

# Capstone Project

## Airbnb booking Analysis

### Team Members

#### 1. Chirag Sharma

(email - [chiragsharma02@gmail.com](mailto:chiragsharma02@gmail.com))

contact no. 9467906656)

Github commit- <https://github.com/ChiragSharma02/Air-BNB-EDA>

#### 2. Sammed Majalekar

(email- [sammed97@gmail.com](mailto:sammed97@gmail.com))

contact no. 8983838315)

Github commit- <https://github.com/sammed97/Airbnb-Data-Analysis>

# About the project

This is our first capstone project Airbnb booking analysis. With this project we are implementing what we learn during the course.

This project tell us the new trend hosting of Airbnb in world. Presently These types of staying services are in demand also the most unique way and personalized way of experiencing the world.

Analyzing the data of Airbnb and used in:-

- Security
- Business decision
- Understanding of customers and different host.

# Point of contention

- Data Summary.
- Price analysis.
- Getting best host according to neighbourhood group.
- Getting Most busiest host in Entire NYC.
- Which neighbourhood group have most Airbnb.
- Which host Have maximum Listing.
- Which type of room are Mostly booked by the guest According to neighbourhood.
- Traffic of guest on their respective neighbourhood group.

# Data Summary

Dataset is provided by Alma better. We create some new data frame from the main data frame as follow :-

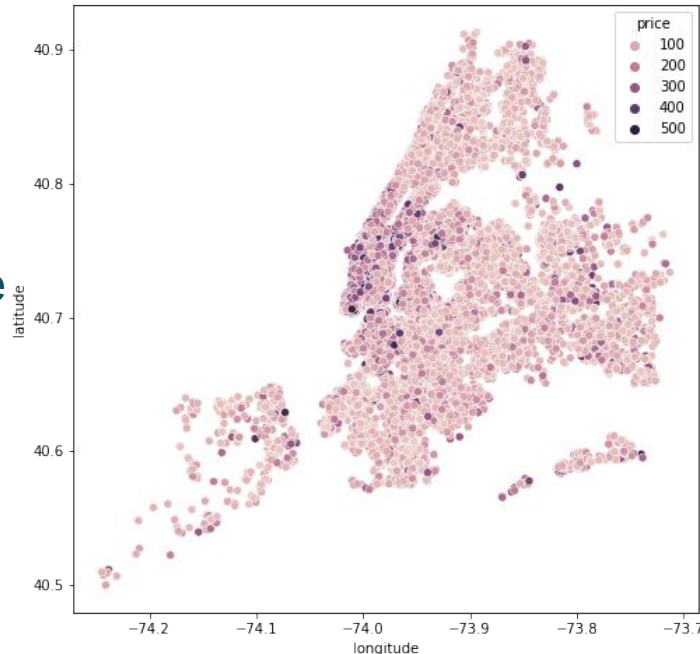
- `df` = main data frame which contain raw data set
- `new_df` = this dataset contain 0 null value, all columns except `['id', 'last_review']`
- Data fame to their respective Neighborhood like `brooklyn_df`, `manhattan_df` etc.
- `top_neighbourhood` = This data frame contain to Neighbourhood with respect to count of listing to find top listing.
- `price_df` = This dataset we use to get Price according to their respective neighbourhood group.

# Price Range of Airbnb in entire new York city

In this we analyze the price range in the entire New York city

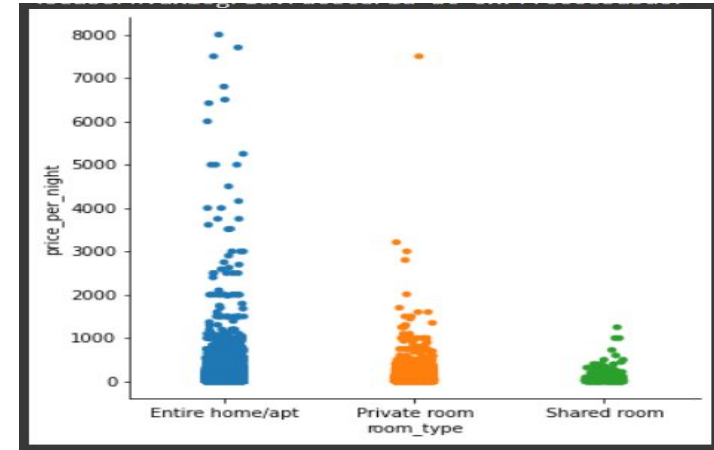
In this map we show distribution of price

- Most price range in the NYC falls in the range of 100 to 200
- Dark spots are for higher prices

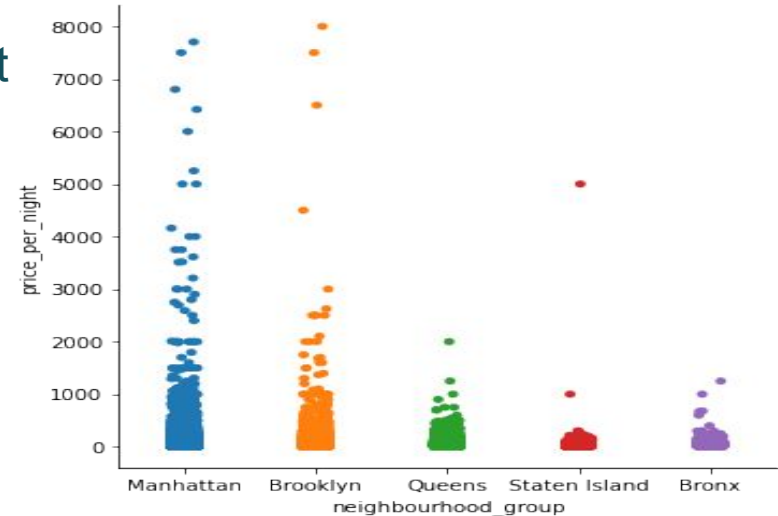


## Price range contd.

As we can see in this graph that entire room/apt having high price range 8000 and high booking as we can see high volume of scatter are placed in blue.

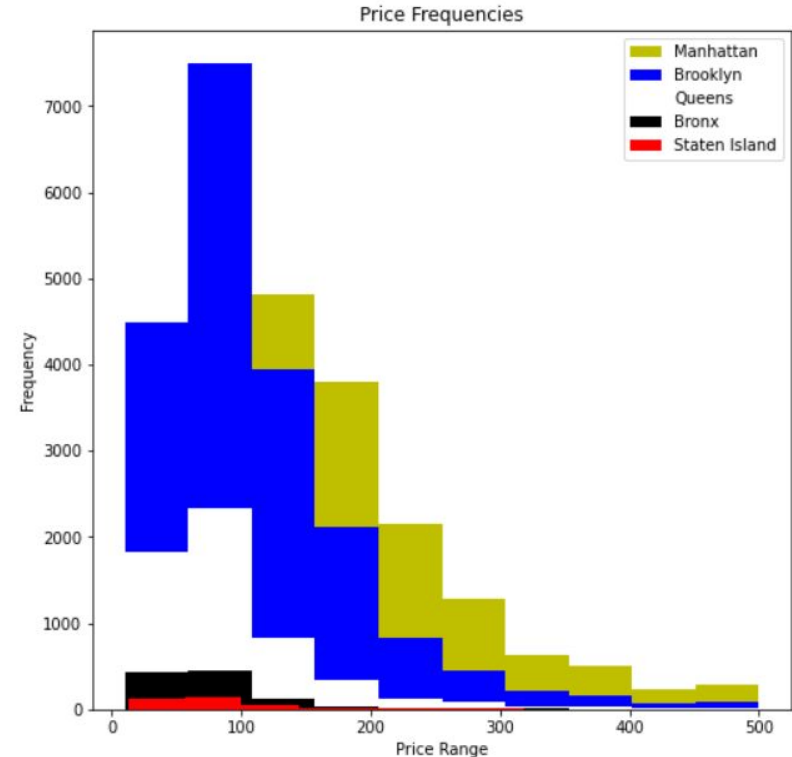


And highest price range in lies on Brooklyn but highest booking volume lies in Manhattan.



## Price range analysis cont.

- Here we can confirm that in all the groups most number of hosts are in a price range of up to 200.
- Brooklyn has more number of hosts in price range 50-100.
- From 300-500 price range very less amount hosts are listed in all of 5 groups.



# Analyzing the neighborhoods

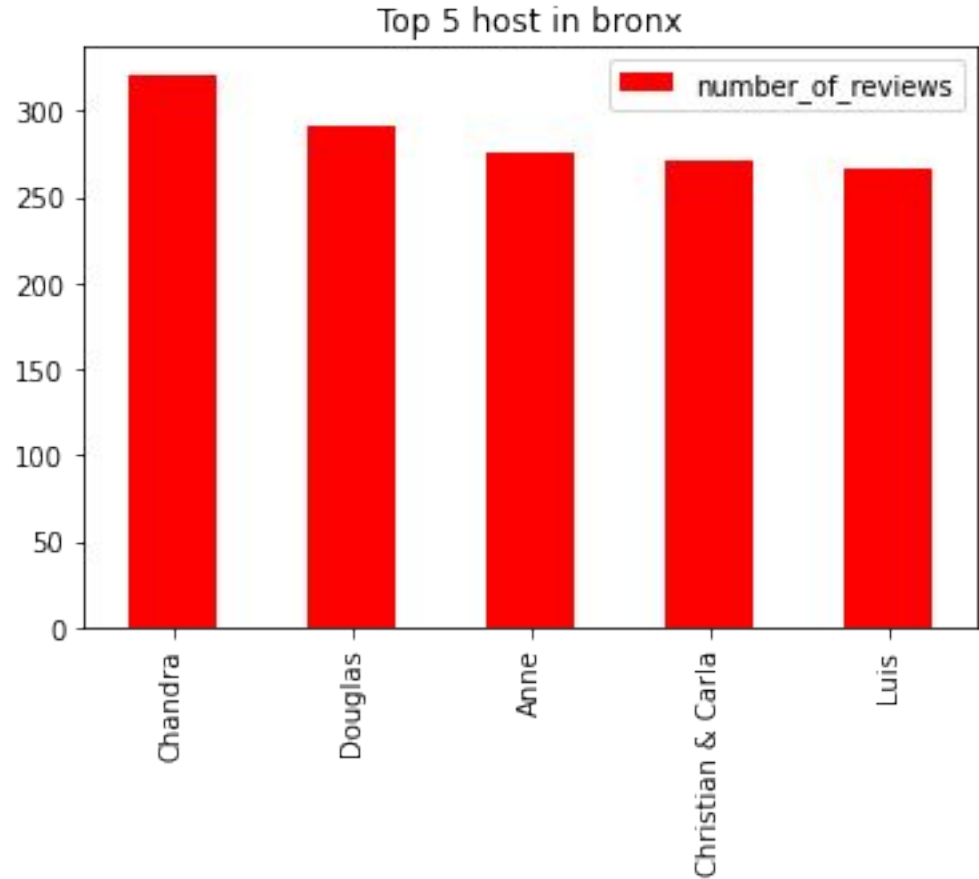
We will analyze the all neighbourhood group to get deep information and try to get the answer of following answer :-

1. Which neighbourhood group have best host?
2. Traffic details of each neighborhood group?
3. Which host have high price range?
4. Which neighbourhood group have higher listing?



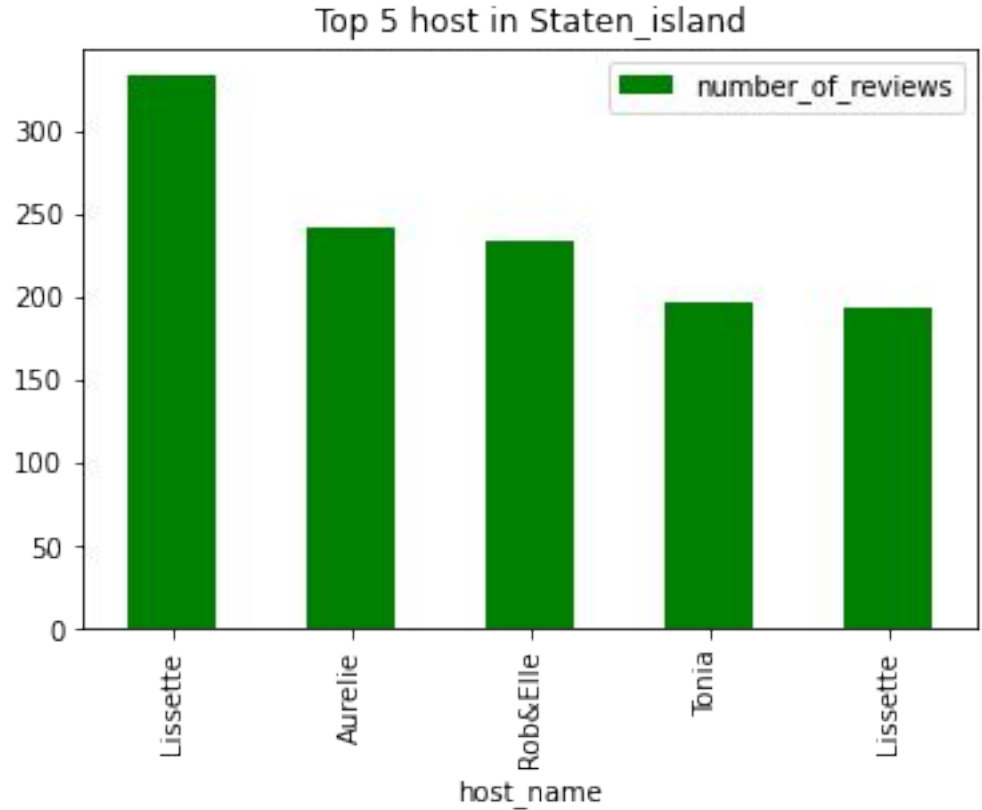
## Best host in Bronx

- Chandra having maximum reviews in Bronx like more than 300. that's means people like Chandra and their service and hospitality .
- Following Chandra second position goes to Doughas.
- At 3-4-5 position Anne, Christian&Carla, Luis respectively.



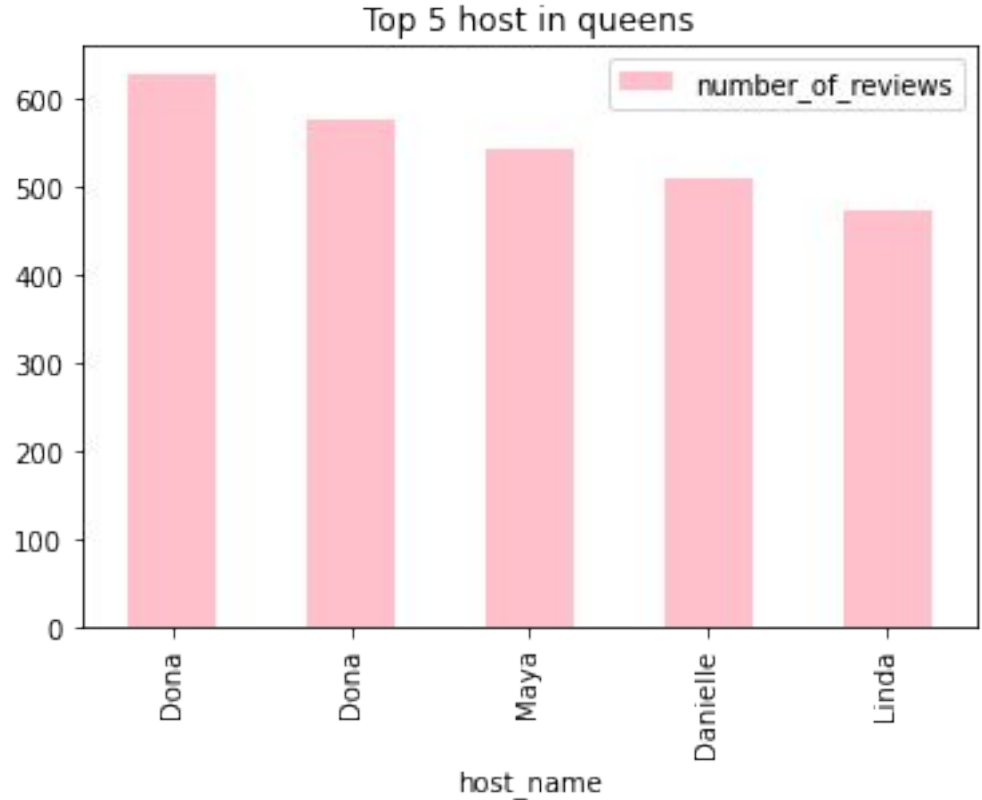
# Best host in Staten island

- In Staten island the clear winner of best host is Lissette With more than 320
- But our other competitor like Aurelie, Rob & elle, Tonia not able to cross 250 number of reviews.



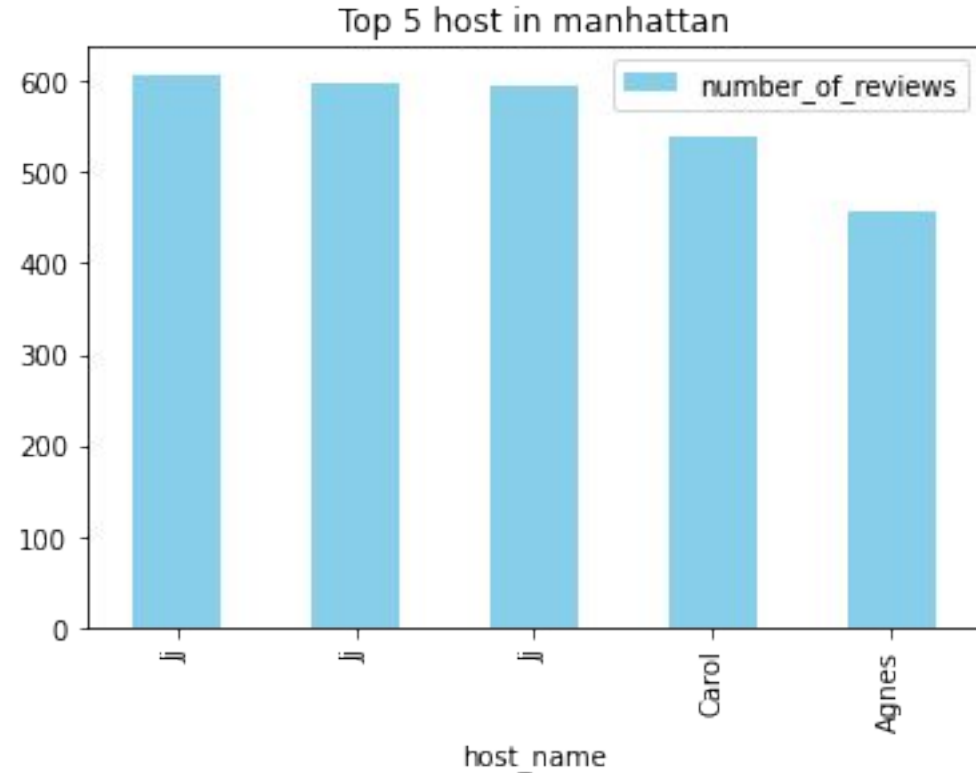
# Best Host in Queens

- We Can see here Dona having First and 2<sup>nd</sup> position for their both room types private room and entire home/apt. This is the highest rating till with 600 for private room and 550 entire home/apt.
- Maya, Danielle, Linda secured 3<sup>rd</sup> 4<sup>th</sup> and 5<sup>th</sup> respectively.



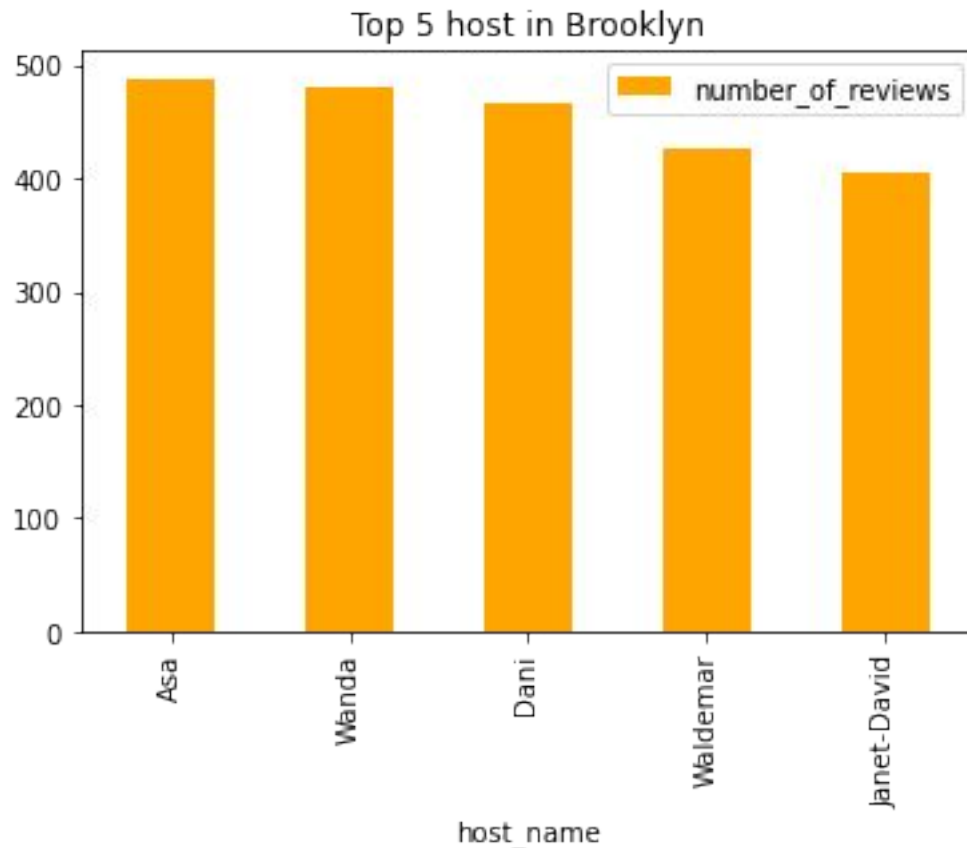
# Best host in Manhattan

- Here in Manhattan JJ are in top 3 positions. JJ have all 3 type of room Private, Shared and Entire home/apt. in all types of room JJ have almost 600 reviews.
- Carol and Agnes having reviews around 550 and 450 respectively.



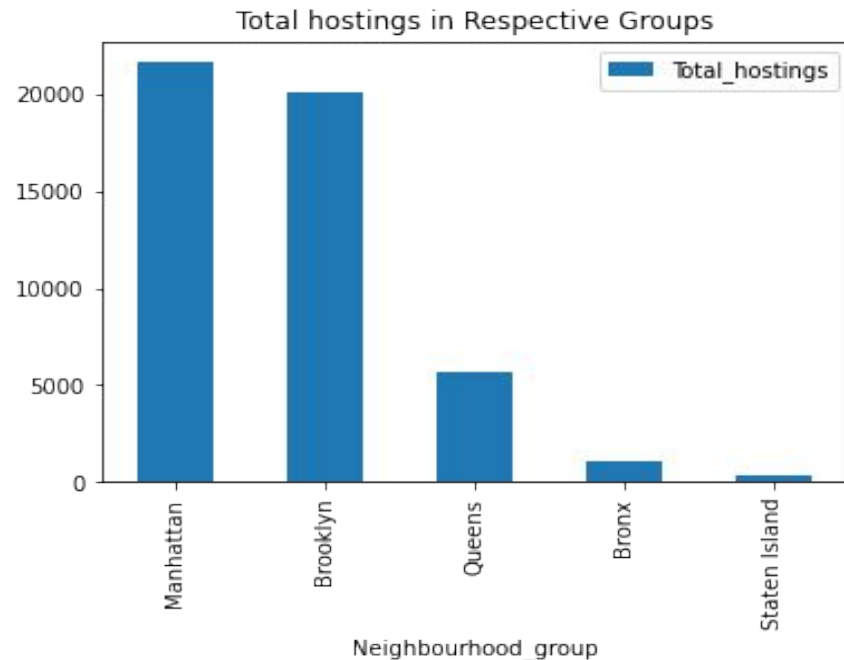
# Best host in Brooklyn

- In Brooklyn we have close call for best host Asa, Wanda, Dani, having 480,470,460 number of reviews. But Asa win the Best host in Brooklyn .
- Waldemar and janet-david are in 4<sup>th</sup> and 5<sup>th</sup> place respectively.



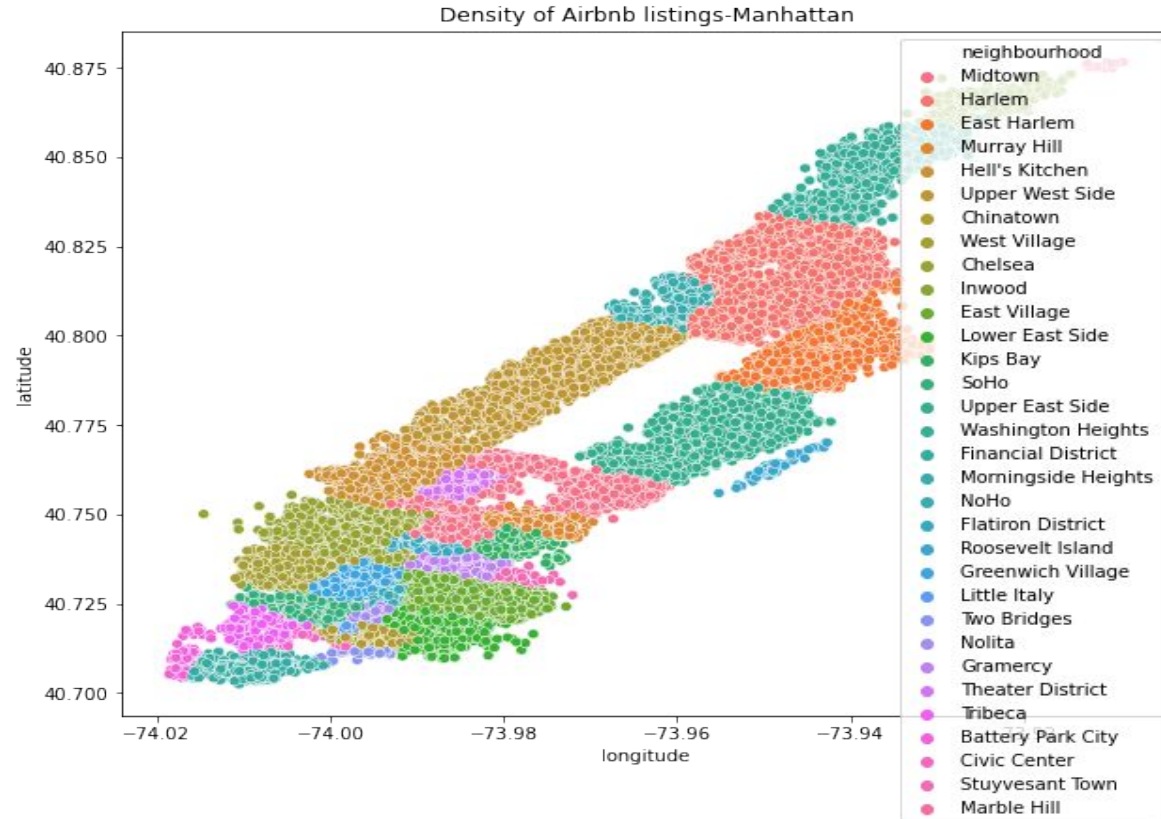
# Higher listing in Neighborhood group

- Manhattan having highest listing in entire New York city. because of the popularity of area Manhattan should be Highest listing
- Following Manhattan Brooklyn become 2 highest listing neighborhood group
- Queens slightly touches 5000 listing
- Bronx and Staten island having lowest listing.



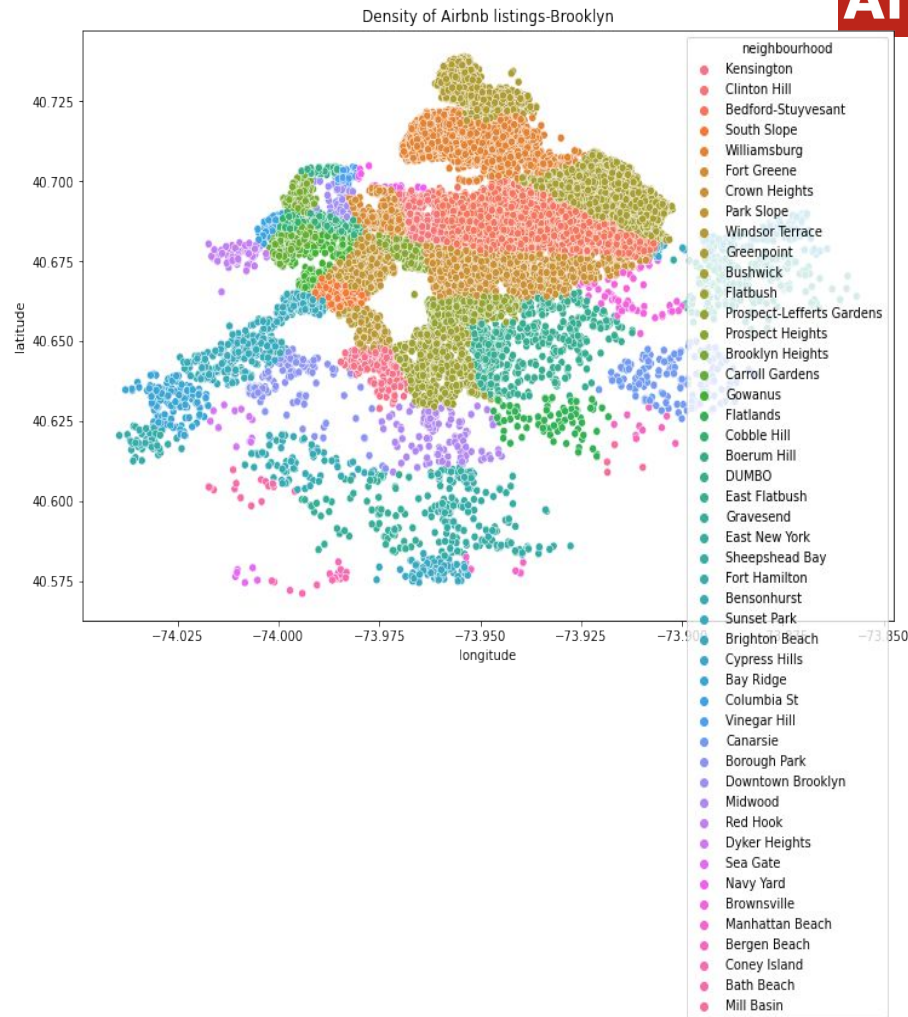
# Traffic inside the Manhattan

- Manhattan has the highest numbers of host listed (21660) highest in entire New York.
- Harlem with 2658 listings is the most dense neighbourhood in Manhattan.



# Traffic inside the Brooklyn

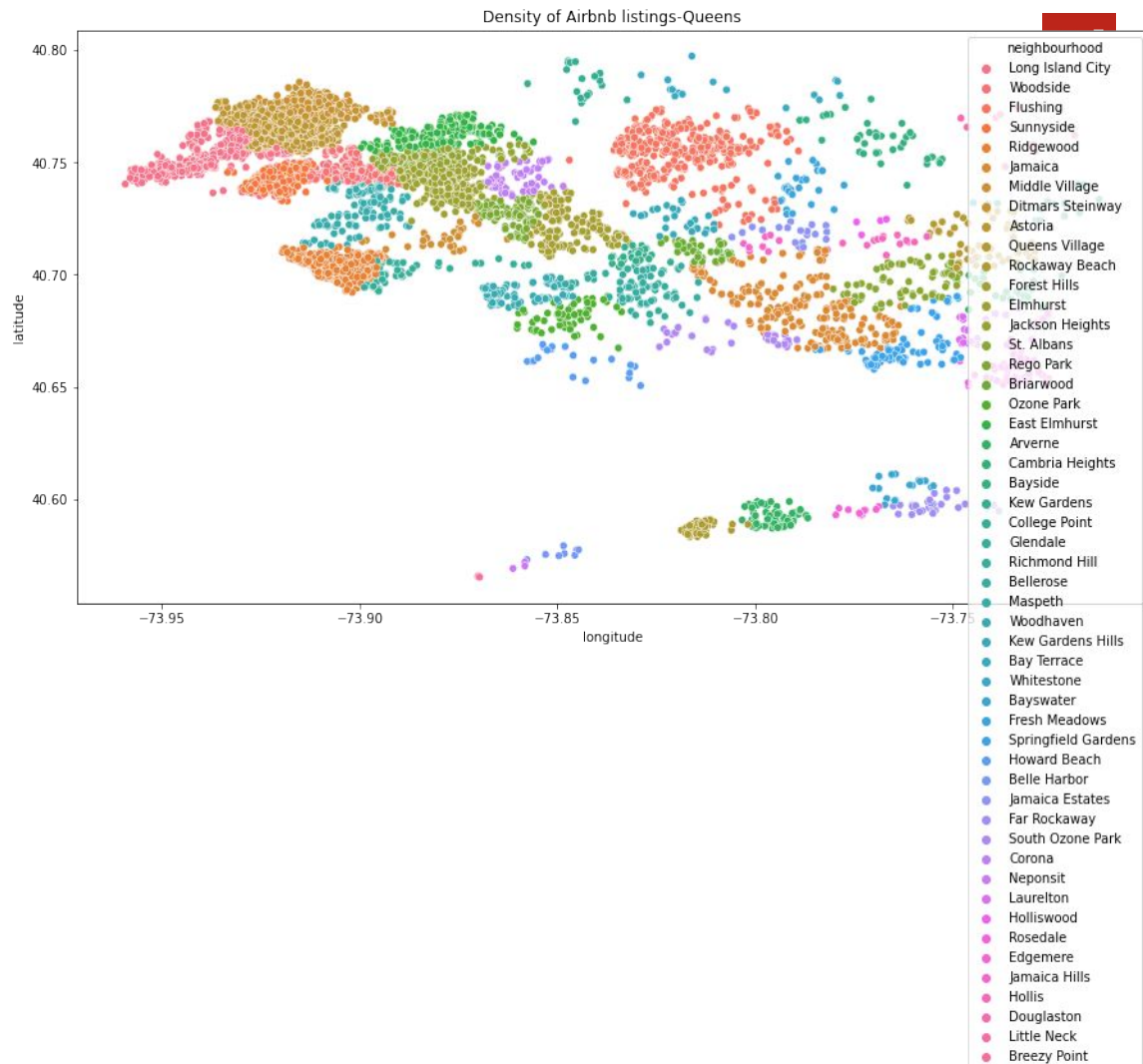
- Brooklyn has the 2<sup>nd</sup> highest numbers of host listed 20095
- '**Williamsburg**' having most listings in all neighbourhoods in **Brooklyn** with **3919** listings.
- we can clearly spot more traffic in north and some part of middle of Brooklyn.





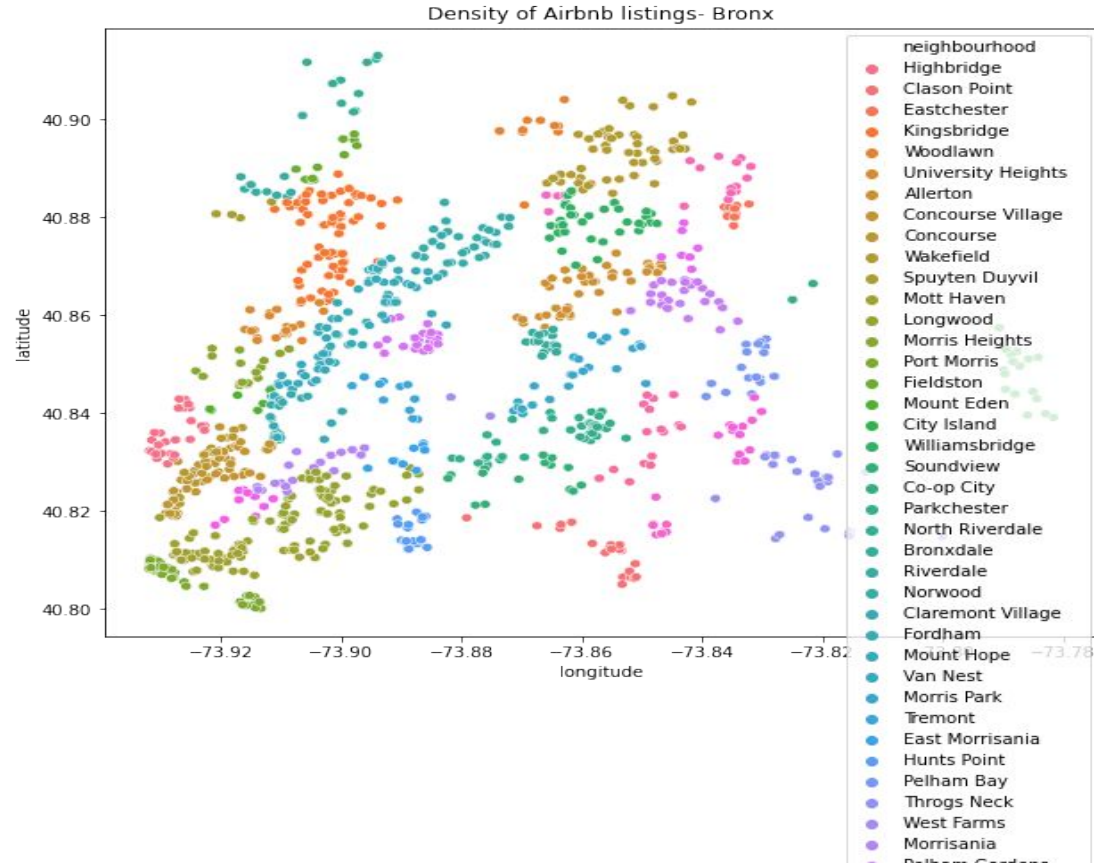
# Traffic inside the Queens

- **Astoria'** having most listings in all neighbourhoods in **Queens** with **900** listing
- We can say that on the west of Queens there are lot of traffic than any rest of parts.



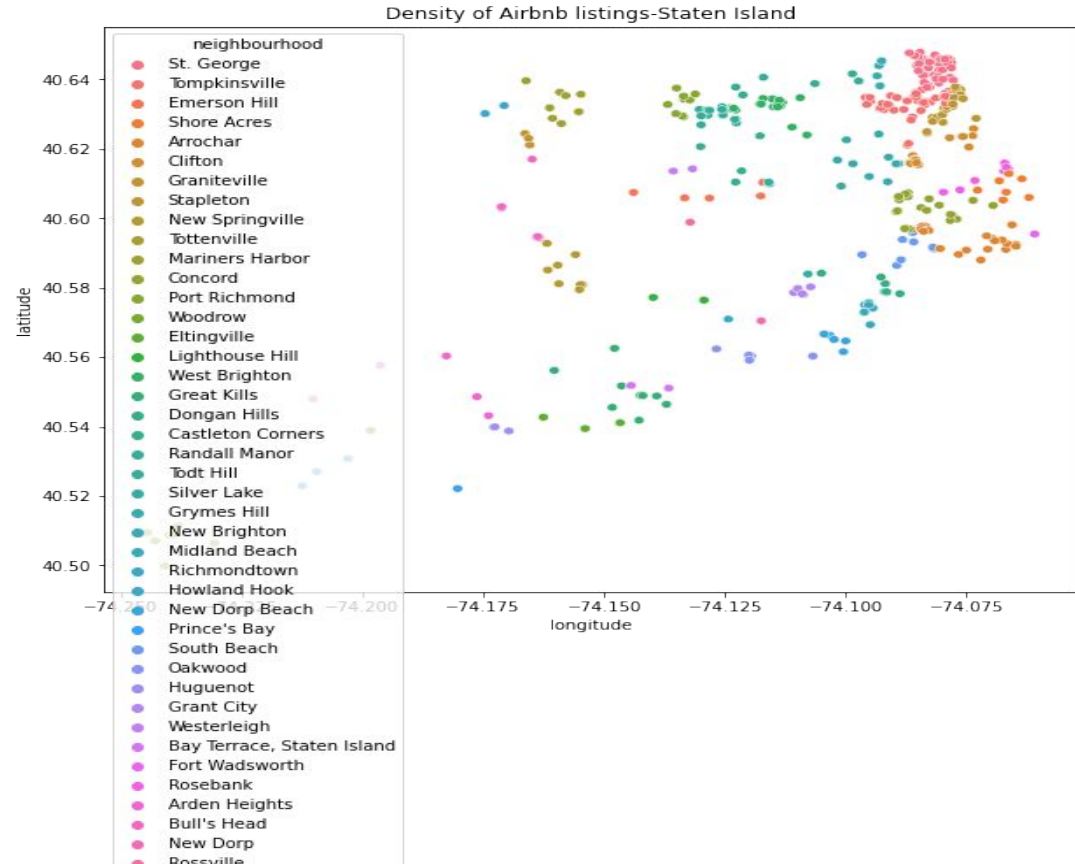
# Traffic inside the Bronx

- Bronx has second lowest number of listings.
- **'Kingsbridge'** having most listing in all neighbourhoods in **Bronx** with **70** listings out of 48 neighbourhoods having around **6%** host listed of total in Bronx



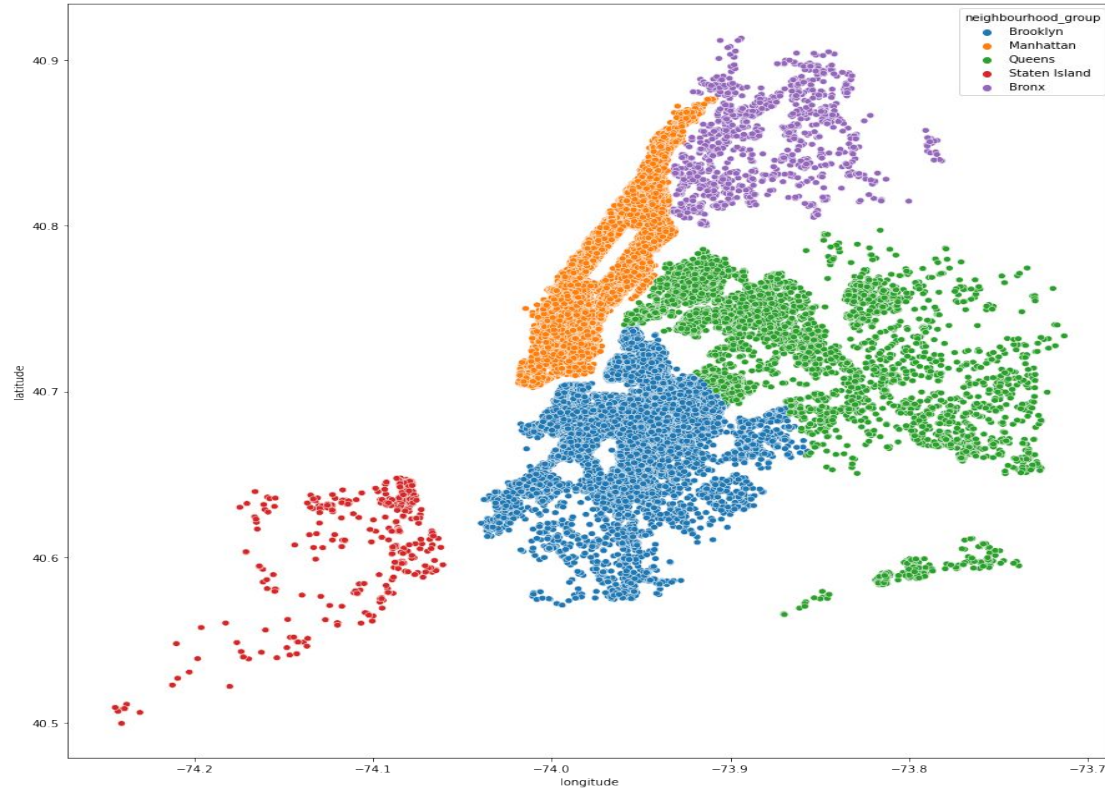
# Traffic inside the Staten island

- Staten Island has least amount of host listed in all of 5 groups.
- **'St. George'** having most listing in all neighbourhoods in **Staten Island** with **48** listings out of 42 neighbourhoods having around **13%** host listed of total in Staten Island.



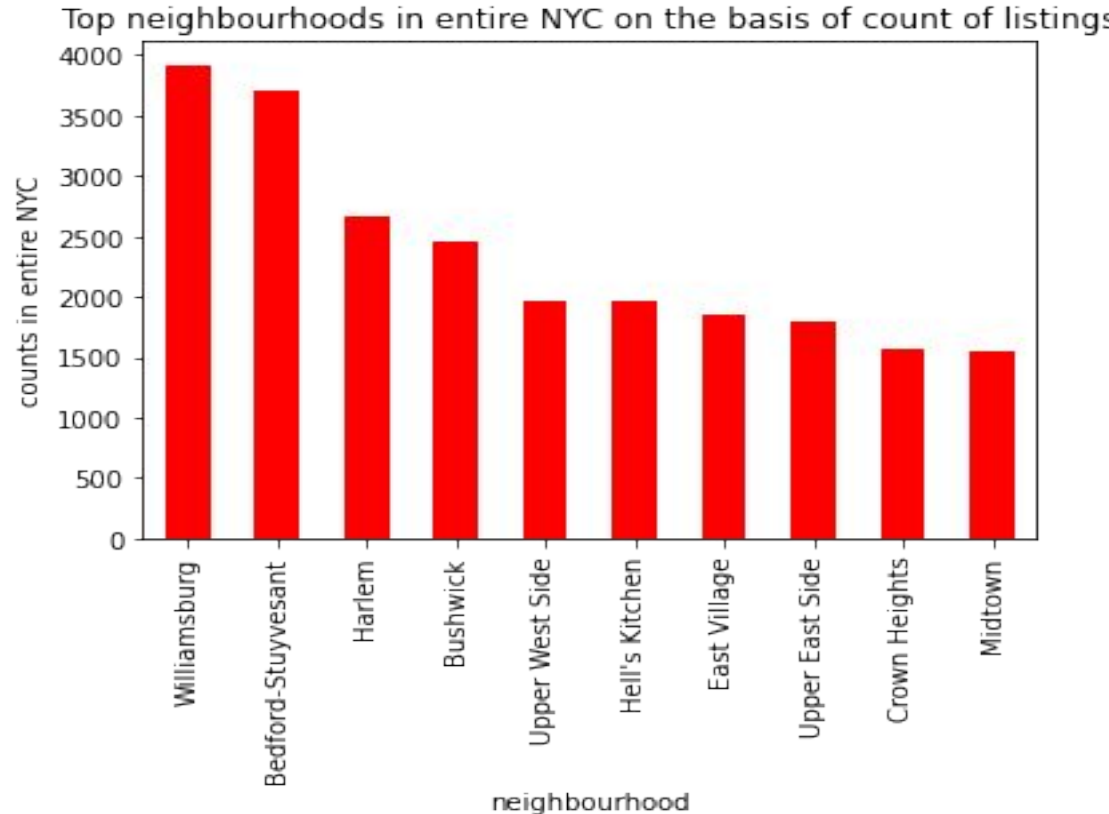
# Overall Traffic in NYC

- We can clearly say that there is a lot of traffic at the central part of New York
- Manhattan and Brooklyn has highest number of listings (85% of total listings in New York)
- Staten Island has least number of listings and very light amount of traffic.



# Highest Listing Neighborhood in entire NYC

- Here we analyze which neighborhood have highest listing in entire NYC and we can clearly see Williamsburg have highest listing with nearly 4000 listing counts
- And we know least count in top 10 area nearly 1500 which is Midtown.



# Analyzing a Room type

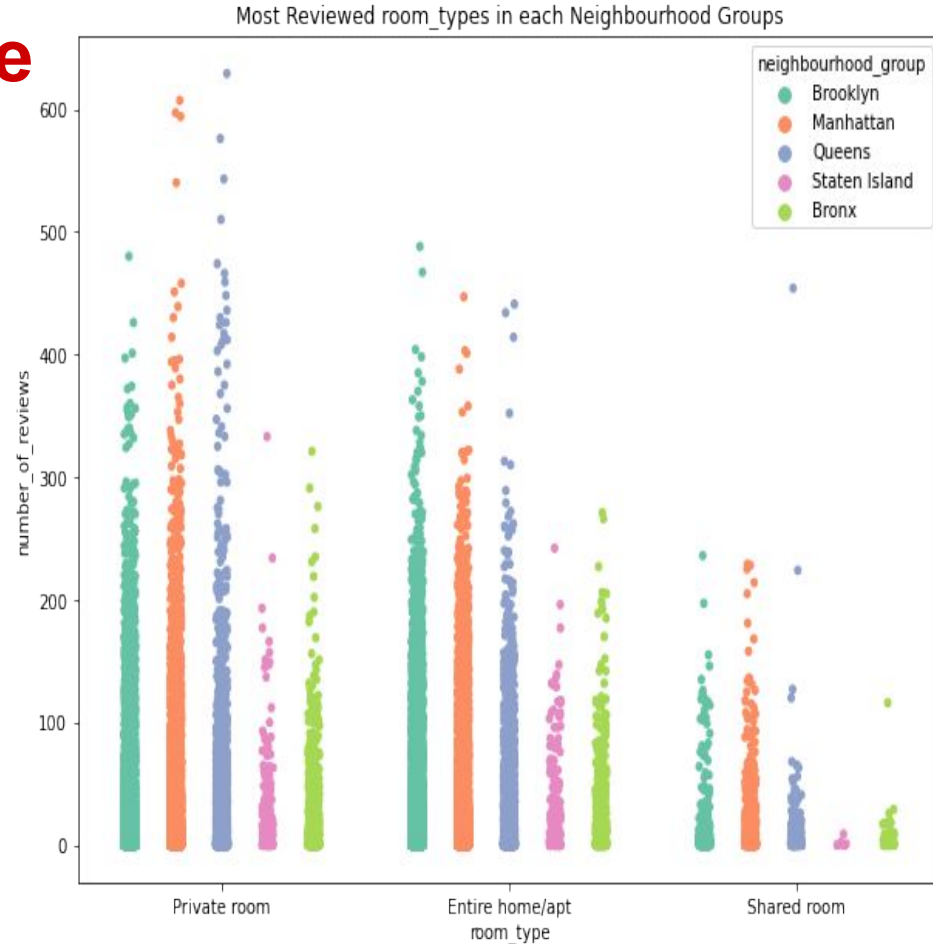
In this we analyze every room type in every neighborhood group  
To know what our guest most like to Booking with this we know  
future listing prediction , service and facility.

- we try to find out which room type are booked by the guest for minimum nights .
- Try to get more information about which neighborhood group

# Most Reviewed room type

On the basis of review we find out

- Highest Reviewed Room is Private room in every neighborhood group. With maximum 600 in queens and Manhattan reviewed
- 2<sup>nd</sup> choice of our guest is entire home/apt.
- Shared room is least choice of the guest



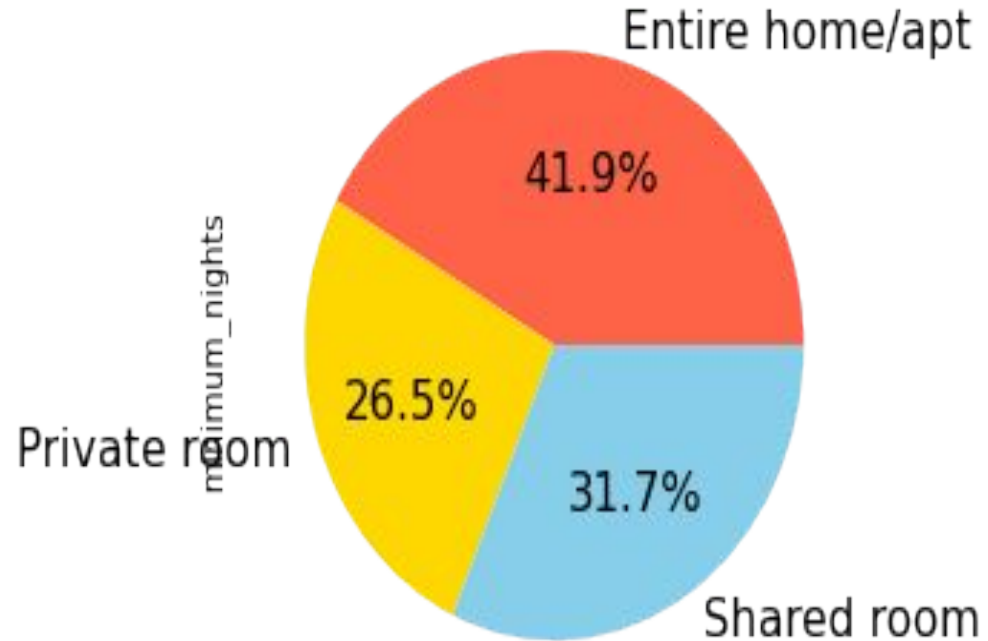
# Minimum stays in different Room types

Now we have 41.9% of guest who choose entire home/apt for minimum night stay.

31.7% loves to stay in shared rooms.

26.5% preferred private room for minimum stay

Min Stays in different room types listed on Airbnb





# Conclusion

## AREAS

### *Neighbourhood Groups*

- **Manhattan** group is highest number of hosts listed (21660) followed by **Brooklyn** which has second highest(20095). While **Staten Island** is the lowest number of listing (only 373).
- We can further say that there is a lot of density in between **longitude -74.0 to -73.9**.
- **Manhattan and Brooklyn** are **highly dense** areas with highly listed Airbnb hosts. And we can clearly see that\*\* Staten Island\*\* is **very scattered and less amount of hosts**.
- Top 2 groups **Manhattan & Brooklyn** together have **85%** of total host listings.
- **'Manhattan'** has the highest traffic followed by **'Brooklyn'**. Manhattan and Brooklyn have the highest numbers of hosts listed (**around 85% of total in NYC**). That's why both the groups have **highest traffic**. Where **'Staten Island'** has **extreme light amount of traffic**.

# Neighbourhood Details

	Manhattan	Brooklyn	Queens	Bronx	Staten Island
Total count in area	21660	20095	5666	1090	373
Neighborhood with highest listing	Herlem	Williamsburg	Astoria	Kingsbridge	St. George
Count of that particular host	2658	3919	900	70	48
Total Neighborhoods in that area	32	47	51	48	42
Percentage of listing in that neighborhood	12%	19%	16%	6%	13%

## Price

- **Most pricing** in airbnb in entire New York in range **100-200** , and we can clearly see that the dark spot on the map having high cost but quit few in numbers as compare to others.
- Manhattan and Brooklyn have a wide range of prices for per night.
- We can say that host with **host id-1177497** and named **Jessica** from **Brooklyn** group has the highest price for one single night which is **8000/Night**.

## Room Type

- 'Entire home/apt' type rooms are the highest number of listings having around 25000 followed by 'Private room' having approx 22500 rooms in this type. And 'shared room' have very less amount of listings.
- We can see that 'Entire home/apt' type is most present in 'Manhattan'.
- 'Private room' type is more in Brooklyn.

**Thank You !**