Airbnb EDA

Influencing Customer Ratings and Demand

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Executive Summary

- This presentation covers the insights drawn from data set to help Airbnb expand its presence and grow profitably
- Key findings are discussed with focus on finding key listing features, which separate general properties from stellar properties
- Though data set presented challenges and prevented from drawing direct insights, team was able to highlight key features the company need to focus on to increase the likelihood of turning any property to stellar properties
- This presentation concludes with specific recommendations and next steps for Airbnb executives

Improving Airbnb from Today

1.5+ Billion
Trips Booked (Worldwide)

7.7+ Million
Listings

5+ Million
hosts

Identify factors that influence customer ratings and demand, guiding Airbnb's leadership on where to allocate resources to enhance listings and improve guest satisfaction.

airbnb

Dataset

~ 13K LISTINGS
worldwide

Amenities
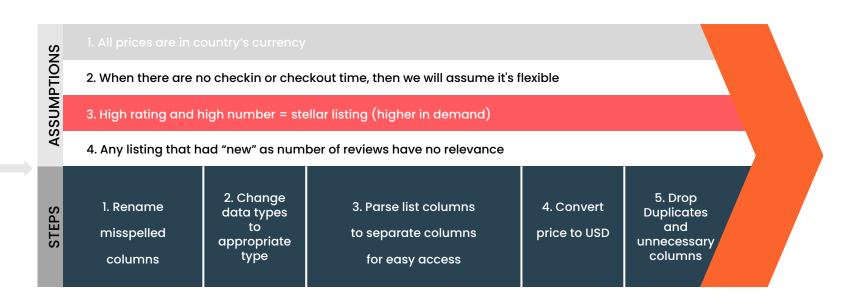
Rules

Location

Pricing

Host Information

Ratings & Reviews

Key Questions

1. What are the top 10 countries with the highest number of listings?
2. Are there any correlations between the listings' features and rating?
3. How do popular and highly rated listings compare with less popular and more lowly rated listings in their features?
4. Which are the countries with both a high number of popular and highly rated listings, and high percentage of such listings?
5. Which locations in these countries in question four should Airbnb put more resources in?

Data Processing

RAW DATA FROM KAGGLE

ASSUMPTIONS

1. All prices are in country's currency

2. When there are no checkin or checkout time, then we will assume it's flexible

3. High rating and high number = stellar listing (higher in demand)

4. Any listing that had "new" as number of reviews have no relevance

STEPS

1. Rename misspelled columns

2. Change data types to appropriate type

3. Parse list columns to separate columns for easy access

4. Convert price to USD
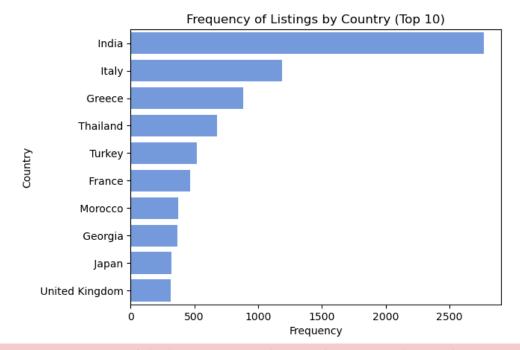
5. Drop Duplicates and unnecessary columns

CLEAN DATA

*NOTE: Converted price from local to USD, but not all matched airbnb pricing. Dropped

What are the top 10 countries with the highest number of listings?

Frequency of Listings by Country (Top 10)

India has the most number of listings due to its rapidly growing middle class and increasing domestic travel
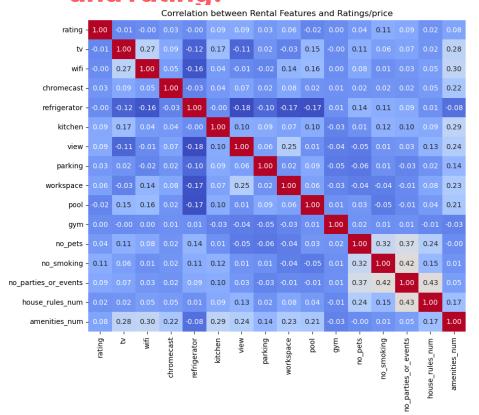
Are there any correlations between the listings' features and rating?

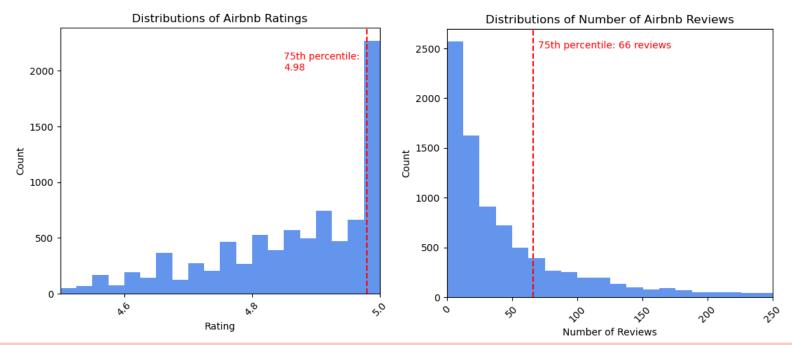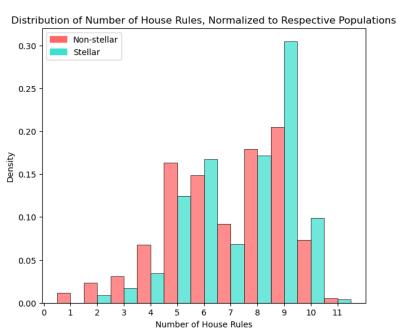Correlation between Rental Features and Ratings/price

Unable to determine which listing features are most strongly correlated with higher ratings

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What is a stellar listing?

Distributions of Airbnb Ratings
75th percentile: 4.98

Distributions of Number of Airbnb Reviews
75th percentile: 66 reviews
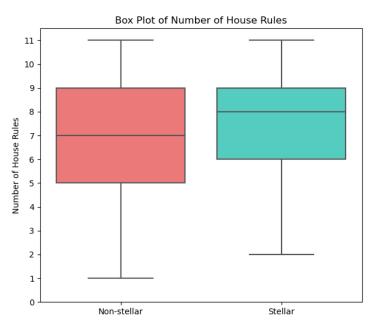
- Stellar listing
  - Listings with the most count of 4.98 ratings or higher
  - Listings with the most count of at least 66 reviews or more

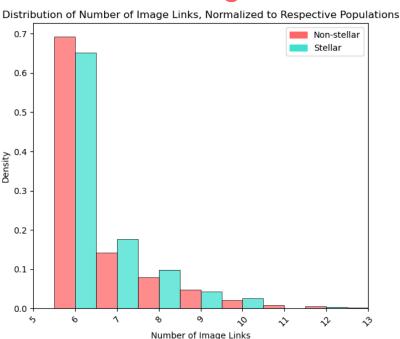# How do stellar and non-stellar listings compare in the number of house rules?

Distribution of Number of House Rules, Normalized to Respective Populations
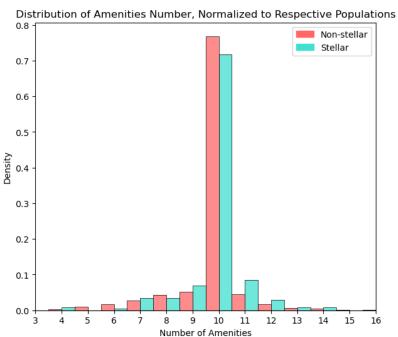

Box Plot of Number of House Rules

- Stellar listings with more house rules -> higher ratings
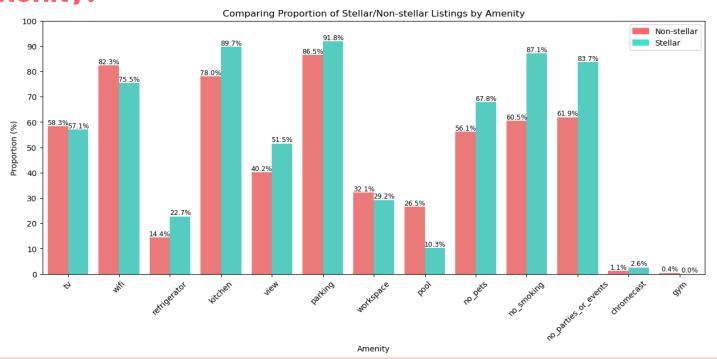- Clear expectations and maintained quality -> higher guest satisfaction.

How do stellar and non-stellar listings compare in number of image links and number of amenities?

Distribution of Number of Image Links, Normalized to Respective Populations

Distribution of Amenities Number, Normalized to Respective Populations

- Stellar and non-stellar listings have no difference in numbers of images and amenities
- Number of features and images are not key differentiators for stellar status.

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How do stellar and non-stellar listings compare in type of amenity?

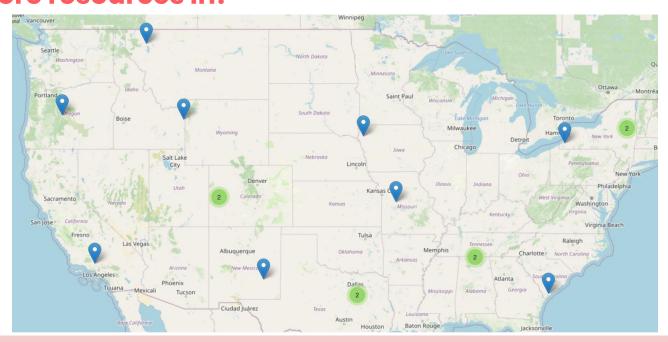Comparing Proportion of Stellar/Non-stellar Listings by Amenity

Stellar listings often feature amenities like views, parking, a kitchen, a refrigerator, and specific house rules

Which are the countries with both a relatively high number of stellar listings, and high percentage of stellar listings?

Country	Number of Stellar Listings (Percentage Stellar Listings)	Number of Non-stellar Listings
United Kingdom	60 (20%)	236
Greece	18 (2%)	730
United States	18 (10%)	158
France	16 (4%)	397
Italy	15 (2%)	713
Poland	8 (8%)	90
Norway	8 (4%)	176
Romania	7 (9%)	70
Iceland	7 (23%)	23
Japan	7 (2%)	302

Which locations in the United States should Airbnb put more resources in?

No clustering in major cities; stellar listings in the U.S. prioritize serenity and views over convenience

Which locations in Iceland should Airbnb put more resources in?

Stellar listings are clustered around tourist spots

Which locations in the United Kingdom should Airbnb put more resources in?

Many stellar listings are located in scenic rural areas; an escape from city life.

Conclusion

- Stellar listings, identified by high ratings and numerous reviews, often have clear and detailed house rules that enhance guest satisfaction; Airbnb can encourage hosts to adopt such rules.

- The UK, US, and Iceland have a high concentration of stellar listings, suggesting that investing in these regions by enhancing listing quality and offerings could yield substantial benefits. Notably, many such listings were escapes from the cities.

- High-growth markets like India and Italy, with many listings but fewer stellar ones, can improve by adopting strategies from the UK, US, and Iceland, such as clear house rules and a focus on escapes from large cities.

- Findings and recommendations are for Airbnb's leadership's consideration.