

# Comparing the cities of Toronto and New York regarding the quantity of Health Centers

By Alejandro Somarriba

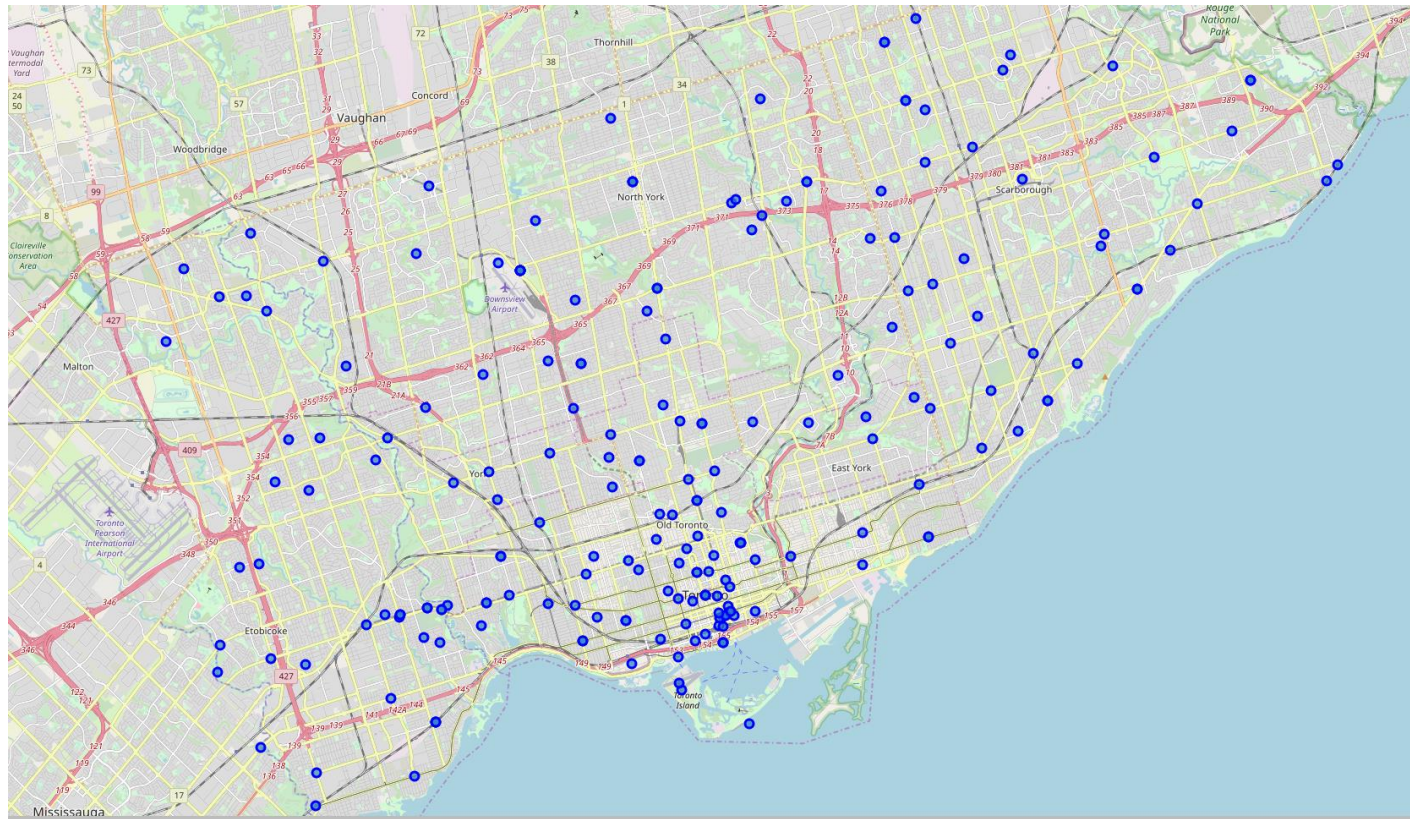
# Comparing cities depending on healthcare options can be important

- ▶ The objective of this project was to visually compare the way neighborhoods are spread throughout both cities, as well as determining which city had more hospitals closer to its neighborhoods
- ▶ The project also has the intention of categorizing the neighborhoods based on the most common hospital-related venue by category
- ▶ This may be of interest to someone who lives on either city or intends to move to one of them, as they may want to see which healthcare options are closest to where they are
- ▶ It may also be of interest to healthcare providers who may want to set up their own services close to neighborhoods where other venues are too far away

# Data explanation

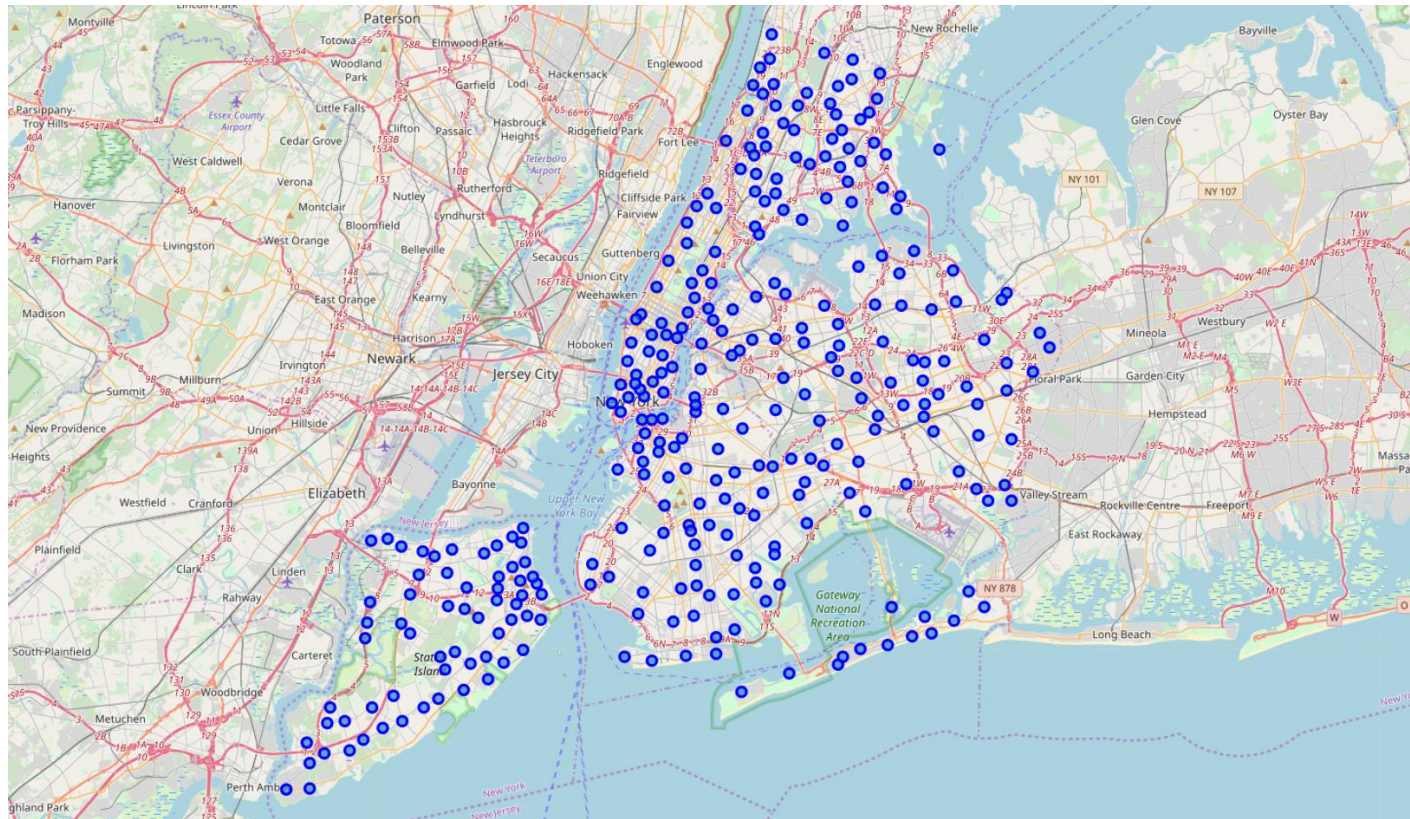
- ▶ Data used in this project came from:
  - ▶ [https://en.wikipedia.org/wiki/List\\_of\\_postal\\_codes\\_of\\_Canada:\\_M](https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M) for a list of neighborhoods in Toronto
  - ▶ [https://cocl.us/new\\_york\\_dataset](https://cocl.us/new_york_dataset) for a list of neighborhoods and coordinates in New York
- ▶ The rest of the data came from the FourSquare API
- ▶ The data was cleaned to get rid of rows that couldn't be assigned coordinates with the GeoPy Python library, as well as to remove rows whose venues were not in our interest

# Map of Toronto's neighborhoods



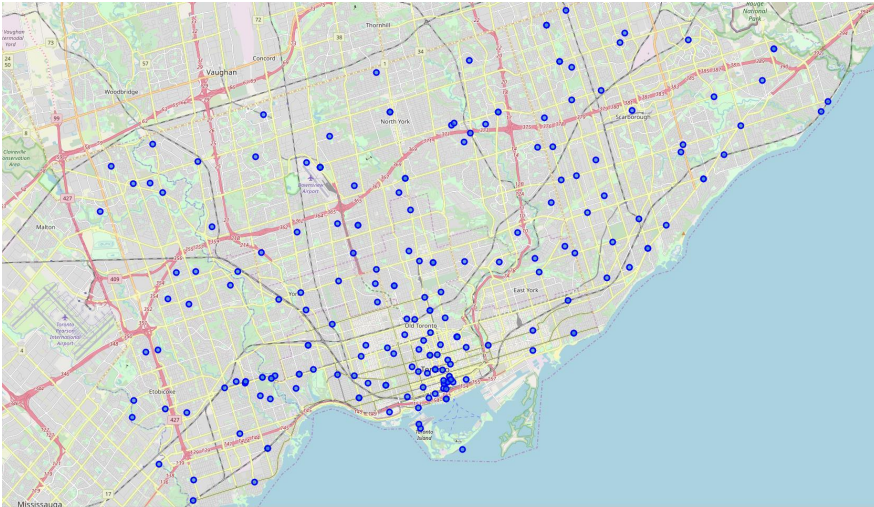


# Map of New York's neighborhoods

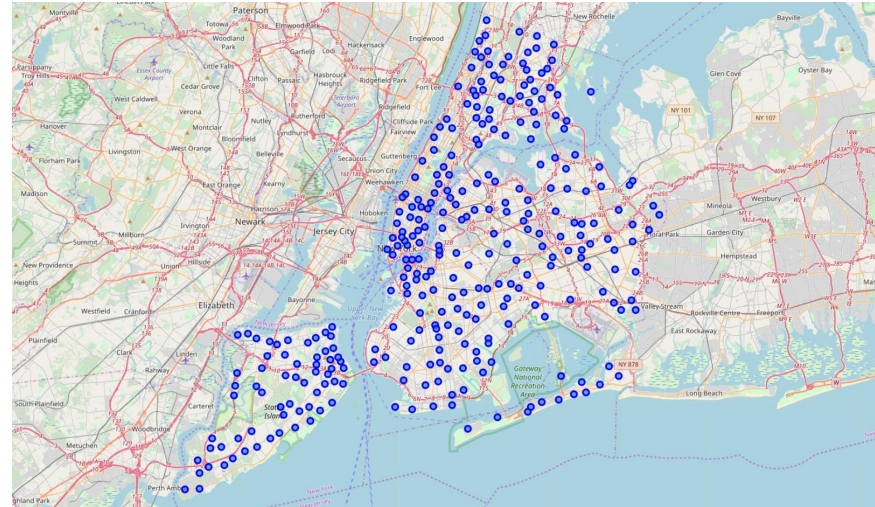


# Comparison between Toronto and New York

## Toronto



## New York



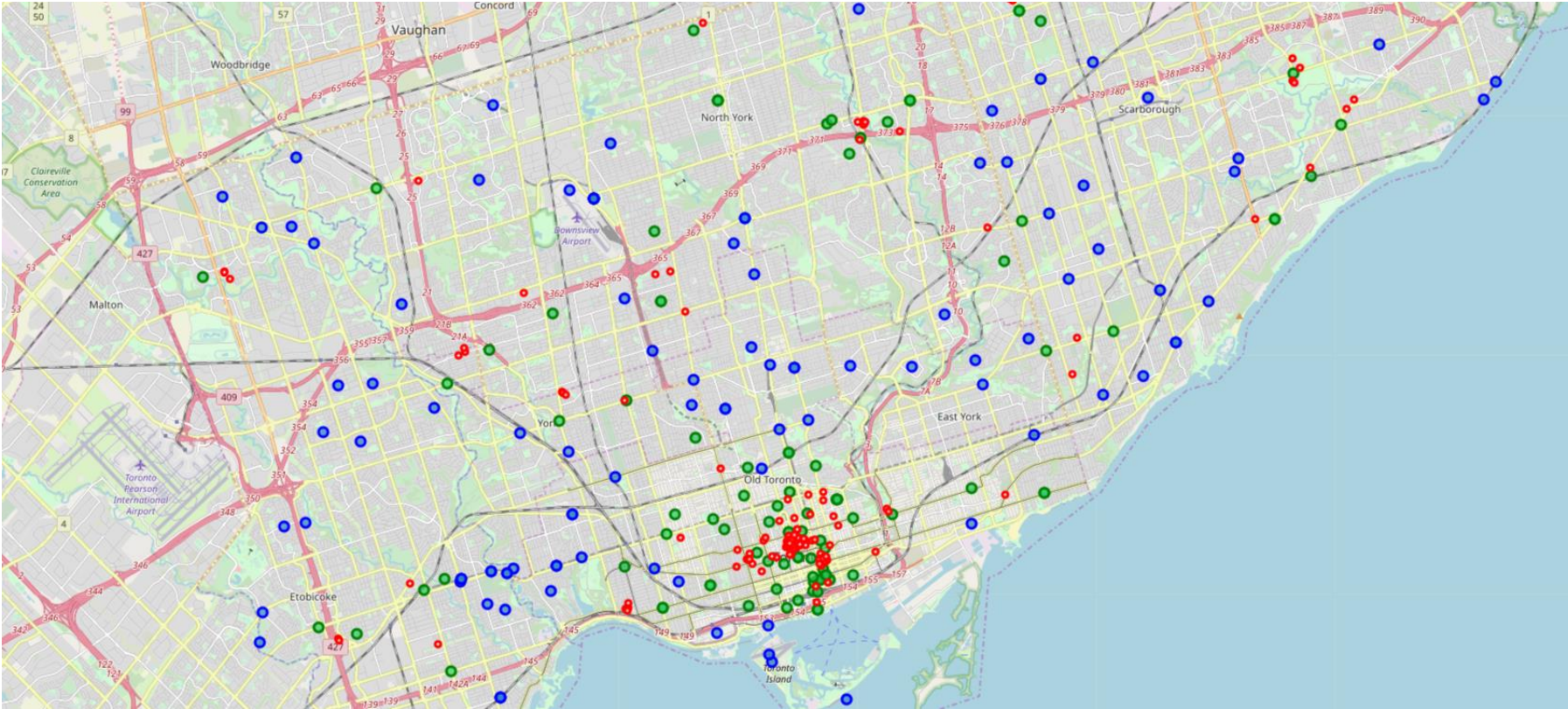
Toronto has more spread out neighborhoods, but New York has more neighborhoods overall

# Unique types of venues for Toronto and New York

Toronto	
Venue	Count
Hospital	1139
Hospital Ward	63
Medical Center	18
Emergency Room	18

New York	
Venue	Count
Hospital	1709
Hospital Ward	163
Medical Center	46
Emergency Room	10
Urgent Care Center	2





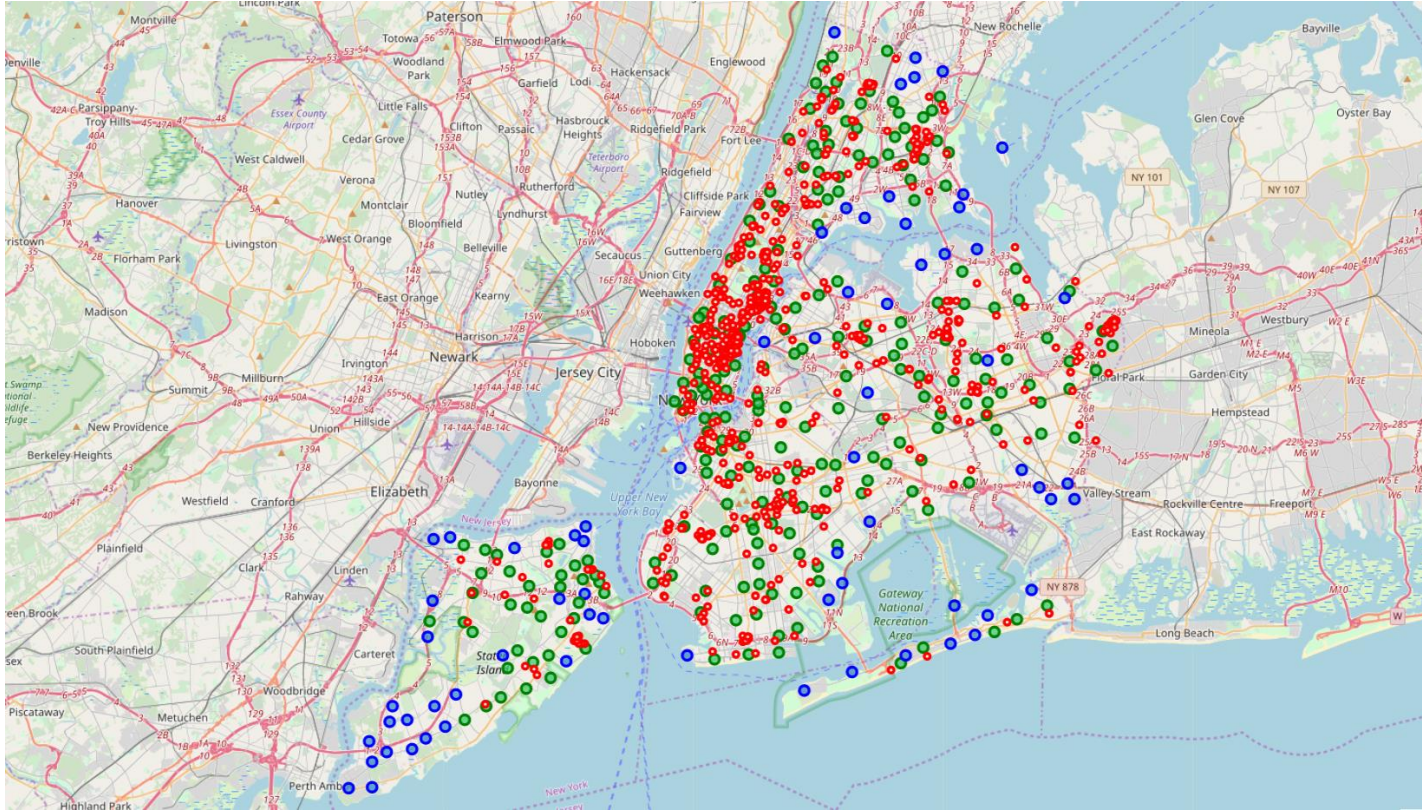
## Map of Toronto's neighborhoods with venues

Green - neighborhoods with at least 1 venue within 1 km

Blue - the rest of the neighborhoods

Red - venues





## Map of New York's neighborhoods with venues

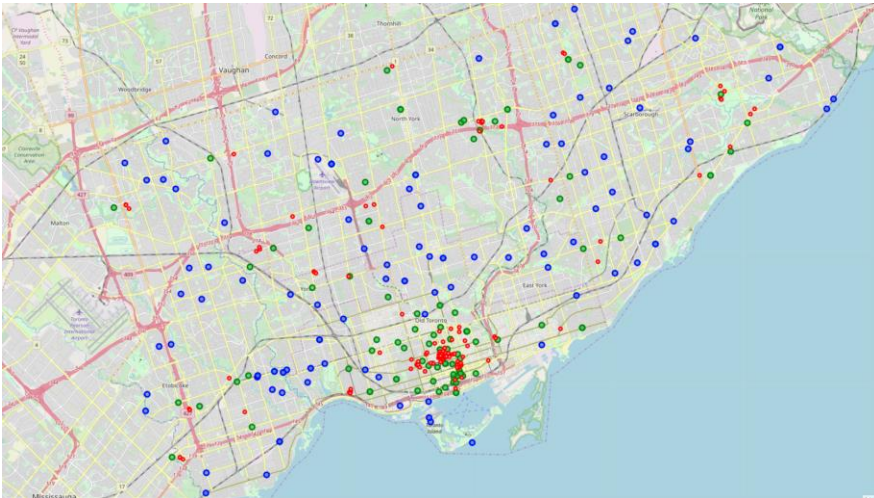
Green - neighborhoods with at least 1 venue within 1 km

Blue - the rest of the neighborhoods

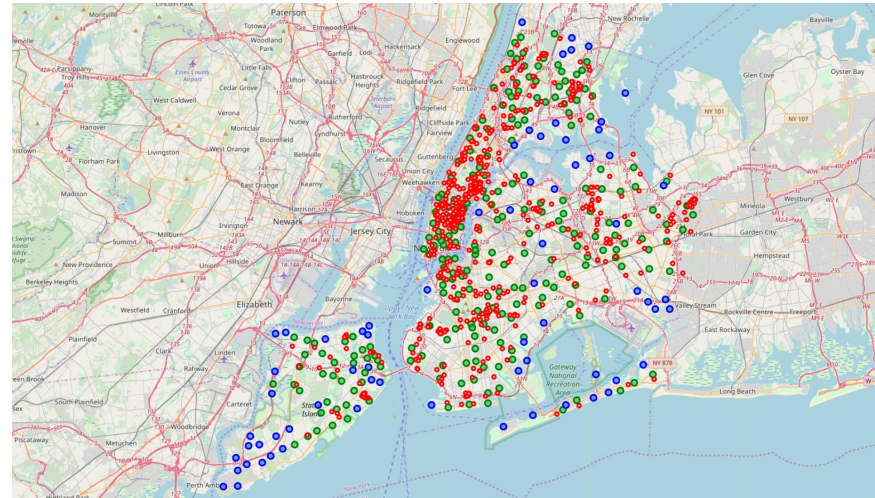
Red - venues

# Comparison between Toronto and New York venues

## Toronto



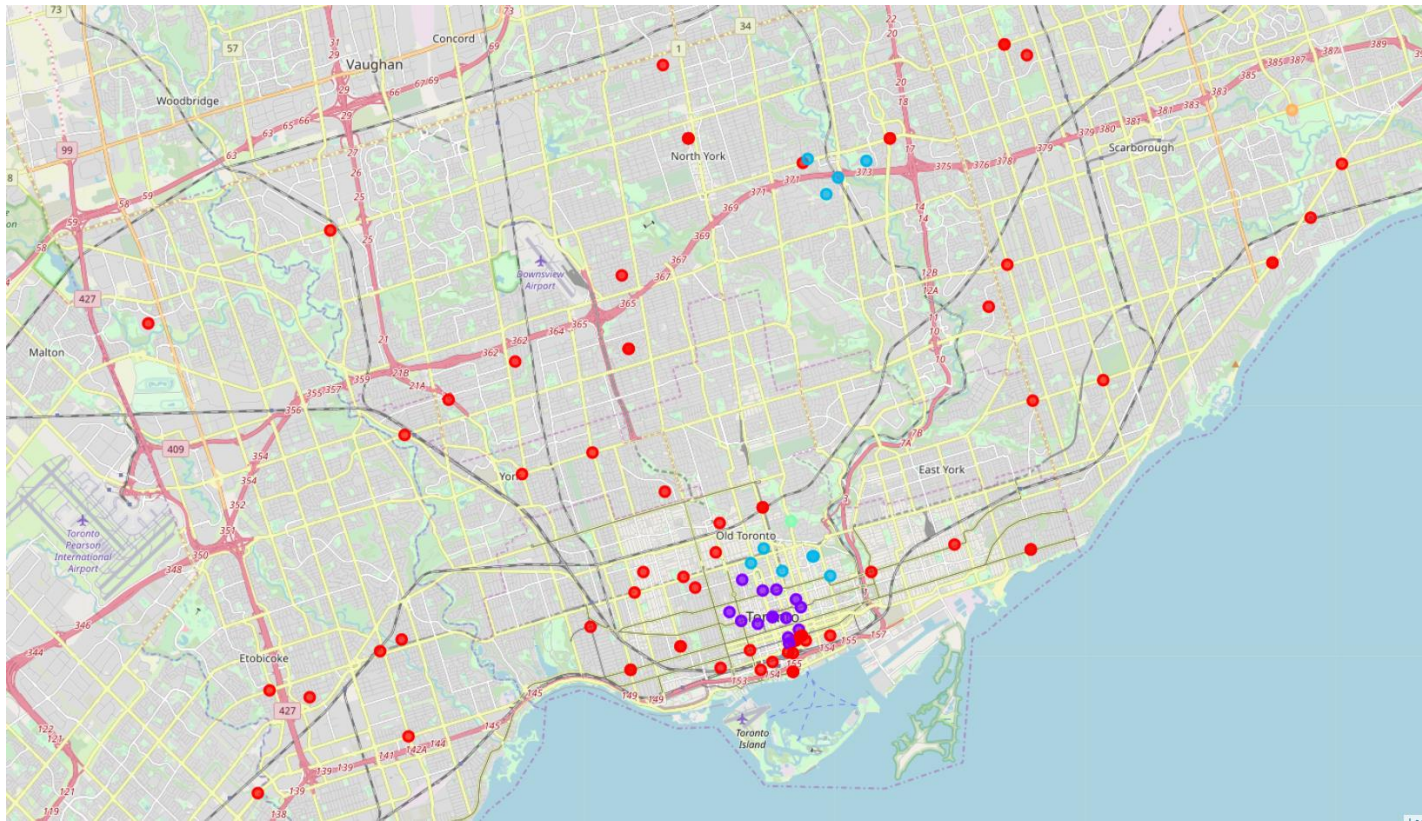
## New York



New York is more densely populated and has more hospital-related venues than Toronto



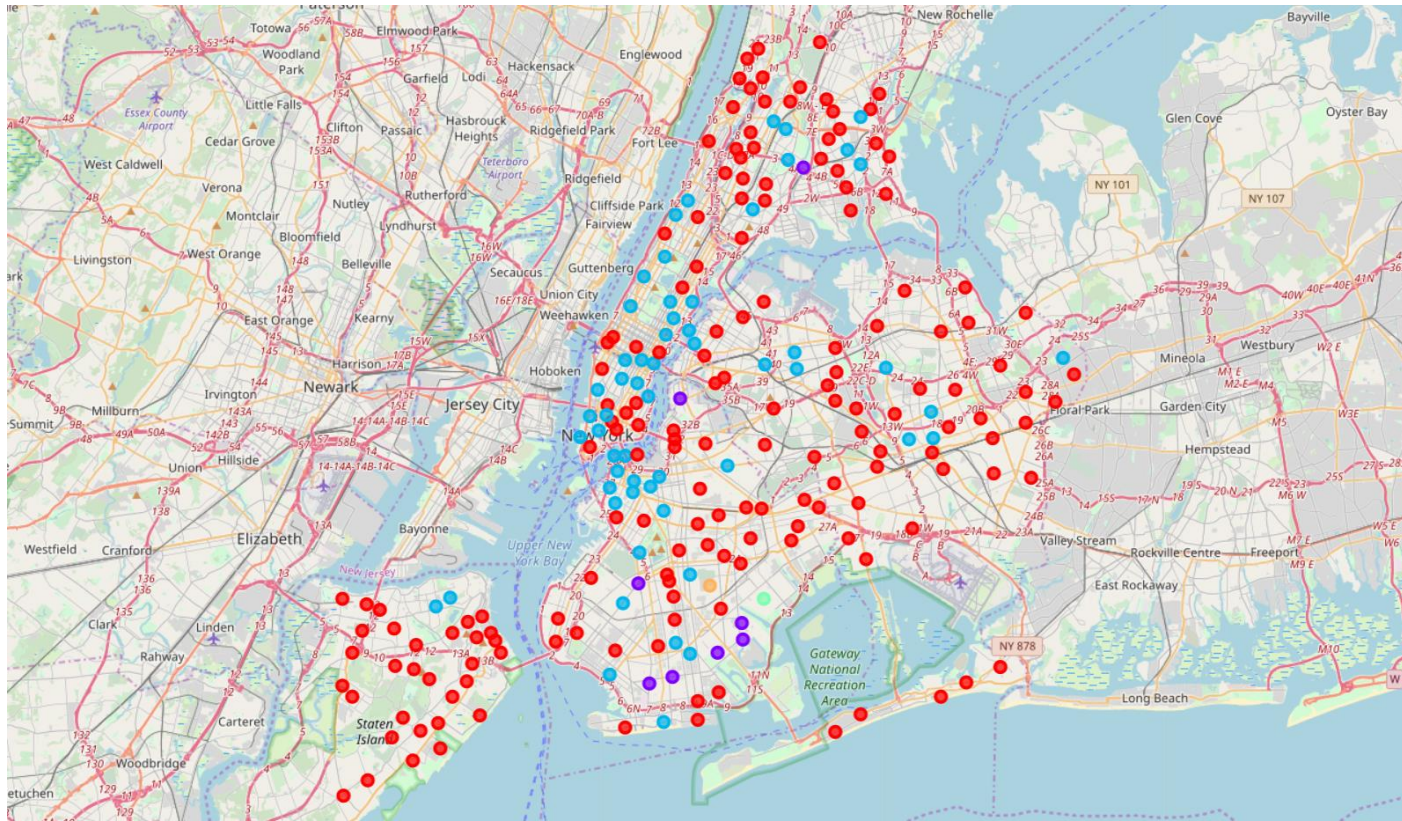
# Clustered Toronto neighborhoods



Clustered based on the most common venues



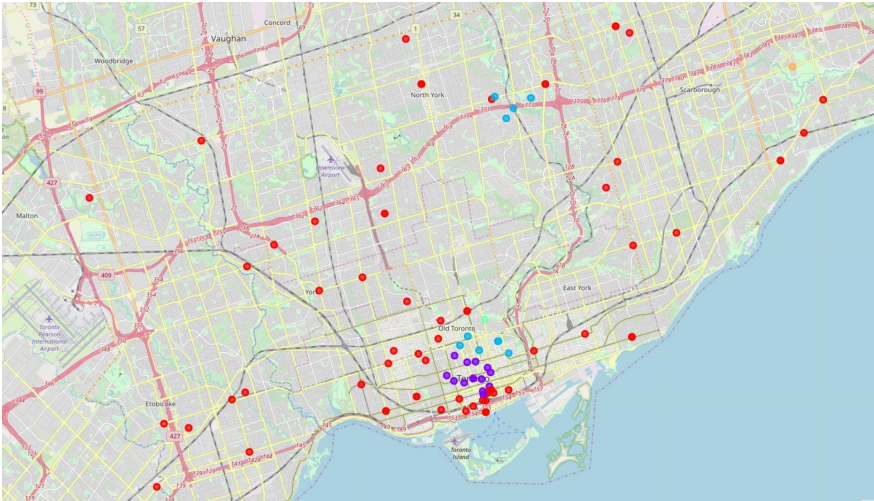
# Clustered New York neighborhoods



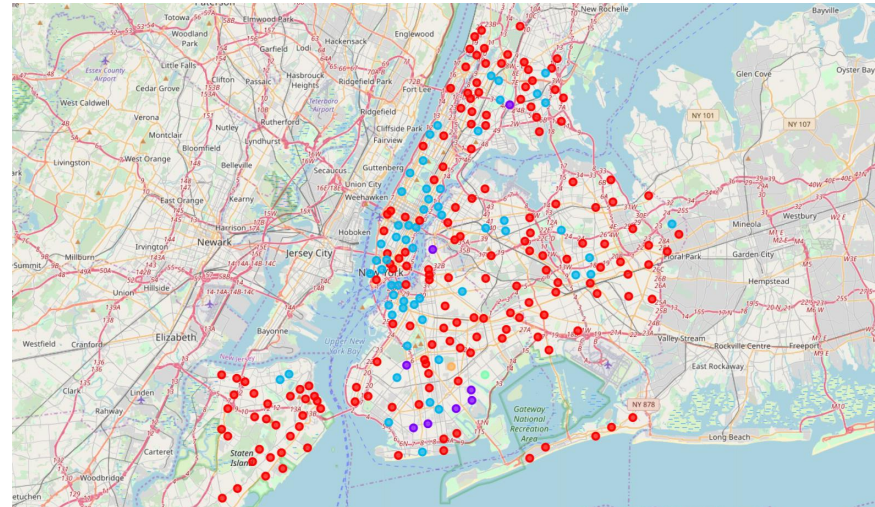
Clustered based on the most common venues

# Comparison between Toronto and New York clustered Neighborhoods

Toronto



New York



The red clusters are very similar on both cities

# Observations

- ▶ Overall, Toronto has less neighborhoods and hospital-related venues than New York
- ▶ New York has Urgent Care Centers within 1 kilometer of some of its neighborhoods, while Toronto does not
- ▶ New York has its neighborhoods closer together than Toronto



# Conclusions and Considerations

- ▶ It's probably possible to have used less clusters to separate the locations, as there were many overlaps in the most common venues between clusters
- ▶ Overall, it would seem that New York has more hospital-related venues within 1 kilometer of its neighborhoods than Toronto, which would suggest that it is better equipped to handle health care (but this is only an assumption)
- ▶ If this project were to be repeated, find more sources for the neighborhoods
- ▶ It might be interesting to take the project further and consider more data points to make more interesting inferences