

A nighttime photograph of the New York City skyline, viewed from across a body of water. The city is illuminated with various lights, and the lights reflect on the water. The title 'BATTLE OF NEIGHBOURHOODS' is overlaid on the right side of the image in a large, bold, black font.

BATTLE OF NEIGHBOURHOODS

IN TORONTO

INTRODUCTION

- Business Problem:
 - High density population focused at big cities, namely New York, Toronto, Vancouver, etc. With this, working class tends to find or stay at a location with amenities, the best, within walking distance.
 - Even if they were to look for better work opportunities at other cities, they will seek for place with the same characteristics as mentioned above. Therefore, most of the big cities have complete set of amenities such as schools, hospital, malls, restaurants, amusement park, fitness center, clubhouse, etc. will be the popular choice among the working class.

INTRODUCTION

- Who will be interested in this project:
 - Town or city planner
 - Elite working class
- This will help the city or town planner to organize upcoming projects to inculcate new elements which are currently on- demand.

DATA

- Basic data obtained from:
 - Wikipedia with regards to postal code of Canada.
 - Geospatial data for coordination.
 - Foursquare for venues

METHODOLOGIES

- Group and study the occurrence by each amenities in Toronto:
 - Amenities such as type of restaurants, studio, airports, workshops, bars, malls, etc. were listed.
 - The neighborhood in Toronto will be listed together with amenities listed above to study the frequency of occurrence (using mean).
 - Therefore, we can identify which amenities are top in each neighborhood.

Agincourt

	venue	freq
0	Clothing Store	0.25
1	Latin American Restaurant	0.25
2	Lounge	0.25
3	Breakfast Spot	0.25
4	Moroccan Restaurant	0.00

Alderwood/ Long Branch

	venue	freq
0	Pizza Place	0.29
1	Pub	0.14
2	Athletics & Sports	0.14
3	Sandwich Place	0.14
4	Gym	0.14

Bathurst Manor/ Wilson Heights/ Downsview North

	venue	freq
0	Coffee Shop	0.09
1	Bank	0.09
2	Pharmacy	0.05
3	Shopping Mall	0.05
4	Middle Eastern Restaurant	0.05

METHODOLOGIES

- Group top 5 common amenities or venues:
 - Use pandas dataframe to list amenities or venues by neighborhood in descending order.
 - With this, we can observe and note the top amenities by neighborhood.

	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
0	Agincourt	Breakfast Spot	Lounge	Latin American Restaurant	Clothing Store	Drugstore
1	Alderwood / Long Branch	Pizza Place	Athletics & Sports	Gym	Coffee Shop	Sandwich Place
2	Bathurst Manor / Wilson Heights / Downsview North	Bank	Coffee Shop	Sandwich Place	Supermarket	Middle Eastern Restaurant
3	Bayview Village	Café	Japanese Restaurant	Chinese Restaurant	Bank	Diner
4	Bedford Park / Lawrence Manor East	Coffee Shop	Sandwich Place	Italian Restaurant	Greek Restaurant	Sushi Restaurant

METHODOLOGIES

- Clustering using k- means:
 - In this study, we list 3 clusters.
 - High level observation is as follow.

	PostalCode	Borough	Neighborhood	Latitude	Longitude	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
0	M3A	North York	Parkwoods	43.753259	-79.329656	0.0	Fast Food Restaurant	Park	Construction & Landscaping	Food & Drink Shop	Women's Store
1	M4A	North York	Victoria Village	43.725882	-79.315572	2.0	Pizza Place	Coffee Shop	French Restaurant	Portuguese Restaurant	Hockey Arena
2	M5A	Downtown Toronto	Regent Park / Harbourfront	43.654260	-79.360636	2.0	Coffee Shop	Pub	Bakery	Park	Café

RESULTS

- Cluster I:
 - In cluster I, we can observe the amenities like restaurants and park are “preferred” places in the region. With this, this cluster is showing family- based environment. The snapshot of the result is as follow.

	Borough	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
0	North York	0.0	Fast Food Restaurant	Park	Construction & Landscaping	Food & Drink Shop	Women's Store
21	York	0.0	Park	Women's Store	Pool	Doner Restaurant	Dim Sum Restaurant
35	East York East Toronto	0.0	Metro Station	Park	Convenience Store	Women's Store	Diner
40	North York	0.0	Airport	Park	Electronics Store	Women's Store	Donut Shop

RESULTS

- Cluster 2:
 - In cluster 2, we can clearly see that sport activities, food truck, donut store, etc. have high occurrence. The cluster is deemed refer to young people cluster as the activities carried out is more towards younger generation.

	Borough	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
53	North York	1.0	Baseball Field	Food Truck	Donut Shop	Discount Store	Distribution Center
57	North York	1.0	Baseball Field	Drugstore	Discount Store	Distribution Center	Dive Bar
101	Etobicoke	1.0	Baseball Field	Pool	Donut Shop	Diner	Discount Store

RESULTS

- Cluster 3:
 - In cluster 3, we can conclude that the people around that area have high interest in coffee shop, pizza place and clothing boutique. This class of people is rich in daily lifestyle.

	Borough	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
1	North York	2.0	Pizza Place	Coffee Shop	French Restaurant	Portuguese Restaurant	Hockey Arena
2	Downtown Toronto	2.0	Coffee Shop	Pub	Bakery	Park	Café
3	North York	2.0	Clothing Store	Boutique	Event Space	Miscellaneous Shop	Coffee Shop
4	Queen's Park	2.0	Coffee Shop	Diner	Café	Sushi Restaurant	College Cafeteria

DISCUSSION AND CONCLUSION

- For new working class who is seeking for new place to settle down, they may check and balance their daily lifestyle with working place. They can also refer to the clusters to decide the place they want to stay.
- Each of the clusters have their very own environment which suit the demand of their citizen. The research can also be expanded to more clusters and I believe the outcome will be more interesting.