Analyzing Airbnb Bangkok Listings and Price

Problem
Statement

New Airbnb hosts often feel uncertain about how to set their rental prices on the platform.

Goals

01 | To gather and share valuable insights from Airbnb listing data that aid in pricing decisions.

02 | To offer pricing suggestions to new hosts to help them optimize their long-term rental income.

Main Questions

01 | Which factors have the most significant impact on pricing, and how do these relationships differ in various contexts?

02 | What pricing strategy should first-time Airbnb hosts adopt to achieve fair revenue?
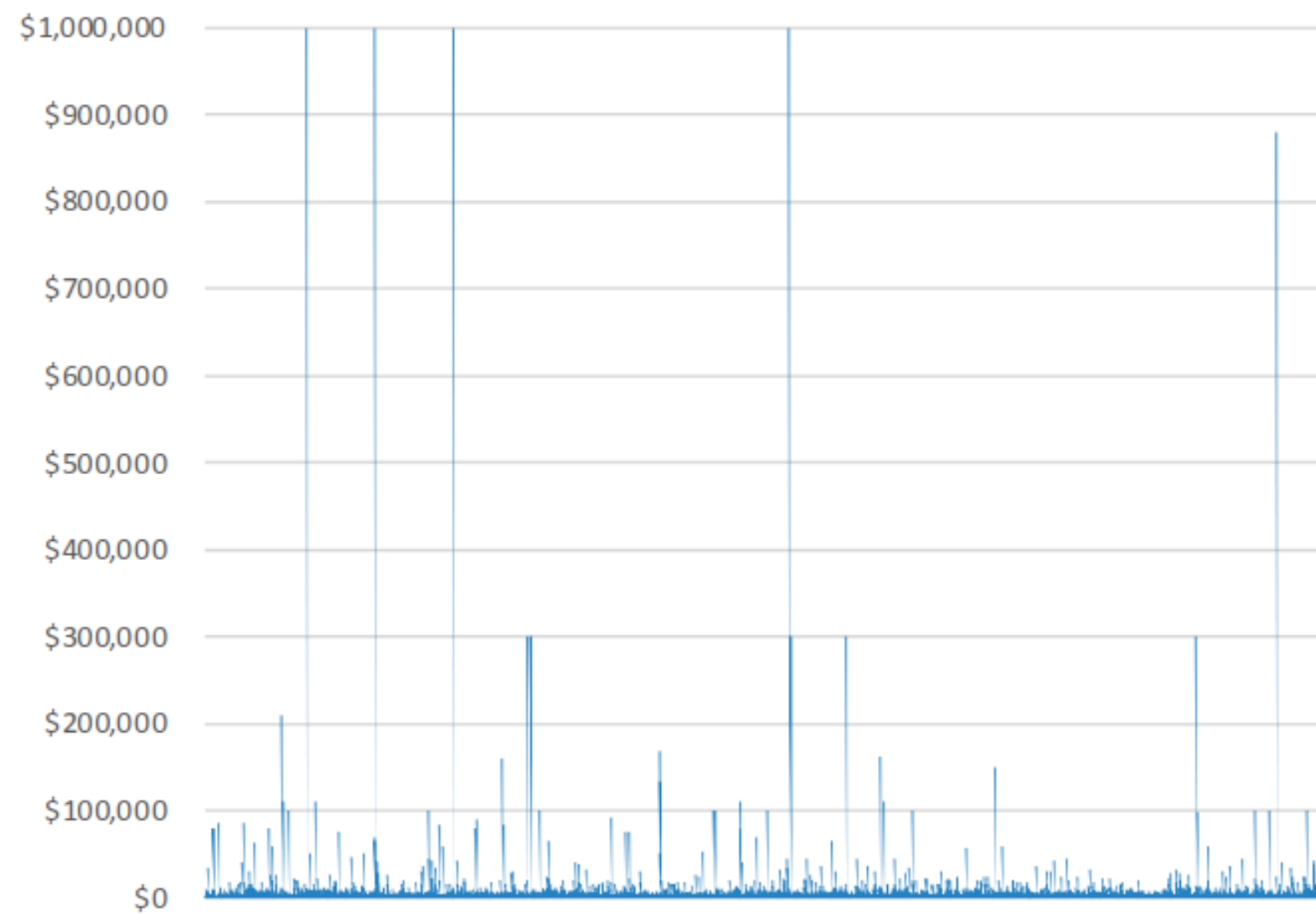
Data
Overview

- **Data Source:** Airbnb Listings in Bangkok, Thailand
- **Origin:** insideairbnb.com
- **Date of Data:** September 22, 2023
- **Data Size:** 75 columns, 20,824 rows
- **Key Fields:** neighbourhood, room type, price, bedrooms, bathrooms, accommodates, minimum nights, number of reviews, etc.
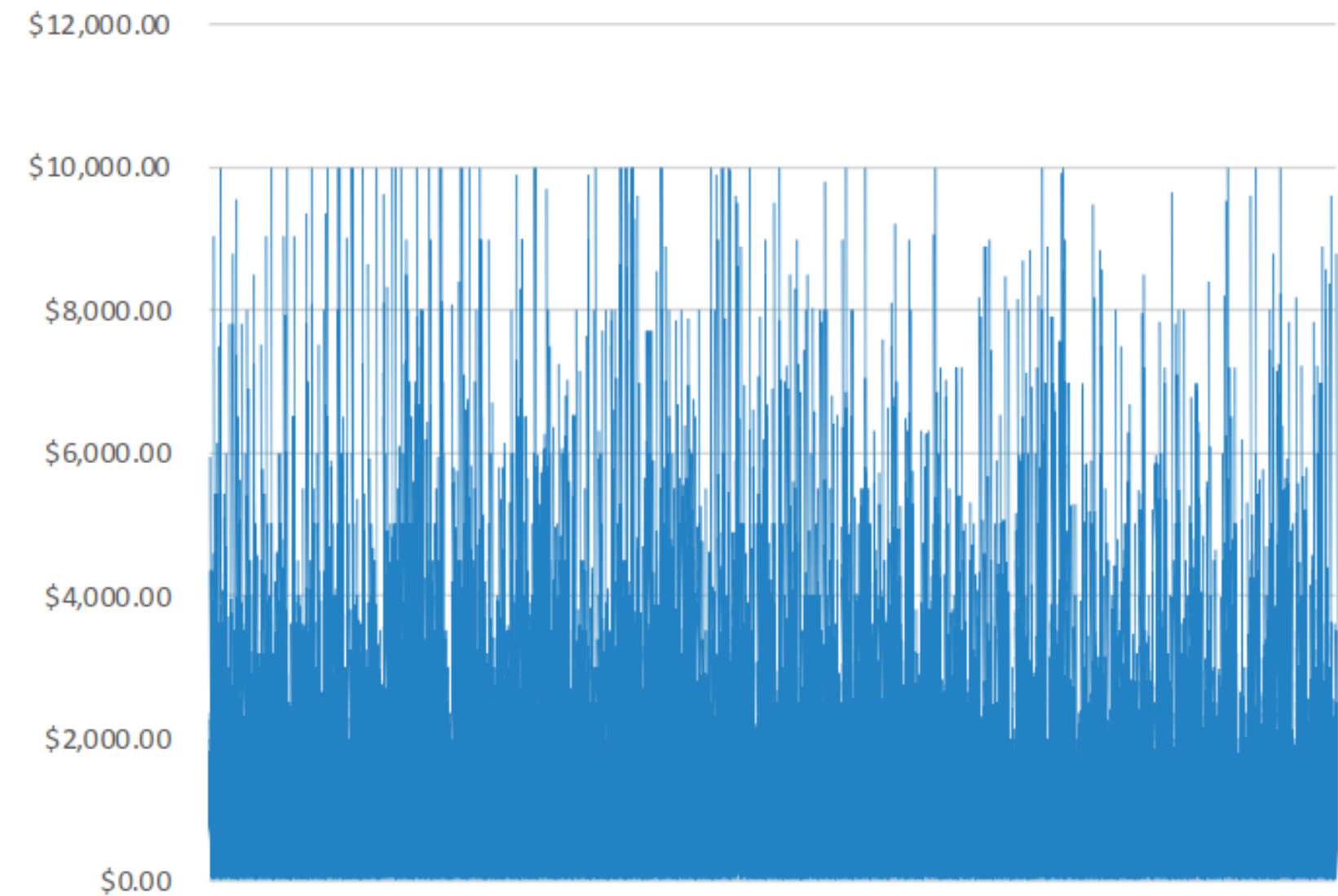
Data: Extreme
Outliers

Price Distribution (Before)

Price Distribution (After)

Data
Cleaning **Process**

- Eliminated 48 irrelevant and incomplete columns.
- Excluded all hotel-related listings.
- Removed listings with values outside a normal range.
- Capped "minimum_nights" values over 30 to 30.
- Added a "region" column to group districts.
- Created a "min_night_cat" column to categorize minimum night stays.

Data Findings: Price Overall

Price Histogram
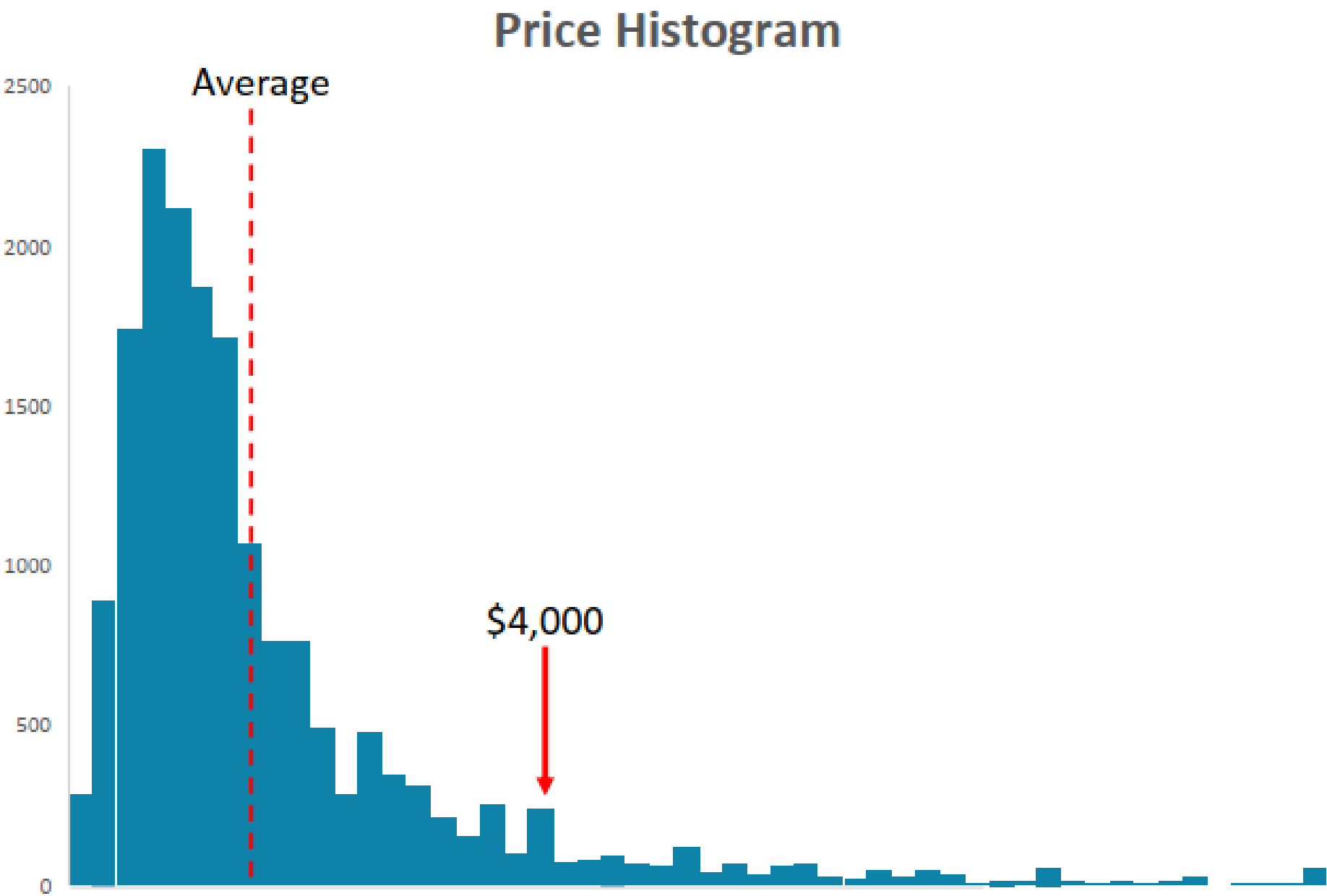
price (after cleaning)	
Mean	1748.05207
Standard Error	10.7841006
Median	1300
Mode	1000
Standard Deviation	1426.43937
Sample Variance	2034729.28
Kurtosis	8.35381215
Skewness	2.58078512
Range	10000
Minimum	216
Maximum	10000
Sum	30583919
Count	17496

Data Findings:
Stay Term

Insight 01 - The majority of listings are for short-term stays.

Listing Count by Stay Term

4367, 25%

12498, 71%

630, 4%

- long-term
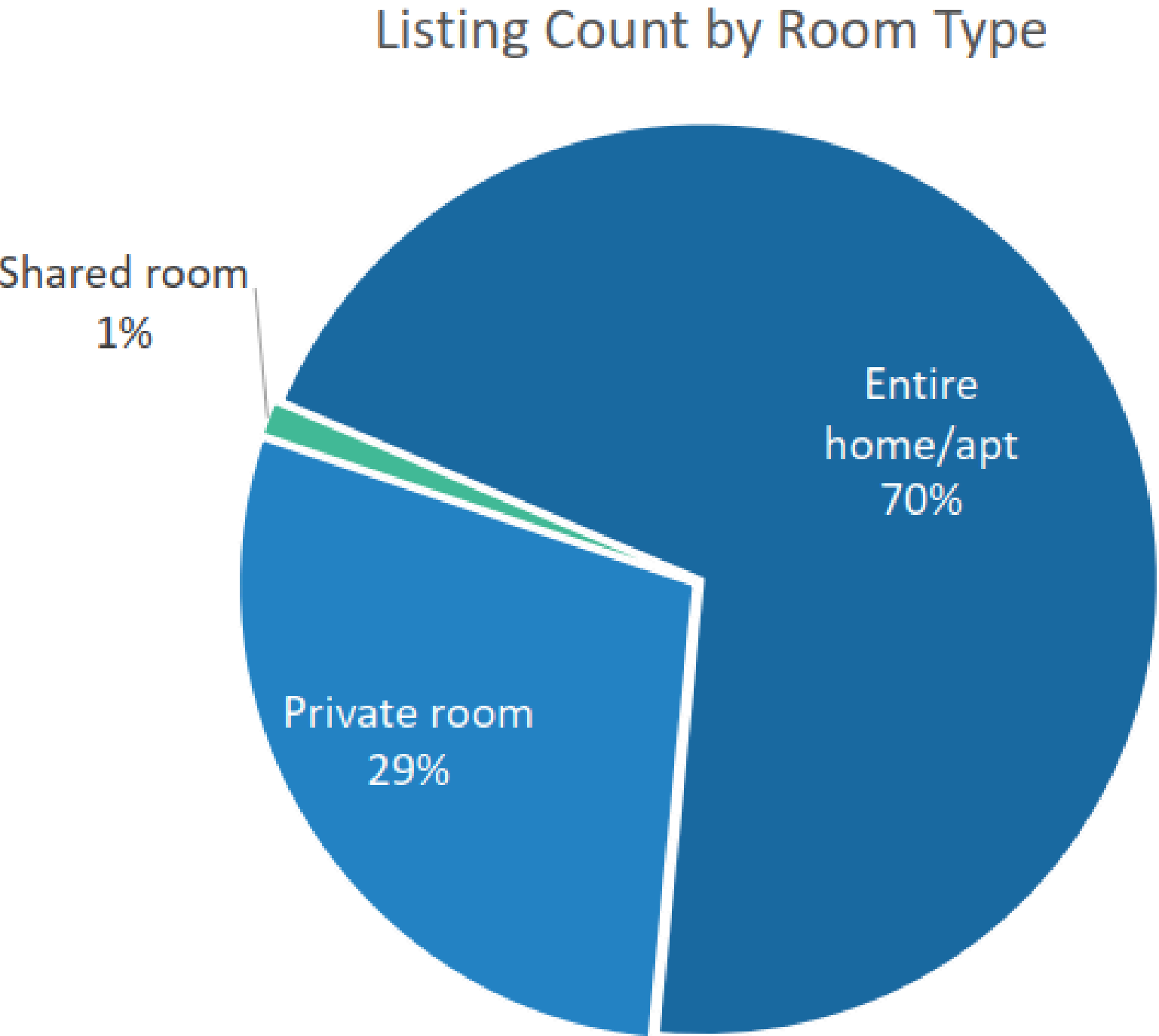- mid-term
- short-term

...
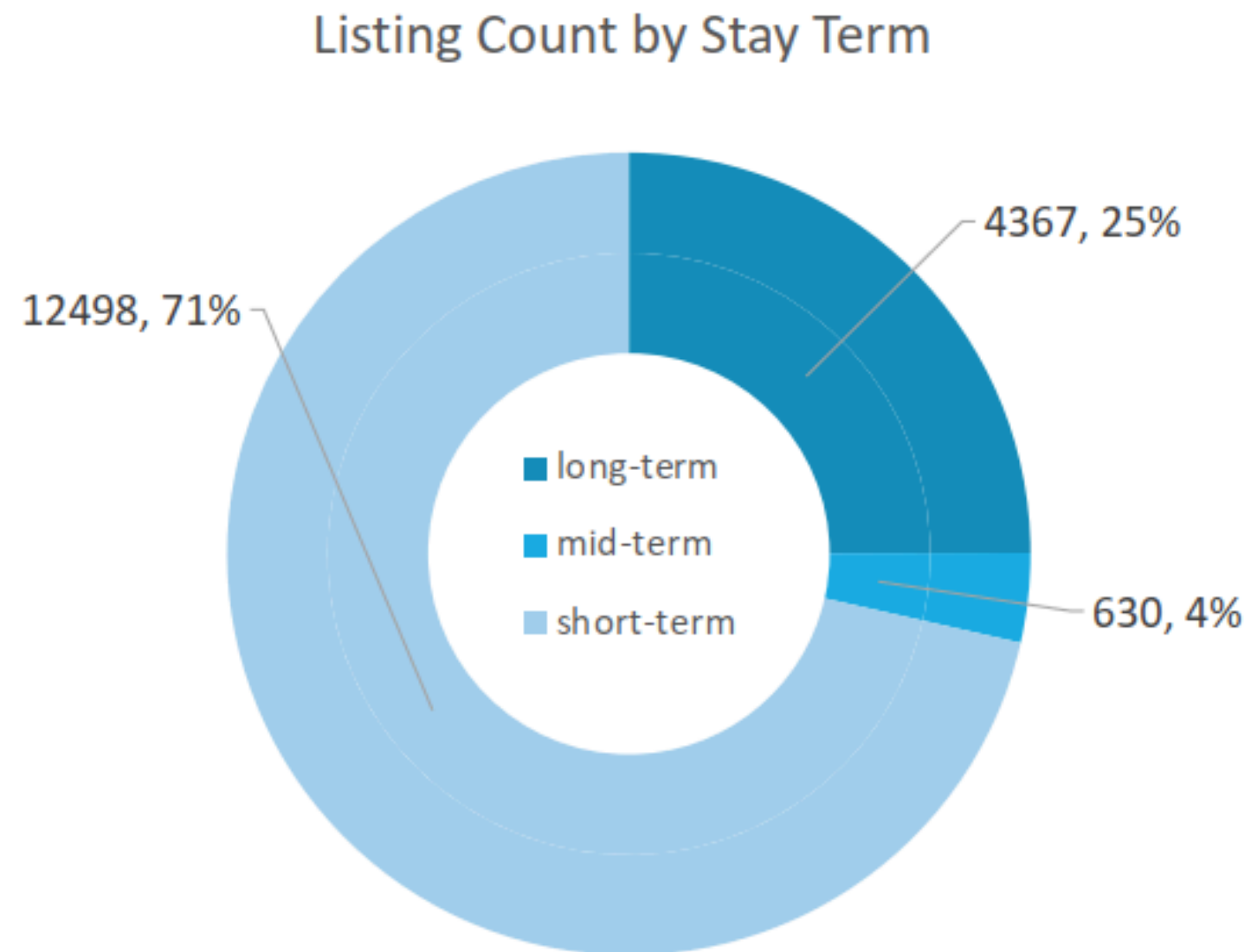
Data Findings:
Stay Term

Insight 02 - Short-term listings have the highest average prices and monthly reviews.

Stay term	Average price	Reviews per month
long-term	1428.23	0.32
mid-term	1611.00	0.50
short-term	1866.85	0.80
total	1748.15	0.67

Data Findings:
Room Type

Insight 03 - Most properties are entire homes.

## Listing Count by Room Type

Data Findings:
Room Type

Insight 04 - Entire homes are, on average, 20% more expensive than private rooms, while shared rooms are 40% cheaper than private rooms.
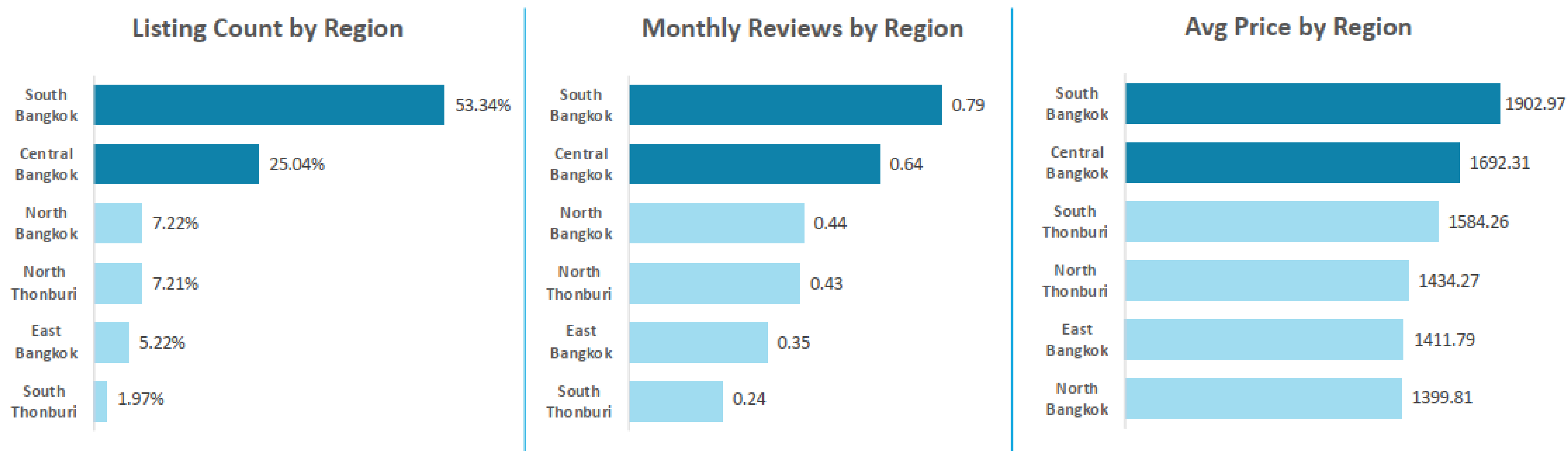

Avg Price by Room Type
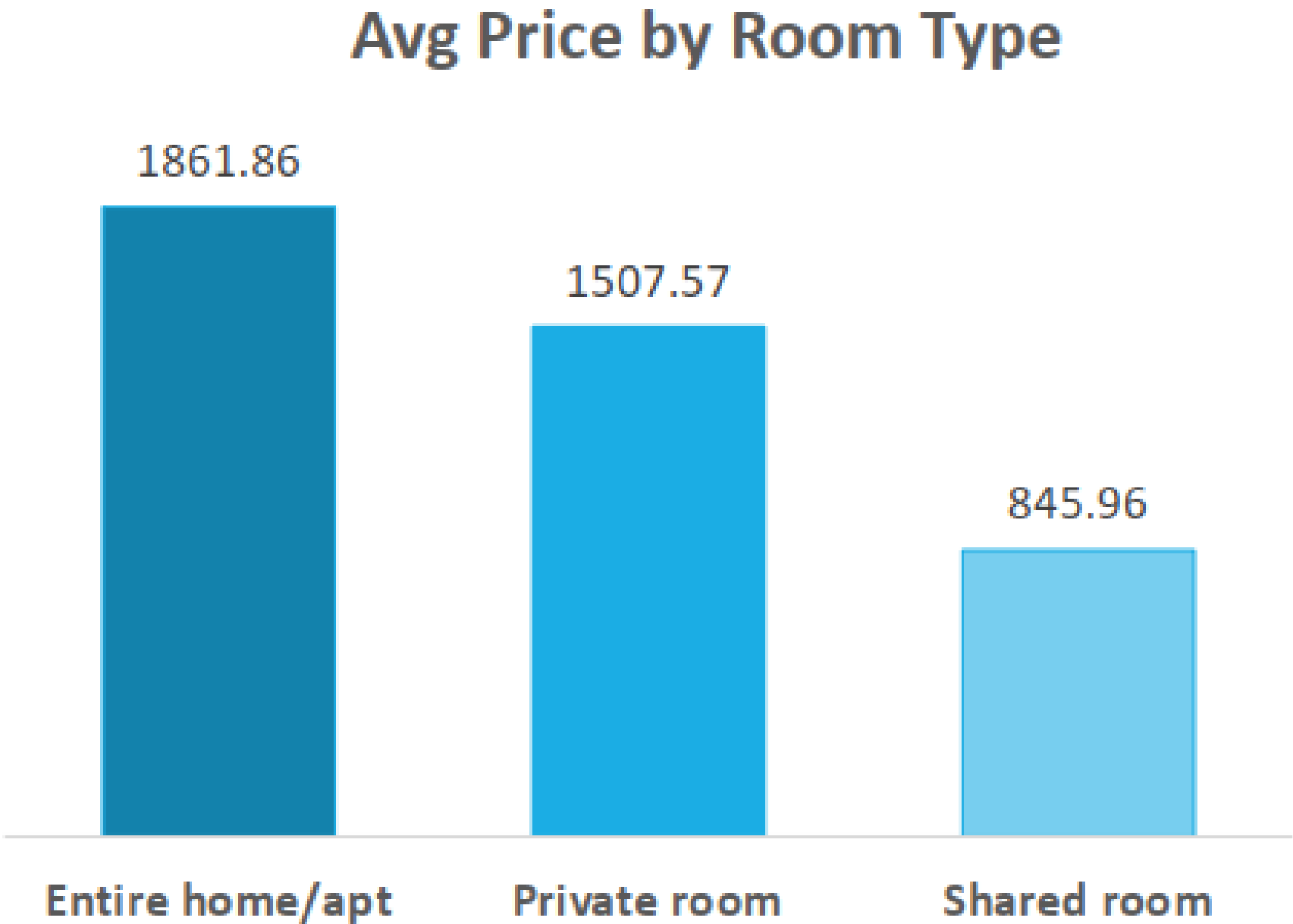
Data Findings: Room Type

Insight 05 - Short-term entire homes are significantly pricier than private rooms across all stay durations.

Avg Price by Room Type Across Stay Terms
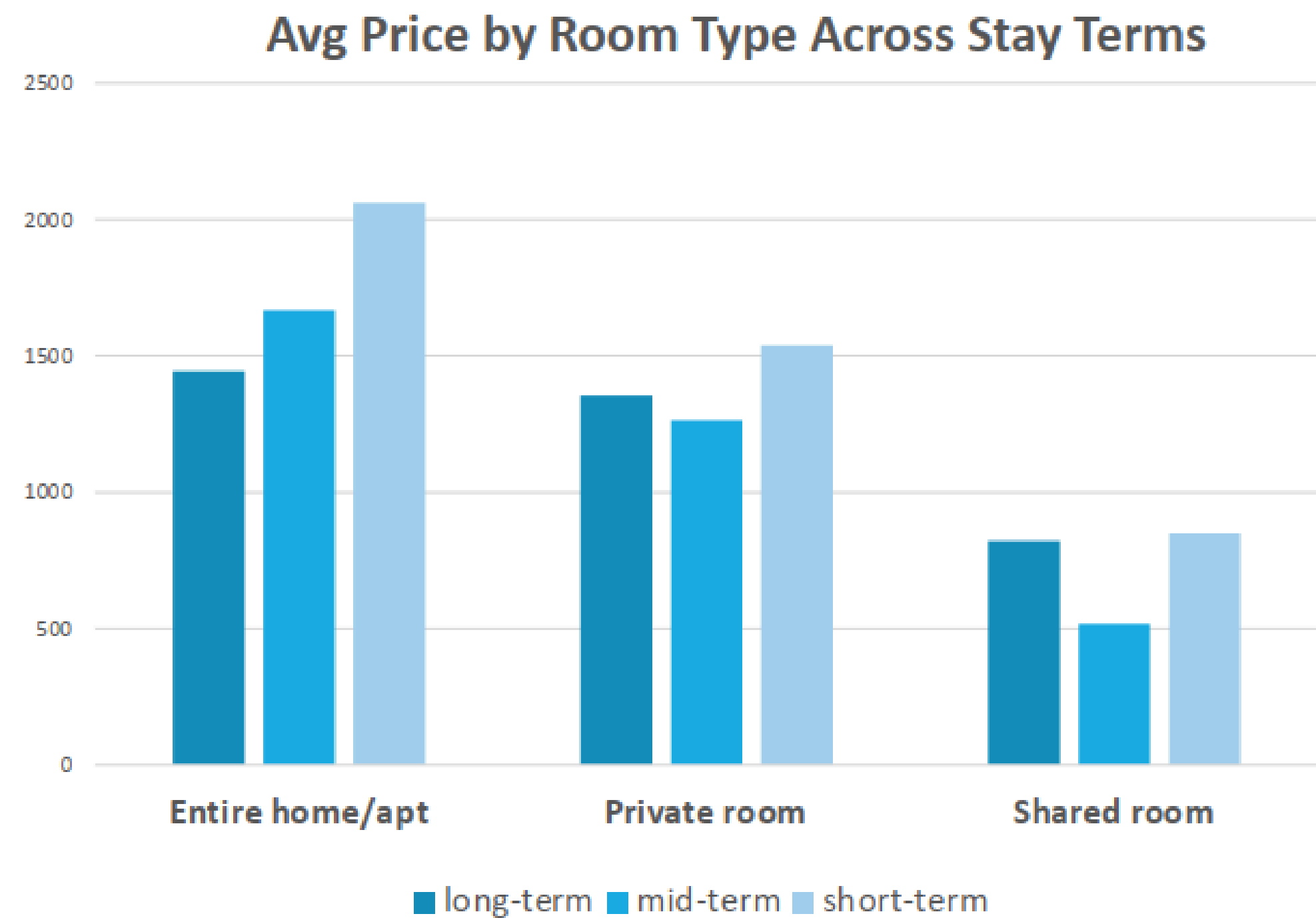
Data Findings:
Location (Regions)

Insight 06 - South and Central Bangkok are the most popular regions in terms of listing count and monthly reviews, and they also command the highest prices.

Listing Count by Region

Region	Value
South Bangkok	53.34%
Central Bangkok	25.04%
North Bangkok	7.22%
North Thonburi	7.21%
East Bangkok	5.22%
South Thonburi	1.97%

Monthly Reviews by Region

Region	Value
South Bangkok	0.79
Central Bangkok	0.64
North Bangkok	0.44
North Thonburi	0.43
East Bangkok	0.35
South Thonburi	0.24

Avg Price by Region

Region	Value
South Bangkok	1902.97
Central Bangkok	1692.31
South Thonburi	1584.26
North Thonburi	1434.27
East Bangkok	1411.79
North Bangkok	1399.81

Data Findings:
Location (Regions)

Insight 07 - South and Central Bangkok are the priciest areas for entire and private rooms, but not for shared rooms.

Price by Region (Entire home/apt)	
room_type	Entire home/apt
Row Labels	**Average of price**
South Bangkok	1964.78
Central Bangkok	1828.42
South Thonburi	1741.76
East Bangkok	1633.15
North Bangkok	1533.17
North Thonburi	1482.81
Grand Total	**1861.86**

Price by Region (Private room)	
room_type	Private room
Row Labels	**Average of price**
South Bangkok	1738.91
Central Bangkok	1419.47
North Thonburi	1383.13
South Thonburi	1382.09
North Bangkok	1260.10
East Bangkok	1156.87
Grand Total	**1507.57**

Price by Region (Shared room)	
room_type	Shared room
Row Labels	**Average of price**
East Bangkok	1288.00
North Bangkok	1005.00
North Thonburi	864.94
South Bangkok	851.39
Central Bangkok	750.68
South Thonburi	650.00
Grand Total	**845.96**

Data Findings: Location (Districts)

Insight 08 - Price varies widely across districts even within the same region for entire homes.

Avg Price Breakdown by Neighborhoods (Entire home/apt)
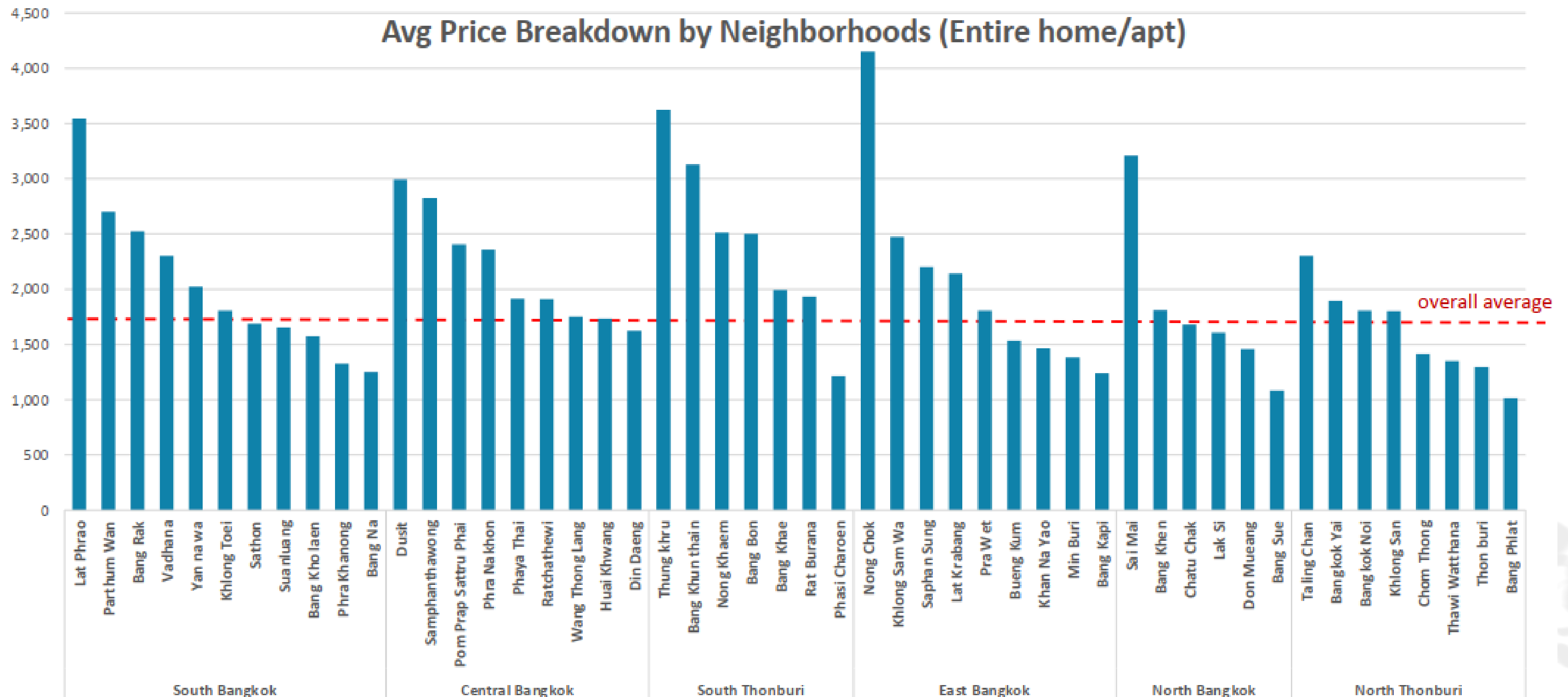
Data Findings: Location (Districts)

Insight 09 - The same variability is observed for private rooms, but with lower level of variation.

Avg Price Breakdown by Neighborhoods (Private room)
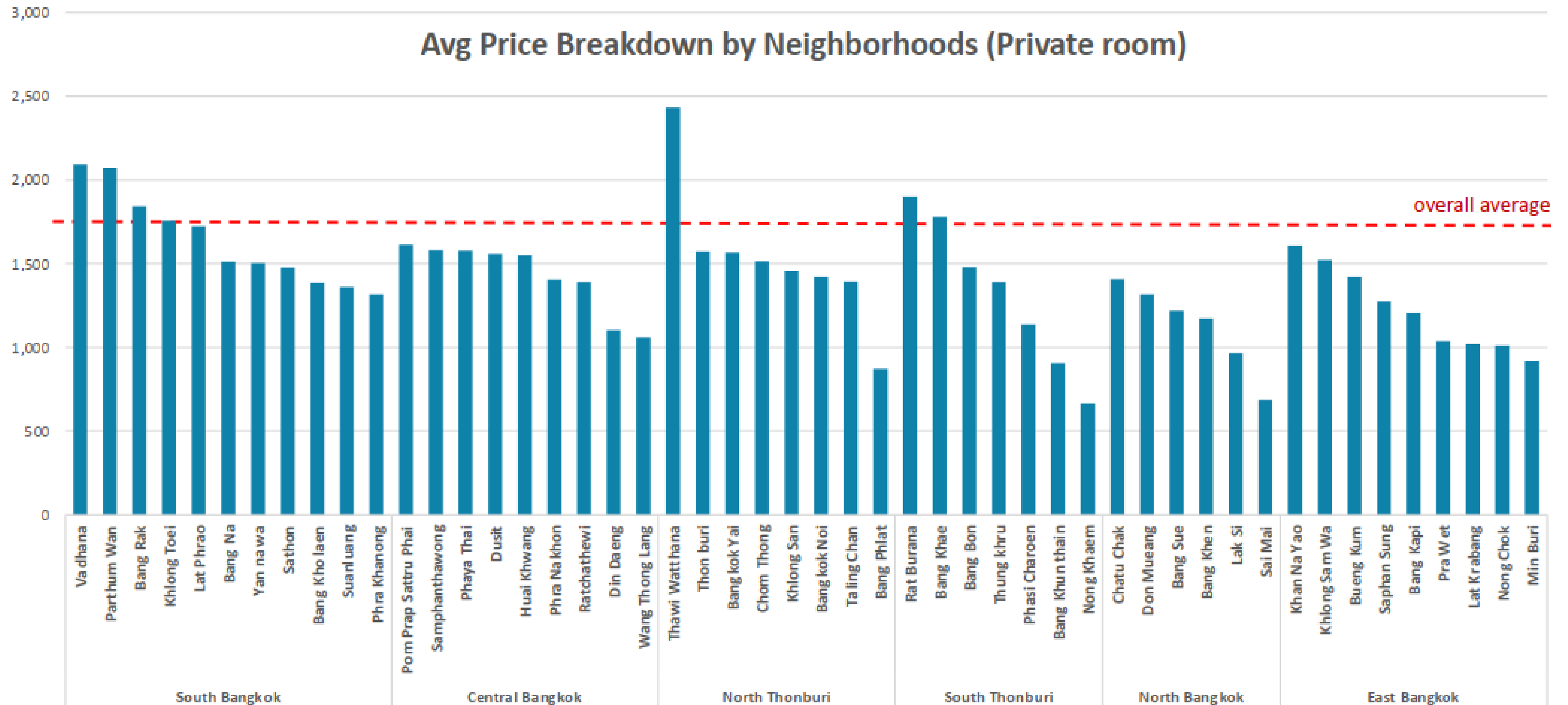
Data Findings:
Correlation Between Price and Reviews

Insight 10 - Accommodates, bedrooms, and bathrooms show a strong correlation with price.

Correlation Coefficient				
	price		**reviews_per_month**	
accommodates	0.52		0.14	**reviews_rating_score**
bedrooms	0.51		0.10	**accommodates**
bathrooms	0.47		0.06	**bedrooms**
reviews_per_month	0.01		0.03	**bathrooms**
reviews_rating_score	-0.01		0.02	**availability_365**
longtitude	-0.02		0.01	**price**
latitute	-0.03		-0.03	**longtitude**
availability_365	-0.05		-0.05	**latitude**
minimum_nights	-0.14		-0.18	**minimum_nights**

Data Findings:
Correlation With Price
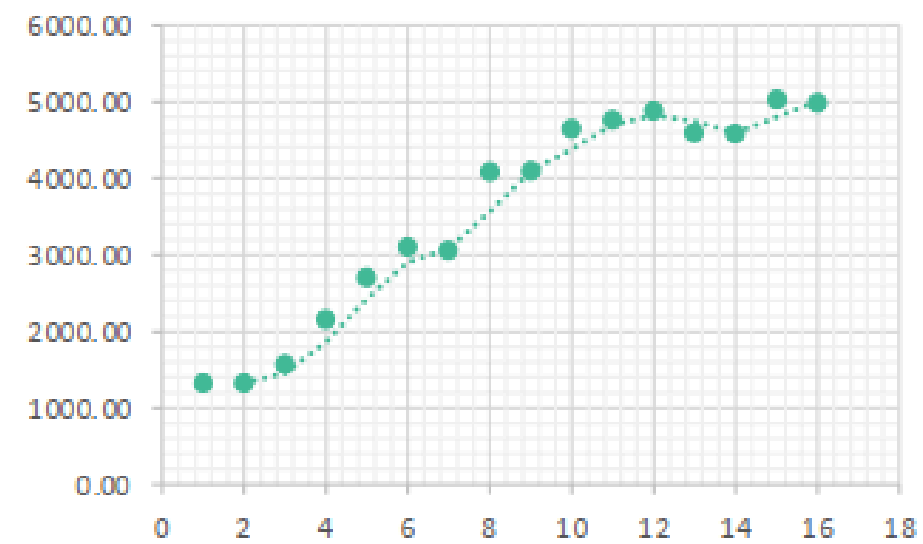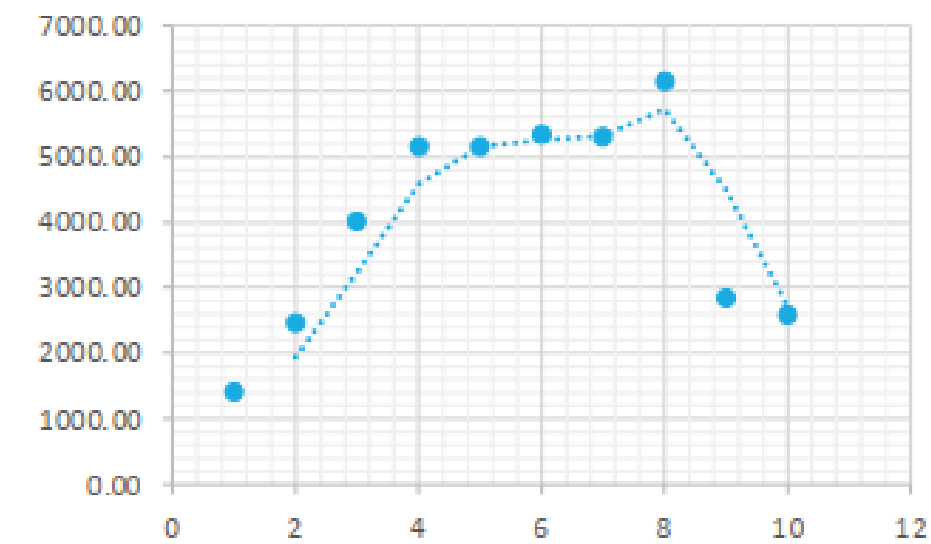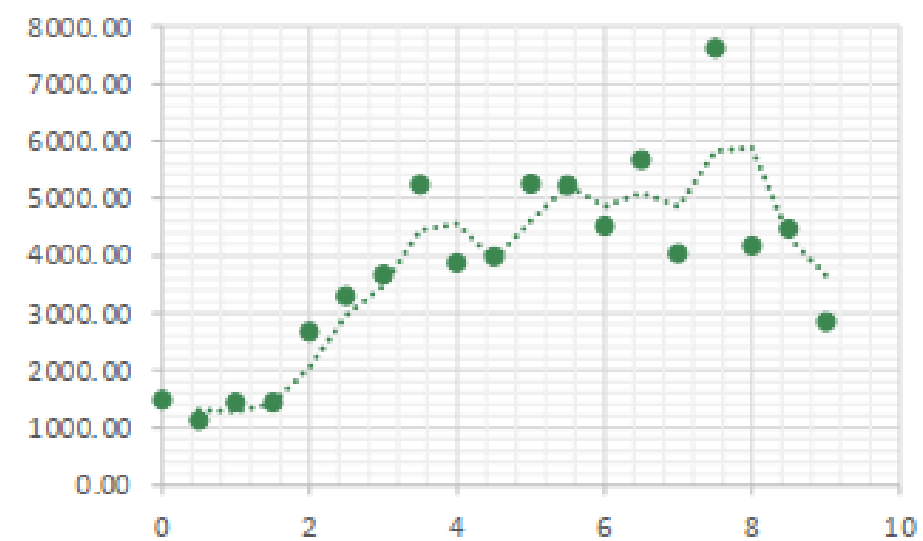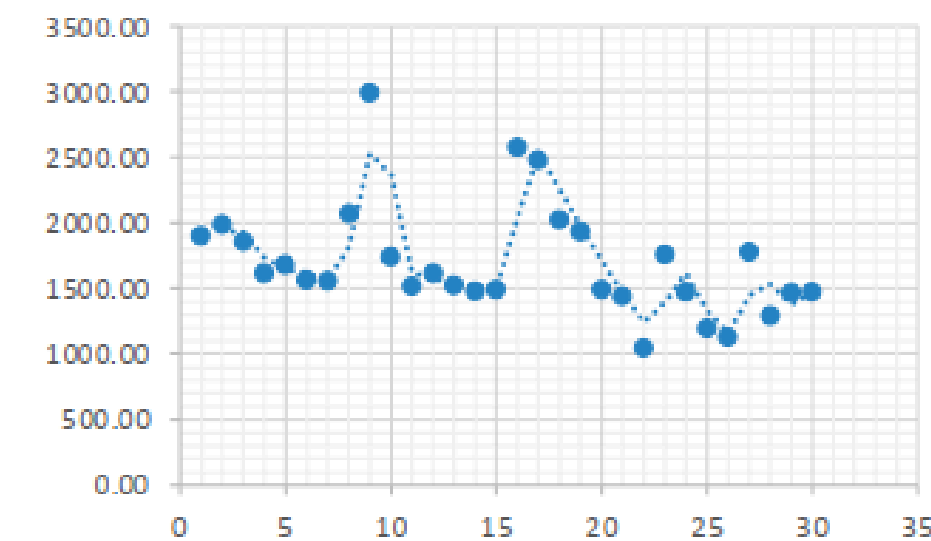
Data Findings

Insight 11 - Verified hosts tend to receive more
reviews, similar to superhosts.

15457, 88%

2038, 12%

NO

Identity
Verified

YES
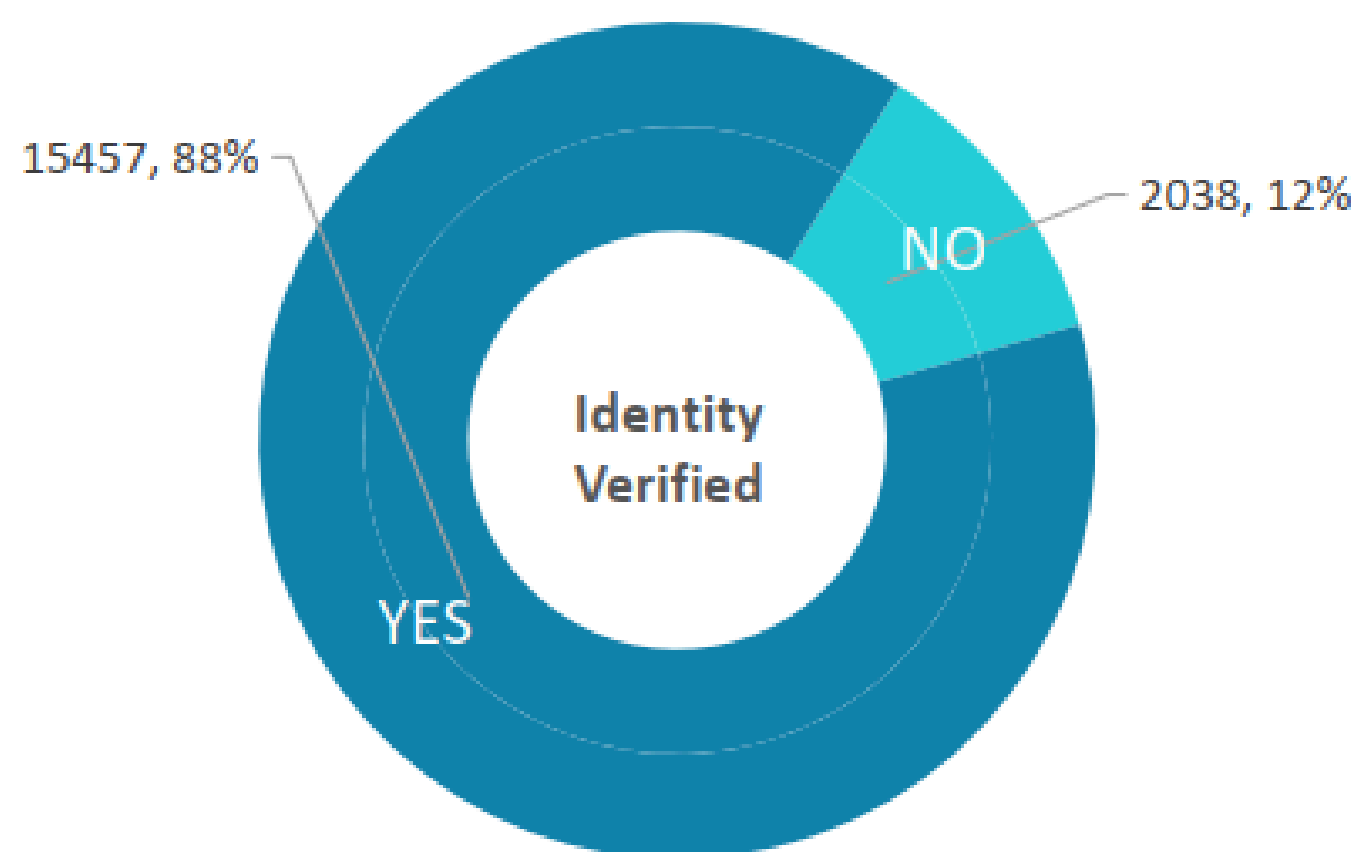
	Average price	Reviews per month
Not verified	1982.10	0.05
Verified	1717.31	0.75

4271, 24%

12408, 71%

YES

Superhost

NO

816, 5%
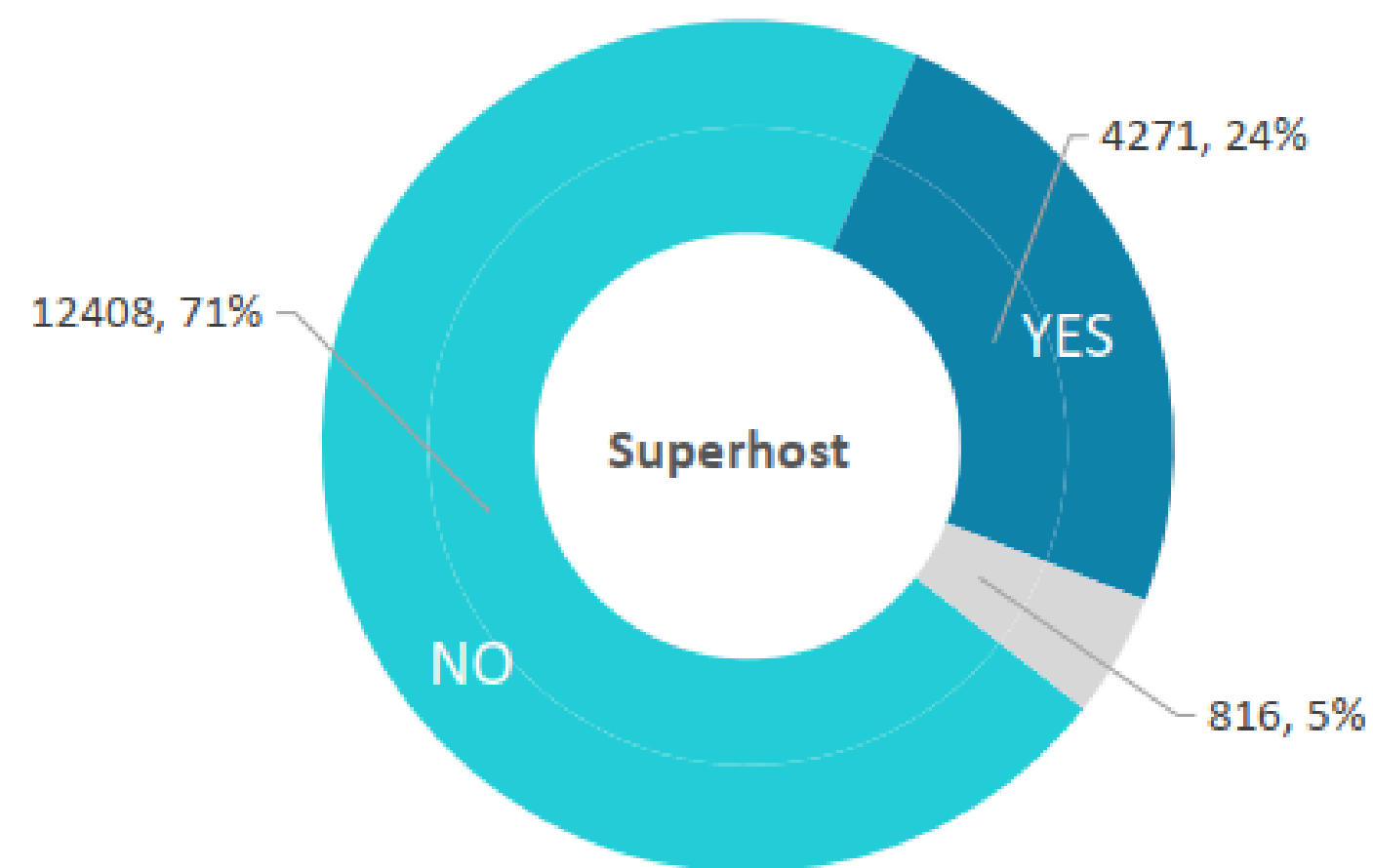
	Average price	Reviews per month
Not superhost	1757.60	0.45
Superhost	1732.64	1.24
(blank)	1685.62	0.98

Data Findings

Insight 12 - Listings that offer instant booking also tend to garner more reviews.

8418, 48%

9077, 52%

YES

NO
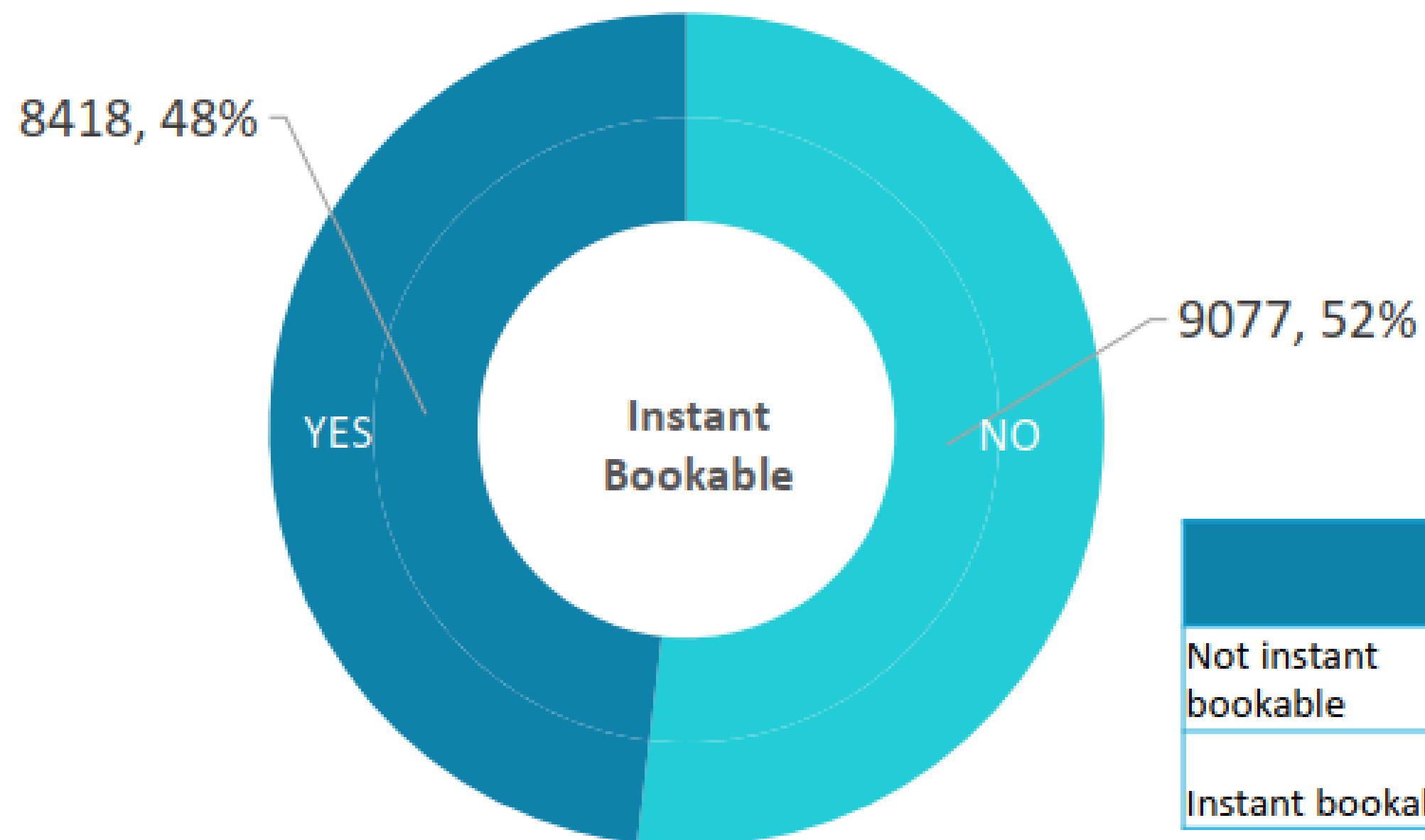
Instant Bookable

	Average price	Avg reviews per month
Not instant bookable	1790.49	0.44
Instant bookable	1702.50	0.91

Recommen**dations**
Pricing Model

Suggested Price Range

(*already include 6-18% guest side service fee)

Room Type

+

Region

+

Bedrooms & Bathrooms

+

Accommodates

Recommen**dations**
Pricing Model

"Suggested Price Range"

+

Service Fee (host-side; 3%)

+

Cleaning Fee (300-600)

+

Tax (7%)

Recommen**dations**

- Consider room type, stay duration, region, number of bedrooms and bathrooms, and guest capacity when setting prices.
- Allowing short-term stays can increase your listing's visibility and income, particularly for entire homes and private rooms.
- Pricing slightly below the regional average is advisable to enhance revenue, as many listings with no reviews are priced above average across all room types and regions.
- Relying on district average prices can be misleading in less popular areas due to smaller sample sizes.
- Verify your identity and aim to become a superhost over time, as verified hosts receive significantly more reviews.

●●●

Con**clusions**

- **Suggested pricing ranges** should be viewed as guidelines.
- **Certain amenities** may greatly influence pricing (further analysis is recommended).
- **Other factors not included in the dataset**, such as property photos, room size, and proximity to public transport or tourist attractions, could also significantly impact pricing and booking rates.