Valentina Rizzati

MVP | The launch of Spotify KIDS

27th April 2021

1. INTRODUCTION

For the launch of the new product Spotify KIDS, the marketing team asked for my support in prioritizing the areas where to run the Out-Of-Home (OOH) campaign so as to ensure we run a profitable (i.e. positive ROI defined as customer campaign value / marketing cost) marketing campaign.

The target for the campaign is:

- a. Geographic:
    - i. MTA stations in NYC (five boroughs)
- b. Demographic:
    - i. Average Age > 30
    - ii. Average Household income > $90k
    - iii. Average Persons per Household > 2

Because of the limited amount of marketing budget available for the campaign, the main goal of the Marketing team is to run an efficient marketing team, without overspending on the same individual. Therefore, I have decided to base my prioritization on the volume of unique individuals (*UNIQUE_TRAFFIC* in the analysis) instead of the volume of impressions (*TOTAL_TRAFFIC* in the analysis). Hence, *UNIQUE_TRAFFIC* is the KPI I will optimize my model for.

2. PROCESS

2.1 FILTER NEW YORK NEIGHBOURHOODS BASED ON CENSUS DATA

As a first step, I have extracted age, income and persons per household data from the Census database.

The geographical level of aggregation is Public Use Microdata Areas (PUMAs). There are 55 PUMAs in the five boroughs of NYC.

The data has been extracted for the year 2019.

I have then identified which PUMAs fall into the target for the OOH campaign based on the age, income and household size criteria provided by the Marketing team.

See the table and three bar charts representing the PUMAs in target below.

	PUMA	AVG_AGE	AVG_PERSONS_HOUSEHOLD	AVG_HOUSEHOLD_INCOME	IN_TARGET
20	NYC-Staten Island Community District 3--Tottenville, Great Kills & Annadale PUMA; New York	40.199216	2.610094	114466.988500	YES
21	NYC-Staten Island Community District 2--New Springville & South Beach PUMA, New York	41.665055	2.629408	109321.873700	YES
23	NYC-Brooklyn Community District 1--Greenpoint & Williamsburg PUMA, New York	35.148875	2.231105	119603.896700	YES
27	NYC-Brooklyn Community District 6--Park Slope, Carroll Gardens & Red Hook PUMA; New York	37.341553	2.240369	190640.735300	YES
28	NYC-Brooklyn Community District 8--Crown Heights North & Prospect Heights PUMA, New York	37.556544	2.082794	91788.768770	YES
31	NYC-Brooklyn Community District 18--Canarsie & Flatlands PUMA, New York	40.056227	2.581528	90082.101790	YES
35	NYC-Brooklyn Community District 10--Bay Ridge & Dyker Heights PUMA; New York	41.135425	2.354281	90954.328810	YES
44	NYC-Queens Community District 11--Bayside, Douglaston & Little Neck PUMA; New York	43.431911	2.406867	99957.402150	YES
45	NYC-Queens Community District 13--Queens Village, Cambria Heights & Rosedale PUMA; New York	42.245283	2.864101	103646.073300	YES
53	NYC-Queens Community District 10--Howard Beach & Ozone Park PUMA, New York	41.656728	2.778062	98921.659610	YES

Top 10 PUMAs by age, household size and income

Top 10 PUMAs by age

Top 10 PUMAs by average persons per household

Top 10 PUMAs by average household income
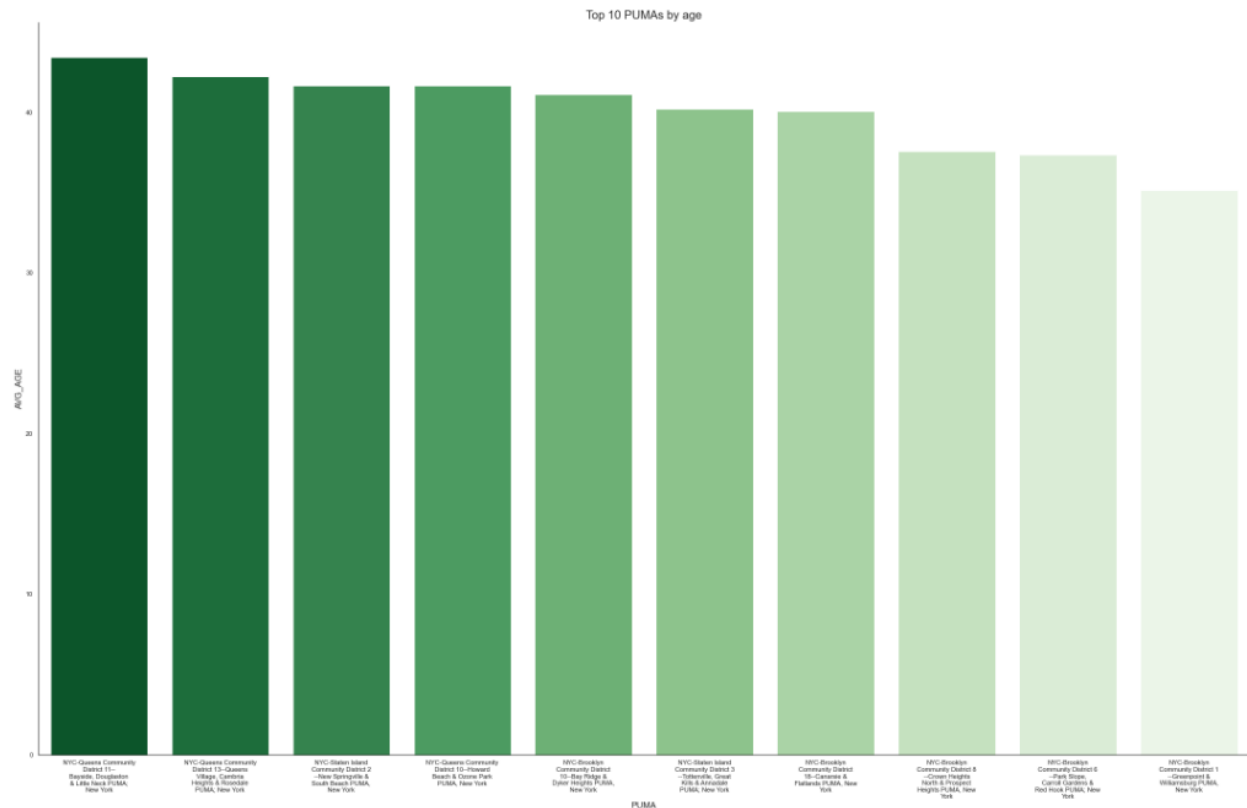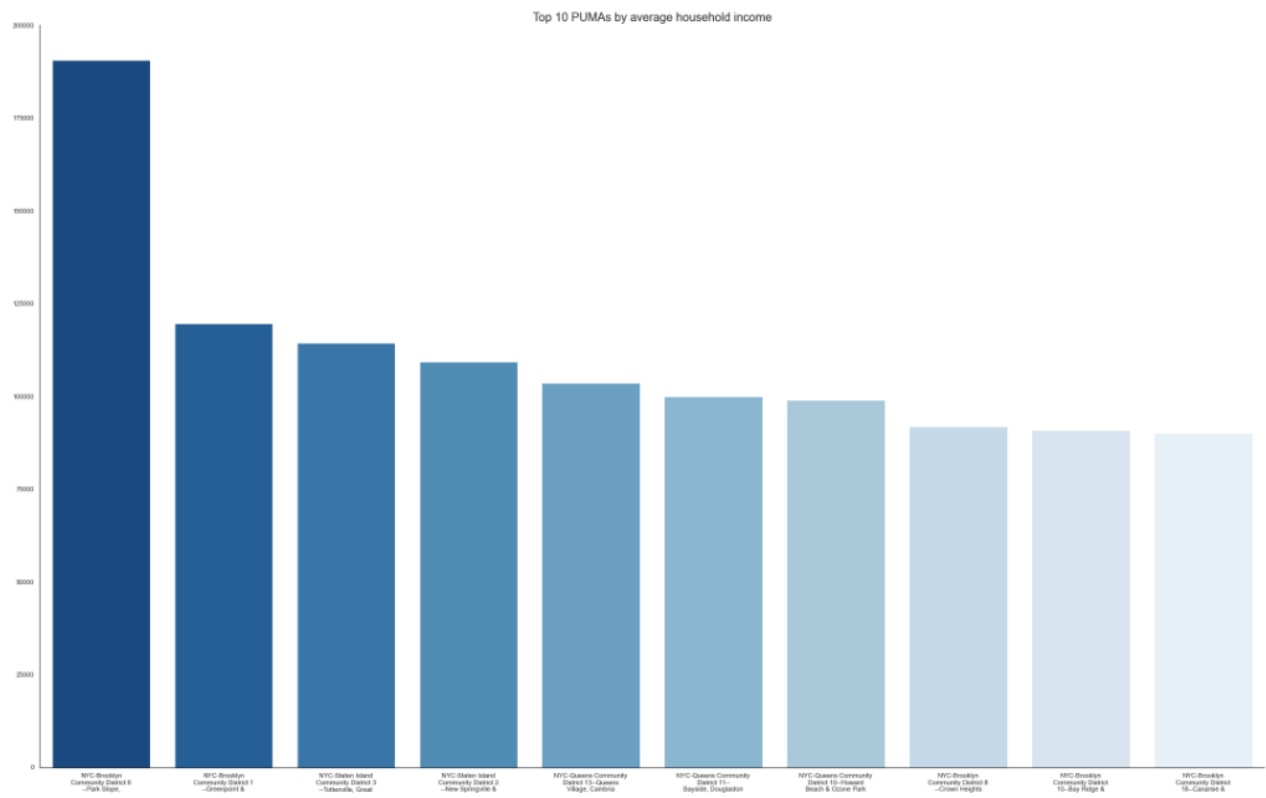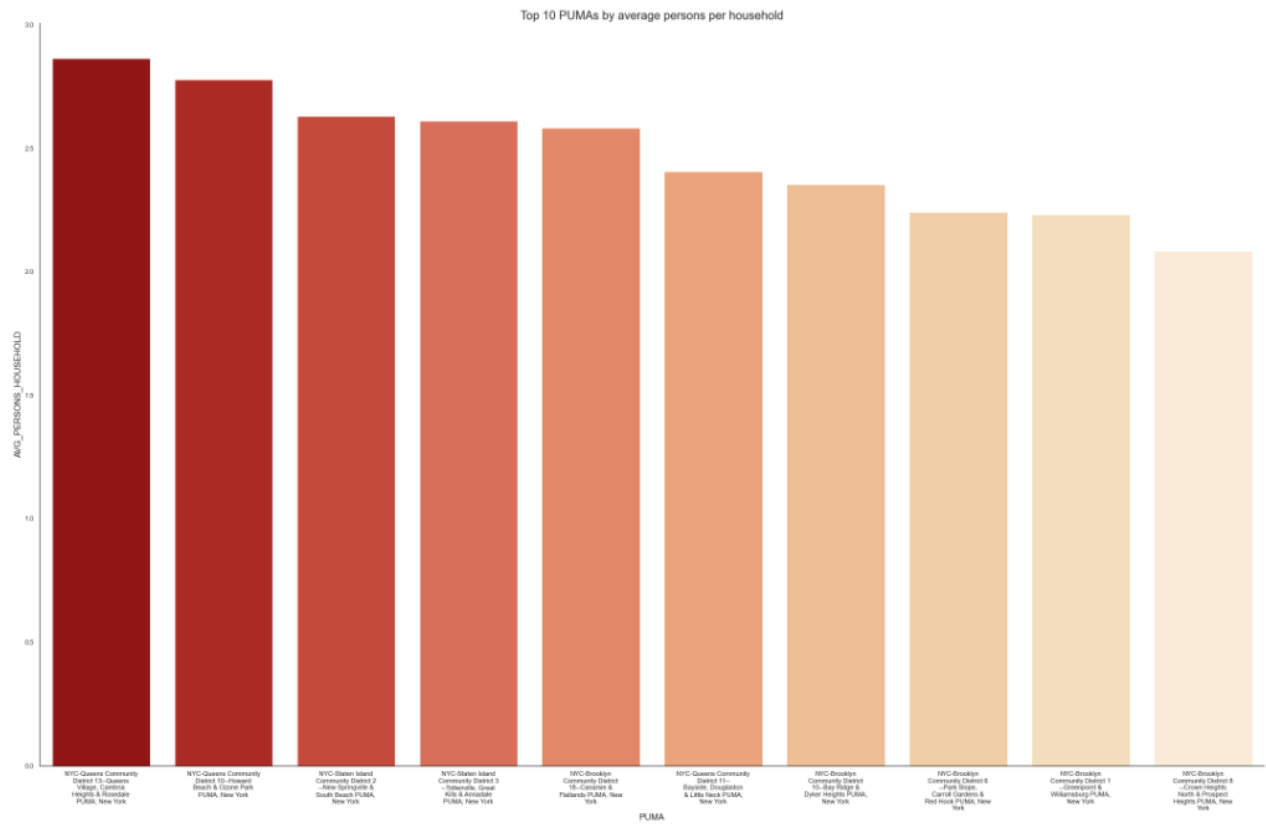
2.2 FILTER MTA STATIONS BY UNIQUE TRAFFIC

From the [MTA website](#), I have extracted data about cumulative entries and exits for every MTA turnstile in NYC for a period of 12 weeks (January 2nd 2021 to March 27th 2021).

Because of the above-mentioned efficiency constraint, the data has been manipulated to obtain the main KPI or UNIQUE_TRAFFIC (formula below).

UNIQUE_TRAFFIC = DAILY_ENTRIES + DAILY_EXITS - COMMUTERS

The MTA stations have been ranked by UNIQUE_TRAFFIC. See the ranking of the first 30 below.

|	STATION	UNIQUE_TRAFFIC	TRAFFIC_LEVEL_UNIQUE_TRAFFIC
61	34 ST-PENN STA	2340203.200000	HIGH
59	34 ST-HERALD SQ	2043914.000000	HIGH
233	GRD CNTRL-42 ST	1847698.800000	HIGH
352	TIMES SQ-42 ST	1759209.200000	HIGH
9	125 ST	1691250.400000	HIGH
110	86 ST	1659364.800000	HIGH
314	PATH NEW WTC	1643360.400000	HIGH
68	42 ST-PORT AUTH	1503904.400000	HIGH
14	14 ST-UNION SQ	1433459.200000	HIGH
86	59 ST COLUMBUS	1408918.000000	HIGH
85	59 ST	1362221.600000	HIGH
46	23 ST	1349814.000000	HIGH
125	ATL AV-BARCLAY	1328484.400000	HIGH
226	FULTON ST	1298826.400000	HIGH
217	FLUSHING-MAIN	1229096.800000	HIGH
115	96 ST	1153869.600000	HIGH
0	1 AV	1119579.600000	HIGH
257	JKSN HT-ROOSVLT	1082080.800000	HIGH
173	CANAL ST	1069887.600000	HIGH
258	JOURNAL SQUARE	984659.000000	HIGH
192	CORTLANDT ST	880972.800000	HIGH
183	CHURCH AV	876651.600000	HIGH
95	7 AV	834842.900000	HIGH
308	OCEAN PKWY	828506.300000	HIGH
13	14 ST	827061.600000	HIGH
24	168 ST	801672.800000	HIGH
15	145 ST	799536.800000	HIGH
137	BAY PKWY	796273.200000	HIGH
97	72 ST	783606.400000	HIGH
252	JAMAICA CENTER	757420.000000	HIGH

Top 30 MTA stations by unique traffic
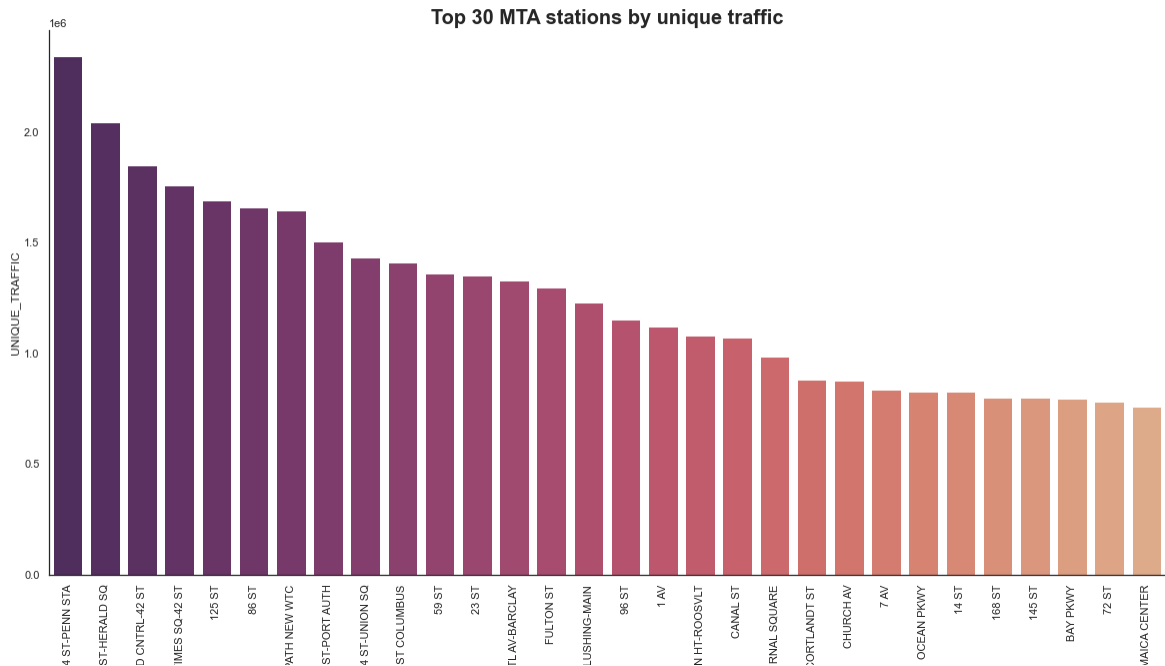
2.3 MAP THE STATIONS AND PUMAS

As a last step, I have used Google Maps API to map the MTA stations and assign a different color by traffic level:

- Green = HIGH
- Yellow = MEDIUM
- Red = LOW

See a preliminary version of the MTA map below.
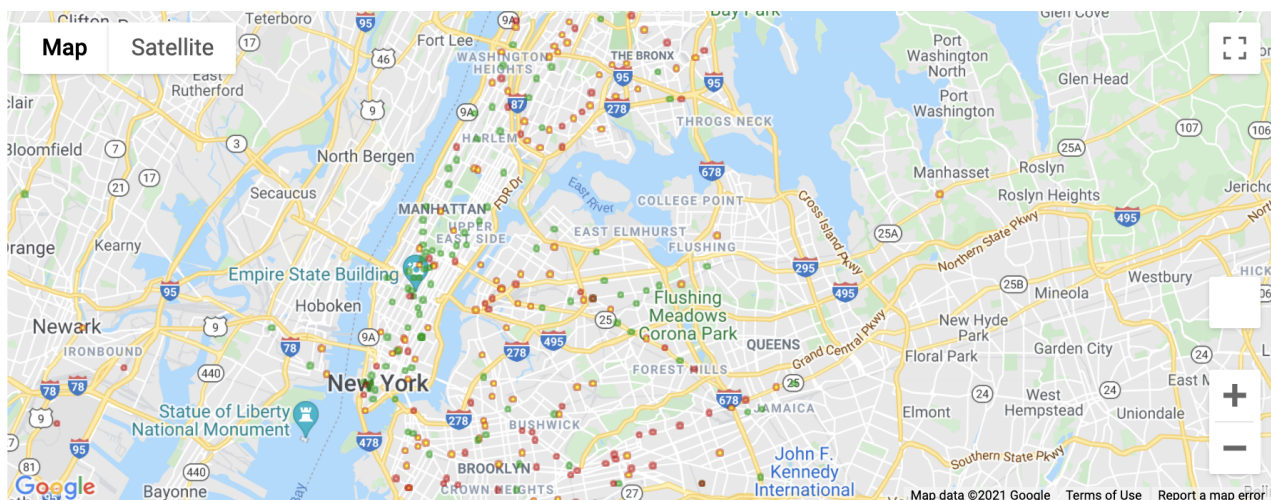
3. NEXT STEPS

To complete this first version of the project, what needs to be done is:

- Clean the code in Jupyter Notebook
- Clean the Google Maps of MTA stations since the geocode method did not work for some stations and rendered the wrong latitude and longitude
- Provide a map of PUMAs in target for the OOH campaign
- Provide a preliminary decision about the MTA stations to run the campaign at, by comparing and cross-referencing the ranking of MTA stations ranking and the PUMAs ranking