

ADVERTISING NYC'S ELECTRONICS DROP-OFF BOXES TO MTA RIDERS

A Project in Exploratory Data Analysis for Metis by Maira Asmat

THE PROBLEM. . .

01

Throwing electronics into landfills harms the environment and public health, and is illegal

02

There are approximately 90 electronics drop-off boxes in NYC – and there is 60% less e-waste as of 2018

03

How can the city advertise the boxes at metro stations while preventing overflow?

04

Find the areas where the ratio of subway traffic to amount of bins is low

ASSUMPTIONS

A

Every person has electronics they need to drop off, especially those near home

B

Higher activity = more people in that area

C

There are no tourists riding the metro

D

The upward trend of populating boxes will continue into 2022 at least

E

these physical boxes are only emptied once a day

F

the daily trends i have found continue year-round among NYC residents



MTA Turnstile Data

<http://web.mta.info/developers/turnstile.html>



NYC Drop-off Boxes

<https://data.cityofnewyork.us/Environment/Electronics-Drop-Off-Locations-in-NYC-Map-/9wzr-uhik>



MTA Station Zip Codes

[Created by Kalu Uga](#)

PROJECT WORKFLOW

CREATED MTA CSV

Used data from Jan-March 2019

CLEANED MTA DATA

Final table showed total entries/exits per station

JOINED ALL DATA

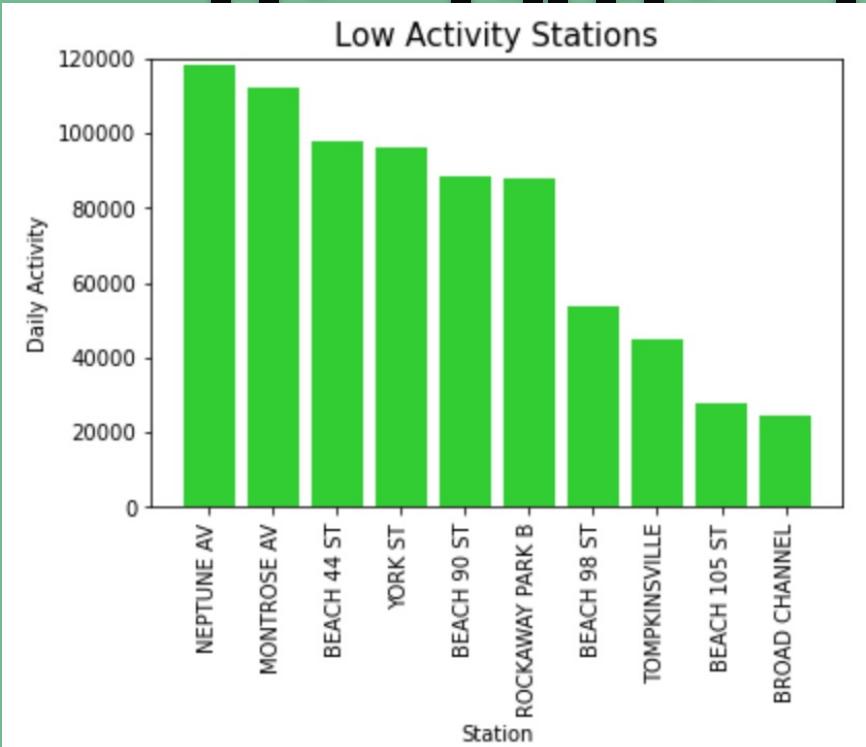
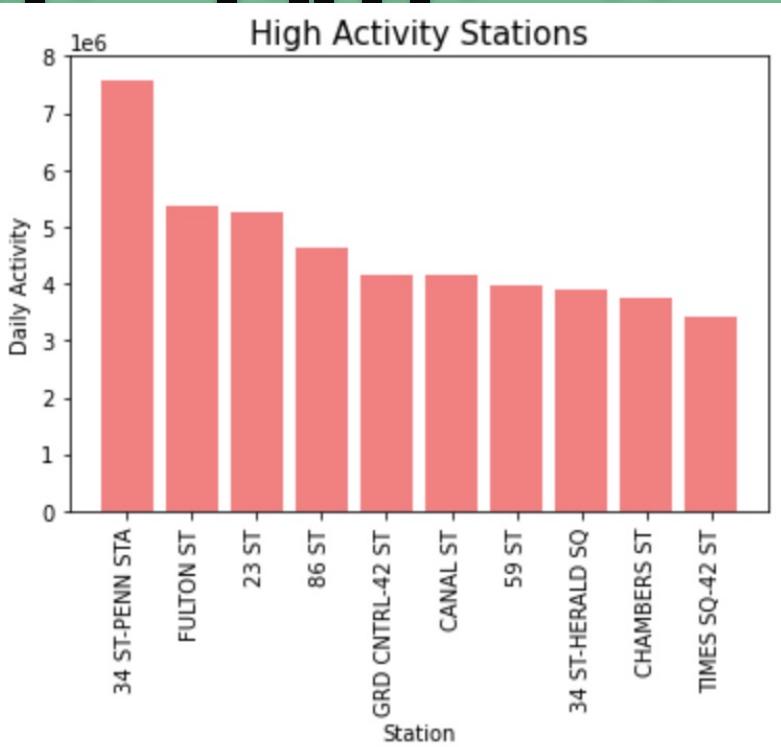
Joined activity and both zip code tables in SQL

ANALYZED ALL DATA

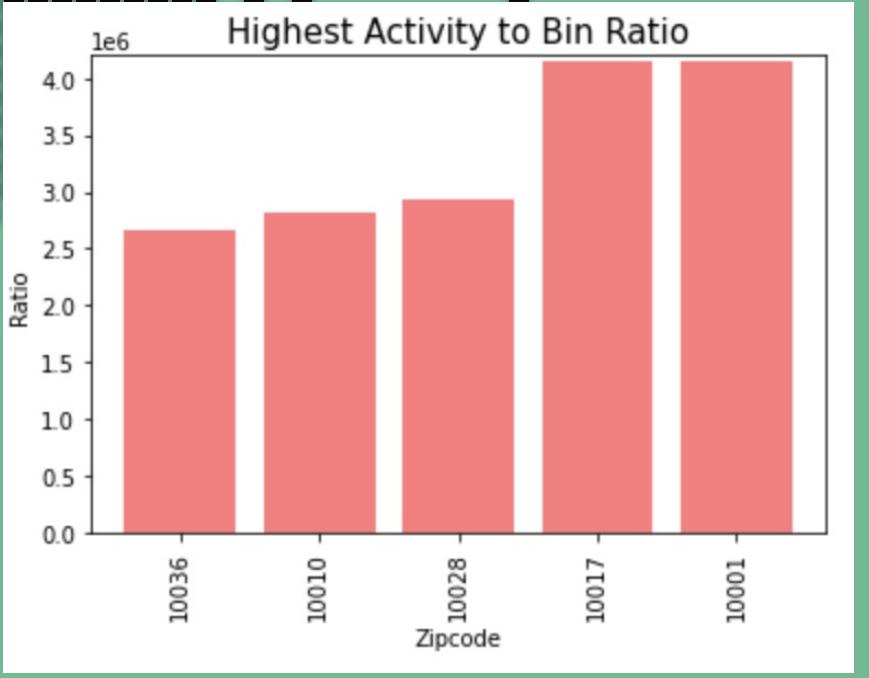
Grouped bins and activity by zip code and found ratio

CREATED PLOTS

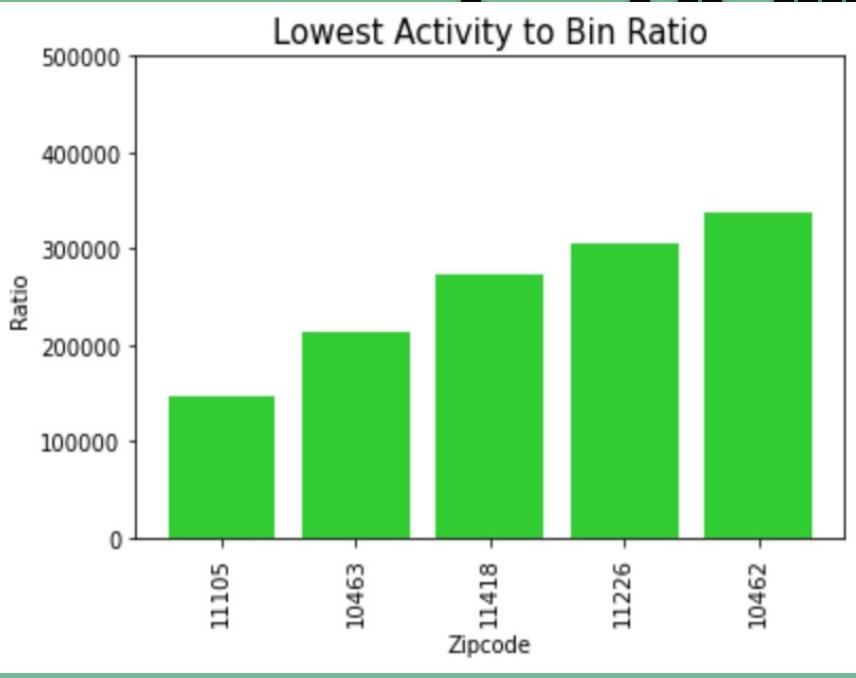
Used matplotlib and seaborn



Stations near the hub of the city, with workplaces and landmarks, tend to have higher activity.



Includes: **34 ST-Penn Station, 34 ST-Herald Sq, 34 ST-Hudson Yd, 42 ST-Grand Central, 86 ST, 23 ST, 42 ST-Times Sq**



Includes: Astoria Ditmars, 231 ST, Marble Hill-225, 238 ST, Jamaica Van WK, 121 ST, Newkirk Plaza, Beverly Rd

CONCLUSIONS AND FUTURE WORK

- The best areas to advertise the boxes are in zip codes 11105, 10463, 11418, 11226, 10462
- Particularly Astoria Ditmars, 231 ST, Marble Hill-225, 238 ST
- Stations with lower activity did **not** tend to have lower ratios
- Use a larger time-frame
- Determine where the zip codes of the low activity stations fall
- Further contextualize the stations to better understand activity levels and advertising power