WomenTechWomenYes (WTWY)

Exploratory Data Analysis on the NYC MTA Turnstile Data

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Problem Description

WomenTechWomenYes (WTWY) International helds annual gala at the beginning of summer.

" Fill our event/gala space with individuals passionate about increasing the participation of women in technology, and to concurrently build awareness and reach."
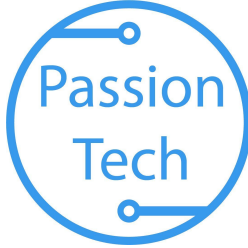
- WTWY International

Goal

Optimize the placement of WTWY street teams in NYC subway to promote the gala and future events

Maximum amount of sign-up

Passion Tech

Passion in technology gala

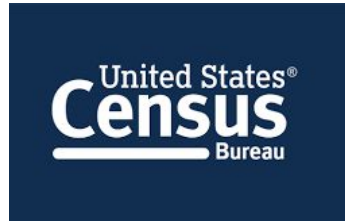**Significant in fundraising efforts**

- 472 subway stations
- Approximately 2 million of daily ridership

Approaches

- Which stations are the busiest stations
- When is the peak of the flow? (weekday / weekend)
- Where may have more people interested in summer technology gala
- Which area has more family above median income

NYC Subway Data   **Median Income**   **Career center**

Data

MTA Turnstile Data

05/01/2021 - 08/31/2021
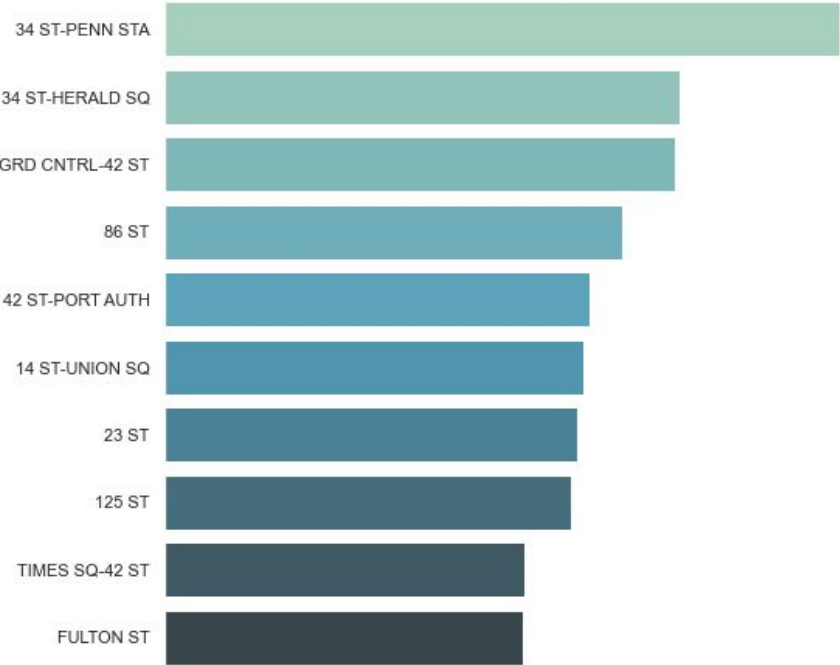- 379 stations
- 5030 turnstiles
- 3,679,429 total records

	CA	UNIT	SCP	STATION	LINENAME	DIVISION	DATE	TIME	DESC	ENTRIES	EXITS
0	A002	R051	02-00-00	59 ST	NQR456W	BMT	04/24/2021	00:00:00	REGULAR	7561288	2582898
1	A002	R051	02-00-00	59 ST	NQR456W	BMT	04/24/2021	04:00:00	REGULAR	7561295	2582903
2	A002	R051	02-00-00	59 ST	NQR456W	BMT	04/24/2021	08:00:00	REGULAR	7561302	2582918
3	A002	R051	02-00-00	59 ST	NQR456W	BMT	04/24/2021	12:00:00	REGULAR	7561336	2582977
4	A002	R051	02-00-00	59 ST	NQR456W	BMT	04/24/2021	16:00:00	REGULAR	7561426	2583008

Insight

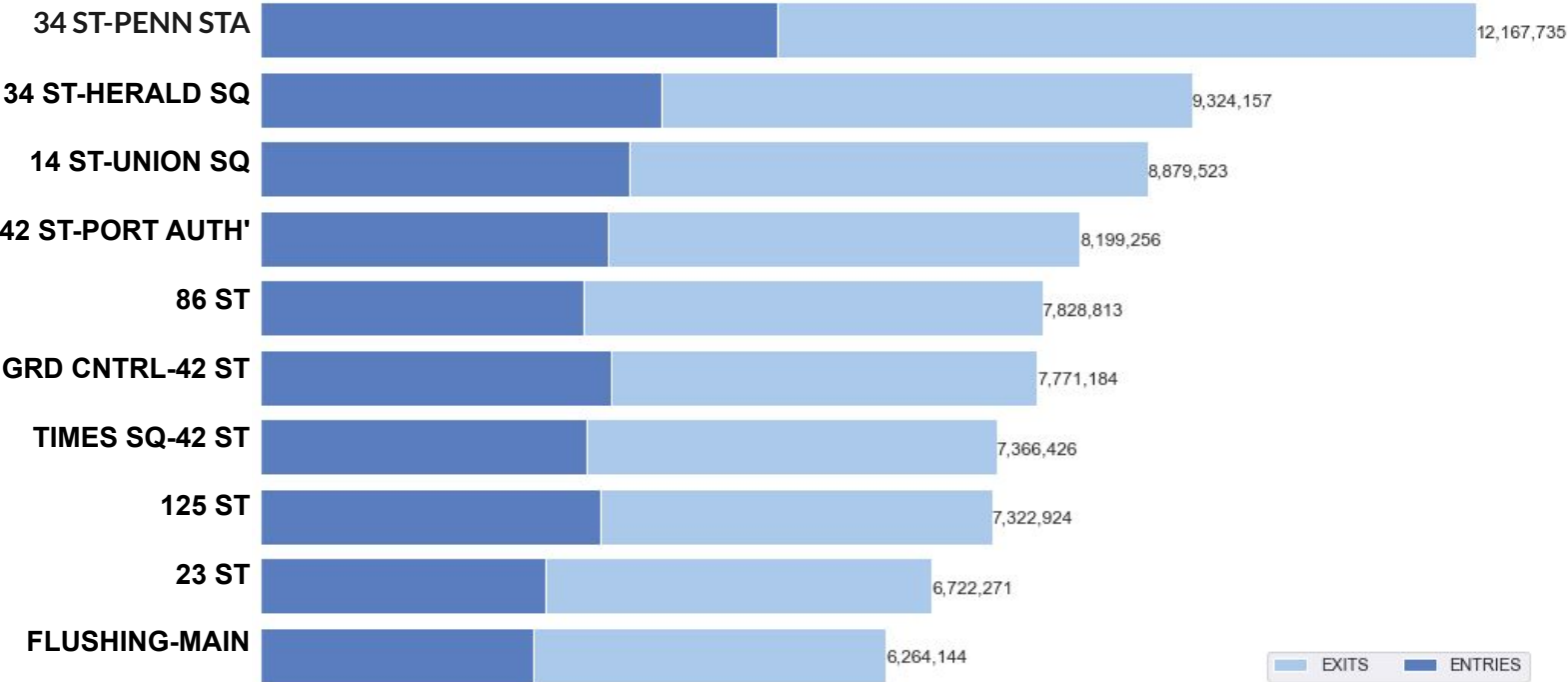## The busiest New York City Stations

371,350,820 total riders per weekday

Station	
34 ST-PENN STA	
34 ST-HERALD SQ	
GRD CNTRL-42 ST	
86 ST	
42 ST-PORT AUTH	
14 ST-UNION SQ	
23 ST	
125 ST	
TIMES SQ-42 ST	
FULTON ST	

99,710,951 total riders per weekend

	Station
	34 ST-PENN STA
	34 ST-HERALD SQ
	14 ST-UNION SQ
	42 ST-PORT AUTH
	86 ST
	GRD CNTRL-42 ST
	TIMES SQ-42 ST
	125 ST
	23 ST
	FLUSHING-MAIN
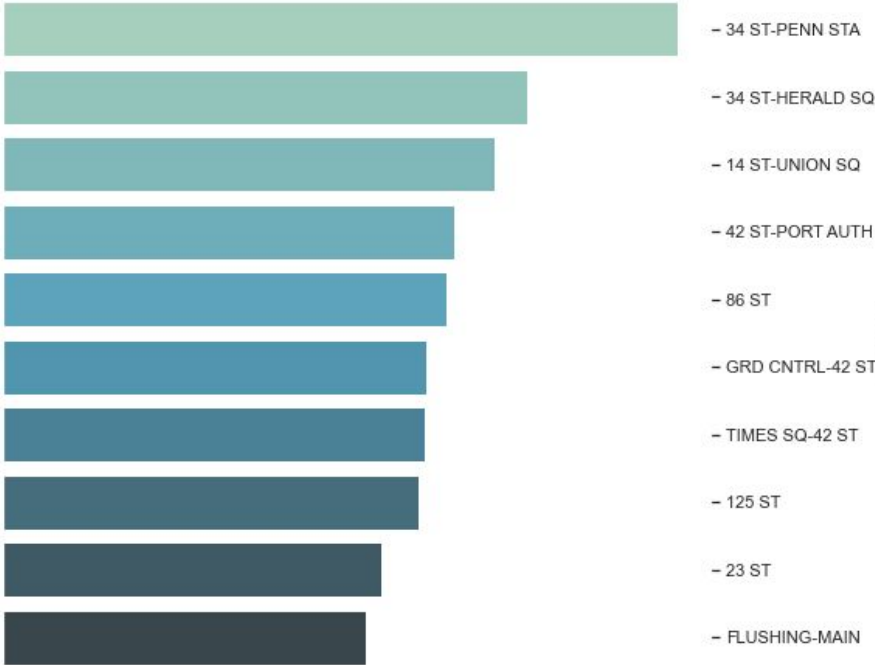
Insight

Top 10 busiest New York City Stations

| Station	Total
34 ST-PENN STA	12,167,735
34 ST-HERALD SQ	9,324,157
14 ST-UNION SQ	8,879,523
42 ST-PORT AUTH'	8,199,256
86 ST	7,828,813
GRD CNTRL-42 ST	7,771,184
TIMES SQ-42 ST	7,366,426
125 ST	7,322,924
23 ST	6,722,271
FLUSHING-MAIN	6,264,144

EXITS ENTRIES

Consider both Exits & Entries as total traffic to reduce bias

Traffic in day of the week
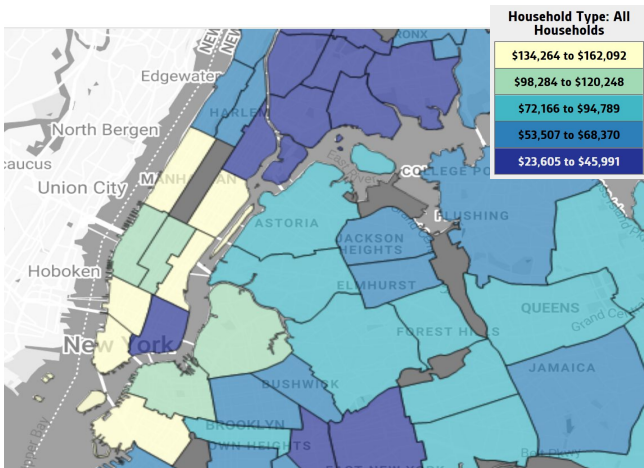
Tuesday and Monday are two busiest days of the week
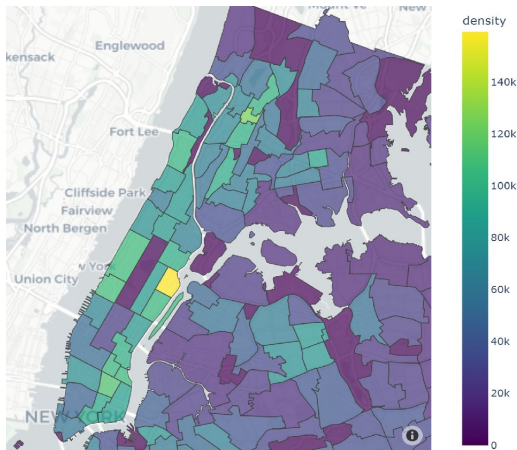
Sunday is the least busy day o the week

| | Mon | Thu | Wed | Thu | Fri | Sat | Sun |
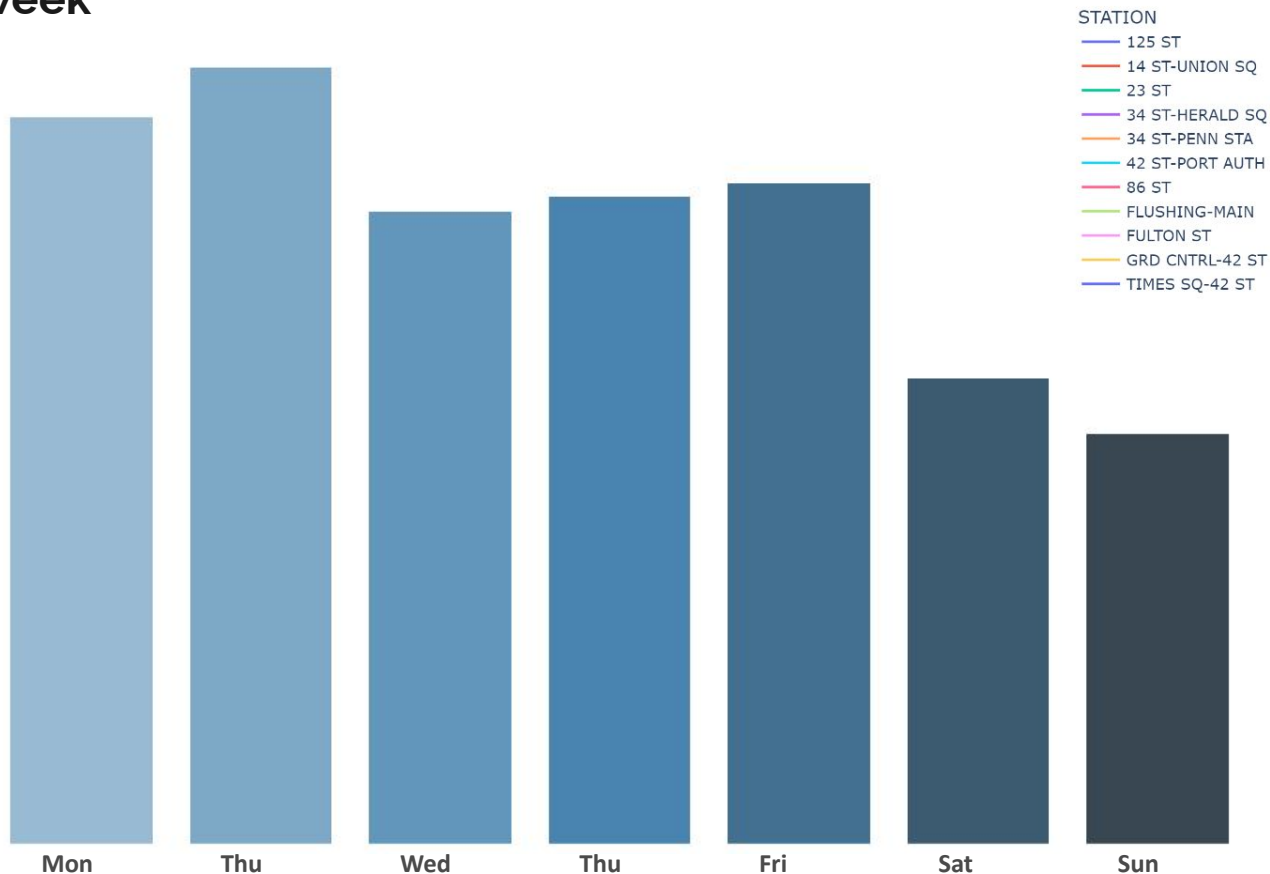
Top Traffic stations v.s. Household Income
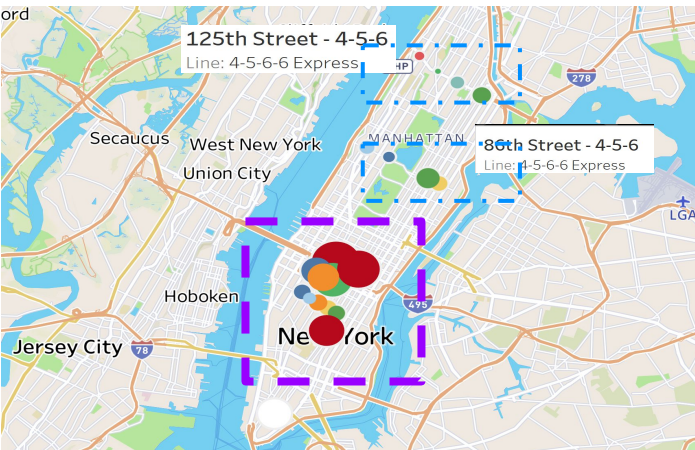
NTC Top busiest stations

NYC Median Income households

NYC population density

Cccnewyork median income data
Thomas Hikaru Clark
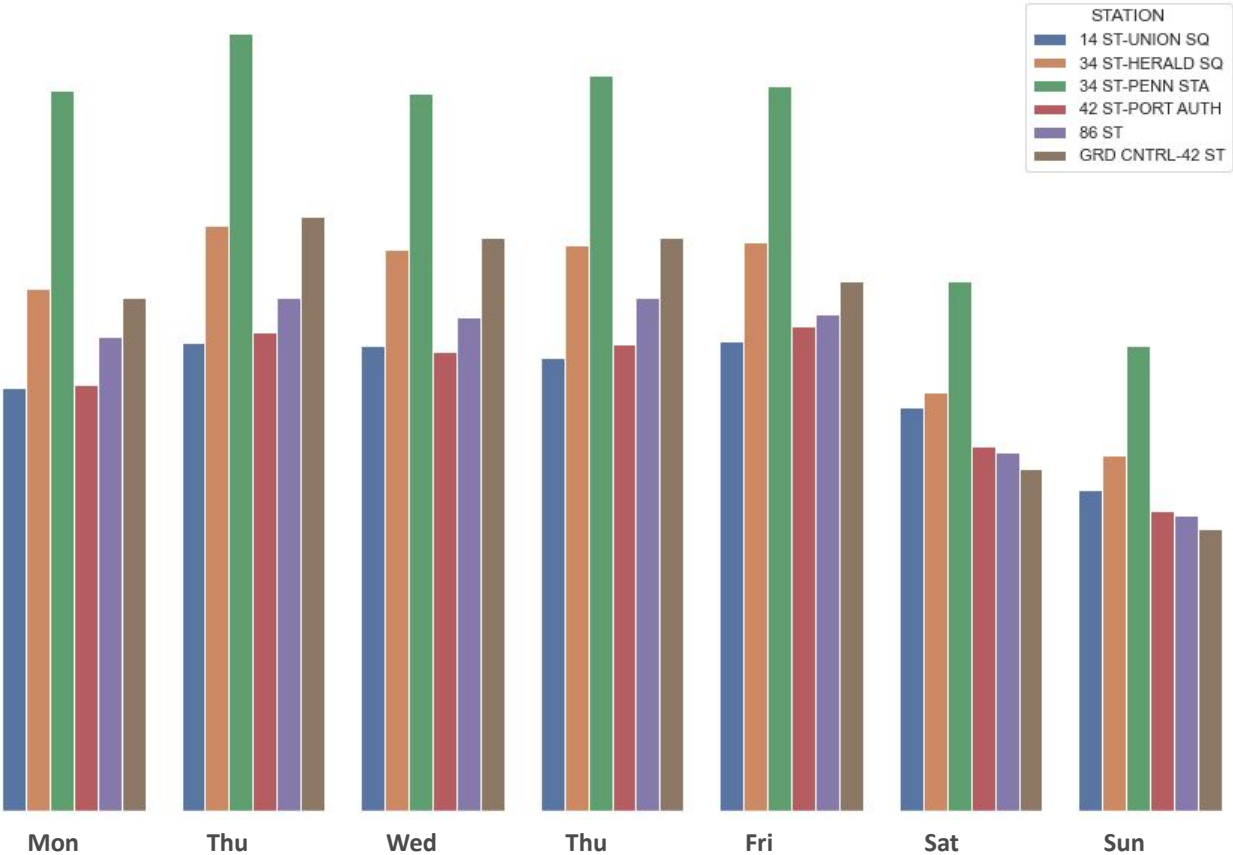
Week traffic per top stations

Weekday - Tuesday & Monday

- 34 ST-PENN STA
- 34 ST-HERALD SQ
- GRD CNTRL-42 ST
- 86 ST

Weekend - Saturday

- 34 ST-PENN STA
- 34 ST-HERALD SQ
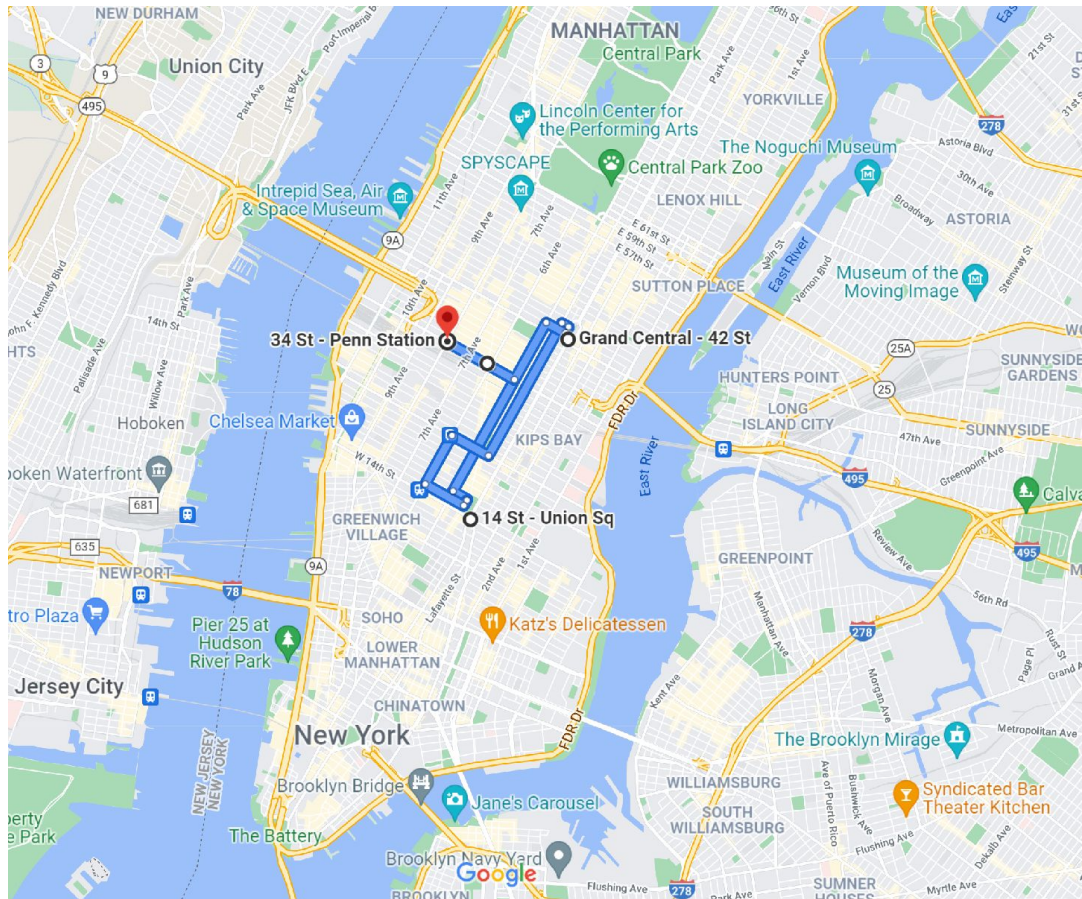- 14 ST-UNION SQ
- 42 ST-PORT AUTH

STATION
- 14 ST-UNION SQ
- 34 ST-HERALD SQ
- 34 ST-PENN STA
- 42 ST-PORT AUTH
- 86 ST
- GRD CNTRL-42 ST

Mon   Thu   Wed   Thu   Fri   Sat   Sun

Recommendations

Weekday - Tuesday & Monday
- 34 ST-PENN STA
- 34 ST-HERALD SQ
- GRD CNTRL-42 ST

Weekend - Saturday
- 34 ST-PENN STA
- 34 ST-HERALD SQ
- 14 ST-UNION SQ

Follow up

Using the NYC OpenData find the public facilities - schools, career centers to get deeper insight

Thank you

Tools Used

- Python
- Numpy
- Pandas
- Matplotlib
- Seaborn
- Tableau
- Plotly.express
- Geojson
- sklearn

NYC Top 10 busiest stations
Traffic by Date (May to August)

STATION=34 ST-PENN STA
DATE=Jul 15, 2021
TOTAL_RIDERS=135.074k

STATION
- 125 ST
- 14 ST-UNION SQ
- 23 ST
- 34 ST-HERALD SQ
- 34 ST-PENN STA
- 42 ST-PORT AUTH
- 86 ST
- FLUSHING-MAIN
- FULTON ST
- GRD CNTRL-42 ST
- TIMES SQ-42 ST