

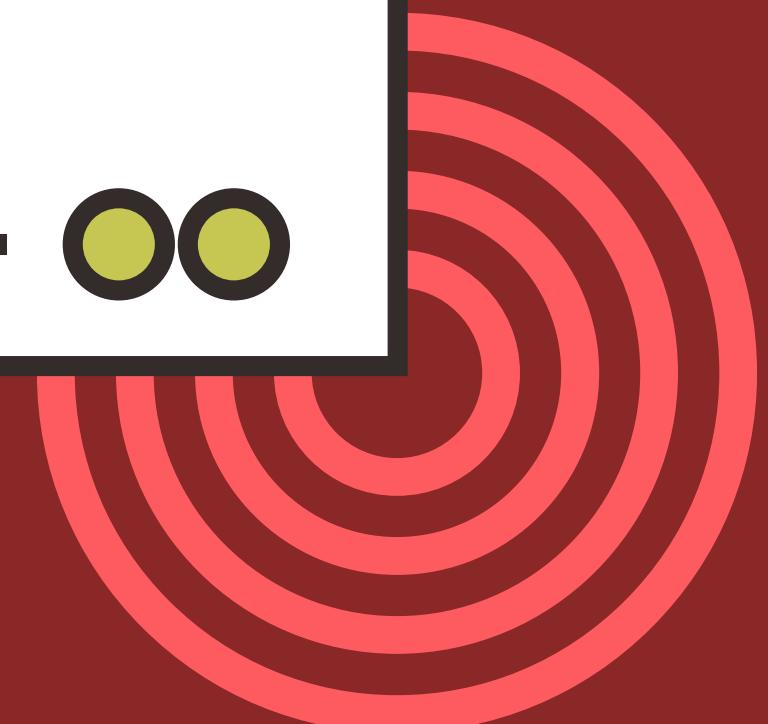


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# Beyond Bookings: Behavioral Analytics on the Airbnb Platform

by Ayan Ghosh

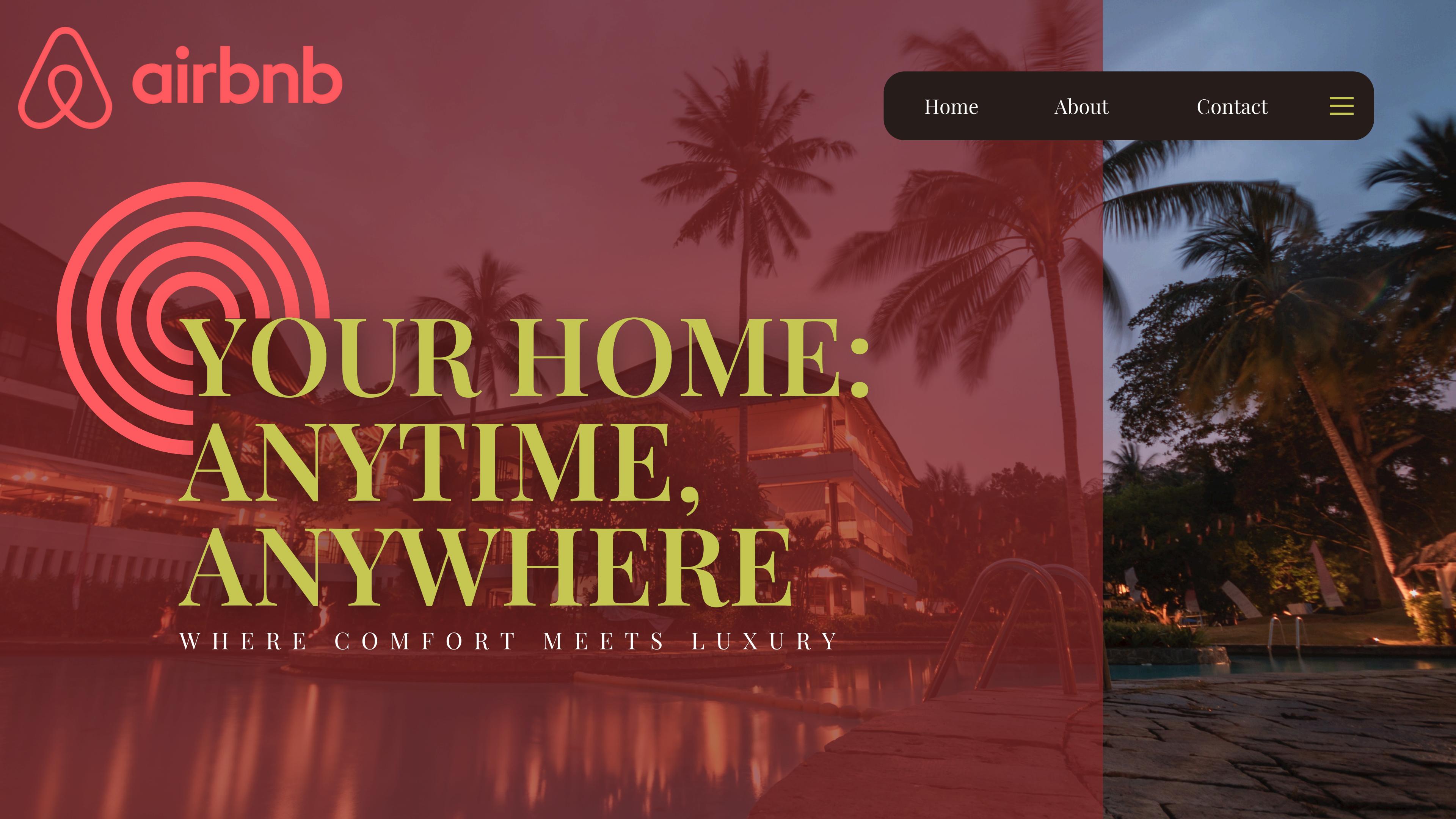
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# ABOUT US

WHERE COMFORT MEETS LUXURY



Airbnb is a global online marketplace that allows people to list, discover, and book accommodations around the world. Founded in 2008 by Brian Chesky, Joe Gebbia, and Nathan Blecharczyk in San Francisco, Airbnb has revolutionized the travel and hospitality industry by enabling individuals to rent out their homes, apartments, or even unique spaces like treehouses and boats to travelers. The platform operates in over 220 countries and regions and has millions of active listings across more than 100,000 cities.

Airbnb functions as a two-sided marketplace where hosts offer accommodations and guests can search, book, and stay. It provides secure payment processing, ID verification, messaging tools, and a review system to ensure trust and safety for both parties. The company earns revenue by charging a commission on each booking—typically around 3% from hosts and up to 14% from guests.

Beyond short-term stays, Airbnb has expanded into long-term rentals, luxury listings (Airbnb Luxe), and Airbnb Experiences, which allow locals to host activities like tours, workshops, and classes. The company has faced challenges such as government regulations, housing market concerns, and competition from hotels, but it continues to grow by adapting to trends like remote work and sustainable travel. With a focus on personalization, technology, and community, Airbnb aims to offer more than just lodging—it aims to deliver a sense of belonging anywhere in the world.

# Comprehensive Insights into Listings, Pricing, Hosts, Ratings, Availability, and Property Features

## 1. Listings Overview

1. Total Listings: How many total listings are available across all cities?
2. Listings by Property Type: How many listings are available for each property type?
3. Listings by Neighborhood: Which neighborhoods have the most listings?
4. Listings by Season: How does the number of listings vary by season?
5. Listings by City: How many listings are available in each city?

## 2. Pricing Insights

1. Average Price: What is the average price of listings by property type?
2. Price Range: What is the price distribution across listings?
3. Price by Season: How does the average price vary by season?
4. Price vs. Rating: Is there a correlation between listing price and rating score?
5. Top Expensive Listings: Which are the top 5 most expensive listings and their hosts?

## 3. Host Insights

1. Host Type: What percentage of listings belong to Superhosts vs. Regular Hosts?
2. Host Listings Count: How many listings does each host have?
3. Top Hosts: Who are the top 5 hosts with the most listings?
4. Superhost Impact: What is the average price and rating for Superhost vs. Regular Host listings?
5. Host Since: How does the number of hosts vary by the year they joined?

## ★ 4. Rating & Review Analysis

1. Average Rating: What is the average rating across all listings?
2. Rating by Property Type: How does the average rating differ across property types?
3. Review Frequency: How many reviews do listings receive per month?
4. Rating Breakdown: How do the different rating categories (cleanliness, value, location) compare?
5. High-Rating Budget Listings: Which listings have a value-for-money score above 4.8 but are priced below the median?

## 5. Availability & Booking Insights

1. Seasonal Booking Trend: How does the number of bookings change over the months?
2. Booking by City: Which city has the highest number of bookings?
3. Review Count by Season: How do reviews vary by season?
4. Active Listings: How many listings were active in the last 3 months?
5. Longest-Running Hosts: Which hosts have been active for the longest period?

## 6. Amenities & Property Features

1. Bedrooms & Beds: How many listings have 1, 2, 3+ bedrooms?
2. Bathroom Type: What is the distribution of private vs. shared bathrooms?
3. Max Allowed Guests: How many listings can accommodate 4+ guests?
4. Entire Home vs. Private Room: What is the price and rating difference between entire homes and private rooms?
5. Property Type by Neighborhood: What are the most common property types in each neighborhood?



# Airbnb Listings Overview

topn neighbourhood

10

# of Listings

92,355

# of neighbourhood

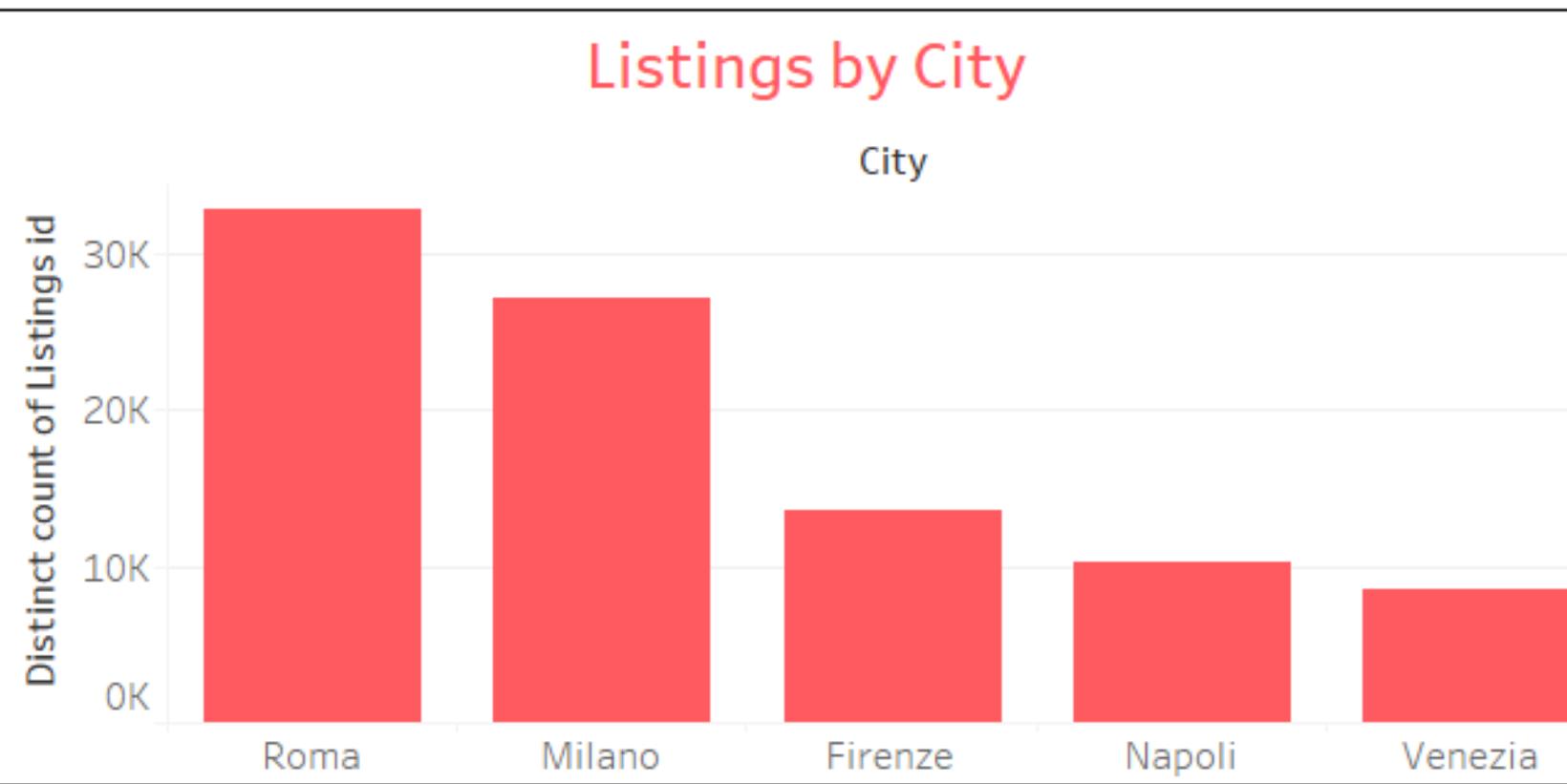
195

Cities

5

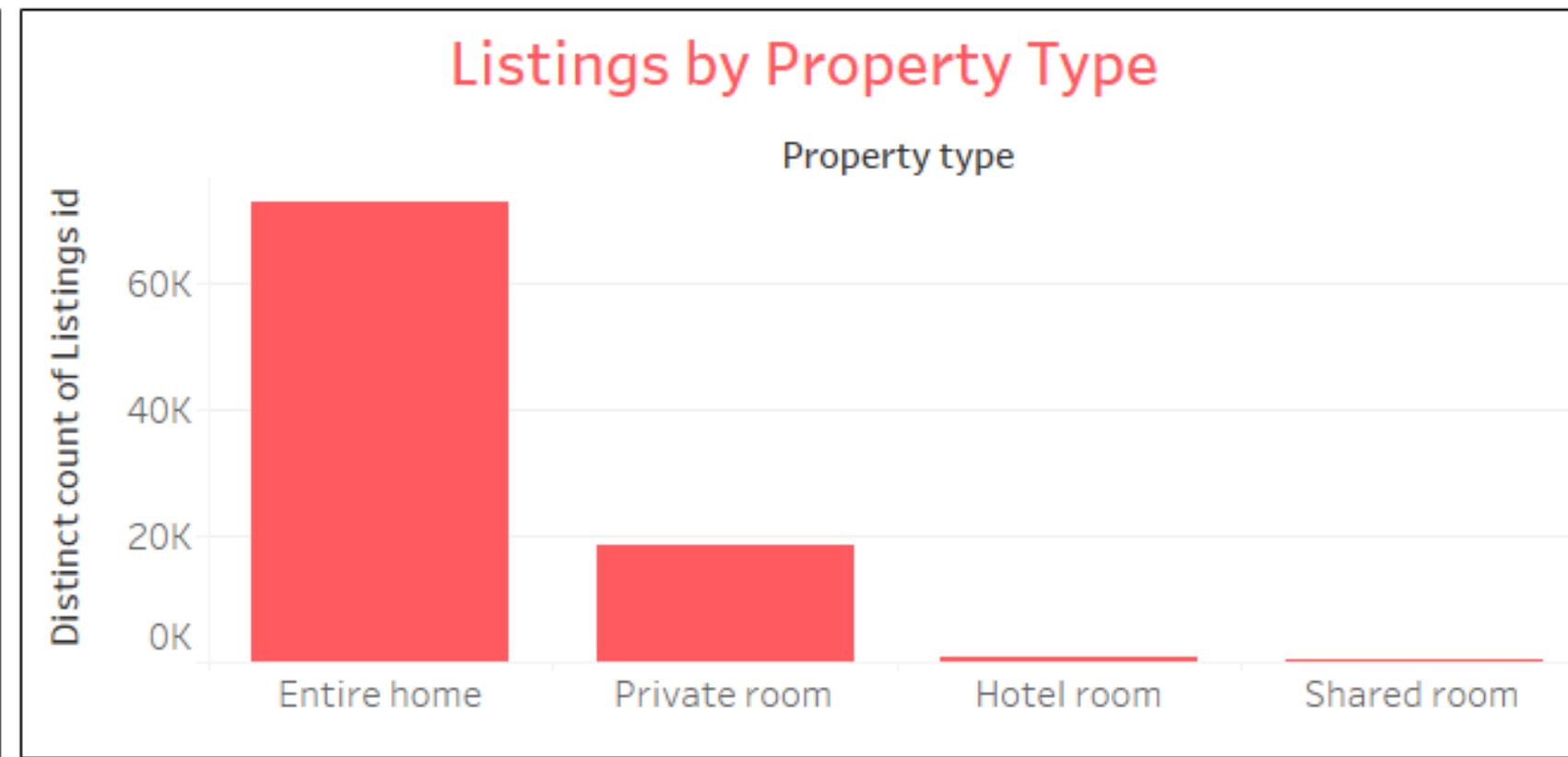
## Listings by City

City



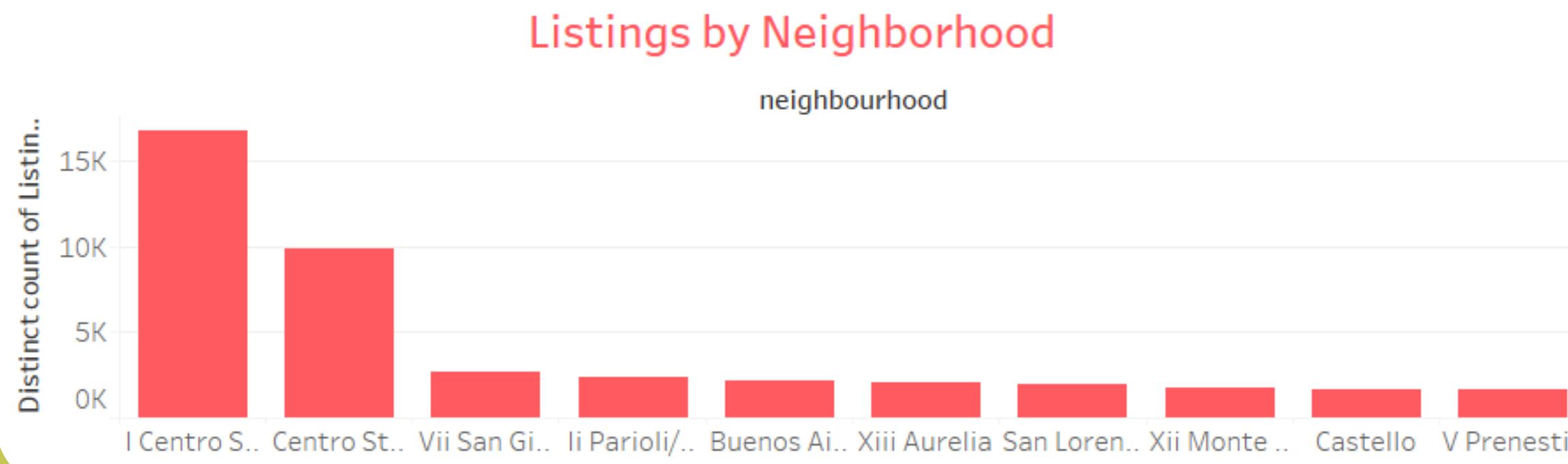
## Listings by Property Type

Property type

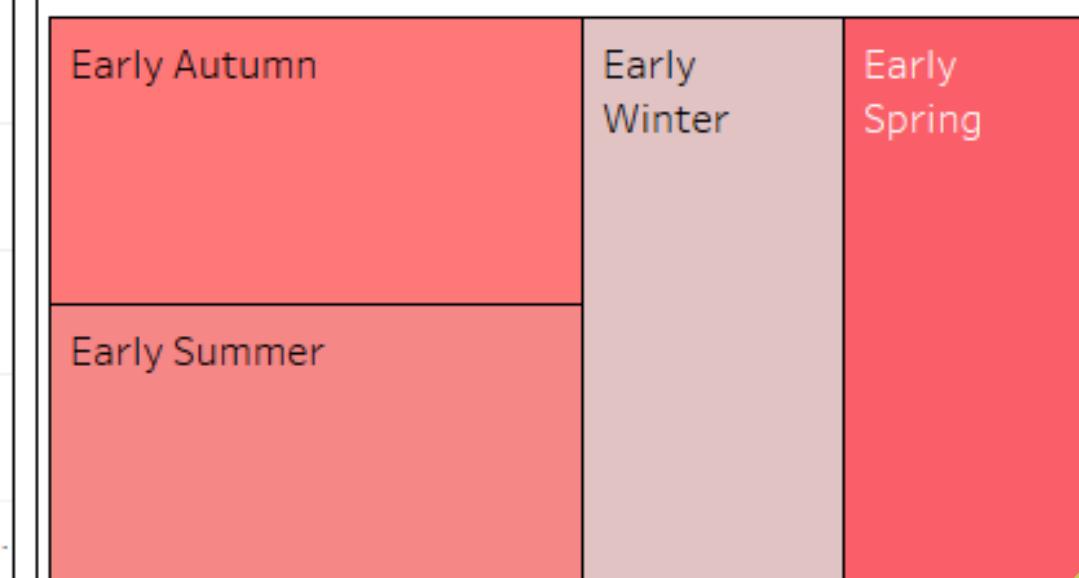


## Listings by Neighborhood

neighbourhood



## Listings by Season





# KEY PERFORMANCE INDICATORS

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## 1. Total Listings:

- 92,355 Airbnb listings are available across the dataset.

## 2. Cities Covered:

- Listings are distributed across 5 major cities: Roma, Milano, Firenze, Napoli, and Venezia.

## 3. Neighborhoods:

- 195 neighborhoods are represented, indicating a wide geographical spread.

## 4. Top Cities by Listings:

- Roma leads with over 30,000 listings, followed by Milano with nearly 28,000.
- Firenze, Napoli, and Venezia follow with smaller but notable shares.

## 5. Property Type Distribution:

- Entire homes dominate with over 70,000 listings.
- Private rooms form a much smaller segment.
- Hotel rooms and shared rooms are negligible in count.

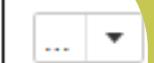
## 6. Top Neighborhoods:

- I Centro Storico and Centro Storico are the top two neighborhoods, together contributing over 25,000 listings.

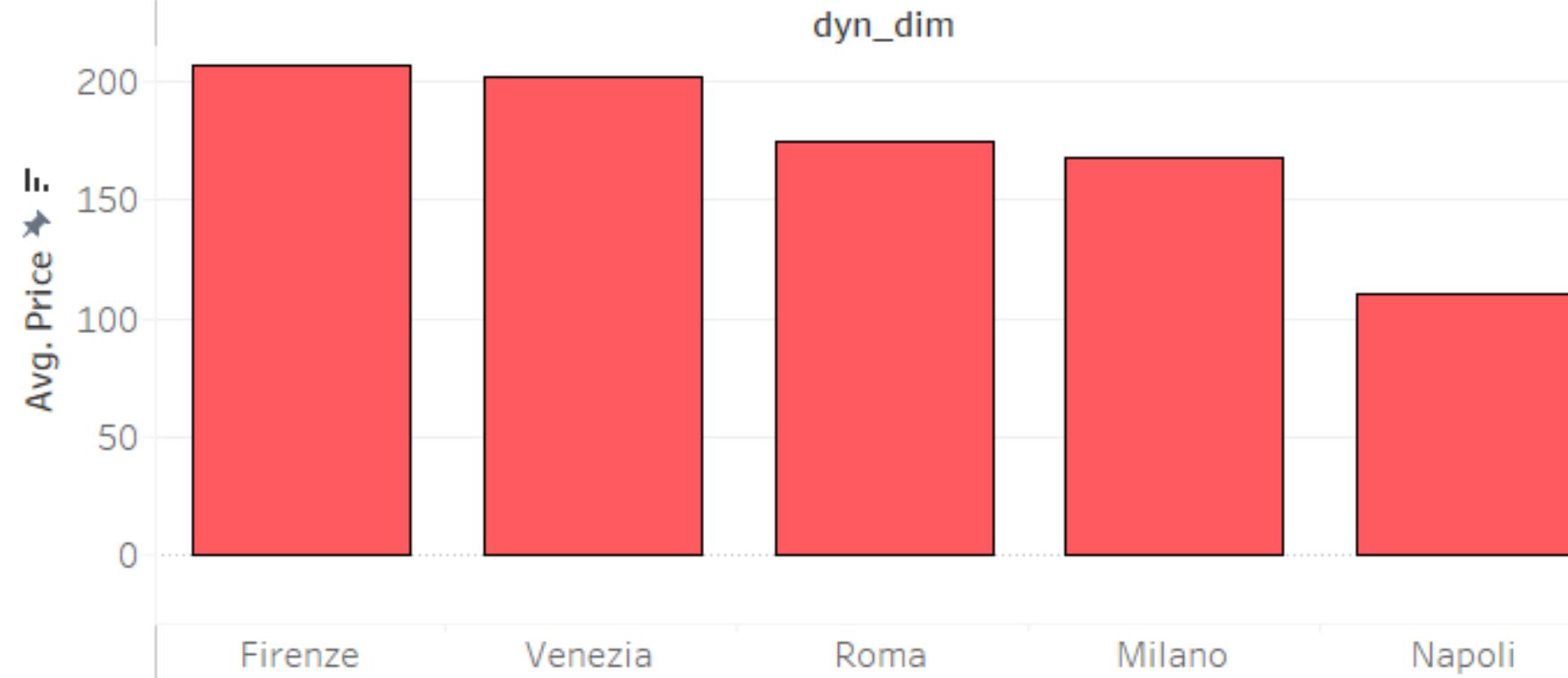


# Airbnb Pricing Insight

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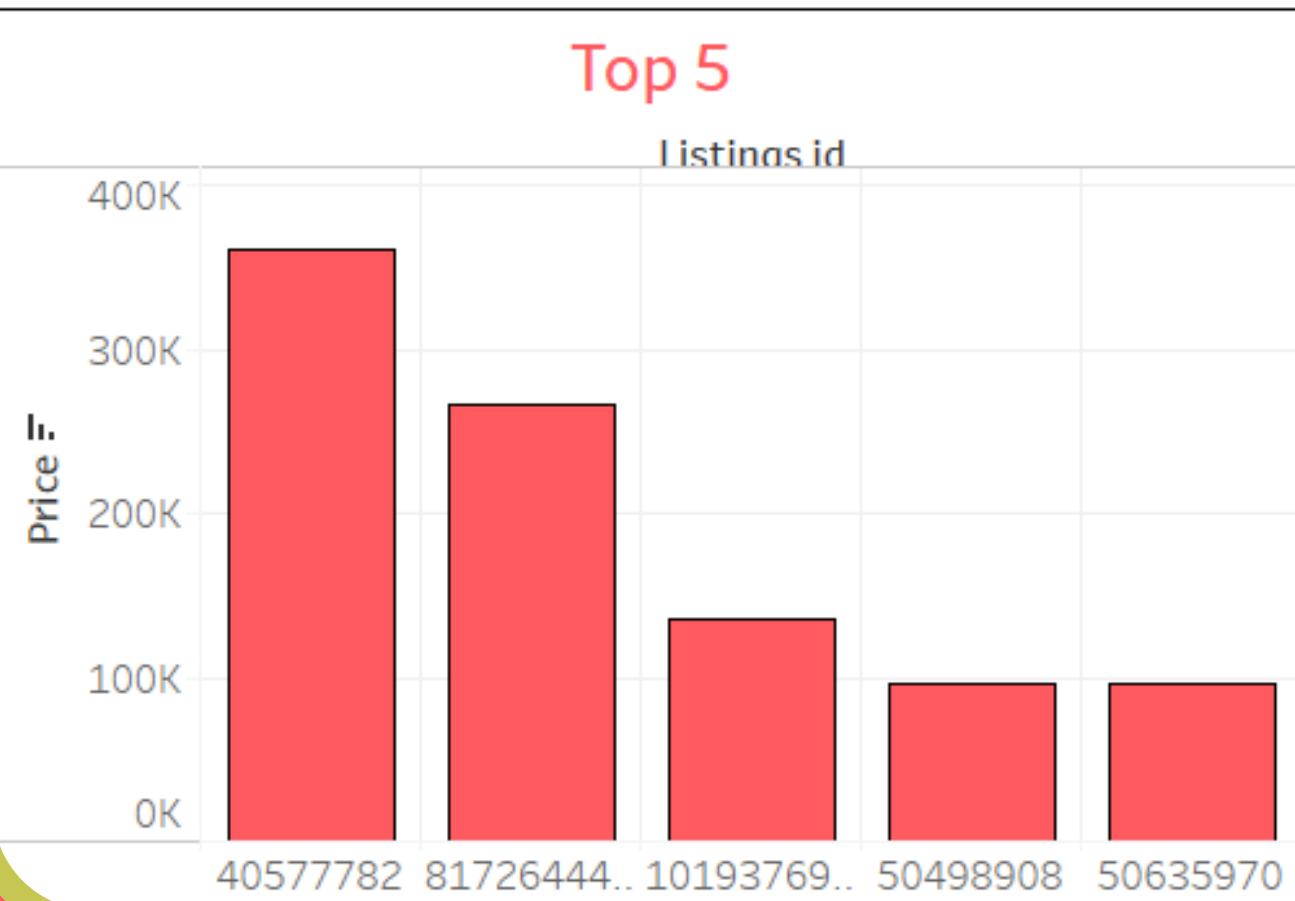
## AvgPrice by City



## Avg Pice by Property type



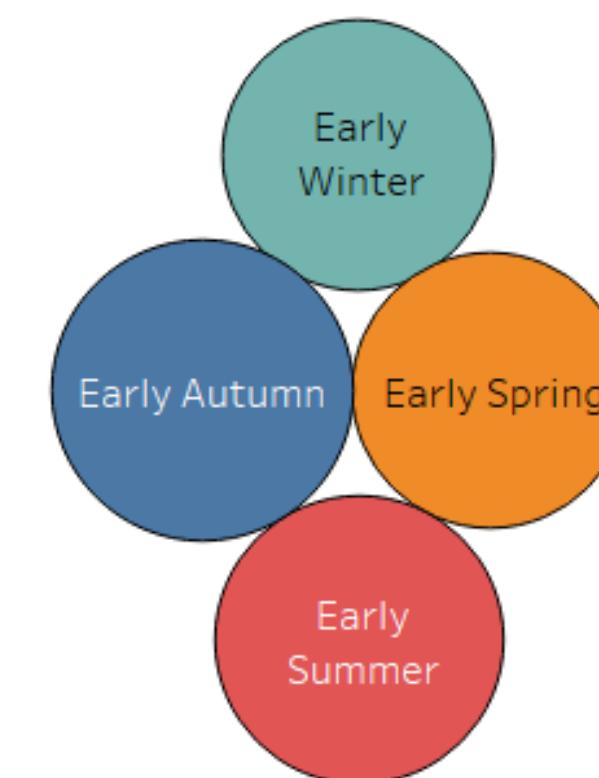
## Top 5



## Corellation



## Average Price by Season





# PRICING INSIGHT

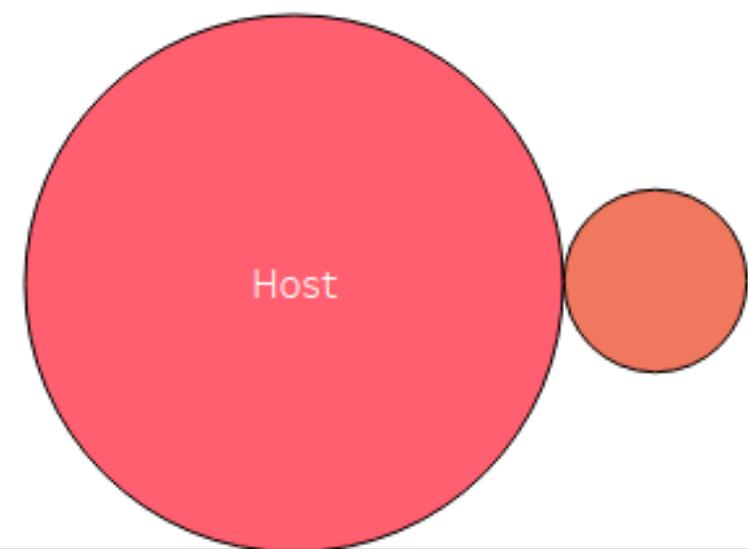
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1. **City-wise Pricing Trends**
2. Firenze and Venezia command the highest average Airbnb prices, exceeding €200. Roma and Milano follow closely, while Napoli records the lowest average price among the cities analyzed.
3. **Property Type Impact on Price**
4. Entire homes have the highest average prices, followed by hotel rooms. Private and shared rooms are significantly more affordable, with shared rooms having the lowest average prices.
5. **Top Listings by Price**
6. The top 5 listings, by ID, show substantial price variation. The most expensive listing exceeds €350K, suggesting premium or luxury accommodations with exceptional features or locations.
7. **Rating vs Price Correlation**
8. The scatter plot indicates little to no clear correlation between price and rating. Listings with high prices still maintain high ratings, but there are also low-priced listings with strong ratings, suggesting that value can be found across all price ranges.
9. **Seasonal Pricing Trends**
10. Early Summer emerges as the most expensive season, followed by Early Autumn and Early Spring. Early Winter tends to be the most budget-friendly period for Airbnb stays.

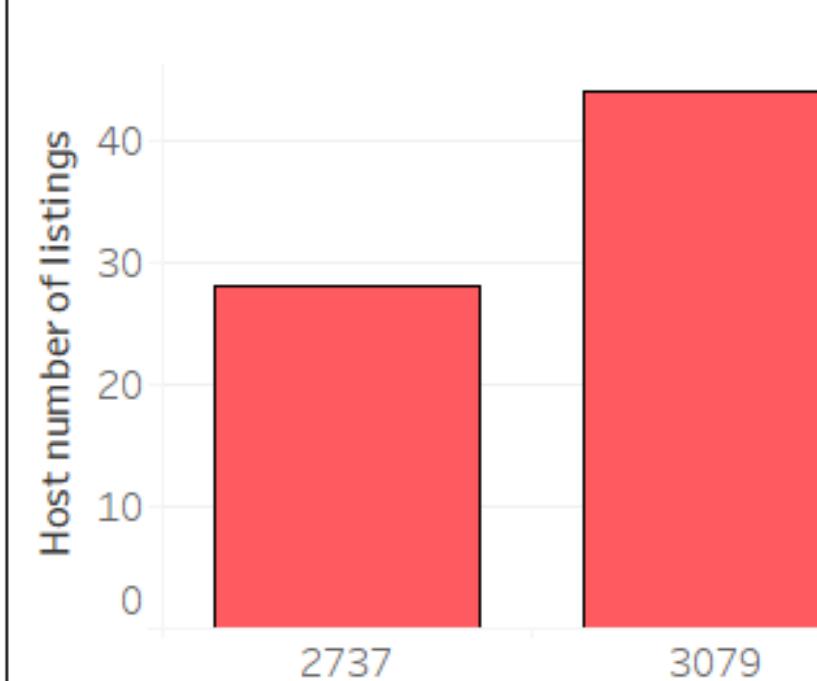


# Airbnb Host Insights

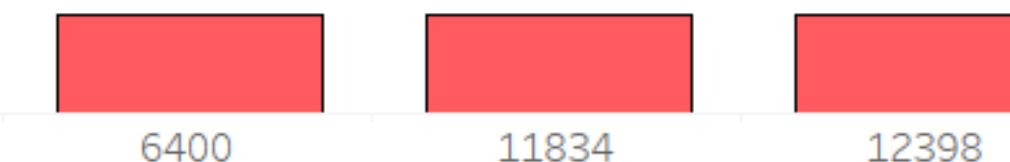
Superhosts vs. Regular Hosts



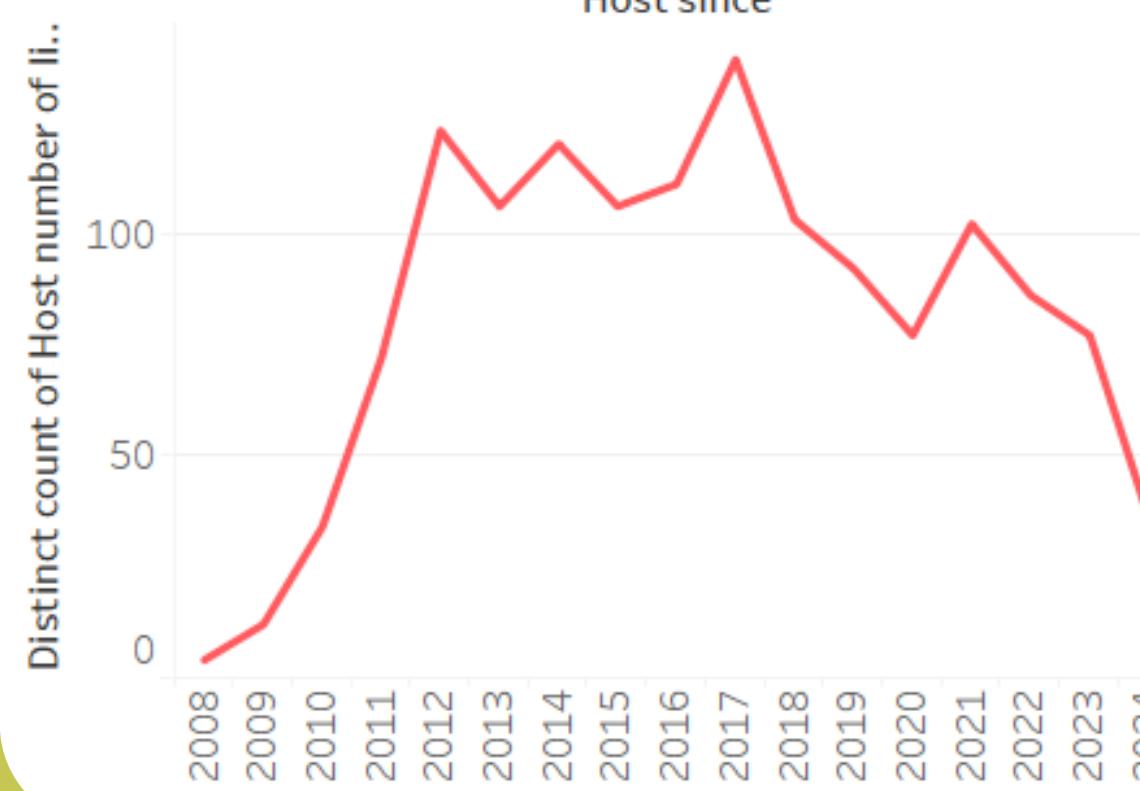
Top Host



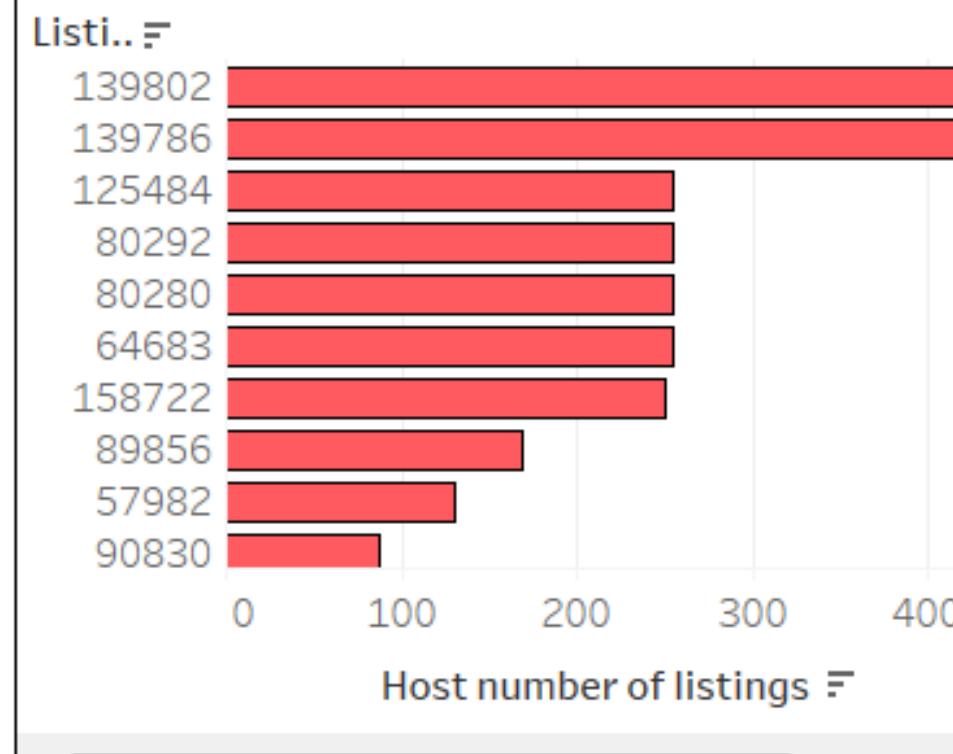
Listings id



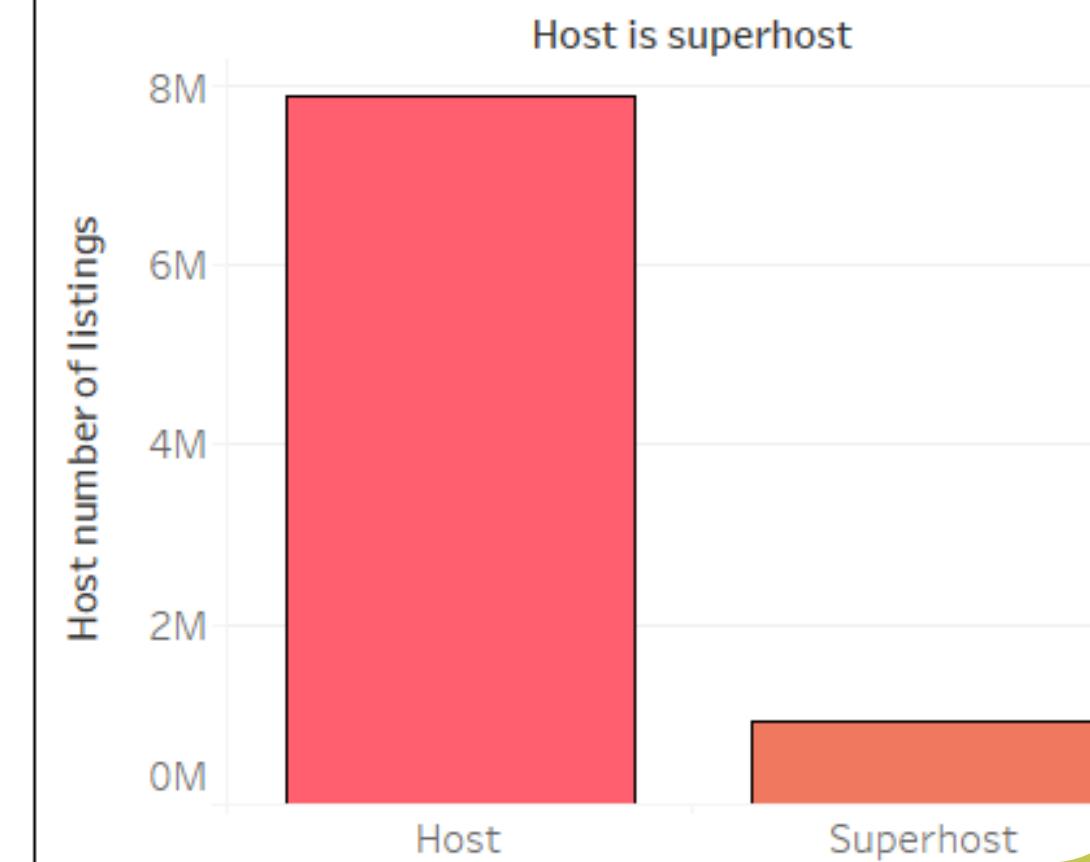
Host Since



Host Listings Count



Superhost vs. Regular Host listings





# AIRBNB HOST INSIGHTS

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1. Superhosts vs. Regular Hosts
2. Regular Hosts dominate the platform by a large margin. The bubble chart and bar chart show that Superhosts account for a small fraction of total hosts and listings.
3. Top Hosts by Listing Count
4. The most active host (ID: 3079) has over 40 listings, followed by another top host (ID: 2737) with close to 30 listings. This suggests the presence of commercial-scale hosting on the platform.
5. Host Growth Over Time
6. Host registrations peaked around 2017–2018, followed by a decline possibly due to market saturation, changing regulations, or the pandemic. Post-2020, the number of new hosts declined steadily.
7. Listings by Host ID
8. Several hosts manage 300–400 listings each, further highlighting professional hosting operations. These bulk listings may be managed by property managers or agencies.
9. Listings Distribution: Superhosts vs. Regular Hosts
10. Regular hosts contribute over 8 million listings, compared to a significantly lower count from Superhosts. While Superhosts are fewer, their listings may indicate higher quality or better guest experiences.



# Rating & Review Analysis..

## Average Scores by Rating Category



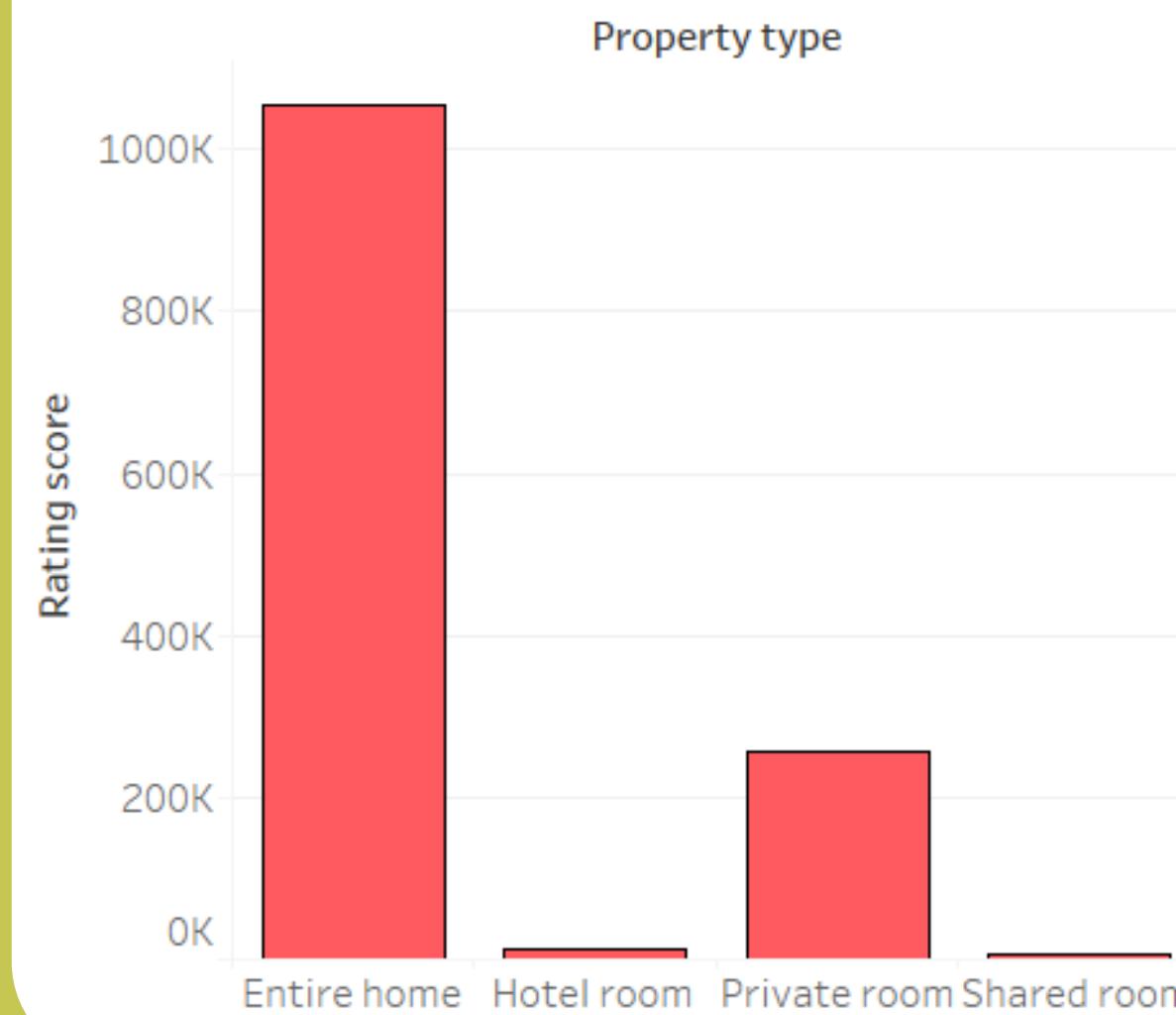
## Rating score

Nei.. AD..	Listings id	Price	Value f..
1005537	320	17	
1028008	266	8	
4282604	320	19	
4323952	442	19	
7192370	80	5	
12457504	50	3	
12688325	80	5	
14975027	200	19	
15231622	319	14	
17756752	4,080	13	
23121277	520	18	
23461379	176	20	
23781107	90	5	
25421772	180	18	
26374702	1,380	10	
27070377	120	20	
31681255	764	19	
31706834	320	18	
32157812	80	5	
33338273	182	15	
33506169	220	20	
35724294	80	5	
36696495	272	20	
37087062	198	14	
38701936	158	10	
39387940	310	18	
48617346	565	17	
49339300	410	20	
53776765	186	18	
54152020	71	5	

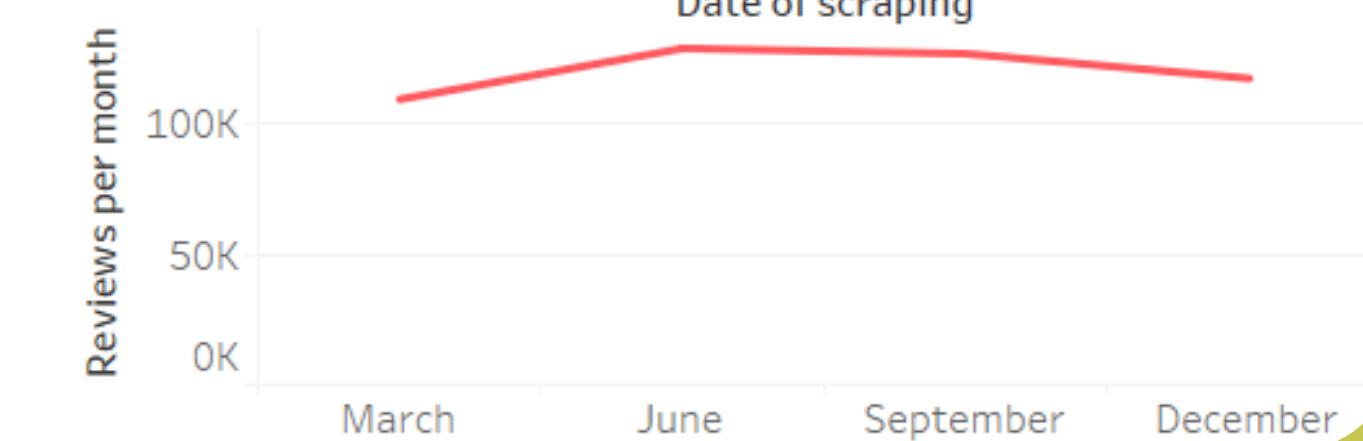
## Rating by Property



## Rating Breakdown



## Review Frequency by Month





# RATING & REVIEW ANALYSIS

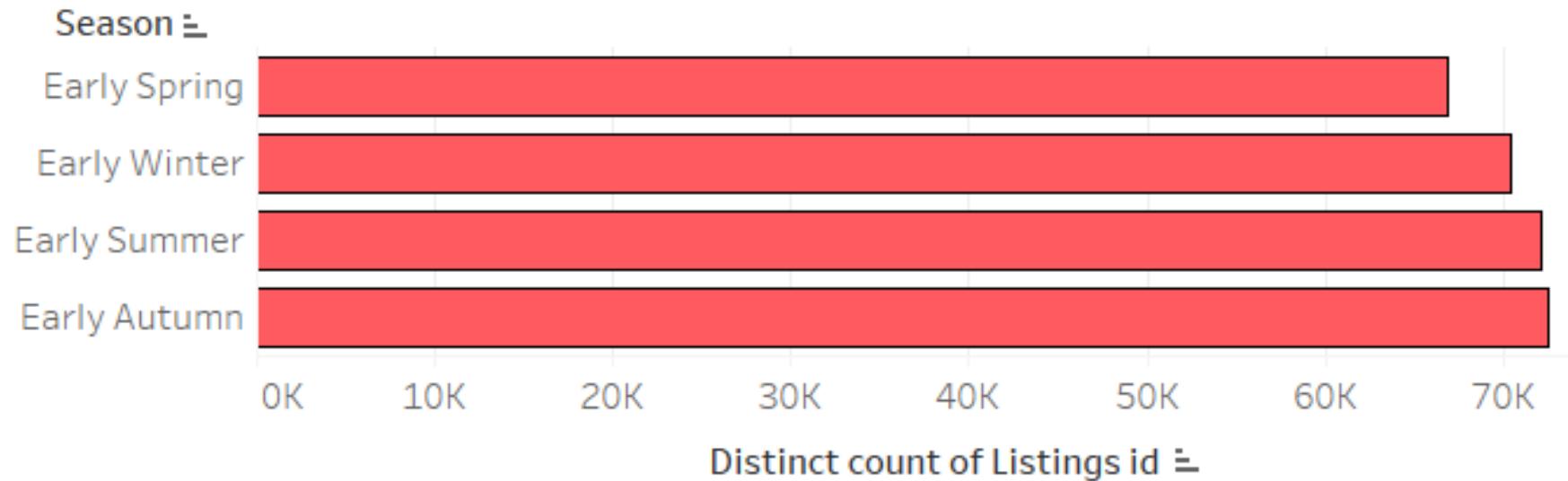
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1. This dashboard offers insights into how Airbnb properties are rated by guests across various dimensions, as well as seasonal review patterns.
2. Average Scores by Rating Category
3. All property types maintain relatively high average scores (close to 5) across cleanliness, value for money, and location, indicating generally positive guest experiences.
4. Rating by Property Type
5. Entire homes and private rooms slightly outperform hotel rooms and shared rooms in average rating score.
6. Shared rooms have the lowest average, but still close to 4.7, showing overall consistency in quality.
7. Rating Breakdown
8. Entire homes dominate the rating volume, with well over 1 million ratings.
9. Private rooms follow distantly, while hotel rooms and shared rooms have very low engagement in comparison.
10. Top-Rated Listings
11. The table highlights listings with high values for money and consistently strong price points. Some listings show extremely high prices (e.g., €4,080), suggesting premium or luxury offerings.
12. Review Frequency by Month

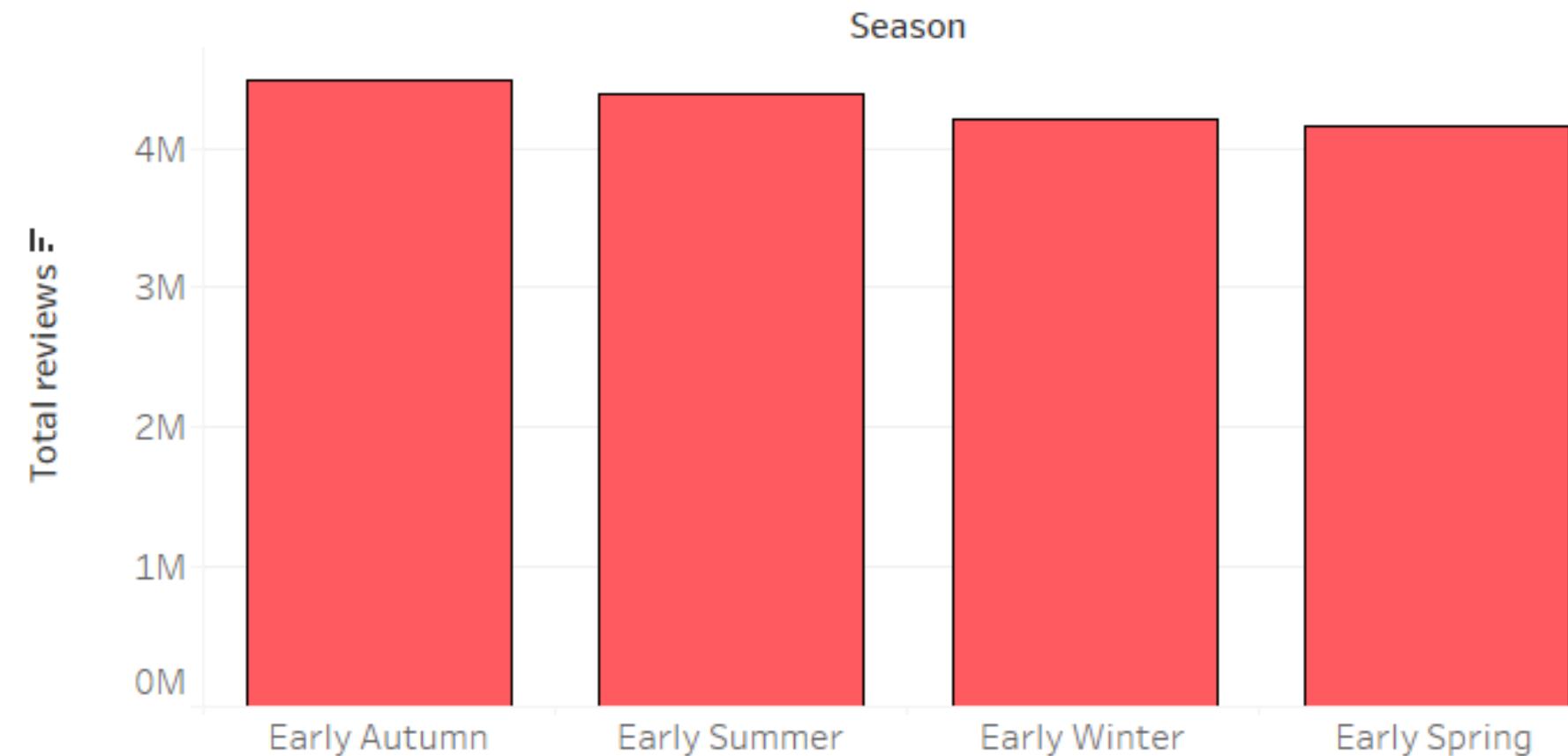


# Airbnb Booking Insights

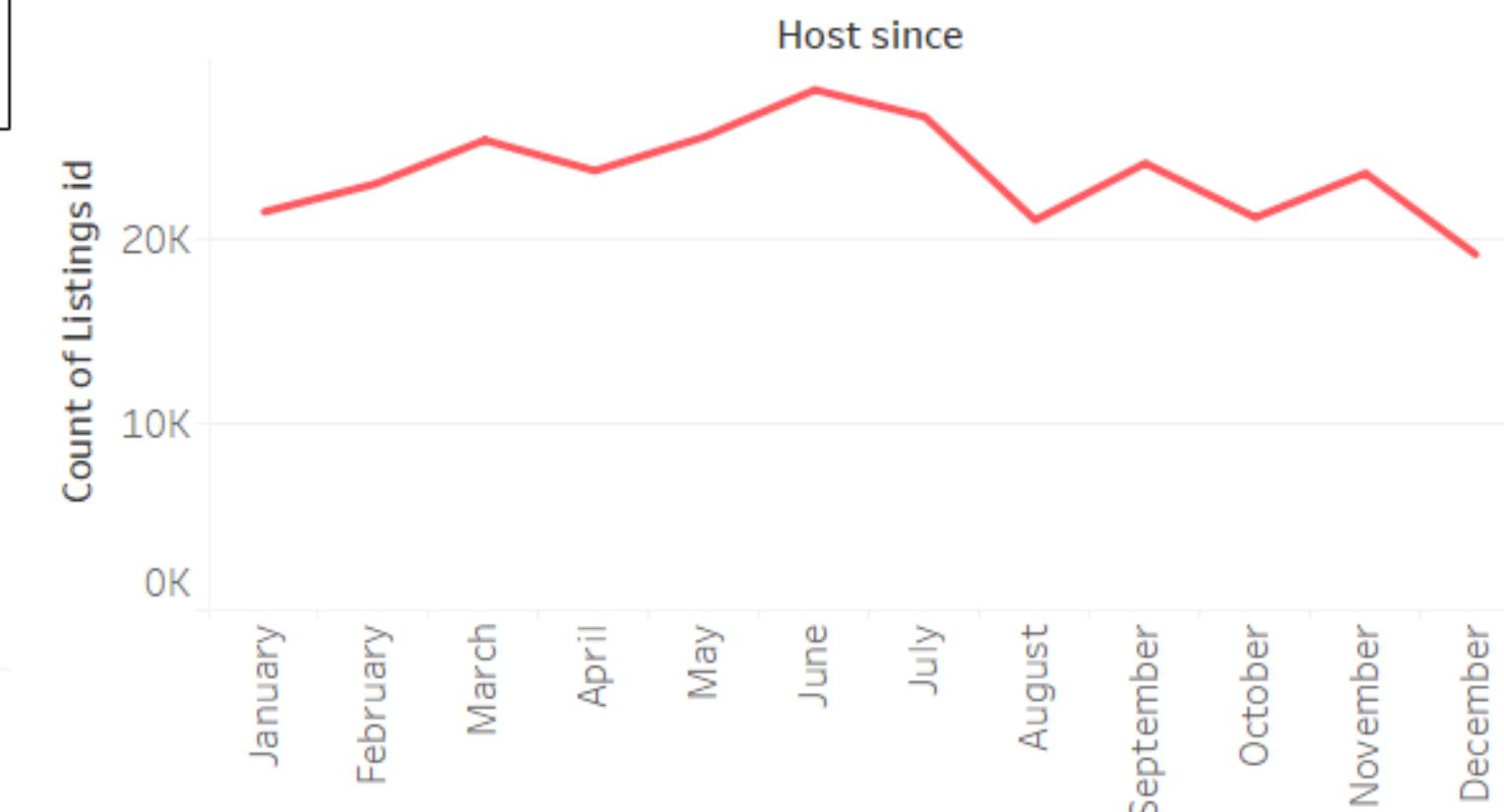
## Seasonal Booking



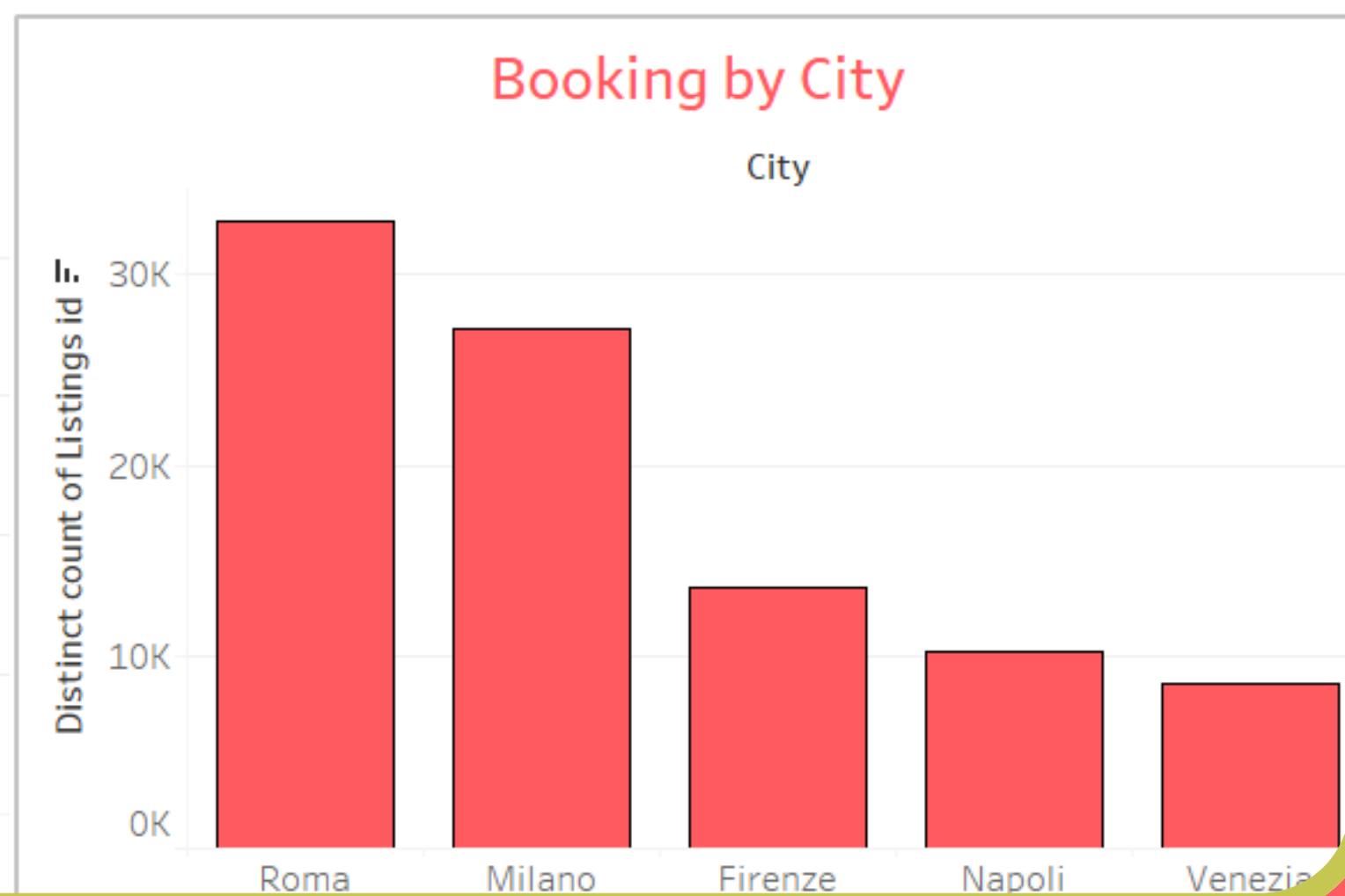
## Review Count by Season



## 3months Active Listings



## Booking by City





# AIRBNB BOOKING INSIGHTS

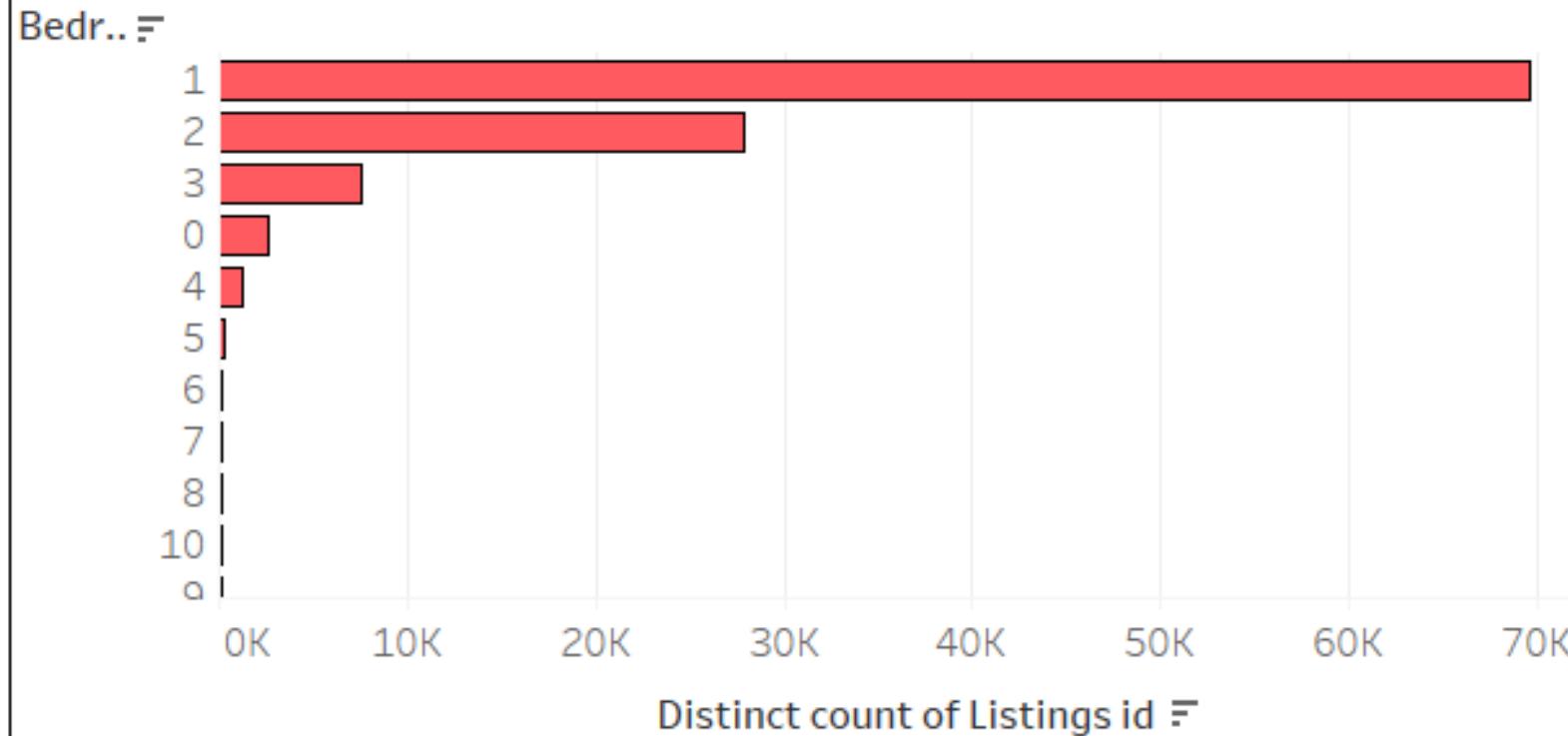
YOUR HOME: ANYTIME, ANYWHERE

1. This dashboard highlights key trends in seasonal demand, geographic preferences, and short-term listing activity.
2. Seasonal Booking Trends
3. All four seasons (Early Spring, Winter, Summer, Autumn) show strong and nearly equal booking volumes, with Early Autumn and Early Summer slightly leading. This indicates consistent year-round travel interest.
4. Review Count by Season
5. Review counts closely follow booking patterns, confirming high guest engagement throughout the year.
6. Early Autumn receives the highest review volume, closely followed by Early Summer.
7. 3-Months Active Listings
8. Listings peak during June, aligning with typical vacation season trends.
9. A slight dip occurs in August and December, possibly due to off-peak travel or host inactivity.
10. Top Booking Cities
11. Roma leads in bookings, followed by Milano, then Firenze, Napoli, and Venezia.
12. This trend shows a clear preference for Italy's major tourist hubs, especially in central and northern regions.



# Amenities & Property Features

## Bedrooms & Beds listings

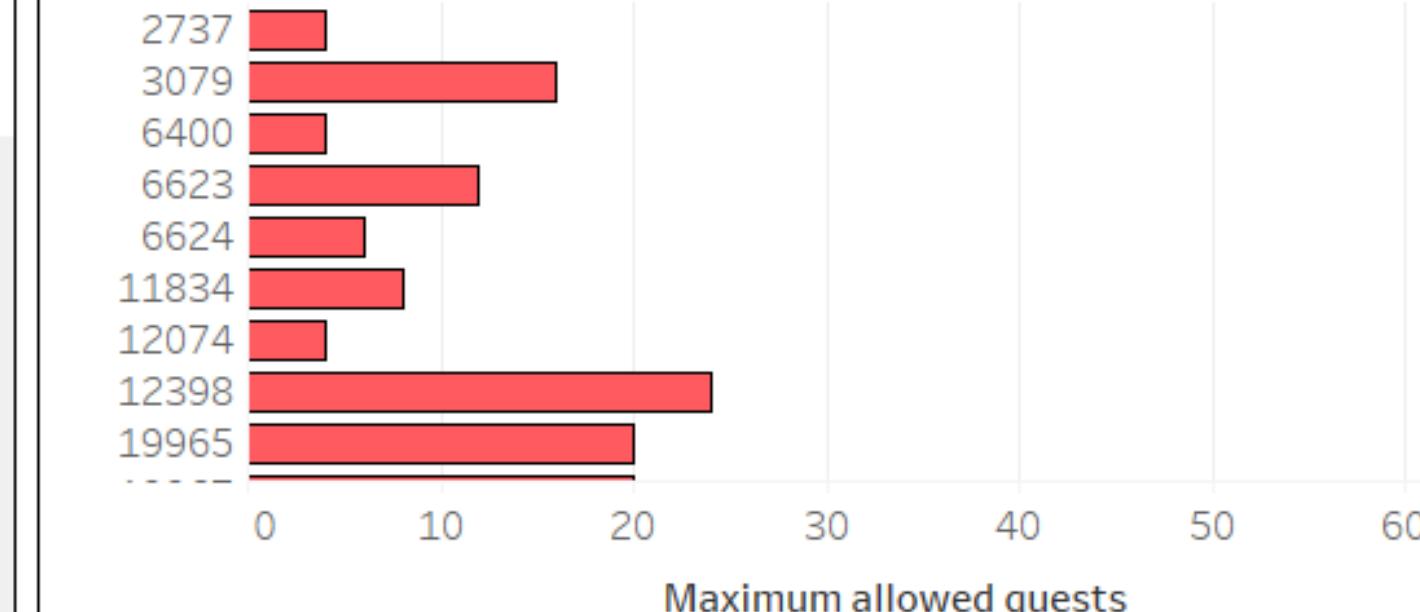


### Bathrooms type

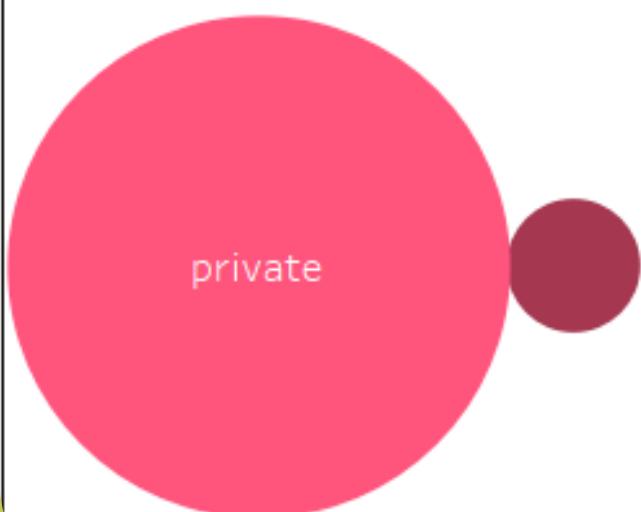
- private
- shared

## 4+ guests listings id

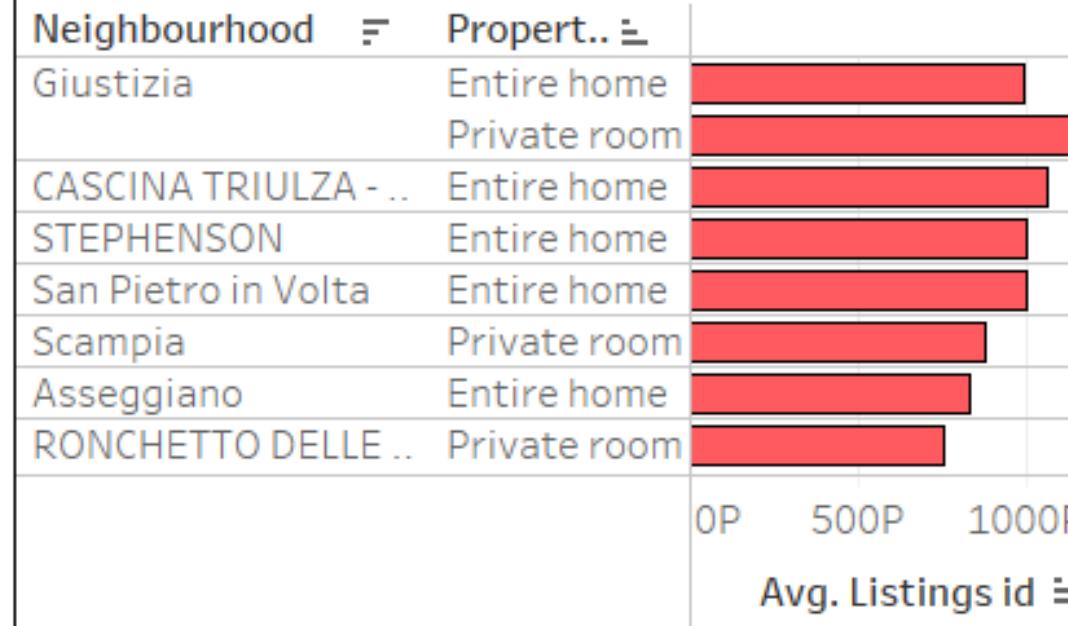
### Listings id



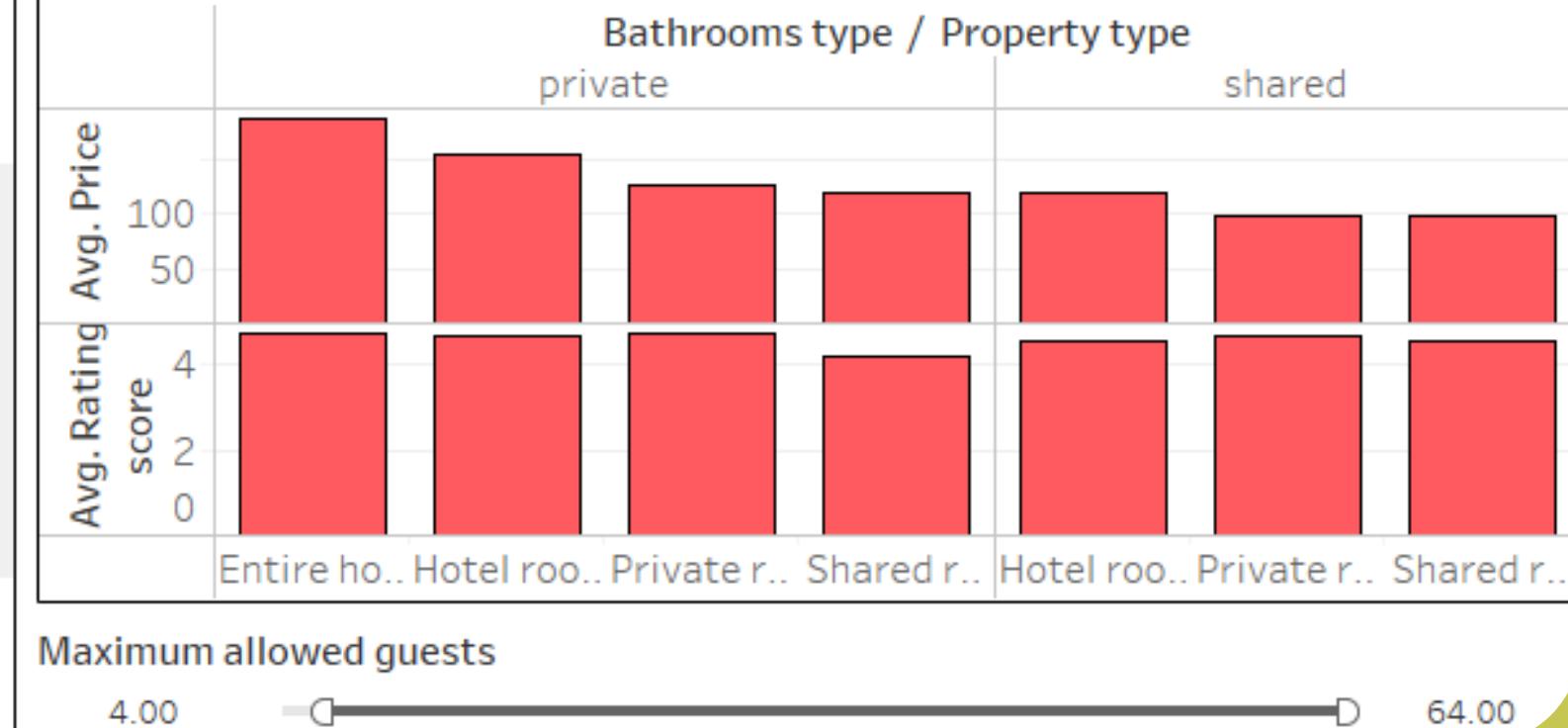
## Bathroom Type



## Property Type by Neighborhood



## Difference between Entire homes and Private rooms





# KEY PERFORMANCE INDICATORS

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1. 1-bedroom listings dominate the market, with over 70K listings.
2. 2-bedroom and 3-bedroom listings trail far behind, showing significantly lower availability.
3. Bathroom Type:
  - 4. Private bathrooms are overwhelmingly preferred, making up the vast majority of listings.
  - 5. Shared bathrooms are rare, indicating guest preference for privacy.
6. Maximum Guest Capacity (4+ Guests):
  - 7. Listings like ID 12398 and 19965 accommodate over 20 guests, showing some properties are tailored for large groups.
8. Property Type by Neighborhood:
  - 9. Entire homes are common in neighborhoods like Stephenson, San Pietro in Volta, and Cascina Triulza.
  - 10. Private rooms dominate in Giustizia and Ronchetto delle Rane.
11. Performance Comparison – Entire Homes vs Private Rooms:
  - 12. Entire homes with private bathrooms show the highest average price and rating.
  - 13. Private rooms, especially with shared bathrooms, show lower ratings and prices, highlighting a quality and pricing gap.



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