Applied Data Science Capstone Project

NEIGHBORHOOD PROFILING OF TORONTO AND NEW YORK CITY – WHERE ARE THE BEST AREAS FOR NEW RESTAURANT BUSINESS?

Introduction

Business sponsors: individuals looking to start a new restaurant or bar business
Project: Profiling of the best neighborhoods for new restaurants

- This work is focused on the business problem of selecting the optimum location for a new restaurant business. The specific niche of the restaurant isn't already decided by our business sponsor.
- The locations studied are Toronto and New York City. The same study can easily be replicated to other locations if the business sponsor desires.

Business Problem

City Profiles

What are the main “types” of neighborhoods and what are their contribution to the overall makeup of the city’s venues? Where the restaurants are concentrated?

Location of Venues

Where are located the already established restaurant and bars/clubs business?

How it is the distribution of restaurants through NYC and Toronto?

Data: What will be necessary?

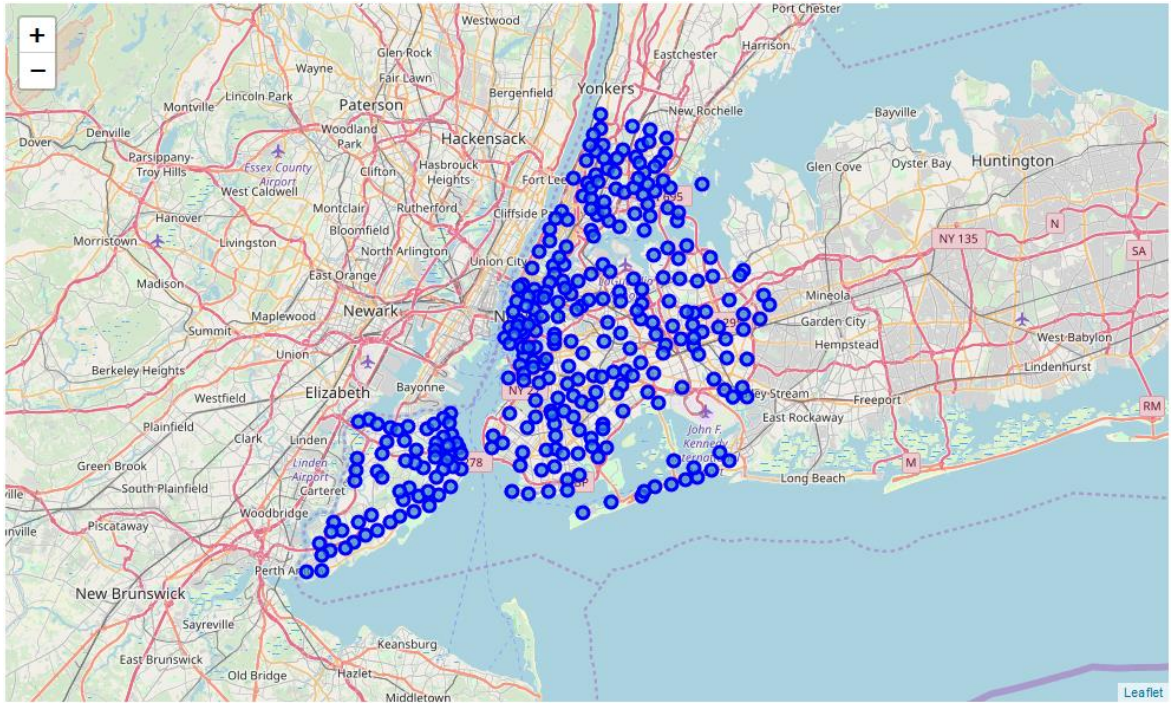
Venues Names, Category and Geographical Coordinates

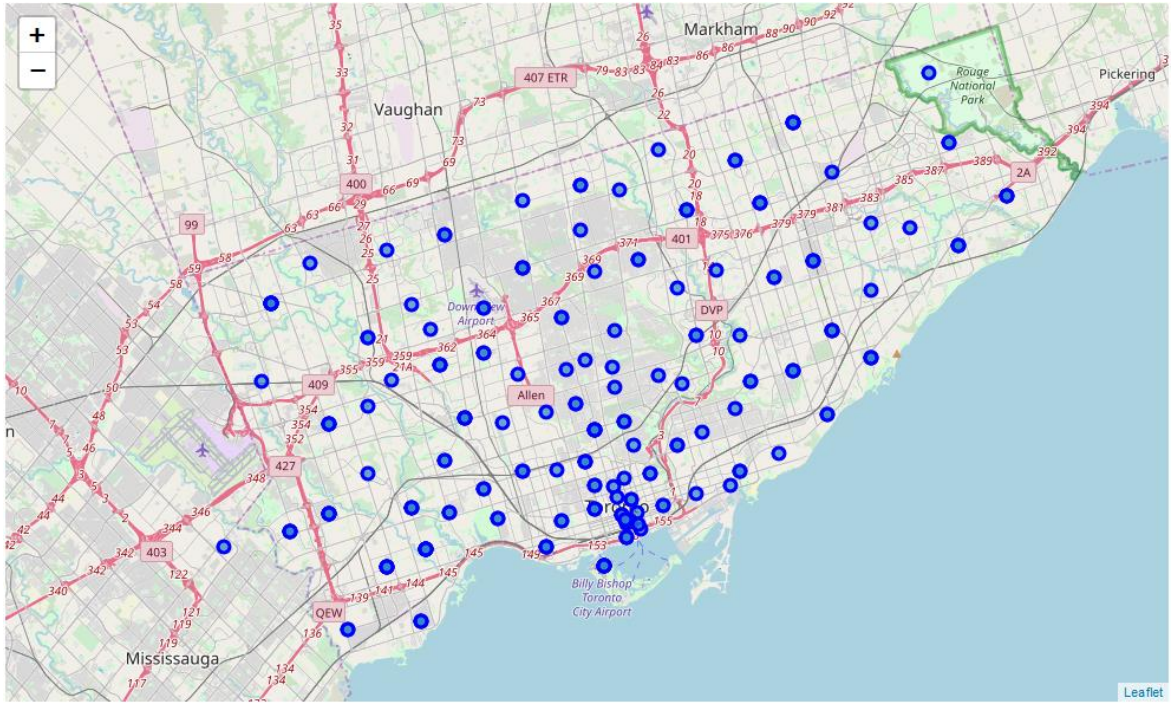
- Names and categories of the top 100 venues in each neighborhood, with their geographical coordinates (data to be extracted using the Foursquare API)

Neighborhoods Names and Geographical Coordinates

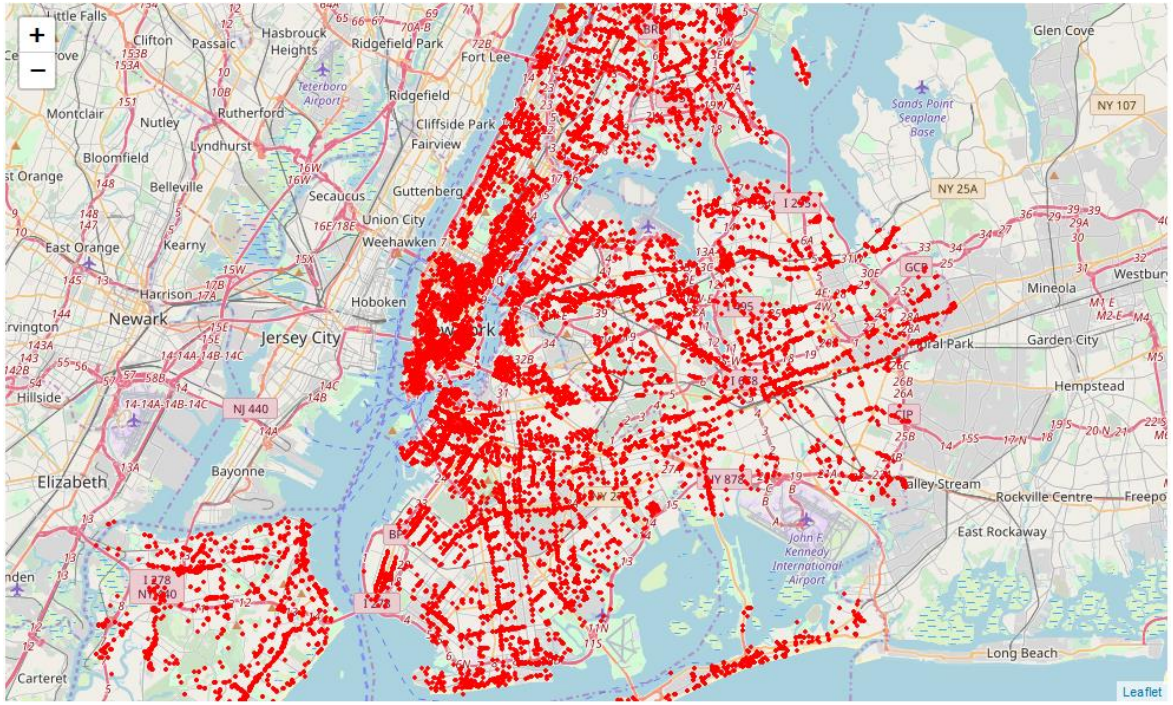
- Names of all neighborhoods to be studied (in NYC and Toronto, to be scrapped from Wikipedia and a prepared JSON file)
- Geographical coordinates of the central location of each neighborhood (to be extracted using Google Geocoder API)

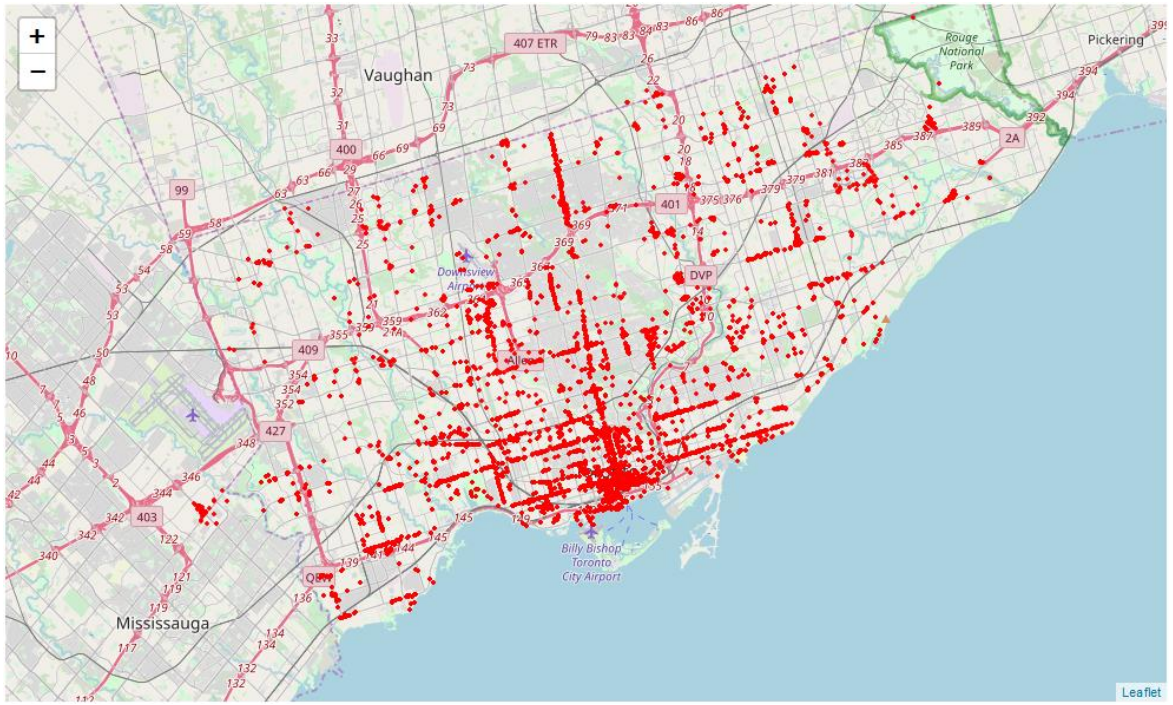
Understanding the Data Collected: Neighborhoods



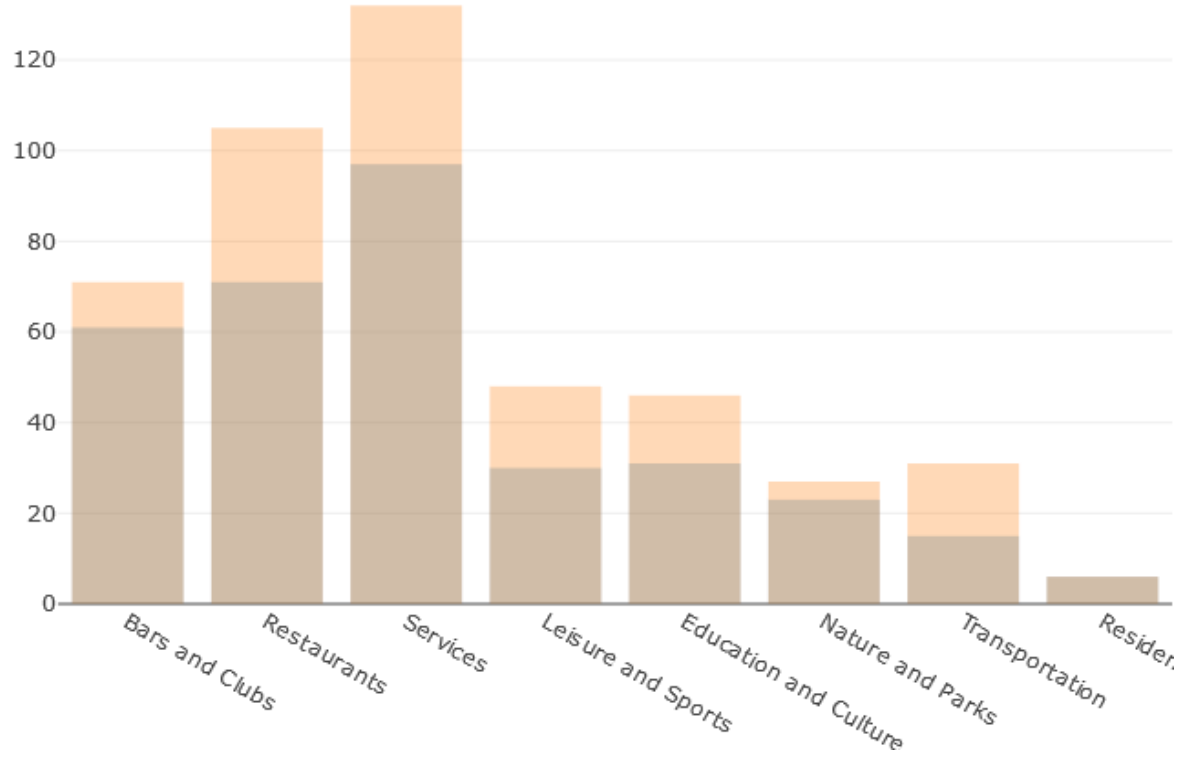


Understanding the Data Collected: Venues Distribution



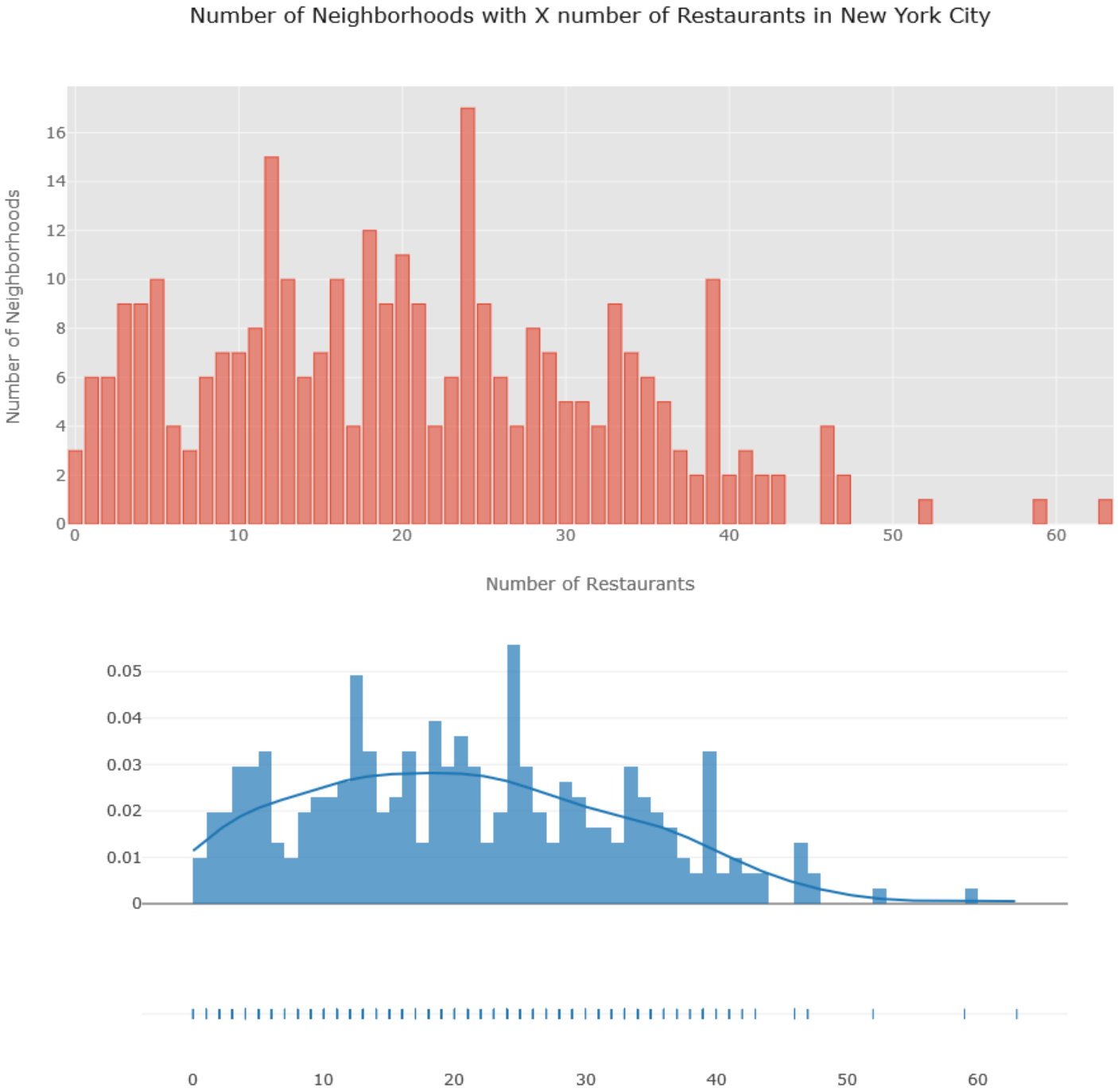


Understanding the Data Collected: Unique Venues Categories



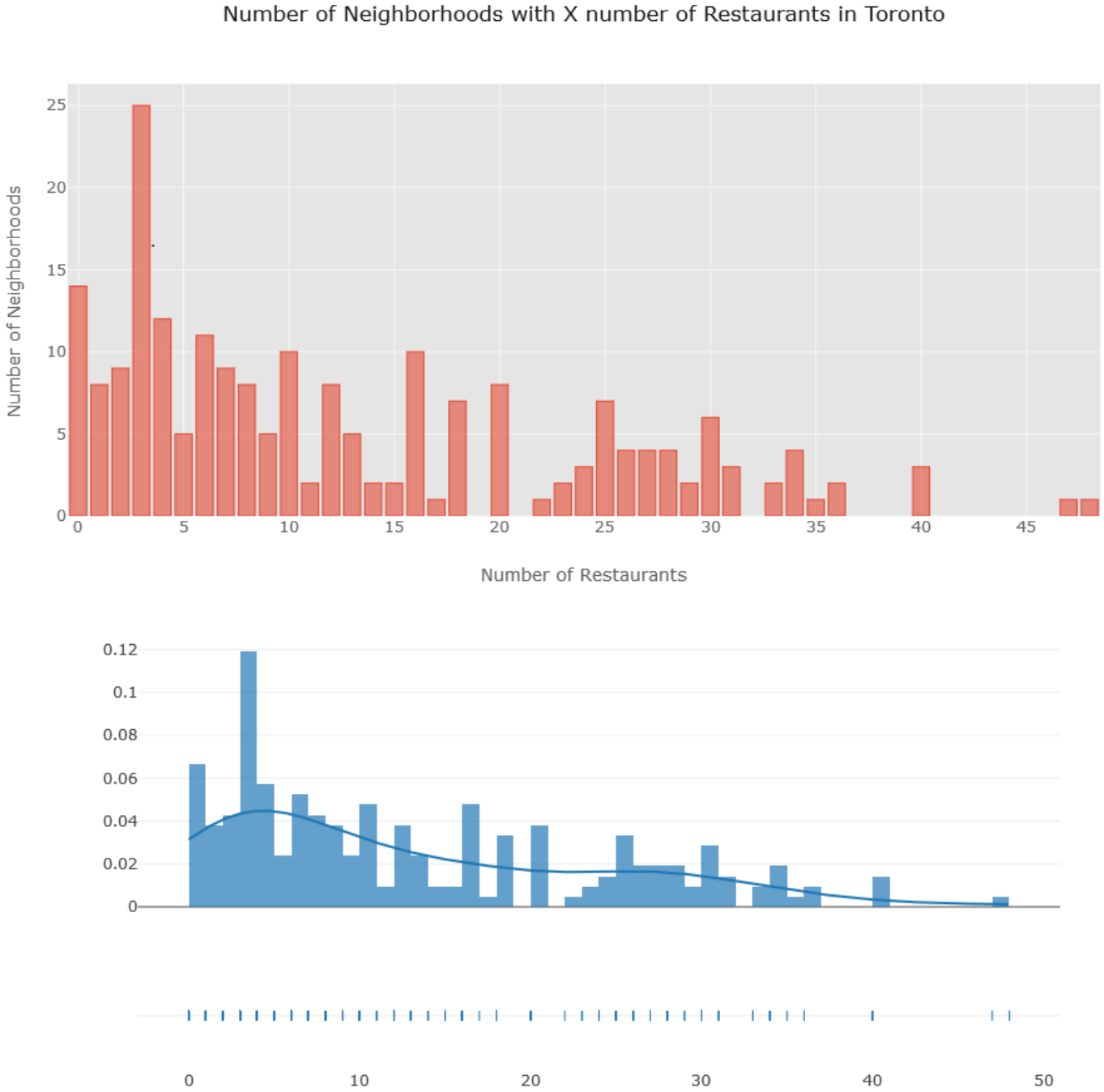
Unique Venues

- All the unique categories (334 in TO, 421 in NY) extracted with Foursquare API are grouped into 8 main types.
- New York City naturally has more kinds of venues (much larger population also)



Restaurant Distribution in New York City Neighborhoods

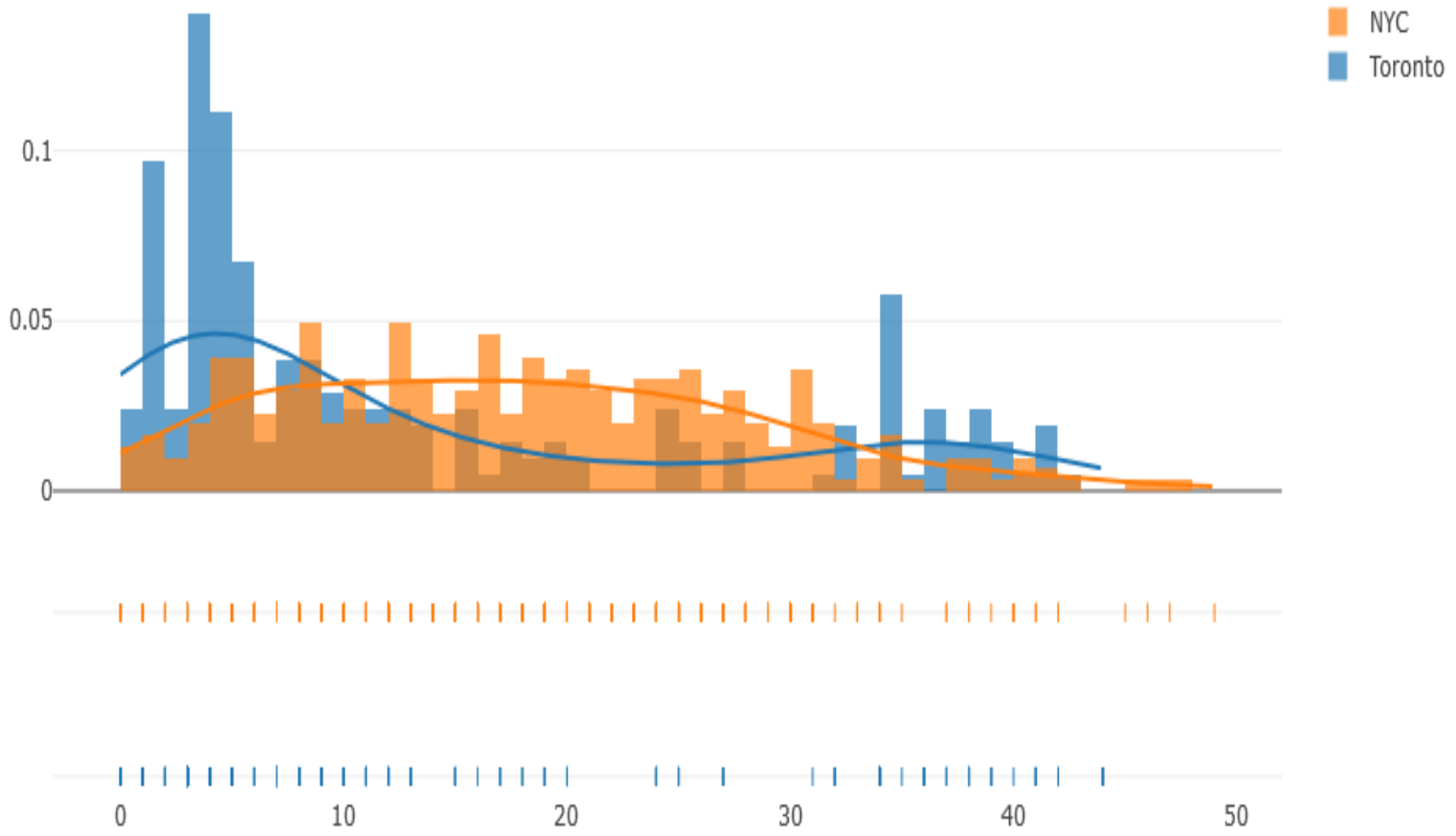
- High number of neighborhoods with 20 or more restaurants
- Three neighborhoods with >50 restaurant venues!



Restaurant Distribution in Toronto Neighborhoods

- Small number of neighborhoods with 20 or more restaurants (compared to NYC)
- Four neighborhoods with >40 restaurant venues.
- Several neighborhoods doesn't have any restaurant at all, and several others have less then 5.

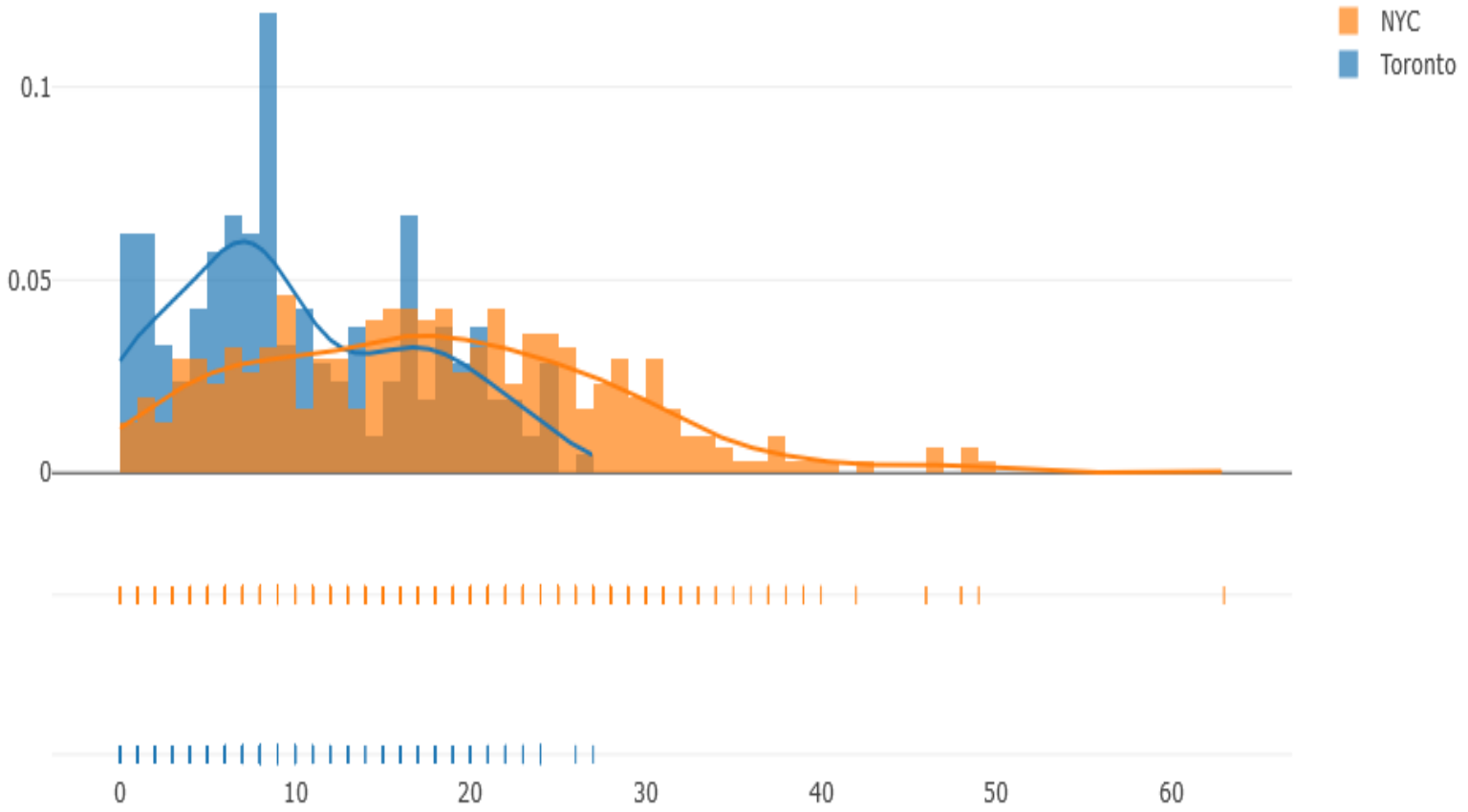
Understanding the Data Collected: Bars and Clubs Distribution



Bars and Clubs Distribution

- NYC have a more even distribution of bars and clubs through the city.
- Toronto concentrates the bars and clubs into a tiny group of neighborhoods, while the majority of neighborhoods have less then 10 bars.

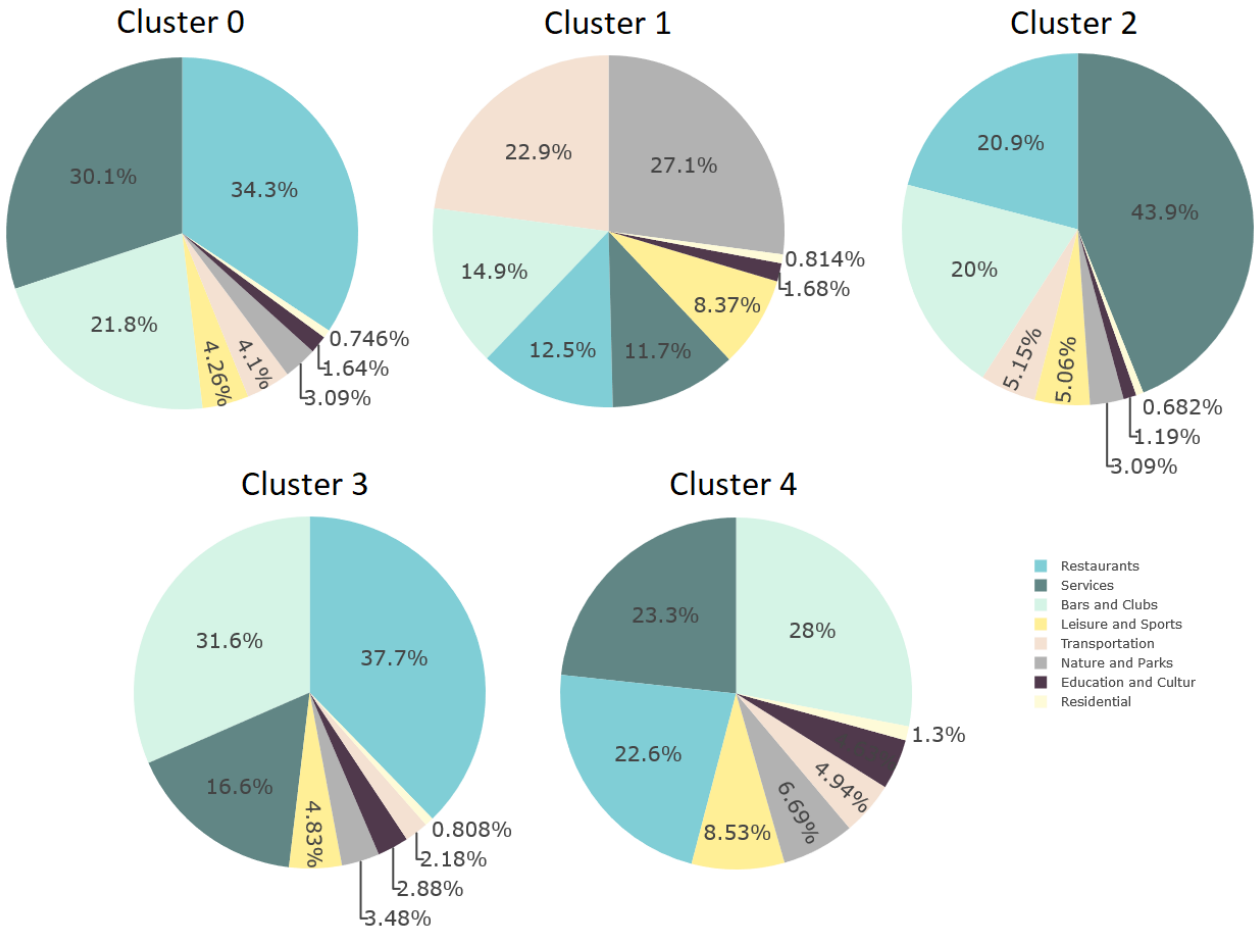
Understanding the Data Collected: General Services Venues



Services Distribution

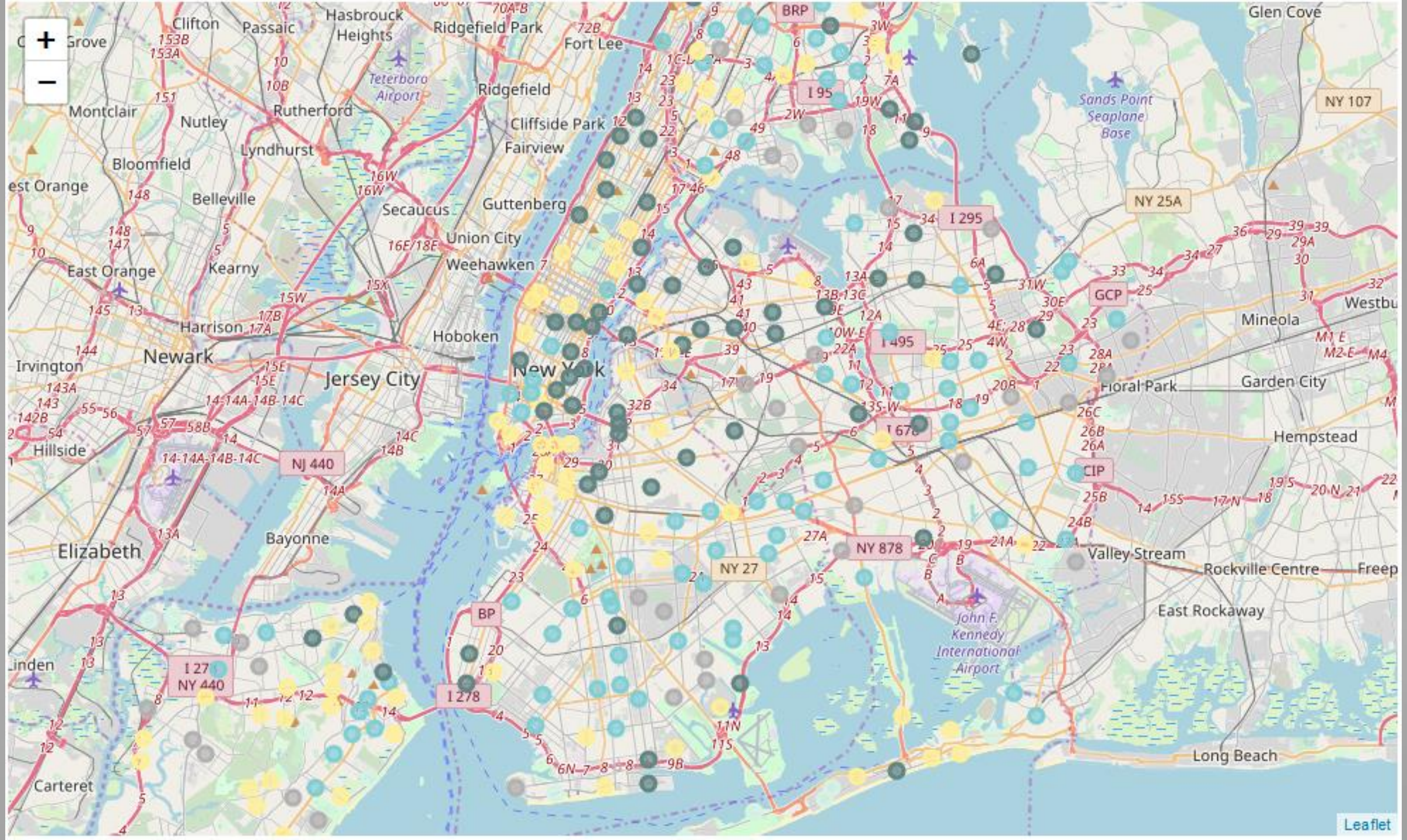
- The services venues distribution is very similar between the two cities.
- However, NYC seems to be more developed (more neighborhoods saturated with services) than Toronto.

Building the City Profiles: Classifying Neighborhoods – New York City

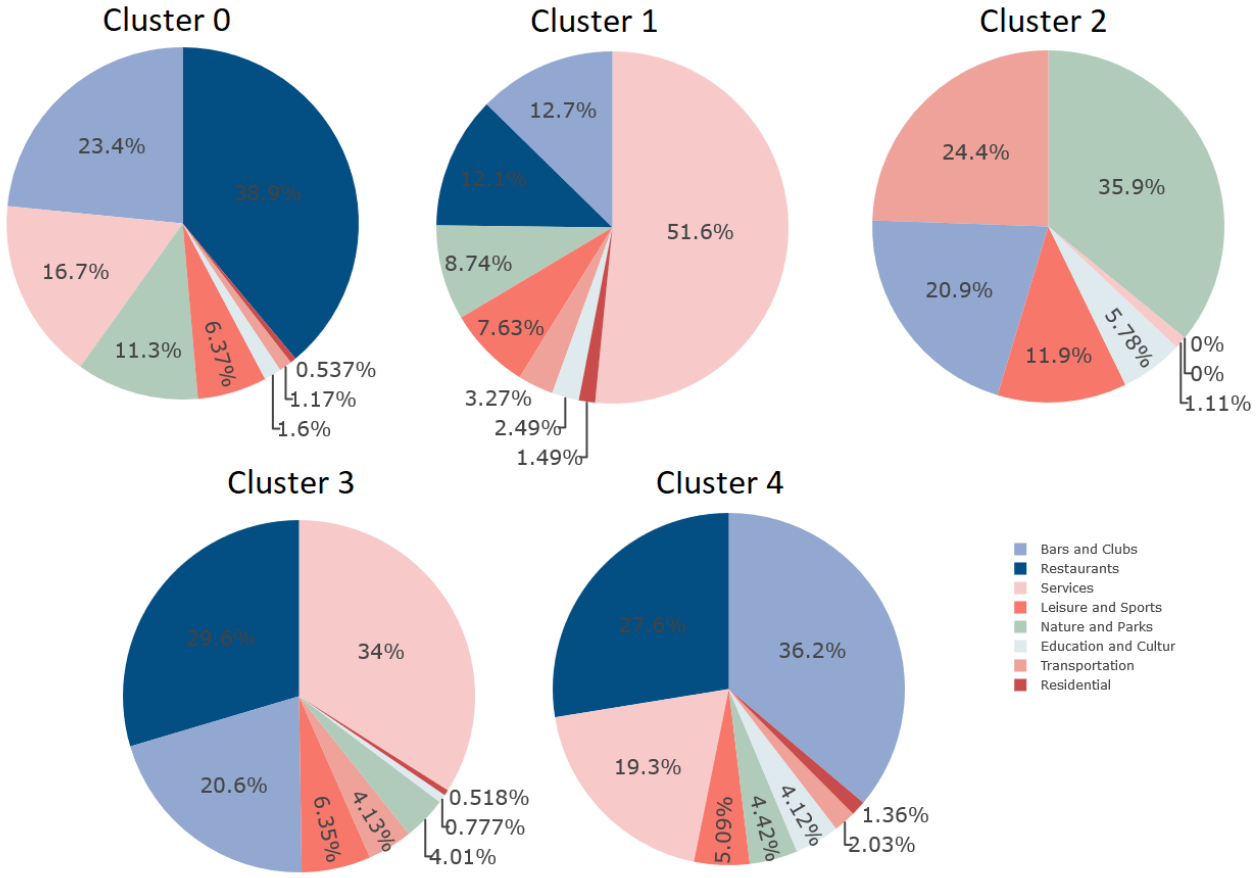


Clusters Important to our Business Objective:

- Cluster 0 & 3 have a high share of Restaurants.
- Cluster 4 have a high share of Bars and Clubs.

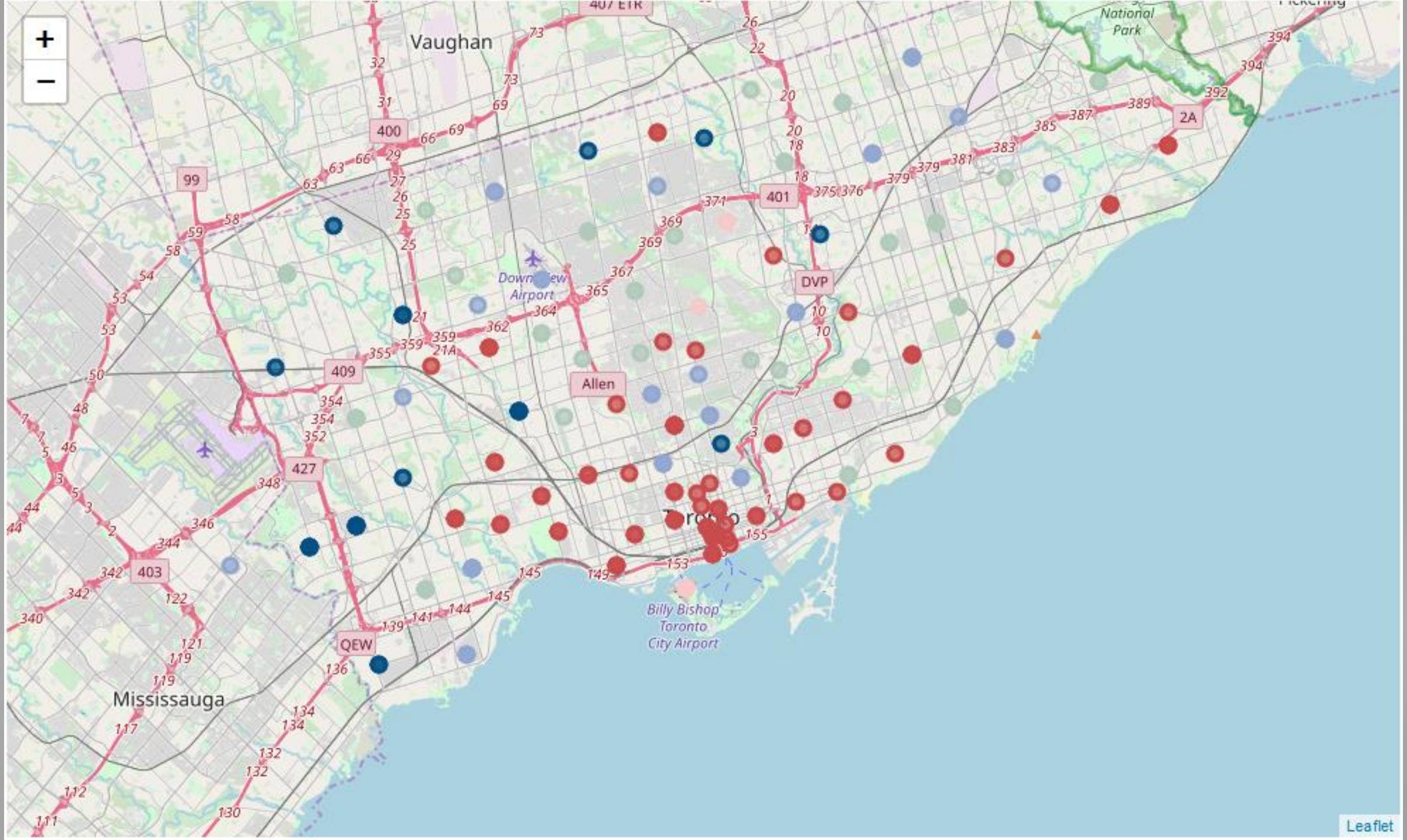

Clifton
Passaic
Hasbrouck Heights
Ridgefield Park
Fort Lee
Glen Cove
Teterboro Airport
Ridgefield
Montclair
Nutley
Rutherford
Cliffside Park
Fairview
Sands Point Seaplane Base
NY 107
Bloomfield
Lyndhurst
Belleville
Secaucus
Guttenberg
I 295
NY 25A
Union City
Weehawken
East Orange
Kearny
GCP
Mineola
Harrison
Hoboken
Newark
Irvington
Jersey City
New York
I 495
Floral Park
Garden City
Hillside
NJ 440
Hempstead
CIP
Elizabeth
Bayonne
NY 878
NY 27
Valley Stream
Rockville Centre
John F. Kennedy International Airport
East Rockaway
BP
I 278
I 27
NY 440
Long Beach
Carteret
Leaflet

Building the City Profiles: Classifying Neighborhoods - Toronto



Clusters Important to our Business Objective:

- Cluster 4 have a high share of Bars and Clubs.
- Cluster 0 have a high share of Restaurants.


Vaughan
Mississauga
Toronto
Allen
DVP
400
401
427
409
403
QEW
99
2A
407 ETR
Downsview Airport
Billy Bishop Toronto City Airport
National Park
Leaflet

Results - The Best Neighborhoods for New Restaurants in New York City

Most suited locations (with relative low competition and good demand):

- Oakland Gardens, North Side, North Riverdale, North Corona, Noho, Prospect Heights, Pelham Parkway, New Brighton, Murray Hill, Manhattanville, Manhattan Valley, Manhattan Beach, Lower East Side, Murray Hill, Morningside Heights, Midtown South, Ravenswood, Upper West Side, Turtle Bay, Tudor City, Tottenville, Throgs Neck

Other Neighborhoods (with high demand but also high competitivity):

- Allerton, Olinville, Old Town, Ocean Parkway, Ocean Hill, Norwood, New Lots, Paerdegat Basin, Park Hill, Parkchester, Queensboro Hill, Prospect Park South, Prospect Lefferts Gardens, Prince's Bay, Port Richmond, Park Slope, Manhattan Terrace, Madison, Longwood

Results - The Best Neighborhoods for New Restaurants in Toronto

Most suited locations (with relative low competition and good demand):

- Richview Gardens, Roselawn, Rouge, Royal York South West, Scarborough Town Centre, Silverstone, Parkview Hill, Mimico NW, Mount Olive, Oriole, Maryvale, South Steeles, Wexford Heights, Wilson Heights, Woodbine Gardens, York Mills West, Wexford, Thorncliffe Park, Thistletown, South of Bloor, St. Phillips, Steeles West, The Beaches West, The Queensway West, Martin Grove Gardens, Cliffside West

Other Neighborhoods (with high demand but also high competitivity):

- Railway Lands, Silver Hills, York Mills, South Niagara, Bathurst Quay, CN Tower, King and Spadina, Lawrence Park, Island airport, Harbourfront West

Conclusion

Assumptions made through the research

- If there is a lot of restaurants in some area, it is probably because it exists demand in this place.
- However, the market can also be saturated, or a very expensive area - considerations that our business sponsor must take into account when deciding where he will open his new restaurant.
- The business sponsor can safely choose one of the neighborhoods listed as best. For a more comprehensive decision, the specific venue type (if it is a Brazilian restaurant, or Persian one, etc.) can be checked - and the venue with the lowest competition can be chosen accordingly.

THANK YOU!

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