

# **Coursera Capstone**

Opening a New Yoga Studio in the City

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December 1, 2020

## **Introduction**

Toronto and New York City are 2 of the most popular cities on the east coast of North America. Toronto is the capital of the province of Ontario. It's a bustling metropolis with green lands, busy people, and skyscrapers. The most notable of all being the CN Tower. Toronto also has many parks such as the Queen's Park which is a 400-acre High Park. New York City is a densely populated city consisting of 5 boroughs. Iconic sites from New York City include the Empire State Building, Broadway theater, and the serene Central Park.

## **Target Audience**

The target audience for this project would be business professionals looking to invest in a new property site. Or someone who is passionate about Yoga and would like to own their own studio to teach others. According to [studiogrowth.com](http://studiogrowth.com) "The average yoga studio owner makes \$7,227 in gross monthly income, which is about \$86,000/year. The average yoga studio produces \$13,495/month in revenue...Large studios in top areas such as NYC and LA exceed \$1,000,000+ in annual revenue. " This could bring more revenue to the city and profit the business owner(s).

## **Business Problem**

Both Toronto and New York City are densely populated cities filled with different shops, parks, and main attractions. When someone wants to open up a new business venue it's important to find the city with the least amount of shops for that specific business. A client reached out to me and explained they are interested in opening a yoga studio and wanted to find the city with the least amount of yoga studios so competition is minimal.

## **Data**

The first set of data that will be used has been collect and scraped from a Wikipedia data table titled “List of postal codes of Canada: M” and the data was assigned to a data frame. The information includes venues, postal codes, neighborhoods, boroughs, longitudes and latitudes of cities in Toronto within the providence of Ontario. The second set of data will be collected from Foursquare API and and a 2014 New York City Neighborhood names article. The data will include venues, neighborhoods, boroughs, longitudes and latitudes using New York City.

The data will be used to compare the number of yoga venues in New York City and Toronto within 500 meters of each respective city. The data will allow us to select the city with the least amount of yoga studio venues.

## **Methodology**

First, data from “List of postal codes of Canada: M” will be scraped using Beautiful Soup library. Data will be assigned to a data frame and cleaned. Longitude and Latitude coordinates will be extracted from Geospatial\_Coordinates.csv and merged with the List of postal codes of Canada: M. Foursquare API will be used to confirm longitude and latitude of the coordinates in the data frame as well as retrieve venues within a 500 meter radius. Data frame will be filtered to show the total number of yoga studios in Toronto.

Then, New York City data will be collected from 2014 New York City Neighborhood Names ([https://geo.nyu.edu/catalog/nyu\\_2451\\_34572](https://geo.nyu.edu/catalog/nyu_2451_34572)). The data includes boroughs and neighborhoods while geocoder will be used to retrieve longitudes and latitudes. Four Square API will be used to confirm coordinates and retrieve venues within a 500 meter radius. Data frame will be filtered to show the total number of yoga studios in New York City.

Last, filtered data frames will be compared to find the which city has the least amount of yoga studios.

## Results

The results show the number of rows of the data frame for New York City and Toronto. The total number of rows equals the total number of yoga studios. A pie chart visual was also created to show the boroughs where yoga studios exist in Toronto.

### New York Data

```
[71]: #Filtering the data frame to show all the yoga studios in the area and how many
df_filter=manhattan_venues.VenueCategory.str.contains('Yoga')
print(manhattan_venues[df_filter].shape)
manhattan_venues[df_filter]
```

(32, 7)

	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	VenueCategory
1	Marble Hill	40.876551	-73.910660	Bikram Yoga	40.876844	-73.906204	Yoga Studio
220	Inwood	40.867684	-73.921210	Bread and Yoga	40.868229	-73.918028	Yoga Studio
266	Hamilton Heights	40.823604	-73.949688	Bikram Yoga Harlem	40.825672	-73.948887	Yoga Studio
278	Hamilton Heights	40.823604	-73.949688	Brahman Yoga Studio	40.825319	-73.947848	Yoga Studio
496	Upper East Side	40.775639	-73.960508	Y7 - Upper East Side	40.776495	-73.955594	Yoga Studio
500	Upper East Side	40.775639	-73.960508	Bode NYC - Upper East Side	40.776990	-73.955684	Yoga Studio
544	Upper East Side	40.775639	-73.960508	CorePower Yoga	40.778481	-73.956128	Yoga Studio
849	Upper West Side	40.787658	-73.977059	Upper West Side Yoga and Wellness	40.785682	-73.972310	Yoga Studio
931	Lincoln Square	40.773529	-73.985338	CorePower Yoga	40.776861	-73.981803	Yoga Studio
1257	Murray Hill	40.748303	-73.978332	mang'Oh yoga	40.747446	-73.972614	Yoga Studio
1384	Greenwich Village	40.726933	-73.999914	Sacred Sounds Yoga	40.728638	-74.000115	Yoga Studio

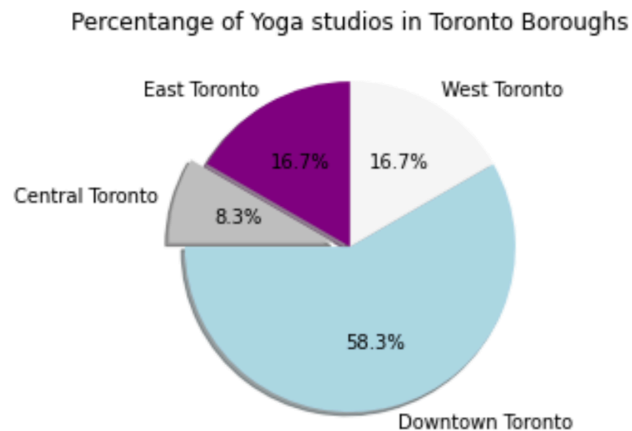
### Toronto Data

```
In [60]: #Filtering the data frame to show all the yoga studios in the area and how many
df_filter=venues_df.VenueCategory.str.contains('Yoga')
print(venues_df[df_filter].shape)
venues_df[df_filter]
```

(12, 9)

	Postal Code	Borough	Neighborhood	BoroughLatitude	BoroughLongitude	VenueName	VenueLatitude	VenueLongitude	VenueCategory
11	M4K	East Toronto	The Danforth West, Riverdale	43.679557	-79.352188	Moksha Yoga Danforth	43.677622	-79.352116	Yoga Studio
91	M4M	East Toronto	Studio District	43.659526	-79.340923	Spirit Loft Yoga	43.663548	-79.341333	Yoga Studio
115	M4R	Central Toronto	North Toronto West, Lawrence Park	43.715383	-79.405678	Barreworks	43.714070	-79.400109	Yoga Studio
267	M4Y	Downtown Toronto	Church and Wellesley	43.665860	-79.383160	Bikram Yoga Yonge	43.668205	-79.385780	Yoga Studio
277	M4Y	Downtown Toronto	Church and Wellesley	43.665860	-79.383160	The Yoga Sanctuary	43.661499	-79.383636	Yoga Studio
335	M5A	Downtown Toronto	Regent Park, Harbourfront	43.654260	-79.360636	The Yoga Lounge	43.655515	-79.364955	Yoga Studio
619	M5G	Downtown Toronto	Central Bay Street	43.657952	-79.387383	The Yoga Sanctuary	43.661499	-79.383636	Yoga Studio
1094	M5S	Downtown Toronto	University of Toronto, Harbord	43.662696	-79.400049	Sivananda Yoga Centre	43.662754	-79.402951	Yoga Studio
1266	M5W	Downtown Toronto	Stn A PO Boxes	43.646435	-79.374846	Bikram Yoga Centre	43.649214	-79.375229	Yoga Studio
1444	M6J	West Toronto	Little Portugal, Trinity	43.647927	-79.419750	YogaSpace	43.647607	-79.420133	Yoga Studio
1572	M6S	West Toronto	Runnymede, Swansea	43.651571	-79.484450	(The New) Moksha Yoga Bloor West	43.648658	-79.485242	Yoga Studio
1582	M7A	Downtown Toronto	Queen's Park, Ontario Provincial Government	43.662301	-79.389494	The Yoga Sanctuary	43.661499	-79.383636	Yoga Studio

## Percentage of Yoga Studios in Toronto



## Discussion

As observed in the data, Toronto had the least amount of yoga studios. Toronto had 12 yoga studios while New York City had 32 yoga studios. If we look deeper into the data we will also see that Downtown Toronto had the most number of yoga studios, which would be 7 total studios. East Toronto and West Toronto had the same amount of yoga studios, which would be 2 yoga studios for each borough. Central Toronto had the least amount of yoga studios. Central Toronto only had 1 yoga studio in that borough. The pie chart shows the total percentage of yoga studios divided amongst the 4 boroughs.

## Conclusion

In this project we used different statistical methods to extract, clean, filter, and visualize data. We were able to compare the number of yoga studios in Toronto and New York City to help us solve the business problem. The business problem was: which would be a better city to open a yoga studio between New York City and Toronto? Looking at the data, Toronto would be the best city to open a yoga studio because Toronto only had a total of 12 studios while New York City had 32. To be

more specific, opening a yoga studio in Central Toronto would be best because there is only 1 studio in Central Toronto. There is less competition in Central Toronto which has the possibility to bring more revenue for the client.

## **Cited**

2014 New York City Neighborhood Names. (n.d.). Retrieved December 02, 2020, from [https://geo.nyu.edu/catalog/nyu\\_2451\\_34572?cm\\_mmc=Email\\_Newsletter\\_-\\_Developer\\_Ed+Tech\\_-\\_WW\\_WW\\_-\\_SkillsNetwork-Courses-IBMDeveloperSkillsNetwork-DS0701EN-SkillsNetwork-21253531](https://geo.nyu.edu/catalog/nyu_2451_34572?cm_mmc=Email_Newsletter_-_Developer_Ed+Tech_-_WW_WW_-_SkillsNetwork-Courses-IBMDeveloperSkillsNetwork-DS0701EN-SkillsNetwork-21253531)

How Much Do Yoga Studio Owners Make?: Income & Expenses. (2020, June 13). Retrieved December 02, 2020, from <https://studiogrowth.com/how-much-do-yoga-studio-owners-make/>

List of postal codes of Canada: M. (2020, September 21). Retrieved December 02, 2020, from [https://en.wikipedia.org/wiki/List\\_of\\_postal\\_codes\\_of\\_Canada:\\_M](https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M)