The subway ridership changes after the pandemic: an insight for the street vendor's reopening

Metis EDA project

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Introduction

- Motivation:
  - Street vendors are looking for reopening as the death rate of coronavirus slowly decline.
  - The ridership changes are the indicators of the customer changes for the street vendors.

- Goals:
  - Identify the stations that have the high and low ridership reductions.
  - Characterize their daily ridership changes.

Methodology

- Data
  - The MTA turnstile dataset (http://web.mta.info/developers/turnstile.html)
  - Geographic data of MTA stations
    (http://web.mta.info/developers/data/nyct/subway/Stations.csv)
    (https://qri.cloud/nyc-transit-data/remote_complex_lookup)

- Matrices:

Statistics	Meaning
Counts of entries	Ridership
March entries on 2019	Ridership before the pandemic
March entries on 2022	Ridership after the pandemic
Ratio of entries on 2022 vs 2019	Ridership changes after the pandemic

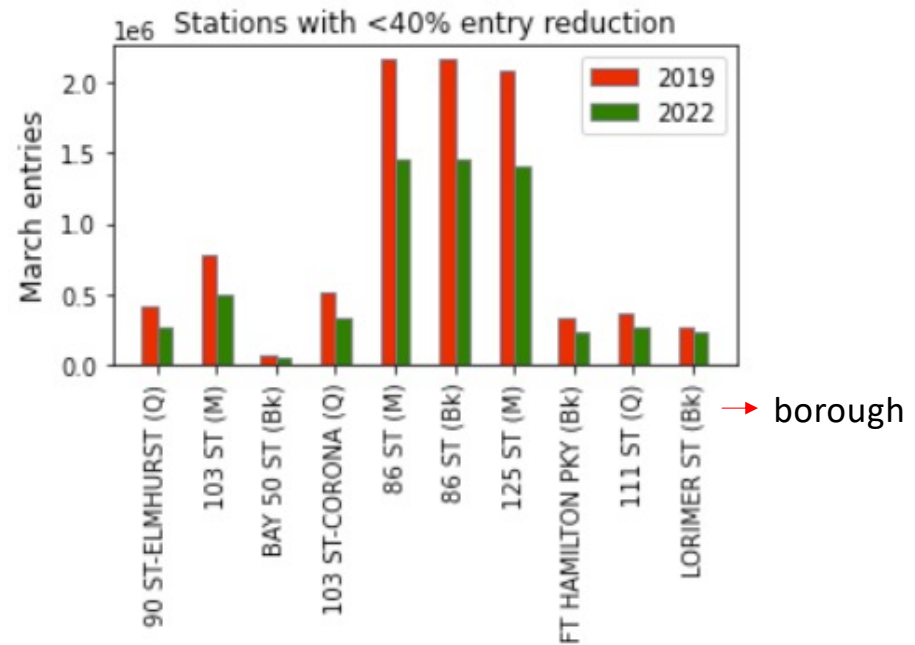# Most of the stations have 50% reduction in the ridership
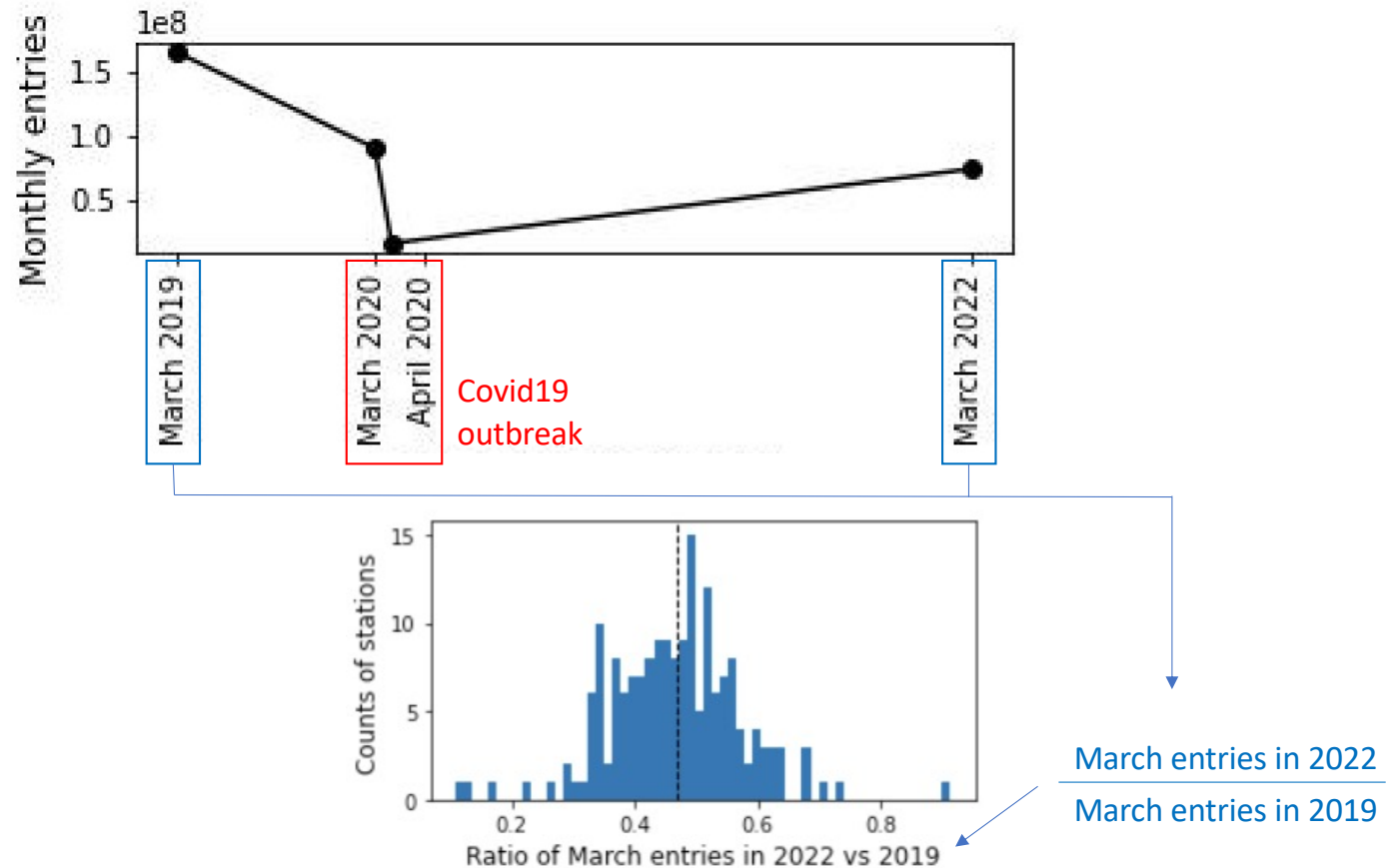
Most of the stations with the high entry reduction are located at Manhattan borough
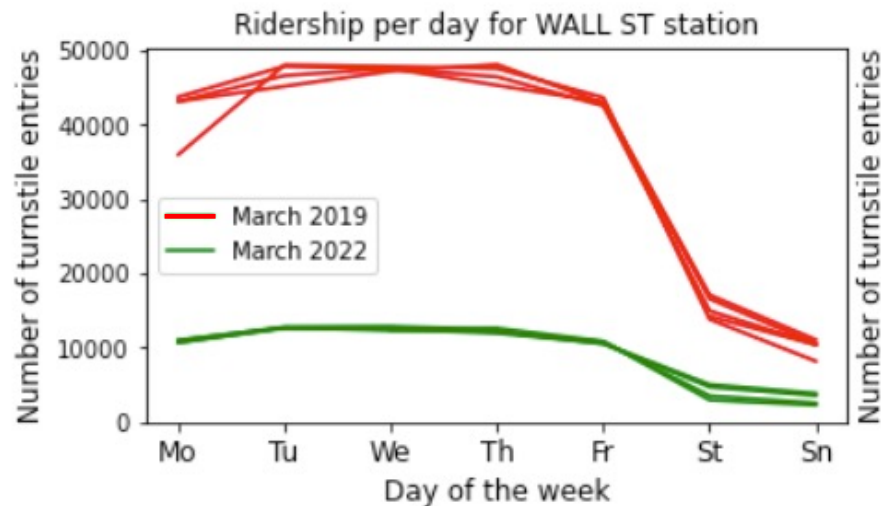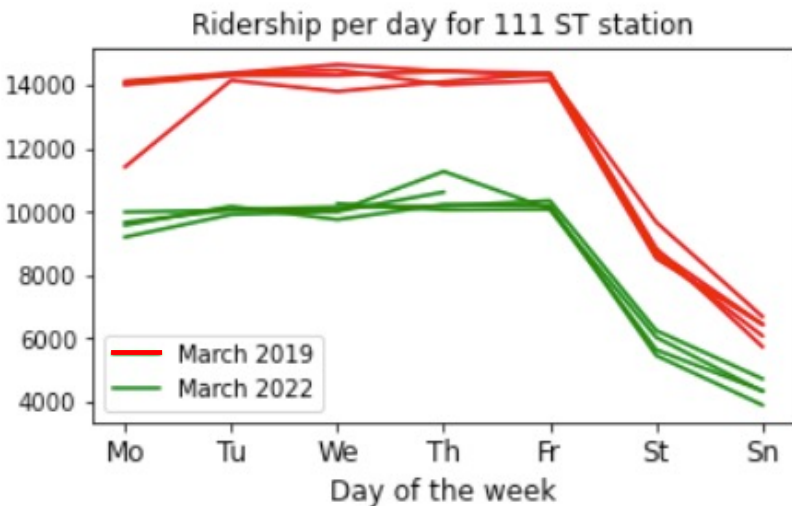
High ridership reduction
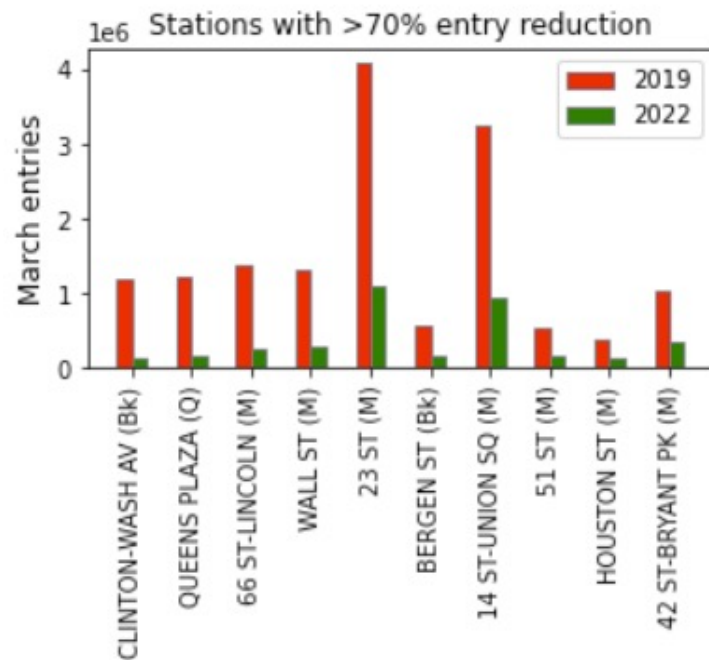
Low ridership reduction

The ridership is dropped more on weekday than weekend for the stations with the high entry reduction

High ridership reduction

Ridership per day for WALL ST station

Low ridership reduction

Ridership per day for 111 ST station

Conclusion

- Most of the stations with the high ridership reduction are located Manhattan borough and more reduction in the weekday than in the weekend.

- Vendors at these stations may consider to relocate or reduce the business scales during the weekday for reopening.

Future work

- Determine the ridership reduction at hourly level to provide more precise information about the ridership changes.

Questions?