Coursera Capstone Project – The Battle of Neighborhoods

IBM Data Science Professional Certificate

Migrating from Toronto to New York

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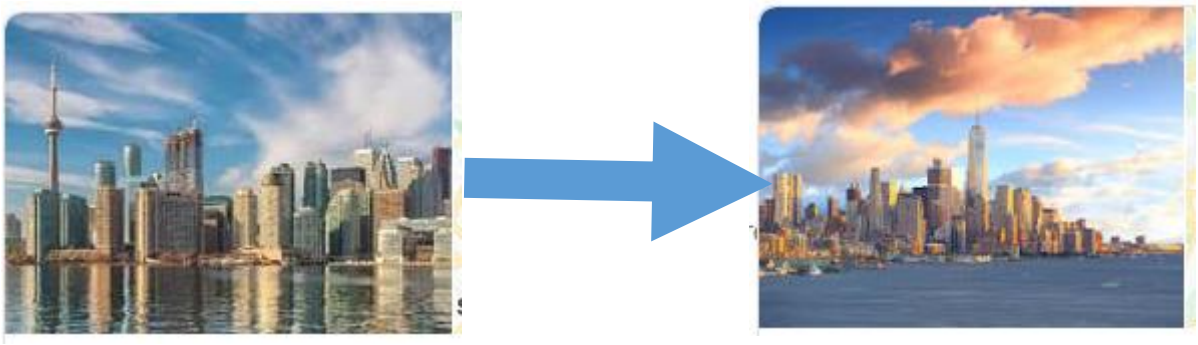

Introduction

When you decide to live in a neighborhood, it is mainly because of your personal choices. These choices are for amenities or venues that are in your neighborhood. These venues could be like gourmet restaurants, pharmacies, parks, schools and so on.

Business problem

Let's say you live on the west side of city of Toronto in Canada say Weston neighborhood in York Borough with postal code of M9N to be more specific. You love your neighborhood based on above mentioned factors. You receive a job offer from a great company in city of New York with great career

prospect. Because of location change you will have to move if you decide to accept the offer. Wouldn't it be great if you are able to decide the neighborhoods in New York that are exactly like your current neighborhood in Toronto? You can then pick a neighborhood that is exactly like your current neighborhood and also very close to your new workplace to move to.

Target audience of this project

This project is particularly useful for anyone moving from Toronto to New York City. It can also be used by recruiting agencies to motivate, guide and / or assist employees moving across these cities.

Data

We need

- List of neighborhoods in these two cities
- Geographical coordinates of latitude and longitude information of these neighborhoods and
- Information about venues (categories like restaurant, park, hospital etc.) around these neighborhoods

For list of neighborhoods we will either get readymade data like https://ibm.box.com/shared/static/fbpwbovar7lf8p5sgddm06cgipa2rxpe.json for New York City or extract it from Wikipedia pages like https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M for Toronto.

We will get the geographical coordinates of these neighborhoods using python's geocoder package.

We will use Foursquare API (https://developer.foursquare.com/) to get information about venues around these neighborhoods. It has data of over 105 million places. It provides many categories of the venue data.

Processing

This project applies various data science techniques like

- Web scraping to gather data from Wikipedia page
- Working with APIs (Foursquare)
- Data cleaning
- Data wrangling
- Machine learning (k means clustering)
- Map visualization (folium)

To arrive at the solution. The next section will elaborate on methodology applied, steps taken and how we arrived at the solution.