Battle of Neighbhourhood

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Overview

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. This project focuses on the which city a tourist will opt based on the facilities available in both the cities.

Business problem

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 perspective, 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. Here we explore how much New York and Toronto are similar or dissimilar in aspects from a tourist point of view regarding food, accommodation, beautiful places, and many more.

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. 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.

Exploration

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

Data Acquisition and Cleaning

The collected dataset is cleaned by creating new data frames which consists of only three columns “Postal Code, Borough, and Neighborhood”.

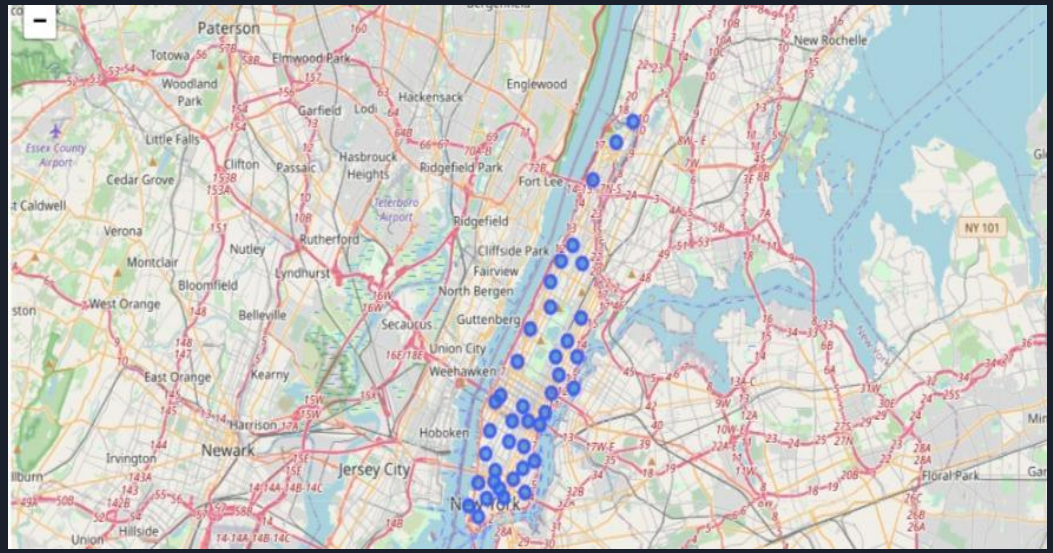
Only process the cells that have an assigned borough.

More than one neighbourhood can exist in one postal code, we merge it into one rows separated by commas.

If a cell has a borough but a Not assigned neighborhood, then the neighborhood will be the same as the borough.

The above criterias are applied for creating new data frames and merged them into corresponding latitudes and longitudes.

Before Clustering



Manhattan

Toronto

Neighbourhoods and Common Avenues

[45]:

	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	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue
0	Manhattan	Marble Hill	40.876551	-73.910660	2	Gym	Coffee Shop	Yoga Studio	Diner	Steakhouse	Shopping Mall	Supplement Shop	Seafood Restaurant	Big Box Store
1	Manhattan	Chinatown	40.715618	-73.994279	1	Chinese Restaurant	Bakery	Cocktail Bar	Dessert Shop	Optical Shop	American Restaurant	Spa	Vietnamese Restaurant	Bubble Tea Shop
2	Manhattan	Washington Heights	40.851903	-73.936900	1	Café	Bakery	Chinese Restaurant	Mobile Phone Shop	Bank	Sandwich Place	New American Restaurant	Mexican Restaurant	Spanish Restaurant
3	Manhattan	Inwood	40.867684	-73.921210	2	Mexican Restaurant	Lounge	Café	Restaurant	Spanish Restaurant	Caribbean Restaurant	Deli / Bodega	Wine Bar	Frozen Yogurt Shop
4	Manhattan	Hamilton Heights	40.823604	-73.949688	1	Pizza Place	Café	Coffee Shop	Mexican Restaurant	Deli / Bodega	Yoga Studio	Caribbean Restaurant	School	Chinese Restaurant

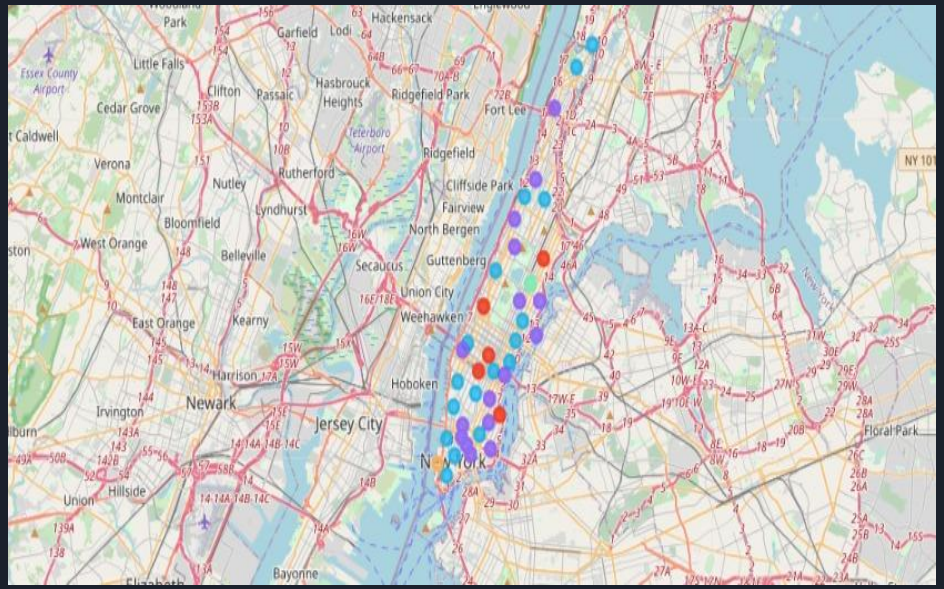
Manhattan

Neighbourhoods and Common Avenues

	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	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue
0	M4W	Downtown Toronto	Rosedale	43.679563	-79.377529	1	Park	Playground	Trail	Cupcake Shop	Donut Shop	Doner Restaurant	Dog Run	Distribution Center
1	M4X	Downtown Toronto	St. James Town, Cabbagetown	43.667967	-79.367675	2	Coffee Shop	Restaurant	Café	Pizza Place	Convenience Store	Pub	Italian Restaurant	Bakery
2	M4Y	Downtown Toronto	Church and Wellesley	43.665860	-79.383160	1	Coffee Shop	Sushi Restaurant	Japanese Restaurant	Gay Bar	Restaurant	Yoga Studio	Café	Bubble Tea Shop
3	M5A	Downtown Toronto	Regent Park, Harbourfront	43.654260	-79.360636	4	Coffee Shop	Pub	Bakery	Park	Breakfast Spot	Café	Theater	Gym / Fitness Center
4	M5B	Downtown Toronto	Garden District, Ryerson	43.657162	-79.378937	1	Coffee Shop	Clothing Store	Café	Cosmetics Shop	Japanese Restaurant	Bubble Tea Shop	Italian Restaurant	Electronics Store

Toronto

After Clustering



Manhattan

Toronto

Results

After clustering the data of the respective neighborhoods, both cities (Boroughs) 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.

Observations & 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 in 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.

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.

Thank you!