

# Comparison of Toronto to Vancouver Neighborhoods

During our prior labs we used K-Means to cluster the central Toronto neighborhoods. Using this as a basis I wanted to compare them to the Vancouver neighborhoods. When I began reviewing the demographics for Toronto it was found to be ranked as the 7<sup>th</sup> in the Global Livability Ranking by Economist Intelligence Unit (EIU) . The 6<sup>th</sup> ranked city was Vancouver.

With both cities attaining these high ranks I began reviewing their demographic profiles.

City	Location	Population (2016 census)	Ethnic Diversity (2016 census)
Toronto	Ontario (Eastern Time Zone)	2,731,571	47.7% European (white) 12.6% South Asian 11.1% Chinese
Vancouver	British Columbia (Pacific Time Zone)	631,486	48.9% European (white) 19.6% Chinese 12.0% South Asian

**Note:** Toronto is 2090 miles (3364 km) from Vancouver.

In the 1990's Vancouver had a surge of Chinese immigrants because there was concern as to the 1997 handover of Hong Kong back to China. The NPR article: **Vancouver Has Been Transformed By Chinese Immigrants**, by Jackie Northam, (<https://www.npr.org/2019/06/05/726531803/vancouver-has-been-transformed-by-chinese-immigrants>) provides more details about the immigration.

The comparison of the Toronto and Vancouver neighborhoods could define differences in the venues found. The venue data will be clustered and compared between the cities.

## Data Sources:

1. The livability rankings are used as part of the reasoning for the comparison.  
Global Livability Ranking: [https://en.wikipedia.org/wiki/Global\\_Livability\\_Ranking](https://en.wikipedia.org/wiki/Global_Livability_Ranking)
2. Population and Ethnic Diversity are used to show the large increase in Chinese immigrants to Vancouver: [https://en.wikipedia.org/wiki/Demographics\\_of\\_Toronto](https://en.wikipedia.org/wiki/Demographics_of_Toronto) and [https://en.wikipedia.org/wiki/Demographics\\_of\\_Metro\\_Vancouver](https://en.wikipedia.org/wiki/Demographics_of_Metro_Vancouver) . Both of these source the 2016 Canadian census figures.
3. We will again use postal codes for the centers of the neighborhoods. These will be the center point for the Foursquare queries: (Toronto) [https://en.wikipedia.org/wiki/List\\_of\\_postal\\_codes\\_of\\_Canada:\\_M](https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M) (Vancouver) [https://en.wikipedia.org/wiki/List\\_of\\_postal\\_codes\\_of\\_Canada:\\_V](https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_V)
4. The postal code latitude and longitude will be retrieved by queries to **geocode**, using the provider ArcGis.
5. All venue data will be sourced from the Foursquare REST API.