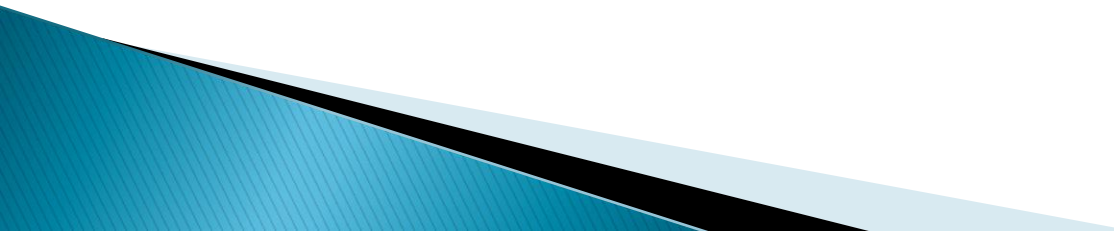


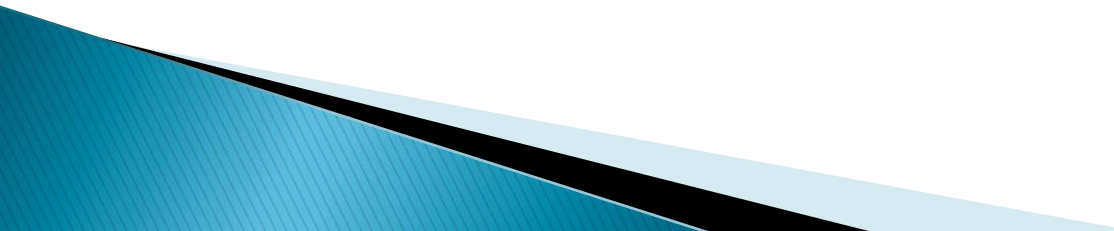
# New York vs Toronto

Sherif Essam

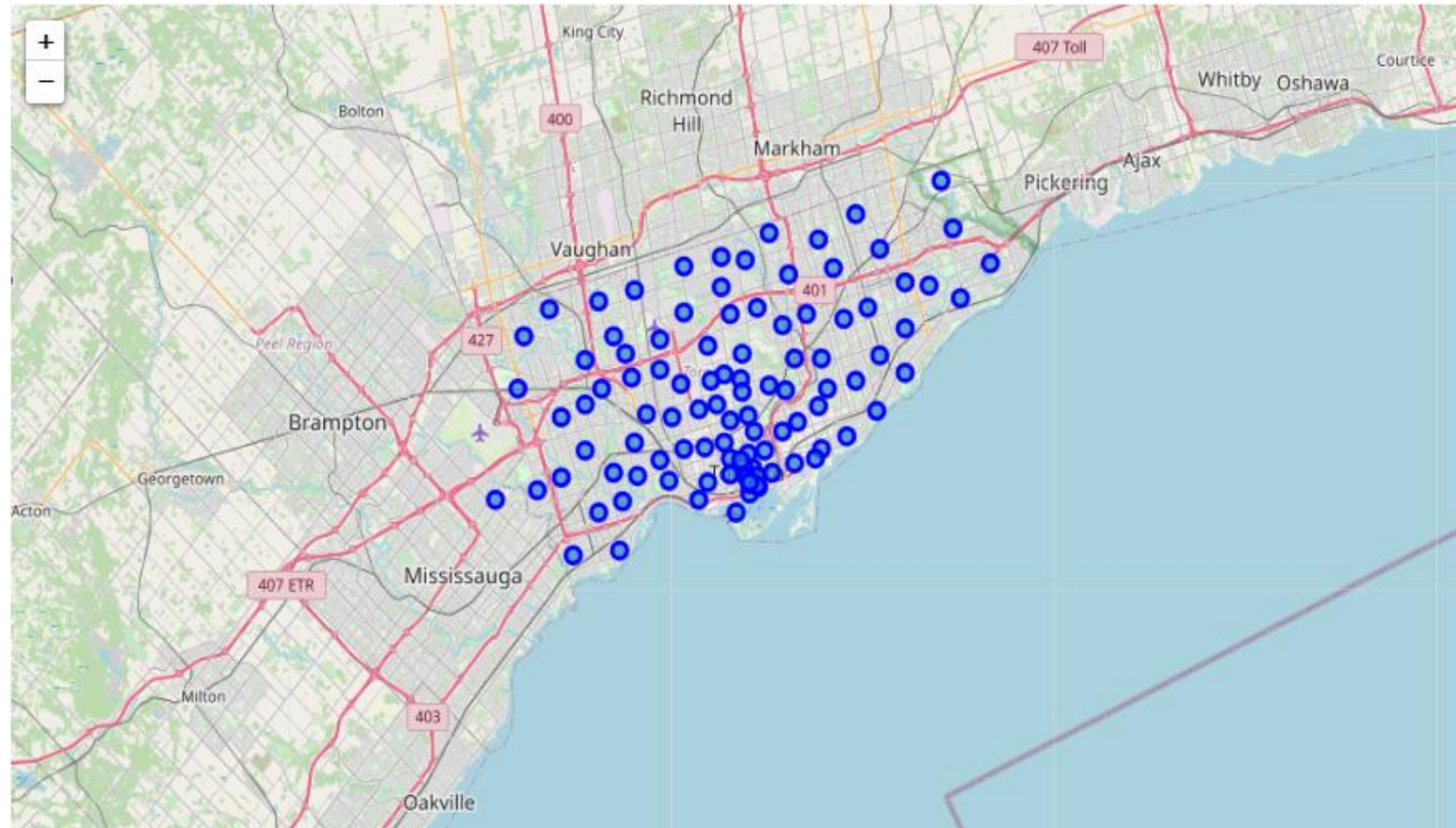
# Comparing between cities helps estimate their characteristics

- ▶ Comparing between cities based on their venues.
  - ▶ Cities consist of neighborhoods and each neighborhood contains its specific venues.
  - ▶ Venues could be categorized into small number of categories.
  - ▶ Total number of venues in each category is the way to estimate the characteristics of the city.
- 

# Data acquisition and cleaning

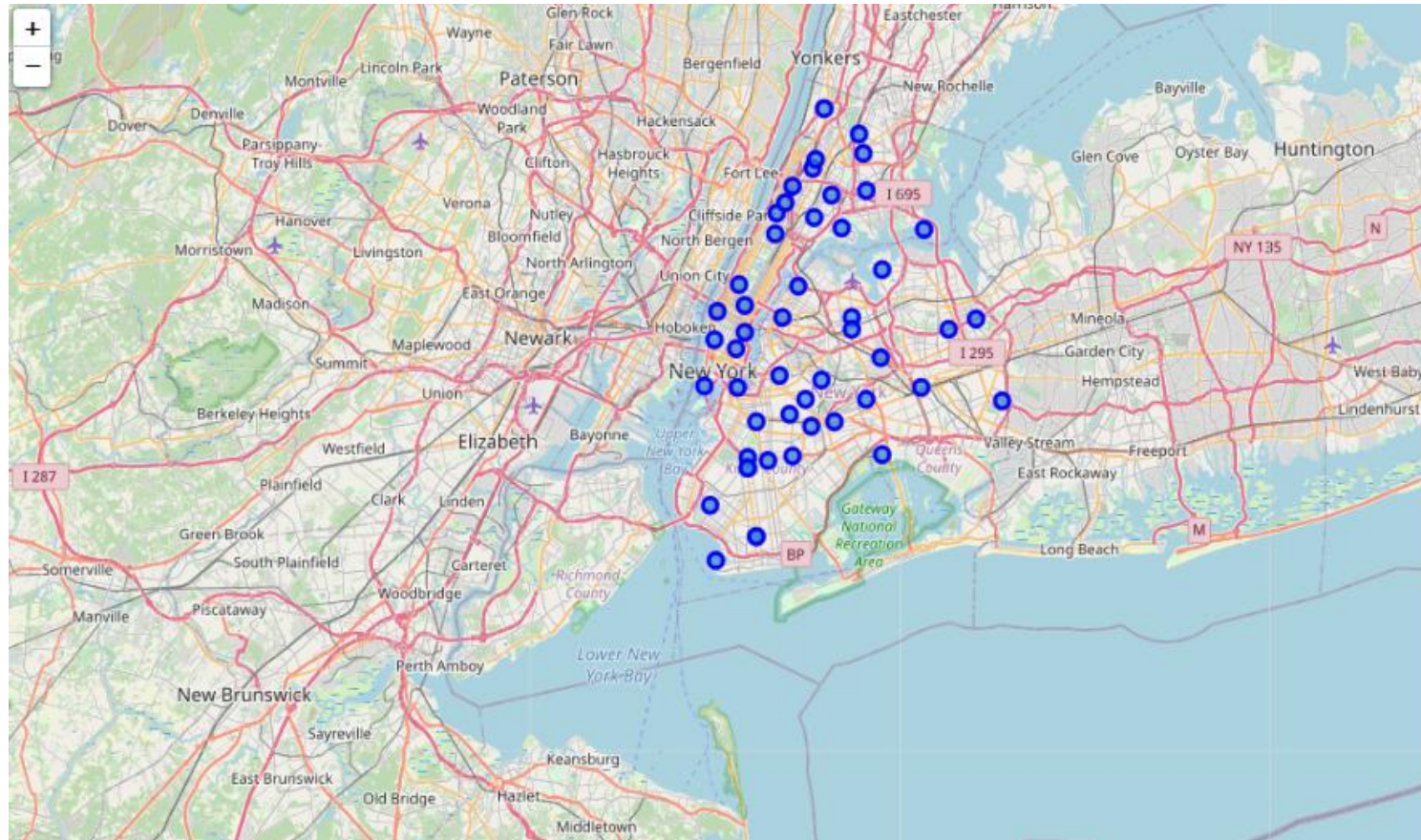
- ▶ Tables of Neighborhoods of New York and Toronto can be scraped from Wikipedia.
  - ▶ Data cleaning could be by removing empty rows and unneeded symbols.
  - ▶ Obtaining latitude and longitude for all neighborhoods would be necessary for getting venues data.
- 

# Map of Toronto

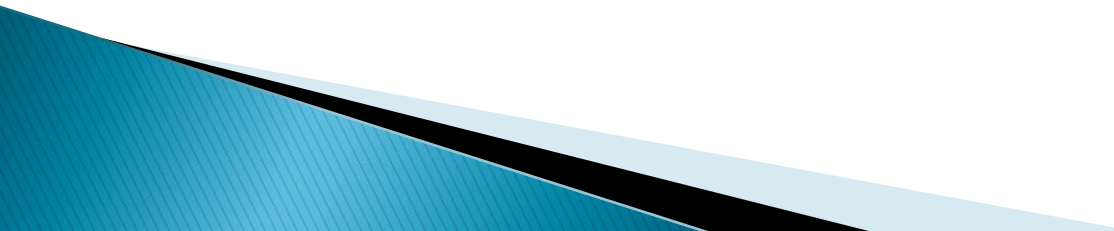




# Map of New York city



# Exploratory data analysis

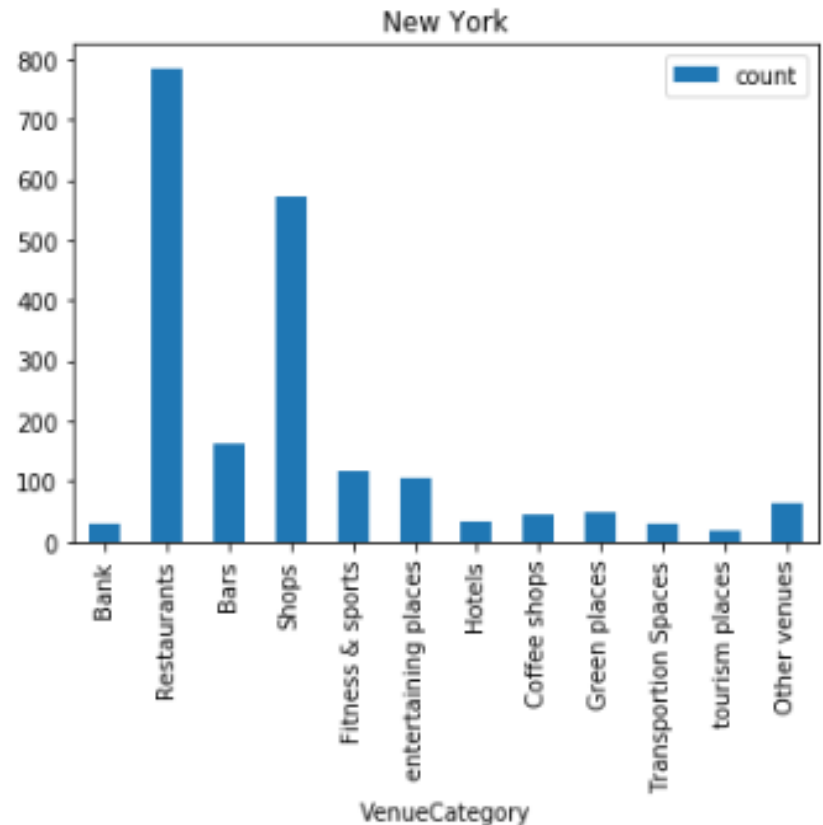
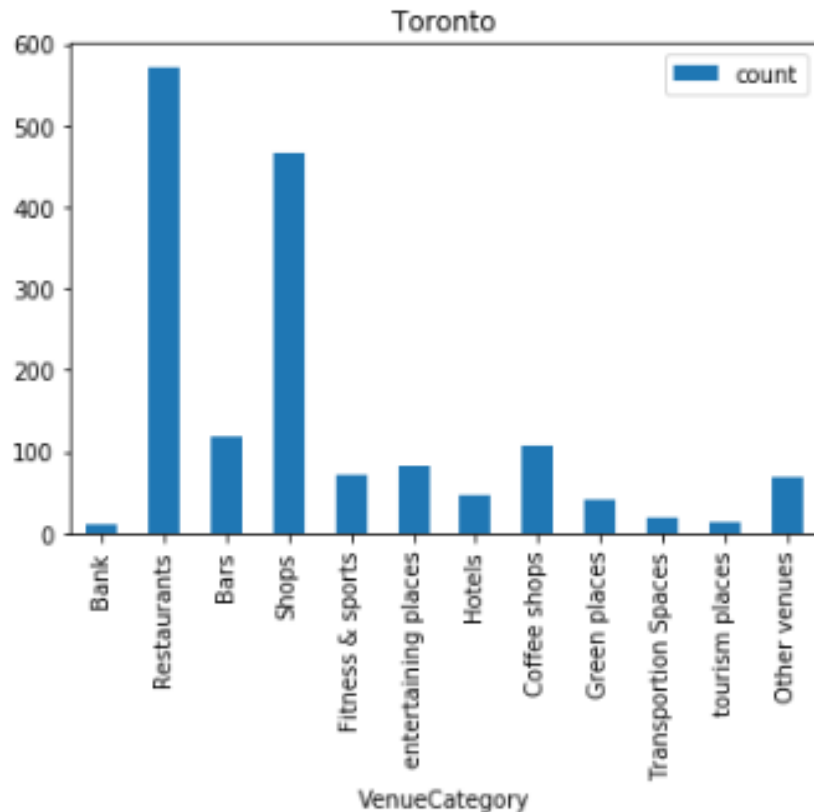
- ▶ Collecting data for all venues located in each neighborhood using Foursquare API.
  - ▶ Categorize all venues for each city according to the venue type.
  - ▶ Comparing between Toronto and New York according to the count of these venues categories.
- 

# Final data frames used in the comparison

	count	VenueCategory
Bank	30	Bank
Restaurants	785	Restaurants
Bars	162	Bars
Shops	570	Shops
Fitness & sports	115	Fitness & sports
entertaining places	104	entertaining places
Hotels	35	Hotels
Coffee shops	44	Coffee shops
Green places	49	Green places
Transportation Spaces	31	Transportation Spaces
tourism places	18	tourism places
Other venues	63	Other venues

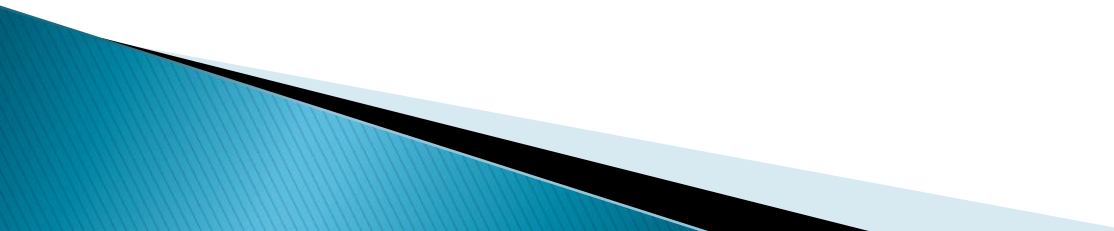
	count	VenueCategory
Bank	11	Bank
Restaurants	572	Restaurants
Bars	117	Bars
Shops	466	Shops
Fitness & sports	70	Fitness & sports
entertaining places	81	entertaining places
Hotels	47	Hotels
Coffee shops	108	Coffee shops
Green places	41	Green places
Transportation Spaces	20	Transportation Spaces
tourism places	14	tourism places
Other venues	68	Other venues

# Bar Plots for the two Dataframes

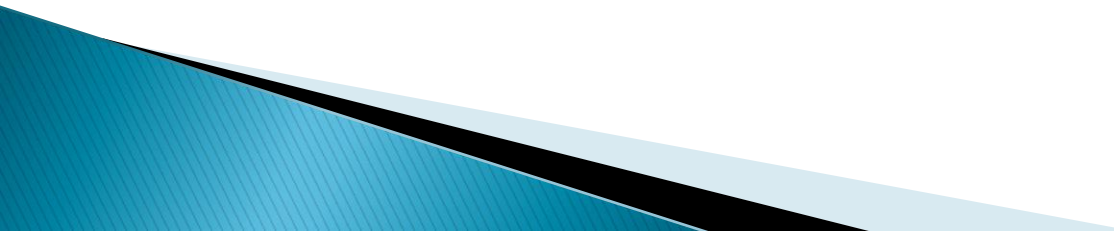




# Observations

- ▶ Two cities total areas could be taken into consideration.
  - ▶ Toronto has much more coffee shops than New York that people in Toronto spend much time in such shops.
  - ▶ Toronoto is more greener city than New York. This also reflects on the number of transportation places which is greater in New York.
- 

# Observations

- ▶ New York has more sports and fitness places and also more different kinds of these places.
  - ▶ New York is a better decision for your vacation, it has more entertaining places and also Tourist attractions. However, Toronto is the easier decision because of the large number of hotels.
- 

# Conclusion and future directions

- ▶ Comparing between cities based in the venues types and counts is such a useful way for understanding the characteristics of a city.
  - ▶ Comparing between Toronto and New York shows that they are much similar to each other with some differences.
  - ▶ Enhancing the subcategories that the venues categorized into would result in more accurate observations.
- 