BATTLE OF THE NEIGHBORHOODS

Brandon Truong

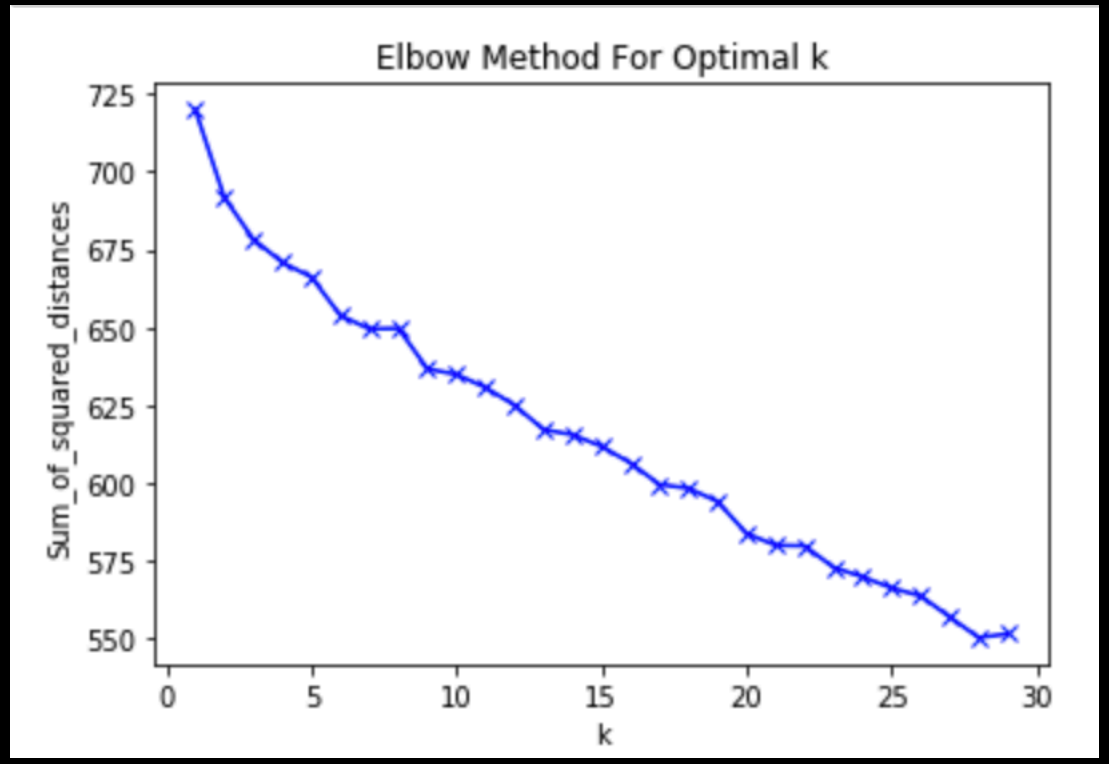
BACKGROUND

- Cities aren't usually carbon copies of each other, as their venues and location contribute to each of their unique culture
- However, they can be like other cities through their venues
- Convenient for people who:
  - Move to another city
  - Intend on living somewhere similar to where they were

DATA ACQUISITION AND CLEANING

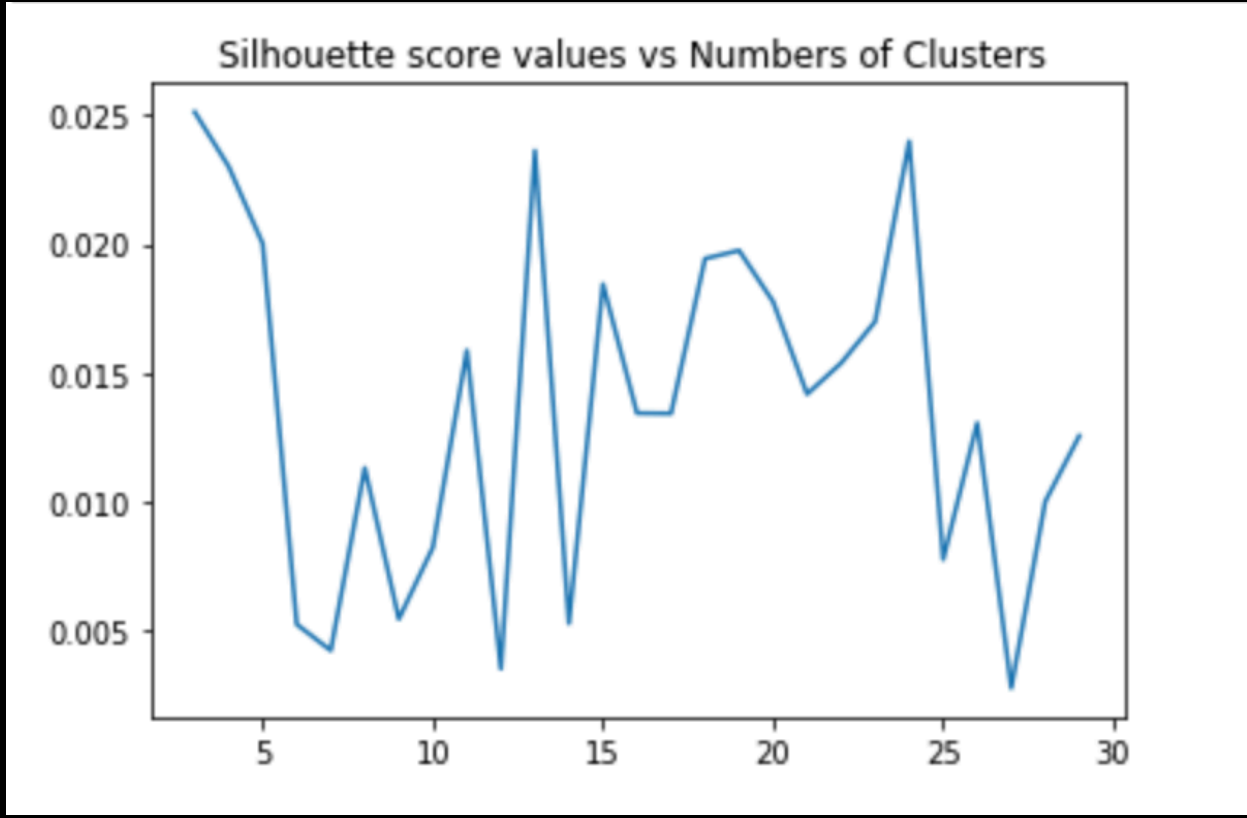
- Neighborhoods and geographic location in New York, obtained from https://cocl.us/new_york_dataset
- Neighborhoods and geographic location in Toronto, 2008 scraped from https://en.wikipedia.org/w/index.php?title=List_of_postal_codes_of_Canada:_M&oldid=945633050.
- Data cleaned to obtain the following features:
  - New York: borough, neighborhood, latitude, longitude
  - Toronto: postcode, borough, neighborhood
- Values not assigned under the “borough” column were replaced with values under “neighborhood” column
- Foursquare API was used to obtain common venue information between the cities

USING ELBOW METHOD TO FIND OPTIMAL CLUSTER NUMBER



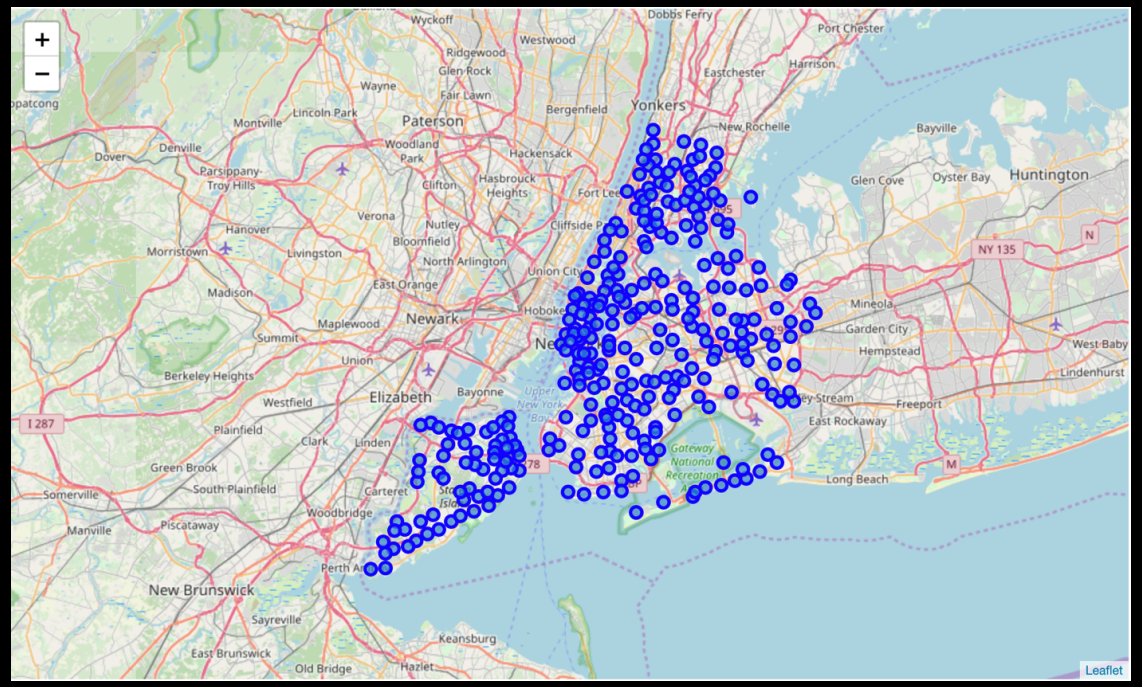
- No distinct "elbow"
- 15 clusters would be a reasonable choice

SILHOUETTE SCORE ANALYSIS



- Number of clusters being 5 has its peak
- Silhouette Coefficient found using mean intra-cluster distance and mean nearest-cluster distance

NEW YORK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Westwood
Glen Rock
Wayne
Fair Lawn
Dobbs Ferry
Port Chester
Eastchester
Harrison
Yonkers
Bergenfield
Paterson
Lincoln Park
Montville
Denville
Dover
Woodland Park
Hackensack
Parsippany-Troy Hills
Clifton
Hasbrouck Heights
New Rochelle
Bayville
Glen Cove
Oyster Bay
Huntington
Verona
Nutley
Bloomfield
Hanover
Morristown
Livingston
North Arlington
Union City
East Orange
Madison
Maplewood
Newark
Hoboken
Mineola
Garden City
Hempstead
West Baby
Summit
Union
Berkeley Heights
Lindenhurst
Westfield
Elizabeth
Bayonne
Freeport
East Rockaway
I 287
Plainfield
Clark
Linden
Green Brook
South Plainfield
Carteret
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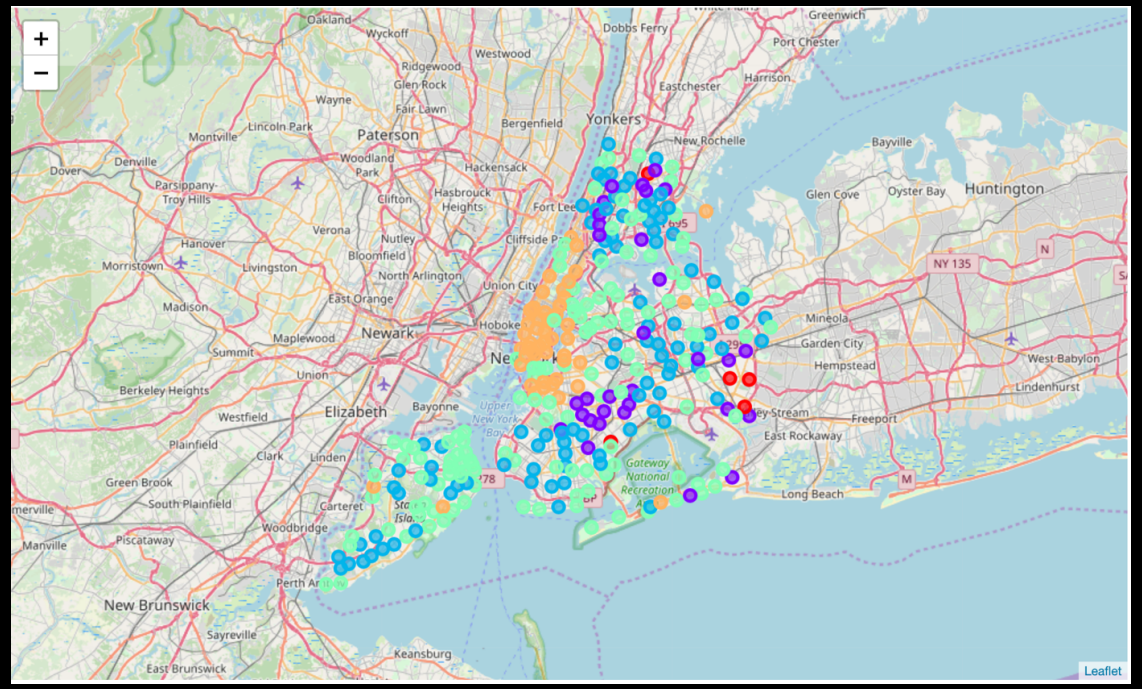
Somerville
Woodbridge
Manville
Piscataway
New Brunswick
Sayreville
Keansburg
East Brunswick
Old Bridge
Hazlet
Leaflet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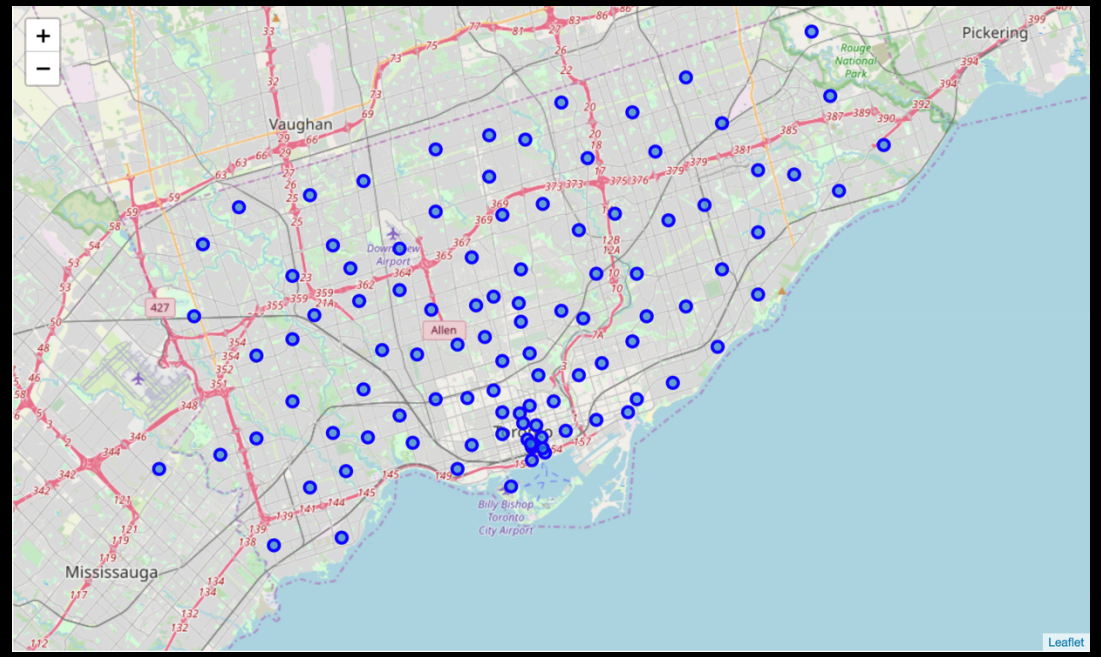
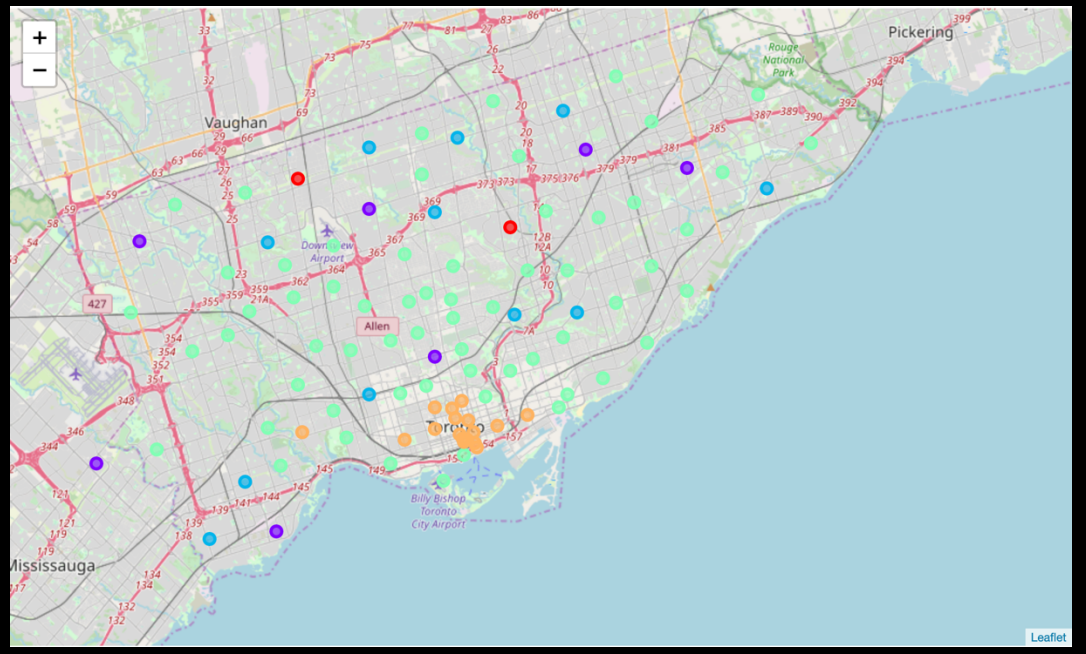
TORONTO





Similar areas found between New York and Toronto

CONCLUSION AND FUTURE APPLICATION

- Built a recommendation system for people who are moving to a new area that is like their previous location
- Different approaches could produce better results
  - Utilize more features
  - Look at geographical location at neighborhood level
- Possible applications:
  - City resources
  - Crime data
  - Demographics