

Storytelling: Case Study: Airbnb, NYC

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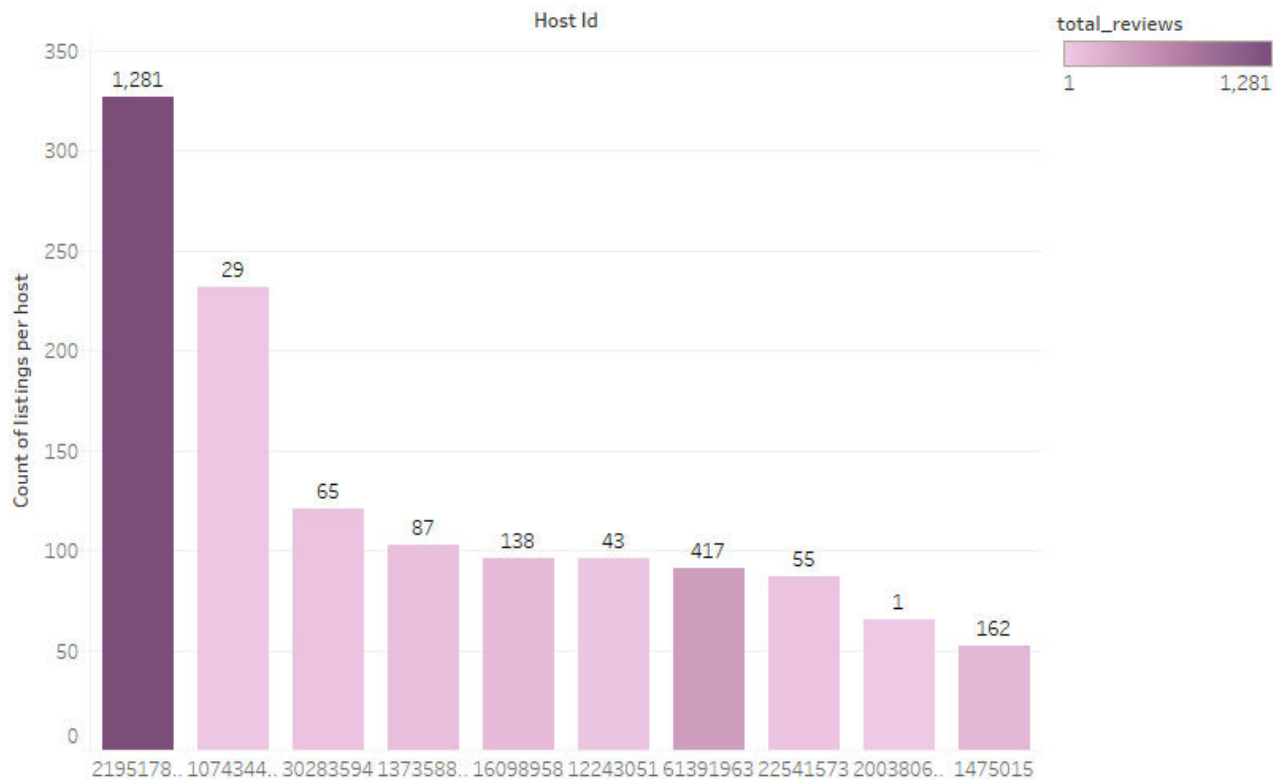
Objective

- Analyze the impact of COVID-19 on Airbnb's revenue and identify key factors that led to the decline in business.
- Explore strategies for Airbnb to recover and boost revenue as travel demand rebounds.
- Evaluate how Airbnb can enhance its services to better meet customer expectations in the post-pandemic era.

INSIGHTS

- Host 2195178 dominates with the most listings (300+) and reviews (1,281).
- There's a sharp drop in listings after the top host, showing a wide gap between hosts.
- Higher listings generally correlate with more reviews, indicating greater visibility.
- Some smaller hosts perform well in reviews despite fewer listings, reflecting quality service.

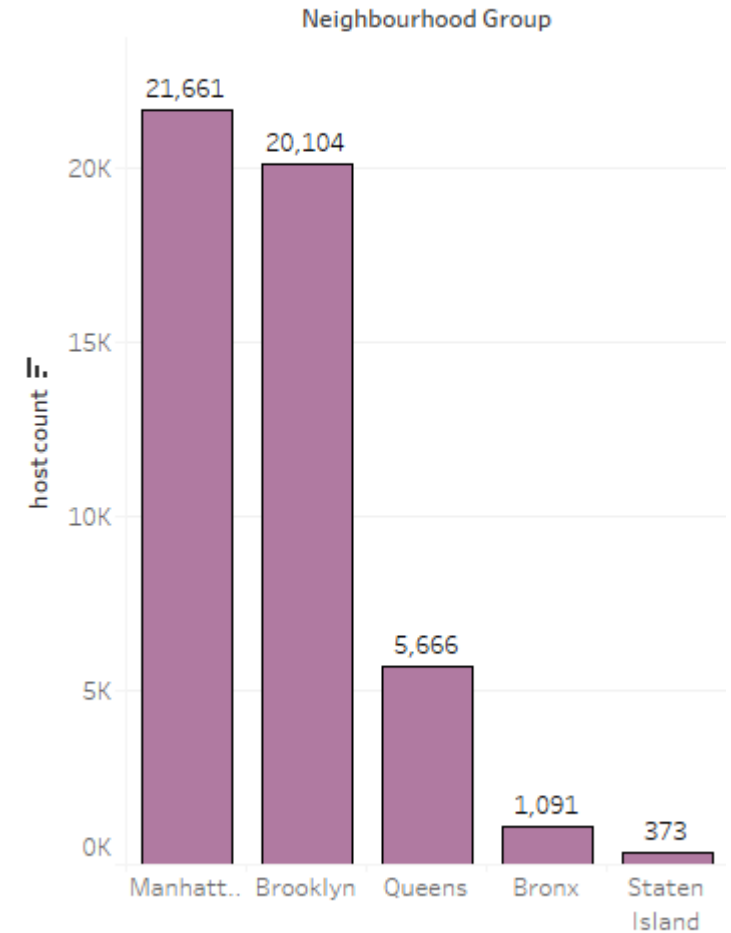
Host Performance with number of listings



Average of Calculated Host Listings Count for each Host Id. Colour shows total_reviews. The marks are labelled by sum of Number Of Reviews. The view is filtered on Host Id, which keeps 10 of 37,457 members.

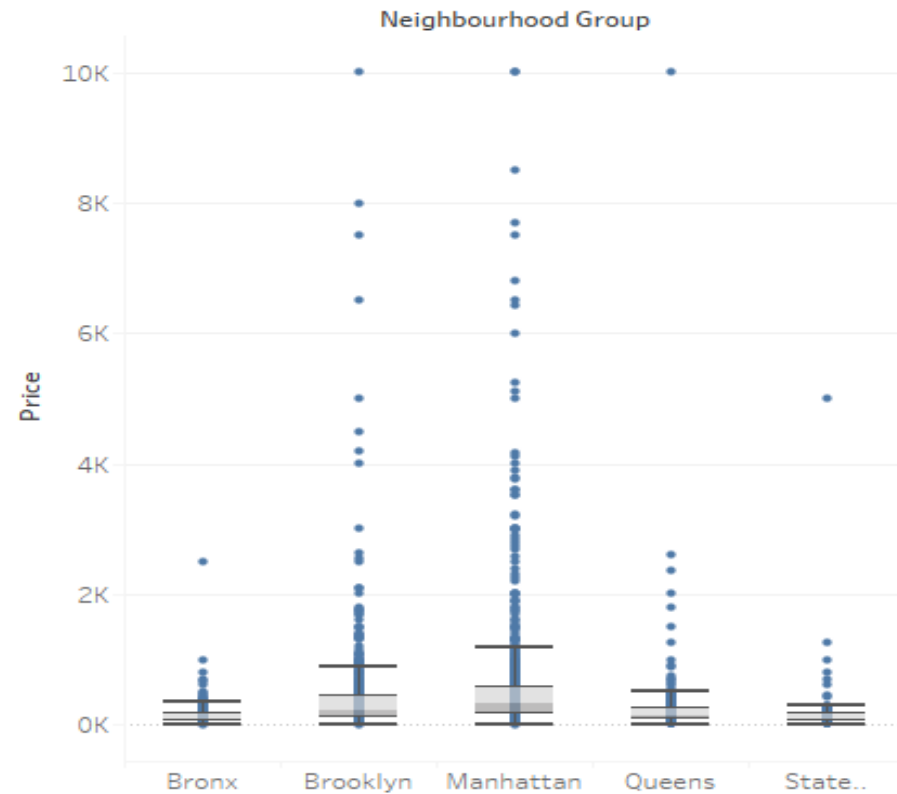
- Manhattan and Brooklyn dominate with the highest host counts (21,661 and 20,104).
- Queens ranks third with 5,666 hosts.
- Bronx and Staten Island have the fewest hosts (1,091 and 373).
- Most hosts prefer central areas like Manhattan and Brooklyn.

Neighbourhood Popularity by Host Count



Host count for each Neighbourhood Group. The marks are labelled by host count.

Neighbourhood wise Price distribution

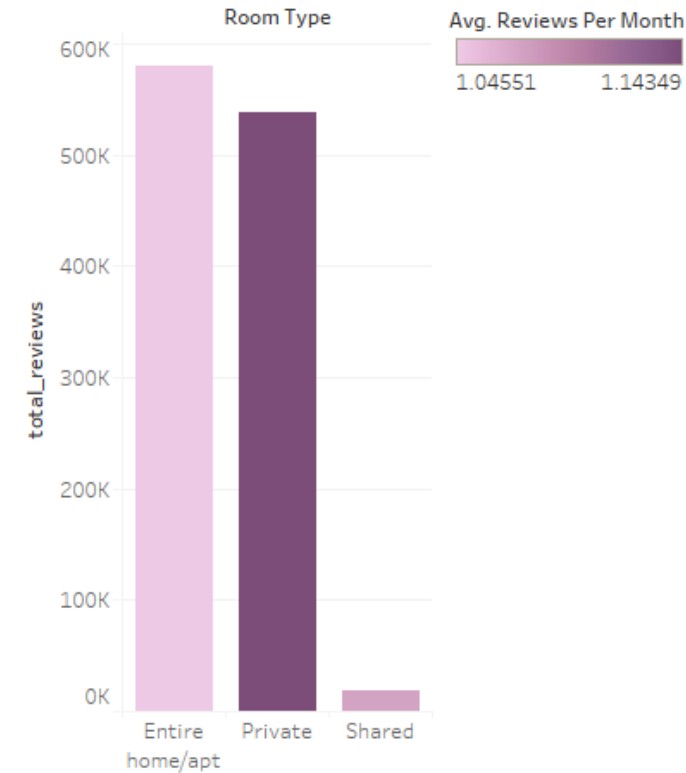


Price for each Neighbourhood Group.

Neighbourhood Wise Price distribution

- Most of the outliers in Price column are for Brooklyn and Manhattan.
- Also, Manhattan has the highest range of prices for the listings.
- Bronx is the cheapest of them all.
- We can see the median price of all neighbourhood groups lying between \$ 80 to \$ 300.
- Price was highly positively skewed so median was very close the lower quartile with some outliers as seen in the boxplot below.

Room type performance



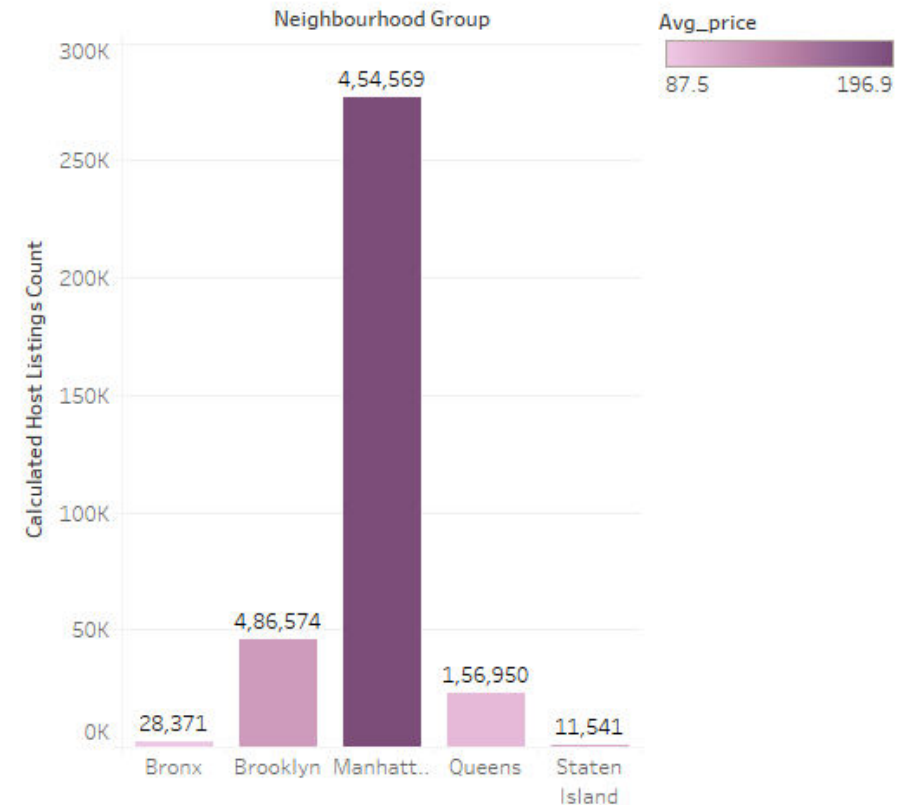
Total_reviews for each Room Type. Colour shows average of Reviews Per Month.

Room Type Performance

- Entire homes/apartments and private rooms receive the highest number of reviews, with over 500,000 each.
- Shared rooms have significantly fewer reviews, indicating lower demand or popularity.
- Average reviews per month are slightly higher for private rooms (1.14) compared to entire homes (1.04).
- Entire homes/apartments are still the most popular option overall based on total reviews.

- Manhattan has the most host listings (454,569) and highest average price.
- Brooklyn is second with 486,574 listings and a lower average price.
- Queens (156,950) and Bronx (28,371) have fewer listings but growth potential.
- Staten Island has the fewest listings and the lowest average price.

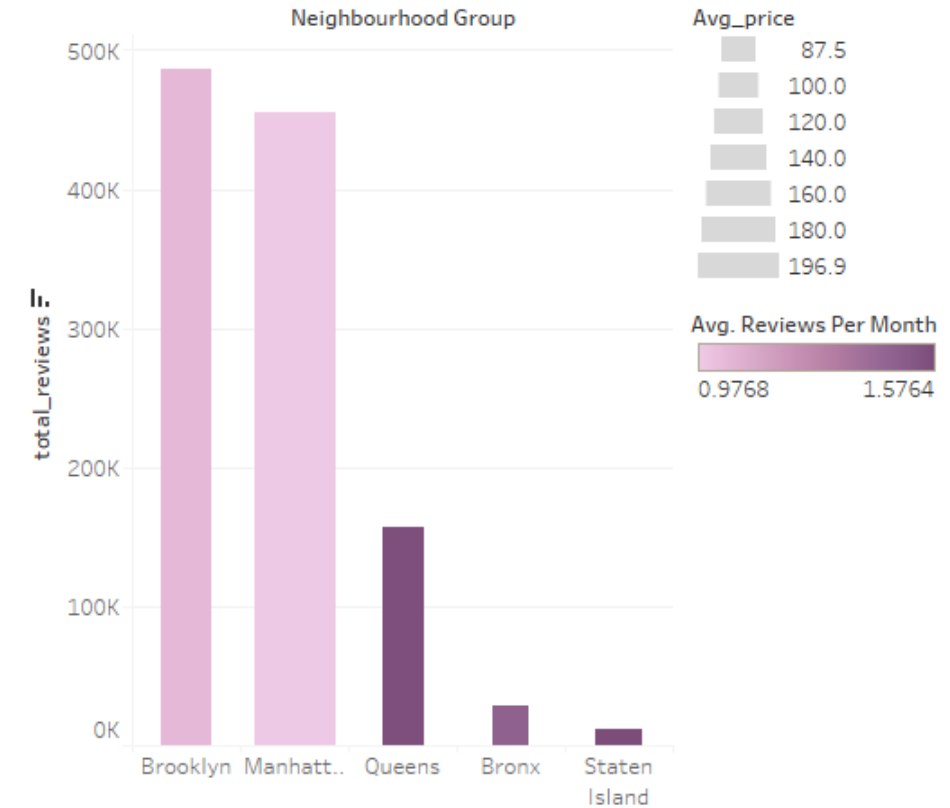
Neighbourhoods to Target for Host Acquisition



Sum of Calculated Host Listings Count for each Neighbourhood Group. Colour shows Avg_price. The marks are labelled by total_reviews.

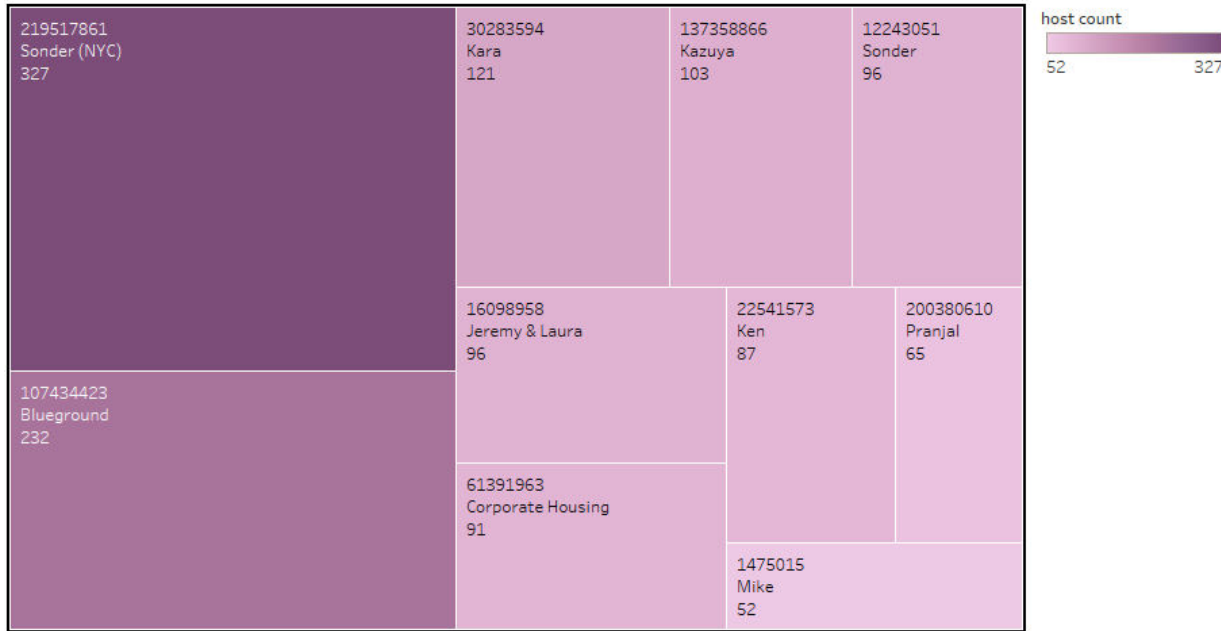
- Brooklyn and Manhattan dominate in total reviews, each exceeding 400K, showing high popularity.
- Queens has significantly fewer reviews, around 150K, but still stands out compared to the Bronx and Staten Island.
- Bronx and Staten Island have minimal reviews, indicating lower popularity.
- Average reviews per month (indicated by color) are highest in Manhattan, making it a high-demand area despite higher prices.

Most Popular Localities & Properties



Total_reviews for each Neighbourhood Group. Colour shows average of Reviews Per Month. Size shows Avg_price.

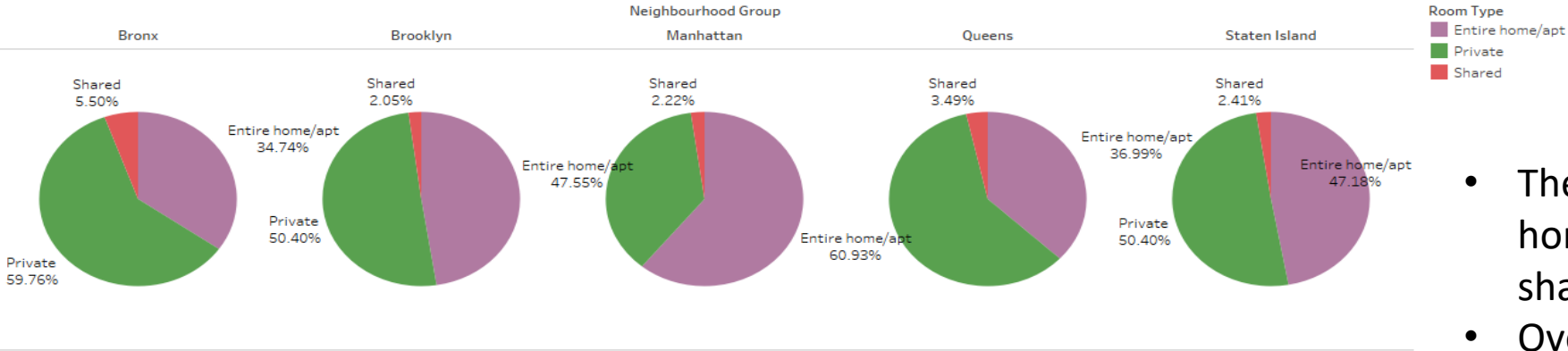
Top 10 hosts



Host Id, Host Name and host count. Colour shows host count. Size shows host count. The marks are labelled by Host Id, Host Name and host count. The view is filtered on Host Id, which keeps 10 of 37,457 members.

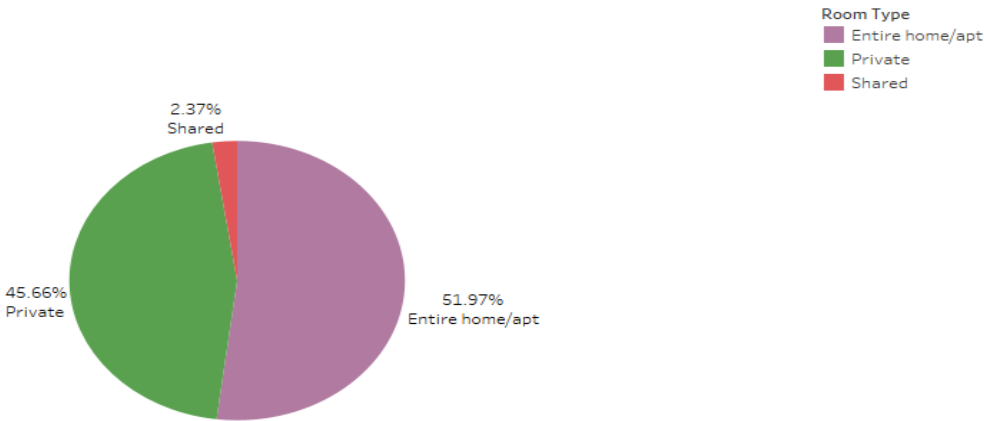
- Host Sonder (id 219517861), has been booked most number of times i.e. 327.
- Host Blue ground is the second popular host.
- Then there are other hosts like Kara, Ken, Pranjal, Jeremy and Mike that fall under top 10 hosts.

Room type wrt Neighbourhood group



Room Type and % of Total listing id count broken down by Neighbourhood Group. Colour shows details about Room Type. Size shows % of Total listing id count. The marks are labelled by Room Type and % of Total listing id count.

Overall listings wrt room type

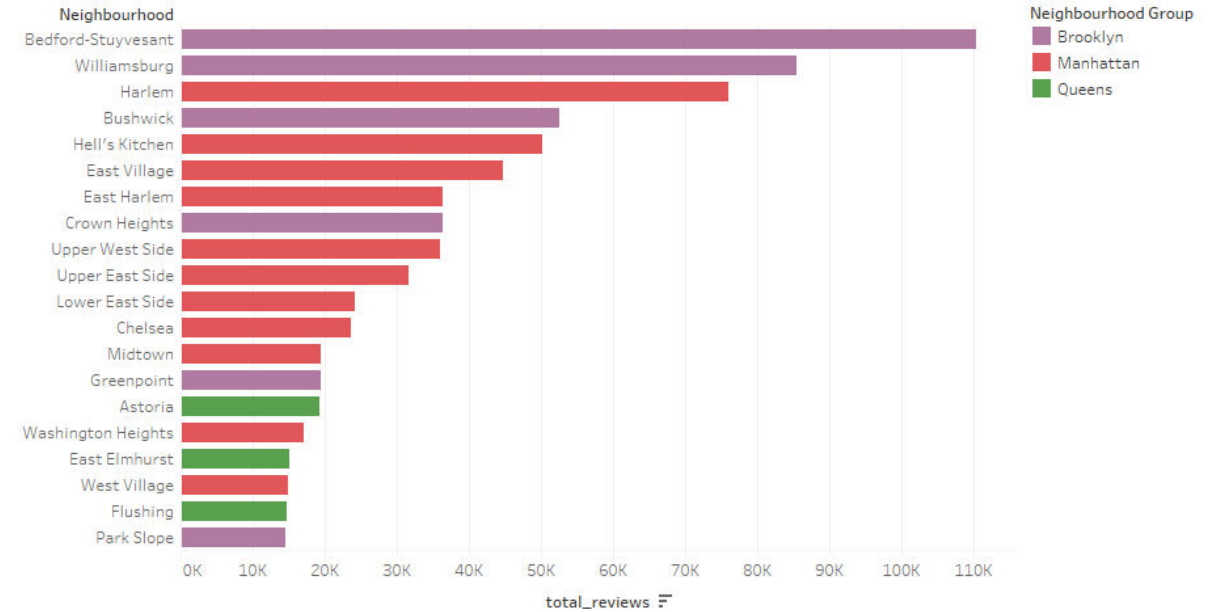


% of Total listing id count and Room Type. Colour shows details about Room Type. Size shows listing id count. The marks are labelled by % of Total listing id count and Room Type.

- There are three types of rooms - Entire home/Apartment, Private room & shared room.
- Overall, customers appear to prefer private rooms (45%) or entire homes (52%) in comparison to shared rooms (2.4%).
- Airbnb can concentrate on promoting shared rooms with discounts to increase bookings and also acquire more private listings.
- Queens & Bronx contribute 60% each to private rooms, more than the combined ratio of 45% Whereas, Manhattan has a higher contribution in entire home (61%), compared to the combined ratio of 52%.

- We see that Bedford-Stuyvesant from Brooklyn is the highest popular with 1,10,352 no of reviews in total followed by Williamsburg.
- Harlem from Manhattan got the highest no of reviews followed by Hell's kitchen.
- The higher number of customer reviews imply higher satisfaction in these localities.

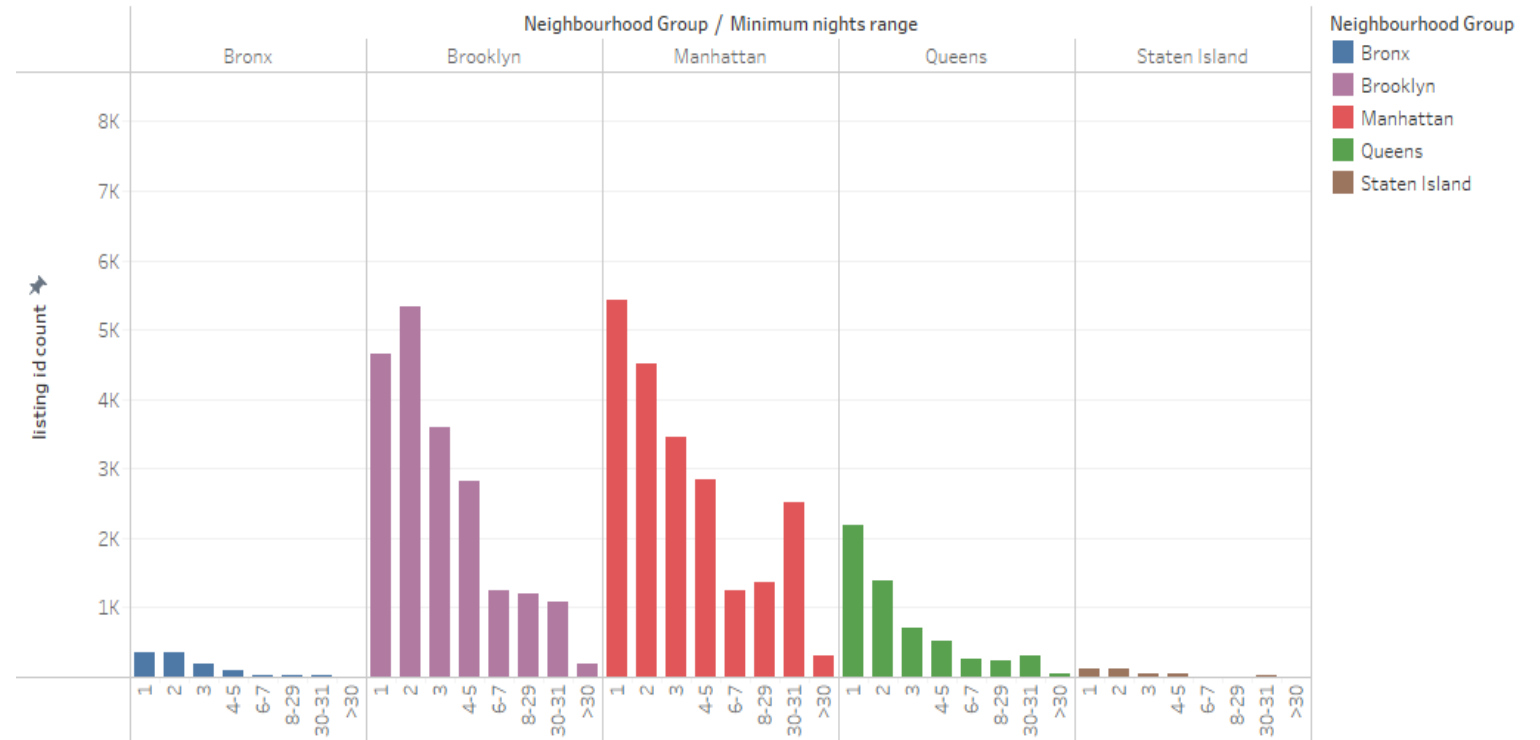
Popular Neighborhoods



Total_reviews for each Neighbourhood. Colour shows details about Neighbourhood Group. The view is filtered on Neighbourhood, which keeps 20 of 221 members.

- The listings with Minimum nights 1-5 have the most number of bookings. We can see a prominent spike in 30 days, this would be because customers would rent out on a monthly basis.
- After 30 days, we can also see small spikes, this can also be explained by the monthly rent taking trend.
- Manhattan & Queens have higher number of 30 day bookings compared to the others. The reason could be either tourists booking long stays or mid-level employees who opt for budget bookings due company visits

Customer bookings with respect to minimum nights



Listing id count for each Minimum nights range broken down by Neighbourhood Group. Colour shows details about Neighbourhood Group.

Appendix – Methodology

- Conducted a thorough analysis of New York City Airbnb Dataset.
- Cleaned the data set using Python.
- Derived Necessary features.
- Used group aggregation, pivot tables and other statistical methods.
- Created charts and visualizations using Tableau and Python.