

Exploratory Data Analysis:

VENDING MACHINES IN MTA STATIONS

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BACKSTORY

A small business owner Mr. and Mrs. Cooper are planning to install vending machines in MTA station in New York. The idea is to utilise the MTA data set to target the top 10 MTA station with maximum traffic in order to sell the most number of products. They have reached out to me to come up with solution for the top stations and identify the peak hours and weekdays for those particular station when the vending machines are needed to be refilled.



Data Used:

- 3 months of data from MTA Turnstile Data :
<http://web.mta.info/developers/turnstile.html>



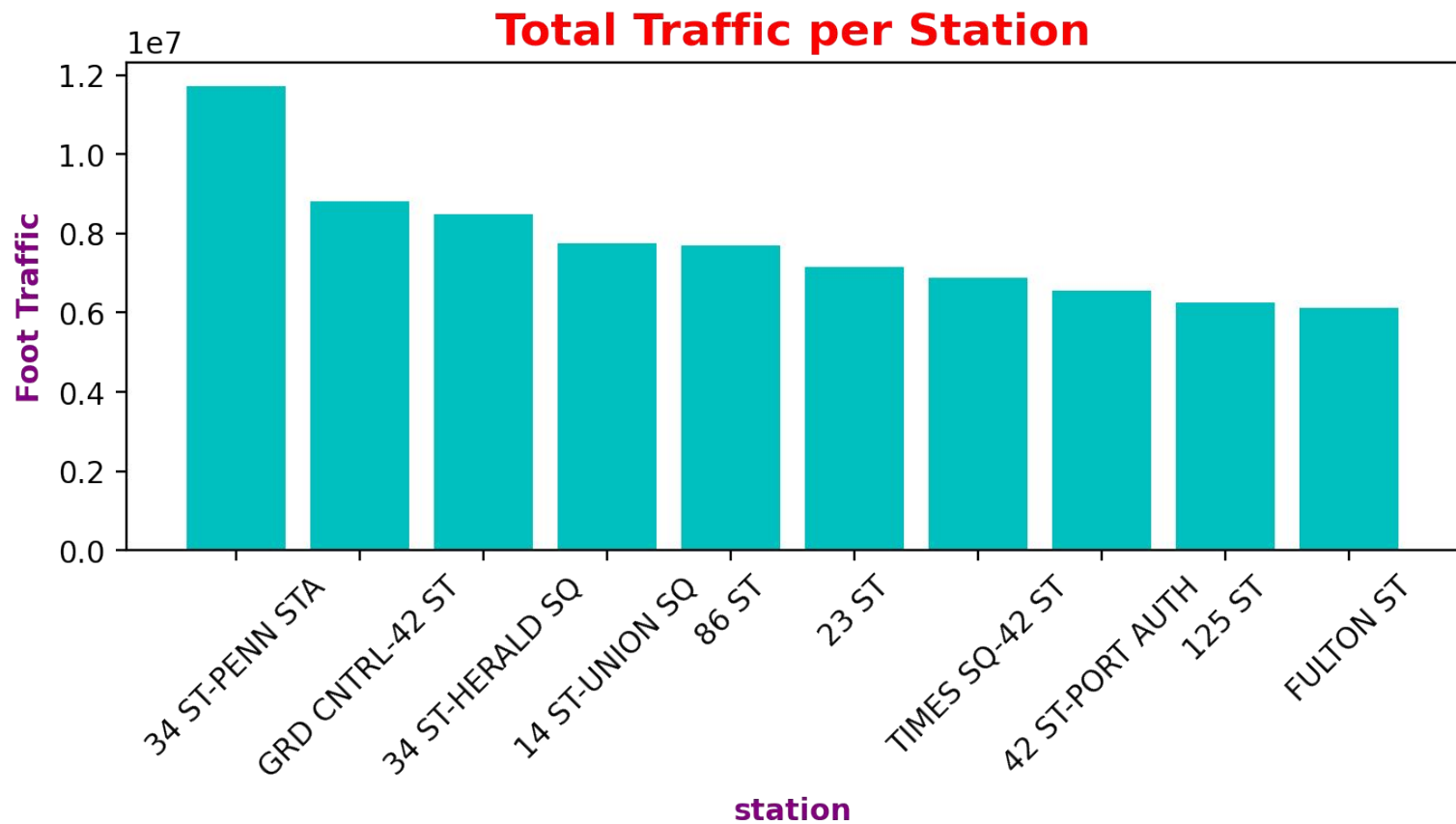
Ideal Stations:

Ideal refill times and day of week:



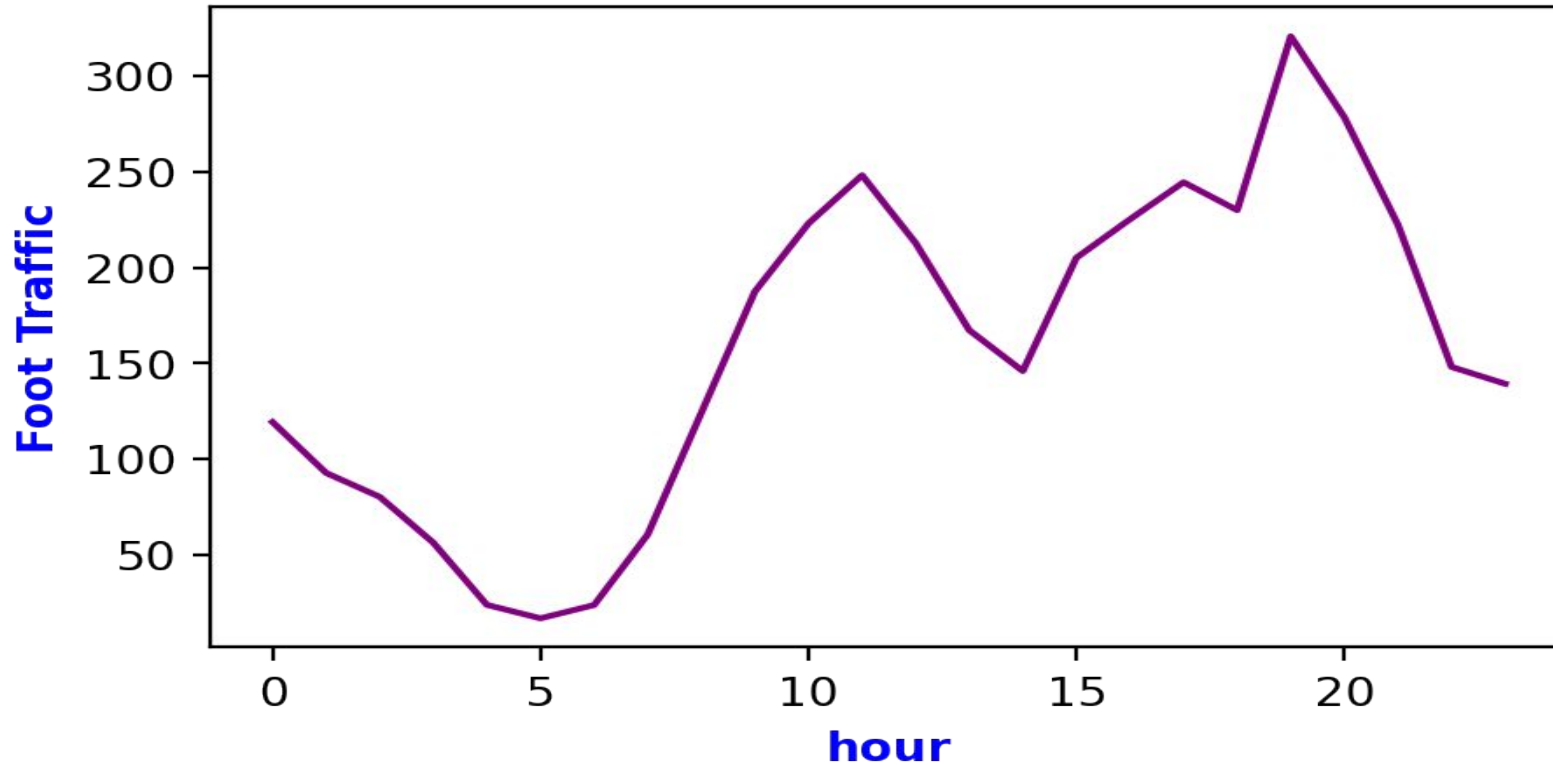
Factors Involved:

- lots of people entering and exiting the particular station
- Maximum foot traffic during peak hour.
- Maximum foot traffic during weekdays.



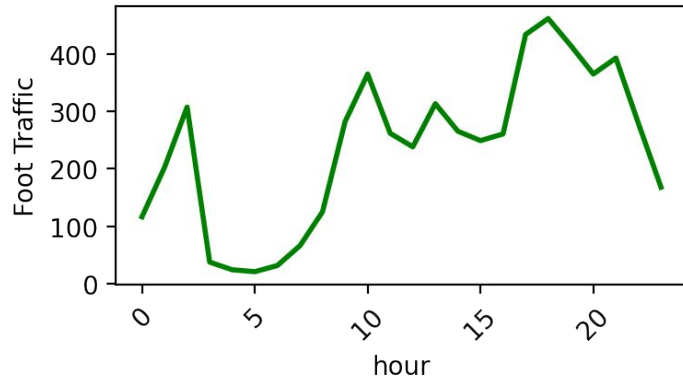
Top 10 stations with max foot traffic

Total Traffic per hour

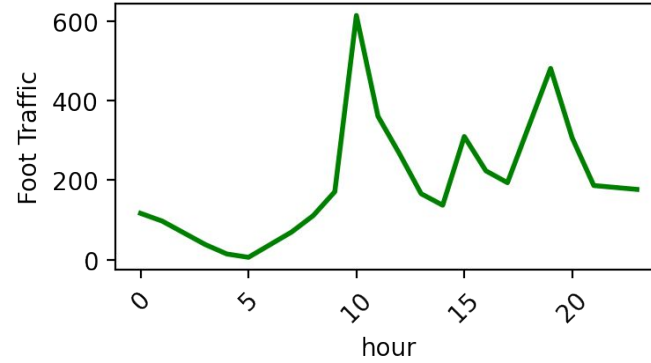


Hourly traffic over all the stations

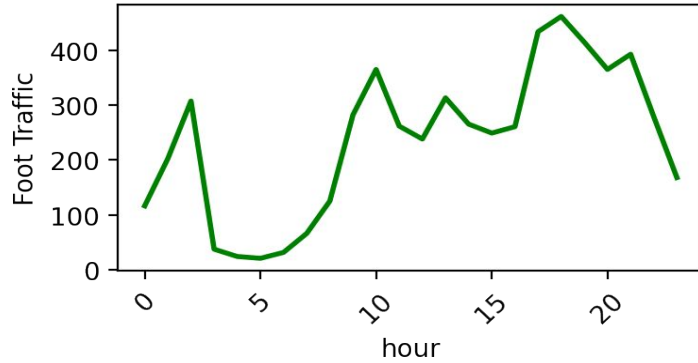
"34 ST-PENN STA" Station



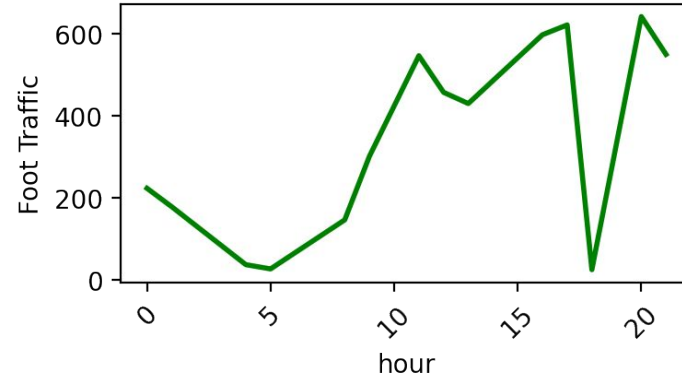
"GRD CNTRL-42 ST" Station



"34 ST-HERALD SQ" Station

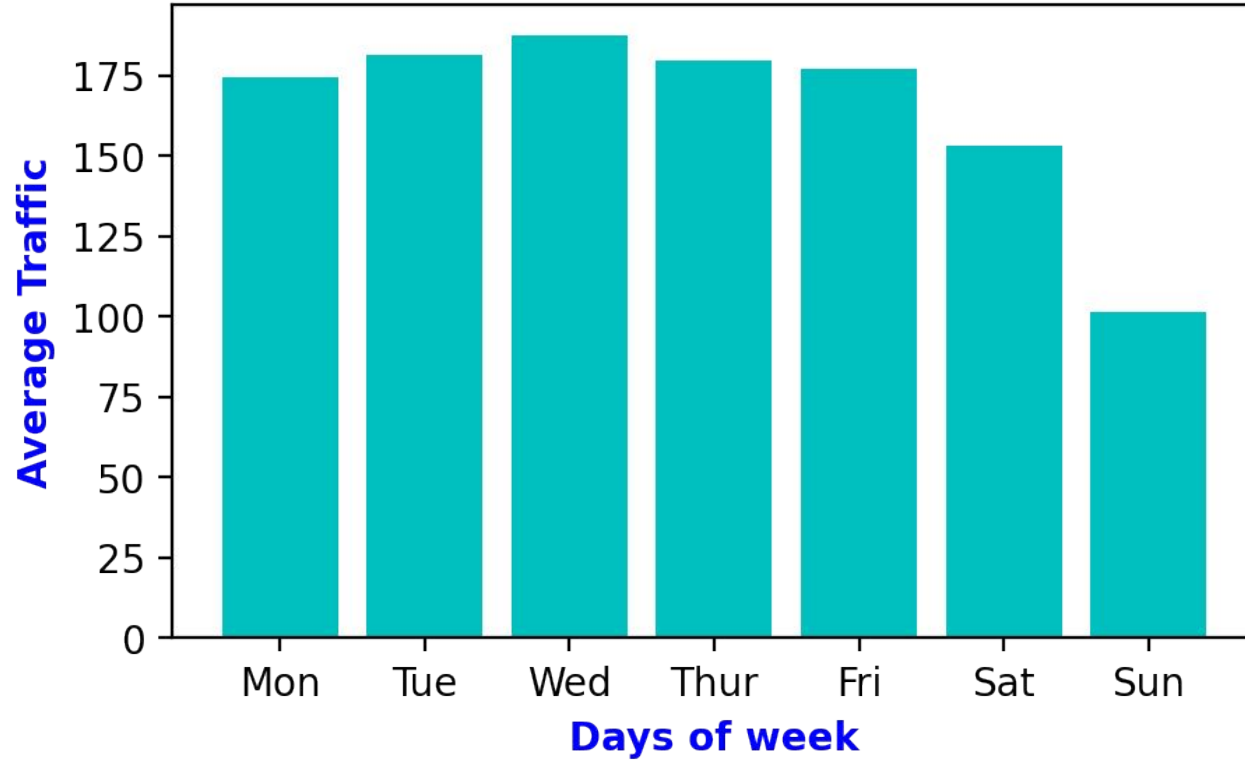


"14 ST-UNION SQ" Station



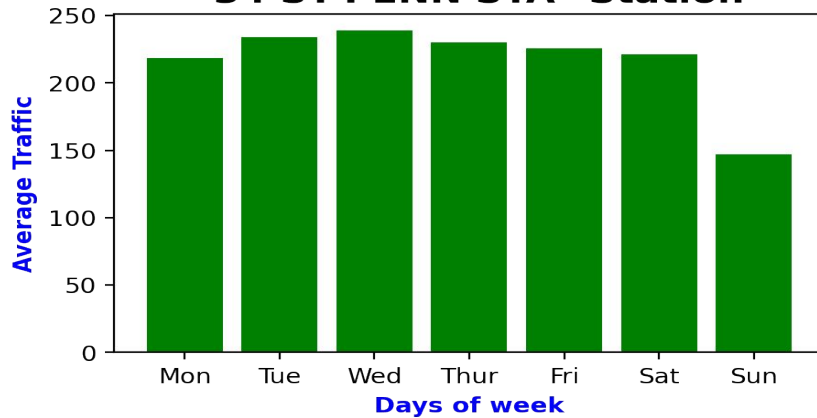
Top 4 station with foot traffic vs peak hours

Total Traffic per week day

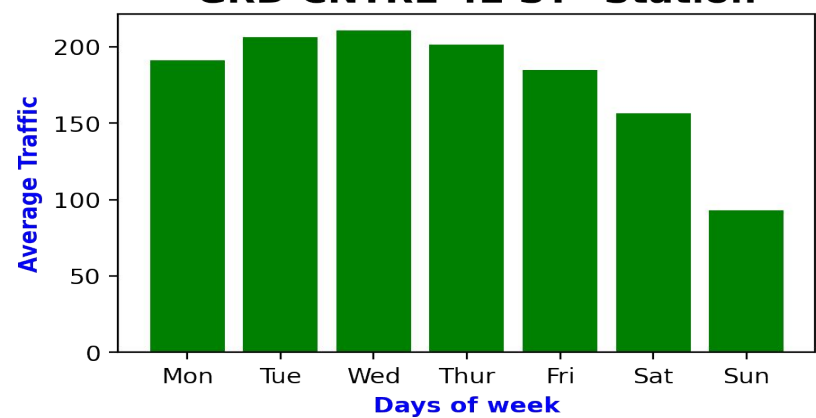


Total traffic for all station over the week days

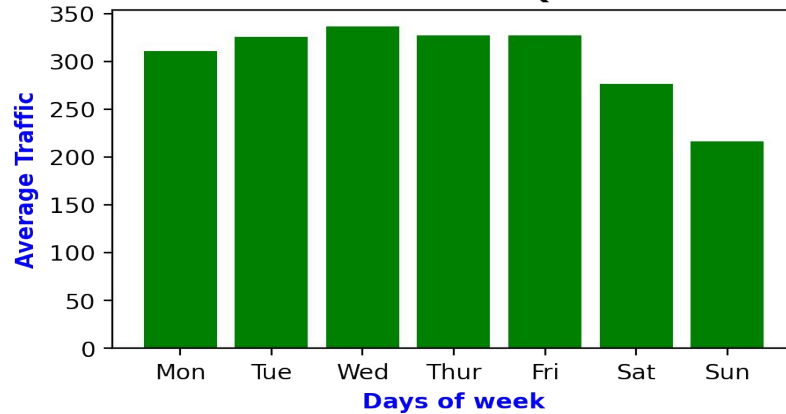
"34 ST-PENN STA" Station



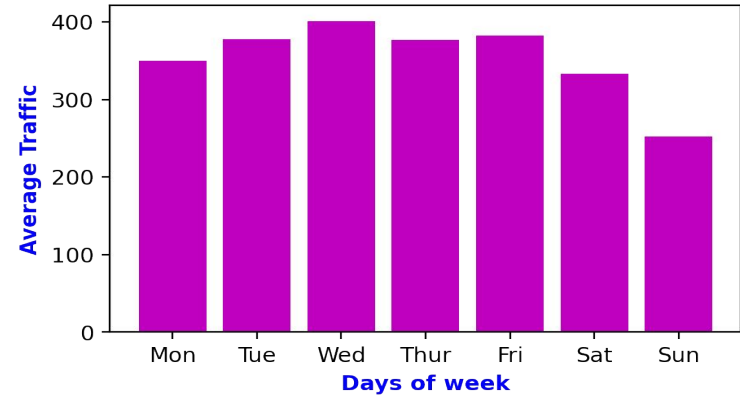
"GRD CNTRL-42 ST" Station



"34 ST-HERALD SQ" Station



"14 ST-UNION SQ" Station



Top 4 station with foot traffic vs day of week

Conclusion and Further Analysis

- The Ideal top station for installing the vending machine would be
 - 34 ST-PENN STA ,GRD CNTRL-42 ST, 34 ST-HERALD SQ, 14 ST-UNION SQ, 86 ST, 23 ST, TIMES SQ-42 ST, 42 ST-PORT AUTH, 125 ST, FULTON ST
- After analyzing the above hourly graph the refilling the stock timing in the Vending Machine would be before 7am and before 4pm
- The most busiest weekdays were wednesdays and tuesday to refill on the regular basis

Further analysis will include:

Type of product to be filled in the vending machine based on the neighbourhood commuters food eating habits.