Digital Signage Pilot Program Recommendations

Nate DiRenzo

Scope

- Clients:
  - [Outfront Media](#), [MTA Construction & Development (C&D)](#)
- Key Deliverables:
  - Analysis of subway turnstile data from 2021 highlighting system-wide patterns, changes over time, and top stations by borough.
  - Interactive map with detailed 2020 NTA Census Data and Traffic by Subway Station
- Rationale
  - Leverage insights to inform rollout for digital signage pilot program.
  - Price ad space based on insights gained from combination of traffic & demographic data.

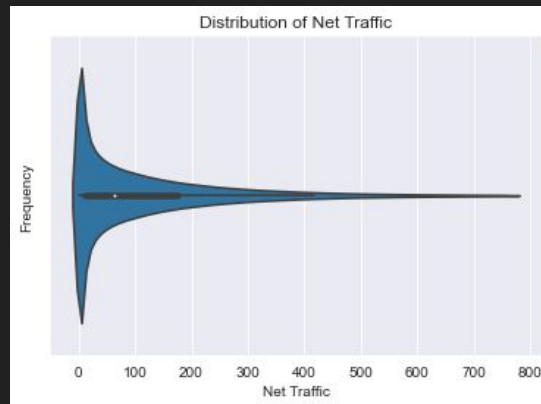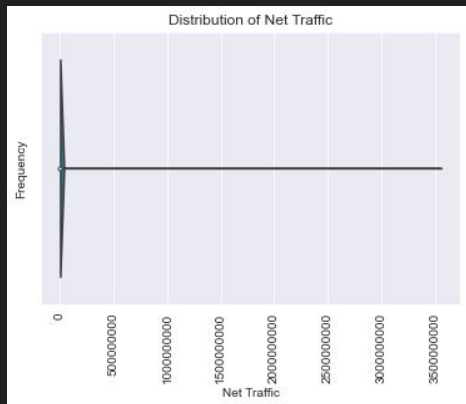# Methodology and Tools

- Ingestion:
  - SQLite + SQLAlchemy
- Data Storage & Manipulation:
  - Pandas + Geopandas
  - Fuzzywuzzy
  - Numpy
- Visualization
  - Matplotlib
  - Seaborn
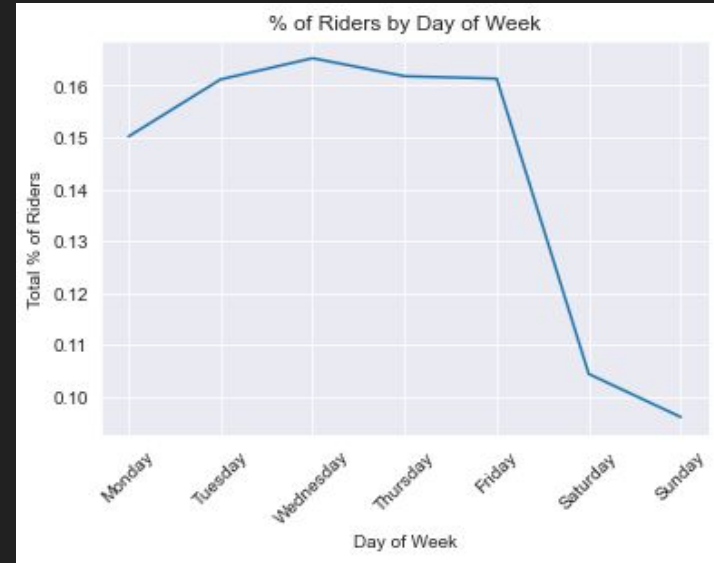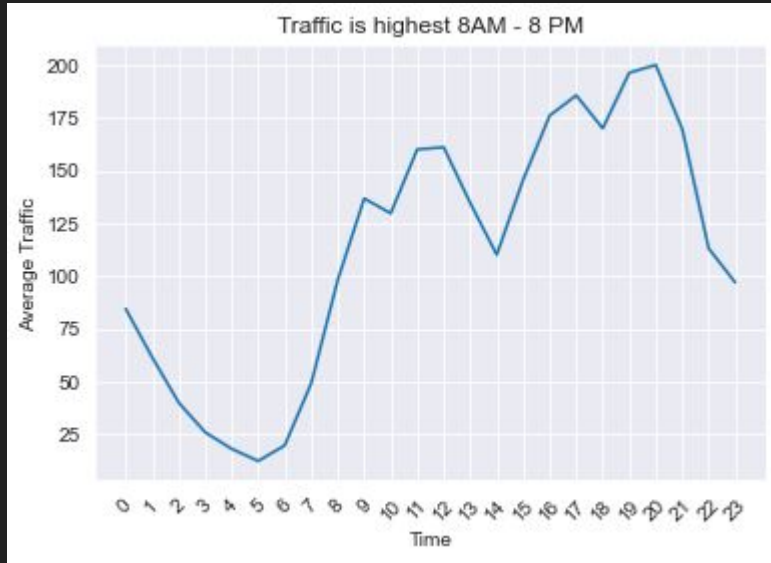 - Leafmap
  - Geopandas

Data Sources

- MTA Turnstile Data
- Station Geographic Information
- 2020 NYC NTA Shapefiles
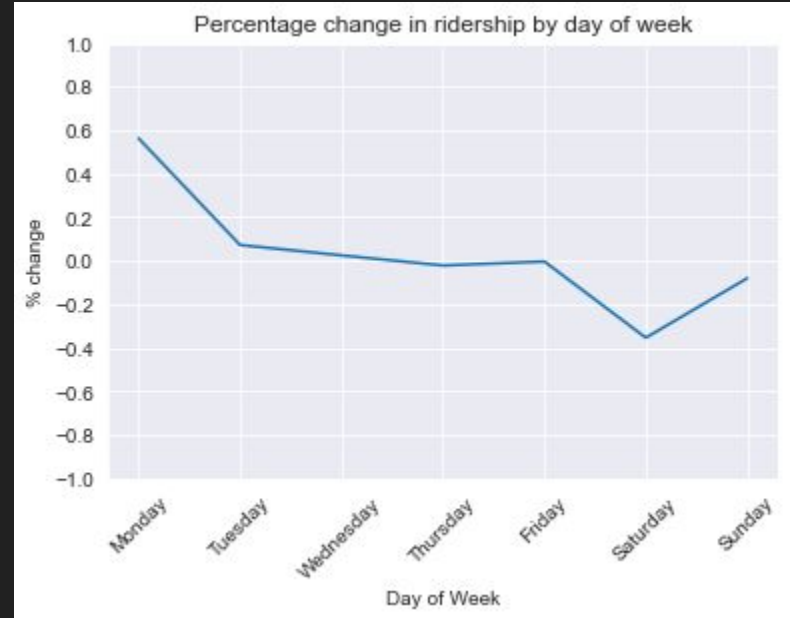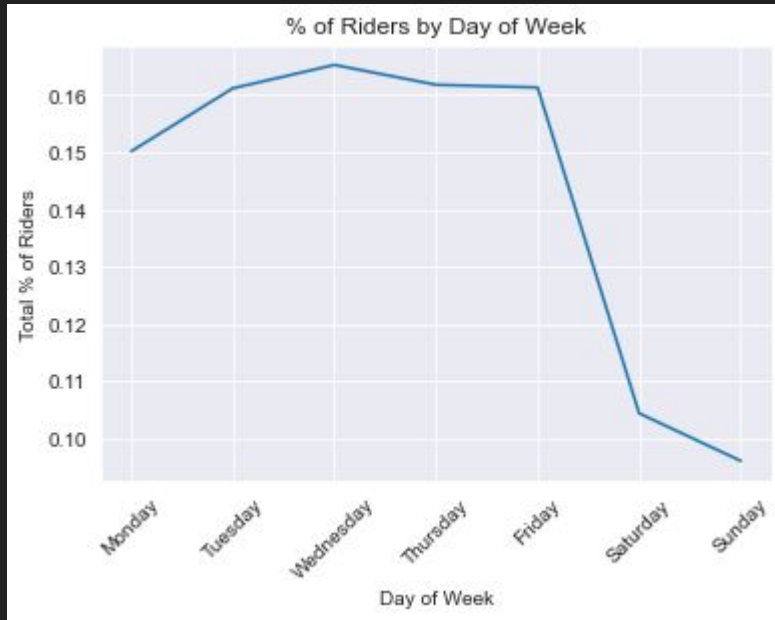- NYC Demographic Information by NTA - 2019

Understanding the Data

- Majority of observations below 100, with some (obviously erroneous) observations into the billions
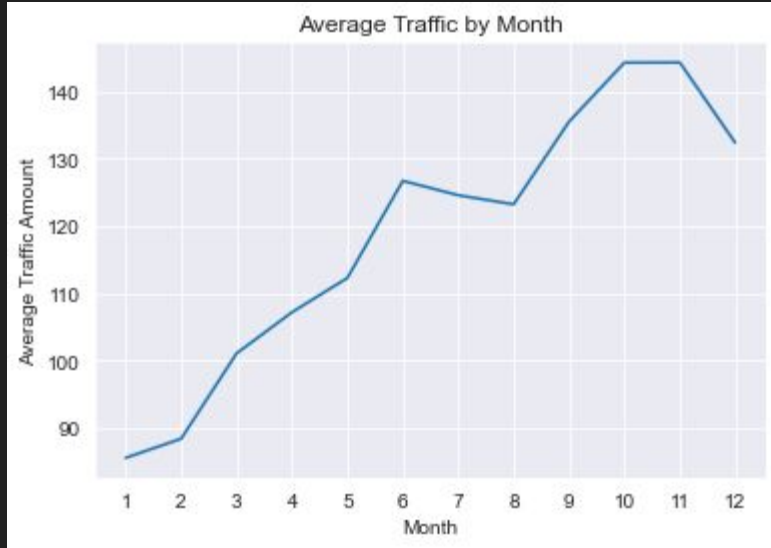- Reducing data to the 99th percentile eliminated the most egregious outliers.
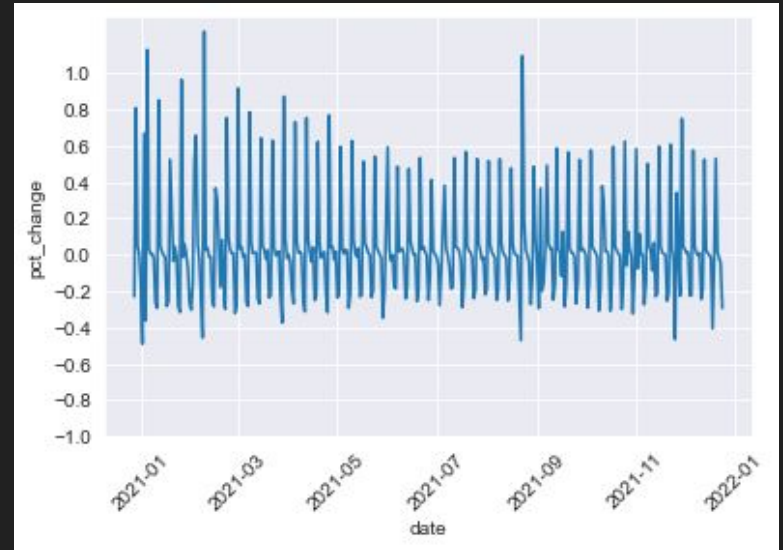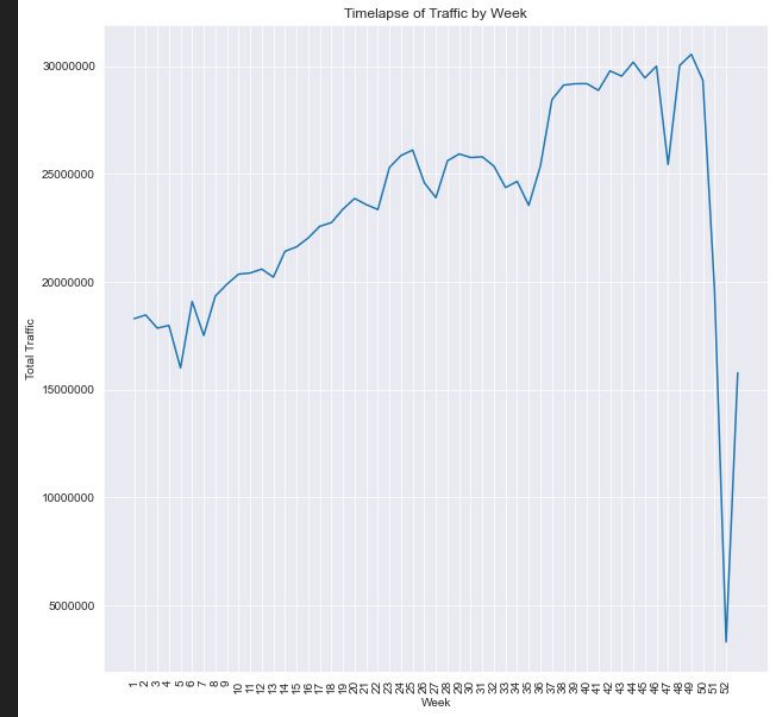
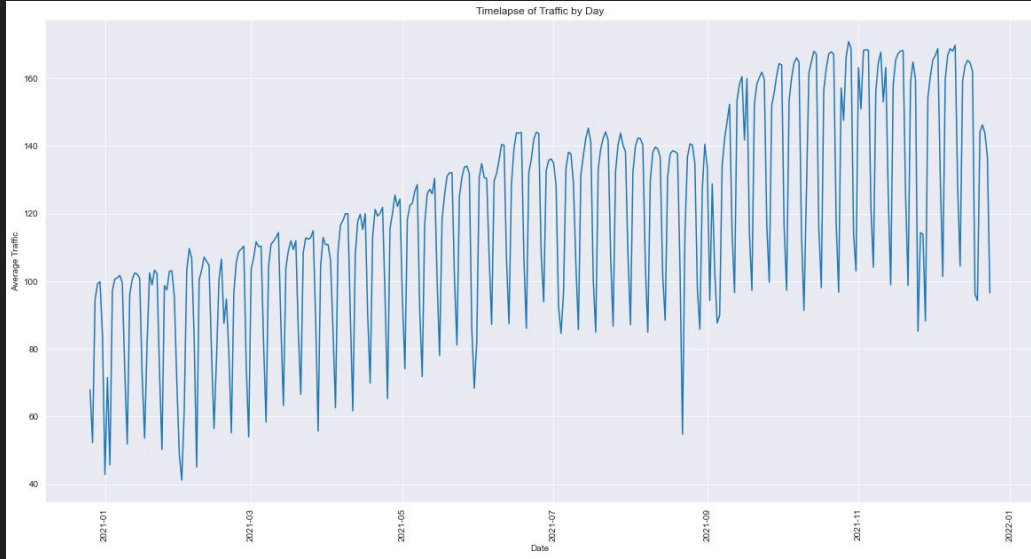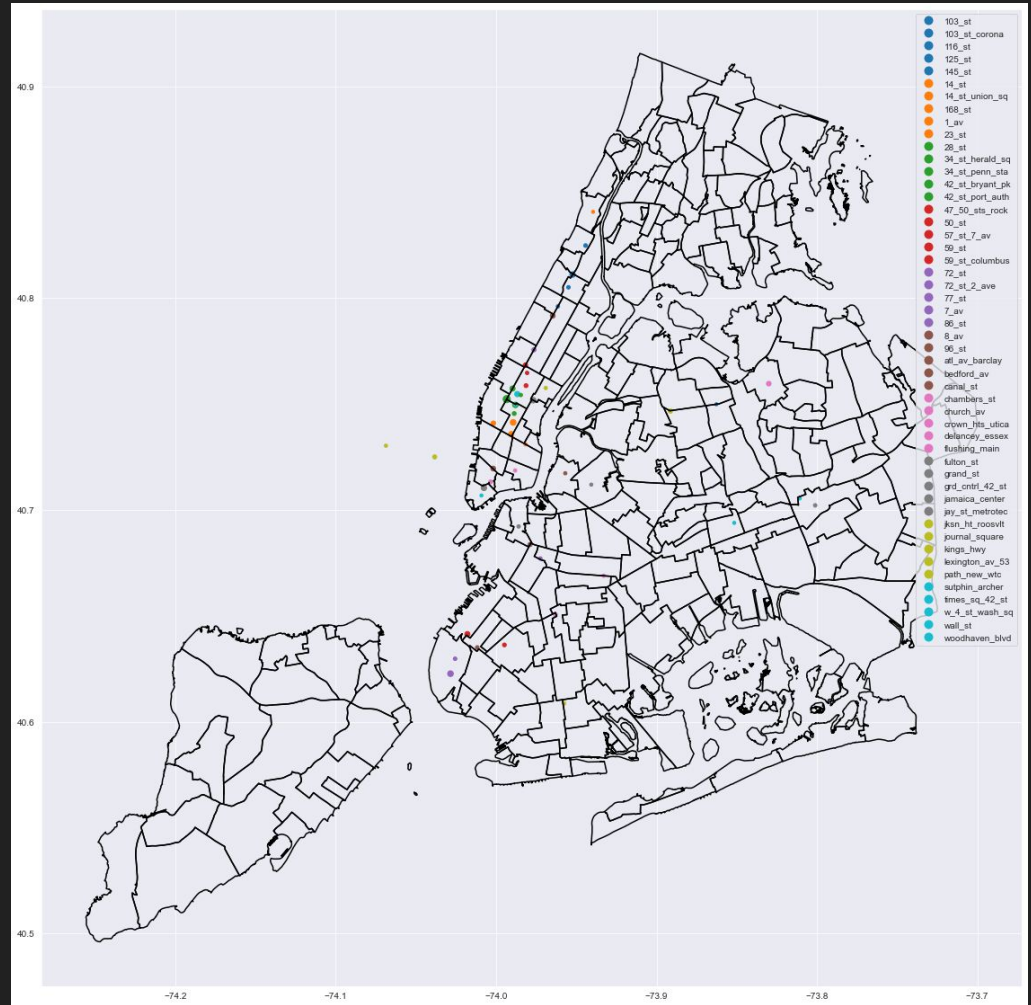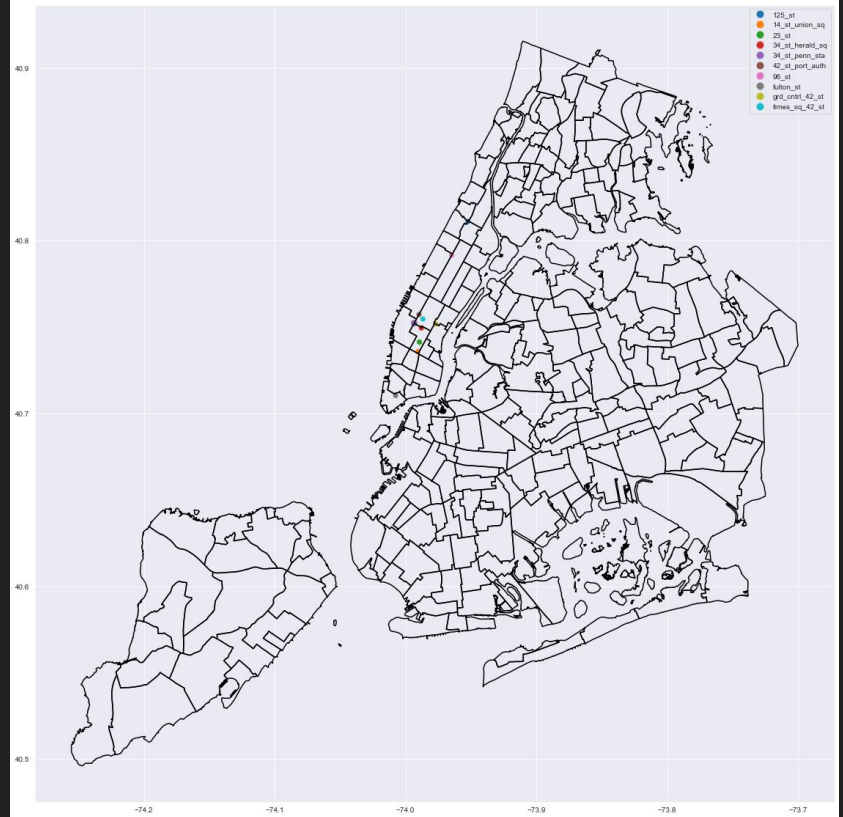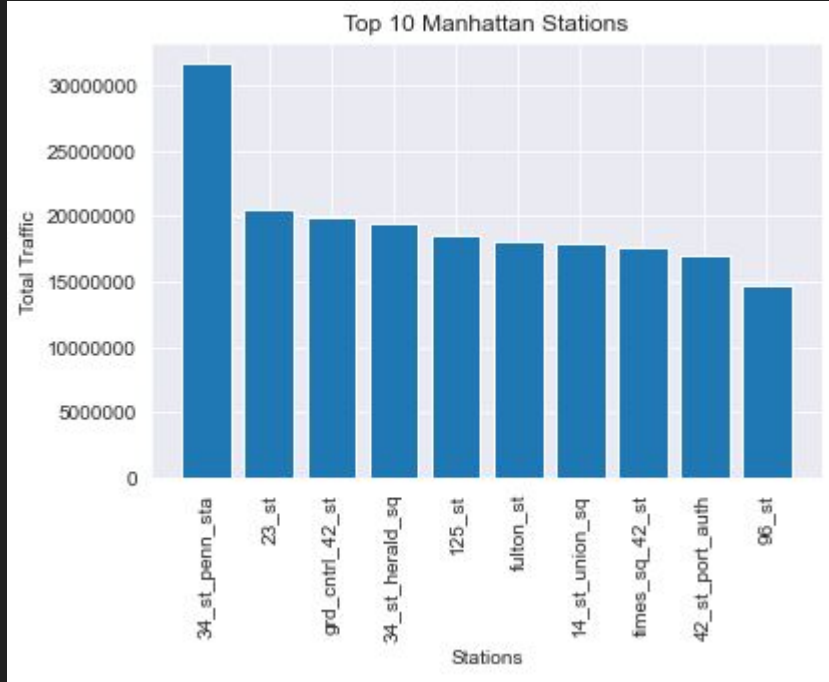# System-Level Insights

System-Level Insights

System-Level Insights

System-Level Insights

System-Level Insights
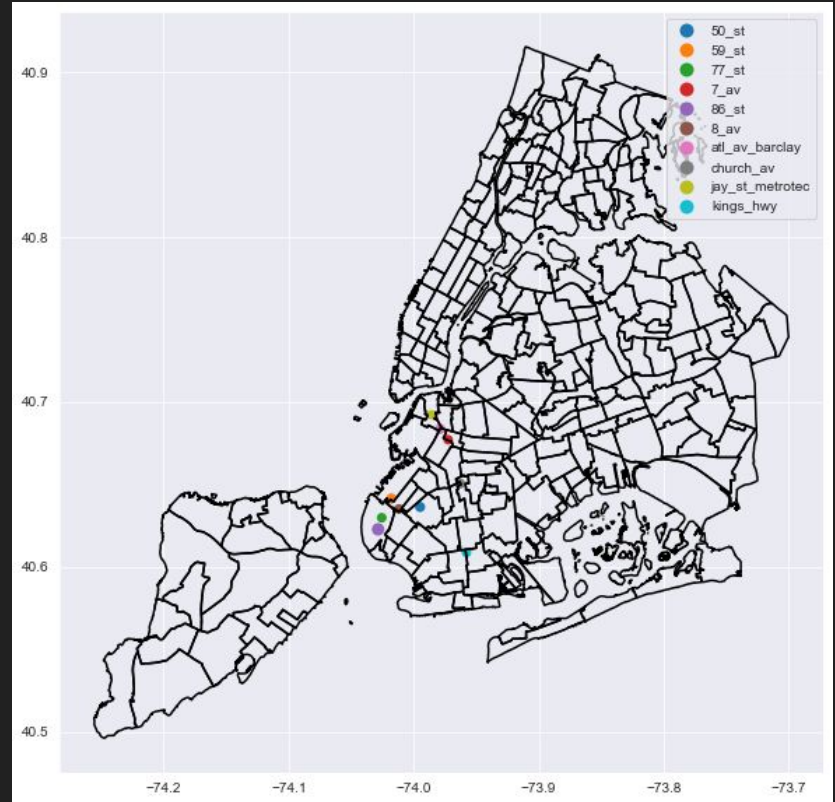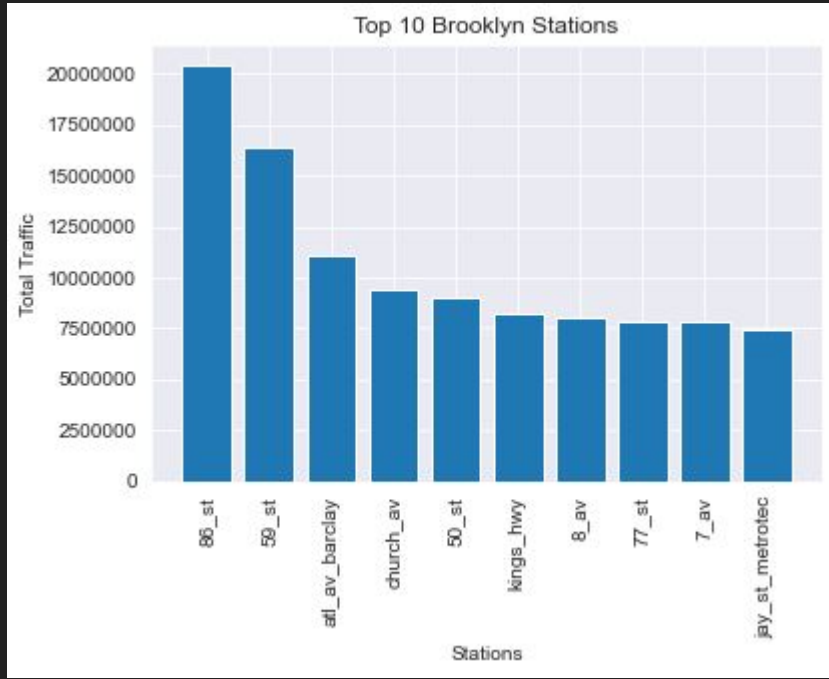

Timelapse of Traffic by Day

Timelapse of Traffic by Week

System-Level Insights

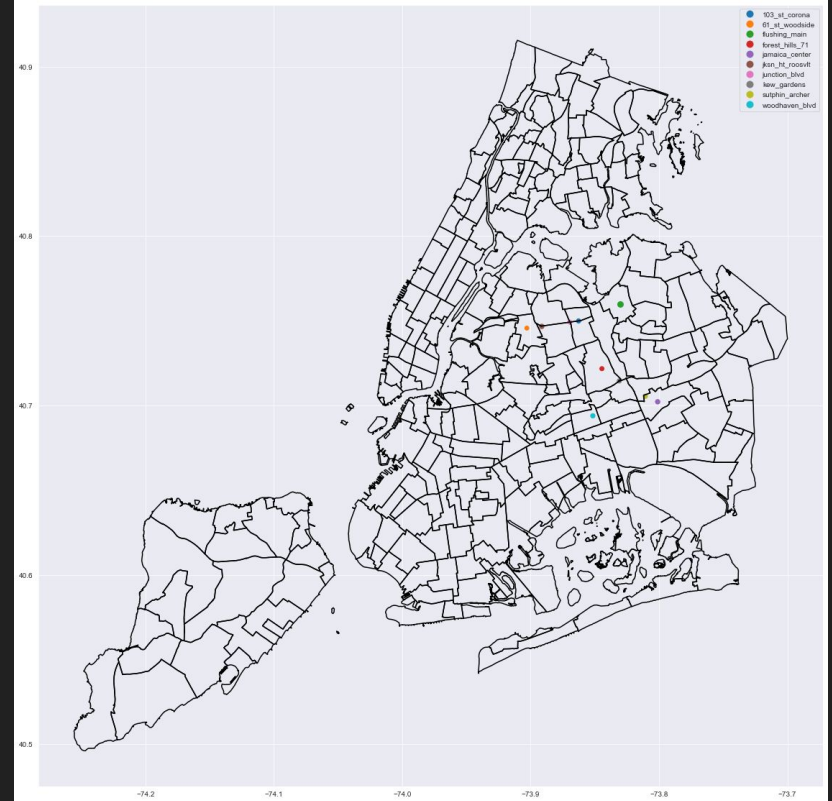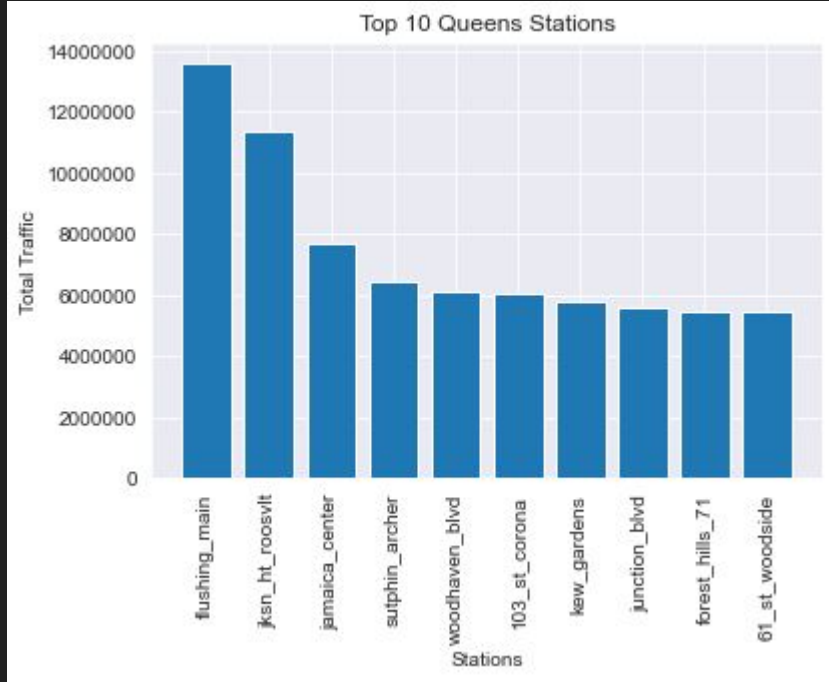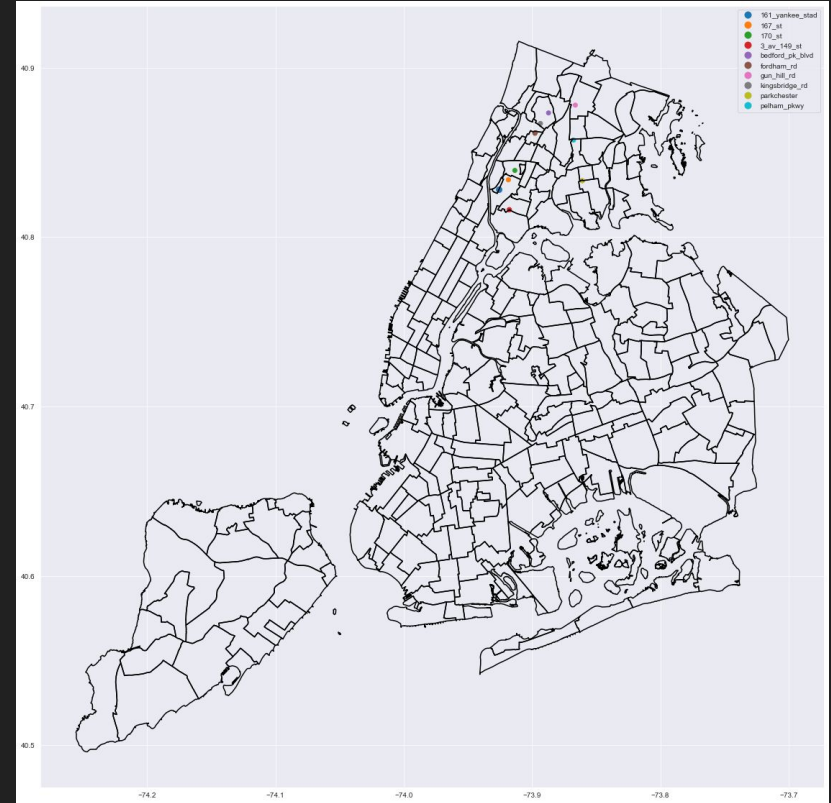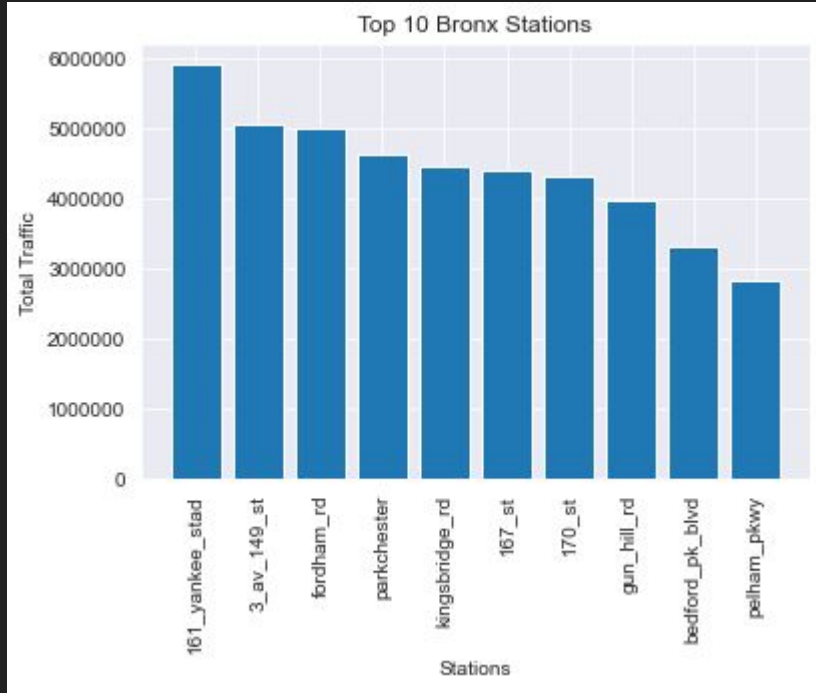# Borough-Level Insights - Manhattan

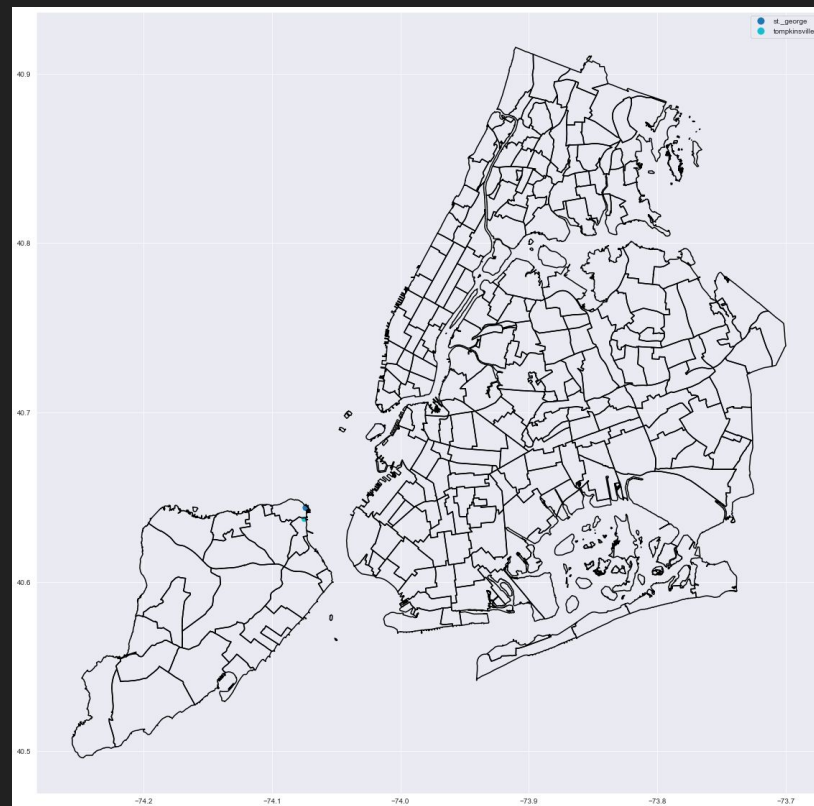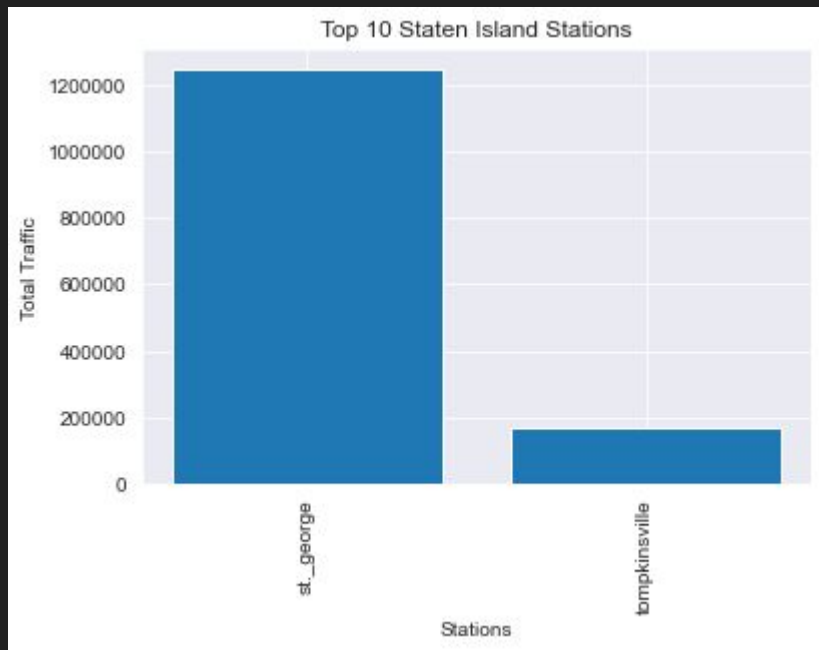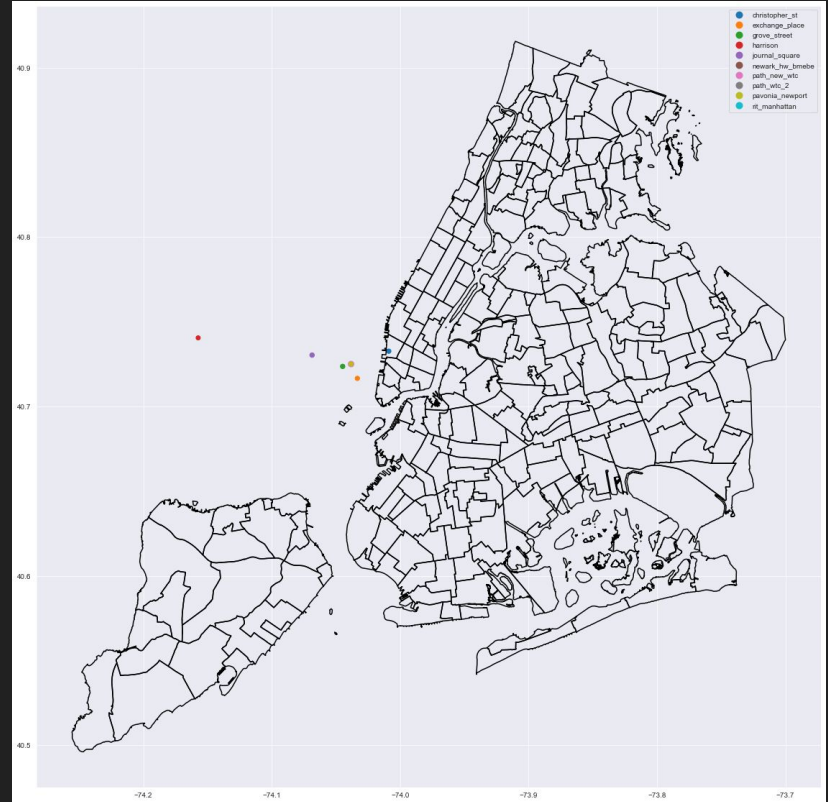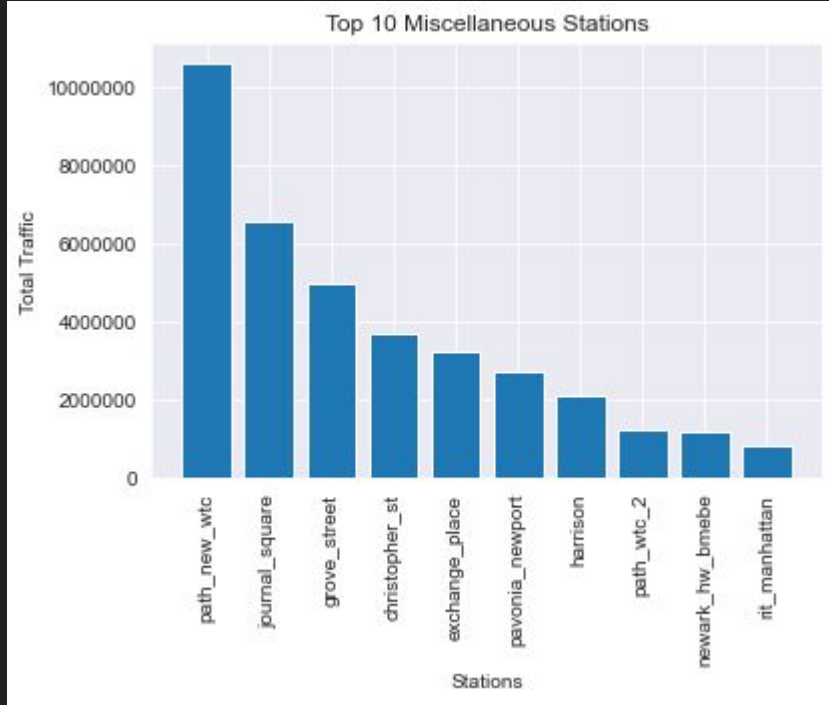# Borough-Level Insights - Brooklyn

Borough-Level Insights - Queens

Borough-Level Insights - The Bronx

Borough-Level Insights - Staten Island

Insights - Miscellaneous Stations

Interactive Map

[LocalHost Link](#) (published with Voila!)

Conclusions

- A small number of stations account for a significant amount of system traffic.
- Traffic is highest 8-12, 4-8
- Weekdays account for ~85% of traffic. Weekend traffic always low.
- June - November have the highest traffic. August - October even moreso.
- Major holidays see major decreases in traffic (Thanksgiving, Christmas, New Year)
- Highest traffic stations are hubs with many lines/transfer points. Connections to commuter transportation accounting for a major portion of subway traffic.

Further Engagement

- Detailed Station-level analysis
- More granular cleaning of the dataset
- Streamlining Census Data & building out Interactive Map

Thank You!