



Regression Project

Nir Tal

The Problem

How to price your new Airbnb listing?

1. Consider similar listings (location, type, etc.)
2. If you're already a host, should you ask for a higher price?

Smart Pricing Tool takes into account over 70 different factors

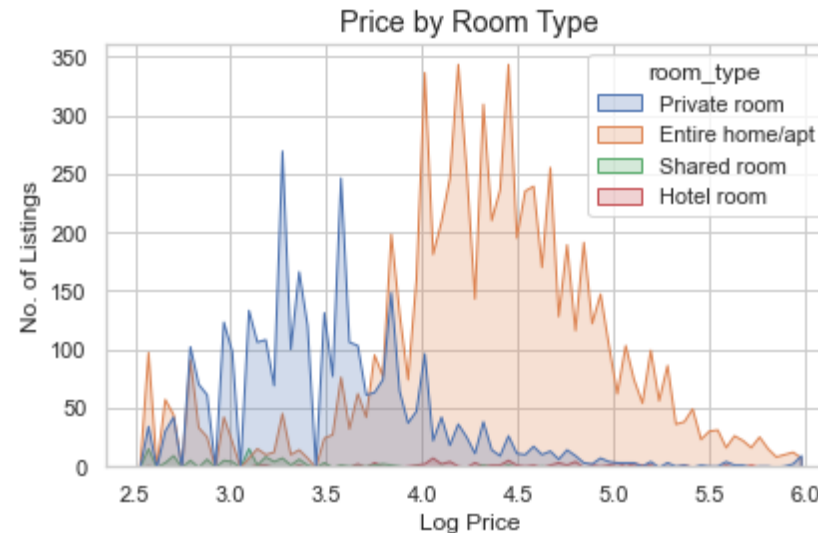


- **Lead time:** as a check-in date approaches
- **Listing popularity:** how many views and bookings your listing receives
- **Review history:** your amount of positive reviews from successful stays

The Data

Airbnb listings in Madrid

- Dataset compiled by **Inside Airbnb** on 10.09.2021
- Close to 19,000 listings with 74 features
- Data QC: select listings with a verified host (Government ID)
- Target variable: select listings priced between 10 and 400 EUR



The Features

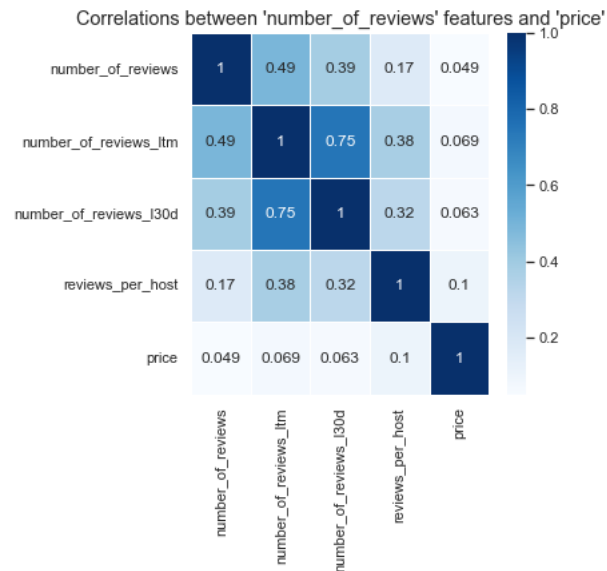
Feature correlation and importance

NUMERICAL

- › Accomodates (LinReg: $w=0.09$)
- › Host_listings_count (LinReg: $w=0.001$)
- › Reviews_per_host (LinReg: $w=-0.00007$)

CATEGORICAL

- › Room_type
=Shared room (LinReg: $w=-0.7$)
- › Neighbourhood_group
=Villaverde (LinReg: $w=-0.272$)



The Models

Parameter tuning and best model

	Linear Regression	Decision Tree	K-Nearest Neighbors
Features	Numerical, Categorical (6, 4)	Numerical, Categorical (2, 2)	Numerical, Categorical (2, 2)
Parameter #1		Maximum Depth of Tree (d=10)	No. of neighbors (k=19)
Parameter #2		Minimum No. of Samples (n=5)	Minkowski metric (p=1)
Test RMSE	0.578	0.570	0.572



Thank You

24Slides