



IBM Applied Data Science Capstone

Opening Bubble Tea Shop in Toronto, ON

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Business Problem

- Location of the Bubble Tea Shop is one of the most important decisions that will determine whether the mall will be a success or a failure
- To analyse and select the best locations in Toronto, ON to open a new Bubble Tea Shop
- **Business question**

In Toronto, if an investor is looking to open a Bubble Tea Shop, where would you recommend them to open it?



Data

► Required data:

- The data regarding neighbourhoods of Toronto.
- Latitude and longitude of neighbourhoods
- Venue data for each neighbourhood

► Sources of data:

- Wikipedia page for neighbourhoods:
https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M
- Geocoder package for latitude and longitude coordinates
- Foursquare API for venue data

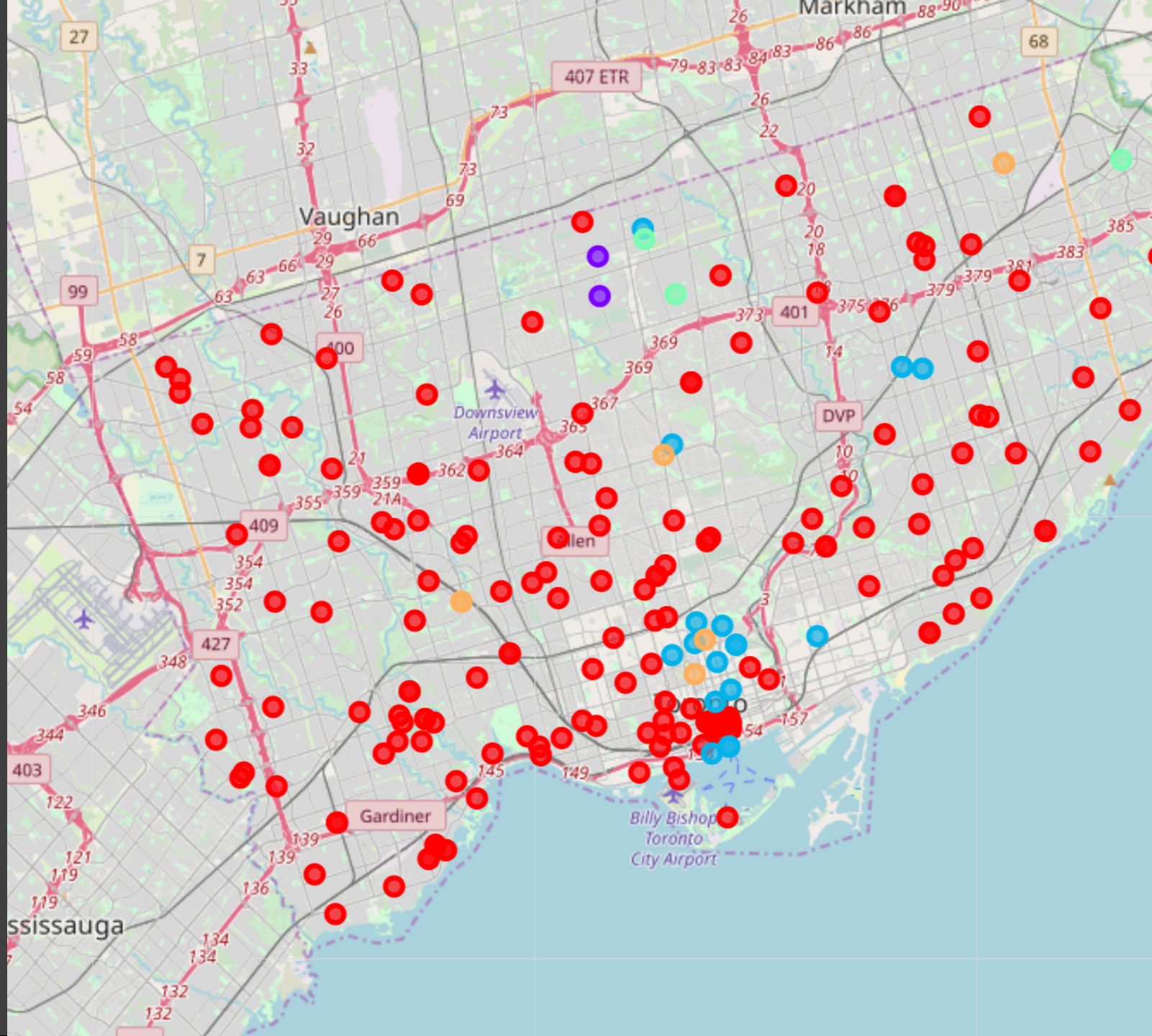


Methodology

- Web scraping Wikipedia page for neighbourhoods list using **Python Request** and **BeautifulSoup** packages
- Get latitude and longitude coordinates using **Python Geocoder**
- Use **Foursquare API** to get venue data
- Using **OneHot Encoding** to group data by neighbourhood and taking the mean of the frequency of occurrence of each venue category
- Filter venue category by Bubble Tea Shops
- Perform clustering on the data by using **K-means clustering**
- Visualize the clusters in a map using **Folium**

Results

- Categorized the neighbourhoods into 5 clusters :
- Cluster 0 (**Red**): Neighbourhoods with almost no Bubble Tea Shop
- Cluster 1 (**Purple**): Neighbourhoods with the highest number of Bubble Tea Shops
- Cluster 2 (**Blue**): Neighbourhoods with moderate concentration of Bubble Tea Shops
- Cluster 3 (**Green**): Neighbourhoods with high concentration Bubble Tea Shops
- Cluster 4 (**Orange**): Neighbourhoods with moderate concentration of Bubble Tea Shops





Discussion

- Most of the Bubble Tea Shops are concentrated in **Cluster 1** (Purple)
- High number of Tea Shops is observed in **Cluster 3** (Green)
- Moderate number is in **Clusters 2** and **4**
- **Cluster 0** has very low number to no Bubble Tea Shops in the neighbourhoods
- *It is advised to open Bubble Tea Shop in **Cluster 0** and take advantage of low competition.*



Recommendations

- Open new Bubble Tea Shop in neighbourhoods in cluster 0 with little to no competition
- Can also open in neighbourhoods in cluster 2 and 4 with moderate competition if have unique selling propositions to stand out from the competition
- Avoid neighbourhoods in cluster 1, already high concentration of Bubble Tea Shops and intense competition



Conclusion

- **Answer to business question:** The neighbourhoods in cluster 0 are the most preferred locations to open a new Bubble Tea Shop
- Findings of this project will help the relevant stakeholders to capitalize on the opportunities on high potential locations while avoiding overcrowded areas in their decisions to open Bubble Tea Shop