

# Toronto vs. New York neighborhoods according to their tourist aspects

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## 1. INTRODUCTION

Toronto and New York are the famous places in the world. They are diverse in many ways. Both are multicultural as well as the financial hubs of their respective countries. We want to explore how much they are similar or dissimilar in aspects from a tourist point of view regarding food, accommodation, beautiful places, and many more.

Today Tourism is one of the pillars of the economy and the people most often visits those countries who are rich in heritage and developed enough from a foreign prospective, like friendly environment. Every city is unique in their own way and give something new. And now the information is so common regarding location of every place around the world on your fingertips which make it easier to explore. Therefore, tourists always eager to travel to different places on the basis of available information, and the comparison (the part of the information) between the two cities always assist to choose the specific places or according to their choice.

## 2. DATA DESCRIPTION

For this problem, we will get the services of Foursquare API to explore the data of two cities, in terms of their neighborhoods. The data also include the information about the places around each neighborhood like restaurants, hotels, coffee shops, parks, theaters, art galleries, museums and many more.

We selected one Borough from each city to analyze their neighborhoods. Manhattan from New York and Downtown Toronto from Toronto. Then, we will use machine learning technique, “Clustering” to segment the neighborhoods with similar objects on the basis of each neighborhood data. These objects will be given priority on the basis of foot traffic (activity) in their respective neighborhoods. This will help to locate the tourist’s areas and hubs, and then we can judge the similarity or dissimilarity between two cities on that basis.

For Downtown Toronto case, we have extracted table of Toronto’s Borough from Wikipedia page. Then we arrange the data according to our requirements. In the arrangement phase, which applied multiple steps including but not limited to, eliminating “Not assigned” values, combine neighborhoods which have same geographical coordinates at each borough and sorted against the concerned borough. For data verification and further exploration, we use Foursquare API to get the coordinates of Downtown Toronto and explore its neighborhoods. The neighborhoods are further characterized as venues and venue categories. For Manhattan, we used a saved data file which is already explored through foursquare API in which we have extracted all the boroughs of New York and then sorted against the concerned borough. Then we explored the Manhattan neighborhoods as venues and venue categories.

### 3. METHODOLOGY

As we have selected two cities Borough to explore their neighborhoods. The data exploration, analysis and visualization for both boroughs are done in the same way but separately.

## 4. PROCESSING

### 4.1. Toronto data sorted by Downtown Toronto borough

The table below shows the first five neighborhoods from Downtown Toronto, with their geographical coordinates.

	Borough	Neighborhood	Latitude	Longitude
0	Downtown Toronto	Regent Park, Harbourfront	43.654260	-79.360636
1	Downtown Toronto	Queen's Park	43.662301	-79.389494
2	Downtown Toronto	Garden District, Ryerson	43.657162	-79.378937
3	Downtown Toronto	St. James Town	43.651494	-79.375418
4	Downtown Toronto	Berczy Park	43.644771	-79.373306

### 4.2. New York data sorted by Manhattan borough

The table below shows the first five neighborhoods from Manhattan, with their geographical coordinates.

	Borough	Neighborhood	Latitude	Longitude
0	Manhattan	Marble Hill	40.876551	-73.910660
1	Manhattan	Chinatown	40.715618	-73.994279
2	Manhattan	Washington Heights	40.851903	-73.936900
3	Manhattan	Inwood	40.867684	-73.921210
4	Manhattan	Hamilton Heights	40.823604	-73.949688

### 4.3. Geographical coordinates using Foursquare API

After defining Foursquare credentials and version we get the geographical coordinates of Downtown Toronto and Manhattan as below:

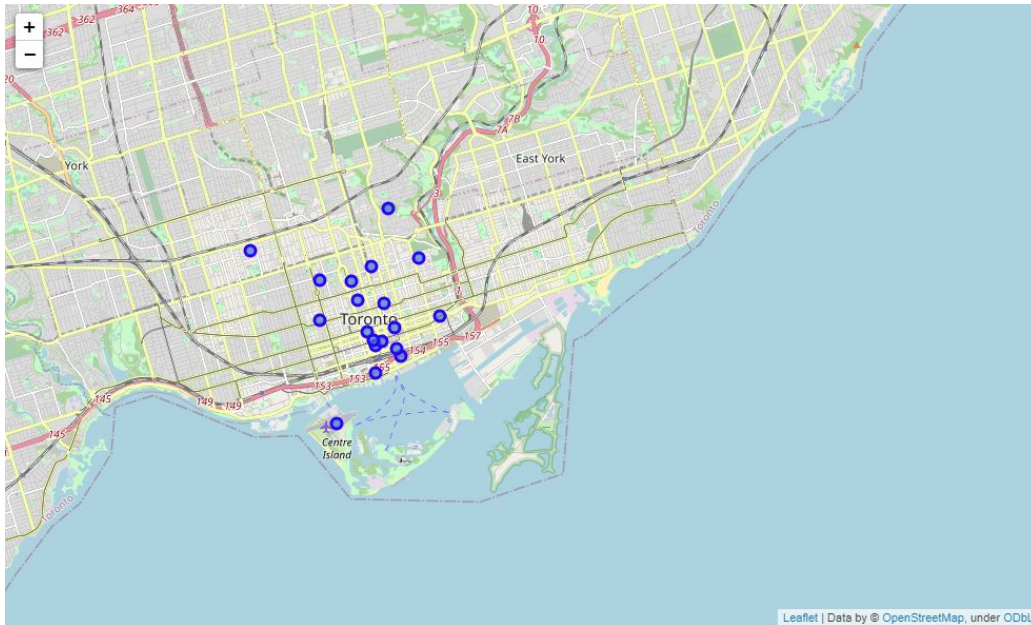
```
Downtown Toronto latitude 43.6563221 & longitude -79.3809161
```

```
The geograpical coordinate of Manhattan are 40.7896239, -73.9598939.
```

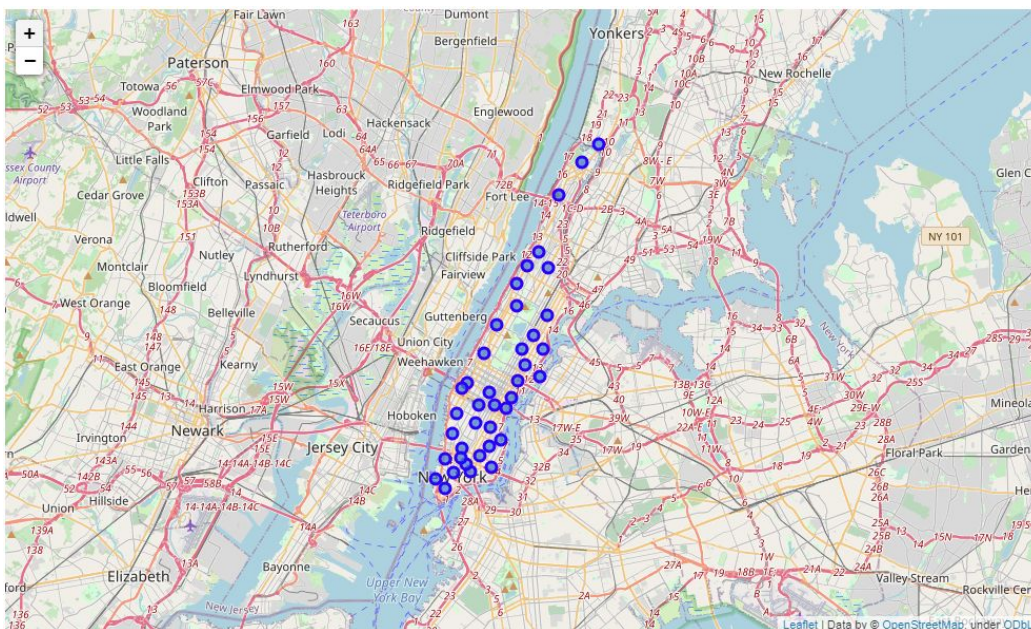
#### 4.4. Visualization

Using Folium library and the geographical coordinates we can create maps from Downtown Toronto and Manhattan

***Downtown Toronto neighborhoods before clustering:***



***Manhattan neighborhoods before clustering:***



## 5. ANALYSING

### 5.1. Exploring Neighborhoods in Downtown Toronto

Table showing how many venues there are for each neighborhood in Downtown Toronto:

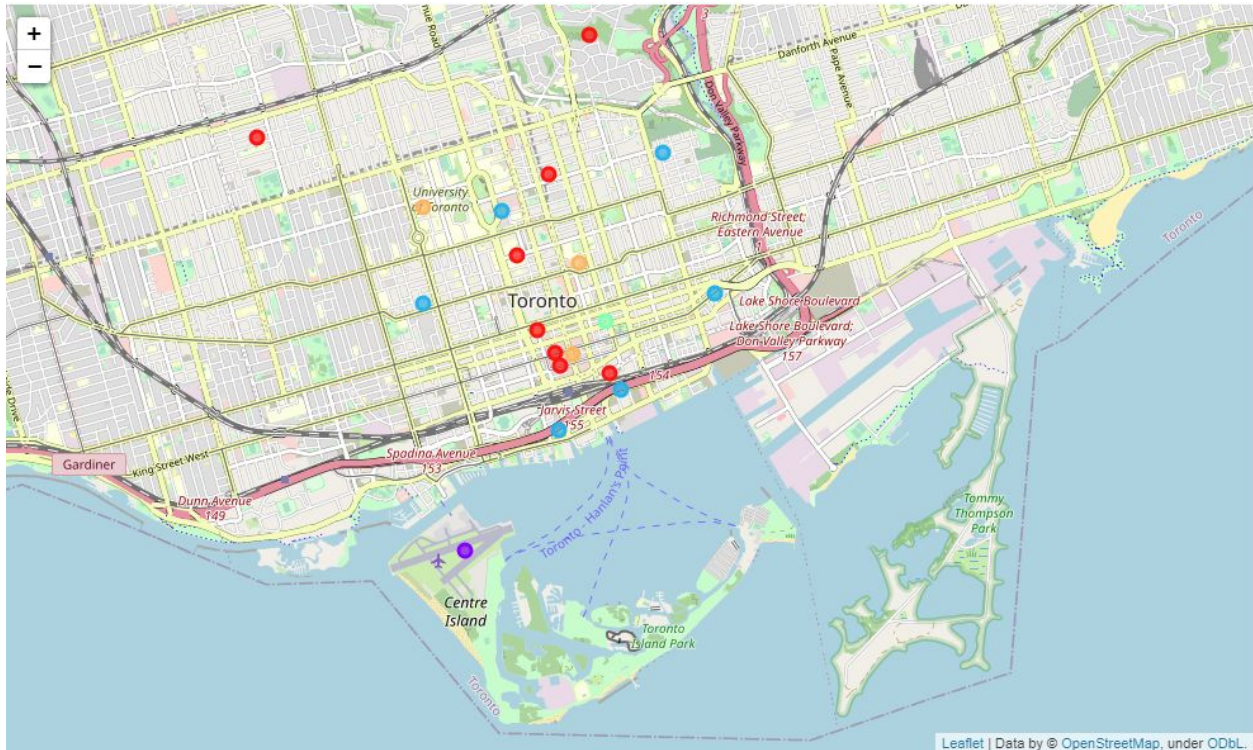
	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
Neighborhood						
Berczy Park	20	20	20	20	20	20
CN Tower, King and Spadina, Railway Lands, Harbourfront West, Bathurst Quay, South Niagara, Island airport	16	16	16	16	16	16
Central Bay Street	20	20	20	20	20	20
Christie	17	17	17	17	17	17
Church and Wellesley	20	20	20	20	20	20
Commerce Court, Victoria Hotel	20	20	20	20	20	20
First Canadian Place, Underground city	20	20	20	20	20	20
Garden District, Ryerson	20	20	20	20	20	20
Harbourfront East, Union Station, Toronto Islands	20	20	20	20	20	20
Kensington Market, Chinatown, Grange Park	20	20	20	20	20	20
Queen's Park	20	20	20	20	20	20
Regent Park, Harbourfront	20	20	20	20	20	20
Richmond, Adelaide, King	20	20	20	20	20	20
Rosedale	4	4	4	4	4	4
St. James Town	20	20	20	20	20	20
St. James Town, Cabbagetown	20	20	20	20	20	20
Stn A PO Boxes	20	20	20	20	20	20
Toronto Dominion Centre, Design Exchange	20	20	20	20	20	20
University of Toronto, Harbord	20	20	20	20	20	20

With a quick analysis we discover that there are 125 unique categories that can be curated from all the returned venues in Downtown Toronto. Also, we can create a dataframe showing the Top 10 venues from each neighborhood:

	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
0	Bercoz Park	Seafood Restaurant	Basketball Stadium	Bakery	Park	Cocktail Bar	Coffee Shop	Museum	Breakfast Spot	Concert Hall	Restaurant
1	CN Tower, King and Spadina, Railway Lands, Har...	Airport Lounge	Airport Service	Airport Terminal	Plane	Bar	Boat or Ferry	Boutique	Rental Car Location	Sculpture Garden	Harbor / Marina
2	Central Bay Street	Coffee Shop	Café	Sushi Restaurant	Modern European Restaurant	Bubble Tea Shop	Ramen Restaurant	Middle Eastern Restaurant	Sandwich Place	Spa	Japanese Restaurant
3	Christie	Grocery Store	Café	Park	Italian Restaurant	Candy Store	Coffee Shop	Nightclub	Restaurant	Baby Store	Athletics & Sports
4	Church and Wellesley	Pizza Place	Park	Bookstore	Restaurant	Ramen Restaurant	Breakfast Spot	Bubble Tea Shop	Burger Joint	Mexican Restaurant	Beer Bar
5	Commerce Court, Victoria Hotel	Café	Coffee Shop	Bakery	Gym	Gastropub	Ice Cream Shop	Japanese Restaurant	Deli / Bodega	Museum	Pub
6	First Canadian Place, Underground city	Café	Coffee Shop	Restaurant	Gym / Fitness Center	Bookstore	Deli / Bodega	Bakery	Steakhouse	Pub	Seafood Restaurant
7	Garden District, Ryerson	Café	Mexican Restaurant	Shopping Mall	Restaurant	Ramen Restaurant	Coffee Shop	Plaza	Steakhouse	Electronics Store	Sandwich Place
8	Harbourfront East, Union Station, Toronto Islands	Park	Plaza	Hotel	Café	Supermarket	Performing Arts Venue	New American Restaurant	Bubble Tea Shop	Salad Place	Lake
9	Kensington Market, Chinatown, Grange Park	Café	Vietnamese Restaurant	Mexican Restaurant	Caribbean Restaurant	Bakery	Wine Bar	Fish Market	Dessert Shop	Coffee Shop	Organic Grocery
10	Queen's Park	Coffee Shop	Sushi Restaurant	Wings Joint	Park	Arts & Crafts Store	Beer Bar	Burrito Place	Creperie	Diner	Distribution Center
11	Regent Park, Harbourfront	Coffee Shop	Park	Breakfast Spot	Farmers Market	Chocolate Shop	Pub	Restaurant	Performing Arts Venue	Dessert Shop	Bakery
12	Richmond, Adelaide, King	Coffee Shop	Seafood Restaurant	Gym / Fitness Center	Steakhouse	Hotel	Concert Hall	Lounge	Opera House	Café	Pizza Place
13	Rosedale	Park	Playground	Trail	Deli / Bodega	Cheese Shop	Chocolate Shop	Clothing Store	Cocktail Bar	Coffee Shop	College Gym
14	St. James Town	Gastropub	Coffee Shop	Café	Creperie	Hotel	Italian Restaurant	BBQ Joint	Cosmetics Shop	Food Truck	Restaurant
15	St. James Town, Cabbagetown	Restaurant	Café	Gift Shop	Indian Restaurant	Deli / Bodega	Jewelry Store	Diner	Bakery	Japanese Restaurant	Italian Restaurant
16	Stn A PO Boxes	Café	Cocktail Bar	Tailor Shop	Museum	Comfort Food Restaurant	Restaurant	Concert Hall	Beer Bar	Park	Farmers Market
17	Toronto Dominion Centre, Design Exchange	Café	Coffee Shop	Gym / Fitness Center	Pub	Beer Bar	Deli / Bodega	Restaurant	Bakery	Bookstore	Japanese Restaurant
18	University of Toronto, Harbord	Restaurant	Bookstore	Bakery	Japanese Restaurant	Yoga Studio	Italian Restaurant	Café	College Gym	Comfort Food Restaurant	Sandwich Place

Setting the number of cluster to 5, we have the clustering Downtown Toronto map below, with the following cluster informations:





#### a) Cluster 1 - Airport Lounge, Coffee Shop, Cafe, Restaurants & Grocery Store

	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
5	Central Bay Street	Coffee Shop	Café	Sushi Restaurant	Modern European Restaurant	Bubble Tea Shop	Ramen Restaurant	Middle Eastern Restaurant	Sandwich Place	Spa	Japanese Restaurant
6	Christie	Grocery Store	Café	Park	Italian Restaurant	Candy Store	Coffee Shop	Nightclub	Restaurant	Baby Store	Athletics & Sports
7	Richmond, Adelaide, King	Coffee Shop	Seafood Restaurant	Gym / Fitness Center	Steakhouse	Hotel	Concert Hall	Lounge	Opera House	Café	Pizza Place
9	Toronto Dominion Centre, Design Exchange	Café	Coffee Shop	Gym / Fitness Center	Pub	Beer Bar	Deli / Bodega	Restaurant	Bakery	Bookstore	Japanese Restaurant
14	Rosedale	Park	Playground	Trail	Deli / Bodega	Cheese Shop	Chocolate Shop	Clothing Store	Cocktail Bar	Coffee Shop	College Gym
15	Stn A PO Boxes	Café	Cocktail Bar	Tailor Shop	Museum	Comfort Food Restaurant	Restaurant	Concert Hall	Beer Bar	Park	Farmers Market
17	First Canadian Place, Underground city	Café	Coffee Shop	Restaurant	Gym / Fitness Center	Bookstore	Deli / Bodega	Bakery	Steakhouse	Pub	Seafood Restaurant
18	Church and Wellesley	Pizza Place	Park	Bookstore	Restaurant	Ramen Restaurant	Breakfast Spot	Bubble Tea Shop	Burger Joint	Mexican Restaurant	Beer Bar

b) Cluster 2 - Gastropubs

	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
13	CN Tower, King and Spadina, Railway Lands, Har...	Airport Lounge	Airport Service	Airport Terminal	Plane	Bar	Boat or Ferry	Boutique	Rental Car Location	Sculpture Garden	Harbor / Marina

c) Cluster 3 - Cafes

	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
0	Regent Park, Harbourfront	Coffee Shop	Park	Breakfast Spot	Farmers Market	Chocolate Shop	Pub	Restaurant	Performing Arts Venue	Dessert Shop	Bakery
1	Queen's Park	Coffee Shop	Sushi Restaurant	Wings Joint	Park	Arts & Crafts Store	Beer Bar	Burrito Place	Creperie	Diner	Distribution Center
4	Berczy Park	Seafood Restaurant	Basketball Stadium	Bakery	Park	Cocktail Bar	Coffee Shop	Museum	Breakfast Spot	Concert Hall	Restaurant
8	Harbourfront East, Union Station, Toronto Islands	Park	Plaza	Hotel	Café	Supermarket	Performing Arts Venue	New American Restaurant	Bubble Tea Shop	Salad Place	Lake
12	Kensington Market, Chinatown, Grange Park	Café	Vietnamese Restaurant	Mexican Restaurant	Caribbean Restaurant	Bakery	Wine Bar	Fish Market	Dessert Shop	Coffee Shop	Organic Grocery
16	St. James Town, Cabbagetown	Restaurant	Café	Gift Shop	Indian Restaurant	Deli / Bodega	Jewelry Store	Diner	Bakery	Japanese Restaurant	Italian Restaurant

d) Cluster 4 - Coffee Shop, Cafe, Park & Japanese Restaurant

	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
3	St. James Town	Gastropub	Coffee Shop	Café	Creperie	Hotel	Italian Restaurant	BBQ Joint	Cosmetics Shop	Food Truck	Restaurant

e) Cluster 5 - Seafood, steakhouse, Hotel & Cafe

	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
2	Garden District, Ryerson	Café	Mexican Restaurant	Shopping Mall	Restaurant	Ramen Restaurant	Coffee Shop	Plaza	Steakhouse	Electronics Store	Sandwich Place
10	Commerce Court, Victoria Hotel	Café	Coffee Shop	Bakery	Gym	Gastropub	Ice Cream Shop	Japanese Restaurant	Deli / Bodega	Museum	Pub
11	University of Toronto, Harbord	Restaurant	Bookstore	Bakery	Japanese Restaurant	Yoga Studio	Italian Restaurant	Café	College Gym	Comfort Food Restaurant	Sandwich Place



## 5.1. Exploring Neighborhoods in Manhattan

Table showing how many venues there are for each neighborhood in Manhattan:

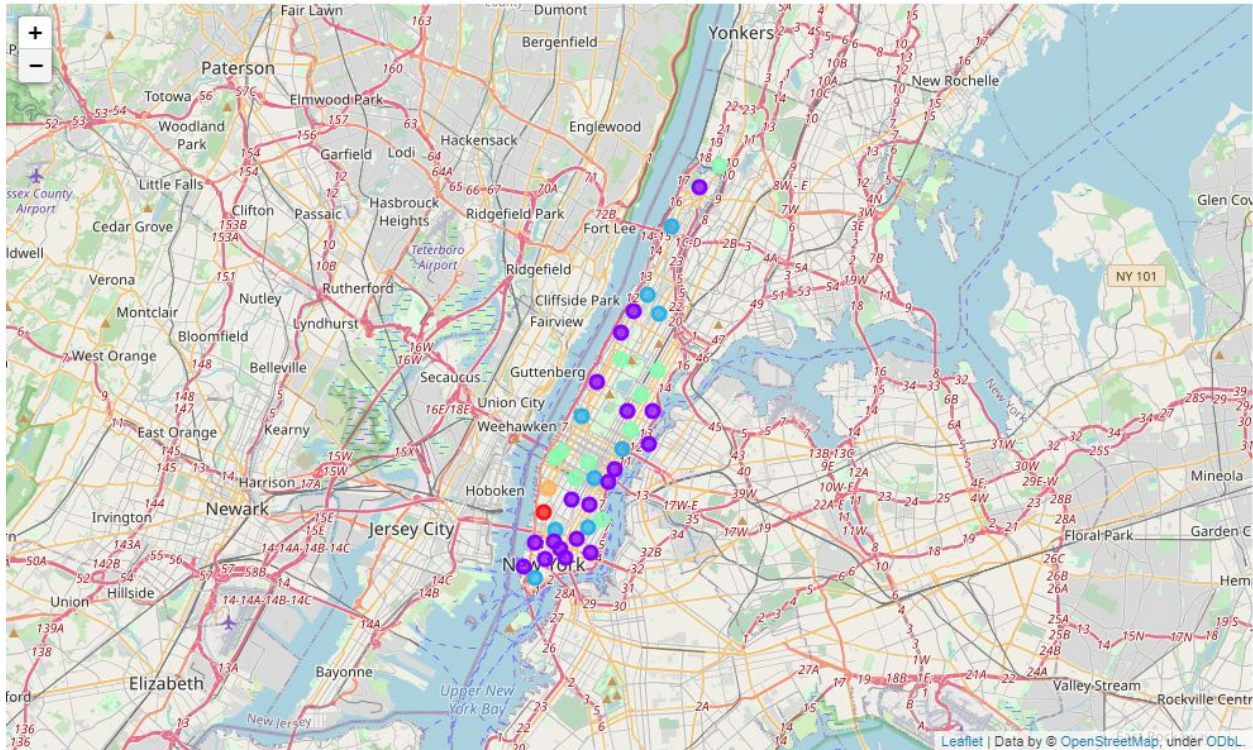
	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
Neighborhood						
Battery Park City	20	20	20	20	20	20
Carnegie Hill	20	20	20	20	20	20
Central Harlem	20	20	20	20	20	20
Chelsea	20	20	20	20	20	20
Chinatown	20	20	20	20	20	20
Civic Center	20	20	20	20	20	20
Clinton	20	20	20	20	20	20
East Harlem	20	20	20	20	20	20
East Village	20	20	20	20	20	20
Financial District	20	20	20	20	20	20
Flatiron	20	20	20	20	20	20
Gramercy	20	20	20	20	20	20
Greenwich Village	20	20	20	20	20	20
Hamilton Heights	20	20	20	20	20	20
Hudson Yards	20	20	20	20	20	20
Inwood	20	20	20	20	20	20
Lenox Hill	20	20	20	20	20	20
Lincoln Square	20	20	20	20	20	20
Little Italy	20	20	20	20	20	20
Lower East Side	20	20	20	20	20	20
Manhattan Valley	20	20	20	20	20	20
Manhattanville	20	20	20	20	20	20
Marble Hill	20	20	20	20	20	20
Midtown	20	20	20	20	20	20
Midtown South	20	20	20	20	20	20
Morningside Heights	20	20	20	20	20	20
Murray Hill	20	20	20	20	20	20
Noho	20	20	20	20	20	20
Roosevelt Island	20	20	20	20	20	20
Soho	20	20	20	20	20	20
Stuyvesant Town	19	19	19	19	19	19
Sutton Place	20	20	20	20	20	20
Tribeca	20	20	20	20	20	20
Tudor City	20	20	20	20	20	20
Turtle Bay	20	20	20	20	20	20
Upper East Side	20	20	20	20	20	20
Upper West Side	20	20	20	20	20	20
Washington Heights	20	20	20	20	20	20
West Village	20	20	20	20	20	20
Yorkville	20	20	20	20	20	20

With a quick analysis we discover that there are 217 unique categories that can be curated from all the returned venues in Manhattan. Also, we can create a dataframe showing the Top 10 venues from each neighborhood:

	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
0	Battery Park City	Memorial Site	Park	Food Court	Plaza	Gym	Smoke Shop	Shopping Mall	Scenic Lookout	Sandwich Place	Monument / Landmark
1	Carnegie Hill	Gym	Gym / Fitness Center	Italian Restaurant	Dance Studio	Café	Gourmet Shop	Coffee Shop	Bar	Bagel Shop	Bookstore
2	Central Harlem	French Restaurant	African Restaurant	Juice Bar	Music Venue	Boutique	Cocktail Bar	Ethiopian Restaurant	Library	Beer Bar	Gym / Fitness Center
3	Chelsea	Theater	Ice Cream Shop	Seafood Restaurant	Speakeasy	Café	Market	Scenic Lookout	Chinese Restaurant	Beer Bar	Taco Place
4	Chinatown	Sandwich Place	Chinese Restaurant	Indie Movie Theater	Tea Room	Hotpot Restaurant	Ice Cream Shop	Greek Restaurant	Museum	English Restaurant	New American Restaurant
5	Civic Center	Spa	French Restaurant	Yoga Studio	Gym	Molecular Gastronomy Restaurant	Burrito Place	Falafel Restaurant	Martial Arts Dojo	Furniture / Home Store	Sushi Restaurant
6	Clinton	Theater	Gym / Fitness Center	Hotel	Pie Shop	Food Court	Sporting Goods Shop	Sports Bar	Café	Mediterranean Restaurant	Lounge
7	East Harlem	Mexican Restaurant	Latin American Restaurant	Thai Restaurant	Pharmacy	Steakhouse	Beer Bar	Sandwich Place	Bakery	Street Art	Cocktail Bar
8	East Village	Vietnamese Restaurant	Dessert Shop	Cheese Shop	Japanese Restaurant	Scandinavian Restaurant	Swiss Restaurant	Coffee Shop	Bar	Juice Bar	Bagel Shop
9	Financial District	Coffee Shop	Gym / Fitness Center	Jewelry Store	Falafel Restaurant	Café	Steakhouse	Seafood Restaurant	New American Restaurant	Salad Place	Spa
10	Flatiron	Cycle Studio	American Restaurant	Japanese Restaurant	Wine Shop	Cosmetics Shop	Furniture / Home Store	Donut Shop	Salad Place	Russian Restaurant	Gym
11	Gramercy	Italian Restaurant	Pizza Place	Coffee Shop	Beer Bar	Gourmet Shop	Bagel Shop	Park	Sushi Restaurant	Spa	Yoga Studio
12	Greenwich Village	Italian Restaurant	Yoga Studio	Coffee Shop	Café	Caribbean Restaurant	Seafood Restaurant	French Restaurant	New American Restaurant	Sandwich Place	Sushi Restaurant
13	Hamilton Heights	Yoga Studio	Cocktail Bar	Mexican Restaurant	Wine Bar	Cosmetics Shop	Smoke Shop	Café	Caribbean Restaurant	Mediterranean Restaurant	Coffee Shop
14	Hudson Yards	American Restaurant	Gym / Fitness Center	Building	Furniture / Home Store	Cocktail Bar	Music School	Café	Theater	Residential Building (Apartment / Condo)	Gym
15	Inwood	Wine Bar	Café	Park	Yoga Studio	Diner	Spanish Restaurant	Farmers Market	Frozen Yogurt Shop	Bistro	Latin American Restaurant
16	Lenox Hill	Thai Restaurant	Gym	Cycle Studio	Dessert Shop	Smoke Shop	French Restaurant	Chinese Restaurant	Liquor Store	Salad Place	Taco Place
17	Lincoln Square	Theater	Concert Hall	Performing Arts Venue	Indie Movie Theater	Circus	Gift Shop	Fountain	College Arts Building	Plaza	Opera House
18	Little Italy	Bakery	History Museum	Thai Restaurant	Pilates Studio	Coffee Shop	Noodle House	Newsstand	Chocolate Shop	Salad Place	Chinese Restaurant

18	Little Italy	Bakery	History Museum	Thai Restaurant	Pilates Studio	Coffee Shop	Noodle House	Newsstand	Chocolate Shop	Salad Place	Chinese Restaurant
19	Lower East Side	Cocktail Bar	Art Gallery	Italian Restaurant	Coffee Shop	Mediterranean Restaurant	Juice Bar	Chinese Restaurant	Filipino Restaurant	Japanese Restaurant	Yoga Studio
20	Manhattan Valley	Pizza Place	Bar	Yoga Studio	Park	Bubble Tea Shop	Mexican Restaurant	Fried Chicken Joint	Chinese Restaurant	Coffee Shop	Bakery
21	Manhattanville	Italian Restaurant	Café	BBQ Joint	Bike Trail	Sushi Restaurant	Gastropub	Coffee Shop	Climbing Gym	Lounge	Juice Bar
22	Marble Hill	Gym	Coffee Shop	Yoga Studio	Pizza Place	Department Store	Diner	Discount Store	Donut Shop	Sandwich Place	Seafood Restaurant
23	Midtown	Clothing Store	Hotel	Plaza	French Restaurant	Cycle Studio	Park	Salad Place	Smoke Shop	Spa	Food Truck
24	Midtown South	Korean Restaurant	Hotel	Japanese Restaurant	Coffee Shop	Building	Fried Chicken Joint	Bookstore	Scenic Lookout	Lingerie Store	Grocery Store
25	Morningside Heights	Bookstore	Park	American Restaurant	Salad Place	Coffee Shop	Mexican Restaurant	Farmers Market	Café	Seafood Restaurant	Sandwich Place
26	Murray Hill	Burger Joint	Hotel	Coffee Shop	Bagel Shop	Museum	Shanghai Restaurant	Event Space	Sandwich Place	Sushi Restaurant	Taco Place
27	Noho	Rock Club	Wine Shop	Sandwich Place	Italian Restaurant	Coffee Shop	Ice Cream Shop	French Restaurant	Boutique	Gourmet Shop	Greek Restaurant
28	Roosevelt Island	Playground	Japanese Restaurant	Farmers Market	Bus Line	Bubble Tea Shop	School	Liquor Store	Sandwich Place	Kosher Restaurant	Residential Building (Apartment / Condo)
29	Soho	Mediterranean Restaurant	Clothing Store	Bakery	Furniture / Home Store	Sporting Goods Shop	Electronics Store	Supermarket	Italian Restaurant	Arts & Crafts Store	Art Museum
30	Stuyvesant Town	Boat or Ferry	Park	Gas Station	Bistro	Cocktail Bar	Baseball Field	Coffee Shop	Gym	Gym / Fitness Center	Harbor / Marina
31	Sutton Place	Beer Garden	Grocery Store	Gym	Yoga Studio	Thai Restaurant	Bagel Shop	Beer Store	Furniture / Home Store	Greek Restaurant	Gym / Fitness Center
32	Tribeca	Park	Yoga Studio	Sushi Restaurant	Hotel	Indie Theater	Italian Restaurant	Greek Restaurant	Men's Store	Cycle Studio	Poke Place
33	Tudor City	Park	Yoga Studio	Trail	Boxing Gym	Spanish Restaurant	Café	Salad Place	Sushi Restaurant	Taco Place	Thai Restaurant
34	Turtle Bay	Karaoke Bar	Coffee Shop	French Restaurant	Grocery Store	Boxing Gym	Farmers Market	Museum	Café	Lounge	Duty-free Shop
35	Upper East Side	Hotel	Jazz Club	Sandwich Place	Bookstore	Coffee Shop	Boutique	Seafood Restaurant	Bar	Optical Shop	Bakery
36	Upper West Side	Bakery	Italian Restaurant	American Restaurant	Juice Bar	Greek Restaurant	Bagel Shop	Lingerie Store	Chinese Restaurant	Tiki Bar	Bookstore
37	Washington Heights	Wine Shop	Café	Park	Deli / Bodega	Ramen Restaurant	Breakfast Spot	Market	Liquor Store	Cocktail Bar	Coffee Shop
38	West Village	Cocktail Bar	Coffee Shop	Bakery	Italian Restaurant	Food & Drink Shop	Boutique	Gourmet Shop	Board Shop	Hardware Store	Austrian Restaurant
39	Yorkville	Wine Shop	Deli / Bodega	Gym	Liquor Store	Beer Store	Coffee Shop	Monument / Landmark	Bagel Shop	Gym / Fitness Center	Dog Run

Setting the number of cluster to 5, we have the clustering Manhattan map below, with the following cluster informations:



### a) Cluster 1 - Residential

	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
24	West Village	Cocktail Bar	Coffee Shop	Bakery	Italian Restaurant	Food & Drink Shop	Boutique	Gourmet Shop	Board Shop	Hardware Store	Austrian Restaurant



b) Cluster 2 - Commercial Places

	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
1	Chinatown	Sandwich Place	Chinese Restaurant	Indie Movie Theater	Tea Room	Hotpot Restaurant	Ice Cream Shop	Greek Restaurant	Museum	English Restaurant	New American Restaurant
3	Inwood	Wine Bar	Café	Park	Yoga Studio	Diner	Spanish Restaurant	Farmers Market	Frozen Yogurt Shop	Bistro	Latin American Restaurant
5	Manhattanville	Italian Restaurant	Café	BBQ Joint	Bike Trail	Sushi Restaurant	Gastropub	Coffee Shop	Climbing Gym	Lounge	Juice Bar
8	Upper East Side	Hotel	Jazz Club	Sandwich Place	Bookstore	Coffee Shop	Boutique	Seafood Restaurant	Bar	Optical Shop	Bakery
9	Yorkville	Wine Shop	Deli / Bodega	Gym	Liquor Store	Beer Store	Coffee Shop	Monument / Landmark	Bagel Shop	Gym / Fitness Center	Dog Run
11	Roosevelt Island	Playground	Japanese Restaurant	Farmers Market	Bus Line	Bubble Tea Shop	School	Liquor Store	Sandwich Place	Kosher Restaurant	Residential Building (Apartment / Condo)
12	Upper West Side	Bakery	Italian Restaurant	American Restaurant	Juice Bar	Greek Restaurant	Bagel Shop	Lingerie Store	Chinese Restaurant	Tiki Bar	Bookstore
20	Lower East Side	Cocktail Bar	Art Gallery	Italian Restaurant	Coffee Shop	Mediterranean Restaurant	Juice Bar	Chinese Restaurant	Filipino Restaurant	Japanese Restaurant	Yoga Studio
21	Tribeca	Park	Yoga Studio	Sushi Restaurant	Hotel	Indie Theater	Italian Restaurant	Greek Restaurant	Men's Store	Cycle Studio	Poke Place
22	Little Italy	Bakery	History Museum	Thai Restaurant	Pilates Studio	Coffee Shop	Noodle House	Newsstand	Chocolate Shop	Salad Place	Chinese Restaurant
23	Soho	Mediterranean Restaurant	Clothing Store	Bakery	Furniture / Home Store	Sporting Goods Shop	Electronics Store	Supermarket	Italian Restaurant	Arts & Crafts Store	Art Museum
26	Morningside Heights	Bookstore	Park	American Restaurant	Salad Place	Coffee Shop	Mexican Restaurant	Farmers Market	Café	Seafood Restaurant	Sandwich Place
27	Gramercy	Italian Restaurant	Pizza Place	Coffee Shop	Beer Bar	Gourmet Shop	Bagel Shop	Park	Sushi Restaurant	Spa	Yoga Studio
28	Battery Park City	Memorial Site	Park	Food Court	Plaza	Gym	Smoke Shop	Shopping Mall	Scenic Lookout	Sandwich Place	Monument / Landmark
31	Noho	Rock Club	Wine Shop	Sandwich Place	Italian Restaurant	Coffee Shop	Ice Cream Shop	French Restaurant	Boutique	Gourmet Shop	Greek Restaurant
32	Civic Center	Spa	French Restaurant	Yoga Studio	Gym	Molecular Gastronomy Restaurant	Burrito Place	Falafel Restaurant	Martial Arts Dojo	Furniture / Home Store	Sushi Restaurant
35	Turtle Bay	Karaoke Bar	Coffee Shop	French Restaurant	Grocery Store	Boxing Gym	Farmers Market	Museum	Café	Lounge	Duty-free Shop
36	Tudor City	Park	Yoga Studio	Trail	Boxing Gym	Spanish Restaurant	Café	Salad Place	Sushi Restaurant	Taco Place	Thai Restaurant
38	Flatiron	Cycle Studio	American Restaurant	Japanese Restaurant	Wine Shop	Cosmetics Shop	Furniture / Home Store	Donut Shop	Salad Place	Russian Restaurant	Gym



c) Cluster 3 - Tourist Areas

	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
2	Washington Heights	Wine Shop	Café	Park	Deli / Bodega	Ramen Restaurant	Breakfast Spot	Market	Liquor Store	Cocktail Bar	Coffee Shop
4	Hamilton Heights	Yoga Studio	Cocktail Bar	Mexican Restaurant	Wine Bar	Cosmetics Shop	Smoke Shop	Café	Caribbean Restaurant	Mediterranean Restaurant	Coffee Shop
6	Central Harlem	French Restaurant	African Restaurant	Juice Bar	Music Venue	Boutique	Cocktail Bar	Ethiopian Restaurant	Library	Beer Bar	Gym / Fitness Center
13	Lincoln Square	Theater	Concert Hall	Performing Arts Venue	Indie Movie Theater	Circus	Gift Shop	Fountain	College Arts Building	Plaza	Opera House
16	Murray Hill	Burger Joint	Hotel	Coffee Shop	Bagel Shop	Museum	Shanghai Restaurant	Event Space	Sandwich Place	Sushi Restaurant	Taco Place
18	Greenwich Village	Italian Restaurant	Yoga Studio	Coffee Shop	Café	Caribbean Restaurant	Seafood Restaurant	French Restaurant	New American Restaurant	Sandwich Place	Sushi Restaurant
19	East Village	Vietnamese Restaurant	Dessert Shop	Cheese Shop	Japanese Restaurant	Scandinavian Restaurant	Swiss Restaurant	Coffee Shop	Bar	Juice Bar	Bagel Shop
29	Financial District	Coffee Shop	Gym / Fitness Center	Jewelry Store	Falafel Restaurant	Café	Steakhouse	Seafood Restaurant	New American Restaurant	Salad Place	Spa
34	Sutton Place	Beer Garden	Grocery Store	Gym	Yoga Studio	Thai Restaurant	Bagel Shop	Beer Store	Furniture / Home Store	Greek Restaurant	Gym / Fitness Center

#### d) Cluster 4 - Center Activity

	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
0	Marble Hill	Gym	Coffee Shop	Yoga Studio	Pizza Place	Department Store	Diner	Discount Store	Donut Shop	Sandwich Place	Seafood Restaurant
7	East Harlem	Mexican Restaurant	Latin American Restaurant	Thai Restaurant	Pharmacy	Steakhouse	Beer Bar	Sandwich Place	Bakery	Street Art	Cocktail Bar
10	Lenox Hill	Thai Restaurant	Gym	Cycle Studio	Dessert Shop	Smoke Shop	French Restaurant	Chinese Restaurant	Liquor Store	Salad Place	Taco Place
14	Clinton	Theater	Gym / Fitness Center	Hotel	Pie Shop	Food Court	Sporting Goods Shop	Sports Bar	Café	Mediterranean Restaurant	Lounge
15	Midtown	Clothing Store	Hotel	Plaza	French Restaurant	Cycle Studio	Park	Salad Place	Smoke Shop	Spa	Food Truck
25	Manhattan Valley	Pizza Place	Bar	Yoga Studio	Park	Bubble Tea Shop	Mexican Restaurant	Fried Chicken Joint	Chinese Restaurant	Coffee Shop	Bakery
30	Carnegie Hill	Gym	Gym / Fitness Center	Italian Restaurant	Dance Studio	Café	Gourmet Shop	Coffee Shop	Bar	Bagel Shop	Bookstore
33	Midtown South	Korean Restaurant	Hotel	Japanese Restaurant	Coffee Shop	Building	Fried Chicken Joint	Bookstore	Scenic Lookout	Lingerie Store	Grocery Store
37	Stuyvesant Town	Boat or Ferry	Park	Gas Station	Bistro	Cocktail Bar	Baseball Field	Coffee Shop	Gym	Gym / Fitness Center	Harbor / Marina
39	Hudson Yards	American Restaurant	Gym / Fitness Center	Building	Furniture / Home Store	Cocktail Bar	Music School	Café	Theater	Residential Building (Apartment / Condo)	Gym

#### e) Cluster 5 - Cultural & Going out places

	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
17	Chelsea	Theater	Ice Cream Shop	Seafood Restaurant	Speakeasy	Café	Market	Scenic Lookout	Chinese Restaurant	Beer Bar	Taco Place

## 6. RESULTS

After clustering the data of the respective neighborhoods, both cities have venues which can be explored and attract the Tourists. The neighborhoods are much similar in features like Theaters, opera houses, food places, clubs, museums, parks etc. As far as concern to dissimilarity, it differs in terms of some unique places like historical places and monuments.

## 7. OBSERVATIONS AND RECOMMENDATIONS

When we compare the tourist places, we observe that the historical place is only situated in Downtown Toronto and the Monument or landmark venue is in Manhattan neighborhoods. Similarly, Airport facility, Harbor, Sculpture garden and Boat or ferry services are also available i\*\*n Downtown Toronto while venues like Nightlife, Climbing gym and Museums are present in Manhattan.

As far as concern to recommendations, we recommend Downtown Toronto Neighborhoods will be considered first to visit. The tourists have an easily travelling access due to Airport facility, which not only saves time but also helps to save money. This saved money can be utilized to explore more, the attracting venues.

## 8. CONCLUSION

The Downtown Toronto and Manhattan neighborhoods have more like similar venues. As we know that every place is unique in its own way, so that's argument is present in both neighborhoods. The dissimilarity exists in terms of some different venues and facilities but not on a larger extent.