

THE BATTLE OF NEIGHBORHOODS: SETTING UP YOGA STUDIOS IN DOWNTOWN TORONTO

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Background: health lifestyle trend



- A healthy lifestyle is one of the most important trends for a modern person. It involves a balanced diet and physical exercise aimed at strengthening health.
- Sport venues industry is one of the most developing and popular.
- One of the perspective directions is yoga studios. Multiple health benefits related to yoga, celebrity endorsement & promotion of yogic practices drive the growth of the global yoga market.
- As it is known, a majority of people practicing yoga are vegetarian, as this is one of the principles of yoga (Principle of ethical attitude to the world and of avoiding violence)

DOWNTOWN TORONTO



- Downtown Toronto is a dynamically developing area with a huge potential, due to the fact that a large number of people who monitor their health and wish to live a healthy lifestyle live, work, and study there.
- Downtown Toronto is the main central business district of Toronto, Ontario, Canada. Located entirely within the district of Old Toronto, it is approximately 17 square kilometres in area.
- Historical sites and landmarks include the Arts & Letter Club, the Church of the Holy Trinity, Mackenzie House, Maple Leaf Gardens, Old City Hall, and the Toronto Police Museum and Discovery Centre.

Business problem description

- **1. Which neighborhoods of Downtown Toronto are the best for opening yoga studios?**
- 2. Which neighborhoods venues can affect decision making?**

DATA

- **List of neighborhoods of Downtown Toronto**

retrieve the URL from wikipedia:

[https://en.wikipedia.org/wiki/List of postal codes of Canada: M](https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M)

- **Geographical coordinates of neighborhoods locations**

geopy.geocoders from GeoPy library in python

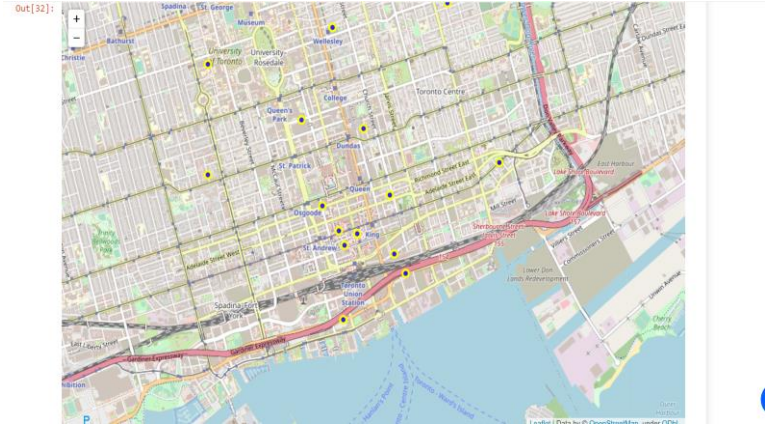
- **List of all venues located in above neighborhoods**

Foursquare API data provider

Methodology

Explore neighborhoods of Downtown Toronto

One Hot encoding, k-mean clustering using sklearn library



| | PostalCode | Borough | Neighborhood | Latitude | Longitude | cluster | 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 | M5A | Downtown Toronto | Regent Park, Harbourfront | 43.654260 | -79.360636 | 5 | Coffee Shop | Park | Bakery | Café | Breakfast Spot | Distribution Center | Performing Arts Venue | Pub | Restaurant | Mexican Restaurant |
| 1 | M5B | Downtown Toronto | Garden District, Ryerson | 43.657162 | -79.378937 | 3 | Café | Theater | Burrito Place | Ramen Restaurant | Comic Shop | Japanese Restaurant | Coffee Shop | Sandwich Place | Music Venue | Plaza |
| 2 | M5C | Downtown Toronto | St. James Town | 43.651494 | -79.375418 | 0 | Gastropub | Café | Coffee Shop | Farmers Market | BBQ Joint | Park | New American Restaurant | Middle Eastern Restaurant | Cosmetics Shop | Restaurant |
| 3 | M5E | Downtown Toronto | Berczy Park | 43.644771 | -79.373306 | 0 | Seafood Restaurant | Farmers Market | Coffee Shop | Cocktail Bar | Fountain | Bakery | French Restaurant | Park | Cheese Shop | Museum |
| 4 | M5G | Downtown Toronto | Central Bay Street | 43.657952 | -79.387383 | 5 | Coffee Shop | Café | Italian Restaurant | Yoga Studio | Dessert Shop | Park | Modern European Restaurant | Pizza Place | Middle Eastern Restaurant | Poke Place |
| 5 | M6G | Downtown Toronto | Christie | 43.669542 | -79.422564 | 2 | Grocery Store | Café | Park | Coffee Shop | Candy Store | Nightclub | Italian Restaurant | Restaurant | Baby Store | Athletics & Sports |

Analyzing already existed sporting venues and vegan restaurants

Visualizing them using folium library.

Results

- It still lacks yoga studios in comparison to other sporting venues in neighborhoods of Downtown Toronto and opening them is seen as profitable.
- location of new yoga studios near the vegetarian restaurants will allow us to attract their visitors as potential clients of yoga studios
- After after analyzing neighborhoods we define 2 appropriate locations such as Richmond and First Canadian Place as first candidates for opening yoga studios.

Discussions

Many other factors such as

- size of community in each neighborhood,
- land price,
- transport availability,
- legislation requirement and etc.

should be analyzed for decision making process.

Conclusions

- **Machine learning techniques and algorithms** help us process big data sets comprehensively and allow to make correct business decisions in a short time.
- Python libraries such as **sklearn** for clustering and modeling process, **geospy** for finding geographical coordinates.
- **Folium library** for visualization data location and applying **Foursquare API** make process easy and effective for analyzing and decision making process.