About Airbnb

Airbnb is a global online marketplace that connects people looking for short-term accommodations with hosts who rent out their properties. It provides an alternative to traditional hotels by offering a variety of stays, including entire homes, private rooms, and even unique lodging experiences like treehouses and castles.

- Founded: 2008
- Founders: Brian Chesky, Nathan Blecharczyk, Joe Gebbia
- Business Model: Peer-to-peer accommodation rental

Business Problem Statement

- Project Overview:
- This project focuses on analyzing Airbnb's performance in New York City to provide actionable insights for enhancing revenue and customer satisfaction.
- Airbnb has presented us with a business challenge: to analyse listing data and help them identify potential Airbnb hosts for their upcoming social media campaign. The campaign is based in the United States of America, specifically targeting New York City.

Data Collection & Preparation

- Dataset Used: Airbnb NYC dataset (from Kaggle)
  - Contains listings, pricing, availability, reviews, and location data
- Preprocessing Steps:
  - Handling Missing Values: Filled or removed incomplete records
  - Outlier Detection: Removed extreme pricing values (e.g., $0 or $10,000 per night)
  - Feature Engineering: Created new variables like "Price per Night per Guest" for better comparisons

Exploratory Data Analysis (EDA) – Key Questions

01 How many listings meet the Airbnb criteria ?

02 Which neighbourhood has the most listings ?

03 What does the listing price distribution of the data look like ?

04 Average neighbourhood listing price per night ?

05 Is there a relationship between reviews and price ?

06 What does the listing availability look like ?

07 What does the room type distribution look like ?

**08** What does the room type distribution per neighbourhood look like ?

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Interpretation:
This bar chart represents the average neighborhood listing price per night for different boroughs of New York City. Here's an analysis:
1. Manhattan is the most expensive: It has the highest average price at $77.83 per night.
2. Brooklyn follows closely: The average price in Brooklyn is $71.44, slightly lower than Manhattan but still relatively high.
3. Queens, Bronx, and Staten Island have lower prices:
   Queens: $64.55
   Bronx: $62.45
   Staten Island: $59.33 (lowest)

Key Insights:
1. Prices decrease as you move away from Manhattan.
2. The Bronx and Staten Island have the most affordable listings, likely due to lower demand and fewer premium locations.
3. The price gap between Manhattan and Staten Island is around $18.50, suggesting a significant difference in perceived value or desirability.

Bar Chart

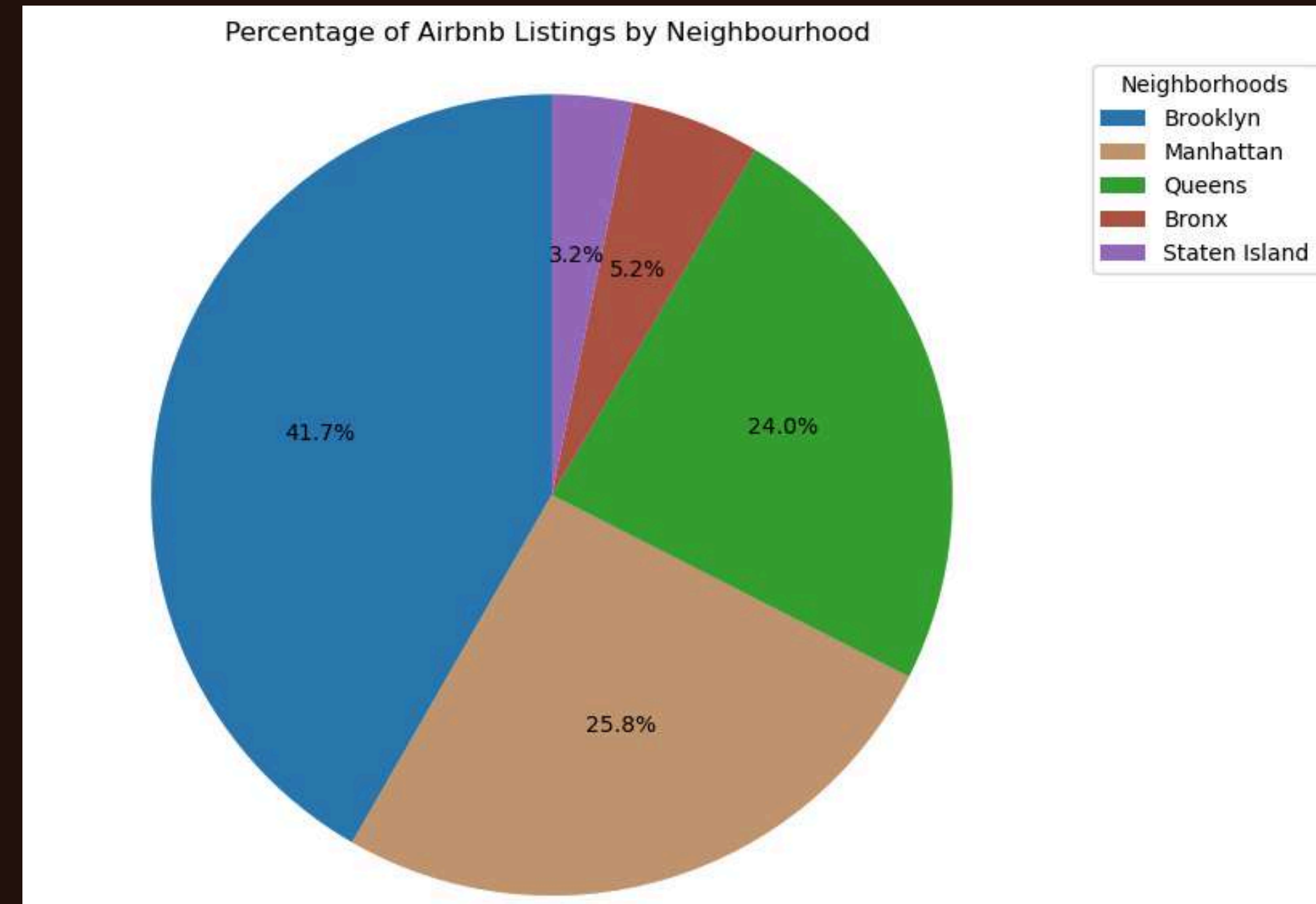# Average Neighbourhood Listing Price per Night
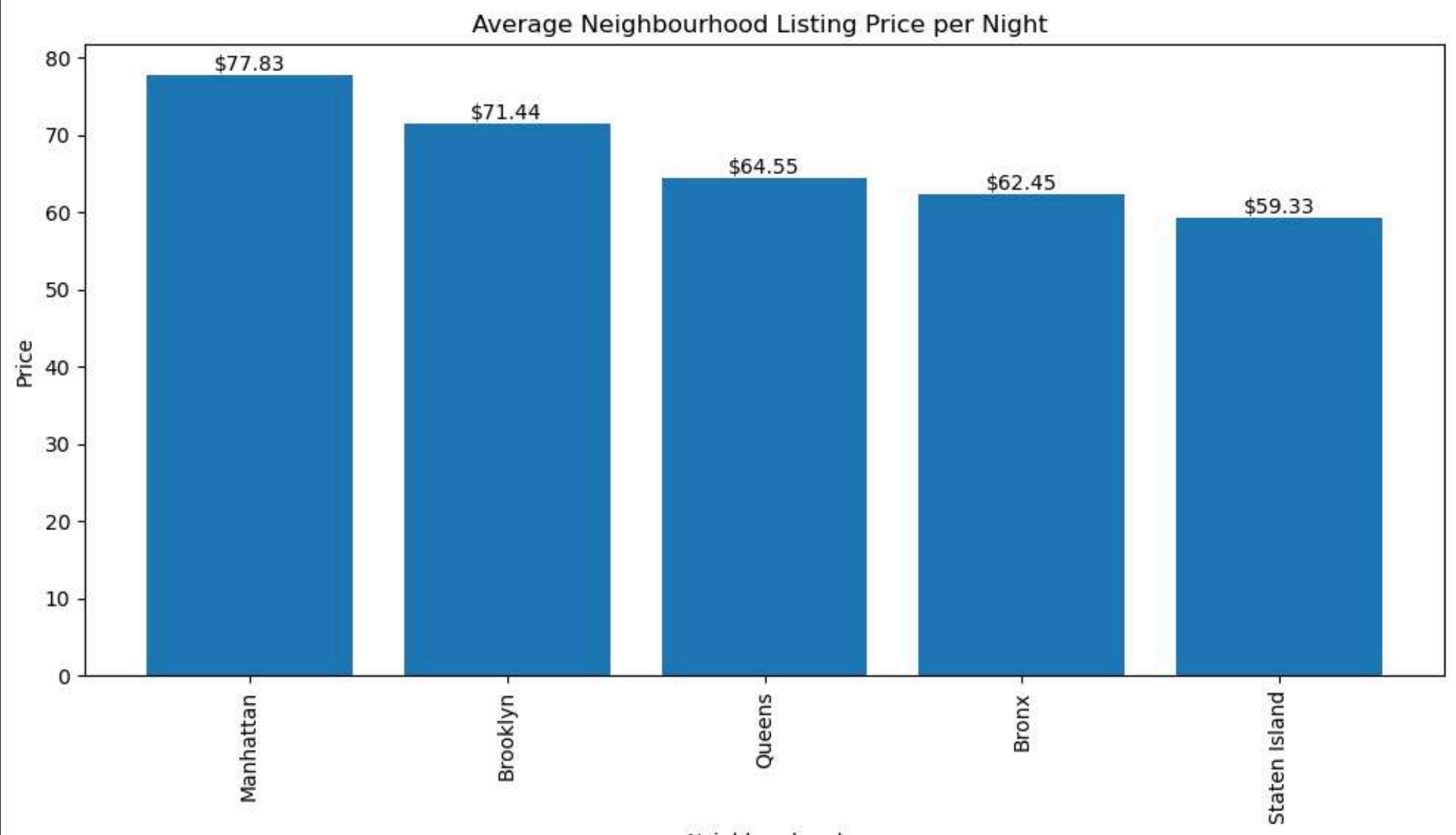
Interpretation:

1. Brooklyn (41.7%) has the largest share of Airbnb listings, meaning it is the most popular area for Airbnb hosts.
2. Manhattan (25.8%) follows as the second most popular location, which aligns with its high tourist appeal.
3. Queens (24.0%) has a significant portion of listings, indicating a growing Airbnb presence.
4. Bronx (5.2%) and Staten Island (3.2%) have the smallest shares, suggesting fewer Airbnb listings in these boroughs.

Key Insights:

- Brooklyn dominates the Airbnb market, possibly due to its blend of affordability and proximity to Manhattan.
- The relatively high percentage in Queens suggests that travelers may be seeking more budget-friendly options outside Manhattan.
- Staten Island has the least number of listings, likely due to lower tourist demand.

Pie Chart

Listings Distribution by Neighborhood

Percentage of Airbnb Listings by Neighbourhood

Neighborhoods
- Brooklyn
- Manhattan
- Queens
- Bronx
- Staten Island

3.2% 5.2% 24.0% 41.7% 25.8%

Interpretation:

1. No Strong Correlation:
   - The regression line is almost flat, indicating no clear relationship between the number of reviews and listing price.
   - This suggests that having more reviews does not necessarily mean a higher or lower price.
2. Dense Cluster of Listings:
   - Many listings have prices between $40 and $80 and reviews under 200, indicating that most Airbnb properties fall within this range.
   - Listings with fewer than 100 reviews appear across the entire price spectrum.
3. Outliers & High-Review Listings:
   - A few listings have over 500 reviews, but their prices do not significantly differ from those with fewer reviews.
   - Some high-priced listings exist but are not necessarily associated with a large number of reviews.

Key Insights:

- Price is likely influenced by factors other than reviews, such as location, property type, and amenities.
- New listings with fewer reviews can still charge competitive prices.
- Higher review counts indicate popularity but do not guarantee premium pricing.

Is there a relationship between Reviews and Price?

Reviews vs Price

Regression Scatter Plot

Interpretation:

1. Queens Has the Highest Availability:
   - With an average of 313 days, listings in Queens are the most available throughout the year.
   - This suggests that many hosts in Queens keep their properties open for bookings almost all year.
2. Manhattan Has the Lowest Availability:
   - At 280 days, Manhattan has the lowest average listing availability.
   - This could indicate higher demand in Manhattan, leading to shorter booking windows or more restrictions on availability.
3. General Trend:
   - The availability pattern follows:
   - Queens (313) > Bronx (296) > Staten Island (293) > Brooklyn (286) > Manhattan (280).
   - The values suggest that outer boroughs tend to have listings available for more days compared to Manhattan and Brooklyn.

Key Insights:
- Higher availability could indicate either lower occupancy rates (fewer bookings) or more flexible hosts.
- Lower availability (like in Manhattan) might suggest either high demand, stricter rental regulations, or hosts limiting their calendar.

What does the listing availability look like

Average Neighbourhood Listing Availability in Days

Heatmap

RECOMMENDATIONS
(City - Wise)

Brooklyn – Prime Candidate for Social Media Campaign
- Majority of Listings: 231 out of 554 (41.7% of total listings).
- Slightly Above Average Price: $71.44/night (0.87 cents over the mean).
- Ideal for Discounts & Accommodation Deals:
  - Can attract more guest bookings.
  - Increases profitability for hosts & Airbnb.
- High Availability: 286 days/year, ensuring year-round access.
- Diverse Room Types: Well-balanced mix of accommodations.

Manhattan – Strong Candidate for Social Media Campaign
- Significant Share of Listings: 143 out of 554 (25.8% of total listings).
- Most Expensive Area: $77.83/night (highest in NYC).
- Opportunity for Discount Deals:
  - Lowering prices could boost guest bookings.
  - Increased bookings mean higher profitability for hosts & Airbnb.
- High Availability: 280 days/year, ensuring year-round access.
- Majority Room Type: Private rooms, catering to solo travelers & couples

RECOMMENDATIONS
(City - Wise)

Queens – Key Opportunity for Social Media Campaign

- Similar Listing Size to Manhattan: 133 out of 554 (24.0% of total listings).
- Affordable Pricing: $64.55/night, well below the dataset average of $70.57.
- Ideal for Accommodation Deals:
  - Well-priced for the facilities it offers.
  - Can attract more bookings by highlighting affordability.
- Highest Availability: 313 days/year, ensuring maximum booking potential.
- Majority Room Type: Private rooms, catering to a broad range of guests.

Bronx & Staten Island – Minimal Campaign Investment Recommended

- Low Listing Share:
  - Bronx: 29 out of 554 (5.2% of total listings).
  - Staten Island: 18 out of 544 (3.2% of total listings).
- High Availability:
  - Bronx: 296 days/year.
  - Staten Island: 293 days/year.
- Limited Room Variety:
  - Only private rooms & house/apartment listings.
- Recommendation: Minimal marketing resources should be allocated to these areas.

Conclusion

It would also be beneficial to encourage hosts and guests to share user-generated content on social media, such as photos, reviews, and stories.

Airbnb could also collaborate with influencers, capitalise on local events or use the available data to target specific individuals or hosts. This could help to strengthen the popularity of the social media campaign and help garner guest interest and bookings.

By following these recommendations, Airbnb can launch an effective and targeted social media campaign to showcase its listings, drive customer engagement, increase guest bookings, add value for hosts within New York City and increase overall profitability for the company.