

A black and white photograph of a subway turnstile at Times Square-42nd Street Station. The turnstile is in the center, with stairs leading up and down. The background shows the station's signage, including a large sign with the station name and line letters (N, Q, R, W, S) and a smaller sign for 'FREE WI-FI'. The title 'MTA Turnstile EDA' is overlaid in large, bold, pink letters.

MTA Turnstile EDA

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Optimizing Participation
in WomenTechWomenYes Gala

Introduction

Motivation

- Assist WTWY in optimizing attendance, increase awareness

Objective

- Gather, analyze daily turnstile data, income data, and NYC tech locations to gain insights into traffic flow

Goals

- Find optimal days and locations to place street teams



Analysis

Identify locations based on exposure to

- highest volume of pedestrians
 - pedestrians associated with successful tech companies
 - high income earners
-

A black and white photograph of a subway turnstile. The turnstile is a metal structure with a vertical bar and a horizontal bar. The word 'Methodology' is written in large, pink, sans-serif font across the center of the image, partially obscuring the turnstile. In the background, there are signs for 'Time Stat' and 'Enter w' at all tin at 42 St.

Methodology

Data

- MTA Turnstile Data, sample of 6 weeks of data prior to summer gala
 - Geographic Data on MTA Stations
 - Location of Top Tech Investments in NYC
 - Income Earnings based on IRS Individual Income Tax Statistics
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Methodology

Metrics

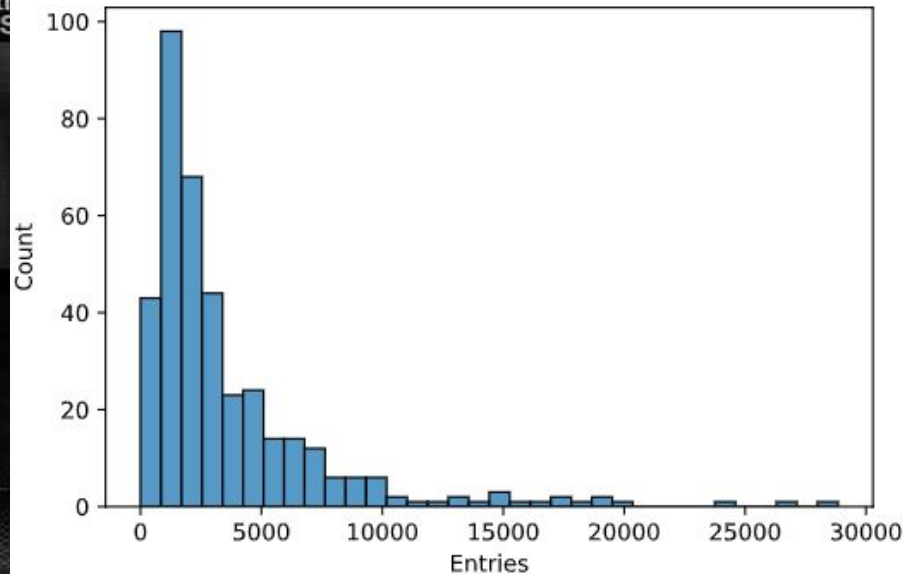
- Daily Station Entries
 - Zip Codes of Top Tech Investments in NYC
 - Proportion of Income Earners with \$200,000+ Annual Income
-

Summary Statistics - Ridership

MTA Turnstile Data

- Total No. of Stations: 379
- No. of Days Analyzed: 41
- No. of Daily Station Entries Recorded: 15,506
- Average Daily Station Entries: 3,647
- Daily Station Entries Range: 0 - 28,839

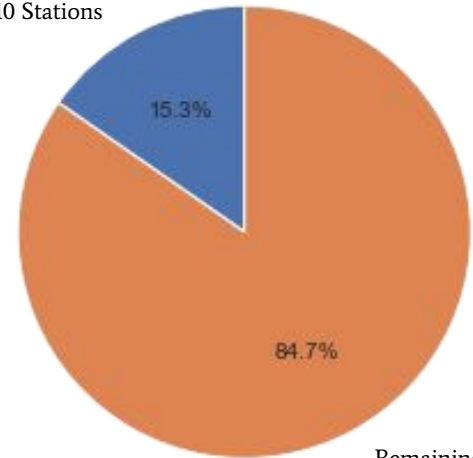
Histogram of Daily Ridership



Coverage of Top Stations

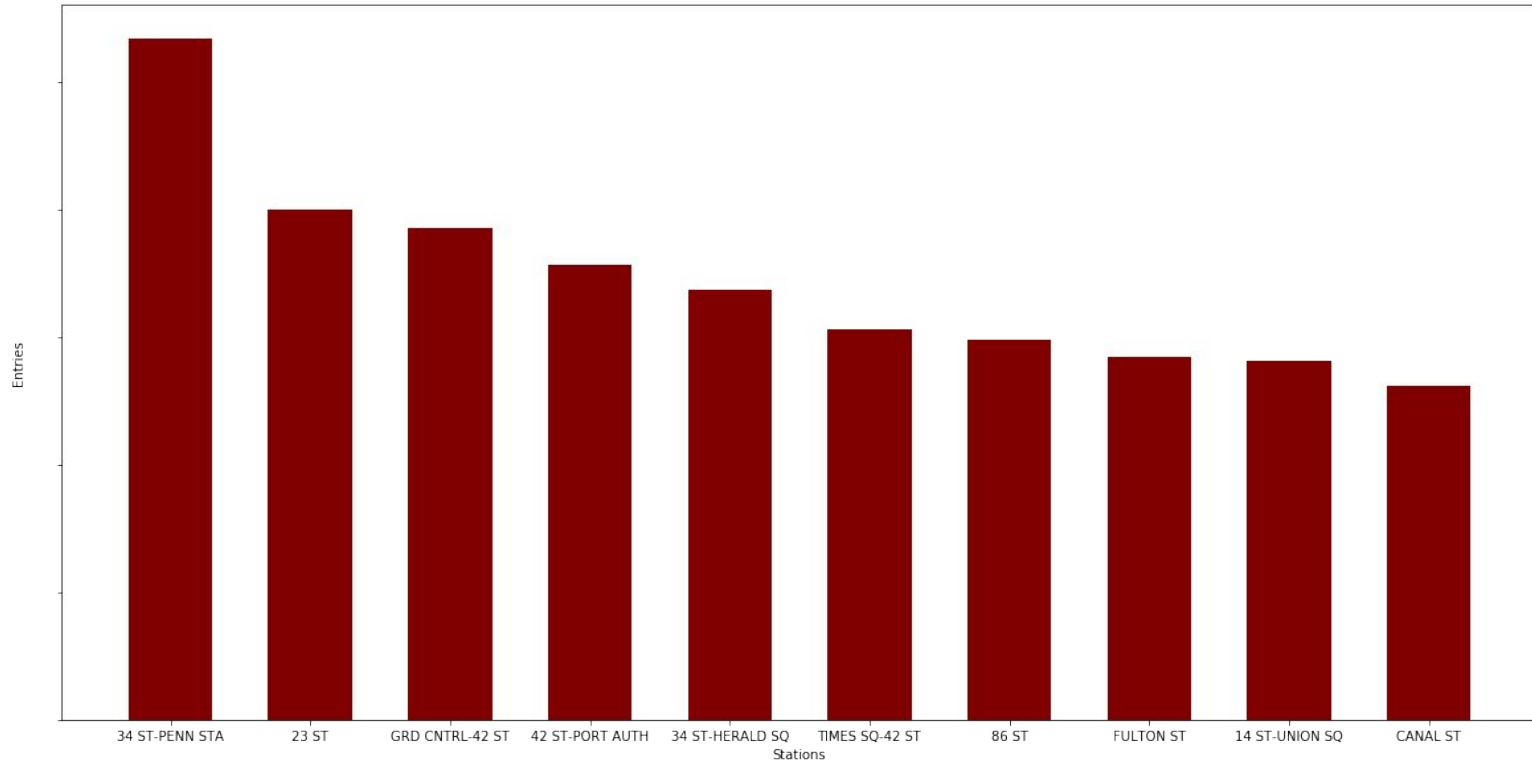
Split of Total Ridership

Top 10 Stations

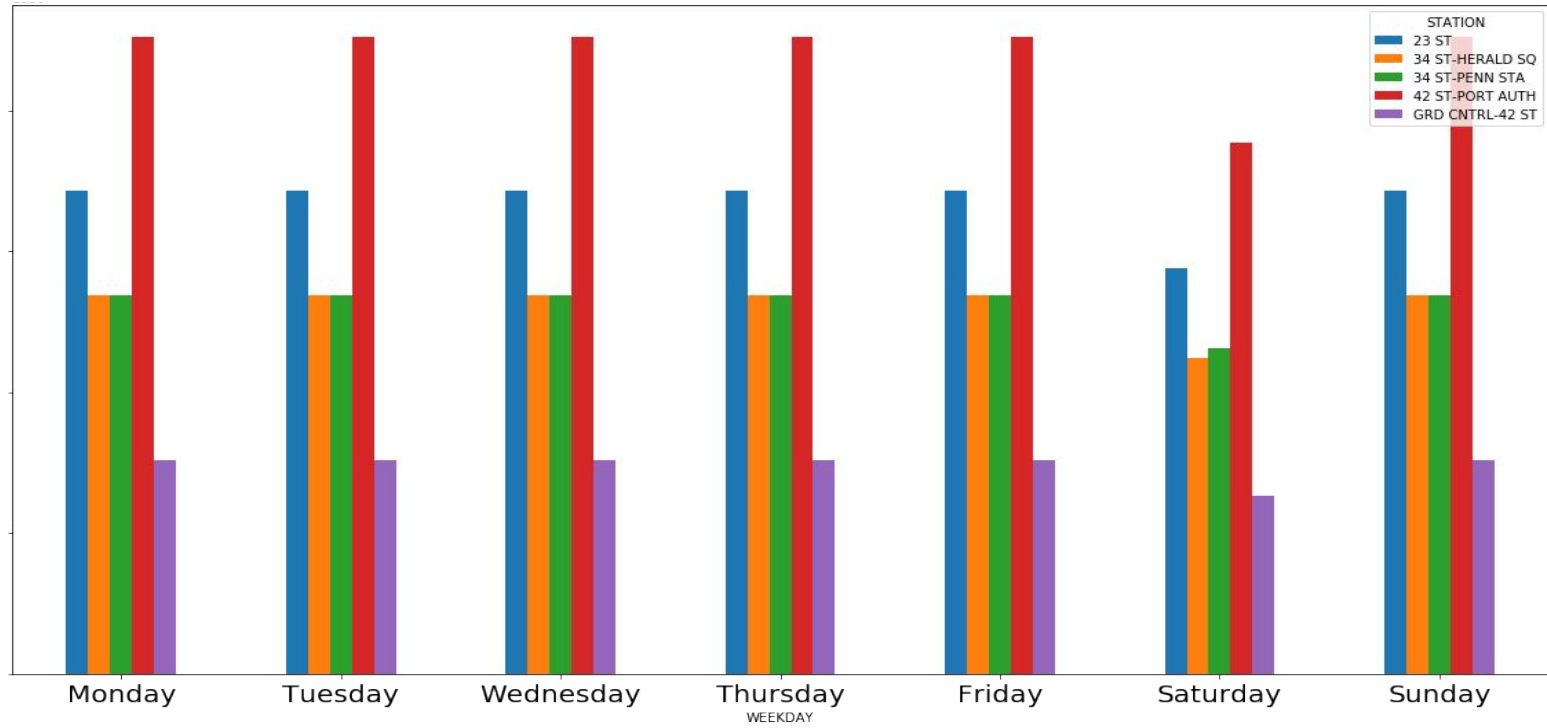


Remaining Stations

Top 10 Stations by Ridership

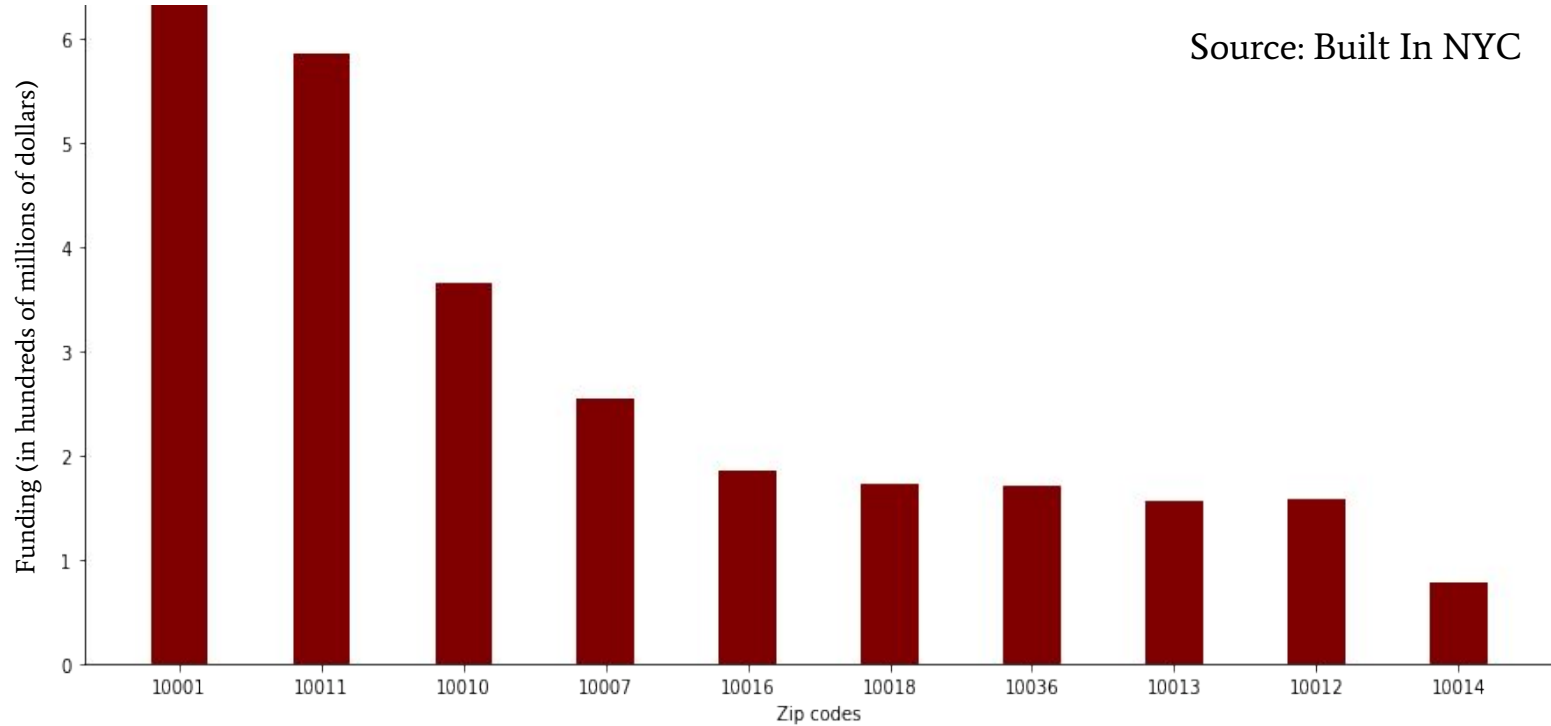


Top 5 Stations by Ridership - Day of the Week



Top 10 Zip Codes by Tech Investments

Source: Built In NYC



Top (18) Stations by Location of Tech Investments

14 St
8 Av
6 Av
18 St
23 St
28 St
Chambers St
Times Sq-42 St
33 St
42 St-Port Auth
Canal St
Franklin St
Prince St
Bowery
Spring St
B'Way-Lafayette
Bleecker St
W 4 St-Wash Sq
Houston St

Top (10) Stations by Ridership

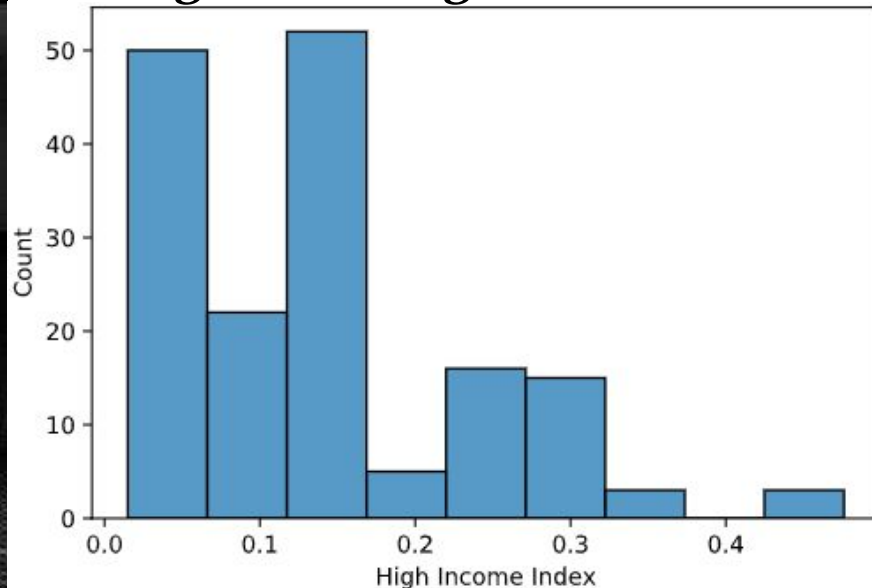
34 St-Penn St
23 St
Grd Central-42 St
42 St-Port Auth
34 St-Herald SQ
Times Sq-42 St
86 St
Fulton St
14 St-Union Sq
Canal St

Summary Statistics - Income

IRS Individual Income Tax Data by Zip Code

- High-Income Index = Share of Total Tax Returns with \$200,000+ Annual Income
- Stations Matched: 166 (44% of total)
- Average Index = 0.13

Histogram of High-Income Index



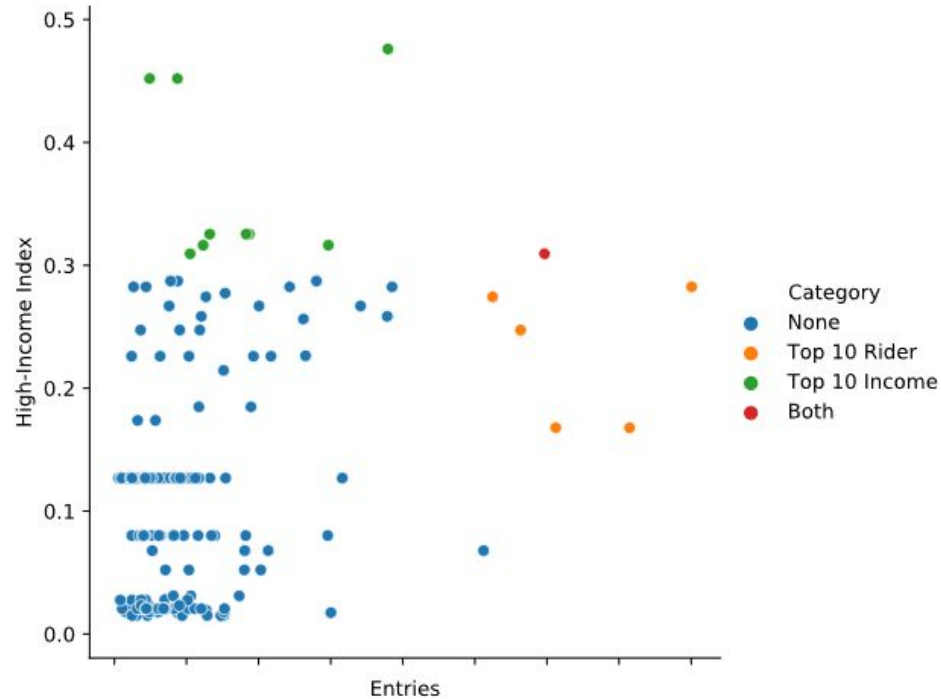
Top (10) Stations based on High-Income Index

Chambers St
30 Av
Astoria Blvd
72 St-2 Ave
68 St-Hunter Co
77 St
66 St-Lincoln
72 St
86 St
79 St

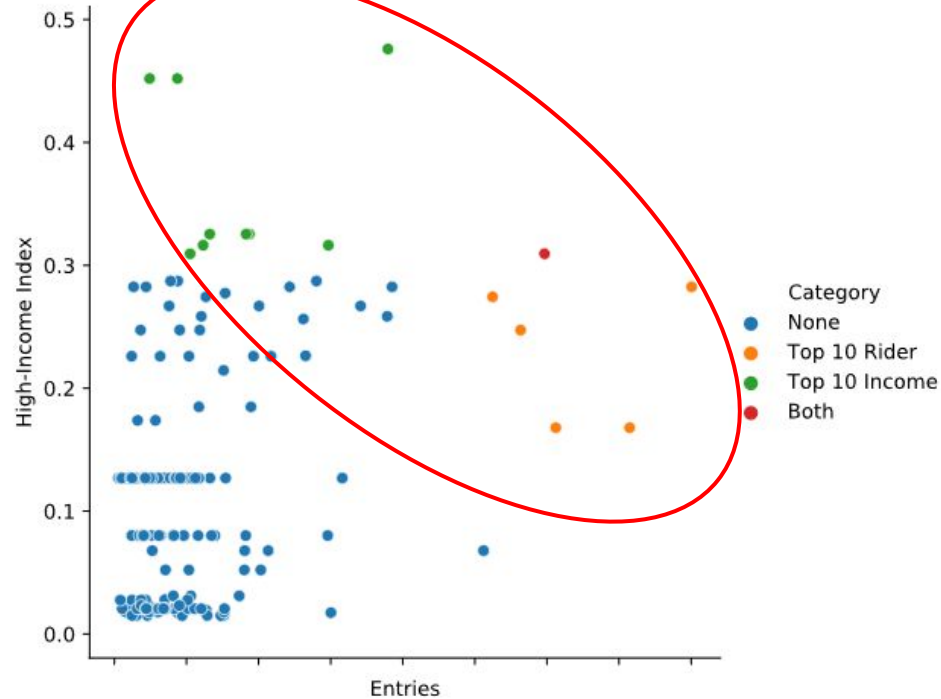
Top (10) Stations by Ridership

34 St-Penn St
23 St
Grd Central-42 St
42 St-Port Auth
34 St-Herald SQ
Times Sq-42 St
86 St
Fulton St
14 St-Union Sq
Canal St

Relationship between High-Income Index and Ridership



Relationship between High-Income Index and Ridership





Conclusions

- Day of the Week Matters
 - Lowest Ridership on Saturday
 - Significant overlap of High Traffic and Wealthy Tech locations
 - Highest traffic stations are exposed to high-income earners
-



Conclusions

- **Recommendation:** Place street teams at Top 10 stations by Ridership
 - Focus on high traffic + tech locations:
 - 23 Street
 - Times Square 42nd Street
 - 42nd Street Port Authority
 - Canal Street
-

Future Work

Additional Factors

- Time of Day
- Demographic Information (women, age)

Improvements in Methodology

- Outliers in Data
- Aggregate Ridership by ZIP code
- Account for Missing Income Data



Times Sq-42 St
Station

N Q R W S

1 2 3 7 at 7 Av

A C E at 8 Av

Elevator
at 42 St

Transit
Wi-Fi

FREE WI-FI

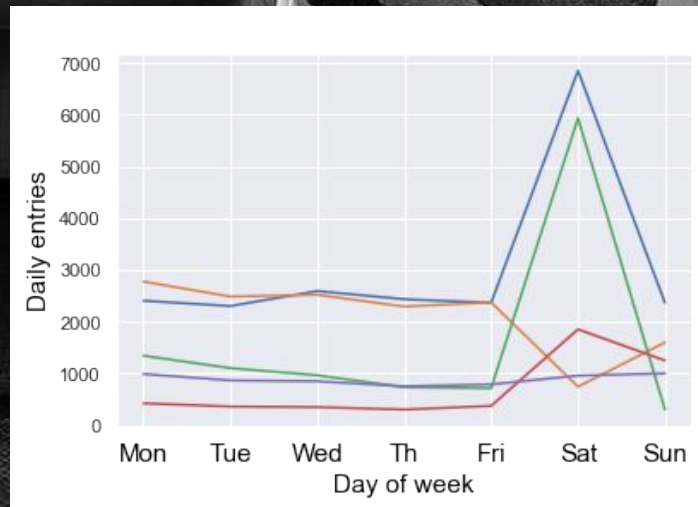
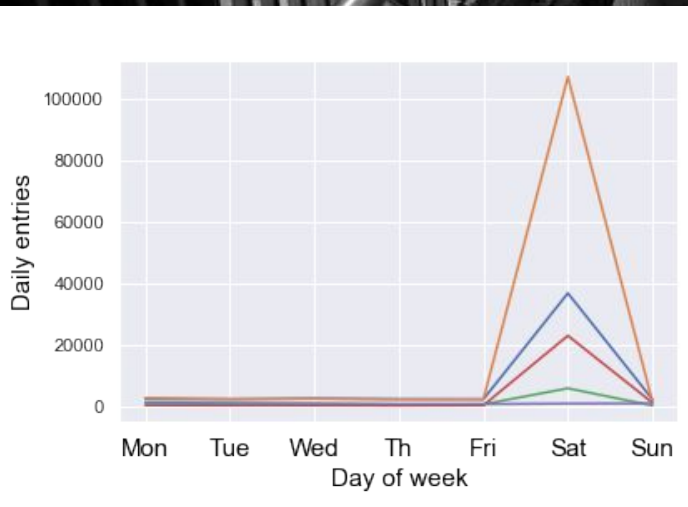
SSID: TRANSITWIRELESSWIFI

Enter with or buy MetroCard
at all times or see agent
at 42 St & 7 Av

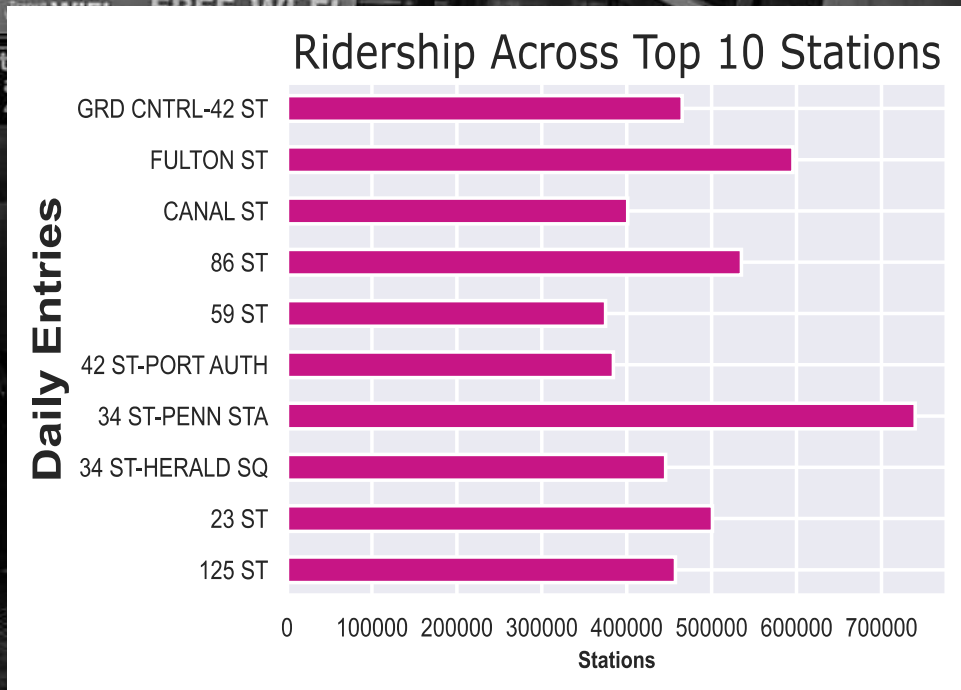
Thank you!

Appendix

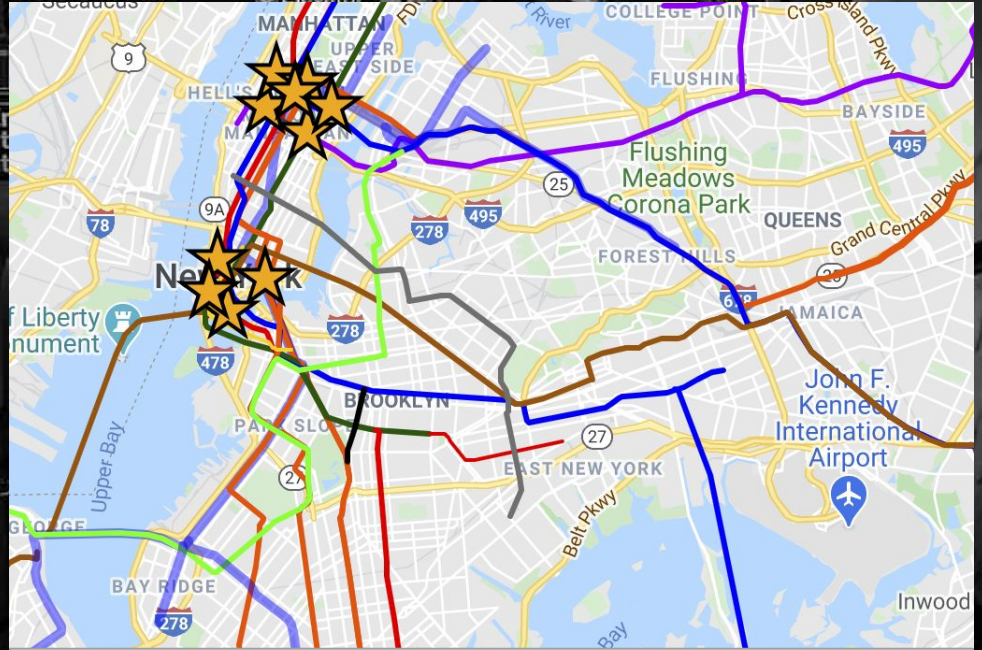
Weekday traffic per week for station “Rit-Roosevel” before and after cleaning data



Appendix continued



Times Sq-42 St
Sat on
N R W S



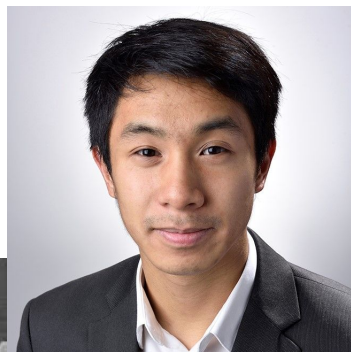
Map of Top 10 Locations by Ridership

The Team



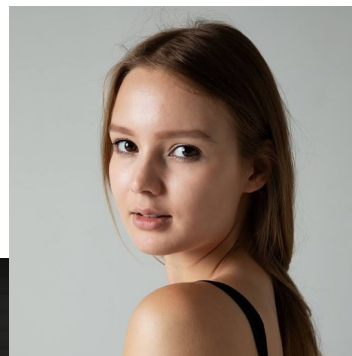
Kaitlyn Zeichick

Data visualization



Warren Lee

EDA



Alba Sitdikova

EDA and statistics



Will Nobles

Data cleaning