Chocolate Marketing Campaign in Coffee Shops – Toronto

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A- Introduction and Business Problem:

A company who sells chocolate wants to enter a new market while segmenting coffee shops. This company wants to know the most recommended places in Canada to start a social media marketing campaign. The region has to be relatively small with a high number of coffee shops with good ratings.

To provide the best recommendations for the chocolate company, we propose to choose a well-connected city with a relatively big population. Then, we will find the coffee shops with the highest frequencies and choose among them the best places depending on ratings.

For the location, we proposed Toronto for the following reasons:

1- Toronto is the capital of Ontario and is the most populated city in Canada (around 3 million in 2018). Toronto census metropolitan area (CMA) has a population of approximately 6 million. Therefore, it is Canada's most populous metropolis.
2- Toronto is also an international center of "business, finance, arts, and culture, and is recognized as one of the most multicultural and cosmopolitan cities in the world" as per Wikipedia.
3- Toronto area is interspersed with rivers, ravines and forests. Its current area is 630.2 km^2.The city has a diverse population and is an important destination for immigrants to Canada.
4- The city is a center for music, theatre, movie productionand television production. It contains cultural institutions like museums, galleries, festival and entertainment districts, national historic sites, and sports centers with over 43 million tourists each year.
5- Toronto Stock Exchange (the headquarters of Canada's five largest banks)and multinational corporations are also located at Toronto. Also as per Wikipedia, "Its economy is highly diversified with strengths in technology, design, financial services, life sciences, education, arts, fashion, aerospace, environmental innovation, food services, and tourism."
6- Toronto is a great distribution point for the industrial sector. The city has a strategic position along the Quebec City–Windsor Corridor and has well connected infrastructure, roads and rails linking it to the surrounding cities.

Therefore, as part of this project, we will list and visualize all coffee shops that would be our target in the social media marketing strategy for selling new chocolate bars in Toronto City. They will have the highest frequencies in their neighborhoods and good ratings.

B- Data:

For this project we need to get the following dataand start exploring it and we will download all the dependencies that we will need in the notebook:

- Toronto City data that contains lists of neighborhoods.We will rely on the postal codes to represent neighborhoods getting the table from Wikipedia.

- To get their latitudes and longitudes, we will rely on the data source : https://cocl.us/Geospatial_data
- Description: This data set contains the essential columns. We will use it to explore various neighborhoods of Toronto city while focusing on coffee shops.
- Coffee shops in each neighborhood of Toronto city.
  - Data source : Foursquare API
  - Description: By using this API, we will get all the venues and coffee shops in each neighborhood. We can filter these venues to get only the ones with the highest frequencies.
- Maps:
  - We will rely on Folium to get the maps and visualize the locations of the chosen shops.

C- Methodology and Data Analysis:

We will convert the addresses of the coffee shops into their equivalent latitude and longitude values. Then, you will use the Foursquare API to findtheir locations in the neighborhoods in Toronto City. You will use the explore function to get the most common venue categories and the trending coffee shops in neighborhoods where the frequency is at its highest.

Finally, you will use the Folium library to visualize the most trending coffee shops in the neighborhoods with the highest frequencies for these shops in Toronto City:

- We will get the postal codes to represent the neighborhoods we need from Wikipedia table: https://en.wikipedia.org/wiki/List_of_postal_codes_in_Canada
- We will collect the Toronto city data from *https://cocl.us/Geospatial_data*
- Then, we use Foursquare API to find all venues for each neighborhood.
- We filter out all venues to get the coffee shops with the highest frequencies.
- Using rating for each coffee shop, we will sort the data.
- We will finally visualize the best coffee shops for our project on maps using folium library(Jupiter Notebook with Python as a kettle).

D- Questions *(to answer based on Dataset)*:

- What are the locations with the highest frequencies in Toronto City for coffee shops?
- Which areas have a highest rated coffee shops based on ratings in Foursquare?
- Whatare the best places to choose as targets for the chocolate company marketing strategy?

E- Results:

E.1. Toronto Map with Markers:
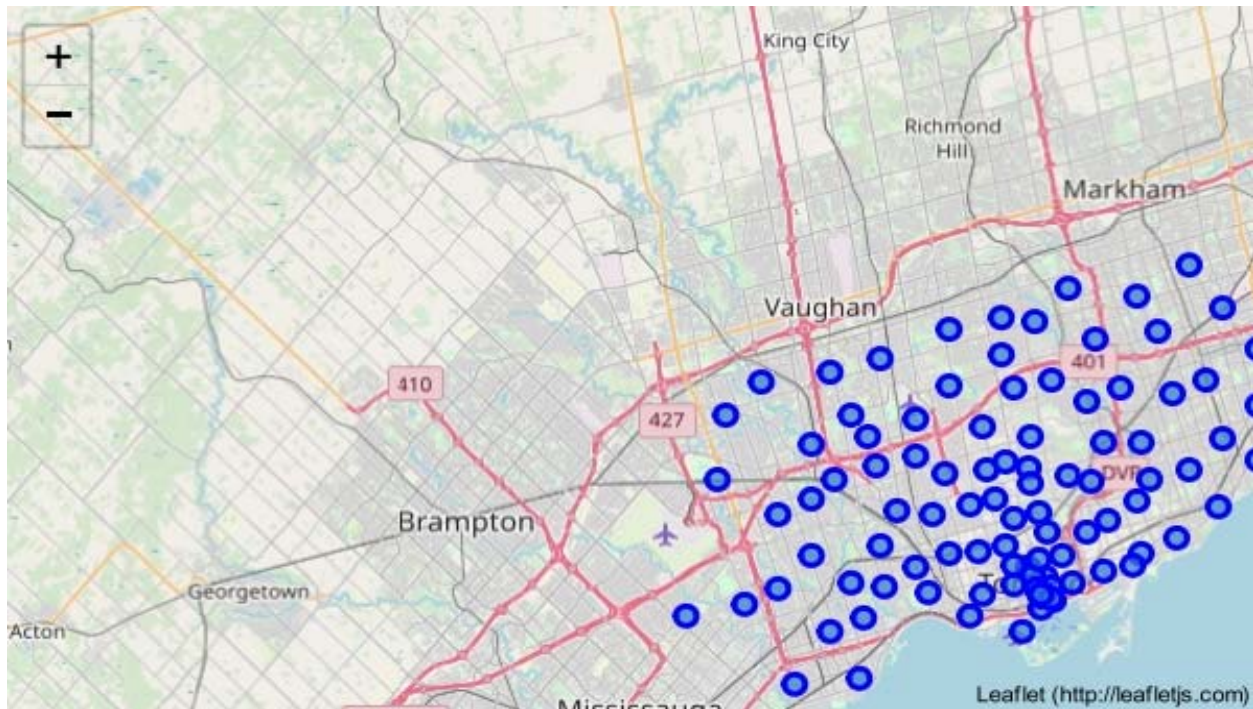
E.2. Venues with highest coffee shops frequencies:

```
----Agincourt----
              venue  freq
0       Coffee Shop   1.0
1  Arts & Crafts Store   0.0
2      Deli / Bodega   0.0
```

```
----Bathurst Manor, Downsview North,
              venue  freq
0       Coffee Shop   1.0
1  Arts & Crafts Store   0.0
2      Deli / Bodega   0.0
```

```
----Alderwood, Long Branch----
              venue  freq
0              Café   0.5
1       Coffee Shop   0.5
2  Arts & Crafts Store   0.0
```

```
----Bayview Village----
              venue  freq
0              Café   1.0
1  Arts & Crafts Store   0.0
2      Deli / Bodega   0.0
```
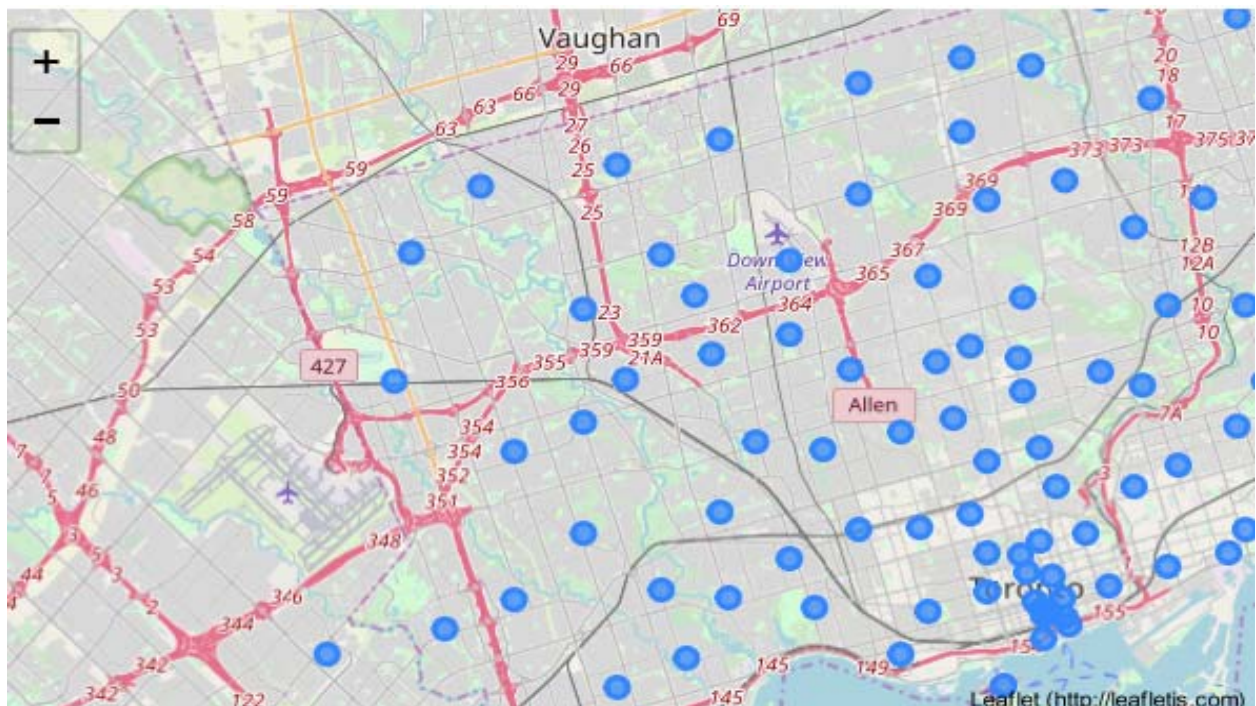
E.3. Coffee shops and Cafés as 1st most common venues:

Out[57]:

	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue
0	Agincourt	Coffee Shop	Vegetarian / Vegan Restaurant	Coworking Space
1	Alderwood, Long Branch	Café	Coffee Shop	Vegetarian / Vegan Restaurant
2	Bathurst Manor, Downsview North, Wilson Heights	Coffee Shop	Vegetarian / Vegan Restaurant	Coworking Space
3	Bayview Village	Café	Vegetarian / Vegan Restaurant	Coworking Space
4	Bedford Park, Lawrence Manor East	Café	Coffee Shop	Vegetarian / Vegan Restaurant

As we see in the table above, we found the neighborhoods with "Coffee Shop" and "Café" as the most common venues.

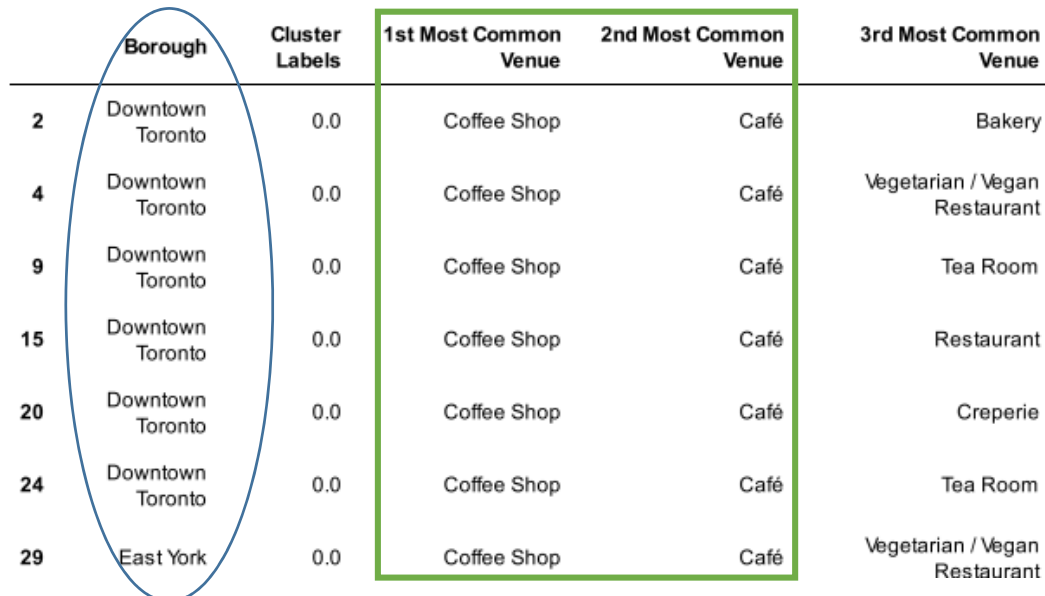### *E.4. K-means and clustering for Coffee Shops and Cafés:*

E.5. Clusters:
E.5.1 Cluster 1:

Cluster 1 returned Boroughs with Coffee shops and Cafés as the 1st and 2nd most common venues respectively:

Out[61]:

	Borough	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue
2	Downtown Toronto	0.0	Coffee Shop	Café	Bakery
4	Downtown Toronto	0.0	Coffee Shop	Café	Vegetarian / Vegan Restaurant
9	Downtown Toronto	0.0	Coffee Shop	Café	Tea Room
15	Downtown Toronto	0.0	Coffee Shop	Café	Restaurant
20	Downtown Toronto	0.0	Coffee Shop	Café	Creperie
24	Downtown Toronto	0.0	Coffee Shop	Café	Tea Room
29	East York	0.0	Coffee Shop	Café	Vegetarian / Vegan Restaurant

E.5.2 Cluster 2:

In Cluster 2, Coffee shops and Cafés are not in the top 3 of the most Common venues: do not use:

Out[62]:

	Borough	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue
100	East Toronto	1.0	Comic Shop	Vegetarian / Vegan Restaurant	Coworking Space
102	Etobicoke	1.0	Convenience Store	Vegetarian / Vegan Restaurant	Coworking Space

The second cluster is of no use from our chocolate company who is interested only in Coffee Shops and Cafés.

E.5.3 Cluster 3:

Cluster 3 returned Boroughs with Cafés and Coffee shops as the 1st and 2nd most common venues respectively:

	Borough	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue
8	East York	2.0	Café	Coffee Shop	Vegetarian / Vegan Restaurant
10	North York	2.0	Café	Coffee Shop	Vegetarian / Vegan Restaurant
13	North York	2.0	Café	Coffee Shop	Vegetarian / Vegan Restaurant
17	Etobicoke	2.0	Café	Coffee Shop	Vegetarian / Vegan Restaurant
25	Downtown Toronto	2.0	Café	Coffee Shop	Vegetarian / Vegan Restaurant
31	West Toronto	2.0	Café	Coffee Shop	Vegetarian / Vegan Restaurant
34	North York	2.0	Pool Hall	Café	Coffee Shop

E.5.4 Cluster 4:

	Borough	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue
7	North York	3.0	Café	Vegetarian / Vegan Restaurant	Coworking Space
14	East York	3.0	Café	Vegetarian / Vegan Restaurant	Coworking Space
21	York	3.0	Café	Vegetarian / Vegan Restaurant	Coworking Space
26	Scarborough, Toronto	3.0	Café	Vegetarian / Vegan Restaurant	Coworking Space
39	North York	3.0	Café	Vegetarian / Vegan Restaurant	Coworking Space
58	Scarborough, Toronto	3.0	Café	Vegetarian / Vegan Restaurant	Coworking Space

So, the fourth cluster is for Borough with Café as the most common venue and no Coffee Shop in the top 3.

E.5.5 Cluster 5:

Cluster 5 returned Boroughs with Coffee shops only as the 1st most Common venues: no Café in Top 3:

	Borough	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue
1	North York	4.0	Coffee Shop	Vegetarian / Vegan Restaurant	Coworking Space
3	North York	4.0	Coffee Shop	Vegetarian / Vegan Restaurant	Coworking Space
19	East Toronto	4.0	Coffee Shop	Vegetarian / Vegan Restaurant	Coworking Space
22	Scarborough, Toronto	4.0	Coffee Shop	Vegetarian / Vegan Restaurant	Coworking Space

F- Conclusion:

As a conclusion, we found that venues in cluster 1 and 3 are the most interesting ones.

In fact, they contain Coffee Shops and Cafés as the first and second most common places.

Based on the frequencies of the places, targeting those venues would be the most profitable since the company would be targeting the maximum number of customers.

For cafés, the best places to start the marketing campaign are <u>East York</u> and <u>North York</u> (Café maximum frequencies).

For Coffee shops, the best places to start the marketing campaign are <u>DownTown Toronto</u> and also <u>East York</u> (Coffee Shop maximum frequencies).

G- Limitations and Future Directions:

- The ranking is only based on the frequencies in a neighborhood and the ratings of coffee shops.
- The pertinence of our decision can be improved by making a survey to get deeper insights from the locations chosen before implementing the marketing plan. In fact, relying only on the Foursquare data is not enough but constitutes a good first step to know where to start.