

Story Point 1 – Introduction	Story Point 2 – Room Type and Pricing	Story Point 3 – Guest Capacity vs. Price	Story Point 4 – Cluster Analysis	Story Point 5 – Correlation Analysis	Story Point 6 – Summary & Recommen..
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Airbnb in Amsterdam – A Data-Driven Exploration

Date: March 2025
Data Source: Inside Airbnb
Data Analyst: Martin Preschel

This dashboard analyzes Airbnb listings in Amsterdam to uncover how various factors—such as room type, price, availability, reviews, and host activity—relate to one another. The analysis aims to support strategic decision-making for both hosts and guests by identifying key pricing drivers and listing patterns.

📌 Target Audience

- Hosts aiming to optimize pricing and listing performance
- Travelers looking to understand pricing dynamics
- Policymakers monitoring the short-term rental market

📌 Key Questions Explored

1. How does room type affect nightly prices?
2. How does the number of guests accommodated relate to the price?
3. What patterns emerge from clustering listings based on availability and reviews?
4. What do correlations between numeric variables reveal about listing behavior?

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How Room Type Affects Nightly Prices

🔍 Insight

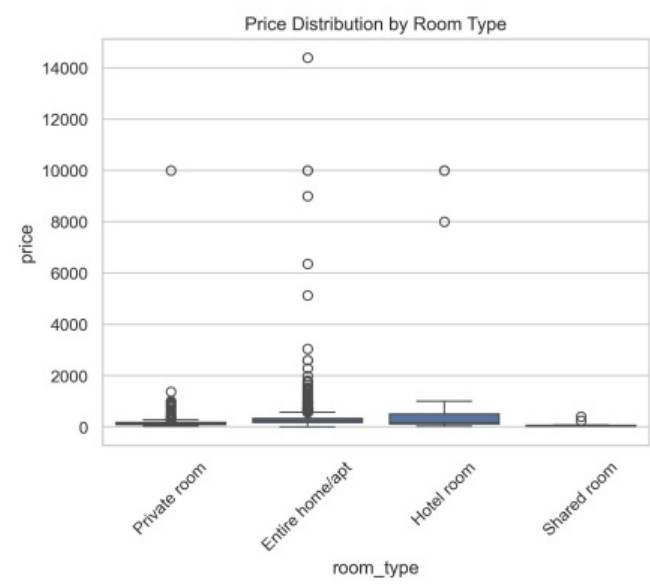
Room type strongly affects nightly pricing. While "Hotel room" listings have the highest median and average prices, they also show substantial price variance, suggesting a few outlier listings drive prices up. "Shared rooms" remain the most affordable with low variation.

🔍 Interpretation

The boxplot reveals that price levels differ significantly by room type, but also that price dispersion is unequally distributed—important for understanding both guest expectations and pricing strategies.

🔍 Business Implication

Hosts may consider room type as a strategic factor when setting prices. Especially in categories like "Hotel room," managing high-end outliers and ensuring consistency may be key to guest satisfaction.



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How Number of Guests Affects Nightly Price

Insight

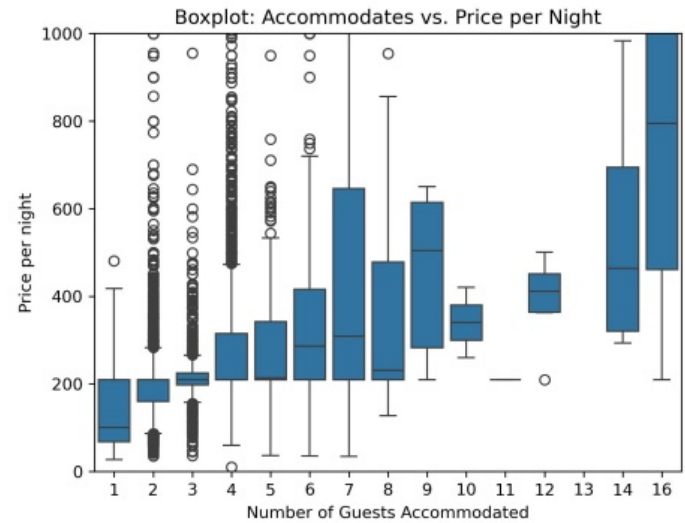
Listings that accommodate more guests tend to have higher prices. However, the relationship is not linear – prices rise with capacity but vary significantly due to room type, amenities, and location.

Interpretation

The number of guests a listing accommodates explains some variance in price, but other features (e.g. room type, location) also contribute. Listings for 6–8 guests tend to show greater price variation, likely due to differences in accommodation type and luxury level.

Business Implication

Hosts should consider guest capacity when setting prices, especially for larger properties. Travelers can use capacity as a filter, but should be aware that price jumps are not always proportional to the number of guests allowed.



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What Patterns Emerge from Listing Clusters?

🔍 Insight

The clustering revealed three distinct listing types based on reviews and occupancy.

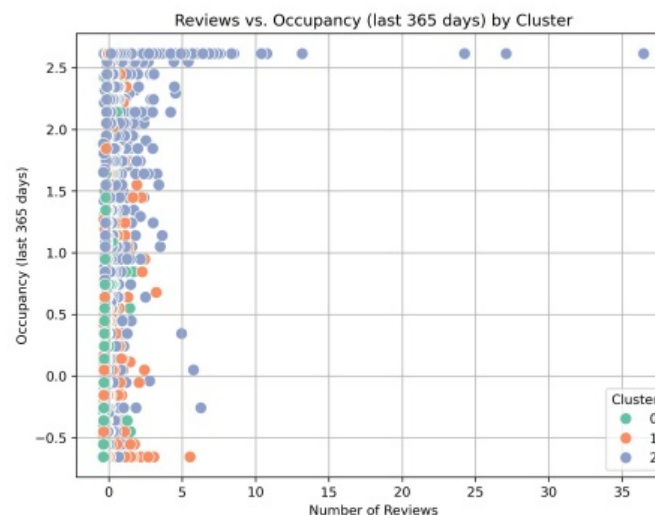
- **Cluster 0** has low review counts and occupancy — likely new or inactive listings.
- **Cluster 1** shows moderate engagement, with listings that are active but not saturated.
- **Cluster 2** includes highly active listings — many reviews and high occupancy — possibly top-performing hosts.

🔍 Interpretation

These clusters help uncover market segments within the Airbnb landscape. They may reflect different host strategies (e.g. professional vs. casual hosts), seasonal availability, or location differences.

🔍 Business Implication

Clustering allows platforms or hosts to benchmark listings within similar performance groups. It can support targeted marketing, dynamic pricing, or support prioritization.



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What Do Correlations Between Variables Reveal?

🔍 Insight

The correlation matrix highlights behavioral patterns among hosts:

- Listings with more frequent reviews also tend to accumulate higher total reviews, indicating steady guest engagement.
- Hosts managing many listings tend to charge slightly higher prices, suggesting a potential link between professional hosting and pricing strategy.
- However, most relationships with price are weak, reinforcing that pricing decisions depend on a blend of many subtle factors, not just one.

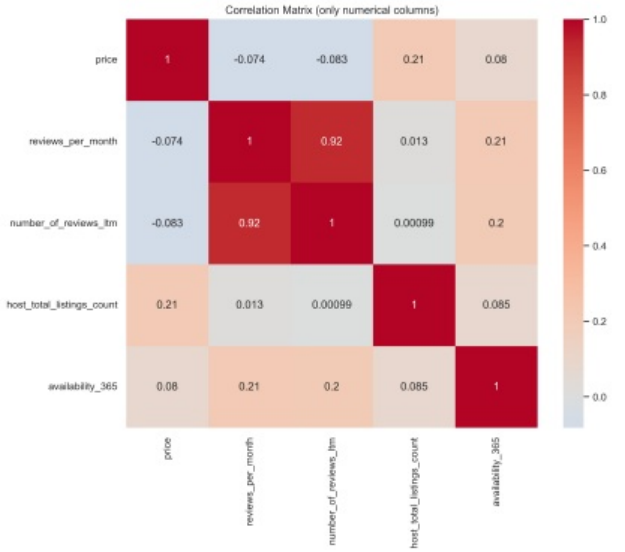
🔍 Interpretation

These correlations suggest that host behavior, engagement level, and listing scale play a role in shaping how properties are priced and perceived. There is no “one-size-fits-all” predictor of price – the Airbnb ecosystem appears diverse and multi-layered.

🔍 Business Implication

Understanding these dynamics helps platforms and hosts better segment the market and develop data-driven strategies. For example,

- Hosts might benchmark against others with similar review volume or listing count.
- Platforms could use these patterns to personalize support or recommend pricing tools.



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Summary of Findings & Recommendations

📌 Key Takeaways

- **Room type** is the strongest pricing factor – “Hotel rooms” show the highest prices, “Shared rooms” the lowest.
- **Guest capacity** correlates with higher prices, but the relationship is **non-linear** and varies strongly.
- **Clusters** reveal different listing types and engagement levels – from inactive to highly active listings.
- **Correlations** are weak overall, suggesting pricing depends on a **blend of many subtle factors**, not one single driver.

📌 Recommendations for Hosts

- **Price strategically:** Adjust prices based on room type trends and guest capacity patterns.
- **Benchmark listings:** Use clustering insights to compare performance within similar groups.
- **Diversify tactics:** No single metric defines success—consider multiple factors like reviews, availability, and host scale.

📌 Recommendations for Platforms & Policymakers

- **Improve personalization:** Use behavior-based insights to enhance pricing tools and search filters.
- **Support segmentation:** Help new or small-scale hosts by providing targeted support and visibility.
- **Monitor host behavior:** Data on reviews and availability can inform **policy decisions** in high-tourism areas.

📌 Limitations & Next Steps

- Data is based only on Amsterdam listings and may not generalize to other markets.
- Price outliers and missing host data could influence some results.
- Future work could include location-based pricing (geo-analysis) or time-series forecasting.