OÙ SÉJOURNERONT ILS À PARIS?

A COMPREHENSIVE GUIDE TO HELP BOTH HOSTS AND TRAVELLERS WHEN IT COMES TO AIRBNB LISTINGS IN PARIS

TABLE OF CONTENTS

Introduction

Research Question & Hypotheses

Methodology & Results

Assumptions Taken & Actions Undertaken

Exploratory Data Analysis using Visualisations

Conclusion & Recommendation

INTRODUCTION

France, with its rich history and culture, is the most visited country in the world. Its capital, Paris, attracts more than 30 million visitors annually and there are more than 60,000 listings on Airbnb alone (on top of other hosting sites and hotels) to cater to the crowd.

It's a stiff competition out there and we have embarked on this project to create a guide for both Airbnb hosts' and potential visitors' reference - to help the former better position themselves more advantageously with competitive pricing and offerings and to aid the latter in making a more informed decision when it comes to booking their next accommodation for travel.

OBJECTIVE & HYPOTHESES
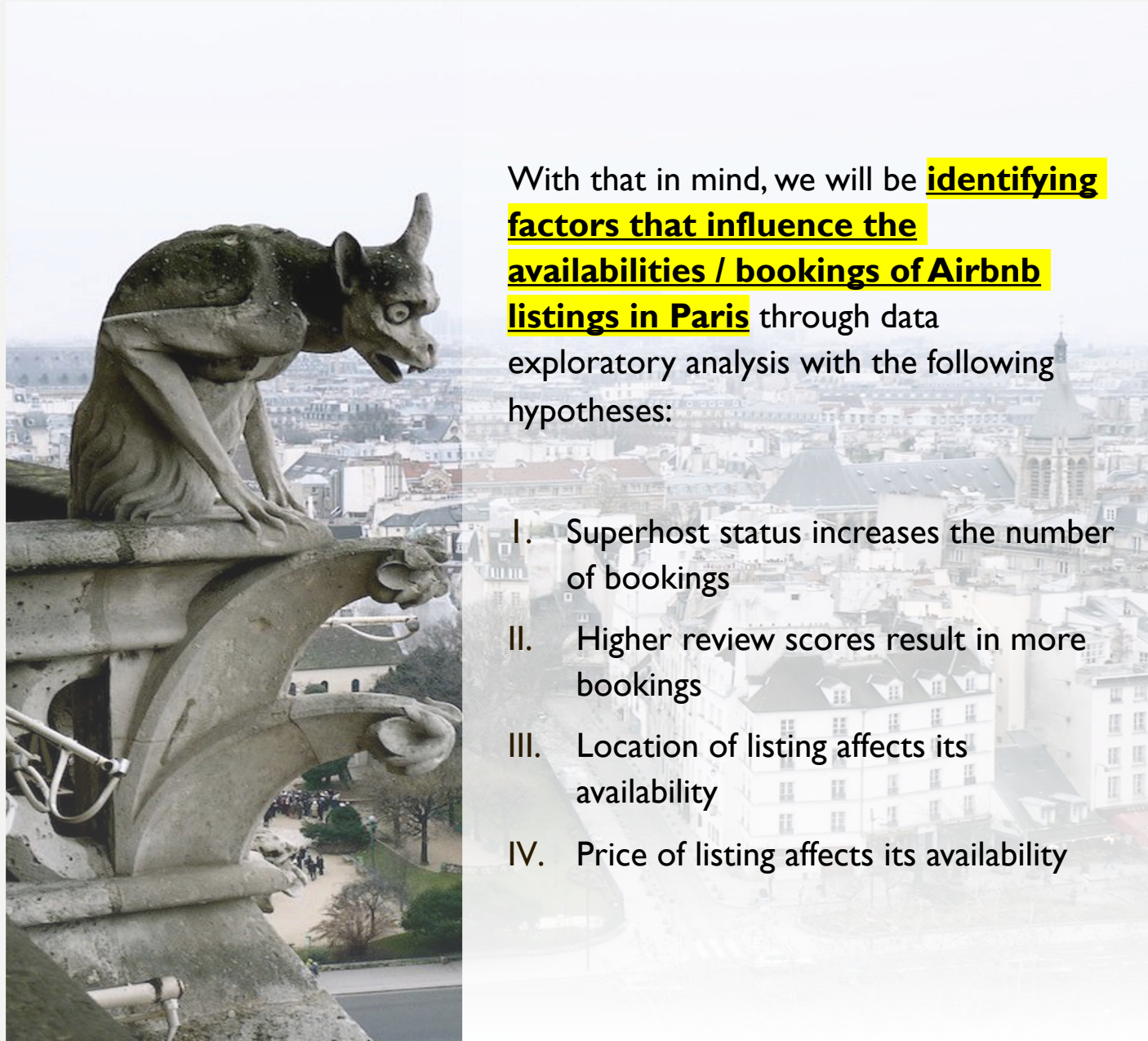
With that in mind, we will be ==**identifying factors that influence the availabilities / bookings of Airbnb listings in Paris**== through data exploratory analysis with the following hypotheses:

I.   Superhost status increases the number of bookings

II. Higher review scores result in more bookings

III. Location of listing affects its availability

IV. Price of listing affects its availability

ASSUMPTIONS TAKEN & ACTIONS UNDERTAKEN

- Assumption (1): This is only for short-term rentals
  Action Undertaken: Removed listings with minimum nights >30
  Result: Total number of listings went down from 61,365 to 47,471

- Assumption (2): Price indicated for each listing is the nightly rate for one guest
  Action Undertaken: Removed outliers for all room types
  Result:

With total number of listings dropping further from 47,471 to 42,957

| Room Type		Max Price	Min Price	Median Price	Average Price
Entire Home / Apt	Before	$12,286	$0	$120	$181.75
	After	$350	$10	$110	$130.69
Private Room	Before	$12,000	$1	$65	$134.53
	After	$232	$1	$57	$69.22
Shared Room	Before	$857	$10	$40	$58.66
	After	$111	$10	$38	$43.11
Hotel Room	Before	$4,873	$0	$345	$399.53
	After	$810	$0	$331.50	$345.63

ROOM TYPE DISTRIBUTION

- The dataset had been extracted on Sep'22; data source: insideairbnb.com

- There are four different room types: 'Entire Home/Apt', 'Private Room', 'Hotel Room' and 'Shared Room'
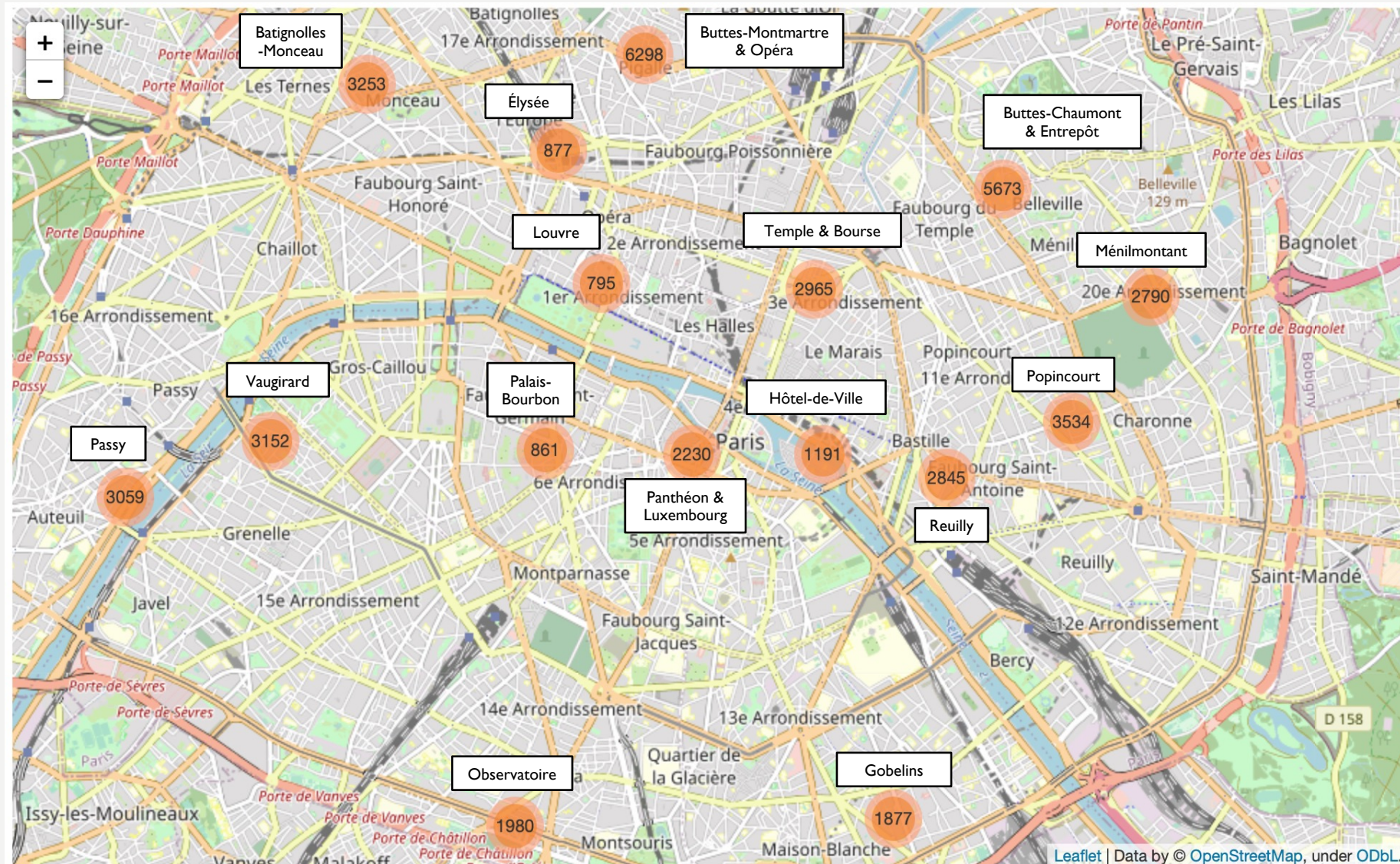

Type of Rooms Listed
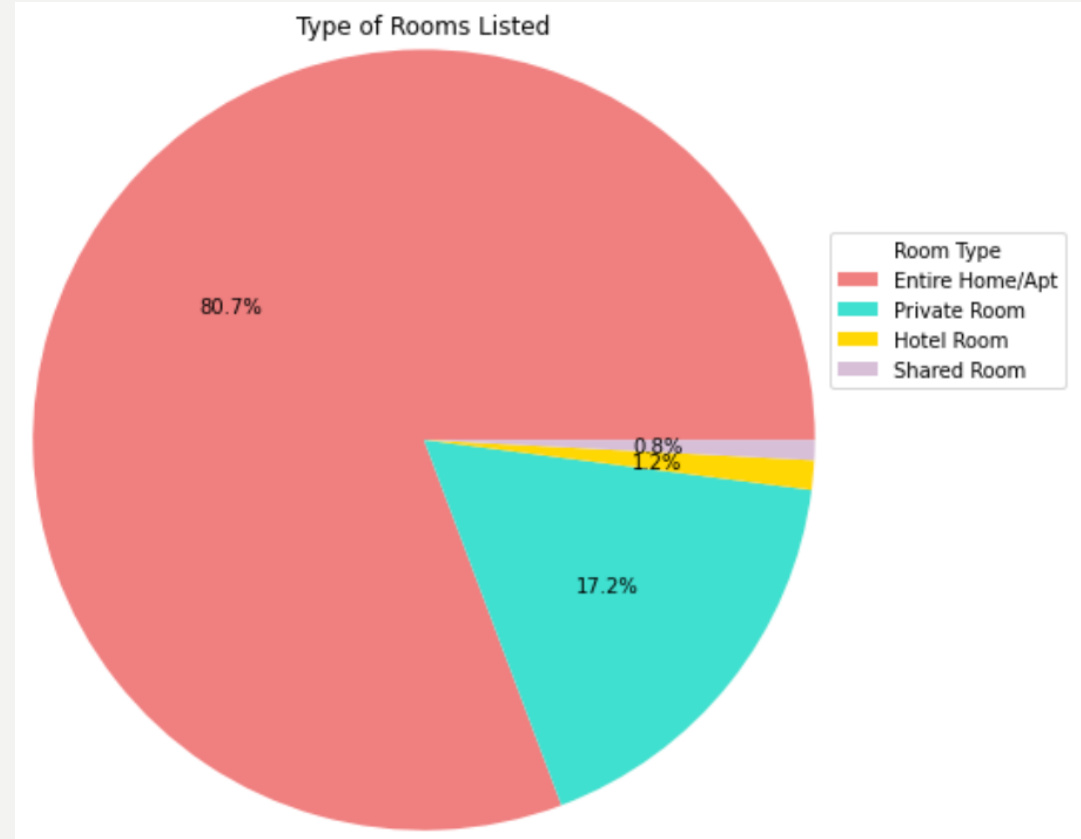
LISTING DISTRIBUTION AMONG THE ARRONDISSEMENTS (i.e. districts in French)

The capital is divided into 20 arrondissements with Buttes-Montmartre (18th) having the most number of listings, followed by Popincourt (11th):

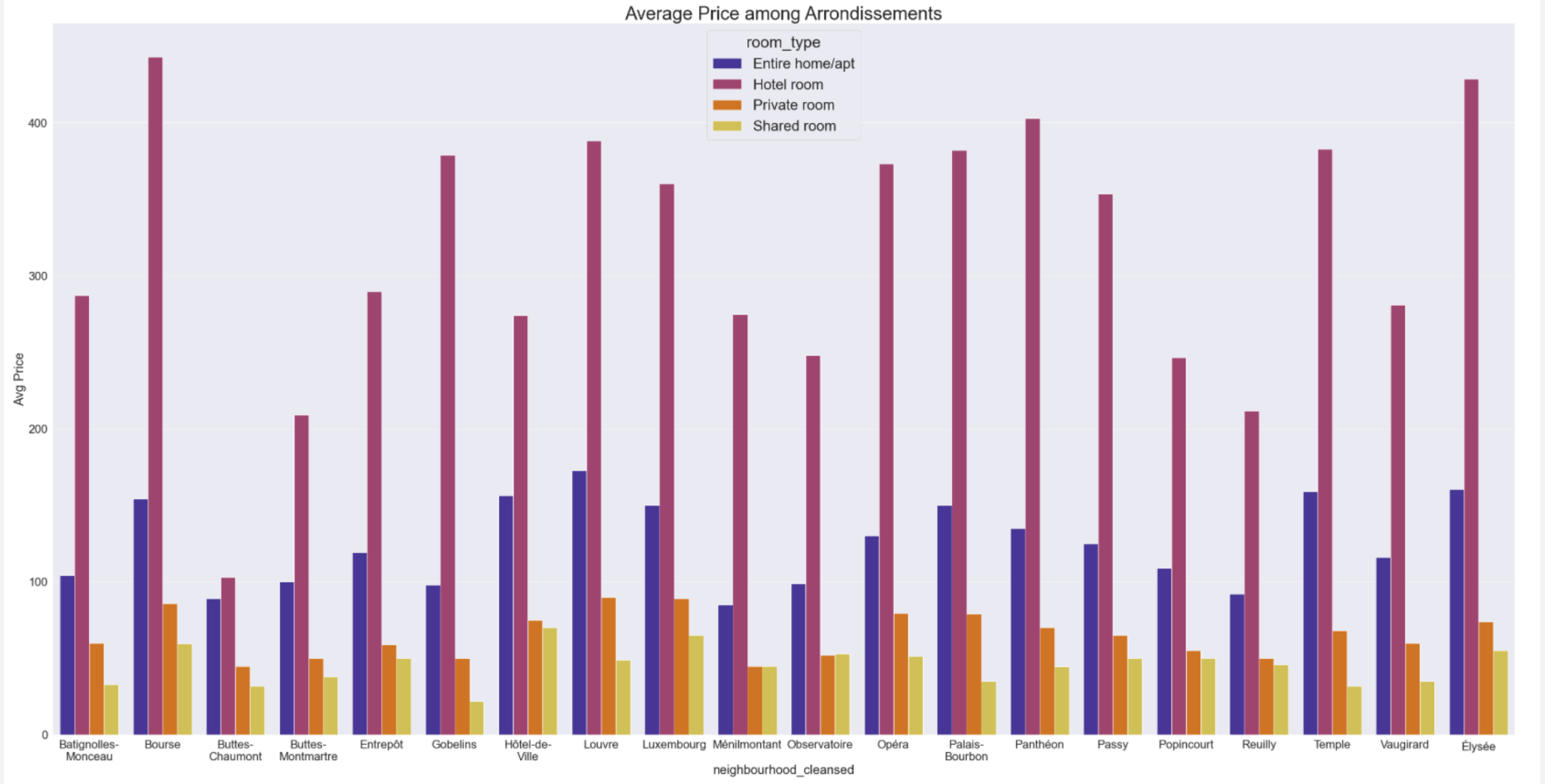

Number of Listings in Neighbourhood
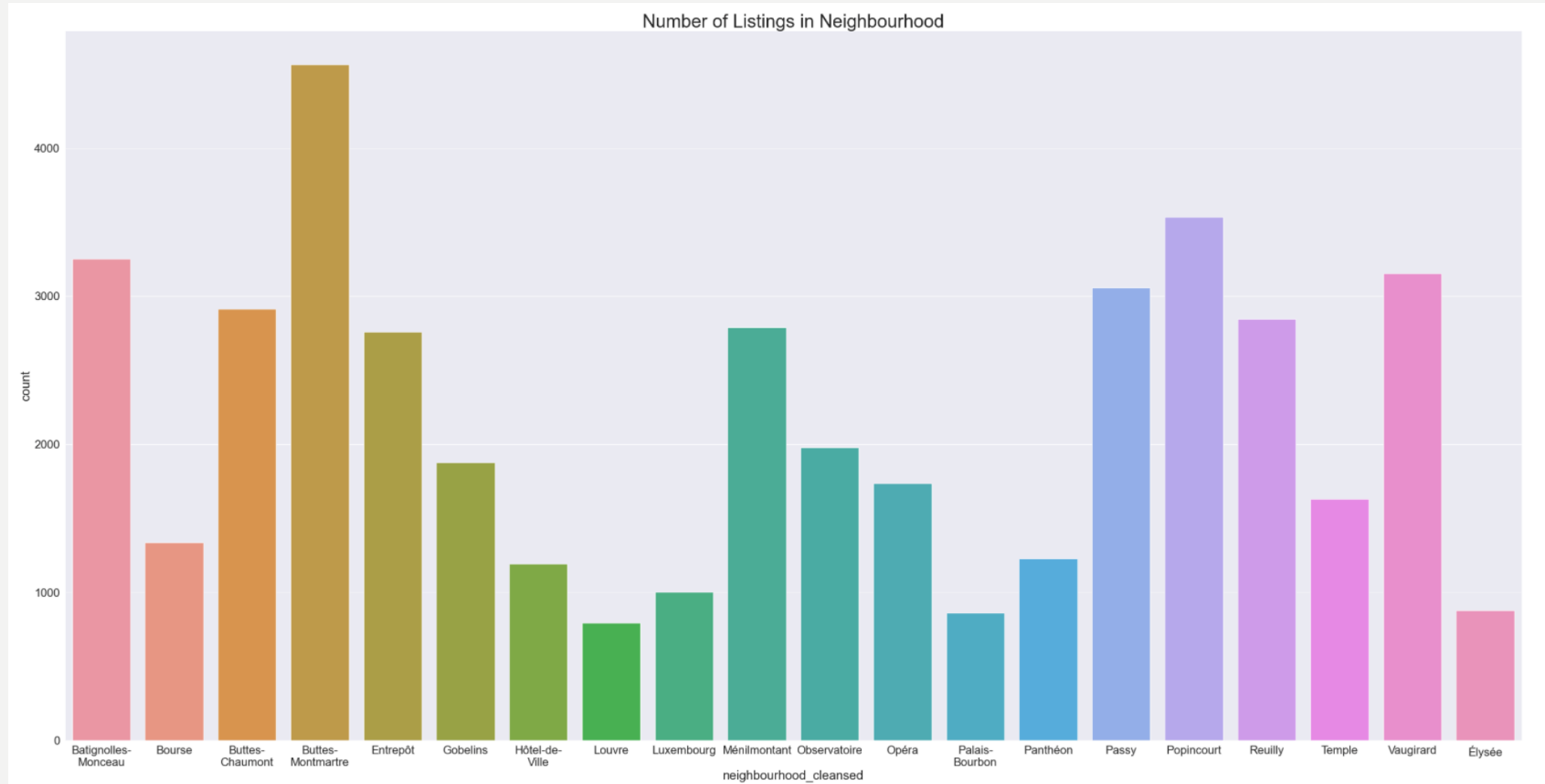
LISTING DISTRIBUTION AMONG THE ARRONDISSEMENTS

Geographical depiction of the number of listings using a general set of coordinates for each arrondissement

To be noted that some have been combined due to zoomed out view of map

PRICING AMONG THE ARRONDISSEMENTS



Average Price among Arrondissements

PRICING AMONG THE ARRONDISSEMENTS

- Hotel rooms generally cost a lot more than the other room types

Room Type	Highest Average Price	Lowest Average Price
Entire Home / Apt	Louvre, $173	Ménilmontant, $85
Private Room	Louvre, $90	Ménilmontant, $45
Shared Room	Hôtel de Ville, $70	Gobelins, $22
Hotel Room	Bourse, $443	Buttes-Chaumont, $103

- Possible reasons for the pricing in the respective arrondissements (based on their vicinities):

Louvre (1er Arrondissement)

➤ The least populated of all arrondissements with the least number of listings among all arrondissements which might've caused the average price to be higher.

➤ Where the Louvre Museum, the Tuileries Gardens and Westfield Forum des Halles (largest shopping mall in Paris) are located, with much of the remainder of the arrondissement dedicated to business and administration.

➤ With the abovementioned, we can also surmise that the higher pricing is to cater to tourists and business people alike.
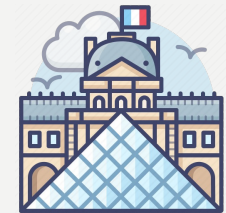
Bourse (2ème Arrondissement) & Hôtel de Ville (4ème Arrondissement)

➤ Both located in the very center of Paris (first sector) with small land area (first and third smallest arrondissement in the city respectively) and population which reflects a scarcity-driven pricing

➤ Both spans across a small area which puts them in close proximity between each other and other arrondissements in the first sector – i.e. accessibility to the Louvre museum and the Tuileries Garden in the first arrondissement and Notre-Dame and city hall of Paris in the fourth

➤ Bourse with its low residential population and its dense concentration of commercial activity (the densest in the capital, in fact) drives the high prices of the listings targeted at business travellers

➤ If we look at the prices between the three for entire homes, we can see that there isn't too big a difference and from that can surmise that the high pricing may be due to the scarcity of listings and centralised location.


Average Pricing of Entire Home/Apt in Central Paris
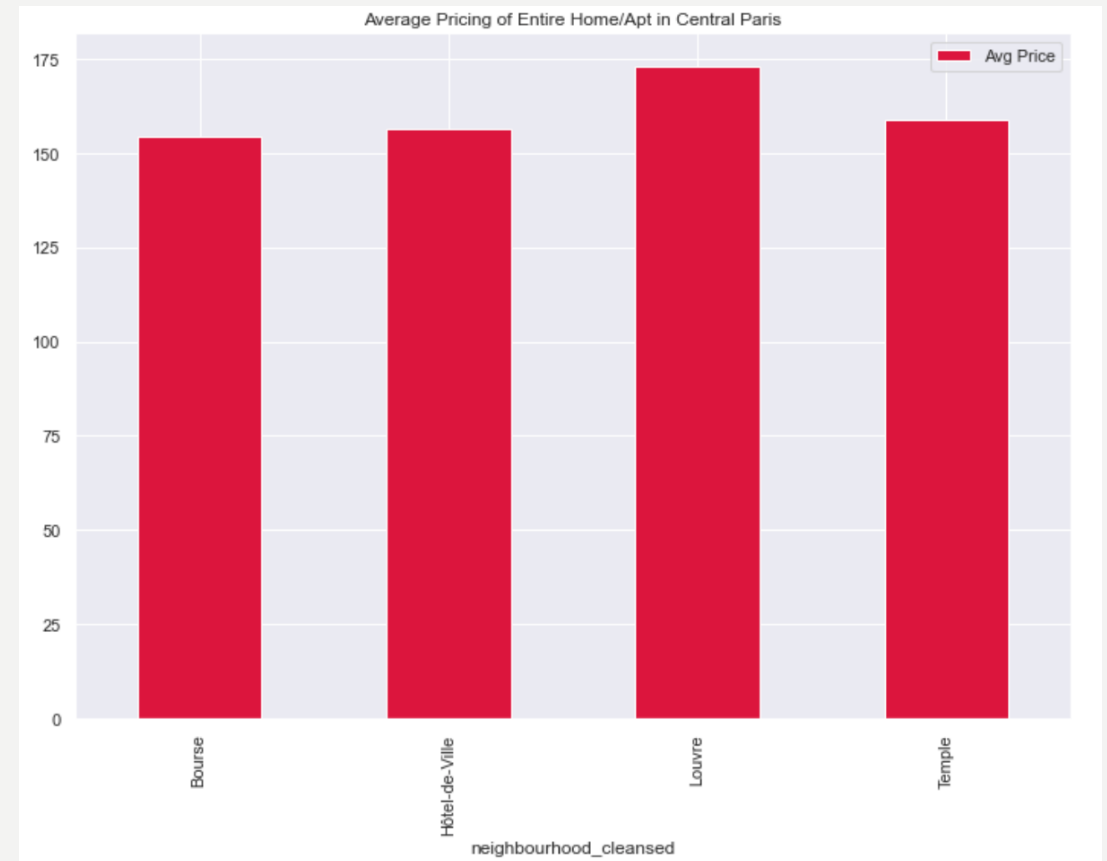
Gobelins (13ème Arrondissement)

➢ A residential neighbourhood where Chinatown is located with a handful of senior high schools and engineering graduate schools and a high concentration of Chinese and Vietnamese businesses - all of which is not typical on a tourist's route in Paris

➢ Lower prices in this case for private and shared rooms perhaps to cater more to locals and students than tourists

Buttes-Chaumont (19ème Arrondissement)
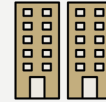
➢ A residential area without much tourist attractions

➢ The neighbourhood, despite being large and varied, is also an underprivileged area with people living below the poverty line (source: *https://www.expatica.com/fr/moving/location/where-to-live-in-paris-103864/#residential-south*) thus resulting in a bad reputation, which we can largely attribute to the general low pricing across all room types are compared with the other arrondissements

Ménilmontant (20ème Arrondissement)

➢ The neighbourhood has a working-class history which could have brought about a lower pricing right from the start (e.g. slower incline)

➢ A hippy, bohemian identity which may also only appeal to a selective group of audience

➢ A non-touristy area which is located further away from central Paris and includes an 87m high hill which may pose as an inconvenience to some

AVAILABILITY AMONG THE ARRONDISSEMENTS


Availability among Arrondissements
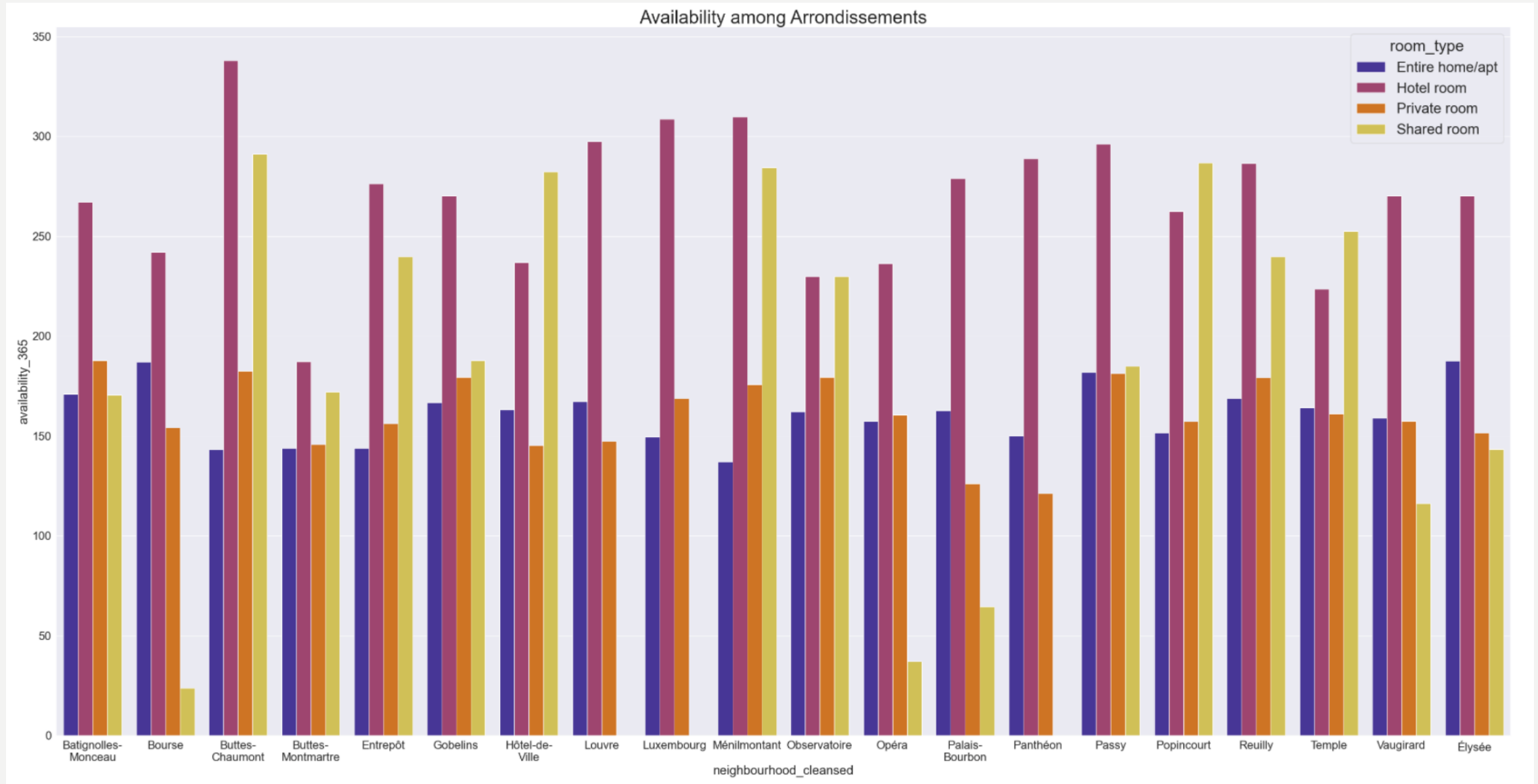
AVAILABILITY AMONG THE ARRONDISSEMENTS

- Average availability throughout the year is used here to look at the availability of the respective room types in the 20 arrondissements with entries at 0 removed as realistically there would be at least a day or two available throughout a year – this removal also helps to omit listings which hosts might have blocked out the entire calendar of or set prices way higher to prevent reservations (the latter resulting in high availability)

- The higher the availability, the fewer the bookings received. Zero availability here refers to having no listing available for comparison.

- Important to note that the low availability for shared rooms in certain arrondissements may be due to its low supply of listings in the area - highly plausible given that shared rooms contribute to only a 0.8% out of the total mix

- Result shows that disparity between the various room types is the lowest in Buttes-Montmartre compared to the majority which reflects a similar level of demand regardless of room type, hence the higher supply in listings which resulted in it having the most number of listings out of the 20 arrondissements

- Higher demand could be due to
    i. affordability (the average prices in Buttes-Montmartre are generally mid-range),
    ii. neighbourhood's vicinity (Buttes-Montmartre is a historical place with a rich cafe culture and is where Sacré-Cœur and Moulin Rouge are located)

THE SUPERHOST EFFECT

Superhost Status	Number of Hosts
True	6,564
False	36,393

Listing Availability between Superhosts & Non-Superhosts
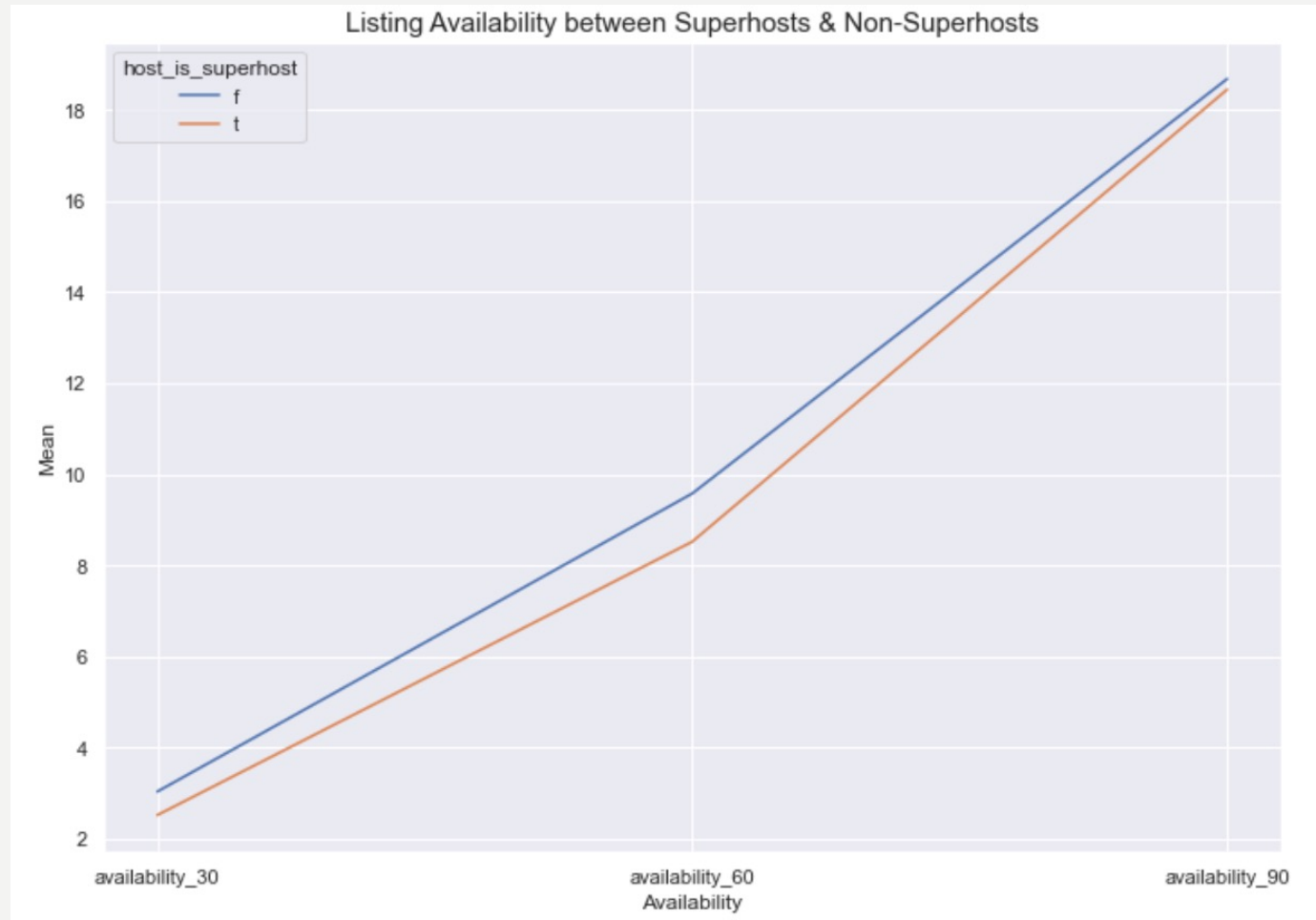
- Average is used here due to the large disparity between number of superhosts and non-superhosts

- Superhosts generally receive more bookings for their listings as the higher the number of days, the more available the listing is

host_is_superhost	availability_365 mean
f	108.431457
t	119.695917

- Even though the non-superhosts' availability in a year seems to be lower than the superhosts', we can deem that as negligible given the the large difference in the number of hosts

THE SUPERHOST EFFECT


Average Listing Prices between Superhosts & Non-Superhosts

Superhosts do tend to price their listings higher on the average, with the difference generally between $8 to $12 for all room types except hotel rooms (~$41) – pretty negligible depending on how tight one's budget is.

OTHER TANGIBLE FACTORS


Total No. of Amenities vs Price

- Highest number of amenities: 78; lowest number of amenities: 1

- Correlation between number of amenities and price: 0.2291

- Calculation displays a weak positive correlation

OTHER TANGIBLE FACTORS

No. of Accomodates vs Price
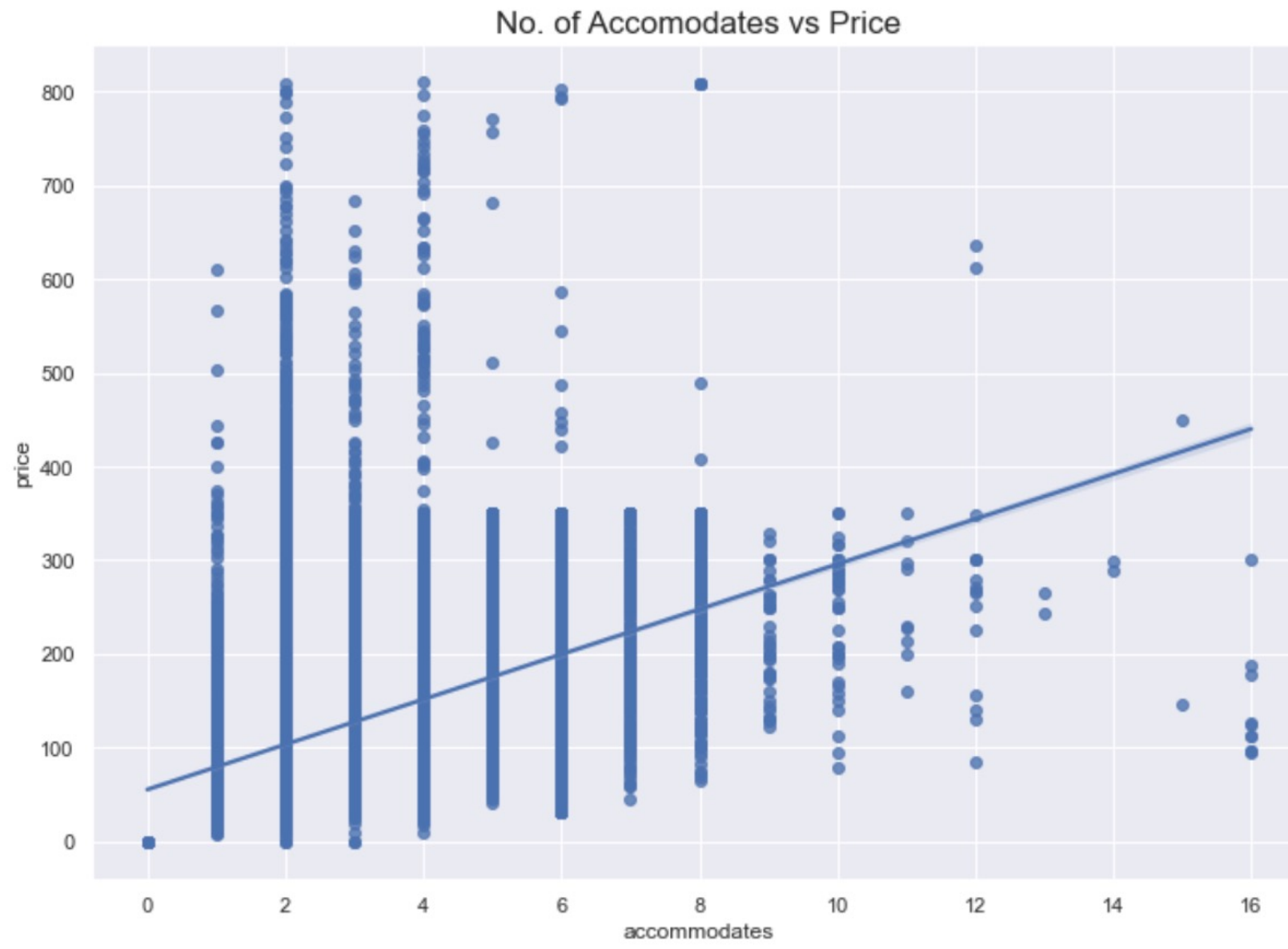
- Max number of accommodates: 16; min number of accommodates: 0 (hotel rooms)

- Correlation between number of accommodates and price: 0.4263

- Calculation displays a moderate positive correlation

OTHER INTANGIBLE FACTORS

Listing Availability vs Response Time Taken by Host
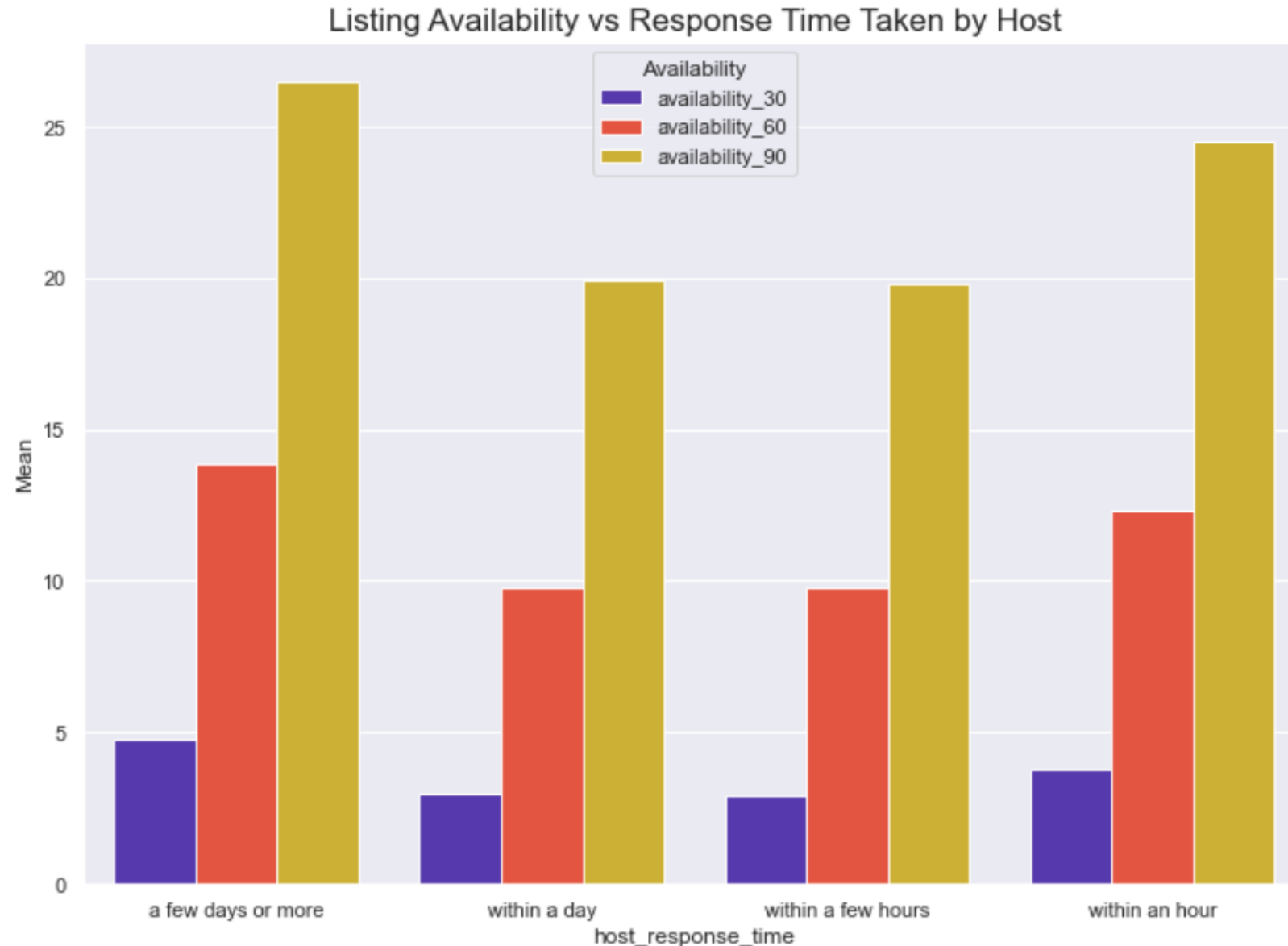
Advisable to keep responses to within a day given the negligible difference between that and responding within a few hours

We can infer that listings do not get booked as much when hosts take too long to respond as it gives potential tenants more time to source for other options

We can also surmise for the other end of the spectrum that listing availability is high despite the quick response time possibly due to hosts with newer listings without much reviews or listings with not as good reviews trying to secure bookings as soon as possible - the actual reason can only be confirmed when the affected listings are drilled into
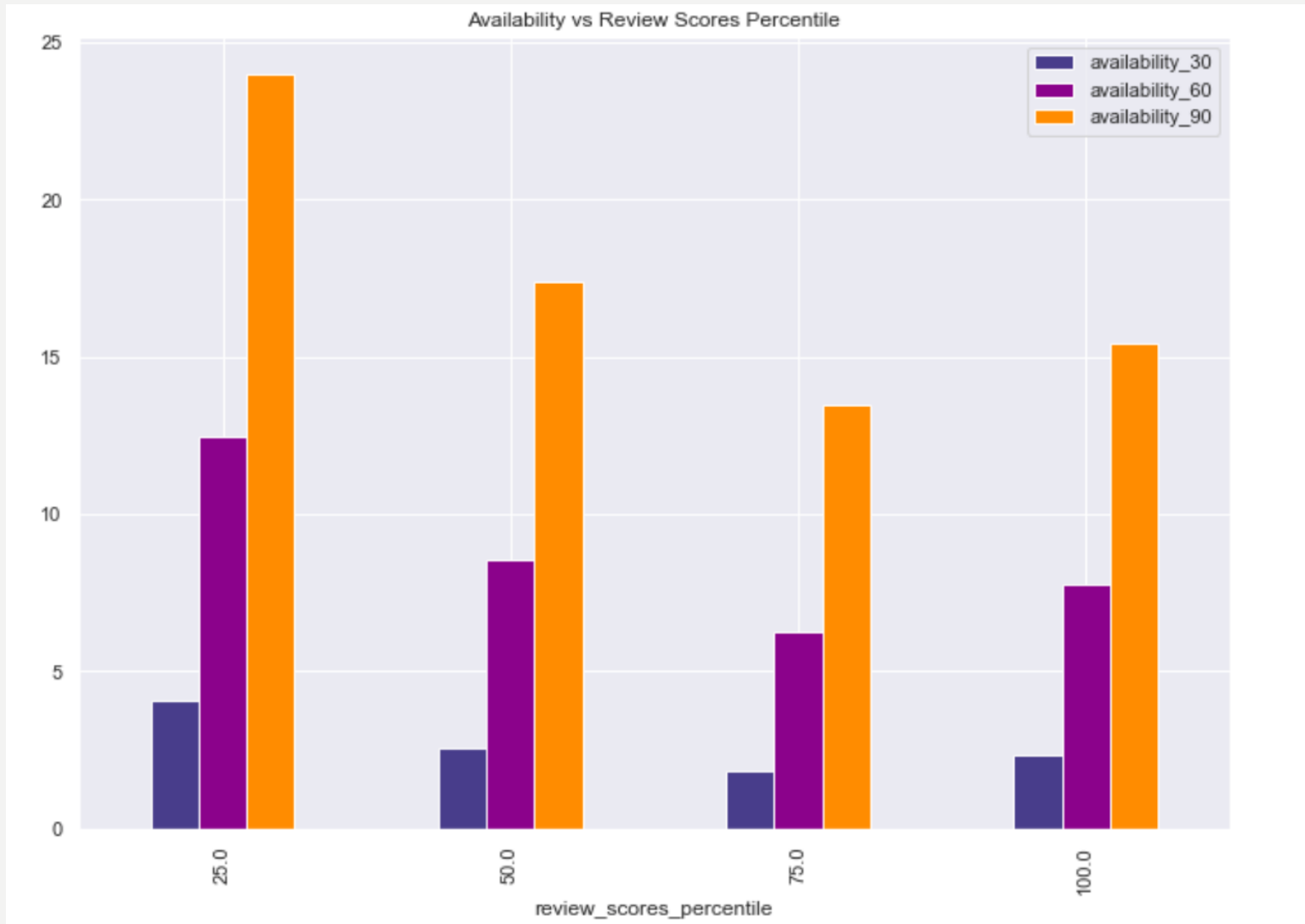
OTHER INTANGIBLE FACTORS

Review Scores vs Price

Correlation between review scores and price: 0.0117

Calculation displays a very weak positive correlation

OTHER INTANGIBLE FACTORS

Availability vs Review Scores Percentile

Sorted data into their respective percentiles based on the following (calculated using *np.nanpercentile*):

25th : less than or equal to 4.56
50th : between 4.56 and 4.81
75th : between 4.80 and 4.98
100th : from 4.98 to 5.00

The average availability in each category shows that generally, the lower the overall rating, the higher the availability

Lowest availability however is at the 75th percentile rather than the 100th – possible reasons to attribute this to: more convenient locations, more affordable pricing, more reviews received which might've diluted the overall score as well (e.g. listing with only one 5-point review score vs listing with several review scores ranging from 4.5 – 5)

CONCLUSION

- Having a superhost status increases the number of bookings

- There is sufficient evidence to support the claim that higher review scores result in more booking, albeit more at the 75th percentile than 100th percentile

- Results reveal that location is a determining factor when it comes to pricing, especially for listings in Paris Centre (first to fourth arrondissements) where price is the highest

- There is insufficient evidence to support the claim that pricing affects a listing's availability

RECOMMENDATION

Hosts

- A good understanding of the nature of the arrondissement (touristy or commercial dominant) will help better identify the target audience to provide more suitable amenities and offerings

- Knowing the average prices for the respective types of listings in the arrondissements will help in coming up with more competitive prices to attract more potential travellers to make reservations

- Non-superhosts should consider upgrading their statuses as it can help to boost their listings

Travellers

- Likewise for travellers, a good understanding of the nature of the arrondissement will enable them to plan their routes better and select an area and room type that caters more to their needs (e.g. touristy vs hippy, bohemian vibes)

- Location is a determining factor when it comes to pricing, hence a good understanding of the nature of the arrondissement will also help travellers to find a listing that suits their budget