



A1: Individual Assessment

Combined assessment: Text Mining / NLP

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Executive Summary

Our analysis of Airbnb listings reveals key insights for hosts and Airbnb alike. We found that pricing varies widely across room types, emphasizing the need for tailored pricing strategies. Listings with more reviews tend to have higher ratings, highlighting the importance of guest satisfaction. Interestingly, single listing hosts often receive higher ratings, suggesting a focus on personalized experiences. Textual analysis underscores the impact of unique features and positive descriptions on guest attraction. These findings inform recommendations for optimizing listings to enhance guest experience and platform value.

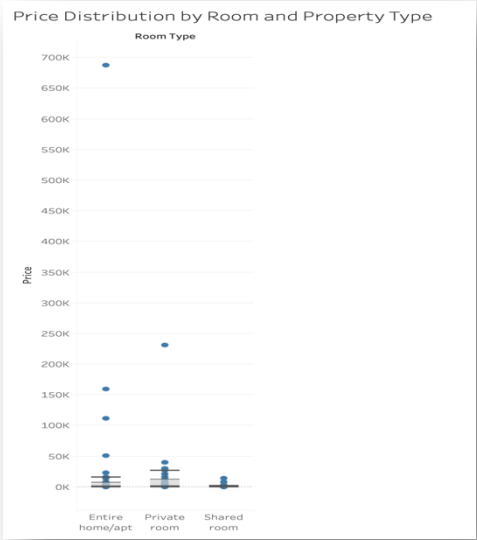
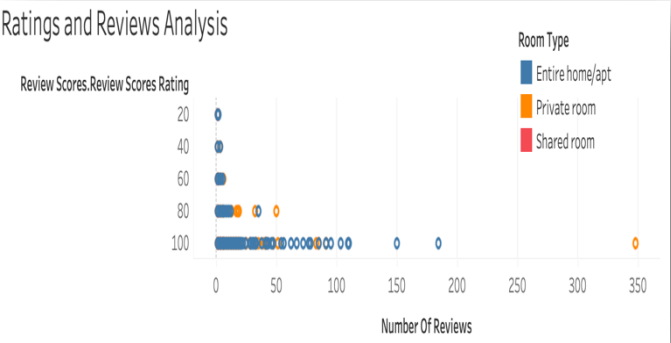


Figure 1 Price Distribution by Room and Property Type

Visualizations Description

The distribution of prices among different room types indicates that entire homes/apartments have a broad spectrum of pricing, suggesting a market with diverse offerings that can cater to both budget-conscious travelers and those seeking luxury accommodations. This implies that hosts should carefully consider their pricing strategies relative to the amenities offered to position themselves effectively in the competitive landscape.

Figure 2: Ratings and reviews Analysis.



The ratings and reviews analysis suggests that properties with a higher number of reviews tend to also have higher ratings. This could indicate that frequent usage and customer satisfaction go hand in hand. Properties with fewer reviews might need additional marketing efforts or improvements in guest experience to boost their visibility and perceived quality.

Hosts with Multiple vs. Single Listings on Airbnb

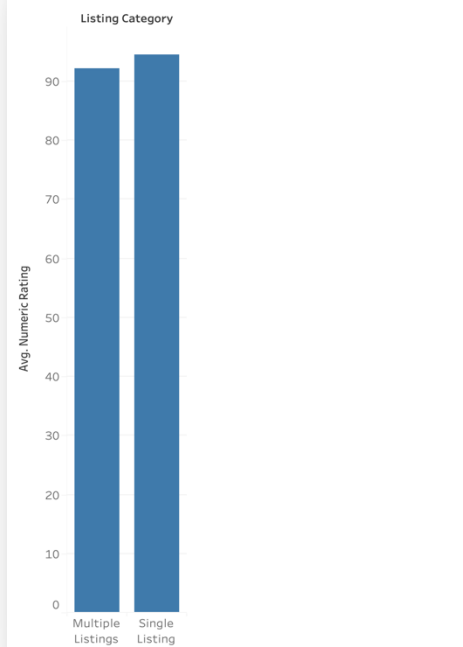


Figure 4: Hosts with multiple vs single Listings.

The comparison between hosts with multiple listings and those with single listings provides insight into the guest experience. It shows that single listing hosts have higher scores than hosts with multiple listings. This could suggest that hosts with just one property might be more focused on providing a quality experience, as they can concentrate all their efforts on a single listing. For Airbnb, this insight can be a cue to encourage and support single property hosts with guidance to maintain high standards, which could lead to better guest satisfaction. For hosts considering expanding their number of listings, it's important to balance quantity with the quality of the guest experience to avoid diluting their ratings.

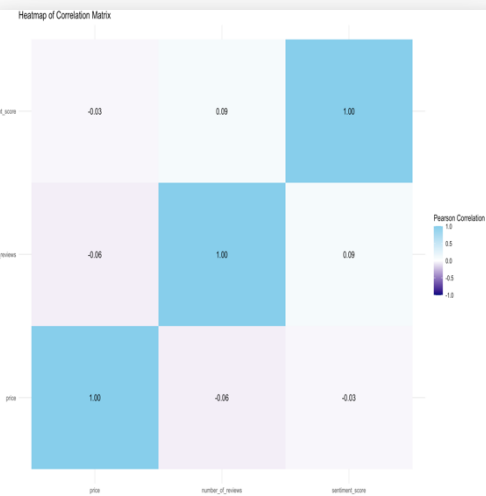
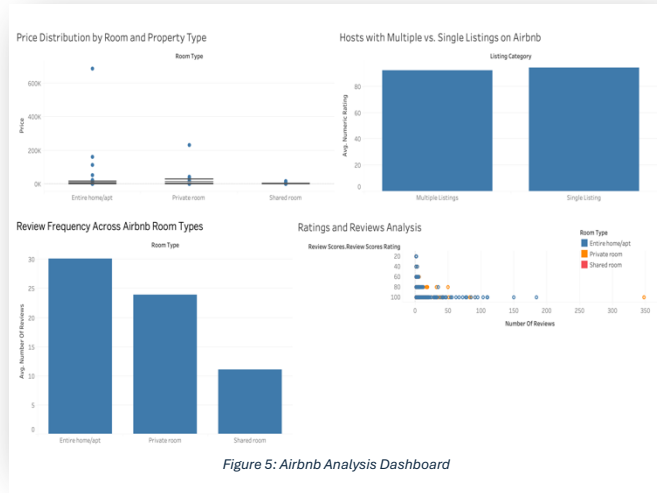


Figure 3: Heatmap.

The heatmap correlation analysis of Airbnb listings shows that upbeat descriptions do not necessarily lead to higher prices or more reviews. Higher-priced listings tend to have fewer reviews, suggesting that price influences booking frequency. For hosts, this means that while a positive description is essential, it won't allow for higher prices on its own. Instead, they should focus on competitive pricing and encouraging guest reviews to improve visibility and appeal. For Airbnb, the insight is to help hosts balance positive descriptions with pricing and review engagement for better listing performance.

Dashboard Description



The dashboard highlights intriguing trends: single-property hosts are outperforming those with multiple listings in terms of average ratings, suggesting that personal attention to a single listing could be enhancing guest experiences. The price distribution indicates that entire homes/apartments have a broad range, catering to diverse budgets, while private and shared rooms show a more consistent and budget-friendly pricing model. Entire homes/apartments lead in review frequency, hinting at their popularity. These insights

suggest opportunities for targeted support for single-listing hosts and potential marketing focus on entire home/apartment listings due to their popularity and revenue potential.

Text Data Analysis

After a detailed analysis of Airbnb listings using various text mining techniques, significant insights have emerged that could greatly enhance how hosts present their properties and how Airbnb tailors user experiences. Initially, by examining the least frequent tokens, it became apparent that unique property features such as special decorations or amenities set listings apart. This uniqueness not only helps in marketing efforts but also improves the algorithms for recommendations, allowing hosts to charge premium prices for special attributes. Further analysis using TF-IDF highlighted unique terms like "decorative," which suggest distinctive characteristics that could attract guests looking for something beyond the ordinary. Moreover, sentiment analysis indicated a predominantly positive tone across listings, an essential factor in attracting and maintaining guest interest. This positive sentiment, crucial for first impressions, suggests that maintaining high-quality descriptions is vital for continued success. Observations of Zipf's Law reinforced that while only a few words are frequently used in listings, the less common ones are crucial for distinguishing listings in competitive search results. Additionally, LDA topic modeling showed that listings cluster around specific themes, which could be leveraged to match listings more accurately with guest preferences, enhancing the personalization of the browsing experience. The analysis of bigrams and trigrams shed light on commonly searched phrases, underscoring the importance of including such terms to improve SEO and the visibility of listings. By integrating these insights, Airbnb hosts can optimize their listings to attract more targeted guest demographics, potentially leading to higher satisfaction and increased bookings.

Appendix

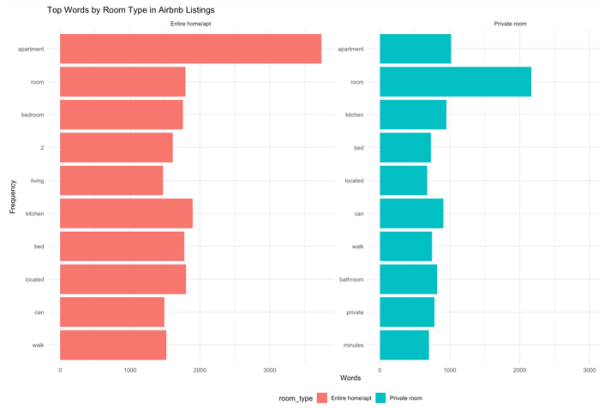


Figure 6:

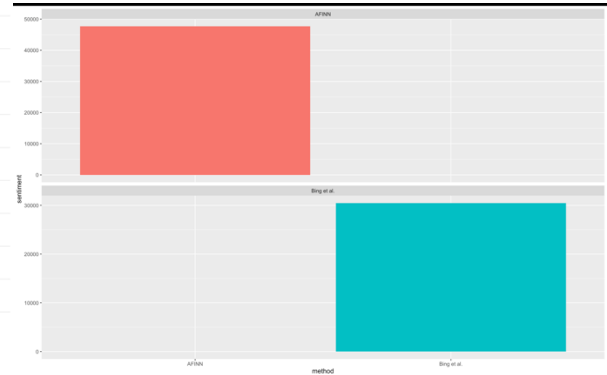


Figure 7

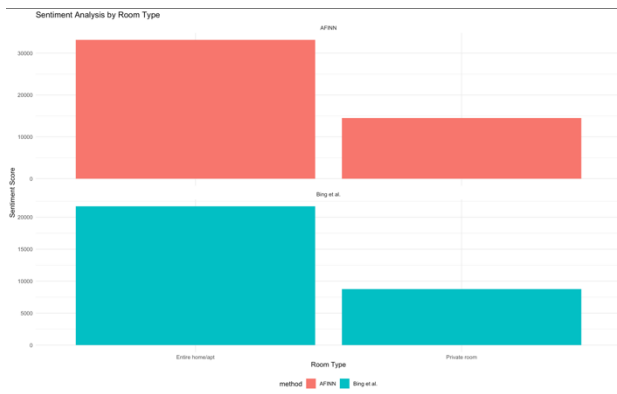


Figure 8

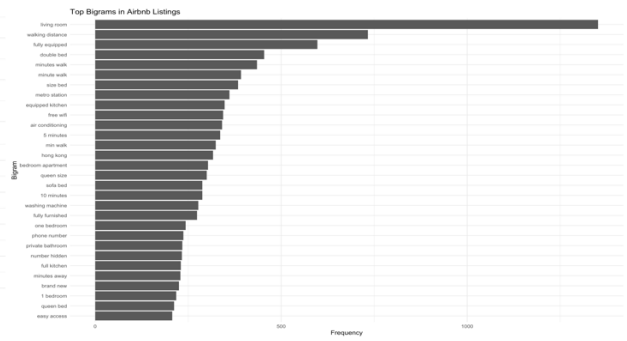


Figure 9

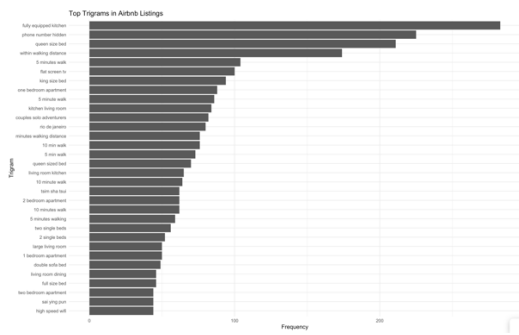


Figure 10

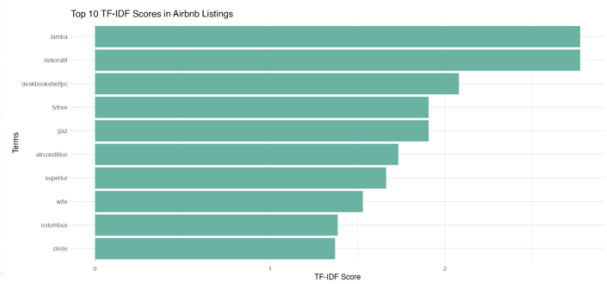


Figure 11

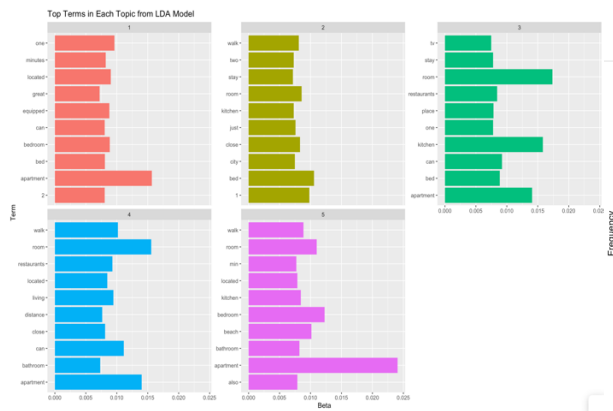


Figure 12

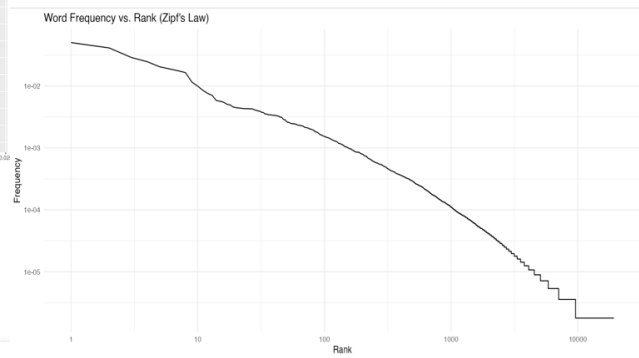


Figure 13

Airbnb Text Analysis Dashboard

Text Analysis Dashboard

This dashboard contains multiple tabs, each displaying different types of analysis results.

Frequency Analysis

Sentiment Analysis

TF-IDF Analysis

N-Grams Analysis

Topic Modeling

Zipf's Law

Correlation Heatmap

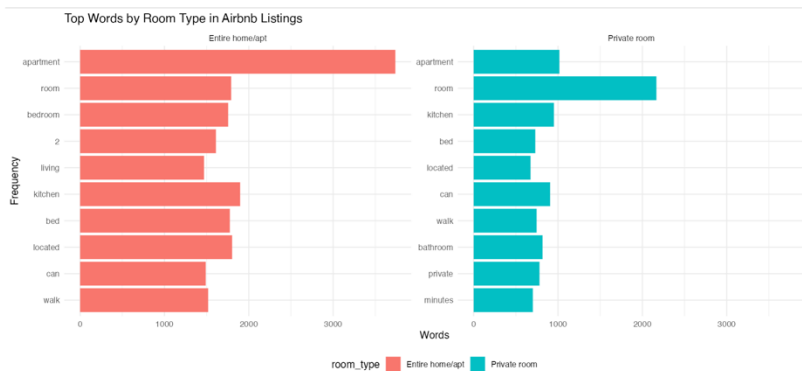


Figure 14: R shiny dashboard