



Best Stations for Advertising

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Introduction

Motivation: there are lots of spots for advertising in subway stations, and picking the stations that suit your products is the most important thing to do. Analyzing MTA data can help companies find their best advertising spot.

Objectives and goals: my goal is to help a company decide which stations to advertise their products: gaming laptops targeting college students and desktops targeting big company employees.



Methodology

The data I used:

MTA data from September 2021 to December 2021

	C/A	UNIT	SCP	STATION	LINENAME	DIVISION	DATE	TIME	DESC	ENTRIES	EXITS	DATE_TIME
0	A002	R051	02-00-00	59 ST	NQR456W	BMT	12/18/2021	03:00:00	REGULAR	7672966	2645023	2021-12-18 03:00:00
1	A002	R051	02-00-00	59 ST	NQR456W	BMT	12/18/2021	07:00:00	REGULAR	7672969	2645040	2021-12-18 07:00:00
2	A002	R051	02-00-00	59 ST	NQR456W	BMT	12/18/2021	11:00:00	REGULAR	7672991	2645127	2021-12-18 11:00:00
3	A002	R051	02-00-00	59 ST	NQR456W	BMT	12/18/2021	15:00:00	REGULAR	7673037	2645193	2021-12-18 15:00:00
4	A002	R051	02-00-00	59 ST	NQR456W	BMT	12/18/2021	19:00:00	REGULAR	7673097	2645270	2021-12-18 19:00:00

MTA station location data

Unnamed: 0		NAME	lat	lon
0	0	ASTOR PL	-73.991070	40.730054
1	1	CANAL ST	-74.000193	40.718803
2	2	50 ST	-73.983849	40.761728
3	3	BERGEN ST	-73.974999	40.680862
4	4	PENNSYLVANIA AV	-73.894886	40.664714



Methodology

Tools I used:

SQLite database to store the data

Python packages: pandas, Matplotlib, Folium, etc.



Methodology

How I used the data:



Methodology

How I used the data:

Calculating daily traffic information for every station and add to a new column.

Separate weekdays and weekends. (Students usually go out on weekends and employees usually take the subways to work on weekdays)

Combining with the coordinates, I can get each station's location and show them on a map.

	index	STATION	DATE	ENTRIES	EXITS	TRAFFIC	DAILY_TRAFFIC	IS_WEEKDAY
0	1	1 AV	2021-08-29	2783043858	2812234919	5595278777	19710	False
1	2	1 AV	2021-08-30	2783080436	2812308084	5595388520	19985	True
2	3	1 AV	2021-08-31	2783124387	2812387241	5595511628	21464	True
3	4	1 AV	2021-09-01	2783171792	2812472036	5595643828	22166	True
4	5	1 AV	2021-09-02	2783211867	2812545690	5595757557	15833	True

Results

5 stations with the most traffic on weekends:

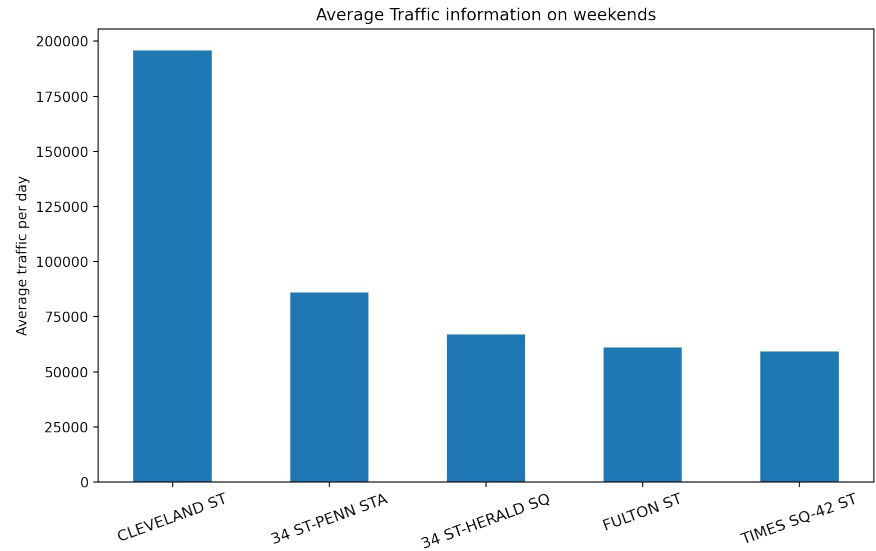
Cleveland St

34th St - Penn Station

34th St - Herald Sq

Fulton St

Times Sq - 42nd St



Results

5 stations with the most traffic on weekdays:

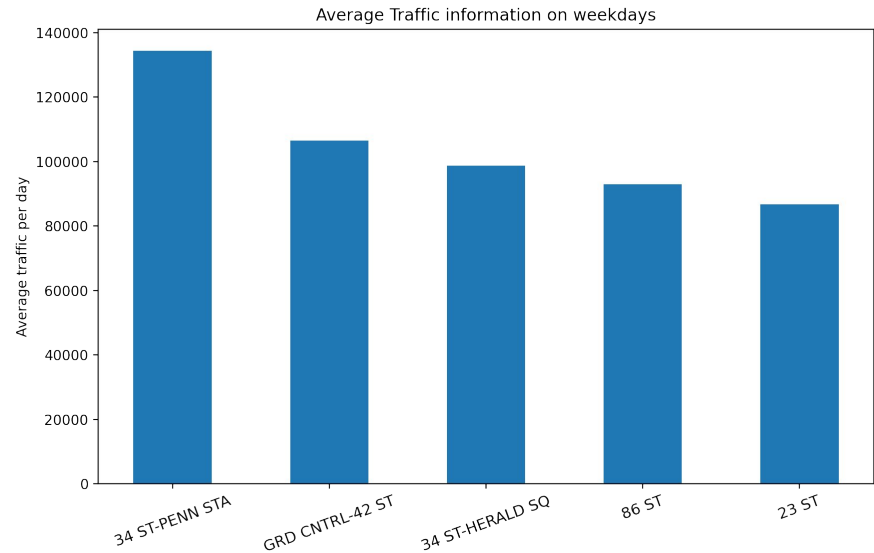
34th St - Penn Station

GRD CNTRL - 42nd St

34th St - Herald Sq

86th St

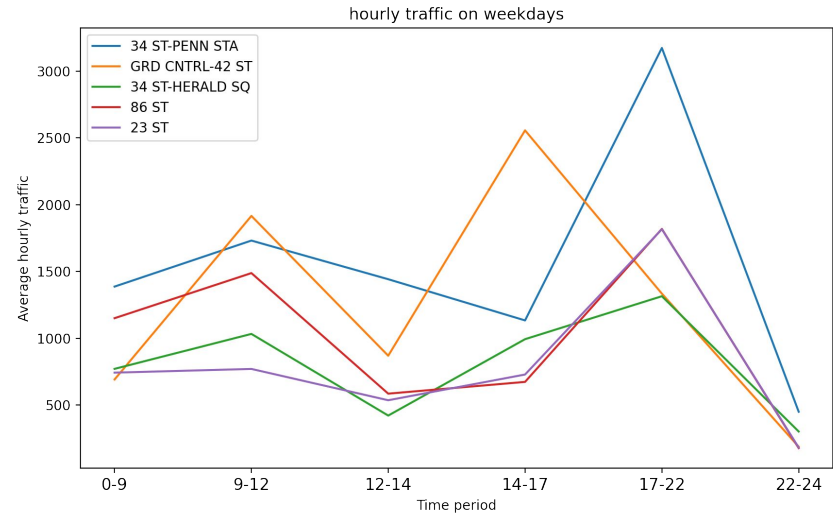
23rd St



Results

For the 5 busiest stations on weekdays:

34th St - Penn Station is the busiest station before 9 am and from 5 pm to 10 pm, with almost twice the traffic than the second one.

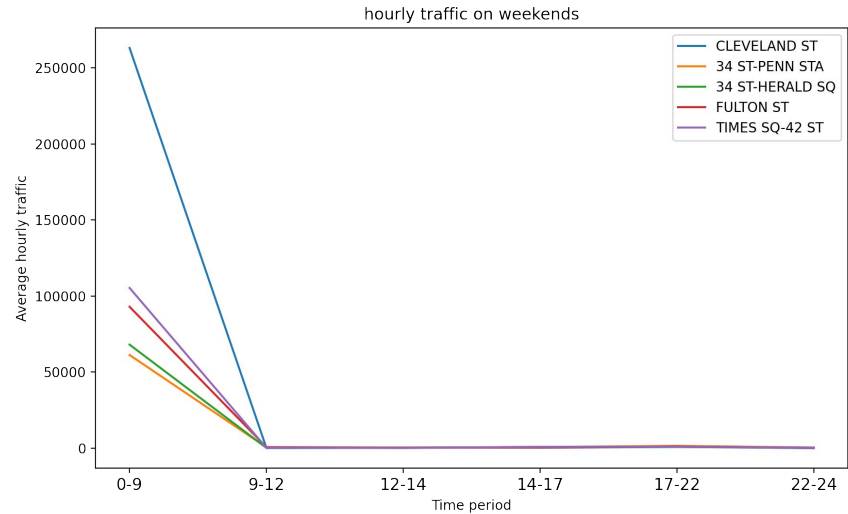


Results

For the 5 busiest stations on weekdays:

Cleveland St Station is the busiest from 12 am to 9 am.

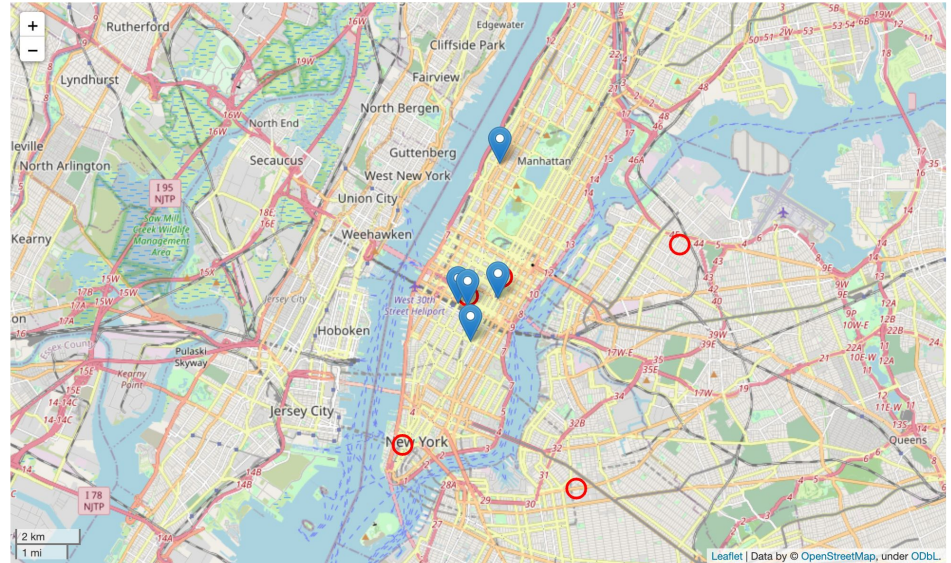
It seems that all stations are not busy after 9 am.



Results

Locations of the 5 busiest stations on weekdays with 5 big companies in NYC:

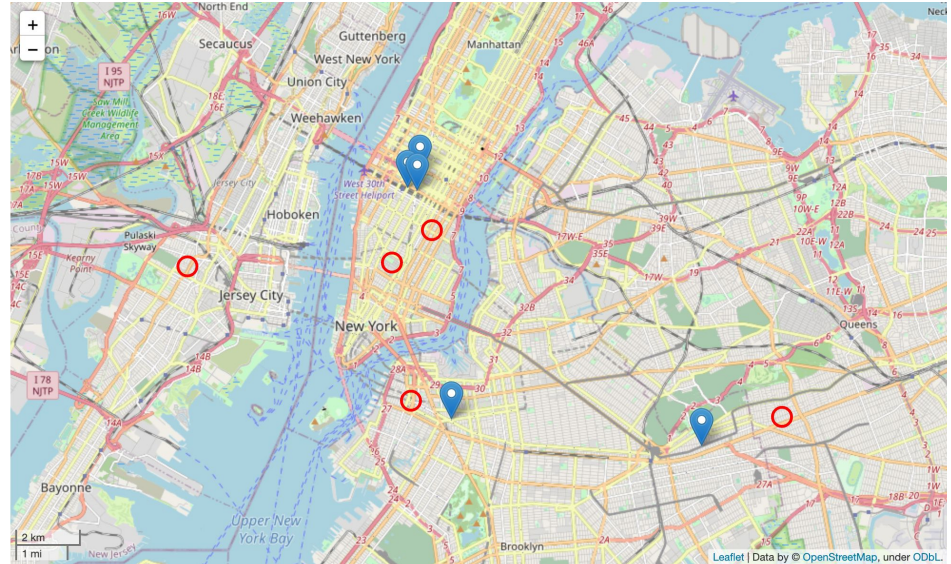
34th St - Penn Station, 34th St - Herald Sq, 23rd St, GRD CNTRL - 42nd ST are all pretty close to big companies like JPMorgan Chase & Co and ABM Industries



Results

Locations of the 5 busiest stations on weekends with 6 colleges in NYC:

34th St - Penn Station, 34th St - Herald Sq, 23rd St and Times Sq - 42nd St are pretty close to NYU and SVA. Fulton St Station is close to SUNY. Cleveland St is somehow close to SJU.





Conclusions

For desktops:

I would strongly recommend advertising desktops in **34th St - Penn Station**.

For gaming laptops:

I would still recommend advertising gaming laptops in **Times Sq - 42nd St**. Although Fulton St is indeed the most busy station on weekends, it's not really close to colleges thus students are not likely to go there.



Future Work

Now because the coordinates don't cover every station, some busy stations might not be showing up here. I also didn't cover every company and university in NYC, so getting more data into the dataset will be the most important work to do in the future.

It would also help a lot if I can collect the number of people in every company and university. Stations near universities or companies with the highest population will also be considered as a great choice.

In this project, I'm assuming that different people take subways on a specific time, but it would be much more accurate if we can get the information by doing survey.



Thanks for your attention!