



## Capstone Project - The Battle of Neighborhoods

# Introduction

New York City comprises 5 boroughs sitting where the Hudson River meets the Atlantic Ocean. At its core is Manhattan, a densely populated borough that's among the world's major commercial, financial and cultural centers. Its iconic sites include skyscrapers such as the Empire State Building and sprawling Central Park. Broadway theater is staged in neon-lit Times Square.

London, the capital of England and the United Kingdom, is a 21st-century city with history stretching back to Roman times. At its centre stand the imposing Houses of Parliament, the iconic 'Big Ben' clock tower and Westminster Abbey, site of British monarch coronations. Across the Thames River, the London Eye observation wheel provides panoramic views of the South Bank cultural complex, and the entire city.

# Description of the problem

We will explore New York City and London and segmented and clustered their neighborhoods. Both cities are very diverse and are very similar. Both cities are densely populated boroughs that's among the world's major commercial, financial and cultural centers. . We will compare the neighborhoods of the two cities and determine how similar or dissimilar they are. We will define that people like to do more in the cities, which places are often visited. Knowing this information we can think of how to use this. For example, open a new restaurant or supermarket, entertainment center or gift shop. As we can see in the next task that although there are Mexican restaurants in London, but they are not popular, entertainment is centrally located and almost none in areas farther from the center. We may also use this information for advertising purposes, etc

# Description of Data

This project will rely on public data from Wikipedia and Foursquare.

London is the capital of and largest city in England and the United Kingdom. It is administered by the City of London and 32 London boroughs.

We will get information about the areas of London

[https://en.wikipedia.org/wiki/List\\_of\\_areas\\_of\\_London](https://en.wikipedia.org/wiki/List_of_areas_of_London)

([https://en.wikipedia.org/wiki/List\\_of\\_areas\\_of\\_London](https://en.wikipedia.org/wiki/List_of_areas_of_London))

I will use dataset [https://geo.nyu.edu/catalog/nyu\\_2451\\_34572](https://geo.nyu.edu/catalog/nyu_2451_34572)

([https://geo.nyu.edu/catalog/nyu\\_2451\\_34572](https://geo.nyu.edu/catalog/nyu_2451_34572)) for information about boroughs of NYC

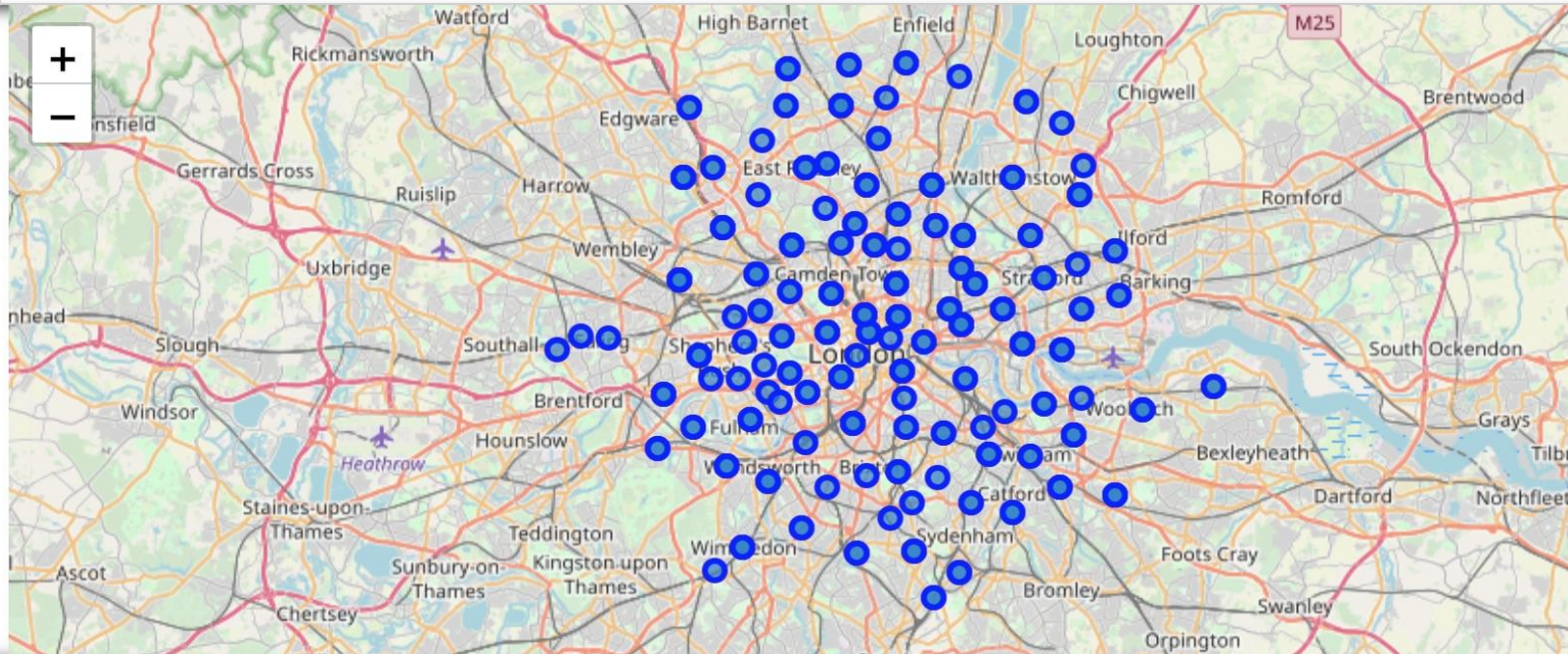
From [https://en.wikipedia.org/wiki/List\\_of\\_areas\\_of\\_London](https://en.wikipedia.org/wiki/List_of_areas_of_London) we got **Data** (df\_london) and then using Geocoder we got Data with Latitude and Longitude

	neighborhoods	Dial code	borough	posttown	postcode	Latitude	Longitude
0	Aldwych	020	Westminster	LONDON	WC2	51.51651	-0.11968
1	Bayswater	020	Westminster	LONDON	W2	51.51494	-0.18048
2	Bedford Park	020	Ealing	LONDON	W4	51.48944	-0.26194
3	Bloomsbury	020	Camden	LONDON	WC1	51.52450	-0.12273
4	Charing Cross	020	Westminster	LONDON	WC2	51.51651	-0.11968



**Create a map of London with borough superimposed on top .**

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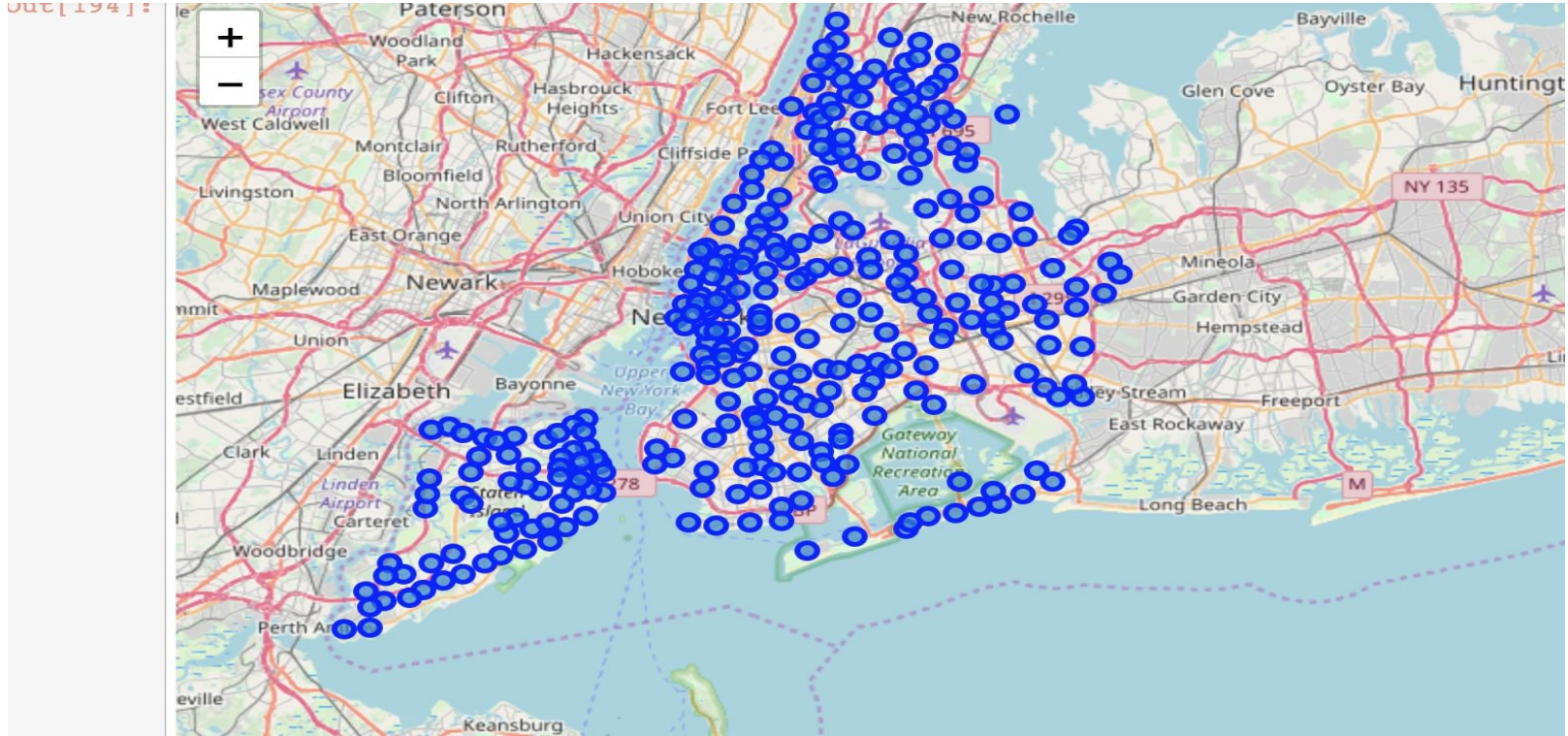


## Download and Explore Dataset NYC Neighborhood

The link to the dataset: [https://geo.nyu.edu/catalog/nyu\\_2451\\_34572](https://geo.nyu.edu/catalog/nyu_2451_34572) ([https://geo.nyu.edu/catalog/nyu\\_2451\\_34572](https://geo.nyu.edu/catalog/nyu_2451_34572))

	Borough	Neighborhood	Latitude	Longitude
1	Bronx	Wakefield	40.894705	-73.847201
2	Bronx	Co-op City	40.874294	-73.829939
3	Bronx	Eastchester	40.887556	-73.827806
4	Bronx	Fieldston	40.895437	-73.905643
5	Bronx	Riverdale	40.890834	-73.912585

## Create map of New York using latitude and longitude values





# Methodology

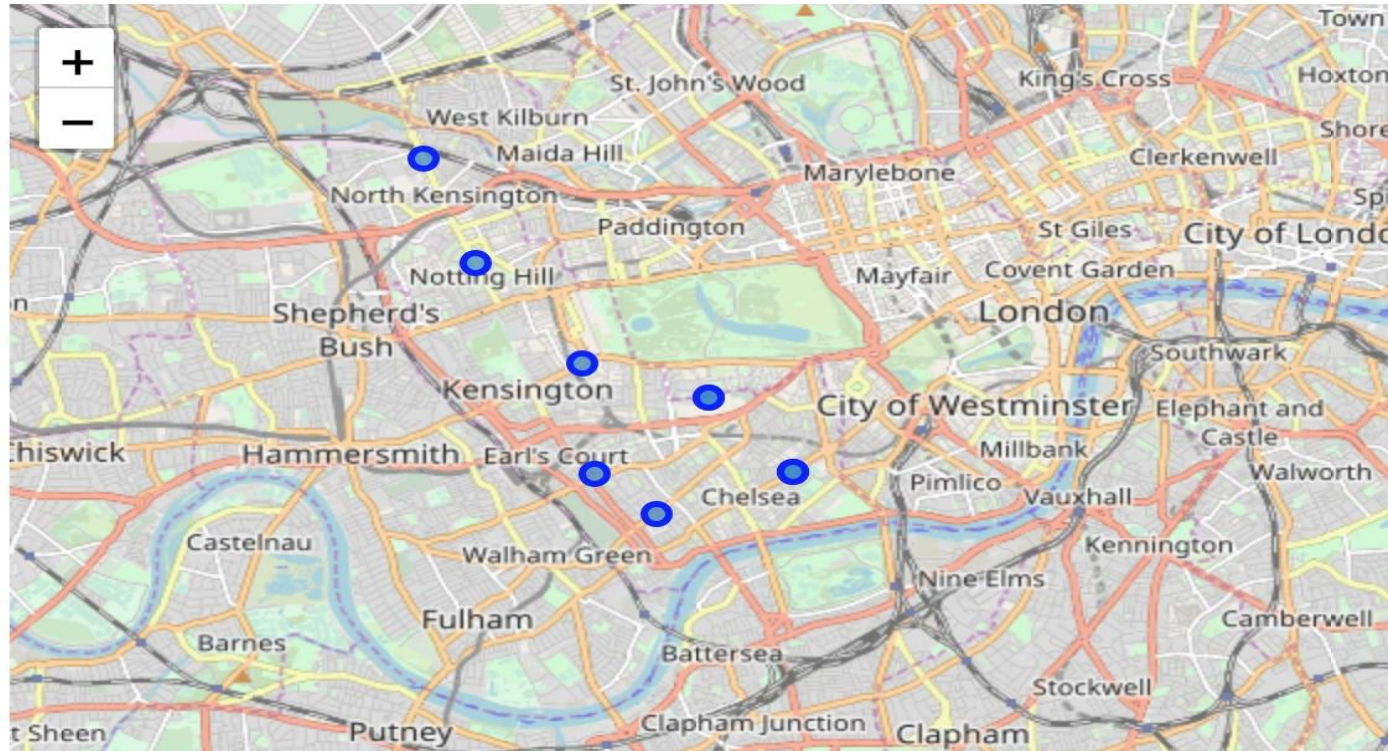
## Data Exploration

Create a new dataframe of the borough Kensington and Chelsea.

	neighborhoods	Dial code	borough	posttown	postcode	Latitude	Longitude
0	Brompton	020	Kensington and Chelsea	LONDON	SW3	51.49014	-0.16248
1	Chelsea	020	Kensington and Chelsea	LONDON	SW3	51.49014	-0.16248
2	Earls Court	020	Kensington and Chelsea	LONDON	SW5	51.49004	-0.18971
3	Kensington	020	Kensington and Chelsea	LONDON	SW7	51.49807	-0.17404
4	South Kensington	020	Kensington and Chelsea	LONDON	SW7	51.49807	-0.17404

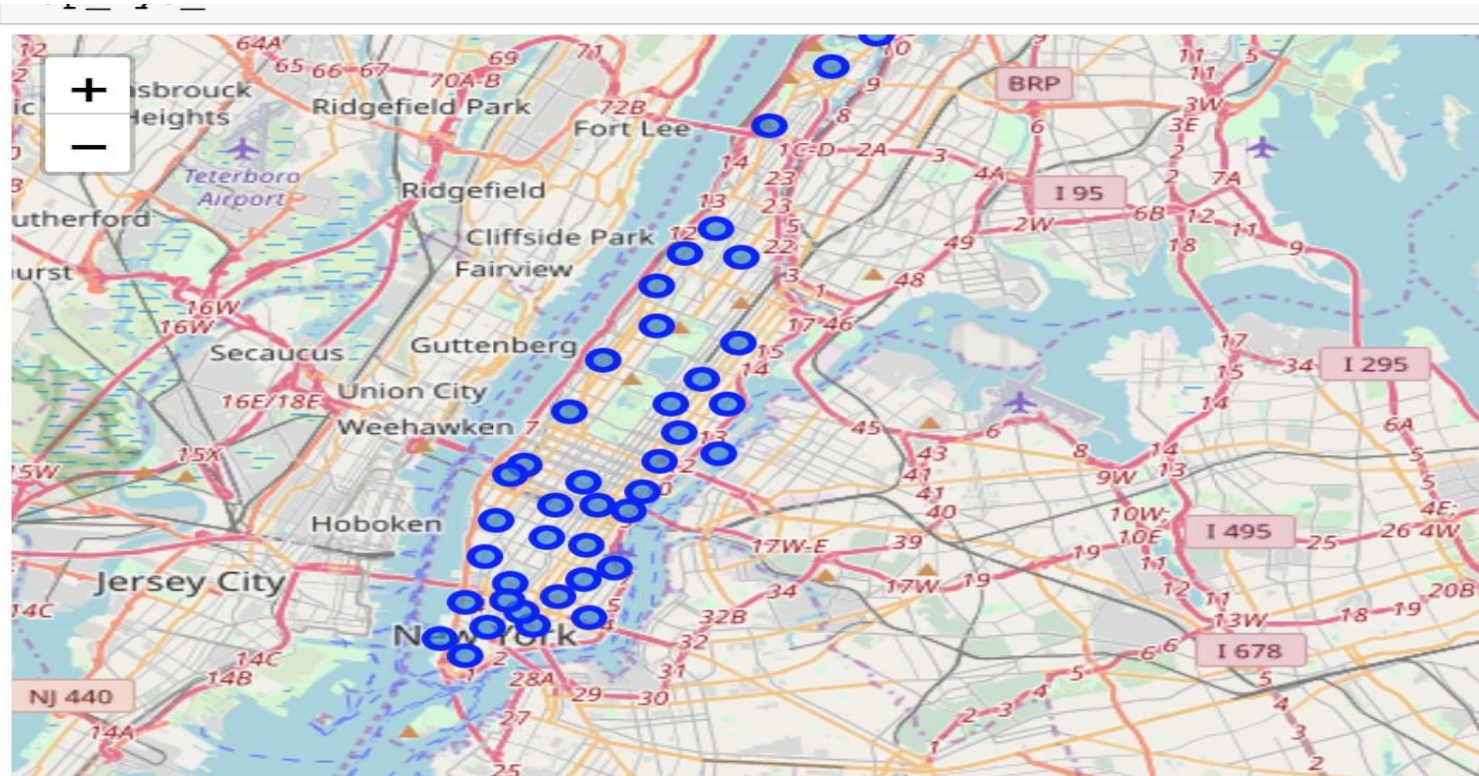
Create a map of the borough Kensington and Chelsea.

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## Create a map of the boroughs Manhattan

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## Using the Foursquare API we will to explore the neighborhoods and Analyze Each Neighborhood (Manhattan)

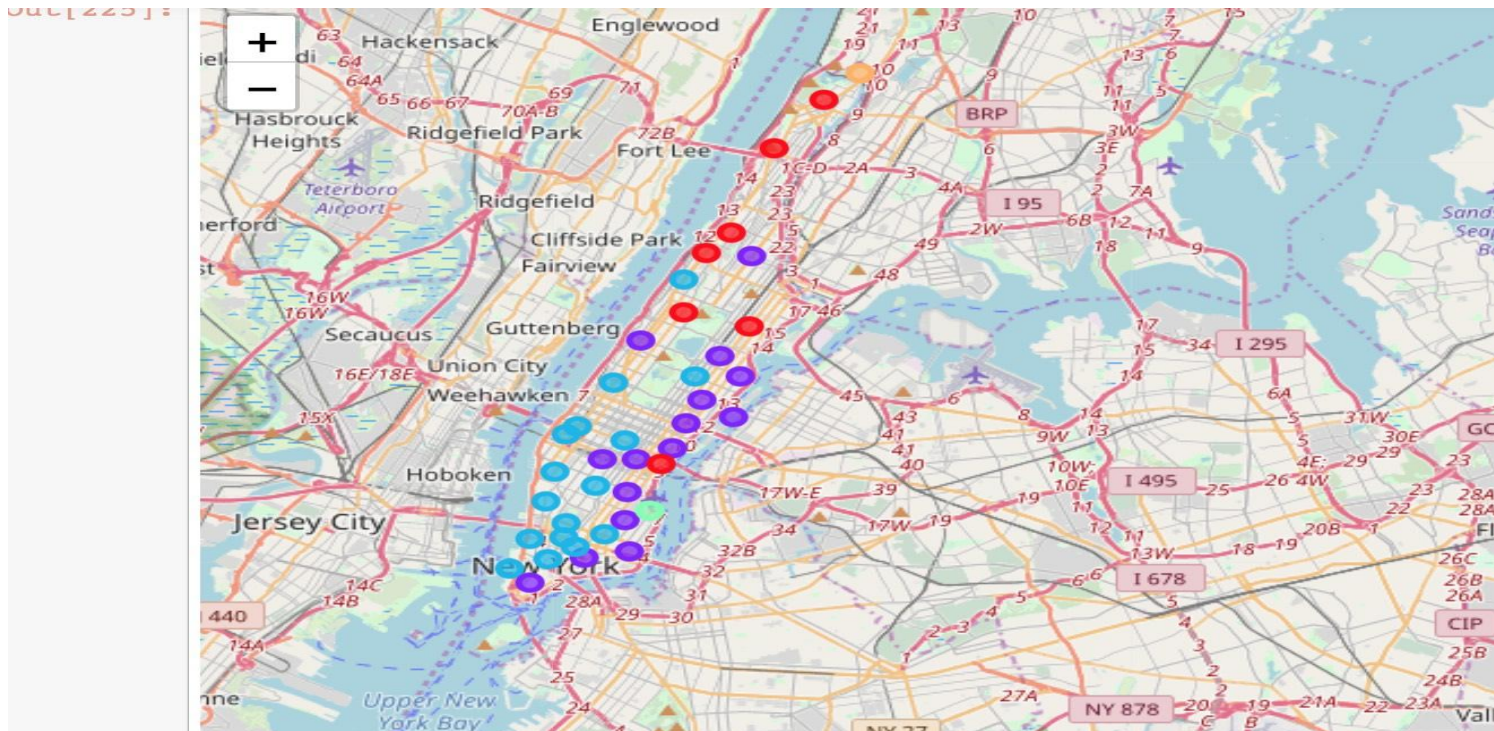
	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	
0	Battery Park City	Park	Coffee Shop	Hotel	Gym	Memorial Site	Italian Restaurant	Wine Shop	Playground	Diner
1	Carnegie Hill	Pizza Place	Coffee Shop	Bar	Café	Yoga Studio	Grocery Store	Japanese Restaurant	Gym	Farmers Market
2	Central Harlem	African Restaurant	Public Art	Cosmetics Shop	American Restaurant	Bar	Seafood Restaurant	Chinese Restaurant	Fried Chicken Joint	Farmers Market
3	Chelsea	Coffee Shop	Italian Restaurant	Ice Cream Shop	Nightclub	Bakery	Art Gallery	Seafood Restaurant	Theater	Hotel
4	East Village	Coffee Shop	Coffee Shop	Coffee Shop	Nightclub	Coffee Shop	Art Gallery	Bar	Bar	Bar







# Cluster Neighborhoods of Manhattan



Analyze Each Neighborhood of Kensington and Chelsea

	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	10th Common Venue
0	Brompton	Café	French Restaurant	Ice Cream Shop	Bakery	Japanese Restaurant	Italian Restaurant	Cocktail Bar	Hotel	Boutique	Gastr
1	Chelsea	Café	French Restaurant	Ice Cream Shop	Bakery	Japanese Restaurant	Italian Restaurant	Cocktail Bar	Hotel	Boutique	Gastr
2	Earls Court	Hotel	Pizza Place	Italian Restaurant	Pub	Gym / Fitness Center	Thai Restaurant	Bakery	Café	French Restaurant	Ice C Shop
3	Holland Park	Pub	Bakery	Hotel	Café	Italian Restaurant	Restaurant	English Restaurant	Gym / Fitness Center	Burger Joint	Gard
4	Kensington	Italian Restaurant	Café	Hotel	Science Museum	Japanese Restaurant	Burger Joint	Garden	Exhibit	Sandwich Place	Jewe Store

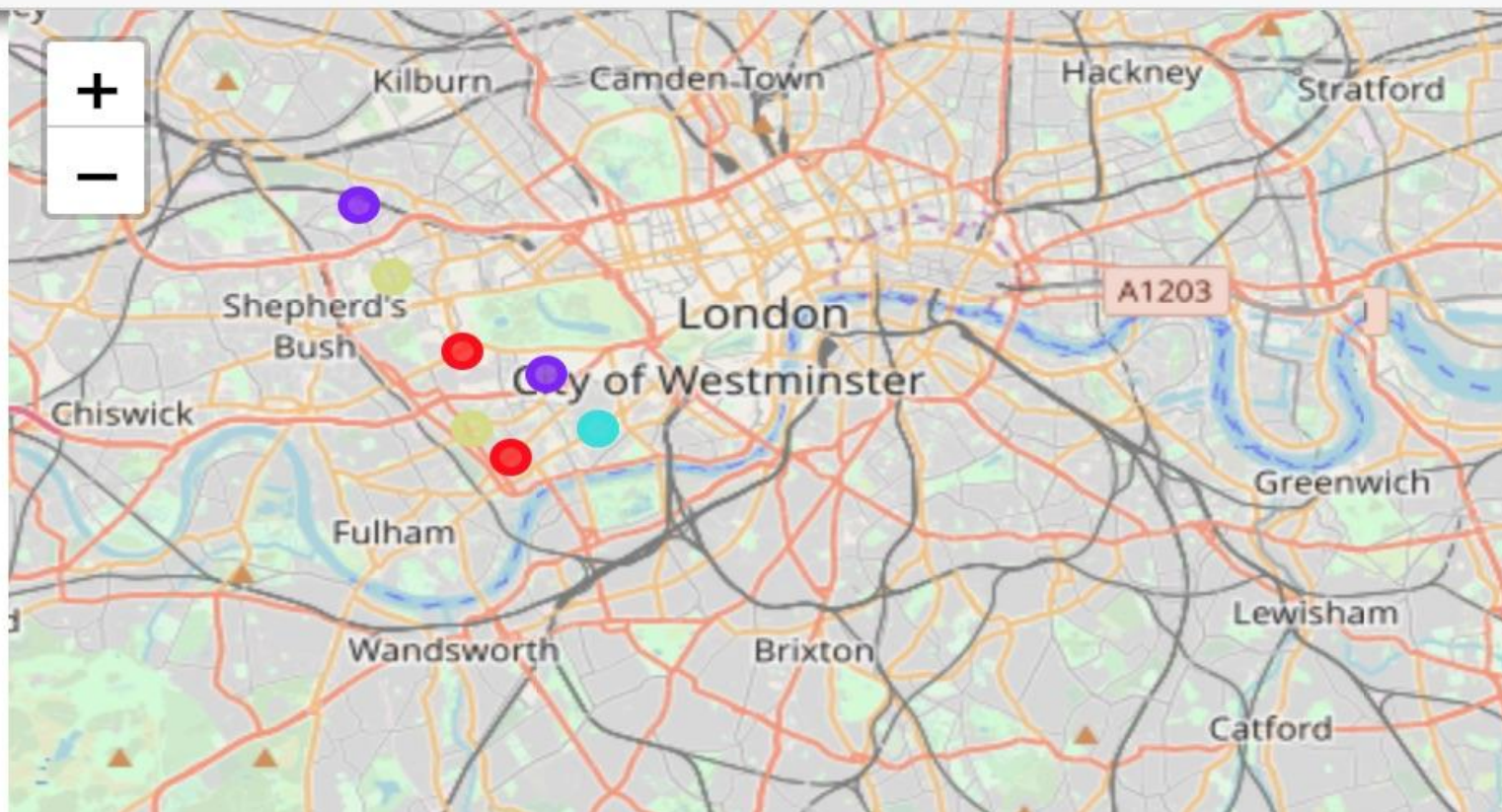
# Visualization with word cloud for Kensington and Chelsea (London)

Word cloud created!



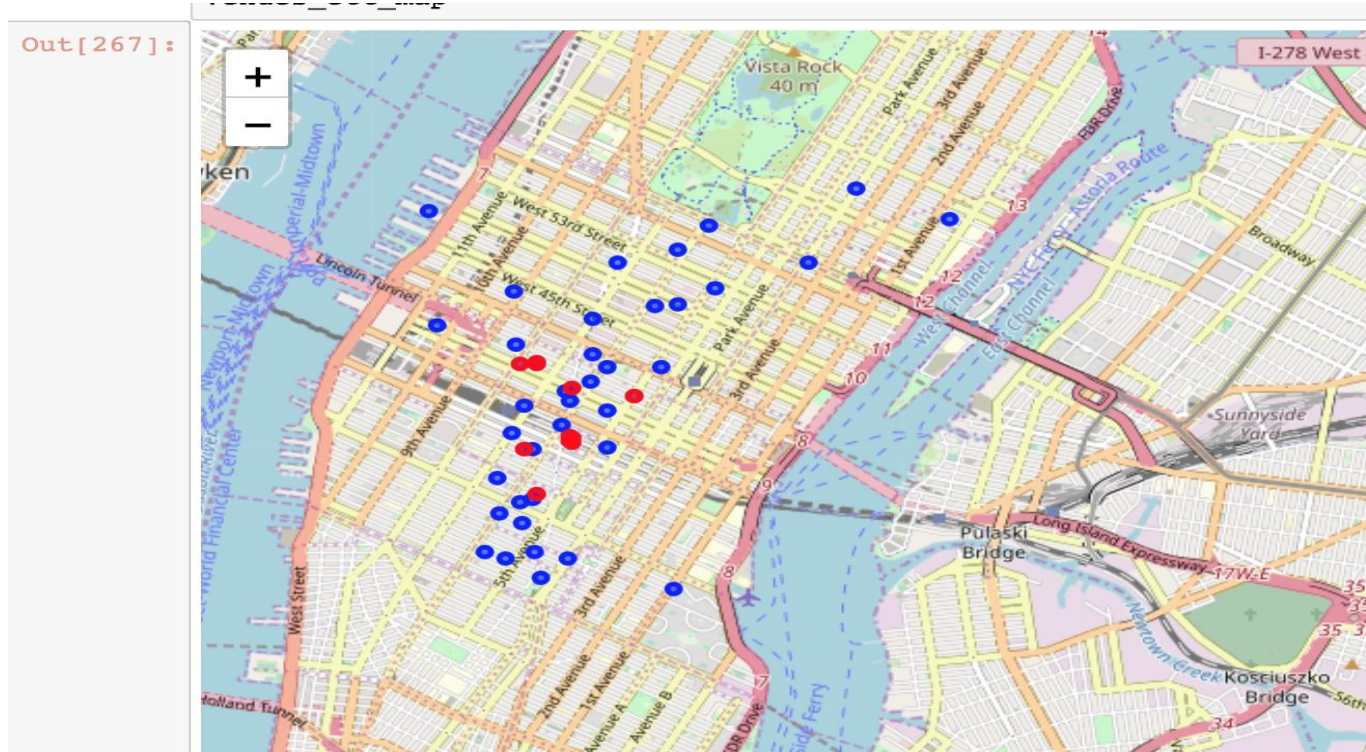
# Cluster Neighborhoods of Kensington and Chelsea

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## Escape rooms





# Results

Analyzing the results we can see that people in different borough of London and NYC often visit identical places, such as Italian Restaurant, Coffee Shop, Park, Pizza Place, Hotel, Gym, Fitness Center. But there are also differences in preferences, such as French Restaurant, Pub, Japanese Restaurant, Cocktail Bar, Boutique for borough of London and for borough of NYC - American Restaurant, Wine Shop, Chinese Restaurant, Sushi Restaurant, Taco Place.

Also using Foursquare API and visualization we can easily see the information that we need, for example, the placement of Escape room. They are popular now, and how we can see on map there are only a few in Manhattan.

# Discussion

Based on our result, we can conclude that there are few Escape rooms and if we want to open a Escape room then the best place in Manhattan is nearly the center and above. If to analyze Brooklyn we can see only 2 of them. That is a good decision and we are independed from choose a place at this moment.

Also analyzing area of London and New York, we see that the British prefer French Restaurant, Pub, Japanese Restaurant while the American prefer Mexican Restaurant, Chinese Restaurant, Sushi Restaurant, Taco Place.

# Conclusion

Using Foursquare API, we can capture data of common places all around the world. Using it, we refer back to our main objectives, which is to determine; the similarity or dissimilarity of both cities classification of area located inside the city whether it is residential, tourism places, or others.

Using visualization libraries we can do different visualization for easy understanding of the material.

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