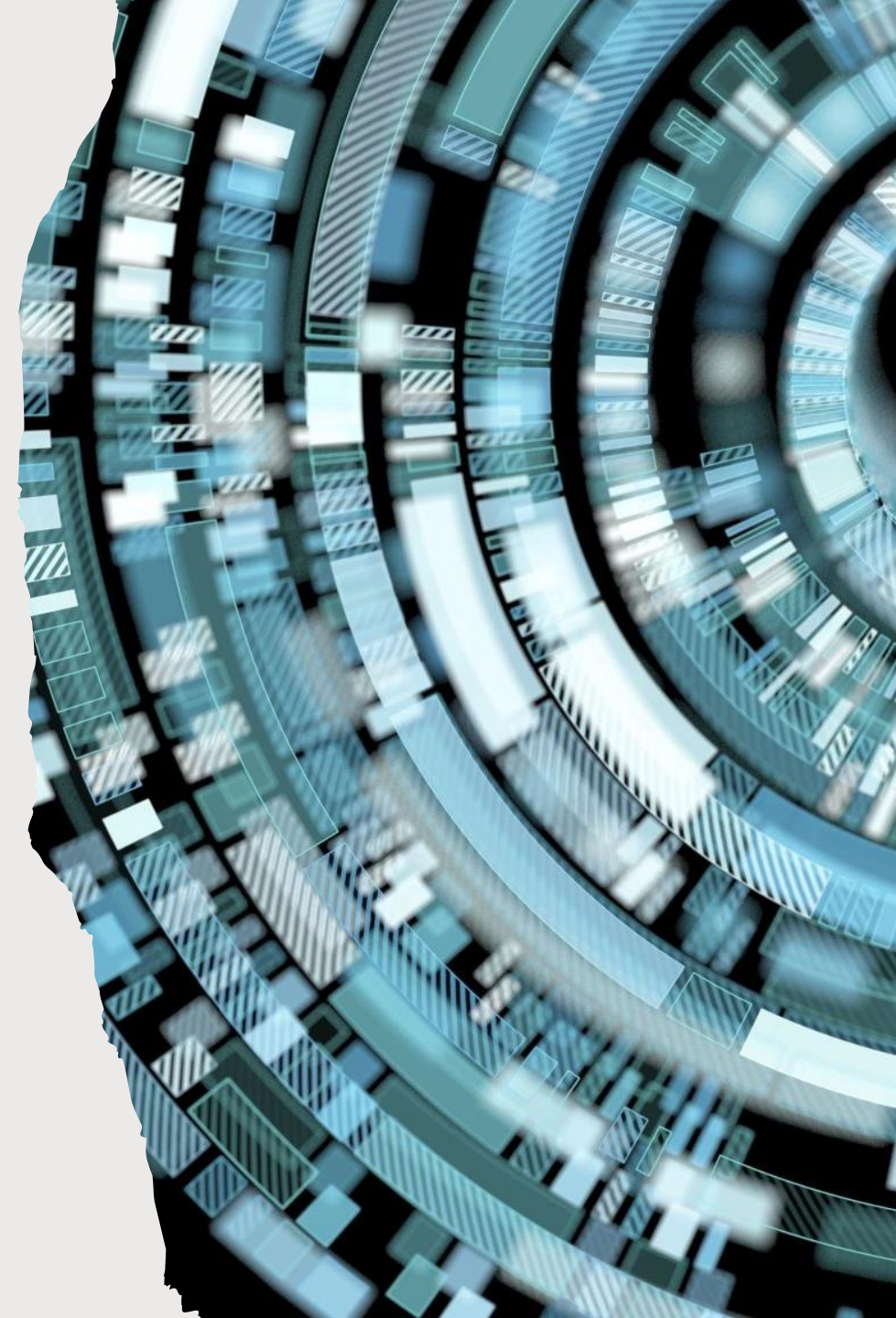


# Where should the new coffee shop open?

IBM Data Science – Applied Data Science Capstone  
Project

Week 5 – Final Presentation





## Where should the new coffee shop open?

To identify are there any opportunities to open a new coffee shop in the neighborhood in Toronto City, setting the central point as “City Hall”, the center of the city. Based on the JSON data file extraction, there are 50 coffee shops based on the API search. There are a total of 10 boroughs and 103 neighborhoods from the data. There are multiple neighborhoods under the same postal code and group into one postal code and treat as the same neighborhoods by analyze the selected neighborhoods situation.

# Data acquisition and cleaning

## Mainly 2 sources from Wiki and Foursquare

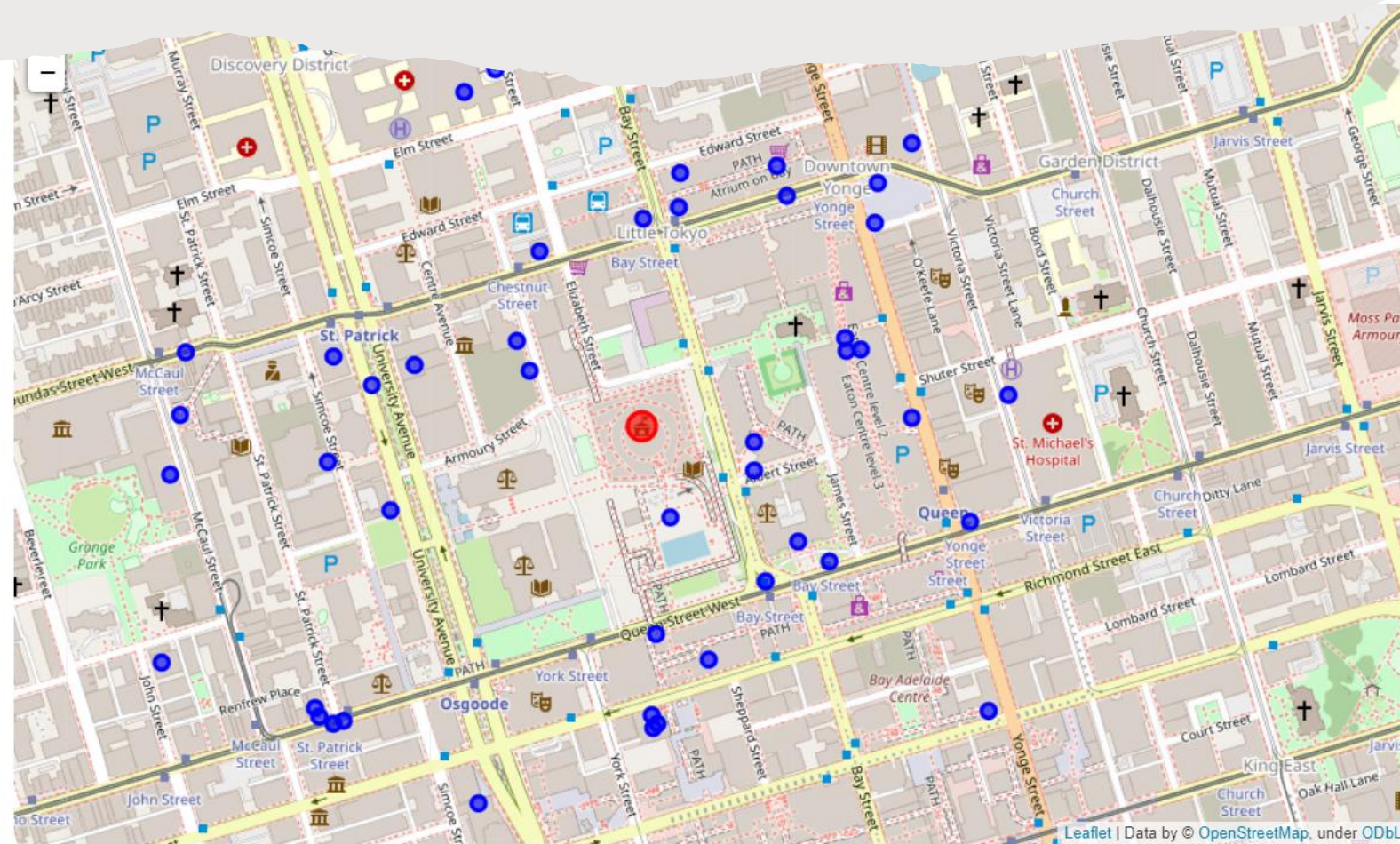
- 1) The Postal code data from Wikipedia by using BeautifulSoup
- 2) The coffee shop data from Foursquare via API

## Data Cleaning

- 1) There are 10 boroughs and 103 neighborhoods, dropped those records with the null borough.
- 2) Grouping those multiple neighborhoods into one with same postal code .
- 3) Transform the coffee shop JSON data file into dataframe\_filtered and updating the 6-character postal code to 3-character to align with the Wiki data in 1).



# Exploratory Data Analysis – As-is coffee shop distribution



In [29]: `dataframe_filtered.head()` *### preview the filtered dataframe sample*

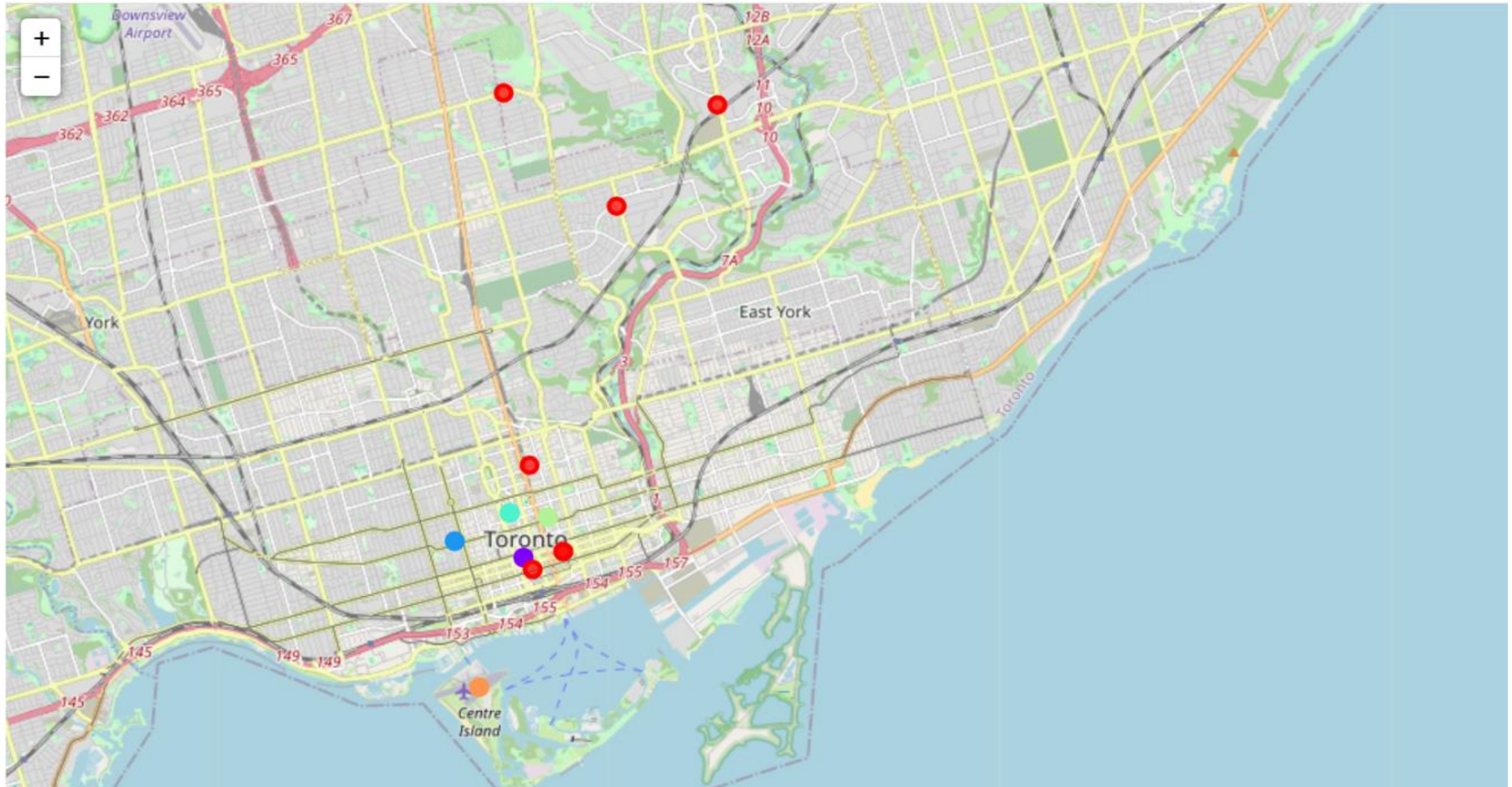
Out[41]: Text(0, 0.5, 'Number of coffee shop')



Bar chart of the total number of coffee shops in the grouped neighborhoods.



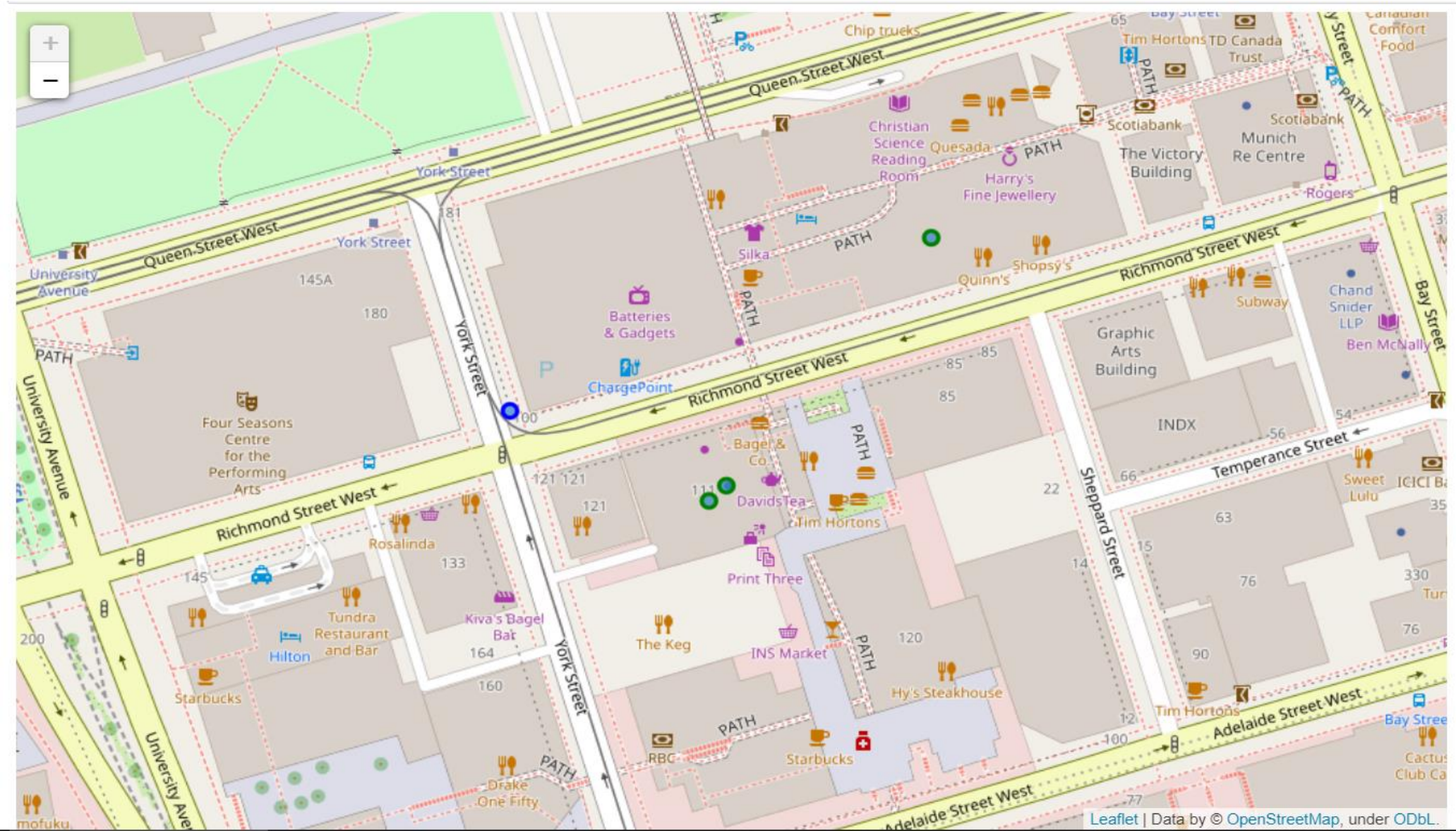
# Neighborhoods' clustering (k-mean = 6)





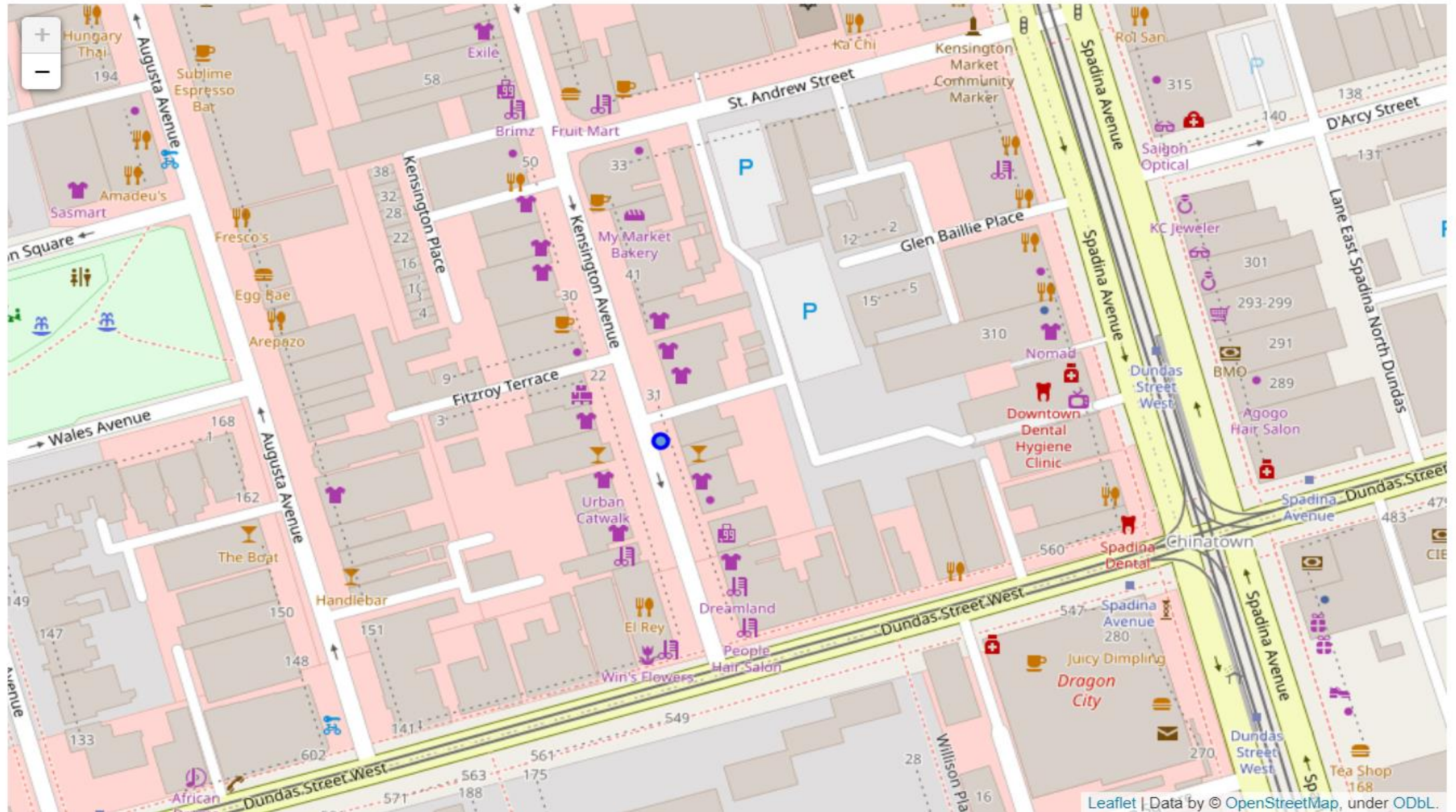


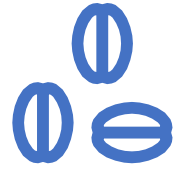
# Zoom-in Cluster 2 (Blue – Potential, Green – Existing)





# Zoom-in Cluster 3 (Blue – Potential, Green – Existing)

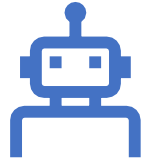




# Conclusions

- Cluster 2 - 'Richmond, Adelaide, King' most close to City Hall. Based on the observation below, there are 2 coffee shops very close, and the other already nearby. However, the potential location is near the Charge point and the Four Seasons Centre for the Performing Arts. There may have room for a new coffee shop after the performing or waiting for charging.
- Cluster 3 - 'Kensington Market, Chinatown, Grange Park' which a bit far from City Hall. Based on the observation below, no coffee shop in the neighborhood, and there are few salons nearby. This may bring the business opportunity to open a new coffee shop in this neighborhood to fulfilling the needs (gaps).





# Future directions

- Additional testing – grouping clusters lower than or higher than 6 to compare the locate neighborhood to verify if there are other potential neighborhood identify.
- Potential rival location (e.g., Timothy's World Coffee, Starbucks, etc.) should also specific into the map if the data available.