Amsterdam Airbnb Pricing Analysis

Presented by: Dawei Zhao, Ling Yang, Matt Zhang, Xin Ge, Michael Wu

Our Team

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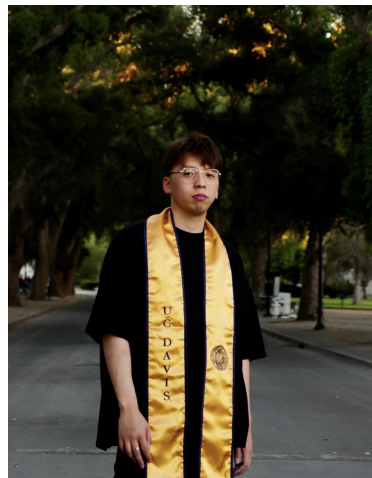lyang12@uchicago.edu

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Agenda

1. Business Problem
2. Tools Used for Analysis
3. Data Assessment
4. EDA
5. Summary
6. UI / UX

Business Problem

❏ Given the **COMPLEXITY** of the Airbnb market, **OVERPRICING** and **UNDERPRICING** are common phenomena and are hurting both the customers and the hosts.

❏ The prices are **HARD** to be determined as they are affected by **TOO MANY** factors.

❏ Our goal is to develop a **pricing system** that helps both the customer and the hosts to set up a proper market price based on the details of the houses/apartments. We will figure out the

  ❏ important features
 ❏ proper price range

Tools for Analysis Processing

Data Source → **Data Cleaning & Transformation** → **EDA** → **Prototype**
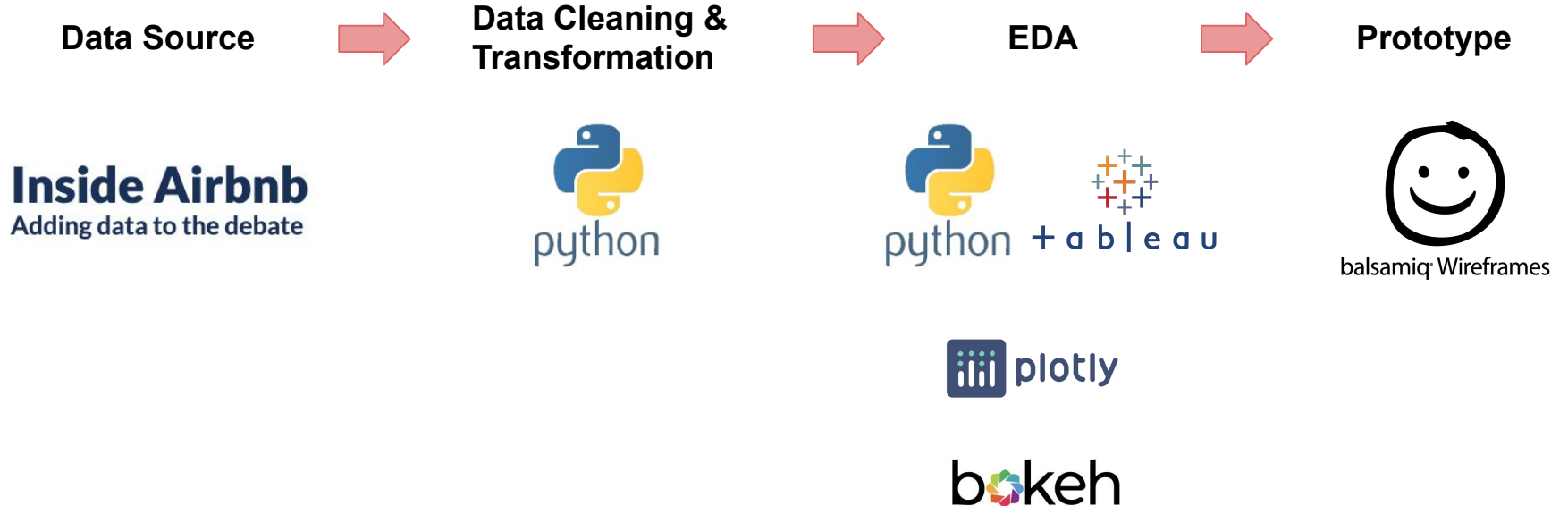
Data Exploration

Dataset Profile	
Source	**Inside Airbnb**
Rows Columns	5594 74
Dtype	Datetime Numerical Text

Features Groups	
Host	Host Since Host Location Listings Count
Property	Property Type Room Type Amenities Location
Customer	Review Number Review Score Review Date

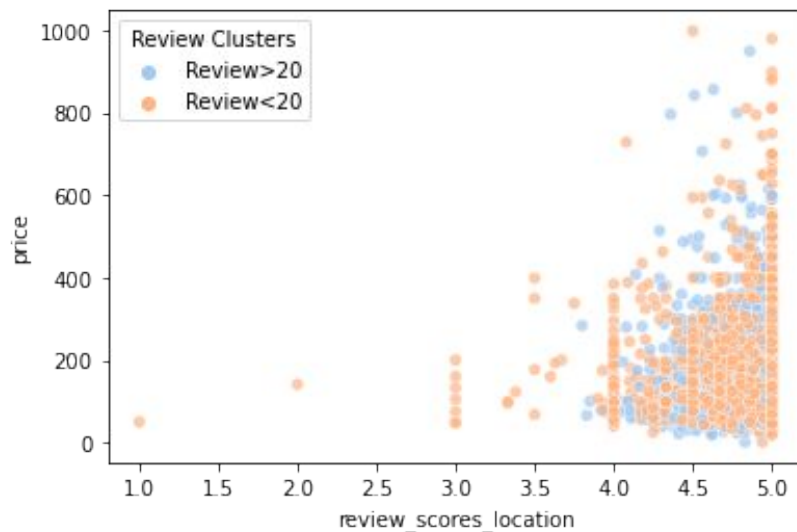| Preprocessing	
Missing Value	Filled with mode/ Dropped
Text Mining	Extract key feature from text: Amenities
Feature Engineering	Get days from datetime / Get Dummies

Review Features

Correlation with Price

Legend: location, communication, cleanliness, accuracy, checkin, value
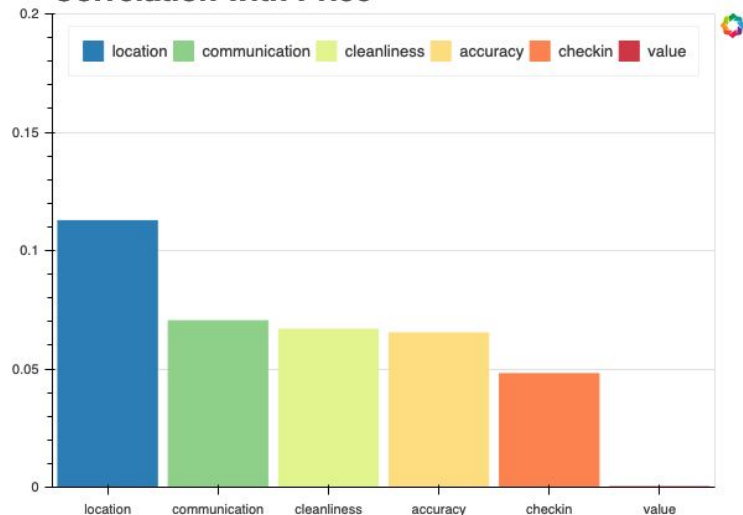
- **Review Score of Location reflects the price best**

Review Score of Location v.s. Price

Review Clusters
- Review>20
- Review<20

- **Higher Rating, Higher Price**
- **Outliers appears for Review<20**

Location

- **Far more** listings in the centre area than in the surrounding areas

- **High-priced** listings are mainly located in the **center** of Amsterdam and riverside areas

- **Low-priced** listings are **all over the city**, but still more in the center area

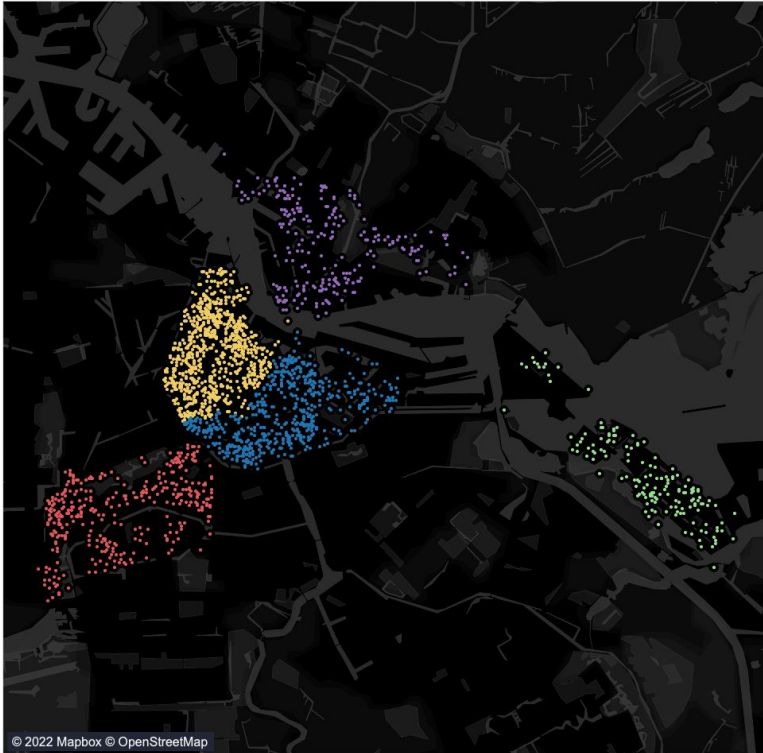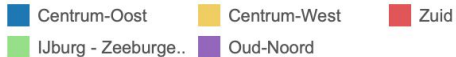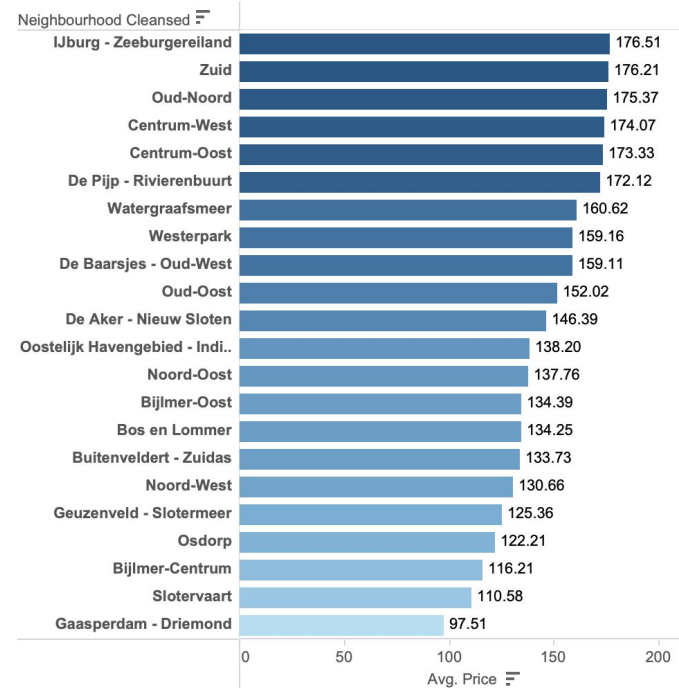© 2022 Mapbox © OpenStreetMap

Price < $250

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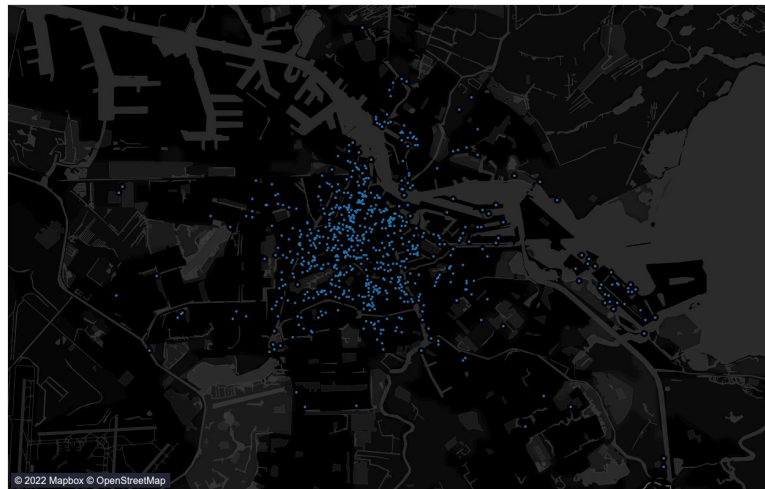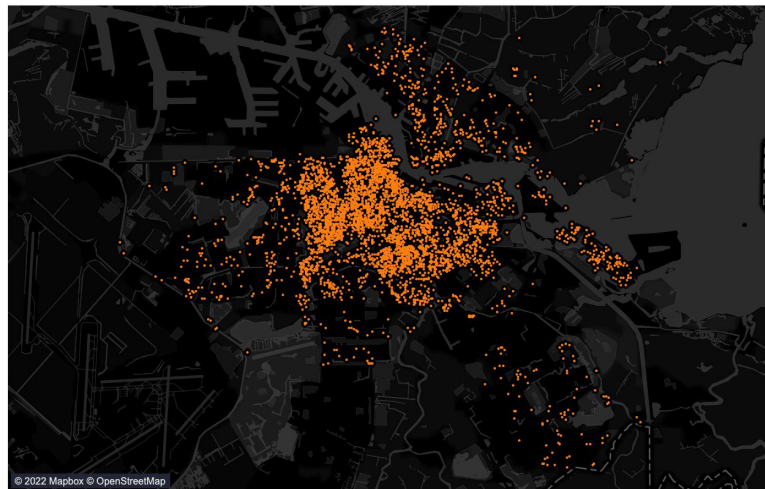
Neighbourhood

Top 5 Avg. Price per Neighbourhood


Neighbourhood Cleansed
- Centrum-Oost
- Centrum-West
- Zuid
- IJburg - Zeeburge..
- Oud-Noord

Avg. Price per Neighbourhood

Neighbourhood Cleansed	Avg. Price
IJburg - Zeeburgereiland	176.51
Zuid	176.21
Oud-Noord	175.37
Centrum-West	174.07
Centrum-Oost	173.33
De Pijp - Rivierenbuurt	172.12
Watergraafsmeer	160.62
Westerpark	159.16
De Baarsjes - Oud-West	159.11
Oud-Oost	152.02
De Aker - Nieuw Sloten	146.39
Oostelijk Havengebied - Indi..	138.20
Noord-Oost	137.76
Bijlmer-Oost	134.39
Bos en Lommer	134.25
Buitenveldert - Zuidas	133.73
Noord-West	130.66
Geuzenveld - Slotermeer	125.36
Osdorp	122.21
Bijlmer-Centrum	116.21
Slotervaart	110.58
Gaasperdam - Driemond	97.51

Avg. Price

- Average price difference between different neighbourhoods is not particularly large
- Neighborhoods with higher avg. price are located in city center as well as riverside
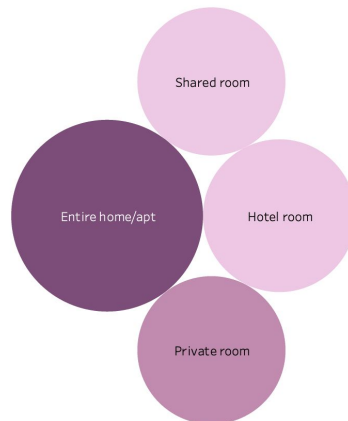
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Property Features

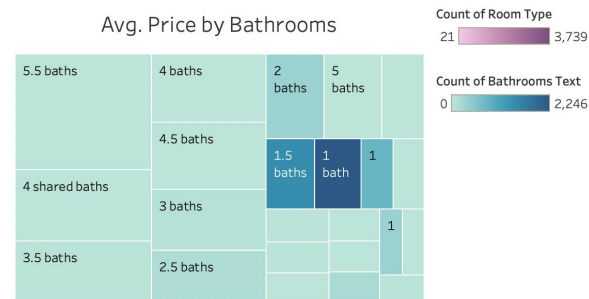#Accommodates, Bedrooms, Beds vs Avg. Price
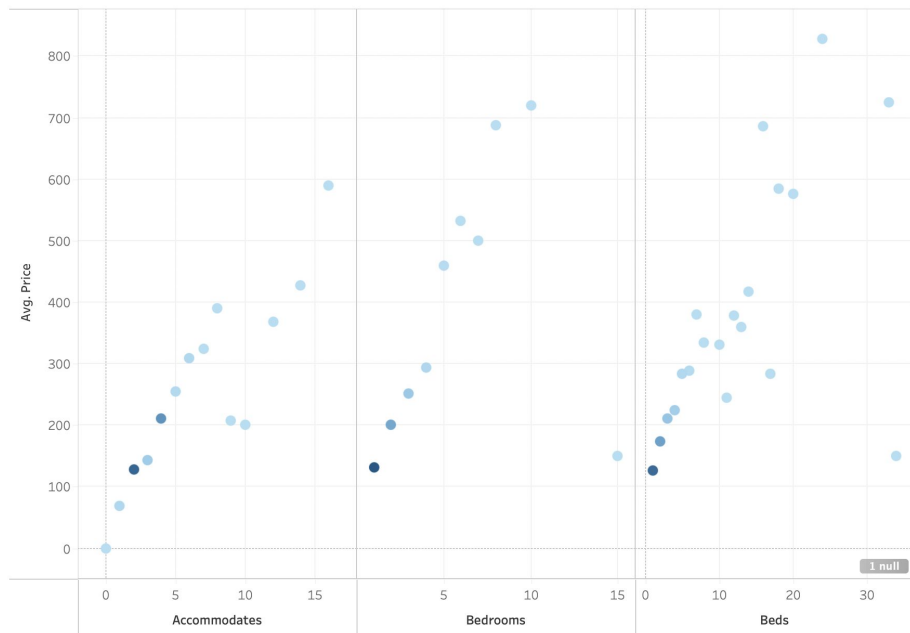
Listings that **accommodate more** people, and with more **bedrooms** and **beds** have higher average price

Avg. Price by Room Type

- Shared room
- Entire home/apt
- Hotel room
- Private room

Avg. Price by Bathrooms

Count of Room Type
21 — 3,739

Count of Bathrooms Text
0 — 2,246

- On average, **entire home/apt** is listed at the highest price.
- Listings with more **bathrooms** have higher average price.

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Amenities

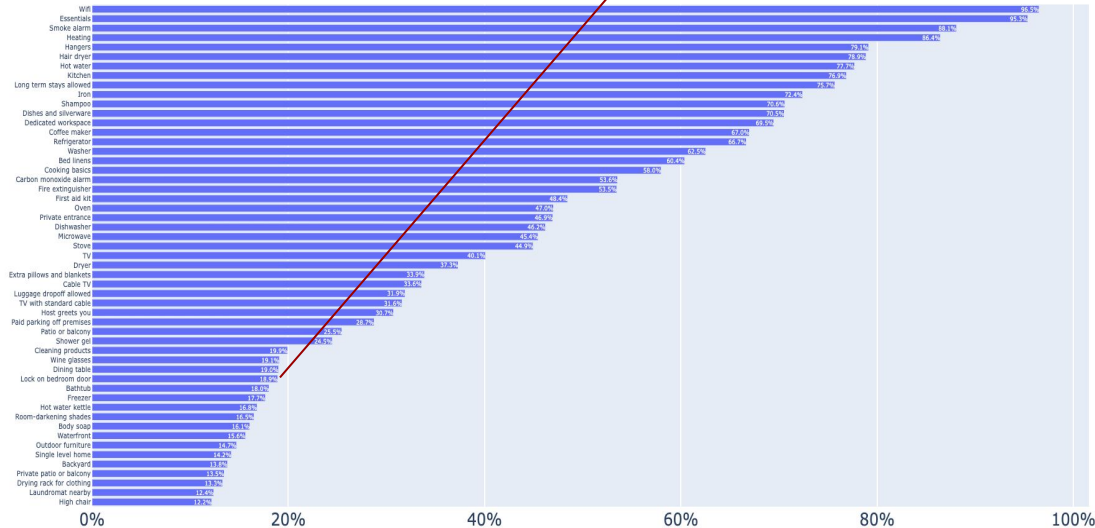## Listings with Kitchen/Bathtub/Dishwashers are much more expensive

Average Listing Price

Average Listing Price

Average Listing Price
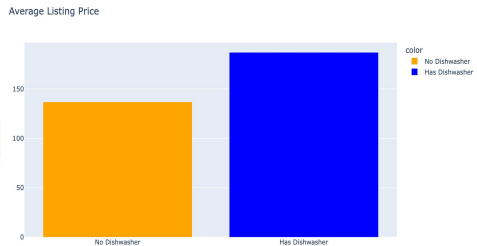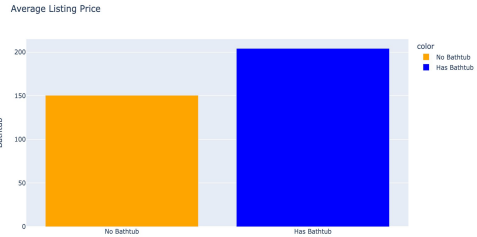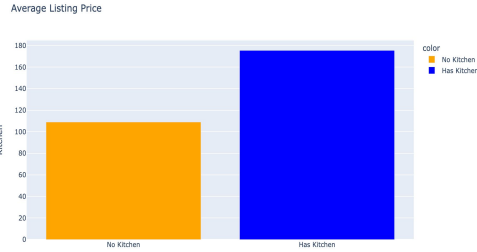
Listings with:

- **Dryers**
- **Oven**
- **cooking basics**
- **Stove**
- **Washer**

are also more expensive.

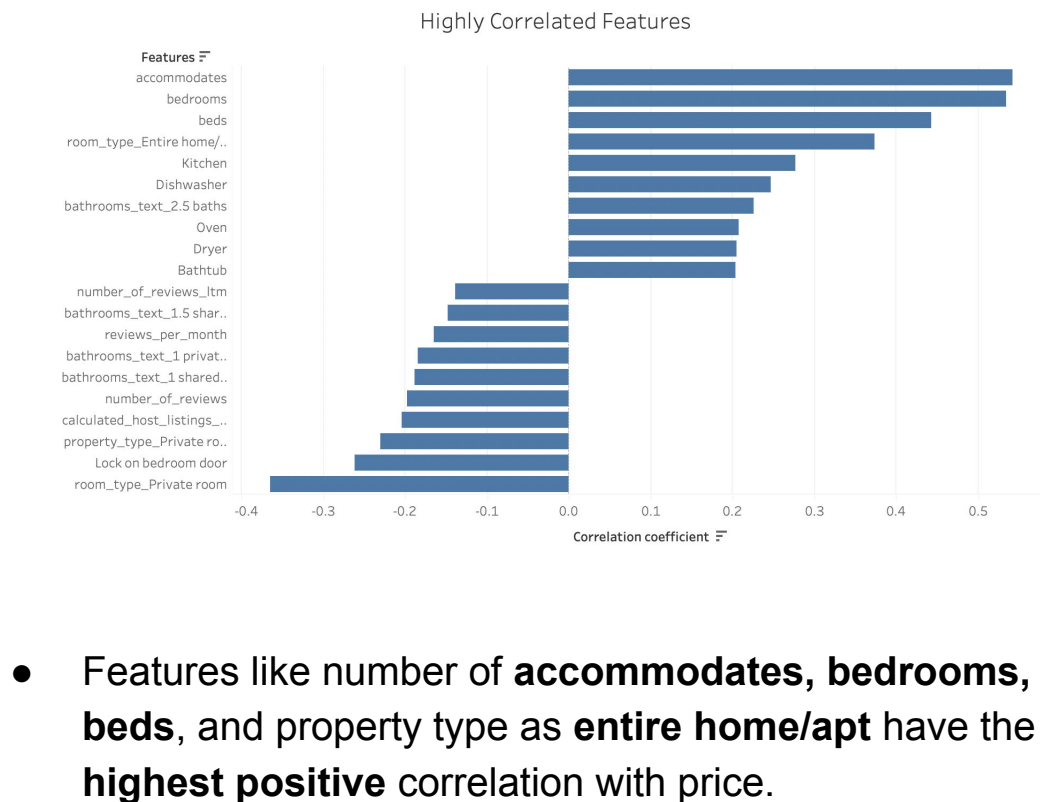## Listings with bedroom lock are much cheaper

Average Listing Price
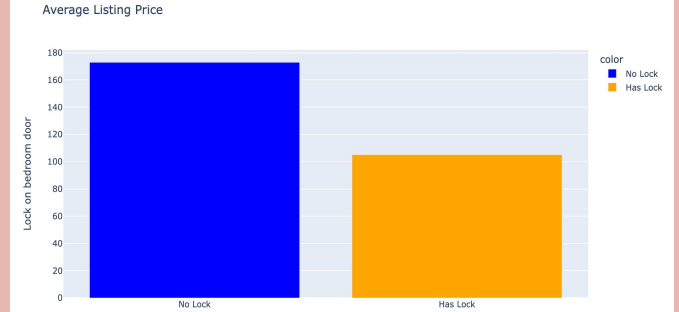
% Of Listings With A Certain Amenity

Summary

- Higher Ratings, Higher Price

- The **closer** location and neighborhood to the center and riverside, the **higher** price

- **High utility amenity items** like Kitchen, Bathtub, Dishwashers and others are **highly positively correlated** with price.

Highly Correlated Features

- Features like number of **accommodates, bedrooms, beds**, and property type as **entire home/apt** have the **highest positive** correlation with price.

UI/UX - Airbnb Pricing System

Thank you!