Canal Street Small Business Association: post pandemic advertising strategies
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Abstract

The goal of this project is to provide insights to the Canal Street Small Business Association (CSSBA) regarding advertising and promotion strategies post the Covid pandemic. As a preliminary step, we analyzed NYC MTA subway turnstile data for the Canal Street station for the period September through November 2019 vs. 2021 to gain insights into overall traffic and population movement patterns. We picked the September through November period because it provides the latest data, relatively free of summer or holiday season distortions, and compared it to the last equivalent pre-Covid period in 2019.

Design

Since the effectiveness and cost of promotions and advertising is driven by reaching target audiences during peak days and hours, we had to analyze the available data at the most granular time intervals available. Since our clients are small local businesses, we also had to analyze the data in as much localized detail as possible.

Data

Data cleaning and analysis was first performed on a month of data from 2021. Several SQL Alchemy queries were used for preliminary exploration. Then the full September to November 2021 data was ingested, cleaned, and analyzed. Several anomalies such nonsensically large numbers or negative entries were analyzed and addressed. Net entries plus exits were calculated as a measure of total traffic. A workflow and process were defined for tackling this data so that future analysis will be more efficient and easily delegated.

The final output was a grouped summary data-frame which was exported to a csv file for import into Tableau. The same process was repeated in a separate notebook for 2019. The summary output from the 2019 and 2021 notebooks was combined into a third notebook named "mta_all_final". The combined result was again output to csv for use in Tableau.

Note: For both 2019 and 2021, this station is missing usable data for Saturdays for the 4hr interval ending at 00:00:00 (midnight).

Models
The most illuminating "models" were box plots of the data broken down by line-name, weekday, and time interval. Very clearly showed changes in traffic patterns and spread pre and post pandemic and implications for advertising/promotion spending and strategy.

Tools
- Pandas, Numpy, Seaborne, Matplotlib
- SQL Alchemy
- Tableau
- Power Point

Communication
- Tableau for generating plots
- Power Point for composing presentation