Let’s go to the harborfront, shall we?

An analysis of Canada’s Social Distancing during COVID-19

Introduction

On May 31st, my friends decided to go to the Harborfront for a walk. With our face masks on, we were excited to inhale some fresh air through our stifling N95s. Shockingly, there was a crowd of people by the lake. Most of them were not wearing face masks and barely practicing social distancing. We started to wonder why they behaved the way they did and how their behavior reflected Canada’s social distancing.

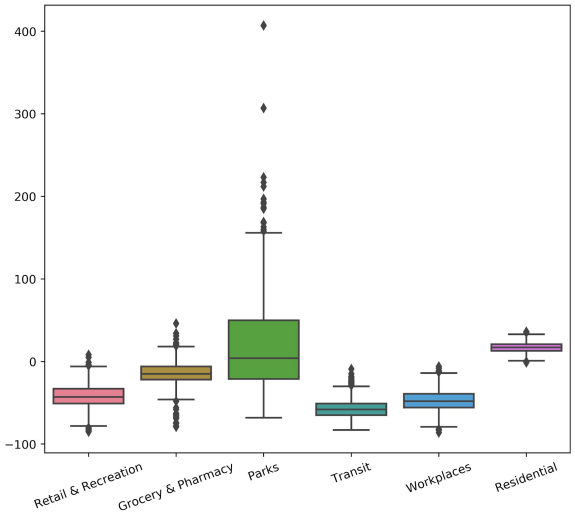
Questions of interest

- Where do people visit the most/least during COVID-19?
- How active are people in Canada practicing social distancing?
- What are the driving factors that influence people’s social distancing decisions?

Data Collection and Data Exploration

Google Community Mobility Reports

- Percentage change in mobility compared to baseline value

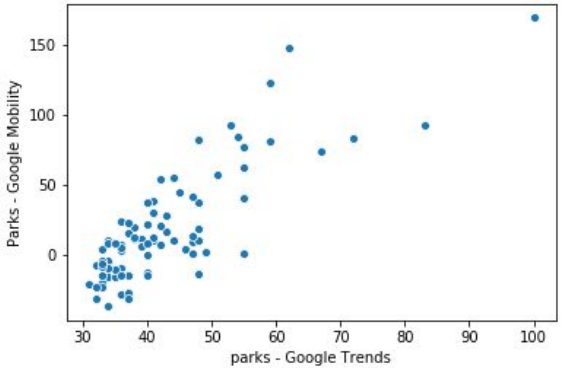


Basic Exploration

- Residential areas are most visited with little variation
- Parks are visited often with significant surges on numerous days
- Retail and Recreation, Grocery and Pharmacy, Transit, and Workplaces have steep decrease in visits

Google Trends

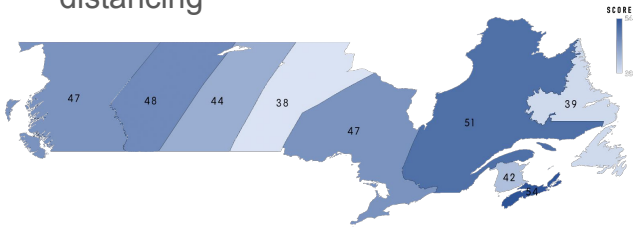
- Interestingly, Google Trends also show a positive correlation between number of times searched for parks and number of visits to parks



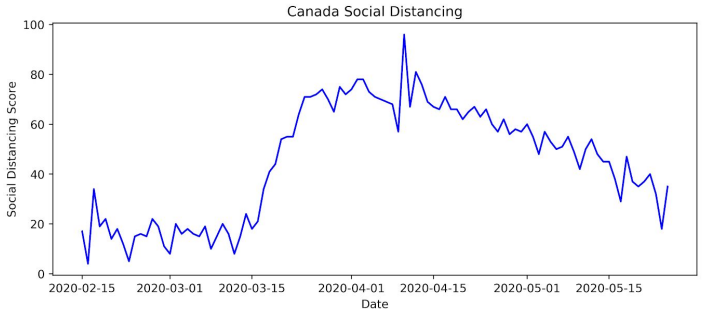
Exploring Canadian Provinces' Social Distancing

Social Distancing Score in Canada

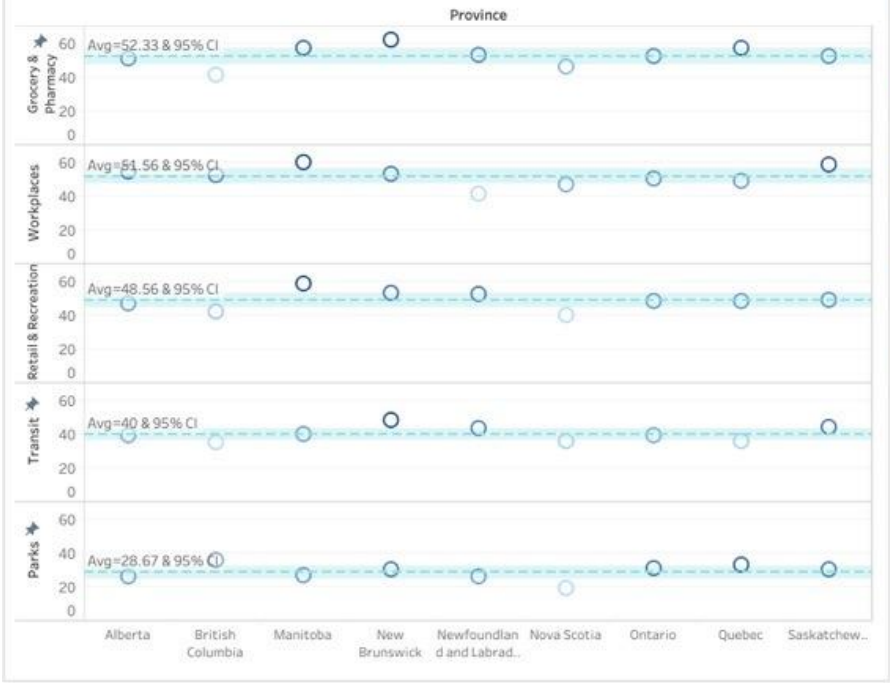
- The higher the score, the better the social distancing



- Improvement in score after closure of international borders
- Gradual decrease after April 13th



SD Score among Different Social Settings

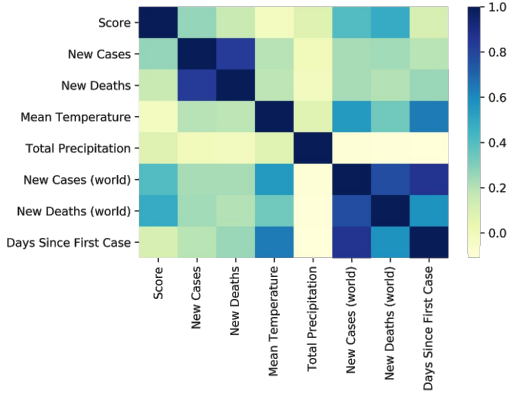


Driving factors of *Social Distancing Score*

Permutation feature importance (Random Forests Classifier)

- *Mean Temperature*, *New Cases*, and *New Deaths* in Canada have the most predictive power of *Social Distancing Score*.

Weight	Feature
0.0122 ± 0.0085	New Cases
0.0070 ± 0.0094	Mean Temperature
0.0052 ± 0.0170	New Deaths
0.0006 ± 0.0023	New Probable
0 ± 0.0000	Days Since First Case
-0.0012 ± 0.0087	Total Precipitation
-0.0046 ± 0.0079	New Deaths (world)
-0.0058 ± 0.0122	New Cases (world)



Multiple Linear Regression

- People are responsive to daily increase in cases
- As temperature gets warmer, they want to go out more
- Total precipitation is another significant factor
- People usually stay at home if it rains

Conclusion

- Canada's social distancing is most responsive to *new cases*, *temperature*, and *precipitation*
- Let's do our best to practice social distancing!