Capstone Project-1
Airbnb Booking Analysis

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• **<u>A General Walk Through</u>**:

- About Airbnb.
- Data Processing Steps
- Data Summary.
- Neighbourhood group with most Airbnb.
- Room type capture over NYC .
- Top 5 neighbourhoods with most Airbnb.
- Top neighbourhoods with maximum and minimum average price/day of Airbnb listings.
- Average price for different room types on different neighbourhood groups.
- Most expensive neighbourhood group for each room type.
- Preferred room type for each neighbourhood.
- How many nights on an average people spent in each room type.

- **A General Walk Through**:

  - How many people choose airbnb to stay for specific days
  - Neighbourhood with maximum number of reviews.
  - Room type to get the maximum number of reviews per month.
  - Availability for each room type in each neighbourhood group.
  - Distribution of the Airbnb across NYC.
  - Distribution of the different Room type across NYC.
  - Conclusion.

•<u>ABOUT AIRBNB</u>

- Airbnb as in "Air Bed and Breakfast," is a service that lets property owners rent out their spaces to travellers looking for a place to stay. Travellers can rent a space for multiple people to share, a shared space with private rooms, or the entire property for themselves.
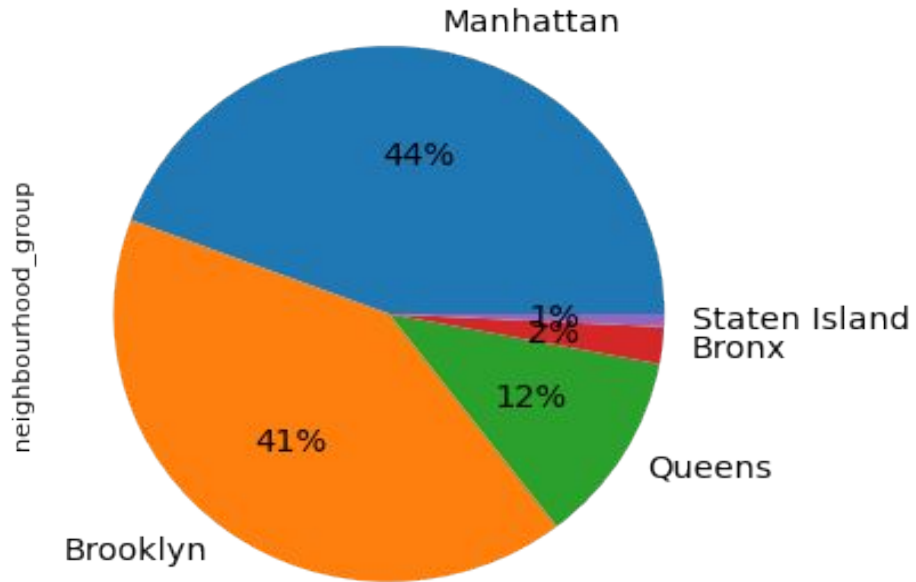
•Data Processing Steps

- **Data Processing-1**: In this step we have dropped two column that had some null value and also were less relevant to the scope of our analysis, this is done to keep our data set small and concise so that handling would be easy.

- **Data Processing-2:** During this stage, gone through each input variable and studied the type of variable it is and looked forward to the outliers to keep our data free from any anomaly and hence found the price column to skewed towards the right and for that purpose we used median values where the analysis is done on the basis of price.

- **EDA:** EDA or Exploratory Data Analysis is the critical process of performing the initial investigation on the data. So, through this we have observed certain trends and dependencies and also drawn certain conclusions from the dataset that will be useful for further processing.

- **<u>DATA SUMMARY</u>**:

  - Airbnb_df: This data frame contains all the information such as host id, host name, reviews per month, number of reviews, availability ,neighbourhood groups, neighbourhood, latitude and longitude for each of the airbnb present .
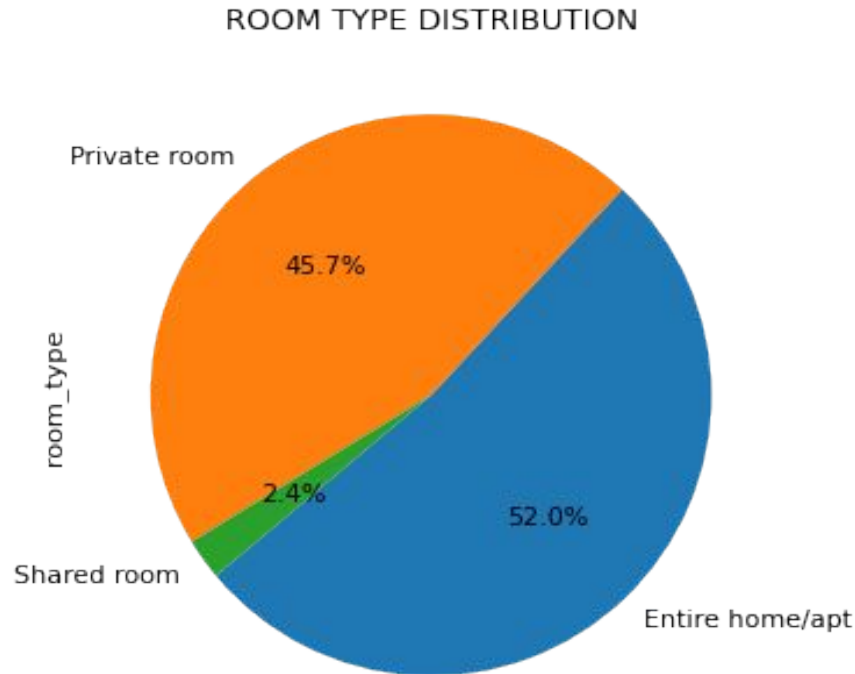
Neighbourhood group with most Airbnb

- Here we had a look over the different neighbourhood groups.
- Here we have an observation that 44% of the overall airbnb are in Manhattan alone, followed by Brooklyn.
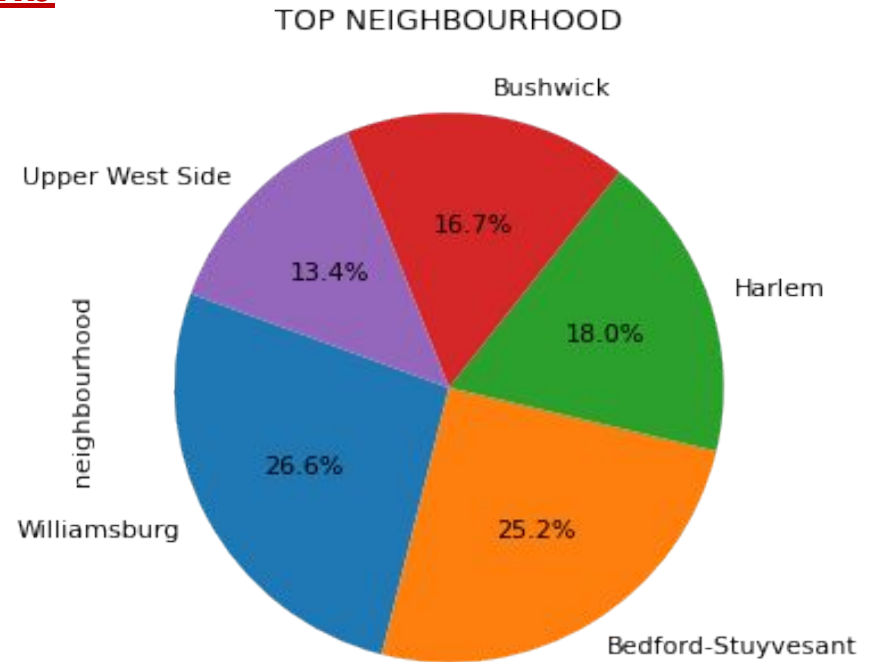- Least number has been shown by the Staten Island.

Room type capture over NYC

- Here some interesting facts that we can draw from here is the room type present for accommodating through airbnb.
- Since, it is clearly visible that most preferred i.e. 52% are the Entire home/apt .
- Private room is also present in great chunk i.e. 45.7 %.
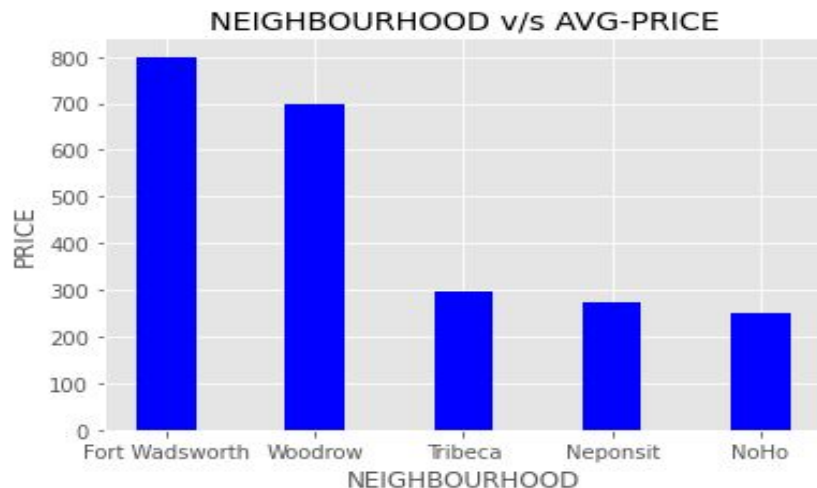- Least number has been shown by the Shared room.

ROOM TYPE DISTRIBUTION

Top 5 neighbourhoods with most Airbnb

- Here we can observe that Williamsburg as a neighbourhood posses the maximum number of listings followed by Bedford-Stuyvesant.

TOP NEIGHBOURHOOD

- **<u>Top neighbourhoods with average maximum and minimum price/day of Airbnb listings</u>**
  - Here we can observe that Fort Wadsworth as a neighbourhood with maximum average price per day.
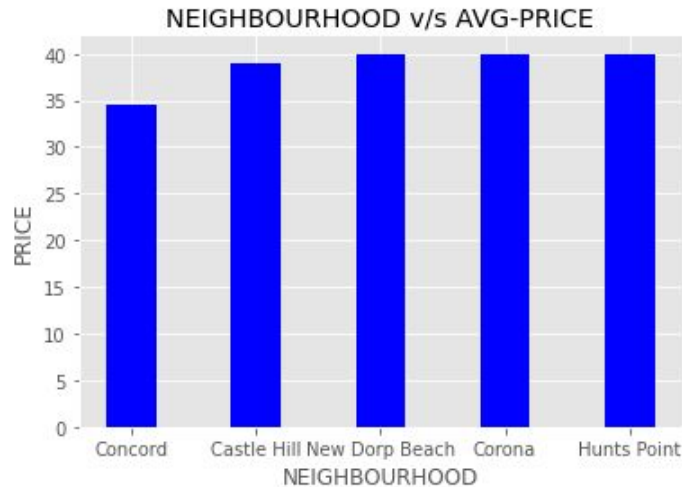 - We can also have a look that to which neighbourhood group does Fort Wadsworth belongs to.

NEIGHBOURHOOD v/s AVG-PRICE

neighbourhood_group	neighbourhood
Staten Island	Fort Wadsworth

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- **Top neighbourhoods with average maximum and minimum price/day of Airbnb listings**
  - Here we can observe that Concord as a neighbourhood with minimum average price per day.
  - We can also have a look that to which neighbourhood group does Concord belongs to.

NEIGHBOURHOOD v/s AVG-PRICE

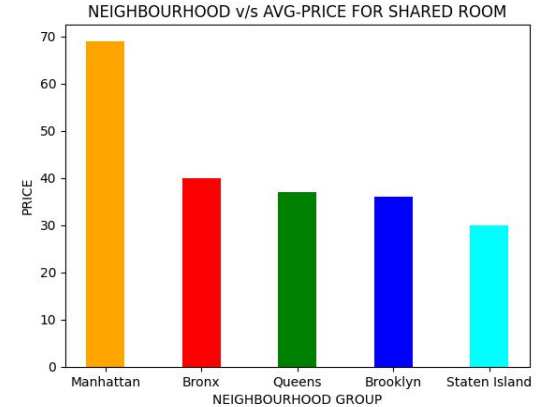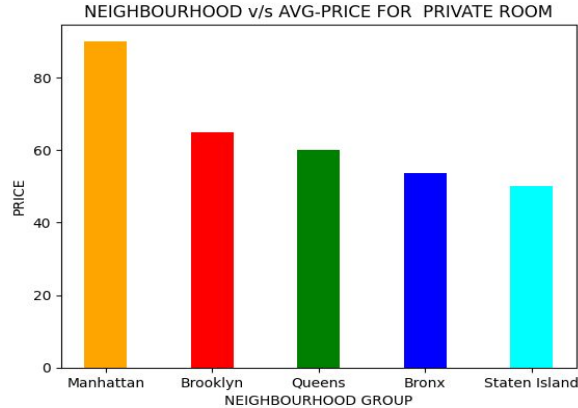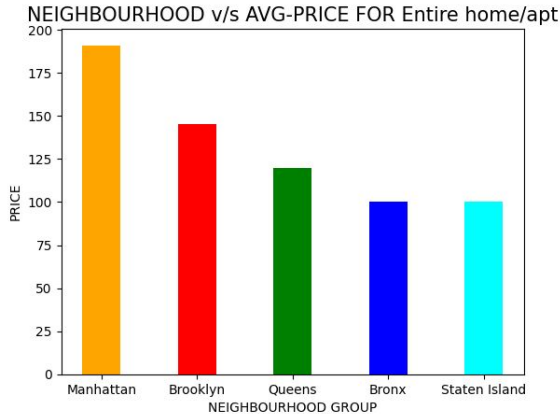| neighbourhood_group	neighbourhood
Staten Island	Concord

• <u>Average price for different room types on different neighbourhood groups</u>

- Here we can have a clear picture that for a particular room type what average price we get for each neighbourhood .

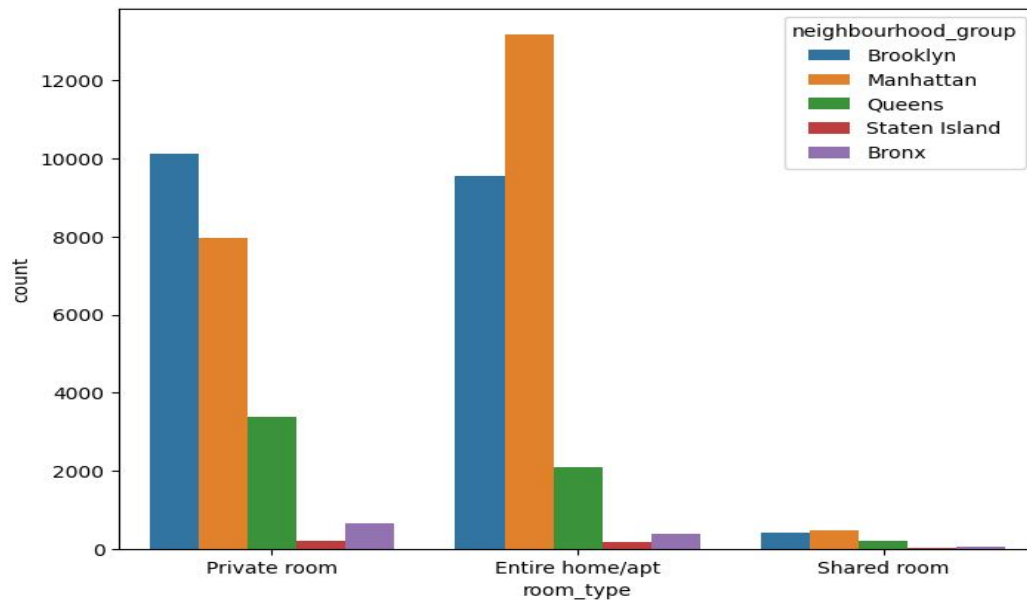|	room_type	neighbourhood_group	price
0	Entire home/apt	Manhattan	191.0
1	Entire home/apt	Brooklyn	145.0
2	Entire home/apt	Queens	120.0
3	Entire home/apt	Bronx	100.0
4	Entire home/apt	Staten Island	100.0
5	Private room	Manhattan	90.0
6	Shared room	Manhattan	69.0
7	Private room	Brooklyn	65.0
8	Private room	Queens	60.0
9	Private room	Bronx	53.5
10	Private room	Staten Island	50.0
11	Shared room	Bronx	40.0
12	Shared room	Queens	37.0
13	Shared room	Brooklyn	36.0
14	Shared room	Staten Island	30.0

•<u>Most expensive neighbourhood group for each room type</u>

- Here we can clearly observe that Manhattan has topped in each of the three room type category.
- Staten Island has the least average price per day whether it is Entire home, private room or shared room.
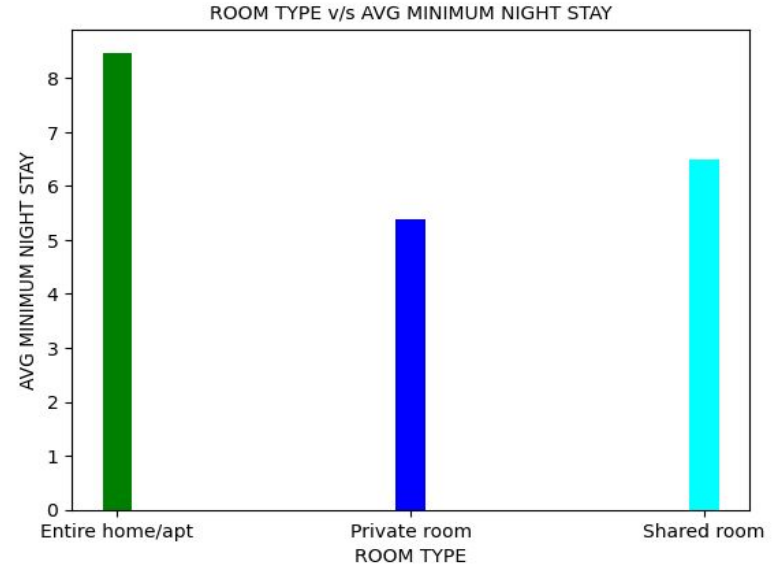
•<u>Preferred room type for each neighbourhood</u>

- Interesting to understand from the plot that Entire home in Manhattan are the most while Brooklyn is tops in the Private rooms type.
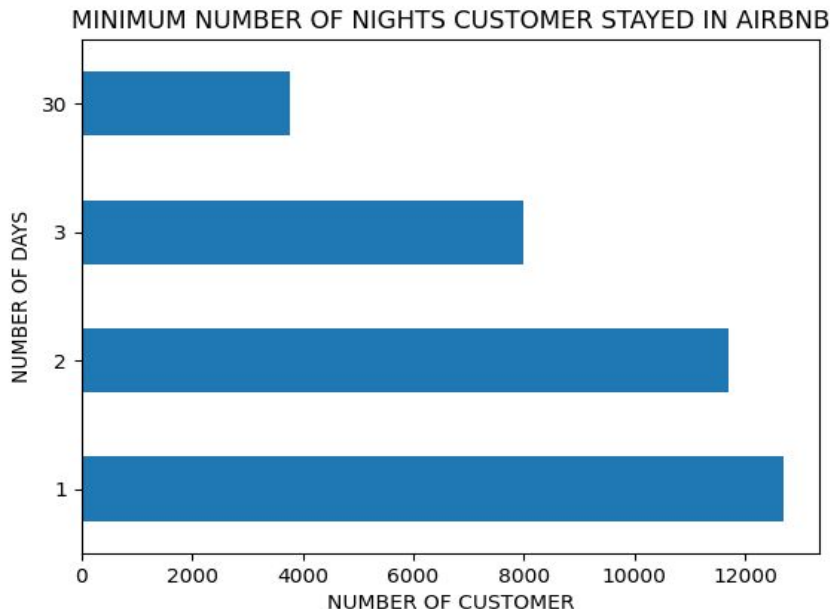
- **<u>How many nights on an average people spent in each room type</u>**.

  - So, we can observe that on an average people stay maximum in the entire home/apt and it is pretty obvious too.
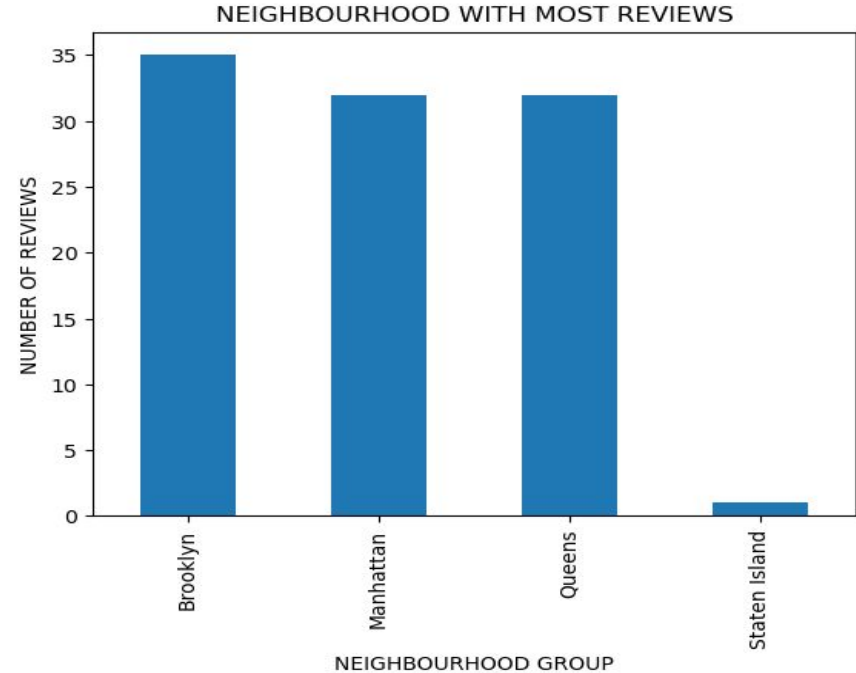

ROOM TYPE v/s AVG MINIMUM NIGHT STAY

•<u>How many people choose airbnb to stay for specific days</u>

- Here is an observation and we can say that almost 12500 people accommodated in airbnb for 1 day and 3500 people used airbnb for almost a month and we can say that this group might the one that used the private home/apt as room type.
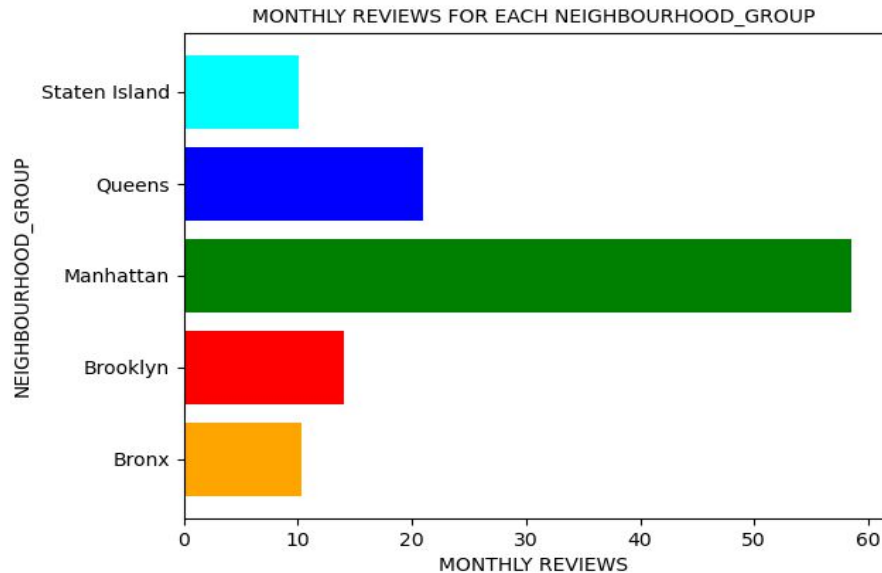
MINIMUM NUMBER OF NIGHTS CUSTOMER STAYED IN AIRBNB

•Neighbourhood with maximum number of reviews

- Talking about reviews, we can say that reviews are very important parameter to asses as number of reviews tell about the popularity of the a particular neighbourhood.
- Plot tells the complete story that Brooklyn has the maximum number of reviews out all the neighbourhood group.
- Staten Island has the minimum numbers of review, this might be due to the fact the even though this is one of the least expensive neighbourhood group. There may be some other factors associated with it like views, places to visit, Other services.

NEIGHBOURHOOD WITH MOST REVIEWS

•<u>Room type to get the maximum number of reviews per month</u>

- As far the number of the reviews per month is considered, we can say that Manhattan has got the maximum numbers of reviews per month.
- Also we can go deep and find the host in Manhattan that has go the maximum numbers of reviews
- Manhattan has got approximately 58.5 reviews per month.
- The least number of reviews goes to Staten Island.

MONTHLY REVIEWS FOR EACH NEIGHBOURHOOD_GROUP

•Room type to get the maximum number of reviews per month

- ROW NYC in Manhattan has got the maximum reviews per month i.e. 58.5.
- For minimum reviews per month almost 10k hosts were there that has got zero reviews per month.
- Considering 1 review as the minimum review per month there were almost 892 hosts that got only one review per month.
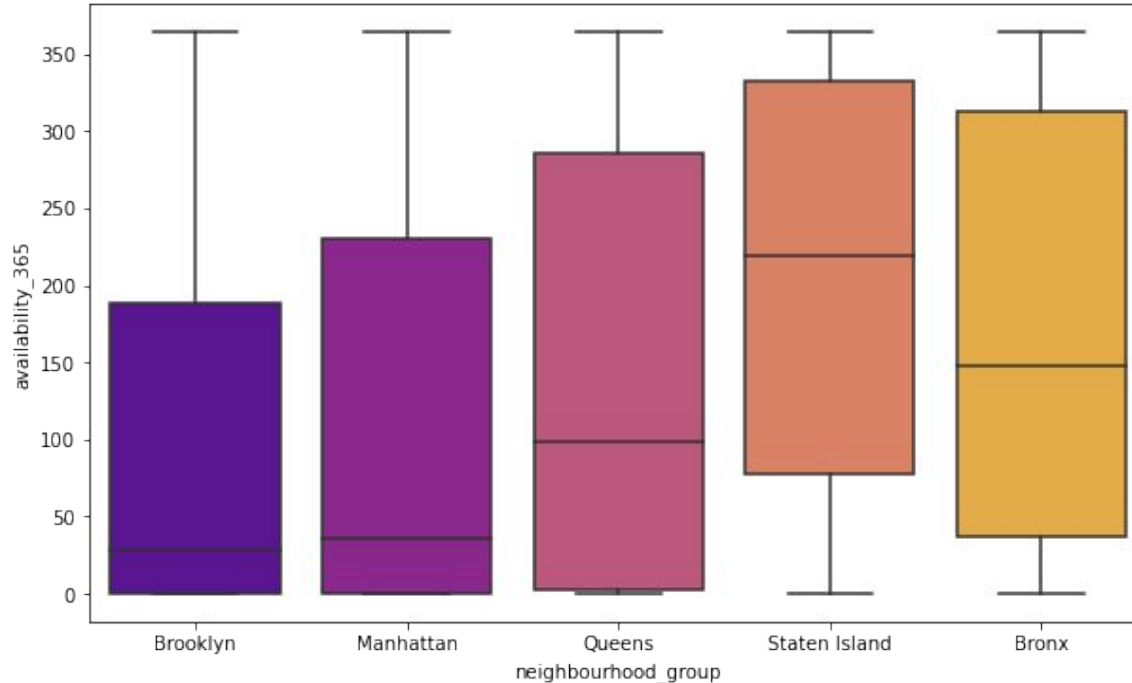
LEAST REVIEWED HOST

host_id	host_name	neighbourhood_group	reviews_per_month
256161	Wayne	Manhattan	1.0
179020	Michael	Manhattan	1.0
2177462	Marc	Brooklyn	1.0
4983320	Terri	Queens	1.0
6602545	Eleni	Brooklyn	1.0

MOST REVIEWED HOST

host_id	host_name	neighbourhood_group	reviews_per_month
244361589	Row NYC	Manhattan	58.5

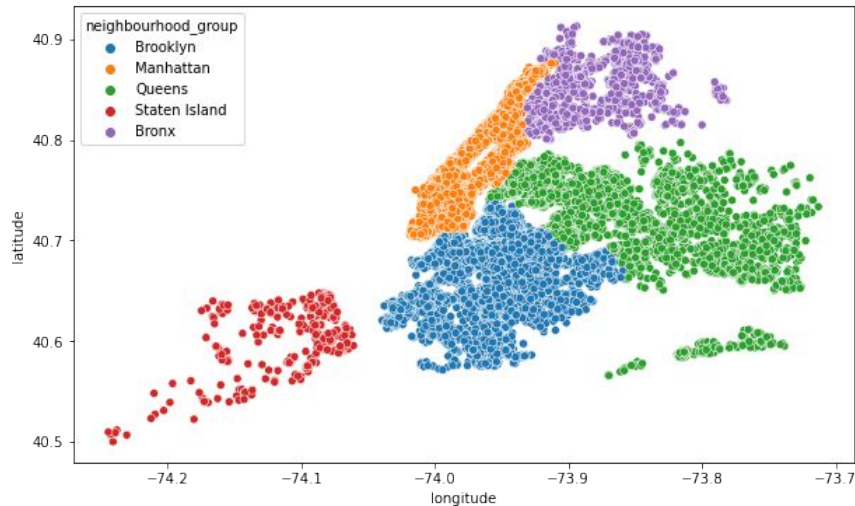# •<u>Availability for each room type in each neighbourhood group</u>

- It is quite interesting to asses the availability of different room type across different neighbourhood group across the year .

•Distribution of the Airbnb across NYC

- The scatter plot shows the spread of the Airbnb across NYC
- Manhattan has the maximum number of Airbnb i.e.21643
- While the least count of Airbnb are spread across the Staten Island.
- Actual satellite view has also been shown to compare the distribution across

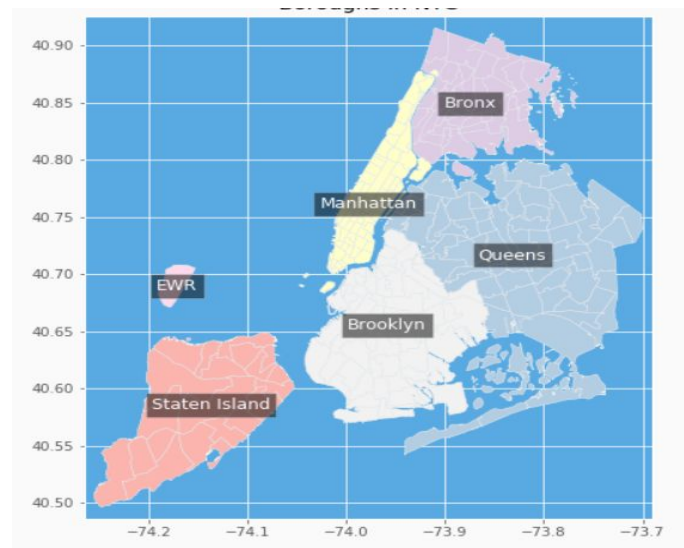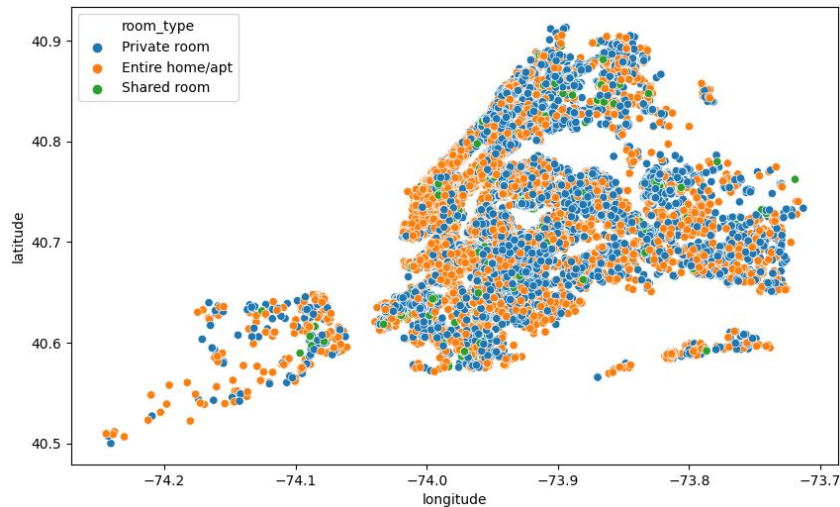| NEIGHBOURHOOD GROUP	NUMBERS
Manhattan	21643
Brooklyn	20089
Queens	5664
Bronx	1089
Staten Island	373

•Distribution of the different Room type across NYC

- The scatter plot shows the spread of the different room types across NYC.
- Entire home/apt is the most numbers and looking at the choice of the people from previous plots this type has to be maximum in numbers.
- Shared room are the least in the count as per the stats showing.

ROOM TYPE	NUMBERS
Entire home/apt	25393
Private room	22306
Shared room	1159

•Conclusion:

- **Manhattan** has the major proportion of the overall Airbnb present in the NYC, almost 44% i.e. 21k,followed by **Brooklyn**.
- Staten Island has the minimum number of the airbnb across NYC, its share is approximately 1% i.e. 373 airbnb.
- The most present room type across NYC is **Entire home/apt** i.e. 52%.Private rooms are also present in a greater chunk.
- **Shared rooms** are the least present in all the overall NYC neighbourhood.
- **Fort Wadsworth** as a neighbourhood with maximum average price per day.
- **Fort Wadsworth** belongs to **Staten Island** neighbourhood group.
- **Williamsburg** as a neighbourhood posses the maximum number of listings approximately 3917 followed by **Bedford-Stuyvesant** 3713.
- **Upper West Side** has the minimum number of 1969 airbnb across all the neighbourhood of NYC .
- **Concord** as a neighbourhood with minimum average price per day.
- **Concord** belongs to the Staten Island.

AI

•<u>Conclusion:</u>

- Manhattan as a neighbourhood group is the most expensive across all the room type whether it is Entire home/apt, private room or shared room.
- Brooklyn is the second most expensive neighbourhood across Entire home/apt and Private rooms.
- Entire home/apt in Manhattan are the most while Brooklyn has the most number of Private rooms type.
- Though very less but Manhattan has the most number of Shared rooms.
- People choose Entire home/apt are a preferred room type to stay.
- Almost 12500 people accommodated in airbnb for 1 day only.
- Almost 3500 people used airbnb for almost a month and we can assume that this group might the one that used the private home/apt as room type.
- Brooklyn has the maximum number of reviews out all the neighbourhood group followed by Manhattan.
- Staten Island has the minimum numbers of reviews out of all the neighbourhood groups.

Continued…

•<u>Conclusion:</u>

- **Manhattan** has got the maximum numbers of reviews per month in comparison with all the other neighbourhood groups.ROW NYC a host in Manhattan with maximum number of reviews per month.
- For minimum reviews per month almost 10k hosts were there that has got zero reviews per month.
- Almost 892 host who got only 1 review per month.
- Maximum availability is there is Staten Island.

Thank You