JioInstitute

Nivrati Kothari
25PGDM0013

17th Feb Quiz
MRM

Prof. Vishnu Prasad

GitHub Link: https://github.com/NivratiKothari/AirBnb-Quiz-Nivrati

1) Airbnb's initial idea was to offer a room or a shared room inside one's own house. Is it still so?

The data indicates that only 1.68% of Airbnb listings are for shared rooms, highlighting a low demand or supply for budget-friendly, communal stays. This suggests a market opportunity to attract budget travelers, solo backpackers, and students by offering competitively priced shared accommodations. Additionally, Airbnb could launch marketing campaigns targeting this niche segment to increase bookings and diversify revenue streams.

Percentage of Shared Rooms in Airbnb Listings
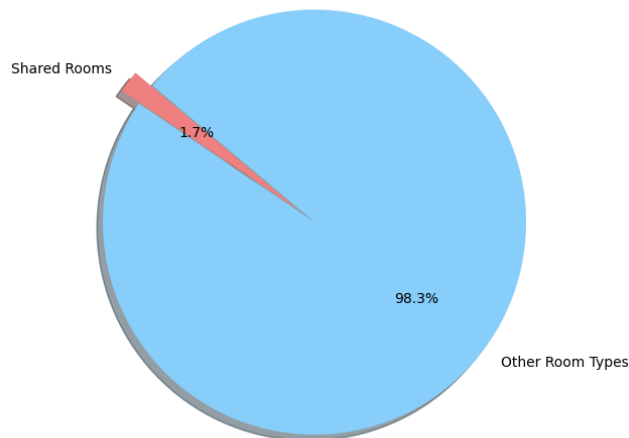
Top 5 Neighbourhoods with Shared Rooms
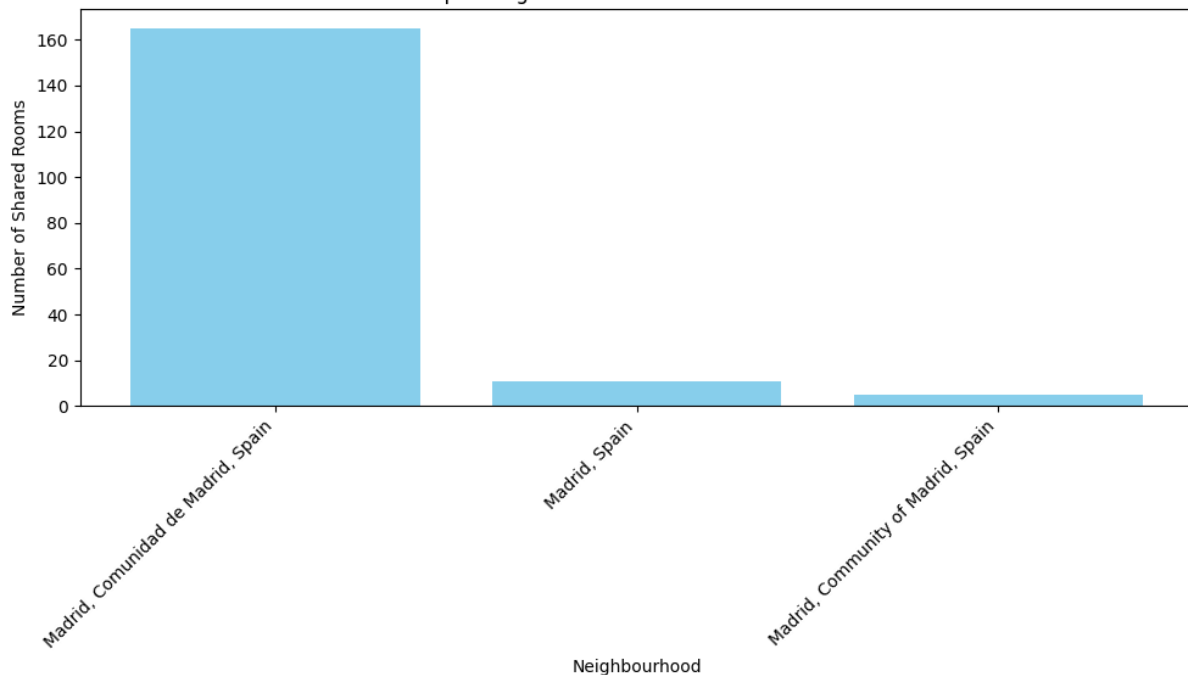
2) are listings evenly distributed across all the neighbourhoods or are there some *hot* areas?

No, listings are highly concentrated in central areas.

- **Madrid, Comunidad de Madrid** dominates with **10,390 listings**.
- Most other neighborhoods have **fewer than 10 listings**, with a median of **1 listing** and a high **standard deviation (1684)**, indicating extreme distribution imbalance.

Managerial Implications:

1. **Target Underserved Areas:** Incentivize listings in suburban areas (e.g., Pozuelo, Las Matas) through **reduced fees or promotions**.
2. **Differentiate in Hot Areas:** Encourage unique listings (e.g., themed stays, local experience packages) in crowded zones like **Chueca and Atocha**.
3. **Promote Sustainable Tourism:** Collaborate with local boards to promote less explored areas, reducing over-tourism in Madrid Centro.

Opportunity: Expand revenue and host diversity while balancing supply-demand across Madrid.
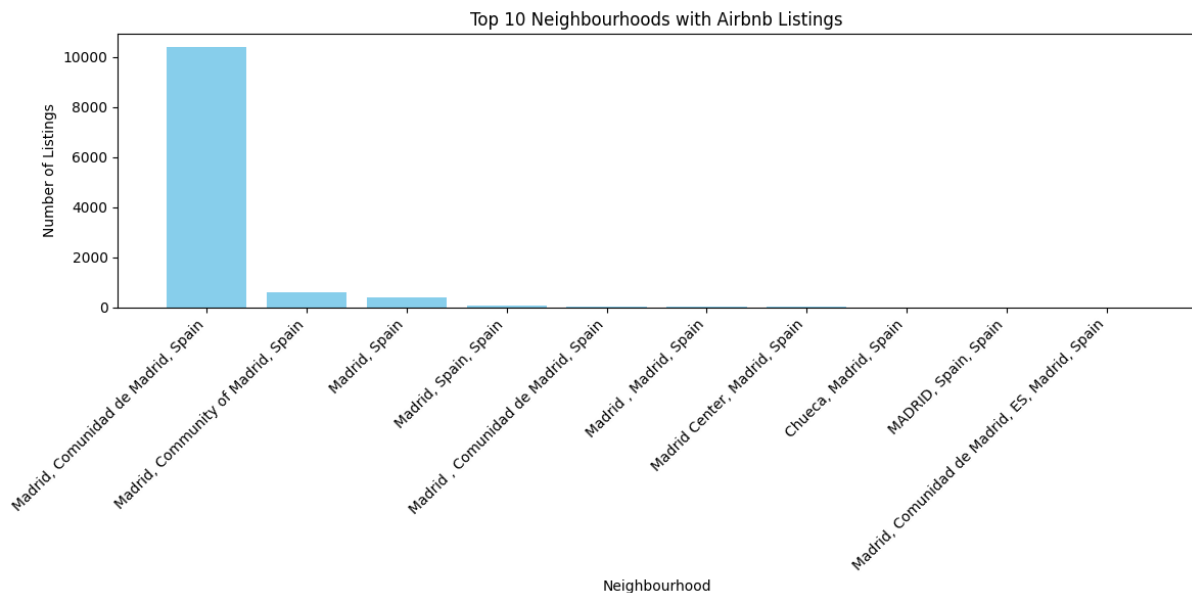
Top 10 Neighbourhoods with Airbnb Listings

Distribution of Property Ownership Among Hosts
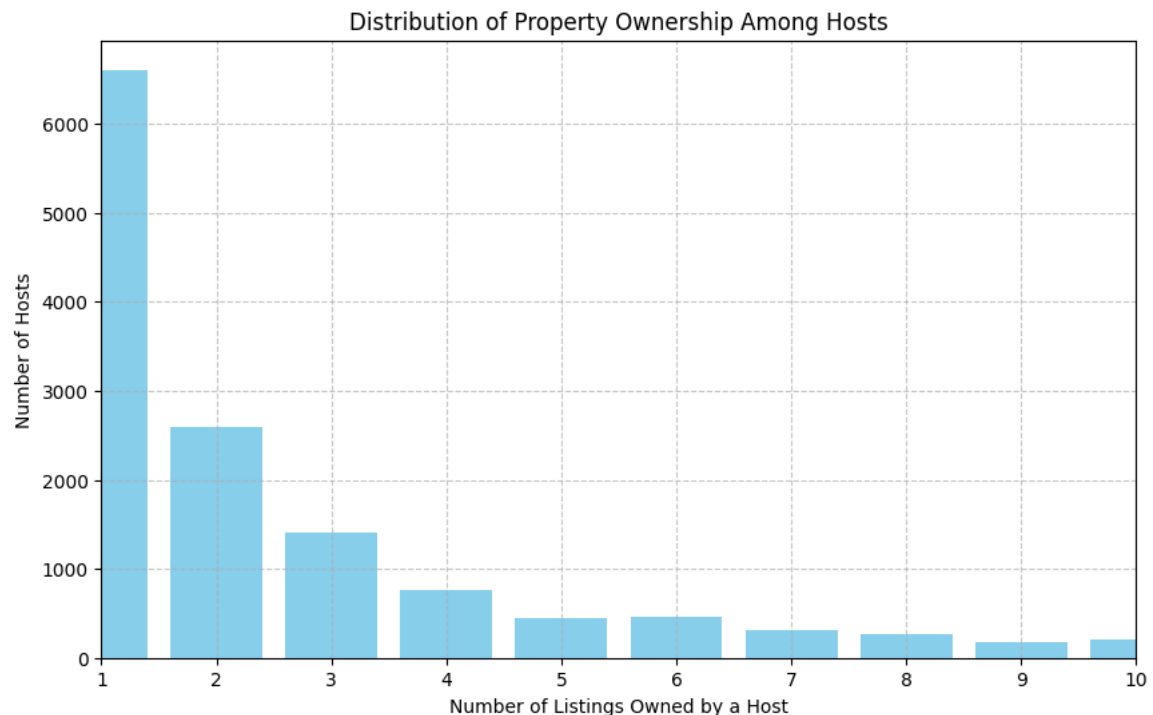
- The histogram shows the number of hosts categorized by how many listings they own.
- The majority of hosts own only **one property**, indicating that most listings are from **individual private owners**rather than large-scale operators.
- There is a sharp decline as the number of listings per host increases, but a notable segment still owns multiple properties, suggesting a mix of **individual hosts and commercial operators**.
- A small group of hosts holds **five or more listings**, which could indicate **property management companies or real estate investors.**

Managerial Implication:

- **Market Strategy:** Focus marketing efforts on **individual hosts**, as they form the largest segment of the market. Provide them with tools, incentives, or education to enhance their listing performance.
- **Partnerships:** Develop services or packages tailored for **multi-listing hosts or property management firms** to capture high-value clients.
- **Policy and Pricing:** Consider **differentiated pricing structures or commission rates** for high-volume hosts to encourage loyalty and platform dependence.
- **Risk Management:** Monitor hosts with multiple properties for **potential speculative behavior or policy violations**, such as operating unlicensed short-term rentals.

Q4) are prices inflated for tourists? That is, is there a significative difference in prices between listings in English (i.e. for tourists) and Spanish (i.e. "locals", or at least Spanish-speaking tourists)? If there is, is this difference stronger in certain districts?

Distribution of Prices by Listing Language

Average Prices by Listing Language
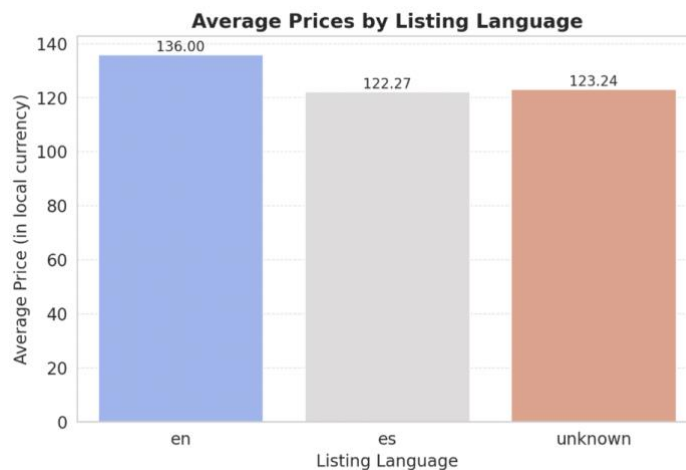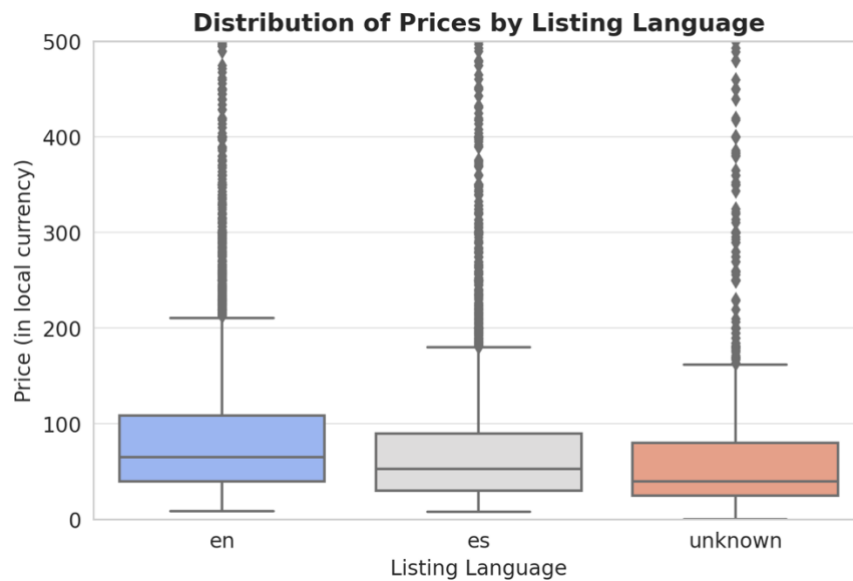
Spain has lower prices than other languages

Based on the **regression analysis, statistical tests, and visualizations**, we can conclude the following regarding whether **tourists (English-language listings) are charged higher prices compared to locals (Spanish-language listings):**

1. No Significant Price Inflation for Tourists

- **The regression analysis shows that English-language listings are, on average, only ₹1.31 lower than Spanish listings, but this difference is not statistically significant (p-value = 0.854).**
- This means that **pricing differences are not strongly driven by language alone**. Instead, other factors like **location, room type, and accommodations offered** play a bigger role in determining price.

2. Major Price Determinants

- **Accommodation Capacity**: Listings that accommodate more guests charge significantly higher prices (**₹27.23 per additional guest**).

- **Number of Bathrooms**: More bathrooms also correlate with a higher price (**₹11.96 per extra bathroom**).
- **Room Type**: Entire apartments are priced significantly higher than shared or private rooms.
- **Districts**: Certain areas have consistently higher prices, irrespective of listing language. The most expensive neighborhoods include:
    - **Canillejas (+₹410)**
    - **San Andrés (+₹430)**
    - **Lucero (+₹370)**
    - **Rosas (+₹361)**
    - These districts likely have higher demand, luxury properties, or are prime locations for tourists.

3. Districts Show Stronger Price Variations than Language

- The **district-based analysis revealed that location influences price far more than whether a listing is in English or Spanish**.
- Some districts see **higher premiums for listings in English**, suggesting localized inflation in tourist-heavy areas. However, this is **not consistent across all locations**.

Final Verdict

Prices are not significantly inflated for tourists (English-language listings).
Listing price is more dependent on location, room type, and amenities than the language used.
Some districts have higher prices, but this is due to demand rather than targeted inflation for tourists.

Q5) What is the effect of accommodates, verified host identity, bathrooms, bedrooms, beds and review score on the price of the property?

```
Linear Regression Analysis Results:
                        OLS Regression Results
=======================================================================
=======
Dep. Variable:                    price   R-squared:
0.025
Model:                              OLS   Adj. R-squared:
0.024
Method:                   Least Squares   F-statistic:
51.61
Date:                  Mon, 17 Feb 2025   Prob (F-statistic):
4.59e-63
Time:                          06:40:45   Log-Likelihood:
-92733.
No. Observations:                 12179   AIC:
1.855e+05
Df Residuals:                     12172   BIC:
1.855e+05
Df Model:                             6
Covariance Type:              nonrobust
=======================================================================
==================
                         coef    std err          t      P>|t|
[0.025      0.975]
-----------------------------------------------------------------------
-------------------
const                 -86.4483     42.526     -2.033      0.042      -
169.805     -3.091
accommodates           18.8848      3.795      4.976      0.000
11.445     26.324
host_identity_verified 12.9685     10.752      1.206      0.228
-8.107      34.044
bathrooms              -2.9671      7.959     -0.373      0.709
-18.568     12.633
bedrooms               81.5531      8.133     10.027      0.000
65.610     97.496
beds                  -17.2828      4.434     -3.898      0.000
-25.975     -8.591
review_scores_rating    0.4851      0.440      1.103      0.270
-0.377      1.347
=======================================================================
=======
Omnibus:                      24657.862   Durbin-Watson:
1.921
Prob(Omnibus):                    0.000   Jarque-Bera (JB):
49413463.840
Skew:                            17.087   Prob(JB):
0.00
Kurtosis:                       313.172   Cond. No.
893.
```

Feature Impact on Property Price (with Significance)

Price Impact by Number of Accommodates

Price Impact by Number of Bedrooms

The regression analysis reveals critical drivers of Airbnb property pricing, highlighting where managerial focus can drive revenue optimization:

Key Value Drivers:

- **Bedrooms (Strong Positive Impact):** Each additional bedroom significantly increases property value (+$81.55). This reflects higher willingness to pay for privacy and group accommodations.
- **Accommodates (Moderate Positive Impact):** Larger occupancy capacity commands premium pricing (+$18.88), emphasizing demand for family and group stays.

Price Suppressors & Non-Factors:

- **Beds (Negative Impact):** More beds (-$17.28) correlates with lower prices, suggesting shared or dorm-style properties face market price resistance.
- **Bathrooms, Reviews & Verified Status (Minimal Impact):** Contrary to intuition, these factors show weak pricing influence, indicating that core property attributes matter more than service credentials or marginal amenities.

Strategic Managerial Implications:

- ☑ **Portfolio Expansion:** Invest in multi-bedroom properties that can host larger groups to maximize revenue per listing.
- ☑ **Revenue Optimization:** Develop premium pricing strategies around bedroom counts rather than simply increasing beds.

- ☑ **Market Positioning:** Promote listings for families or group travelers to leverage willingness-to-pay for larger accommodations.
- ⚠ **Resource Allocation:** Limit investments in superficial attributes (e.g., additional bathrooms) that show minimal ROI on price.