Airbnb Inc. Case Study in NYC:

Data Insights – Storytelling

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DS C57 JUNE BATCH

AGENDA

airbnb

Introduction (Background)

- Airbnb, Inc. is an American company that operates an online marketplace for **lodging, primarily homestays** for **vacation rentals, and tourism activities**

- Airbnb provides a **platform for hosts** to accommodate guests with short-term lodging and tourism-related activities

- **New York City** is the most diverse and populated city in the United States

- The city is made up of 5 burrows: **Manhattan, Brooklyn, Queens, the Bronx and Staten Island**, all of which were "grouped" together into a single city

- It is widely recognized as the global centre for the financial services industry

- It's also the heartbeat of the American media, entertainment (along with California), telecommunications, law and advertising industries

Problem Statement - 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

Objectives

- Help Data Analysis Managers and Lead Data Analyst to make sound decisions

- Provide insights of NYC Dataset for different preferences of customers' for stay

- Getting a better understanding about Airbnb listings with respect to various parameters

- In-depth analysis w.r.t customers' booking trends through data visualization and statistical techniques

- Help Airbnb prepare to increase the overall revenue and prepare for the changes in customers' preferences
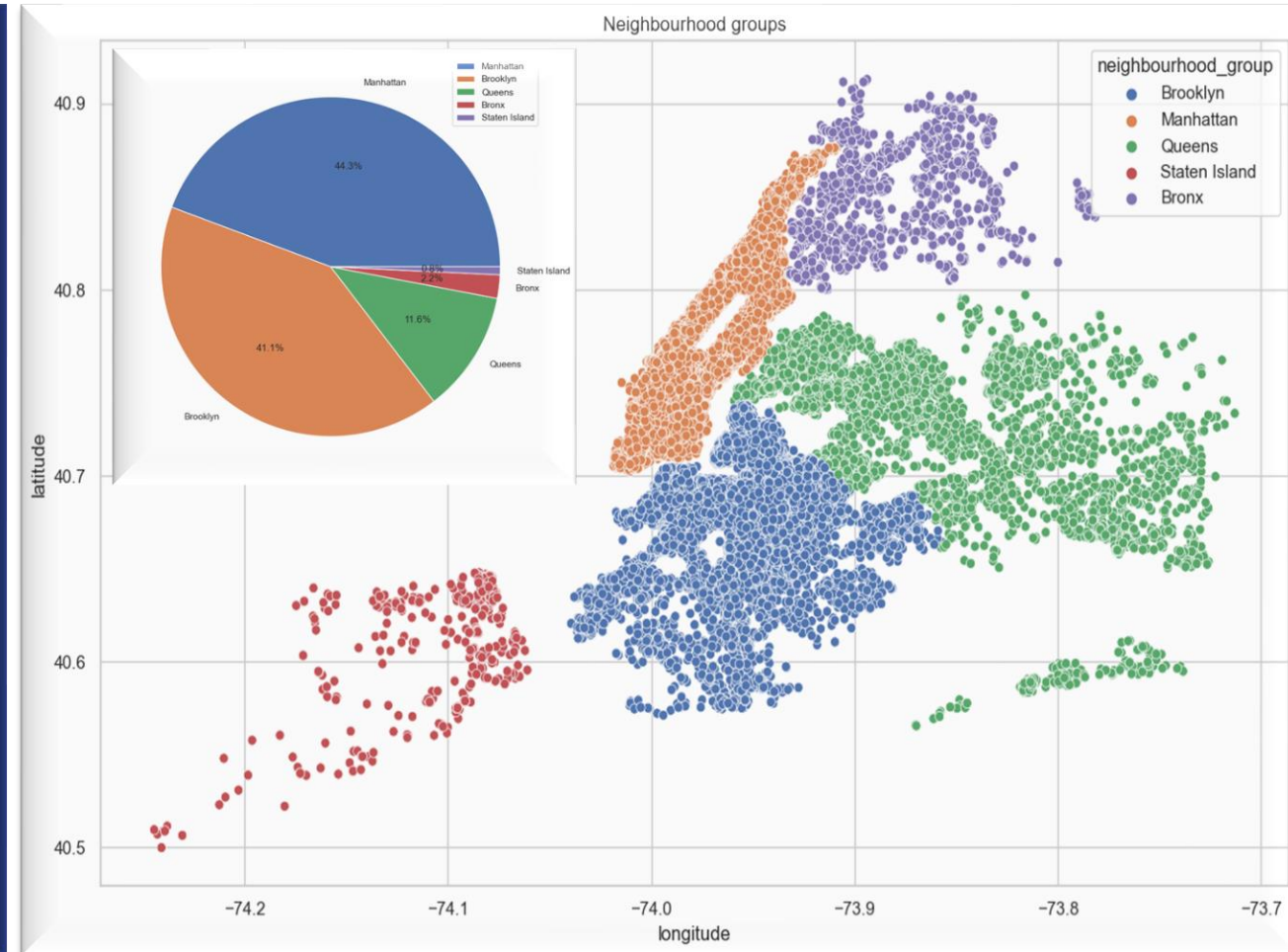
Analysis Methods – Neighbourhood Groups

Unveiling the Neighbourhood Tapestry!!

Highlighting the diversity and patterns within different neighborhoods for Airbnb in NYC
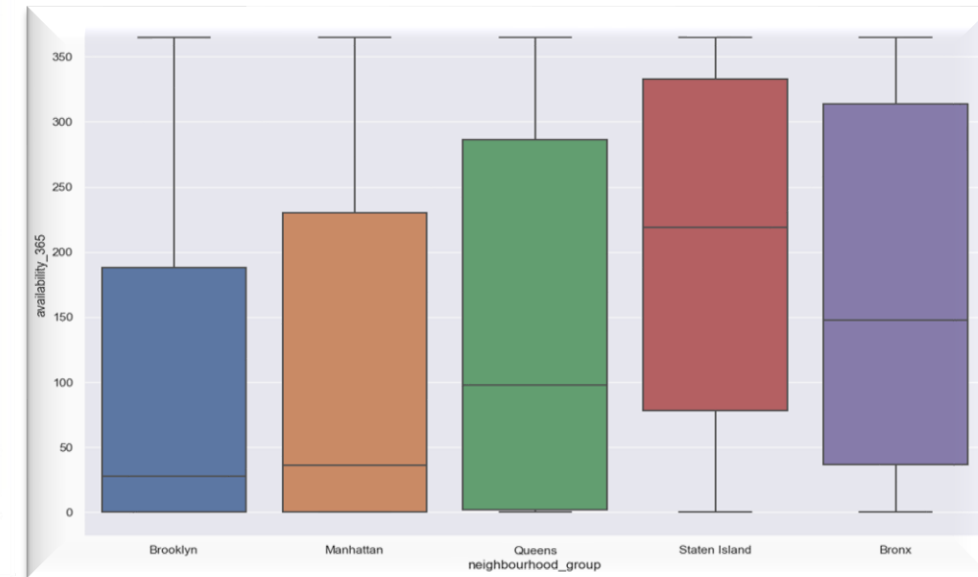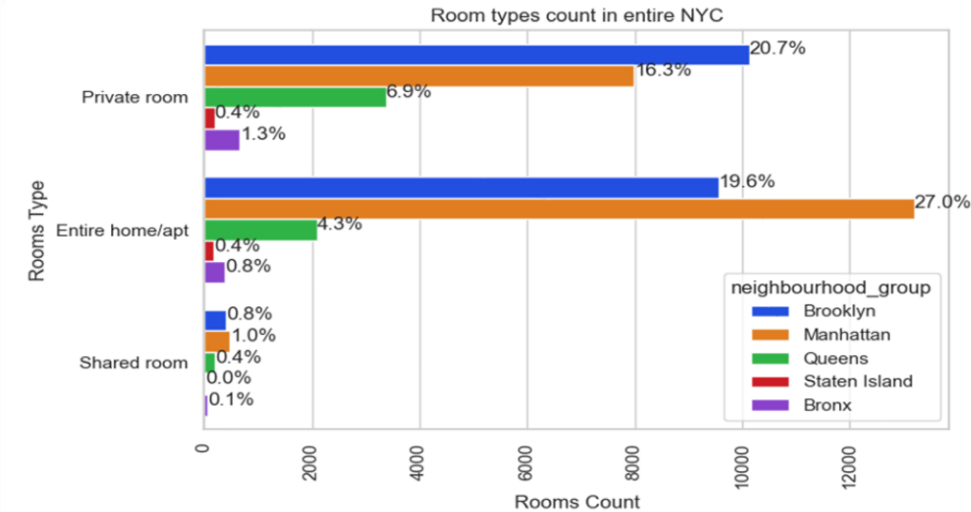
81% of the listings are in Manhattan and Brooklyn

Analytical Approach – Room Types at Airbnb

Distribution of type of rooms across NYC

Inferences

Manhattan has more listed properties with Entire home/apt around 27% of total listed properties followed by Brooklyn with around 19.6%.

Private rooms are more in Brooklyn as in 20.7% of the total listed properties followed by Manhattan with 16.3% of them. While 6.9% of private rooms are from Queens.

Very few of the total listed have shared rooms listed on Airbnb where there's negligible or almost very rare shared rooms in Staten Island and Bronx.
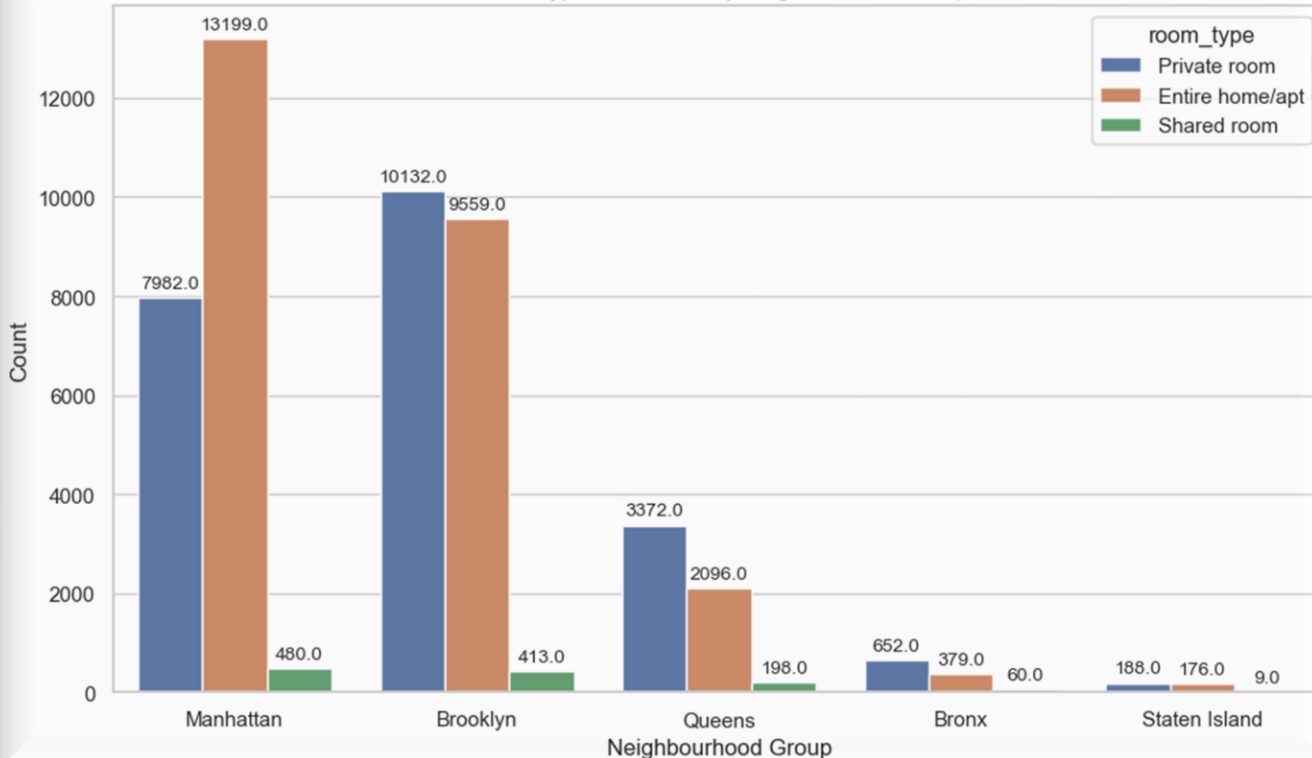
Analytical Approach – Boroughs vs Room Types

Room Type Distribution by Neighbourhood Group

In our analysis of the Airbnb dataset for New York City, we examined the relationship between room types and neighbourhood groups. The room type offered by hosts can vary based on the location or neighbourhood group of the property. Here is a summary of our findings:

1. Manhattan Neighbourhood Group:
   1. Entire Homes/Apartments: The most common room type in Manhattan, offering guests a private and independent living space.
   2. Private Rooms: These are also popular in Manhattan, providing guests with a private room within a shared property.
   3. Shared Rooms: Relatively less common in Manhattan, shared rooms are suitable for budget-conscious travellers or those seeking a communal living experience.

2. Brooklyn Neighbourhood Group:
   1. Entire Homes/Apartments: Similar to Manhattan, this is the most prevalent room type in Brooklyn, providing guests with privacy and independent living spaces.
   2. Private Rooms: Private rooms in shared properties are also common in Brooklyn, offering guests a balance of affordability and privacy.
   3. Shared Rooms: Shared rooms are less common in Brooklyn compared to other room types.

3. Queens Neighbourhood Group:
   1. Entire Homes/Apartments: This room type is widely available in Queens, giving guests the flexibility and privacy of an entire living space.
   2. Private Rooms: Private rooms in shared properties are also popular in Queens, catering to various preferences and budgets.
   3. Shared Rooms: Shared rooms have a limited presence in Queens.

4. Bronx Neighbourhood Group:
   1. Entire Homes/Apartments: This room type is available in the Bronx, offering guests private living spaces.
   2. Private Rooms: Private rooms in shared properties are less common in the Bronx.
   3. Shared Rooms: Shared rooms are relatively rare in the Bronx.

5. Staten Island Neighbourhood Group:
   1. Entire Homes/Apartments: This room type is available in Staten Island, providing guests with independent living spaces.
   2. Private Rooms: Private rooms in shared properties are less common in Staten Island.
   3. Shared Rooms: Shared rooms are not prevalent in Staten Island.

These findings demonstrate the variations in room types offered by hosts across different neighbourhood groups in New York City. The availability of room types can depend on factors such as property sizes, local regulations, and the preferences of both hosts and guests.
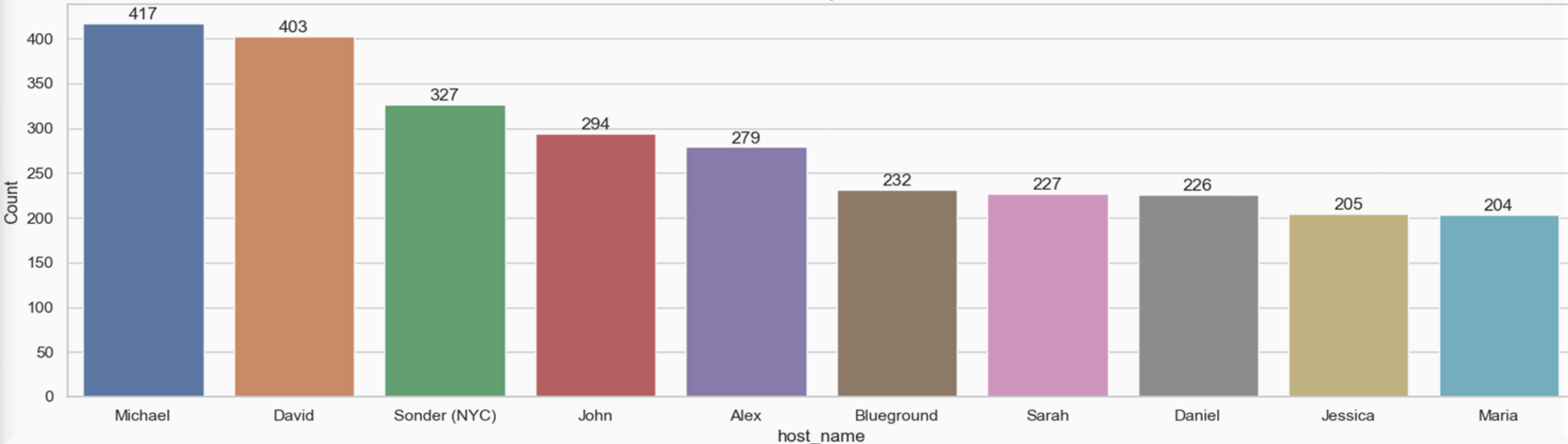
"HOSTS YOU CAN TRUST!!"

```
df.host_name.value_counts()

host_name
Michael           417
David             403
Sonder (NYC)      327
John              294
Alex              279
                  ...
Rhonycs             1
Brandy-Courtney     1
Shanthony           1
Aurore And Jamila   1
Ilgar & Aysel       1
Name: count, Length: 11452, dtype: int64
```
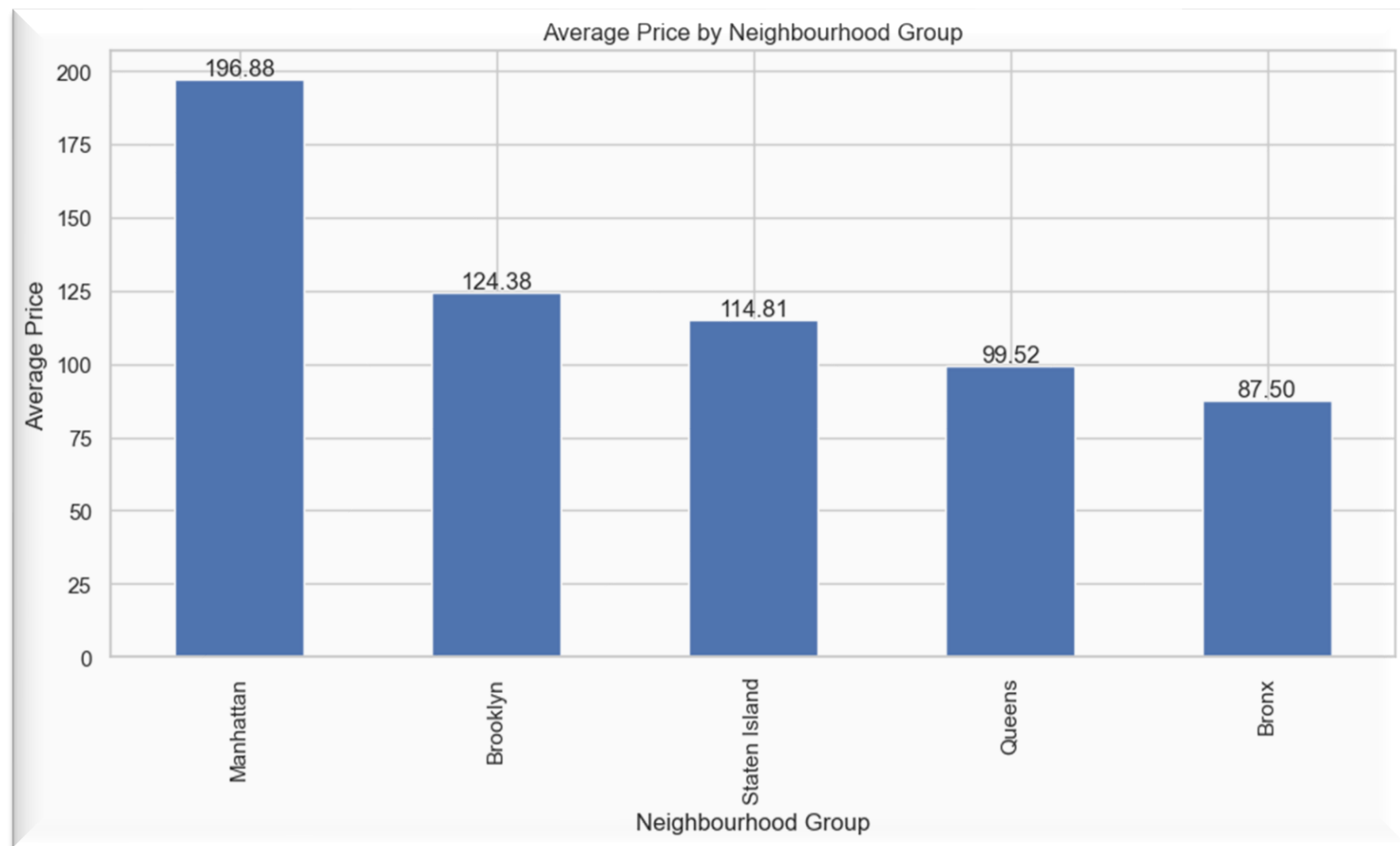
The top hosts make up the most contribution of the total host count!

List of Top Hosts

Exploratory Techniques – By Price

Key Callouts (Summary)

- Manhattan has the highest average by price ($196.88/night)

- Followed by Brooklyn with an average price of $124.38/night

- Lowest average price per night is in Bronx ($87.50/ night)

Average Price by Neighbourhood Group

Conclusion

In conclusion, my analysis of the Airbnb dataset for New York City will provide valuable insights for data analysis managers and the lead data analyst.

Here are the key takeaways from my findings:

Neighbourhood Groups and Room types: I have examined the distribution of room types across different neighbourhood groups. This analysis will help in understanding the preferences of guests and can guide decisions on property acquisitions and listings.

Top 10 Hosts: Top 10 hosts identified based on the number of listings. This information can be used to understand successful hosting strategies and potentially acquire similar hosts to expand the Airbnb network.

Price Analysis: I have conducted a neighbourhood-wise price analysis to identify variations in rental prices across different areas of New York City. This information is crucial for setting competitive prices, attracting guests, and optimizing revenue.

Average Price of Neighbourhood Groups: By calculating the average prices of accommodations in each neighbourhood group, I have gained insights into the pricing dynamics in different areas. This knowledge can assist in formulating pricing strategies and understanding the market demand.

Customer Booking and Minimum Nights: I have explored the relationship between customer bookings and the minimum number of nights required for a stay. This analysis helps hosts understand the booking patterns and tailor their listing policies to attract a diverse range of guests.

- By leveraging these insights, data analysis managers and the lead data analyst can make informed decisions to drive revenue growth, optimize property acquisition strategies, enhance user experience, and improve overall performance in the New York City market.

- As we move forward, it is recommended to delve deeper into the data and conduct more extensive analysis to uncover additional valuable insights that can further drive the success of Airbnb in New York City.

Appendix

DATA SOURCES: The columns in the dataset are self-explanatory. You can refer to the diagram given below to get a better idea of what each column signifies.

Column	Description
id	listing ID
name	name of the listing
host_id	host ID
host_name	name of the host
neighbourhood_group	location
neighbourhood	area
latitude	latitude coordinates
longitude	longitude coordinates
room_type	listing space type
price	
minimum_nights	amount of nights minimum
number_of_reviews	number of reviews
last_review	latest review
reviews_per_month	number of reviews per month
calculated_host_listings_count	amount of listing per host
availability_365	number of days when listing is available for booking

DATA METHODOLOGY

- Conducted a thorough analysis of Airbnb's Dataset

- Cleaned the dataset using python

- Derived the necessary features

- Used group aggregation, pivot table and other statistical methods

- Created charts and visualizations using Tableau

Data Assumptions

```
Categorical Variables:
    - room_type
    - neighbourhood_group
    - neighbourhood

Continous Variables(Numerical):
    - Price
    - minimum_nights
    - number_of_reviews
    - reviews_per_month
    - calculated_host_listings_count
    - availability_365
- Continous Variables could be binned in to groups too

Location Varibles:
    - latitude
    - longitude

Time Varibale:
    - last_review
```