



# Airbnb NYC Analysis

Nikshita Shetty & Hammad Siddiqui

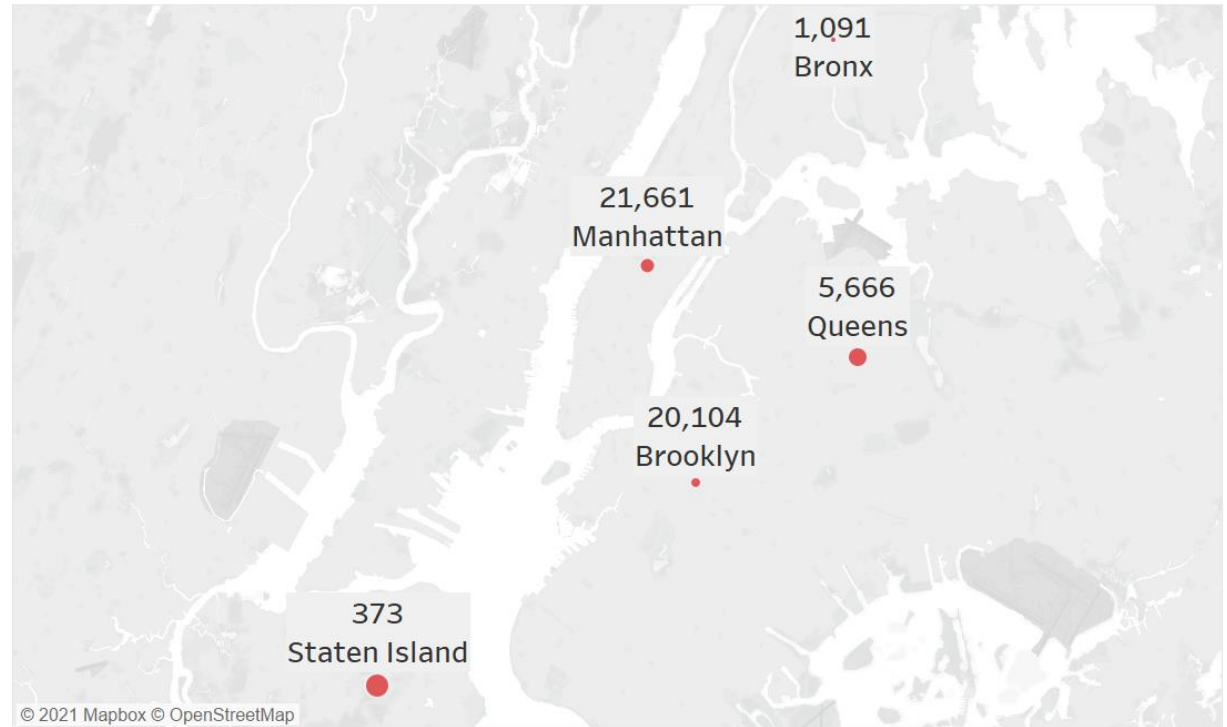
# Objective

- ❑ To understand the market condition post Covid-19.
- ❑ Optimizing the process of order of property listing in order to get every property the optimal amount of traction.
- ❑ Improvising the process of host acquisitions and operations by digging deeper into features such as pricing, geographical availability and hosts popularity.

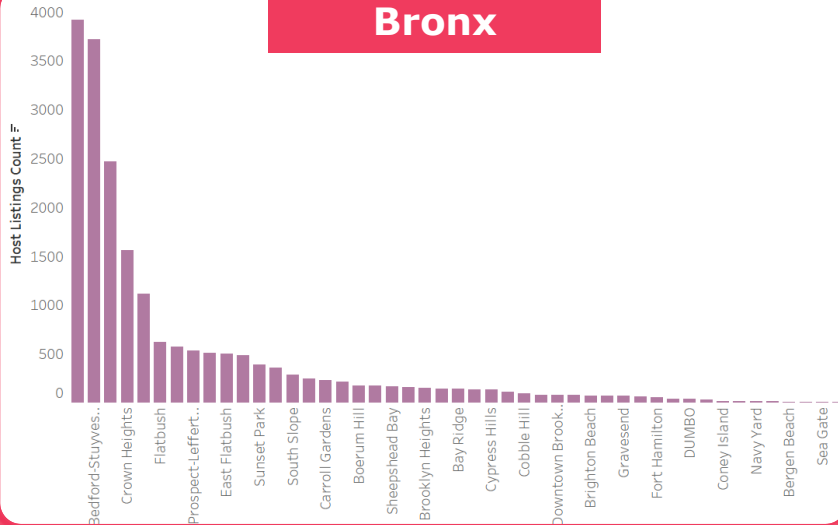
# Exploring the Neighborhood

- Brooklyn & Manhattan have 85% of the total NYC listings.
- Queens owns around 12% of the total listings.
- The rest 3% is shared by Bronx & Staten Island.

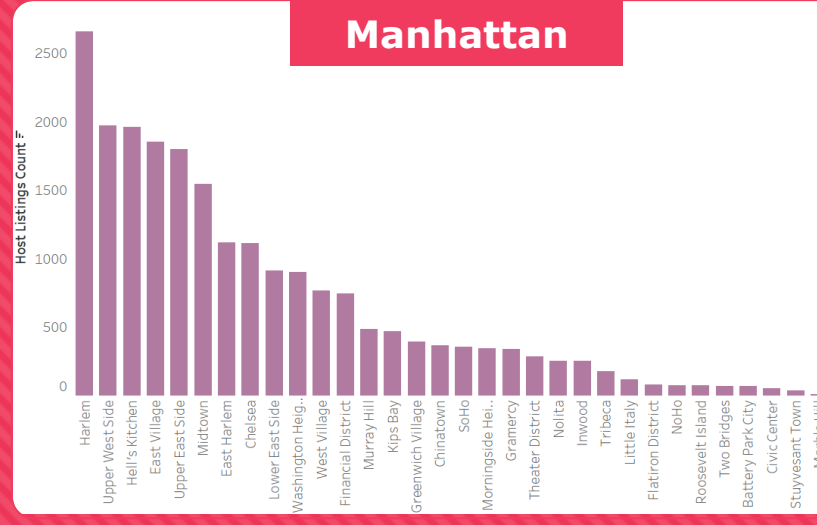
Count of Airbnb Listings in NYC Neighborhoods



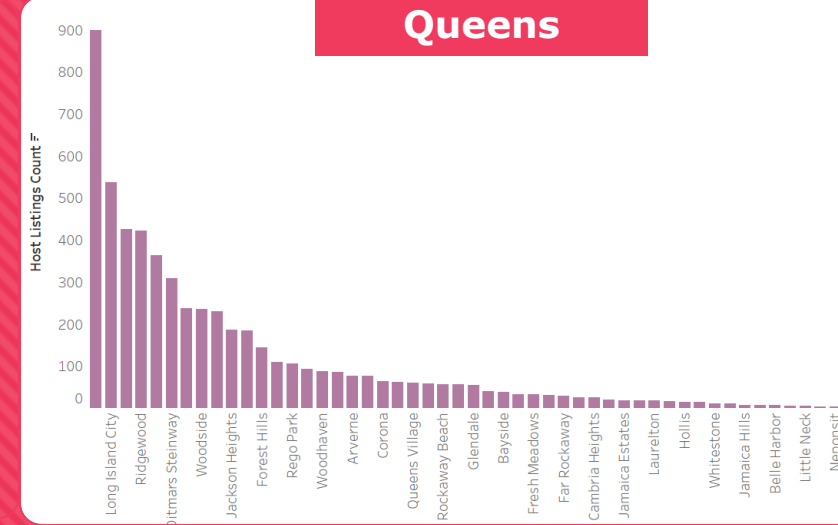
## Bronx



## Manhattan



## Queens

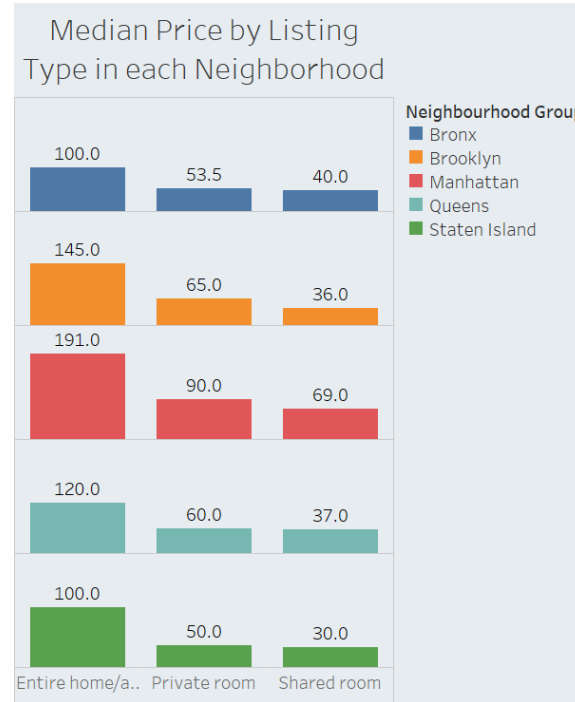


Majority of the listings are from:

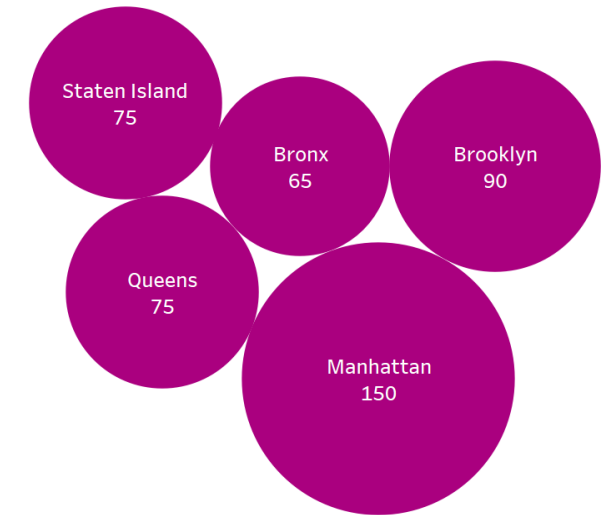
- In Brooklyn, 32% of the listings are in Bedford-Stuyvesant & Williamsburg.
- Harlem has 12% of the listings, becoming the neighborhood with maximum listings within Manhattan.
- Astoria holds 16% of the total listings in Queens.

Pricing range differs vastly within the NYC metropolitan areas, starting from the most expensive rent prices per night in Manhattan to the cheapest per night in Bronx as:

- Manhattan being the prime area in NYC, many organizations have their offices there. Also, many tourist locations are found within the district. It has the highest prices for listings with Entire Apt. Entire Apt. listings are comparatively cheaper in the rest of the neighborhoods.
- Places like Staten Island are only 30 minutes away from Manhattan, hence for many tourists they prefer coming back to their stay in Manhattan rather than staying on the island.
- Not many visitors visit Bronx as compared to the other districts, as Bronx has limited attractions & also South-East Bronx is considered to be an unsafe zone, hence many visitors tend to avoid visiting Bronx.

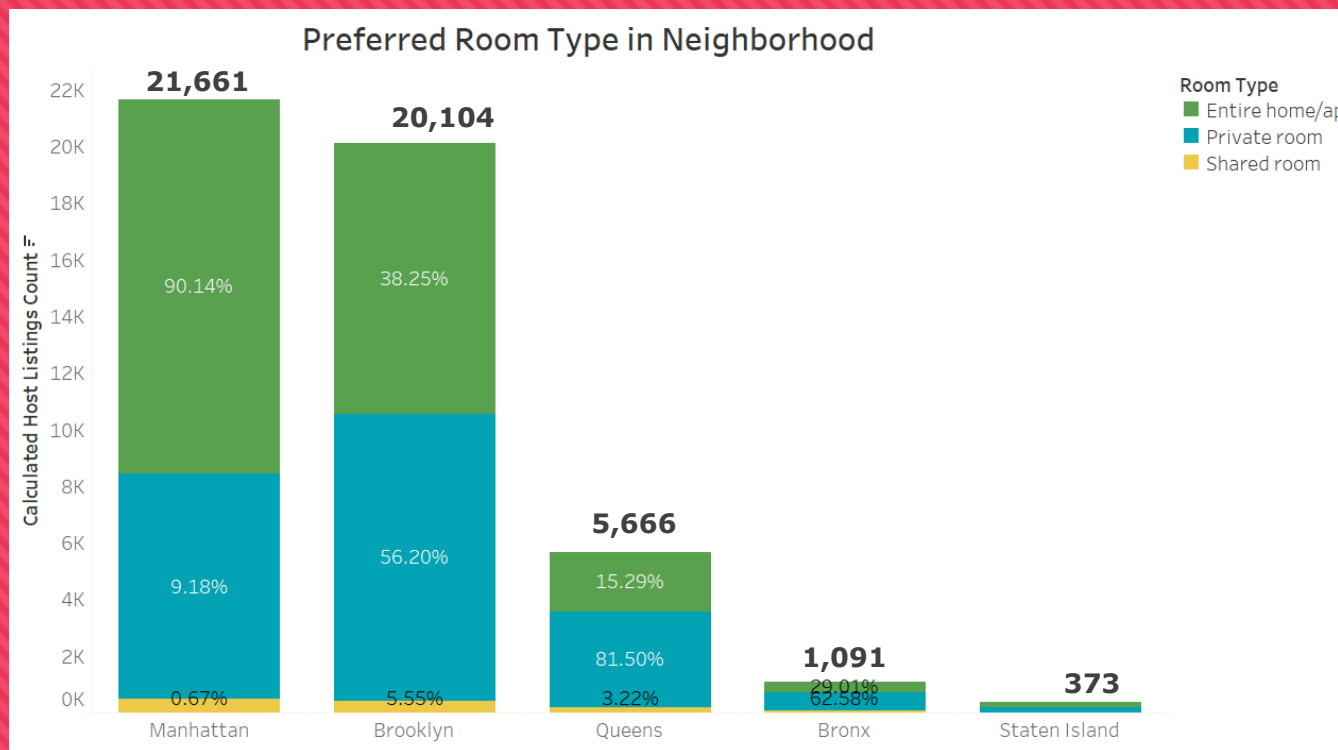


Median Price of Listings by Neighborhood



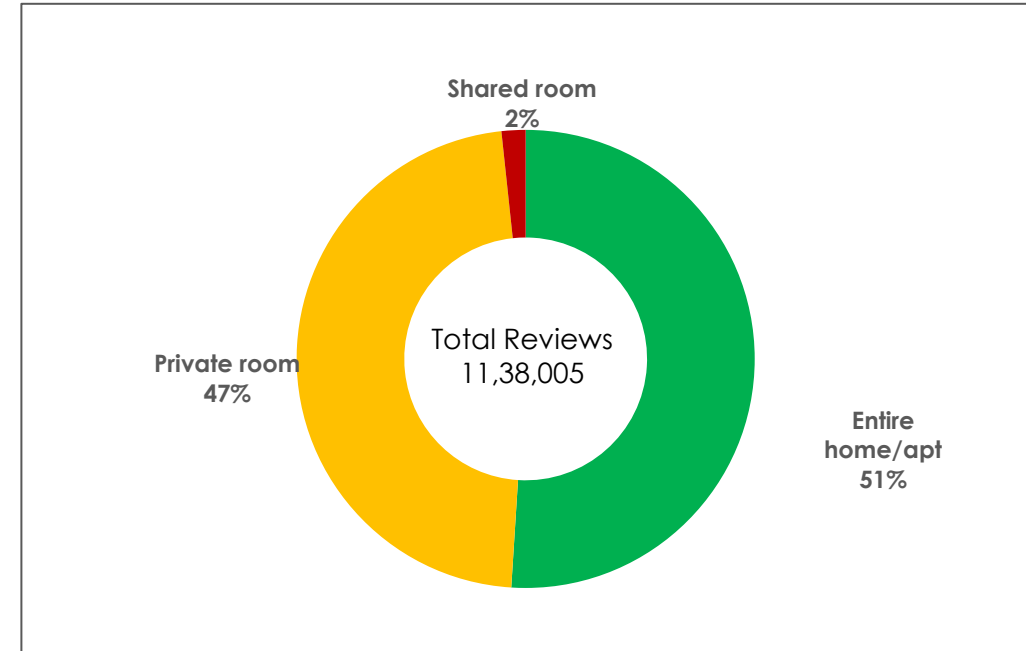
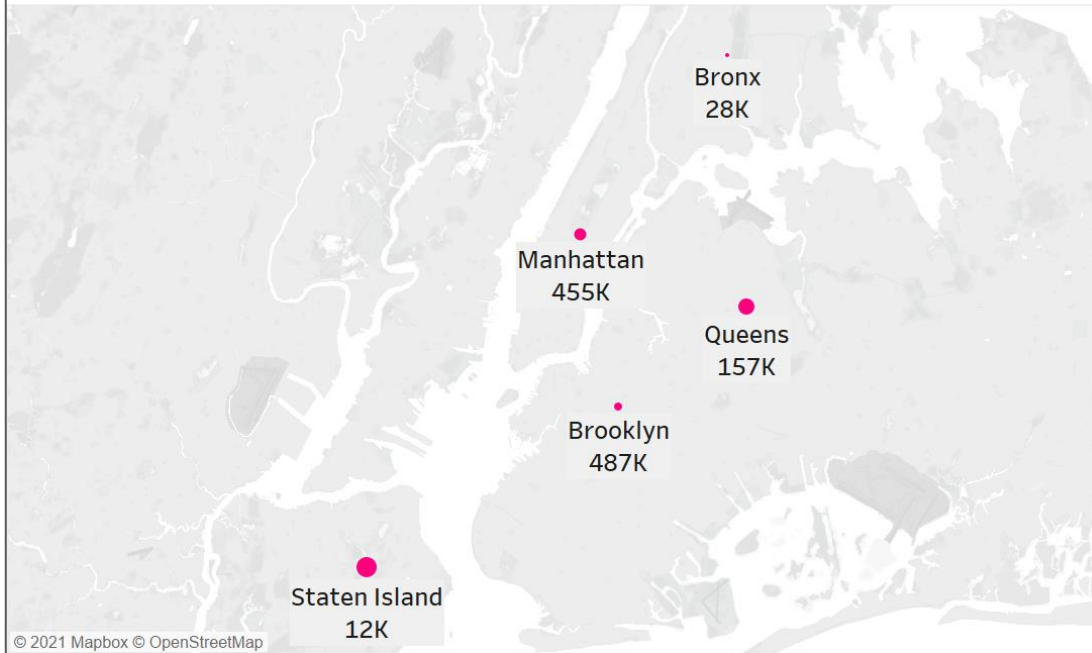
## Pricing by Room Type

| Price (bin) | Entire home.. | Private room | Shared room |
|-------------|---------------|--------------|-------------|
| 0-999       | 25,166        | 22,275       | 1,156       |
| 1000-1999   | 153           | 31           | 4           |
| 2000-2999   | 47            | 10           |             |
| 3000-3999   | 14            | 4            |             |
| 4000-4999   | 8             | 1            |             |
| 5000-5999   | 7             | 1            |             |
| 6000-6999   | 6             | 1            |             |
| 7000-7999   | 2             | 1            |             |
| 8000-8999   | 2             |              |             |
| 9000-9999   | 2             | 1            |             |
| 10000+      | 2             | 1            |             |



- The majority of listings offer a rental price of less than \$1000.
- The most prevailing listings are Private Rooms and Entire Apartments. Shared rooms may not be appealing to most visitors.
- Brooklyn & Manhattan are the most prevailing neighborhoods as they are the most visited neighborhoods in NYC which makes them popular areas for rented apartments.

Average No. of Reviews by Neighborhood



## Exploring the Neighborhood: Customer Perspective

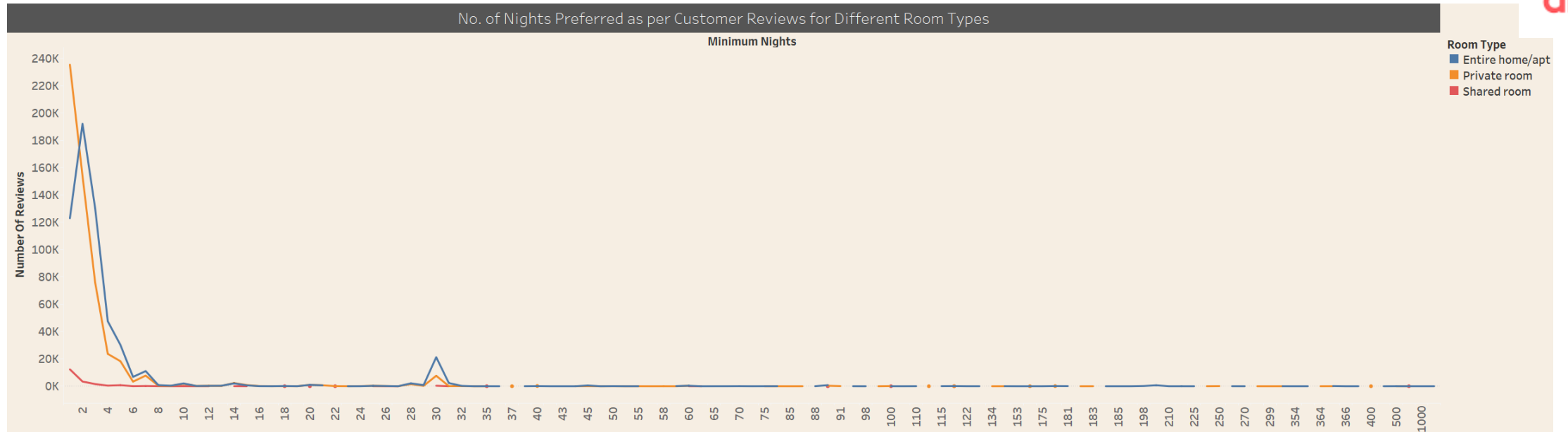
- The most reviewed neighborhoods are Manhattan followed by Brooklyn which also states that most customers prefer staying in these neighborhoods.
- Based on the room types – 51% of the reviews are given to Entire Apartments followed by 47% to Private Rooms of the total reviewed listings. Shared rooms have been very rarely reviewed which also says not majority of the travelers prefer renting out shared rooms.
- Listings offering Shared room currently, if start offering the same as Private rooms can help gain more traction to those properties.

## Pricing Range vs Customer Reviews

- More than 90% of the customer reviews are given to listings below 1000\$ which makes it the most preferred pricing range by the customers.
- Shared rooms can be offered to the guests as private rooms in order to get these listings gain some traction.

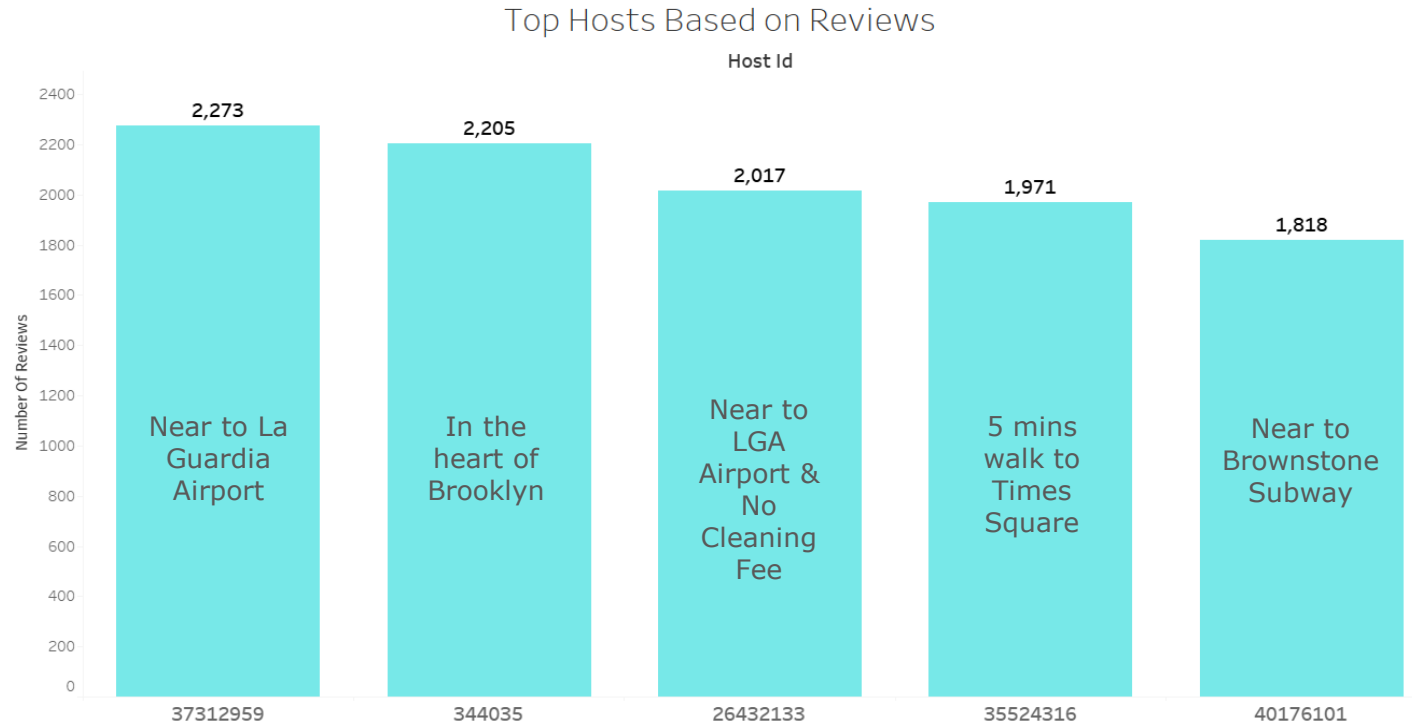
| Price Range preference by Customer Reviews |                 |              |             |
|--|-----------------|--------------|-------------|
| Price (bin)                                | Room Type       |              |             |
|  | Entire home/apt | Private room | Shared room |
| 0-999                                      | 578,451         | 538,267      | 19,250      |
| 1000-1999                                  | 1,525           | 24           | 6           |
| 2000-2999                                  | 359             | 29           |             |
| 3000-3999                                  | 20              | 0            |             |
| 4000-4999                                  | 5               | 0            |             |
| 5000-5999                                  | 17              | 10           |             |
| 6000-6999                                  | 17              | 0            |             |
| 7000-7999                                  | 0               | 8            |             |
| 8000-8999                                  | 3               |              |             |





## Minimum Nights preferred based on Customer Reviews

- We see a large distribution mainly leaning towards 1 to 3 nights minimum stay for all types of listings which also means if the no. of nights is kept to the minimum i.e., 1 night, higher are the chances of the listing gaining traction.
- Also, a spike is seen on 30 nights for Entire Apartments & Private Rooms, which means for a longer duration stay customers prefer renting these accommodation types over shared rooms.
- Maximum reviews on shared rooms are on 1 – 2 nights only, which means customers prefer booking shared rooms for not a longer duration stay, hence keeping the shared rooms minimum nights to 1 will help attract more bookings.



## Top Hosts Based on No. of Reviews

- The Hosts having listings near to the airports & Subways are highly preferred by the customers due to travel convenience.
- Also, hosts who have their listings in the heart of the city and are near to major landmarks are also highly preferred by the customers.
- Additional benefits given along with the bookings such as "NO Additional Cleaning Fee" & "Laundry Services" also gain customer traction to the listings.

# Recommendations

- ❑ Investing in listings in the preferred areas such as **near to the airports**, a **walking distance from Times Square or Central Park** will help attract more bookings.
- ❑ Listings having lesser reviews, can attract bookings by keeping a price **lower than \$1000** and additional benefits such as **“No Cleaning Fee”** or **“Laundry inclusive”** with the bookings. Also, gaining customer trust with offering **sanitized rooms** post Covid will help gain more traction to the listings.
- ❑ Shared rooms have been the least preferred by customers. We can gain more traction by providing additional benefits as mentioned above or by converting them into Private rooms, as private rooms are highly preferred.

# Appendix: Methodology

- ❑ Step1 (Data cleaning):
  - a) Went through the dataset in excel/python and understood the structure and various column attributes with help of data dictionary provided in the problem statement page.
  - b) Checked data type of each column and converted last review column to datetime64[ns] type.
- ❑ Step2 (Data munging):
  - a) Did univariate analysis. Imputed NA values with mode in reviews/month column while leaving the host name and name column because of insignificant NA percentage.
  - b) Checked for outliers in price column using boxplot and found some prices to be 0. Removed rows with 0 price.
- ❑ Step3 (Data analysis):
  - a) Created price-based bins and since outliers exist we used median to determine prices.
  - b) Checked room type percentage share, neighborhood grouped wise distribution of price and total reviews vs bookings.
  - c) Summation of number of reviews was plotted against minimum number of nights a property is available using tableau to understand the role of listing duration and line chart was used where data involves time.
- ❑ The detailed methodology document is attached with the submission.