Analysis of COVID-19 Data in Ontario, Canada

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Objectives:

plan to analyze the COVID-19 cases in Ontario province. Currently, we are in the second wave of pandemic and the government plans to impose additional restrictions on different counties. Given the venues in the neighborhood of medical centers and the number of confirmed cases, we try to cluster similar cities/counties in terms of COVID behaviour and consult the government to make decisions accordingly.

Data:

The data is live COVID data that is being posted on the "https://data.ontario.ca". It includes all reported cases since the start of pandemic.
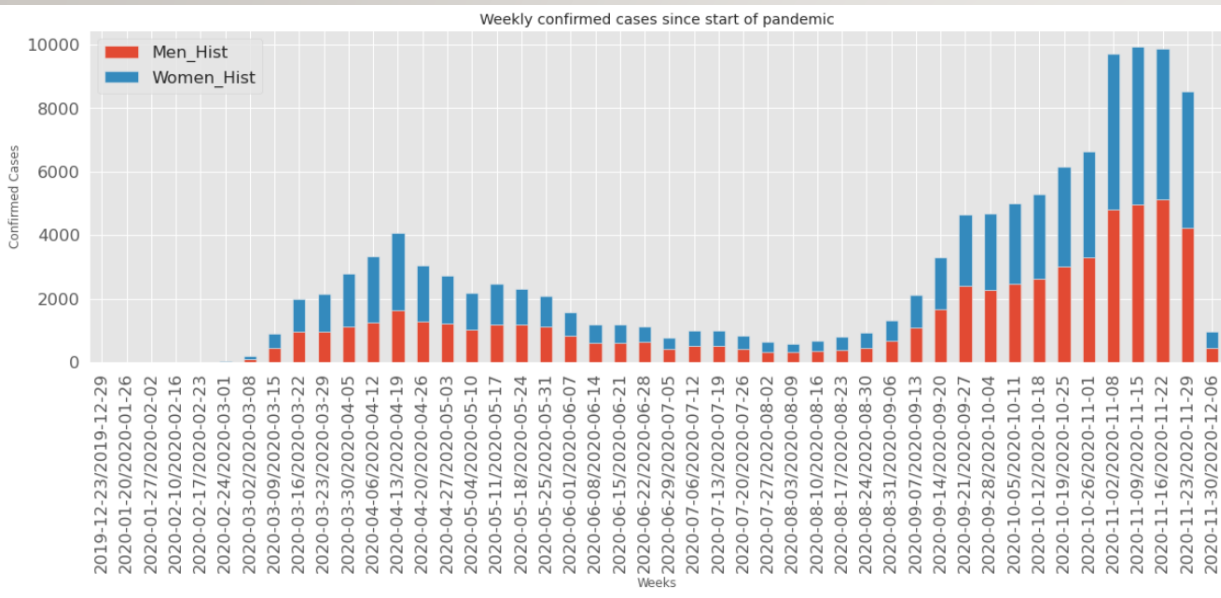Furthermore, using the Foursquare website, the venues near each public health unit (PHU) is extracted to find a relation between venues and the number of confirmed cases.
Data URL: https://data.ontario.ca/dataset/f4112442-bdc8-45d2-be3c-12efae72fb27/resource/455fd63b-603d-4608-8216-7d8647f43350/download/conposcovidloc.csv
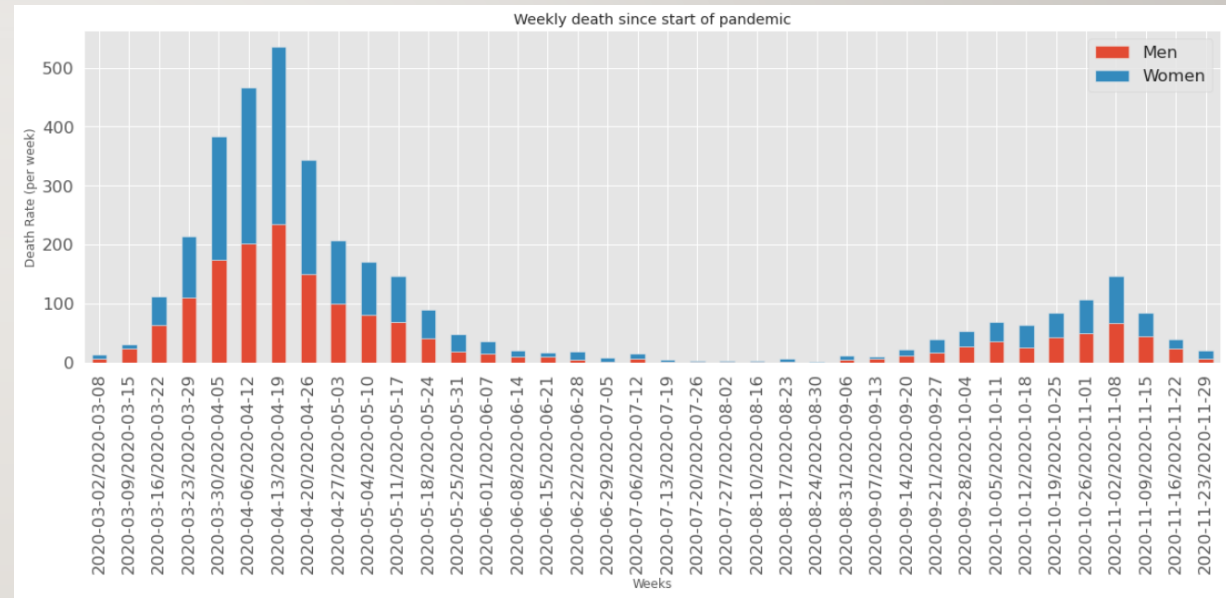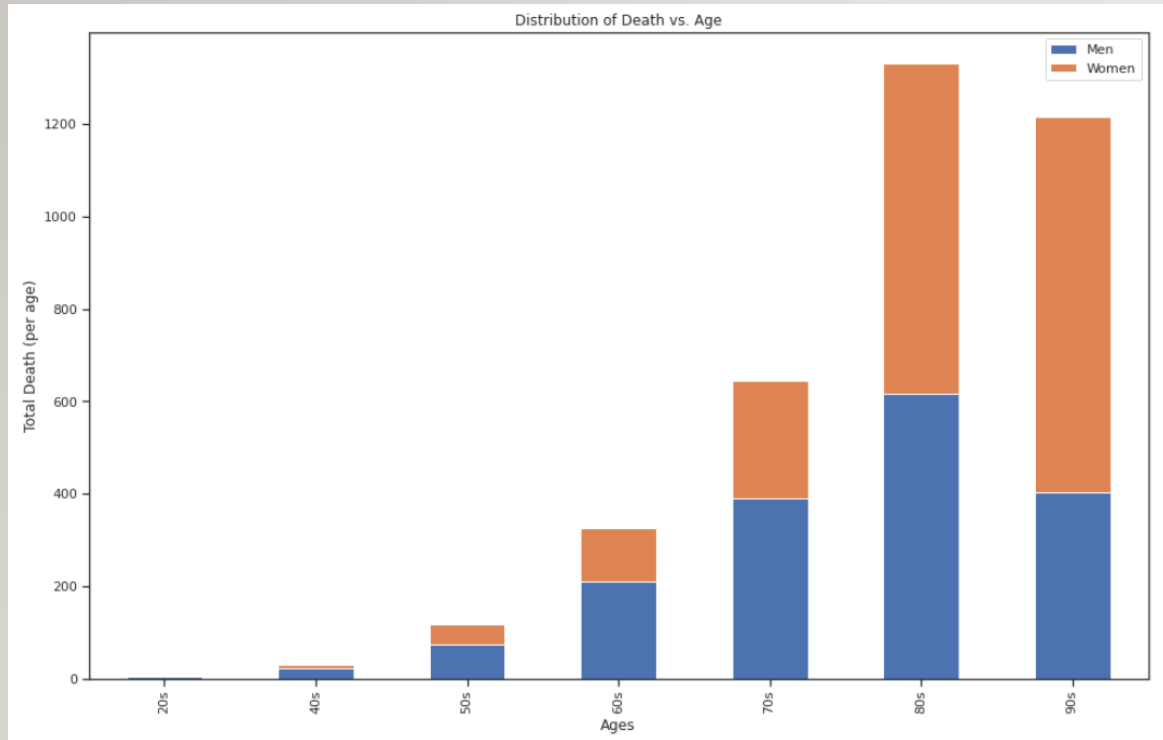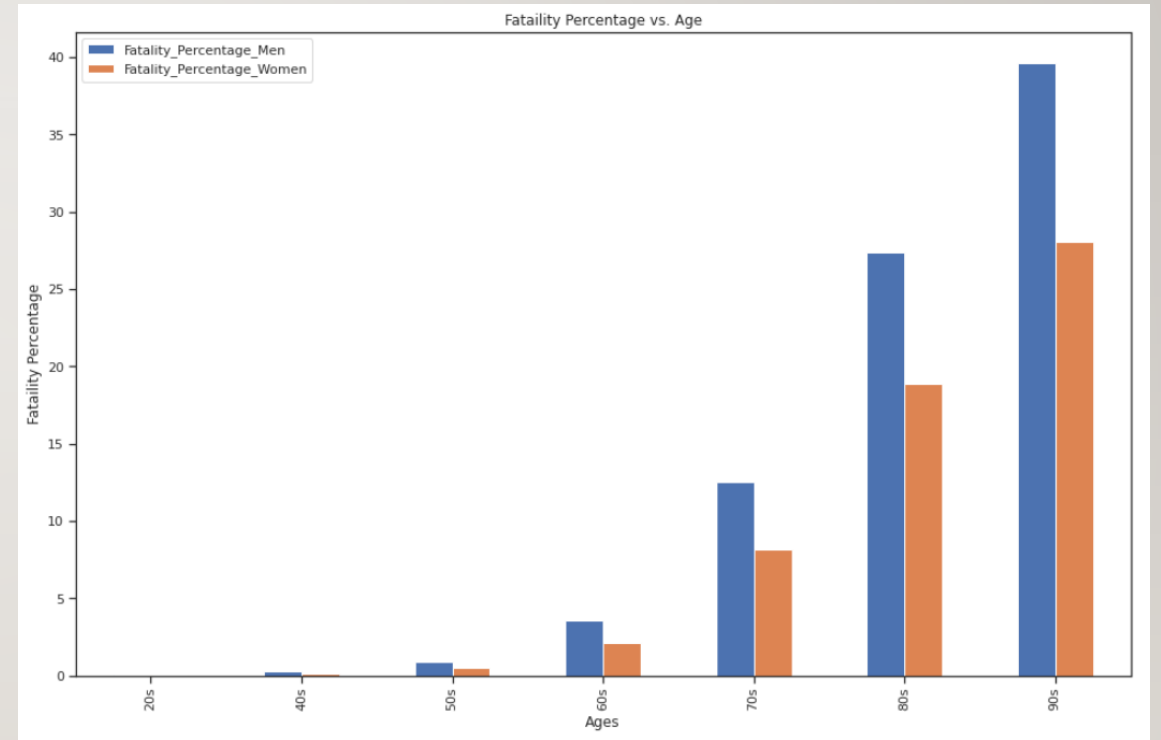
Weekly Cases:

Confirmed

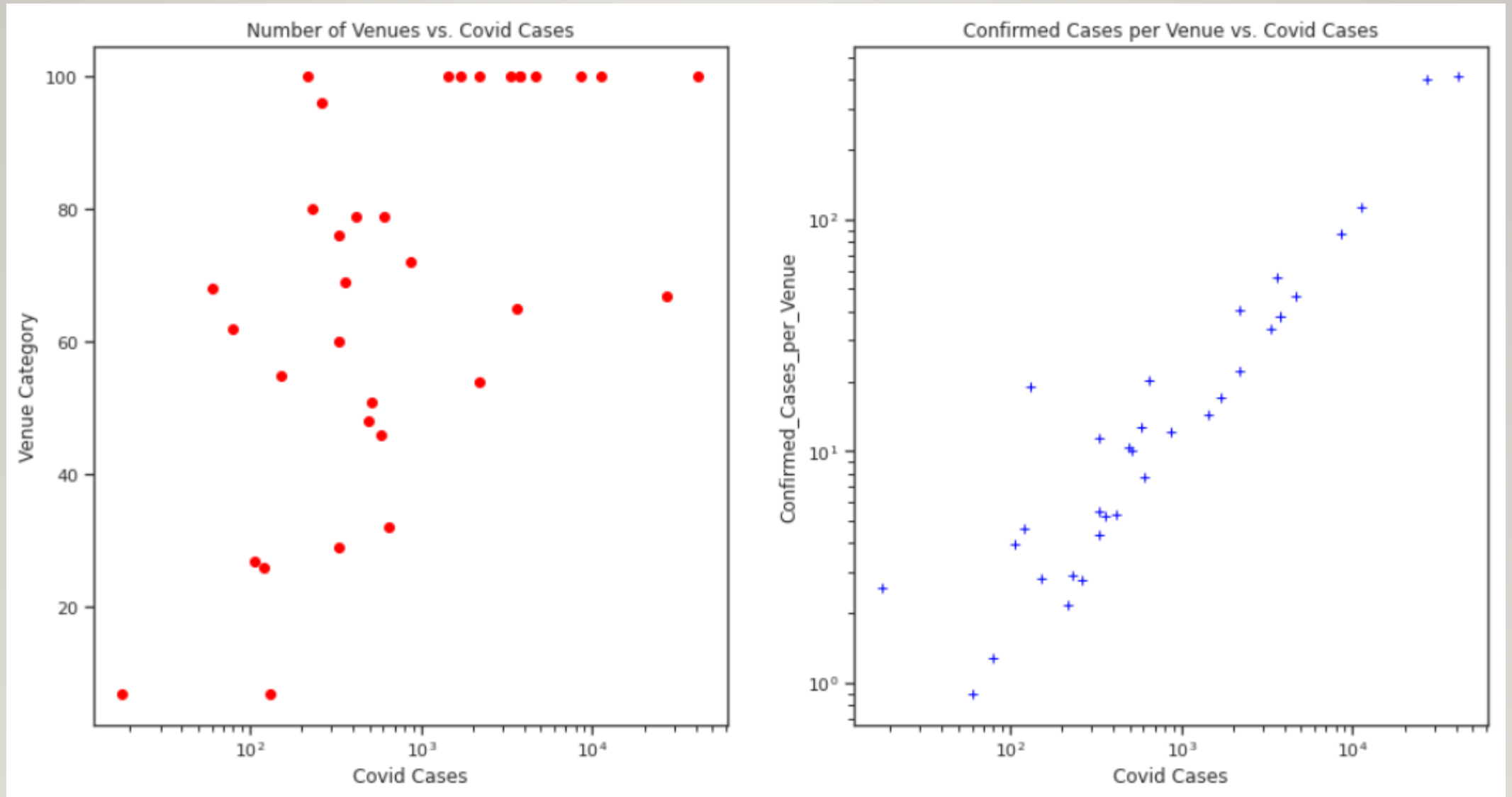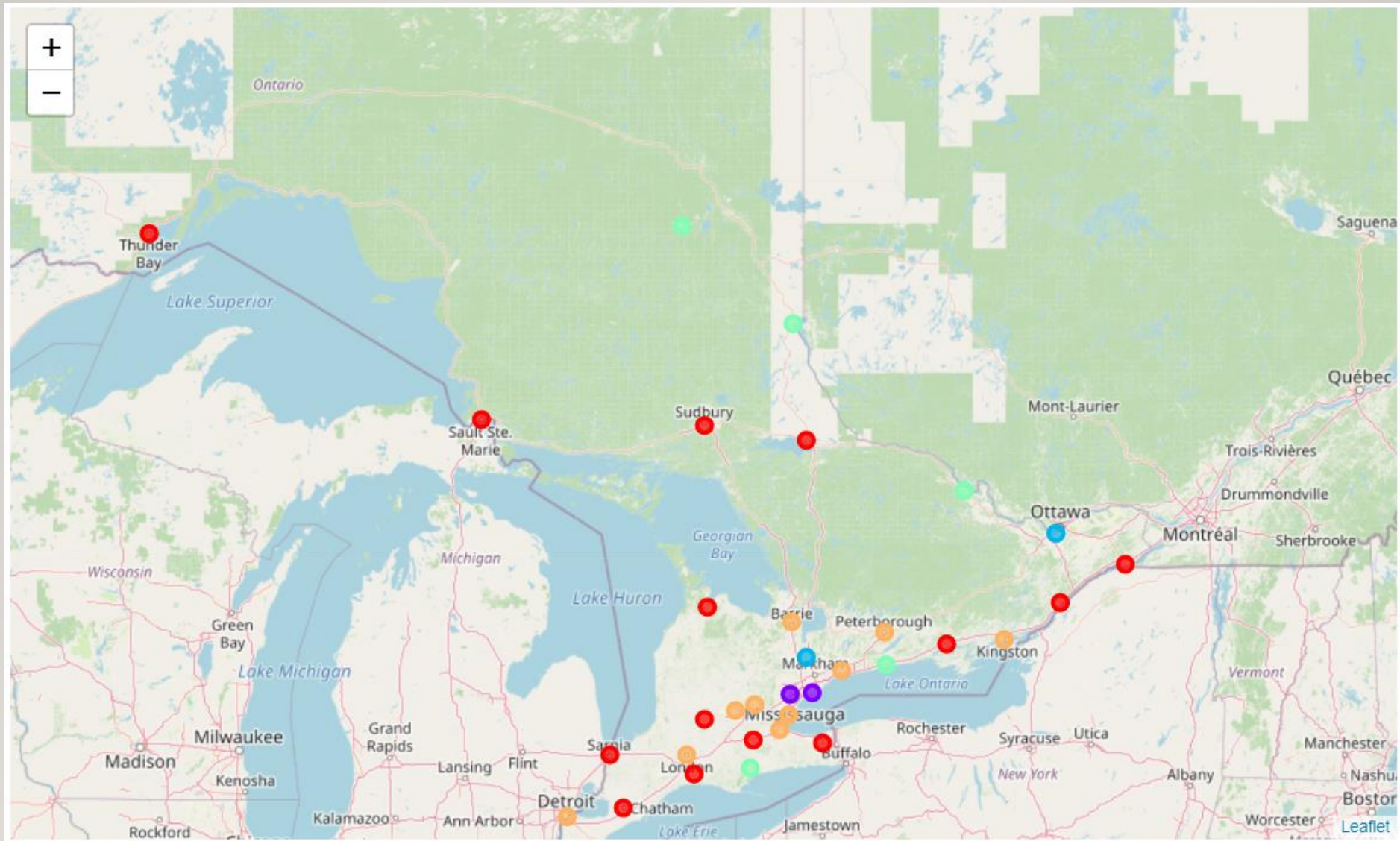## Fatality

Cases-by-Age:

Total Fatality

Fatality Percentage

Relation btwm Venues and No. of Cases:

Clustering the cities on folium map:

Conclusions:

1) Cluster map reveals that Toronto Downtown and Brampton region are associated with the highest level of risk which implies imposing most restrictions.
2) Northern Toronto (newmarket region) and Ontario could be dealt similarly as the second level of risks.
3) Detroit, London, Hamilton and some other same-size cities are in the third category
4) Smaller cities such as Sudbury are in the next level of decision making.
5) And finally, the lowest risk zones can be defined as Timmins and Simcoe.