A PANDEMIC'S EFFECT ON MTA TURNSTILES

Exploratory Data Analysis Project

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Introduction

- Motivation
  - NYC was the epicenter of COVID-19, MTA was annihilated during the pandemic
  - Going from being the main source of transportation for millions of New Yorkers, to people completely avoiding it during the pandemic
- Objective
  - To explore MTA ridership levels before COVID and during COVID
  - To explore the relationship between median property value and the change in ridership activity
- Goal
  - To understand and analyze the effect the pandemic had on MTA ridership activity and where it was affected the most

Methodology

- Data Collection
  - MTA turnstile
  - Median Recorded Property Value in NYC
- Cleaning
  - Looked at a specific train line
  - Looked at neighborhoods where the train line passed through
- Exploration
  - Isolated into two time periods (pre and present)
  - Averaged the median property value for the 6 months
  - Calculated the percent difference in ridership
  - Visualized changes and relationship with seaborn, matplotlib, and plotly
- Tools
  - SqlAlchemy
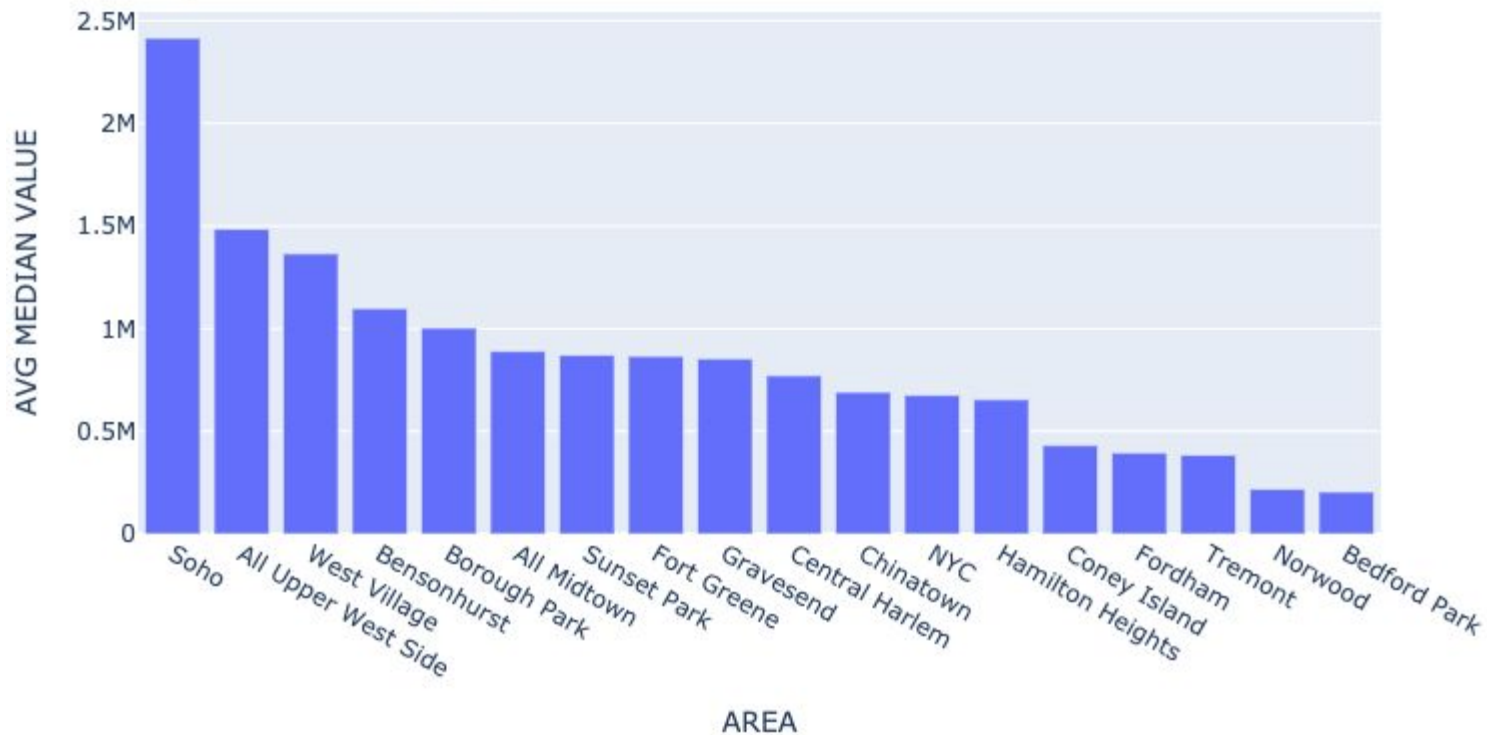 - Geopandas/Pandas
  - Seaborn
  - Plotly express
  - Matplotlib

Total Number of Entries
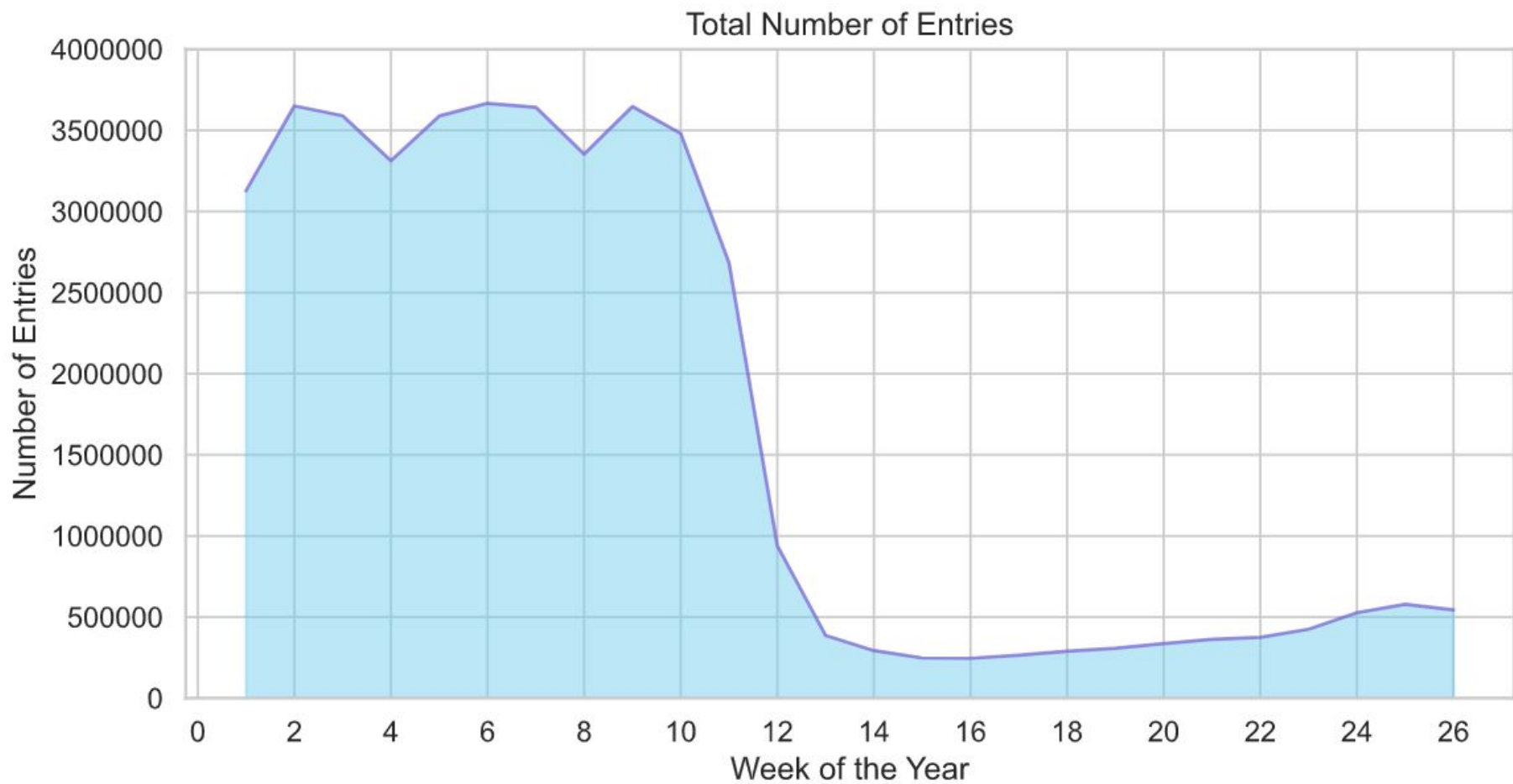
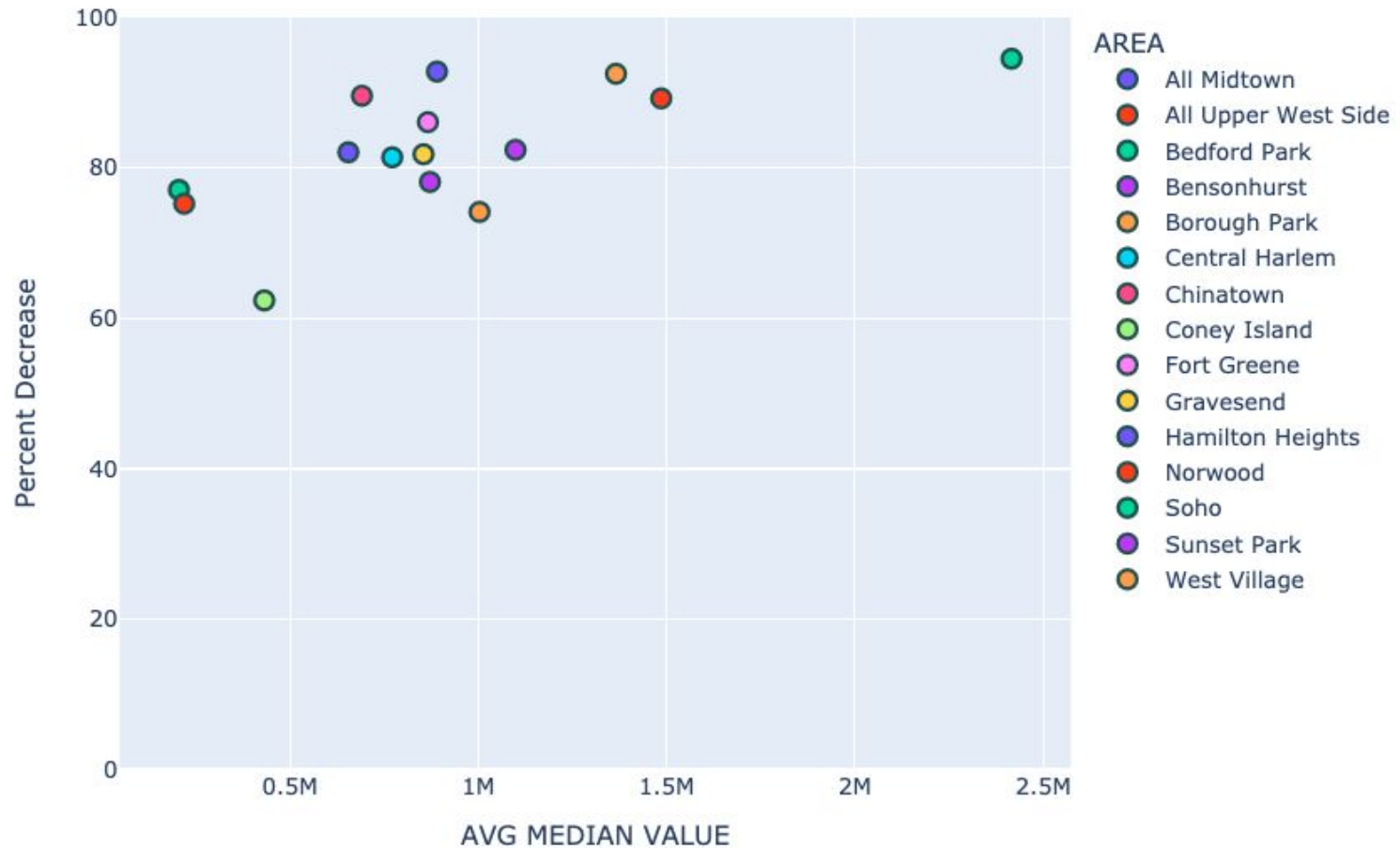Weekly Entries Per Station
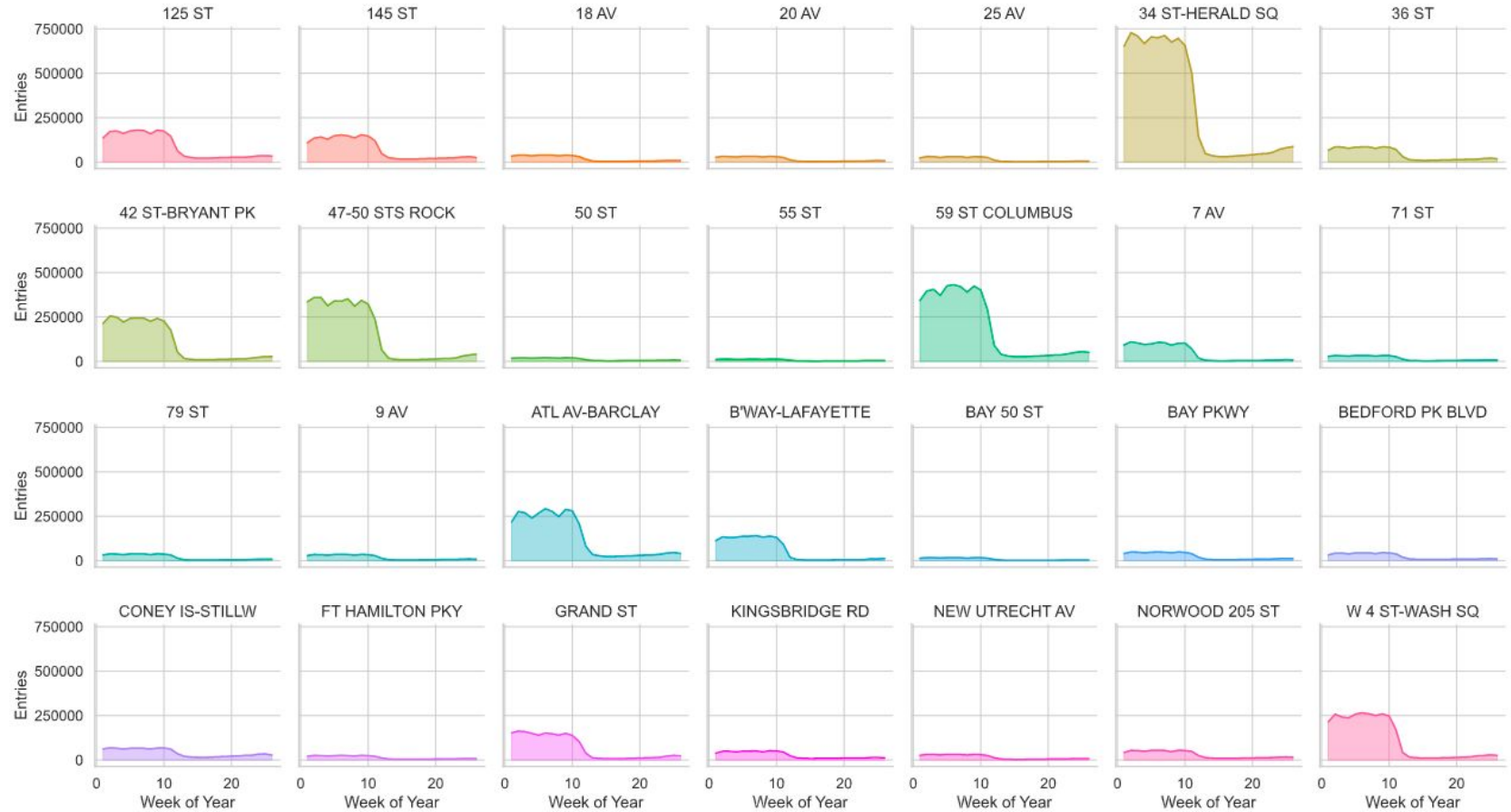
Average Median Property Values

MTA Ridership Weekly Average Difference

Ridership Activity in D Line Neighborhoods

Results

- Overall, for the D line, there was a 89% decrease in ridership between pre and present COVID for all full-time stations
- Minimum change was in Coney-Island station with a percent decrease of 62% with a median value of $431,750
- Maximum change was Broadway-Lafayette station with a percent decrease of 95% with a median value of $2,415,697

Conclusions

- The change in ridership level between the pre-covid and present covid is astronomical
- Stations in more affluent areas tend to have a larger percent decrease than stations in less affluent areas
- However, correlation does not imply causation!

Future Work

- Vaccination
  - When?
- Average household income
  - Bigger picture?
- When will ridership levels go back to pre-covid numbers?