



IBM Applied Data Science Capstone

Opening a New Grocery Store in Toronto, Canada

By

M Verma

Business Problem

Background :

Location of the grocery store is one of the most important decisions that will determine whether the store will be a success or a failure.

Objective:

To study and analyze the neighborhoods of Toronto city and group them into similar clusters and, to analyze those clusters to find out those neighborhoods that are more profitable to open a new grocery store.

Business Question:

In the city of Toronto, Canada, if a retailer is looking to open a new grocery store, where would you recommend that they open it?

Data

a) Toronto City data.

Description: The data contains the postal code, borough & the name of all the neighborhoods present in Toronto.

b) Geospace data for each neighborhood in Toronto City.

Description: The data contains the geographical coordinates i.e. latitudes and longitudes of the neighborhoods.

c) Venue data, particularly data related to grocery store.

Description: FourSquare's explore API gives details such as names, categories and locations (latitude and longitude).

Methodology

1. Web scraping Wikipedia page for neighborhoods list.
2. Get latitude and longitude coordinates using Geocoder.
3. Use Foursquare API to get venue data.
4. Filter venue category by Grocery Stores.
5. Perform clustering on the data by using k-means clustering.
6. Visualize the clusters in a map using Folium.

Results

Categorized the neighborhoods into 5 clusters:

Cluster 0: Neighborhoods with high concentration of grocery stores.

Cluster 1, 3, and 4: Neighborhoods with moderate number of grocery stores.

Cluster 2: Neighbourhoods with low number to no existence of grocery stores

Discussion

1. Most of the grocery stores are concentrated in the East York, Etobicoke, North York, Scarborough & York boroughs of Toronto city.
2. Highest number in cluster 0 and moderate number in cluster 1, 3, and 4.
3. Cluster 2 has very low number to no grocery store in the neighborhoods.

Recommendations

1. New grocery store could be opened in neighborhoods in cluster 2 with little to **no competition**.
2. Store could also be opened in neighborhoods in cluster 1, 3, and 4 with **moderate competition**.
3. **Avoid** neighborhoods in cluster 0.

Conclusion

Answer to business question: “In the city of Toronto, Canada, if a retailer is looking to open a new grocery store, where would you recommend that they open it?”

The grocery store could be opened in the neighborhoods of cluster 2 as they are the most profitable locations.

The background of the slide features a dark blue field filled with numerous bright blue, diagonal light streaks that create a sense of motion and depth. In the top right corner, there is a solid yellow rectangle.

Thank You!

HAVE A GREAT DAY!