

IIIT-B & UpGrad

Airbnb Case Study

By: P Anand Rao
Himanya Ponaganti
Dipanshu Yadav

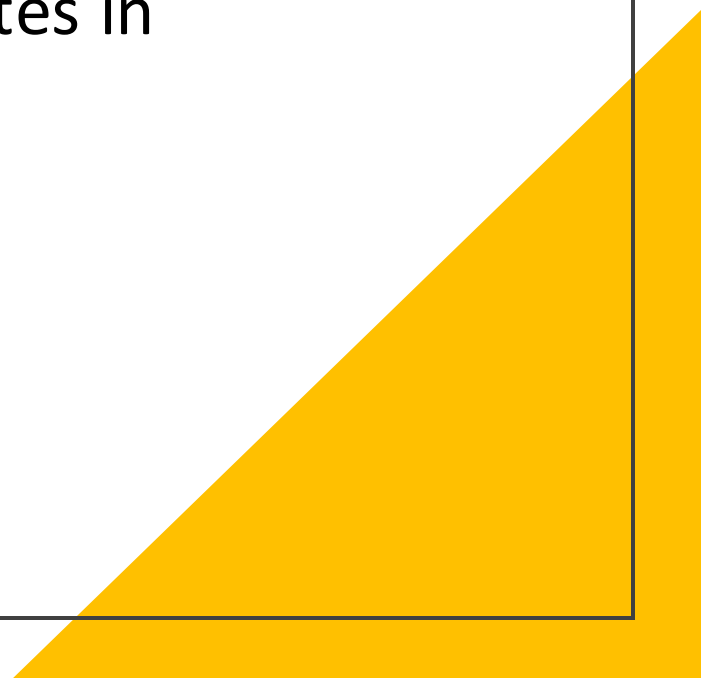


INTRODUCTION

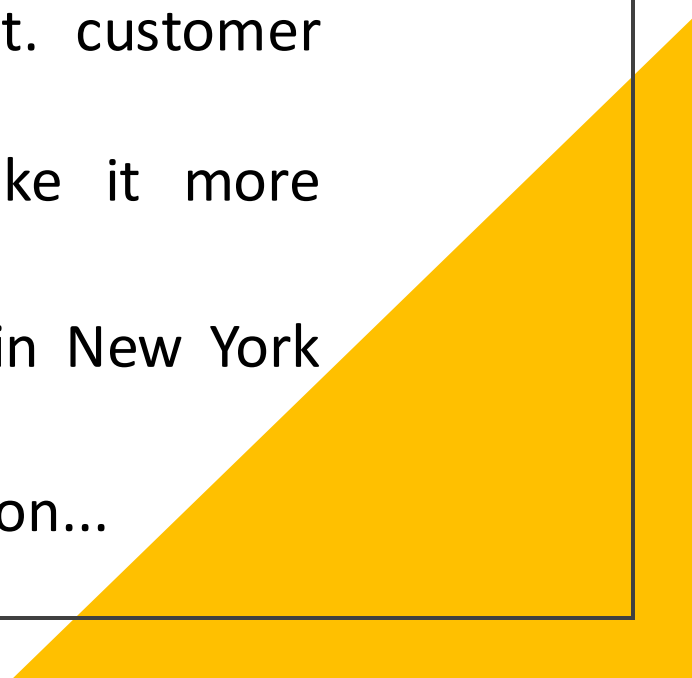
Suppose that you are working as a data analyst at Airbnb. For the past few months, Airbnb has seen a major decline in revenue. Now that the restrictions have started lifting and people have started to travel more, Airbnb wants to make sure that it is fully prepared for this change.

OBJECTIVE


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

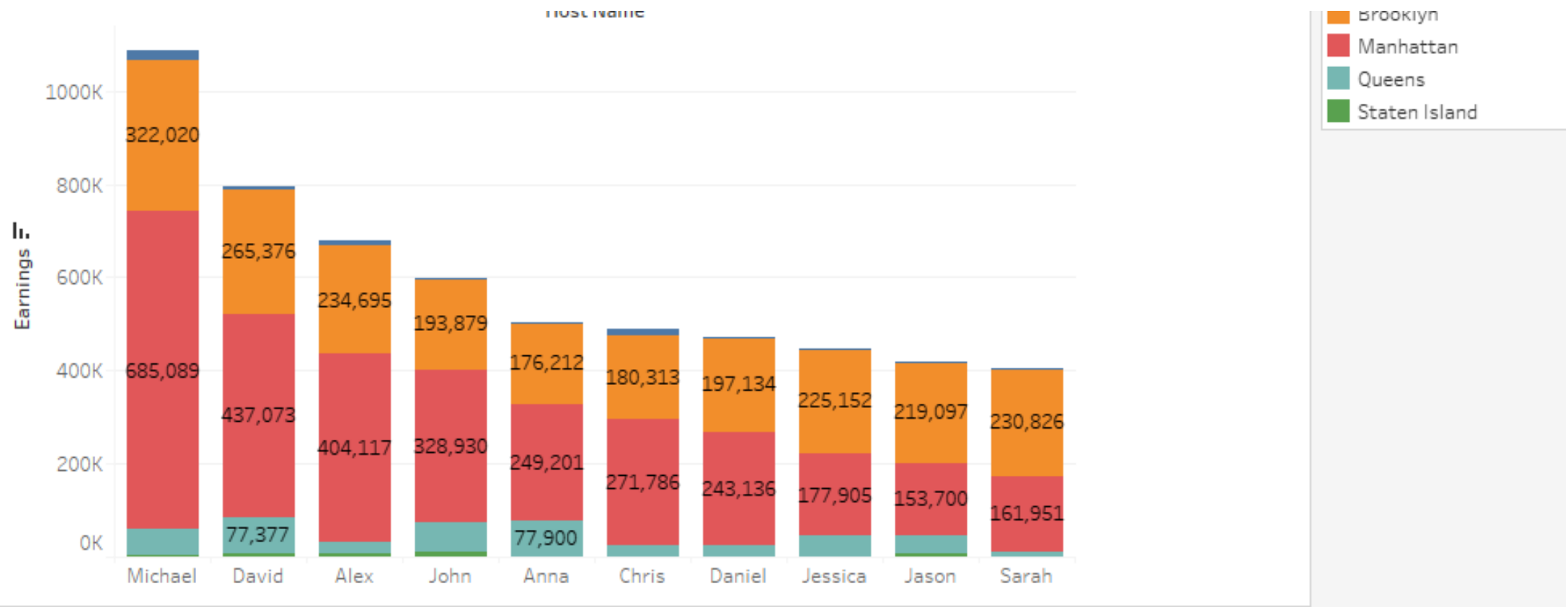


PROBLEM STATEMENT

1. Which type of hosts to acquire more and where?
 2. The categorization of customers based on their preferences.
 - What are the Neighborhoods they need to target?
 - What is the pricing ranges preferred by customers?
 - The various kinds of properties that exist w.r.t. customer preferences.
 - Adjustments in the existing properties to make it more customer-oriented.
 3. What are the most popular localities and properties in New York currently?
 4. How to get unpopular properties more traction? and so on...
- 
- A large yellow triangle is positioned in the bottom right corner of the slide, pointing towards the top right.

Data Cleaning and Preparation

- First, we have understood the data of the dataset in python.
 - Then we have handled the missing values using median. Identified equal number of null values in both last_review, and reviews_per_month of around 20.55%. Also, identifies in name and host_name.
 - Then separated the columns of dataset into categorical and numerical datatypes.
 - Then we have imputed the categorical column with mode and numerical column with median
 - Then we have checked if there are any outliers in 6 continuous columns and treated the using capping method.
- 
- A large yellow triangle is positioned in the bottom right corner of the slide, pointing towards the top right.

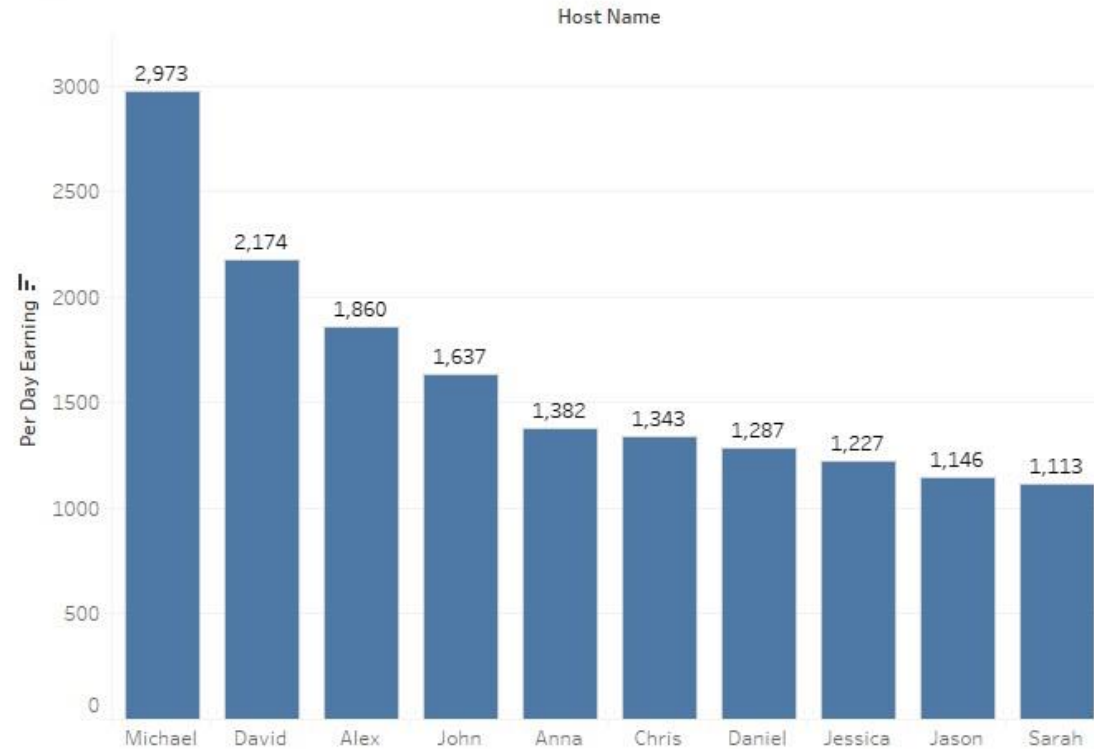


List of Top 10 Host to Acquire

- The graphs depicts the top 10 host who are earning more.
- Michael is the top earner who is earning more and he belongs to Manhattan.

Top Earners Earning Per Day

Top Earners Earning Per Day

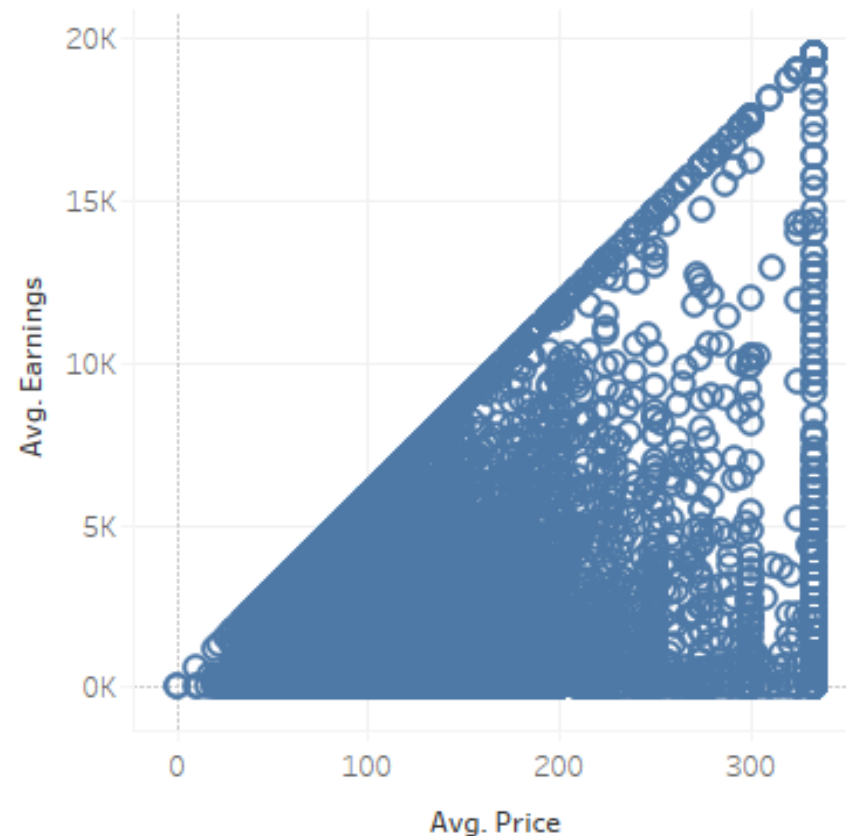


- According to the top 10 per day earning list Michael is earning higher.
- The Reason could be their service is better than others or he has a more number of properties in the popular location/area.

Average Earning and Price

- This graph clearly shows that most the people would be more partial to spend their money the people between the range of 40 to 250.
- And the average earning by the host is around 6000- 7000
- It also depicts that the host who are charging 170 or more as an average price, only those are earning more than 10,000.

Average Earning and Price



Bedford-Stuyvesant 70,599	Harlem 49,759	East Village 28,503	Crown Heights 25,704
Williamsburg 56,339	Bushwick 35,909	Upper West Side 24,604	Upper East Side 23,279
	Hell's Kitchen 31,283	East Harlem 23,145	

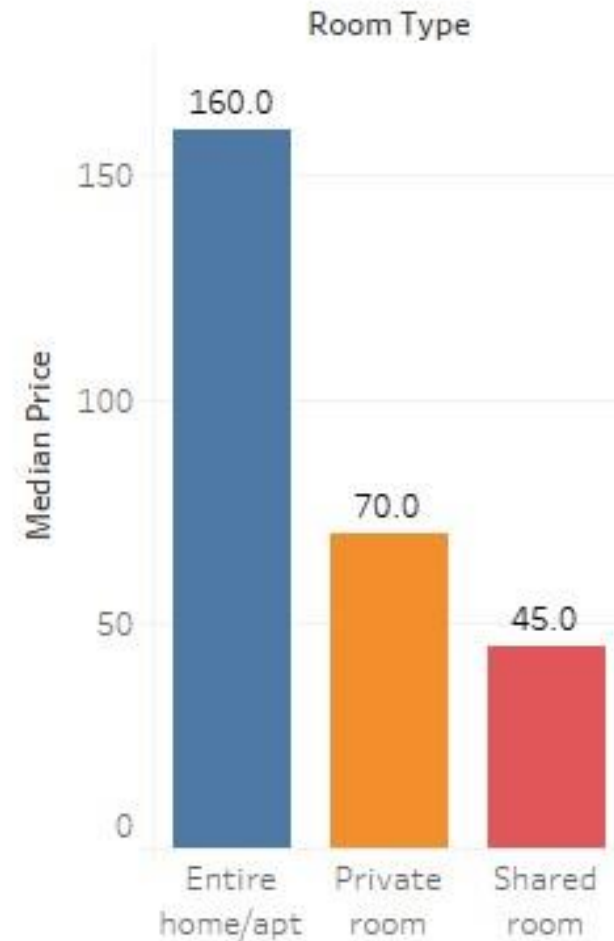
Targeted Neighborhood

- We can clearly comprehend that most the people would prefer to go these location / area only.
- Reason: The location is nearby beach or services are better than the rest location.
- Targeted location / Neighborhoods are Bedford-Stuyvesant, Williamsburg, Harlem, Bushwick, Hell's Kitchen and more.

Average Price Preferred by People

- On the basis of room type the average price preferred by customer for Entire Room is 160.
- For Private Room is 70
- Shared Room is 45

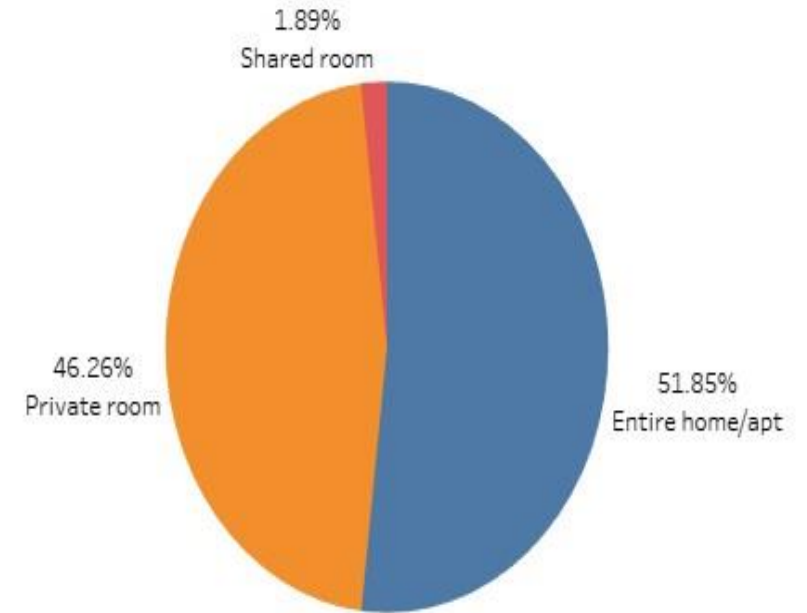
Pricing Range Preferred by Customer



Types of Properties by Customer Preferences

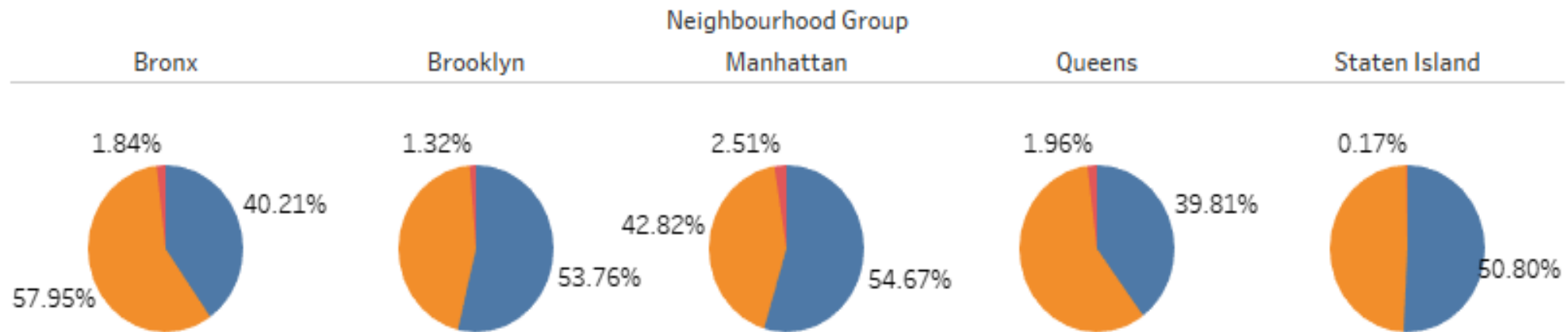
- There are three types of rooms – Entire Home/Apartment, Private Room & Shared Room
- Overall customers appear to prefer Entire Home (51-85%) & Private Room (46.26%) in comparison to the shared room (1.89%).
- Airbnb can focus on promoting shared rooms with discount offers to increase booking of a shared room with discounts.

Types of Properties w.r.t Customer Preferences



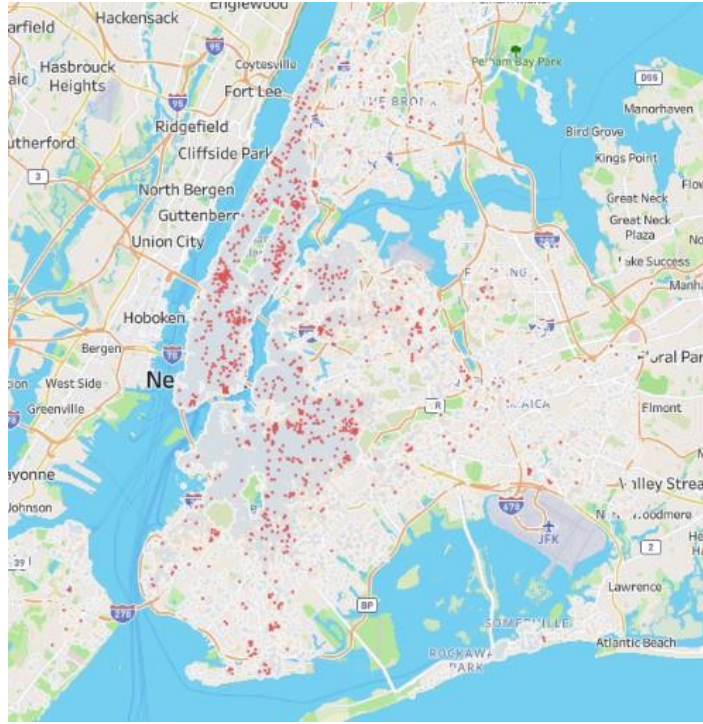
Room Type w.r.t Neighborhood Group

Type of Room Type w.r.t Neighbourhood Group



- Based on this map we depict that popular localities & properties concerning Room types in Manhattan (Entire Home / Private) or Brooklyn (entire Home/ Private) in comparison to other Neighborhood.

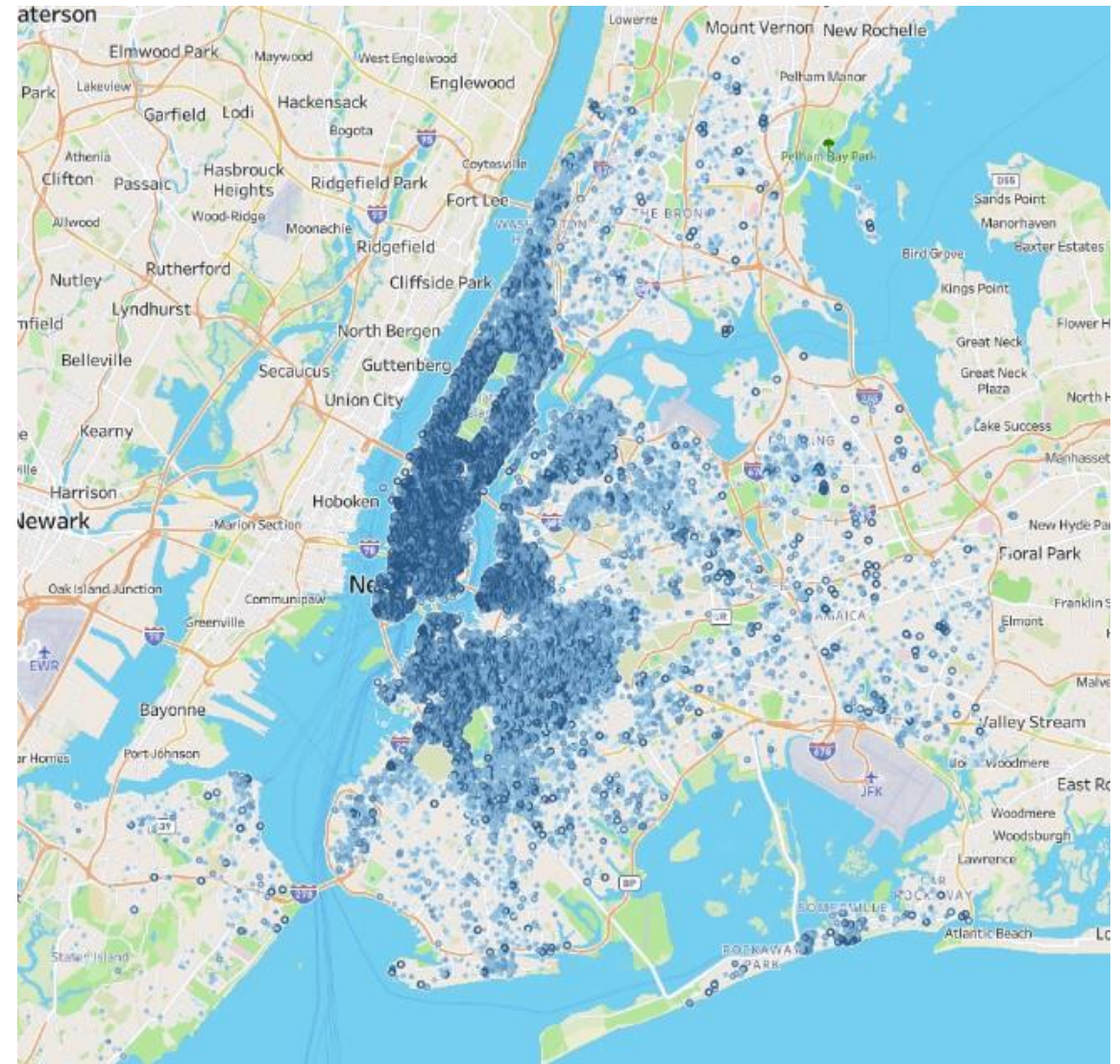
Popular Localities and Properties



- According to this map more the darker side represents the most popular localities and the lighter side represents the least popular.
- We can conclude that ~Manhattan & Brooklyn & the Queens are much popular than. Bronx and Staten Island.

Most Popular Localities and Properties in New York

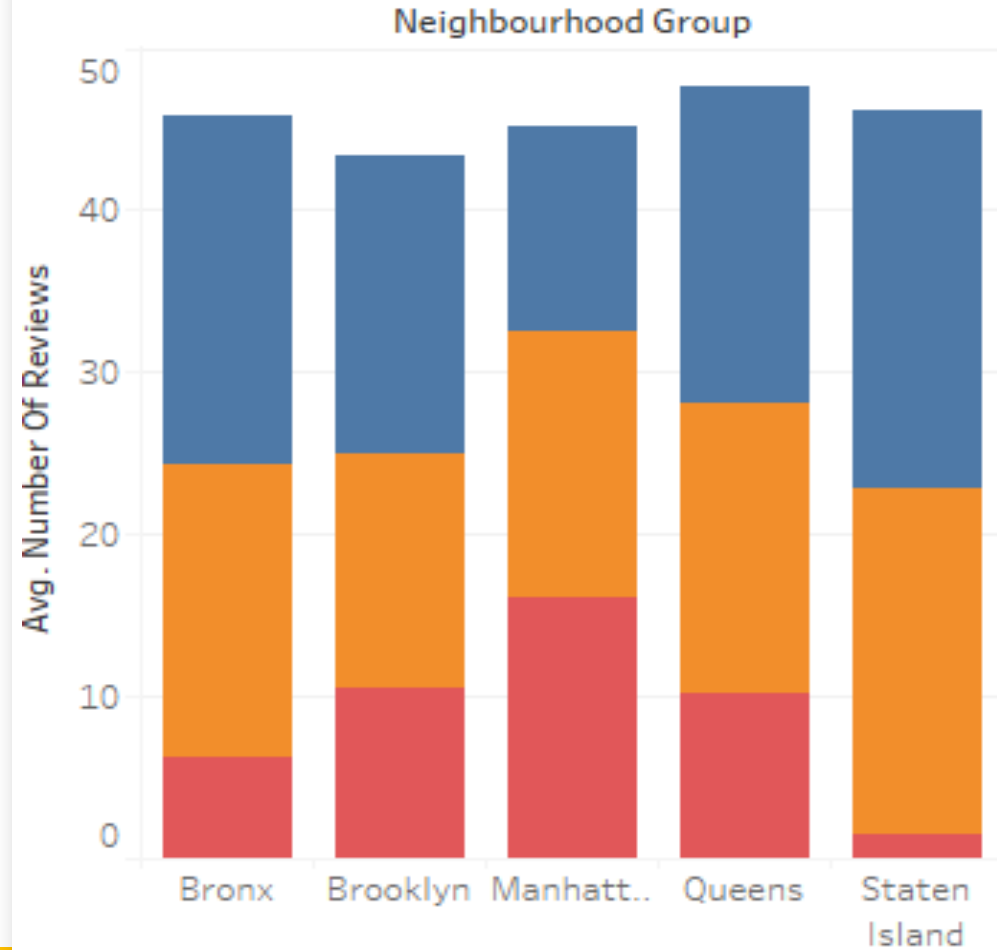
- According to this map more the darker side represents the most popular localities and the lighter side represents the least popular.
- We can conclude that Manhattan, Brooklyn & Queens are much popular than Bronx and Staten Island.



Popular Localities and Properties on Basis of Room Type

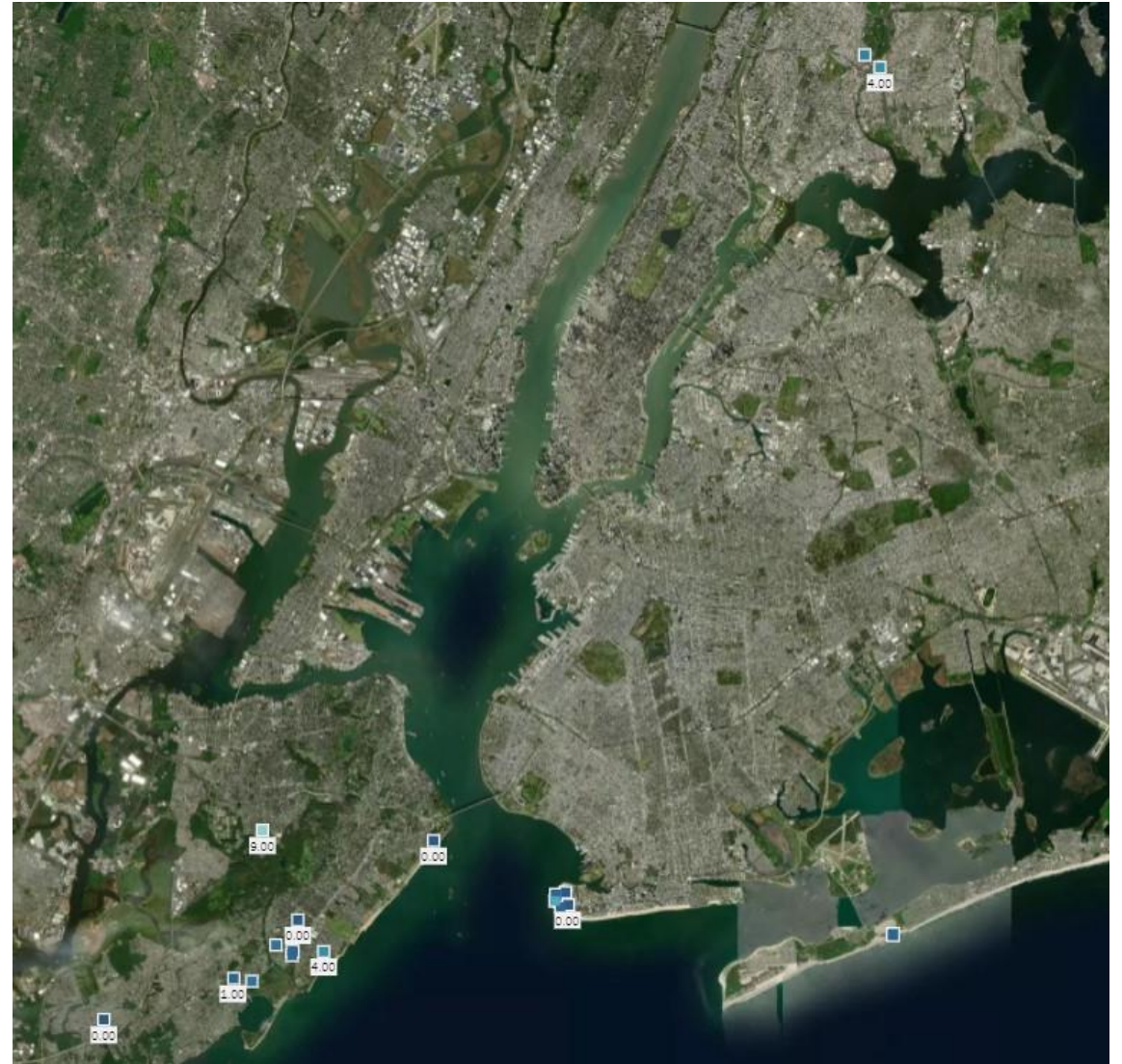
- As we can see in this graph Manhattan to the only place where shared rooms are booked more compare to the rest Neighborhood
- Reason, because Manhattan is an industry as well as its hub so, the single employee & Solo traveller prefer shared room.

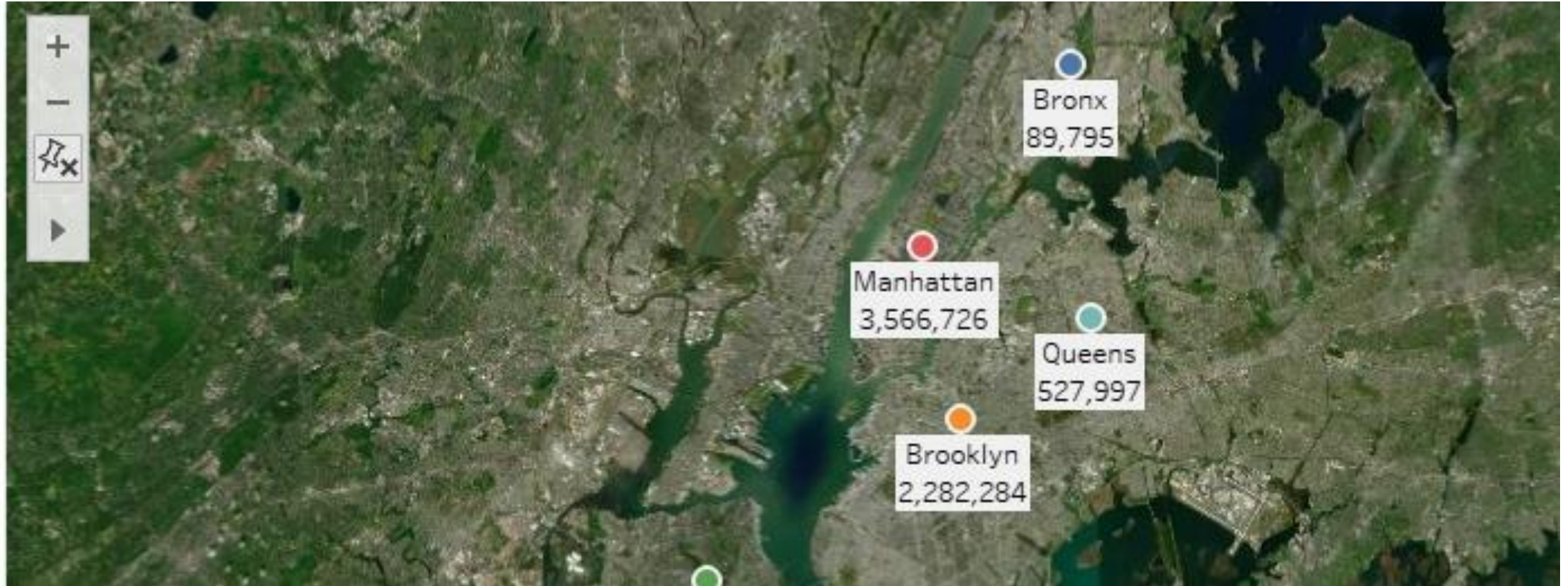
Popular Localities and Properties on Basis of Room Type



Top 10 Unpopular Properties

- Top 10 unpopular locations where people do not opt for stay.
- Because the location of all unpopular localities is at the corner of the city where people do not wish to visit or there may not be any tourist attraction point

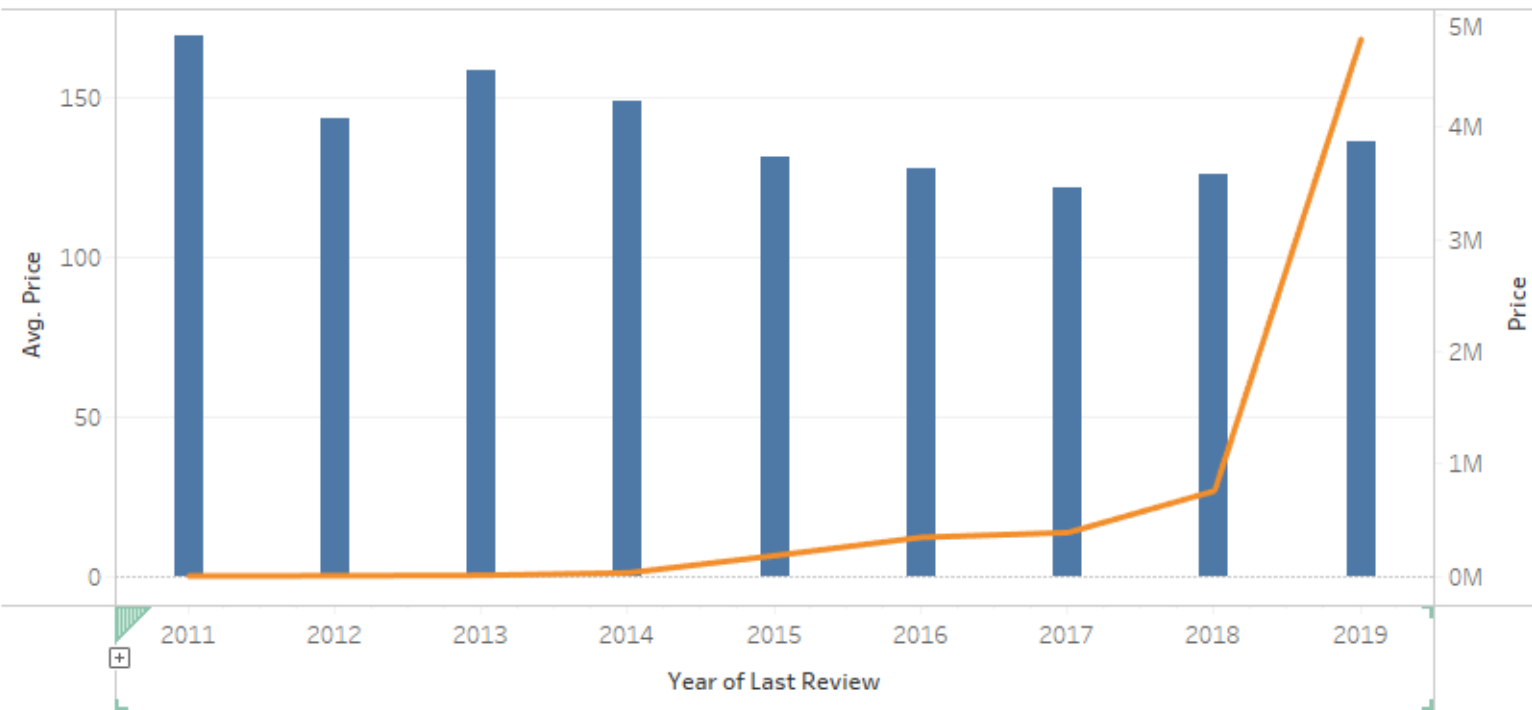




Neighborhood Group Listing on Map

- Price of accommodation in Manhattan is pretty higher and affordable for higher class people.
- With certainty anyone. Its scenic view is attract anyone.

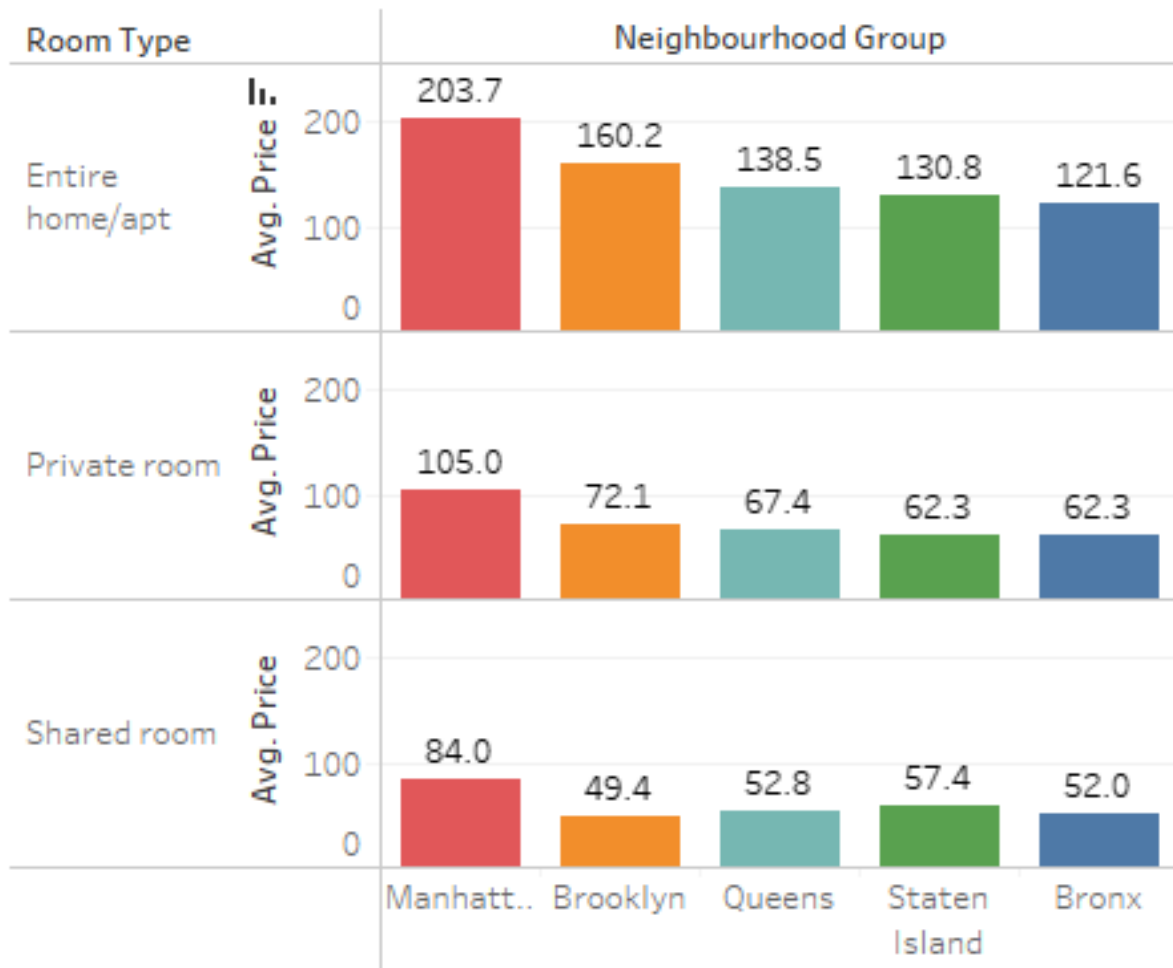
AVG Price of Every Year



AVG Price of Every Year

- This graph concludes that the average was fallen down compared to 2011 (year) of average business strategy or a different reason
- The total price grew up to 2018 at a decent per cent, but in 2019 its increased by more than 400% in contrast with the 2018

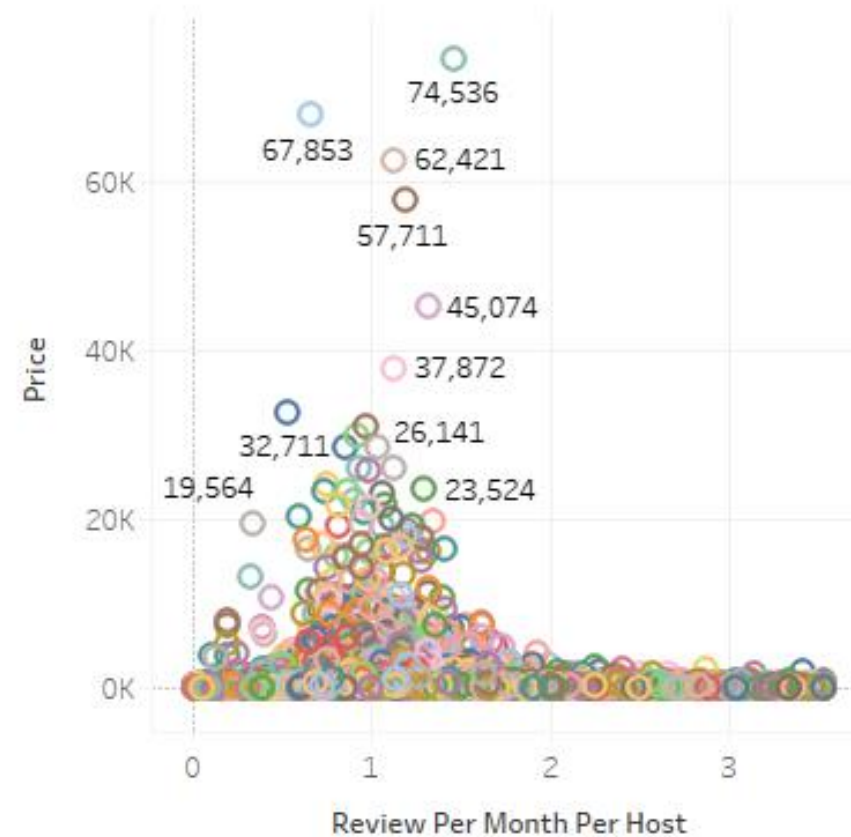
Neighbourhood Group Average Price



Neighborhood Group Average Price

- In all three aspects Manhattan is at the top for charging higher prices (Entire / Private / Shared).
- And in two aspects Bronx is the last for charging least price.
- Excluding Manhattan, they need to change their marketing strategy to increase sales.

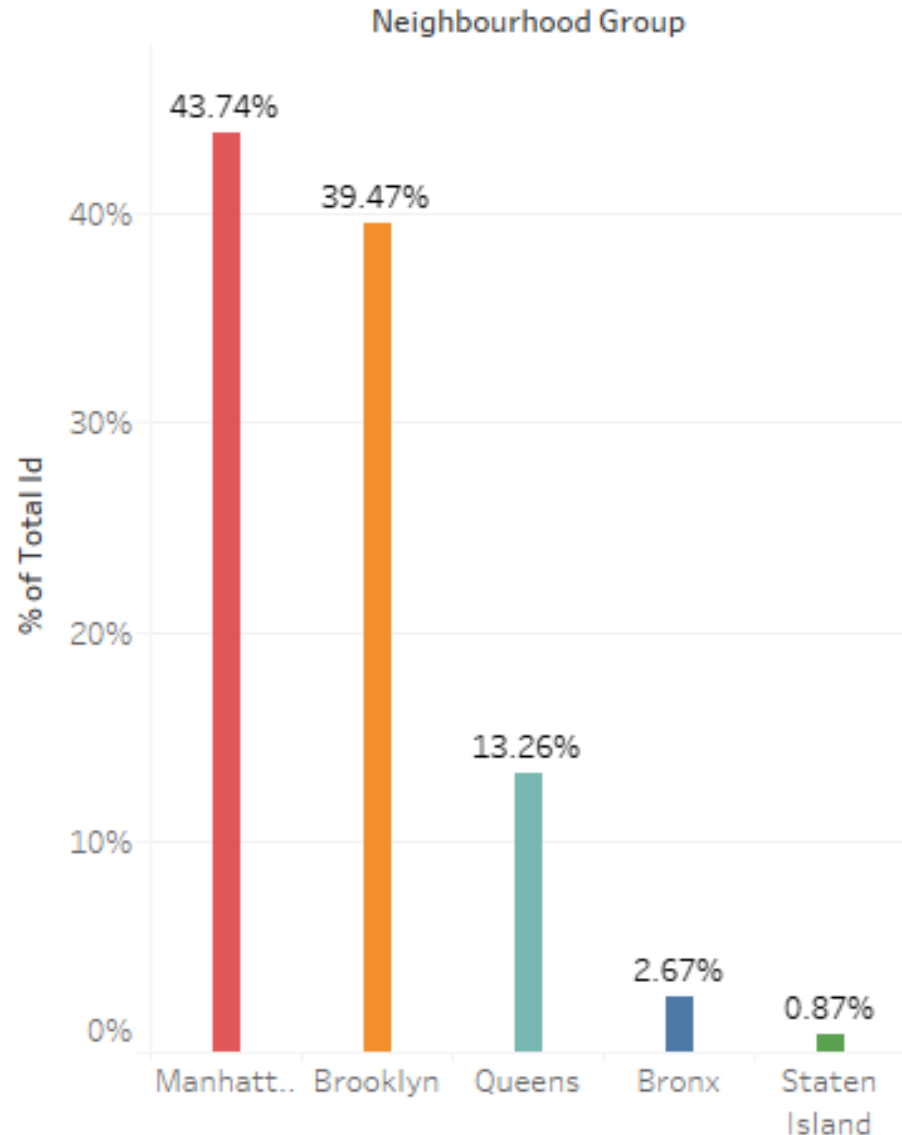
Review Distribution



Review Distribution

- With this chart, we can summarize that per month the host is 1.2 and the highest rating is 3.5.
- 3.5 to the highest rating because we have treated Whiskers, as the median.

Listing Concentration in NYC

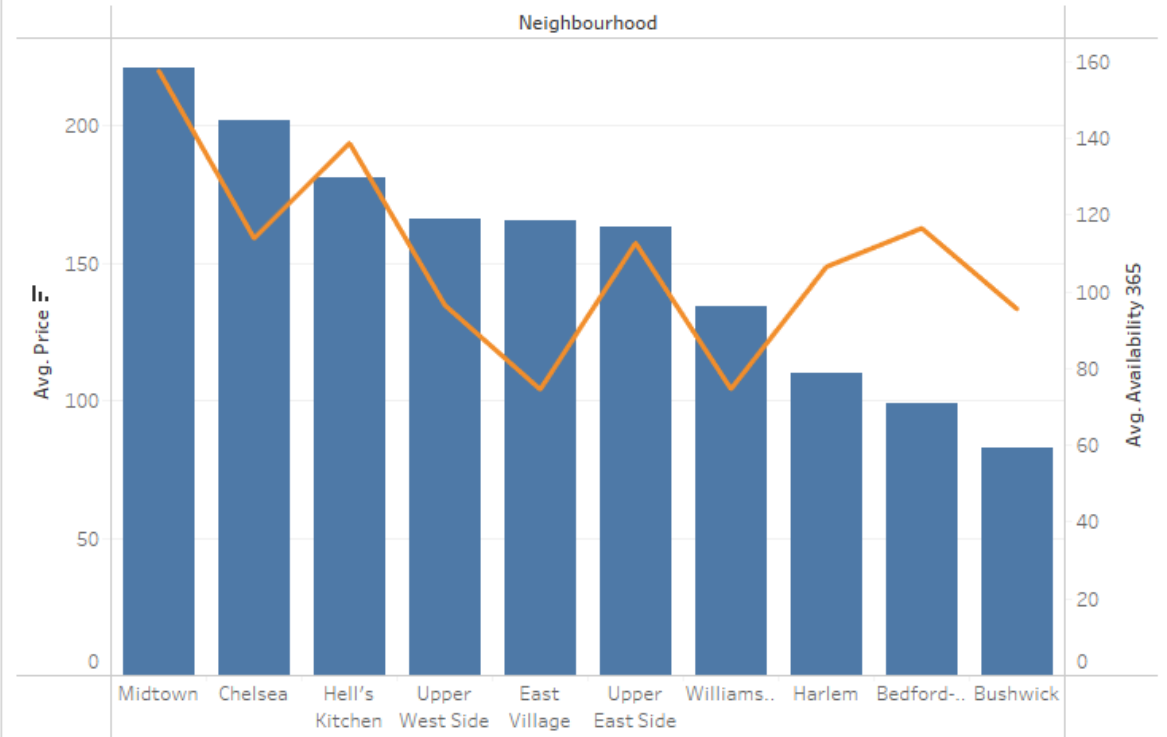


Listing Concentration in NYC

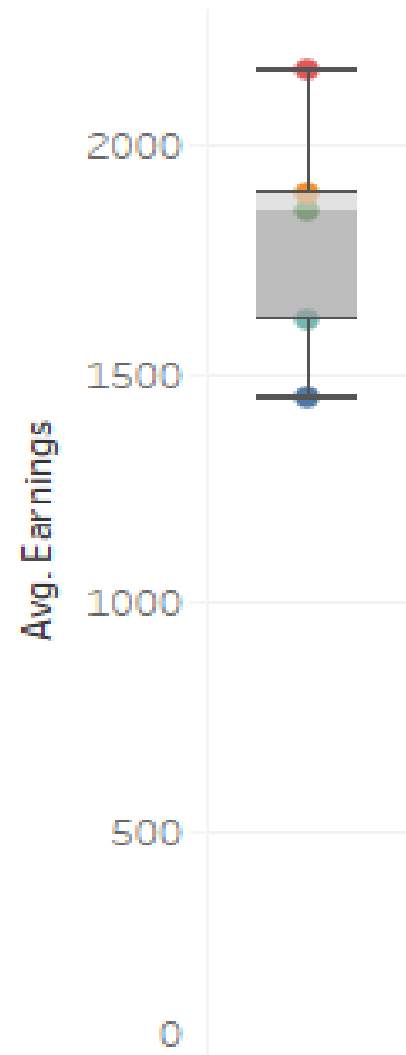
- We see that Airbnb has a good presence in Manhattan, Brooklyn & Queens.
- Listings are maximum in Manhattan (49.74%). & Brooklyn (39.47%) owing to the high population density and it being the financial & tourism hub of NYC.
- Staten Island (1%) has the least number of listings, due to low population density and it being a very few tourism destination.

Availability vs Price W.R.T Neighborhood

Availability vs Price W.R.T Neighbourhood



Average Yearly Earning



Average Yearly Earning

Upper Whisker: 2,164.2

Upper Hinge: 1,895.3

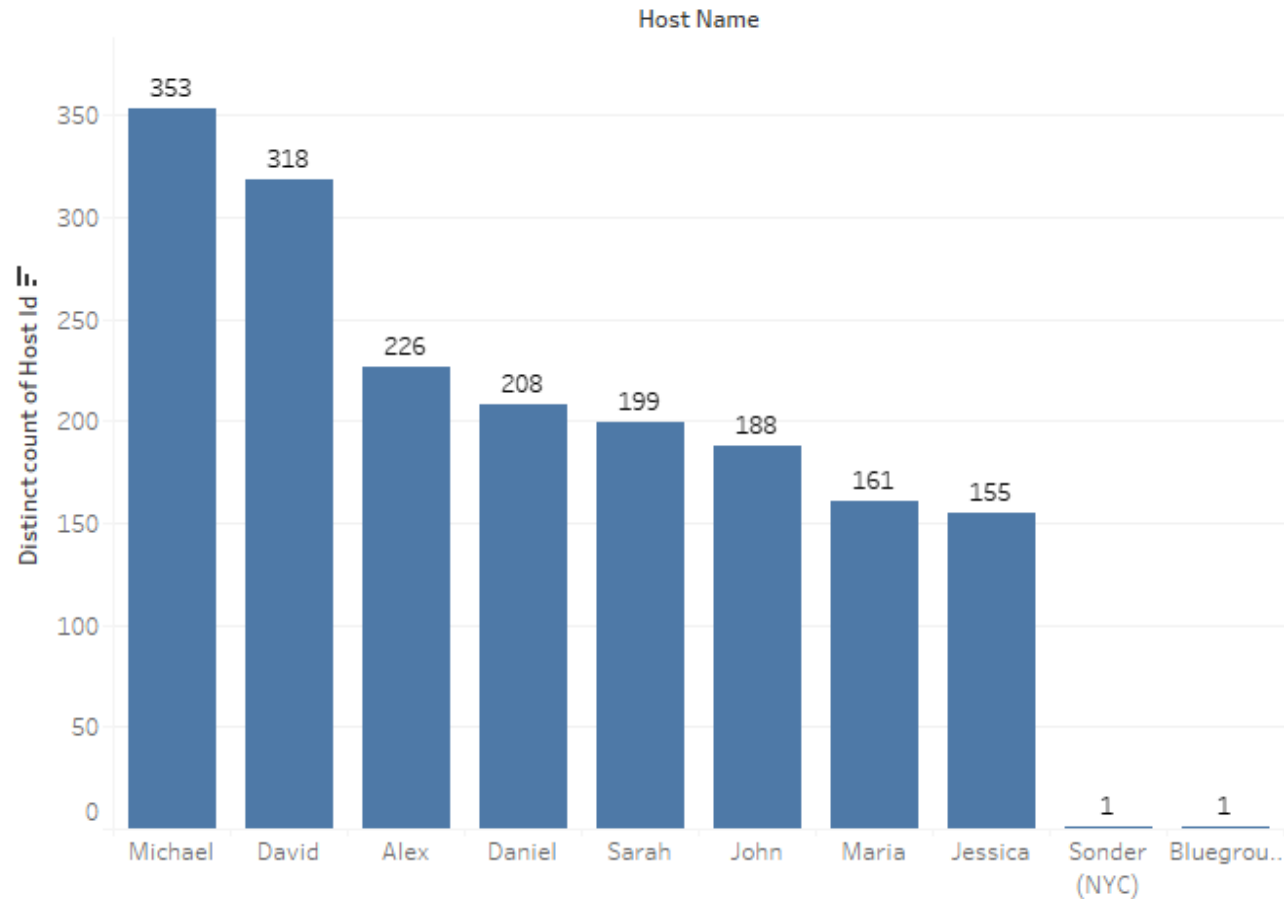
Median: 1,852.7

Lower Hinge: 1,614.5

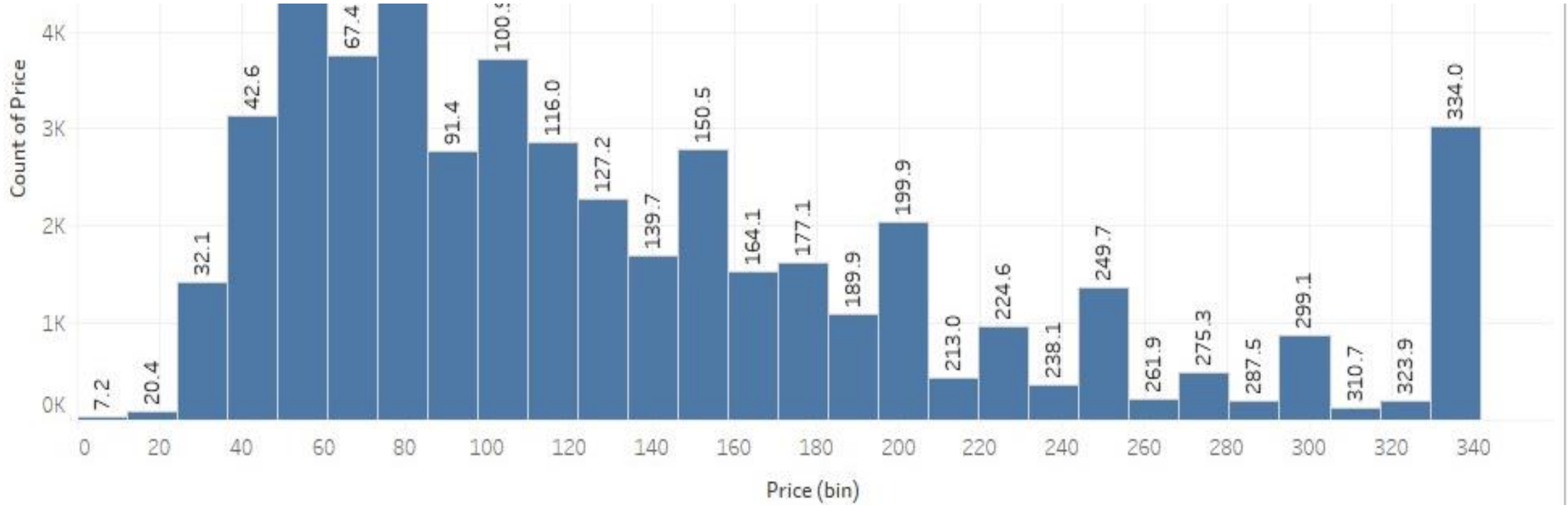
Lower Whisker: 1,445.9

Host with highest listing w.r.t Neighborhood

Host with highest listing w.r.t Neighbourhood



- This graph depicts that Michael, David and Alex captured more than 40% of the host properties in NYC.
- And Move no of properties means higher earnings.



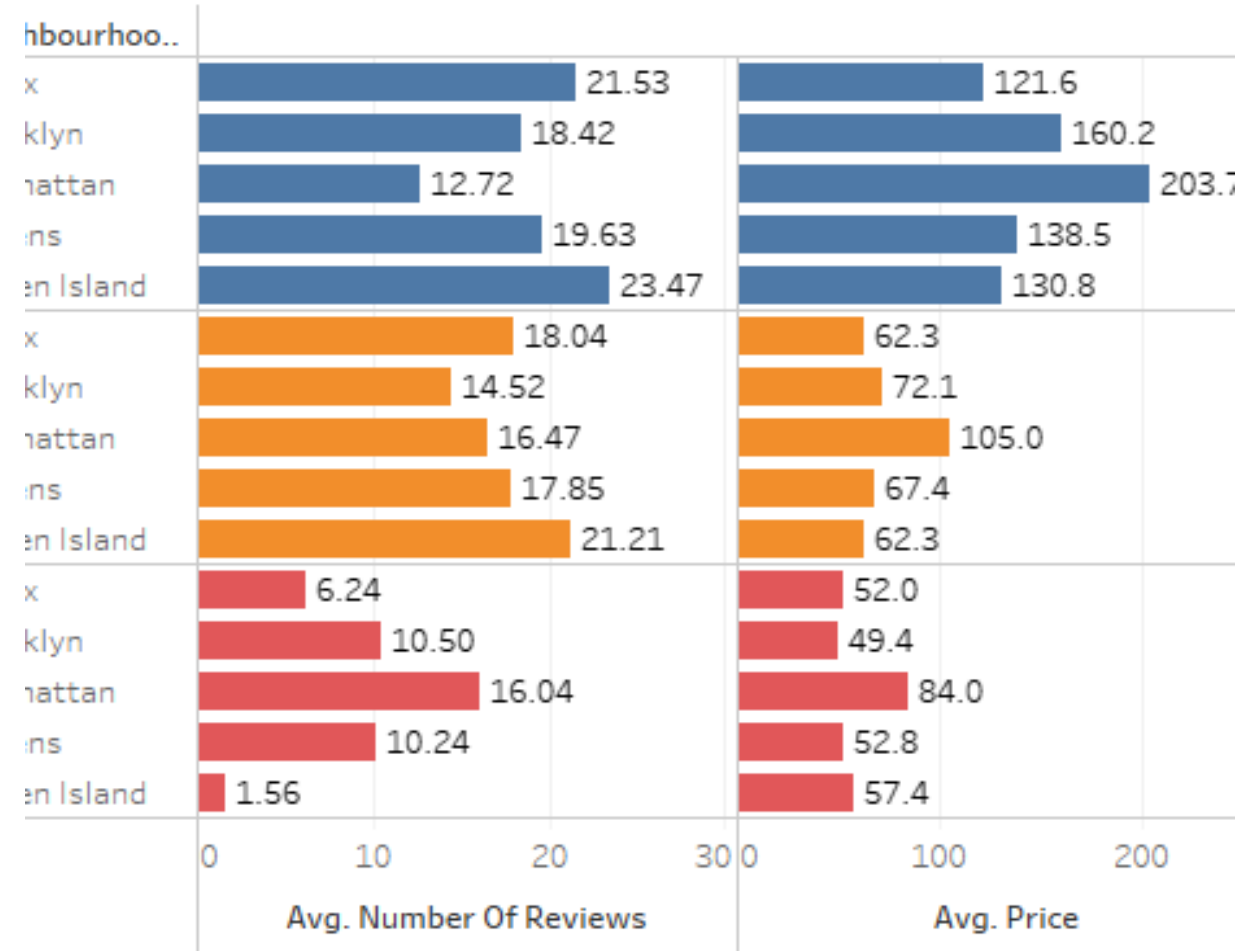
Average Price Distribution By People

- Most of the customers prefer to spend their money between a range of 40 to 160.
- And the people who want luxury they are paying more also.

Price W.R.T Room Type and Neighborhood Group

- We can clearly say that Manhattan & Brooklyn both are marketing leaders in terms of earning in all room types. But in shared room type they both are also not doing well.

Room Type and Neighbourhood Group



Top 10 / Bottom 10 Neighborhood W.R.T Average Per Night Price

- Here are the list of top 10 Neighborhood concerning average price per night.
- Midtown is in the top charging a 95\$ average for a night, and Grant City is the least charging 17\$ neighborhood.

List of Top 10 Nighbourhood w.r.t AVG Per Night Price

Neighbou..	Avg. Per Night Price	Avg. Price
Breezy Point	213.3	213.3
Neponsit	134.7	269.3
Jamaica Estates	116.9	157.7
Flatiron District	111.9	233.7
Belle Harbor	109.7	169.5
Shore Acres	109.5	152.7
NoHo	109.3	243.2
Grymes Hill	108.1	159.1
Mill Basin	105.1	179.8
Tribeca	101.0	260.5

List of Bottom 10 Nighbourhood w.r.t AVG Per Night Price

Neighbourhood	Avg. Per Night Price	Avg. Price
Grant City	17.10	57.67
Hunts Point	17.43	50.50
Rossville	25.00	75.00
Richmondtown	26.00	78.00
Bull's Head	26.18	47.33
Westerleigh	27.17	71.50
Concord	27.44	58.19
Bay Terrace, Staten Island	27.50	102.50
Castle Hill	27.83	63.00
Howland Hook	29.17	100.00

Adjustments in the existing properties to make it more customer-oriented

- Excluding Manhattan and Brooklyn, rest all need to change their marketing strategy to increase their sales.
- Most of the customers prefer to spend their money between a range of 40 to 160. Try some new marketing strategy to attract people like by giving discounts and offers.
- All unpopular localities need to change their existing plan to earn more like develop some tourist attraction point.
- Increase the spending power of customer etc.



Recommendation

- Promotion of shared accommodations with focused savings to boost reservations.
 - As long as the new acquisition or growth meets the criteria for both customer traffic volume and customer happiness, it can be done for between \$40 and \$160.
 - As long as they fall within the desirable price range (\$40-\$160), new purchases can be looked into to purchase "private rooms" in Manhattan and Brooklyn and "entire homes" in the Bronx and Queens.
 - Brooklyn costs \$113 on average. Given the abundance of listings in Manhattan, Brooklyn may be regarded for growth.
 - Bookings from clients may rise if there are more coastal purchases and new construction.
 - Focus on prime locations like Manhattan and Brooklyn where people show interest.
-



Thank You