

DC WMATA Metro Ridership

Caden Chau, Michael Jagdon, Hiathan Nguyen

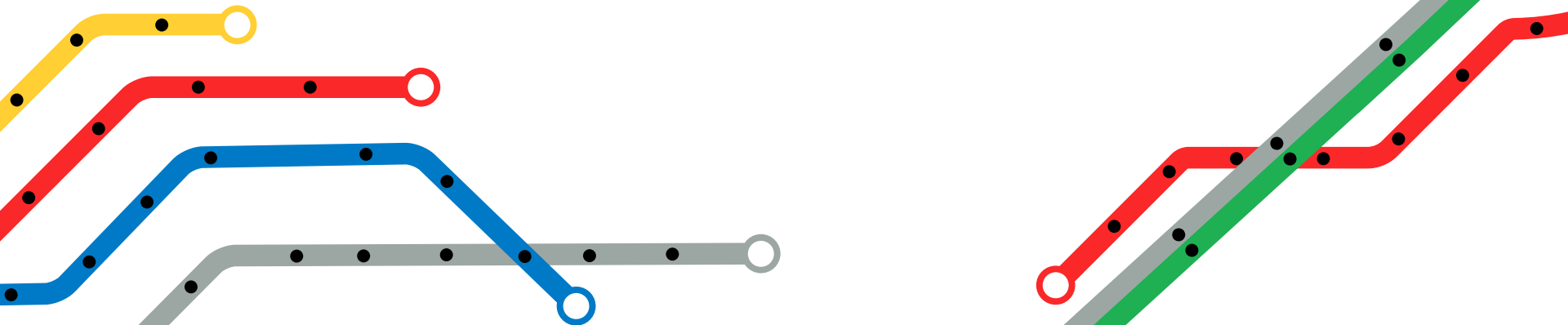


Table of contents

01

DC Metro

What does the Washington DC Metro look like

02

About the Data

Explain the datasets and what they compose of

03

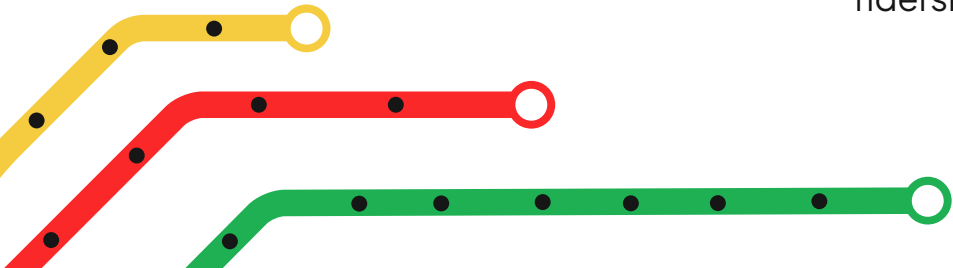
Exploratory Data Analysis

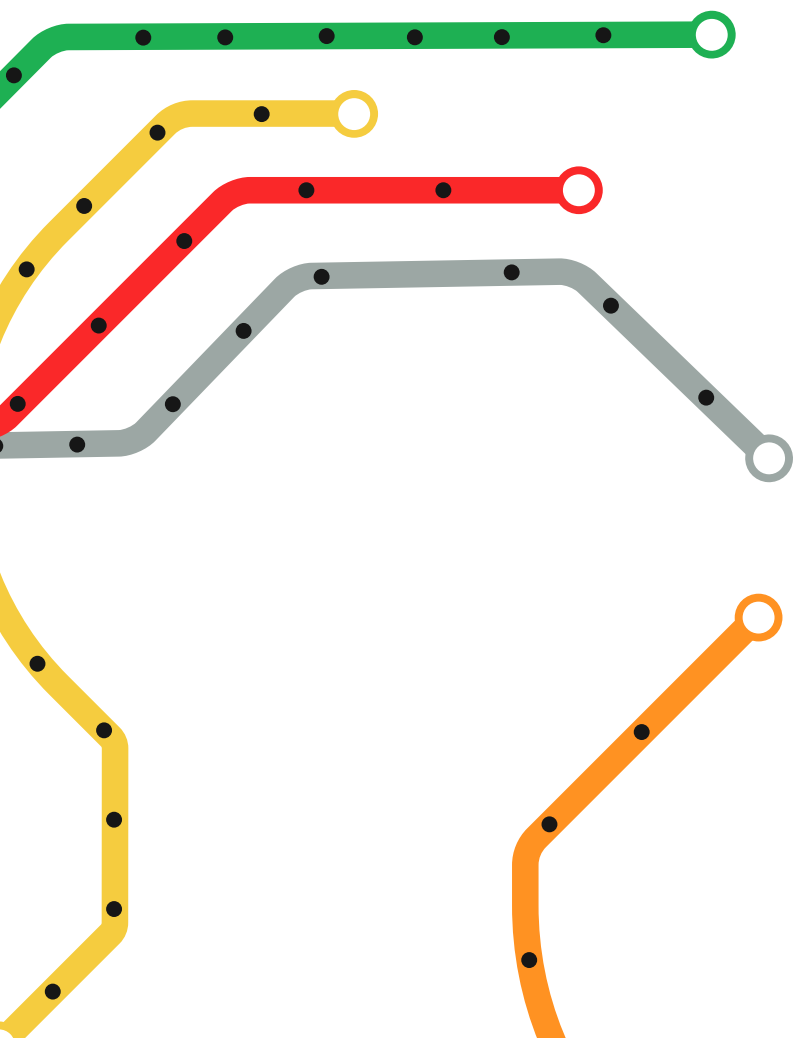
Find trends and analyze different patterns in ridership

04

Conclusion

Show the results and provide advice





01 DC Metro



Map of the Metro

The DC Metro Subway network connecting all areas around the Washington DC, Maryland, and Virginia area. There are 6 lines in the Metro:

RD

Shady Grove ↔ Glenmont

Union Station
Metro Center

BL

Franconia-Springfield ↔ Largo Town Center

Pentagon
Rosslyn

OR

Vienna/Fairfax-GMU ↔ New Carrollton

Ballston
Foggy Bottom

SV

Ashburn ↔ Largo Town Center

Dulles Airport
Tysons Corner

YL

Huntington ↔ Greenbelt

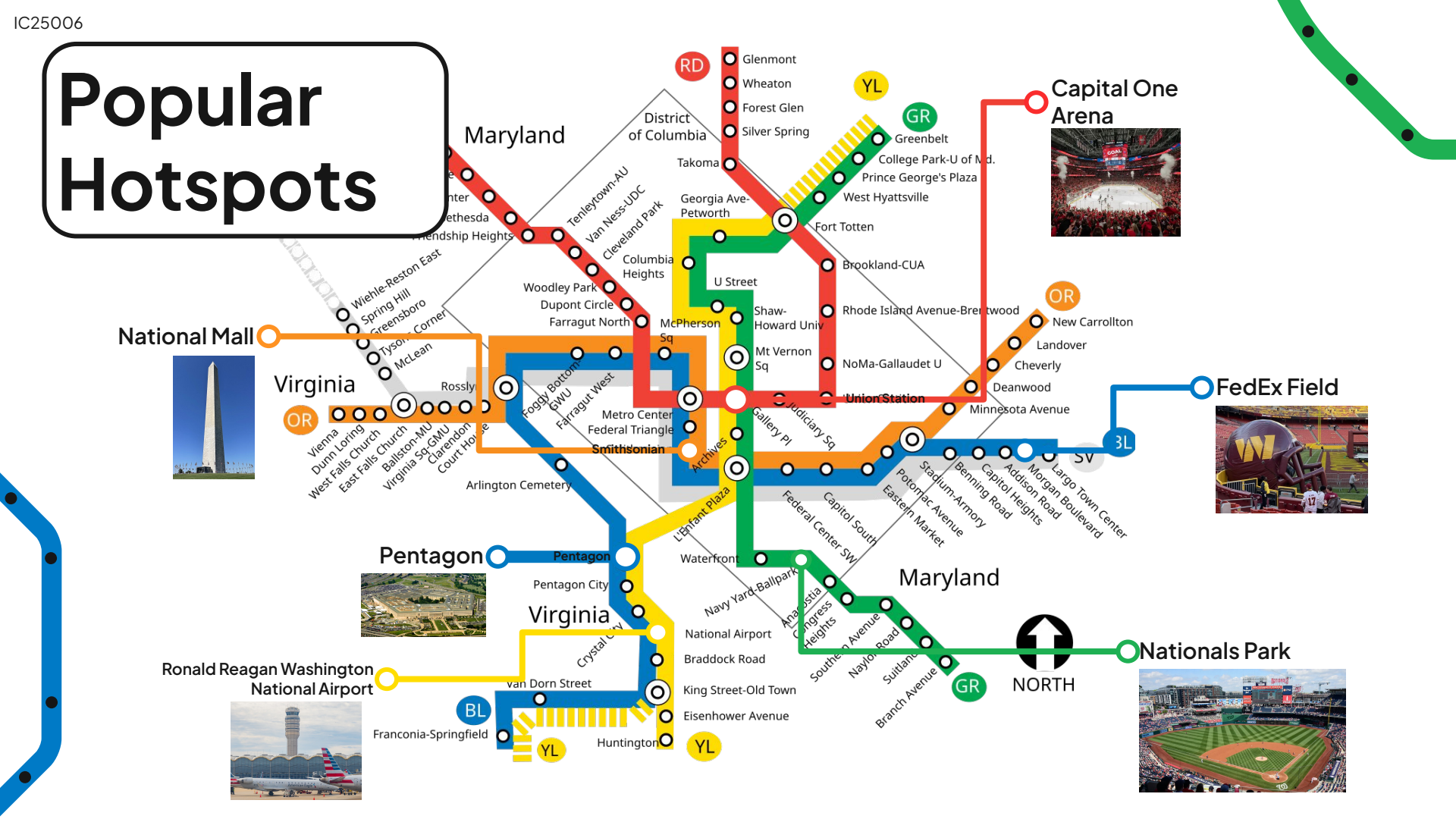
Pentagon
L'Enfant Plaza

GR

Branch Ave ↔ Greenbelt

Navy Yard
U Street

Popular Hotspots



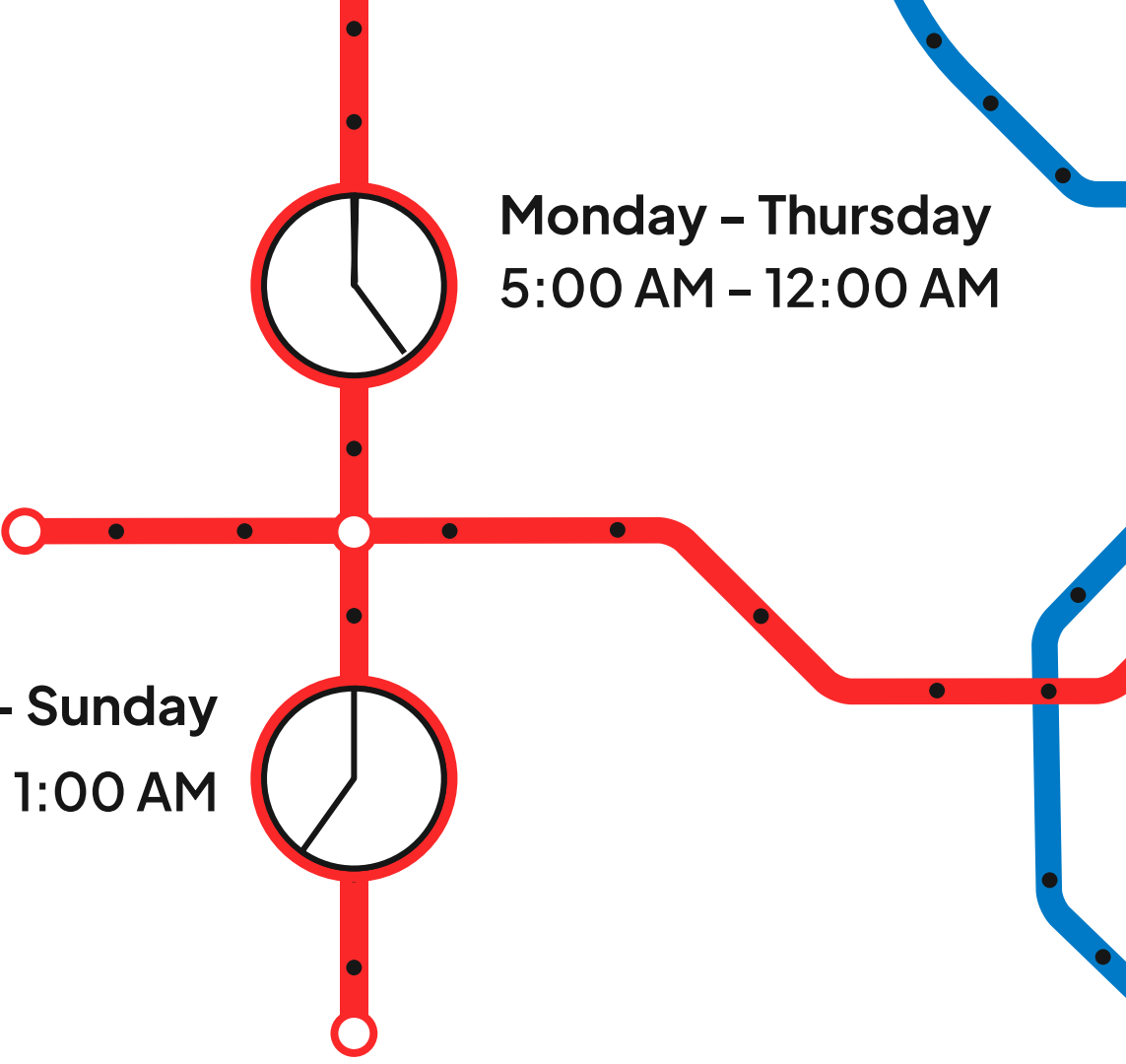
Operating Hours

Peak vs. Off-Peak Hours:

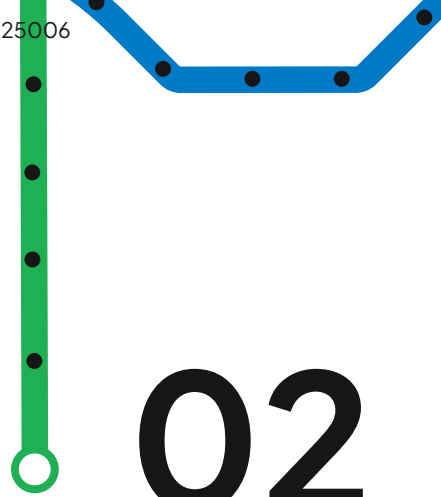
- Rush Hour (6:00–9:30 AM, 3:00–7:00 PM)
- Midday & Late Night

Monday – Thursday
5:00 AM – 12:00 AM

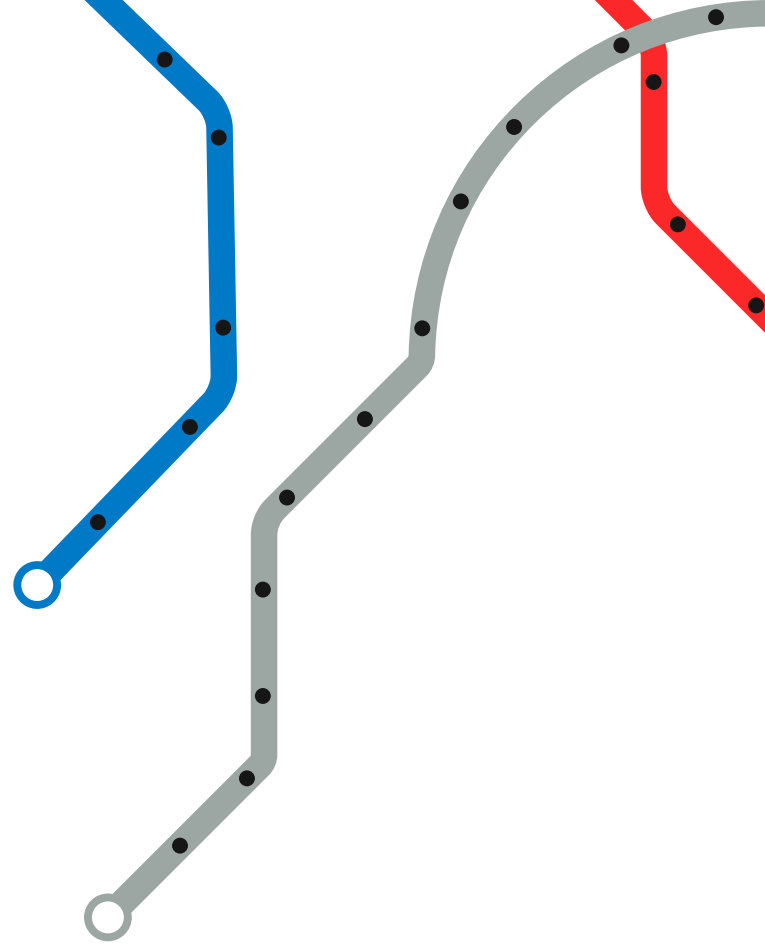
Friday – Sunday
7:00 AM – 1:00 AM



IC25006



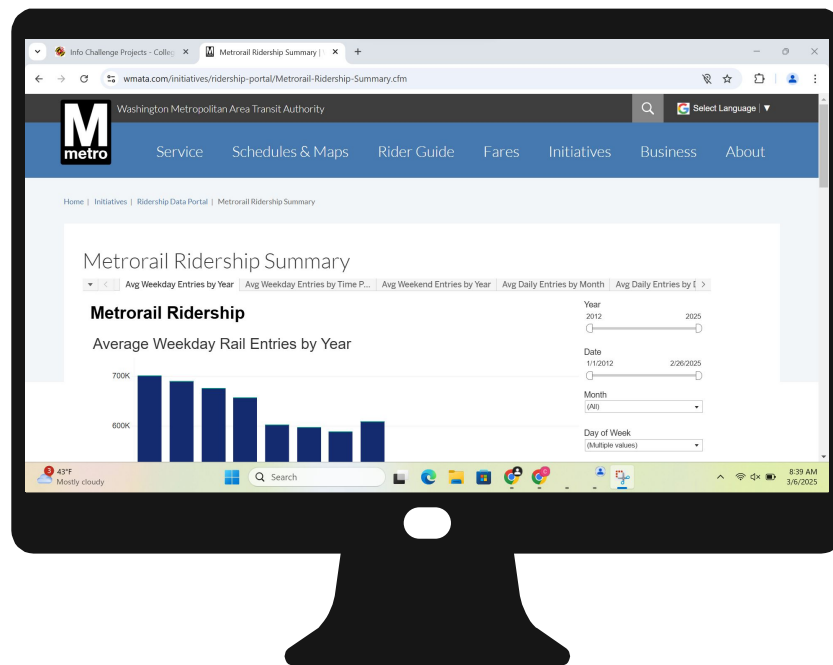
02 About the Data



WMATA

Washington Metropolitan
Area Transit Authority

The provided dataset was
pulled from the Average Daily
Entries by Station and Time
Period tab in the dashboard.



WMATA_Ridership_Summary.xlsx

Station Name	Contains the name of the station in the DC Metro	Metro Center Farragut North Foggy Bottom-GWU Farragut West
Time Period	Contains a group of time frame during the day	AM Peak (Open-9:30am) PM Peak (3pm-7pm) Evening (7pm-12am) Midday (9:30am-3pm)
Average Daily Entries	Number of people who scan in to their system	10.1k 3.0k 0.3k 0.0k

WMATA_Ridership_Summary.xlsx

The provided data includes a weekday (Wednesday) and weekend (Saturday) in all four seasons of 2024 (summer, winter, spring, autumn). Each day had its own spreadsheet with in the excel.

March 6th

Time	Entries
PM Peak	1.0k
PM Peak	0.4k
AM Peak	0.0k
Midday	0.2k

June 15th

Time	Entries
AM Peak	1.4k
Evening	0.7k
Late Night	0.1k
PM Peak	0.3k

December 21

Time	Entries
Midday	0.9k
Evening	1.2k
AM Peak	0.7k
Midday	0.3k

Cleaning/Merging

Cleaning:

Since all values were in a condensed form (1.1k), convert to full number (1100)

Merging:

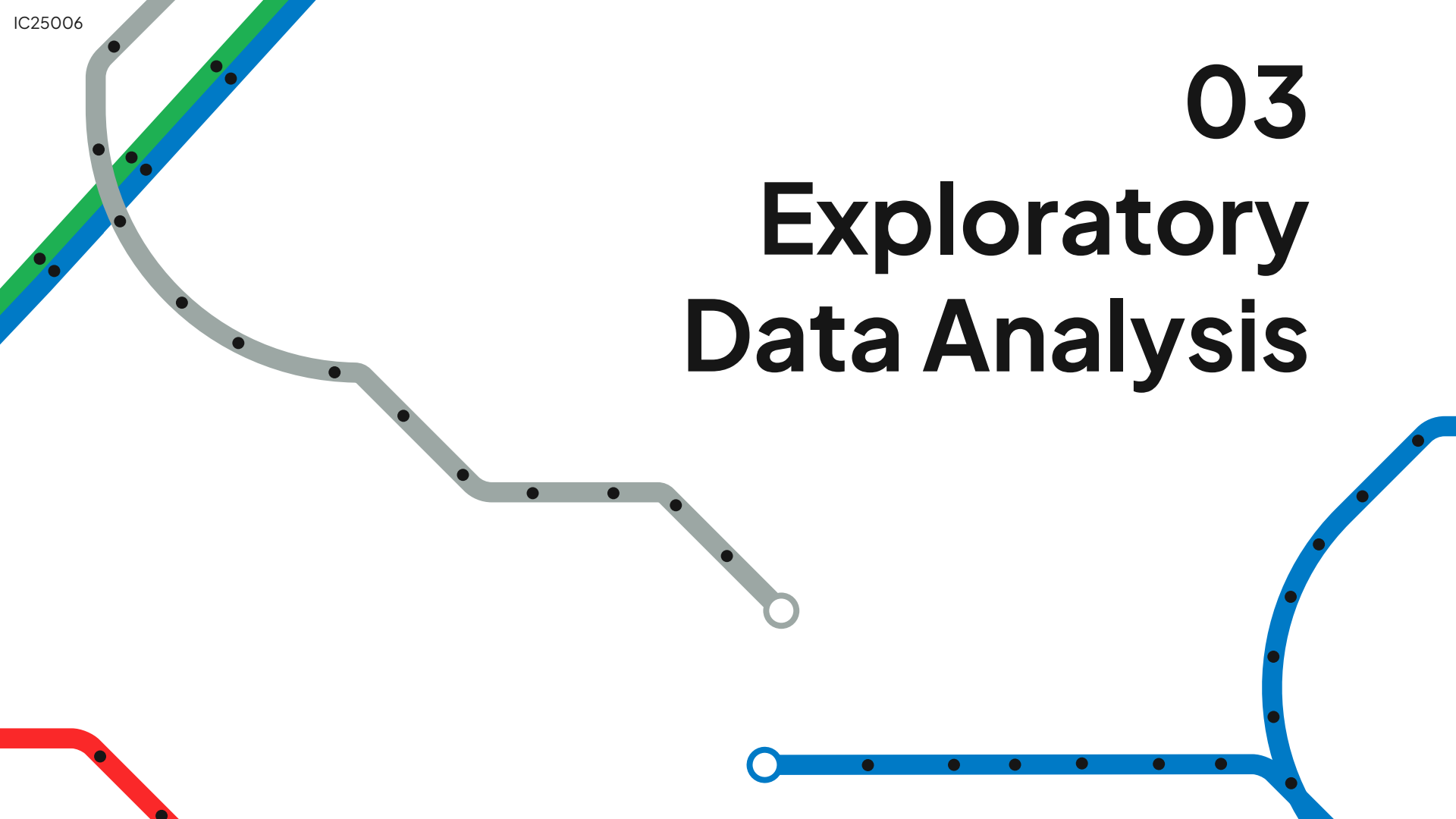
Combined all the sheets into one csv (pandas) on the station name and the time period

WMATA_Ridership

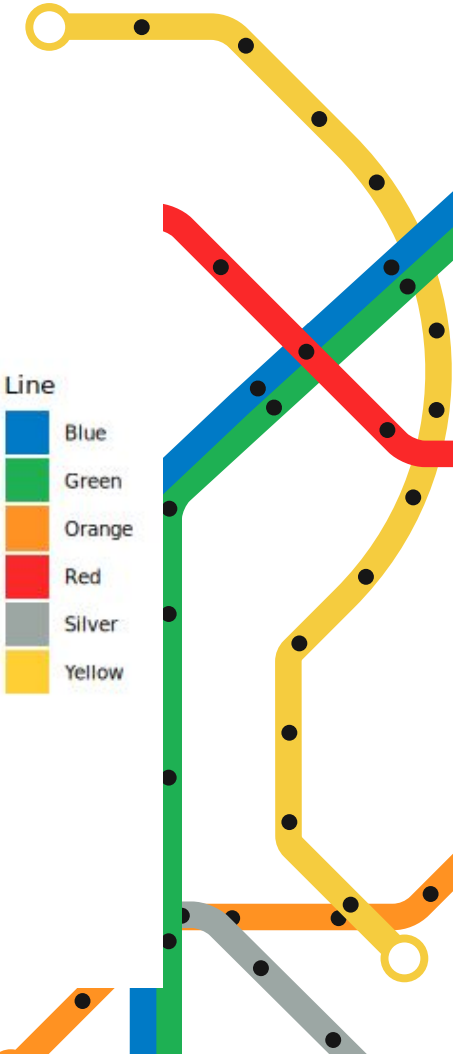
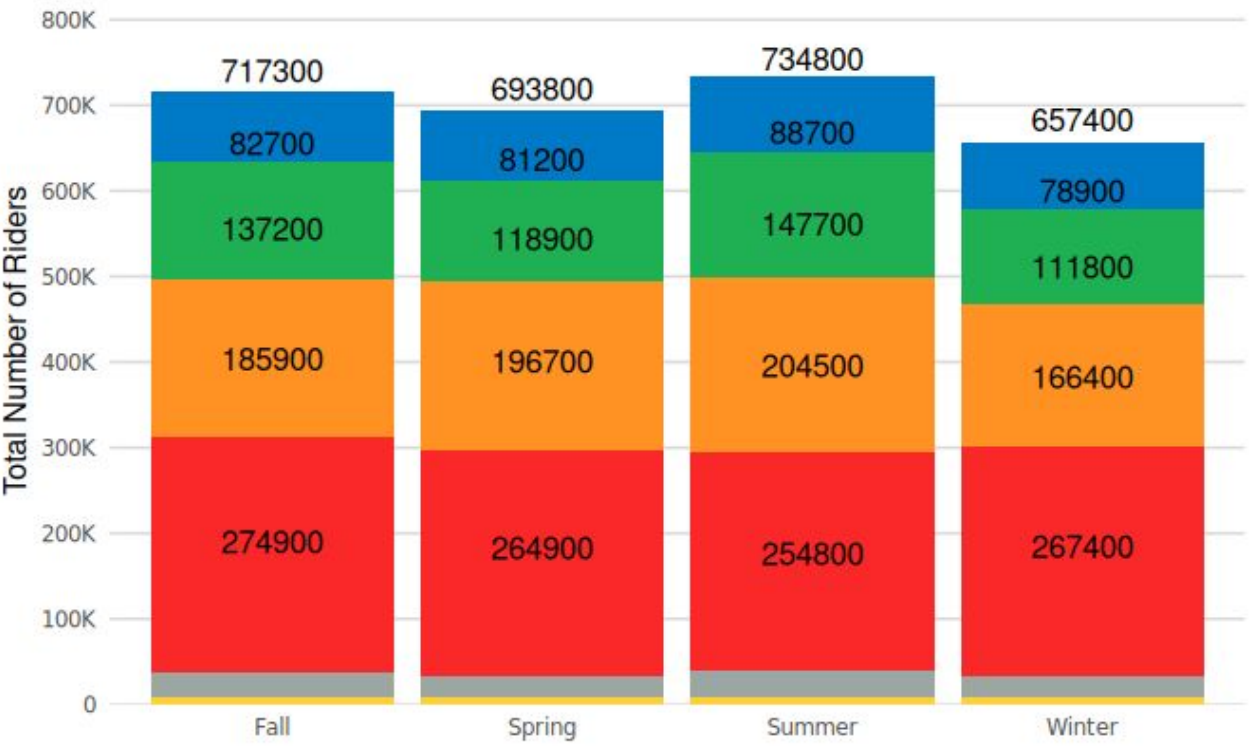
Time	Entries (Mar 6)	Entries (Mar 23)	Entries (Jun 5)	Entries (Jun 15)	Entries (Sep 4)	Entries (Sep 21)	Entries (Dec 4)
AM Peak	1000	100	1100	200	1100	100	1000
Evening	100	100	100	100	300	300	100
Midday	2100	2300	2300	2700	2200	3100	2300
PM Peak	1900	1000	2100	1100	2000	1000	2100

03

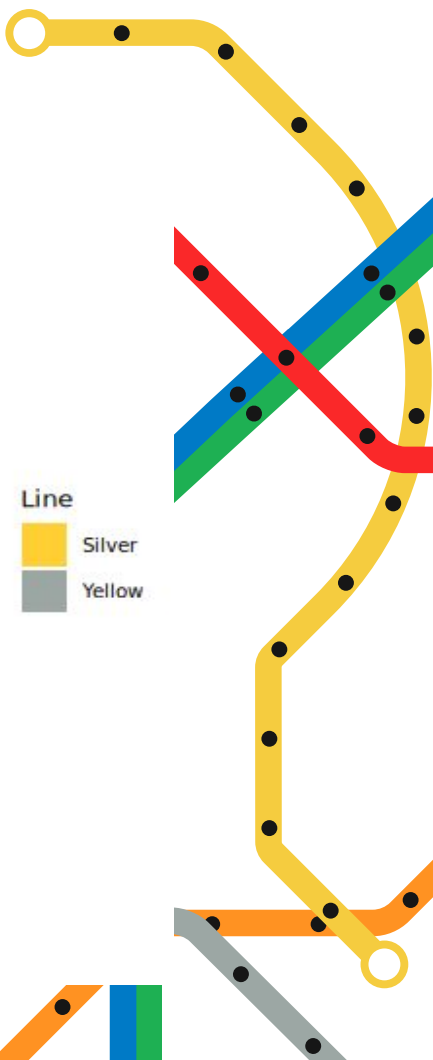
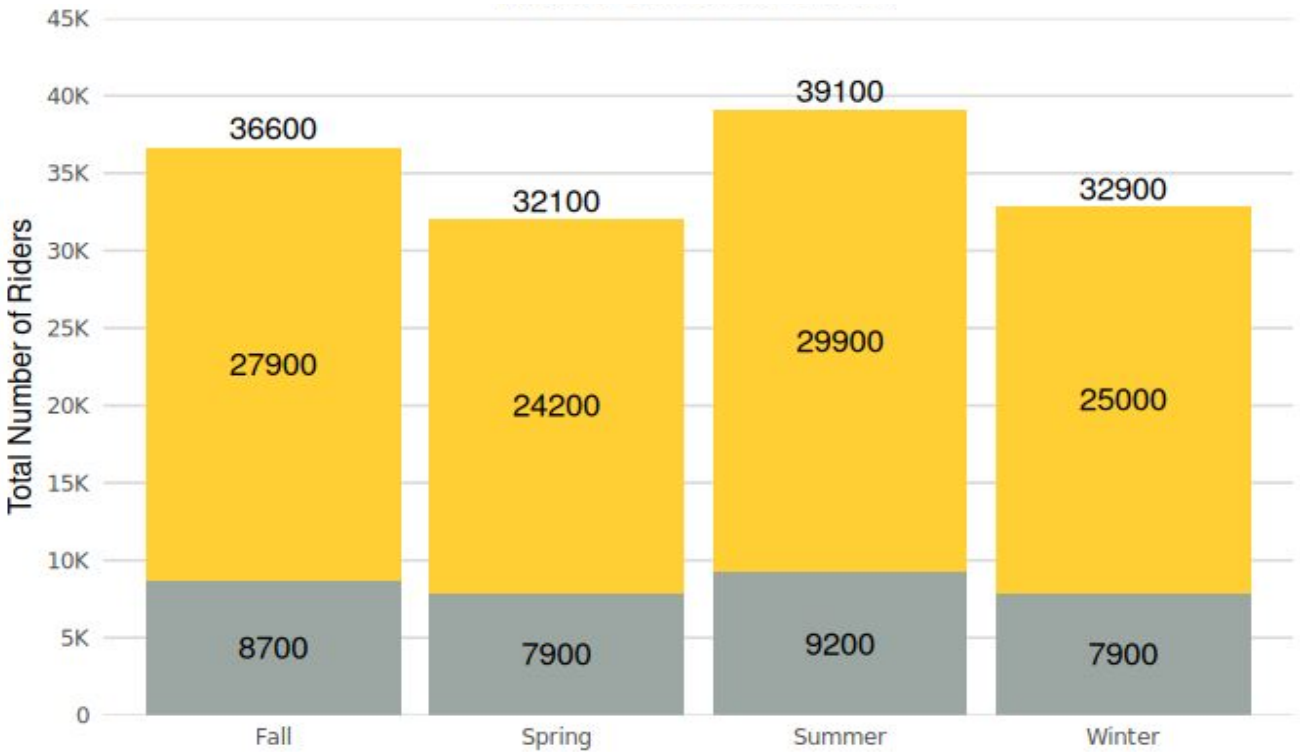
Exploratory Data Analysis



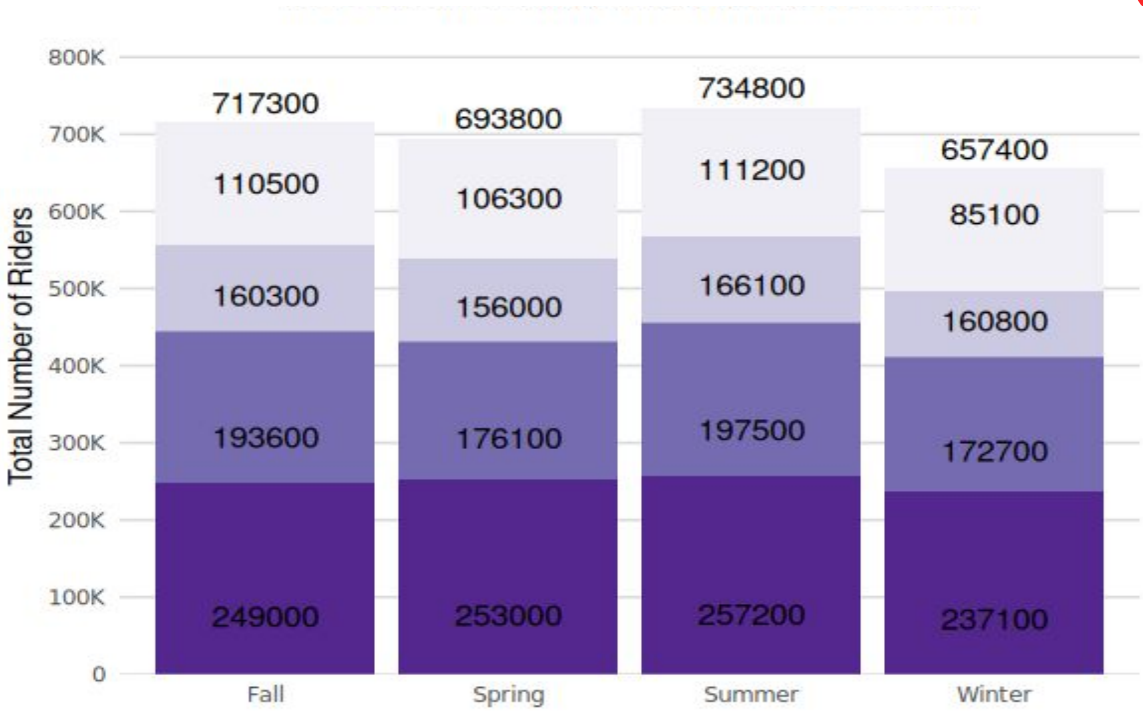
2024 D.C. Metro Ridership Across All Seasons (Red, Orange, Green, Blue)



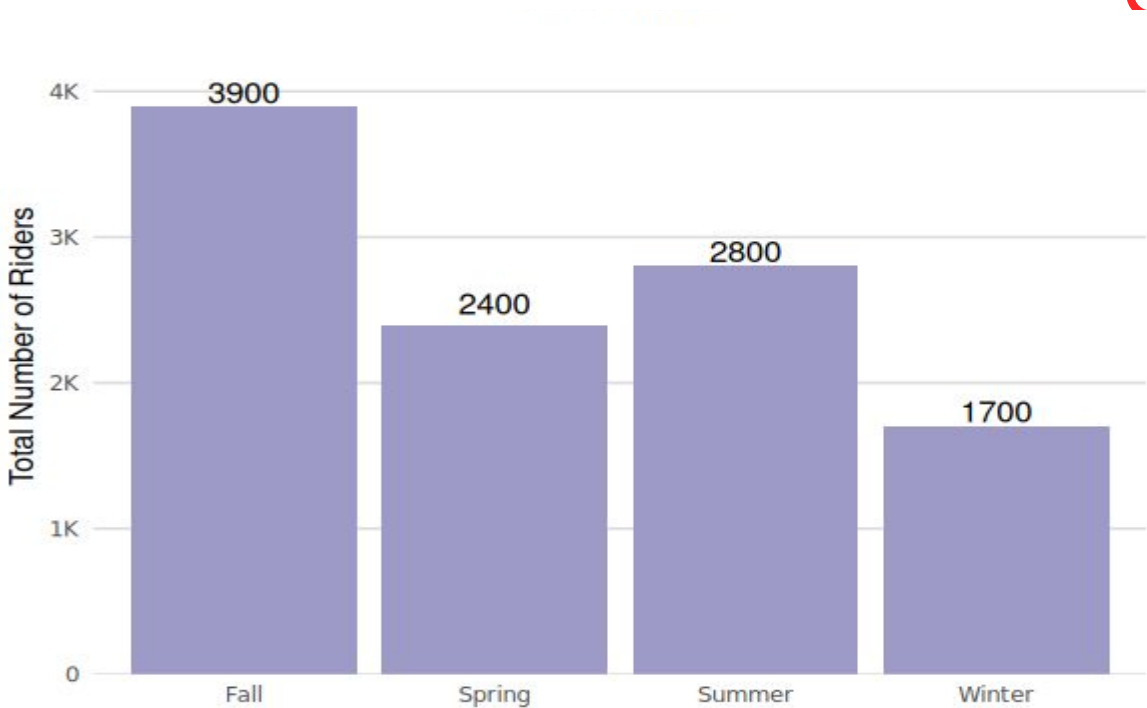
2024 D.C. Metro Ridership Across All Seasons (Yellow, Silver)



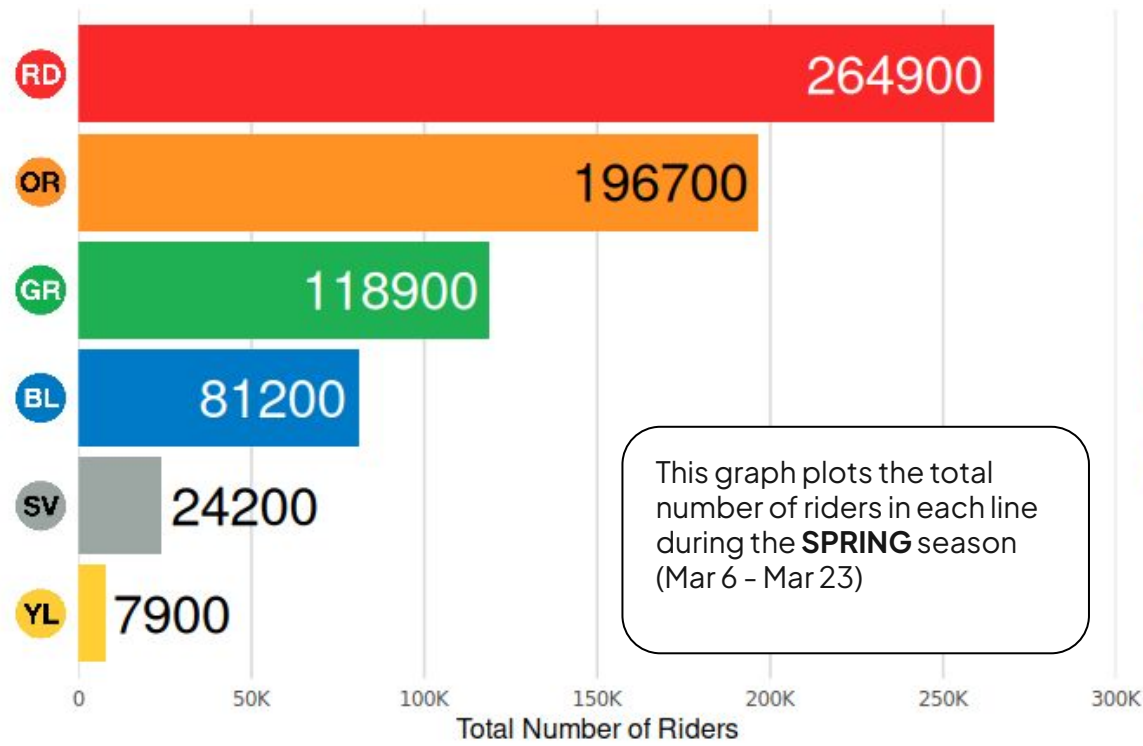
2024 D.C. Metro Ridership Times Across All Seasons



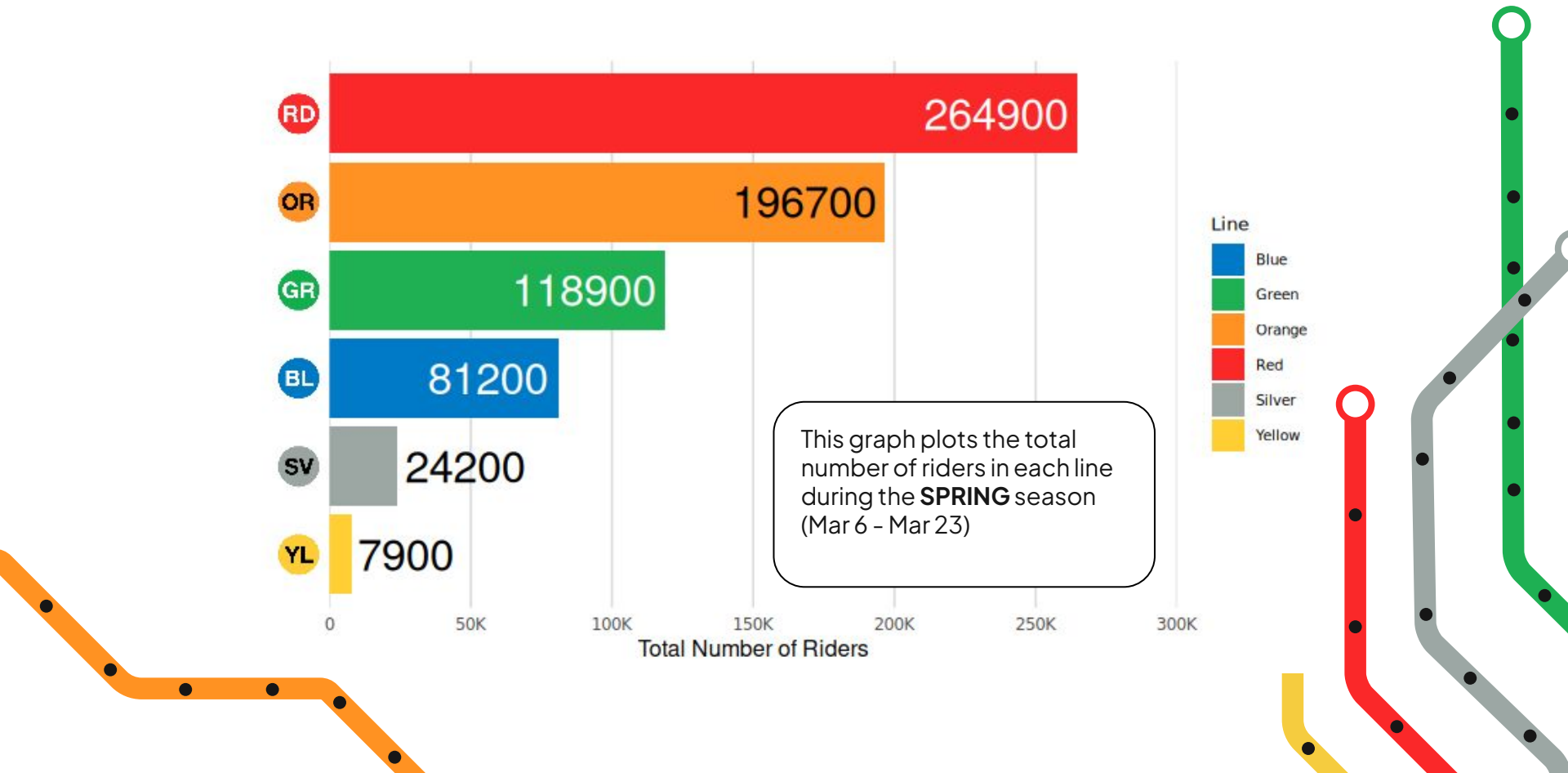
2024 D.C. Metro Ridership Times Across All Seasons (Late Night)



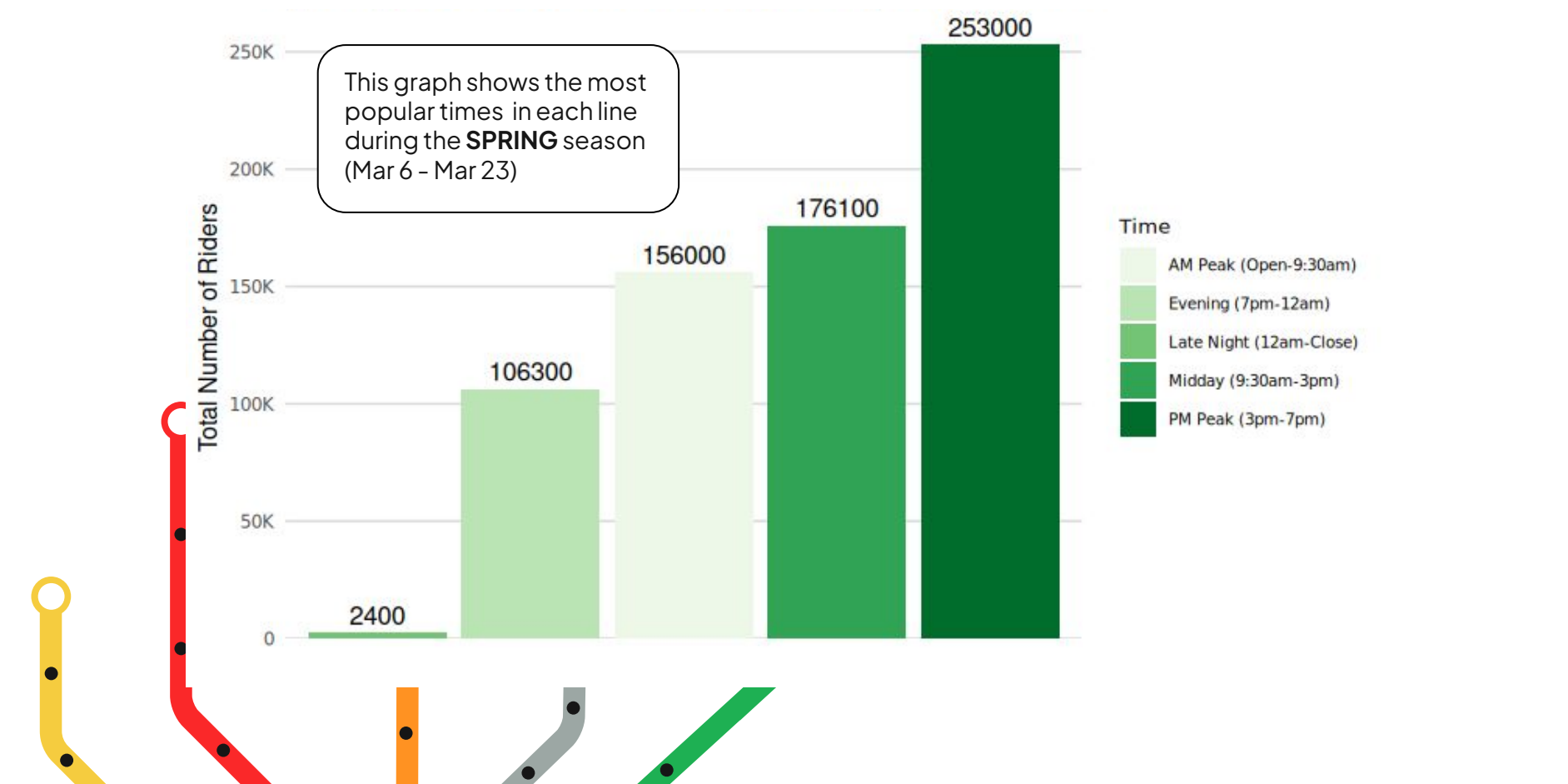
Spring 2024 D.C. Metro Ridership



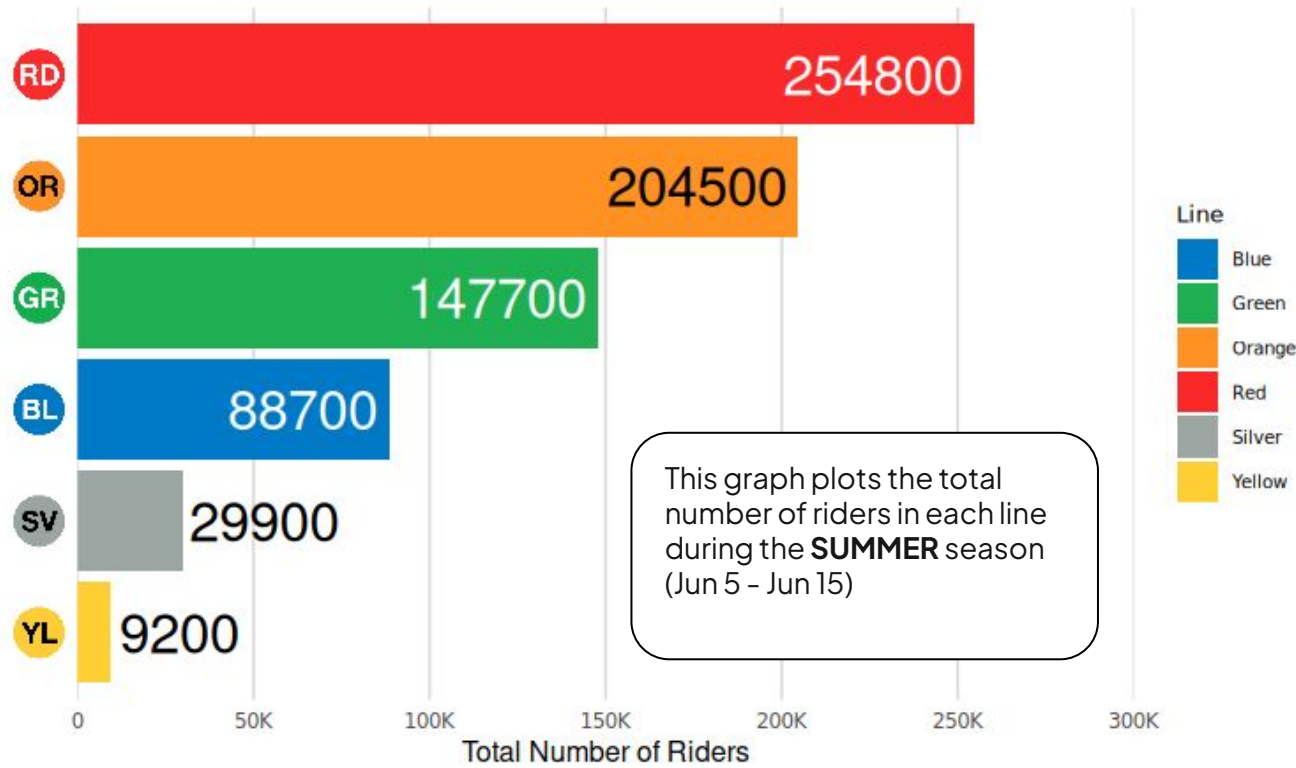
- Line
- Blue
 - Green
 - Orange
 - Red
 - Silver
 - Yellow



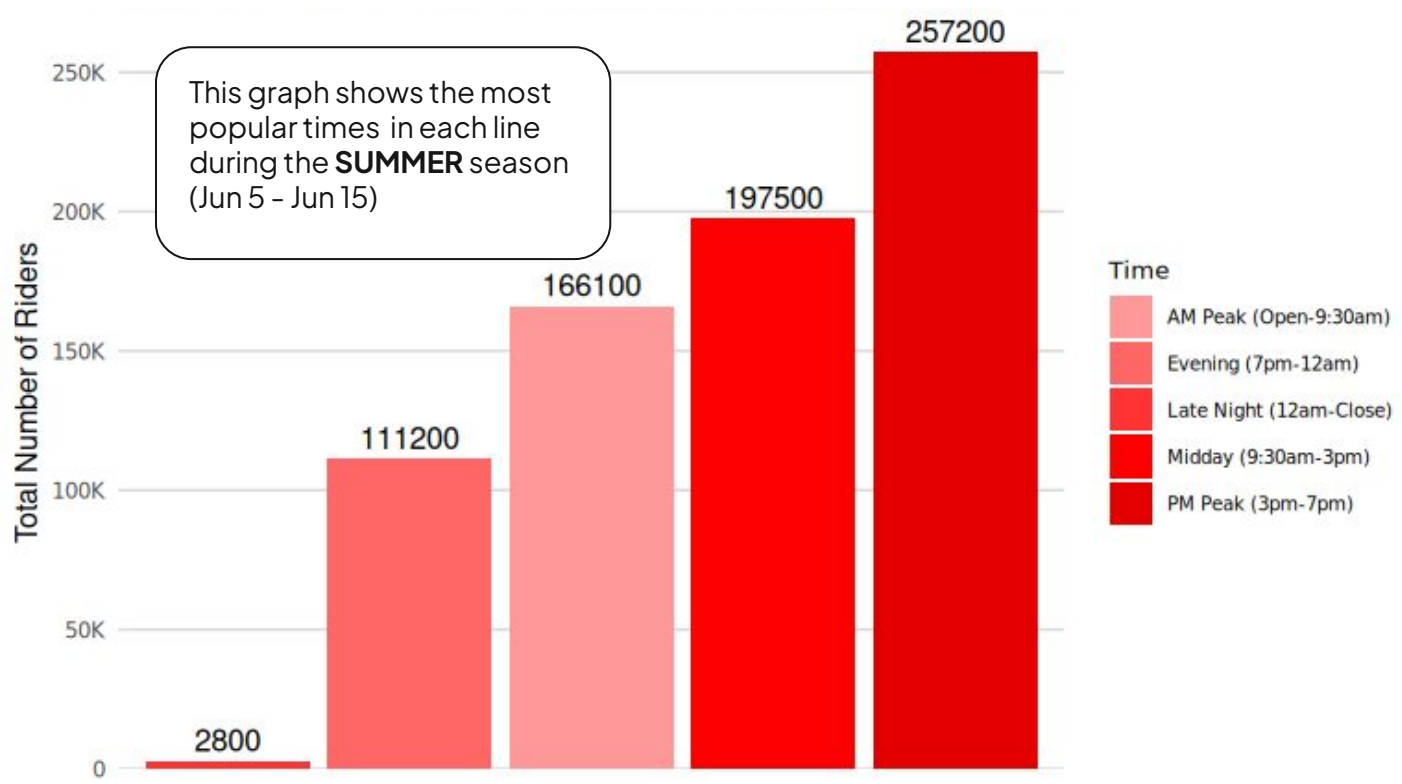
Spring 2024 D.C. Metro Most Popular Times



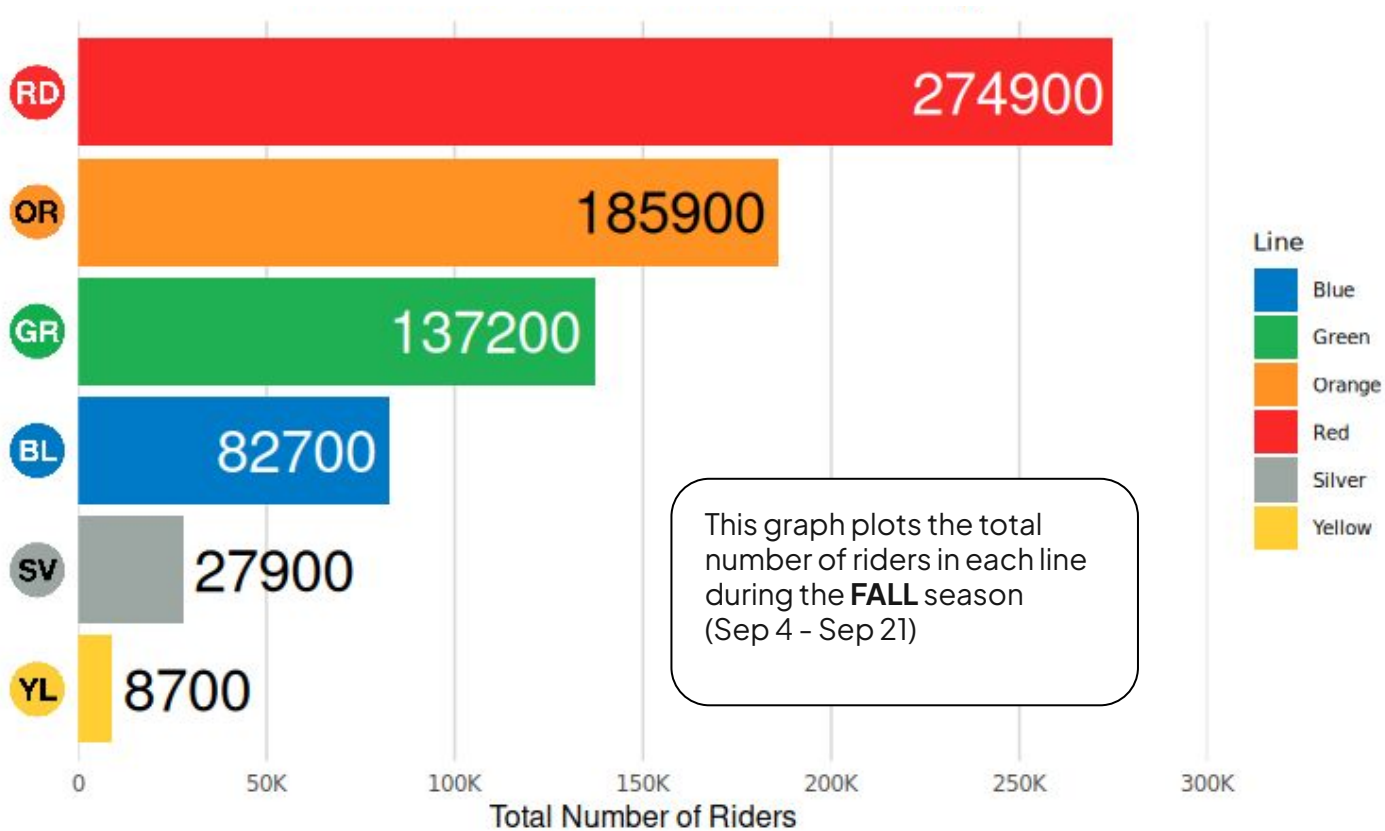
Summer 2024 D.C. Metro Ridership



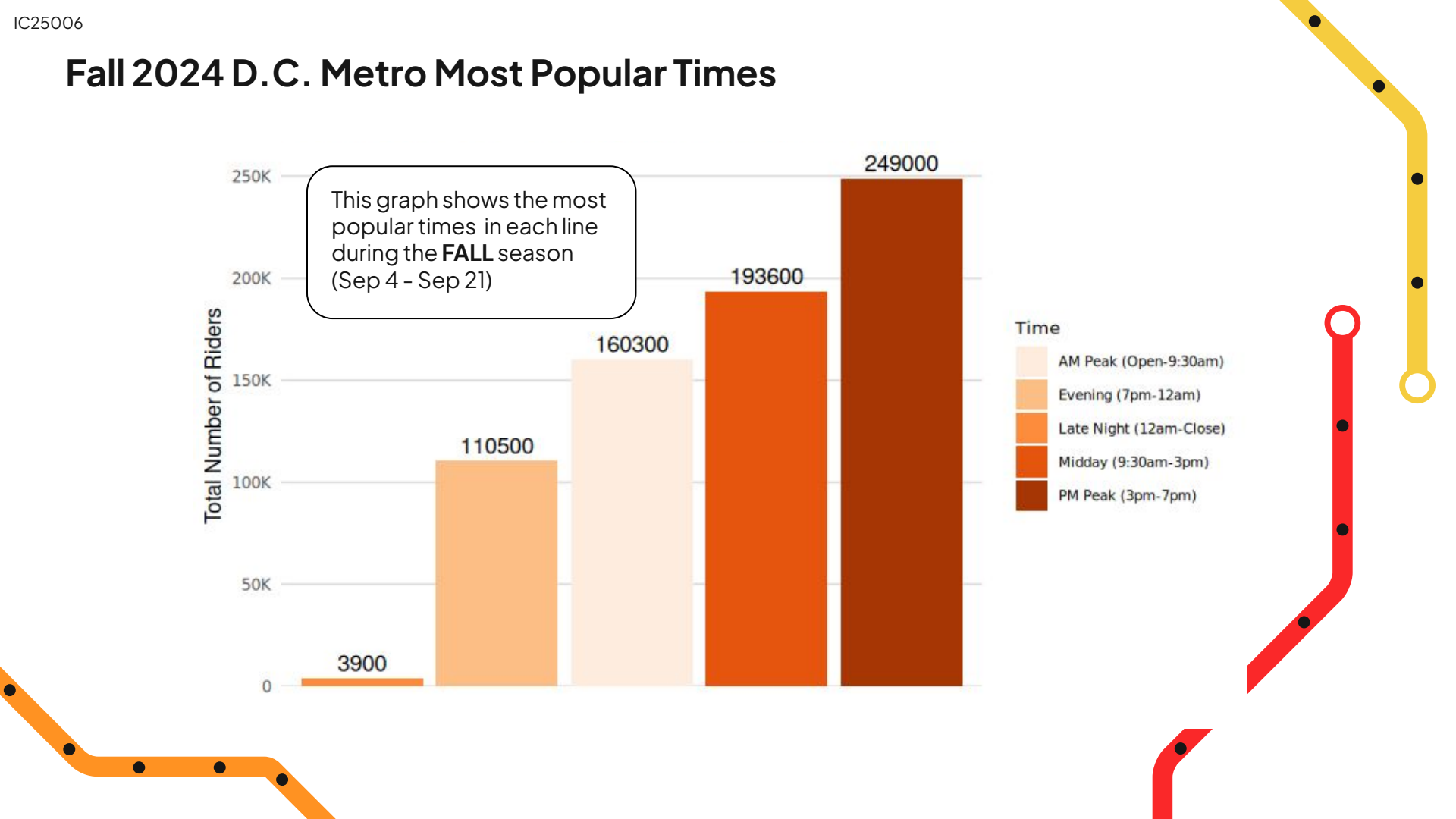
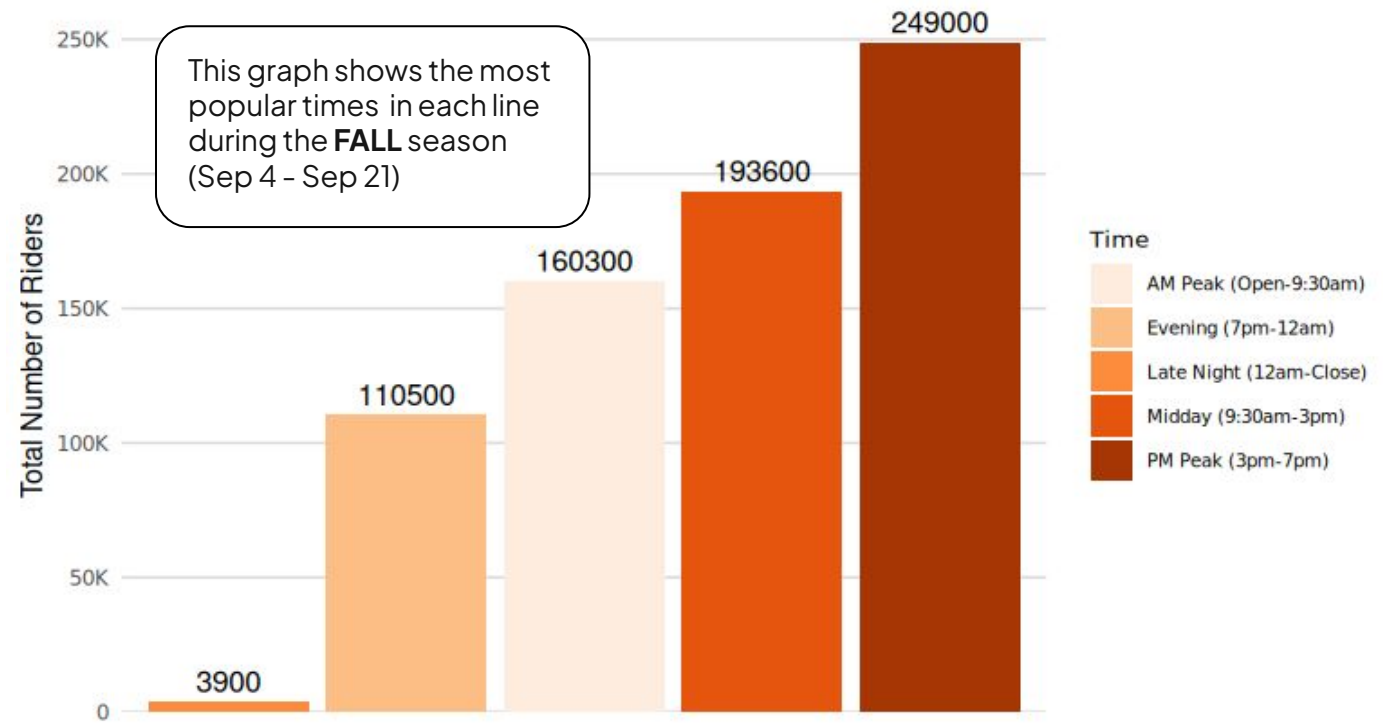
Summer 2024 D.C. Metro Most Popular Times



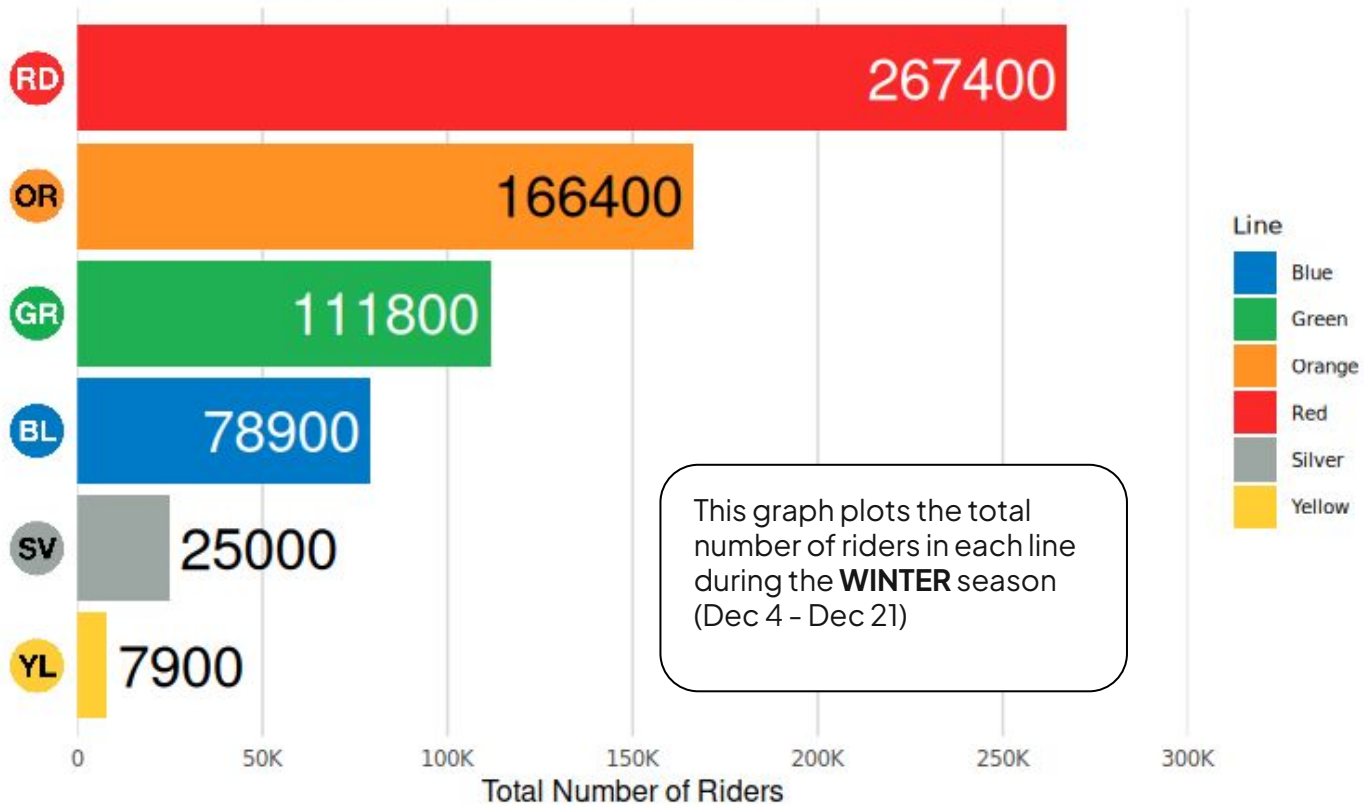
Fall 2024 D.C. Metro Ridership



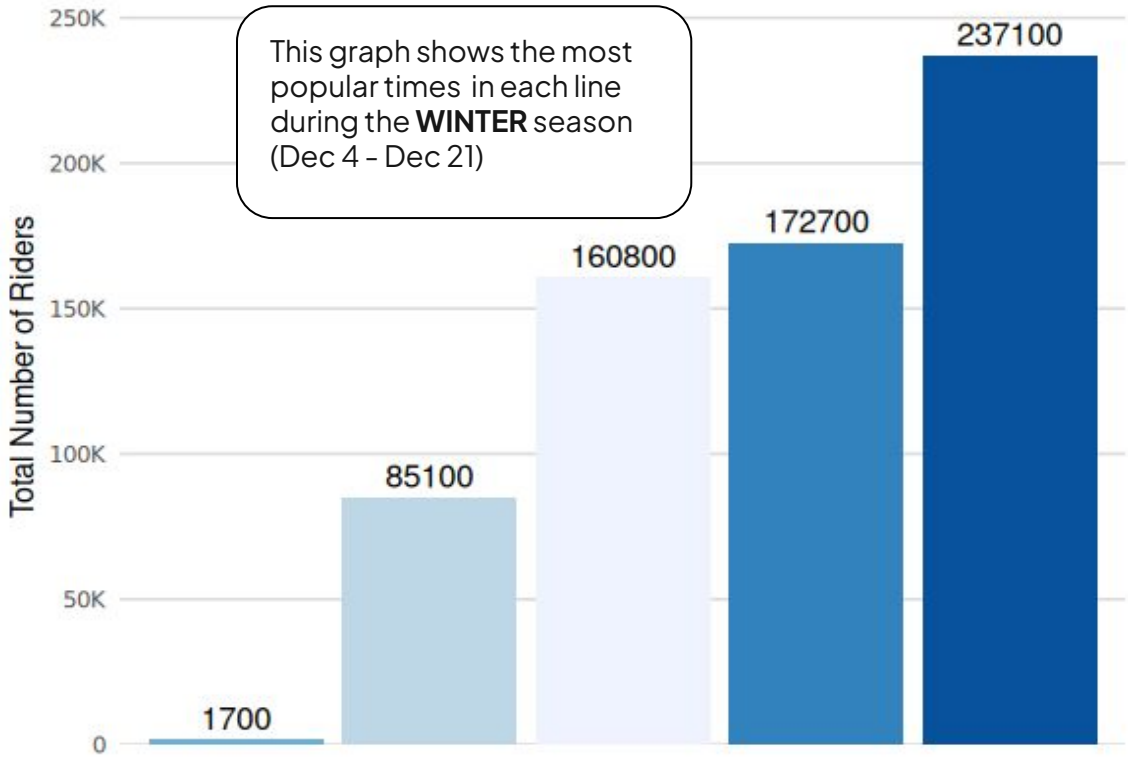
Fall 2024 D.C. Metro Most Popular Times



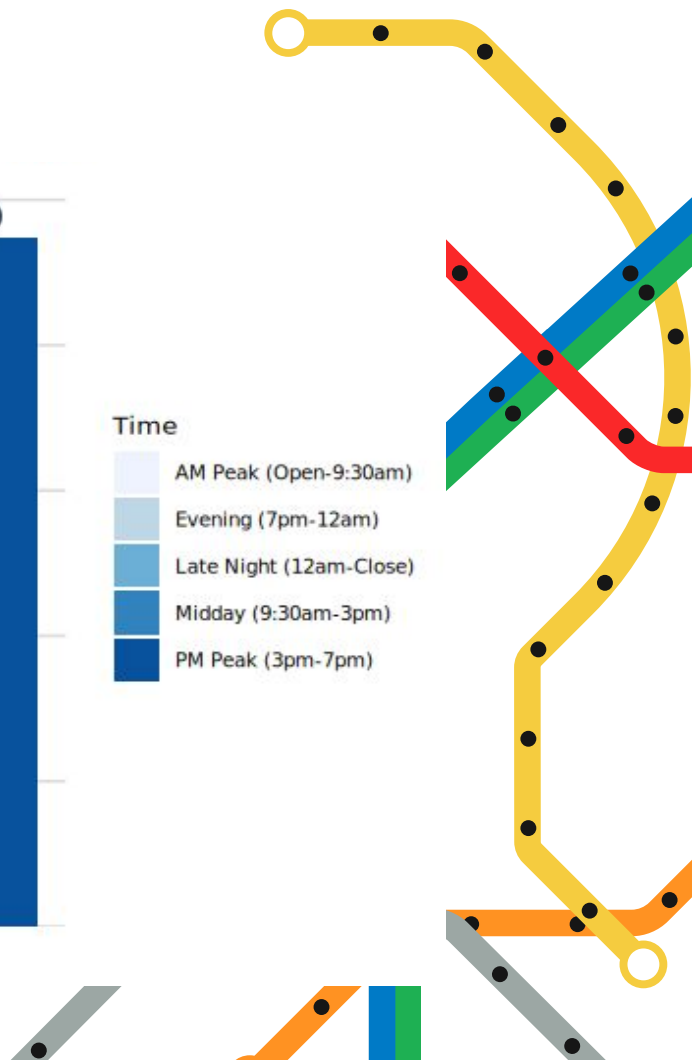
Winter 2024 D.C. Metro Ridership



Winter 2024 D.C. Metro Most Popular Times



- Time
- AM Peak (Open-9:30am)
 - Evening (7pm-12am)
 - Late Night (12am-Close)
 - Midday (9:30am-3pm)
 - PM Peak (3pm-7pm)



Ridership and DC Sports

Each Season's Most Popular Day to Ride

Spring

March 6

Why?

Wizards vs. Magic

Attendance : 16,018



Fall

September 21

Why?

Orioles vs. Tigers

Attendance : 39,647



Summer

June 5

Why?

Nationals vs. Mets

Attendance : 18,775



Winter

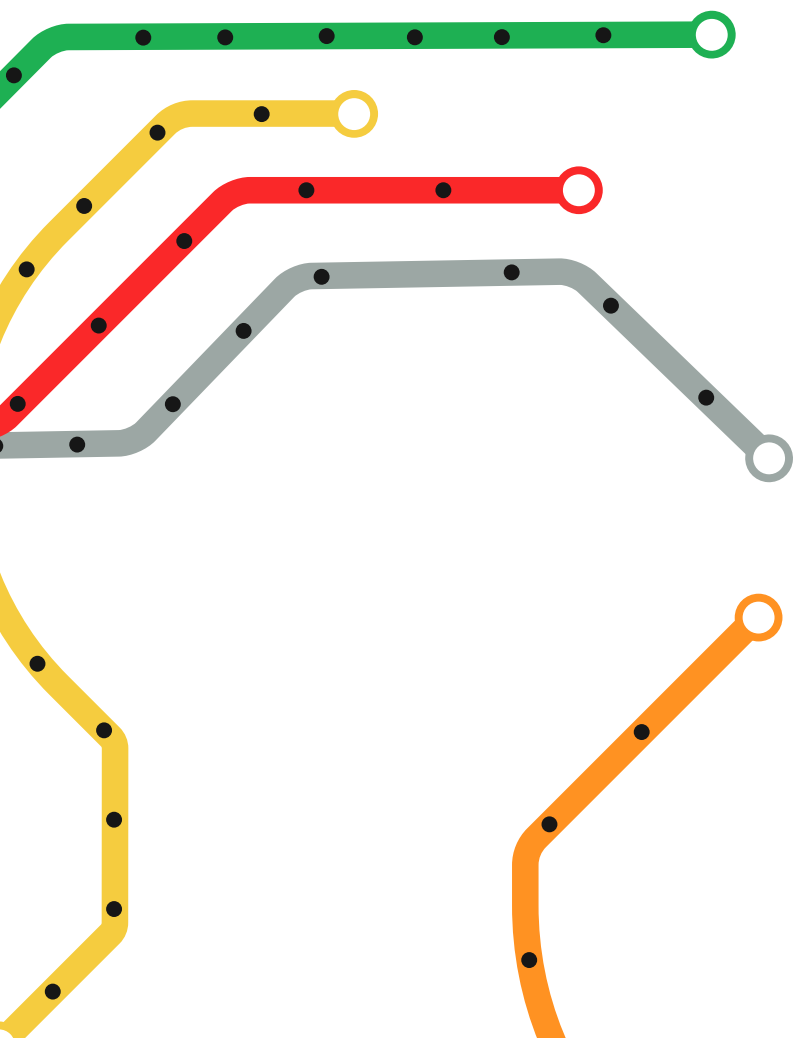
December 21

Why?

Ravens vs. Steelers

Attendance : 71,313



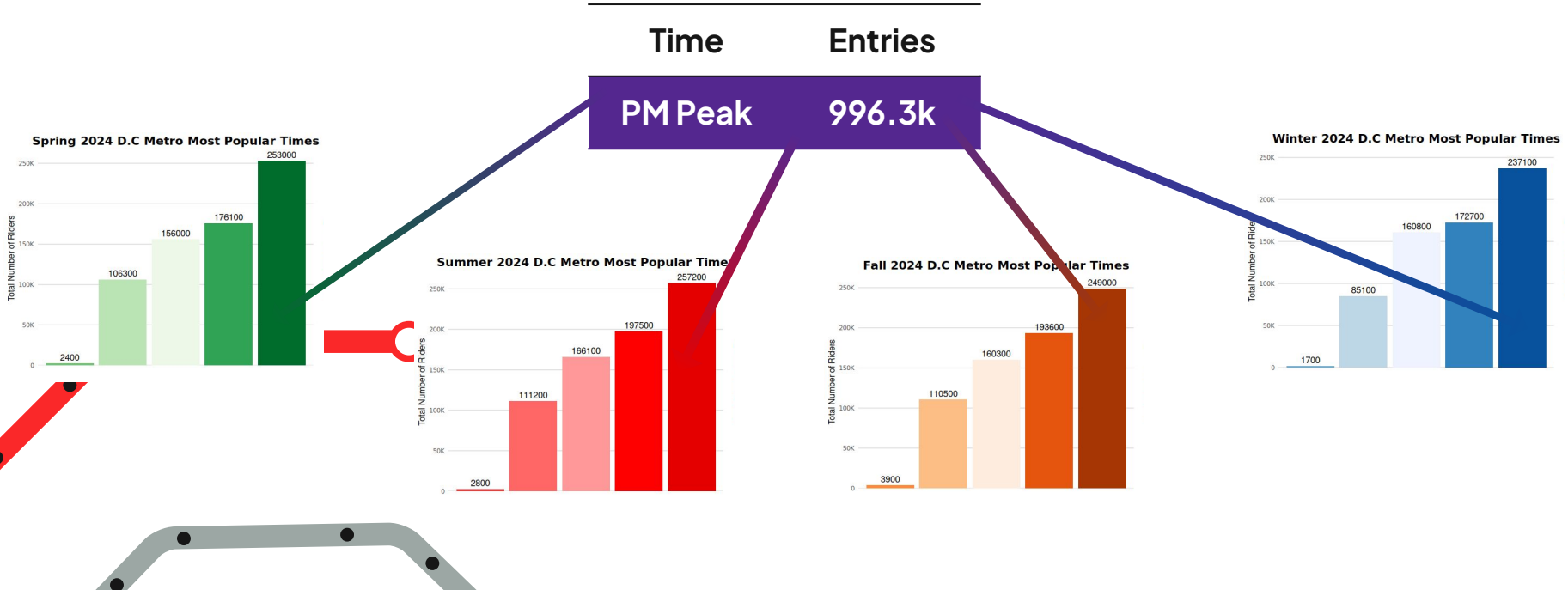


Q4 Conclusion s



Conclusions

Ridership increases during colder seasons, but the most popular time to ride is consistently 3–7pm. The day of the week (weekend or weekday) is not a factor.



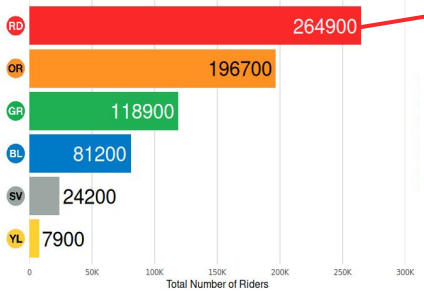
Conclusion

S

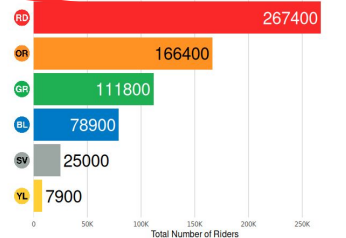
The Red, Orange, and Green Lines remained the most popular to ride throughout seasons, weekdays, and weekends. They accounted for over 80% of ridership each season.



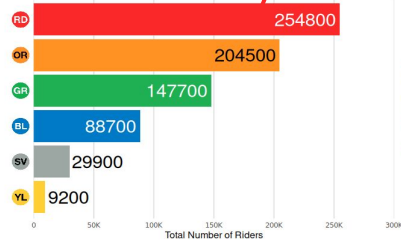
Spring 2024 D.C. Metro Ridership



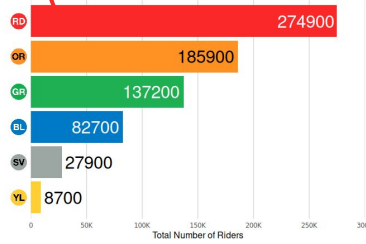
Winter 2024 D.C. Metro Ridership



Summer 2024 D.C. Metro Ridership



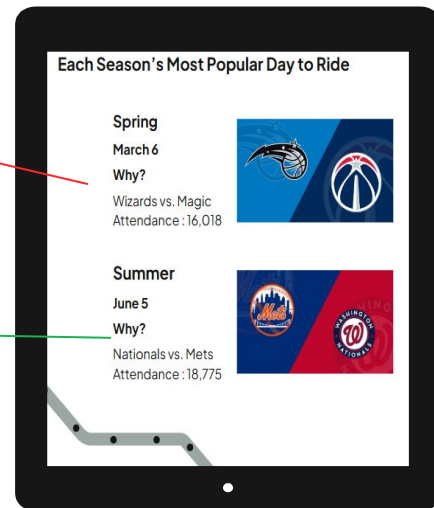
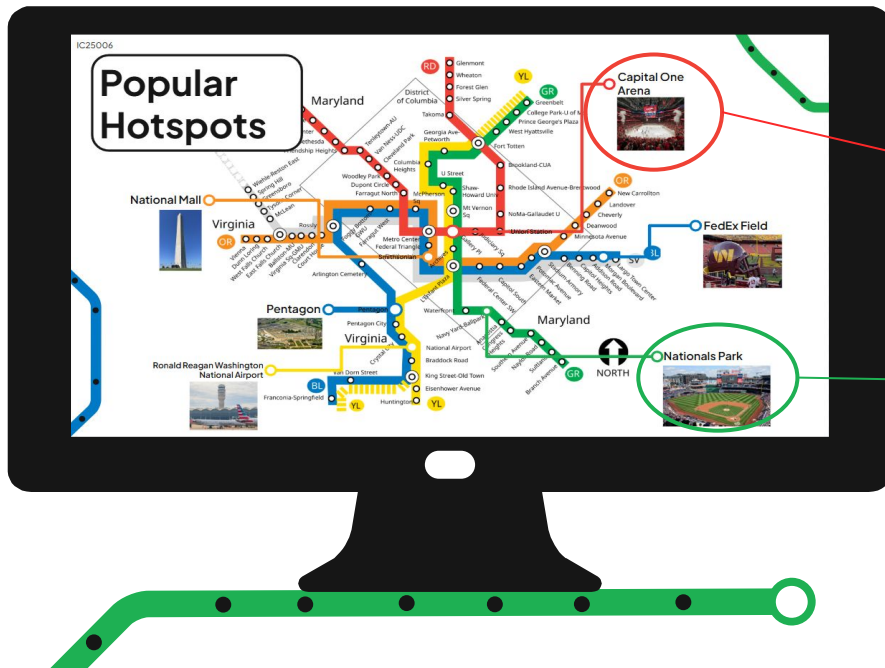
Fall 2024 D.C. Metro Ridership



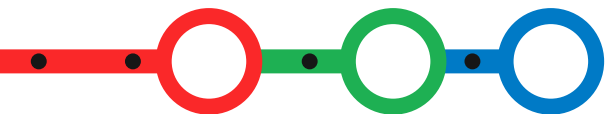
Conclusion

S

Outside of seasons and weather, home sports games are the greatest predictor of a crowded day of riding.



Thanks!



CREDITS: This presentation template was created by **Slidesgo**, and includes icons by **Flaticon**, and infographics & images by **Freepik**

Please keep this slide for attribution

