

IMPACT OF THE PANDEMIC ON TRANSPORTATION IN NEW YORK CITY

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INTRODUCTION



Motivation

After the covid hit the New York, the city shut down and people start to work at home. People's commuting way changed a lot after the pandemic happened.



Objectives and goals

The goal of this project is to understand the ridership change before and after the Pandemic in New York



METHODOLOGY

- Data
- The MTA's weekly subway data contained the number of exists and entries for each turnstile with the four-hour interval. The data start from January of 2020 was used to see the trend of ridership pre-pandemic and post-pandemic.
- The daily counts of cases for New York was compared to see the relationship between the cases of covid and the flow of passengers in the public transportation.



METHODOLOGY

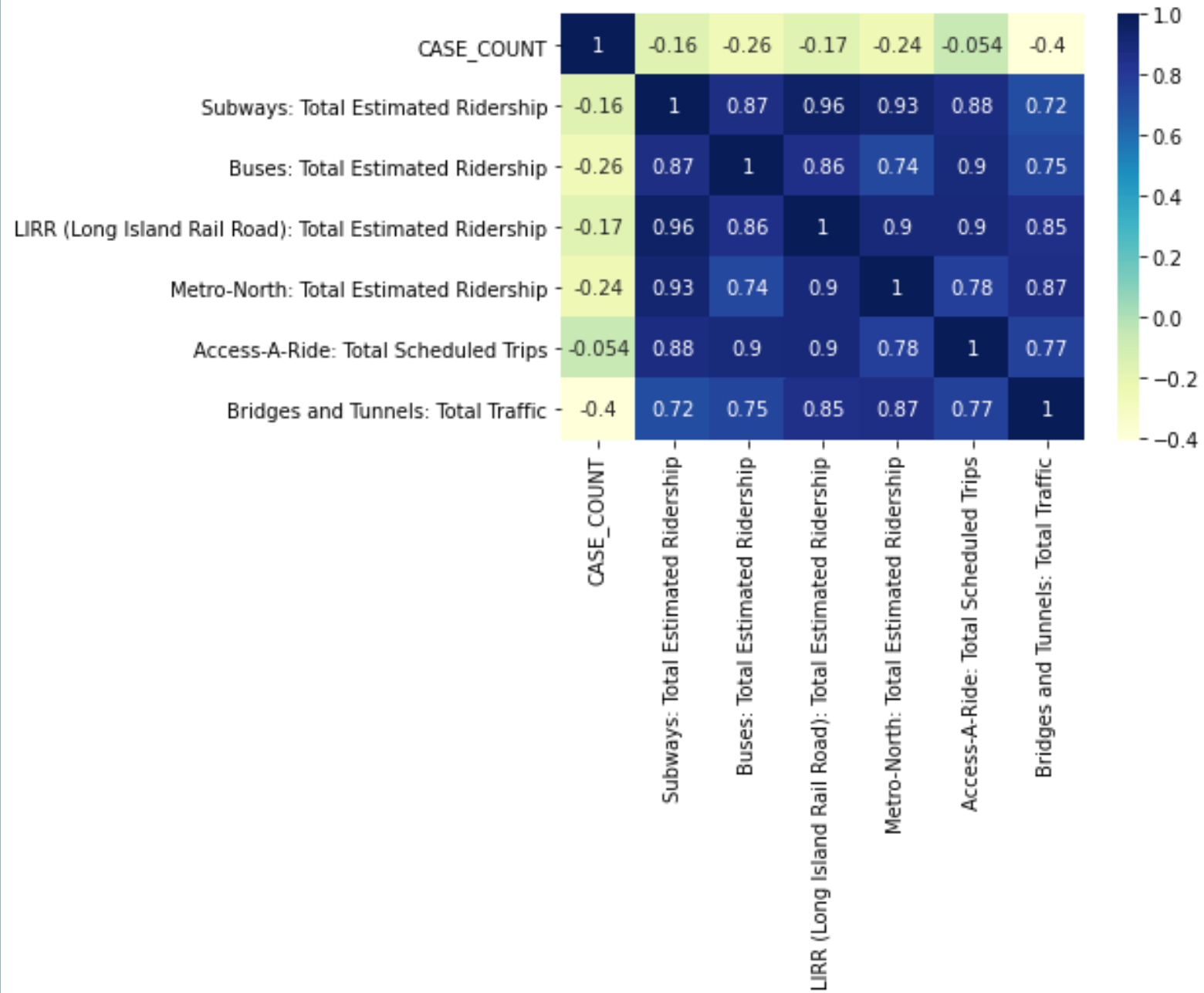
Algorithms

- Data Cleaning- drop the duplicate data
- When the counter is reverse, adjust the reverse number
- Split the dataset into two time period
- Merge different dataset together and join based on datetime

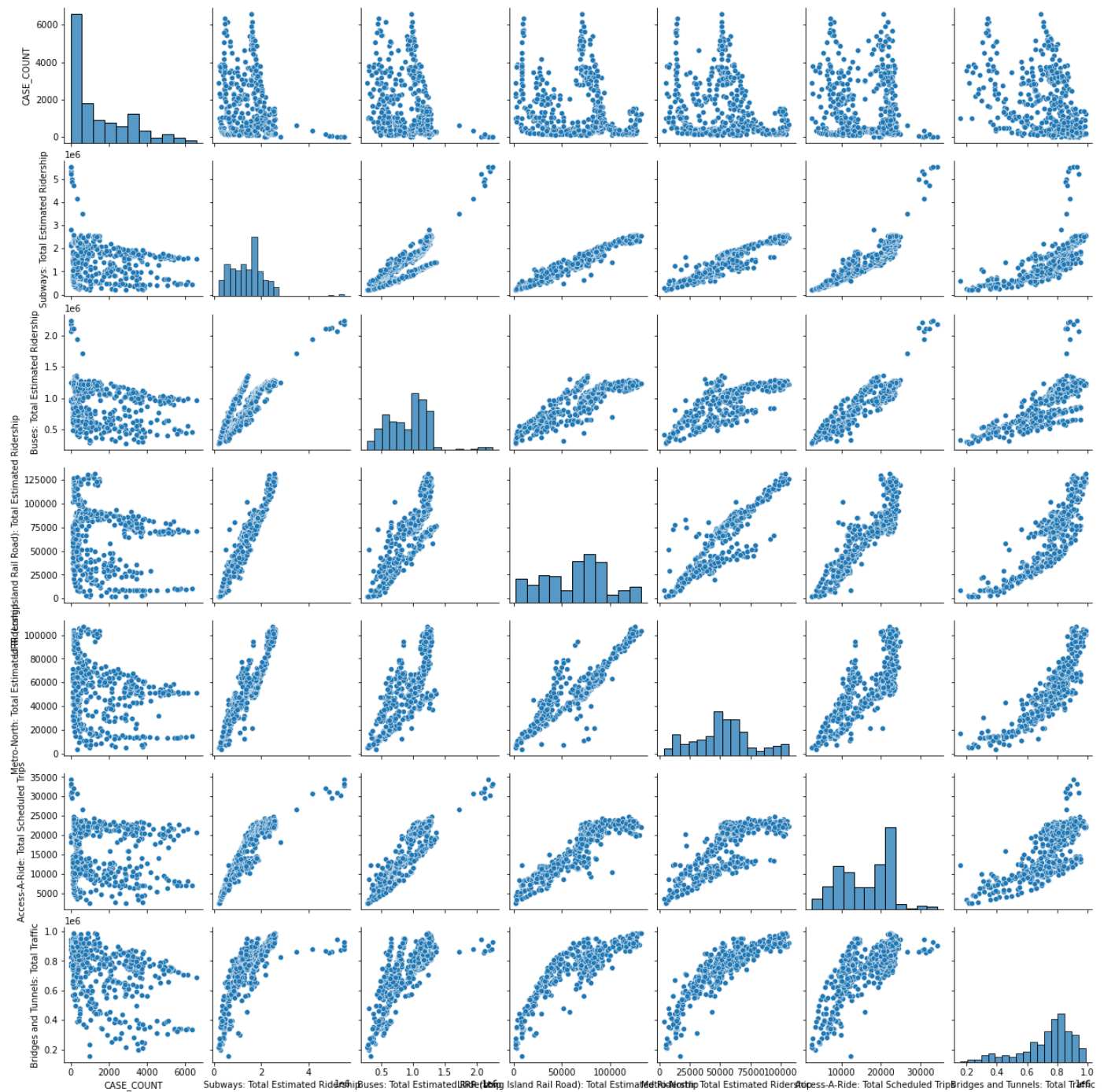
Tools

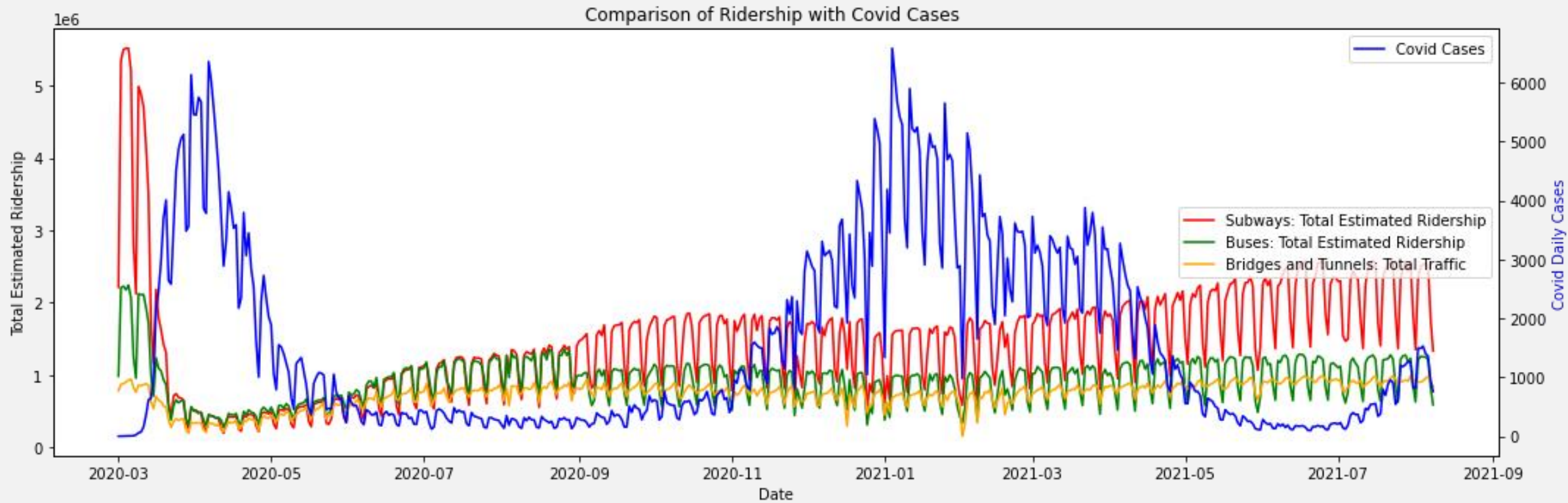
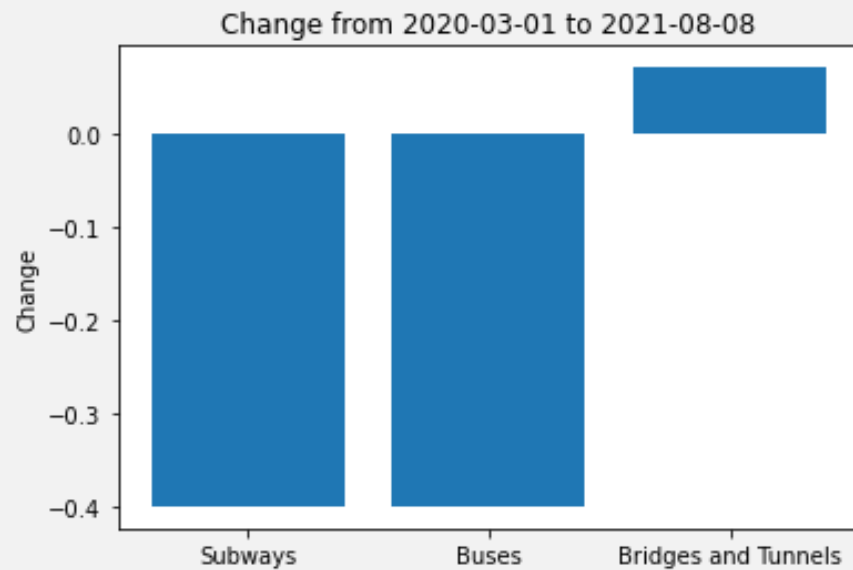
- SQLAlchemy for reading data
- Numpy and Pandas for data cleaning and organizing
- Matplotlib and Seaborn for figures plotting

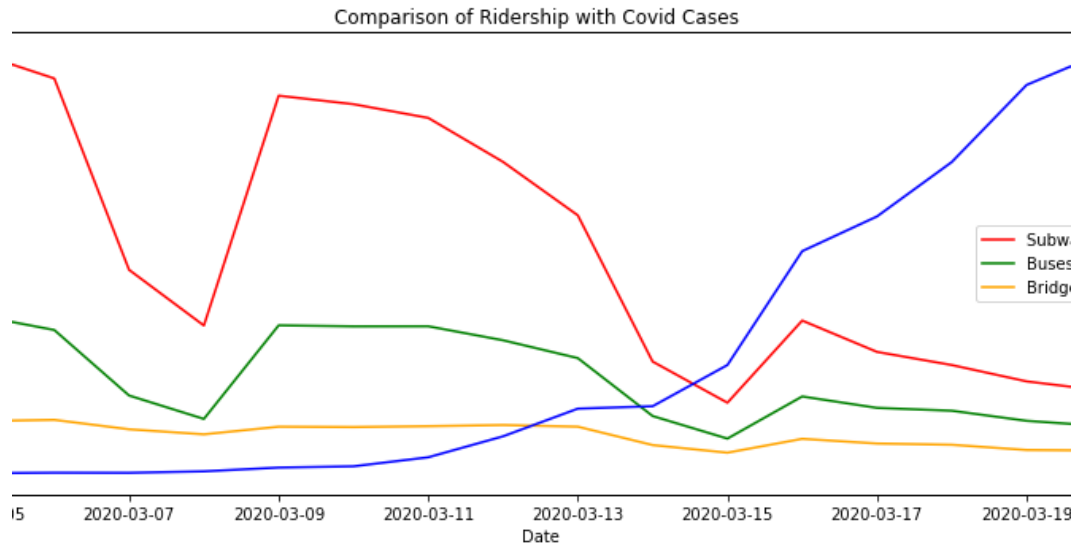
RESULTS



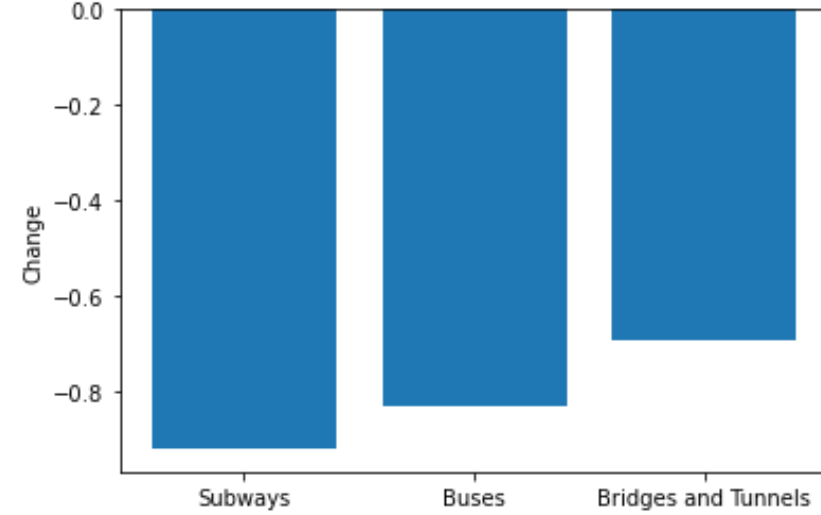
RESULTS







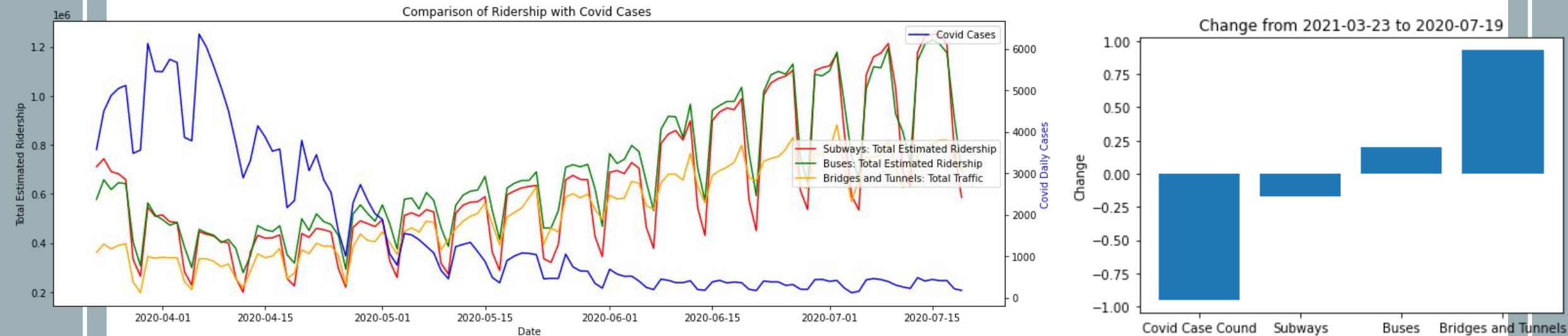
Change from 2020-03-03 to 2020-03-22 with the Covid Cases Increased from 0 to 258



A HISTORICAL TIMELINE OF COVID-19 IN NEW YORK CITY

March 1, 2020 First COVID-19 case in New York State

March 22, 2020 NYS on Pause Program begins, all non-essential workers must stay home



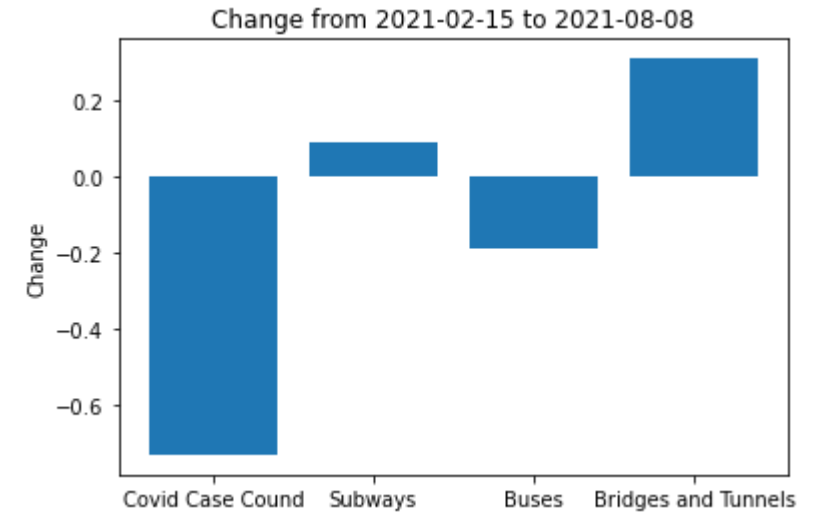
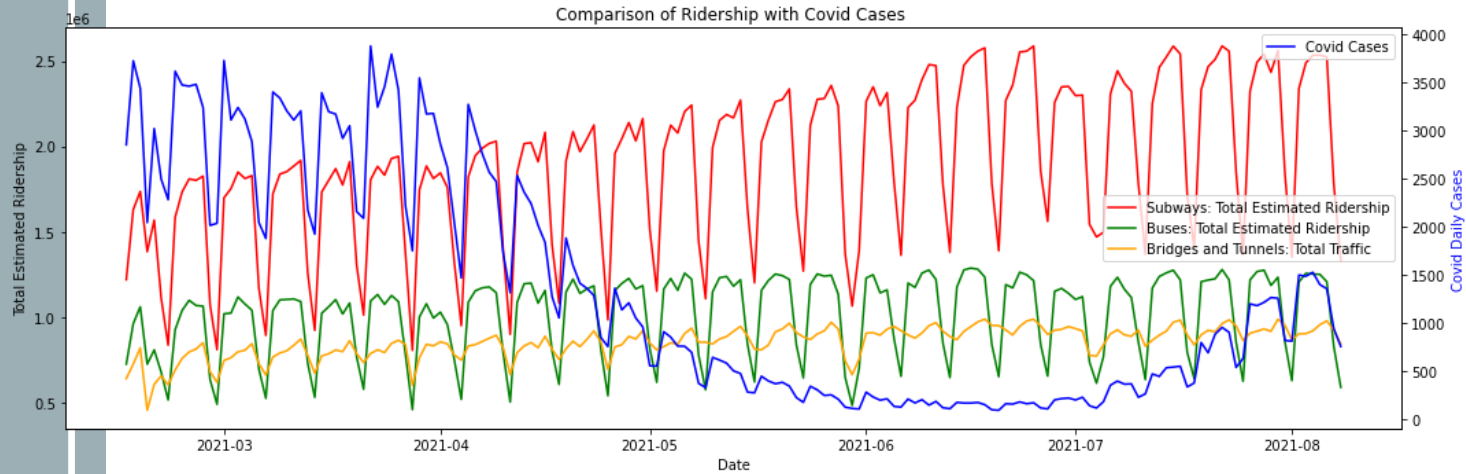
A HISTORICAL TIMELINE OF COVID-19 IN NEW YORK CITY

June 8, 2020 NYC begins Phase I reopening

June 22, 2020 NYC begins phase 2 of reopening

July 6, 2020 NYC begins Phase 3 of reopening, without indoor dining

July 19, 2020 NYC begins Phase 4 reopening, excluding malls, museums and indoor dining/bars



A HISTORICAL TIMELINE OF COVID-19 IN NEW YORK CITY

February 14, 2021 New Yorkers with underlying conditions become eligible for COVID-19 vaccine

March 22, 2021 NYC high schools reopen for in-person learning

CONCLUSIONS

- One and half year after the outbreak of covid last year the ridership of public transportation still has not returned back to the number before covid.
- However, the use of bridge and tunnel is similar to the number of pre pandemic.