

Analysis of New-Age Hospitality Industry from Airbnb

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Abstract

This analysis explores key factors affecting Airbnb listings, such as host behavior, room types, pricing trends, and geographical influences. Through data visualization and correlation analysis, we uncover insights into how reviews, number of listings, and location influence prices across the U.S. These findings offer valuable information for both hosts and travelers in understanding the dynamics of Airbnb's marketplace.

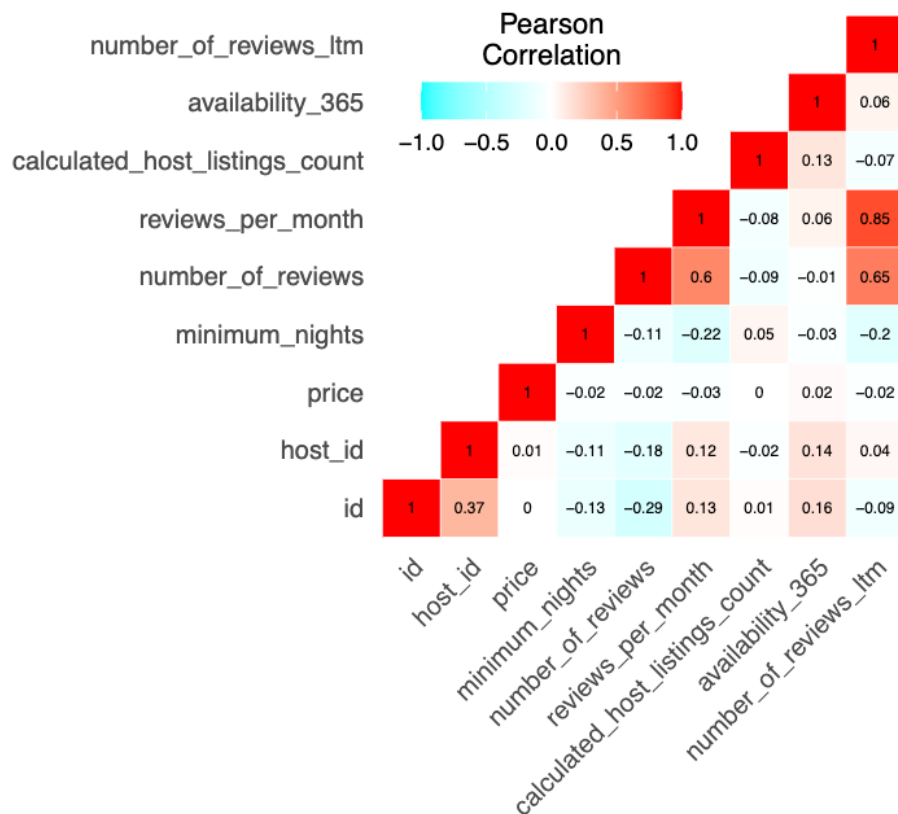
Introduction

Airbnb has completely changed the way people find short-term rentals, making it easy for hosts to offer anything from a shared room to an entire home. As Airbnb continues to grow, it's important to understand what affects pricing, how hosts manage their listings, and what makes certain places more popular than others.

In this report, we take a close look at a few key aspects: how the number of listings and reviews affect prices, how location plays a big role in Airbnb's success, and how different room types compare when it comes to pricing. By digging into the data and creating some visualizations, we'll get a better idea of what drives Airbnb's market and why certain places cost more than others. Whether you're a host looking to maximize your listing or a traveler searching for the best deal, these insights will help you better navigate Airbnb's pricing landscape.

Insight 1: Correlation Analysis

We will be analyzing a correlation heatmap to explore the relationships between key variables such as the number of reviews, reviews per month, minimum nights, and price. The heatmap will help us identify which factors are most related to pricing and listing activity, providing deeper insights into the dynamics of Airbnb listings.



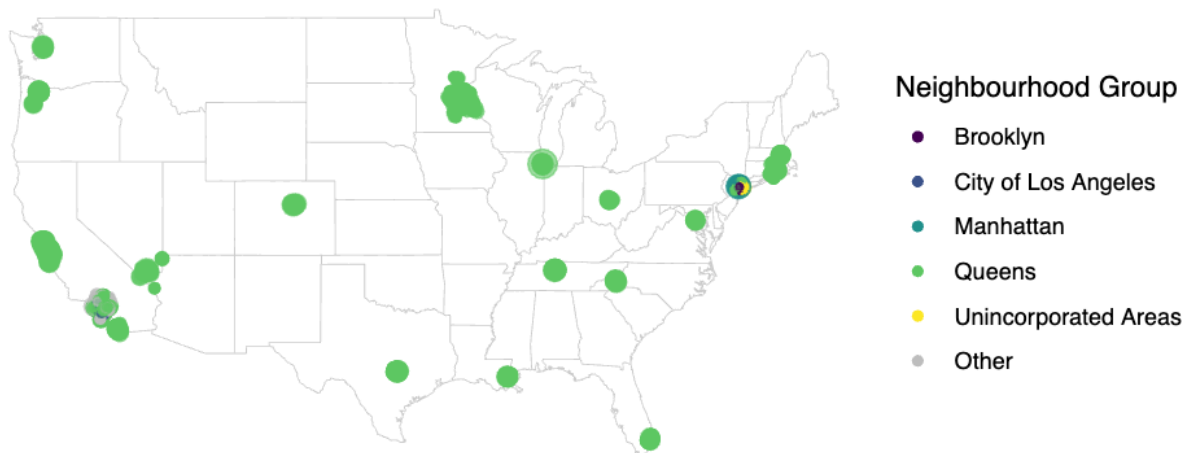
From the correlation heatmap, we observe the following key insights:

Strong Correlation Between Reviews and Review Activity: There is a high positive correlation (0.85) between the total number of reviews and the reviews per month, indicating that listings with more reviews tend to receive them more consistently over time. **Minimal Impact of Reviews on Price:** The correlation between price and the number of reviews is negligible (-0.02), suggesting that the price of a listing is not strongly influenced by the volume of reviews it receives. **Effect of Minimum Nights on Reviews:** Listings with higher minimum night requirements tend to receive fewer reviews, as shown by the negative correlation (-0.11). This is likely due to reduced booking opportunities for listings that require longer stays.

Insight 2: Geographical Distribution of Listings by Neighborhood

As we explore the geographical spread of Airbnb listings, we ask: where are the busiest areas for hosts in the U.S.? By mapping the listings, we start to see clear patterns. The top 5 neighborhoods are highlighted in distinct colors, while others are shown in grey. This gives us a clear view of how certain cities and neighborhoods dominate the Airbnb landscape, revealing where hosting activity is most concentrated.

Top 5 Neighborhoods by Number of Listings, Grey for 'Other'



Data Source: Airbnb

From the map, we observe:

Brooklyn and Manhattan stand out as major hubs for Airbnb listings, indicating their popularity among travelers. City of Los Angeles also shows a significant concentration of listings. Other notable areas include Queens and various Unincorporated Areas, contributing to the overall distribution of listings across the country.

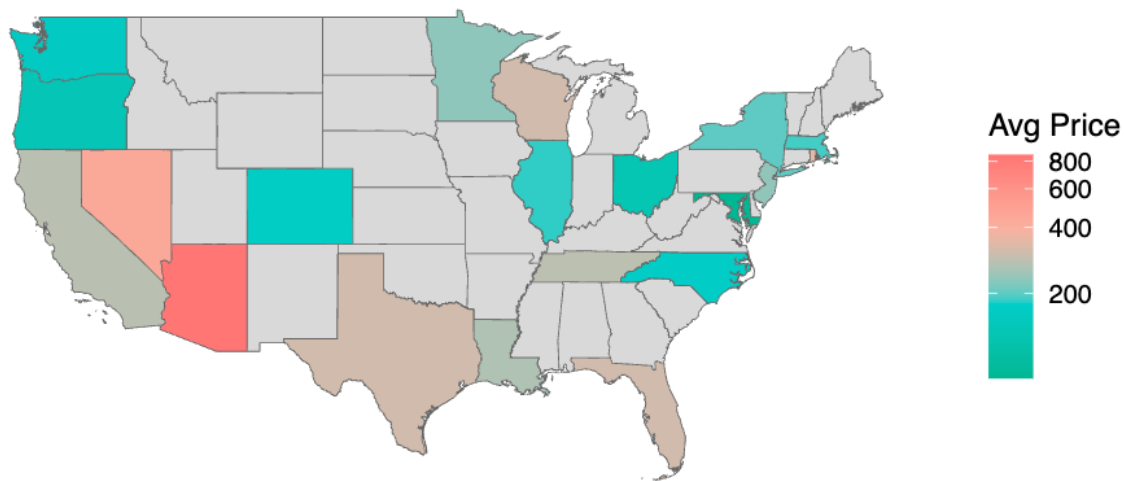
Insight 3: Average Price per State

Next, we turn our attention to pricing. Where are the most expensive and affordable Airbnb listings in the U.S.? The following map reveals the average price per state using a color gradient, with red indicating higher prices and greenish-blue marking lower prices. As the map unfolds, we begin to see which states command premium prices and where travelers can find more budget-friendly options, offering a clearer picture of Airbnb's pricing landscape across the country.

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Average Price per State



Data Source: Airbnb

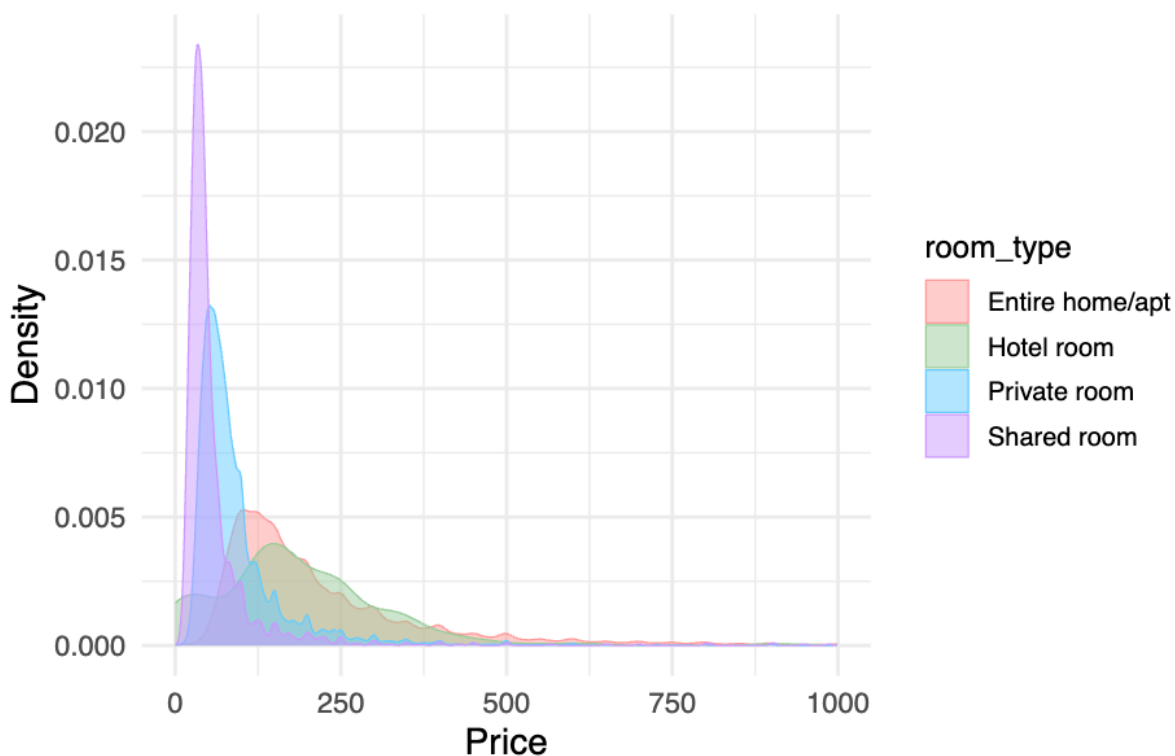
From the map, we can observe:

California and Nevada exhibit higher Airbnb prices compared to other states, likely due to their popularity and the high demand in areas like Los Angeles and Las Vegas. States such as North Carolina, Kansas, and Oregon fall into the mid-range category for pricing. Several states have relatively lower prices, particularly in the Midwest and Southern regions of the US.

Insight 4: Room Type Distribution and Pricing

Now, let's dive into how different room types compare in terms of pricing. The graph below illustrates the price distribution for each room type on Airbnb using a kernel density estimate (KDE) plot. As we look closer, we can see how private rooms, shared rooms, entire homes, and hotel rooms vary in pricing, giving us a clearer sense of how much travelers can expect to pay based on the type of accommodation they choose.

Price Probability Distribution by Room Type



Key Observations:

Private rooms (in blue) and shared rooms (in purple) generally have lower prices, with a sharp peak around the lower price range. Entire homes/apartments (in red) tend to have a broader price range, extending to higher values, though a majority still fall in the lower to mid-range. Hotel rooms (in green) show a relatively even distribution, though they tend to fall in the middle price range.

Conclusion

In summary, our analysis provides key insights into Airbnb's market dynamics. Hosts with more listings accumulate reviews faster but don't necessarily command higher prices. Location remains a critical factor in determining the price, with popular tourist areas like New York and California leading the way. Additionally, different room types create a diverse pricing spectrum, offering both budget and premium options for travelers. Understanding these trends can help both hosts optimize their pricing strategies and travelers make informed decisions when booking stays.