

The background is a deep blue gradient with a subtle pattern of white dots. Overlaid on the left side are several concentric circular patterns and a large, semi-circular scale. The scale has numerical markings from 140 to 260 in increments of 10. There are also smaller circular elements with arrows indicating clockwise or counter-clockwise movement.

# IDENTIFYING THE RESTAURANT CUISINE TRENDS

IBM APPLIED DATA SCIENCE CAPSTONE PROJECT

HWEI ONG

# INTRODUCTION

- Vibrant restaurant industry in many cities
  - Changes in demographics and lifestyle are driving the demand for such services
  - Food trends change and drive consumer spending
- Starting a new restaurant business requires significant capital and planning upfront.
- It would be ideal to be able to research the restaurant industry of a city's neighborhoods in order to gain some insights as to what is currently available.

# BUSINESS PROBLEM / TARGET AUDIENCE

The business problem: how to identify restaurant cuisine trends in a city.

The target audience would be:

- investors and/or restaurateurs (i.e. commercial business planning) who are interested in opening a new restaurant;
- policy wonks involved in urban planning as such analytics can guide the zoning of different areas for development; and
- property developers who are interesting in knowing what new property type would be suitable for an area (e.g. a mixed-use residential building vs. a commercial building).

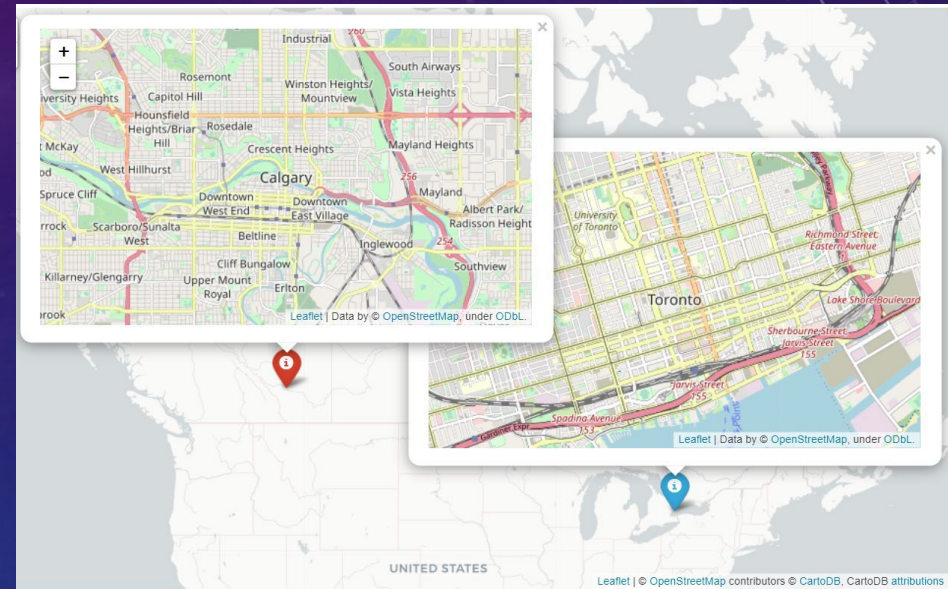


# REQUIRED DATA

The Canadian cities used in this analysis are Toronto, ON and Calgary, AB.

The following data are required:

- A list of neighborhoods and their respective latitude and longitude coordinates for each city
- A list of venues found in each neighborhood(s)



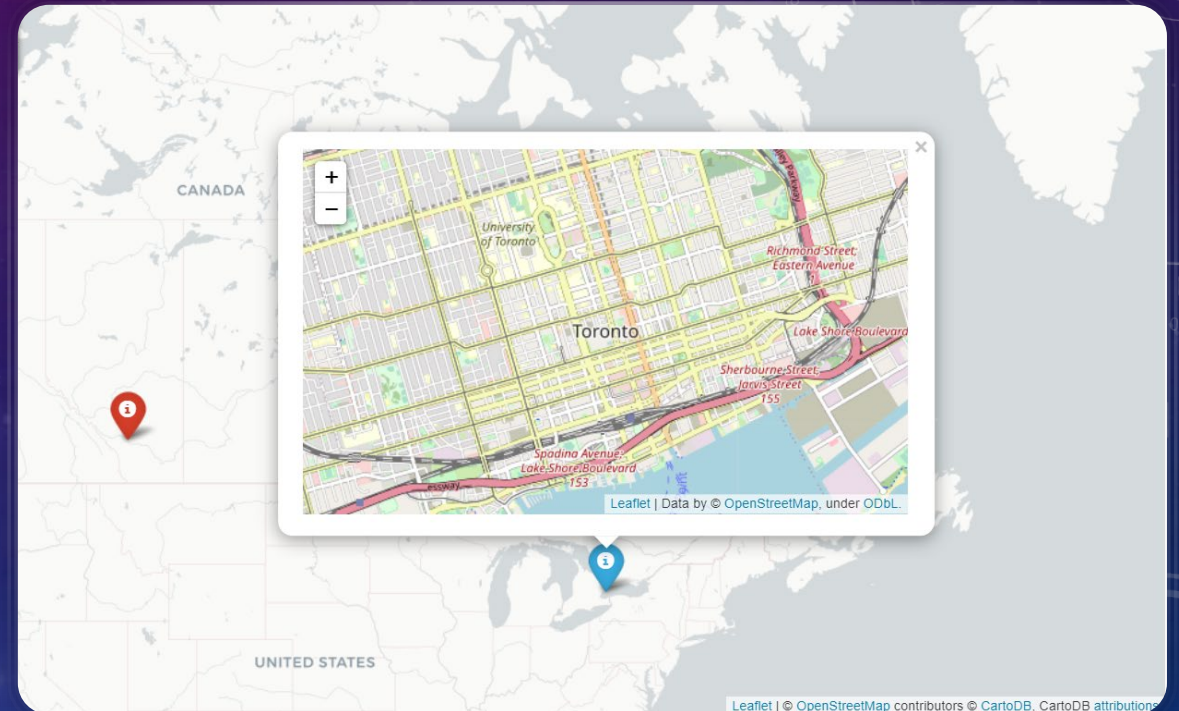
# DATA ACQUISITION AND CLEARNING

The list of neighborhoods for Toronto, ON and Calgary, AB was scraped from the following Wikipedia pages:

- Toronto ([https://en.wikipedia.org/wiki/List\\_of\\_postal\\_codes\\_of\\_Canada: M](https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M))
- Calgary ([https://en.wikipedia.org/wiki/List\\_of\\_postal\\_codes\\_of\\_Canada: T](https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_T))
- Null and duplicate values were dropped
- Features for each neighborhood(s) were obtained using Foursquare API
  - those corresponding to restaurant types were extracted
- The cleaned dataset contains :
  - 43 features for 39 neighborhoods in Toronto
  - 25 features for 33 neighborhoods in Calgary.

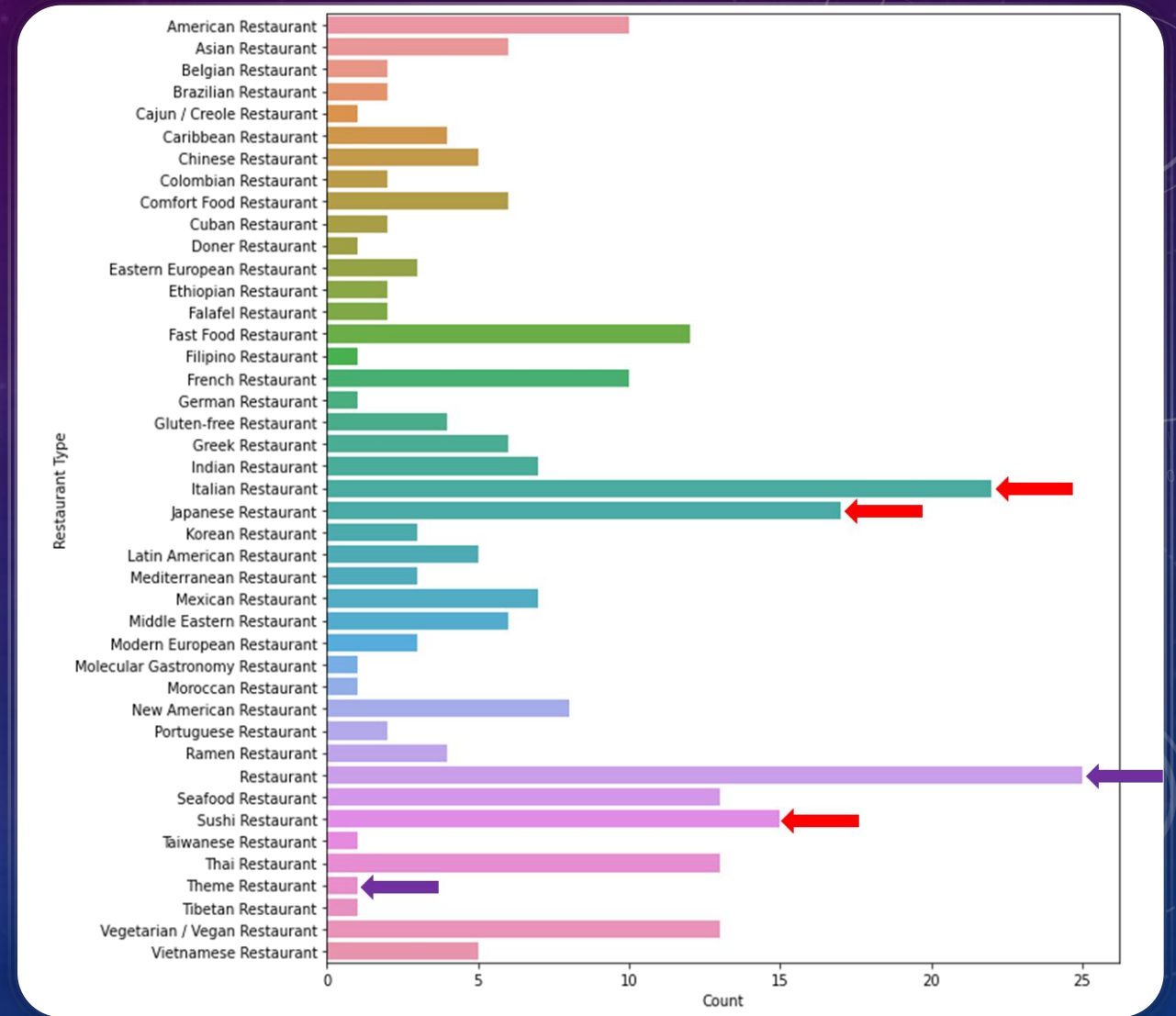


# TORONTO



# AGGREGATION OF RESTAURANTS BY CUISINE TYPE / TORONTO

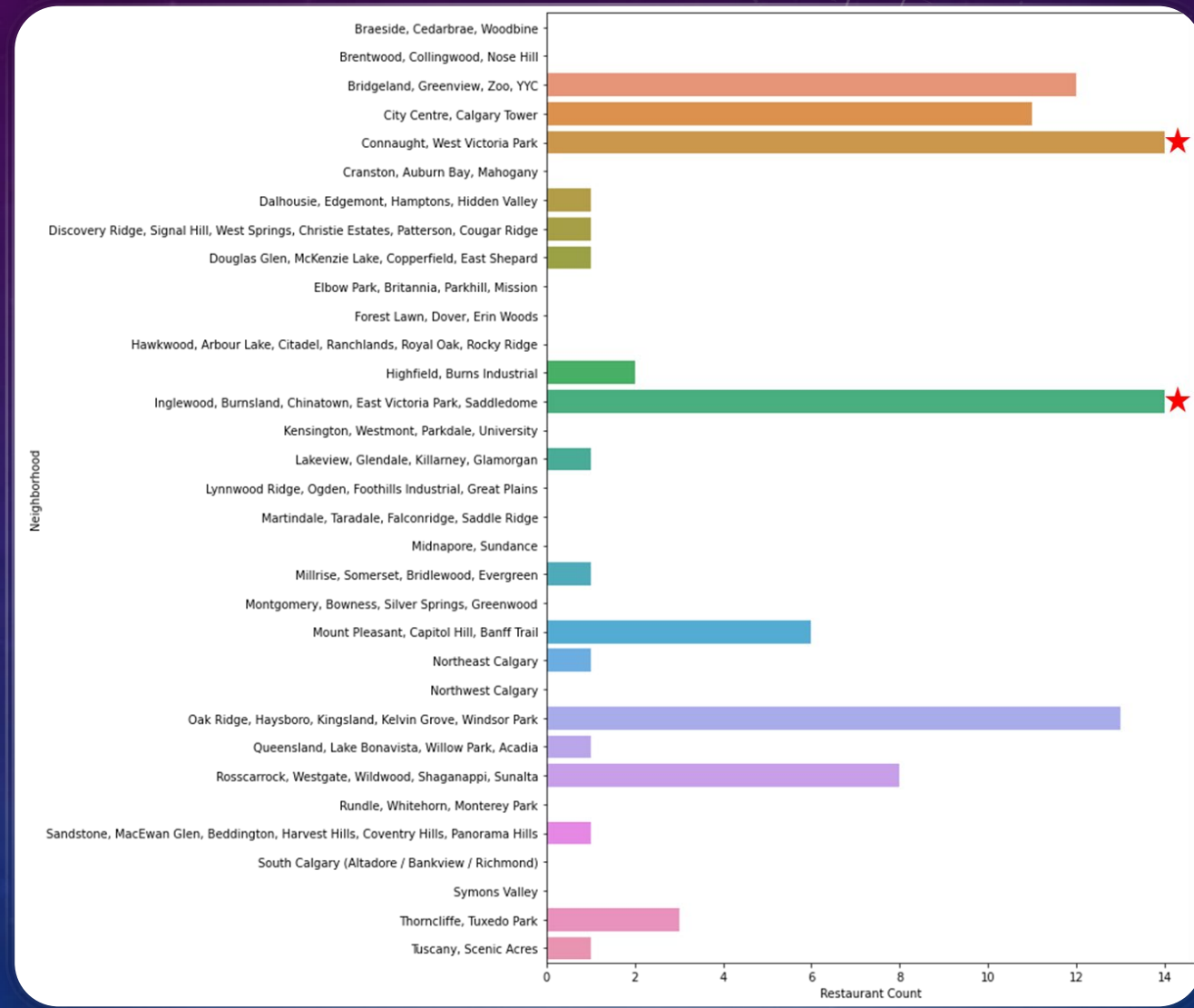
- The predominant cuisines (indicated by red arrows):
  1. Italian
  2. Japanese
  3. Sushi
- Indeterminate cuisine type by the 'Restaurant' and 'Theme Restaurant' (indicated by purple arrows)



# TOTAL NUMBER OF RESTAURANTS / TORONTO

The red stars show the top two sites with a high number of restaurants:

1. First Canadian Place and Underground City
2. Church and Wellesley





# PREDOMINANT CUISINE PER CLUSTER / TORONTO

Cluster 1 : Sushi

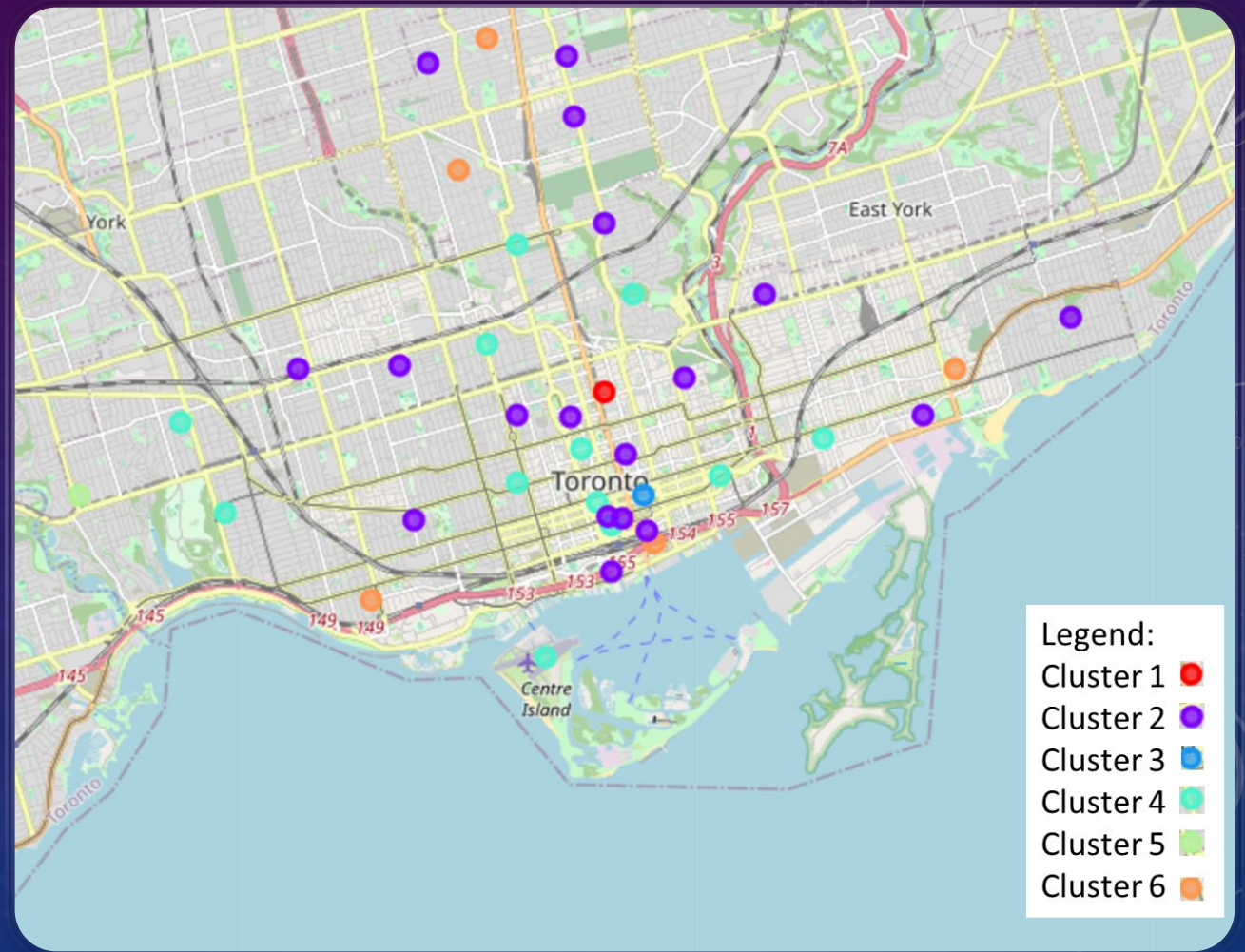
Cluster 2 : Vietnamese

Cluster 3 : Thai

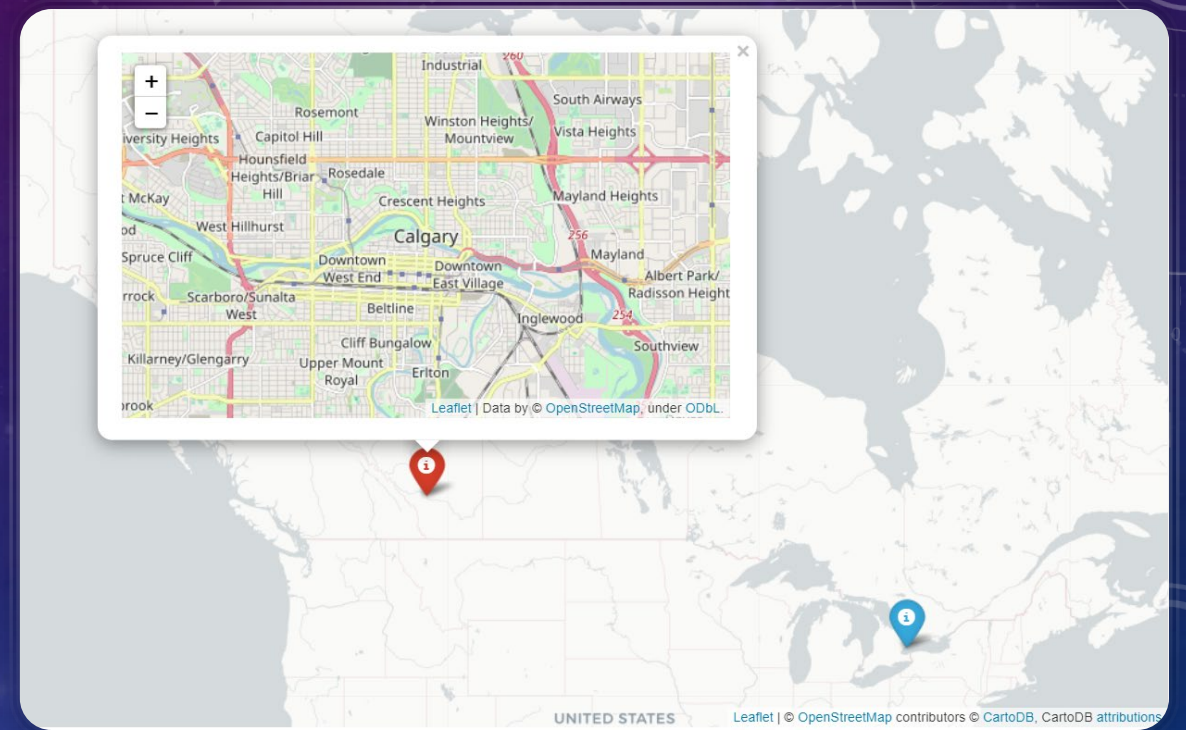
Cluster 4 : Vietnamese

Cluster 5 : Greek

Cluster 6 : equally split between Sushi  
and Fast Food



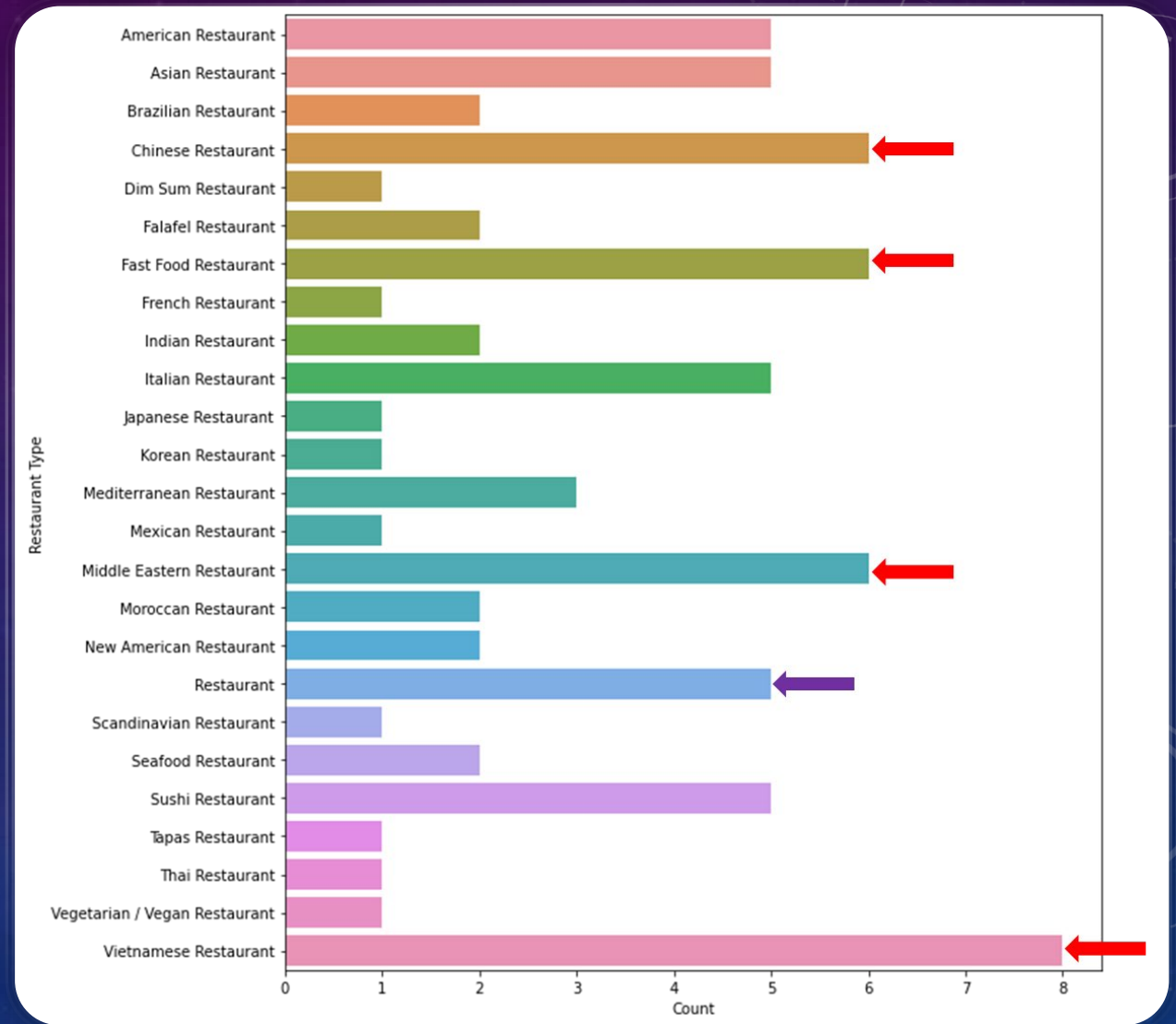
# CALGARY





# AGGREGATION OF RESTAURANTS BY CUISINE TYPE / CALGARY

- The predominant cuisines (indicated by red arrows):
  1. Vietnamese
  2. Middle Eastern
  3. Fast Food
  4. Chinese
- Indeterminate cuisine type by the 'Restaurant' (indicated by purple arrow)

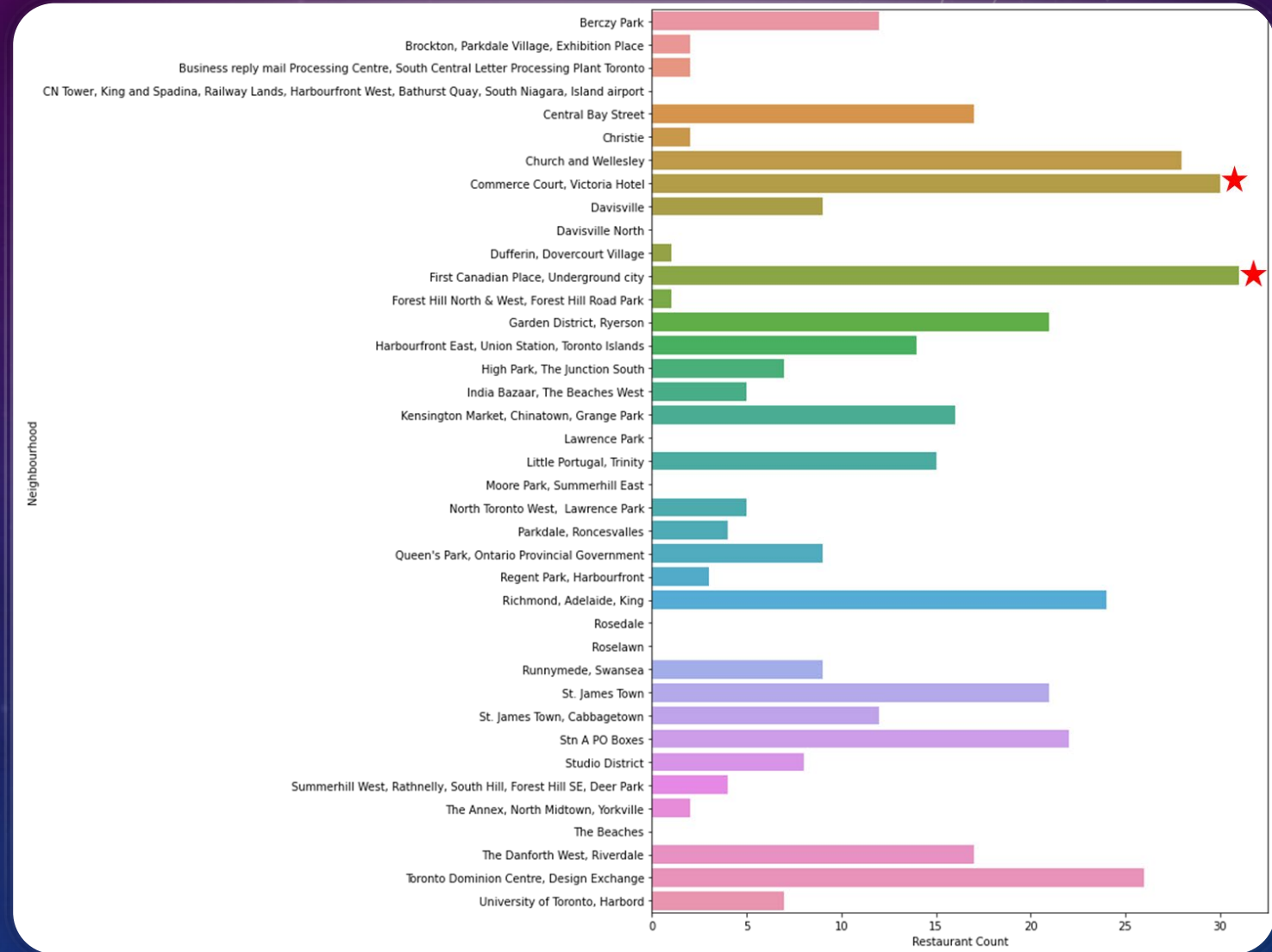




# TOTAL NUMBER OF RESTAURANTS / CALGARY

The red stars show the top two sites with a high number of restaurants:

1. Connaught West and Victoria Park
2. Inglewood, Burnside, Chinatown, East Victoria Park and Saddlestone. Church and Wellesley



# PREDOMINANT CUISINE PER CLUSTER

Cluster 1 : Asian (Vietnamese  
and Chinese)

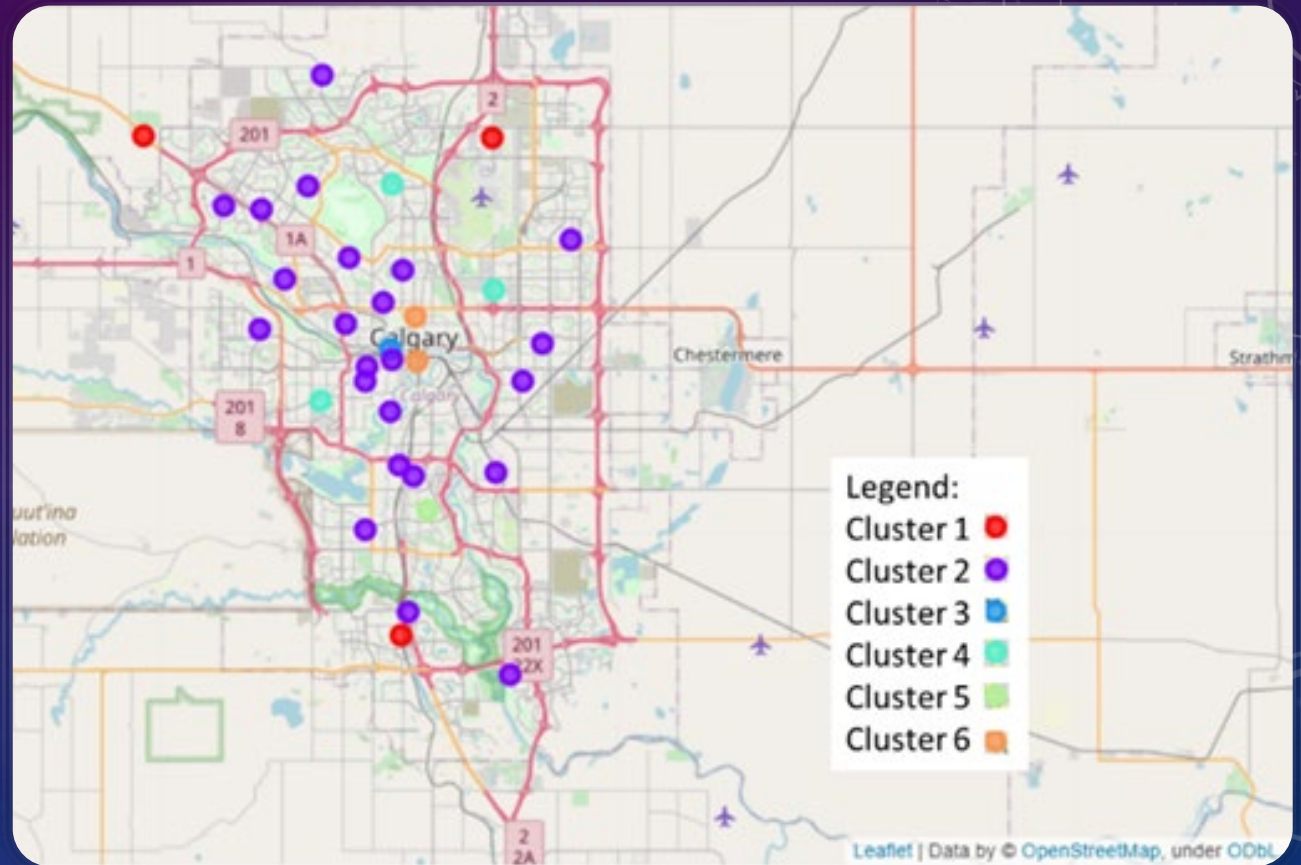
Cluster 2 : Vietnamese

Cluster 3 : American

Cluster 4 : Vietnamese

Cluster 5 : American

Cluster 6 : Asian



# CONCLUSIONS

- Vietnamese cuisine is the top trend in both Toronto and Calgary
  - prospective investors and/or restaurateurs should consider other cuisine types
- Urban planners and property developers will find more opportunities in Calgary for initiating new and improving current developments
- Further refinements are required to improve the methodology and obtain more nuanced and accurate analytics.