# DATA ANALYSIS
# NYC Subway Turnstile MTA Data

# OVERVIEW

## BACKGROUND

WomenTechWomenYes (WTWY): increase attendance to summer gala

## OBJECTIVE

Analyze MTA turnstile subway data to draw conclusion

## GOAL

Provide optimal subway locations for street teams to canvas

# OUR PROCESS

Import Data

Filter Data

Draw Conclusions

# OUR PROCESS

## IMPORT DATA

- Data scraped from MTA website (5 month period)
    - April 2021 - August 2021
    - http://web.mta.info/developers/turnstile.html

- Weather data collected from NOAA
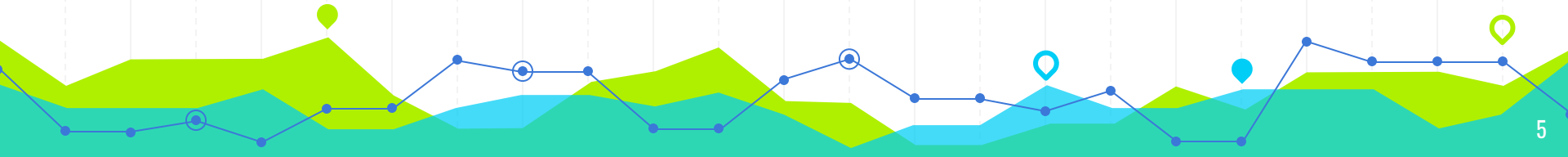    - https://www.ncdc.noaa.gov/cdo-web/search

## FILTER DATA

- Tools: SQLite3 & Python
    - Packages: SQLAchemy, Pandas, Folium, Geopy

- Remove specific dates & times
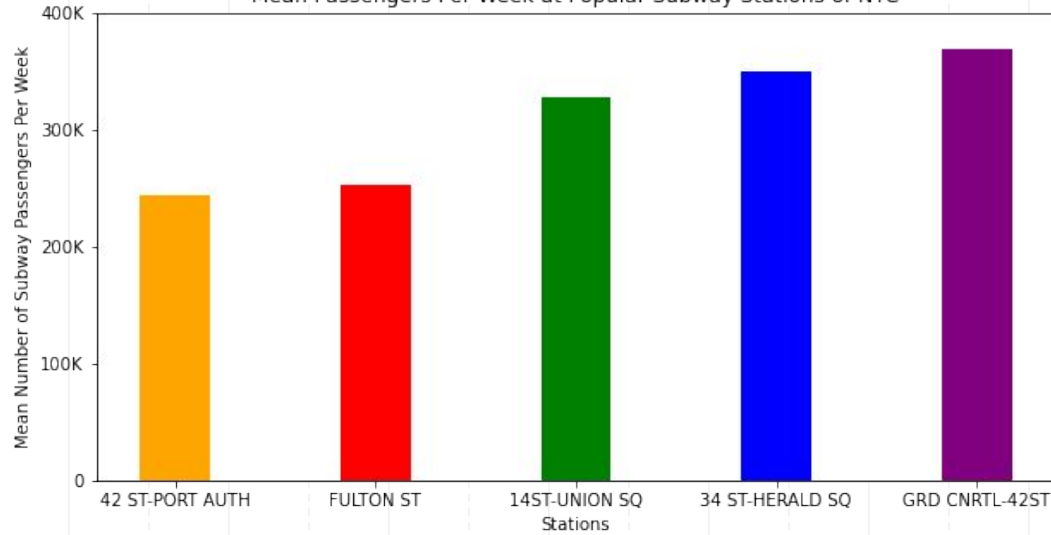    - SAT/SUN, 12:00am/4:00am

# OUR PROCESS

## DRAW CONCLUSIONS

- Average entries & exits @ each station per week

- Average entries & exits @ each station per day

- Average subway ridership in NYC per day by temp range

# RESULTS


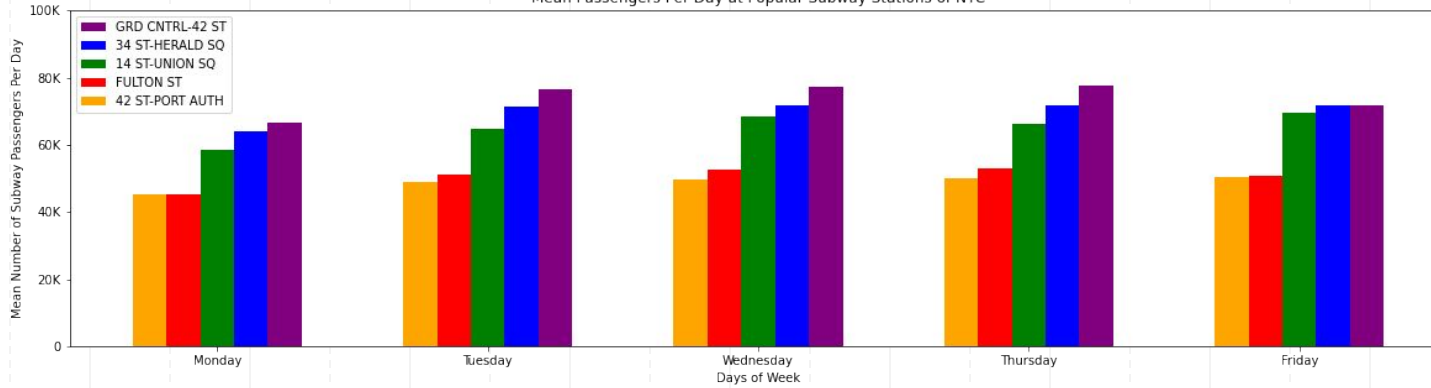Mean Passengers Per Week at Popular Subway Stations of NYC

## Average Riders Per Week

- **All station recommended**

| Station | Riders |
|---|---|
| Grand Central | 369,686 |
| Herald Square | 350,525 |
| Union Square | 327,813 |
| Fulton St | 252,711 |
| 42nd & Port Authority | 224,268 |

# RESULTS

Mean Passengers Per Day at Popular Subway Stations of NYC
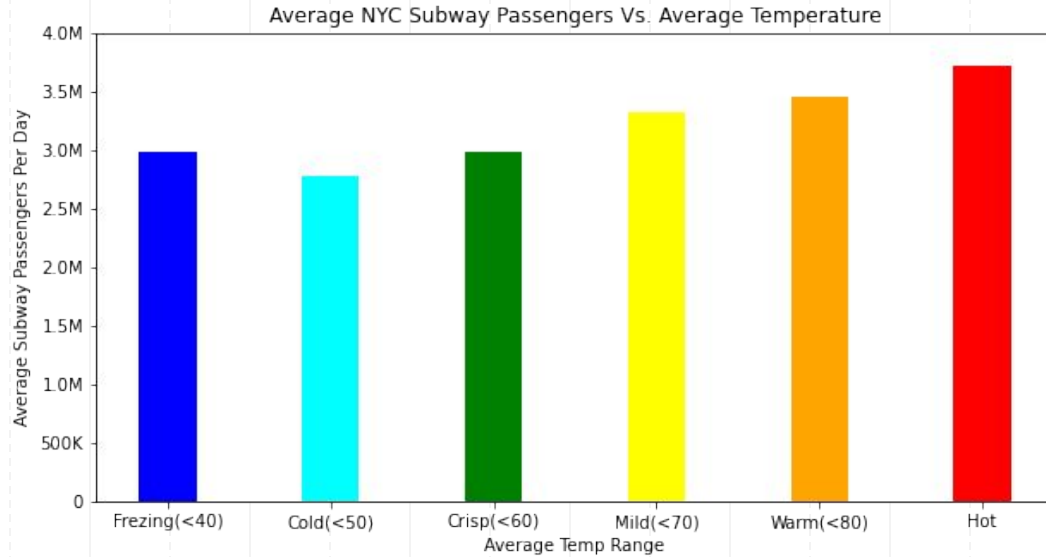


| Day | Riders |
|---|---|
| Wednesday | 319,441 |
| Thursday | 318,423 |
| Friday | 314,128 |
| Tuesday | 312,813 |
| Monday | 279,925 |

## Average Riders Per Day

- **Minimal variability in ridership by day**
  - **Recommend Wednesday**
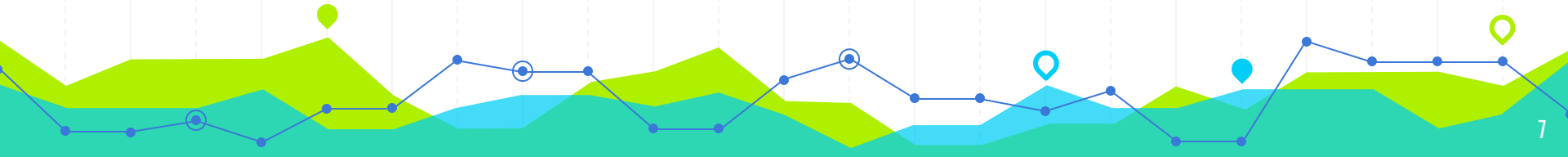
# RESULTS



Average NYC Subway Passengers Vs. Average Temperature

## Average NYC Subway Riders Per Day

- **Recommend warmer weather**

| Temp Range | Riders |
|---|---|
| Freezing(<40) | 2,983,087 |
| Cold(<50) | 2,785,460 |
| Crip(<60) | 2,990,172 |
| Mild(<70) | 3,320,742 |
| Warm(<80) | 3,460,349 |
| Hot | 3,720,107 |

# RECOMMENDATIONS

- **CANVAS AT FIVE MOST POPULAR STATION**

- **CANVAS ON A WEDNESDAY**

- **CANVAS DURING WARMER WEATHER**

# FUTURE WORK

- Parse data to find best four hour window to canvas

- Sort data based on area unit

- Bring in additional data sets
    - Demographic, College Location
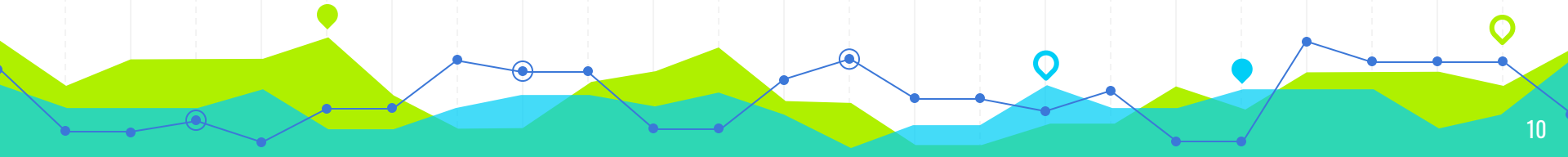
# THANKS!

**Any questions?**

# Popular NYC Subway Locations

| | |
|---|---|
| ■ | GRD CNTRL-42 ST |
| ■ | 34 ST-HERALD SQ |
| ■ | 14 ST-UNION SQ |
| ■ | FULTON ST |
| ■ | 42 ST-PORT AUTH |

| UNIQUE_ST | POPULATION |
|---|---|
| GRD CNTRL-42 ST 4567S | 369686 |
| 34 ST-HERALD SQ BDFMNQRW | 350252 |
| 14 ST-UNION SQ LNQR456W | 327813 |
| FULTON ST ACJZ2345 | 252711 |
| 42 ST-PORT AUTH ACENQRS1237W | 244268 |