



Battle of Neighborhood

New York City Vs Toronto



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Introduction



- ▶ Canada's immigration destination has been increasing from past decade with a total of 313,580 immigrants in 2019.
- ▶ Number of people immigrating from United States has also increased drastically and the main reason being politics.
- ▶ Is moving to Canada from USA is a good option or not for a political neutral person and for a person who likes to explore places and meet new people?



Problem Statement

- The project's main focus will be on comparing the financial capitals of two countries being Toronto, CA and New York City, USA.
- Getting some insights about the neighborhoods of two cities and see which city has rich culture, interesting places to explore and has wide variety of cuisines.



Data Acquisition and Cleaning

- **Data Source:**

- New York City

- A csv file is downloaded from NYC OpenData.
- Cleaned up data frame is expected to contain Borough, Neighborhood, Latitude, Longitude.

- Toronto

- data set for Toronto will be downloaded from Wikipedia.
- csv file containing data about latitudes and longitudes will be downloaded from "https://cocl.us/Geospatial_data".



Data Cleaning

New York Dataset:


- The downloaded CSV file had 9 columns from which I have extracted three columns i.e. “the_geom” (contains latitude longitude data), Name (renamed it to “Neighborhood”) and Borough.
- The “the_geom” column consisted of latitude longitude information together, so I was necessary to split up that column into two individual columns called “Latitude” and “Longitude”.
- The final data frame consisted of 4 columns namely “Borough”, “Neighborhood”, “Latitude”, “Longitude”.



Data Cleaning

Toronto Dataset:

- The Toronto dataset was scraped out from Wikipedia using Beautiful soup.
- All the headers (extracted as List) and column information were extracted separately and cleaned.
- Once all the column information was cleaned, all the columns were concatenated into a final.
- Rows whose borough was not assigned were dropped.
- Rows with unassigned neighborhood were assigned with borough values.
- Dataset was grouped with respect to “postal code” and “borough” .
- The final dataset consists of 5 columns “Postal code” “Borough” “Neighborhood”, “Latitude”, “Longitude” .



Methodology

(Foursquare API)

- Foursquare API is used to explore neighborhoods of two cities. Details of different venues in each neighborhood were generated using “getNearbyVenue()”. The result obtained was grouped with respect to neighborhood. The resulting data frame consists of “Neighborhood Latitude”, “Neighborhood Longitude”, “Venue”, “Venue Latitude”, “Venue Longitude” and “Venue Category”.
- Toronto consists of 277 unique venues and New York consists of 430 unique venue categories.



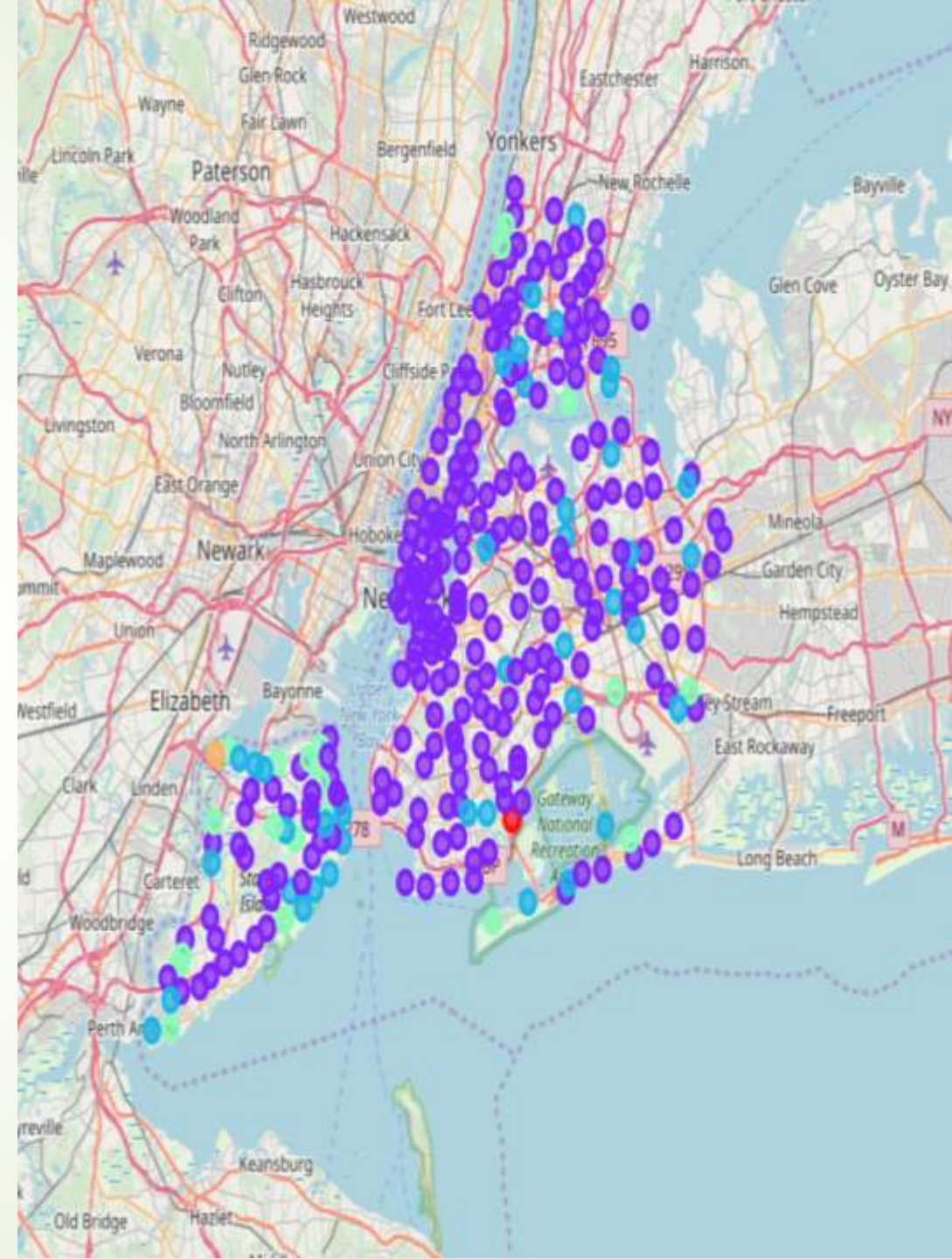
Methodology



- ▶ Toronto consists of 44 different cuisines and New York consists of 67 different cuisines.
- ▶ Toronto has 3 unique cuisines that are not present in New York City i.e. 'Portuguese Restaurant', 'Hakka Restaurant' and 'Doner Restaurant'.
- ▶ In New York City there are about 29 cuisines that are not present in Toronto. The below screen shot shows unique cuisines in NYC.

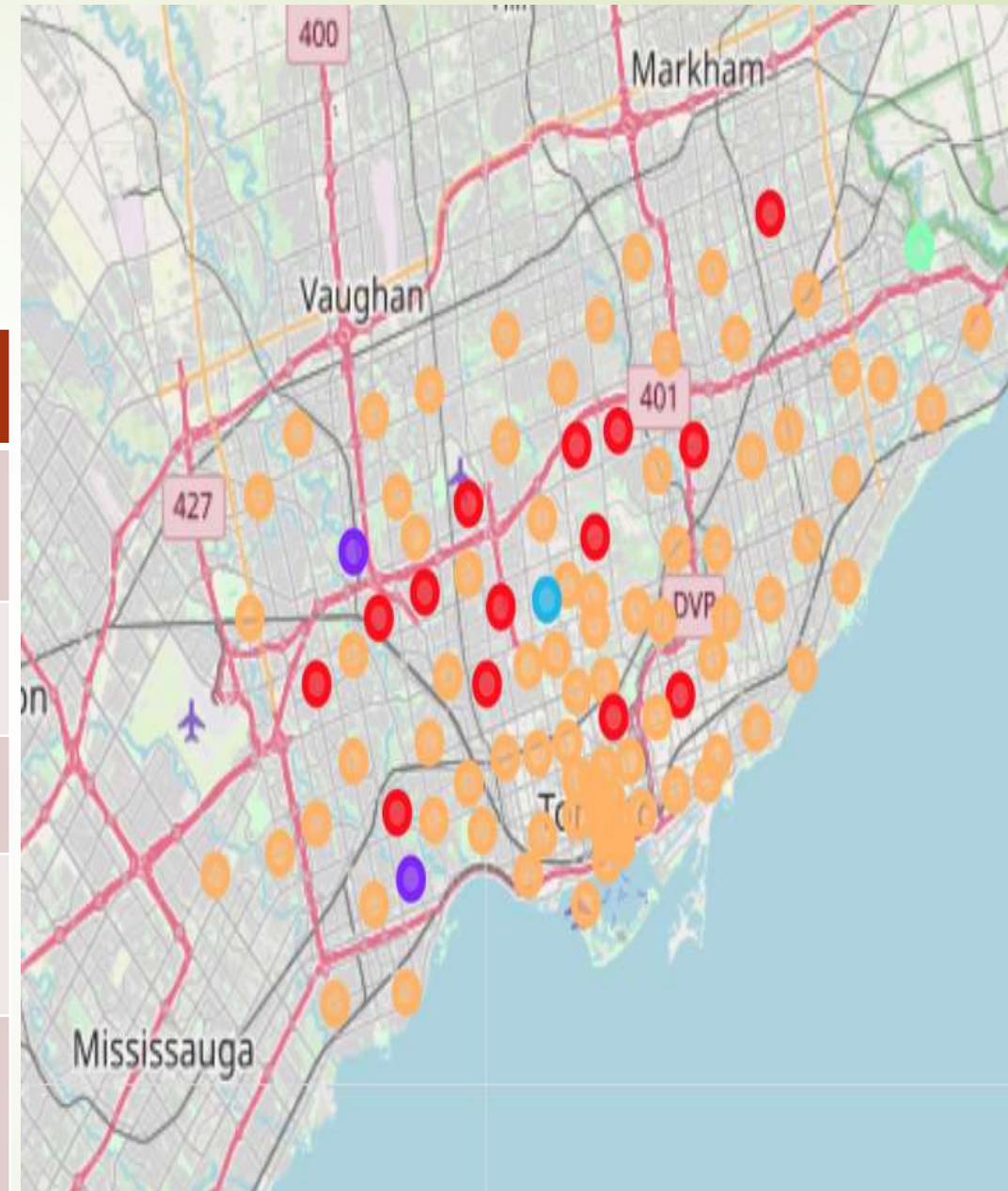
Clustering (New York City)

Cluster	No. of Neighborhoods	Venues	Description
1	1	Restaurants, Flea Market, Women's store, Financial and legal services	This neighborhood is a small island with just one store of each type. This could be a visiting spot.
2	233	Restaurants, grocery stores, Farmers market, Flea market, Beaches, Art Galleries, Shopping centers ,Metro Stations, Pizza place,yoga studios, Farmers Market, Baseball fields, Deli's, Train Station	It's the heart of the city. Best cluster for a person to explore. Urban area of New York City.
3	40	Factories, Farms, Pizza place	Many fields and farms in this clusters, so may be the neighborhoods in this cluster form the country side of New York City.
4	20	Financial or legal services , Film Studios, limited cuisines, parks and play grounds	Many be suburbs of New York
5	1	Boat or ferry, fish market , women's store, food stand	This is a small neighborhood with only basic venues.



Clustering (Toronto)

Clusters	No. of Borough	Venues	Description
1	7	Restaurants, parks, dog runs, donut shop,	May be this cluster is the suburbs/business area of Toronto.
2	2	Restaurants, concert halls, event spaces	Have good amount of places to explore
3	1	Garden, Restaurants.	Not much in this borough
4	1	Restaurants, diners, electronic shops, dance studio	Could be a part of suburbs in Toronto.
5	11	Museums, bars, Restaurants, Dog run , Parks, Art galleries, Shopping malls, Comic shops etc.	Have many great venues to explore and a lot of shopping malls and restaurants.





Conclusion



- Both cities are very similar in terms of places to explore.
- New York City has 430 unique venues and Toronto has 233 unique venues.
- There are 67 different cuisines in New York City and 44 in Toronto.
- Toronto has 3 cuisines that are not available in New York City which are 'Portuguese Restaurant', 'Hakka Restaurant', and 'Doner Restaurant'.
- New York has about 29 unique cuisines that are not in Toronto.
- If a person is foodie and wants to try many kinds of cuisines than New York is his place.
- For a person who want to explore different places then, both the cities have parks, recreational centers, museums, beaches.
- Both cities are unique in its own ways.



Thank You