

Data Analysis

AirBNB 2019 DataSet

Question List

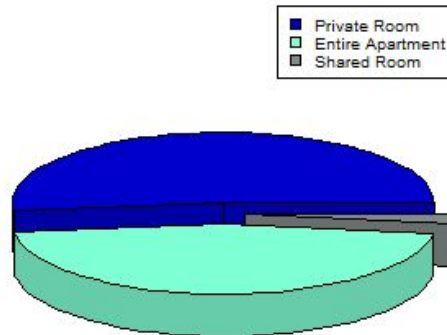
- Is there any relationship between the price of a rental and the number of reviews in the area?
- Is there any relationship between the price of a rental and the area's availability?
- What type of rental has more listings, and what type of rental has more listing owned by one person?
- Is there a relationship between price, availability, and number of reviews a listing has.
- Is there any relationship between the number of reviews a listing has, and the date of its last review?
- Are more reviewed listings also more expensive?
- As the minimum night stay goes up, does the price per night go down over time?
- Are the most expensive neighborhoods in the most expensive region and if so by how much

For this assignment, I teamed up with Mibella and Max. We discussed what to explore in this assignment, and decided to look at AirBNB data from 2019. Max had done his initial assignment on the average price of AirBNB rentals in different areas of NYC, and we wanted to expand on this. We decided to look for correlations between Price and Number of Reviews, Availability, and Minimum Nights. We also looked at the cheapest and most expensive neighbourhoods for each borough.

Question

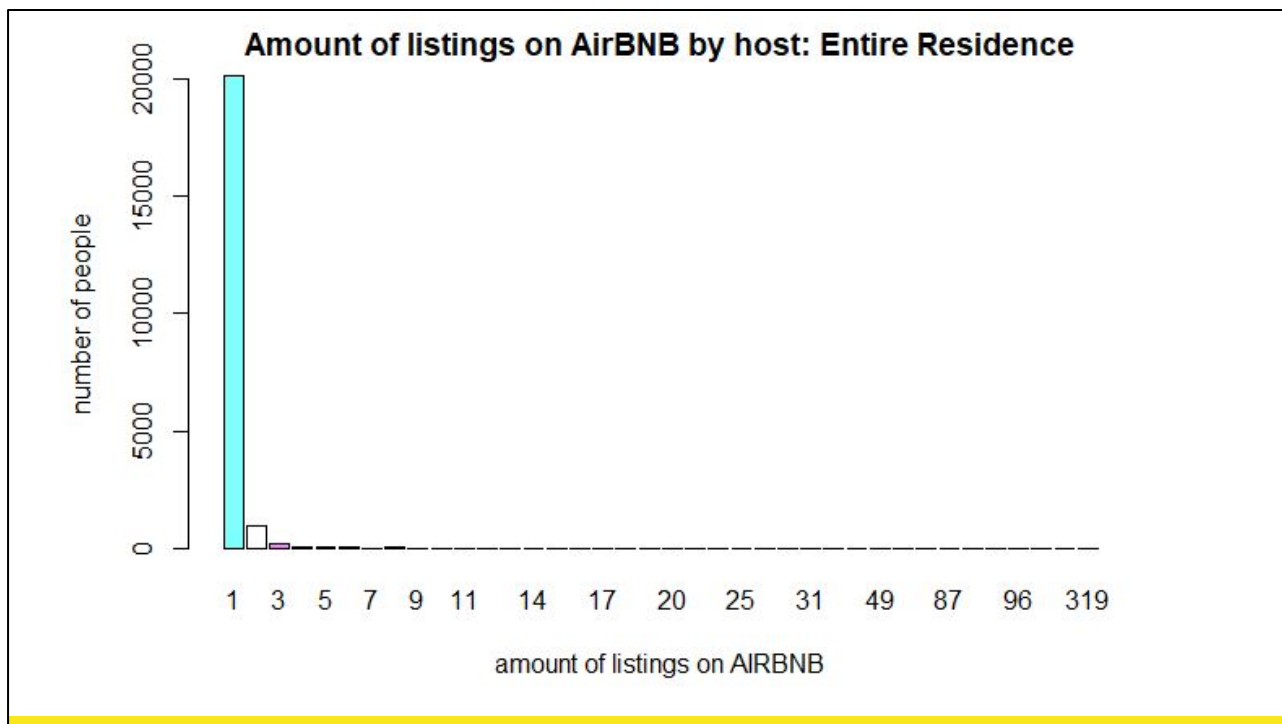
- What type of rental has more listings, and what type of rental has more listing owned by one person?

Types of Rental Available in NYC on AirBNB



Types of Listings

From this pie graph, we can tell that the most listed rentals on AirBNB are Entire Residences, and Private Rooms. For some of the data in this presentation, we've subset the data into Rental type, to make comparisons more equivalent.

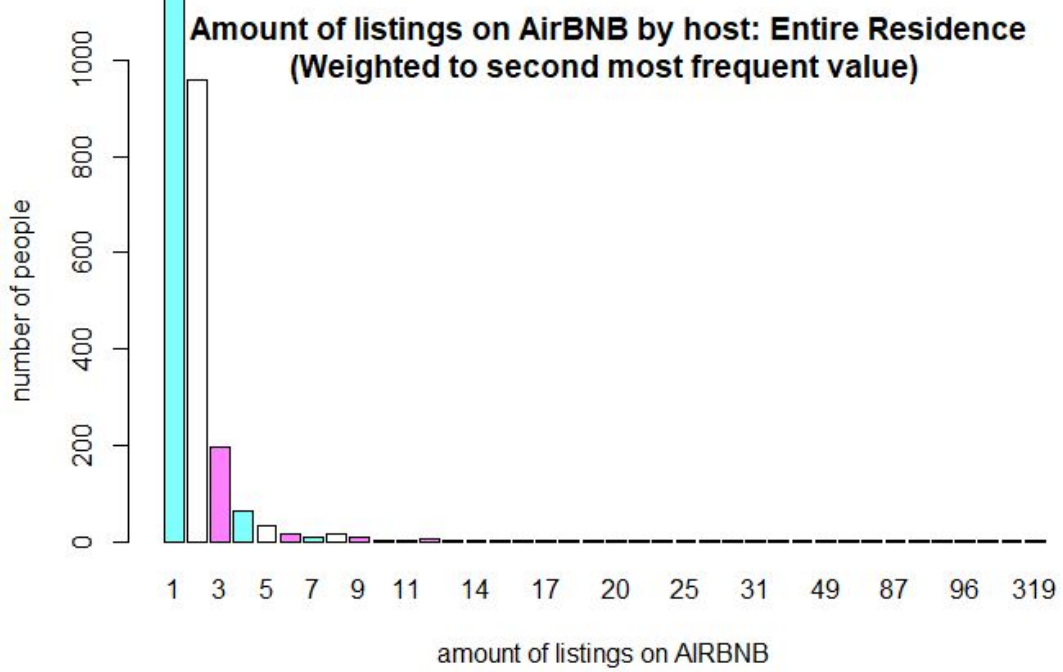


The first thing I wanted to look at was “what type of Residence do the most hosts own multiple of”. From the rental subsets, I obtained the frequency that each host ID occurred, and graphed that, showing the number of people who own a certain number of properties.

I have then reduced the y axis to fix the second most common value, so its easier to see the data.

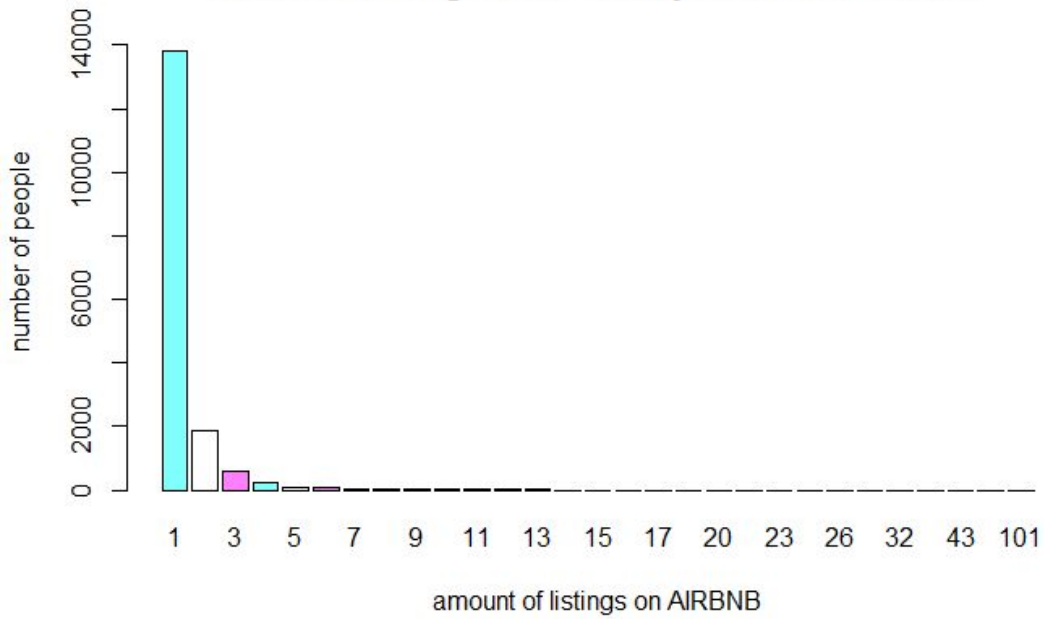
What we can see from this data is that most hosts have one listing, however, having two listings is also quite popular. The number of listings falls off drastically after two listings. Overall, what we can see is that people that own more than two listings tend to list entire residences. While you could, as a company, buy an entire apartment and rent out its rooms individually, this requires a lot more overhead to manage.

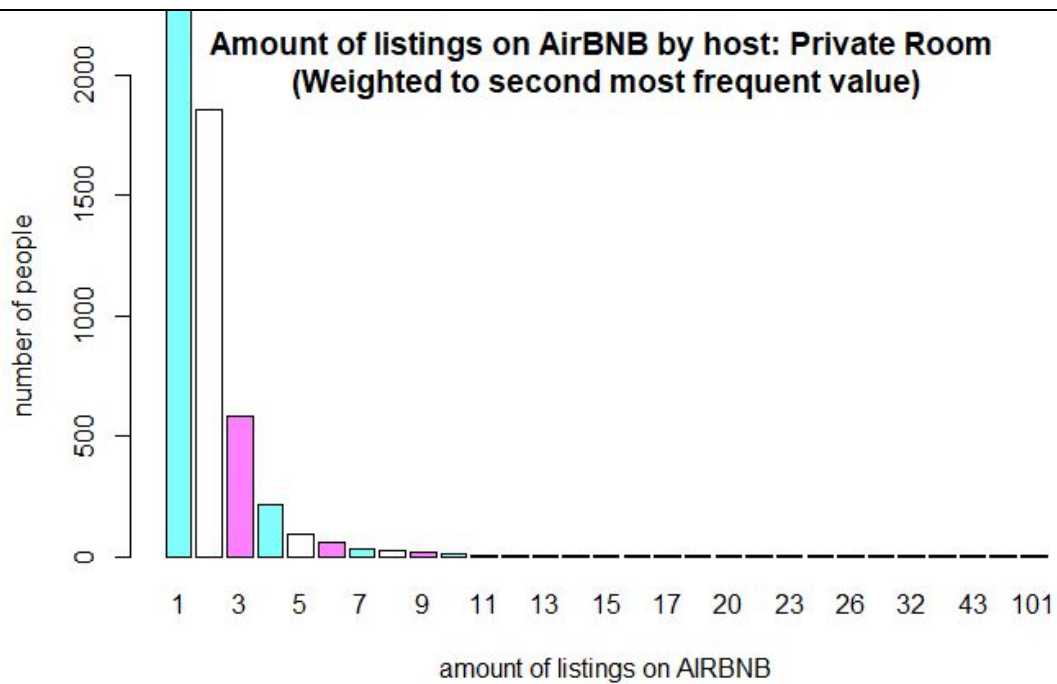
Furthermore, there are privacy and safety concerns that would come with this. There are definitely some companies that do this, at least one host owns 101 private room listings on AirBNB, but it's easy to see why it is less popular.



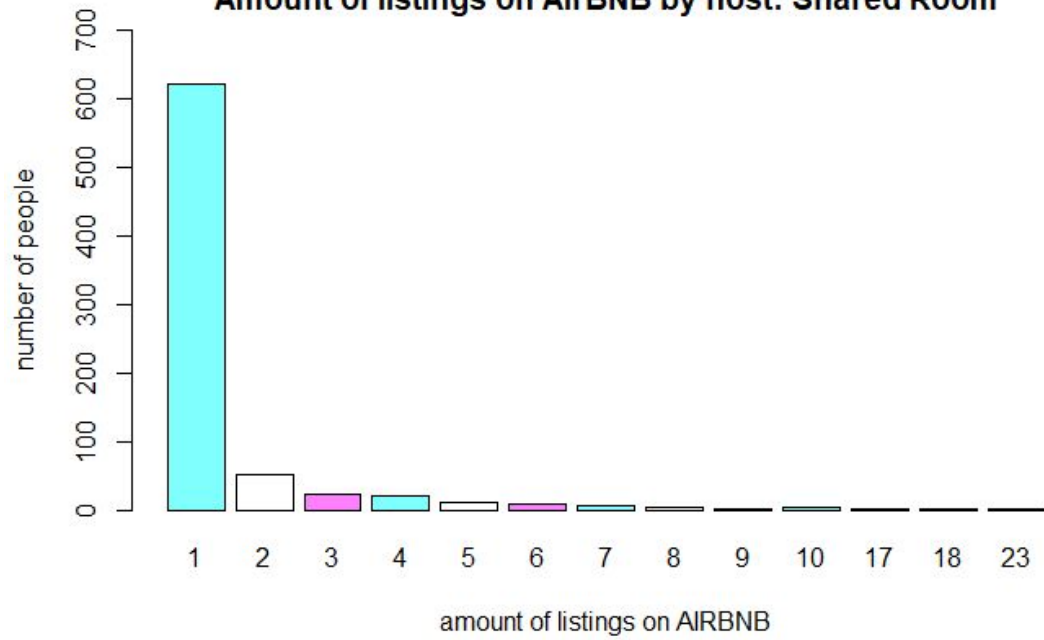
Amount of listings on AirBNB by host: Private Room

amount of listings on AIRBNB	number of people
1	13500
2	2000
3	500
4	200
5	100
6	50
7	20
8	10
9	5
10	5
11	5
12	5
13	5
14	5
15	5
16	5
17	5
18	5
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99	5
100	5
101	5

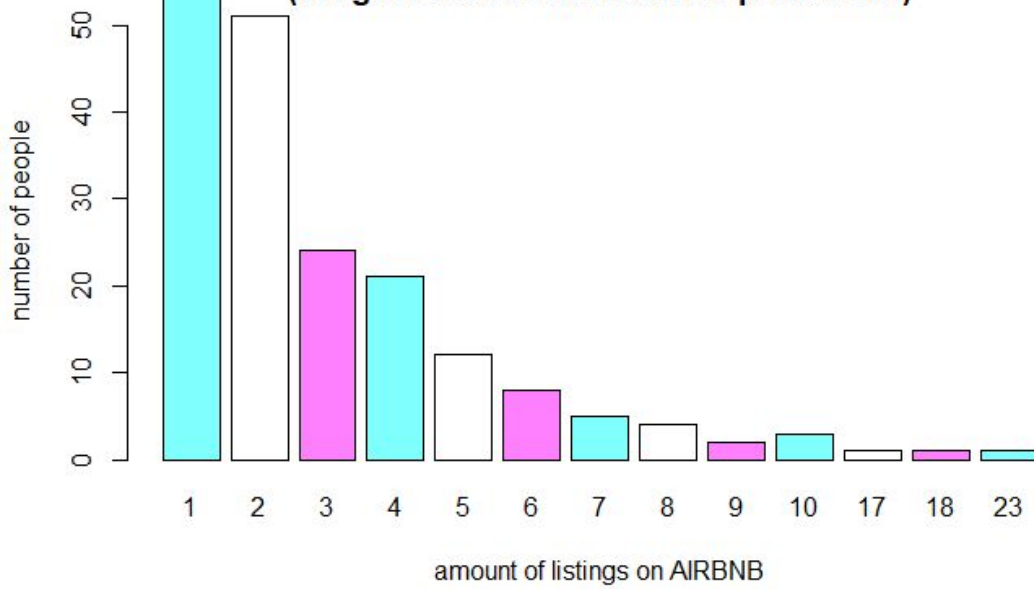




Amount of listings on AirBNB by host: Shared Room



**Amount of listings on AirBNB by host: Shared Room
(Weighted to second most frequent value)**



Question

- Is there any relationship between the price of a rental and the area's availability?

Availability vs Price

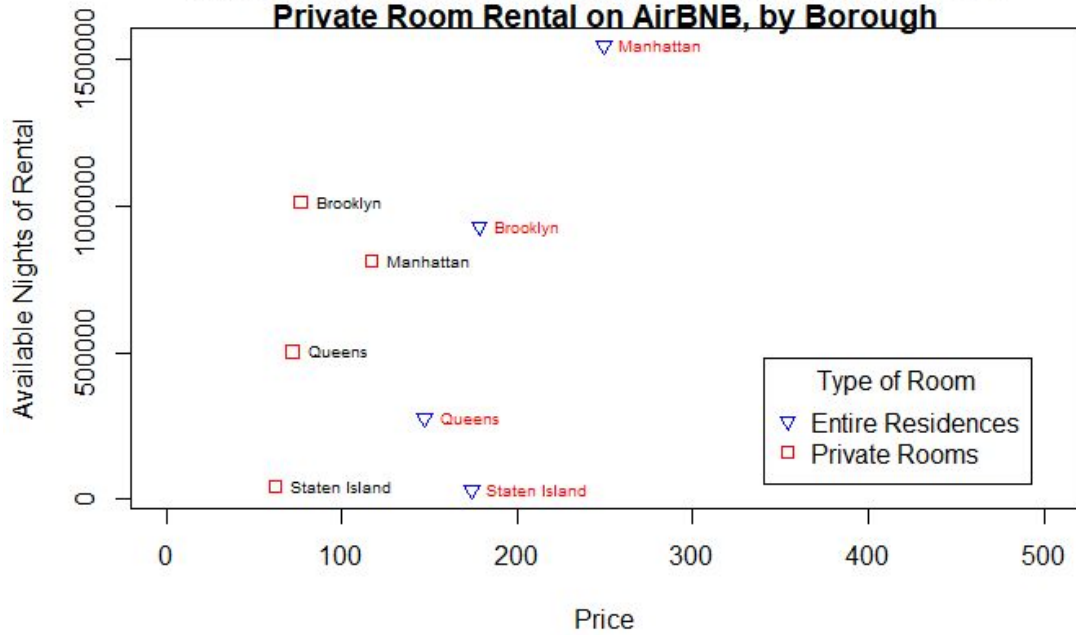
I looked at the correlation between availability and price. For each room type, for each borough, I took the total availability and average price, then graphed them on a plot graph.

Initially I had all room types on the same graph, but moved the shared room to its own graph as it did not show well against the other room types, due to its price and availability being much smaller.

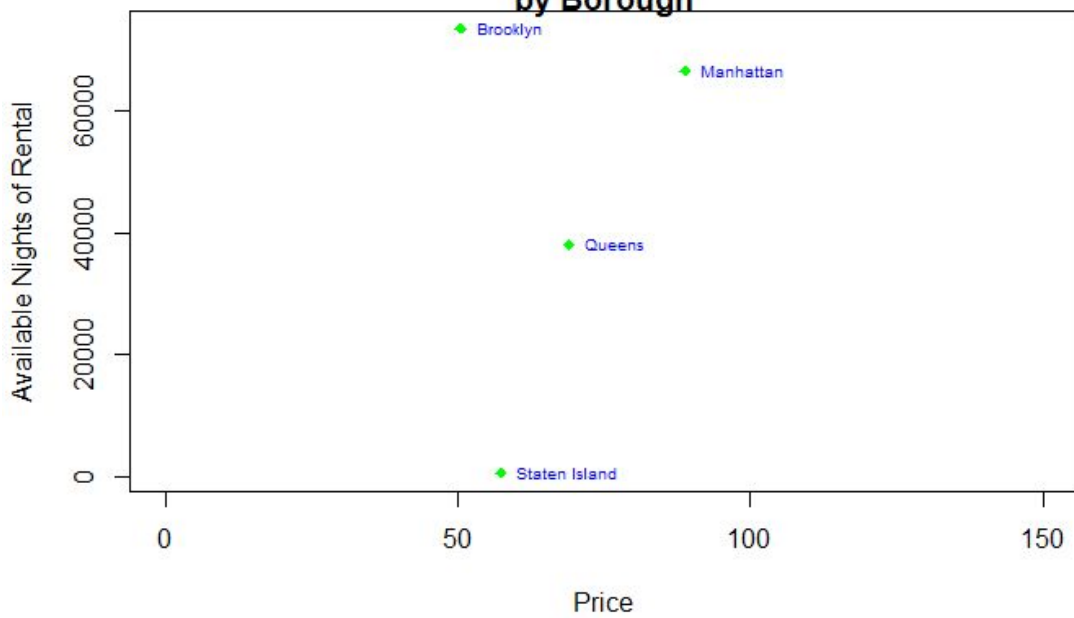
As you can see from this graph, Entire Residences in Manhattan are both the most expensive and the most available rentals on AirBNB, with Staten Island being the least available, and Queens being the least expensive of all the areas. For Private rooms, however, Brooklyn has more availability than any other area, and is only slightly more expensive than Queens and Staten Island.

The argument could be made that Staten Island and Queens have much lower populations than Brooklyn, or Manhattan, so this comparison is flawed. However, the comparison is made to determine total availability vs price. As you can see, Queens and Staten Island are still fairly equivalent on price despite having far less rentals available.

Average Price vs Availability for Entire Residence and Private Room Rental on AirBNB, by Borough



**Average Price vs Availability for Shared Room Rental on AirBNB,
by Borough**



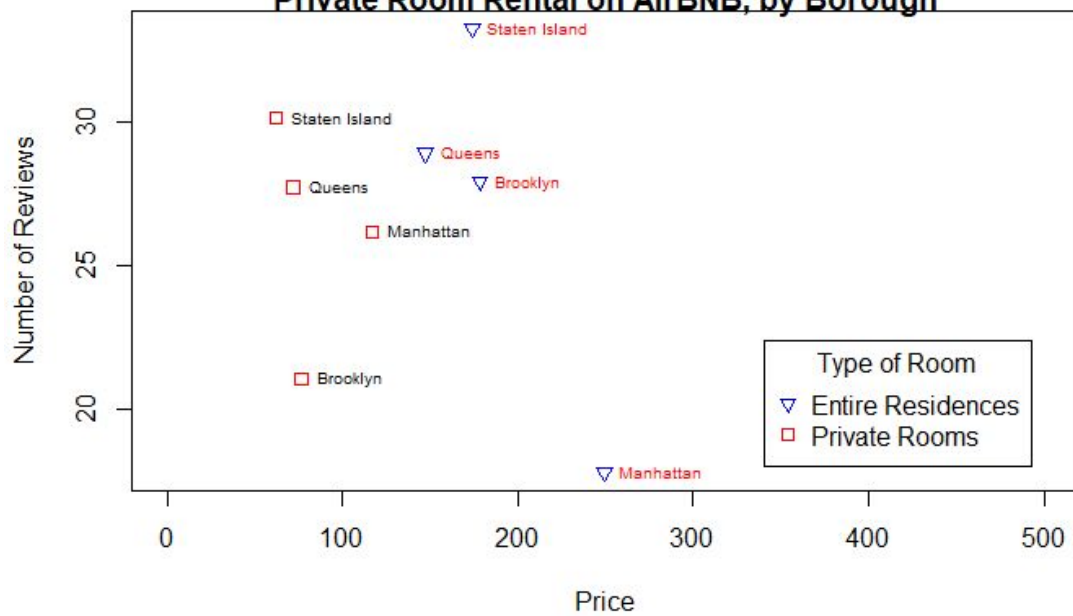
Question

- Is there any relationship between the price of a rental and the average number of reviews in the area?

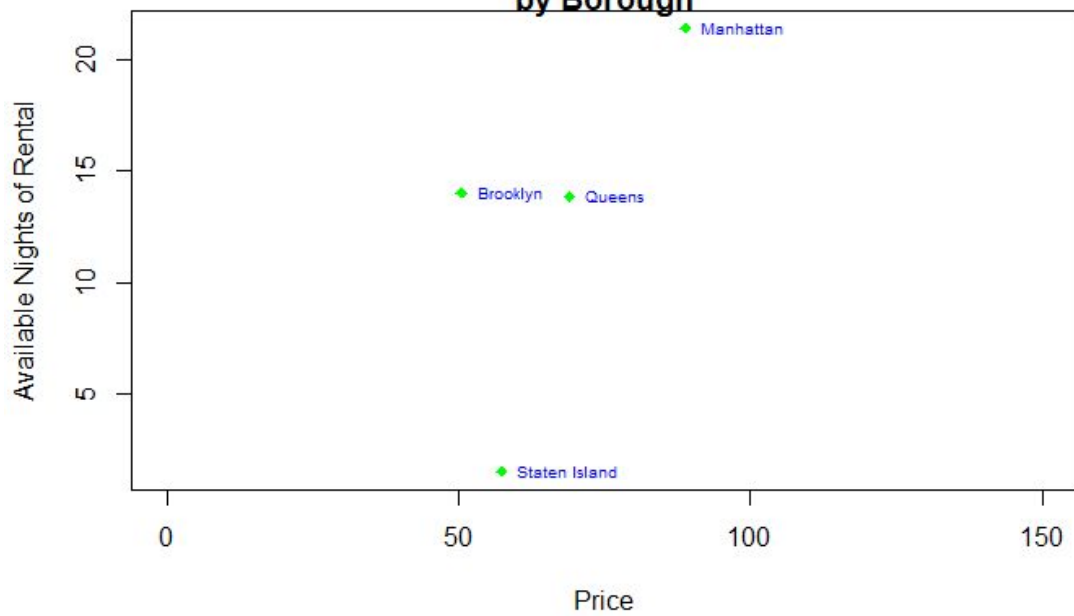
Average (for area) Number of Reviews vs Price

We can also compare the number of reviews with price, to see if review count correlates to price. We can see some interesting differences here. Manhattan Entire Residence is unsurprisingly the most expensive, but it has the least number of reviews, especially when compared with Manhattan Private Room, which has average numbers of reviews. From this data, there doesn't appear to be any correlation between Number of Reviews, and Price.

Average Price vs Number of Reviews for Entire Residence and Private Room Rental on AirBNB, by Borough



**Average Price vs Number of Reviews for Shared Room Rental on AirBNB
by Borough**



Question

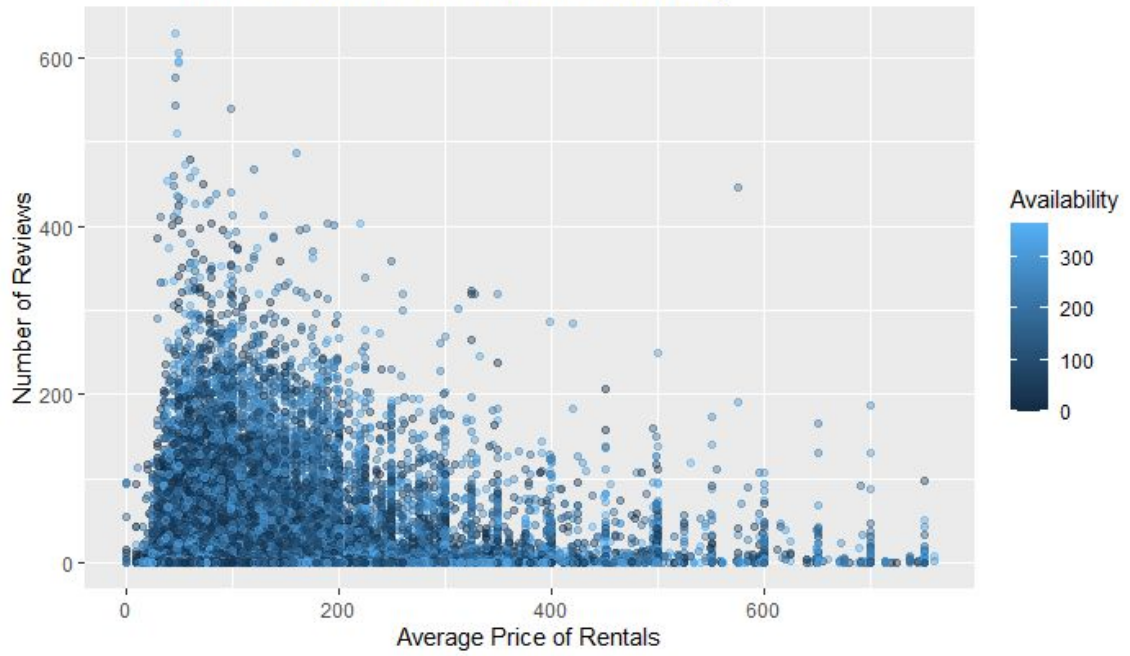
- Is there any relationship between the price of a rental and the number of reviews it has? Are either of these factors affected by availability?

Price vs Number of Rentals vs Availability.

This is a scatterplot of all listings on AirBNB, showing number of reviews vs price of a rental. I've coloured each node to show its availability. From this data, we can draw a few conclusions. Lower priced listings have a higher number of reviews, which makes sense if you look at it from an economic perspective. A higher cost prohibits more people from staying in a place, reducing its number of possible reviews. It also seems that lower priced listings have less availability, perhaps as lower prices are more popular with consumers. The correlation isn't hugely strong, however.

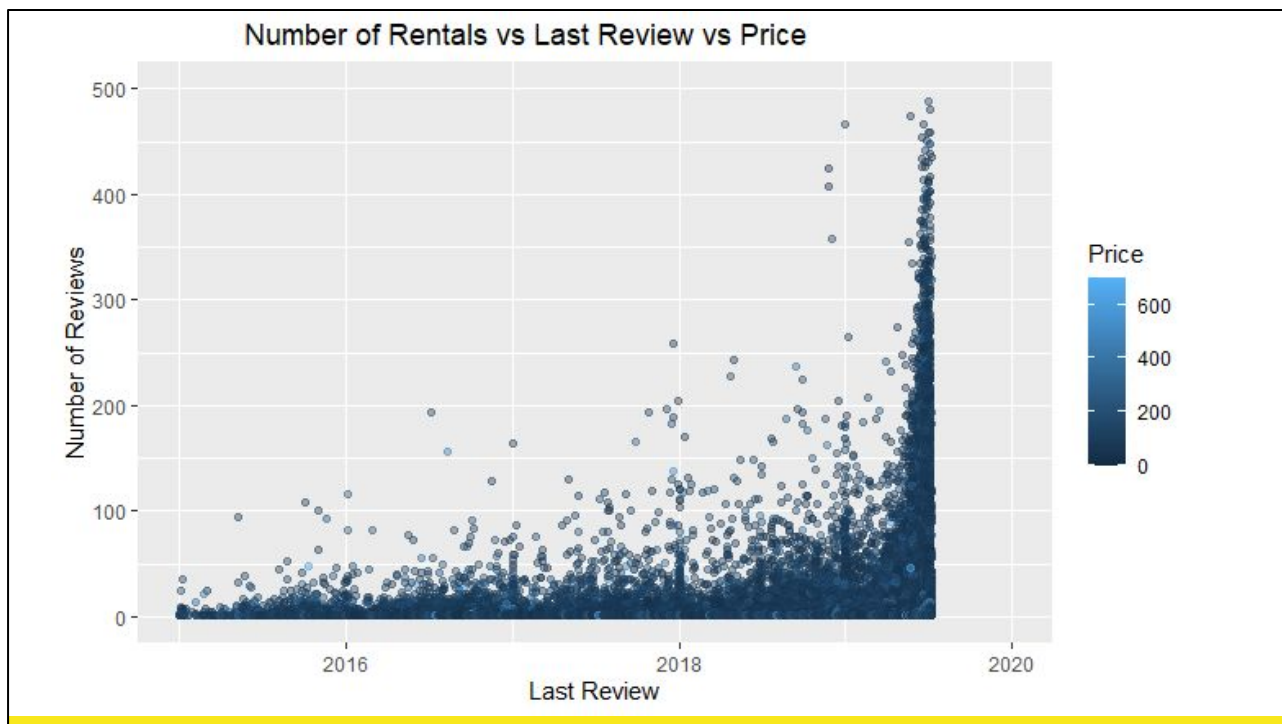
Interestingly, more reviews seems to be inversely related to availability, especially as price increases. It seems that consumers are more interested in overall price, than the opinions of previous guests. We also don't know the content of these reviews. It's possible that a greater number of reviews means more negative reviews, which could drive people away.

Price vs Number of Rentals vs Availability



Question

- Is there any relationship between the number of reviews a listing has, and the date of its last review?
- Are more reviewed listings also more expensive?



Rentals vs last review vs price

This is a scatterplot showing Number of Reviews vs the last review. Unsurprisingly, there is a sharp correlation between the number of reviews, and the last date a review was made. Seemingly, if you don't have regular reviews, you don't have a high number of reviews. What is interesting is the price comparison here. Number of reviews has a clear inverse relation to price. This reaffirms my earlier conclusion about lower price points allowing more people to review a place.

My Conclusions

- Entire Residences, and Private Rooms, are the most popular listings in AirBNB
- There is no correlation between an area's availability, and the prices of listings in that area.
- There is no correlation between an area's average number of reviews, and the prices of listings in that area.
- A lower prices listing will have a higher number of reviews, and lower priced listings have less availability. However, a high number of reviews does not seem to decrease availability
- The number of reviews a listing has is directly tied to its last review date. If a listing has been reviewed in the last year, it will have drastically more reviews. Price appears inversely related to number of reviews

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