

Data Analysis Portfolio

June 2025

Professional background

Due to the diversity in my professional background, I bring a wealth of experience across various sectors and industries. With excellent transferable skills, I have improved operations in the pharmaceutical, technological, and healthcare industries.

Through my education, personal development, and professional background, I have gained the knowledge and experience that position me as a business analyst, SOC analyst, and data analyst. I am a great team player with excellent communication skills and a strong attention to detail. These qualities have contributed to my success in roles such as quality control assistant and manager, technical support, IT consultant, cybersecurity analyst, and healthcare assistant.

Working in IT further fueled my passion for technology, prompting me to enhance my data analysis and programming skills. As a strong believer in self-development, and through my experience in information technology security, I fully understand the importance of safety and security in both technology and business. This has driven me to hone my cybersecurity skills, supported by several certifications.

With excellent analytical skills developed from my professional background and academic experience, I have further strengthened my knowledge by completing various certification courses. My data analytics skills developed through both professional experience and continuous self-development, combined with my cybersecurity expertise, form a rare blend of capabilities that are essential across all industries.

New York City Airbnb Open Data

The goal of this analysis is to help Airbnb make data-driven decisions about pricing, marketing, and customer experience. To do this, this analysis answered some questions that will influence decisions in the future. These questions are listed below.

- What is the average price of Airbnb listings in each neighborhood, and how does it vary by room type?
- Which neighborhoods have the highest and lowest average prices for Airbnb listings?
- How many listings are there per room type, and how does the price and availability vary by room type?
- Are there any trends in the popularity of Airbnb listings in different neighborhoods over time?
- What is the impact of ratings and reviews on the price and popularity of Airbnb listings?
- What are the top hosts and neighborhoods in terms of customer satisfaction based on ratings and reviews

Data analysis process

The data collection process was straightforward, as the data was sourced and gotten from Kaggle. I carefully examined the data and then started the cleaning process in Google Sheets by removing blank rows and checking for duplicates. After cleaning the data, I began the analysis process to find answers to the key questions. Visualization of this data was done with Google Sheets.

Question 1: What is the average price of Airbnb listings in each neighborhood, and how does it vary by room type?

room_type	average price
Entire home/apt	\$210.63
Private room	\$89.41
Shared room	\$69.27

Table 1

Looking at the table, the prices vary with room type. The most expensive room is the entire home/apartment, the private room is the second most expensive, while the least expensive is the shared room

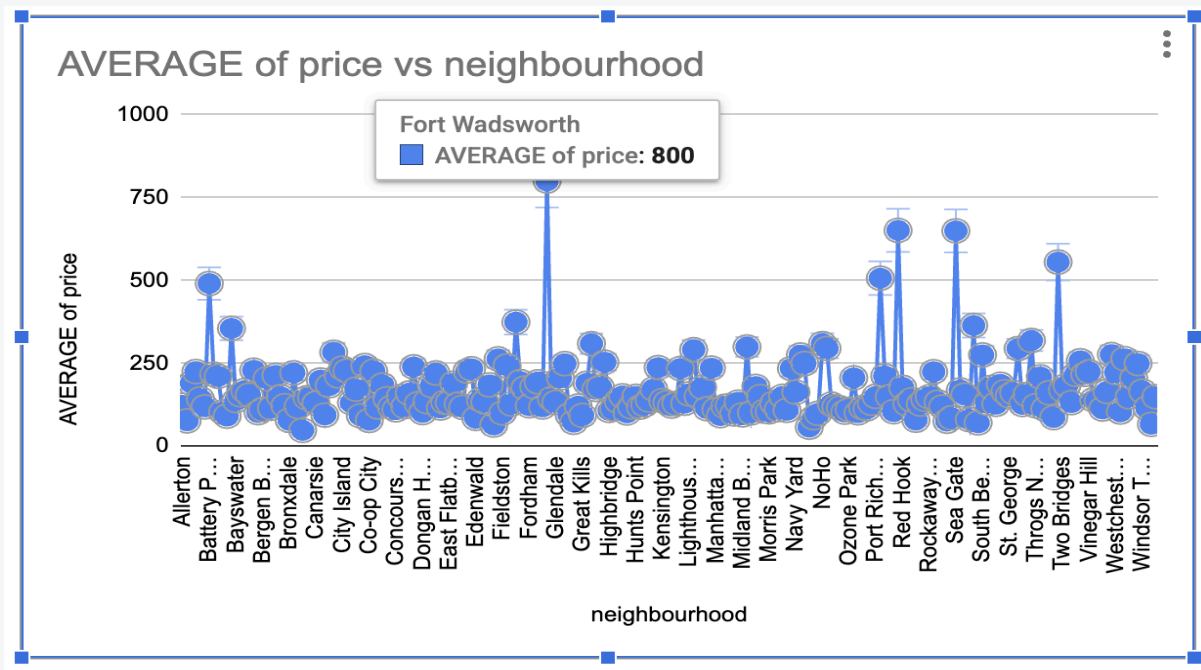


Figure 1

The figure above shows the average price per neighborhood. According to the chart, price varied across neighborhoods, with Fort Wadsworth having the highest average price, which was 800.

Question 2: Which neighborhoods have the highest and lowest average prices for Airbnb listings?

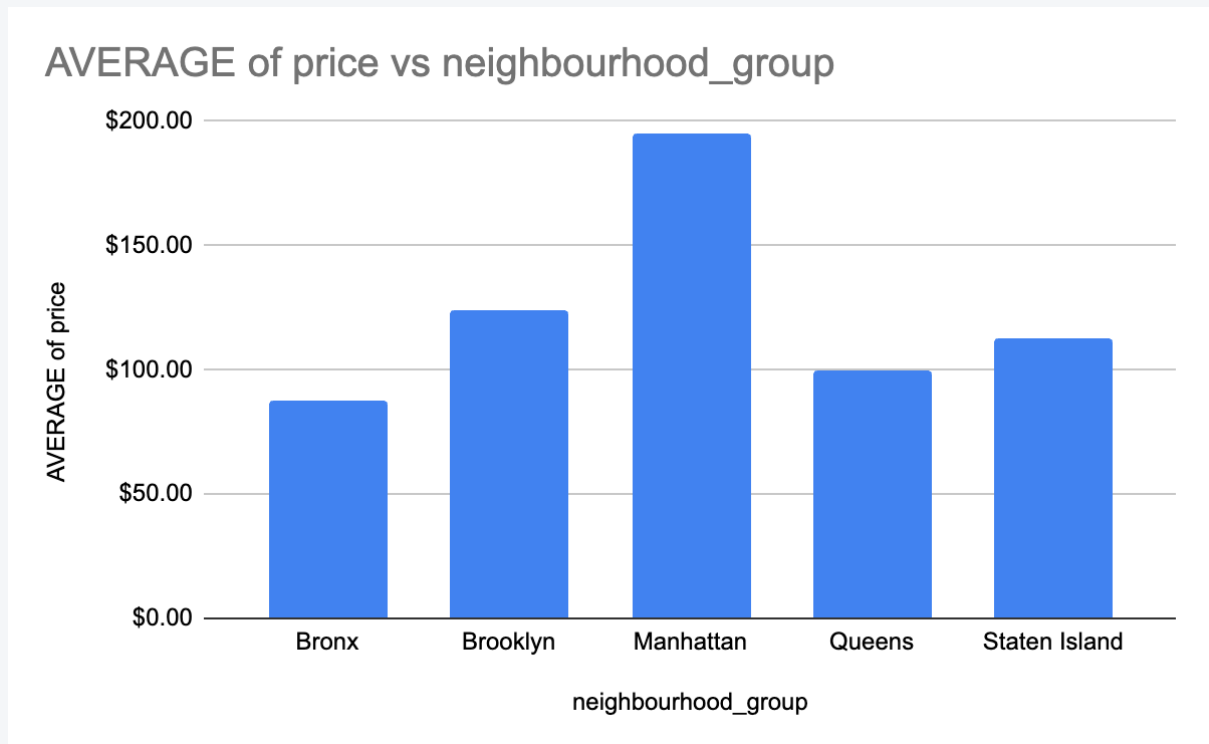


Figure 2.

The chart above indicates that Bronx had the lowest average price, while Manhattan had the highest average price. Brooklyn has the second highest, with Staten Island slightly below

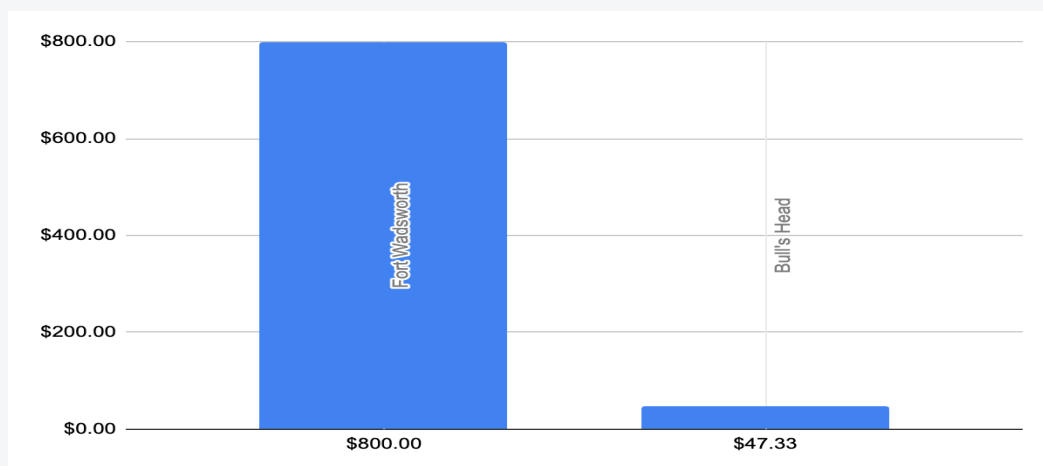


Figure 3

The chart above indicates that the neighborhood with the lowest average prices for Airbnb listings is Bull's Head, with an average price of \$47.33, while Fort Wadsworth had the highest average price at \$800.

Question 3: How many listings are there per room type, and how do the price and availability vary by room type?

room_type	Average availability_365	Average price	calculated_host_listings_count
Entire home/apt	112.2016477	\$211	25247
Private room	111.0990955	\$89	22221
Shared room	161.7682292	\$69	1152

Table 2

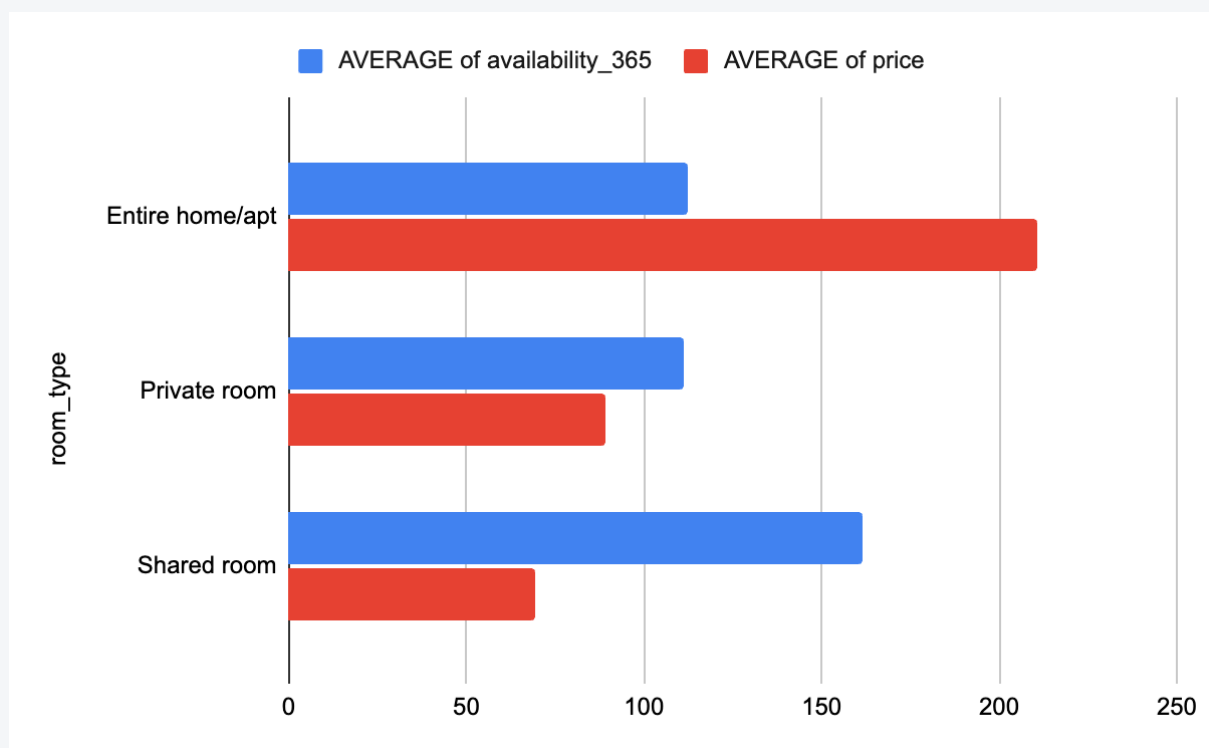


Figure 4:

From table 2 and figure 4 above, the entire apartment (room type) had the highest listing and highest price, with an availability slightly below that of the private room. The shared room had the lowest listing and price, but it had the highest availability. This means that the more expensive room types were more in demand than the shared room, which was more available.

Question 4: Are there any trends in the popularity of Airbnb listings in different neighborhoods over time?

<i>neighborhood_group</i>	<i>count_of_reviews_per_month</i>	<i>average of price</i>	<i>count of room_type</i>
Bronx	595.00	\$87.57	1088
Brooklyn	14,750.00	\$124.01	19998
Manhattan	19,756.00	\$195.45	21517
Queens	3,497.00	\$99.50	5648
Staten Island	235.00	\$112.91	369

Table 3:

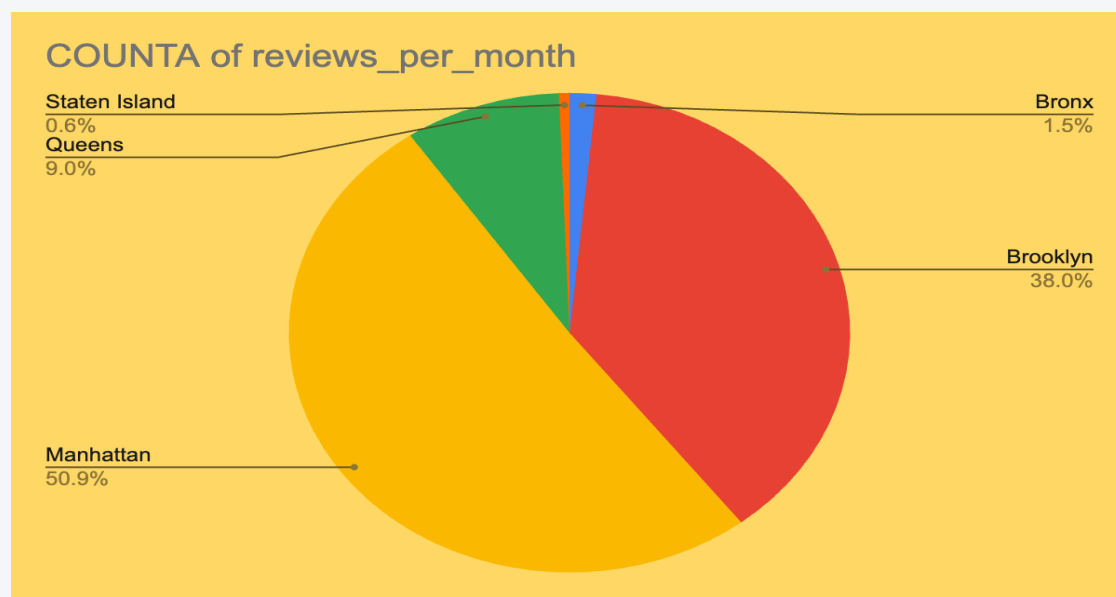


Figure 5

The table and chart above indicate that the trend in popularity across neighborhood groups is related to the number of listings. The neighborhood with a high number of listings had more reviews. This indicates that these neighborhoods were more popular. Manhattan had the highest number of listings, which was 21,517, and at 19,756, had the highest number of reviews. Staten Island had the lowest number of listings, with 369 room listings. The low number of listings meant that Staten Island wasn't as popular as the others, as shown by the number of reviews per month (235).

Question 5: What is the impact of ratings and reviews on the price and popularity of Airbnb listings?

room_type	sum of reviews_per_month	average price	Count of room_type	average number_of_reviews
Entire home/apt	45789.43	\$210.63	25247	39.07054303
Private room	7239.64	\$89.41	22221	6.508212952
Shared room	293.6	\$69.27	1152	5.724826389

Table 4

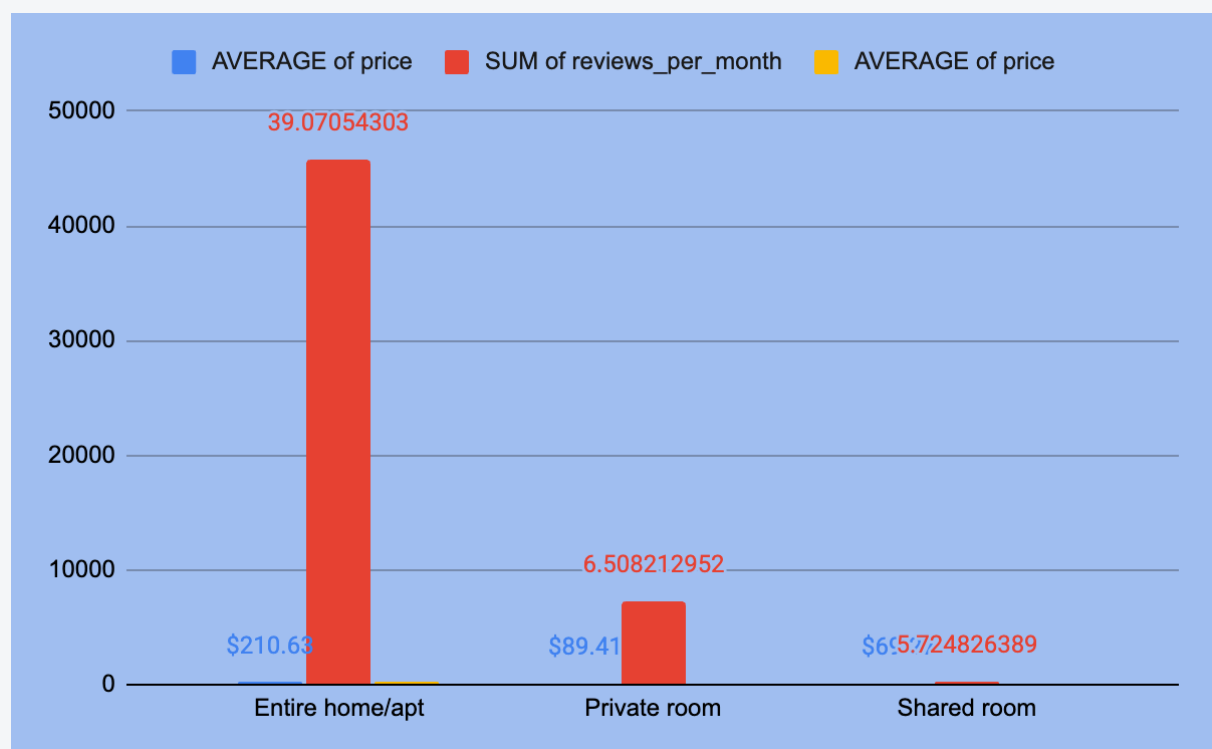


Figure 6

According to the chart and table, across the listings, the listings with the highest average number of ratings per month and total number of ratings overall also had the highest price. At \$210.63, the entire home apartment listing had the highest price, and at 45,789.43, it had the highest number of ratings. Equally significant was that it also had the highest average number of ratings monthly. This could mean that high ratings could be a reason for the higher price.

Question 6: What are the top hosts and neighborhoods in terms of customer satisfaction based on ratings and reviews

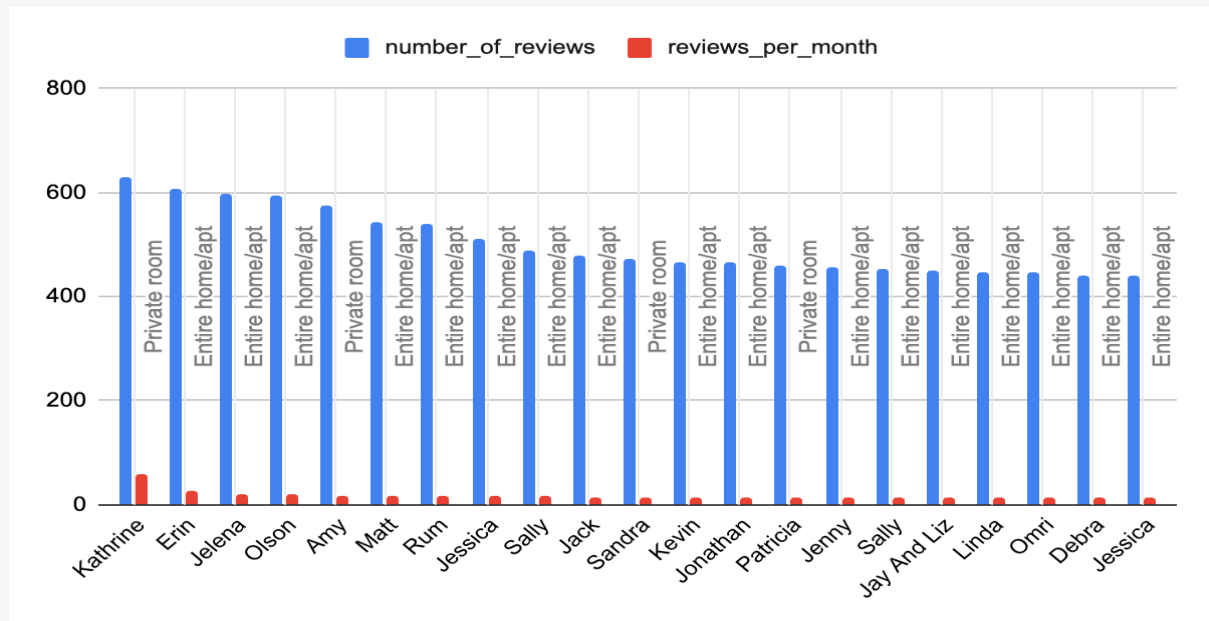


Figure 7

<i>neighbourhood</i>	sum of number_of_reviews	count of room_type	sum of reviews_per_month
Chelsea	56991	1105	2500.19
Financial District	35226	741	1638.55
Flatiron District	5860	76	230.69
Greenpoint	20963	1106	1097.5
Midland Beach	22	6	1.47
Mount Hope	102	20	5.91
Navy Yard	266	14	16.2
New Dorp Beach	6	5	0.41
Pelham Gardens	311	28	13.78
Richmondton	2	1	0.1
Rossville	1	1	0.08
Shore Acres	207	7	9.35
Sunnyside	1926	362	114.4
Tottenville	174	7	7.99
West Brighton	87	18	5.5
Westchester Square	204	10	6.54
Williamsbridge	482	40	21.71

Table 5

According to the charts and table, the host with the highest ratings is Katherine, and the neighborhood with the highest rating is Chelsea. These top hosts either had private room listings or entire home apartment listings.

Summary of findings

- **Price:** The prices of listings varied among room types. The entire room/apartment had the highest price across different neighborhoods. Among the neighborhood groups, Manhattan had the highest price, and the Bronx had the lowest price. Fort Wadsworth, at \$800, had the highest average price among neighborhoods, and Bull's Head, at \$47.33, had the lowest average price.
- **Number of listings:** Listings cut across different room types. The entire home apartment had the highest listing at 25,247, with the private room in second at 22,221, and the shared room at 1152 had the least number of listings. This means that the total number of listings was 48,620.
- **Availability:** The shared room, which was the cheapest in terms of price, had the most availability, suggesting that people preferred the more expensive listings or room types. However, the average availability of the private room listings was slightly less than that of the average availability of the entire apartment. This would indicate that people preferred to stay in the middle of the price range rather than pay for the expensive.
- **Reviews:** The room type with the highest number of listings had the highest number of reviews. The entire home/apartment had more reviews than the other two listings. Similarly, across neighborhood groups, those with a high number of listings had more reviews. Manhattan had the highest number of listings, with 21,517 total listings, and subsequently, at 19,756, had the most reviews. Staten Island, with 369 listings and 236 reviews per month, had the lowest number of listings and reviews per month.
- **Impact of ratings on the price of listings:** At 45,798, the entire home listings had the highest number of reviews; it also had the highest number of reviews per month. This means that this listing type was more popular. This popularity may have also influenced the price because this listing was the most expensive. The shared room had the lowest number of listings, the lowest number of reviews, and the fewest reviews per month and, subsequently, was the least expensive, indicating that it wasn't a popular choice among customers.

Actions and Recommendations

Listing recommendations: The entire room/apartment and private rooms had more reviews; this means that these listing types were more popular. Consider having more apartments like these rather than the shared apartments

Pricing: The prices varied across room types and neighborhoods. The neighborhood with the lowest average prices, like Bull Head, should be targeted for improvement. Consider having more expensive apartments in those areas to increase the average income generated by those areas. Also consider reducing the price of the shared apartment to attract more customers

Availability recommendations: the shared rooms were more available despite the lower prices of these apartments. This means that these listings weren't popular. Consider reducing the number of these listings by converting some of them to private rooms or entire rooms or apartments. Also focus on improving the quality of the shared room types to attract customers.

Neighborhood: Manhattan had the highest listings, reviews, and average price. Since this neighborhood group is incredibly popular, consider having more listings in Manhattan. Listings in neighborhood groups like Bronx should be made more attractive by including several benefits, like cab services, to incentivize customers.

Hosts: Hosts with lower ratings must consider the qualities highlighted by the reviews of those with higher ratings. They must consider adapting their listings/services to accommodate what customers liked about the others.

Thank You