

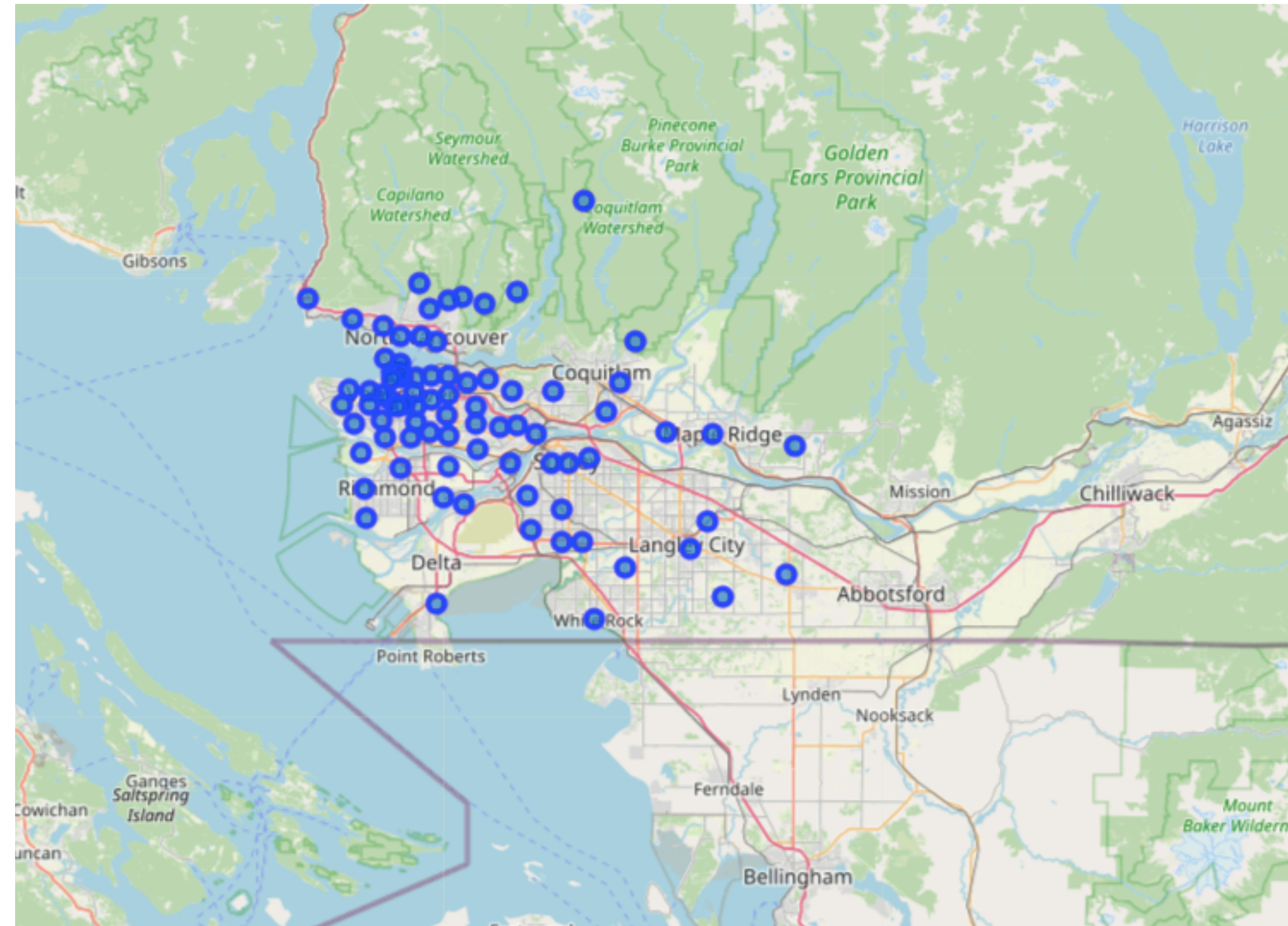
# Analyzing the features of different cities in Metro Vancouver Area

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# **Introduction**

- 1. Metro Vancouver is a Canadian subdivision and corporate entity**
- 2. It consists of 21 municipalities**
- 3. It has the greatest population and population density in British Columbia**
- 4. Its population has diverse background and about 50% of the population is composed of visible minority groups.**

# A map of Metro Vancouver



A map of Metro Vancouver generated by Folium

# Demographics

| Canada 2016 Census <sup>[12]</sup> |                             | Population | % of total population (2016) |
|------------------------------------|-----------------------------|------------|------------------------------|
| Visible minority group             | Chinese                     | 474,655    | 19.6%                        |
|                                    | South Asian                 | 291,005    | 12%                          |
|                                    | Filipino                    | 123,170    | 5.1%                         |
|                                    | Korean                      | 52,980     | 2.2%                         |
|                                    | Southeast Asian             | 44,905     | 1.9%                         |
|                                    | West Asian                  | 46,010     | 1.9%                         |
|                                    | Latin American              | 34,805     | 1.4%                         |
|                                    | Japanese                    | 30,110     | 1.2%                         |
|                                    | Black                       | 29,830     | 1.2%                         |
|                                    | Arab                        | 16,430     | 0.7%                         |
|                                    | Visible minority, n.i.e.    | 6,490      | 0.3%                         |
|                                    | Multiple visible minorities | 35,295     | 1.5%                         |
| Total visible minority population  |                             | 1,185,680  | 48.9%                        |
| European Canadian                  |                             | 1,179,100  | 48.6%                        |
| Aboriginal group                   |                             | 61,455     | 2.5%                         |
| Total population                   |                             | 2,426,235  | 100%                         |

The diversity of the population in Metro Vancouver Area

# **Project goal**

- 1. To explore each city within the area using foursquare location data**
- 2. Find out the top 5 venues in each city**
- 3. Cluster the area into 5 clusters and explore the top attractions in each cluster**

# Data source and preparation

1. The postal codes for all British Columbian cities are scraped from wiki page  
(title: List of postal codes of Canada: V, website: [https://en.wikipedia.org/wiki/List\\_of\\_postal\\_codes\\_of\\_Canada:\\_V](https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_V).)
2. The city list is obtained from Metro Vancouver official website
3. The latitude and longitude of each city is retrieved using Python pgeocode library.
4. The venues explored within each city is implemented using foursquare API.




City of Vancouver, Burnaby and Surrey (inner northwest) has most venues

|                       | PostalCode | City Latitude | City Longitude | Venue name | Venue Latitude | Venue Longitude | Venue Category |
|-----------------------|------------|---------------|----------------|------------|----------------|-----------------|----------------|
| City                  |            |               |                |            |                |                 |                |
| Vancouver             | 755        | 755           | 755            | 755        | 755            | 755             | 755            |
| Burnaby               | 68         | 68            | 68             | 68         | 68             | 68              | 68             |
| SurreyInner Northwest | 66         | 66            | 66             | 66         | 66             | 66              | 66             |

Number of Venues in Vancouver, Burnaby, and Surrey (Inner Northwest)


# City of Coquitlam (North), Delta (East), North Vancouver and Richmond (North West) has the most venues for nature lovers

----CoquitlamNorth----

|   | venue  | freq |
|---|--|------|
| 0 |  Mountain | 0.5  |
| 1 | Park   | 0.5  |
| 2 | Accessories Store  | 0.0  |
| 3 | Other Great Outdoors   | 0.0  |
| 4 | Movie Theater  | 0.0  |


Coquitlam (North)

----North Vancouver ----

|   | venue   | freq |
|---|---|------|
| 0 |  Trail | 0.19 |
| 1 | Coffee Shop   | 0.07 |
| 2 | Restaurant  | 0.05 |
| 3 | Japanese Restaurant   | 0.05 |
| 4 | Ski Chalet  | 0.05 |


North Vancouver

----DeltaEast----

|   | venue   | freq |
|---|---|------|
| 0 |  Trail | 1.0  |
| 1 | Accessories Store   | 0.0  |
| 2 | Other Great Outdoors  | 0.0  |
| 3 | Mountain  | 0.0  |
| 4 | Movie Theater   | 0.0  |

Delat (East)

----RichmondNorthwest----

|   | venue   | freq |
|---|---|------|
| 0 |  Trail | 0.75 |
| 1 | Shopping Plaza  | 0.25 |
| 2 | Accessories Store   | 0.00 |
| 3 | Other Great Outdoors  | 0.00 |
| 4 | Mountain  | 0.00 |

Richmond (Northwest)



City of Richmond (North), Surrey (upper west) and White Rock are nice destinations for Asian cuisine

----RichmondNorth----

|   | venue                | freq |
|---|----------------------|------|
| 0 | Playground           | 0.33 |
| 1 | Asian Restaurant     | 0.33 |
| 2 | Park                 | 0.33 |
| 3 | Accessories Store    | 0.00 |
| 4 | Other Great Outdoors | 0.00 |

Richmond (North)

----SurreyUpper West----

|   | venue             | freq |
|---|-------------------|------|
| 0 | Indian Restaurant | 0.25 |
| 1 | Gym               | 0.25 |
| 2 | Bus Station       | 0.25 |
| 3 | Coffee Shop       | 0.25 |
| 4 | Moving Target     | 0.00 |

Surrey Upper West

----White Rock----

|   | venue               | freq |
|---|---------------------|------|
| 0 | Japanese Restaurant | 0.12 |
| 1 | Seafood Restaurant  | 0.08 |
| 2 | Café                | 0.08 |
| 3 | Pizza Place         | 0.08 |
| 4 | Beach               | 0.04 |

White Rock

----Langley Township----

|   | venue               | freq |
|---|---------------------|------|
| 0 | Playground          | 0.14 |
| 1 | Thai Restaurant     | 0.14 |
| 2 | Steakhouse          | 0.14 |
| 3 | American Restaurant | 0.14 |
| 4 | Grocery Store       | 0.14 |

# Conclusion and future directions

1. This project helps a newcomer grasp a brief pictures in terms of the activities available in different cities within metro Vancouver
2. Accuracy of the model has room for improvement
3. Further digging of the location data can reveal more information about each city
4. Ideas including:

Further group the venues to broader categories like entertainment, food services, lodging etc  
Visulize the venues on a map for better illustration