

# Optimum Location for an Indian Restaurant in Toronto

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Sep 19, 2019

# Opening a new restaurant in Toronto

- Toronto is a large metropolitan area, divided into many neighborhoods
- Has a diverse demographics - resulting in all different types of bars, cafes and restaurants
- Lots of Asian (Chinese, Korean, Thai, Indian) restaurants in the city
- Like to advise a client on the optimum location to open an Indian restaurant

# Data Acquisition and Cleaning

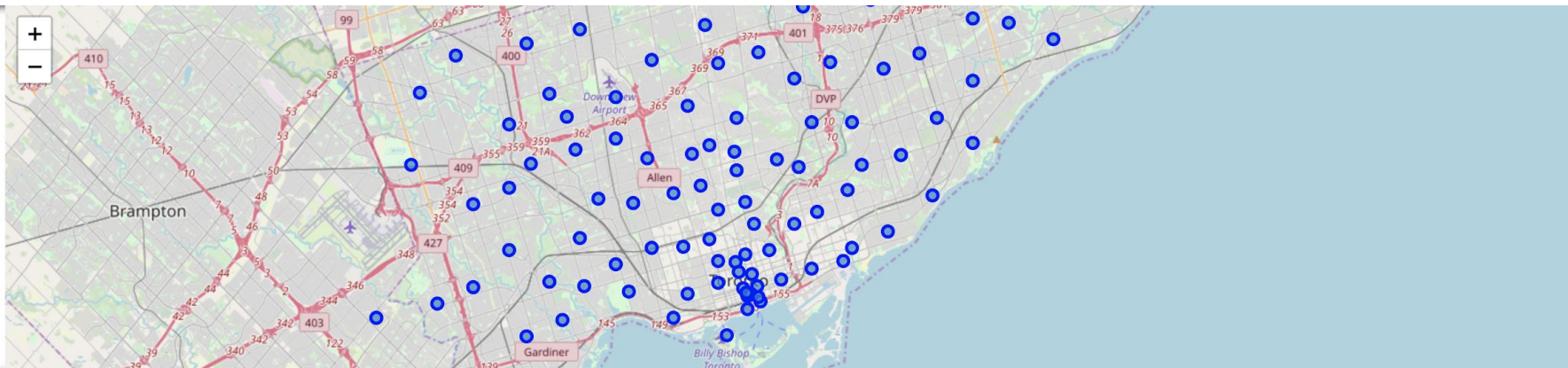
- Toronto neighborhood data from a table in a Wiki page
  - [https://en.wikipedia.org/wiki/List\\_of\\_postal\\_codes\\_of\\_Canada:\\_M](https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M)
- Neighborhood longitude, latitude data from Geocoder APIs
- Venue data for each neighborhood using FourSquare APIs
  - <https://developer.foursquare.com/docs>
- Remove new line and eol characters from Wiki data
- Drop rows with missing data for Boroughs. Adjust missing Neighborhood data

# Toronto Neighborhoods

Out[4]:

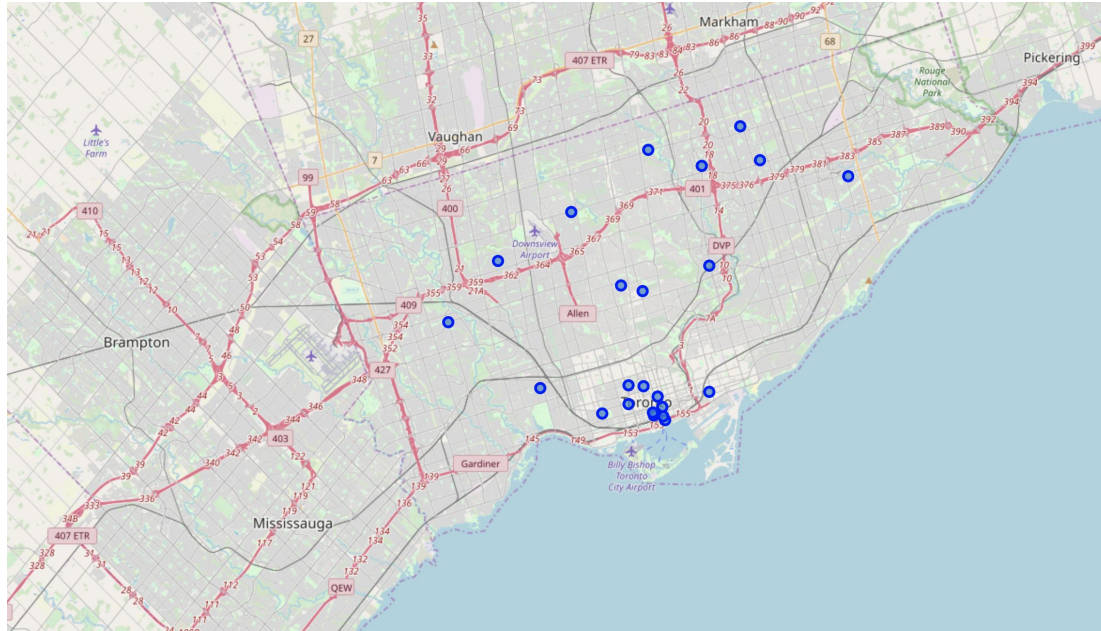
	Postcode	Borough	Neighbourhood	Latitude	Longitude
0	M3A	North York	Parkwoods	43.753259	-79.329656
1	M4A	North York	Victoria Village	43.725882	-79.315572
2	M5A	Downtown Toronto	Harbourfront,Regent Park	43.654260	-79.360636
3	M6A	North York	Lawrence Heights,Lawrence Manor	43.718518	-79.464763
4	M7A	Queen's Park	Not assigned	43.662301	-79.389494

Out[6]:



# Toronto Neighborhoods with Asian Restaurants

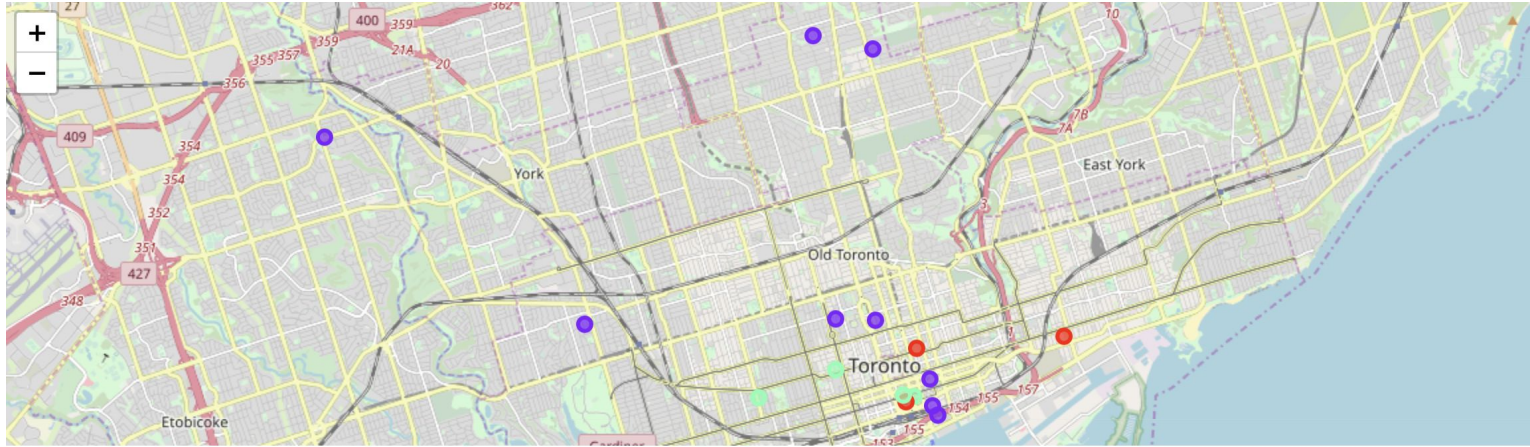
“Asian”: Thai, Malay, Afghan, Ethiopian, Chinese. Note: Ethiopian was added due to it's food being similar to Indian to some extent.



# Data Science Techniques

- Four Square API
  - Venue data for each neighborhood
- Folium Maps
  - Visualize geographical information
- K-means clustering
  - Simple and popular machine learning technique
  - Primary variable: asian food density
  - Number of clusters: 3

# Toronto Neighborhoods with K-mean clustering on “Asian” restaurants density



- **Cluster Red:** Neighborhoods with just 1 Asian restaurant
- **Cluster Blue:** Neighborhoods with 2 or 3 Asian restaurants
- **Cluster Green:** Neighborhoods with 4 to 5 (highest number) of Asian restaurants.

# Recommendation Basis

- Avoid neighborhoods that already have Indian restaurants
- Asian food (Chinese, Thai, Malay) similar to Indian spicy food
- Ethiopia - non asian country, but cuisine similar to Indian
- High density of “asian” restaurants means high demand for spicy, flavorful food.



# Recommendation

- Idle locations to open an Indian restaurant are in the Little Portugal, China Town, First Canadian Place and Commerce Court neighborhoods.
- Avoid Westmount, North Toronto, Cedarbrae, and BayView village as they don't have very few asian restaurants.

# Future Direction

With additional time and resources, further analysis should be done to include the following:

- Population of each neighborhood.
- Ethnic and income breakdown
- Residential vs. business mix
- Proximity to famous landmarks in the city