Discussion

1. We expected to find that as delays increased, ridership, as measured by average weekly riders on Toronto public transit and revenue, as measured by average weekly revenue, would decrease. Since the TTC has a monopoly on Toronto transit, we expected the ridership and revenue to decrease modestly. However, the results of the Q1 query in queries.sql shows the monthly results of delays, revenue and ridership in April, May and June 2020. The query shows increases in delays, ridership and revenue from April to June. Therefore, delays, revenue and ridership move in the same direction.

We suspect that this observation is due to the COVID19 pandemic. In April, Toronto was in the midst of lockdown measures, which restricted travel. This explains the low ridership and revenue numbers in April relative to May and June. Similarly, we suspect that TTC routes were used less frequently and might have been reduced as well. This would also explain the low delay count relative to May and June. Restrictions eased in May and June, which again explains increasing delays, ridership and revenue.

2. We expected to find mechanical issues to be the most common and longest on average type of delay for all vehicle types. However, after performing the queries we had found that only streetcars and buses had 'Mechanical' as the most frequent type of delay, and unexpectedly trains had 'Disorderly Patron' as the most common type of delay. We also found that 'Diversion' was the longest on average type of delay for streetcars and buses with the average delay times being above 45 minutes! The longest on average delay for trains was listed as 'Train in Contact With Person', however this was calculated with only 9 delay instances.

After finding that 'Disorderly Patron' was the most common type of delay for trains, we had decided to run a follow up query to see which stations had the most occurrences of these delays. This query could provide answers as to what stations need additional security measures. The top 3 stations that had the most frequent of these delays were Young/Bloor, Dufferin, and Spadina.

One potential explanation for the ''Disorderly Patron' being the most frequent type of delay within the months of April, May, June of 2020 for trains is this could be the result of passengers not wearing masks and thus causing a delay in service. In hindsight, 'Diversion' delay type being the longest on average for buses and streetcars makes sense if you account for construction on streetcar tracks or the streets for a bus route causing longer travelling times.

3. We had no expectations for which vehicle numbers were the worst in terms of mechanical issues.

We had found that streetcar vehicle number 18, bus vehicle number 1293, and trains vehicle numbers 3027 and 3203 had the most amount of delays due to mechanical issues. This query could provide insight as to which specific vehicles from each vehicle type need maintenance.

We had expected that buses were going to be the most susceptible (average amount of days between mechanical delays by vehicle) type of vehicle for delays. However to our surprise it was found that all of the ttc vehicle types had virtually the same susceptibility. All vehicle types had 14 days (rounded up) as the average amount of days between mechanical delays by vehicle.

The last part of this query was personal. Nikolas's girlfriend and him had a disagreement as to which of their bus routes was worse. Nik had thought his 12 bus route was worse in terms of delays and his girlfriend had thought her 29 route was worse. After crunching the numbers it turns out Nikolas was wrong! In the months of April, May, June of 2020 the 12 bus had 14 delays where the 29 bus had 68 delays! In terms of number of delays during the months of April, May, June of 2020, the 12 bus route was 56th and the 29 bus route was 7th!

Another interesting query we had performed was one to check how the worst bus route according to CBC in November of 2019, route 80, was doing currently. Unexpectedly, we had found that the 80 route was 86th in terms of number of delays during the months of April, May, June of 2020. It is plausible to think that the TTC had improved this route after reading the article!