



Airbnb Pricing System Paris



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# **01**

## **Business Case**



# Starting Point



## Dataset

67.323 listing  
106 features  
March 15th 2020



## Initial Data Cleaning

65.575 listing  
39 features

## Feature Engineering



### Size

Extracted from  
description column



### Important Amenities

Extracted from  
amenities column



### Location

City Center  
Distance

# Feature Groups in the Dataset



“The price you charge for your listing is completely up to you. To inform your decision about what price to set, you can search for comparable listings in your city or neighborhood to get an idea of market prices.”

**–Airbnb Help Center**



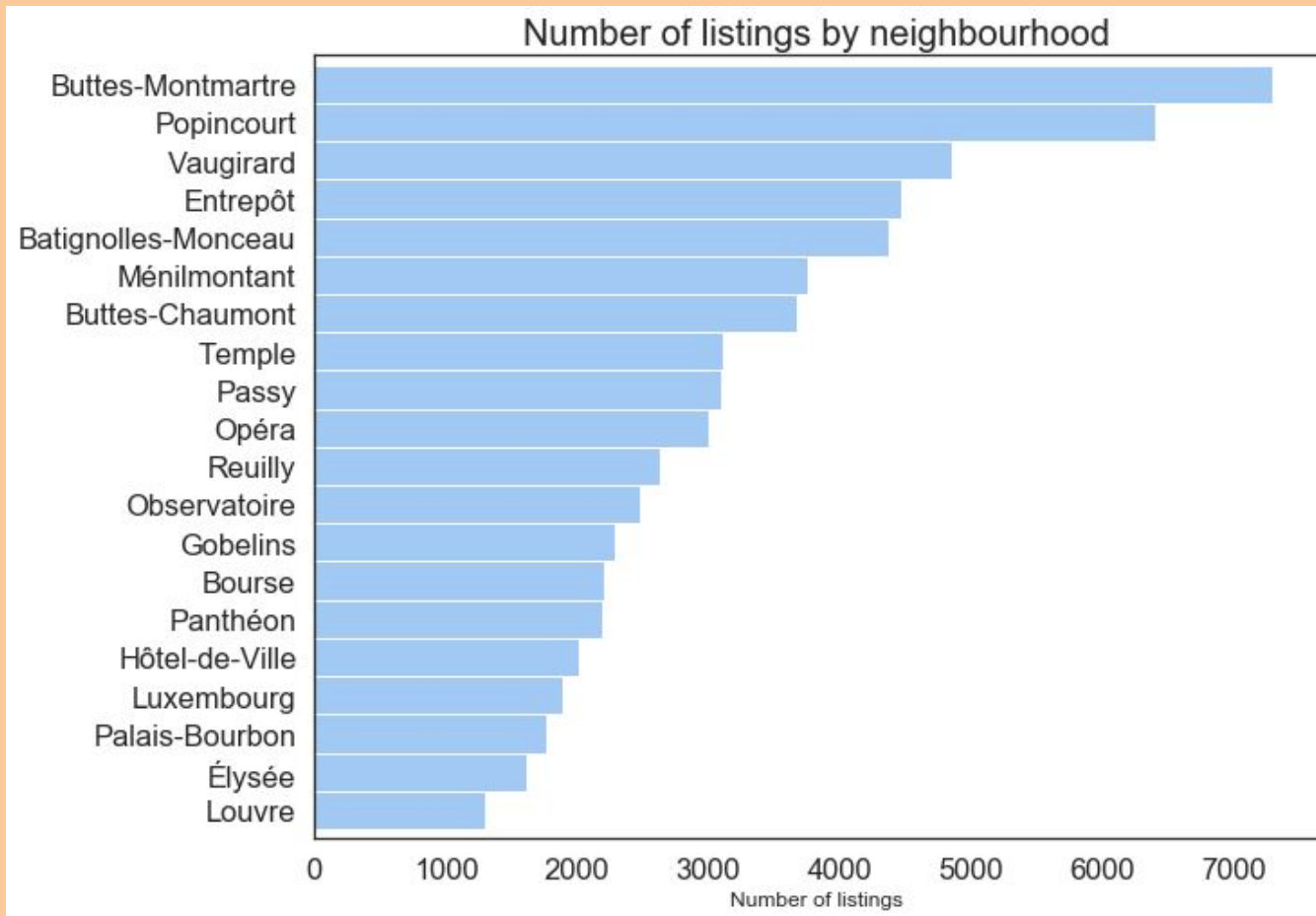
# Pricing Model

And how to optimize your daily Rate !!



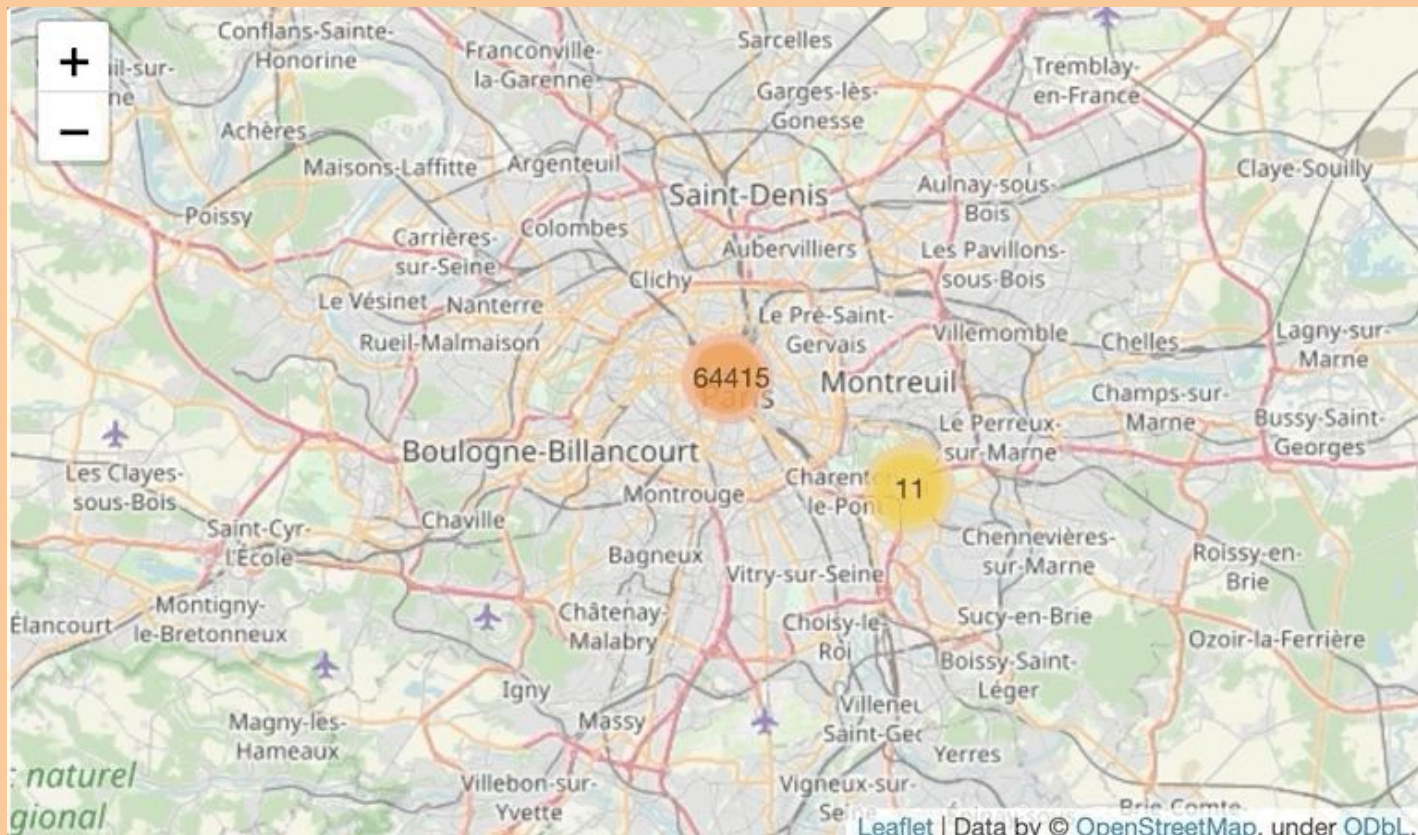
# **02**

## **Analysis**

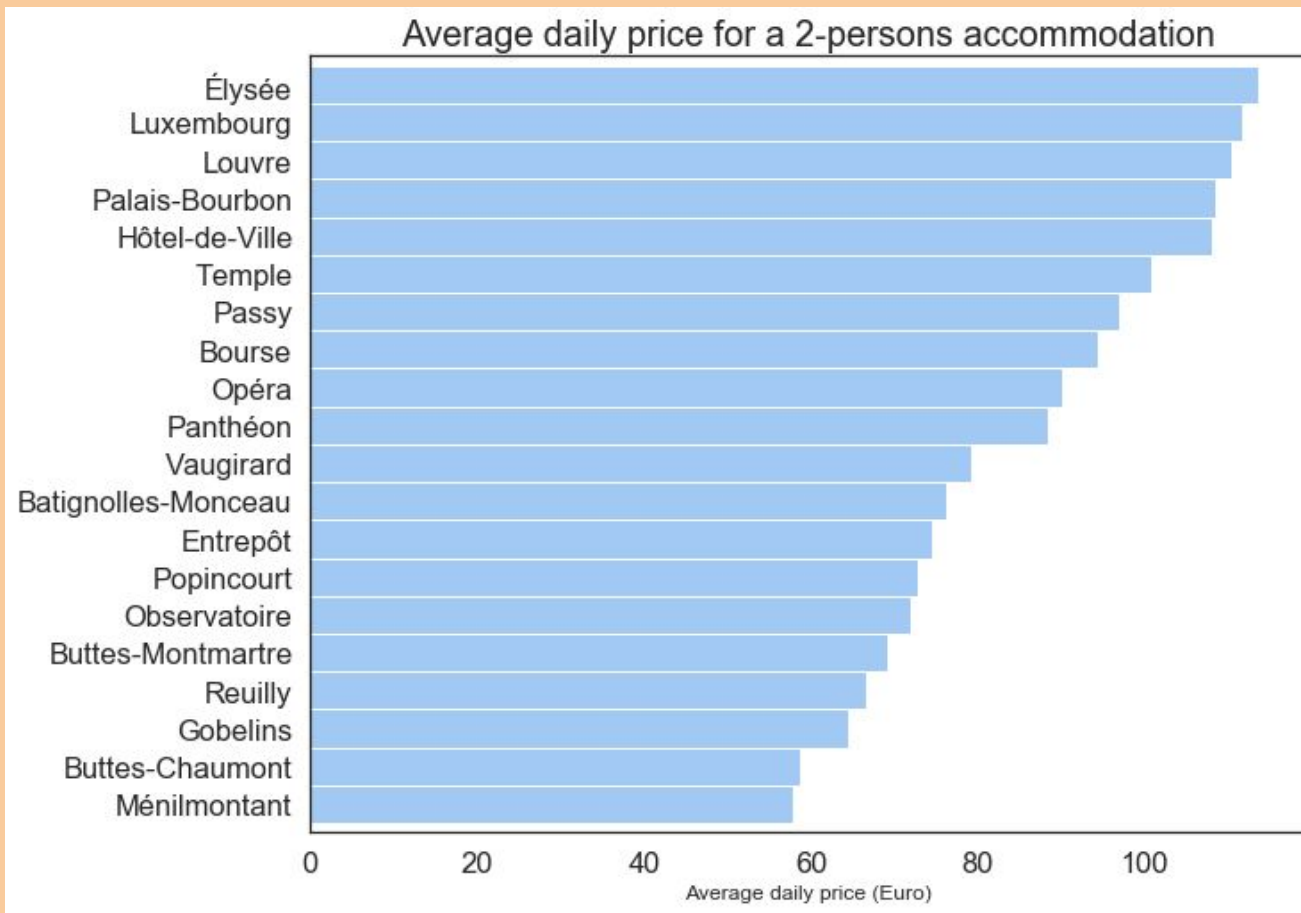


Where can you find most listings?

## Location



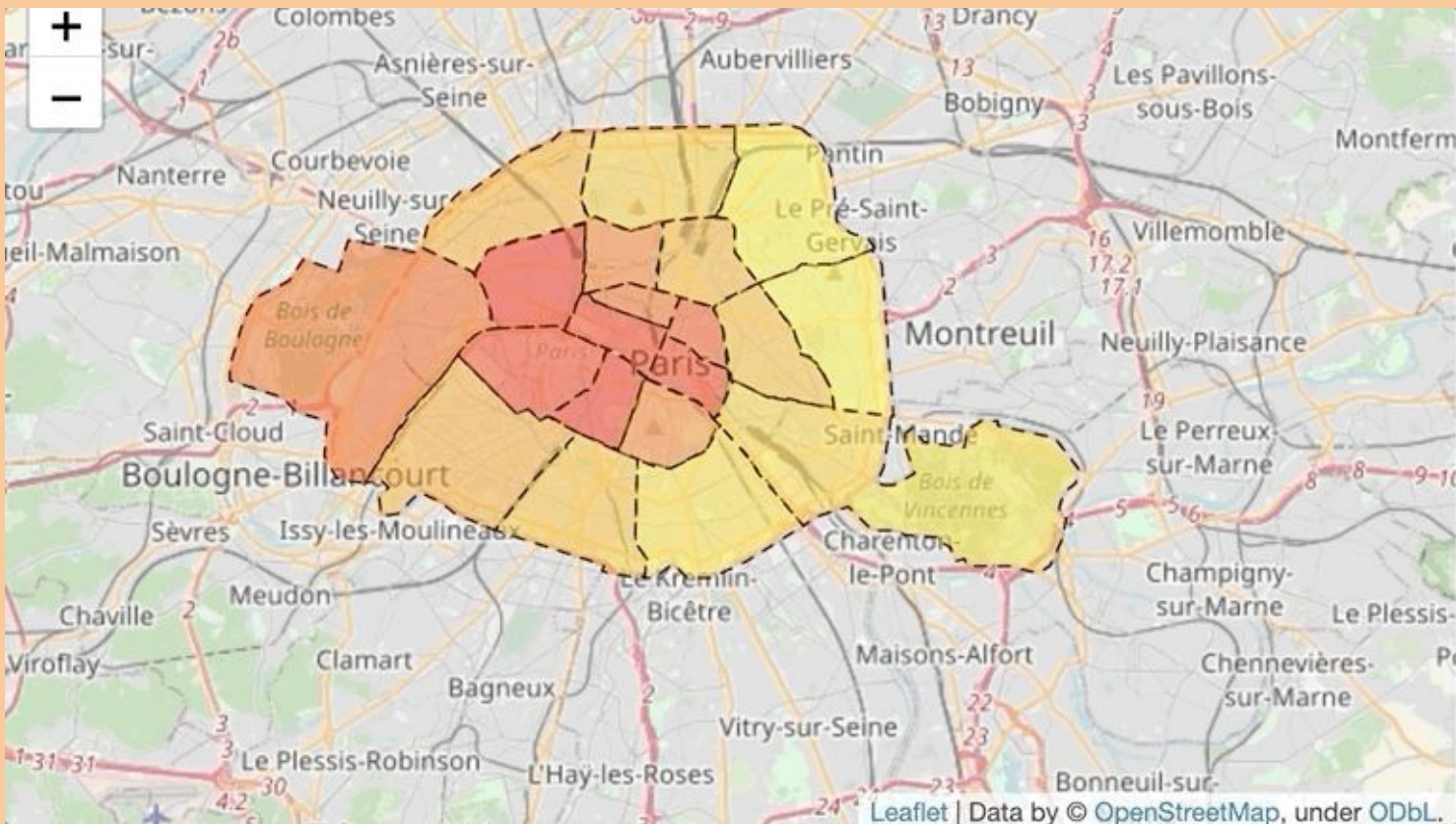
Let's have a look on the clusters!



Where can you find the cheapest listings?

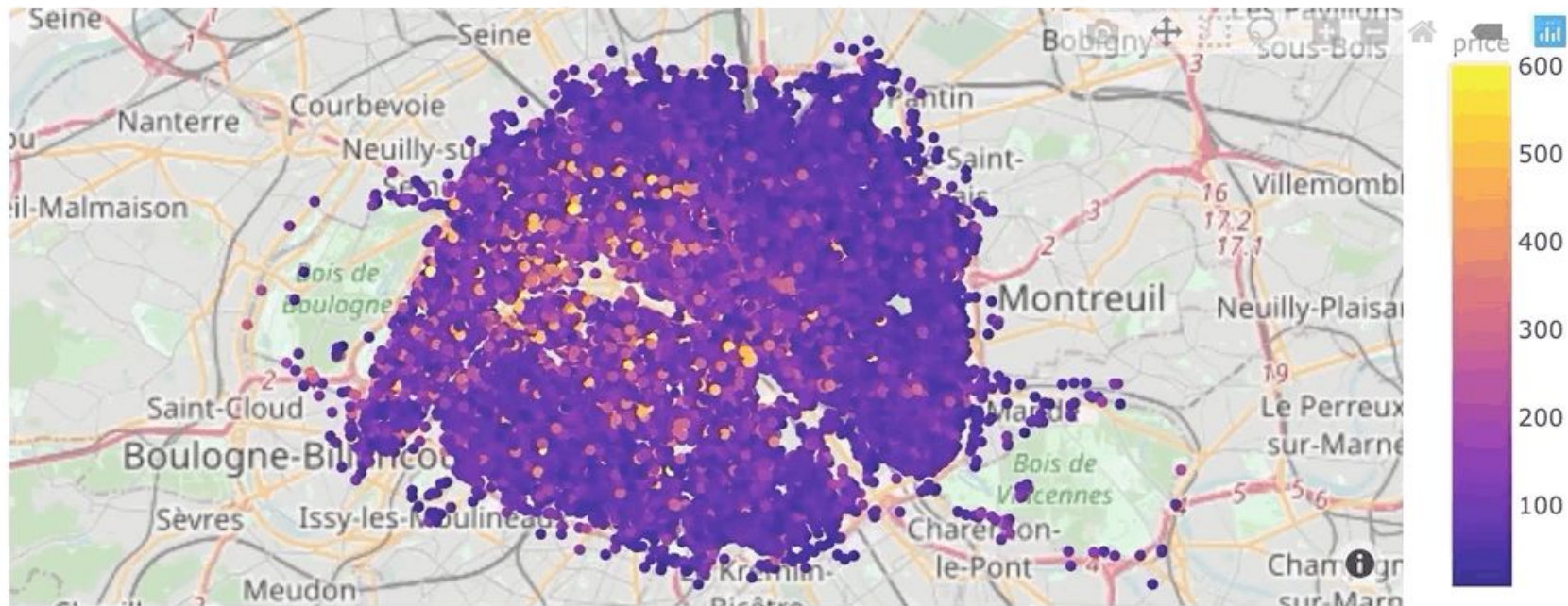


## Location



Guide to one of the cheapest neighbourhood!

## Location



Guide to one of the most expensive apartments!

## Takeaways



- If you want to save money as a guest, look for apartments more to the north or the east
- Buttes-Montmartre offers the most listings for a reasonable price
- Minimum average price for two are 58 euros
- The most expensive listings seem to be in the center and near the Seine River

## Numeric Feature

### Amenities Count

The more the  
better!

### Bedrooms/Bathrooms

The more the  
better!

### Size

The bigger, the  
better!

### Reviews

Every review  
counts, make your  
guests write them!

### Extra People

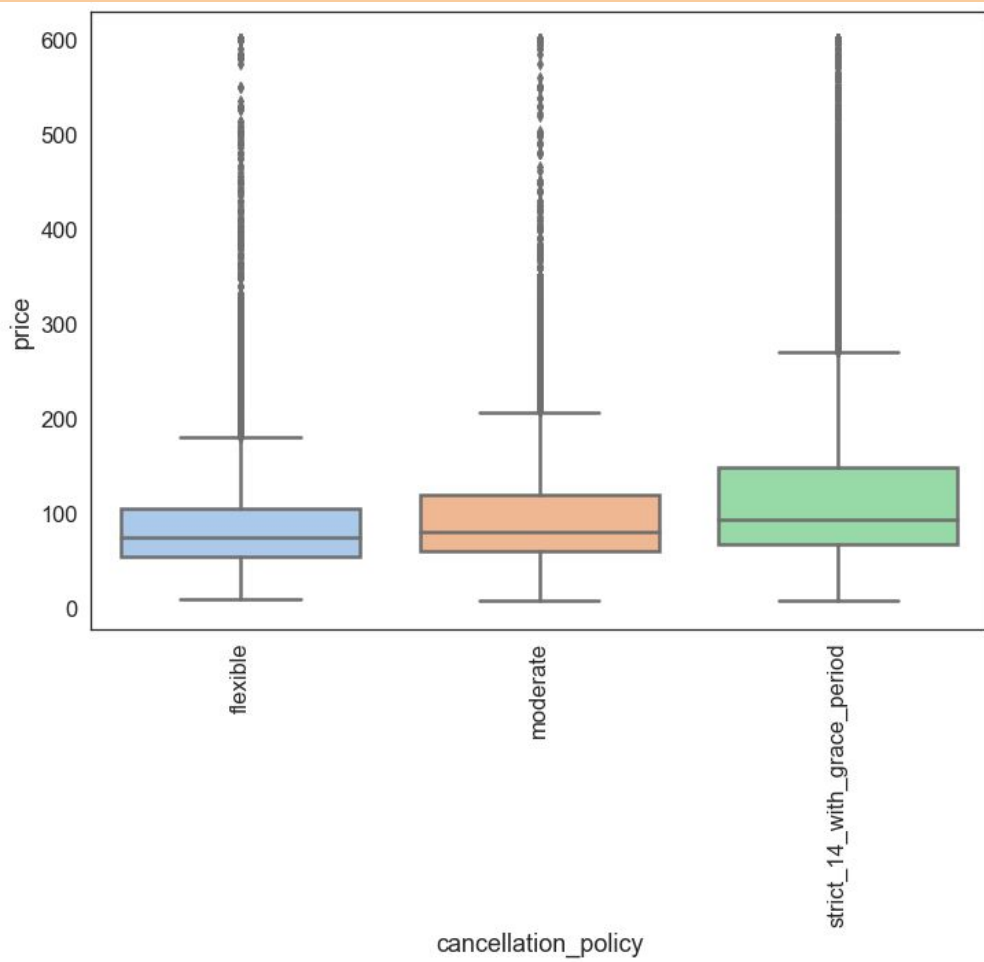
Let them in!

### Availability

Be available, sleep  
in your van!

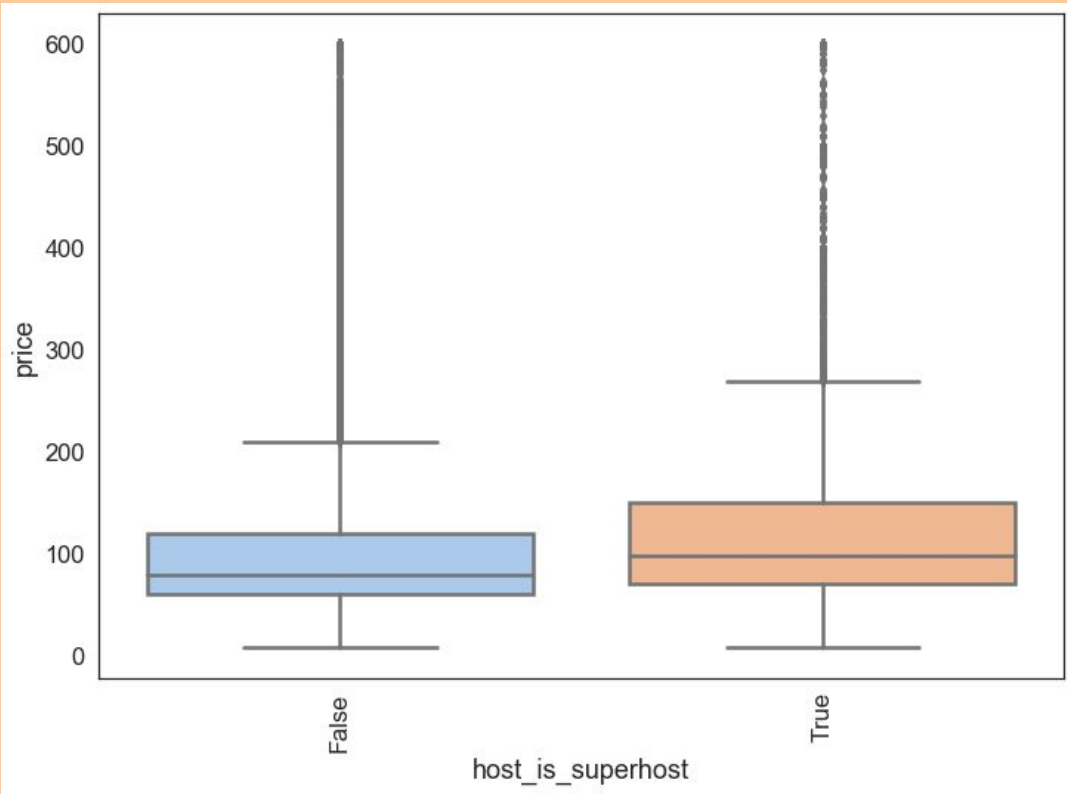


## Object Features



- Listings with a strict cancellation policy tend to be more expensive
- Possibly nice appartement in good neighbourhoods
- Host cannot afford to keep them empty due to loose rules or has made a business out of it

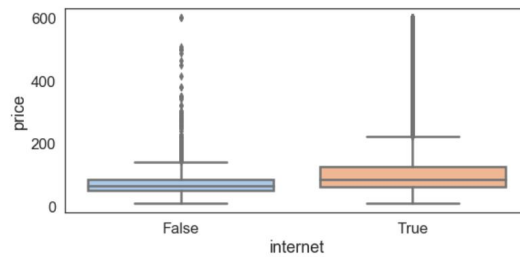
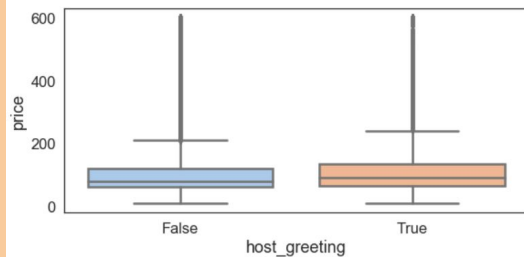
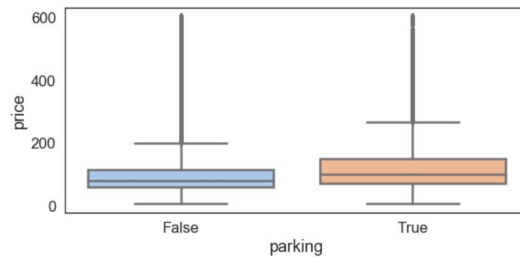
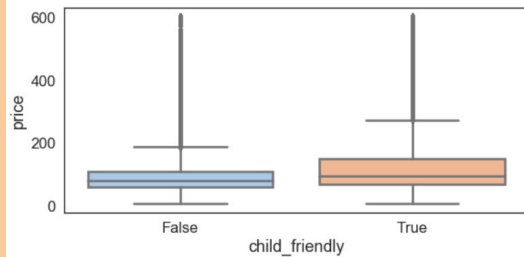
## Object Features



### How to become a Superhost:

- Host a minimum of 10 stays in a year.
- Respond to guests quickly and maintain a 90% response rate or higher.
- Have at least 80% 5-star reviews.
- Honor confirmed reservations (meaning hosts should not cancel)

# Object Features



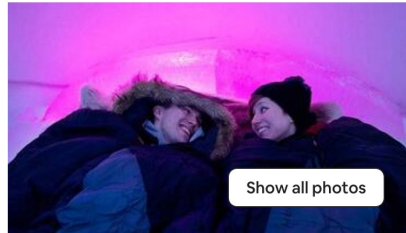
Other important factors:

- Child friendly
- Parking
- Host greeting
- Internet

## The North Pole in Paris

Paris, Île-de-France, France

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### Shared room in igloo hosted by Luis

4 guests · 1 bedroom · 4 beds · 2.5 shared baths



Add dates for prices



# **03**

## **Pricing System**

## Model Description

### Number of Features

69

### Type of Model

Hyperparameter  
Tuned XGBoost  
Regressor

### Metrics

RMSE: 42 Euro  
R<sup>2</sup>: 71%  
on unseen Data

### Features Importance

Top 6: Bedrooms,  
Bathrooms, Size,  
Accommodates,  
Cleaning Fee,  
Availability, TV

## Case Study

	Example Apartment (Hôtel de Ville)	Change / Improvement
Price Prediction (no changes)	105 Euros	-
Price Prediction (add dishwasher etc.)	113 Euros	+ 8 Euros
Price Prediction (create place for one more person)	124 Euros	+ 11 Euros
Price Prediction (add bed linen)	125 Euros	+ 1 Euro

# **04**

## **Recommendations / Future Work**



## **Recommendation for Hosts**

There are many easy  
ways to make your  
place more valuable:

**Collect Reviews**

**Buy a dishwasher**

**Make it Child-**

**Friendly, etc. etc.**

## **Future Work**

**Make Use of NLP**

**Improve Neural  
Networks for  
Prediction**

**Build a dash board  
for the maps**

**Use model for more  
cities**

**Work with actual  
booked prices**

# Thanks!

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