

# Airbnb NYC Case Study – Methodology

## Introduction:

Airbnb, Inc. is an American company that operates an online marketplace for lodging, primarily homestays for vacation rentals, and tourism activities. It provides the platform for the hosts related to the tourism activities.

New York City is the most populated and diverse city in US. This city made up of cities like Manhattan, Brooklyn, Queens, the Bronx and Staten Island, all of which were “grouped” together into a single city.

## Problem Statement:

Airbnb saw 50.2 million website visits in January 2020 but with the onset of the pandemic, Airbnb was one of the many businesses in the travel industry to be hit hard. Airbnb has seen a major decline in revenue during the COVID-19 pandemic, Airbnb bookings dropped as much as 90% in some cities.

## Presentation 1(Analysis of Airbnb Listings in New York):

### Objective:

Now covid restrictions are started lifting and people starts their daily routine and traveling so we want to prepare for all the changes

The Presentation focuses on better understating of Airbnb listing w.r.t many parameters. Focusing on Customer preferences w.r.t Room type and Reviews and Prices.

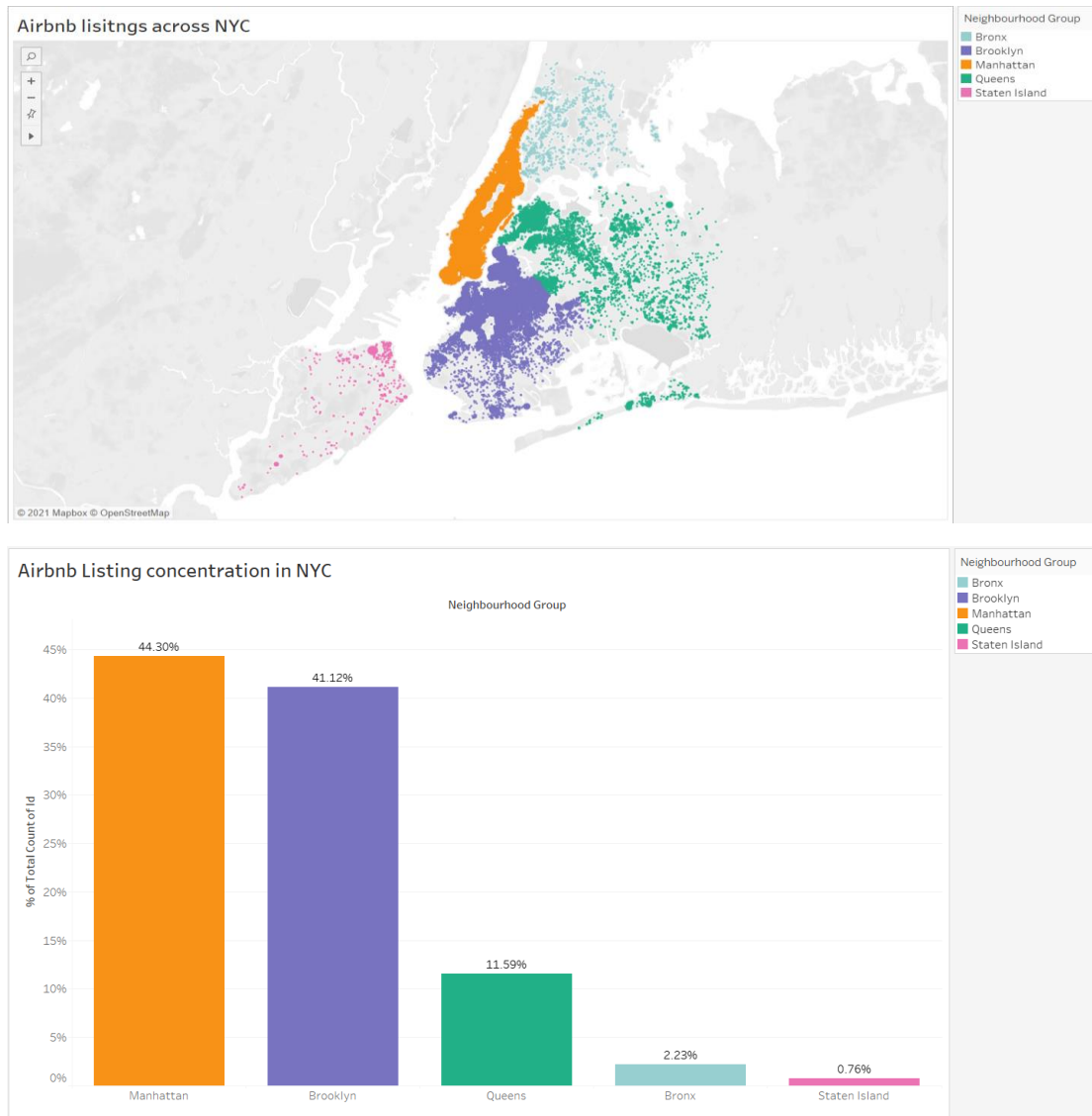
### Methodology:

- The analysis and visualizations were done using Tableau considering various parameters.
- The data was analysed through univariate and bivariate analysis.
- The main parameters that have been taken into account for analysis are –
  - Geography based bookings
  - Bookings based on room type
  - Number of reviews
  - Minimum number of nights
- Inferences have been made keeping in mind the above parameters

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## Exploratory Data Analysis:

### ❖ Airbnb listing spread out in NYC?



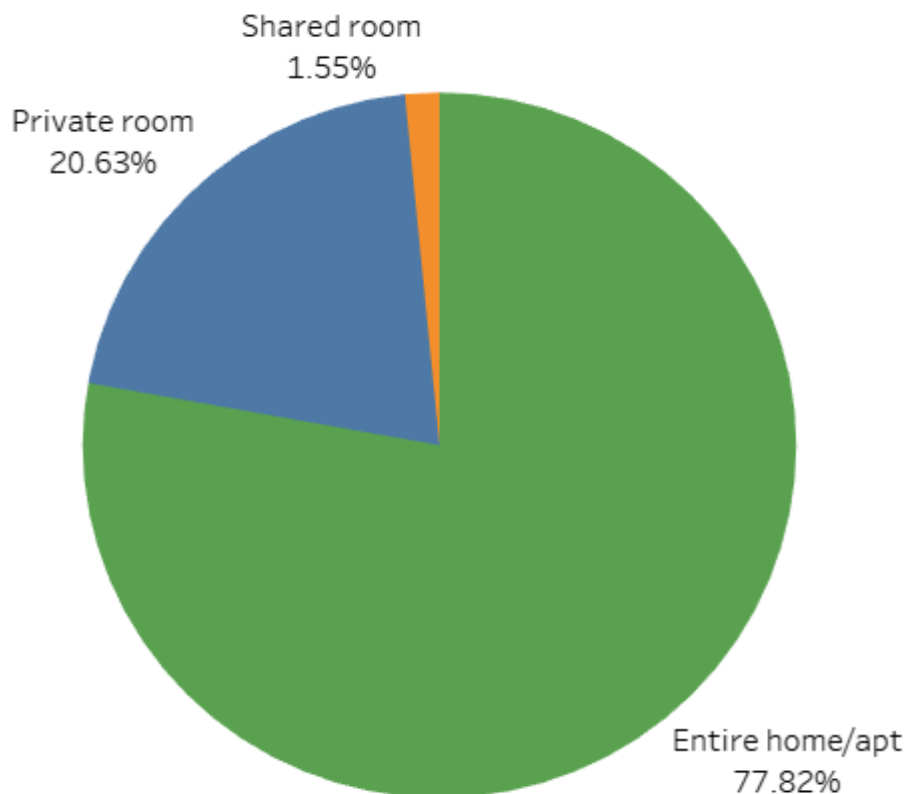
**Map plot:** Created by using the parameters latitude, longitude, neighbourhood and neighbourhood group. This gave us an understanding on what area we were dealing with. –

**Bar plot:** This was used to understand the concentration of the listings in each neighbourhood. We use the parameters Neighbourhood group & CNT(Id).

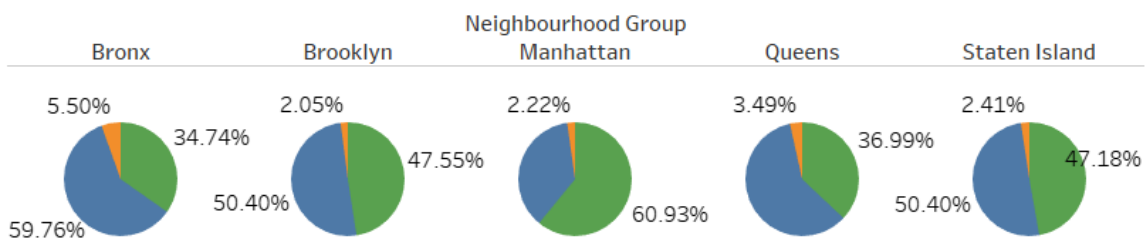
**Inference:** We see that 44% of listings are across Manhattan and less than 1% of the listings across Staten Island

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## ❖ Types of rooms preferred by customer?



## Room Type w.r.t Neighbourhood



First Pie chart shows overall preference of the customer across NYC.

Second pie chart according to the neighbourhood group

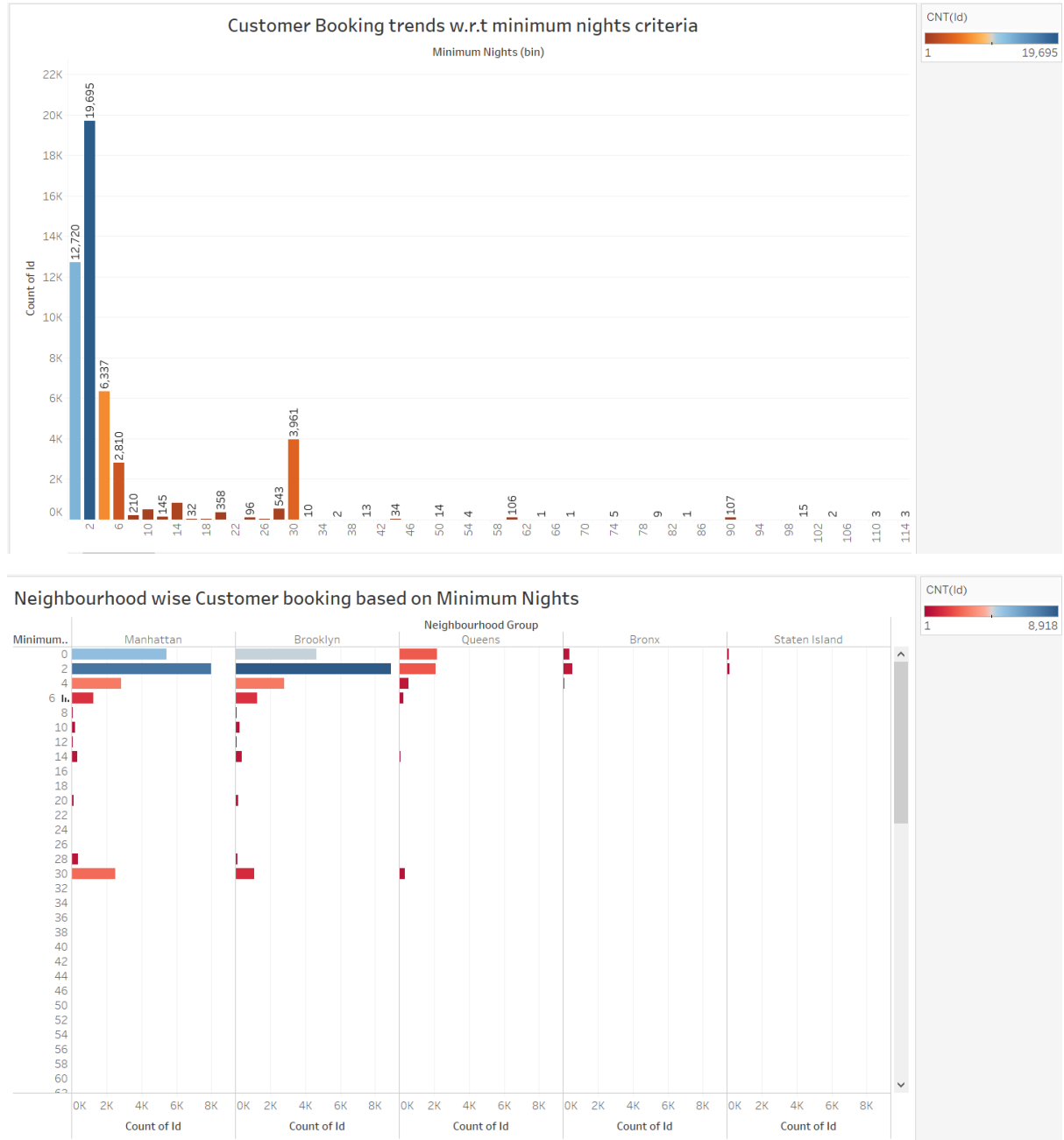
### Inference:

- We clearly see that approximately 78% of the customers prefer an entire home/apartment whereas less than 2% of the customers preferred shared rooms
- We can see that Manhattan has higher concentration of customers preferring an entire apartment whereas the preference in Bronx is a private room
- Customer are likely to choose a shared room in Bronx and less likely in Brooklyn

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## ❖ Ideal number of minimum nights to increase customer bookings?

We wanted to observe the customer booking pattern based on the minimum number of stay nights.



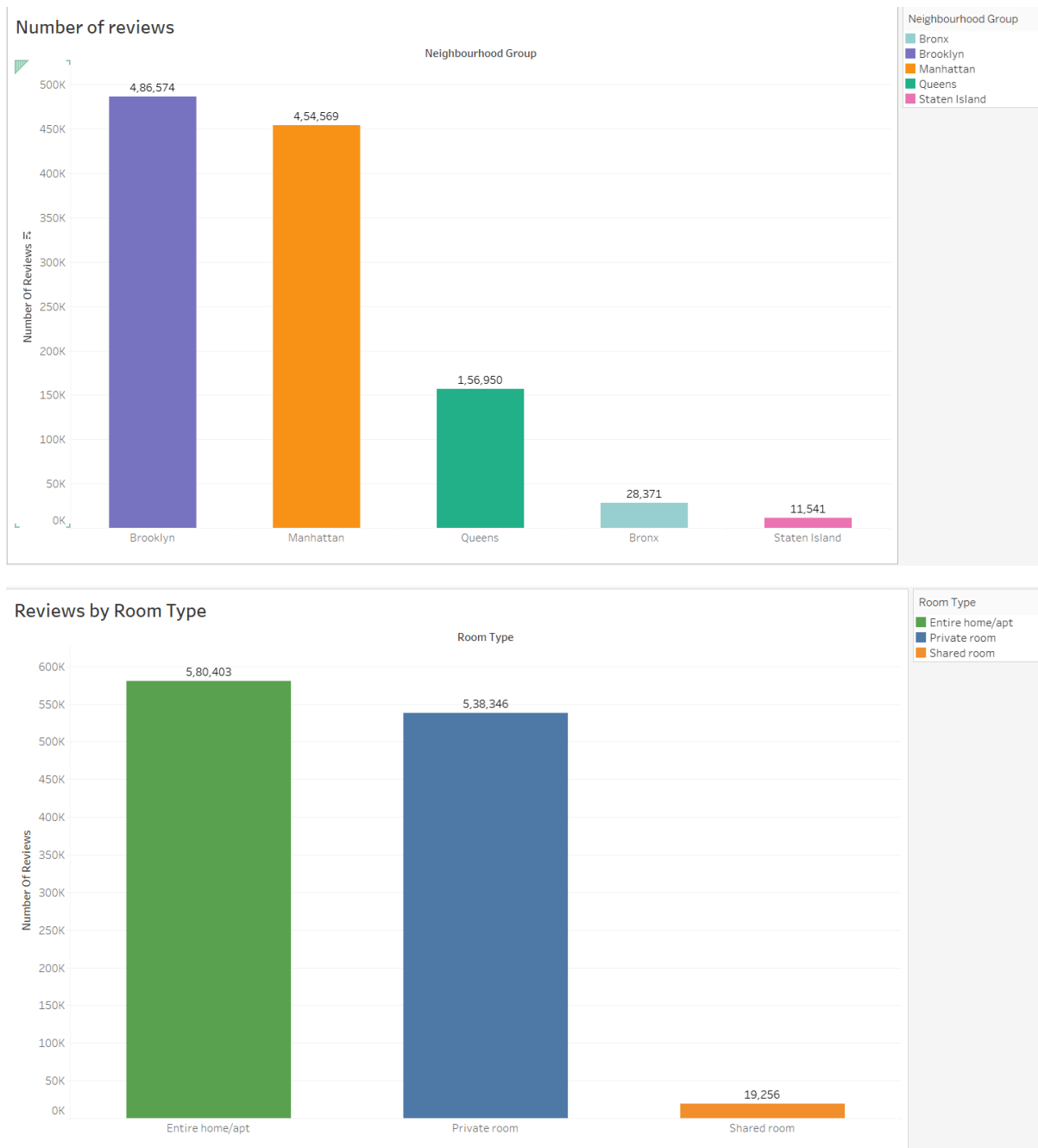
Bar plot uses for both the minimum nights preferences

### Inference:

- We see large group of the customers prefer to 2 nights booking while a small group prefers a 30 day stay as well
- Here we see Brooklyn taking a lead on a 2 day stay over Manhattan, however, it is less likely that customers choose a 30 day stay in Brooklyn

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## ❖ Reviews Based on neighbourhood and room type?



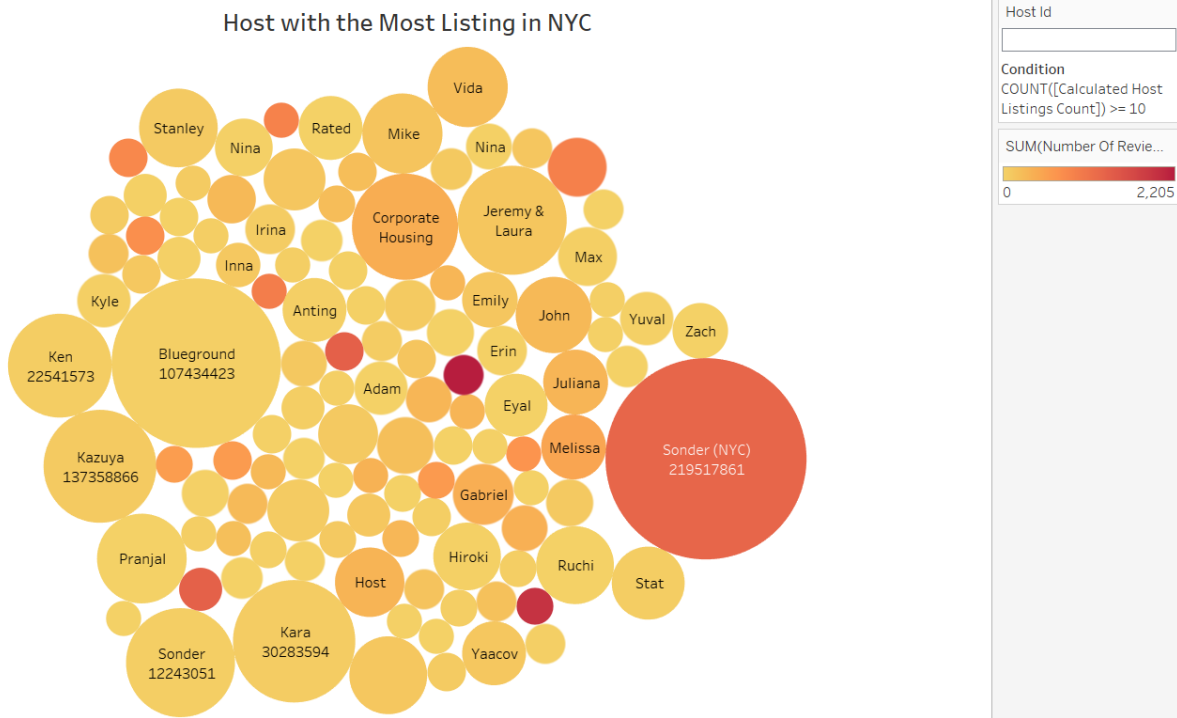
Bar plot: uses for neighbourhood and reviews

### Inference:

- We see most reviews across Brooklyn and Manhattan which also indicates that most of bookings happen in these regions
- We also observe that customers provide rating when they book an entire home/apartment or a private room compared to shared room, which indicates shared rooms are not much preferred.

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### ❖ Hosts who have the highest listings w.r.t Neighbourhood?



**Inference:**

- 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

## Presentation 2 (Improving Airbnb Business in NYC):

### Objective:

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. To do so, we will focus on understanding the Airbnb listings across various parameters like customer preferences, booking trends, accommodations reviews and so on.

### Methodology:

- The analysis and visualizations were done using Tableau considering various parameters.
- The analysis was done keeping in mind the business side of the project. The important factors

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- taken into consideration were customer booking volume and customer preference.
- The first half of the presentation focused on customer preference. The second half compared
- various parameters of customer preference with respect to price.

The following parameters were considered –

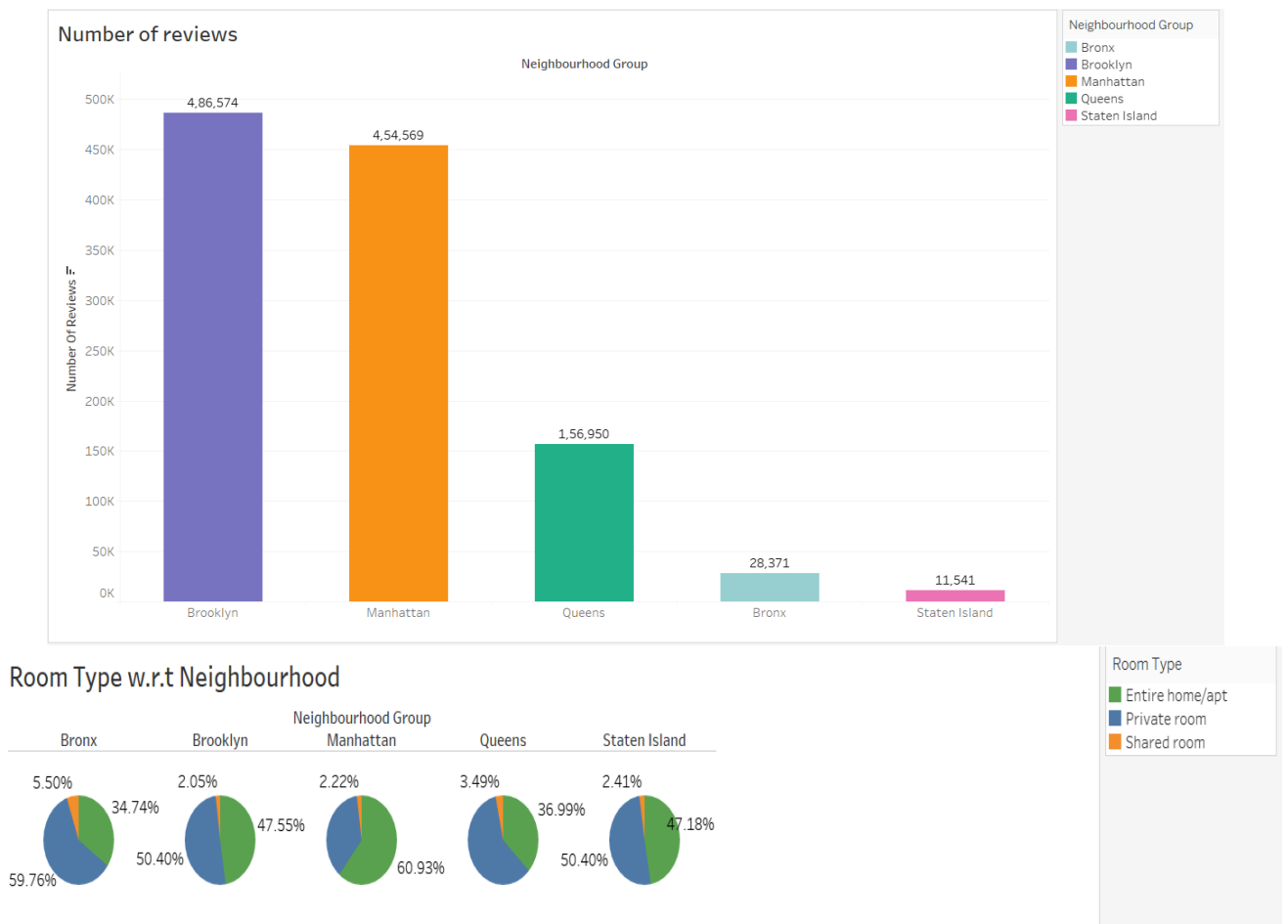
- Customer experience: Neighbourhood, Room type & minimum nights offered
- Price variation: Volume of customer booking, Room type, Neighbourhood,
- Number of reviews & Geography.

Recommendations have been made keeping in mind the above parameters.

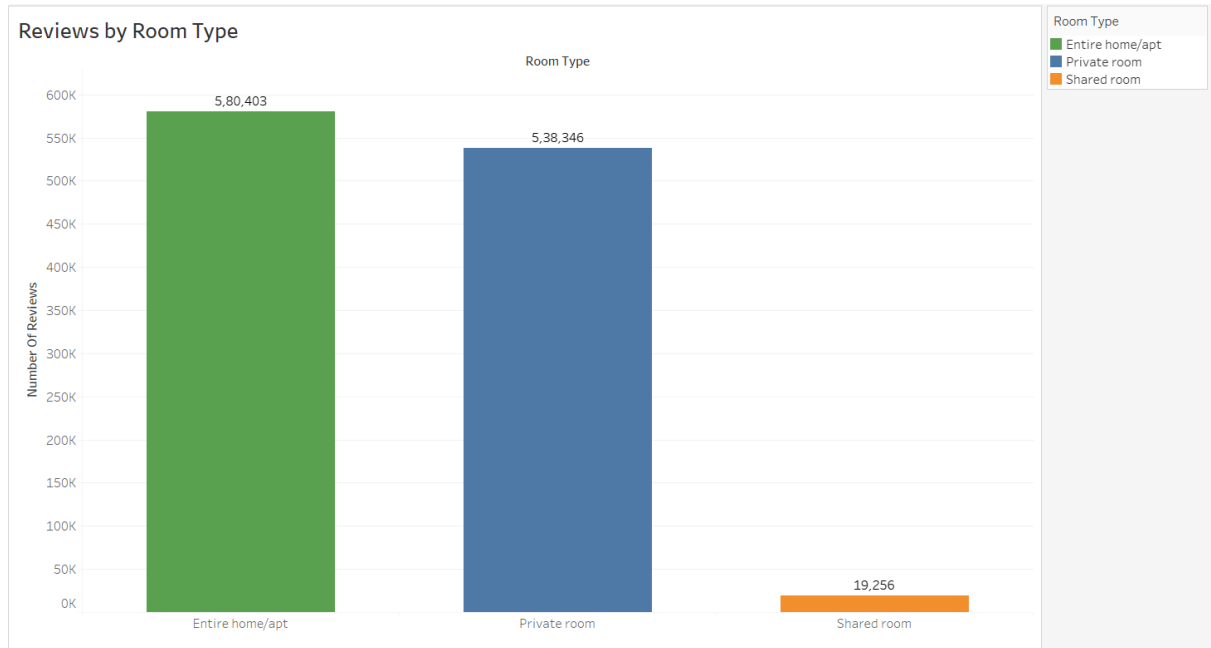
## Exploratory Data Analysis:

### ❖ Customer preference for neighbourhood & room type.

We have 3 room types: Entire home/apartment, private and shared rooms and we can see by the reviews that the preference is either an entire home or private rooms.



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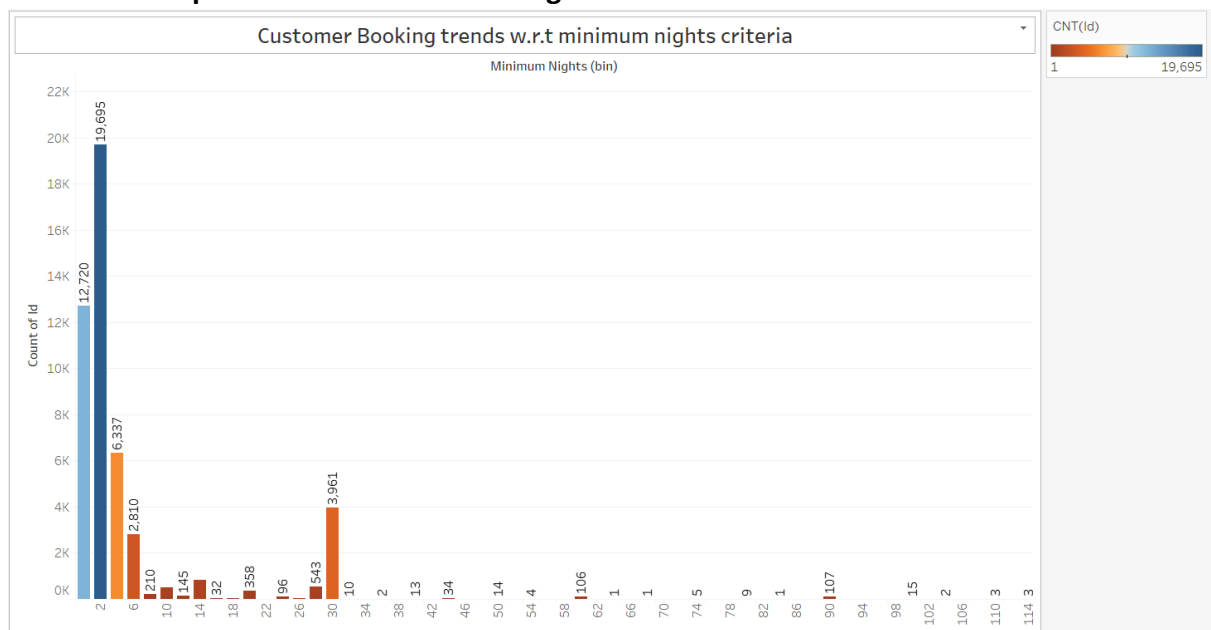
## Observation:

we can see maximum reviews in listings for Manhattan & Brooklyn, implying that more bookings happen in these neighbourhoods. (The higher number of customer reviews imply higher satisfaction)

## Recommendations:

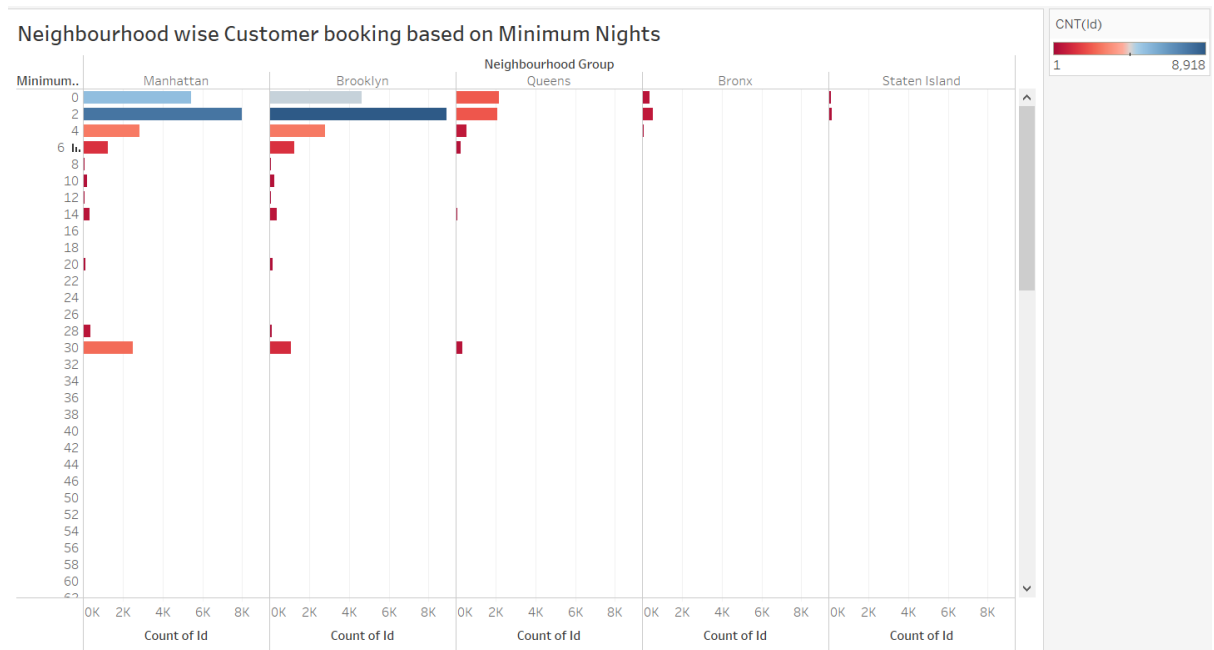
- We should focus on promoting shared rooms with relevant discounts where we see certain affinity
- We should also look acquiring new listings across Manhattan and Brooklyn where customer look for an entire home or private rooms

## ❖ Customer preference on minimum nights.





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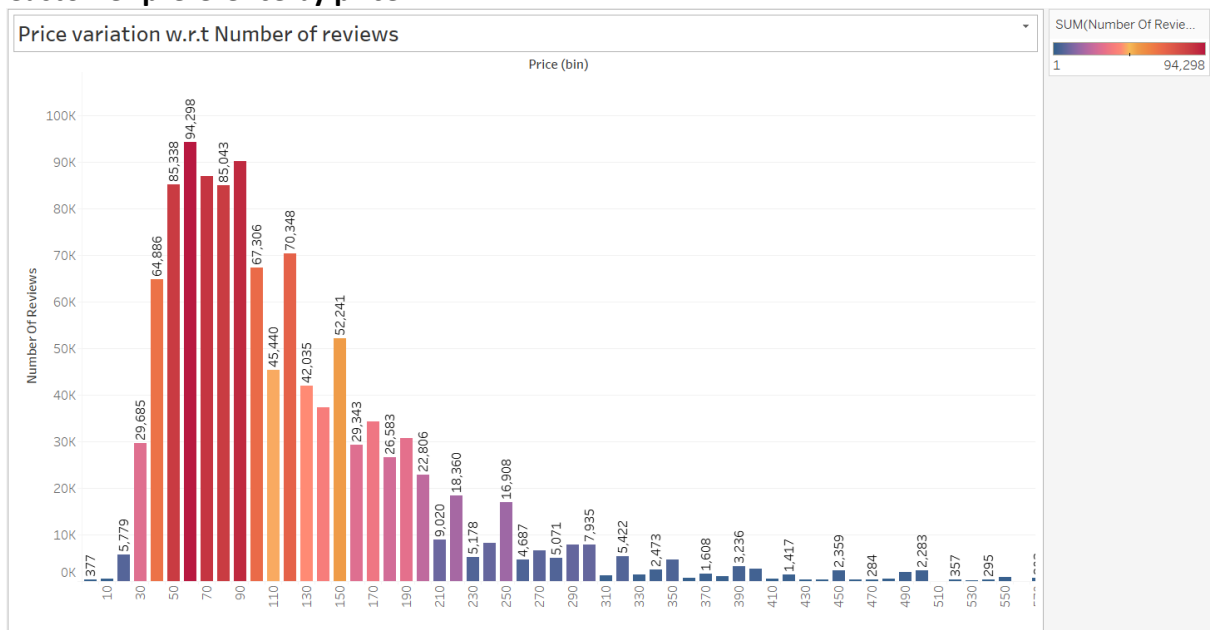
## Observation:

Customers are likely to book an accommodation for 2 nights and also good number till 6 days. We also see good number of customers prefer 30 days stay as well

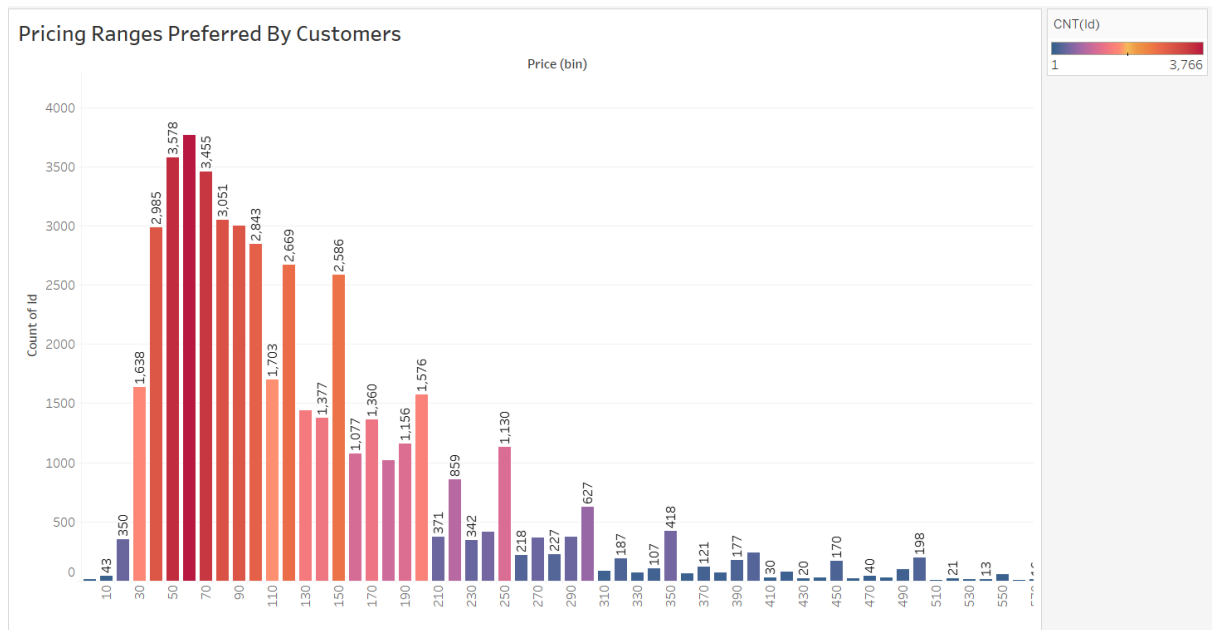
## Recommendations:

Promote longer stays (30 days - 90 days) with appropriate discounts and also for those who booking is less than 2 days across Manhattan and Brooklyn

## ❖ Customer preference by price.



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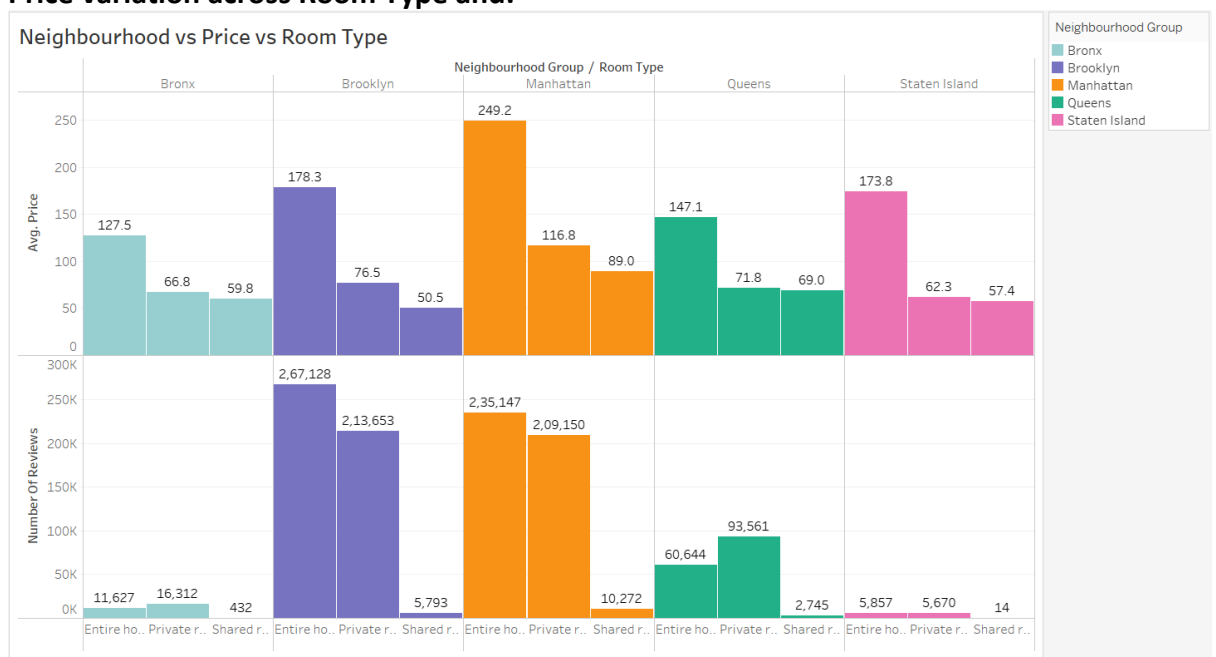
## Observation:

We see that the price ranges between \$40 - \$160 having the most preference based on the reviews as well

## Recommendation:

Acquire more listings in this price range and also have discounts on higher priced listings based on the number of customer bookings which will promote higher user traction across all properties

## ❖ Price variation across Room Type and.



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## Observation:

While the average price range in Manhattan is \$196.9 the cost of entire home is high compared to Brooklyn which has \$124

## Recommendations:

As mentioned in the previous slide Brooklyn falls under the customer preferred range of \$40-\$160 across all rooms sections and we need to look at having similar price range in Manhattan as well

## OVERALL RECOMMENDATIONS:

- ✚ Acquire more properties for listings across Manhattan and Brooklyn
- ✚ Promotions and discounts to increase less than 2 days stay into 2 days and for 30-90 days as well
- ✚ Listings to be priced between \$40-\$160 for new acquisitions which promotes both bookings and customer satisfaction
- ✚ Promote shared rooms with relevant discounts to increase bookings
- ✚ Acquisitions across Bronx and Queens for private rooms with the range of \$60-\$100 can attract more bookings
- ✚ Start weekly and bi-weekly rentals as there are certain group of customers who looks for these kind of accommodations