Toronto: Where is the best place for living?

By: Vladimir Rodriguez

Problem description

When you live in a big city, usually you what to be at home in a neighborhood where you have all main services nearby. The most common services to be comfortable at place where you live are following:
- Food markets
- Supermarkets
- Parks
- Shopping malls
- Grocery stores
- Government services centers
- Transport services

Also, when we select a neighborhood to live, we evaluate safety and most nationality of people that live in that place.

Getting data from Foursquare we will try to predict which neighborhood in the city of Toronto follows criteria mentioned before and represent it in a Map.

The target audience of this project are citizens and business persons in Toronto, Ontario in Canada.

Data collection

This project will require the exploration and analysis of following data:
- Toronto Neighborhood Data 'https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada' which provides a list of neighborhood in the Toronto area and use of a geo locator to determine the latitude and longitude of each area.
- Foursquare Location Data to get information and rating about venues for each neighborhood. We will consider this information to cluster target for citizens and make recommendations.

Methodology

Firstly, Toronto borough neighborhood addresses are converted into their equivalent latitude and longitude using the values retrieved from Toronto geodata sheet using Pandas library in Python. After that, the Foursquare API is used to explore neighborhoods in Toronto borough. Using the explore function, the most common venue within a radius of 800 meters is extracted for each Toronto neighborhood and the number of returned venues by Foursquare API is limited to 100.

Next, the venue categories feature is used to group the neighborhoods into clusters. The k-means clustering algorithm is used to perform this task.

Finally, the Folium library is employed to visualize the neighborhoods in Toronto borough and their emerging clusters

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Finally, the Folium library is employed to visualize the neighborhoods in Toronto borough and their emerging clusters with colors and recommendations for the best place for living according to some criteria.

We selected the following criteria:

- #1 Nearby Park
- #2 Nearby Elementary School
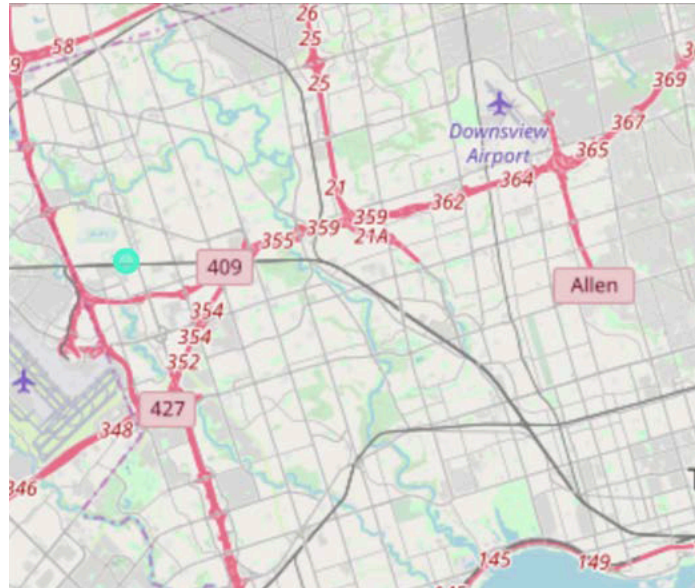- #3 Mall
- #4 Government Services

Results

We will get as result a map, with clusters and information of each one related to the rating and the best place for living.

According to our research, we have two clusters that meet our criteria: They are Cluster #1 and Cluster #4 where a person could make a choice and select the place for living.

Conclusion

We would expect that our recommendations will help people or business persons in Toronto, to select a place for living.

We can recommend Cluster #4 for living. In that cluster a person could find everything nearby, and the time to move from one side to another will be the minimum, because all principal locations will be nearby.

Cluster #4