

*Coursera Capstone Project*  
*IBM Applied Data Science*

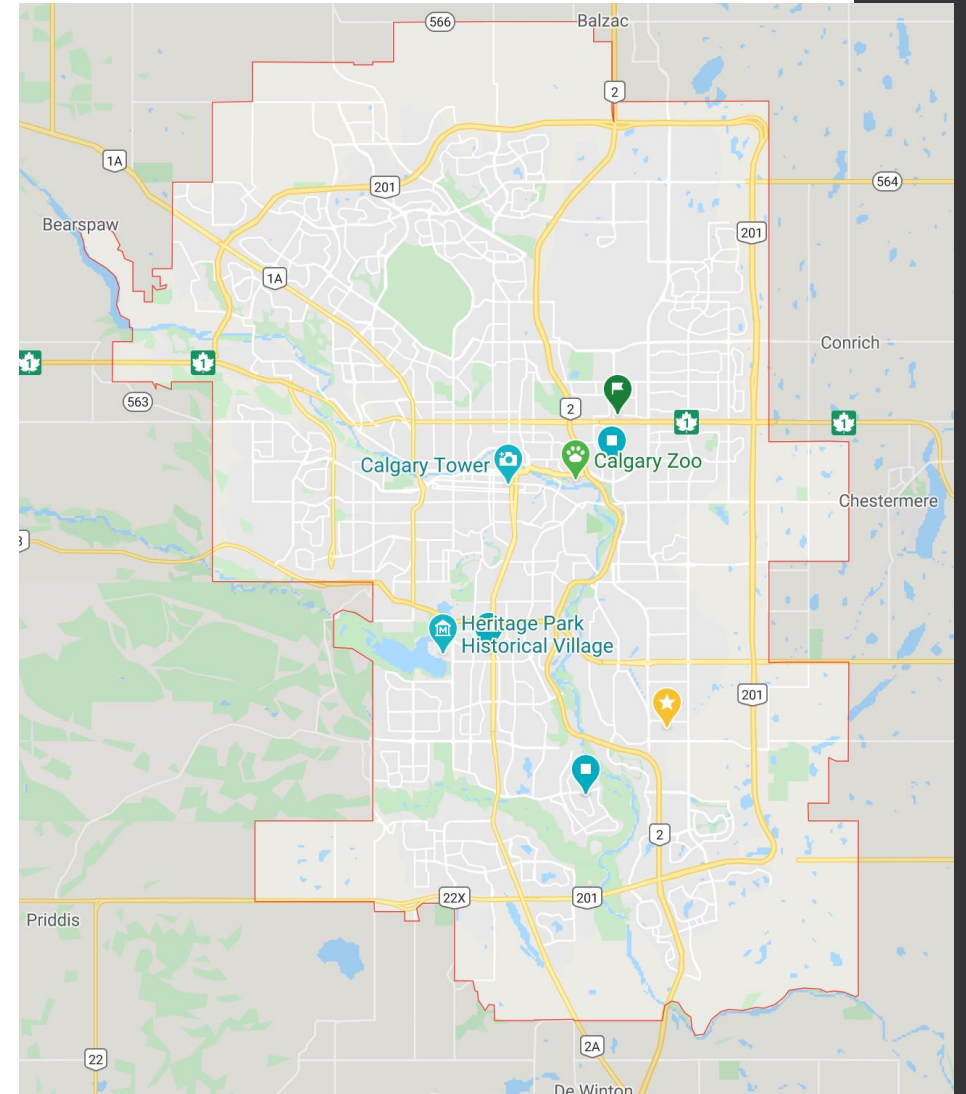
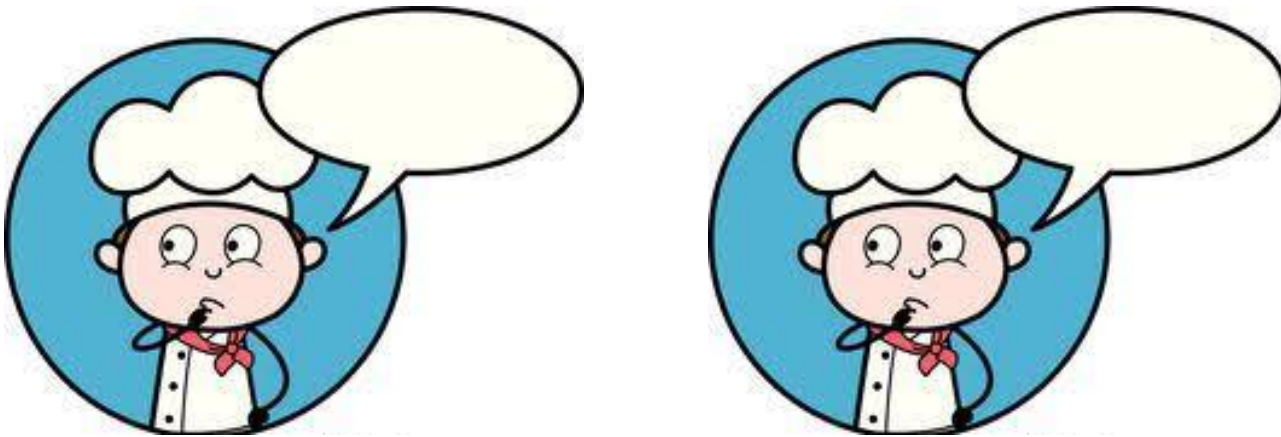
*BEST NEIGHBORHOOD TO OPEN A  
RESTAURANT IN CALGARY?*

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# Business Problem

- Location of restaurants is one of the primary factors in determining the success of the business's operations.
- How many restaurants are already in an area?
- Which restaurants are in those neighborhoods?
- What neighborhoods are similar to one another in terms of the quantity of restaurants?



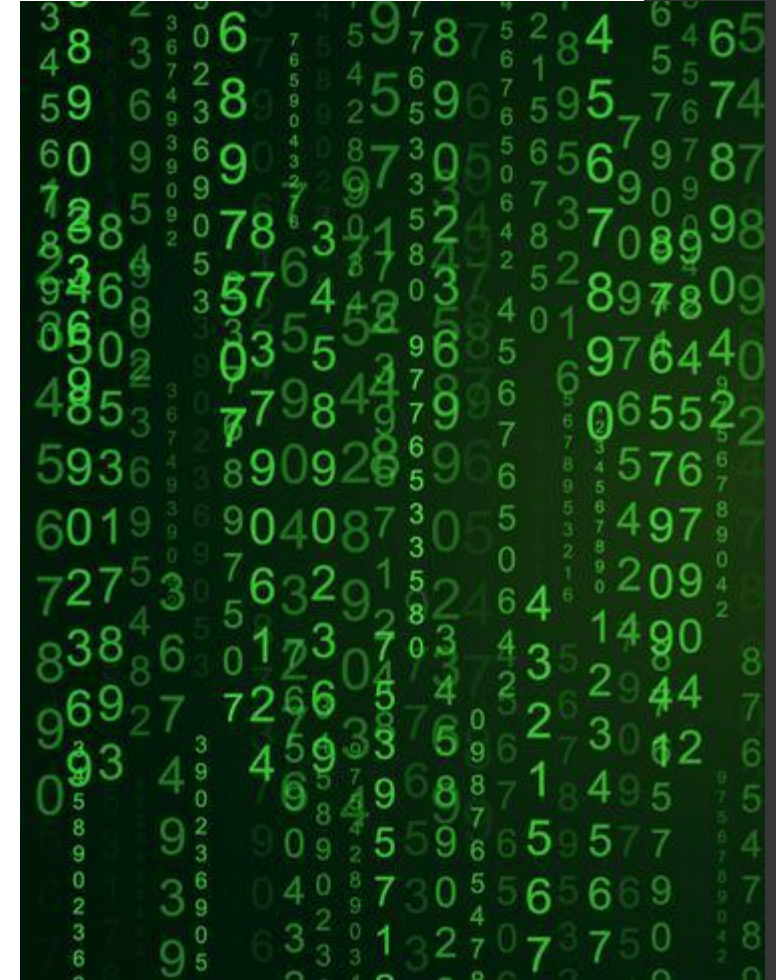
# Data

- Data Required

- ☐ Neighborhoods in Calgary, Alberta
- ☐ Latitude and longitudes for each of the neighborhoods
- ☐ Venue data

- Sources of Data

- ☐ Wikipedia page for neighborhoods  
([https://en.wikipedia.org/wiki/List\\_of\\_postal\\_codes\\_of\\_Canada:\\_T](https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_T))
- ☐ Geopy package for identifying latitude and longitude of neighborhoods when not available from Wikipedia
- ☐ Foursquare API for venue data



# Methodology

- Web scrape Wikipedia page for neighborhoods list and latitude and longitude coordinates
- Use Geopy Nominatim for any neighborhoods missing latitudes and longitudes in the Wikipedia Table
- Use Foursquare API to get venue data
- Process data so that data for Calgary, AB is grouped by neighborhood for each unique postal code.
- Add the General Venue Categories so that venues are identified as belonging to the Food business
- Cluster the data using k-means clustering
- Visualize the clusters on an interactive map using Folium



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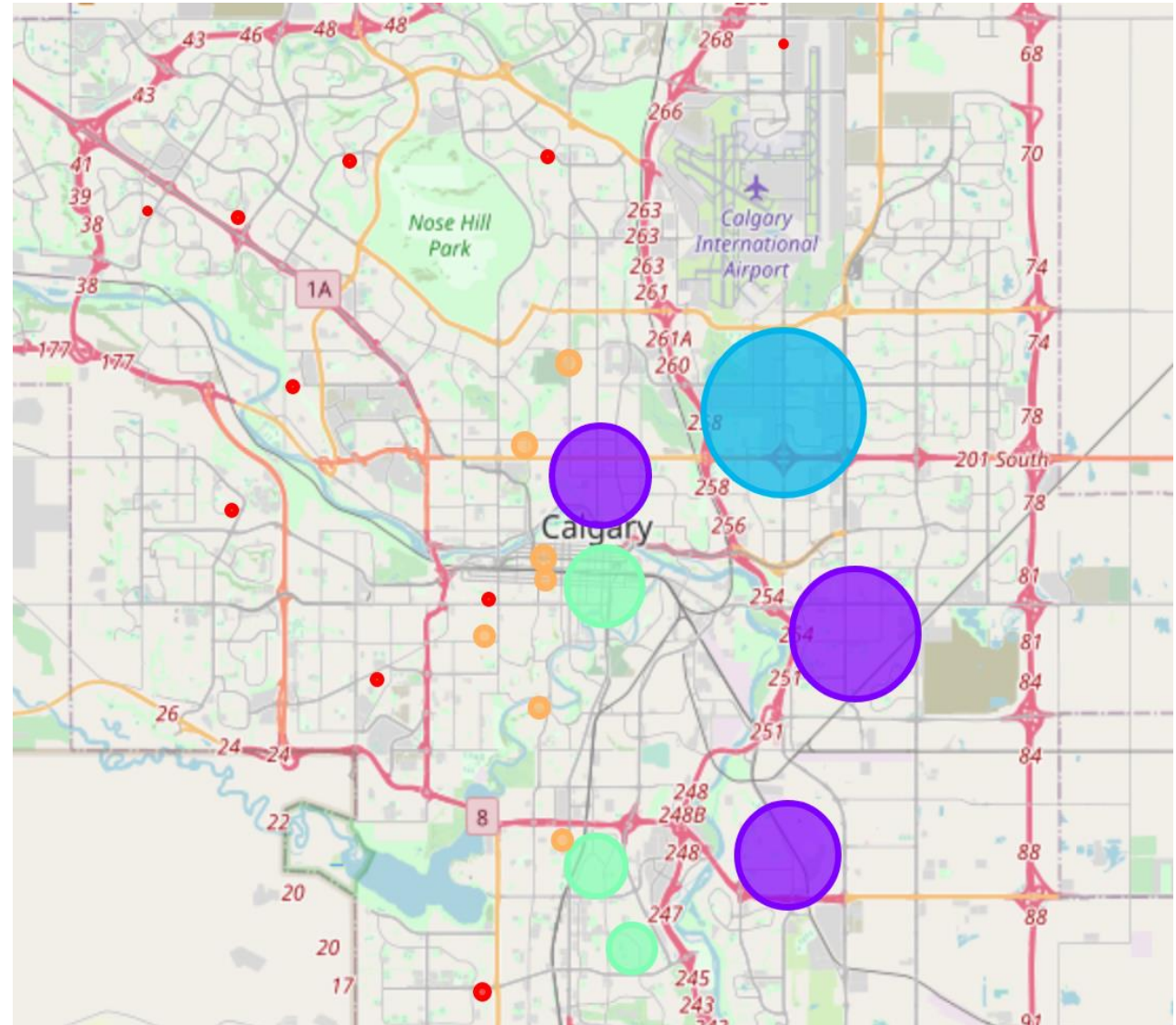


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# Results - Map

- Cluster 0:  $1 \leq \text{Quantity} \leq 3$
- Cluster 1:  $23 \leq \text{Quantity} \leq 30$
- Cluster 2:  $38 \leq \text{Quantity} \leq 38$
- Cluster 3:  $11 \leq \text{Quantity} \leq 18$
- Cluster 4:  $4 \leq \text{Quantity} \leq 5$

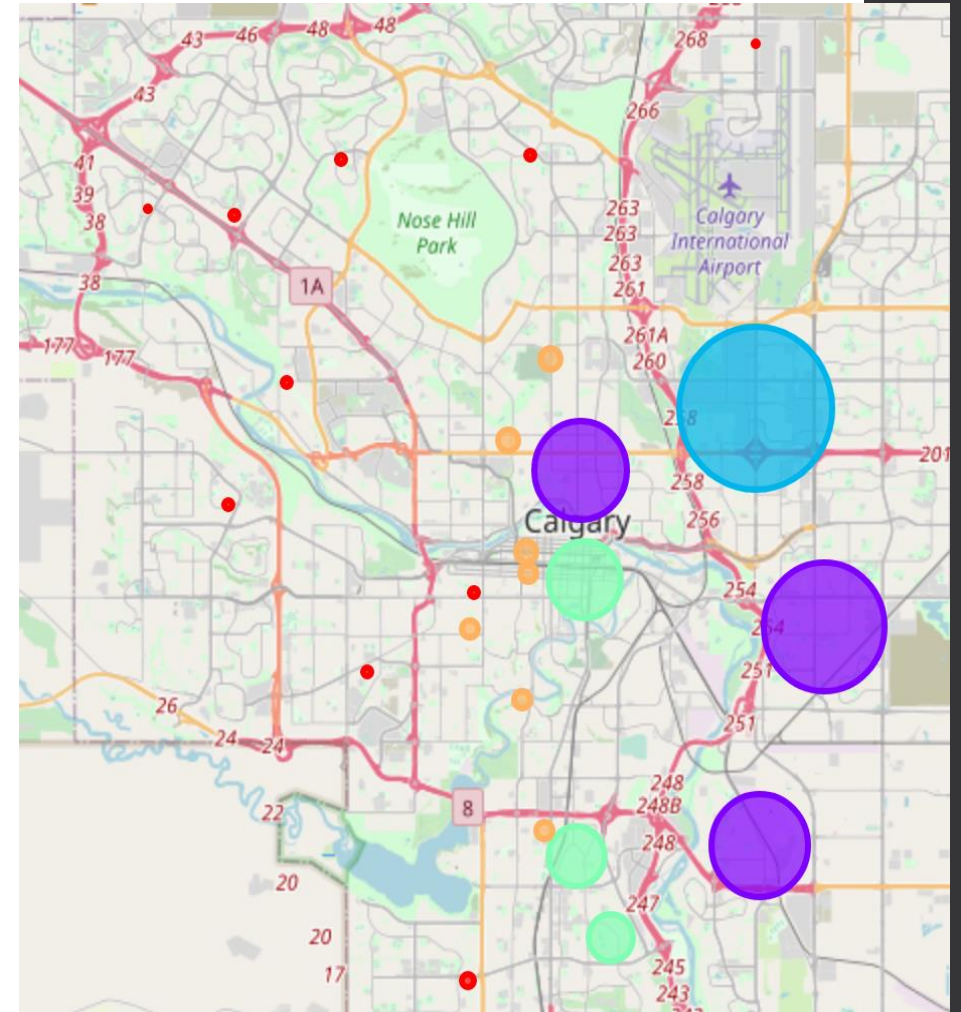


# Results - Table

Cluster Labels		Neighborhood	# of Restaurants	Venues
0	2	Inglewood, Burnsland, Chinatown, East Victoria...	38	Grumans Catering and Delicatessen, 5 Vines Win...
1	1	Connaught, West Victoria Park	30	Holy Grill, Posto Pizzeria and Bar, The Casbah...
2	1	Oak Ridge, Haysboro, Kingsland, Kelvin Grove, ...	24	The Keg Steakhouse + Bar - Macleod Trail, Bole...
3	1	City Centre, Calgary Tower	23	Gyu-Kaku Japanese BBQ, Holy Grill, Posto Pizze...
4	3	Rosscarrock, Westgate, Wildwood, Shaganappi, S...	18	Moti Mahal Restaurant, Shawarma Knight, Cluck ...

# Discussion

- The far West and far North neighborhoods of Calgary currently have the least amount of restaurants
- Having restaurants located along the northwest ring road could improve transportation costs and handling of ingredients due to simpler route
- Recommendations based upon quantity of restaurants and could be improved by looking at the number of residents in each neighborhood and the kinds of restaurants within each neighborhood



# Conclusions

- The north and west ends of Calgary would have the least competition for opening up a new restaurant.
- Clusters with more restaurants preside primarily downtown, by the airport, and the South-East corner

