University of Tehran

Faculty of Engineering

School of ECE

DATA SCIENCE

Airbnb Dataset

Report Sheet

Link to Tableau Public

Niloufar Mortazavi – 220701096

Alborz Mahmoudian – 810101514

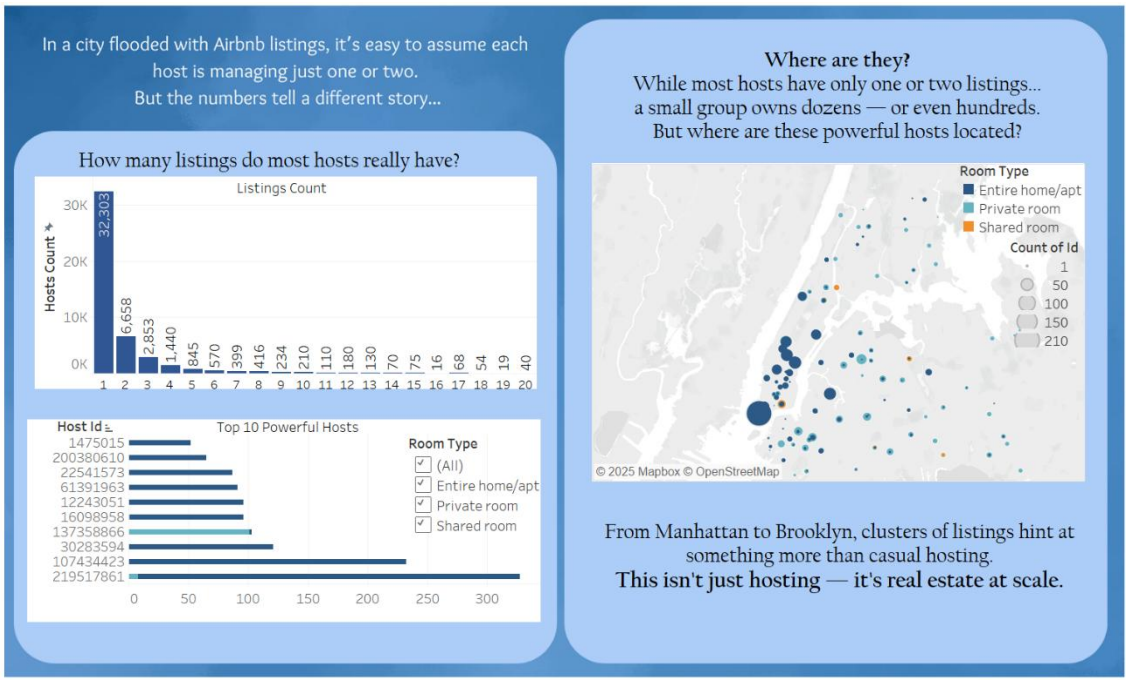
Mahdy Mokhtari - 810101515

Summary of the story

This dashboard story explores how host behavior and listing characteristics impact guest engagement on Airbnb. Through three dashboards, we examine **who the powerful hosts are**, **how price influences popularity**, and **how availability and activity drive engagement**. Our goal is to uncover what makes listings successful in terms of review volume—one of the strongest signals of guest interaction.

Narrative & Key Insights

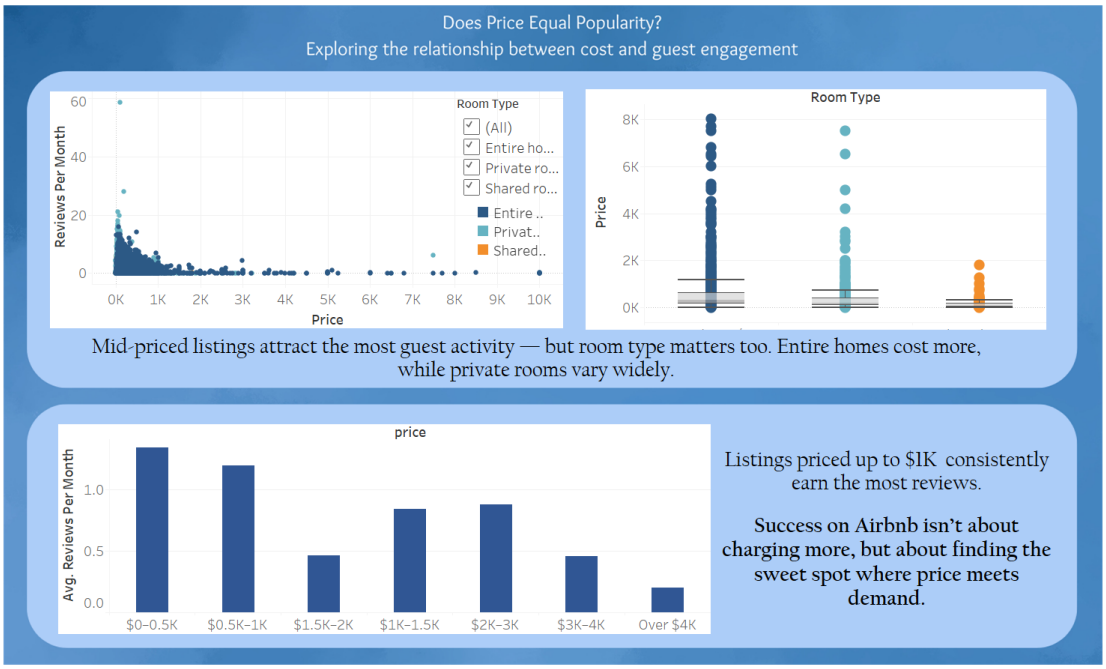
Dashboard 1: Who Are the Power Hosts?



Despite assumptions that most hosts manage one or two listings, the data reveals a different story:

- Thousands of hosts own multiple listings, with some managing over 300 properties.
- Geographically, these super hosts are concentrated in popular areas of New York City, particularly Manhattan and Brooklyn.
- This indicates that Airbnb is not just a platform for casual hosting, but also a large-scale business for many.

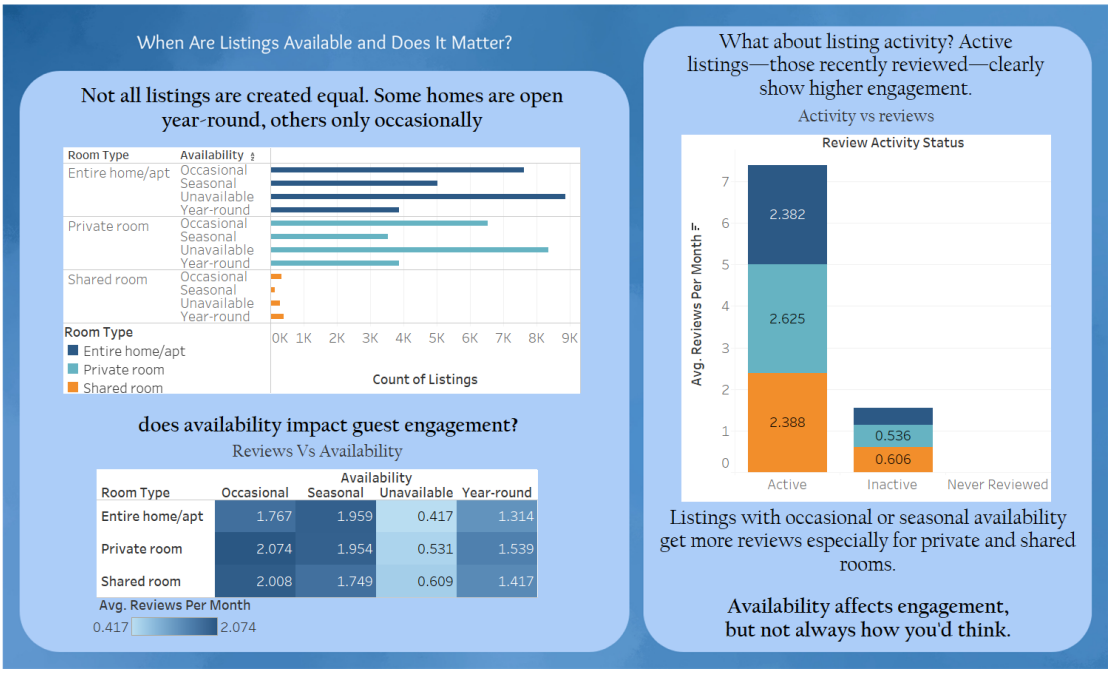
Dashboard 2: Does Price Equal Popularity?



We examined whether cost correlates with guest engagement (reviews per month):

- Mid-priced listings (under $1,000) consistently receive the most reviews.
- The sweet spot appears to be between $500 and $1,000.
- Entire homes tend to be the most expensive, while private rooms show a wide price range.
- This suggests that pricing too high reduces engagement, while affordable, well-positioned listings thrive.

Dashboard 3: When Are Listings Available—and Does It Matter?



Availability and listing activity also play major roles in review volume:

- Most listings are not available year-round. "Occasional" and "Seasonal" listings dominate.
- Interestingly, listings with limited availability (occasional/seasonal) tend to get more reviews per month, especially for shared and private rooms.
- Listings that are "Active" (recently reviewed) receive significantly more reviews than "Inactive" or "Never Reviewed" listings.
- This implies that listing freshness and intentional availability increase visibility and engagement.

Parameters & Filters

These were used to control the view or segment the data interactively or visually:

- Room Type
  → *Entire home/apt, Private room, Shared room*
  Used for color coding, grouping, and comparison in almost every chart.
- Availability (Categorical)
  → *Year-round, Seasonal, Occasional, Unavailable*
  Derived from Availability 365, used in dashboards and heatmaps.
- Review Activity Status
  → *Active, Inactive, Never Reviewed*
  Based on how recent the last review was.
- Price (Binned)
  → Used in bar charts and scatter plots to show price ranges.
- Host ID
  → Used to filter and identify top hosts in Dashboard 1.
- Listing ID (Id)
  → Used for counting total listings or marking individual points in visualizations.
- Longitude & Latitude
  → Used for map-based geospatial analysis of listing locations.

KPIs & Calculated Fields

These metrics and custom fields drive the main insights in the dashboards and provide the basis for analysis across availability, pricing, and listing activity.

1. Average Reviews Per Month

Purpose:

Main engagement metric used to evaluate listing popularity. Displayed across all dashboards for comparison by price, availability, and activity.

2. Review Activity Status

Purpose:

Categorizes listings based on how recently they were reviewed. Used in Dashboard 3 to identify which listings are still active.

Formula:

```
IF ISNULL([Last Review]) THEN "Never Reviewed"
ELSEIF DATEDIFF('month', [Last Review], #2019-09-01#) <= 3 THEN "Active"
ELSE "Inactive"
END
```

3. Availability Category

Purpose:

Groups listings by the number of days they're available per year. Used to show how availability relates to review volume.

Formula:

```
IF [Availability 365] >= 300 THEN "Year-round"
ELSEIF [Availability 365] >= 150 THEN "Seasonal"
ELSEIF [Availability 365] > 0 THEN "Occasional"
ELSE "Unavailable"
END
```

4. Price Banding

Purpose:

Groups listings into price ranges to compare engagement across price segments.

Formula:

```
IF [Price] <= 500 THEN "$0–0.5K"
ELSEIF [Price] <= 1000 THEN "$0.5K–1K"
ELSEIF [Price] <= 1500 THEN "$1K–1.5K"
ELSEIF [Price] <= 2000 THEN "$1.5K–2K"
ELSEIF [Price] <= 3000 THEN "$2K–3K"
ELSEIF [Price] <= 4000 THEN "$3K–4K"
ELSE "Over $4K"
END
```

5. Host Listing Count

Purpose:

Used to identify and compare hosts based on the number of listings they manage. Helps differentiate casual users from high-volume “power hosts.”

Implementation:

Count of Id grouped by Host ID