

CAPSTONE 02

# Analyzing Popular Airbnb Listing in Bangkok

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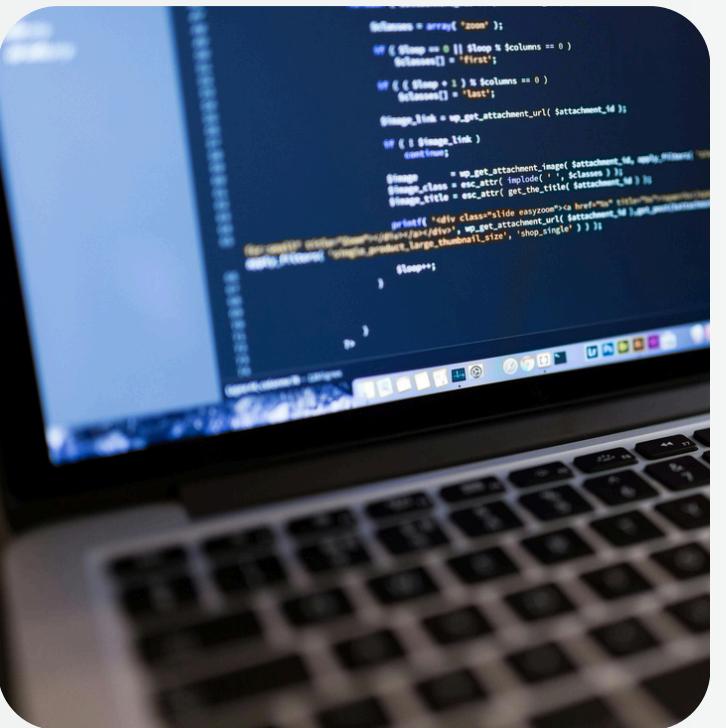
JCDSOL-16 PURWADHIKA | 2024



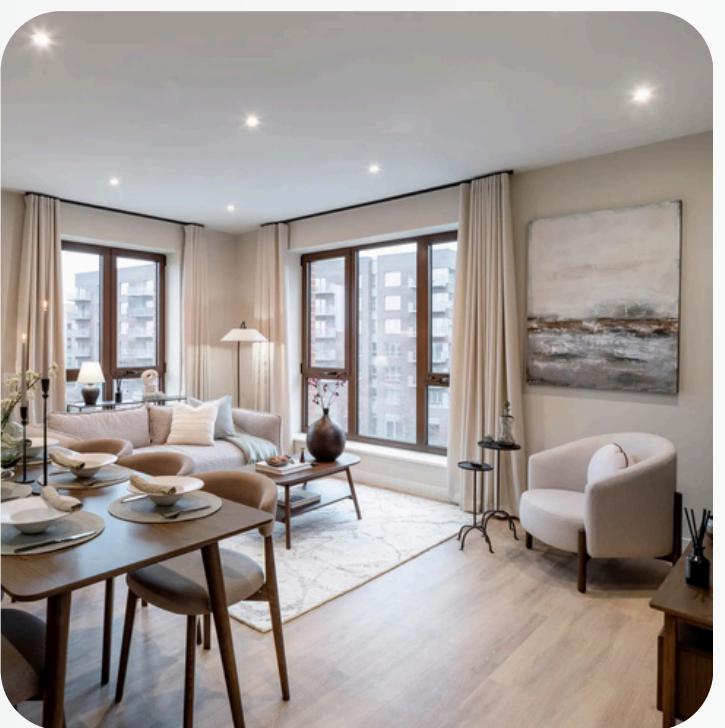
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# Introduction

## BACKGROUND

Airbnb is one of the pioneer companies in implementing the **sharing-economy** concept in accommodation property sector.

This concept connects property owners (**Host**), whether individual or corporate entities, with **guests** in need of accommodation. One of the cities covered by Airbnb is **Bangkok, Thailand**.

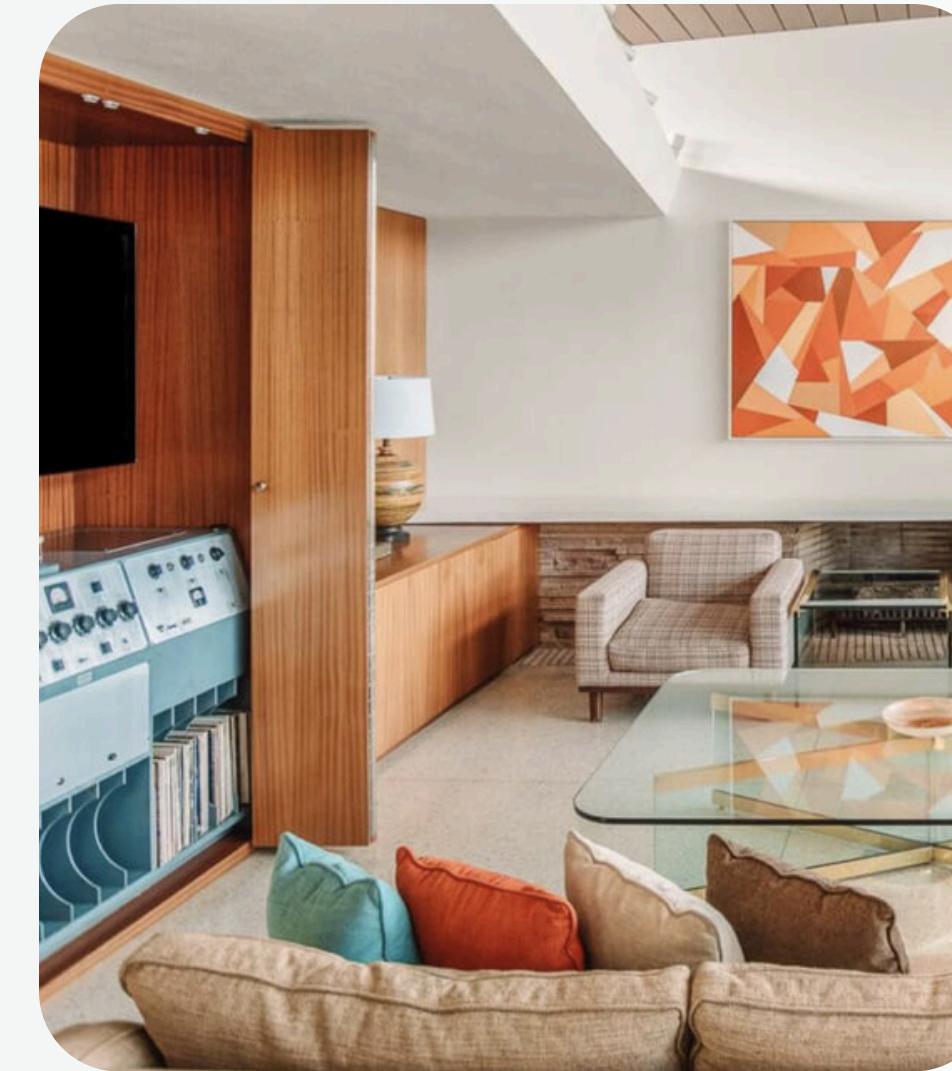


Image: pexels.com

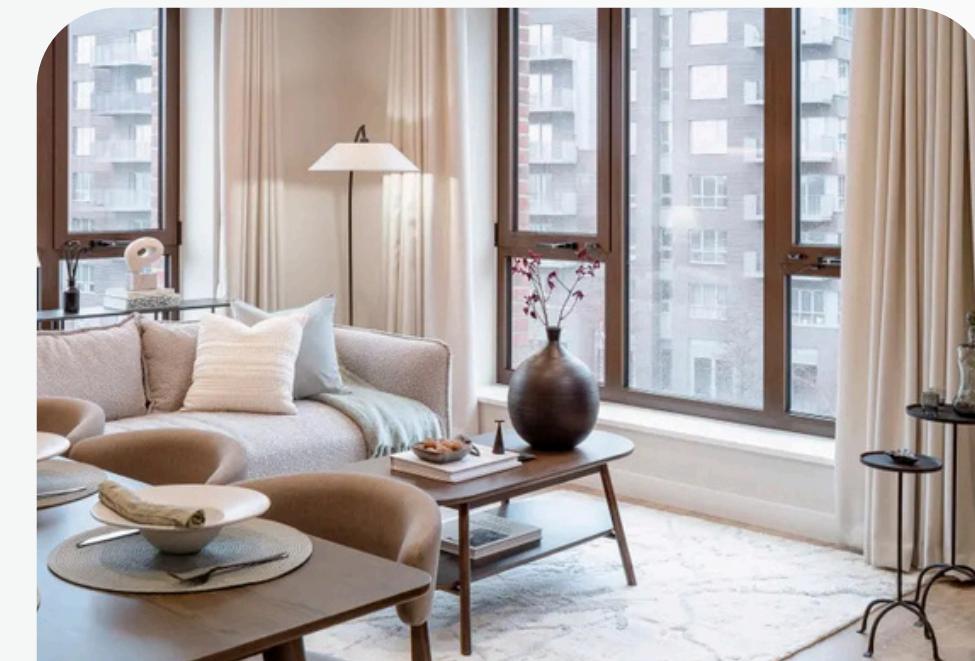
## INTRODUCTION

## PROBLEM

What are the characteristics of Airbnb listings that guests tend to like compared to those they dislike in Bangkok?



Images: pexels.com



## INTRODUCTION

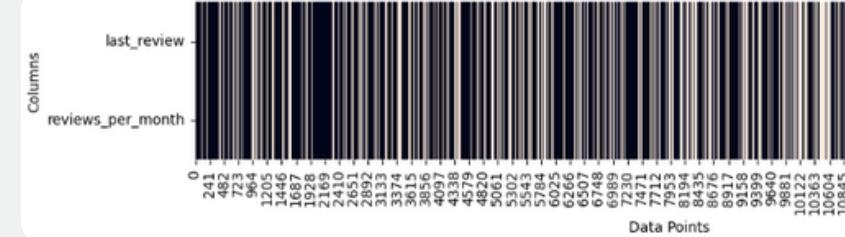
# Data Wrangling

# PREPROCESSING DATA

Duplicate data

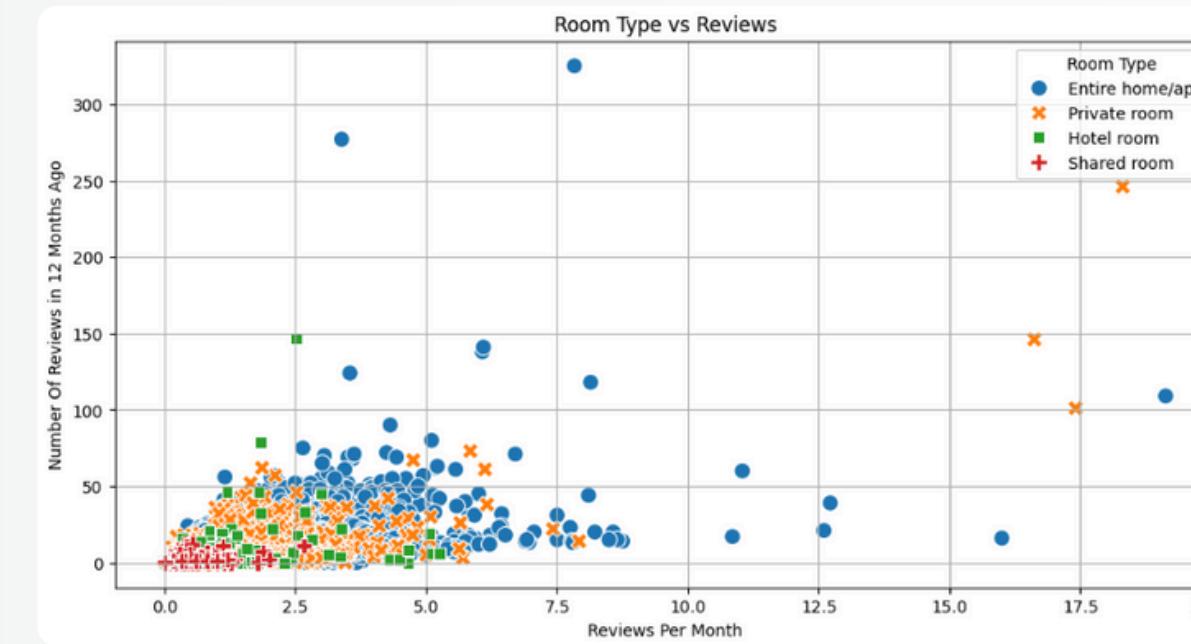
0 DATA

Missing Value



0 DATA

Outlier



726 DATA

RAW  
DATA

15.854

→ -4,58%

CLEAN  
DATA

15.128

# SELF SELECTION BIAS AND J-SHAPED DISTRIBUTION

Self-selection bias is a phenomenon where **individuals choose whether to participate** in a study based on certain characteristics.

Meanwhile, a J-shaped distribution is a distribution pattern that takes **the shape of the letter 'J'**. In the graph, there is an initial decline followed by a sharp increase after a certain point.

Source:

1. Xinxin Li dan Lorin M. Hitt. (2008). Self-Selection and Information Role of Online Product Reviews. *Information Systems Research*, Vol. 19 No. 4, pp. 456-474. (<https://bit.ly/capstone02mantap>)

2. Nan Hu, dkk. (2009). Overcoming the J-shaped Distribution of Product Reviews. *Communications of the ACM*, Vol. 52 No. 10. (<https://bit.ly/capstone02mantap>)

3. <https://www.widewail.com/blog/local-marketing-insider-037>

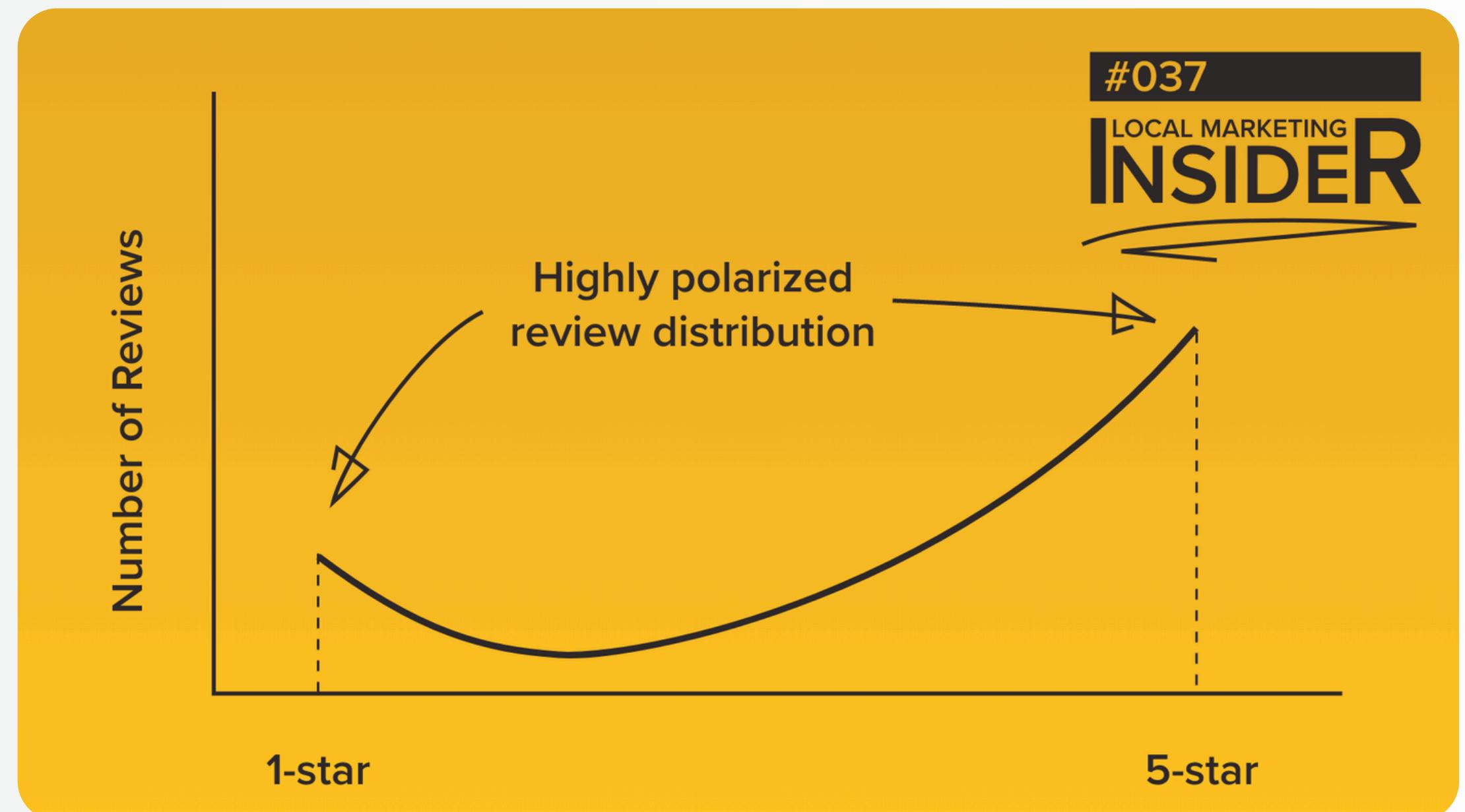


Image: Widewail.com

# ENJOYMENT SCORE

We need **a parameter** that will serve as the primary reference to determine which listings are liked and which are less or not liked by Airbnb guests.

The approach we will use is based on **number of reviews** (Shown by 3 column in dataset) each listing has received.

The tendency of a listing to be popular or less popular among guests will be represented by the **Enjoyment Score**, with a scale ranging from 0 to 10. The higher the score, the more popular the listing is in the eyes of Airbnb guests.

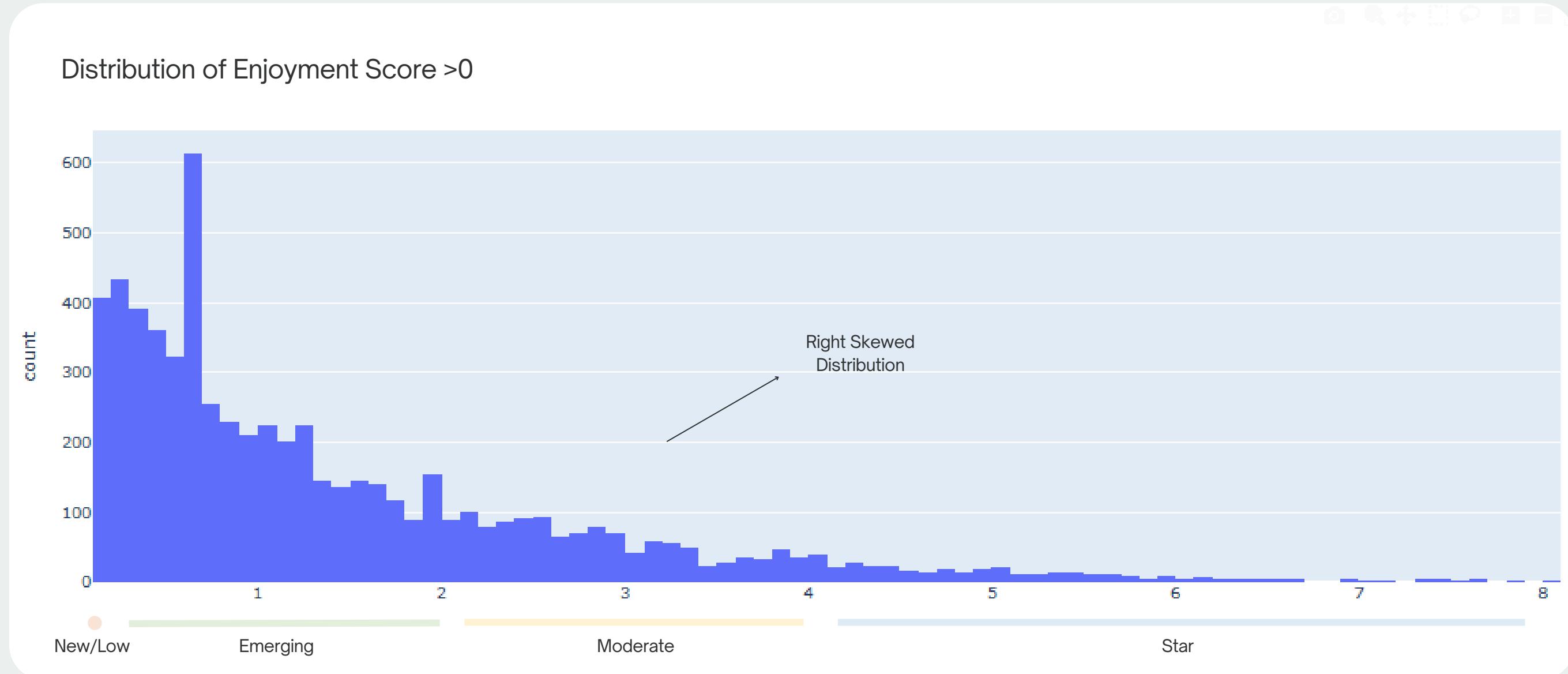
**RUMUS  
ENJOYMENT SCORE**

$$\text{Enjoyment Score} = \left[ \frac{\text{Number of Reviews Scaled} + \text{Reviews per month Scaled} + \text{Number of Reviews LTM Scaled}}{3} \right] \times 10$$

\*the calculation formula was created by own

Before the calculation, each variable will be scaled using **Min-Max Scaler** so that all of them have the same value range between 0 and 1. This aims to **avoid imbalance** when accumulating the values into the enjoyment score.

# POPULARITY LEVEL

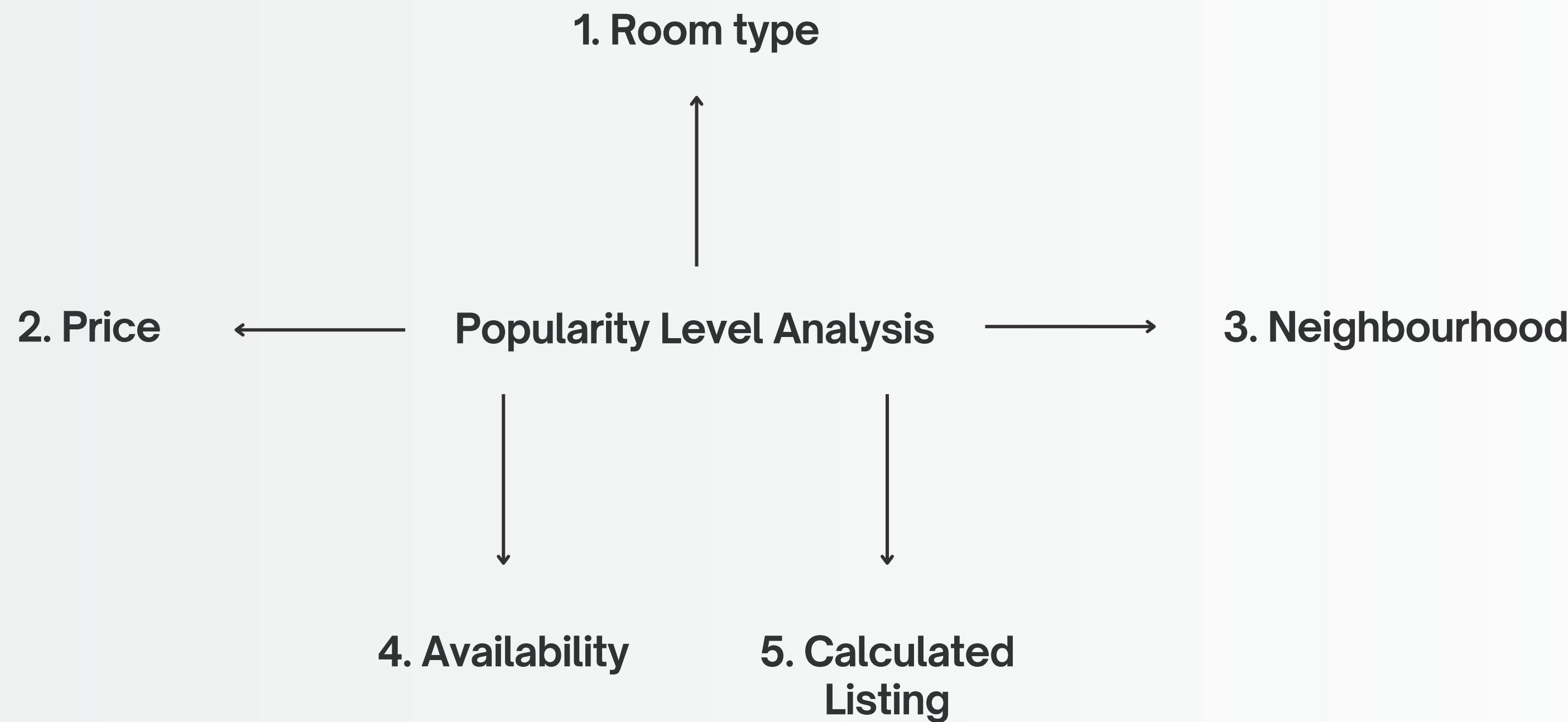


Based on **Enjoyment Score**, there are 4 categorical level:

Kategori	Kriteria Enjoyment Score
New/Low	0
Emerging	> 0 dan ≤ 2
Moderate	> 2 dan ≤ 4
Star	> 4

The purpose of this categorization is to make **the analysis easier** later.

# Analysis

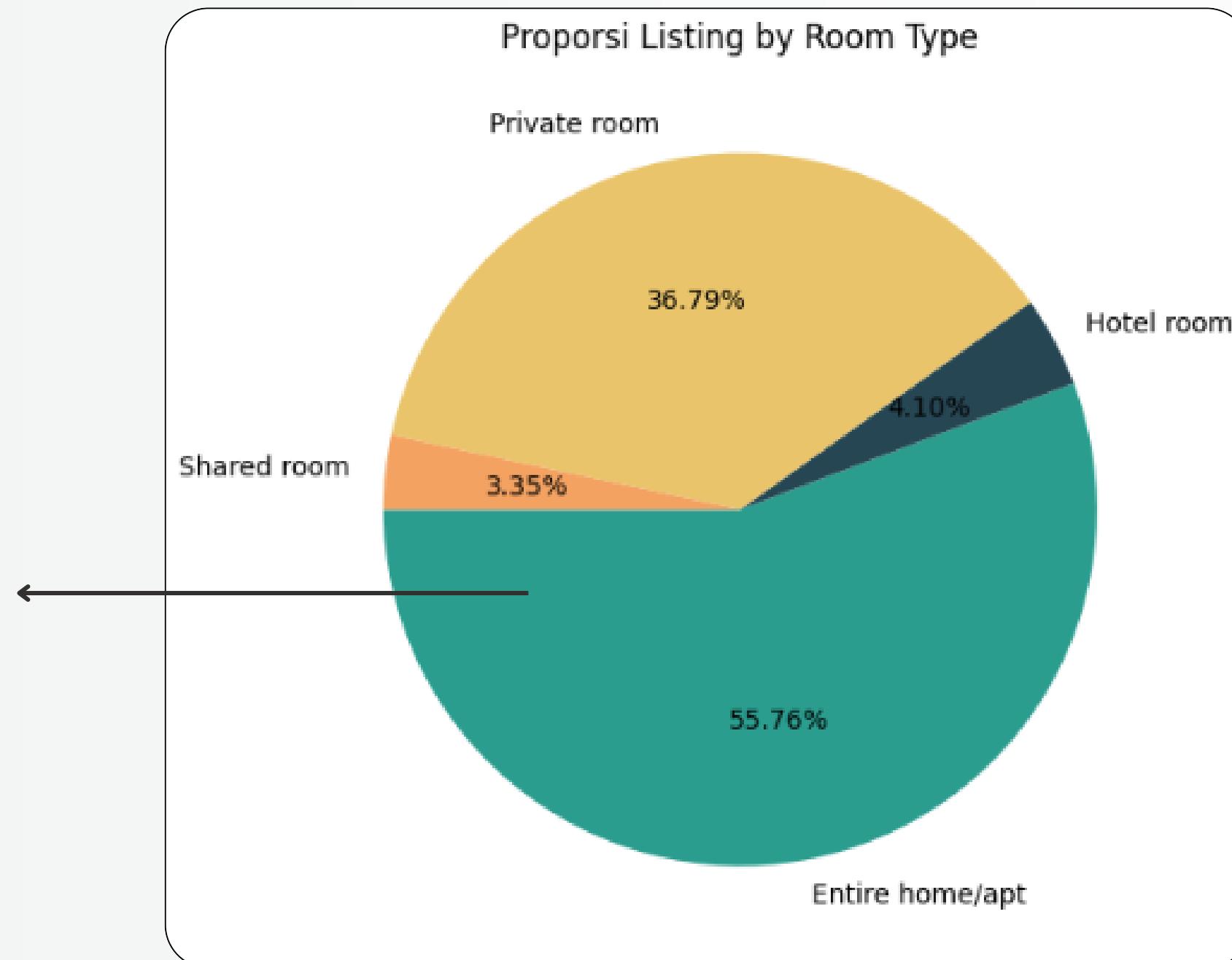


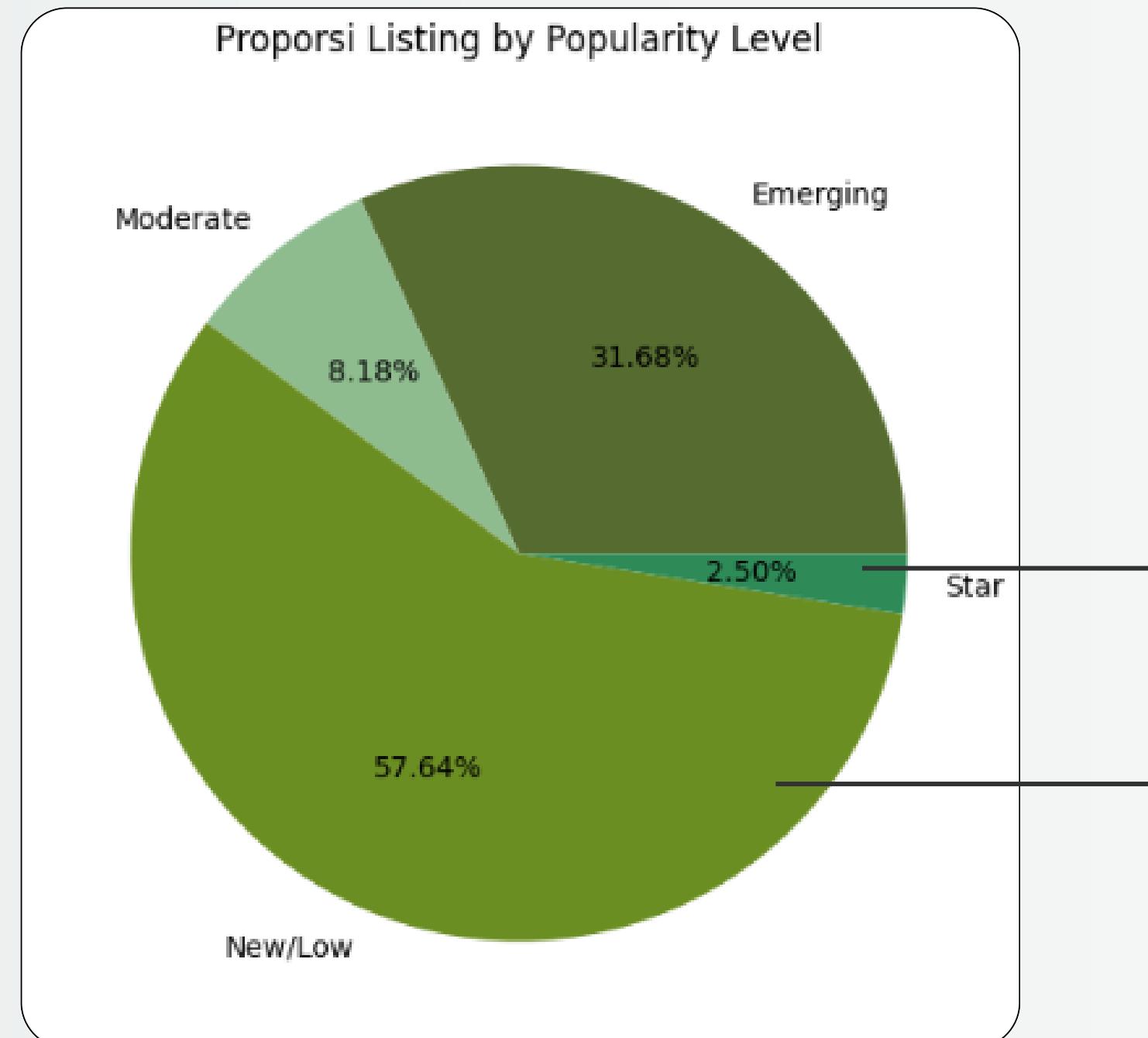
## ROOM TYPE

### LISTING TYPE DISTRIBUTION BY ROOM TYPE

Entire home is **the most common** listing type in Airbnb Bangkok (Airdna.co).

This is because entire homes offer **higher rental prices** and **consistent occupancy rates**, making them a more promising option for hosts (Airdna.co)





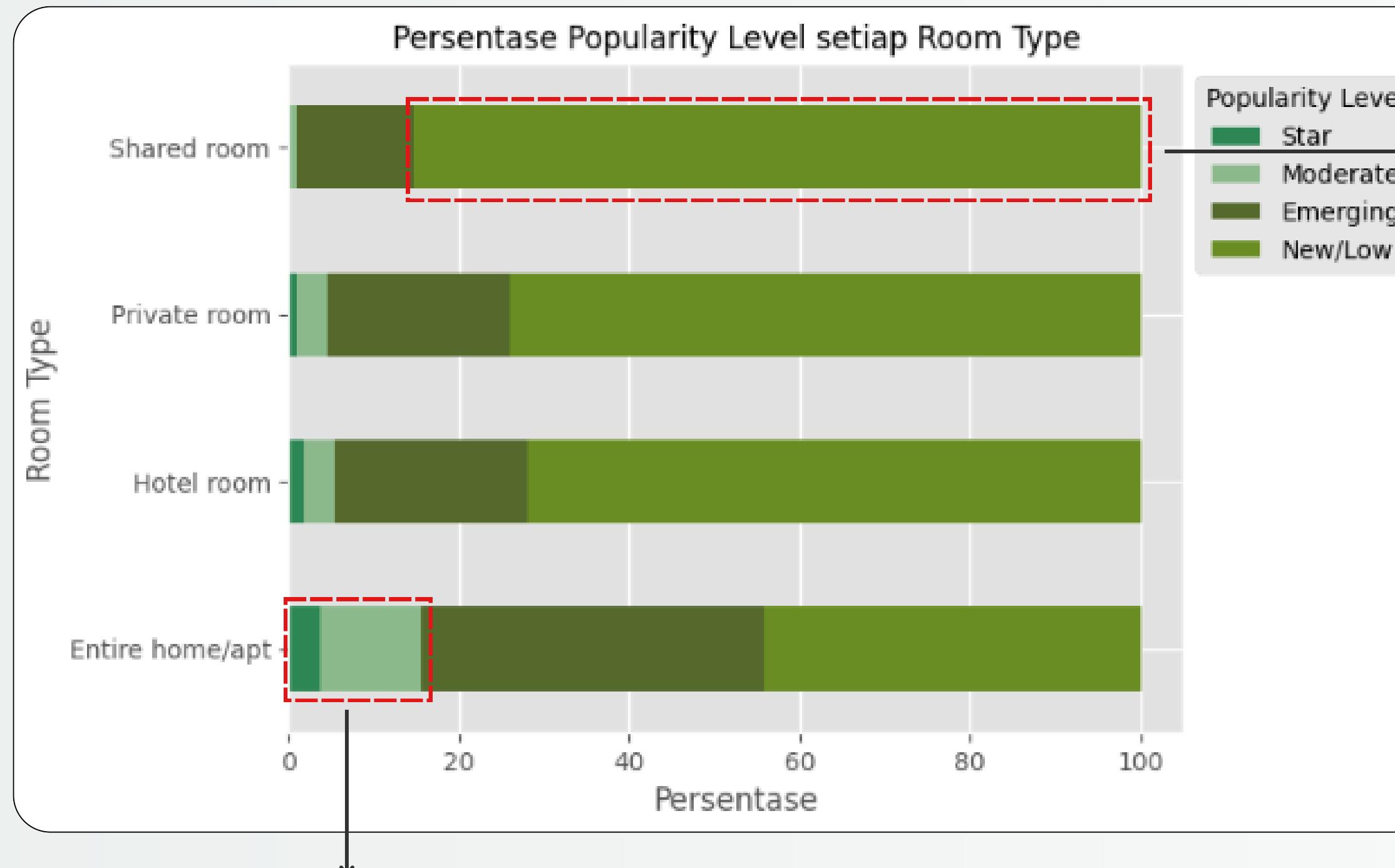
## LISTING TYPE DISTRIBUTION BY POPULARITY LEVEL

Only **2.5%** of Total Airbnb listings have **Star Level** status.

A **significant portion** of listings are categorized as either **New or Low level**.

## ROOM TYPE

### LISTING TYPE DISTRIBUTION BY ROOM TYPE



“Star” and “Moderate” have the  
highest distribution among all  
levels.

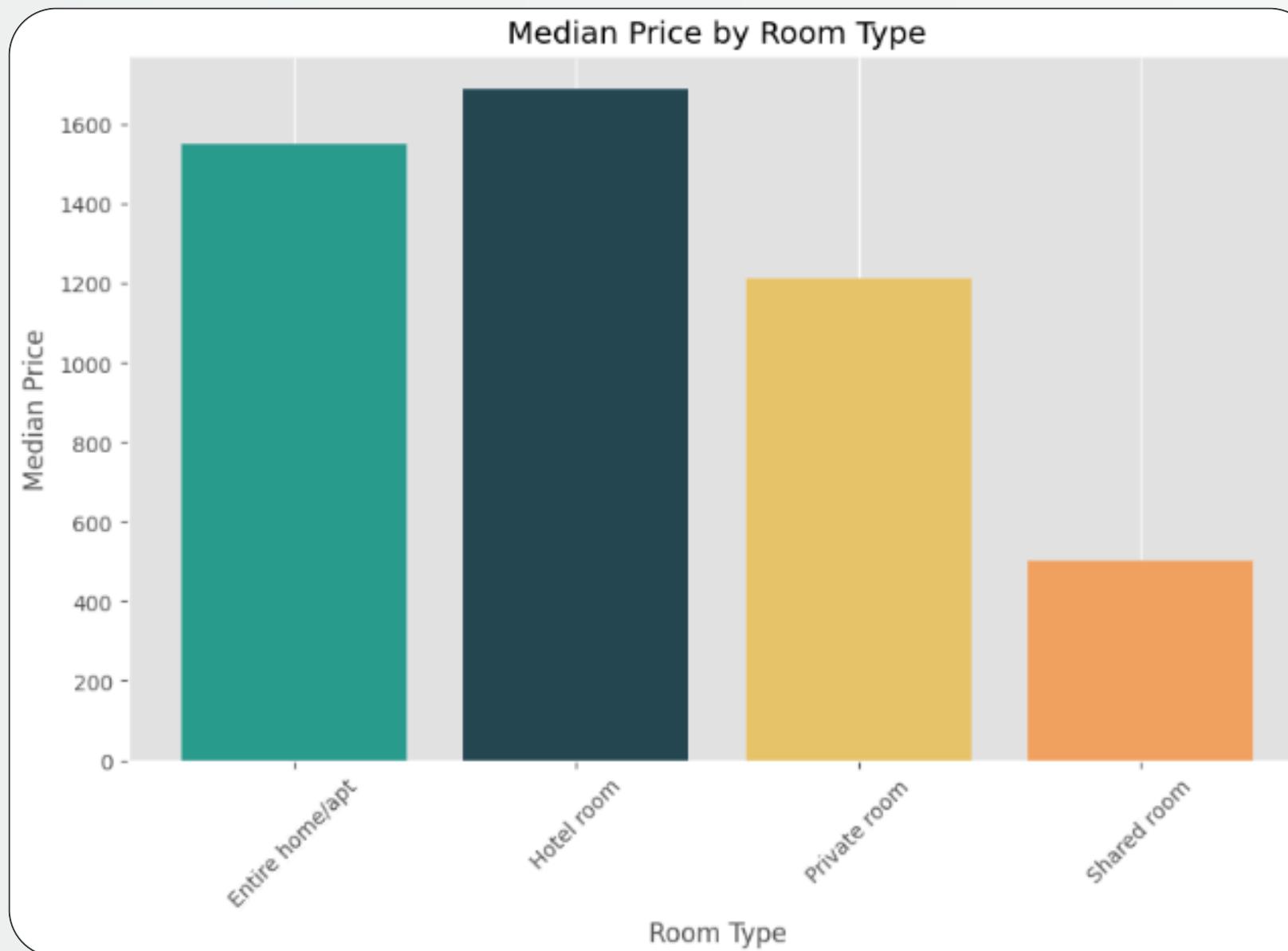
Entire Home/Apt is the  
most popular type.

The statistical test shows a  
p-value < 0.05 (**verified**).

Shared Room is **the least**  
popular type.

The statistical test shows  
a p-value < 0.05 (**verified**).

## MEDIAN PRICE BY ROOM TYPE



The price of **an entire home** tends to be more expensive than a private room or shared room.

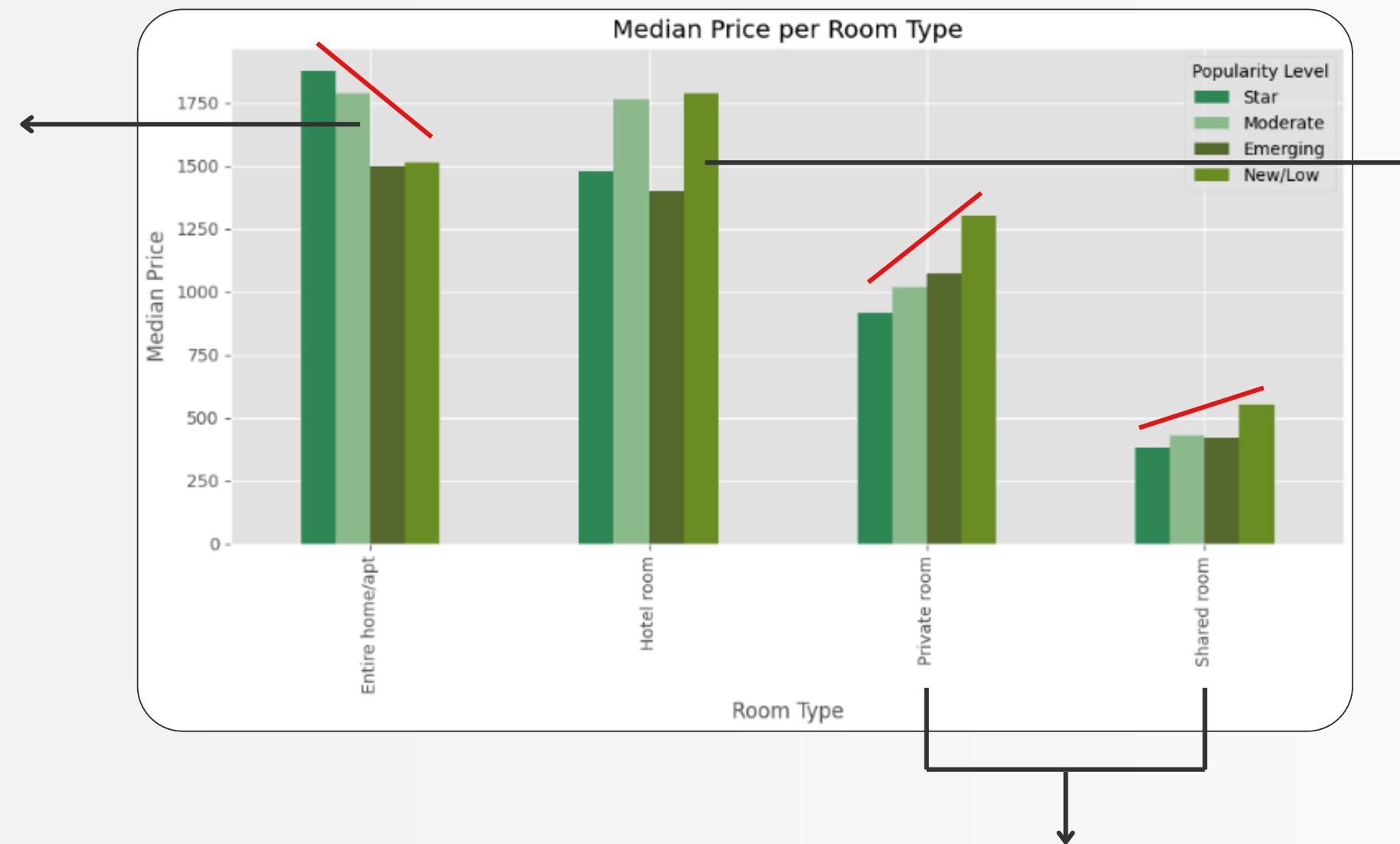
Meanwhile, **a hotel room** is slightly more expensive than an entire home, although the difference is not significant.

PRICE

## MEDIAN OF PRICE BY POPULARITY LEVEL

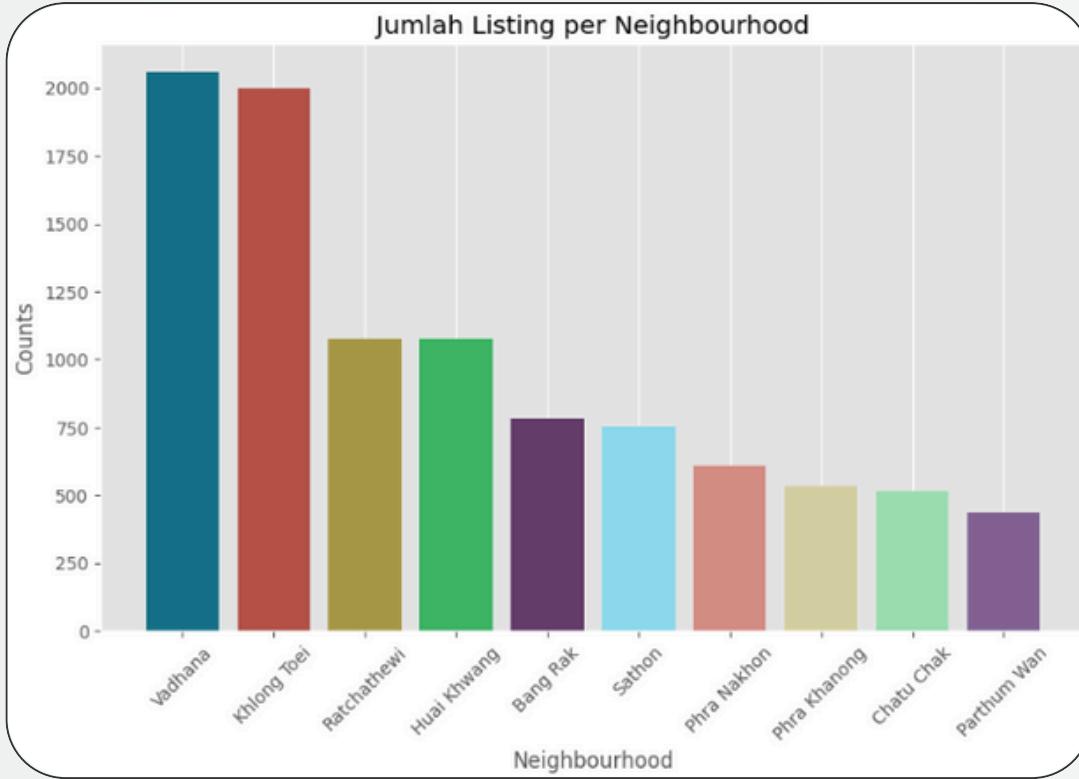
**Entire Home:**  
The more popular,  
the more expensive

**Hotel room:**  
There is no  
identic trend



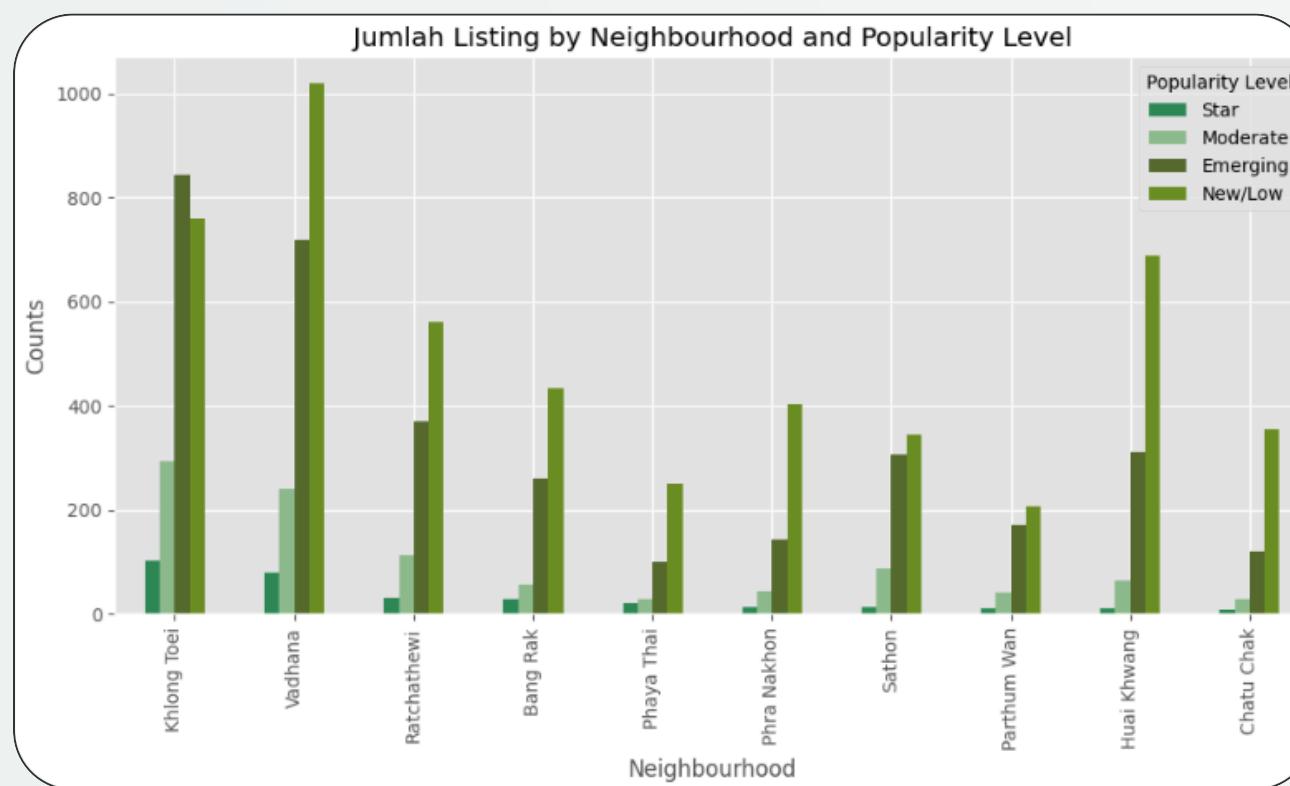
**Private room dan Shared room:**  
The more popular, the cheaper

PRICE



## POPULAR NEIGHBOURHOOD

- **Tier-1** : Khong Toei and Vadhana  
2 areas are significantly more popular than the others.



- **Tier-2** : Ratchathewi, Bang Rak, Phra Nakhon, Sathon, Parthum Wan, and Huai Khwang  
: Popular area, but under Tier-1

NEIGHBOURHOOD

## NEIGHBOURHOOD TIER-1

Image: maps.google.com



### Khlong Toei

- MRT (Blue Line): Queen Sirikit, Khlong Toei
- BTS (Green Line): Asok, Phrom Phong

### Vadhana/Watthana

- MRT (Blue Line): Sukhumvit
- BTS (Green Line): Asok, Thong Lo, Ekkamai



NEIGHBOURHOOD

Image: northofknown.com

## NEIGHBOURHOOD TIER-2

### Consists of:

- Ratchathewi, Bang Rak, Phra Nakhon, Sathon, Parthum Wan, and Huai Kwang

### BTS and MRT access:

- Available, **but** mostly just have 1 station in those area

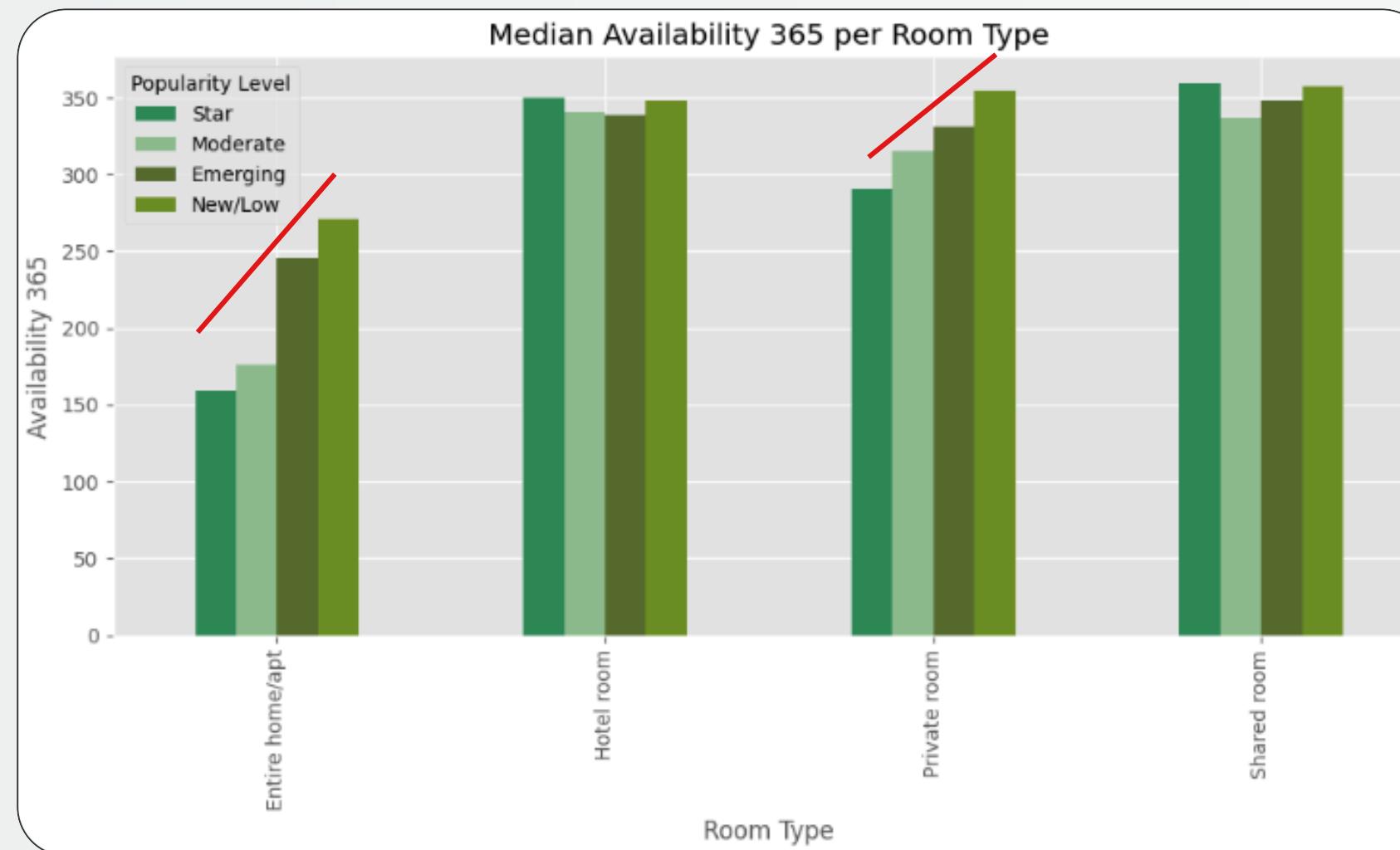


Image: airportels.asia

Wilayah	Stasiun BTS (Sukhumvit Line)	Stasiun BTS (Silom Line)	Stasiun MRT (Blue Line)
Ratchathewi	Ratchathewi	-	-
Bang Rak	-	Saphan Taksin	-
Phra Nakhon	-	-	Sanam Chai
Sathon	-	Sathon	Silom
Pathum Wan	Siam, Chit Lom	-	Siam
Huai Khwang	-	-	Huai Khwang

## NEIGHBOURHOOD

## AVAILABILITY



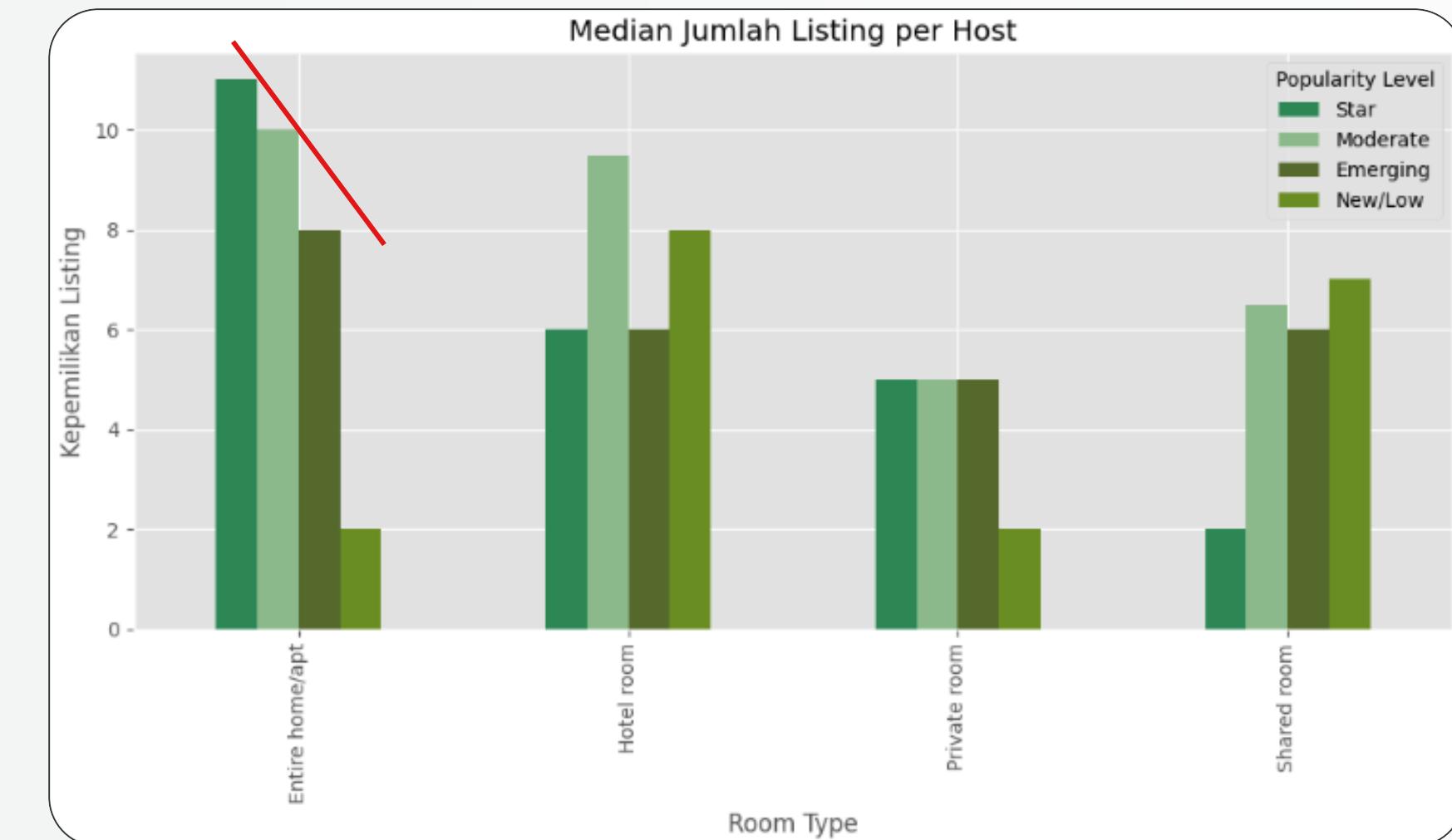
## MEDIAN OF AVAILABILITY IN NEXT 365 DAYS

- **Entire Home and Private Room:**  
The more popular, the fewer availability of listing in 365 days later.
- **Hotel Room and Shared Room:**  
There is no specific pattern

## CALCULATED LISTING

### MEDIAN OF CALCULATED LISTING PER HOST

- **Entire Home:** The more popular, **the more much** listing that have by the host.
- **3 type other:** There is no specific pattern



CHOOSE TYPE:  
**ENTIRE HOME/APT**

## TREND SUMMARY



- **Popularity Level:**
  1. Star and Moderate level for **3.71%** and **11.96%** of listings – the highest among the four types.
  2. Statistical tests show these are **significantly more popular** than the others.



- **Price:**
  1. The more popular the listing, the **higher price** (customers tend to be less price-sensitive).
  2. Generally more expensive than other types, offering **greater revenue potential**.



- **Neighbourhood:** **Khlong Toei** and **Vadhana** are the two most popular neighborhoods.



- **Availability:** The more popular the listing, the **lower availability** of the listing



- **Calculated Listing:** The more popular the listing, **the more listings** each host tends to have.

CHOOSE :  
ENTIRE HOME/APT TYPE

## ACTIONABLE RECOMMENDATION

### 1. Provide incentives to popular hosts to add new listings

- **Specific:** Hosts with **Star Level** listings in the **Khlong Toei** and **Vadhana** areas.
- **Measureable:** One new listing per host.
- **Achievable:** Incentive in the form of a 10–30% discount on advertising costs for the new listing
- **Relevant:** Has the potential to generate new popular listings
- **Time-bound:** Evaluation every month over the course of 2 quarters

### 2. Bundling package between New/Low-level listings and Airbnb Experiences

- **Specific:** Bundle New/Low-level listings in the Khlong Toei and Vadhana areas with Airbnb Experiences
- **Measureable:** At least 5 guests and 1 review per listing per month from 10% of listings at this level
- **Achievable:** Offer a 10–30% discount on the bundled package
- **Relevant:** Potential to increase guest interest in listings at this level
- **Time-bound:** Monthly evaluation over a period of 2 quarters

CHOOSE :  
ENTIRE HOME/APT TYPE

## ACTIONABLE RECOMMENDATION

### 3. Promote “Emerging“ Listings during Peak Season

- **Specific:** Boost visibility of Emerging-level listings in Khlong Toei and Vadhana with discounts or special offers during peak season.
- **Measureable:** 10% monthly increase in bookings for Emerging listings.
- **Achievable:** Provide 10–15% discounts or enhance app visibility.
- **Relevant:** Capture demand when Star and Moderate listings are full.
- **Time-bound:** Monthly review during peak season.

### 4. Ride-Hailing Discount Vouchers for Routes Between Listings and Nearest MRT/BTS Stations

- **Specific:** Provide ride-hailing discount vouchers for routes to/from the nearest MRT/BTS stations for Tier-2 area listings.
- **Measureable:** Increase bookings by 10% per month in Tier-2 areas.
- **Achievable:** Partner with ride-hailing apps and adjust listing rates to 1,500–1,750 THB.
- **Relevant:** Improve connectivity between listings and the MRT/BTS network.
- **Time-bound:** Monthly evaluation over 2 quarters.

# **Conclusion and Recomendation**

- **Room type:** The most popular option among guests is Entire home/apartment.
- **Price:** High-popularity listings (Star and Moderate) tend to have higher prices, especially for Entire Home and Hotel Room types, while Private Room and Shared Room listings are generally lower in price.
- **Availability:** Entire Home/Apartments tend to have lower availability as their popularity increases.
- **Neighbourhood:** Khlong Toei and Vadhana are the most listing-dense and popular areas (Tier-1).
- **Calculated Listing:** Hosts with popular listings tend to have more properties listed under Entire home/apartment.

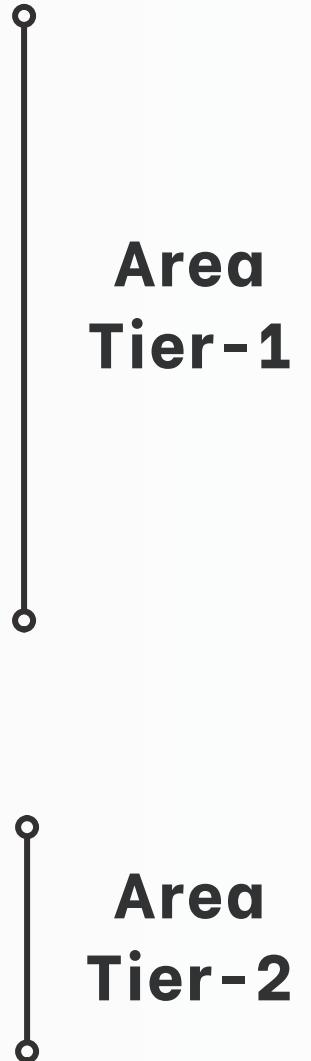
## CONCLUSION



## RECOMMENDATION

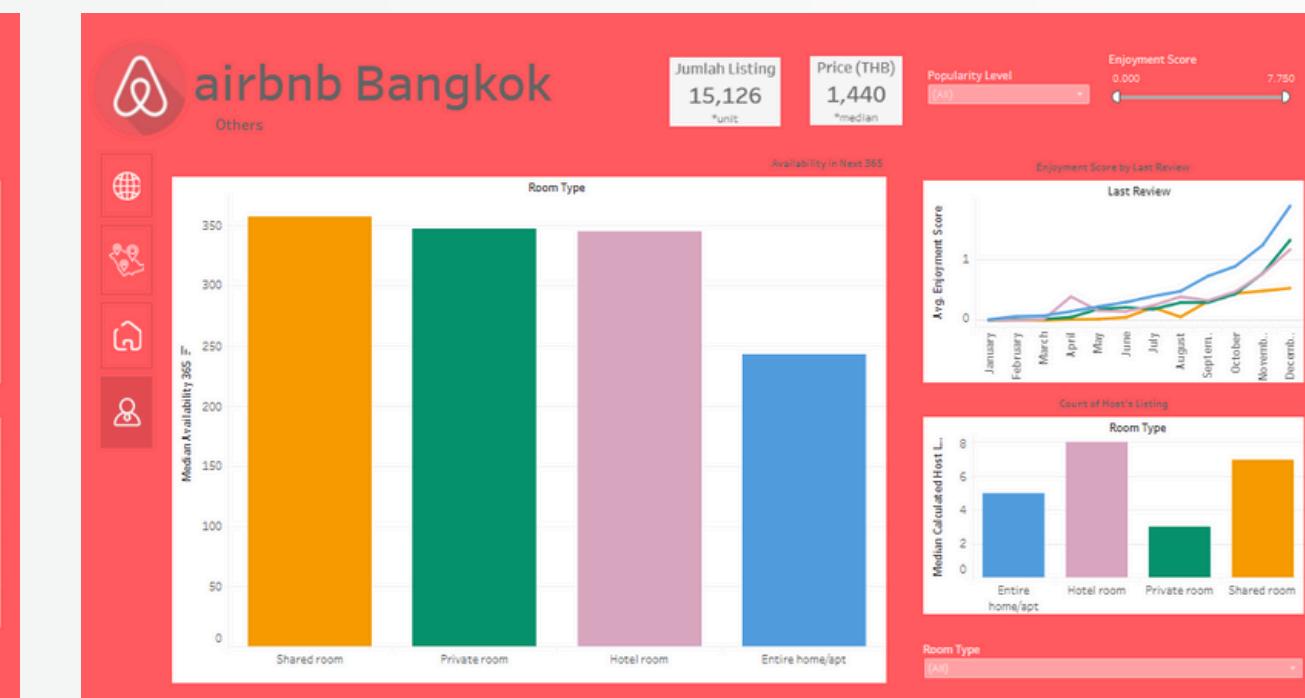
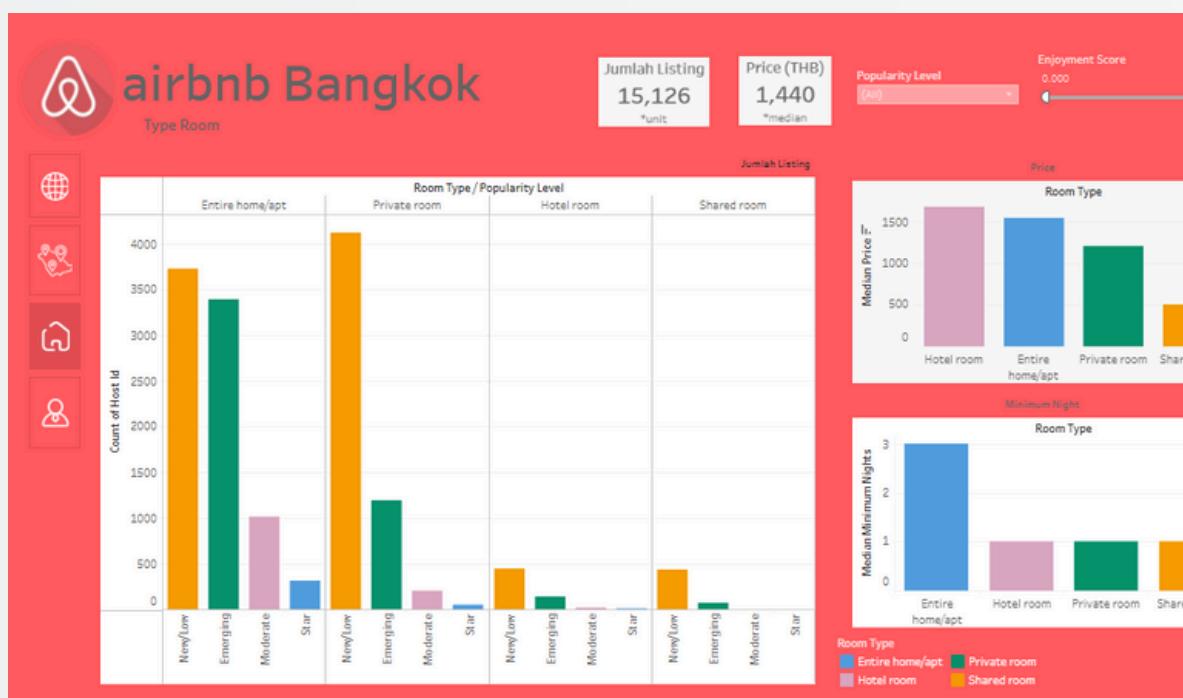
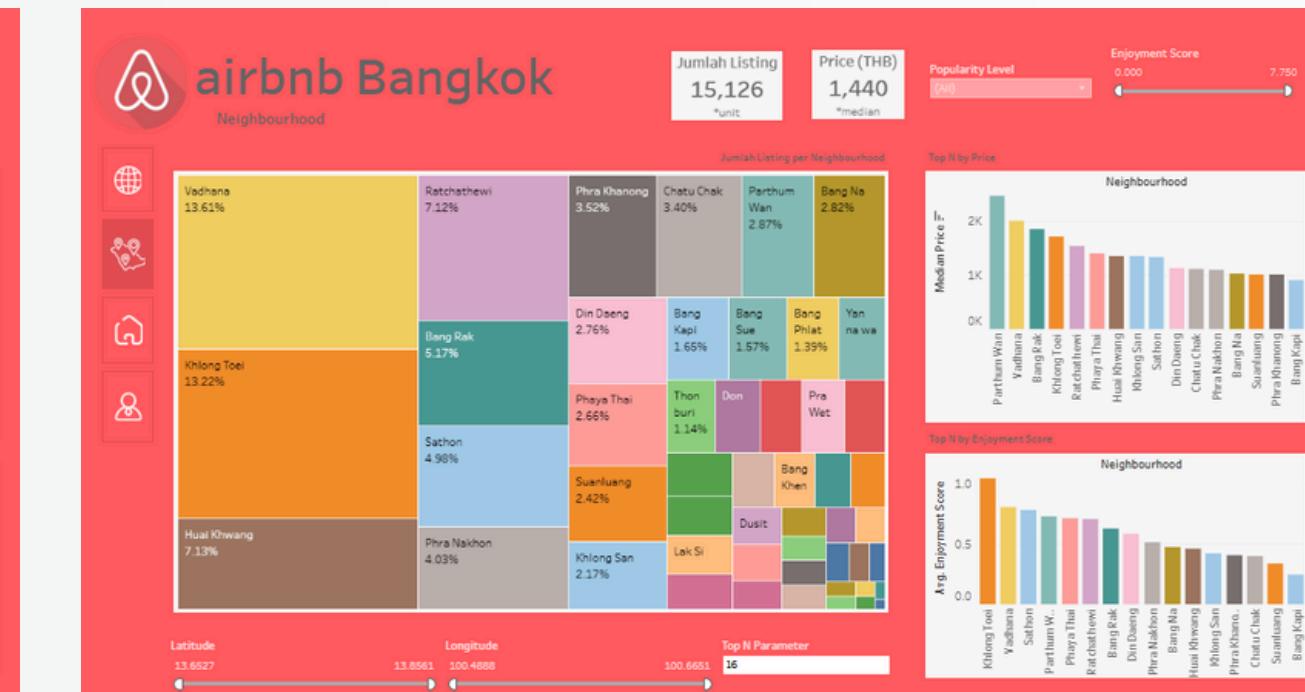
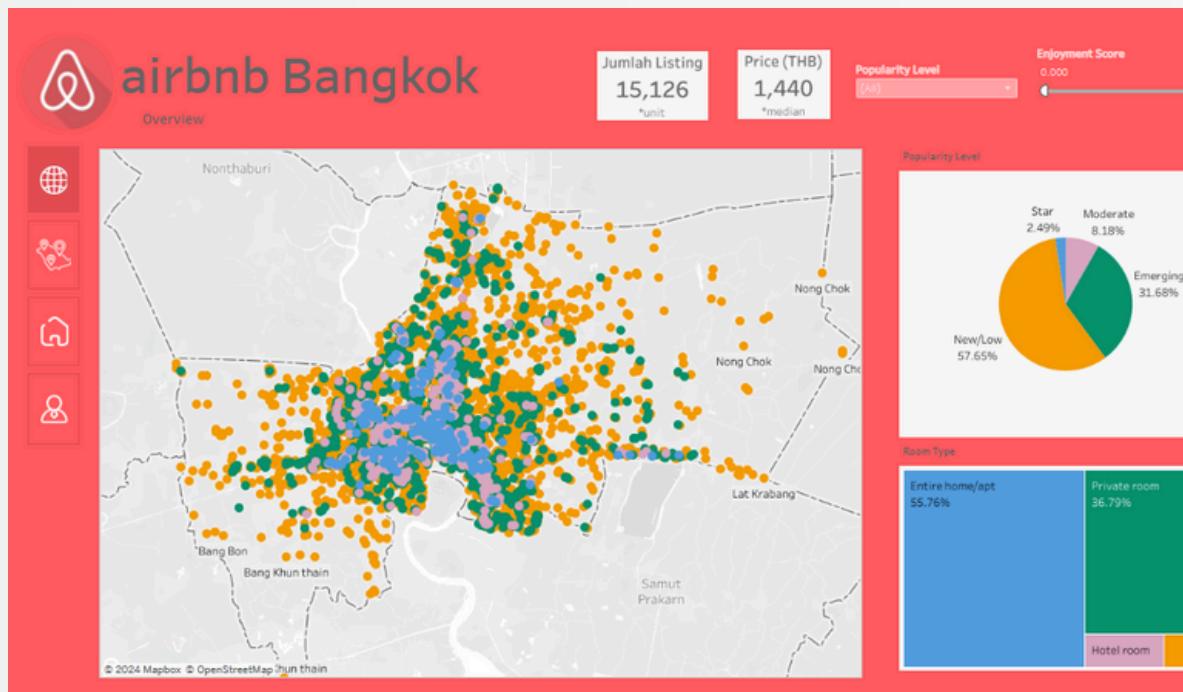


- **Incentivize** popular hosts to add new listings.
- Offer bundling packages for New/Low-level listings with Airbnb Experiences.
- Boost promotion of Emerging listings during peak season.
- Provide ride-hailing discount vouchers for routes between listings and nearby MRT/BTS stations.



# EXTRA

## DASHBOARD SNAPSHOT



[bit.ly/capstone02tableau](https://bit.ly/capstone02tableau)

**"Tam dee dai dee,  
tam chua dai chua"**

THAI PROVERBS

**thanks.**

MUHAMMAD LATIF NUR RAMADHAN | 2024

