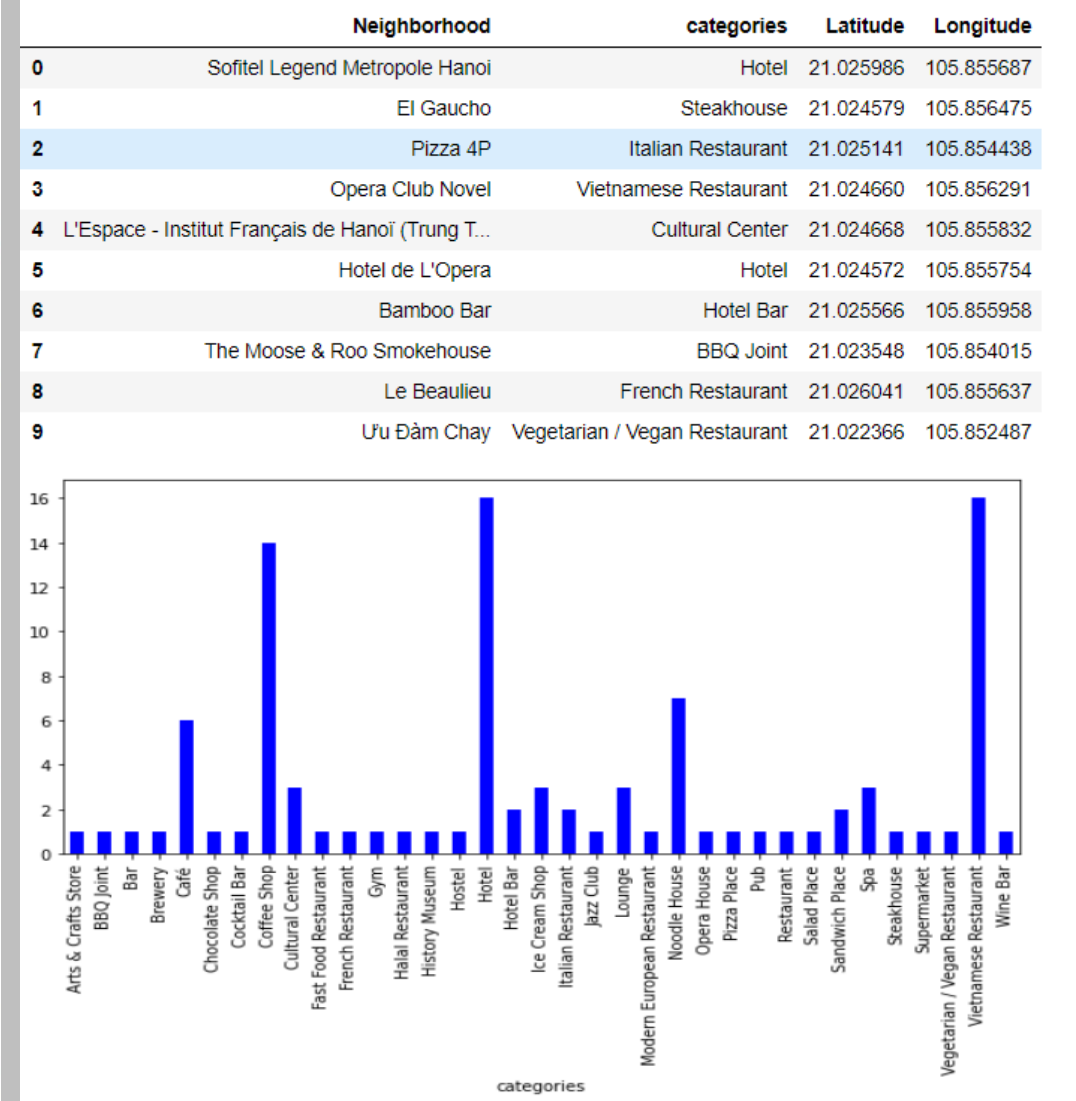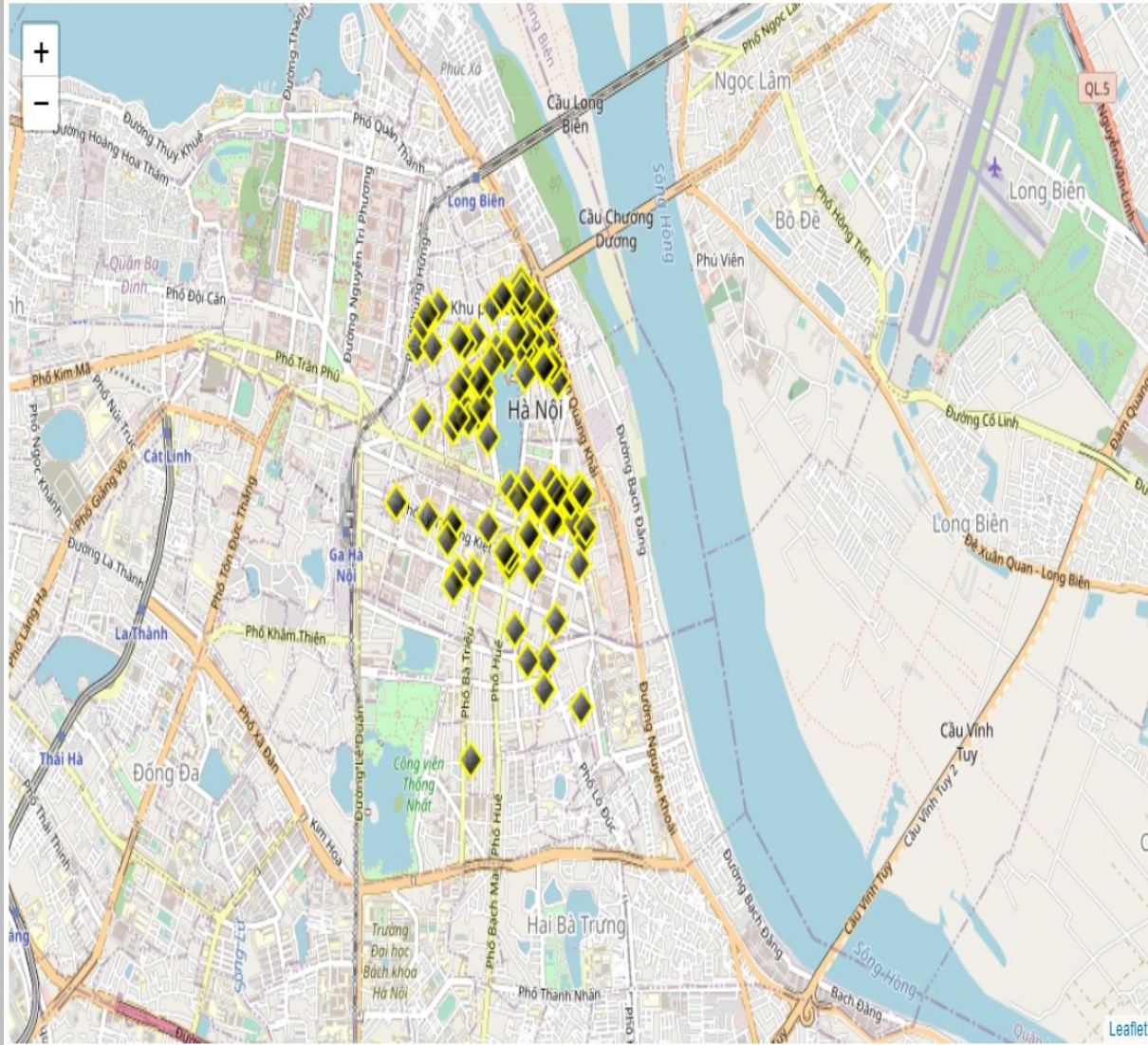
Data Section:

○ 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 neighborhood of Hanoi Opera House in Hanoi, Vietnam. I use Foursquare to identify the venues around the area of residence which are then shown in the Hanoi map shown in methodology and execution in section 3.0 . 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 apartment in Manhattan NY, the following data is required:

　○ List/Information on neighborhoods form Manhattan with their Geodata(latitude and longitude).

　○ Venues and amenities in the Manhattan neighborhoods (e.g. top 10)

○ 2.3 sources and manipulation

　○ The list of Manhattan neighborhoods is worked out during LAB exercise during the course. A csv file was created which will be read in order to create a data frame and its mapping

○ 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 neighborhoods 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 Neighborhoods

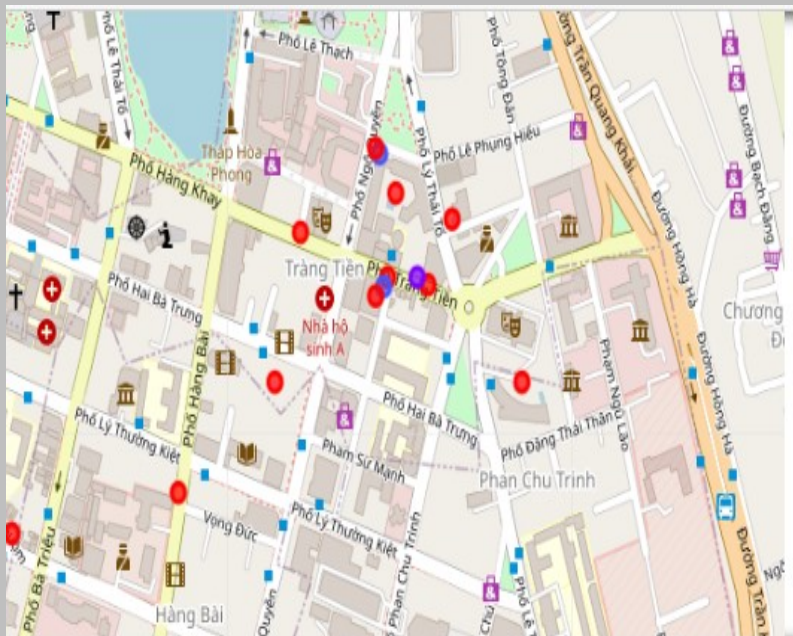　○ Manhattan map of clustered venues and neighborhoods

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 Hanoi Opera House, Hanoi, Vietnam. 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?

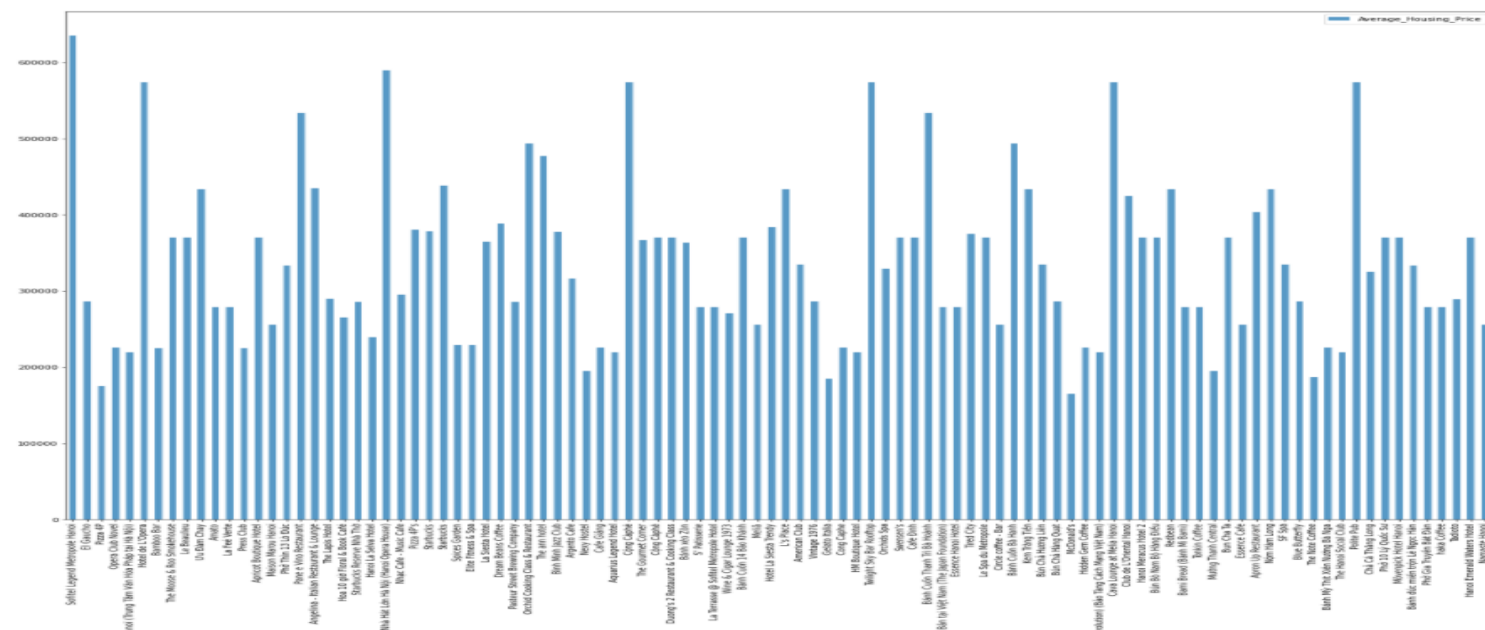○ How venues distribute among Manhattan neighborhoods ?

Results

	Neighborhood	categories	Latitude	Longitude
0	Sofitel Legend Metropole Hanoi	Hotel	21.025986	105.855687
1	El Gaucho	Steakhouse	21.024579	105.856475
2	Pizza 4P	Italian Restaurant	21.025141	105.854438
3	Opera Club Novel	Vietnamese Restaurant	21.024660	105.856291
4	L'Espace - Institut Français de Hanoï (Trung T...	Cultural Center	21.024668	105.855832
5	Hotel de L'Opera	Hotel	21.024572	105.855754
6	Bamboo Bar	Hotel Bar	21.025566	105.855958
7	The Moose & Roo Smokehouse	BBQ Joint	21.023548	105.854015
8	Le Beaulieu	French Restaurant	21.026041	105.855637
9	Ưu Đàm Chay	Vegetarian / Vegan Restaurant	21.022366	105.852487

Results

	Neighborhood	categories	Latitude	Longitude	Cluster Labels	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 M Commo Ver
0	Sofitel Legend Metropole Hanoi	Hotel	21.025986	105.855687	2	Hotel	Cultural Center	Hostel	History Museum	Halal Restaurant	Gym	French Restaurant	Fast Food Restaurant	Wine
1	El Gaucho	Steakhouse	21.024579	105.856475	0	Steakhouse	Wine Bar	Cultural Center	Hostel	History Museum	Halal Restaurant	Gym	French Restaurant	Fast Fo Restau
2	Pizza 4P	Italian Restaurant	21.025141	105.854438	0	Italian Restaurant	Wine Bar	Hotel Bar	Hostel	History Museum	Halal Restaurant	Gym	French Restaurant	Fast Fo Restau
3	Opera Club Novel	Vietnamese Restaurant	21.024660	105.856291	1	Vietnamese Restaurant	Hotel Bar	Hotel	Hostel	History Museum	Halal Restaurant	Gym	French Restaurant	Fast Fo Restau
4	L'Espace - Institut Français de Hanoï (Trung T...	Cultural Center	21.024668	105.855832	0	Cultural Center	Wine Bar	Hostel	History Museum	Halal Restaurant	Gym	French Restaurant	Fast Food Restaurant	Co Sh

THANK YOU!

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