



AN ANALYSIS OF CURRENT INVENTORY IN:
NEW YORK CITY

SCOPE OF PROJECT

- Spreadsheet with 48,895 Listings
- 16 Data Points Per Listing
- TASK: **Exploratory Analysis**
 1. Formulate questions & hypotheses
 2. Answer these with multiple tools
 - Visualizations
 - Statistical Analysis (including p-value tests)
 - Query-based insights (SQL)
 3. Identify trends & areas of concern
 4. Establish relationships between variables

DATA POINTS

Listing ID
Name
Host ID
Host Name
Borough (Neighborhood Group)
Neighborhood
Latitude
Longitude
Room Type
Price
Minimum Nights
Number of Reviews
Last Review Date
Reviews Per Month
Number of Listings per Host
Availability (Last 365 Days)

AVAILABILITY

Do we really have 48,895 listings in New York City?

Are these claims supported?

- The majority of listings (75%) are available
- Of the Active Listings, 50% of them are available at least 183 days (50% of Year)

ACTIVE VS. INACTIVE

CLAIM 1: Majority of Listings (75%) are Available

Result of Hypothesis Test: Claim rejected with 95% confidence

Unexpectedly, a higher proportion of listings are not available.

What IS available?

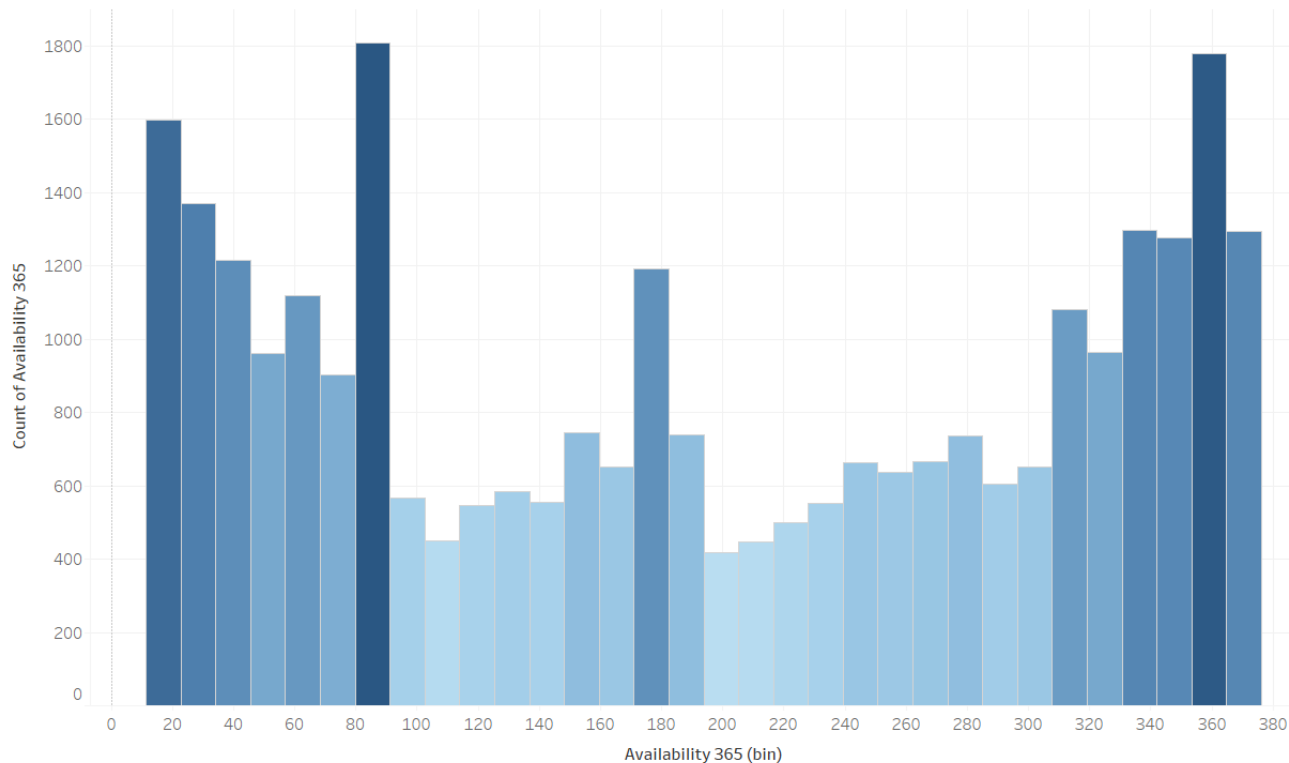
Status	Number of Listings	% of Total
Active (Available 1+ Days)	31,362	64%
Inactive (Available 0 Days)	17,533	36%
TOTAL	48,895	100%

HOW AVAILABLE IS A LISTING?

CLAIM 2: 50% of active are available 50+% of Year (183 days)

Result of Hypothesis Test: Claim rejected with 95% confidence

Less than 50% of active listings are available half the year



Availability	Listing Count	% of Total
Less Than Half the Year (1-182)	17,052	54%
More Than Half The year (183-365)	14,310	46%
TOTAL ACTIVE	31,362	100%

COMPARING LEVELS OF AVAILABILITY

Define Attribute: Availability Level

Availability (Days)	Attribute: Availability Level
0	Inactive
1 -182 (Less than 50% Year)	Low Availability
183 - 365 (More than 50% Year)	High Availability

Proportion of Total Listings

Attribute: Availability Level	Listing Count (Source: SQL)	% of Total
Inactive	17,533	36%
Low Availability	17,052	35%
High Availability	14,310	29%
TOTAL	48,895	100%

YES, ONLY 29% OF OUR TOTAL
LISTINGS ARE AVAILABLE AT LEAST
HALF THE YEAR.

LOCATION

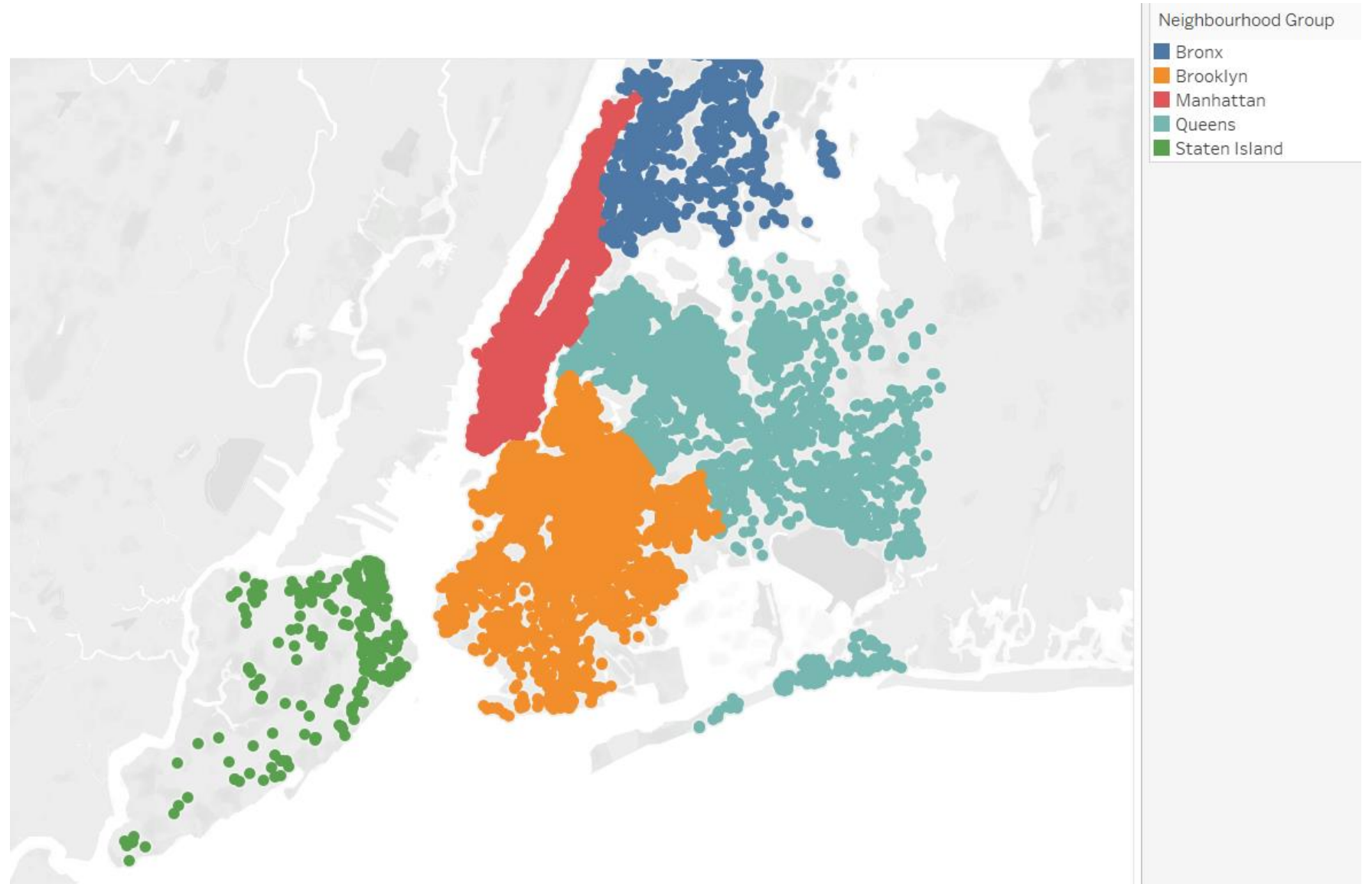
Do we have listings in all 5 boroughs?

Are these claims supported?

- Manhattan has a higher average price, listing count, and neighborhoods represented than any other borough. It is the preferred borough for hosts.
- Is the most popular neighborhood in each outer borough next to Manhattan?

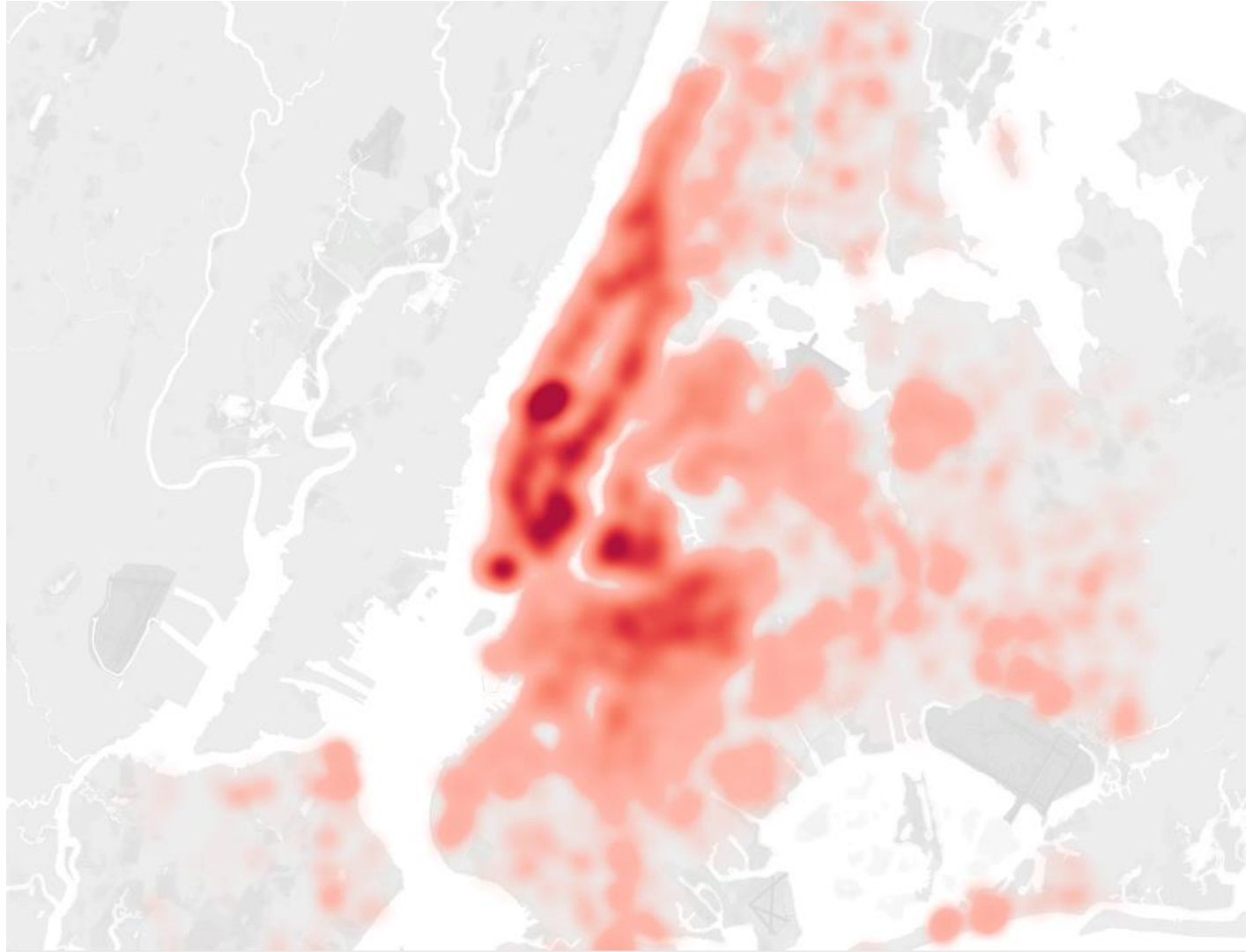
ARE ALL 5 BOROUGHS REPRESENTED?

YES



ARE BOROUGHES REPRESENTED EVENLY?

NO



DISTRIBUTION OF BOROUGHES

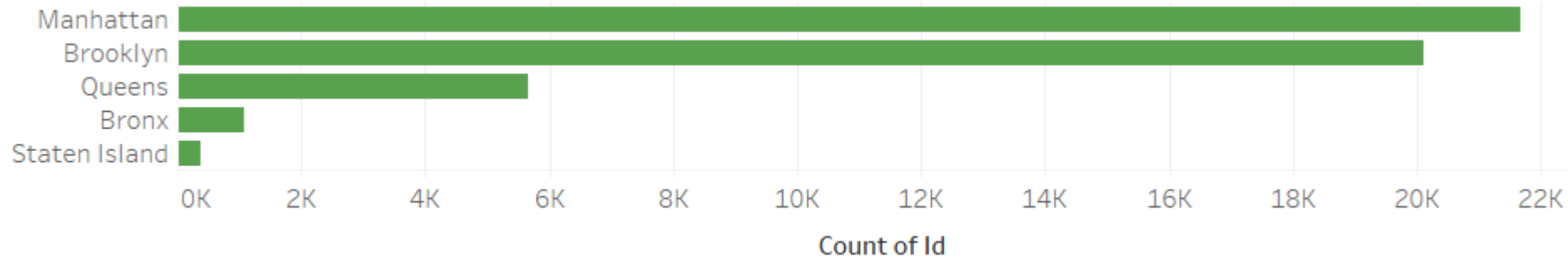
What is the proportion of each borough to total active listings?

Borough	Number of Listings (Source: SQL)	% of Total
Manhattan	13559	43%
Brooklyn	12260	39%
Queens	4298	14%
Bronx	914	3%
Staten Island	331	1%
TOTAL	31362	100%

Manhattan has 43% of all active listings, despite being the smallest borough, and 82% are in Manhattan or Brooklyn. Queens is the largest and only holds 14%.

MANHATTAN VS. OUTER BOROUGHES

Does Manhattan have **more listings** than other boroughs?



YES

CLAIM: Manhattan has a higher **average price**

Result of Hypothesis Tests: Testing supports the alternative claim that Manhattan's average price is higher than each borough with 95% confidence.

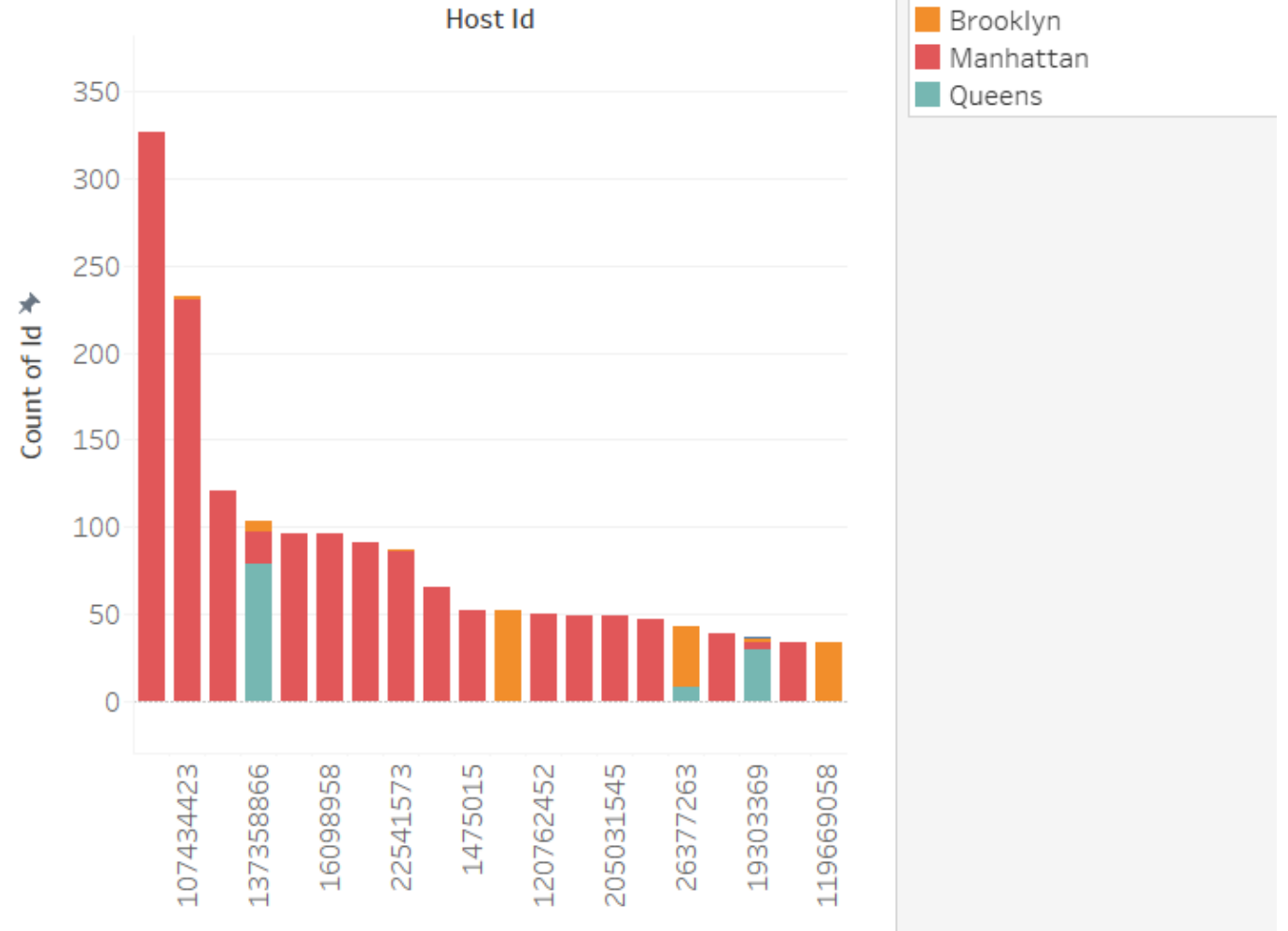


IS IT PREFERRED BY HOSTS?

YES, but note the following:

- 1) The top hosts by listing count tend to specialize in a borough
- 2) That borough is not always Manhattan.

Top 20 Hosts by Listing Count



ARE MANHATTAN NEIGHBORHOODS MORE POPULAR?

YES, but not by much.

4 of the Top 10 most popular neighborhoods are in **Brooklyn**, including the Top 2

Top 10 Neighborhoods by Borough



Neighbourhood Group

- Brooklyn
- Manhattan

IS A BOROUGH'S MOST POPULAR NEIGHBORHOOD BY MANHATTAN?

Borough	Top Neighborhood (Source: SQL)	Next to Manhattan?
Brooklyn	Williamsburg	YES
Queens	Astoria	YES
Staten Island	St. George	YES
Bronx	Kingsbridge	NO

YES, for the most part. We can infer there is a correlation between neighborhood popularity and proximity to Manhattan.

Exception: Bronx is the only borough where its most popular neighborhood is not by Manhattan.

ROOM TYPE

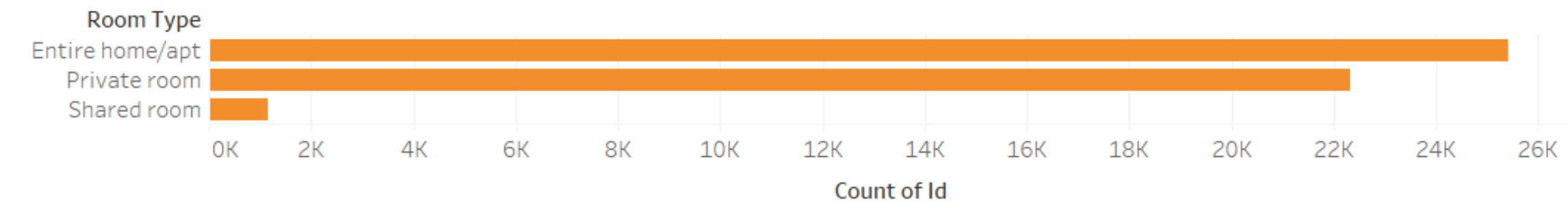
What is the distribution of room types?

Are these claims supported?

- Entire home/apt listings are more expensive than Private Room
- Private Room listings are more expensive than Shared Room

ROOM TYPE DISTRIBUTION

What room type is more popular? Entire Home / Apt



What is the proportion of each room type to active listings?

Room Type	Number of Listings (Source: SQL)	% of Total
Entire home / apt	16533	53%
Private Room	13965	45%
Shared Room	864	3%
TOTAL	31362	100%

ROOM TYPE + PRICES

CLAIM 1: Entire Home / Apt has a higher average price than Private Room

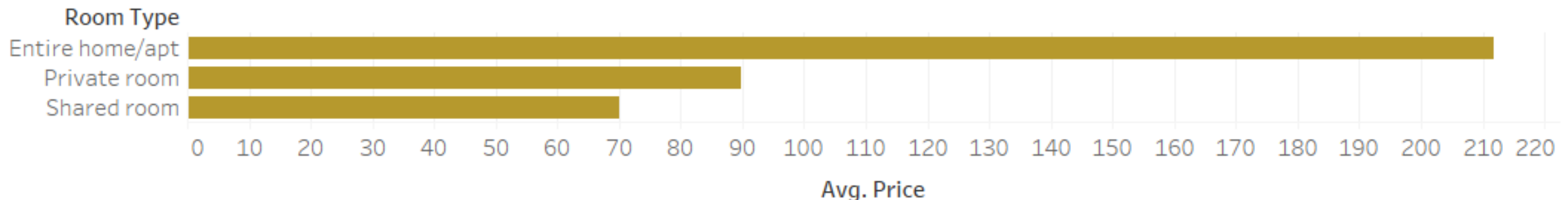
CLAIM 2: Private Room has a higher average price than Shared Room

Result from Hypothesis Test:

First test supports the alternative claim that average price of Entire Home / Apt is greater than Private Room.

Second test supports the alternative claim that average price of Private Room is higher than the one for Shared Room

Both with 95% confidence



AVAILABILITY + LOCATION + ROOM TYPE

Are there are relationships to between availability, location, and room type?

NUMBER OF LISTINGS

Count of id	Column Labels			
Row Labels	Entire home/apt	Private room	Shared room	Grand Total
High Availability	7674	6155	481	14310
Bronx	149	270	21	440
Brooklyn	2458	2486	190	5134
Manhattan	4293	2054	174	6521
Queens	689	1230	95	2014
Staten Island	85	115	1	201
Inactive	8876	8361	296	17533
Bronx	61	106	10	177
Brooklyn	3487	4252	105	7844
Manhattan	4758	3200	144	8102
Queens	546	786	36	1368
Staten Island	24	17	1	42
Low Availability	8859	7810	383	17052
Bronx	169	276	29	474
Brooklyn	3614	3394	118	7126
Manhattan	4148	2728	162	7038
Queens	861	1356	67	2284
Staten Island	67	56	7	130
Grand Total	25409	22326	1160	48895

PROPORTION - NUMBER OF LISTINGS

Count of id	Column Labels			
Row Labels	Entire home/apt	Private room	Shared room	Grand Total
High Availability	30.20%	27.57%	41.47%	29.27%
Bronx	1.94%	4.39%	4.37%	3.07%
Brooklyn	32.03%	40.39%	39.50%	35.88%
Manhattan	55.94%	33.37%	36.17%	45.57%
Queens	8.98%	19.98%	19.75%	14.07%
Staten Island	1.11%	1.87%	0.21%	1.40%
Inactive	34.93%	37.45%	25.52%	35.86%
Bronx	0.69%	1.27%	3.38%	1.01%
Brooklyn	39.29%	50.86%	35.47%	44.74%
Manhattan	53.61%	38.27%	48.65%	46.21%
Queens	6.15%	9.40%	12.16%	7.80%
Staten Island	0.27%	0.20%	0.34%	0.24%
Low Availability	34.87%	34.98%	33.02%	34.87%
Bronx	1.91%	3.53%	7.57%	2.78%
Brooklyn	40.79%	43.46%	30.81%	41.79%
Manhattan	46.82%	34.93%	42.30%	41.27%
Queens	9.72%	17.36%	17.49%	13.39%
Staten Island	0.76%	0.72%	1.83%	0.76%
Grand Total	100.00%	100.00%	100.00%	100.00%

PRICE DISTRIBUTION

Average of price	Column Labels				
Row Labels	Entire home/apt	Private room	Shared room	Grand Total	
High Availability	\$ 249.22	\$ 100.07	\$ 56.85	\$ 178.60	
Bronx	\$ 138.91	\$ 66.53	\$ 87.52	\$ 92.04	
Brooklyn	\$ 202.52	\$ 82.34	\$ 44.33	\$ 138.47	
Manhattan	\$ 291.50	\$ 145.94	\$ 73.44	\$ 239.83	
Queens	\$ 181.55	\$ 70.40	\$ 43.77	\$ 107.17	
Staten Island	\$ 206.68	\$ 59.97	\$ 150.00	\$ 122.46	
Inactive	\$ 187.94	\$ 82.83	\$ 82.20	\$ 136.03	
Bronx	\$ 105.74	\$ 67.25	\$ 52.80	\$ 79.69	
Brooklyn	\$ 161.99	\$ 70.69	\$ 60.98	\$ 111.15	
Manhattan	\$ 215.57	\$ 100.05	\$ 99.38	\$ 167.88	
Queens	\$ 123.51	\$ 80.71	\$ 85.22	\$ 97.91	
Staten Island	\$ 155.29	\$ 74.59	\$ 20.00	\$ 119.40	
Low Availability	\$ 203.27	\$ 89.11	\$ 77.47	\$ 148.16	
Bronx	\$ 125.31	\$ 66.87	\$ 42.14	\$ 86.19	
Brooklyn	\$ 177.64	\$ 79.50	\$ 51.20	\$ 128.80	
Manhattan	\$ 244.12	\$ 114.44	\$ 96.42	\$ 190.46	
Queens	\$ 134.38	\$ 67.81	\$ 96.12	\$ 93.73	
Staten Island	\$ 138.84	\$ 63.32	\$ 49.57	\$ 101.50	
Grand Total	\$ 211.79	\$ 89.78	\$ 70.13	\$ 152.72	

QUESTIONS?

RESOURCES

- LINK TO GITHUB REPOSITORY
- LINK TO TABLEAU PUBLIC