COVID-19 DataFest

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Topic

We will investigate bridge traffic statistics from the Niagara Falls Bridge Commission and determine whether and how the COVID-19 pandemic has affected activity at the Lewiston-Queenston, Rainbow, and Whirlpool bridges. The Niagara Falls Bridges are the second-busiest port of entry between US and Canada (behind Kennedy International); thus, these traffic statistics offer a unique opportunity to examine how port crossing has been affected by the COVID-19 pandemic.

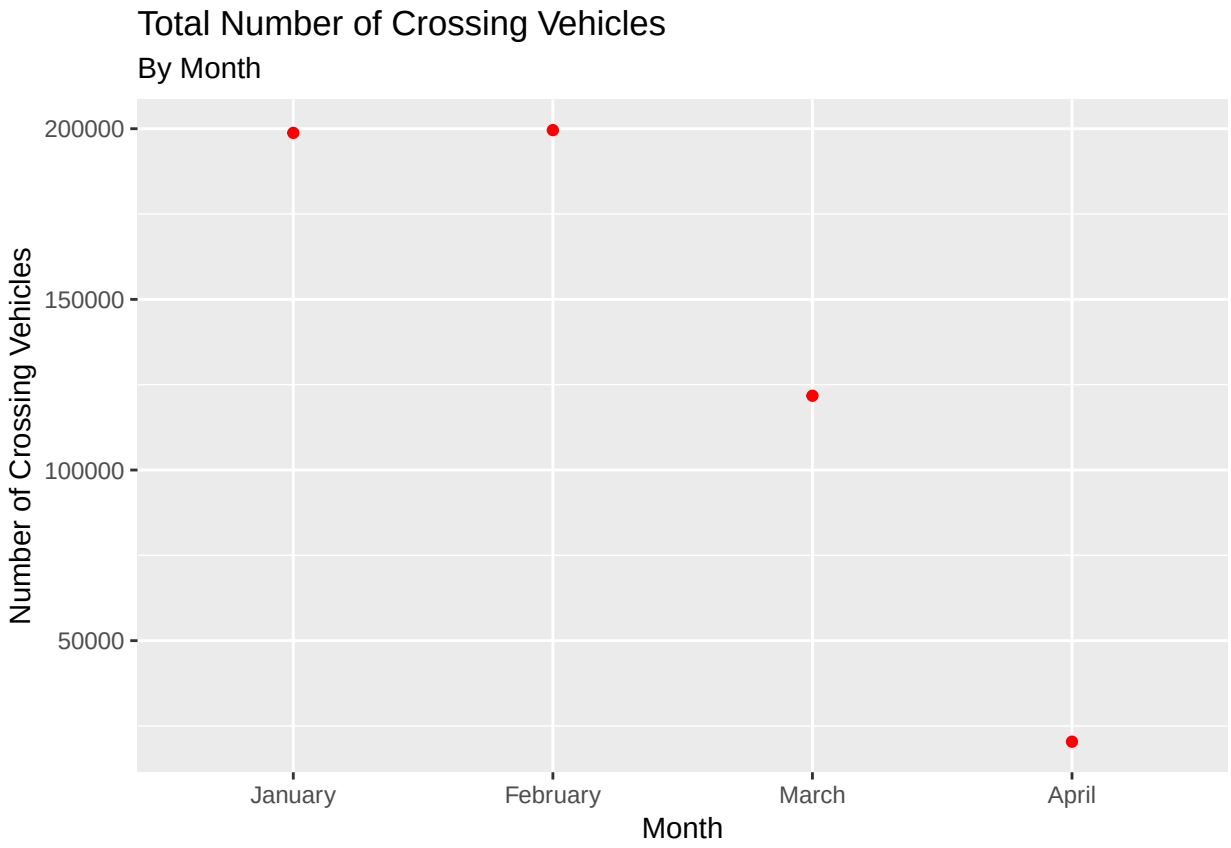
Exploratory Data Analysis

We will begin by examining the aggregate data, which combines the traffic statistics from all three bridges – Lewiston-Queenston, Rainbow, and Whirlpool.

```
## # A tibble: 4 x 2
##   Month     total
##   <fct>     <dbl>
## 1 April     20409
## 2 March    121761
## 3 January  198787
## 4 February 199594
```

As we can see from the table above, bridge traffic was similar in January and February, with about 200,000 vehicles crossing in each month. However, when comparing February to March, we notice a large discrepancy in the number of vehicles – roughly 80,000 less vehicles! Furthermore, comparing March to April reveals an even greater discrepancy – almost 100,000 less vehicles! In sum, from January 2020 to April 2020, the number of vehicles crossing the Niagara Falls Bridges drastically decreased (approximately -180,000 vehicles).

Of course, this aligns with our expectations given the lockdown and social distancing guidelines which have been in place in March and April 2020.



Based on the scatterplot above, there seems to be a nonlinear relationship between month of the year and the number of vehicles crossing the bridges.

Modeling Approach

Final Model and Brief Discussion of Assumptions

Interpretations and Significance