

# BATTLE OF THE NEIGHBORHOOD

*Applied Data Science Capstone Project*

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# INTRODUCTION

- **Business Objective:** A small business owner is looking to open a store somewhere in the Scarborough Borough of Toronto, Canada and is deciding between opening a coffee shop and a gas station.
- **Analysis Objective:** This project will explore the neighborhoods in Scarborough as well as the venues that exist in them, aiming to find the best-fitting neighborhood for the new coffee shop/gas station

# DATA

- **Summary of Data Collected:**

- Postal Code, Borough Name, Neighborhood Name
- Longitude/Latitude Coordinates
- Venue Name, Venue Coordinates, Venue Category

- **Links to Data Sources:**

- [https://en.wikipedia.org/wiki/List\\_of\\_postal\\_codes\\_of\\_Canada:\\_M](https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M)
- [http://cocl.us/Geospatial\\_data](http://cocl.us/Geospatial_data)
- [https://api.foursquare.com/v2/venues/explore?&client\\_id={} &client\\_secret={} &v={} &ll={},{} &radius={} &limit={}](https://api.foursquare.com/v2/venues/explore?&client_id={} &client_secret={} &v={} &ll={},{} &radius={} &limit={})

## NEIGHBORHOOD DATA PREVIEW

	Postal Code	Borough	Neighborhood
2	M3A	North York	Parkwoods
3	M4A	North York	Victoria Village
4	M5A	Downtown Toronto	Regent Park, Harbourfront
5	M6A	North York	Lawrence Manor, Lawrence Heights
6	M7A	Downtown Toronto	Queen's Park, Ontario Provincial Government

COORDINATE  
DATA  
PREVIEW

	Postal Code	Latitude	Longitude
0	M1B	43.806686	-79.194353
1	M1C	43.784535	-79.160497
2	M1E	43.763573	-79.188711
3	M1G	43.770992	-79.216917
4	M1H	43.773136	-79.239476

# VENUE DATA PREVIEW

	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	Malvern, Rouge	43.806686	-79.194353	Wendy's	43.807448	-79.199056	Fast Food Restaurant
1	Rouge Hill, Port Union, Highland Creek	43.784535	-79.160497	Royal Canadian Legion	43.782533	-79.163085	Bar
2	Rouge Hill, Port Union, Highland Creek	43.784535	-79.160497	SEBS Engineering Inc. (Sustainable Energy and ...	43.782371	-79.156820	Construction & Landscaping
3	Guildwood, Morningside, West Hill	43.763573	-79.188711	RBC Royal Bank	43.766790	-79.191151	Bank
4	Guildwood, Morningside, West Hill	43.763573	-79.188711	G & G Electronics	43.765309	-79.191537	Electronics Store

## METHODOLOGY

1. Data for neighborhoods in Toronto is gathered from the Wikipedia page and is pre-processed before ultimately
2. Data is joined with the coordinates csv file and n filtered down to only contain Scarborough neighborhoods.
3. The venue data is fetched from the Foursquare API. Each venue can then be assigned to a neighborhood and joined with the neighborhood data from Wikipedia.
4. The venue data is grouped together by venue category, allowing for a good summary of the venues that exist within each neighborhood.
5. Conclusions are derived from these findings to provide business value for the client.

# RESULTS

This output table shows the various neighborhoods in the Scarborough borough and the most common venues in each neighborhood. The results are scaled out to the 10 most common venues in each neighborhood.

	Postal Code	Borough	Neighborhood	Latitude	Longitude	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue
0	M1B	Scarborough	Malvern, Rouge	43.806686	-79.194353	0	Fast Food Restaurant	Vietnamese Restaurant	Clothing Store
1	M1C	Scarborough	Rouge Hill, Port Union, Highland Creek	43.784535	-79.160497	0	Bar	Construction & Landscaping	Vietnamese Restaurant
2	M1E	Scarborough	Guildwood, Morningside, West Hill	43.763573	-79.188711	0	Rental Car Location	Electronics Store	Medical Center
3	M1G	Scarborough	Woburn	43.770992	-79.216917	0	Coffee Shop	Korean BBQ Restaurant	Mexican Restaurant
4	M1H	Scarborough	Cedarbrae	43.773136	-79.239476	1	Hakka Restaurant	Thai Restaurant	Athletics & Sports



# RECOMMENDATION

- **Recommended Store Type:**

- *Gas station*
  - Less throughout the entire borough

- **Potential Neighborhoods:**

- These neighborhoods do not feature a gas station as one of their top 10 most frequent venues, meaning there is not a high level of competition for business within these neighborhoods.
  - *Golden Mile*
  - *Guildwood*
  - *Wexfor*
  - *Woburn*

- **Final Recommendation:**

- *Guildwood*
  - Low number of grocery stores
  - High number of intersections