



# A DATA-DRIVEN APPROACH TO BOOST BOOKING AND REVENUE

## Optimizing Airbnb Listings in Bangkok

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# About Airbnb

- **Rapid Growth:** The Airbnb market in Bangkok has expanded significantly due to the city's status as a major tourist destination, drawing travelers from around the world.
- **High Competition:** The influx of listings has created a highly competitive environment for hosts, with more choices available for travelers, making it harder for individual listings to stand out.
- **Diverse Offerings:** Bangkok's Airbnb market features a wide range of accommodations, from budget-friendly rooms to luxurious properties, catering to different types of travelers and their preferences.





# Executive Summary

**The Airbnb market in Bangkok has become increasingly competitive, driven by strong demand for short-term rentals.**

- **The central district** of Bangkok, with its proximity to key tourist attractions and transit hubs, has seen a significant concentration of Airbnb listings.
- **Vadhana**, with over **2,000 listings**, is the most popular neighborhood for Airbnb in Bangkok, signaling its appeal to tourists and residents alike.

**Challenges remain in maximizing occupancy and revenue.**

- The high competition in central areas and the need to optimize pricing strategies during peak and off-peak seasons can hinder hosts' ability to stand out.
- Seasonal trends, **such as the peak in December**, suggest that hosts can benefit from adjusting their pricing strategies to capitalize on demand spikes.

**To address these challenges, targeted actions are needed.**

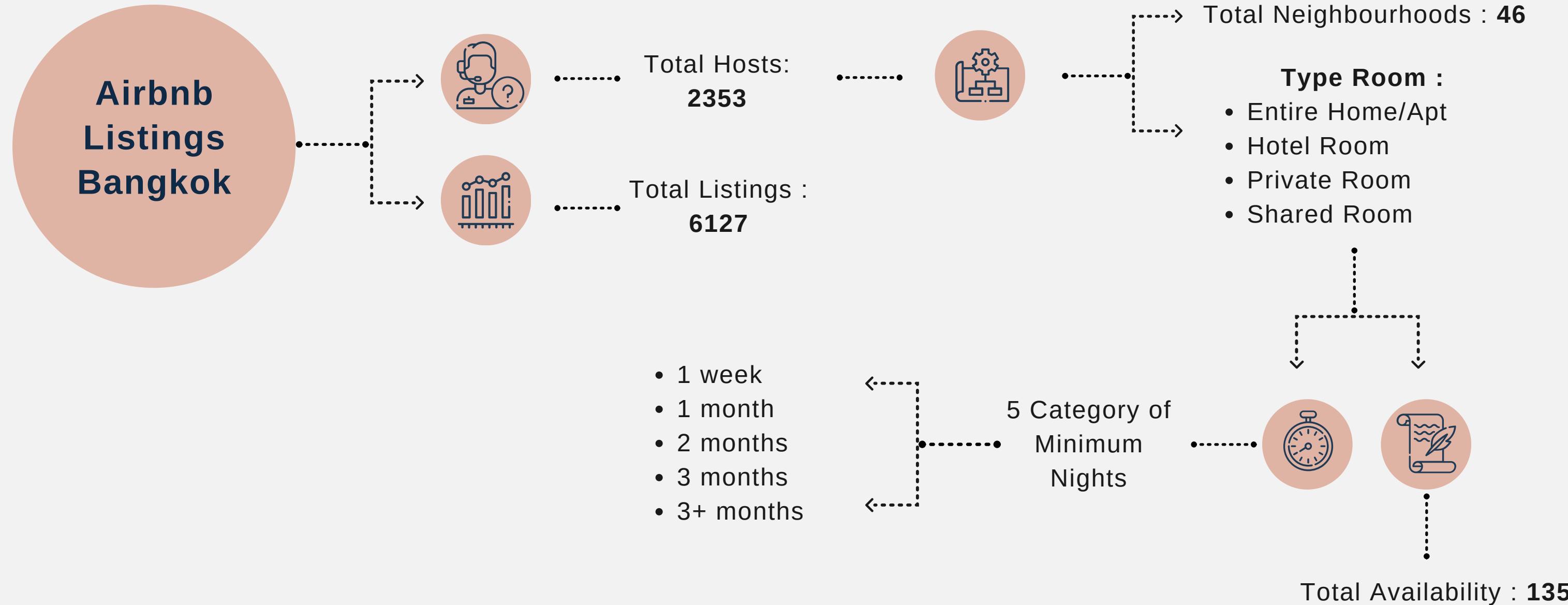
- Hosts should optimize pricing and availability based on seasonal demand, ensuring they can capture the high traffic during peak months.
- Understanding the distribution of room types and preferences, especially the dominance of entire homes/apartments for longer stays

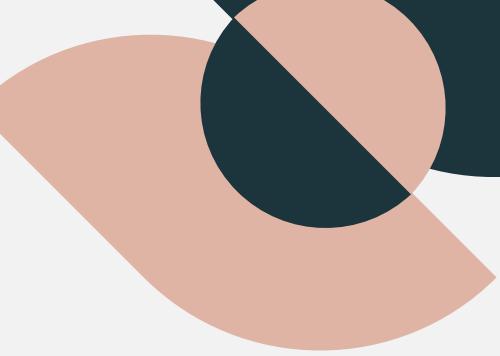
**Call to Action:**

- Hosts should reevaluate their pricing strategies and adjust based on seasonality and guest preferences. Leveraging these insights will help them improve competitiveness, increase bookings, and maximize profitability in a rapidly evolving market.



# Overview Dataset





# Agenda

**01**

## Geospatial Competition and Listings Density

- What strategies can hosts in central districts use to attract more tourists?
- What approach should hosts in non-central areas take to appeal to budget-conscious travelers?
- How can hosts near tourist spots and airports increase bookings?

**02**

## Optimize Pricing and Availability

- What pricing adjustments should hosts make during peak and off-peak seasons?
- How should hosts manage their availability to ensure higher occupancy rates?
- How can hosts use dynamic pricing tools to stay competitive?

**03**

## Evaluate impact of Room Type and Minimum Stay Policy

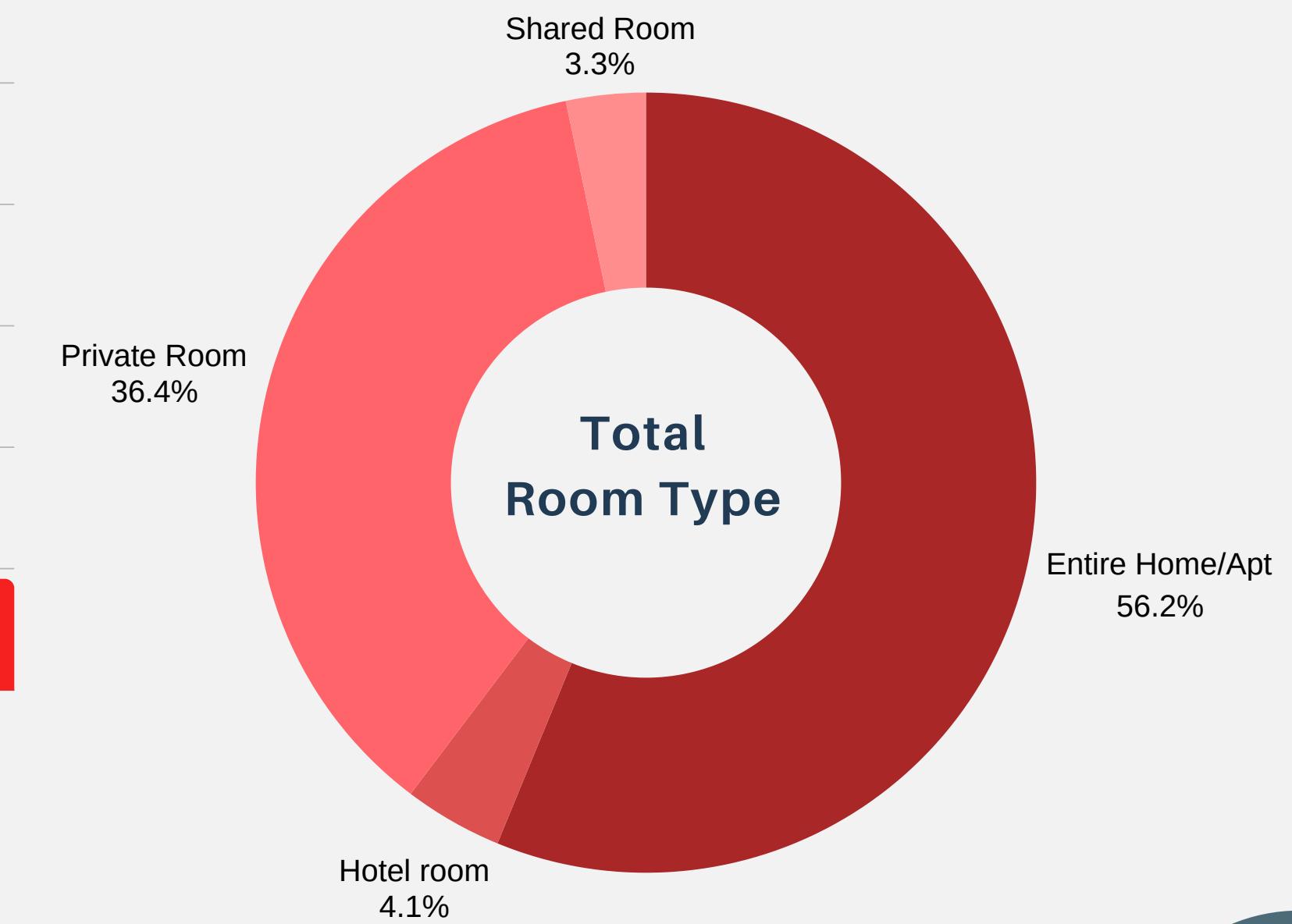
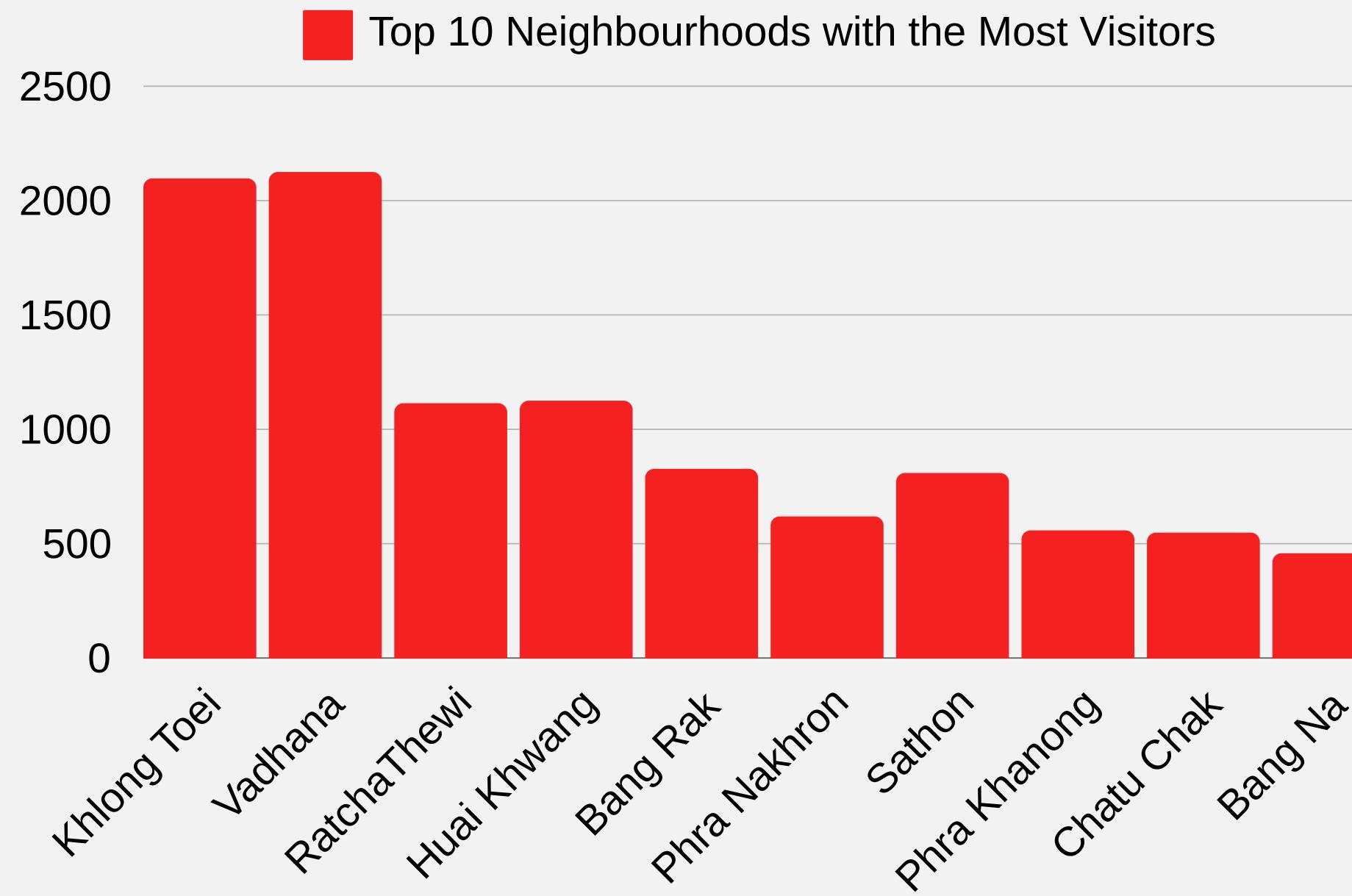
- How can hosts optimize their room type offerings to maximize revenue?
- What changes should hosts make to their minimum stay requirements to stay competitive?
- How can hosts tailor their listings to appeal to their target market?



01

# Geospatial Competition and Listings Density

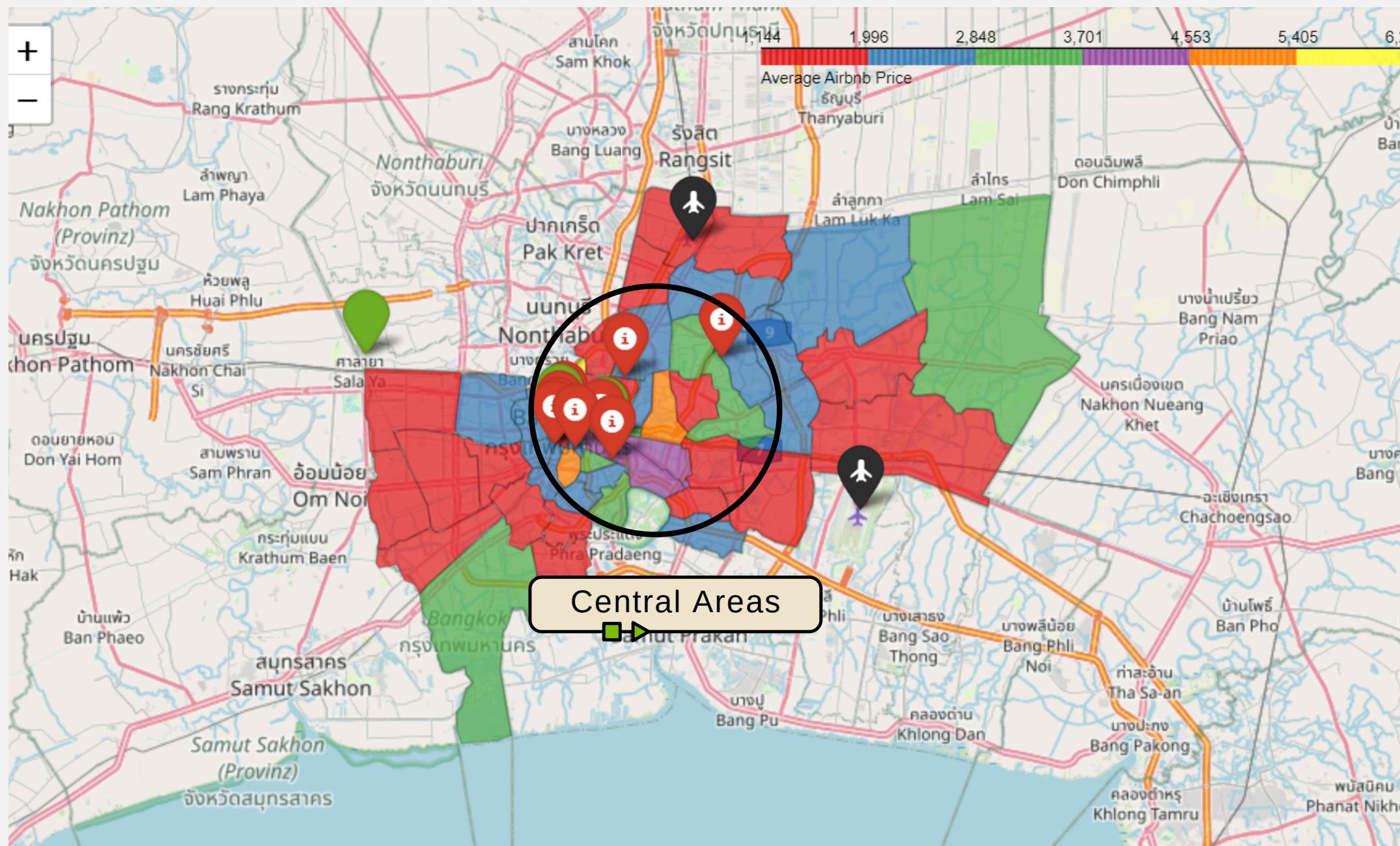
# Vadhana with over 2k Listings is the Most Popular Neighborhood for Airbnb in Bangkok



Insight : Neighborhoods with a higher customers across **entire home/apartment** are likely to be popular tourist destinations or have a high concentration of Airbnb hosts.



# The Red Markers for Entire Home Listings are Concentrated in Popular Areas of 56,22%



## Key Insight :

- **High Demand in Central Areas:** Popular for tourists and business travelers near key attractions and transit.
- **Room Type Trends:** Entire homes in central areas, private rooms in non-central, budget-friendly spots.
- **Vadhana's Popularity:** Most listings 1800+ indicating high demand.
- **Key Location Influence:** Listings near tourist spots, airports, and universities affect pricing.

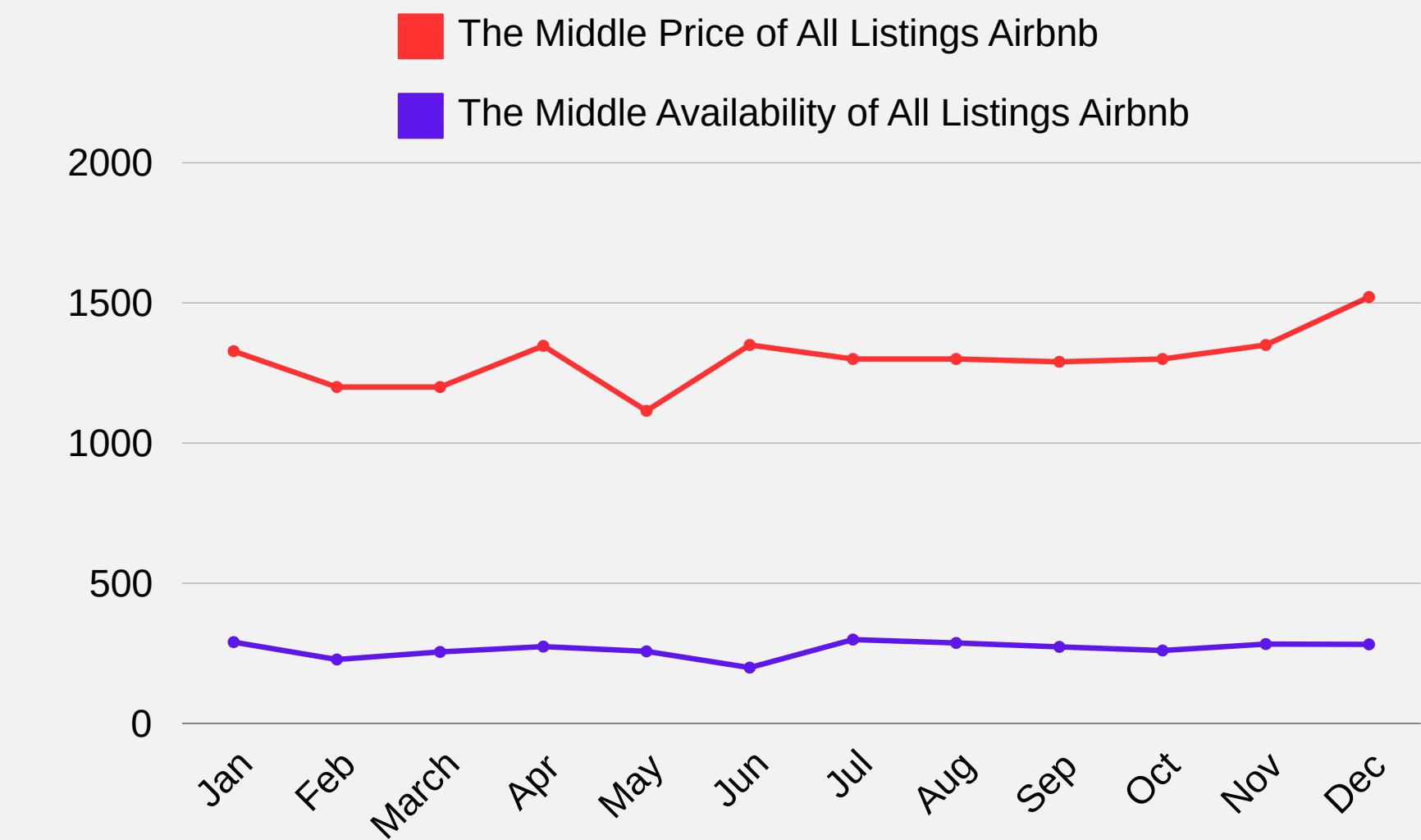


02

# Optimize Pricing and Availability



## Optimize Listings to Increase Demand by Leveraging the December Peak Season with an Average Price of 1521 THB



Insight :

- The demand for accommodations in these locations may tend to decrease towards the end of the year.
- Some hosts **have not optimized** their pricing strategies, making it harder to attract customers.



## Entire Home with an **Price of 1,332 THB** and **180 Days of Availability**. Listing Strikes a Balance Between Affordability and Accessibility.

### Entire Home/Apt

To attract a steady flow of guests throughout the year

### Hotel Room

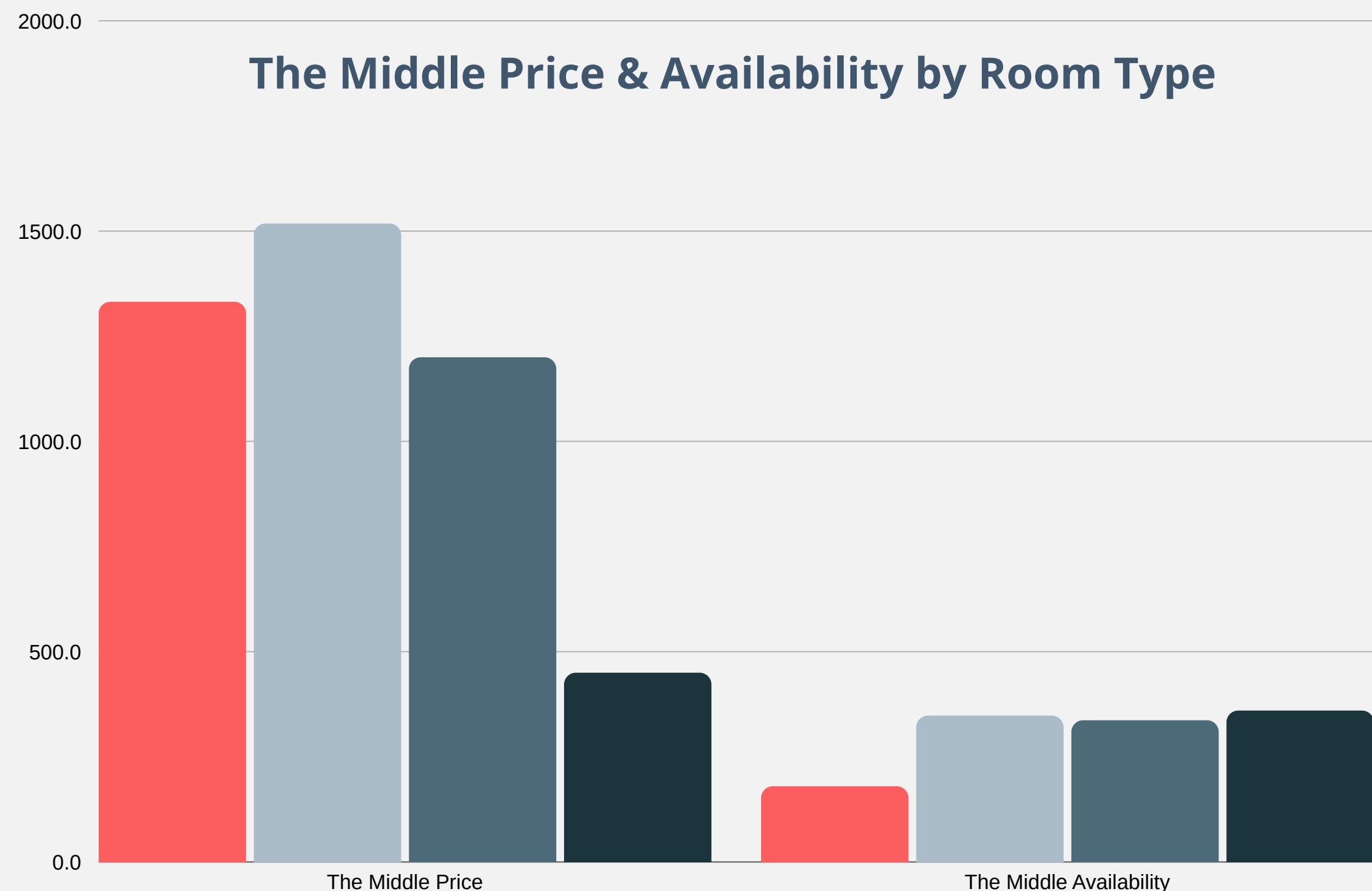
The listing offers a slightly higher price point while maintaining high availability

### Private Room

The listing offers competitive pricing while maintaining a high level of availability

### Shared Room

The listing offers an affordable rate with nearly year-round availability

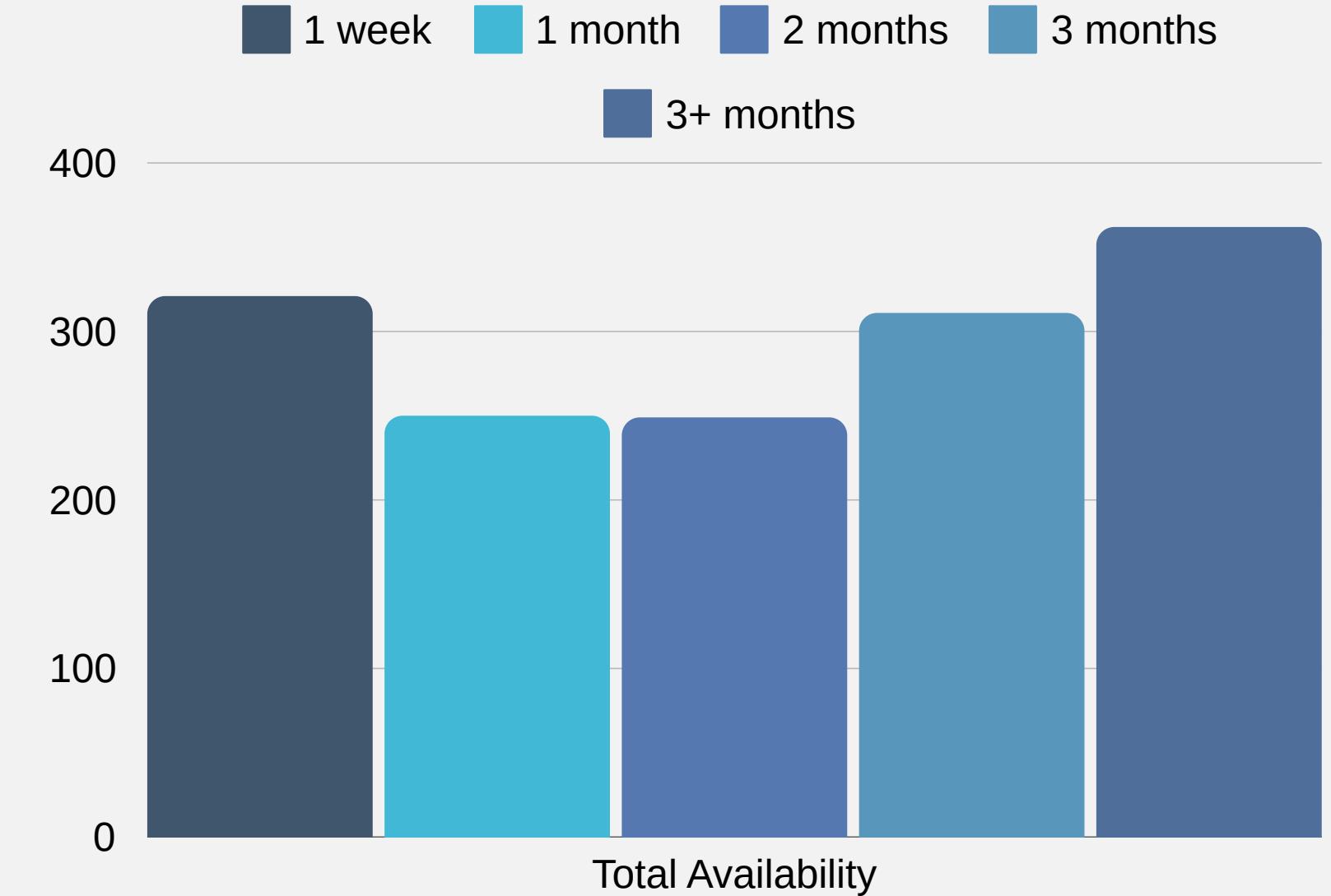
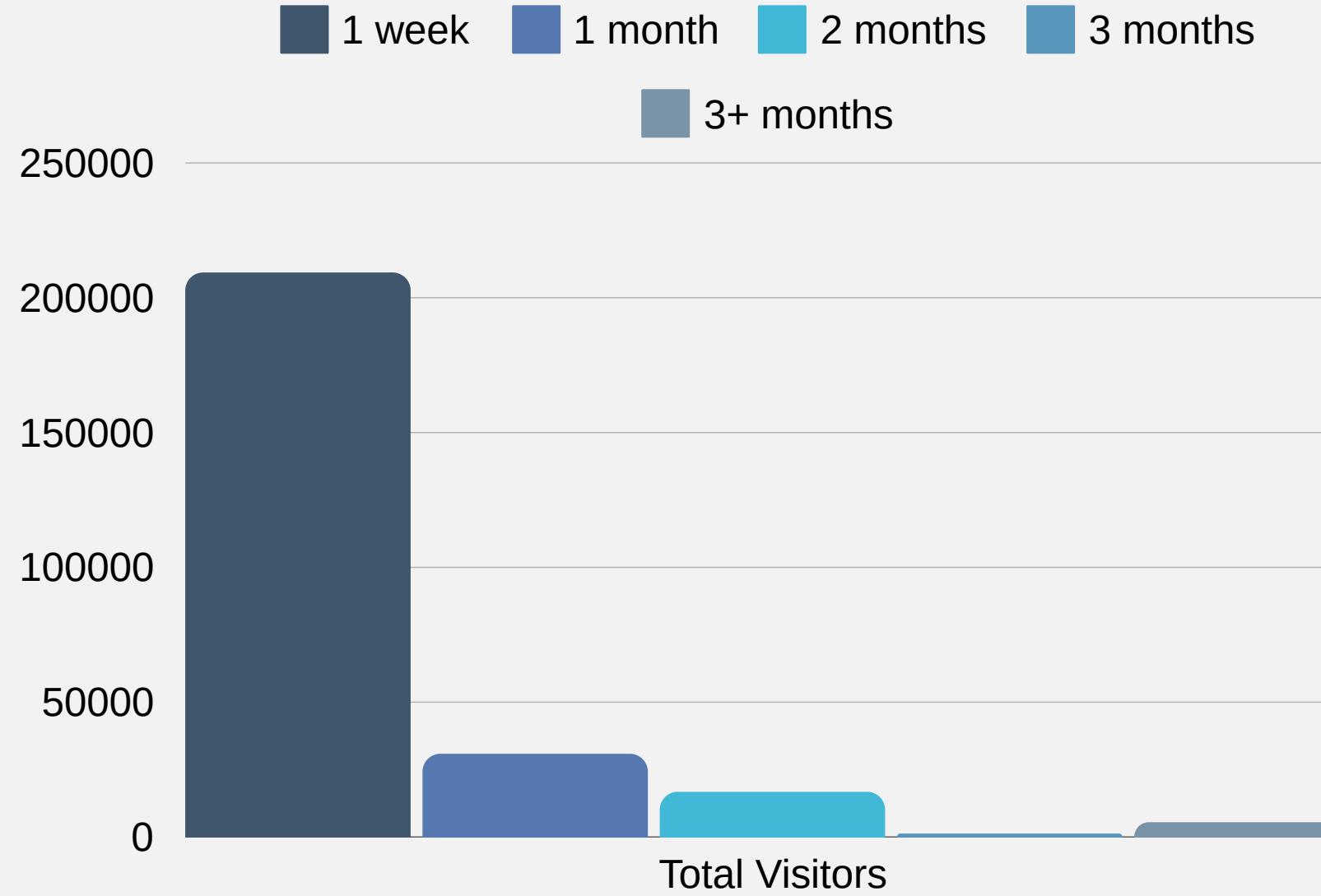


03

## Evaluate Impact of Room Type and Minimum Stay Policy



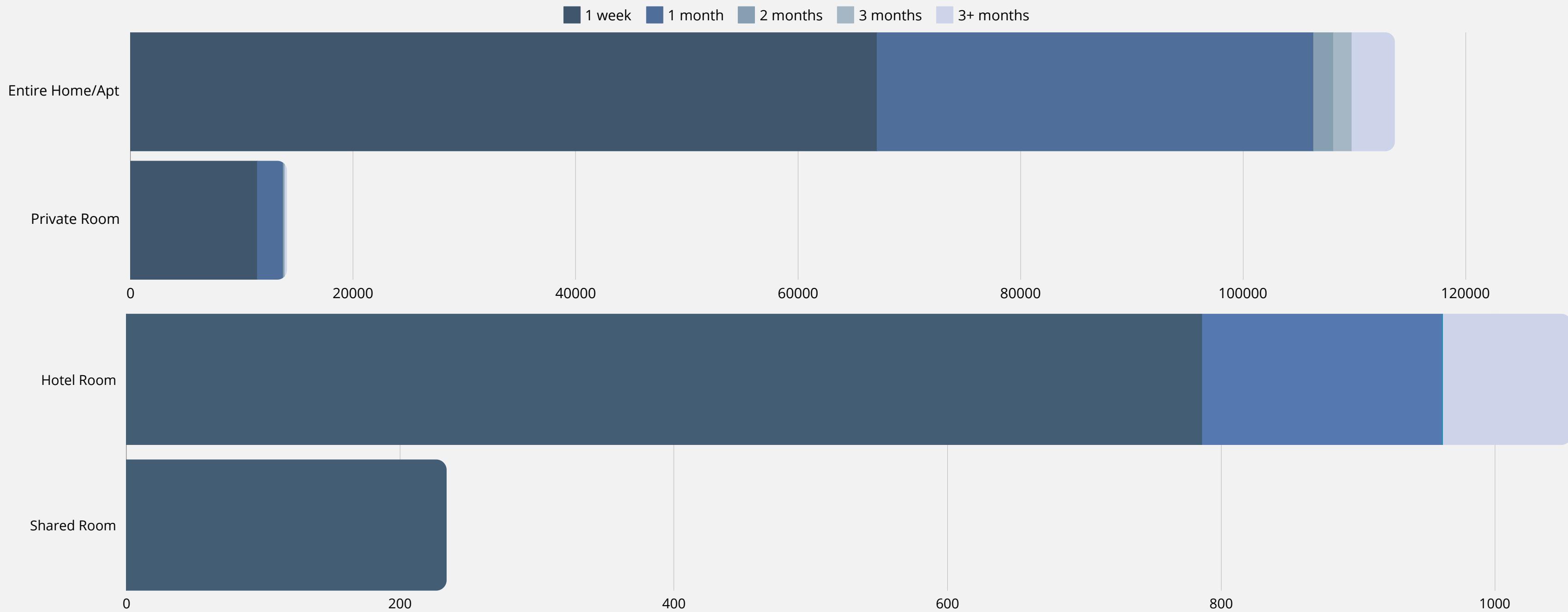
**1 week indicate a strong preference for shorter durations among Airbnb users.**



**Insight :** 1 week suggests a high demand for short-term stays, likely driven by tourists and leisure travelers.



## Leverage the Popularity of **Entire Homes/Apartments** and Short-Term Stays to Maximize Booking Potential



**Insight :** The **Entire home** category has the highest number of listings across all minimum night ranges.



04

# Conclusion and Recommendation

# Conclusion



## Geospatial Competition & Listing Density:

- **Central districts:** Focus on premium accommodations for high-demand tourists and business travelers.
- **Non-central areas:** Diversify offerings (private rooms, long-term discounts) to attract budget-conscious travelers.
- **Tourist spots and airports:** Highlight convenience features (check-in/check-out, shuttles).



## Optimizing Pricing & Availability:

- **Implement seasonal pricing:** Higher rates in December, discounts in off-peak months.
- **Monitor availability trends:** Adjust booking policies to maximize occupancy during high-demand months.
- **Leverage dynamic pricing tools:** Stay competitive with automated adjustments.



## Room Type & Minimum Stay Policy:

- **Entire Homes/Apartments:** Cater to families and longer stays.
- **Private/Shared Rooms:** Target budget-conscious and short-term travelers.
- **Flexible minimum stays:** Attract urban travelers with short-term needs.



# Recommendation

## **Geospatial Competition & Listing Density:**

**01** In **central districts**, hosts should focus on offering premium amenities tailored to high-demand tourist. For **non-central areas**, providing budget-friendly features like workspaces and easy access to public transport

## **Optimized Pricing & Availability:**

Hosts should adopt **dynamic pricing** tools to automatically adjust rates based on market trends, ensuring competitiveness during peak months while offering discounts during off-peak periods.

## **Room Type & Minimum Stay Policy:**

**02** Given the dominance of Entire Home/Apartments for both short and long stays, hosts with such properties should consider offering longer-term stays for better revenue potential. For hosts with Private Rooms or Shared Rooms, they should target budget-conscious travelers or shorter-term stays to ensure higher occupancy rates.

## **Adjust Minimum Stay Requirements:**

**04** Hosts should take into account that short stays **1 week are the most popular**. For properties that have longer minimum stays, hosts might consider offering more flexible stay policies or discounts for longer bookings to remain competitive.



# Thank You For your Attention

## Contact Us:



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# Appendix



# Data Understanding

Feature	Description
<code>id</code>	Airbnb's unique identifier for the listing.
<code>name</code>	Name of the listing.
<code>host_id</code>	Airbnb's unique identifier for the host/user.
<code>host_name</code>	Name of the host, usually just the first name(s).
<code>neighbourhood</code>	The neighbourhood is geocoded using latitude and longitude.
<code>latitude</code>	Latitude of the listing (WGS84 projection).
<code>longitude</code>	Longitude of the listing (WGS84 projection).
<code>room_type</code>	Type of room: Entire home/apt, Private room, Shared room, or Hotel.
<code>price</code>	Daily price in local currency.
<code>minimum_nights</code>	Minimum number of nights for a stay.
<code>number_of_reviews</code>	Total number of reviews the listing has.
<code>last_review</code>	Date of the last/newest review.
<code>calculated_host_listings_count</code>	Number of listings the host has in the city/region.
<code>availability_365</code>	Number of days the listing is available in the next 365 days.
<code>number_of_reviews_ltm</code>	Number of reviews in the last 12 months.

The dataset likely consists of various features related to each Airbnb listing in Bangkok, such as room type, price, minimum stay policy, reviews, and host information.

The number of rows represents the individual Airbnb listings, and the columns provide detailed attributes about each listing, which are crucial for understanding the business and trends in the market.



# Statistic Summary

Grouping properties based on numerical features to identify trends within specific segments.

	price	availability_365	minimum_nights	number_of_reviews
count	1.585300e+04	15853.000000	15853.000000	15853.000000
mean	3.217907e+03	244.394058	15.293257	16.655207
std	2.497290e+04	125.832224	50.816496	40.614397
min	2.780000e+02	0.000000	1.000000	0.000000
25%	9.000000e+02	138.000000	1.000000	0.000000
50%	1.429000e+03	309.000000	1.000000	2.000000
75%	2.429000e+03	360.000000	7.000000	13.000000
max	1.100000e+06	365.000000	1125.000000	1224.000000

**Insight :** The high standard deviation **of 2.49e+04** suggests a significant spread in prices, meaning prices are **not clustered around the average**.

# Data Cleaning

1

Drop Unnecessary  
Column

..... the column \*\*'no name'\*\* will be removed because doesn't contain any valuable information

..... 'name' column

2

Checking Missing  
Values

..... Has 2 columns with missing values under 1%

..... 'host\_name' column

..... Has 2 columns with missing values above 35%

..... 'last\_review' column

..... the dataset contains no duplicate

..... 'review\_per\_month'  
column

3

Checking Data  
Duplicated

..... the dataset contains no duplicate

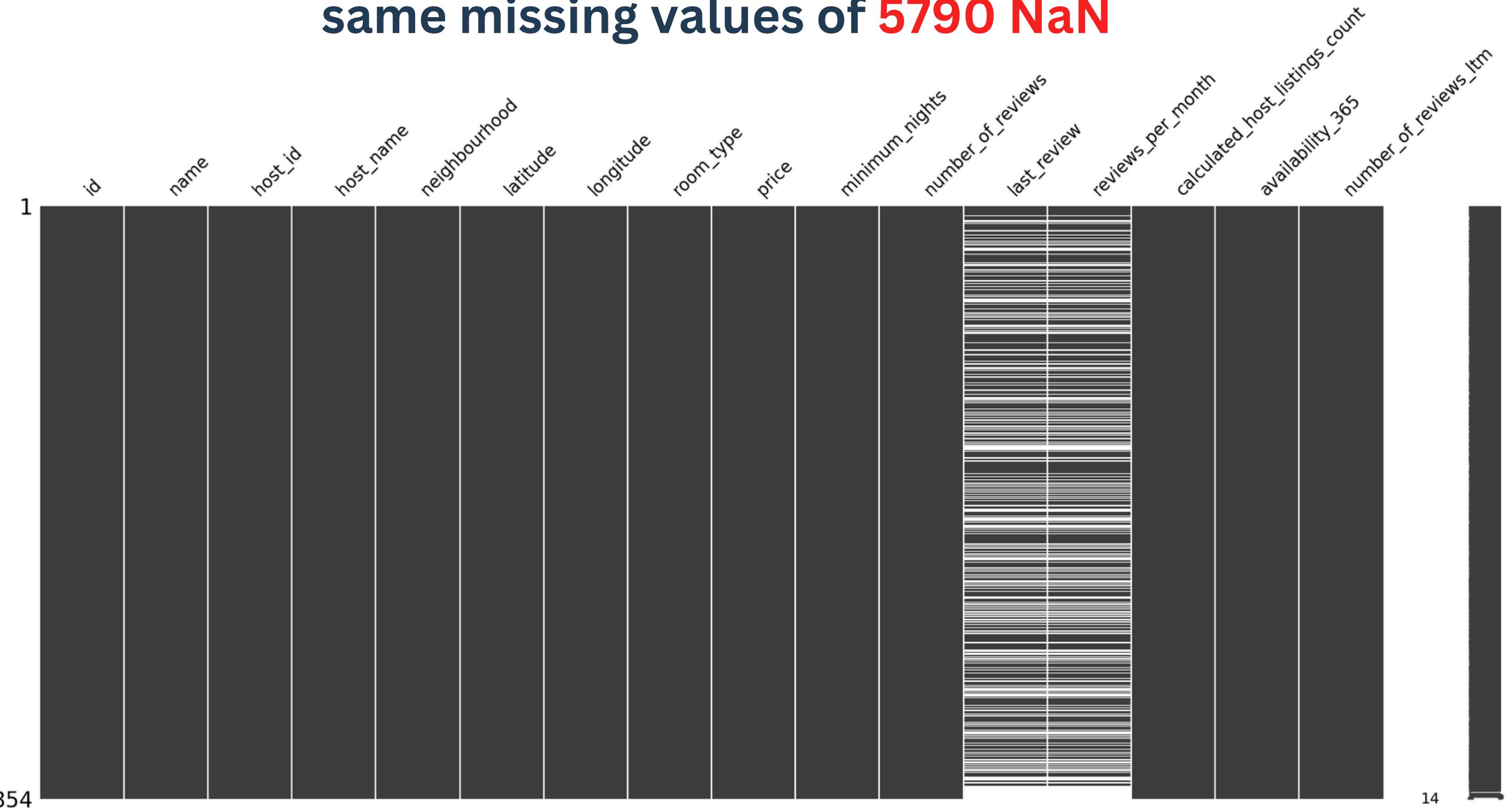
4

Check Anomalies  
and Outlier

..... show an anomaly in the price feature, with a minimum value of 0



The **last\_review** and **review\_per\_month** columns have the same missing values of **5790 NaN**





# How to Handling the Missing Values?

## WHAT WE DO

### Name column:

- Using `fillna` to replace column with the placeholder "no name"

### Host\_name column:

- replace the data so we will that ensuring the consistency and completeness of the dataset's structure.

### Last\_review column:

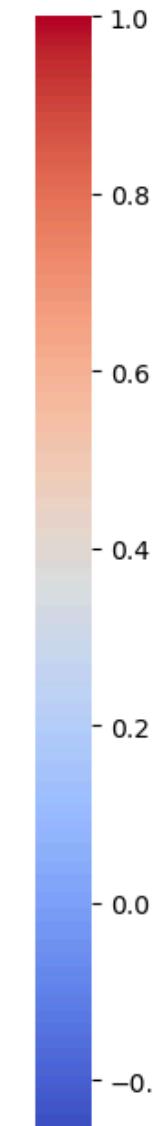
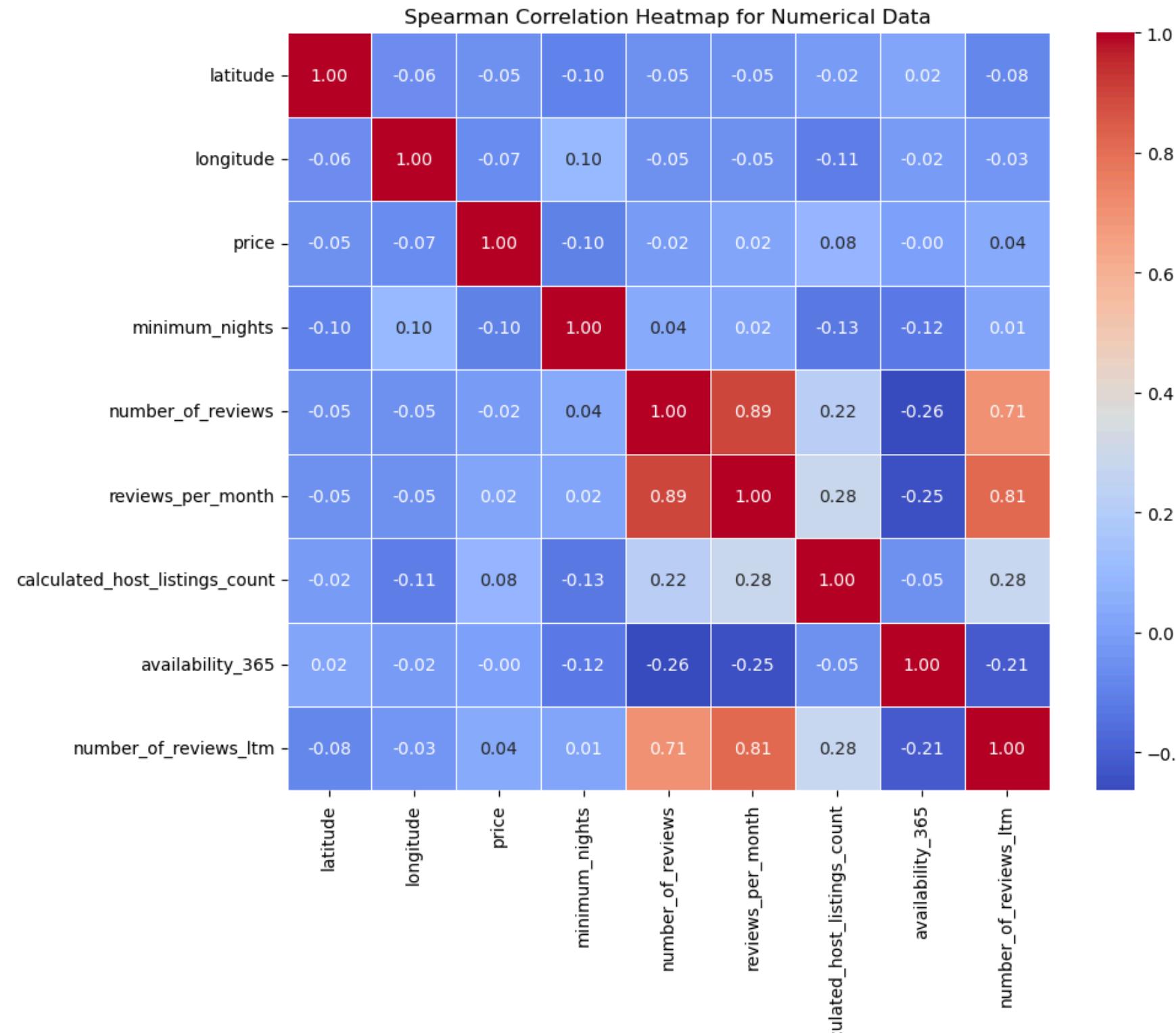
- a default datetime value will be assigned to the column, as it is expected to be in a datetime format.

### Reviews\_per\_month column:

- the `number_of_review` column will show the `value=0` if these values do not exist. So can be replace using `fillna` of `value=0`



# Using Spearman to Check the Correlation of Relationships Between Numeric Variables



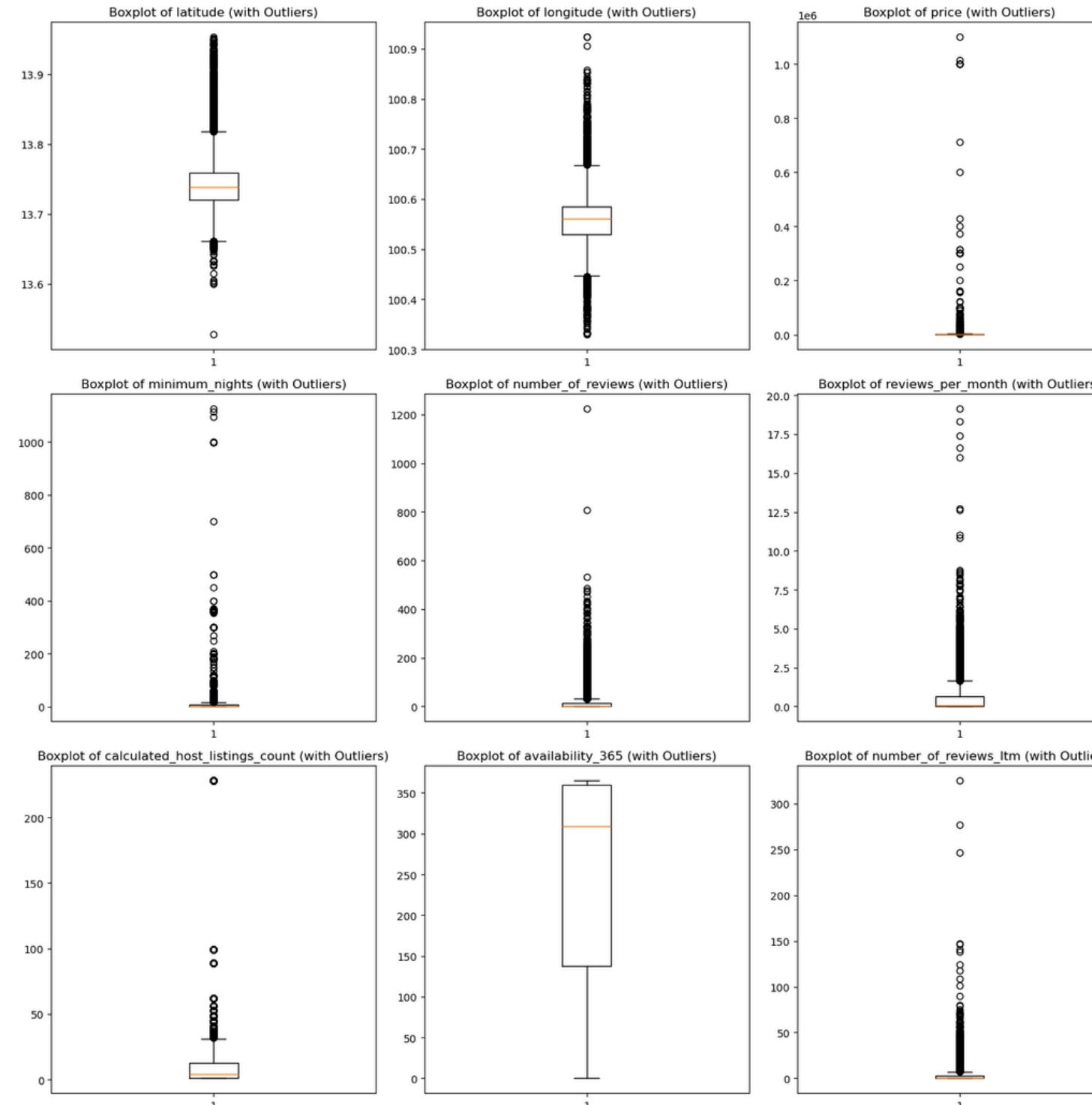
## Strong Positive Correlations:

- number\_of\_reviews and reviews\_per\_month are highly correlated (correlation coefficient of 0.89), which makes sense as the number of reviews per month directly impacts the total number of reviews over time.

## Negative Correlations:

- price and minimum\_nights are slight negative correlation (-0.10), suggesting that properties with higher prices might have lower minimum stay requirements.

## Boxplot for Analyzing Distribution Patterns in Price, Minimum Nights, Availability, and Number of Reviews



- The **price** distribution is highly skewed to the right, with a long tail of high-priced properties. This indicates that most properties are relatively affordable, but a few are significantly more expensive.
- The **minimum nights** required for a stay varies widely, with a long tail of properties requiring longer stays. This suggests a diverse range of booking preferences, from short-term to long-term rentals.
- The **availability** distribution is relatively evenly spread, indicating that properties have varying levels of availability throughout the year.
- **Number of Reviews and Reviews per Month** show a right-skewed distribution, indicating that most properties have a relatively small number of reviews. However, there are a few properties with a significantly higher number of reviews.