CAPSTONE PROJECT

Opening a gym in Toronto

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INTRODUCCION

- Sport is health, both physical and emotional. It also allows one to look good.

- Every year more and more people start an exercise plan.

- Thus, it seems to be a good idea to open a gym and as the business grows, why not a chain of them.

INTRODUCCION

- Toronto is the most populous city in Canada as well as the financial center of the country, and therefore it seems to be a good option to open a gym in that city.

- Thus, in this project, we will see to find the best area to open a gym.

- Interested parties are therefore those gym chains seeking to expand in Torontó or entrepreneurs who decide to open a gym there.

DATA

The necessary data as well as from where it will be obtained are detailed below:

- Neighborhoods in Canada
  - Data for boroughs and neighborhoods in Canada.
  - They are obtained by scrapping the page

    https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M
- Geospatial location of neighborhoods in Canada
  - Latitude and longitude of neighborhoods in Canada.
  - Obtained from http://cocl.us/Geospatial_data.
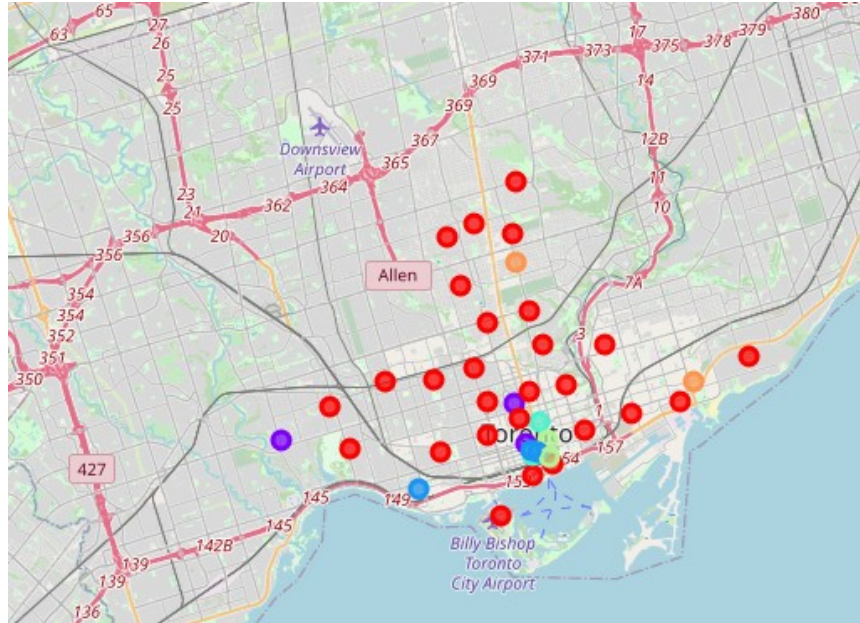
DATA

- Venue data.
  - Event venues in each neighborhood.
  - Obtained through the Foursquare API.

METHODOLOGY

- Canada postal code data will be combined with geospatial location data to have latitude and longitude for each neighborhood,
- The resulting dataset will be filtered to keep only the Toronto data.
- Then the Foursquare API will be used to obtain the event venues in the different Toronto neighborhoods.
- Only those that correspond to gyms will be selected.
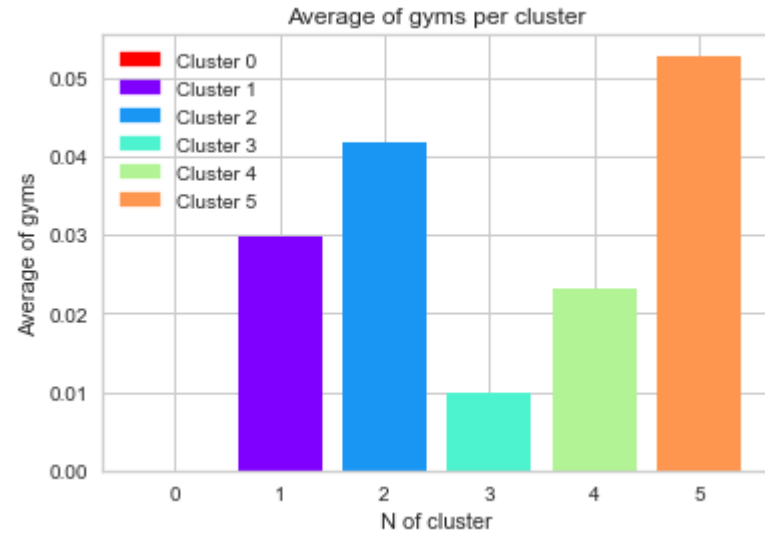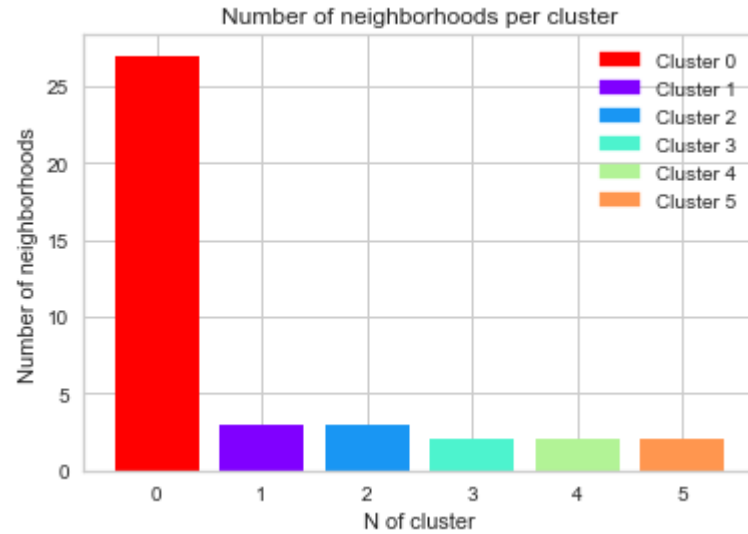- For clustering, the K-means algorithm will be used.

RESULTS

Resulting clusters

Average of gyms per cluster

Number of neighborhoods per cluster

DISCUSION

- It can be seen that there is a shortage of gyms in Toronto in general, so installing one might be a good idea.
- In particular, there are none in cluster 0, so placing one there could be something innovative for the neighborhoods in it.
- However, the limited number of gyms is not a sufficient reason to install one there, there are many other factors to take into account, some more easily quantifiable, such as the costs of the area, as well as others more subjective, such as the fact

that how interested local people might be in attending a gym and how much they would be willing to pay for it.

CONCLUSIONS

- In this task, the possibility of opening a gym in the city of Torontó was analyzed.

- Data from different sources (such as wikipedia and the Foursquare API) were combined to obtain the necessary information, as well as unsupervised learning ML techniques, obtaining clusters regarding the location of the gyms.

- An initial recommendation is given regarding where a new gym can be opened, but keeping in mind that for a more precise analysis it is necessary to have more information, such as the costs of each neighborhood as well as the interest of the population in this type of activity.