**Capstone Project - The Battle of Neighborhoods**

 

**Introduction**

**Toronto** is the [provincial](https://en.wikipedia.org/wiki/Provinces_and_territories_of_Canada) [capital](https://en.wikipedia.org/wiki/Capital_city) of [Ontario](https://en.wikipedia.org/wiki/Ontario) and the [most populous city in Canada](https://en.wikipedia.org/wiki/List_of_the_100_largest_municipalities_in_Canada_by_population), with a population of 2,731,571 as of 2016. Current to 2016, the Toronto [census metropolitan area](https://en.wikipedia.org/wiki/Census_metropolitan_area) (CMA), of which the majority is within the [Greater Toronto Area](https://en.wikipedia.org/wiki/Greater_Toronto_Area) (GTA), held a population of 5,928,040, making it Canada's [most populous CMA](https://en.wikipedia.org/wiki/List_of_census_metropolitan_areas_and_agglomerations_in_Canada). The city is the anchor of the [Golden Horseshoe](https://en.wikipedia.org/wiki/Golden_Horseshoe), an urban agglomeration of 9,245,438 people (as of 2016) surrounding the western end of [Lake Ontario](https://en.wikipedia.org/wiki/Lake_Ontario).[[13]](https://en.wikipedia.org/wiki/Toronto) Toronto is an international centre of business, finance, arts, and culture, and is recognized as one of the most [multicultural](https://en.wikipedia.org/wiki/Multicultural) and [cosmopolitan](https://en.wikipedia.org/wiki/Cosmopolitanism) cities in the world.

The diverse population of Toronto reflects its current and historical role as an important destination for [immigrants to HYPERLINK "https://en.wikipedia.org/wiki/Immigration\_to\_Canada"Canada](https://en.wikipedia.org/wiki/Immigration_to_Canada).More than 50 percent of residents belong to a [visible minority](https://en.wikipedia.org/wiki/Visible_minority) population group,and over 200 distinct [ethnic origins](https://en.wikipedia.org/wiki/Ethnic_origin) are represented among its inhabitants.While the majority of Torontonians speak [English](https://en.wikipedia.org/wiki/English_language) as their primary language, over 160 languages are spoken in the city

According to the 2016 Census, [the racial composition of Toronto was:](https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/details/page.cfm?Lang=E&Geo1=CMACA&Code1=535&Geo2=PR&Code2=35&Data=Count&SearchText=Caledon%20East&SearchType=Begins&SearchPR=01&B1=All) White: 50.2% East [India](http://worldpopulationreview.com/countries/india-population/)n: 12.7% (10.8% Chinese, 1.4% Korean, 0.5% Japanese) South Asian: 12.3% Black: 8.5% Southeast Asian: 7.0% (5.1% Filipino) Latin American: 2.8% West Asian: 2.0% Arab: 1.1% Aborginal: 0.7% (0.5% First Nations, 0.2% Metis) Two or more races: 1.5% Other race: 1.3%

With it's diverse culture , comes diverse food items. There are many resturants in Toronto, each beloning to different categories like Chinese , Indian , French , Italian etc.

On Jan. 1, 1998, **Toronto's** amalgamation took effect, merging the six previous municipalities that made up Metro **Toronto** – Etobicoke, Scarborough, York, East York, North York, and the City of **Toronto**, into a new singular City of **Toronto**.

So as part of this project , we will list and visualize all major parts of Toronto that has great indian resturants.

**Data**

For this project we need the following data :

* Toronto data that contains list Boroughs, Neighborhoods along with their latitude and longitude.
* Data source : <https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M>
* Description : This data set contains the required information. And we will use this data set to explore various neighborhoods of Toronto
* Use Beautiful soup to Scrap library
* Indian restaurants in each neighborhood of Toronto
* Data source : Fousquare API
* Description : By using this api we will get all the venues in each neighborhood. We can filter these venues to get only indian Restaurants.
* GeoSpace data- '<https://cocl.us/Geospatial_data>'
* Description : By using this geo space data we will get the Toronto Borough boundaries that will help us visualize choropleth map.

**Approach**

* Collect the Toronto data from <https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M> and '<https://cocl.us/Geospatial_data>' for Lattitude and Longitude
* Using FourSquare API we will find all venues for each neighborhood.
* Filter out all venues that are Indian Restaurants.
* Find rating , tips and like count for each Indian Restaurants using FourSquare API.
* Using rating for each restaurant , we will sort that data.
* Visualize the Ranking of neighborhoods using folium library(python)

**Conclusion Based on Dataset( Neighbourhood rating Likes , rated & Tips)**

* What is **best location in Toronto for Indian Cuisine** ?
* Which **areas have potential Indian Resturant Market** ?
* Which **all areas lack Indian Restaurants** ?

**Analysis**

We will import the required libraries for python.

* pandas and numpy for handling data.
* request module for using FourSquare API.
* geopy to get co-ordinates of Toronto
* folium to visualize the results on a map

Postal code , Borrough and Neighbourhood

Postalcode Borough Neighbourhood

0 M3A North York Parkwoods

1 M4A North York Victoria Village

2 M5A Downtown Toronto Harbourfront, Regent Park

3 M6A North York Lawrence Heights, Lawrence Manor

4 M7A Queen's Park Queen's Park

5 M9A Etobicoke Islington Avenue

6 M1B Scarborough Rouge, Malvern

7 M3B North York Don Mills North

8 M4B East York Woodbine Gardens, Parkview Hill

9 M5B Downtown Toronto Ryerson, Garden District

10 M6B North York Glencairn

11 M9B Etobicoke Cloverdale, Islington, Martin Grove, Princess ...

12 M1C Scarborough Highland Creek, Rouge Hill, Port Union

13 M3C North York Flemingdon Park, Don Mills South

14 M4C East York Woodbine Heights

15 M5C Downtown Toronto St. James Town

16 M6C York Humewood-Cedarvale

17 M9C Etobicoke Bloordale Gardens, Eringate, Markland Wood, Ol...

18 M1E Scarborough Guildwood, Morningside, West Hill

19 M4E East Toronto The Beaches

**Borough Neighbourhood Latitude Longitude**

**Borough Neighbourhood Latitude Longitude**

0 North York Parkwoods 43.753259 -79.329656

1 North York Victoria Village 43.725882 -79.315572

2 Downtown Toronto Harbourfront, Regent Park 43.654260 -79.360636

3 North York Lawrence Heights, Lawrence Manor 43.718518 -79.464763

4 Queen's Park Queen's Park 43.662301 -79.389494

5 Etobicoke Islington Avenue 43.667856 -79.532242

6 Scarborough Rouge, Malvern 43.806686 -79.194353

7 North York Don Mills North 43.745906 -79.352188

8 East York Woodbine Gardens, Parkview Hill 43.706397 -79.309937

9 Downtown Toronto Ryerson, Garden District 43.657162 -79.37893









Conclusion

Downtown Toronto(Chritie), Downtown Cabbagetown, St. James Town )are some of the best neighborhoods for indian cuisine.

Queen's Park have potential Indian Resturant Market

Etobicoke ranks last in average rating of Indian Resturants.

Limitations

The ranking is purely on basis of rating of resturants

The accuracy of data depends purely depends on the data provided by FourSquare