



# Storytelling Case Study: Airbnb, NYC

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# AGENDA



- Introduction
- Business Understanding
- Problem Statement
- Objective
- Analysis & Insights
- Conclusion & Recommendation
- Credits
- Appendix

# INTRODUCTION

Airbnb, Inc. is an American company that operates an online marketplace for lodging, primarily homestays for vacation rentals, and tourism activities.

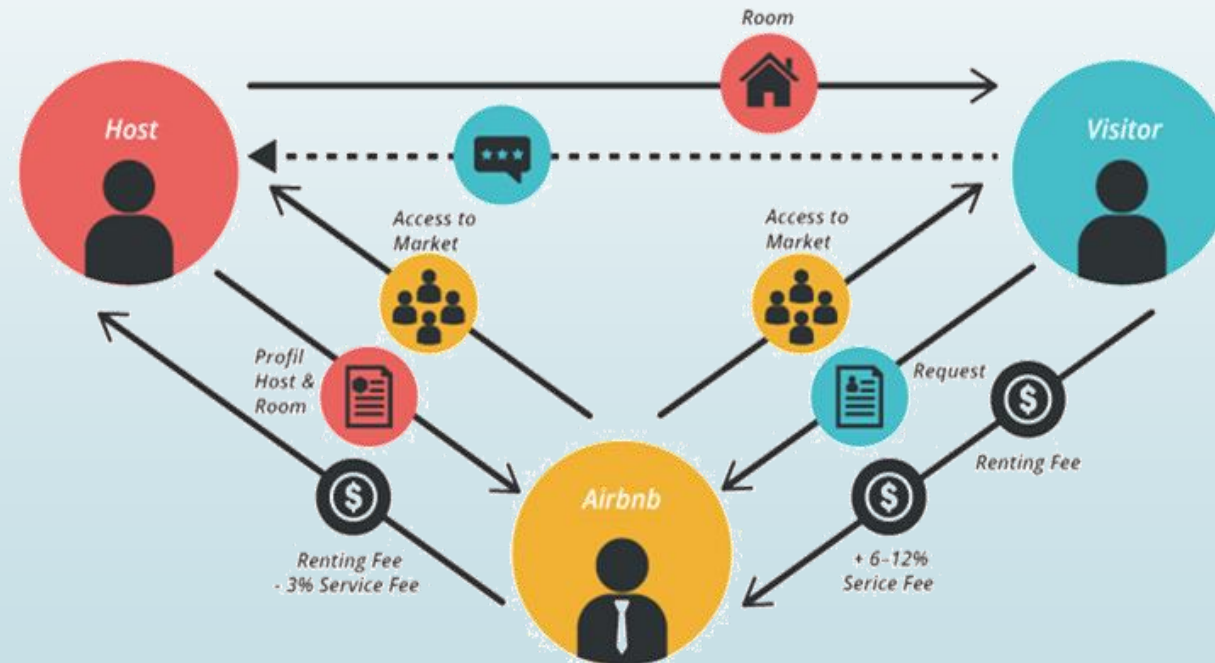
Airbnb was founded in 2008 by Brian Chesky, Joe Gebbia, and Nathan Blecharczyk. The idea for Airbnb came about when the three founders struggled to pay their rent in San Francisco and decided to rent out air mattresses in their apartment to attendees of a design conference in the city.

The idea proved to be successful, and the founders recognized the potential of a platform for hosts to accommodate guests with short term lodging and tourism related activities.



# BUSINESS UNDERSTANDING

The Airbnb business model is a two-sided marketplace that serves both property owners and guests. Property owners offer their homes or rental properties on the platform, while guests book these properties for a specified period.





# PROBLEM STATEMENT

For the past few months, Airbnb has seen a major decline in revenue of New York City Listings. 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.

The different leaders at Airbnb want to understand some important insights based on various attributes in the dataset so as to increase the revenue.



# OBJECTIVE

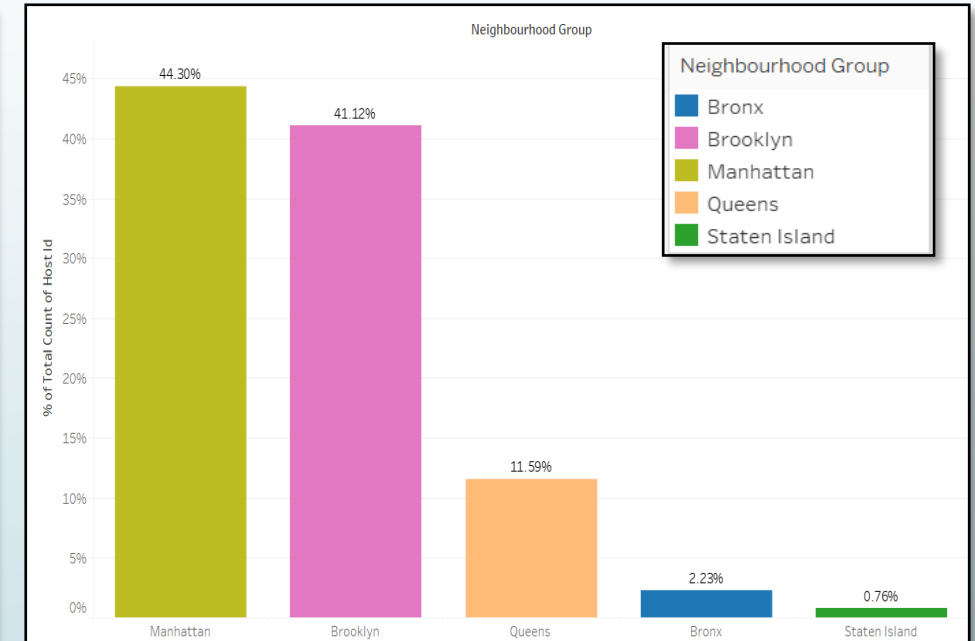
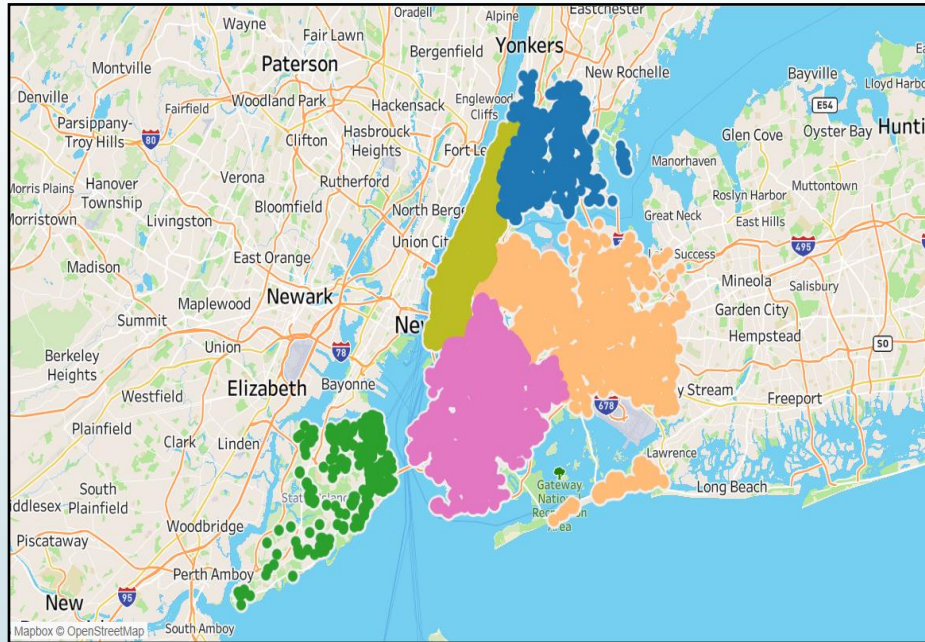
The presentation will focus mainly on the following points:

- Understand customer preferences and customer experience in Airbnb listings
- Understand the pricing relation to various parameters
- Recommendations to improve traction.

\*More on this is explained in the Methodology Document attached

# ANALYSIS & INSIGHTS

## Number of listings in NYC Neighborhood Group

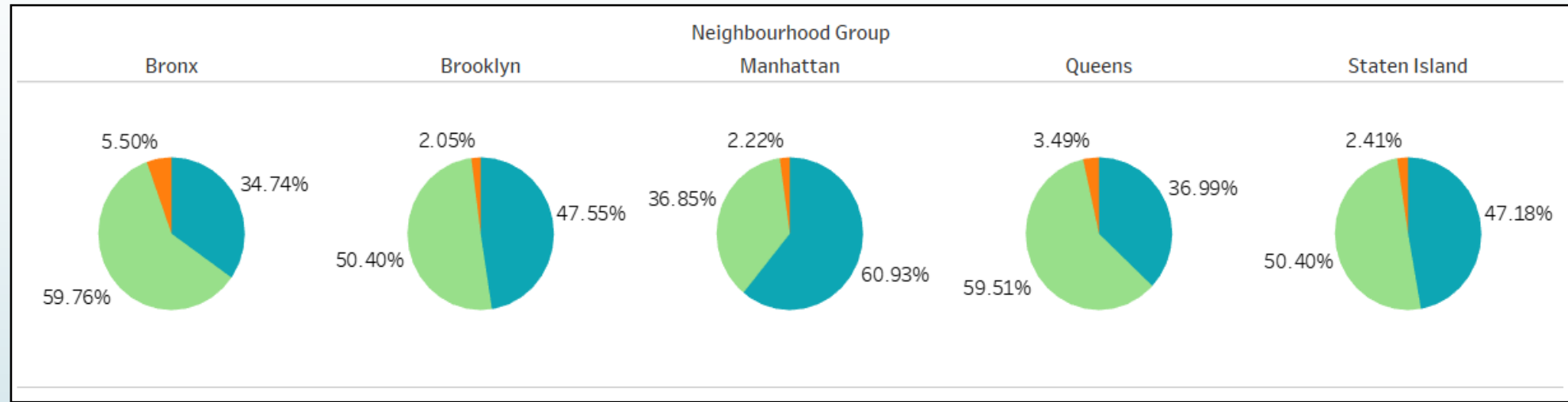
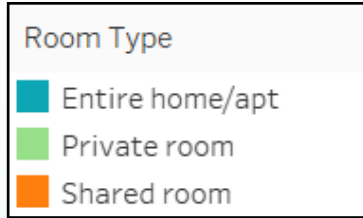


- The presence of Airbnb is substantially high in Manhattan, Brooklyn as compared to Queens, Bronx & Staten Island contribute in NYC
- Manhattan tops the listing with **44.30%**, followed by Brooklyn **41.12%** few reasons for could be high population density, tourism hub etc.
- Bronx (**2.23%**) & Staten Island (**~1%**) has the least number of listings, due to its low population density and very few tourism destinations



# ANALYSIS & INSIGHTS

## Room Type Composition in Every Neighborhood Group

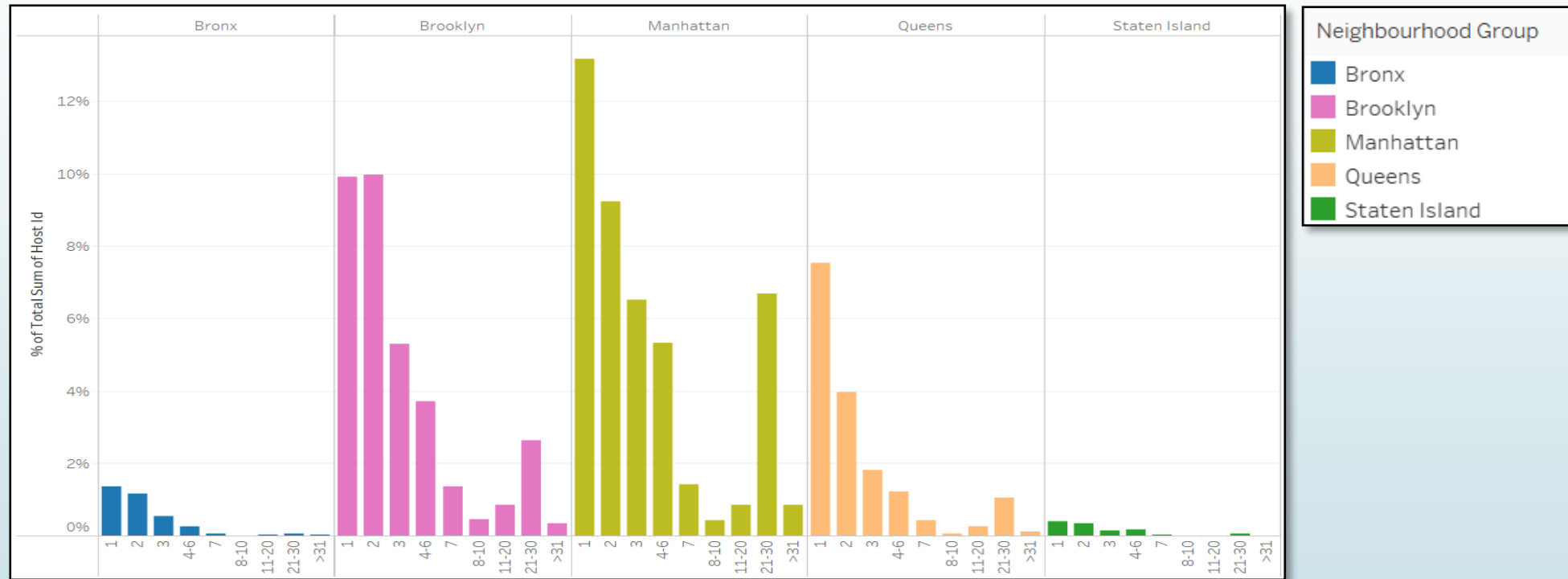


- **Private Rooms** listings are dominant in every group except Manhattan where Entire home/apt is n majority.
- Private room shares are **over 50%** for Bronx, Brooklyn, Queen & Staten Island.
- Whereas, **Manhattan** has a higher contribution in **entire home (61%)**, compared to the combined ratio of 52%.
- Very **less number of shared rooms** are available in each Neighborhood group.



# ANALYSIS & INSIGHTS

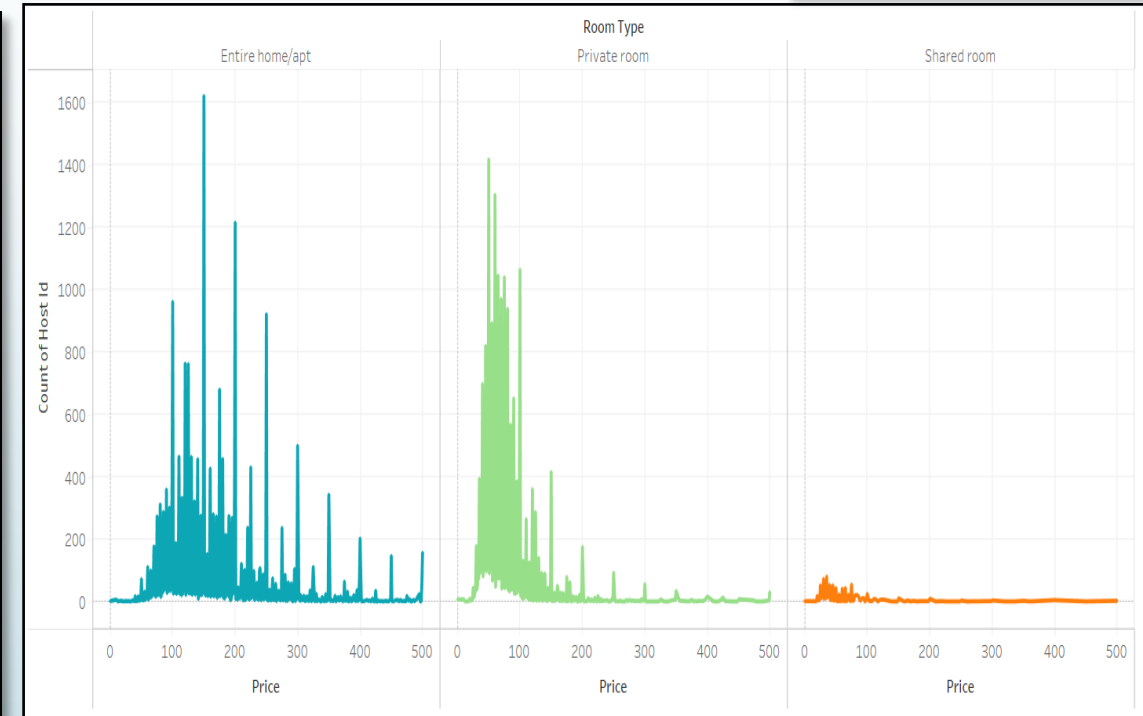
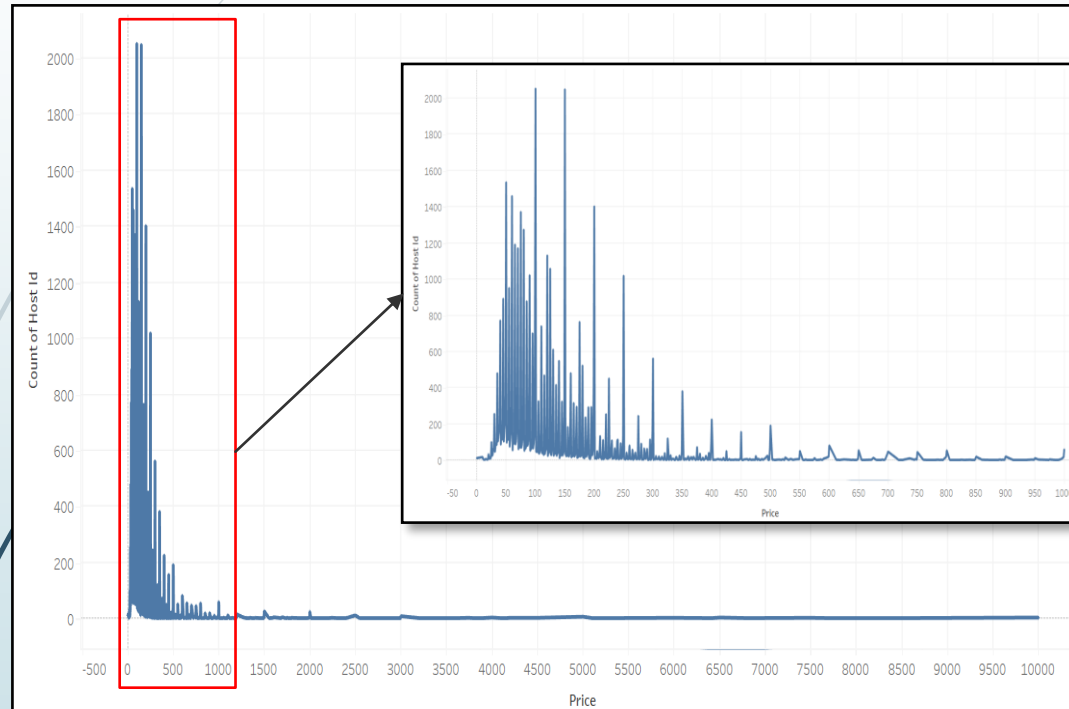
## Minimum Number of Nights per Neighborhood Group



- The listings with **Minimum nights 1-6** 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 & Brooklyn** 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.

# ANALYSIS & INSIGHTS

## Price Distributions of the listings



- The distribution appears to be **skewed towards left** in a range of \$1 to \$10,000.
- Furthermore on zooming in skewed region the majority distribution tends to be between \$50 to \$ 200.
- The prominent spikes has been observed at the prices \$50, \$100, \$150, \$200, \$250, \$300, \$350 & \$400 this be could be host preferring a whole number for pricing of their listing.

# ANALYSIS & INSIGHTS

## Median Price, Room Type & Neighborhood group

Room Type	Neighbourhood Group				
	Bronx	Brooklyn	Manhattan	Queens	Staten Island
Entire home/apt	\$100.0	\$145.0	\$191.0	\$120.0	\$100.0
Private room	\$53.5	\$65.0	\$90.0	\$60.0	\$50.0
Shared room	\$40.0	\$36.0	\$69.0	\$37.0	\$30.0

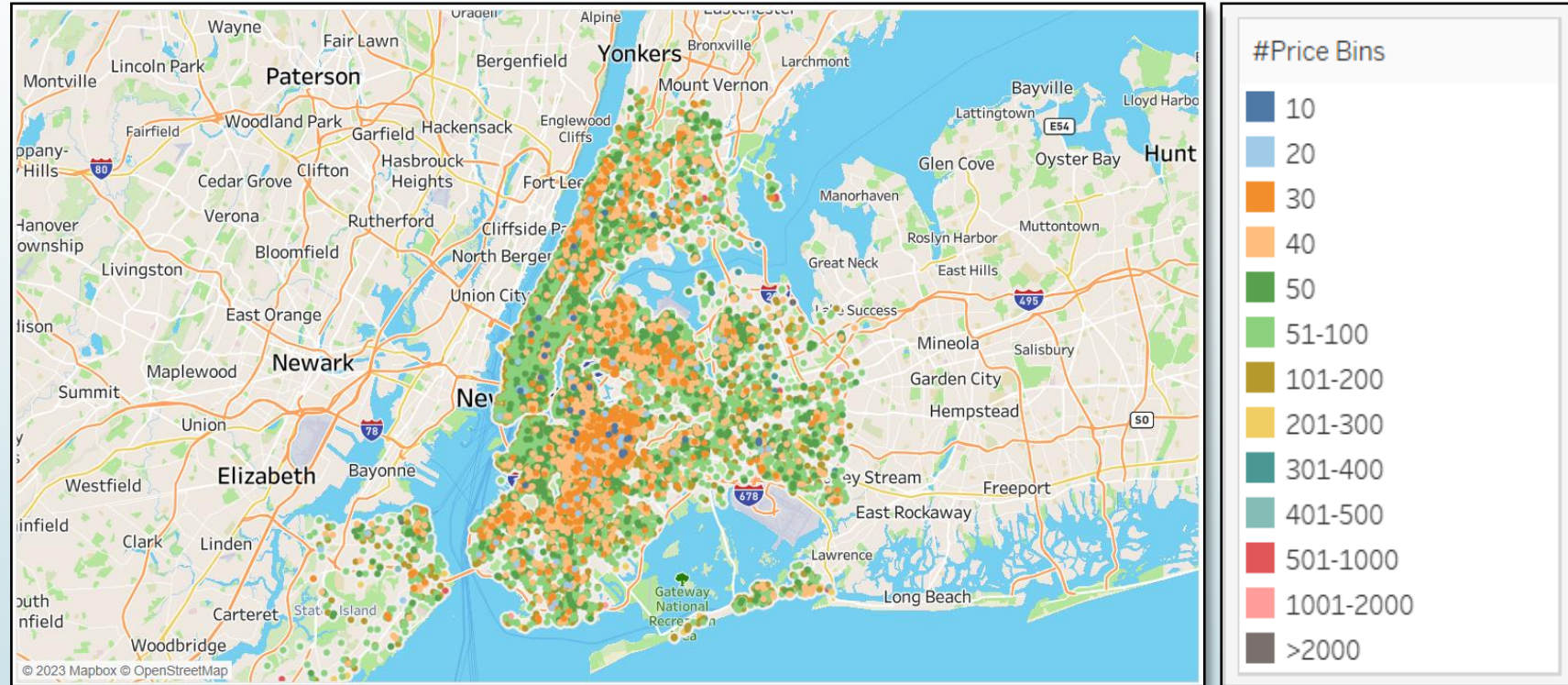
Manhattan Median Price \$ 150.00	Brooklyn Median Price \$ 90.00
Queens Median Price \$ 75.00	Bronx Median Price \$ 65.00
Staten Island Median Price \$ 75.00	

- Manhattan appears to have the highest median price of \$150.0. The 'Entire home/apt' room type in Manhattan is the most expensive at \$191, much higher than the overall average
- 'Shared Room' type is the cheapest in Staten Island, Queens & Brooklyn.

**NOTE:** Median price is considered in place of Average price as the price distribution is skewed towards left as shown in the pervious slide.

# ANALYSIS & INSIGHTS

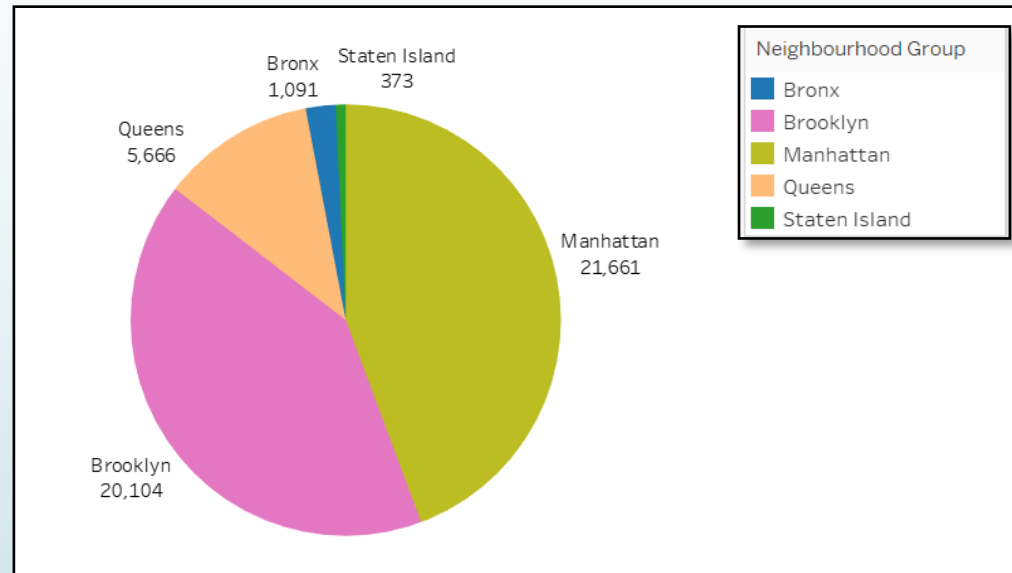
## Price Density across Neighborhood Group



- The map displays the price variation, which appears to be distributed uniformly in the in land areas.
- We see spike in prices in coastal cities, owing to better view from stays and easy ferry reachability.
- we zoomed in, we also observed higher pricing near colleges or important monuments/landmarks.

# ANALYSIS & INSIGHTS

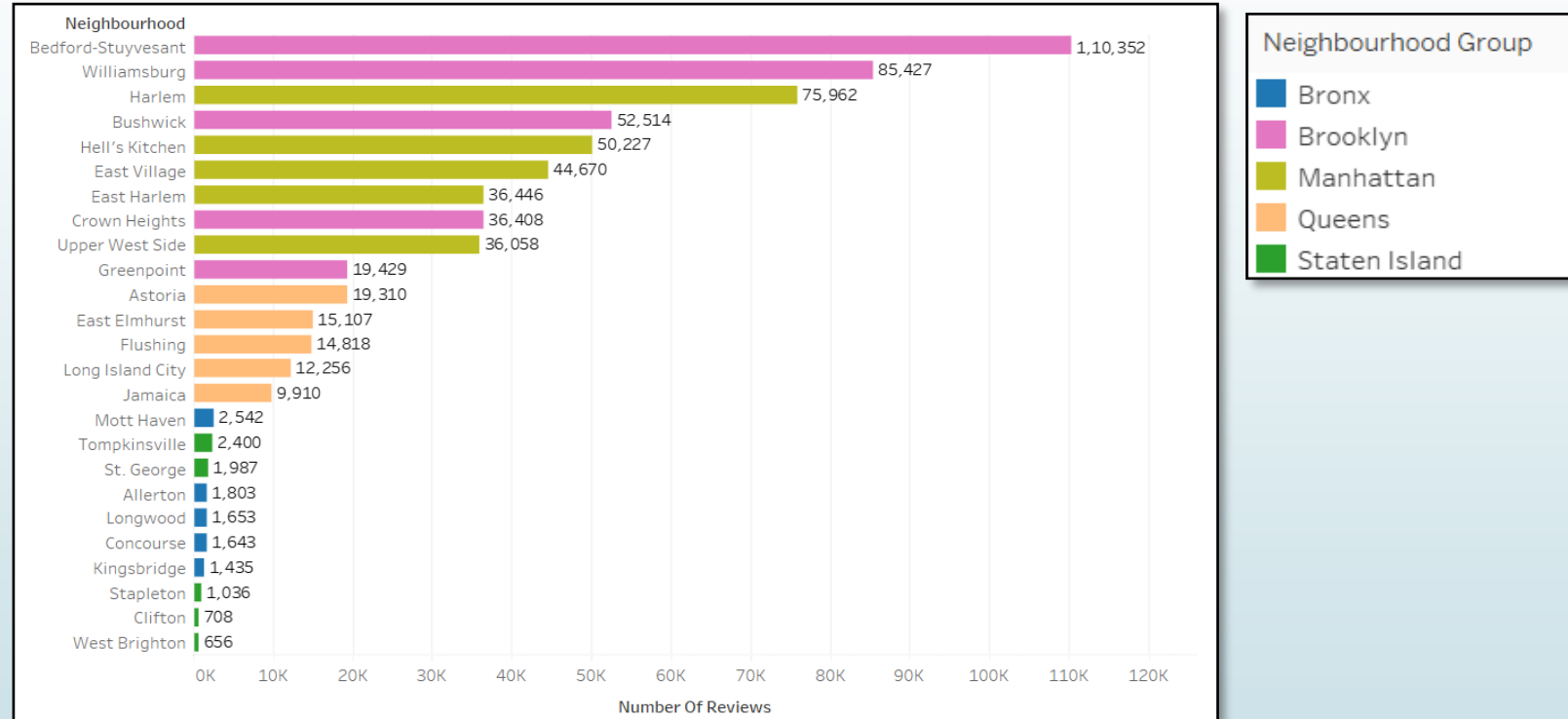
## Customer Reviews per Neighborhood Group



- The chart indicated the number of reviews for the for Manhattan & Brooklyn has majority of share with respect to other groups
- Manhattan tops the reviews count with **21,661** followed by Brooklyn **20104** few reasons for could be high population density, tourism hub etc.
- Bronx **1091** & Staten Island **373** has the least number of reviews, due to its low population density and very few tourism destinations

# ANALYSIS & INSIGHTS

## Top5 Highest Customer Reviews in every Neighborhood Group



- We see that **Bedford-Stuyvesant from Brooklyn** is the highest popular with 1,10,352 no of reviews in total followed by **Williamsburg** 85,427.
- **Harlem from Manhattan** got the highest no of reviews followed by **Hell's kitchen**.
- The higher number of customer reviews hints the frequency of renting is more & hence higher satisfaction in these localities.





# CONCLUSION & RECOMMENDATION

- Bronx & Staten Island has **costal region** which could be leveraged for more traction of customers
- As proportion of shared rooms is substantially low these could be targeted with discounts to increase bookings or can be looked into to be converted to other types.
- **Weekly or bi-weekly rentals** can also be acquired, as these can be used customers stranded in NYC for quarantine purposes.
- More number of hosts & listings with **monthly rental duration (30-60-90)** can be acquired. We see a good potential in the 30-day rental window. Manhattan & Brooklyn have higher number of 30-day bookings compared to the others; these areas can be further targeted.
- **New acquisitions and expansion** can be done **in the price range of \$50 -\$200** as it satisfies both parameters of volume of customer traffic and customer satisfaction.
- To generate **more revenue Entire Home/apt type** should be focused as it has more traction as well good pricing. More offers & services would attract customers.
- New acquisitions can be explored to acquire 'private rooms' in Manhattan and Brooklyn and 'entire homes' in Bronx and Queens.
- Brooklyn has an median price of \$90. As there are already many listings available in Manhattan, Brooklyn can be considered for expansion.
- Increasing acquisitions and new properties in coastal regions can increase customer bookings.



# APPENDIX

## Data Dictionary

Provided with Airbnb New York City Listings Dataset till 2019 (48895 Rows \* 16 Columns)

Column	Description
Id	Listing ID
Name	Name of Listing
Host_id	host ID
Host_name	Name of Host
Neighborhood_Group	Neighbourhood_group -Location
Neighborhood	Neighborhood -Area
Latitude	Map co-ordinates
Longitude	Map co-ordinates
Room_type	Listing space type
Price	Price of listing
Minimum_nights	Amount of nights minimum
Number_of_reviews	number of reviews
Last_review	Lastest review
Reviews_per_month	number of reviews per month
Calculated_host_listings_count	no. of listings per host
Availability_365	no. of days when listing is available for booking



# APPENDIX

## Methodology :

- The analysis and visualizations were done using Tableau 2023.1 considering various parameters given in the data set.
- The key categorical features extensively used are Neighborhood Group & Room type
- The emphasize the nature of analysis towards this particular group of reviewers following parameters were considered –
  1. Customer experience : Neighborhood, Room type & minimum nights offered
  2. Price variation : Price Distribution, Room type, Neighborhood Group, Number of reviews & Geography.
- The initial analysis done while keeping key parameters in mind with respect to Count of listings in those parameters.
- Furthermore numerical features such as availability & minimum number of nights were subjected to univariate analysis with key categorical features
- Lastly the analyzing the customer reviews with the Neighborhood group
- Recommendations have been made keeping in mind the above parameters.

## Assumptions :

Upon checking the data there was no direct relation found to customer satisfaction. Hence we have taken number of reviews as the measure of liking of customer towards listings of properties.



# CREDITS

- [UPGRAD](#)
- <https://docs.python.org/3/>
- [TABLEAU](#)
- [AIRBNB](#)
- [Airbnb Business understanding](#)
- [Tableau Viz](#)



**THANK YOU**