

STAT-S670
Exploratory Data Analysis

Final Project Executive Summary

Analyzing Airbnb Listings Prices

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Executive Summary

This study delves into the complexities of Airbnb listing prices in London, uncovering key factors that influence them and revealing distinct pricing trends between weekends and weekdays. Leveraging a dataset of approximately 9500 listings encompassing both weekday and weekend data, the analysis focuses on crucial variables like price, distance from the city center, room type, and person capacity.

Following thorough data cleansing and preprocessing, a multi-pronged approach was employed, utilizing multivariate visualizations and advanced modeling techniques. This comprehensive analysis yielded valuable insights:

- **Distance Matters:** Prices demonstrably decrease with increasing distance from the city center, highlighting the desirability and premium associated with central locations.
- **Space and Type Influence Value:** Prices significantly increase with both room capacity and room type, with entire homes fetching considerably higher rates compared to private rooms.
- **Weekend Premium:** On average, weekend prices command a 1-8% premium over weekdays, further emphasizing the heightened demand for accommodations during those periods.
- **Modeling Success:** A Generalized Additive Model (GAM) with smoothing that captures interactions between variables effectively captures the observed trends, providing a close reflection of the actual data.

This meticulous analysis sheds light on the dynamics of Airbnb pricing in London, offering valuable knowledge to both travelers and hosts alike. By understanding these key factors and trends, informed decisions regarding pricing strategies and accommodation choices can be made.