

# AirBnb Amsterdam Analysis



# Background

- Started in 2008, Airbnb provides platform for hosts to rent private accommodations for short stay
- Caters worldwide
- Allows homeowners to diversify income
- Allows travellers a hassle free, cost effective, and comfortable lodging

# Business problem

*Problems to tourists:*

- Constantly looking for affordable yet good rentals which are in safe neighbourhood, close to central attractions and have highest ratings.

*Problems to hosts:*

- Constantly looking for methods to improve property value and services to increase profit.

# Objective

As a group of consultants catering the needs of tourists and hosts, the objectives are as follows:

## *Solving problems with tourists*

- Assisting customers to find rentals that are best in terms of price, location, and previous reviews.

## *Solving problems with hosts*

- Assisting hosts to discover value-adding features, factors affecting price, and sentiment of reviews received.

# Description of the data

The dataset includes information on listings in Amsterdam on December 6th, 2018.

- *Listing details:*
  - 20,000 listing records to assess rental features
- *Reviews details:*
  - Reviews for each rental used for text mining purposes
- *Calendar*
  - Records of prices for 365 days for the rentals, to determine seasonal trend in listing price

# Data manipulation

- Missing data
- A calculated field was created for price in Tableau

$$\text{Average Price} = \frac{\text{Price} + \text{extra\_people} (\text{accomodates} - \text{guest\_included})}{\text{accomodates}}$$

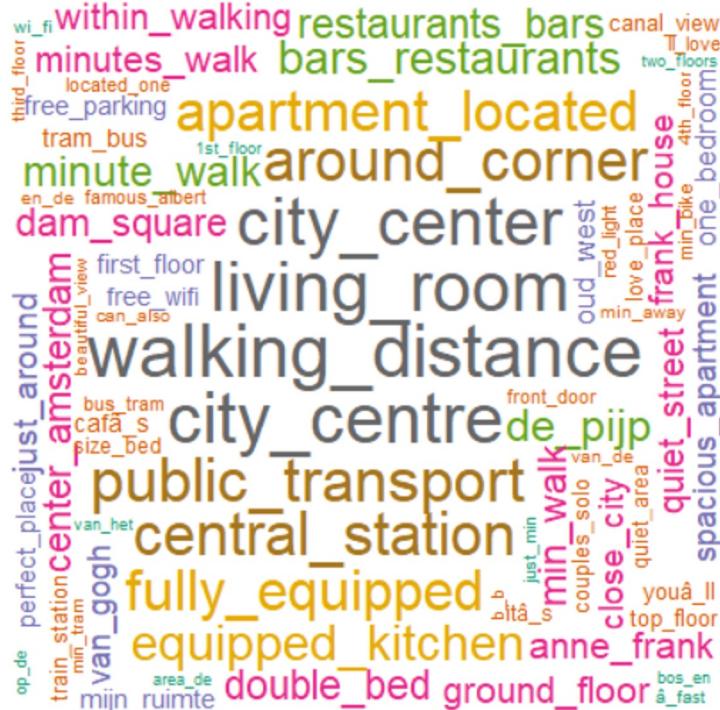
- Important features were extracted from text using Python and R

# Analysis

- Overview picture of AirBnbs in Amsterdam
- Tourist-centric analysis
- Host-centric analysis

# Overview of AirBnb in Amsterdam

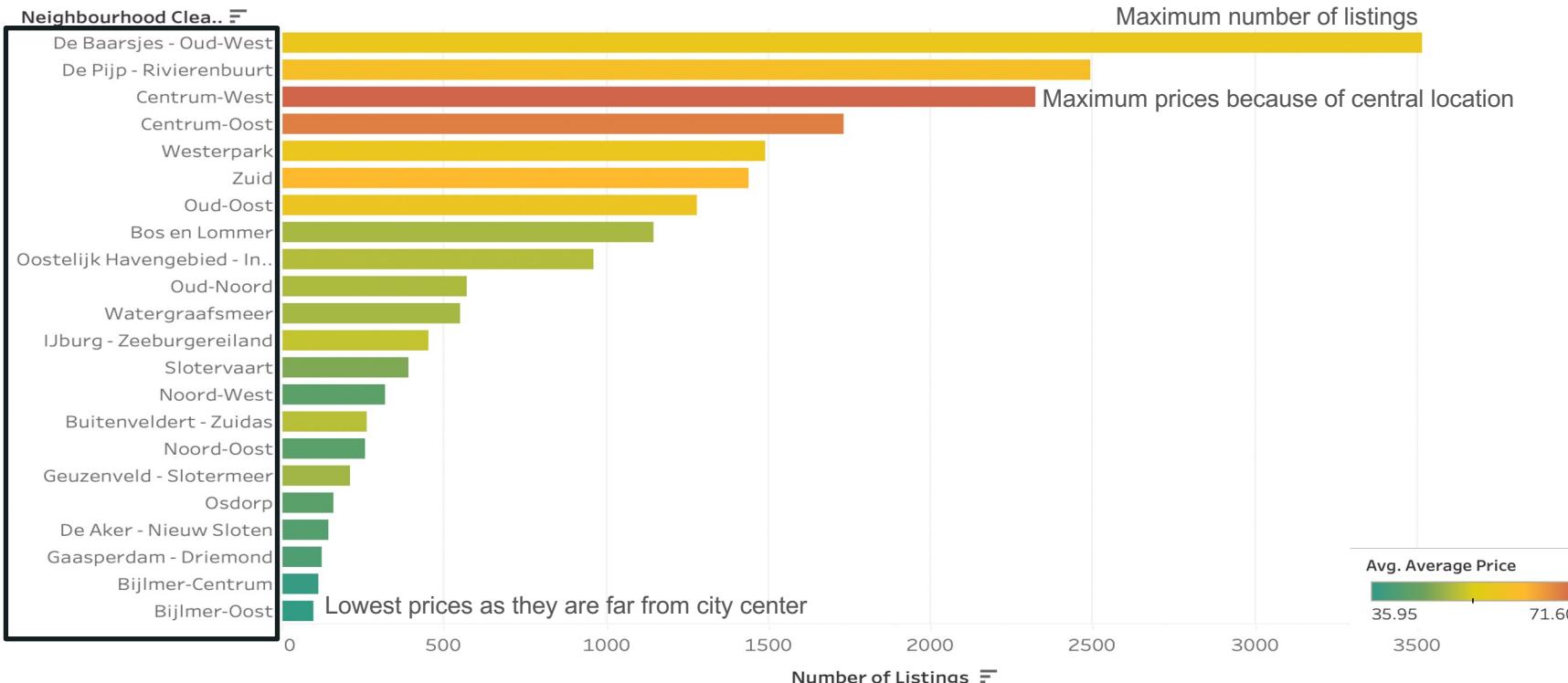
# Frequent words used in description



Most- Frequent words  
advertised in the AirBnbs  
Summary

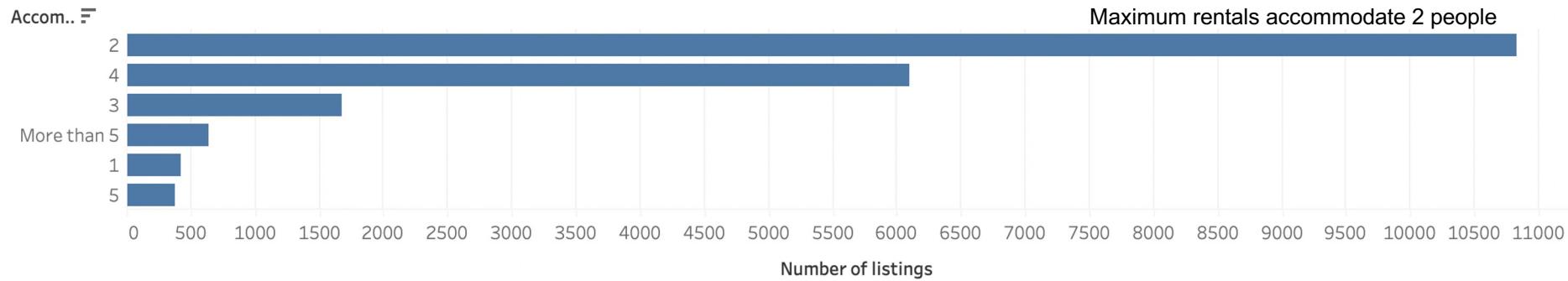
# Number of listings in neighborhoods and price

Number of listings in Neighborhood with their average price



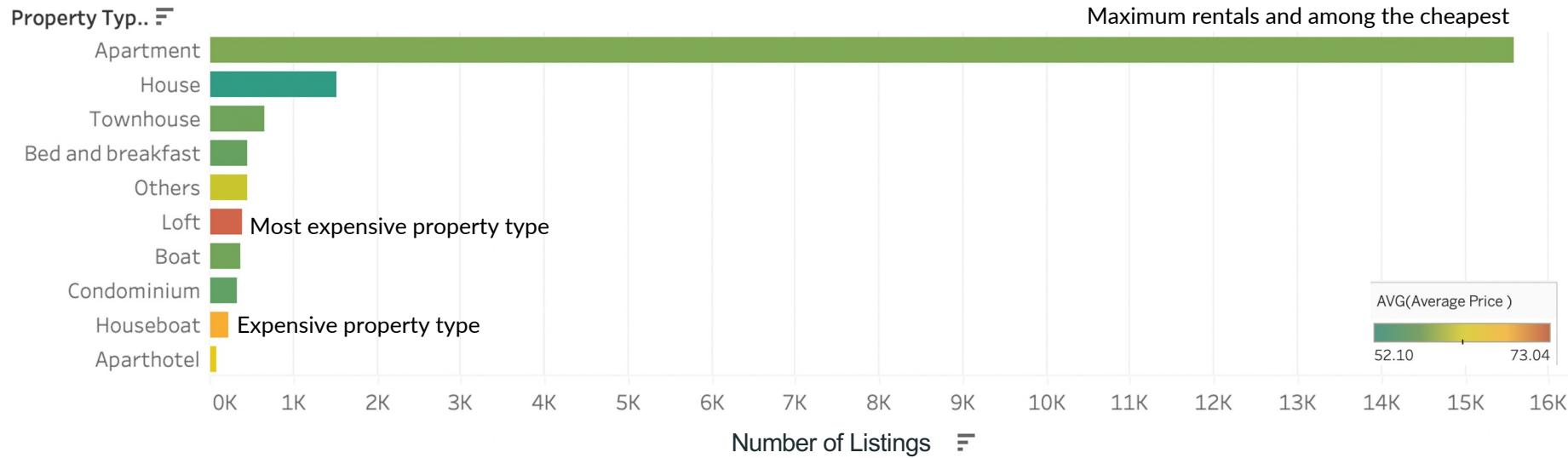
# Guests accommodated in rentals

Number of guests that can be accommodated



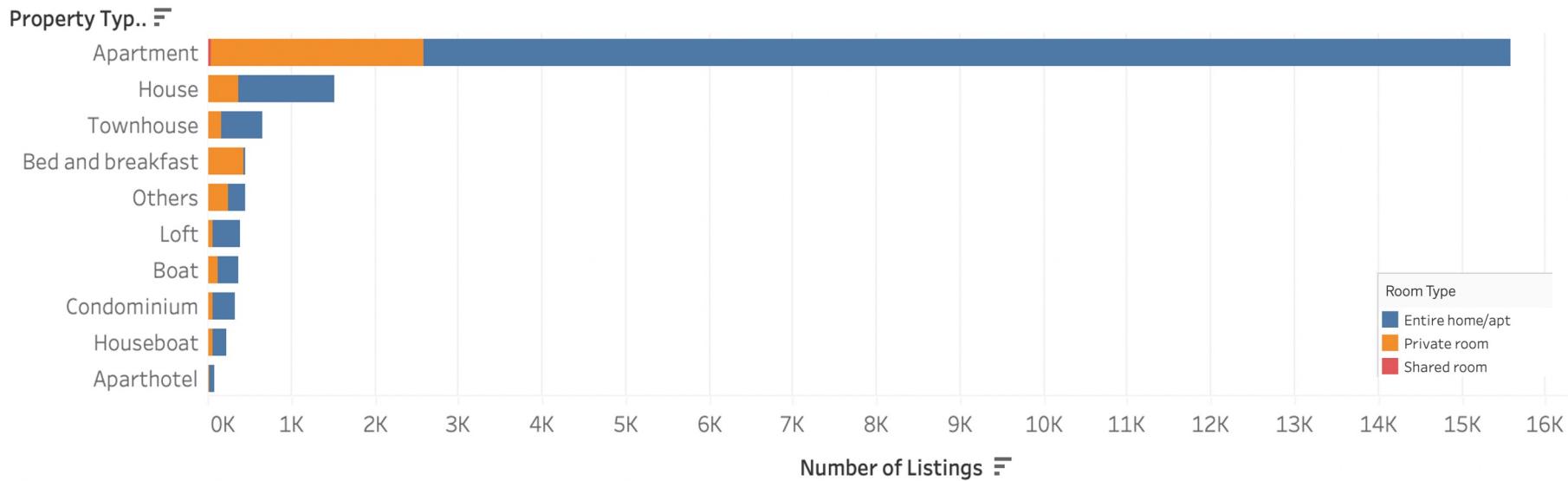
# Popular property types and their price

Number of property type, with their average price



# Popular room types

Number of properties and the room types

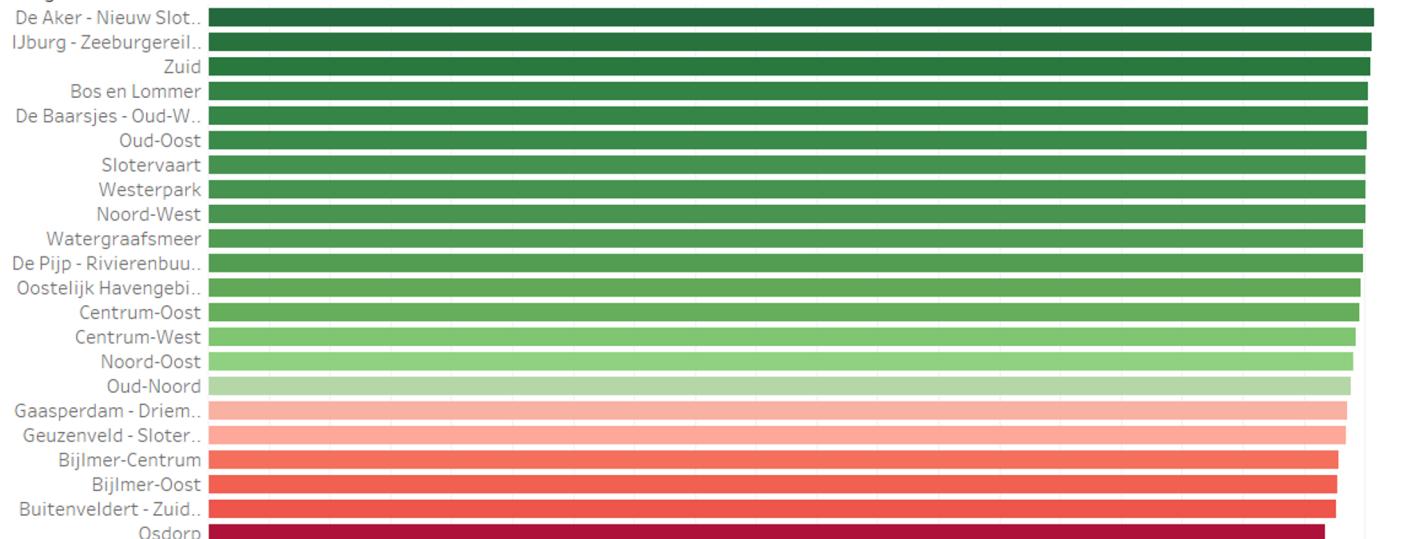


Maximum rental room types are entire home and apartments, while Shared rooms are least available room type.

# Ratings in different neighborhood

Average ratings of rentals in different locations

Neighbourhood ..



Rentals with highest ratings

Rentals with lowest ratings



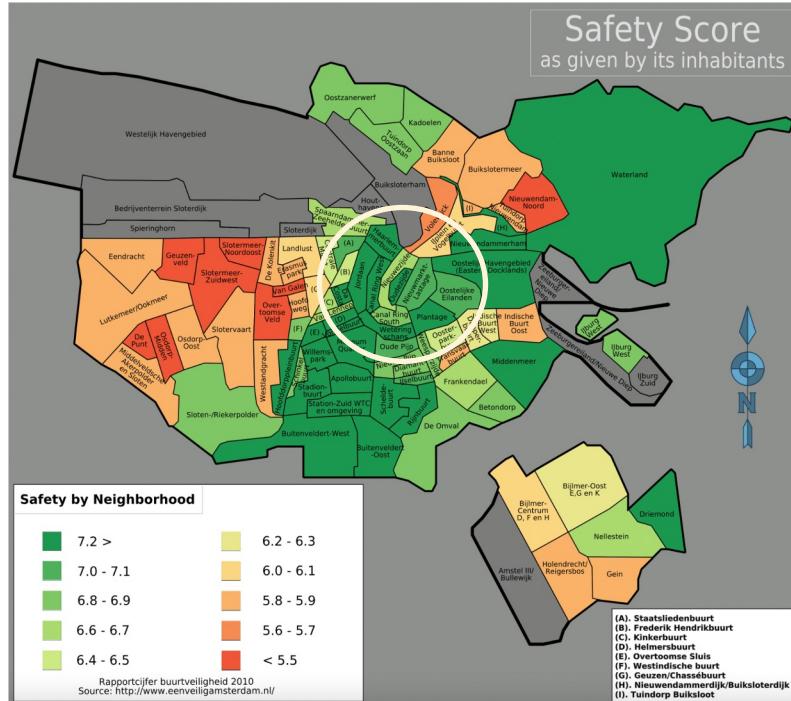
# Tourist Centric Analysis

# Parameters for choosing best neighborhood

Choosing the best neighbourhood on the following parameters:

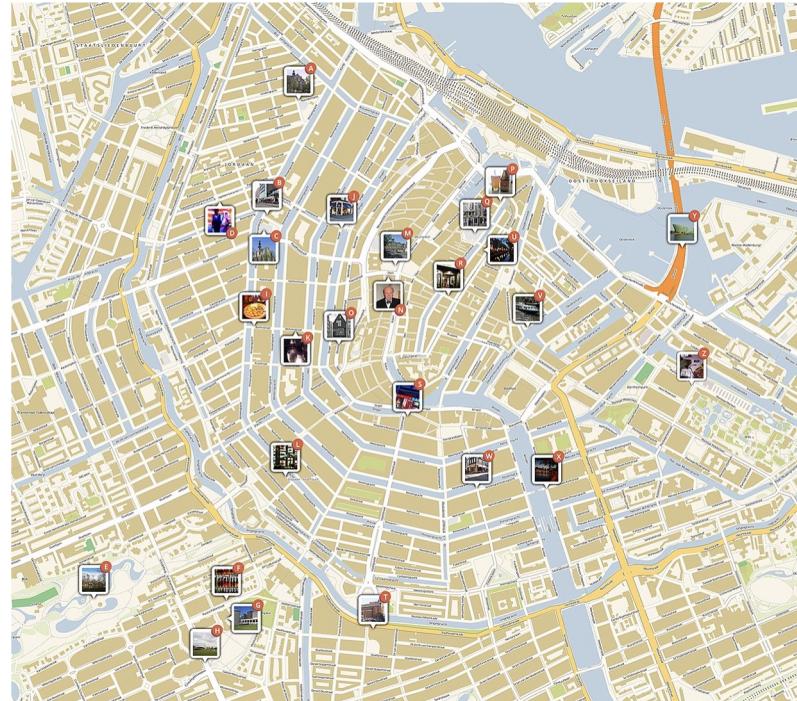
- Safety
- Near to tourist attractions

# Identifying best neighborhood



Source: <https://wikitravel.org/en/File:Amsterdam-unsafety-map.png>

Safest area is near the city center



Source: [https://commons.wikimedia.org/wiki/File:Amsterdam\\_printable\\_tourist\\_attractions\\_map.jpg](https://commons.wikimedia.org/wiki/File:Amsterdam_printable_tourist_attractions_map.jpg)

Tourist attractions are highest near the city center

# Selecting best neighborhood

## Neighborhood: Centrum-West

- Safety score- 7.2-6.8
- City Center with many attractions nearby
- Average Ratings: 94.240



## Neighborhood: Centrum-Oost

- Safety score- 7.2-6.8
- City Center with many attractions nearby
- Average Ratings: 94.617

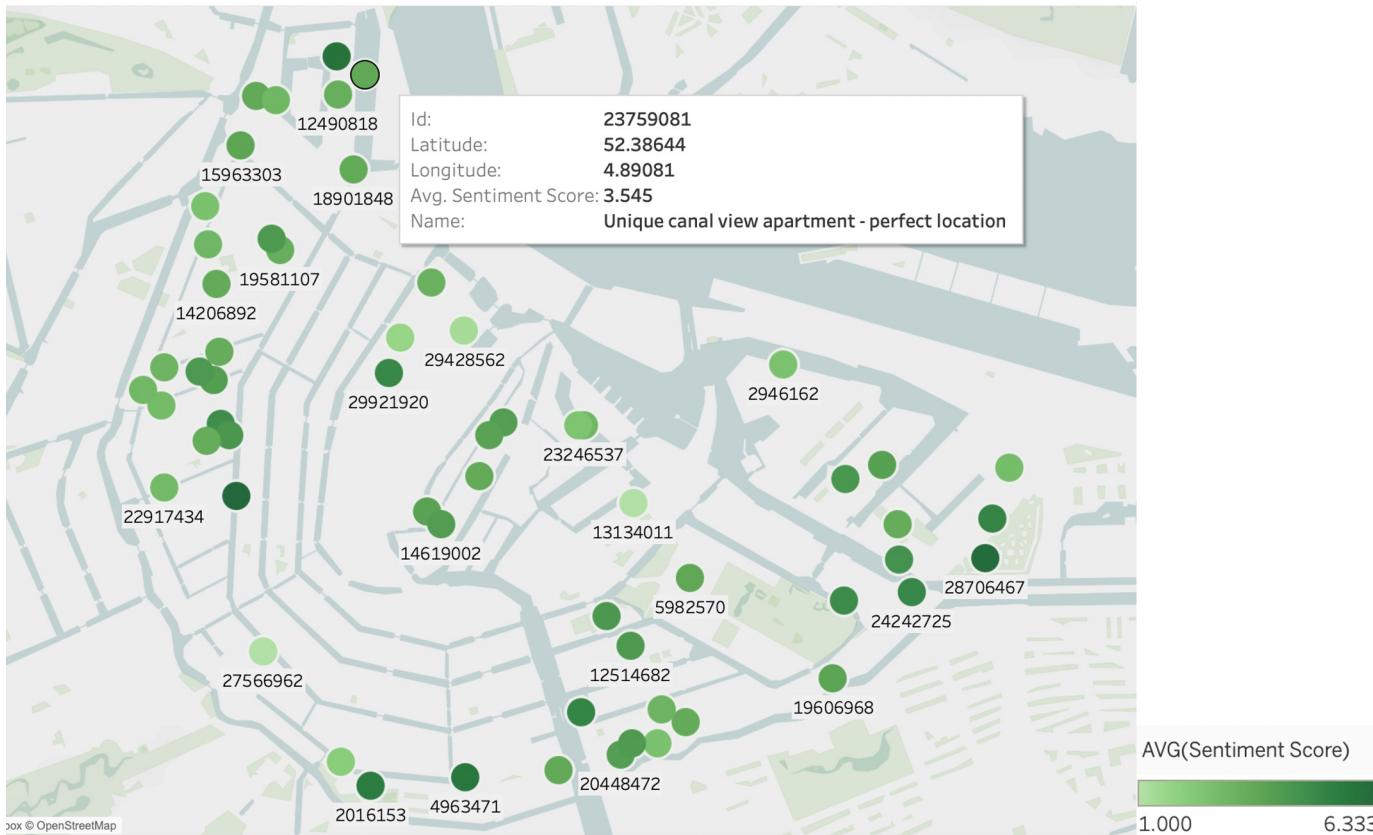


# Parameters for choosing best AirBnbs

Choosing the best Airbnb on the following parameters:

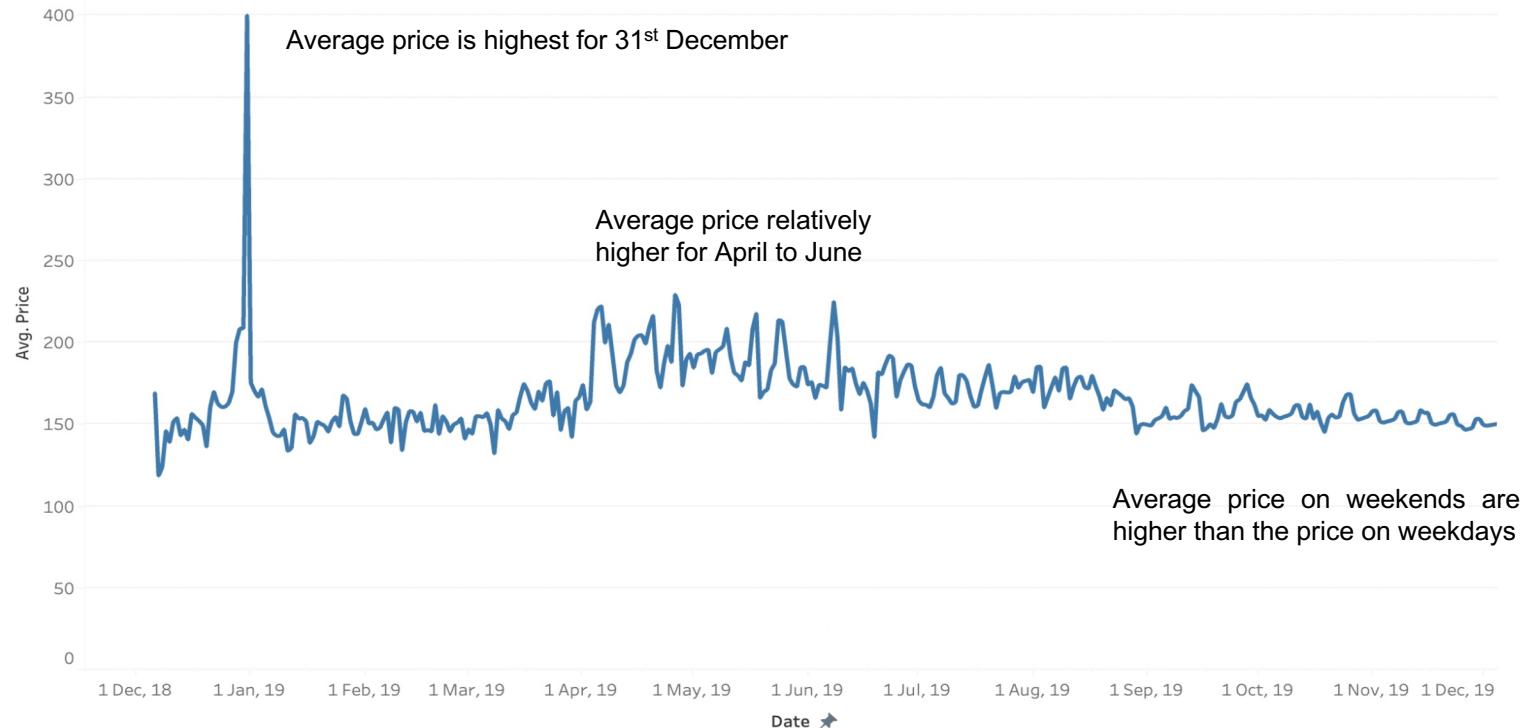
- Prices less than \$60 per night
- Is an entire home/apartment
- Accommodates 2 to 4 people
- Minimum stay is less than 2 nights
- Review score between 95 to 100
- Host response time is high
- Has moderate cancellation policy
- Sentiment Score as calculated using text sentiment analysis in R

# Best AirBnbs based on the parameters



# Best time to visit based on price

Average price for best rentals throughout year



# Host Centric Analysis

# Factors affecting price

	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	-108.823610	45.170532	-2.409	0.01600 *
accommodates	20.009288	0.674894	29.648 < 0.0000000000000002 ***	
availability_365	0.139140	0.004869	28.578 < 0.0000000000000002 ***	
review_scores_rating	0.826767	0.072024	11.479 < 0.0000000000000002 ***	
bathrooms	4.088008	0.578775	7.063 0.0000000000169 ***	
bedrooms	22.545595	0.903980	24.940 < 0.0000000000000002 ***	
beds	1.241885	0.683009	1.818 0.06904 .	
room_typePrivate room	-38.429336	1.293669	-29.706 < 0.0000000000000002 ***	
room_typeShared room	-47.336059	8.361318	-5.661 0.00000001525976 ***	
ttBijlmer-Oost	-8.363342	9.534839	-0.877 0.38043	
ttBos en Lommer	15.549163	6.907504	2.251 0.02439 *	
ttBuitenveldert - Zuidas	11.314892	7.939164	1.425 0.15412	
ttCentrum-Oost	64.376574	6.809689	9.454 < 0.0000000000000002 ***	
ttCentrum-West	74.699041	6.756237	11.056 < 0.0000000000000002 ***	
ttDe Aker - Nieuw Sloten	-1.785554	8.882903	-0.201 0.84069	
ttDe Baarsjes - Oud-West	35.004272	6.715943	5.212 0.00000018884234 ***	
ttDe Pijp - Rivierenbuurt	41.760445	6.756301	6.181 0.0000000065137 ***	
ttGaasperdam - Driemond	-11.181033	8.888125	-1.258 0.20842	
ttGeuzenveld - Slotermeer	1.722114	8.129825	0.212 0.83224	
ttIJburg - Zeeburgereiland	5.650265	7.368065	0.767 0.44318	
ttNoord-Oost	-12.258093	7.886067	-1.554 0.12011	
ttNoord-West	-10.359803	7.616743	-1.360 0.17380	
ttOostelijk Havengebied - Indische Buurt	19.925205	6.955813	2.865 0.00418 **	
ttOsdorp	-3.037980	8.450744	-0.359 0.71923	
ttOud-Noord	13.846501	7.181336	1.928 0.05386 .	
ttOud-Oost	27.835183	6.874452	4.049 0.00005164383047 ***	
ttSlotervaart	10.316405	7.431026	1.388 0.16507	
ttWatergraafsmeer	16.749195	7.235716	2.315 0.02064 *	
ttWesterpark	33.204574	6.844456	4.851 0.00000123715506 ***	
ttZuid	42.120719	6.859978	6.140 0.0000000084285 ***	
host_identity_verifiedf	42.601077	44.114930	0.966 0.33422	
host_identity_verifiedt	40.124238	44.117246	0.909 0.36310	
cancellation_policymoderate	0.092808	1.310114	0.071 0.94353	
cancellation_policystrict_14_with_grace_period	5.344035	1.315135	4.063 0.00004855817594 ***	
cancellation_policysuper_strict_60	75.298713	13.412042	5.614 0.00000002004315 ***	

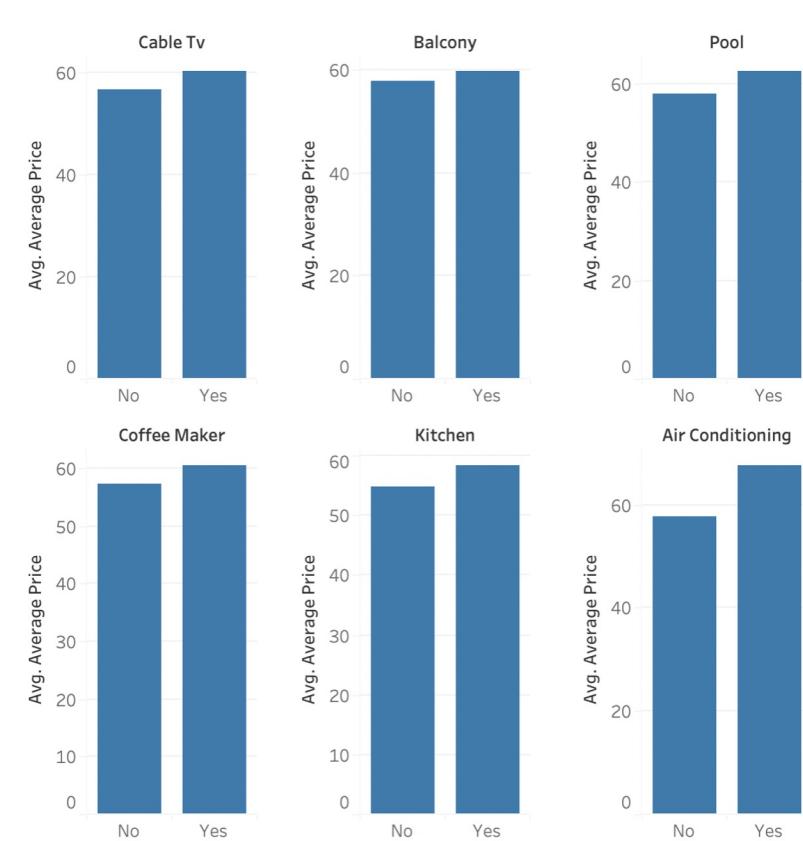
Multiple R-squared: 0.4522,

Adjusted R-squared: 0.4511

# Amenities affecting price

The impact of the following amenities was tested on price:

- Breakfast
- **Cable TV**
- Elevator
- Free parking
- Internet
- **Kitchen**
- Wifi
- **Coffee maker**
- Family/kid friendly
- Smoke detector
- **Patio or balcony**
- Garden or backyard
- **Air Conditioning**
- Pets allowed
- **Pool**



# Recommendations

## *Recommendations for Tourists:*

- Rent in Centrum-West or Oost
- Rent the identified best Airbnb for a great stay
- Travel after June and weekdays for low prices

## *Recommendations for Hosts:*

- Add distance to the center in their rental summary
- Improve on features which affect average prices
- Include the amenities which increases the average price

# Conclusion

The analysis provides information for both tourists and hosts, which they can use for a pleasant stay in Amsterdam, and for creating a price strategy which could result in profits respectively.

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# Thank you