# STORYTELLING CASE STUDY: AIRBNB, NYC

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# Objective:

- To prepare for the next best steps that Airbnb needs to take as a business, we have been asked to analyse a dataset consisting of various Airbnb listings in New York.

# Background:

- Airbnb is an online platform using which people can rent their unused accommodations.

- During the covid time, Airbnb incurred a huge loss in revenue.

- People have now started travelling again and Airbnb is aiming to bring up the business again and be ready to provide services to customers.

# Problem Statement:

- For the past few months, Airbnb has seen a major decline in revenue.

- Now that the restrictions have started lifting and people have started to travel more, Airbnb wants to make sure that it is fully prepared for this change.

- So, analysis has been done on a dataset consisting of various Airbnb listings in New York.
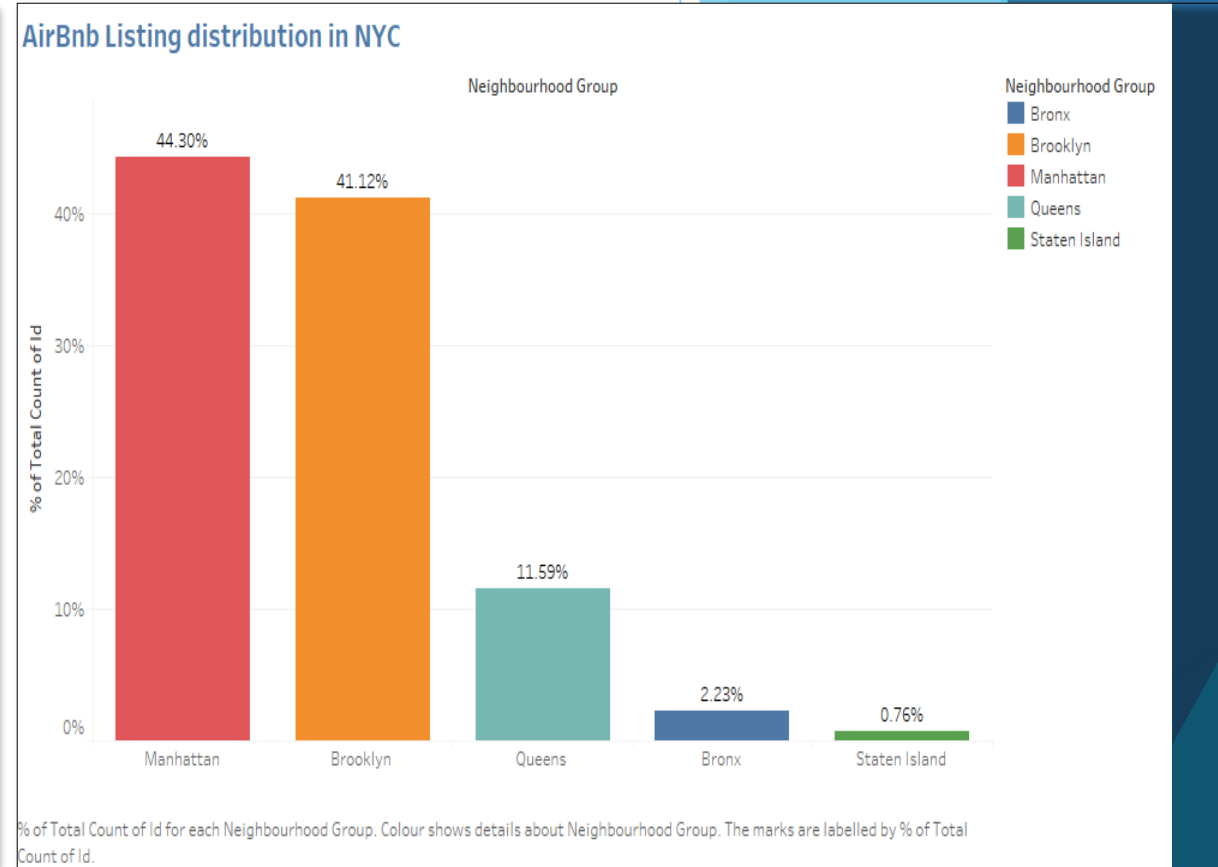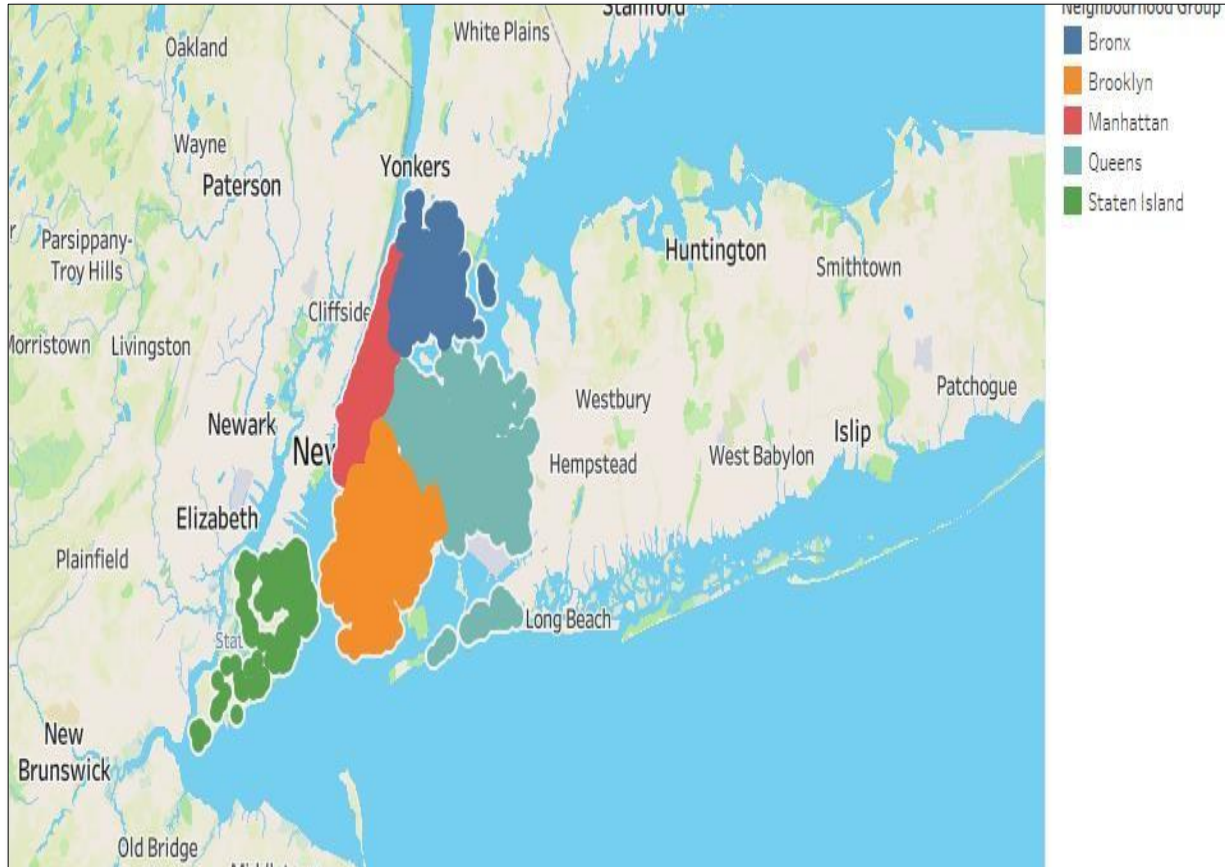
# Data Preparation

- Cleaned data to remove any missing values and duplicates.

- Dropped insignificant columns.

- Identified outliers

## Tools Used:

For the data analysis and visualization we have
used following tools
- Python Jupyter Notebook
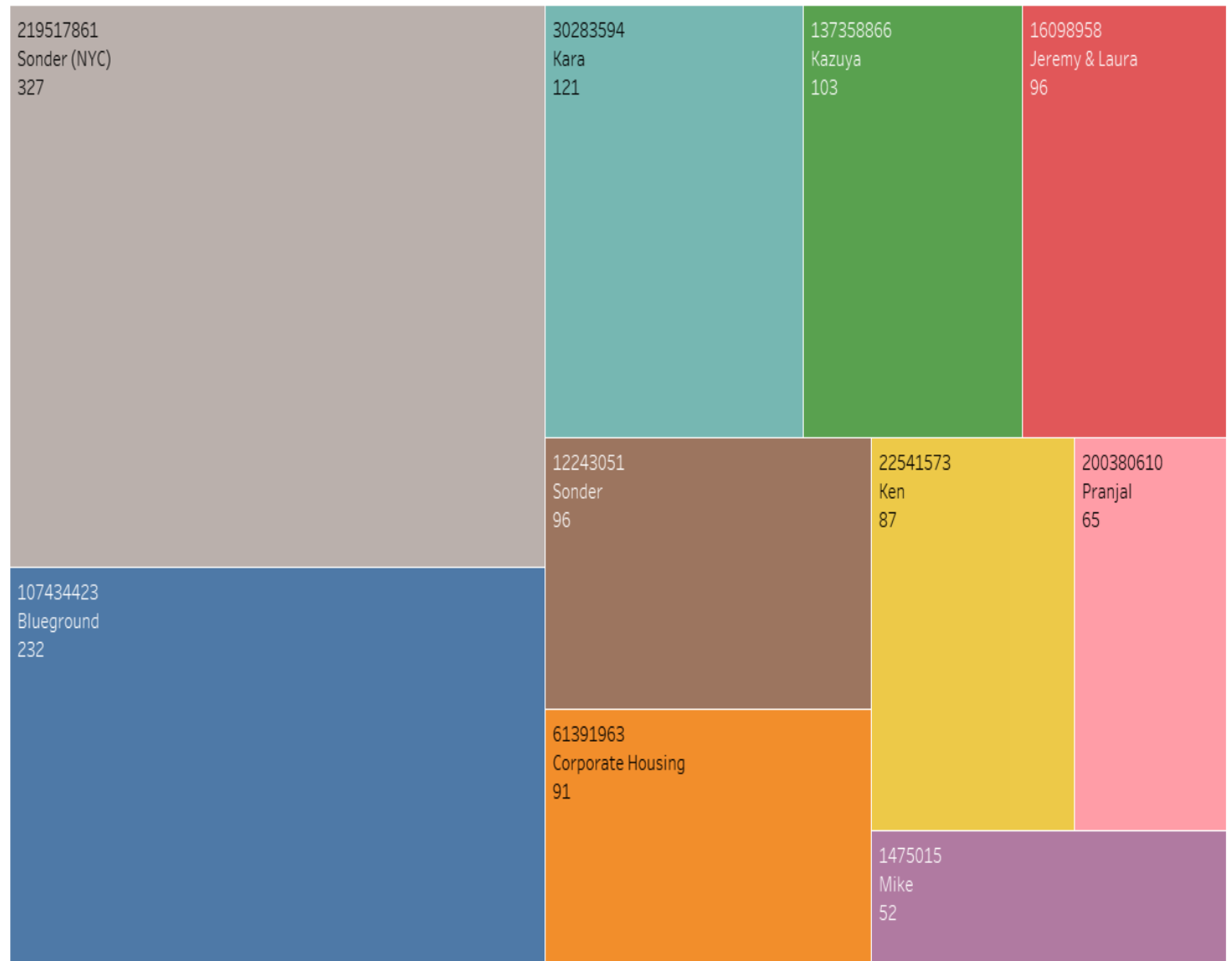- Tableau

# Airbnb Listing distribution in NYC:



► Airbnb has good presence in Manhattan, Brooklyn & Queens.

► Listings are maximum in Manhattan (44%) & Brooklyn (41%) owing to the high population density and it being the financial and tourism hub of NYC. Staten Island (~1%) has the least number of listings, due to its low population density and very few tourism destinations.

# Top 10 Host

- Host Sonder (id 219517861), has been booked most number of times i.e. 327.

- Host Blueground is the second popular host.

- Then there are other hosts like Kara, Ken, Pranjal, Jeremy and Mike that fall under top 10 hosts.



Top 10 hosts

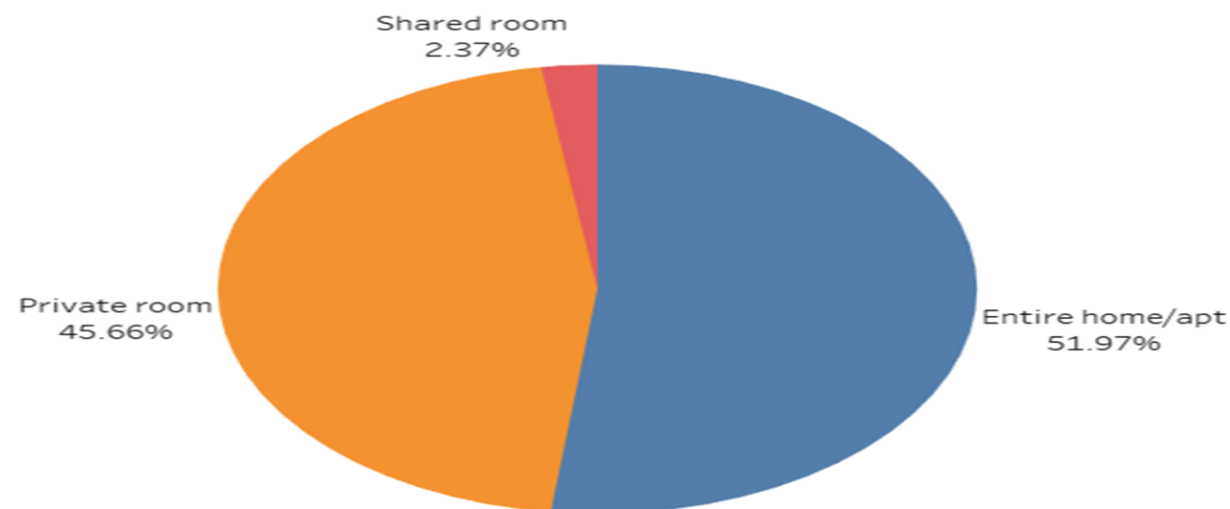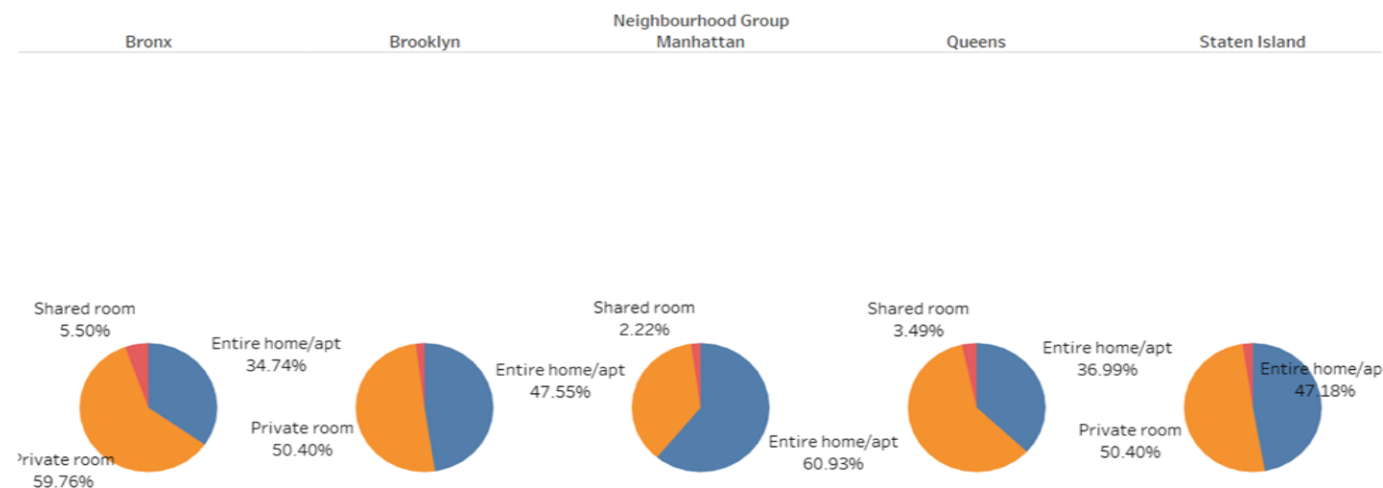| | | |
|---|---|---|
| 219517861 Sonder (NYC) 327 | 30283594 Kara 121 | 137358866 Kazuya 103 |
| | 12243051 Sonder 96 | 22541573 Ken 87 |
| 107434423 Blueground 232 | 61391963 Corporate Housing 91 | 1475015 Mike 52 |

16098958 Jeremy & Laura 96

200380610 Pranjal 65

# Room type with respect to Neighbourhood group

- 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%.



Room Type wrt Neighbourhood group

Neighbourhood Group

| Bronx | Brooklyn | Manhattan | Queens | Staten Island |

Bronx:
- Shared room 5.50%
- Private room 59.76%
- Entire home/apt 34.74%

Brooklyn:
- Private room 50.40%
- Entire home/apt 47.55%

Manhattan:
- Shared room 2.22%
- Entire home/apt 60.93%

Queens:
- Shared room 3.49%
- Entire home/apt 36.99%
- Private room 50.40%

Staten Island:
- Entire home/ap 47.18%



- Shared room 2.37%
- Private room 45.66%
- Entire home/apt 51.97%

# Price Analysis Neighbourhood wise

- 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.



Price Analysis Neighbourhood wise
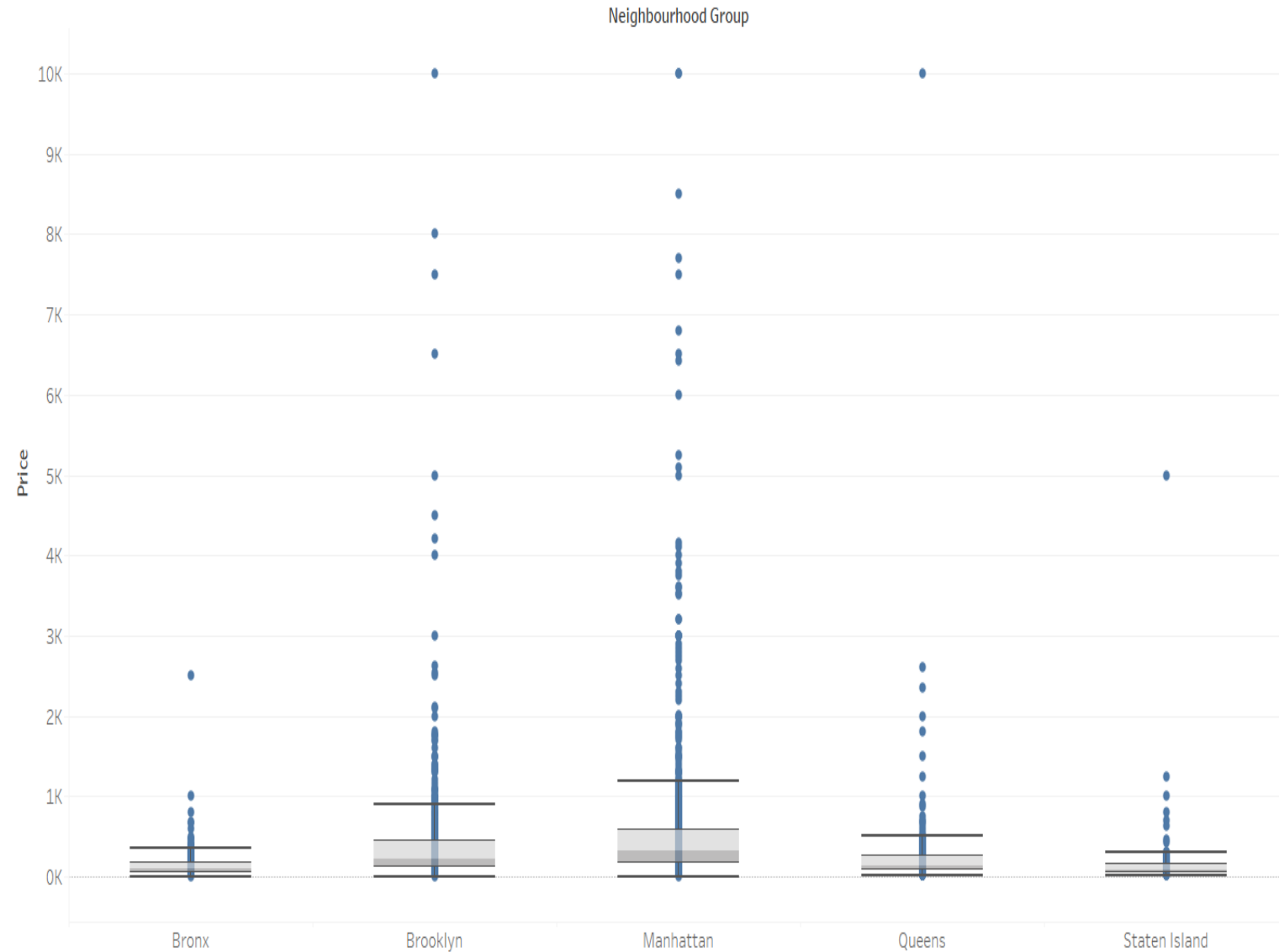
# Average price of Neighbourhood groups

- The average price of listed properties in Manhattan is around 196.9, which is highest among all neighbourhoods.

- Average price for Brooklyn is second highest i.e. 124.4.

- Bronx appears to be an affordable neighbourhood as the average price is almost half than Manhattan's average price.



Avg Price Of Neighbourhood group

Staten Island 114.8

Bronx 87.5

Brooklyn 124.4

Queens 99.5

Manhattan 196.9
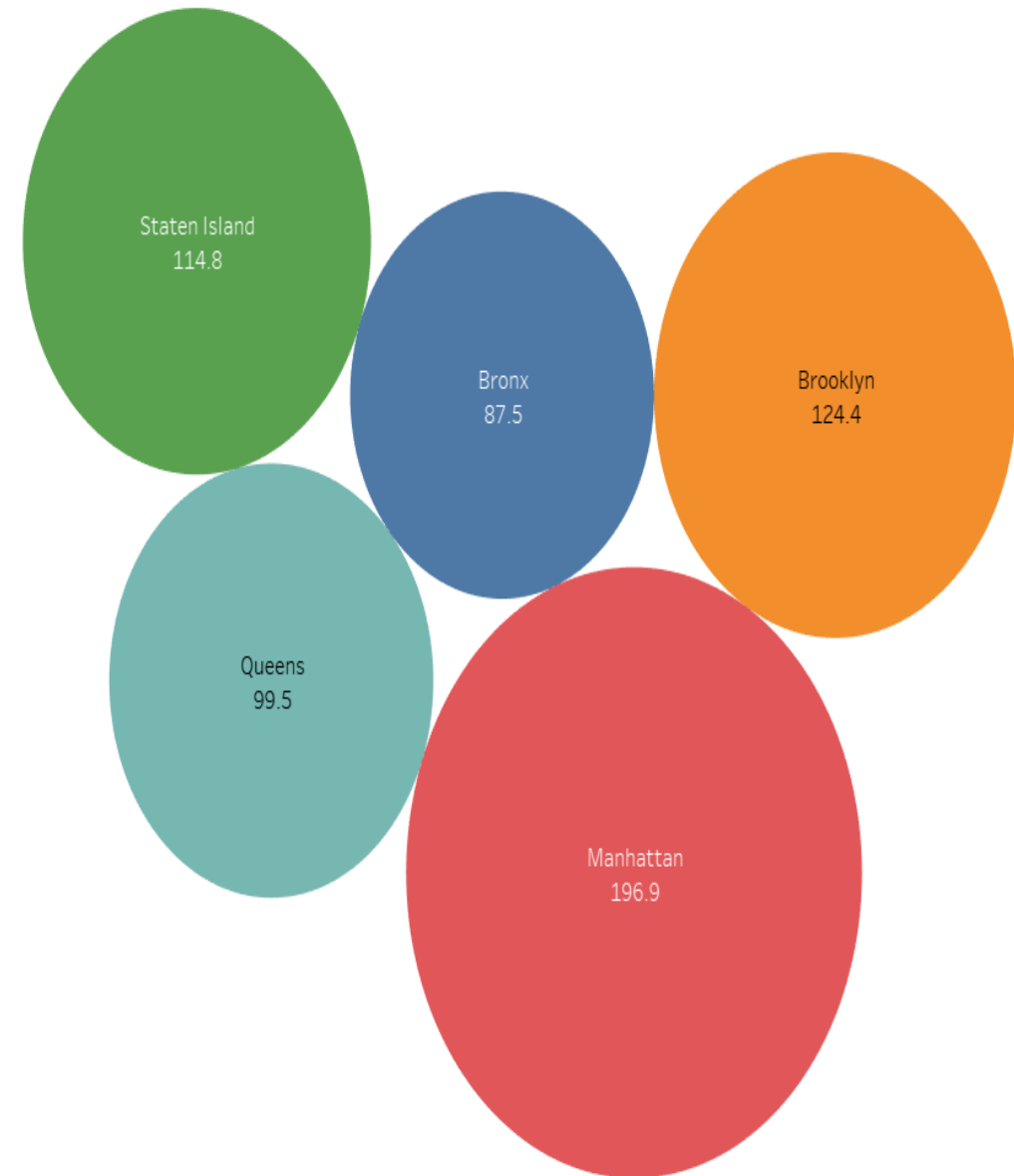
# Customer Booking with respect to minimum nights

- 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.
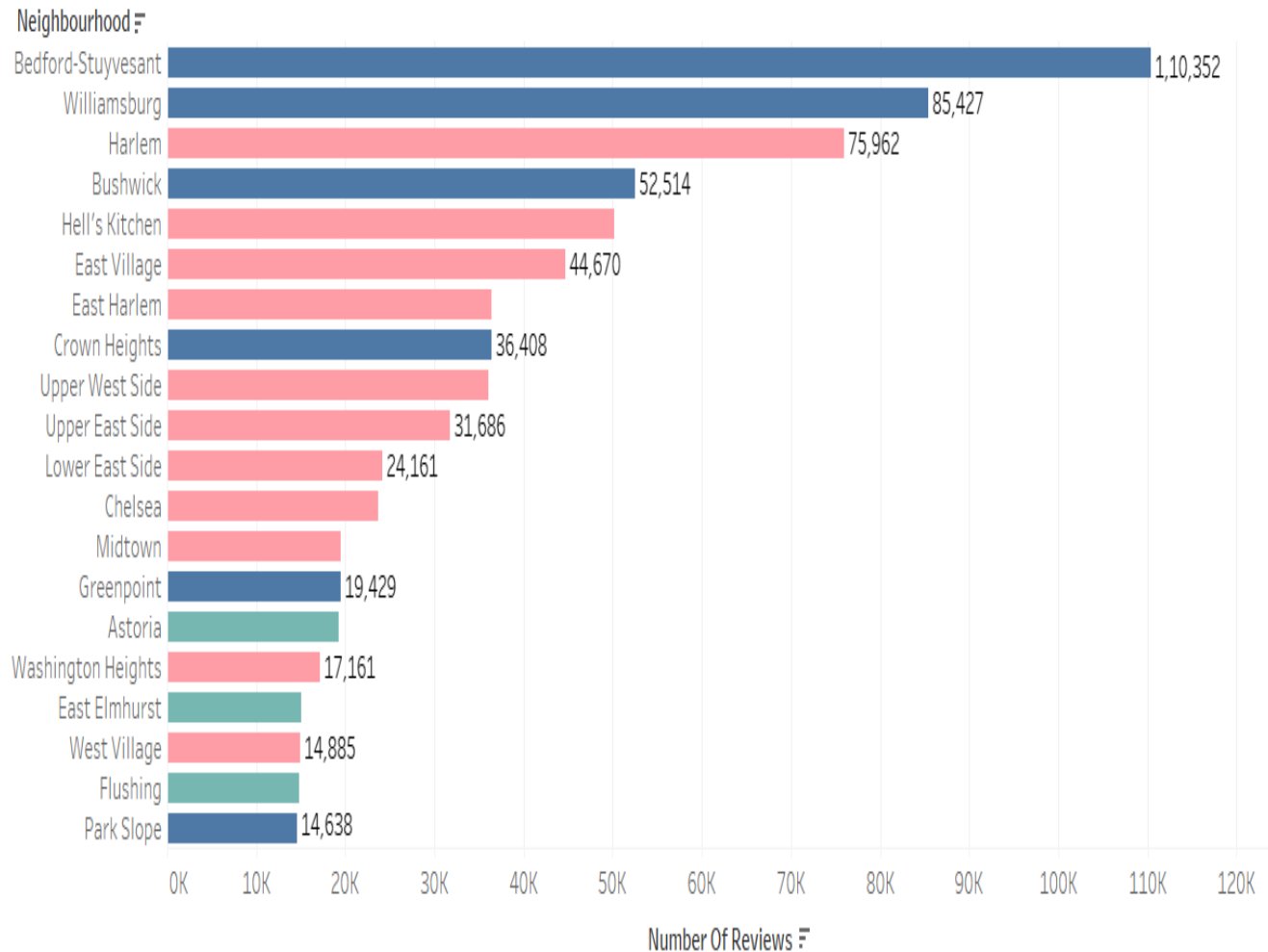


Customer booking w r t min nights
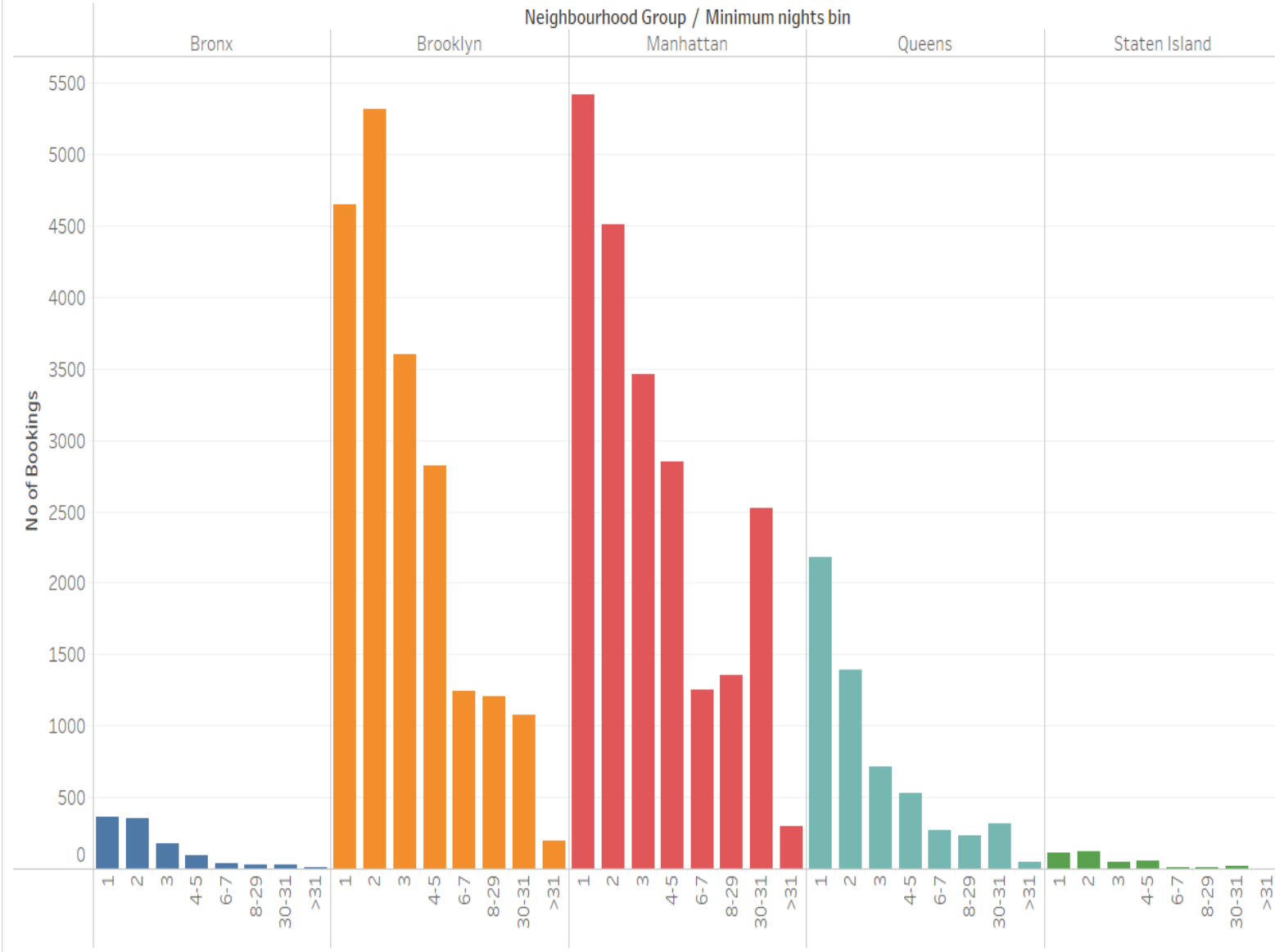
# Popular Neighbourhoods

- 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 Neighbourhoods

Neighbourhood Group
- Brooklyn
- Manhattan
- Queens

| Neighbourhood | Number Of Reviews |
|---|---|
| Bedford-Stuyvesant | 1,10,352 |
| Williamsburg | 85,427 |
| Harlem | 75,962 |
| Bushwick | 52,514 |
| Hell's Kitchen | |
| East Village | 44,670 |
| East Harlem | |
| Crown Heights | 36,408 |
| Upper West Side | |
| Upper East Side | 31,686 |
| Lower East Side | 24,161 |
| Chelsea | |
| Midtown | |
| Greenpoint | 19,429 |
| Astoria | |
| Washington Heights | 17,161 |
| East Elmhurst | |
| West Village | 14,885 |
| Flushing | |
| Park Slope | 14,638 |

# Neighbourhood vs Availability

- Availability of Bedford is highest and its price is on the lower side. It is a good choice for customers.

- After Bedford, Harlem follows the same trend.

- Chelsea's availability low but it is costly.

- On the other hand, William's price is high and has average availability.



Neighbourhood vs Availability