



How Similar two cities
restaurants are

Project Objectives

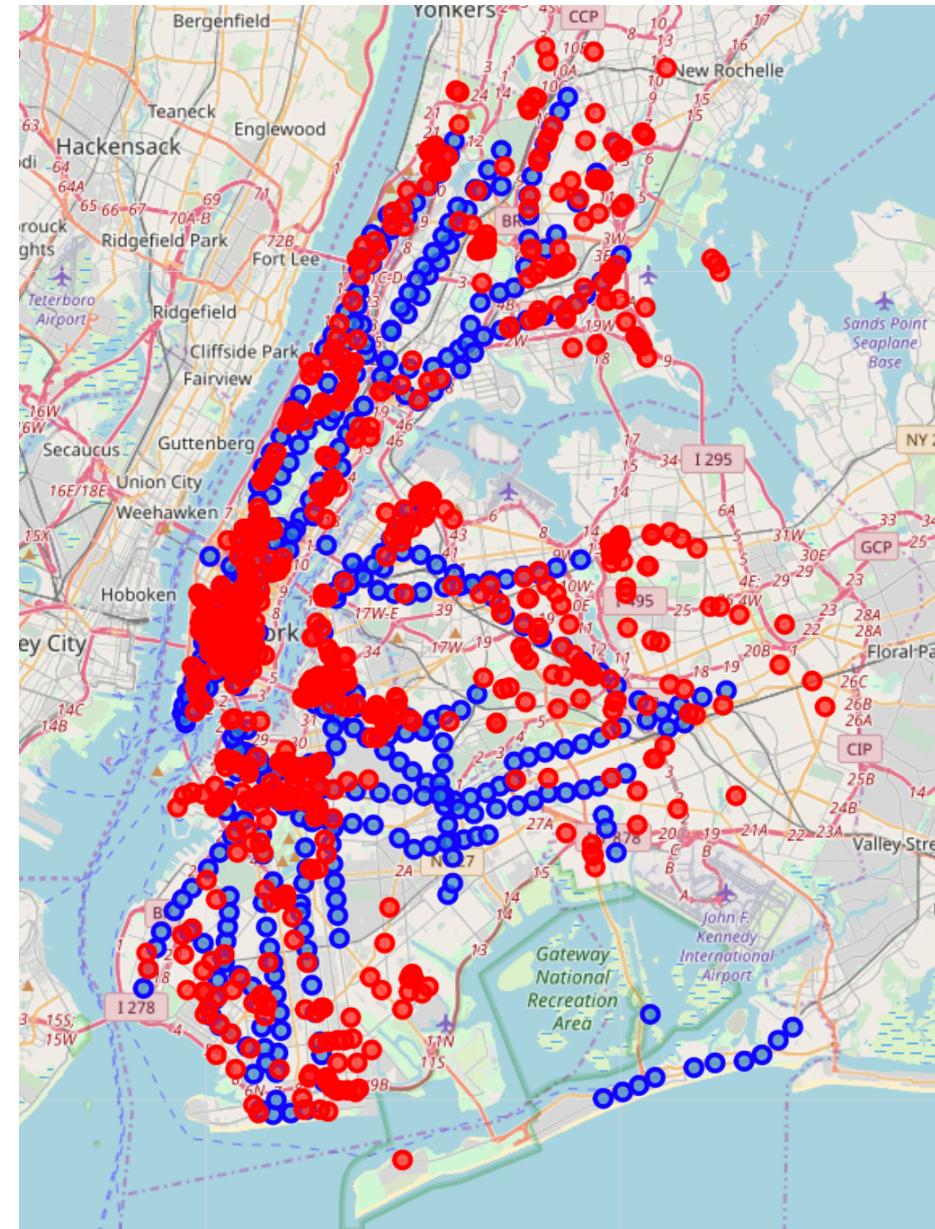
- ▶ The main objective of that project is to compare each city on several factors and assess how similar or dissimilar eateries are between them.
- ▶ Eateries would include Restaurants and cafes serving food.
- ▶ Similarity between the 2 cities will be analyse by measuring the following range factor:
 - ▶ diversity (style, origin)
 - ▶ Accessibility (distance to transport)
 - ▶ Cost
 - ▶ Quality (rating)
 - ▶ Density (population/eateries)

Data collection and cleaning

- ▶ Eateries Name, addresses , style, cost , quality and associated coordinates were extracted from <https://foursquare.com> .
- ▶ Subway station name and associated coordinates were extracted from <https://data.ny.gov/widgets/i9wp-a4ja> for New York and <http://scruss.com/blog/2005/12/14/toronto-subway-station-gps-locations/> for Toronto.
- ▶ Density was extracted from <http://zipatlas.com/us/ny/zip-code-comparison/population-density.htm> for New York and <https://www.statcan.gc.ca> for Toronto.
- ▶ Duplicate, highly similar or highly correlated features were dropped.
- ▶ Cleaned data contains 13 features and 1085 records

Folium map

New York restaurants and subway network



Folium map

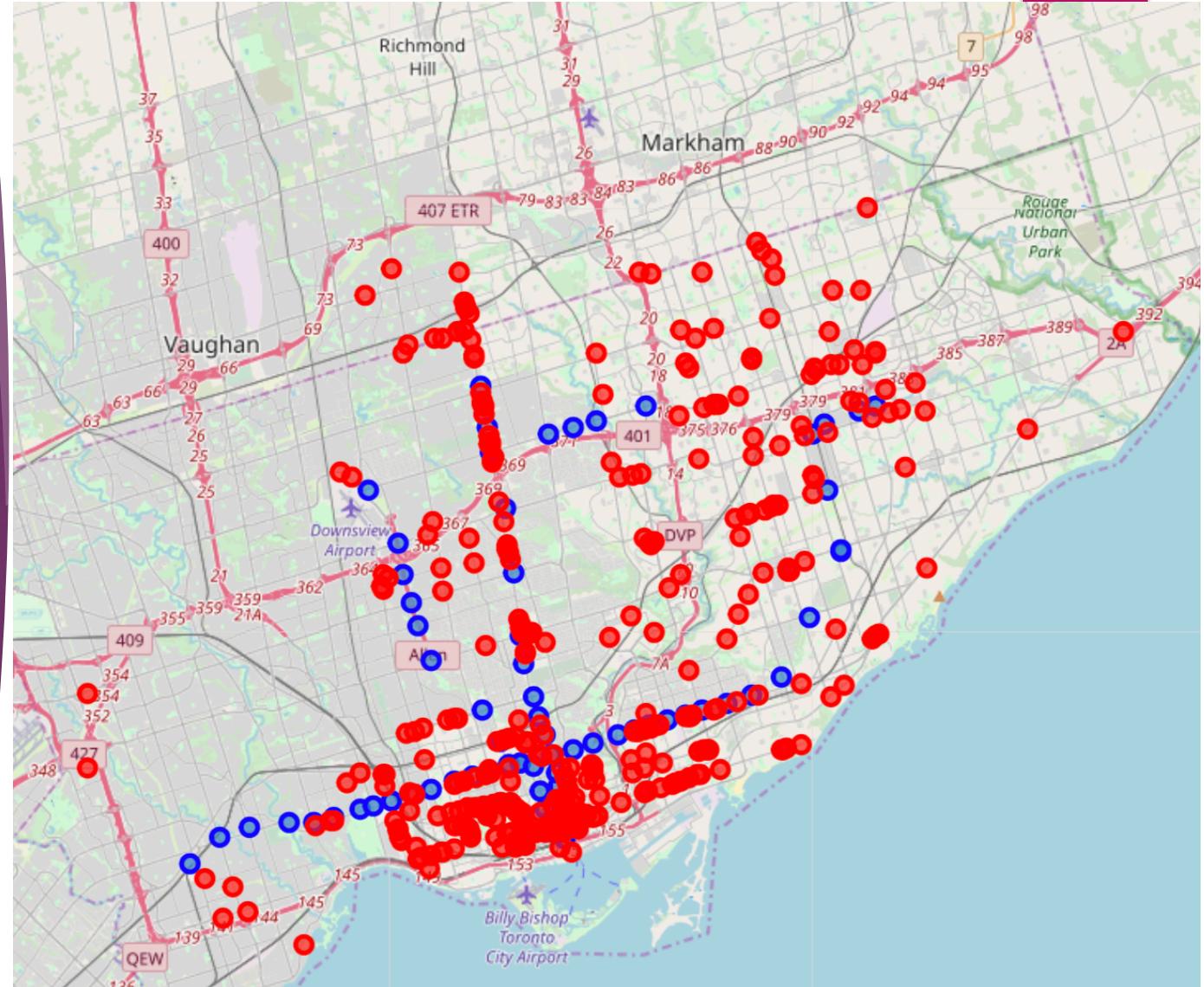


Table comparing New York and Toronto Restaurants

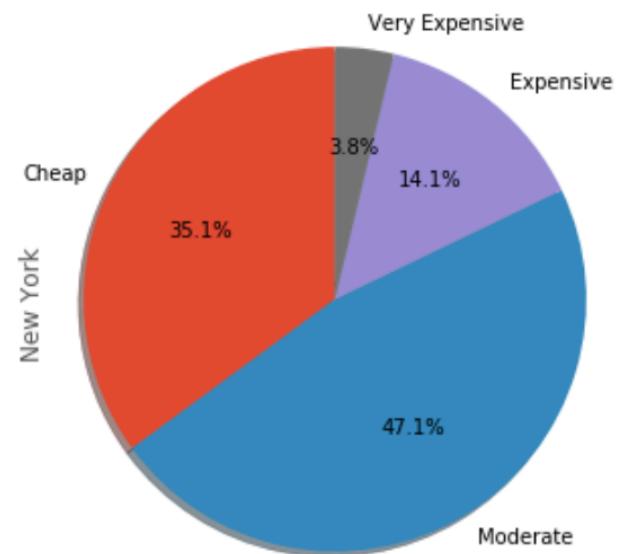
Location	New York	Toronto
Number of restaurants	716	369
Number of restaurant types	63	57
Specialty/Ethnic types	367/349	194/175
Mean Cost (1:Cheap 2:Moderate 3:Exp 4:Very Exp)	1.86592	1.81301
Mean Rating	8.9	8.4
Median Rating	9.1	8.5
Mean Density	18144	6119
Mean Distance to Subway(in m)	335	626
Median Distance to Subway(in m)	190	394

Box Plot

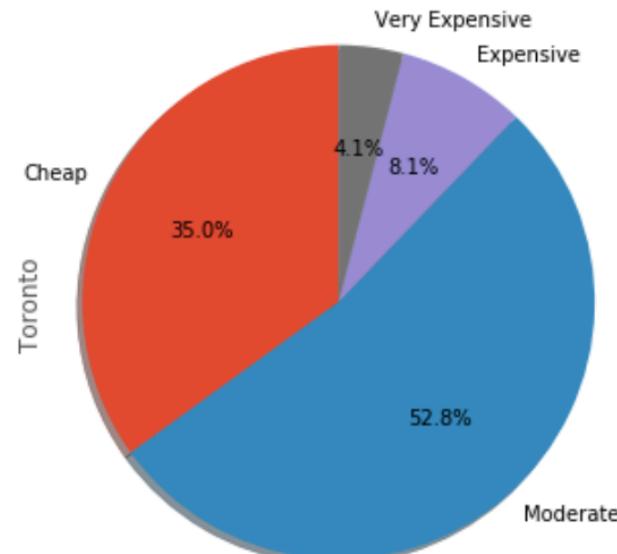
Measuring distance to Subway for New York and Toronto

New York and Toronto Restaurants cost classification

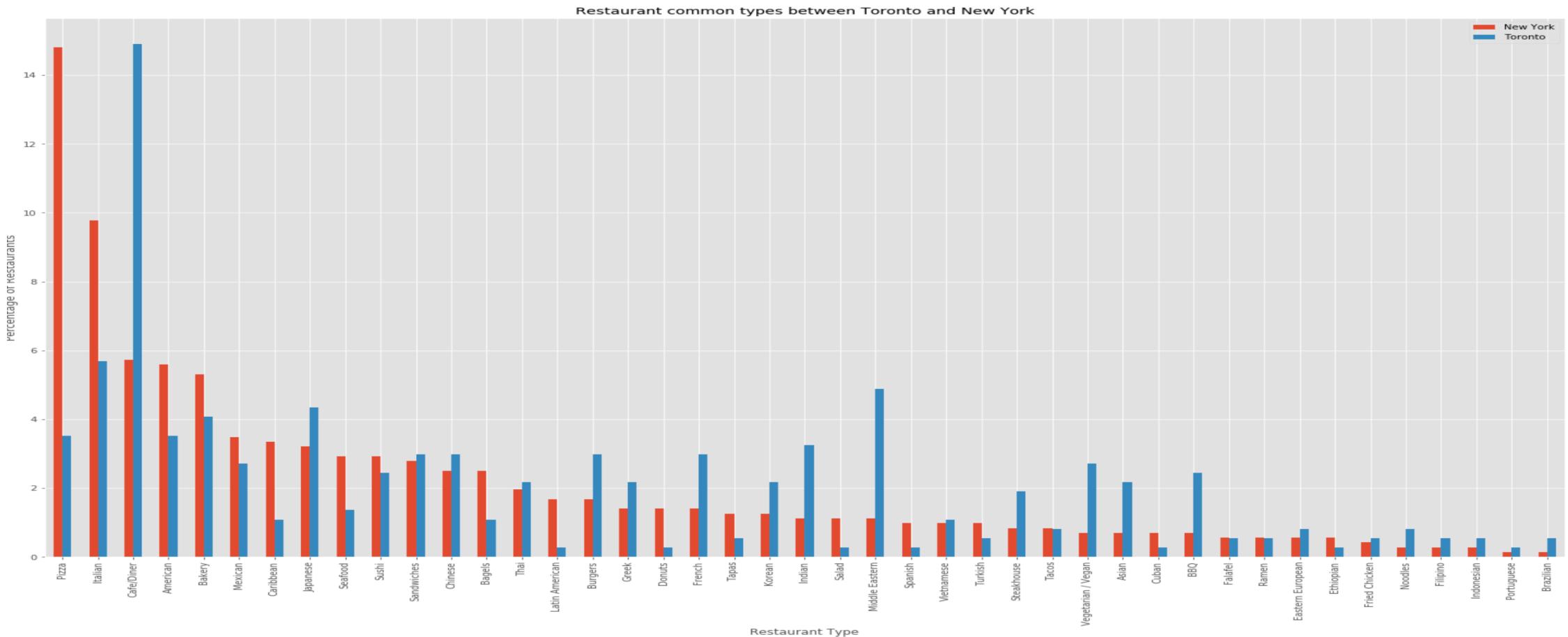
New York Restaurants cost classification



Toronto Restaurants cost classification



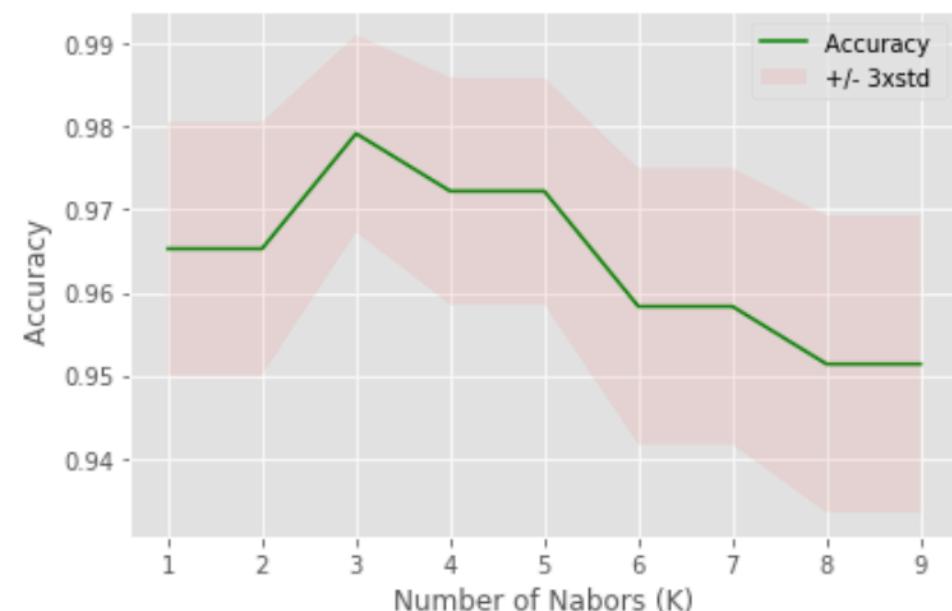
New York and Toronto Restaurants cost classification



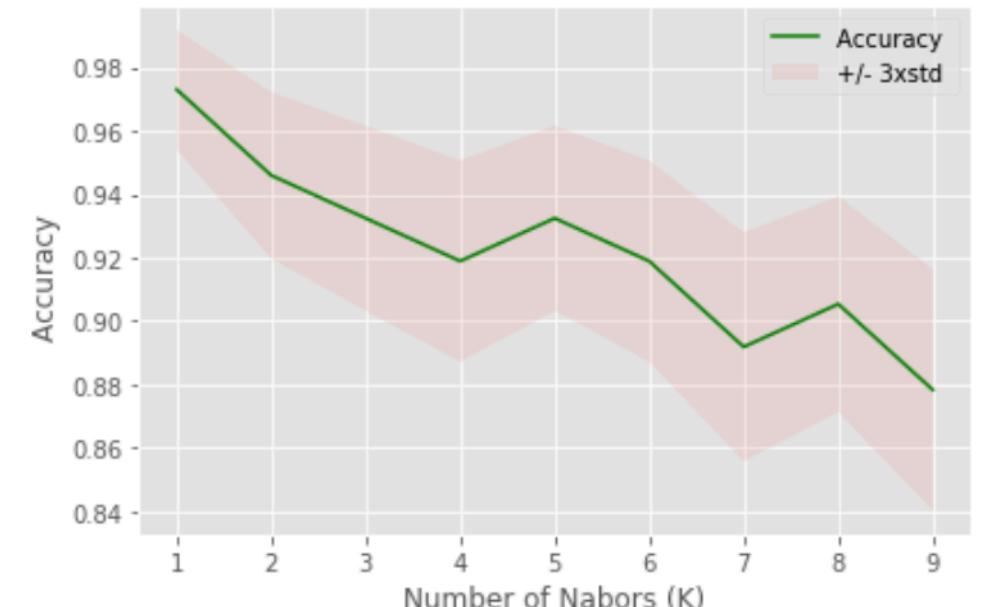
Kneighbors Classifier for cost

Plot model accuracy for Different number of Neighbours

New York



Toronto



Conclusion

- ▶ New York and Toronto are strongly similar especially around diversity and rating.
- ▶ Cost range is also similar except for New York expensive restaurants which is due to their high density location
- ▶ Dissimilarities between the 2 cities are:
 - ▶ Density which explained by the fact that new york is a much more populated city
 - ▶ the distance to subway which is also explained by the poor setup of Toronto subway network