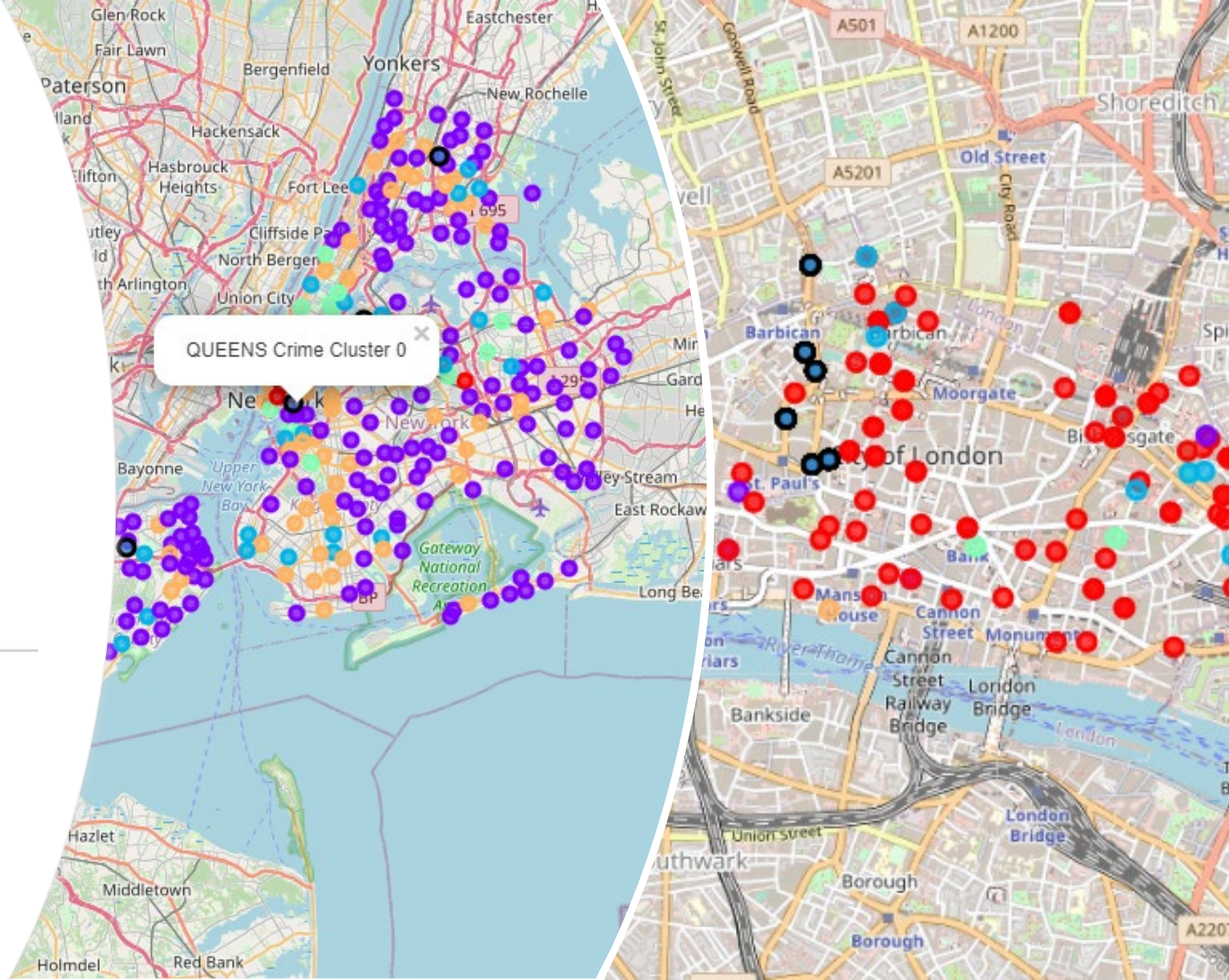# NYC and London Crimes and Health Services

Capstone Project - Data Science Certification

Cities of New York and London Violent Crime and Health Services in Neighborhoods

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Crime types in London

Crimes per Borough in NY

• Introduction

The violent crime cases in either city (New York and London) will be geolocalized and the number of medical service points in the cities neighborhoods will be superimposed segmented and clustered to analyze the ciites neighborhoods ability (indicative assessment) to provide the quickest health assistance to crime victims.

The analysis could be used by individuals or private business or by local governments to assess whether new health centers could be opened in areas where a need is revealed.

• Data Sources:

1- Crime Data of each City:

- London Crime Data: https://data.police.uk/data/fetch/5f1eb3b6-035e-420a-aed4-cadf6f2786e9/
- New York Crime Data: https://data.cityofnewyork.us/Public-Safety/NYC-crime/qb7u-rbmr

2- Foursquare API: will be used to find health services in the London and NY neighborhoods.
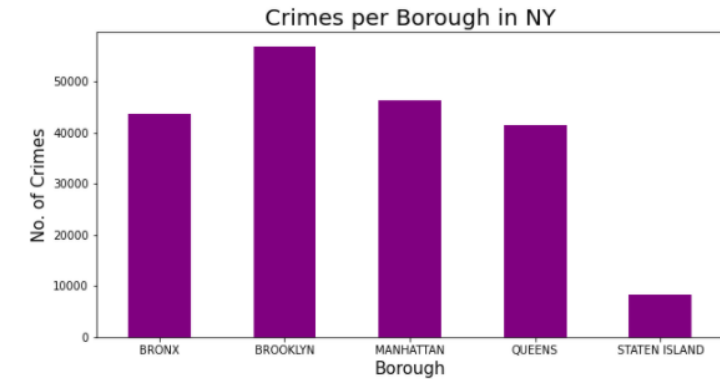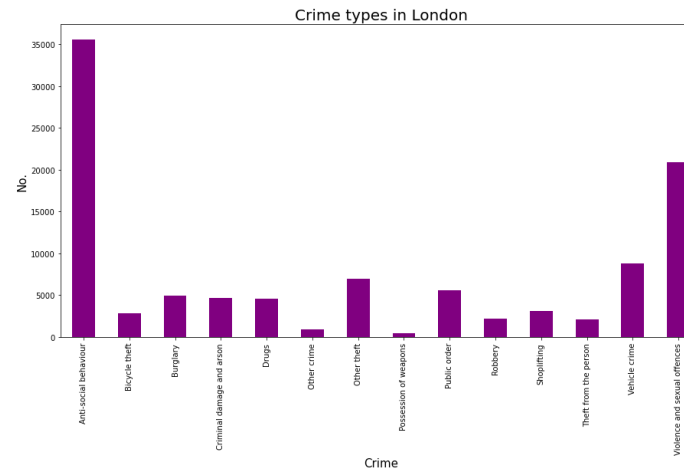
Using the crime data from the cities data and the Foursquare API – Generate Kmean Clusters

	Borough	Latitude	Longitude	Crime
196614	STATEN ISLAND	40.511586	-74.249304	HARRASSMENT 2
196615	BROOKLYN	40.633183	-73.929447	PETIT LARCENY
196616	MANHATTAN	40.779163	-73.955835	CRIMINAL MISCHIEF & RELATED OF
196617	BRONX	40.823101	-73.869690	FELONY ASSAULT
196618	QUEENS	40.745544	-73.903921	PETIT LARCENY
196619	MANHATTAN	40.778017	-73.980211	GRAND LARCENY
196620	BRONX	40.867601	-73.850943	CRIMINAL MISCHIEF & RELATED OF
196621	QUEENS	40.747345	-73.801513	MISCELLANEOUS PENAL LAW
196622	BROOKLYN	40.701150	-73.940126	BURGLARY
196623	MANHATTAN	40.719193	-73.996892	PETIT LARCENY

	Longitude	Latitude	Borough	Crime
103595	-1.182698	50.940312	Winchester	Violence and sexual offences
103596	-0.634307	51.472469	Windsor and Maidenhead	Violence and sexual offences
103597	-0.480324	51.339898	Woking	Public order
103598	-0.928000	51.431991	Wokingham	Violence and sexual offences
103599	-2.108896	52.597158	Wolverhampton	Violence and sexual offences
103600	-0.415755	50.820067	Worthing	Violence and sexual offences
103601	-0.773522	51.632920	Wycombe	Other crime
103602	-0.761461	51.625897	Wycombe	Other crime
103603	-0.761461	51.625897	Wycombe	Other crime
103604	-0.695072	51.604452	Wycombe	Other crime

	Neighborhood	Acupuncturist	Adult Education Center	Airport Tram	Alternative Healer	Assisted Living
0	Allerton	0	0	0	0	0
1	Annadale	0	0	0	0	0
2	Arden Heights	0	0	0	0	0
3	Arrochar	0	0	0	0	0
4	Arverne	0	0	0	0	0
5	Astoria	0	0	0	0	0
6	Auburndale	0	0	0	0	0
7	Bath Beach	2	0	0	0	0
8	Battery Park City	1	0	0	0	0
9	Bay Ridge	0	0	0	2	0

NYC Most Common Crimes

|	Borough	Longitude	Latitude	Cluster Labels	1st Most Common Crime	2nd Most Common Crime	3rd Most Common Crime	4th Most Common Crime	5th Most Common Crime	6th Most Common Crime	7th Most Common Crime	8th Most Common Crime	9th Most Common Crime	10th Most Common Crime
0	Arun	-0.112422	51.515381	0	Latitude	Violence and sexual offences	Vehicle crime	Theft from the person	Shoplifting	Robbery	Public order	Possession of weapons	Other theft	Other crime
1	Aylesbury Vale	-0.097334	51.521567	0	Latitude	Violence and sexual offences	Vehicle crime	Theft from the person	Shoplifting	Robbery	Public order	Possession of weapons	Other theft	Other crime
2	Barking and Dagenham	-0.096348	51.515472	1	Violence and sexual offences	Vehicle crime	Other theft	Criminal damage and arson	Drugs	Burglary	Public order	Shoplifting	Robbery	Latitude
3	Barnet	-0.097562	51.518864	2	Violence and sexual offences	Vehicle crime	Other theft	Public order	Burglary	Criminal damage and arson	Shoplifting	Drugs	Robbery	Theft from the person
4	Basildon	-0.098572	51.516767	0	Latitude	Vehicle crime	Violence and sexual offences	Theft from the person	Shoplifting	Robbery	Public order	Possession of weapons	Other theft	Other crime

NYC Most Common Health Services

|	Borough	Neighborhood	Latitude	Longitude	Cluster Labels	1st Most Common	2nd Most Common	3rd Most Common	4th Most Common	5th Most Common	6th Most Common	7th Most Common	8th Most Common	9th Most Common	10th Most Common
0	Bronx	Wakefield	40.894705	-73.847201	1.0	Doctor's Office	Chiropractor	Emergency Room	Hospital Ward	Hospital	Home Service	Health & Beauty Service	Gym / Fitness Center	Government Building	Fire Station
1	Bronx	Co-op City	40.874294	-73.829939	1.0	Dentist's Office	Doctor's Office	Medical Center	Health & Beauty Service	Optical Shop	Emergency Room	Hospital	Home Service	Gym / Fitness Center	Government Building
2	Bronx	Eastchester	40.887556	-73.827806	1.0	Medical Center	Yoga Studio	Language School	Hospital	Home Service	Health & Beauty Service	Gym / Fitness Center	Government Building	Fire Station	Financial or Legal Service
3	Bronx	Fieldston	40.895437	-73.905643	1.0	Mental Health Office	Dentist's Office	Yoga Studio	Emergency Room	Hospital	Home Service	Health & Beauty Service	Gym / Fitness Center	Government Building	Fire Station
4	Bronx	Riverdale	40.890834	-73.912585	1.0	Dentist's Office	Doctor's Office	Physical Therapist	Medical Center	Mental Health Office	Hospital	Building	Eye Doctor	Home Service	Health & Beauty Service

Geolocalized Clusters

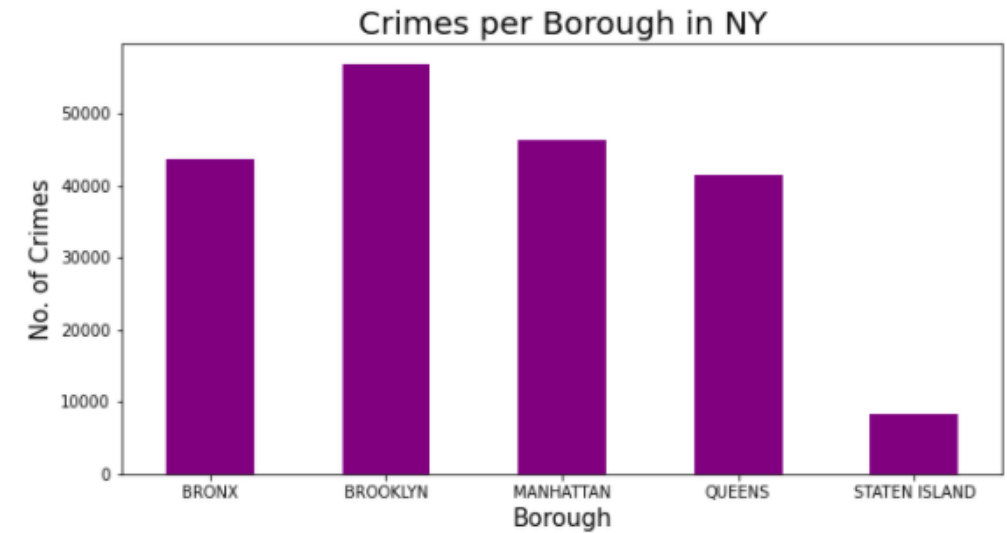- Crime and Health Services clusters superimposed in the New York City map
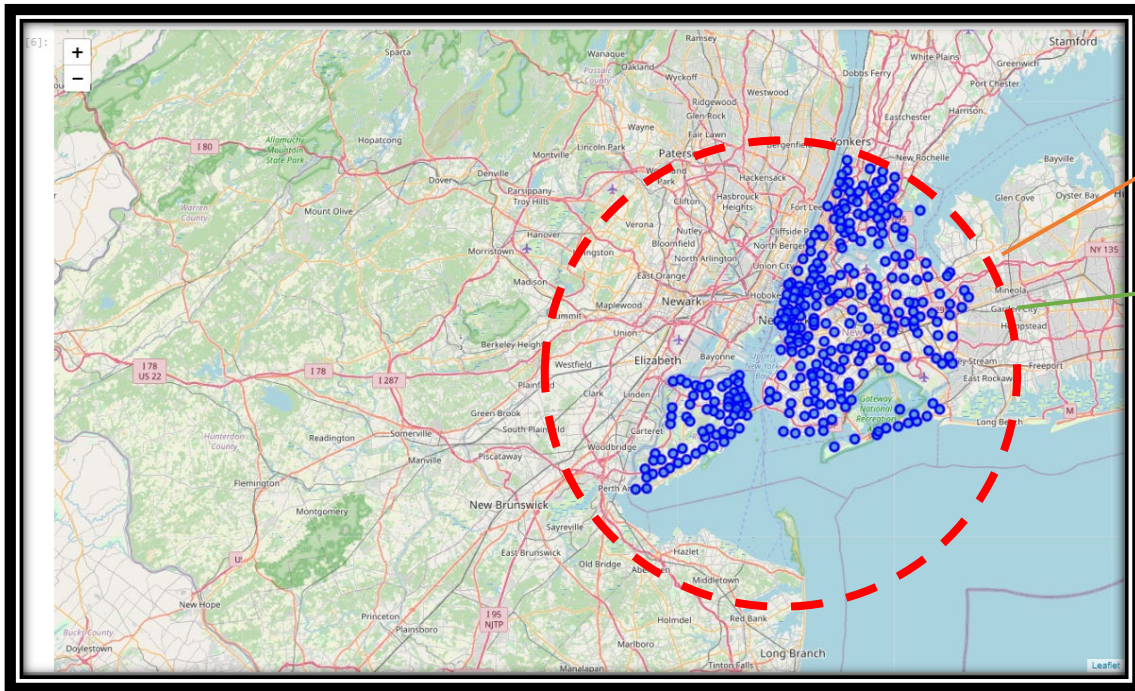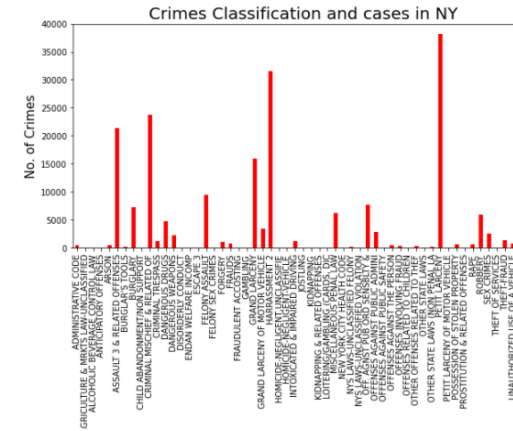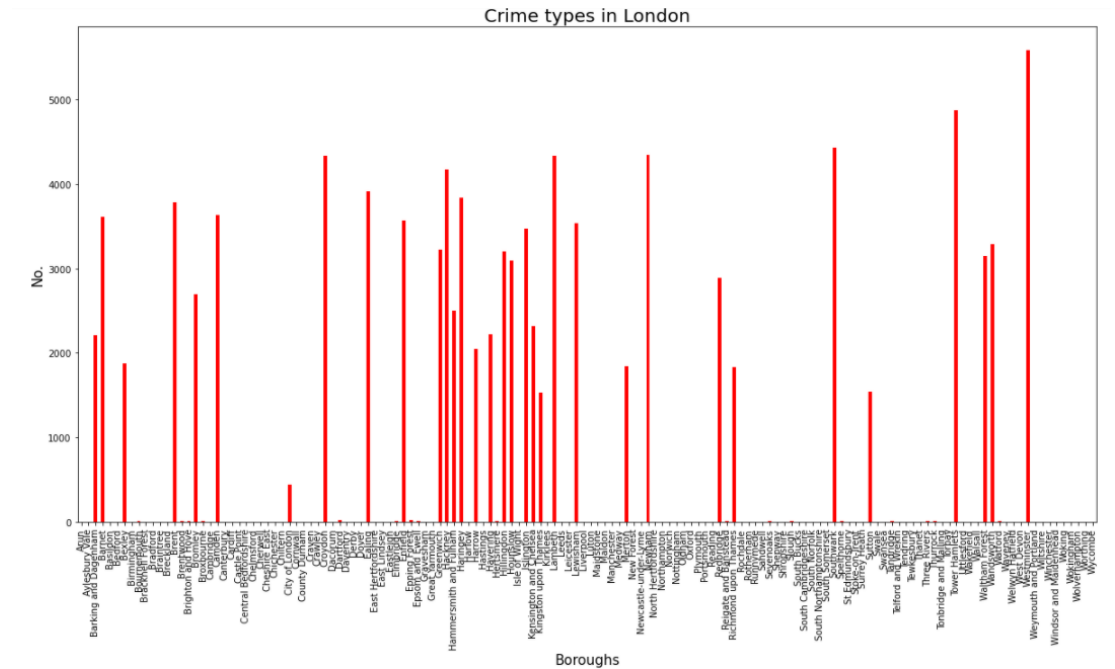

'Crime' Clusters
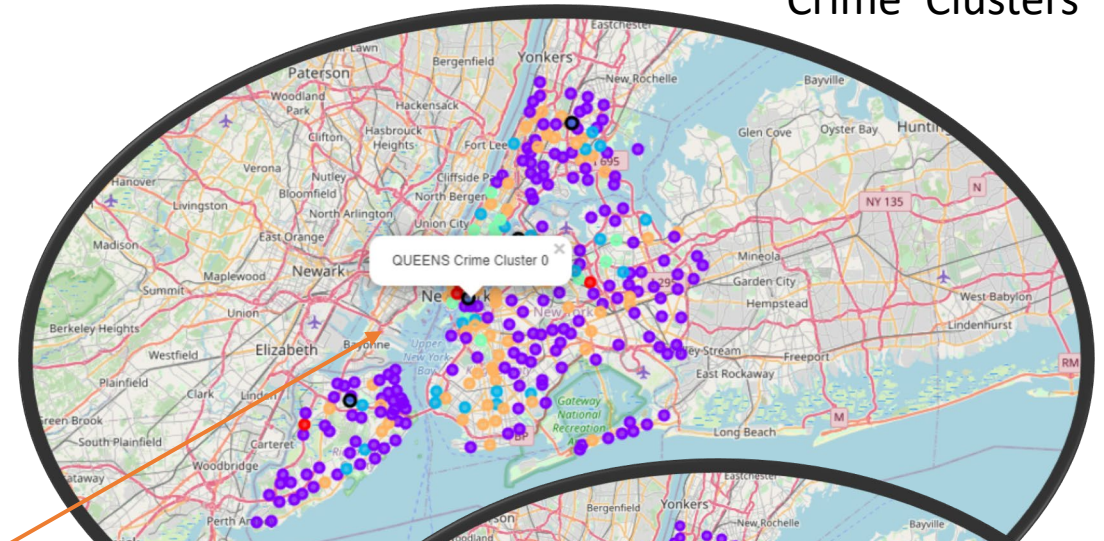
'Health' Clusters
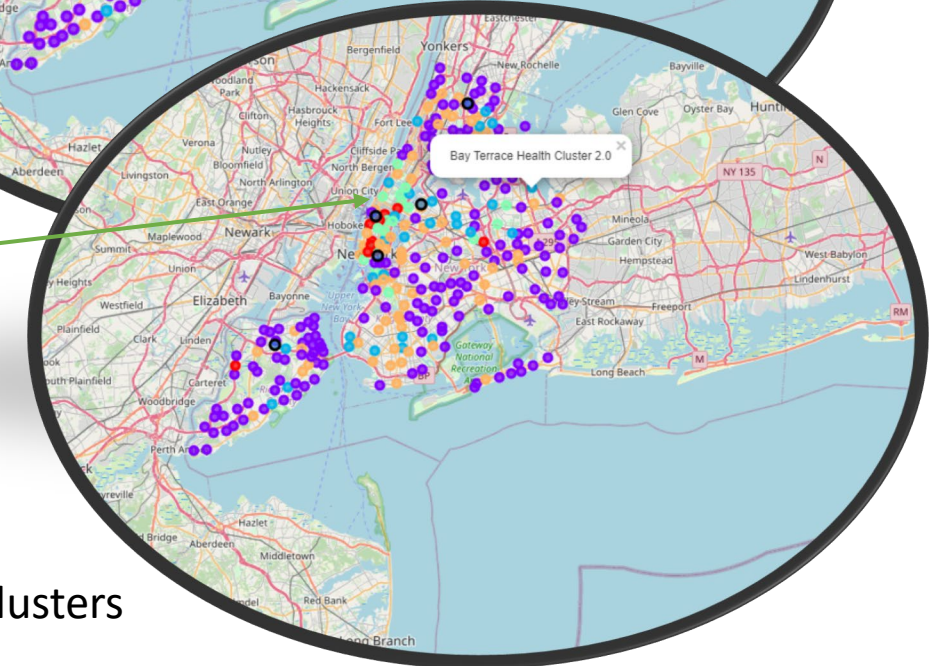
NYC Data Bar Plots
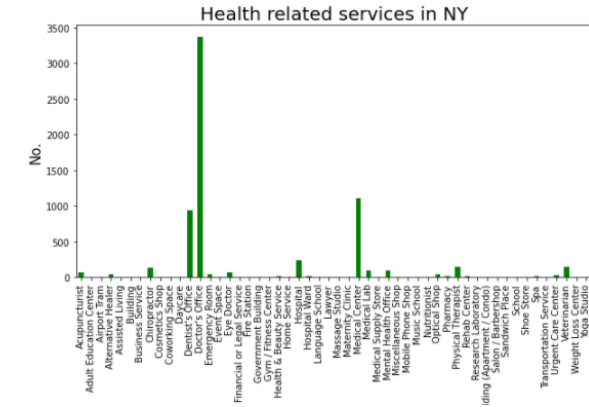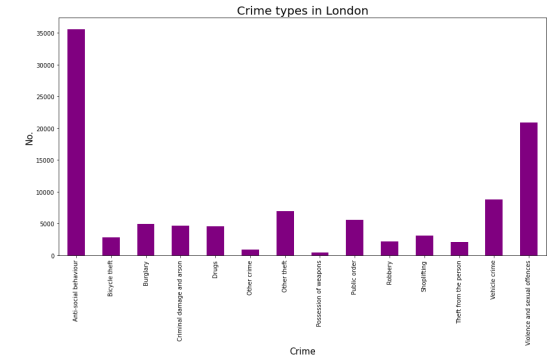

- The bar plots for the crime and health services data was used to gain visual insight of the Borough and Neighborhoods trends.

London Data Bar Plots

Health related services in London

Crime types in London

- The bar plots for the crime and health services data was used to gain visual insight of the Borough and Neighborhoods trends.

Crime types in London

London Crime and Health Clusters

- The same methodology used for NYC was applied to London Crime and Health Services data.

- The clusters of the most common crime types and the most common health services geolocalized in the London city map
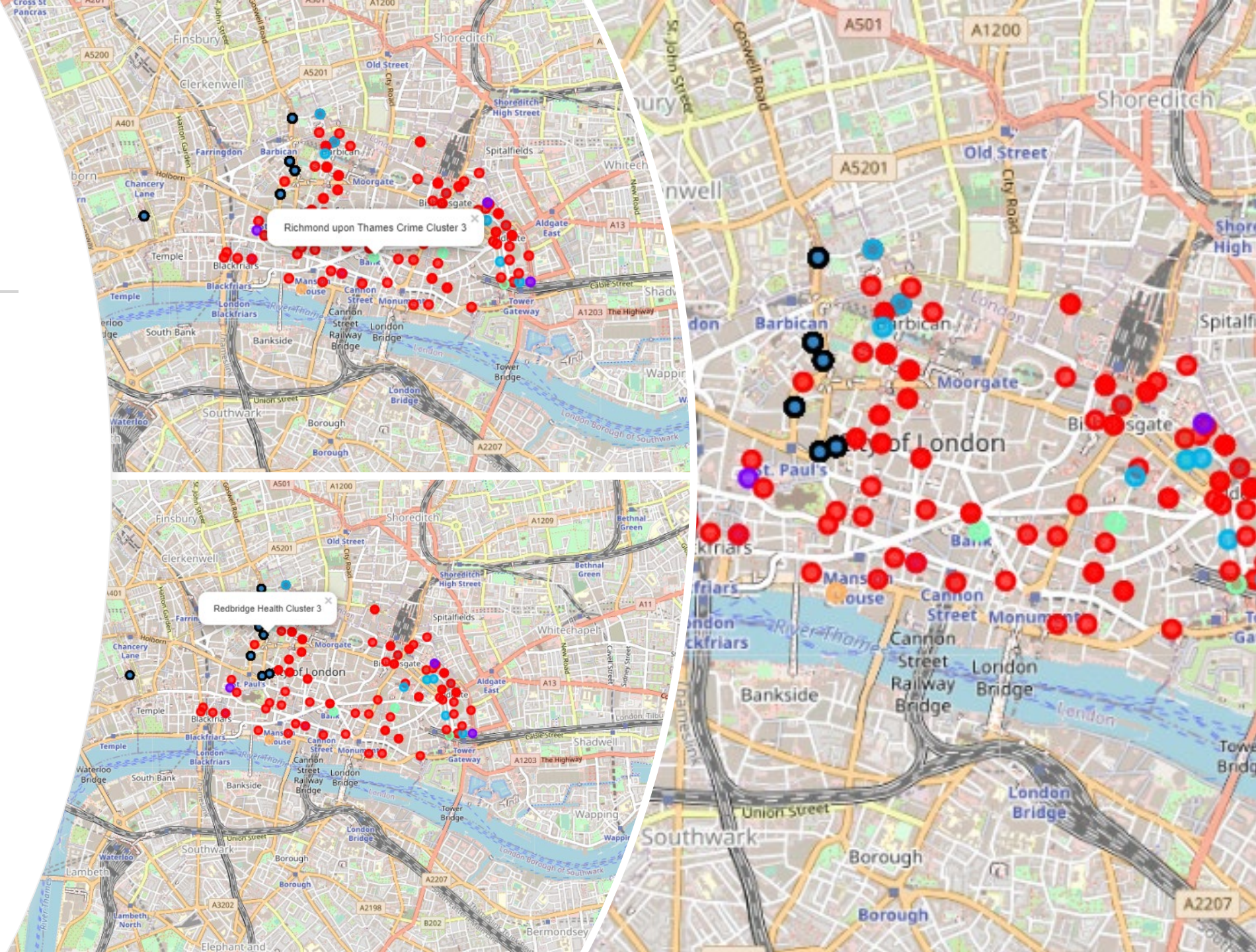
Results & Discussion

NYC appears to have a significantly larger number of violent crime cases than London (3 to 5-fold times) and equivalently the number of available health facilities shows a similar trend. This indicates no major difference in the ability of the city to provide health assistance. A more in-depth analysis but based on neighbourhoods:

- For the city of New York: The data indicates that the only based on the number of crimes the most dangerous (violent crimes) neighbourhoods are those of Bronx (Cluster 0) followed by Brooklyn and Manhattan (Cluster 2); Data shows Queens neighborhoods with more available medical services and thus an opportunity specifically for Brooklyn and Manhattan to improve.

- For the city of London: The data indicates that the only based on the number of crimes the most dangerous neighbourhoods are those of Westminster followed by Camden and Chelsea; Data shows Westminster neighborhoods with more available medical services and thus an opportunity specifically for Camden and Chelsea.

Conclusions & Recommendations

- The goal of this project was to provide private businesses and/or local governments with an indicative assessment of the availability of health services in the neighborhoods of each city to provide assistance to the victims in relation with the number of crimes on each neighborhood. The project has achieved the indicative assessment.

- Recommendation: Further analysis based on violent vs non-violent crimes and the health facilities size/capacity to treat victims, etc. would be recommended to get a deeper insight to those planning to make health services investments.