The Battle of Neighborhoods | Report

Introduction

The purpose of this project is to explore and identify the best hotels in New York City for the tourists who plan for a trip and stay for a while. The target audience for this project will be travelers who might plan in future to visit NYC and look for the best hotel to stay. This will help them take better decision on selecting the best hotel to enhance their experience on their visit to New York City.

As per sources:

1) Bureau predicts that there were around 67 million tourists in New York City in 2019.
2) New York City is one of the world's leading metropolises for art, fashion, food and theater.

This project will analyze the best hotels for staying. Factors that will be kept in mind while analyzing will be – surroundings, location, ratings, restaurants nearby, reviews etc. This project will help you in making right decision so that you do not have regret after making wrong decision.

Questions to be answered:

1) What are some best hotels in New York City?
2) Visualize parts of New York City that has best hotels
3) Which hotels are cheap and have a good rating?
4) Best Hotels which are nearby airport
5) Hotels which are nearby best restaurants
6) Best Hotels which are nearby Subway Station

Data Section

We will be using the following data in the project:

- We will be only using Foursquare API to find the best hotels in each neighborhood.
    - Foursquare API
        - By the help of Foursquare API, we would be able to get hotels and their latitude and longitude of hotels.
        - Also, Foursquare API would also be used to locate restaurants, subway stations and airport.

- After this, data can be filtered on the basis of ratings by which we can make a choice for the best hotel.

Methodology:

1) We will get the details of hotels from the Foursquare API that is located in New York City.
2) We will filter the data and represent it in a dataframe in a clean way.

	Name	Categories	Address	Lat	Lng
0	Four Seasons Hotel New York Downtown	Hotel	27 Barclay St	40.712612	-74.009380
1	The Beekman, A Thompson Hotel	Hotel	123 Nassau St	40.711173	-74.006702
2	Duane Street Hotel	Hotel	130 Duane St	40.715858	-74.007446
3	Gild Hall, A Thompson Hotel	Hotel	15 Gold St	40.707887	-74.007103
4	Artezen Hotel	Hotel	24 John St	40.709585	-74.008780

3) We will get the ratings and average price of each hotel from Google as Foursquare API didn't had enough data to establish the ratings of each hotel and store it in a list in the notebook and further add it in the dataframe.

[28]:

	Name	Categories	Address	Lat	Lng	Id	Price	Ratings
0	Four Seasons Hotel New York Downtown	Hotel	27 Barclay St	40.712612	-74.009380	57c640ad498e74977f98372f	454	9.4
1	The Beekman, A Thompson Hotel	Hotel	123 Nassau St	40.711173	-74.006702	56d8c0f8498edb854f926e6a	100	9.2
2	Duane Street Hotel	Hotel	130 Duane St	40.715858	-74.007446	4ae77379f964a5206cab21e3	160	8.4
3	Gild Hall, A Thompson Hotel	Hotel	15 Gold St	40.707887	-74.007103	4a6e3e75f964a5204ed41fe3	190	9.0
4	Artezen Hotel	Hotel	24 John St	40.709585	-74.008780	5a91fa58e679bc57ca94db72	90	8.9

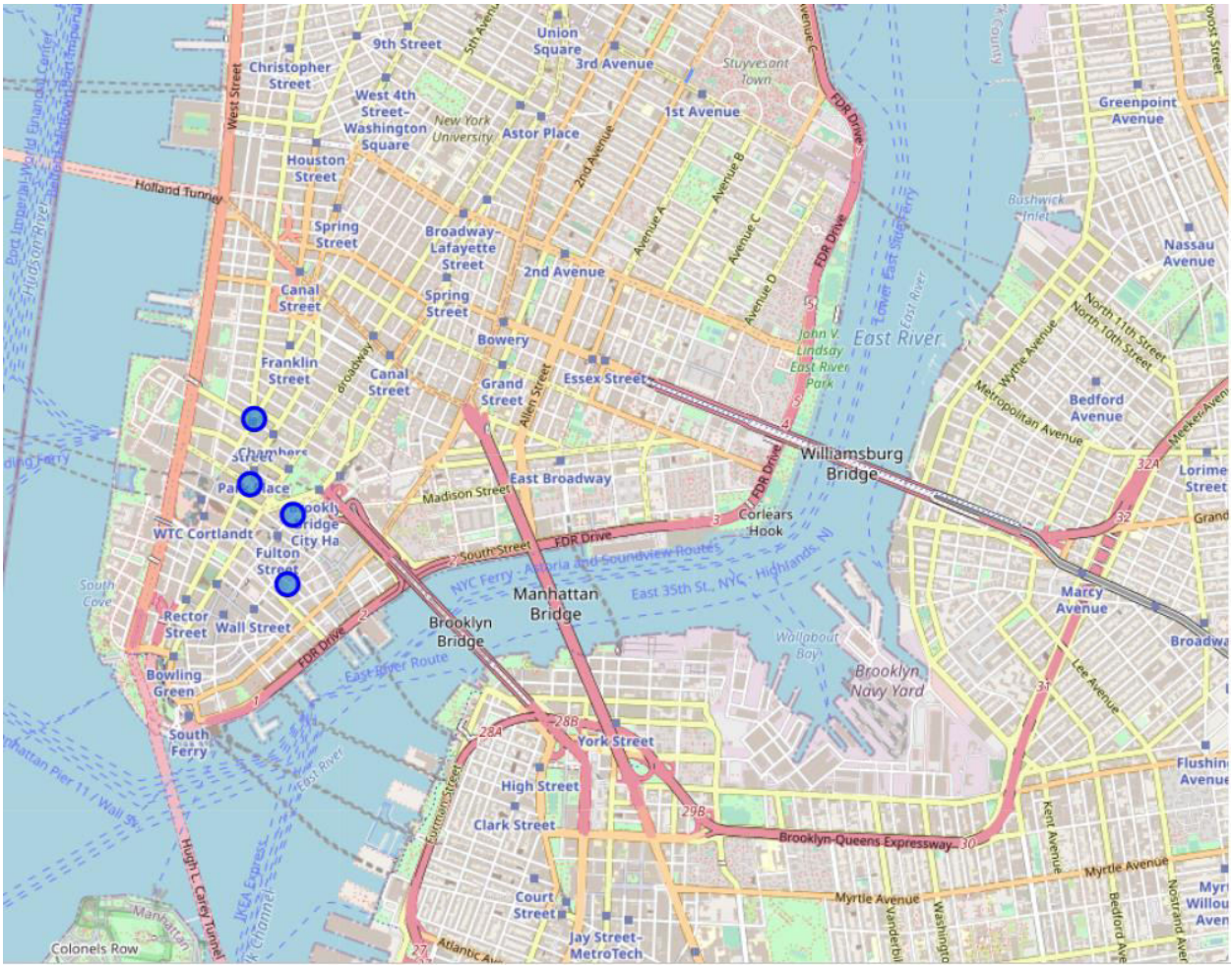
4) We will filter the data with the best ratings (greater than or equal to 9.0).

[29]:
```
best_hotels_df = hotel_df[hotel_df['Ratings'] >= 9.0]
best_hotels_df.head()
```

[29]:

	Name	Categories	Address	Lat	Lng	Id	Price	Ratings
0	Four Seasons Hotel New York Downtown	Hotel	27 Barclay St	40.712612	-74.009380	57c640ad498e74977f98372f	454	9.4
1	The Beekman, A Thompson Hotel	Hotel	123 Nassau St	40.711173	-74.006702	56d8c0f8498edb854f926e6a	100	9.2
3	Gild Hall, A Thompson Hotel	Hotel	15 Gold St	40.707887	-74.007103	4a6e3e75f964a5204ed41fe3	190	9.0
6	Cosmopolitan Hotel - TriBeCa	Hotel	95 W Broadway	40.715622	-74.009115	4a3a9952f964a52001a01fe3	120	9.3

5) By the help of Folium, we will visualize this data on a map.

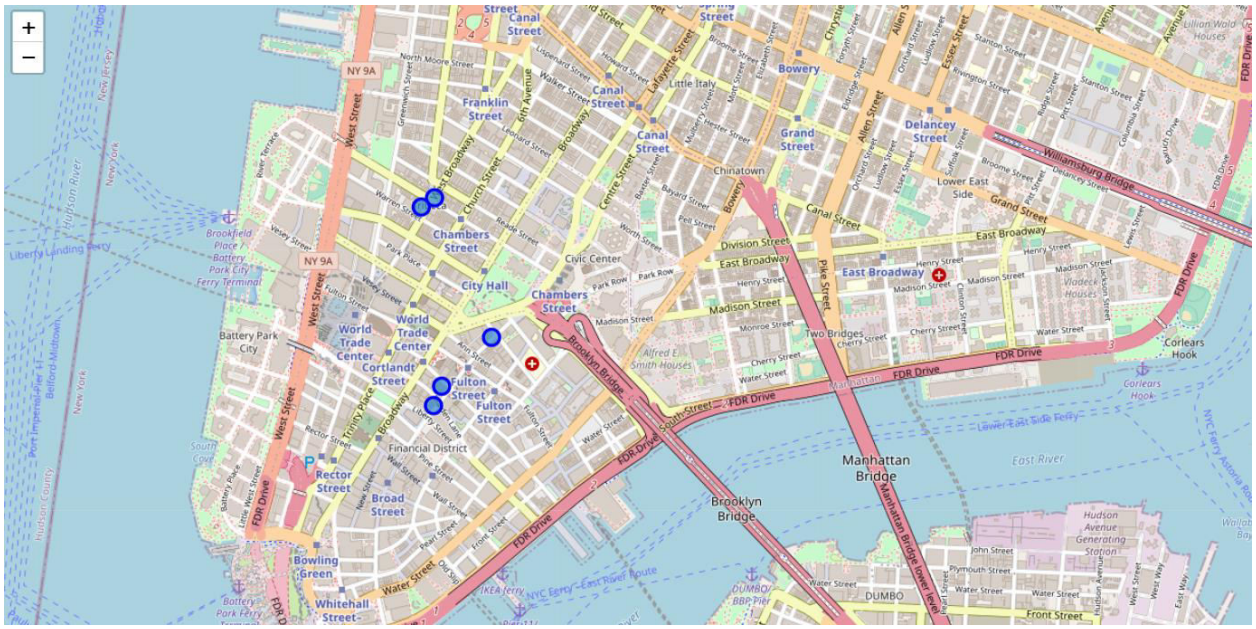


6) Now we will filter the data by decent ratings (greater than 8.0) and by cheaper price (less than 150 dollars)

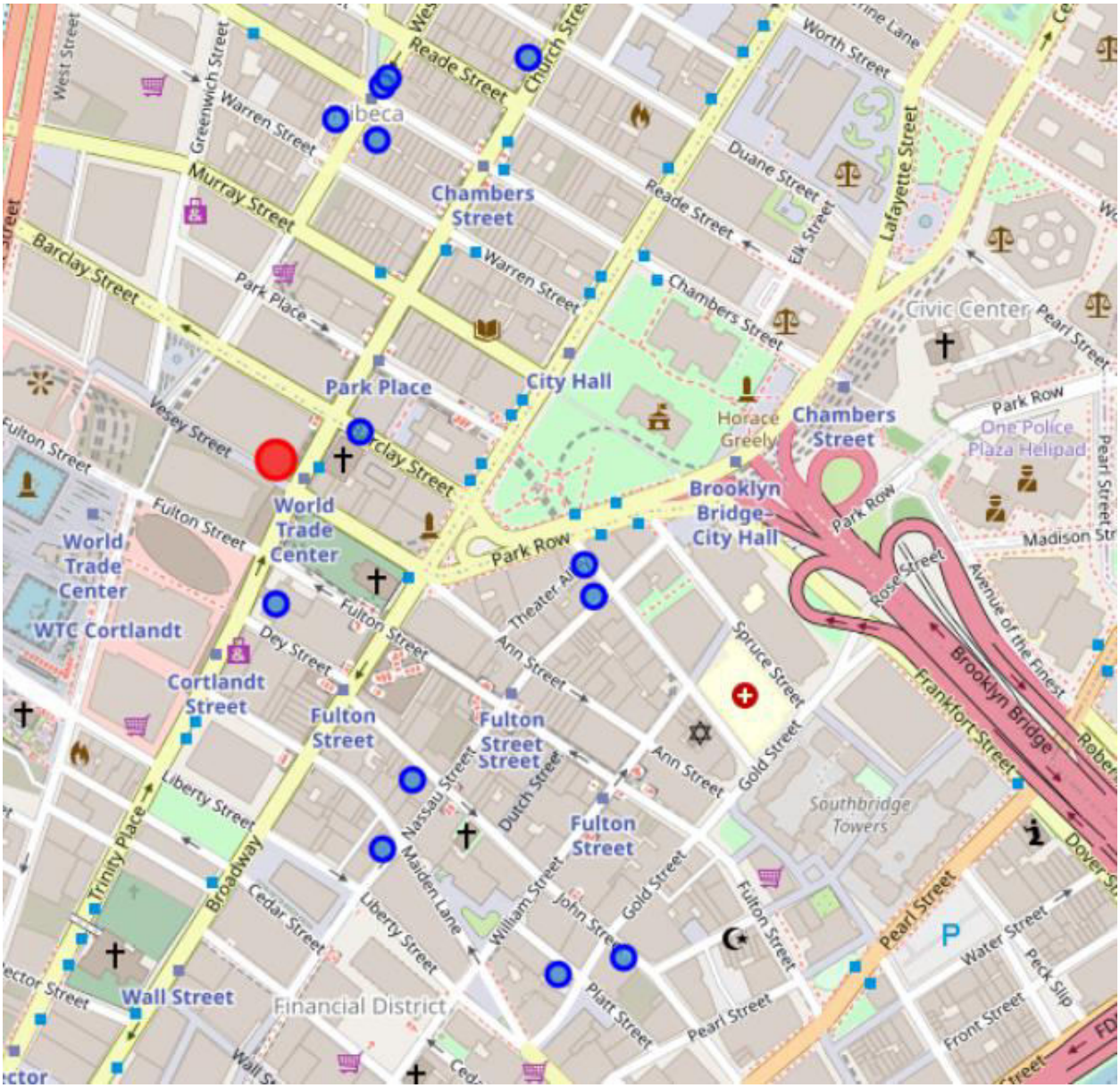
[31]:

	Name	Categories	Address	Lat	Lng	Id	Price	Ratings
1	The Beekman, A Thompson Hotel	Hotel	123 Nassau St	40.711173	-74.006702	56d8c0f8498edb854f926e6a	100	9.2
4	Artezen Hotel	Hotel	24 John St	40.709585	-74.008780	5a91fa58e679bc57ca94db72	90	8.9
6	Cosmopolitan Hotel - TriBeCa	Hotel	95 W Broadway	40.715622	-74.009115	4a3a9952f964a52001a01fe3	120	9.3
8	Smythe Thompson Hotel	Hotel	86 W Broadway	40.715323	-74.009654	52855bf511d21362ef6f329f	100	8.7
11	Holiday Inn New York City - Wall Street	Hotel	51 Nassau St	40.708977	-74.009123	4b0017f7f964a520bb3a22e3	100	8.8

7) The data above would be visualized onto a map



8) Airport would be located with the help of Foursquare API and then a map would be created in which the location of airport and hotels would be combined to see hotels near airport.



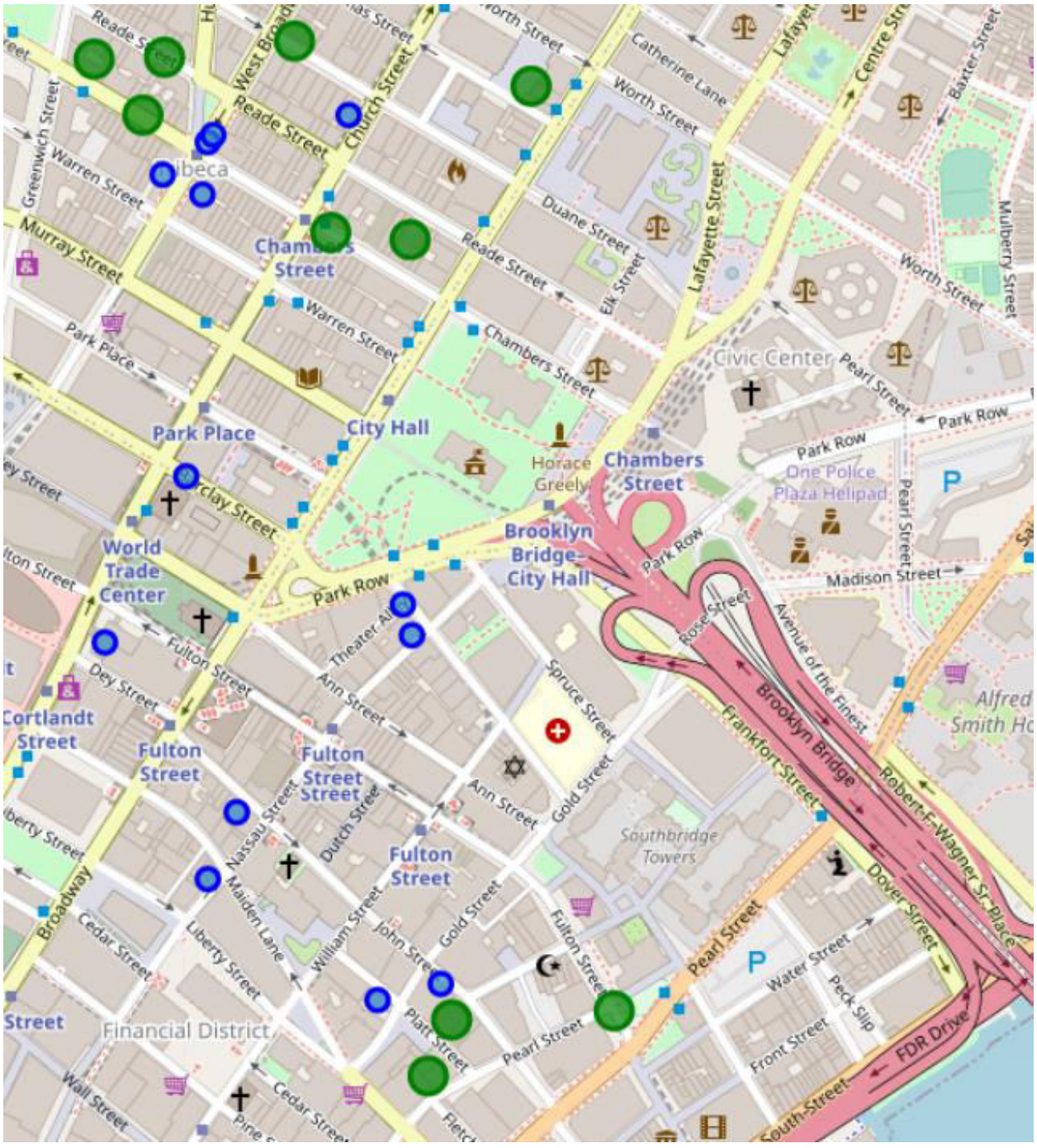
NOTE: The red mark on the map above shows the airport and the blue mark shows the location of hotels

9) Similarly, Foursquare API would be used to find restaurants in New York City and ratings would be extracted from Google, then the data would be filtered to find the best restaurants and then the data would be represented onto the map.

[60]:
```
best_restaurants = filtered_df.loc[filtered_df['Ratings'] >= 9.0]
best_restaurants
```

[60]:

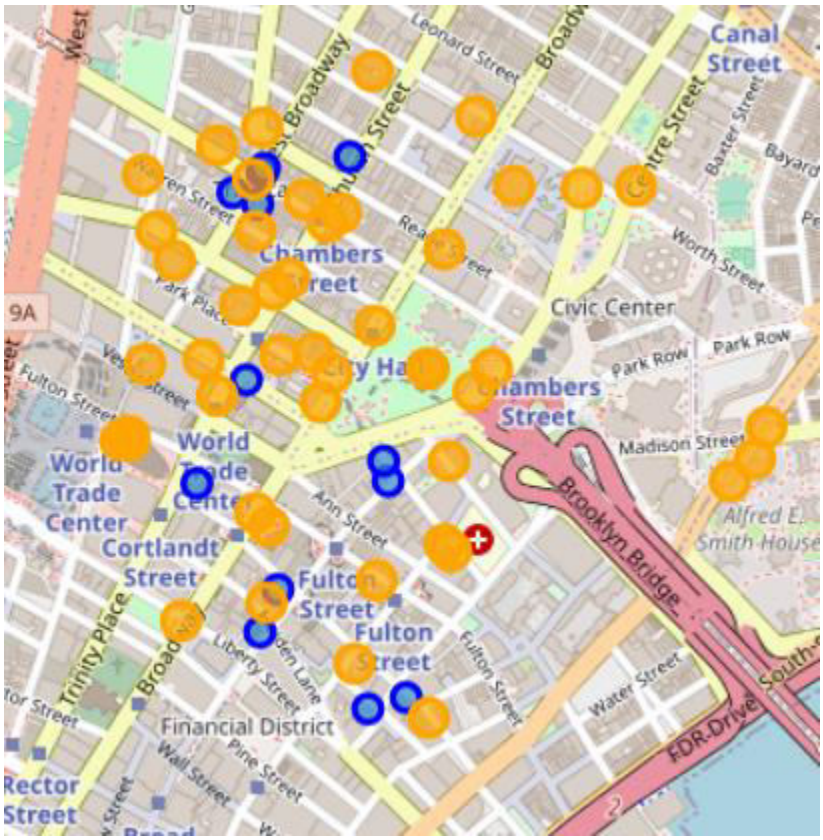
	Name	Categories	Address	Lat	Lng	Ratings
4	Amore's Pizza Restaurant	Pizza Place	147 Chambers St	40.715860	-74.009888	9.0
6	Restaurant New Orleans	Cajun / Creole Restaurant	47 Fulton St	40.707784	-74.004296	9.0
10	Restaurant Marc Forgione	New American Restaurant	134 Reade St	40.716380	-74.009629	9.2
11	Aoi Japanese Restaurant	Japanese Restaurant	325 Broadway	40.716120	-74.005278	9.0
14	IL Mattone Restaurant	Italian Restaurant	61 Reade St	40.714730	-74.006716	9.0
25	Gn Restaurant Group	Food	167 Chambers St	40.716357	-74.010477	9.4
27	Pancho Magico Restaurant	Food	213 Pearl St	40.707199	-74.006500	9.0
36	Sumo Japanese Cuisine	Japanese Restaurant	104 John St	40.707714	-74.006226	9.0
46	Takahachi	Sushi Restaurant	145 Duane St	40.716526	-74.008101	9.0
48	Sophie's Cuban Cuisine	Cuban Restaurant	96 Chambers St	40.714803	-74.007656	9.0



NOTE: Green marks are used for restaurants and blue marks are used for hotels

10) Again, Foursquare API would be used to get all the location of subway stations and then hotel data and subway station data would be combined in the map.

	Name	Categories	Address	Lat	Lng
0	NYC Green Cart (7th Ave Subway Station)	Food Truck	Park Pl	40.713926	-74.008882
1	MTA Subway - Brooklyn Bridge/City Hall/Chamber...	Metro Station	Centre St	40.712459	-74.005054
2	MTA Subway - Fulton St (A/C/J/Z/2/3/4/5)	Metro Station	Fulton St	40.710706	-74.009243
3	MTA Subway - City Hall (R/W)	Metro Station	Warren St.	40.713394	-74.006934
4	MTA Subway - Chambers St (A/C/E)	Metro Station	156 Church St	40.714086	-74.008584



NOTE: Orange marks are used for subway stations and blue marks for hotels

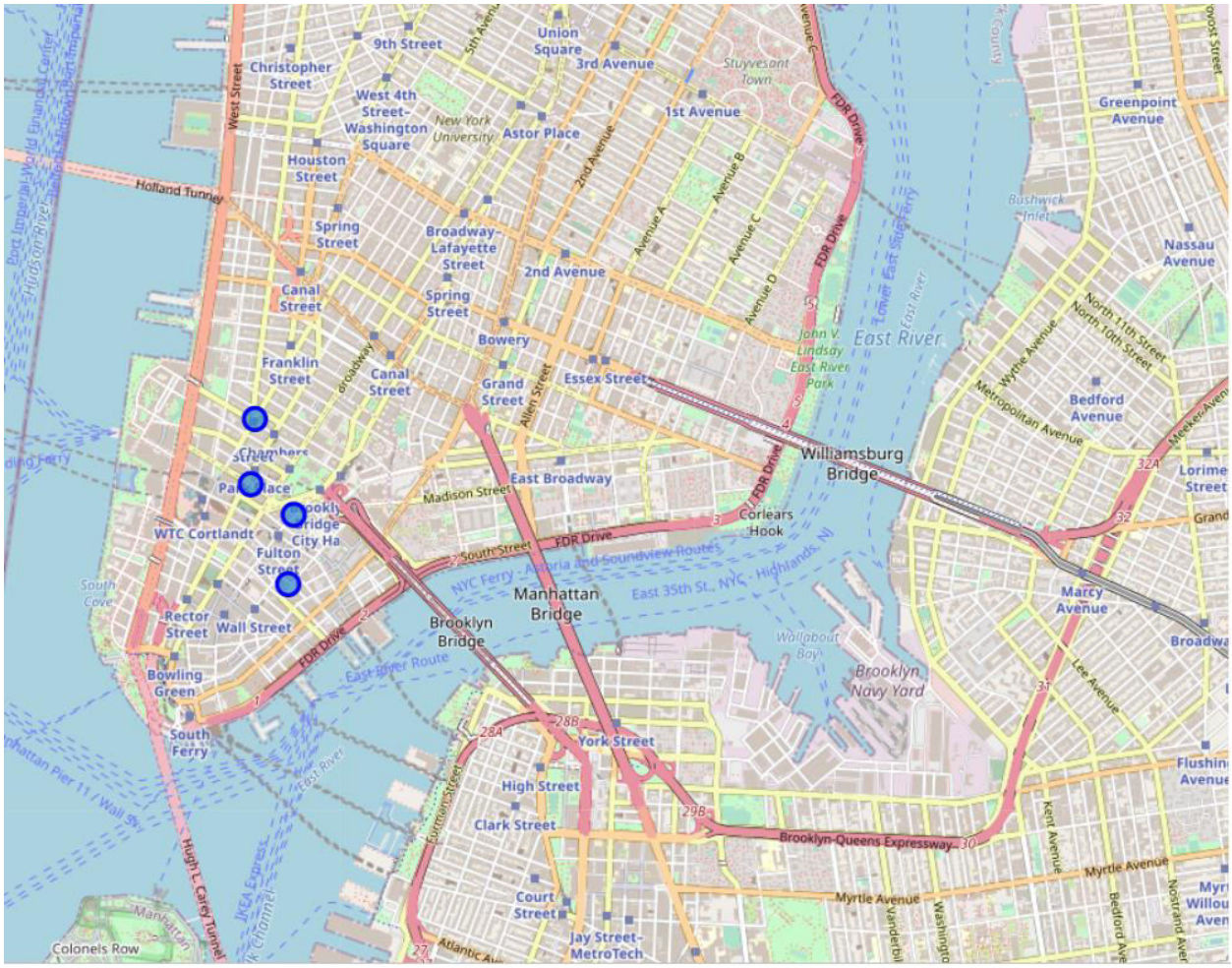
Result Section

After such hard work, we are able to answer all the questions which were supposed to be answered throughout this project

Answer 1: The best hotels in New York City are:

- 'Four Seasons Hotel New York Downtown',
- 'The Beekman, A Thompson Hotel',
- 'Gild Hall, A Thompson Hotel'
- 'Cosmopolitan Hotel - TriBeCa'

Answer 2:



Answer 3: The best and cheap hotels are

- The Beekman, A Thompson Hotel
- Artezen Hotel
- Cosmopolitan Hotel - TriBeCa
- Smythe Thompson Hotel
- Holiday Inn New York City - Wall Street

Answer 4: The best hotels nearby airport

- 'Four Seasons Hotel New York Downtown' (454 dollars)
- 'Millennium Hilton' (250 dollars)

Answer 5: Hotels nearby best restaurants are:

- 'Gild Hall, A Thompson Hotel'
- 'The James Hotel'
- 'Cosmopolitan Hotel - TriBeCa'
- 'The Frederick Hotel'
- 'Smythe Thompson Hotel'

Answer 6: All the hotels were found near subway station

Discussions and Recommendations

This project helps a person to know the best hotels and make their choices. Also by the help of this project, the person can know the hotel which is the most suitable for them as this project shows hotels that are nearby restaurants, airport and subway station. The project could have been improved by suggesting hotels that are nearby parks, tourist places and other factors. Also, we could have taken multiple factors at the same time like hotels nearby restaurant and subway station meaning that person can gain access to both restaurant and subway station easily.

Conclusion

By the help of Foursquare API, we were able to explore some of the best hotels and look for the locations nearby such as restaurants. By the help of this project, the decision making of one person might improve considering the person is looking for the same factors as included in the project.

This project can be further improved by adding more factors and also considering a bigger area of the map. It would be a more reliable and better project if different perspectives were considered meaning what do people search when they look for a hotel. Also, this project might not be too reliable as the pricings included for the hotels were taken as an estimate (the research was done completely). As a data scientist, an automated way must have been used to determine the ratings and pricings of the hotels and restaurants instead of doing it manually which was a mistake done in this project.