



# Toronto COVID cases by neighborhood

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# Introduction

During the COVID pandemic, all governments implemented several rules and restrictions in order to mitigate the outbreaks of the disease, these restrictions were usually defined based on the type of business and industry of the venues.

In this notebook I will try to rate the efficacy of the restrictions put in place by the government in the city of Toronto, by analyzing the data of the total COVID cases and the type of venues, all segmented by Postal Code and neighborhood.

The target audience would be all the involved government dependencies (Commerce, Health, City Planning) which could determine if the imposed restrictions did work and if any of these should be kept in place. Also, to define a workbook for future pandemics.



# Data

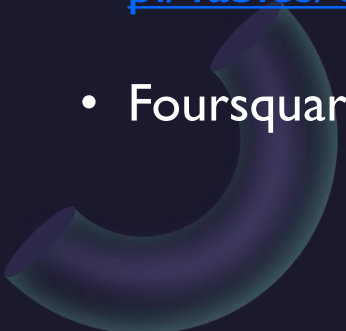
	Category 1	Category 2	Category 3	Category 4
Item 1	4.5	2.3	1.7	5
Item 2	3.2	5.1	4.4	3
Item 3	2.1	1.7	2.5	2.8
Item 4	4.5	2.2	1.7	7



# Data




## DATA SOURCES

- Toronto neighborhood data from Wikipedia entry  
[https://en.wikipedia.org/wiki/List\\_of\\_postal\\_codes\\_of\\_Canada:\\_M](https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M)
  - COVID-19 Cases in Toronto from city Open Portal <https://open.toronto.ca/dataset/covid-19-cases-in-toronto/>
  - Canada demographic data by Postal Code (2016 Census) from Canada government statistics page:  
<https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/hlt-fst/pd-pl/Tables/CompFile.cfm?Lang=Eng&T=1201&OFT=FULLCSV>
  - Foursquare API
- 

# Data



## DATA GATHERING AND WRANGLING

- All the collected data was cleaned, grouped and combined into one final table, with twelve features:
    - Postal Code
    - Borough
    - Neighborhood
    - Latitude
    - Longitude
    - Total COVID cases
    - Population
    - Cases per 1,000
    - Cluster
    - 1st most common venue
    - 2nd most common venue
    - 3rd most common venue
- 

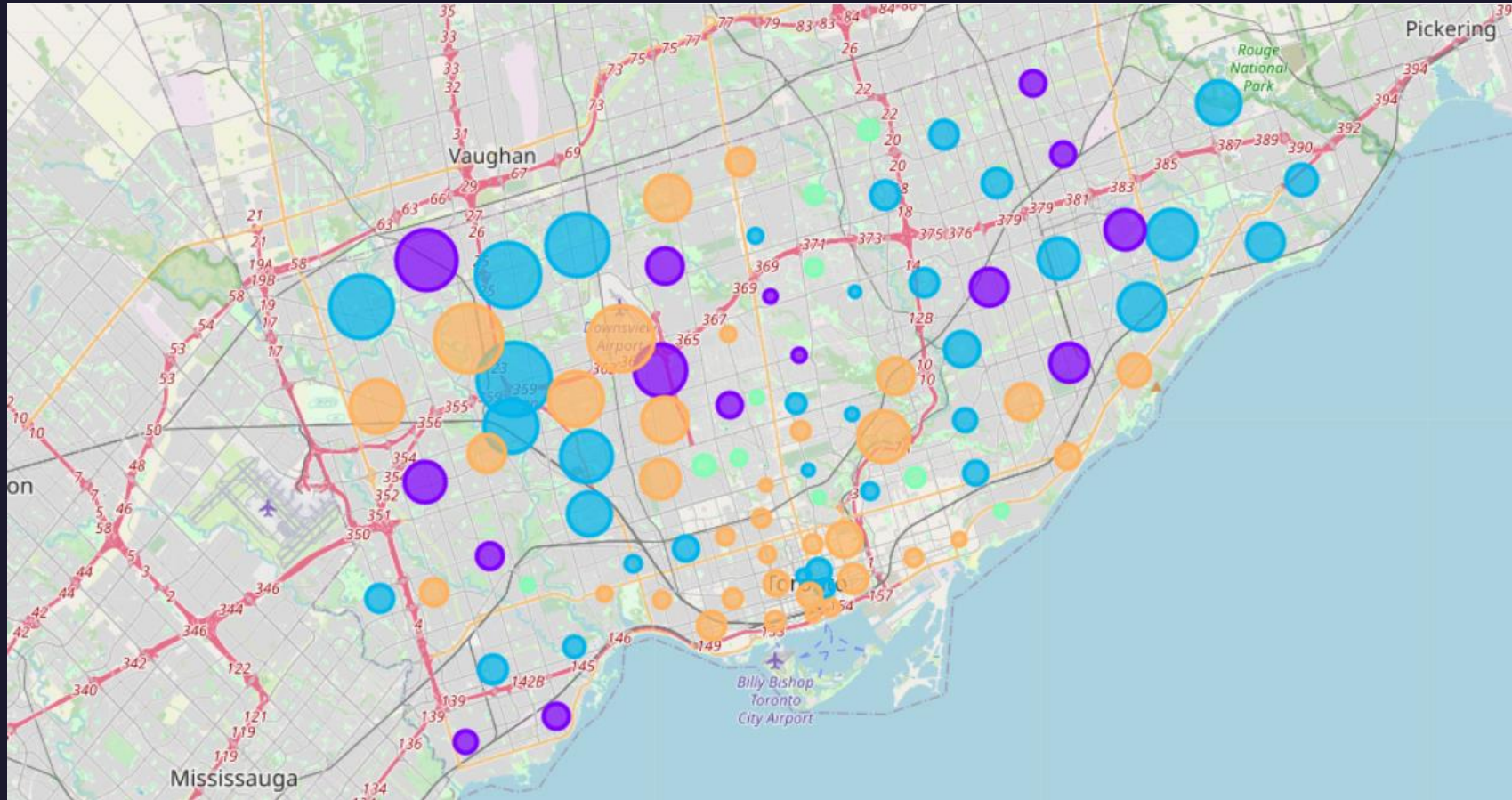
# Cases per 1,000 in each Cluster

	Cases per 1,000
Cluster 1	63.05
Cluster 2	64.76
Cluster 3	31.38
Cluster 4	57.92



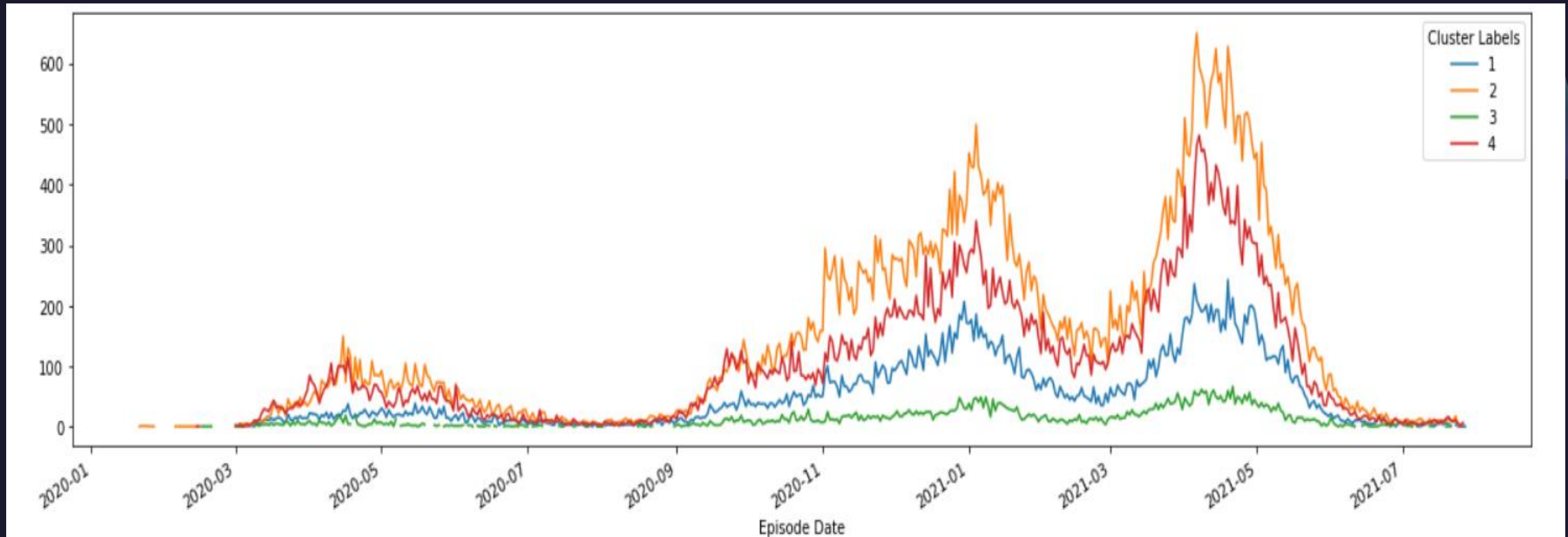


# Cases per capita in each neighborhood and cluster



- Cluster 1 (Purple): Shop & Service
- Cluster 2: (Blue): Combination of Food and Shop & Service
- Cluster 3 (Green): Outdoors & Recreation
- Cluster 4:(Orange): Food

# Total cases per Cluster and date







# Conclusion

By looking at the data, we can infer that the greater number of COVID cases per capita occurred in the neighborhoods which main category was related with Shop & Service. However, the greater number of total cases, occurred in the neighborhoods which Food venues are the first or second category.

As expected, the smaller share per capita occurred in the neighborhoods which main category is Outdoors & Recreation.

Based on this data, it seems that better rules and restrictions should have been applied to the Food

# Thank You

Julio Flores

<https://github.com/julio-cfs>

