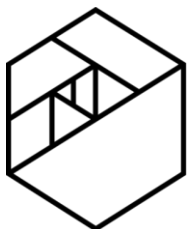
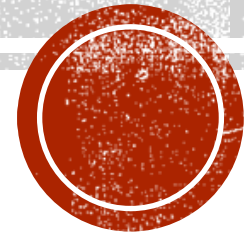


METROPOLITAN TRANSPORTATION AUTHORITY (MTA)

EXPLORATORY DATA ANALYSIS (EDA)

PROJECT 1

Presented By: Ashjan Mohammed Basri



METIS

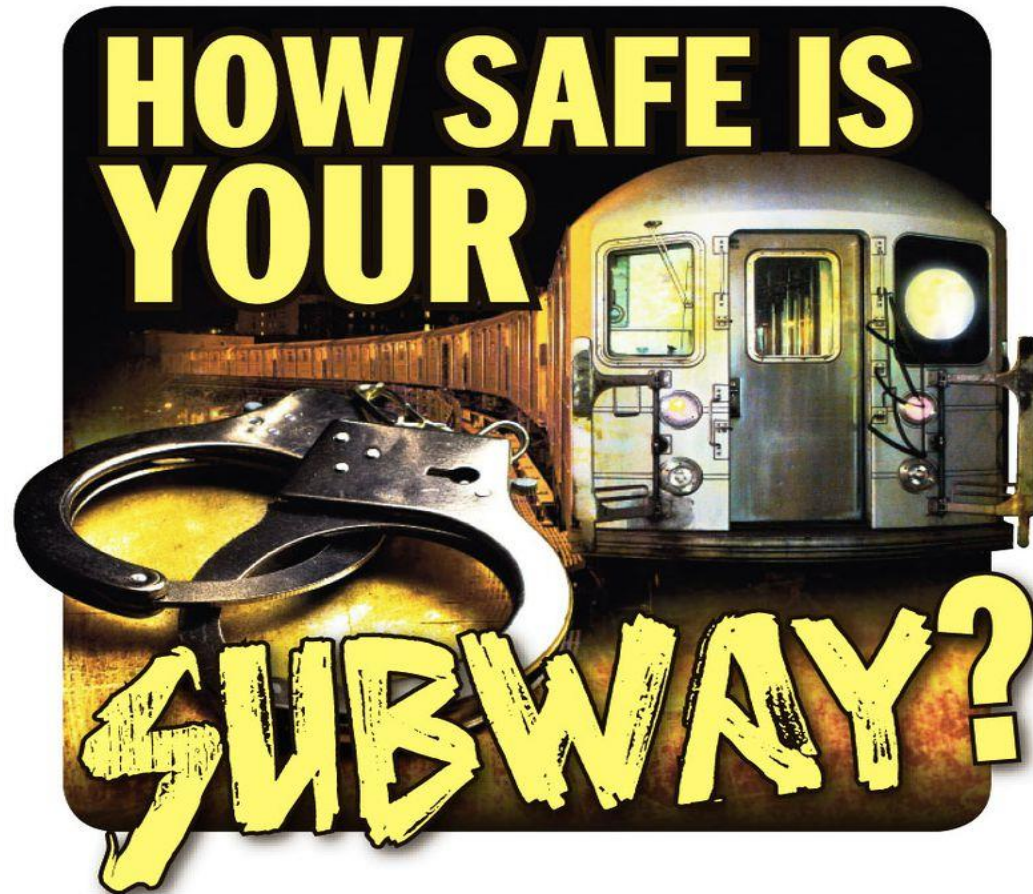


أكاديمية سدایا
SDAIA Academy

OUTLINE

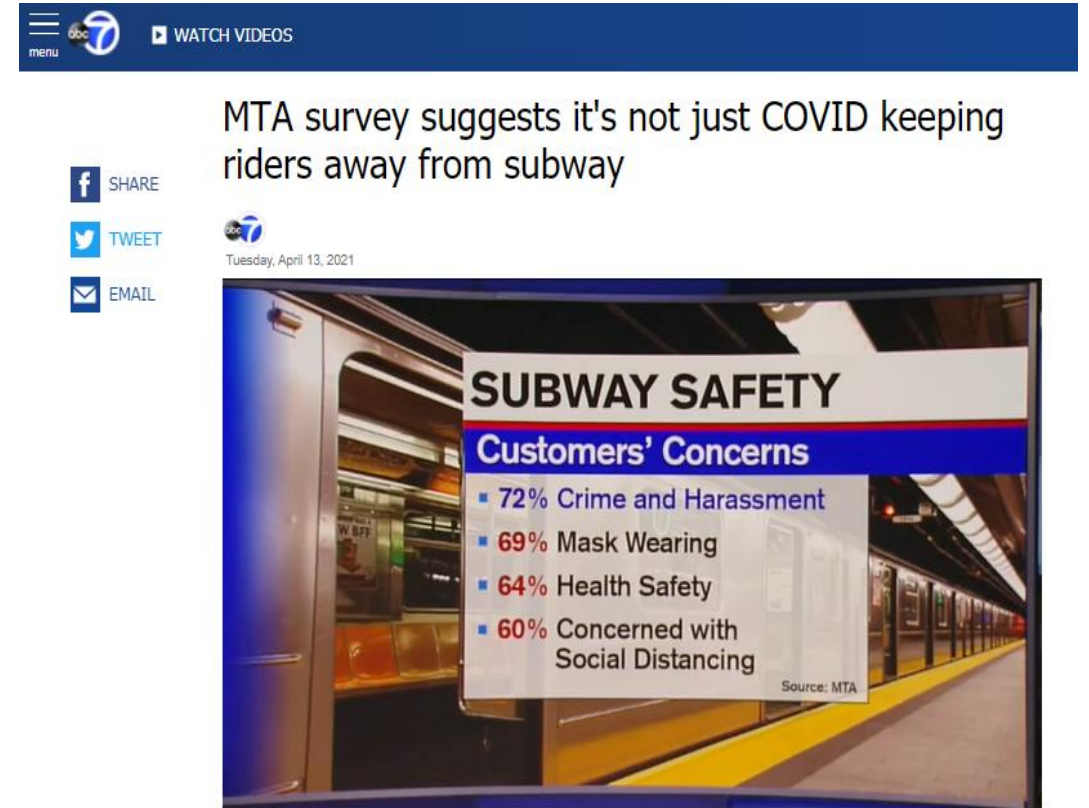
- Introduction.
- Objective.
- Methodology- MTA Data Preparation .
- Results.
- Conclusion.

INTRODUCTION



INTRODUCTION

- MTA is planning to make the NYC subway station more safe for riders.
- A survey shows 72% of people are concerning about crimes and harassment than COVID-19 [1].
- 27 crimes per 100,000 trips [2].



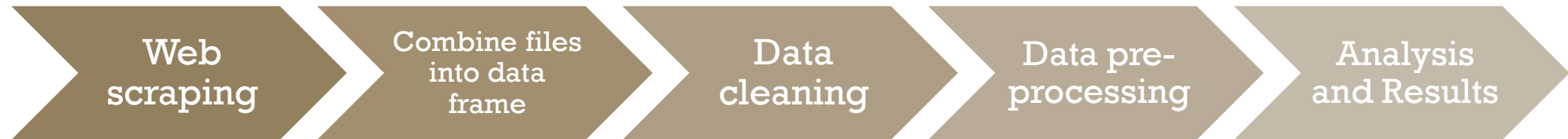
OBJECTIVE

- Reduce the crime rates at NYC stations.
- Find the optimal subway stations and time to place to distribute NYC officer on the platforms.



METHODOLOGY- MTA DATA PREPARATION

- Importing MTA turnstile data from 10/04/2021 to 26/06/2021.



	C/A	UNIT	SCP	STATION	LINENAME	DIVISION	DATE	TIME	DESC	ENTRIES	EXITS
0	A002	R051	02-00-00	59 ST	NQR456W	BMT	04/03/2021	00:00:00	REGULAR	7552051	2578175
1	A002	R051	02-00-00	59 ST	NQR456W	BMT	04/03/2021	04:00:00	REGULAR	7552051	2578176
2	A002	R051	02-00-00	59 ST	NQR456W	BMT	04/03/2021	08:00:00	REGULAR	7552051	2578197
3	A002	R051	02-00-00	59 ST	NQR456W	BMT	04/03/2021	12:00:00	REGULAR	7552051	2578261
4	A002	R051	02-00-00	59 ST	NQR456W	BMT	04/03/2021	16:00:00	REGULAR	7552051	2578306

2511481 number of rows , 11 columns

METHODOLOGY- MTA DATA PREPARATION

- Data problem: Traffic count at each time period contains extremely high counts because the turnstile data are cumulative.

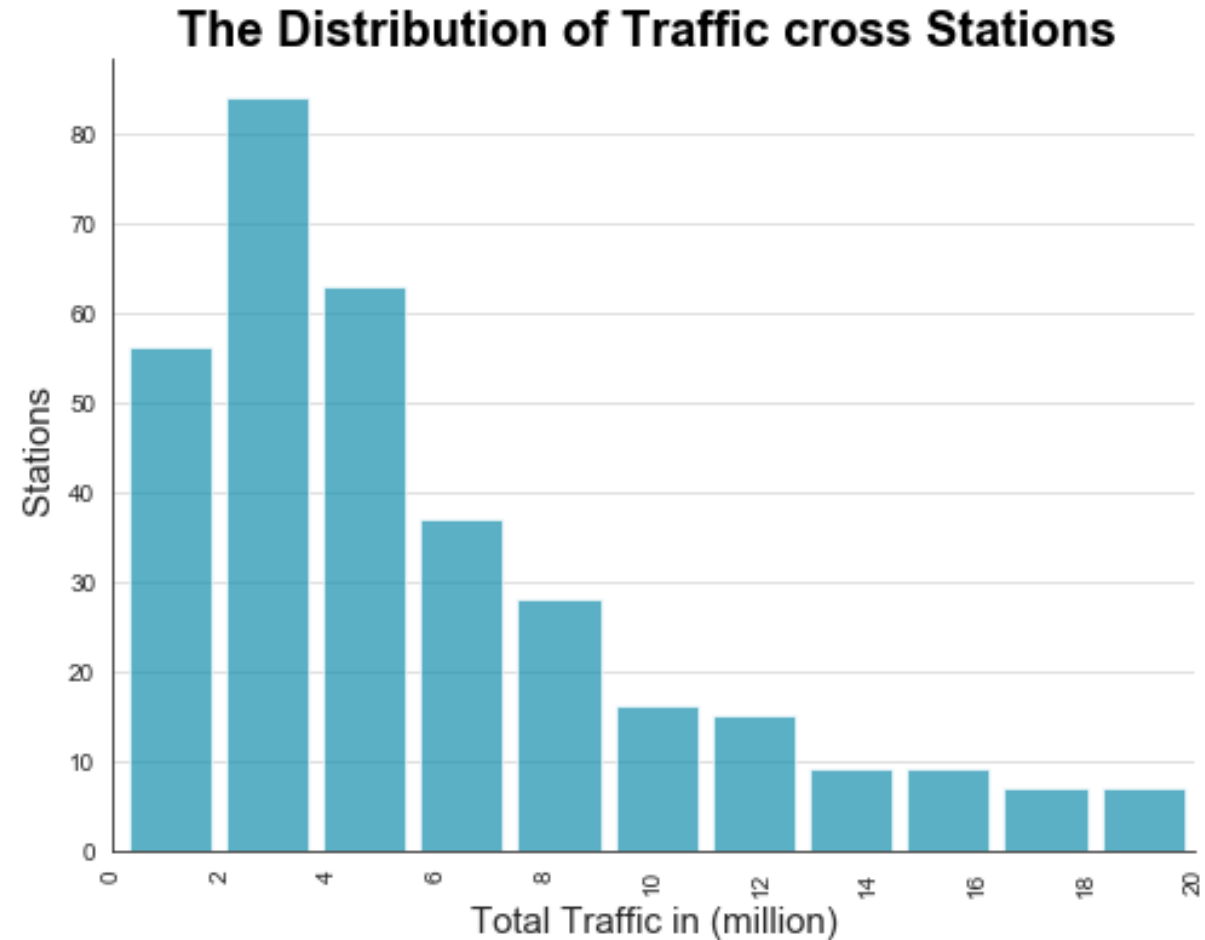
Solution: Total Traffic = sum entry difference and exit difference

STATION	DATETIME	DAY_OF_WEEK	ENTRIES	EXITS	PREV_ENTRIES	PREV_EXITS	entry_count	exit_count	ENTRY_DIFF	EXIT_DIFF	TOTAL_TRAFFIC
59 ST	2021-04-06 00:00:00	1	7552506	2578679	7.552462e+06	2.578670e+06	44.0	9.0	44.0	9.0	53.0
59 ST	2021-04-06 04:00:00	1	7552508	2578680	7.552506e+06	2.578679e+06	2.0	1.0	2.0	1.0	3.0
59 ST	2021-04-06 08:00:00	1	7552519	2578736	7.552508e+06	2.578680e+06	11.0	56.0	11.0	56.0	67.0
59 ST	2021-04-06 12:00:00	1	7552567	2578845	7.552519e+06	2.578736e+06	48.0	109.0	48.0	109.0	157.0
59 ST	2021-04-06 16:00:00	1	7552705	2578884	7.552567e+06	2.578845e+06	138.0	39.0	138.0	39.0	177.0
59 ST	2021-04-06 20:00:00	1	7552924	2578914	7.552705e+06	2.578884e+06	219.0	30.0	219.0	30.0	249.0

RESULTS

- We analysed the top least busiest station.
- The distribution of the traffic is heavily right-skewed.

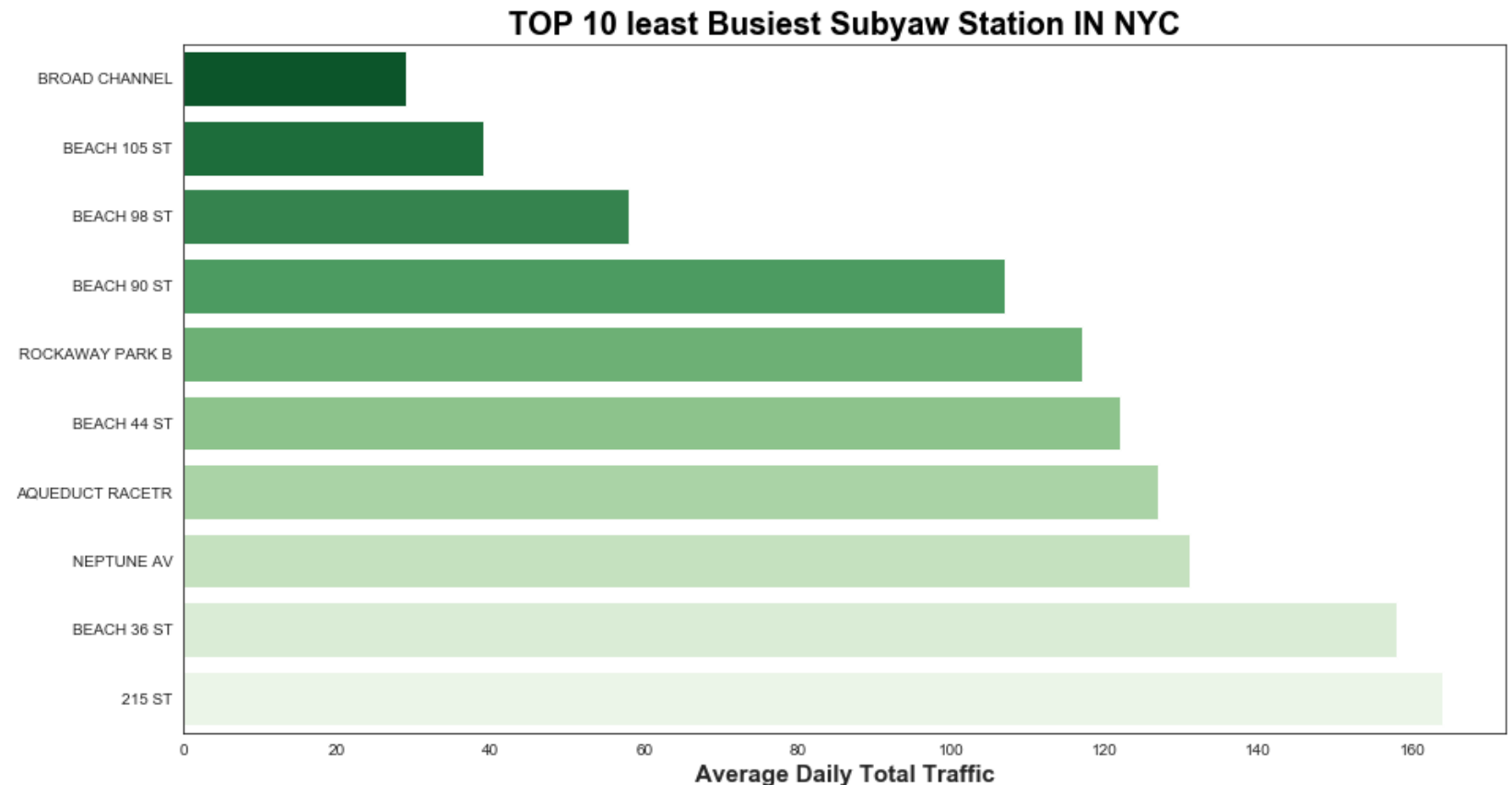
	STATION	TOTAL_TRAFFIC
0	BROAD CHANNEL	14500.00
1	BEACH 105 ST	19312.00
2	BEACH 98 ST	29237.00
3	BEACH 90 ST	52753.00
4	BAYCHESTER AV	52993.75
5	ROCKAWAY PARK B	58288.00
6	BEACH 44 ST	60478.00
7	NEPTUNE AV	62996.00
8	AQUEDUCT RACETR	63787.50
9	EASTCHSTER/DYRE	69166.50
10	BEACH 36 ST	79369.00



RESULTS

- Calculate the average of the total traffic of the least station
- Broad Channel is the least station that is not crowded with riders.

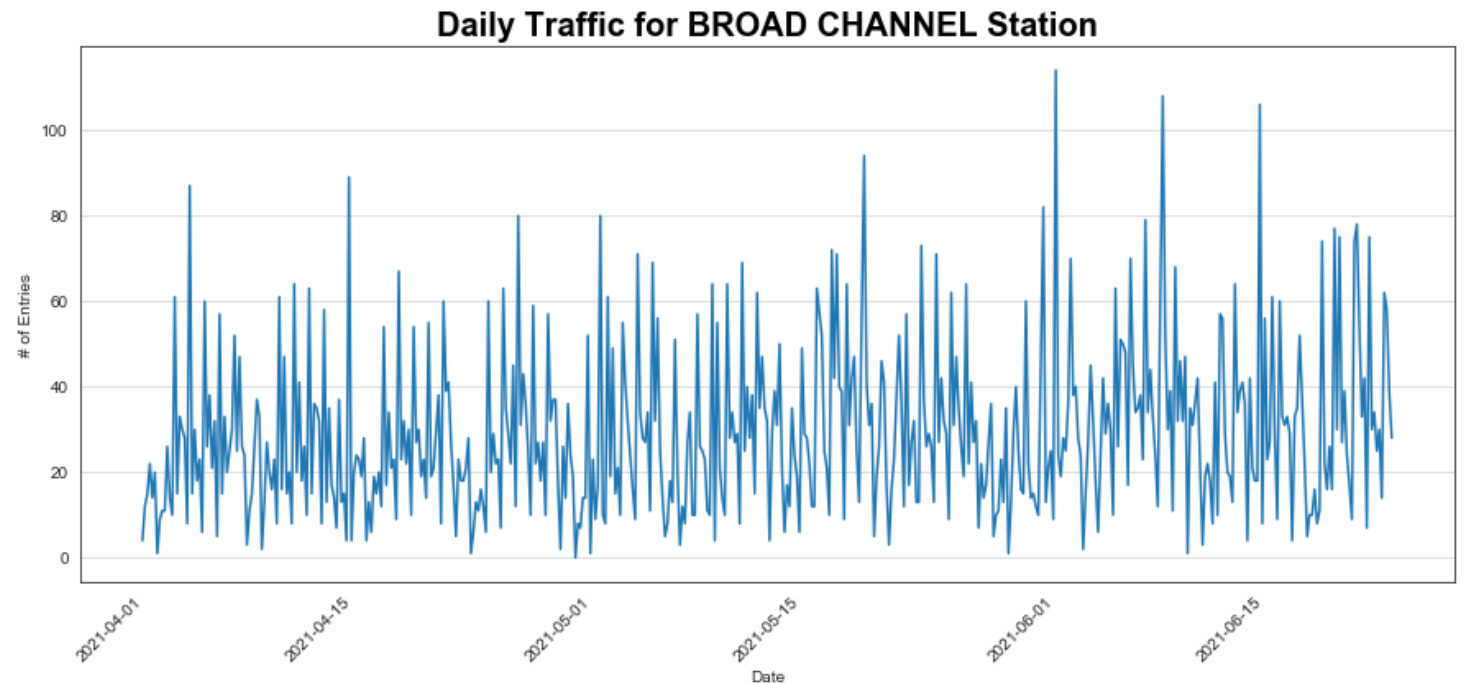
	STATION	TOTAL_TRAFFIC
0	BROAD CHANNEL	29.0
1	BEACH 105 ST	39.0
2	BEACH 98 ST	58.0
3	BEACH 90 ST	107.0
4	ROCKAWAY PARK B	117.0
5	BEACH 44 ST	122.0
6	AQUEDUCT RACETR	127.0
7	NEPTUNE AV	131.0
8	BEACH 36 ST	158.0
9	215 ST	164.0



RESULTS

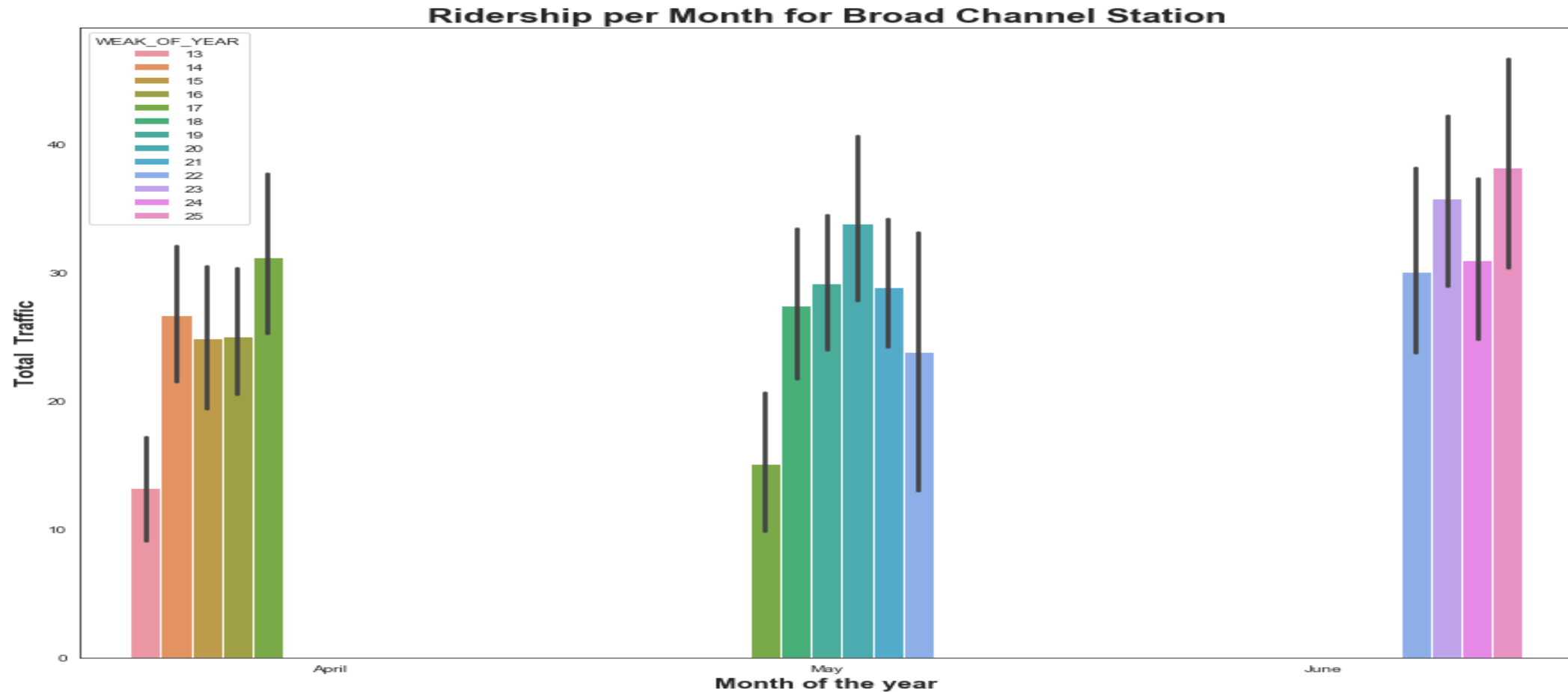
- Total daily traffic of Broad Channel station.
- High traffic on the weekends mostly more than the weekdays.

	STATION	DATETIME	TOTAL_TRAFFIC
79574	BROAD CHANNEL	2021-04-03 04:00:00	4.0
79575	BROAD CHANNEL	2021-04-03 08:00:00	12.0
79576	BROAD CHANNEL	2021-04-03 12:00:00	15.0
79577	BROAD CHANNEL	2021-04-03 16:00:00	22.0
79578	BROAD CHANNEL	2021-04-03 20:00:00	14.0



RESULTS

- Broad Channel station monthly total traffic.



MORE MOTIVATION



CONCLUSION

- Analysed the MTA data set, calculated the total traffic of every station.
- Analysed the least stations are not crowded on the total of traffic.
- We recommend to distribute police officer among the station has least trips.
- Our future work would analysing these stations per hours morning and night.

REFERENCES

1. <https://abc7ny.com/nyc-subway-crime-covid-harassment/10510306/>
2. [https://www.nydailynews.com/new-york/nyc-crime/daily-news-analysis-reveals-crime-rankings-city-subway-system-article-1.1836918.](https://www.nydailynews.com/new-york/nyc-crime/daily-news-analysis-reveals-crime-rankings-city-subway-system-article-1.1836918)
3. [https://www.nydailynews.com/new-york/nyc-crime/daily-news-analysis-reveals-crime-rankings-city-subway-system-article-1.1836918.](https://www.nydailynews.com/new-york/nyc-crime/daily-news-analysis-reveals-crime-rankings-city-subway-system-article-1.1836918)



Thank You