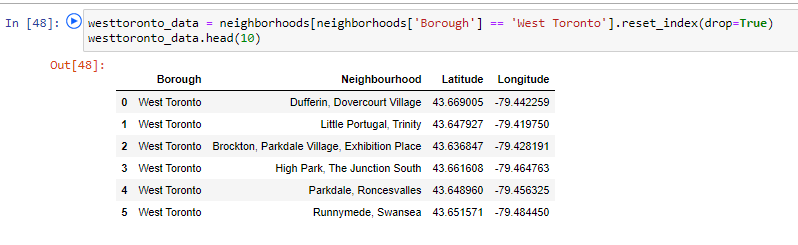
**Assisting a client in choosing a strategic area to setup a new Coffee Shop in West Toronto**

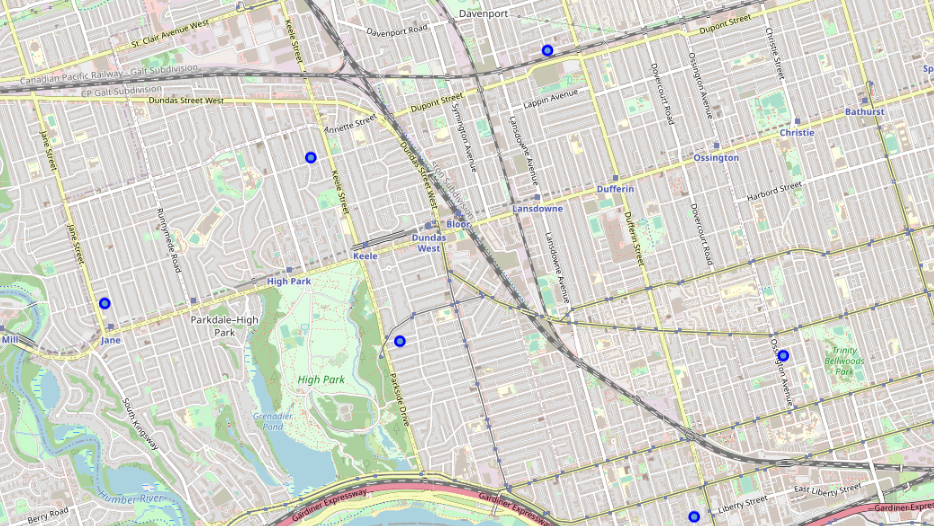
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1. **Introduction**
   1. **Background**Toronto is a city which reveals itself over time. It grows on people until they suddenly realize that there is nowhere else in the world they would rather be. There are many cultures, cuisines and the city just produces better restaurants. The city is incredibly foot friendly whether you are just going for a gentle walk or attending nice local venues in the area. Setting up a new Coffee Shop in a strategic location will depend on numerous factors which contribute to a location being “strategic”.
   2. **Problem**The problem that we are trying to address is finding a strategic area to setup a new Coffee Shop in West Toronto. As you can imagine, we would need to assess all the available neighbour hoods in the area and better understand the trending venues in relevant areas before we can attempt to make a good recommendation based on consumed valuable factors.
   3. **Interest**   
      It would be very interesting to small Coffee Shop business owners who would want to grow their business. However this could also benefit new starters who have a passion for running their own first Coffee Shop and need guidance to where a strategic neighbourhood might be.
2. **Data acquisition and cleaning**For the Toronto neighbourhood data, a Wikipedia page exists <https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M>) that has all the information we need to explore and cluster the neighbourhoods in Toronto. We will need to first clean the data, and then read it into a pandas dataframe so that it is in a structured format. There were a lot of missing coordinates despite using the geo locator so I decided to focus on West Toronto which was most complete. The cleaned data has 4 boroughs and 39 neighbourhoods. The data is then further cleaned by focusing on West Toronto.



The below displays a map of our data using the folium library. We will be using the above mentioned data source to find a strategic neighbourhood to setup a new Coffee Shop.

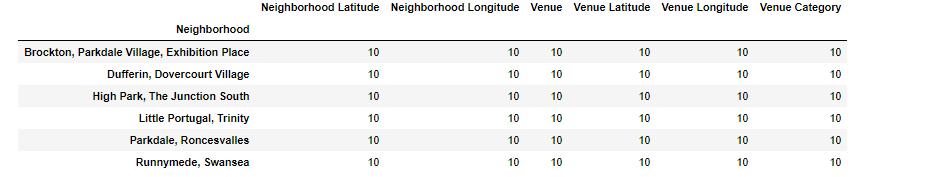


1. **Methodology**

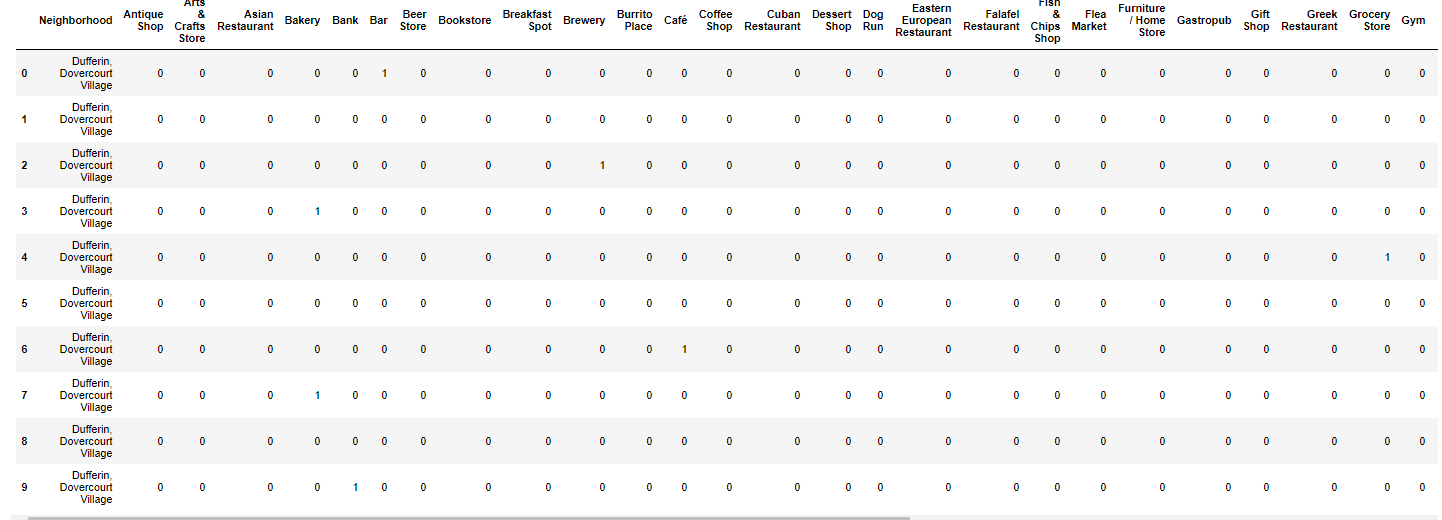
I have started off analysing the data by retrieving the top 10 venues near the first neighbourhood (within 1km- walking distance). This was accomplished by using a GET request and retrieving venue details from the FourSqaure website by using an API. The results were retrieved in a json format and therefore we require to clean the json data and structure it into a pandas dataframe.



Next, I have tried to analyse the data further by exploring all neighbourhoods in West Toronto and also checking how many venues were returned for each neighbourhood.



My next step involved finding out how many unique categories can be curated from all the above venues and to then analyse each neighbourhood

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We then grouped rows by neighbourhood and took the mean of the frequency of occurrence of each category. This was followed up with returning the top 10 venues and sorted in descending order. Finally, I have run k-means to cluster based on venues and to observe whether the neighbourhoods that have Coffee trending in top 3 spots would be in the same group.

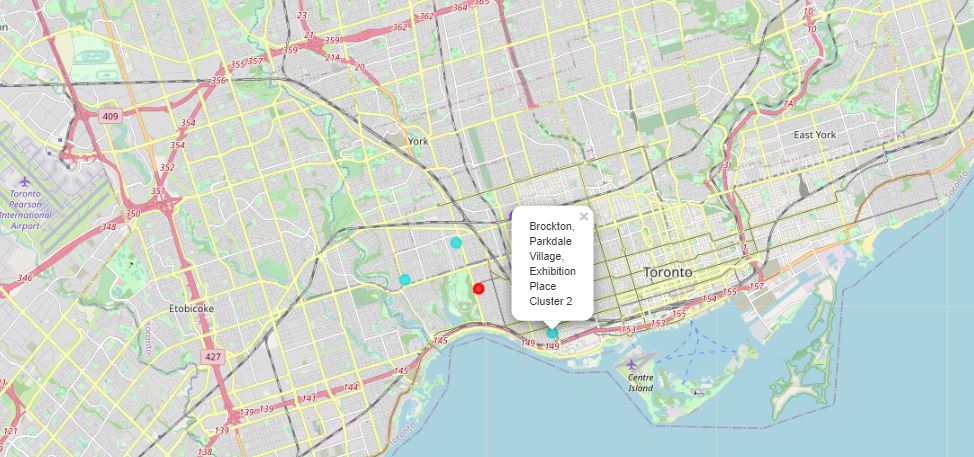
1. **Results**

We can see the below 2 highlighted rows where Coffee Shop is trending most in those neighbour hoods (within top 3 most common venues)



The K-mean clustering has grouped both of the neighbourhood into Cluster 2.

Neighbourhood1:



Neighbourhood2:



1. **Discussion**

It is safer to start up a new Coffee Shop in a location where such venue is already trending. We could have taken the approach of looking at venues where Coffee Shop is non-existent and break into that market however the safest option was to leverage neighbourhoods where such venue is a hot spot. Additionally, we hedged further risks by observing the nearby venues for both Coffee spots where we can see that each is surrounded by attractive venues such as amazing restaurants and Bakery. This is also factored into the equation as it will bring more traffic to the Coffee Shop.

1. **Conclusion**

Based on our analysis, I would recommend Brockton or Runnymede, however this is not to say that the other areas are bad investment. The recommendation is based on what is already trending in the neighbourhoods however it might also not be a bad idea to invest in a location where such venue is not trending, build up from the bottom and then dominate it.