The background image shows a subway station platform. A blue subway train is stopped at the platform. The ceiling is decorated with large, colorful, abstract murals. The overall atmosphere is modern and artistic.

# New York City MTA Subway Traffic EDA for WomenTechWomenYes (WTWY)

IDSA|DS|PROJECT-1

# OUR METHODOLOGY

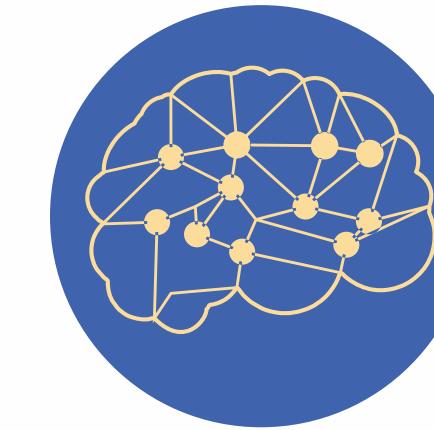


**Resources**



[new.mta.info](http://new.mta.info)

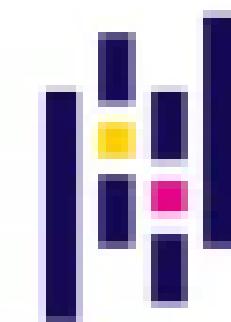
Medium



**Technologies**



**Numpy**



**Pandas**



**Matplotlib**



**Seaborn**

**Folium**



**Services**

**kaggle colab**

 **jupyter**

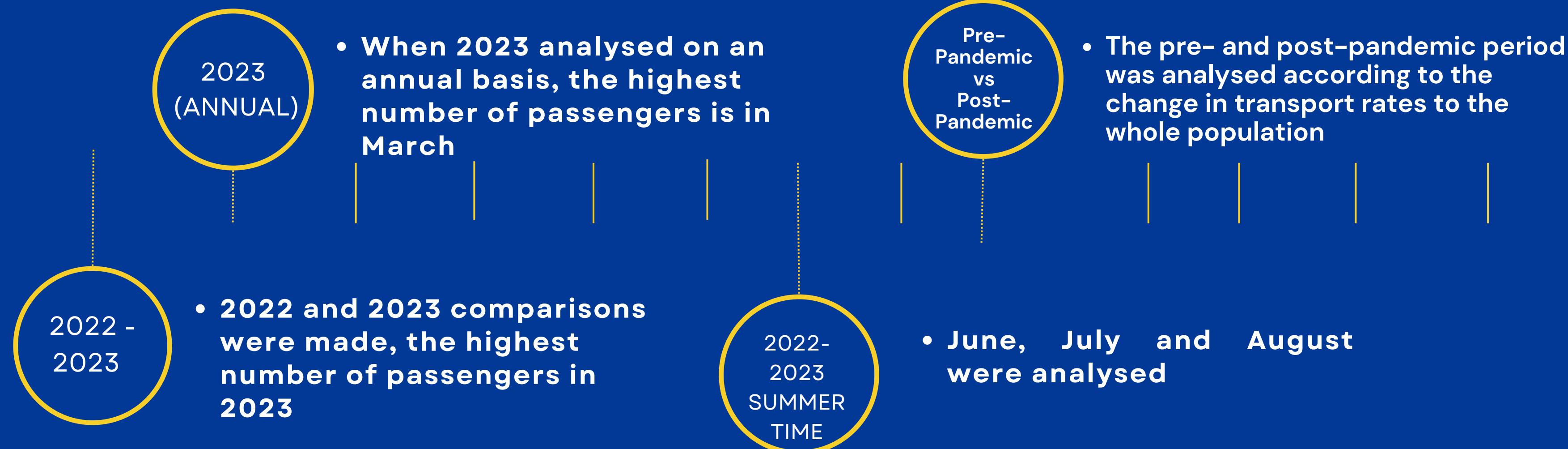
# ROADMAP

A) Analysis made by comparing 2022 and 2023.

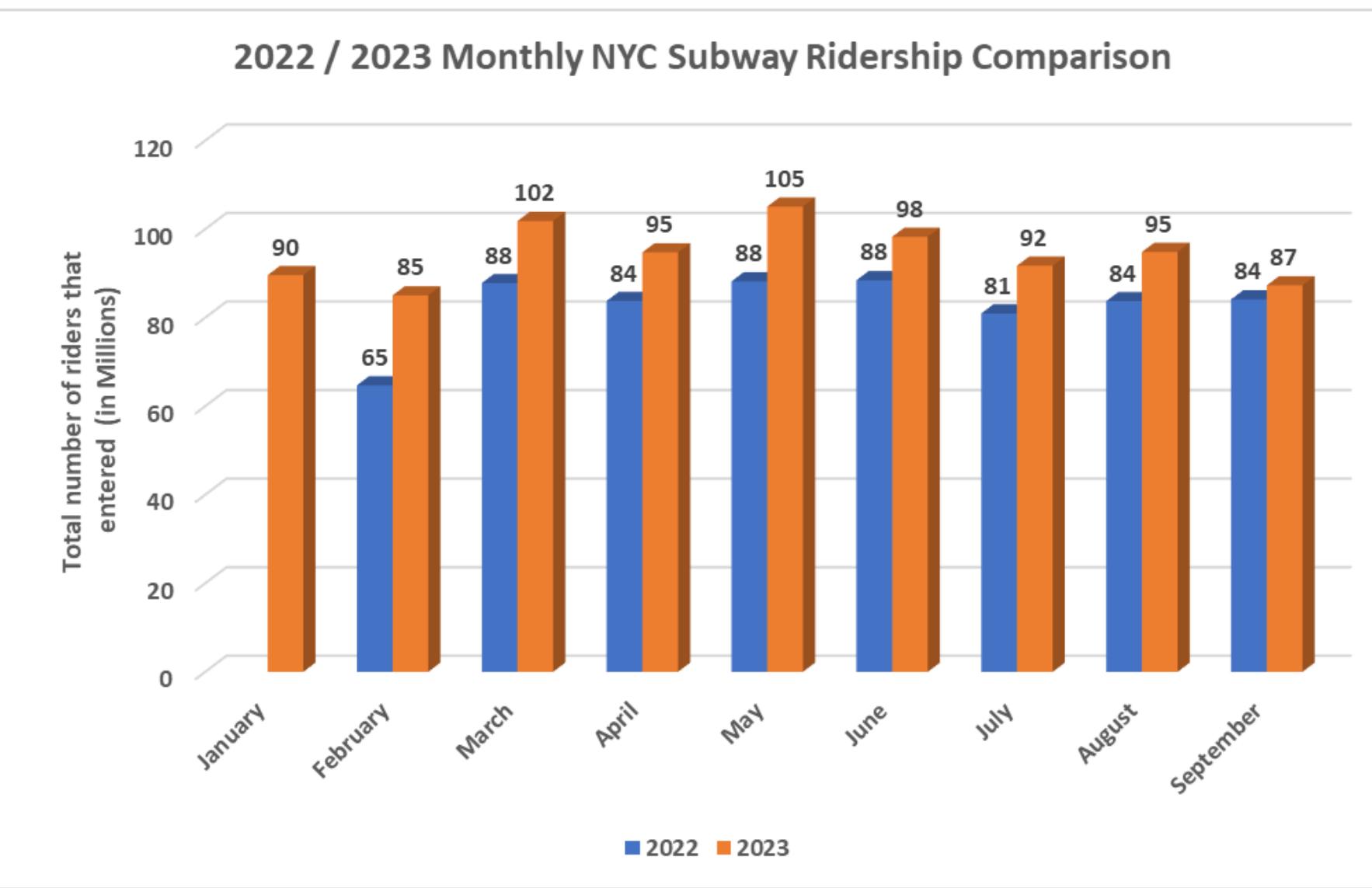
B) Analysis made by determining the month with the highest number of passengers in 2023

C) Analysis made by comparing the summer months (June-July-August) of 2023

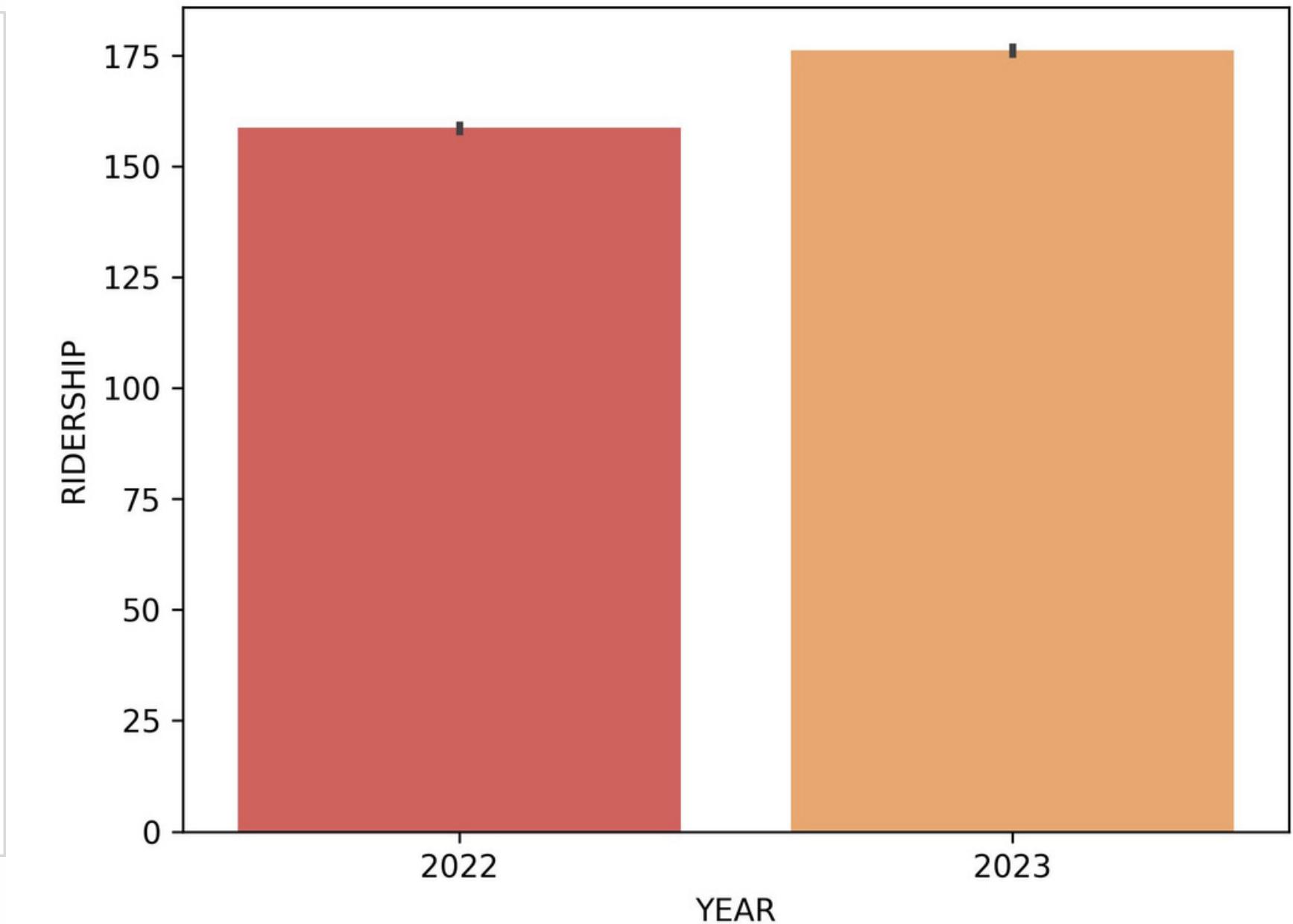
D) The pre- and post-pandemic period was analysed according to the change in transport rates to the whole population



## A) Analysis made by comparing 2022 and 2023.

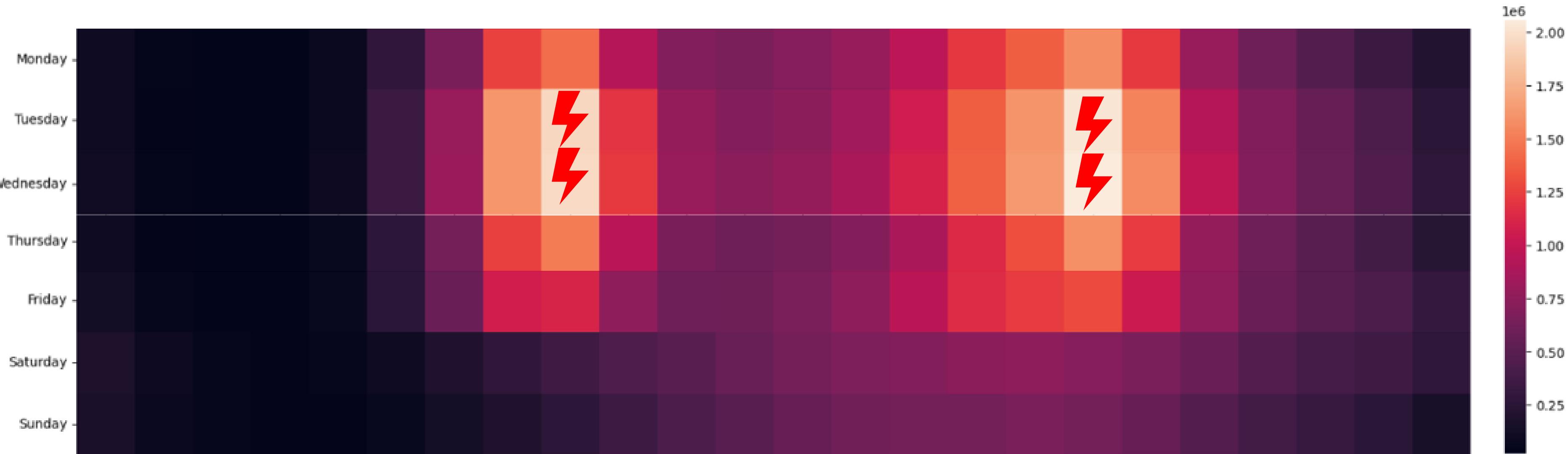


Yearly Comparison



Summertime of Years Comparison

# Peak Hours during May

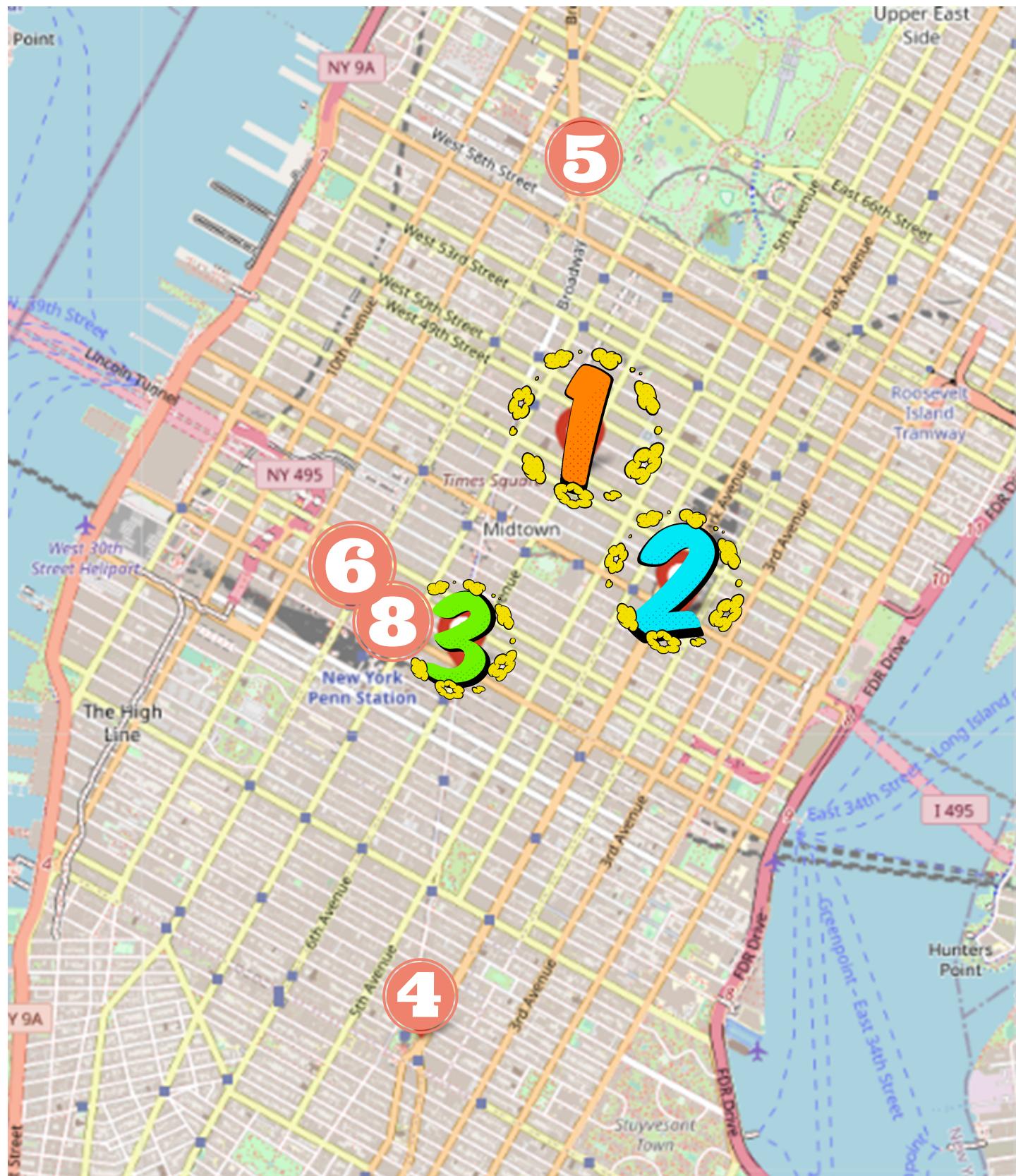


**TUESDAY  
WEDNESDAY**



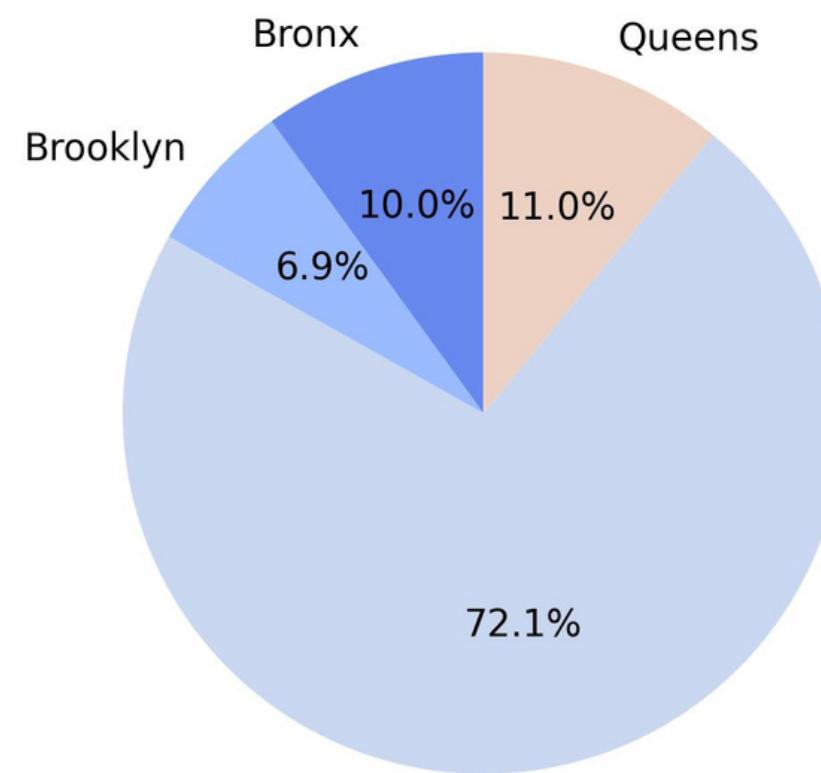
**MONDAY  
THURSDAY  
FRIDAY**

# Top Three Locations

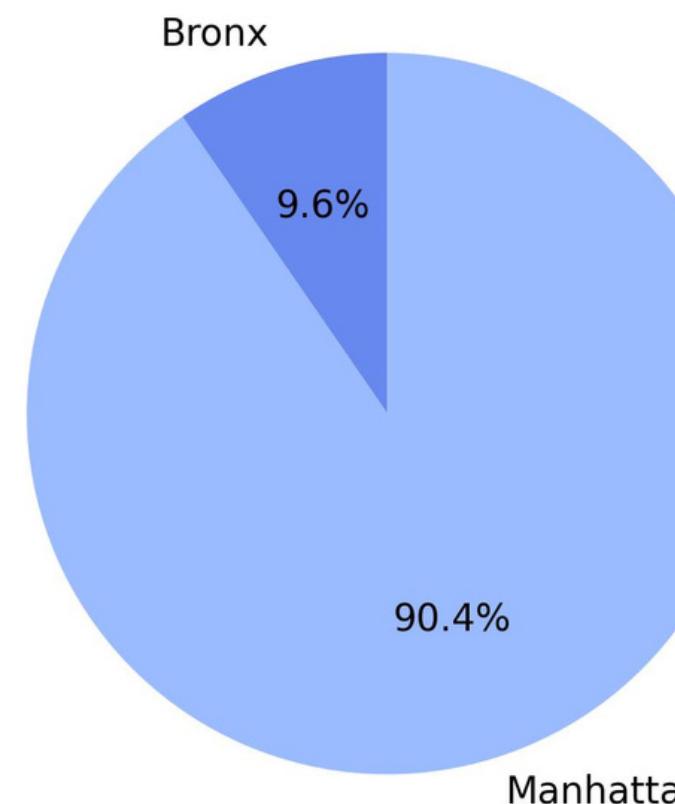


<https://fatihhbayramm.w3spaces.com/>

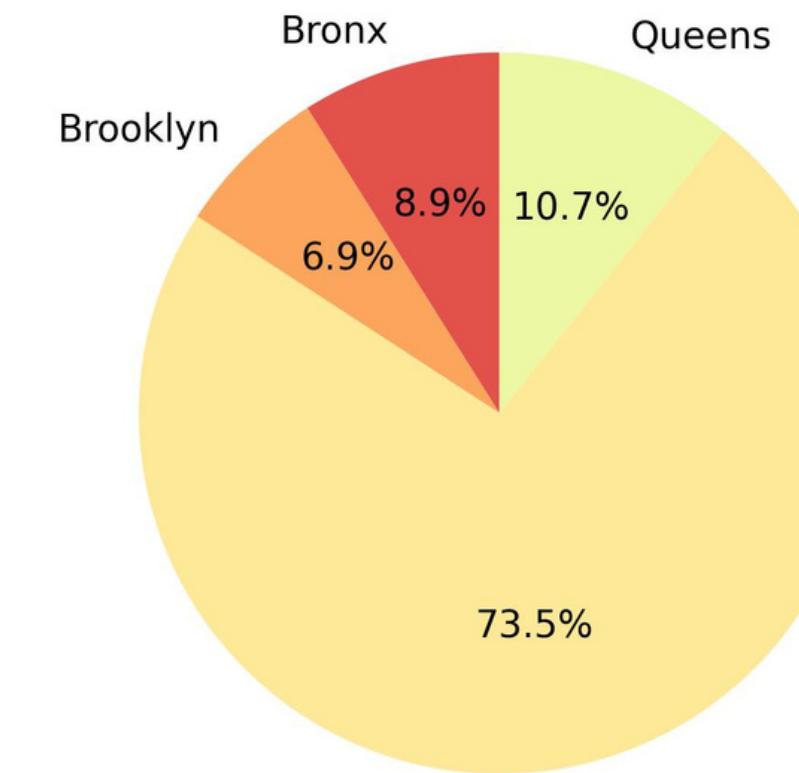
**2022 Ridership Distribution by Borough  
(Annual Basis)**



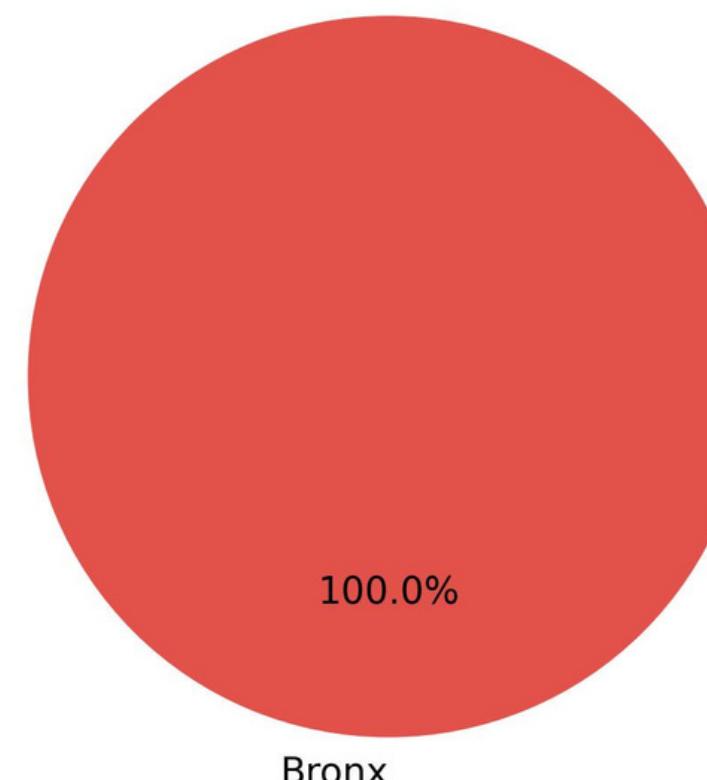
**2022 Ridership Distribution by Borough  
(TOP 10 With The Highest Number  
Of  
Passengers Based On Data)**



**2023 Ridership Distribution by Borough  
(Annual Basis)**



**2023 Ridership Distribution by Borough  
(TOP 10 With The Highest Number  
Of  
Passengers Based On Data)**



# Why Bronx?



- Hip-Hop's 50th Birthday Jam
- [R]Evolution of Hip Hop
- Hip Hop 50 Live at Yankee Stadium



- 5X5 Block Party Series
- NYC The Birthplace Of Hip Hop

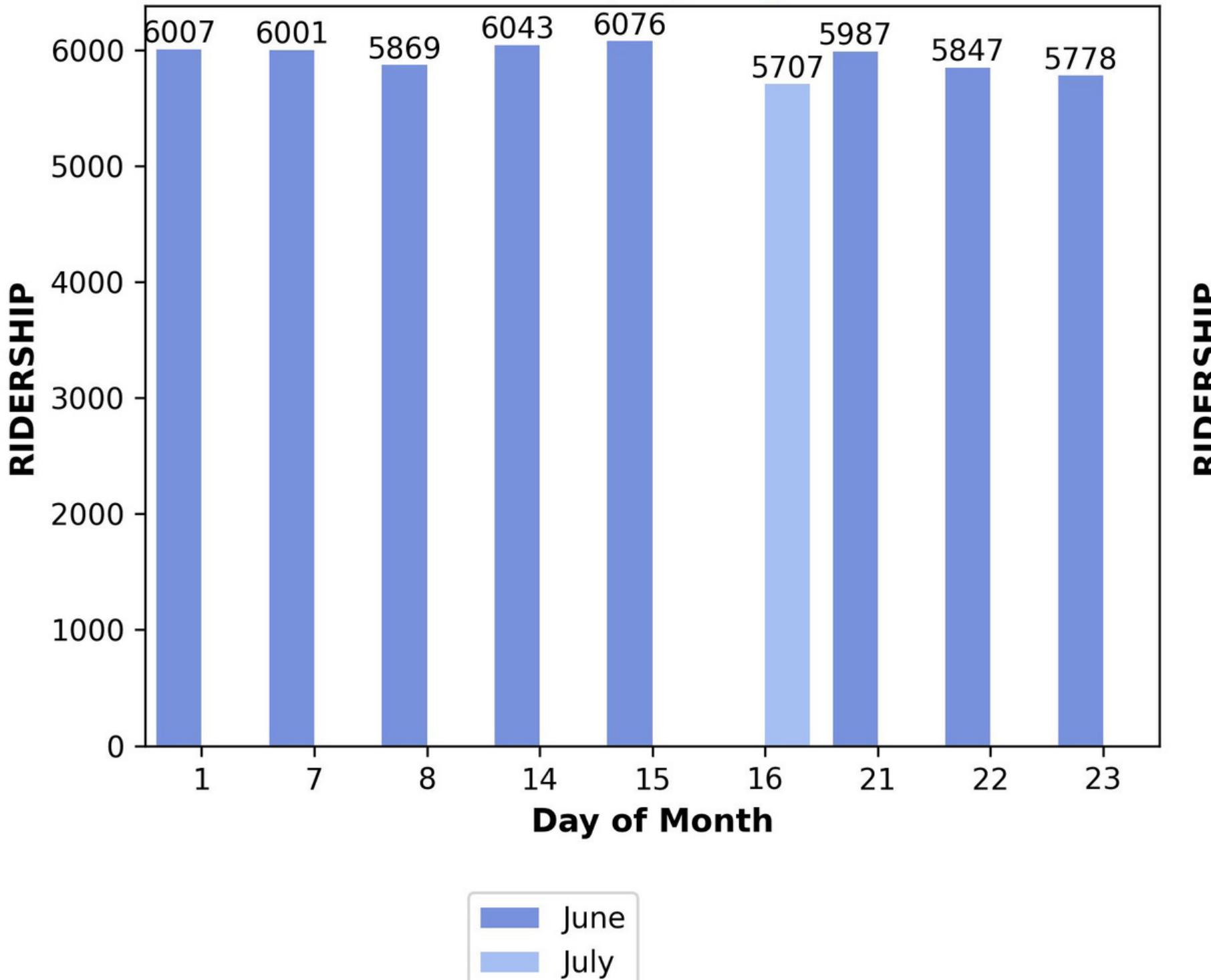


Celebrate 50 years of hip-hop with these NYC events and exhibits

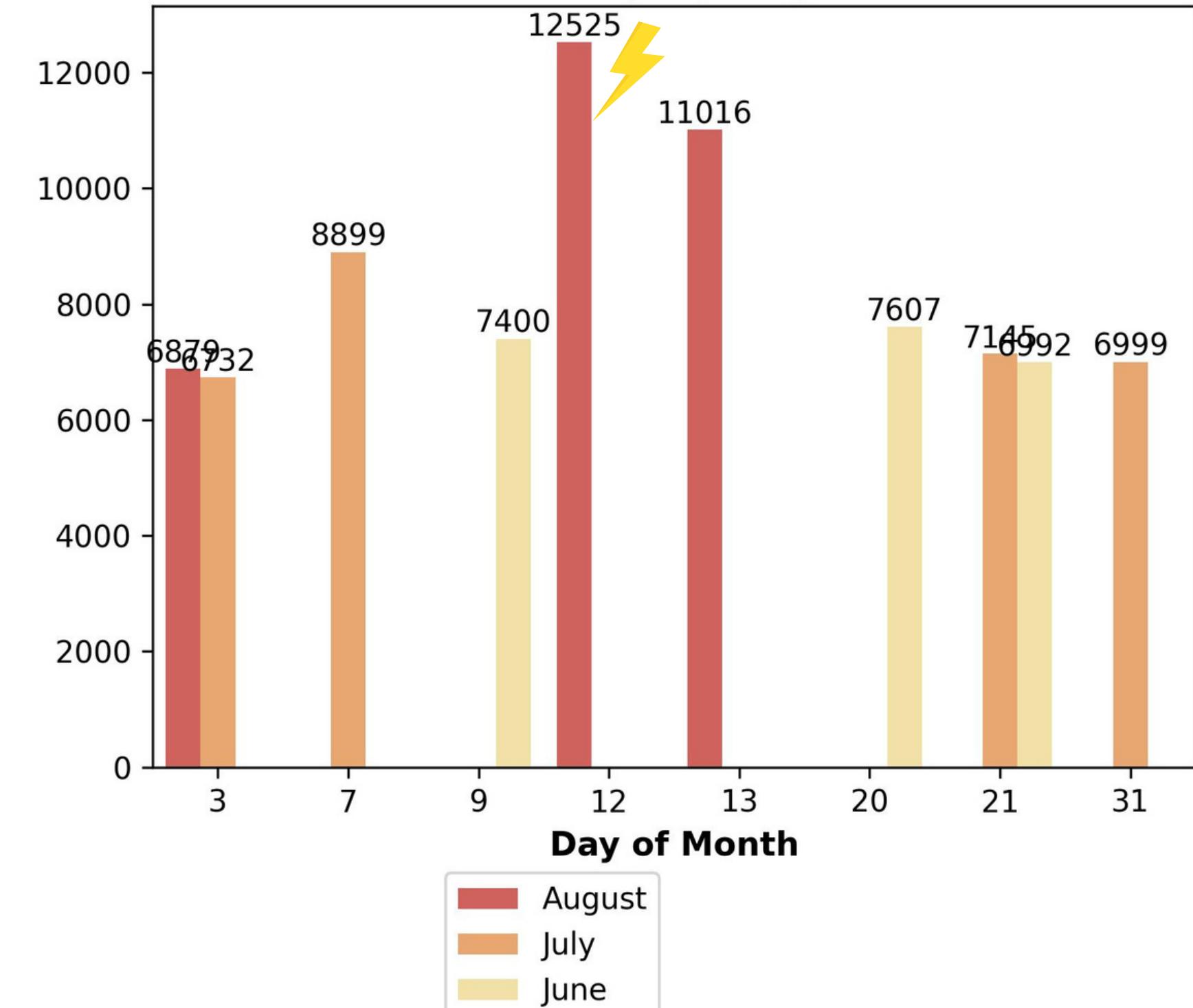
Historic photos, themed music nights, film screenings and more.

■ Time Out New York /

### 2022 Ridership by Day of Month



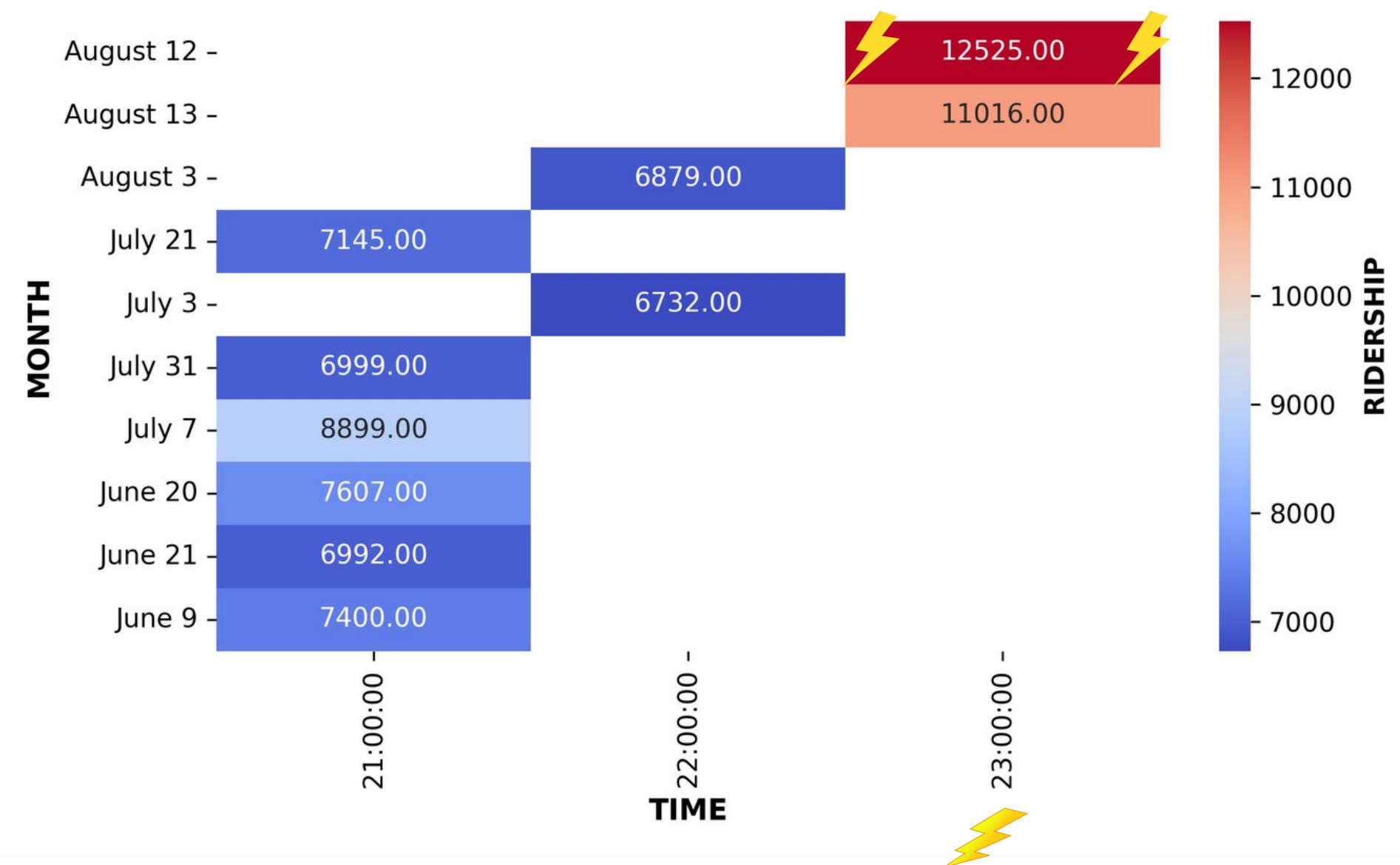
### 2023 Ridership by Day of Month



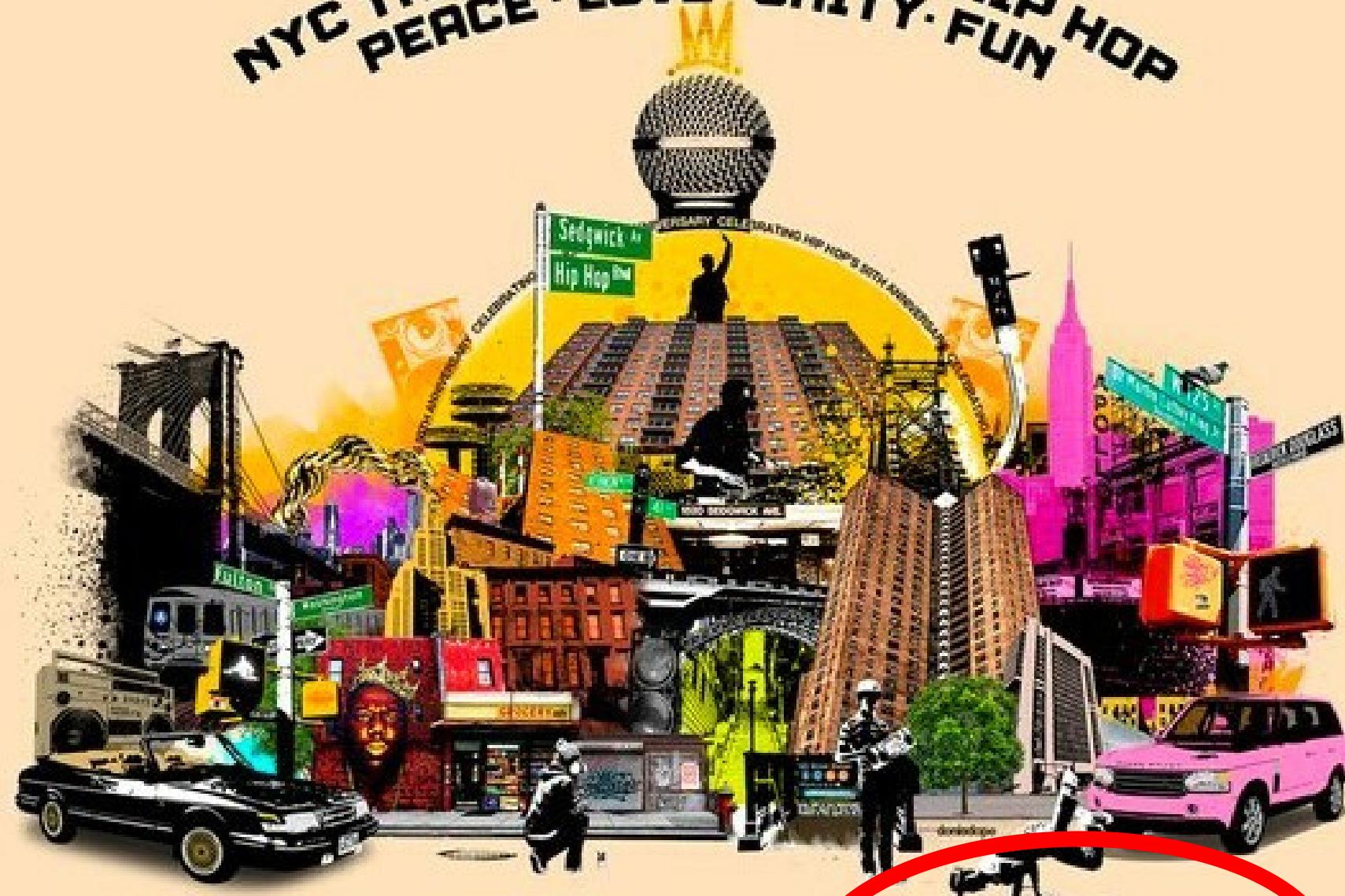
### 2022 Ridership Heatmap



### 2023 Ridership Heatmap



**NYC THE BIRTHPLACE OF HIP HOP**  
PEACE · LOVE · UNITY · FUN



► **BROOKLYN**

**AUGUST 5**

FULTON ST & WASHINGTON AVE  
3PM - 9PM

► **QUEENS**

**AUGUST 6**

VERNON BLVD & 41ST AVE  
3PM - 9PM

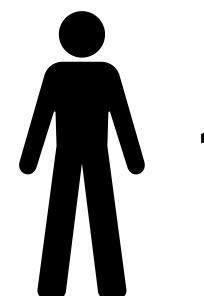
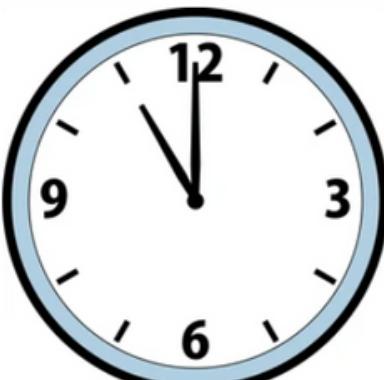
► **THE BRONX**

**AUGUST 12**

1520 SEDGWICK AVE  
3PM - 9PM

MORE TO BE ANNOUNCED

# **BEST TIME & LOCATION**



**12525.00**



# 161 Street-Yankee Stadium Station



	output												
	Subways: % of Comparable Total	Buses: % of Comparable Total	LIRR: % of Comparable Total	Metro-North: % of Comparable Total	Access-A-Ride: % of Comparable Total	Bridges and Tunnels: % of Comparable Total	Staten Island Railway: % of Comparable Total	sum_up_passengers	sum_up_all_ratios				
Estimated Ridership	Pre-Pandemic Day	Estimated Ridership	Pre-Pandemic Day	Estimated Ridership	Pre-Pandemic Day	Scheduled Trips	Total Traffic	Estimated Ridership	Pre-Pandemic Day				
count	1.285e+03	1285.000	1.285e+03	1285.000	1285.000	1285.000	1285.000	1285.000	1285.000				
mean	2.315e+06	0.508	9.839e+05	0.530	118318.848	0.508	98079.005	0.434	19849.573				
std	1.033e+06	0.199	4.741e+05	0.216	62759.093	0.262	59488.185	0.240	6762.663				
min	1.984e+05	0.070	5.498e+03	0.010	1903.000	0.020	3281.000	0.030	2506.000				
25%	1.615e+06	0.330	6.929e+05	0.500	73109.000	0.290	41489.000	0.170	14617.000				
50%	2.252e+06	0.560	1.105e+06	0.600	106134.000	0.520	93197.000	0.480	21424.000				
75%	3.242e+06	0.660	1.365e+06	0.650	173651.000	0.660	151169.000	0.630	24651.000				
max	5.499e+06	1.190	2.245e+06	1.200	321569.000	2.000	224426.000	1.540	34297.000				

0	df.sample(10, random_state=49)														
	Date	Subways: Total Estimated Ridership	Subways: % of Comparable Pre-Pandemic Day	Buses: Total Estimated Ridership	Buses: % of Comparable Pre-Pandemic Day	LIRR: Total Estimated Ridership	LIRR: % of Comparable Pre-Pandemic Day	Metro-North: Total Estimated Ridership	Metro-North: % of Comparable Pre-Pandemic Day	Access-A-Ride: Total Scheduled Trips	Access-A-Ride: % of Comparable Pre-Pandemic Day	Bridges and Tunnels: Total Traffic	Bridges and Tunnels: % of Comparable Pre-Pandemic Day	Staten Island Railway: Total Estimated Ridership	Staten Island Railway: % of Comparable Pre-Pandemic Day
176	08/24/2020	1307345	0.25	34021	0.02	75145.0	0.24	35904	0.13	17643	0.63	815665	0.84	2756.0	0.21
1317	10/09/2023	2810671	0.49	890035	0.39	206491.0	0.66	189567	0.65	21655	0.73	905490	0.98	4314.0	0.24
907	08/25/2022	3090901	0.60	1310134	0.65	177178.0	0.57	142659	0.52	24964	0.89	981024	1.01	6122.0	0.46
300	12/26/2020	879170	0.26	559111	0.44	36047.0	0.28	22076	0.14	9094	0.53	593895	0.67	1014.0	0.20
327	01/22/2021	1672001	0.33	1018584	0.50	71317.0	0.24	40981	0.15	20375	0.72	787474	0.91	3174.0	0.19
999	11/25/2022	2058658	0.82	842892	0.85	163354.0	1.73	148368	1.43	12834	0.41	766290	0.93	3361.0	1.10
825	06/04/2022	2178024	0.68	904623	0.65	93431.0	0.76	92199	0.58	14409	0.83	957009	0.97	1844.0	0.36
1194	06/08/2023	3268529	0.58	1216291	0.57	189487.0	0.57	176985	0.60	27689	0.95	932162	0.95	5503.0	0.34
782	04/22/2022	2985684	0.54	1217380	0.56	157943.0	0.51	145606	0.51	22298	0.77	935779	0.99	5340.0	0.33
334	01/29/2021	1511680	0.29	812264	0.40	65128.0	0.22	37760	0.14	19047	0.67	780131	0.90	2646.0	0.16

filtered\_columns.sample(10)

	sum_up_passengers	sum_up_all_ratios	YEAR	MONTH/DAY	FULL DATE
1224	4.374e+06	5.80	2023	07/08	2023/07/08
1037	3.532e+06	5.82	2023	01/02	2023/01/02
1203	4.543e+06	5.77	2023	06/17	2023/06/17
1231	4.450e+06	5.81	2023	07/15	2023/07/15
1176	4.035e+06	6.30	2023	05/21	2023/05/21
7	4.006e+06	6.06	2020	03/08	2020/03/08
1246	3.875e+06	6.21	2023	07/30	2023/07/30
1064	3.206e+06	5.97	2023	01/29	2023/01/29
1239	3.928e+06	6.14	2023	07/23	2023/07/23
1196	4.770e+06	5.76	2023	06/10	2023/06/10

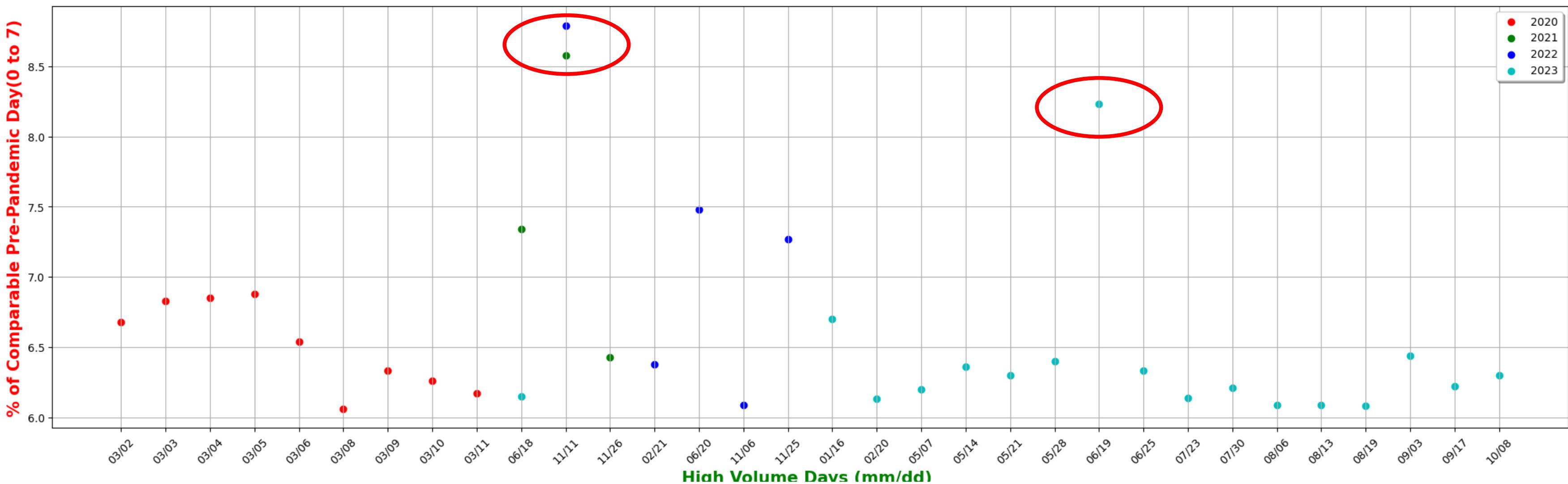
filtered\_columns

1 to 25 of 57 entries Filter ?

index	sum_up_passengers	sum_up_all_ratios ▼	YEAR	MONTH/DAY	FULL DATE
985	5294950.0	8.790000000000001	2022	11/11	2022/11/11
620	5307778.0	8.579999999999998	2021	11/11	2021/11/11
1205	5063529.0	8.23	2023	06/19	2023/06/19
841	4805196.0	7.480000000000001	2022	06/20	2022/06/20
474	5051176.0	7.34	2021	06/18	2021/06/18
999	3995757.0	7.27	2022	11/25	2022/11/25
4	9222662.0	6.88	2020	03/05	2020/03/05
3	9137316.0	6.850000000000001	2020	03/04	2020/03/04
2	9152481.0	6.83	2020	03/03	2020/03/03
1051	4044782.0	6.699999999999999	2023	01/16	2023/01/16
1	8963350.0	6.680000000000001	2020	03/02	2020/03/02
5	8742080.0	6.54	2020	03/06	2020/03/06
1281	3877474.0	6.439999999999995	2023	09/03	2023/09/03
635	3974756.0	6.43	2021	11/26	2021/11/26
1183	3867911.0	6.4	2023	05/28	2023/05/28
722	3821510.0	6.38	2022	02/21	2022/02/21
1169	3823730.0	6.36	2023	05/14	2023/05/14
1211	4116268.0	6.33	2023	06/25	2023/06/25
8	8465041.0	6.329999999999999	2020	03/09	2020/03/09
1176	4034806.0	6.3	2023	05/21	2023/05/21
1316	3733929.0	6.3	2023	10/08	2023/10/08
9	8320886.0	6.26	2020	03/10	2020/03/10
1295	3781446.0	6.220000000000001	2023	09/17	2023/09/17
1246	3874955.0	6.21	2023	07/30	2023/07/30
1162	3836887.0	6.199999999999999	2023	05/07	2023/05/07

Show 25 per page

1 2 3

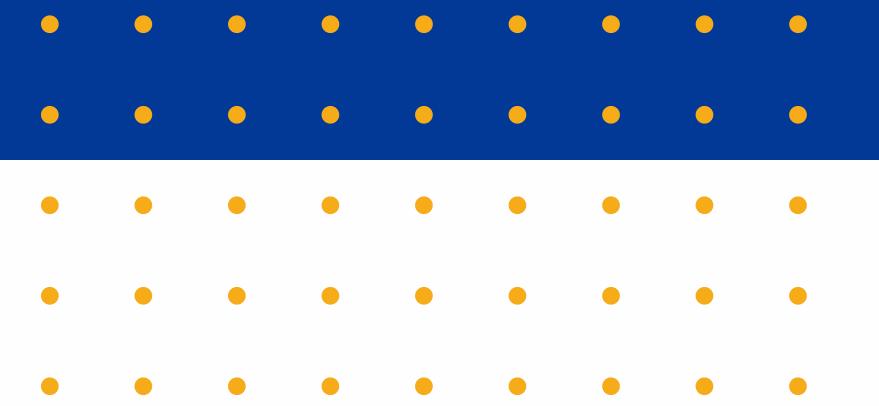


## What we could have done?

- **Social Media Data Analysis:** This could help WTWY tailor their street team's message to address any common misconceptions or highlight popular aspects of their cause. Sentiment analysis can be conducted on tweets, blog posts, and other social media posts about WTWY and its annual gala.
- **Demographic data:** (income, gender, age, e.g.) on top of metro station usage might allow us to target stations located in areas where there is a high concentration of our target demographic (tech-savvy individuals, women in certain age groups, e.g.).

## **What we could have done?**

- **Event data:** If there are tech events happening around the city, those might be good places to target as well.
- **Tech companies data:** Locations of major tech companies' offices could also be considered. It is plausible that tech workers would be more interested in the WTWY cause.



# THANK YOU

Have any question?

Büşra SULUKAN  
Burak AKAY  
Fatih BAYRAM  
Seçkin ALP

