Airbnb Price Prediction — Portfolio Report

End-to-end ML pipeline: data cleaning, feature engineering, Gradient Boosting (median + quantiles), evaluation & batch predictions.

Model Performance (5-fold Cross-Validation)
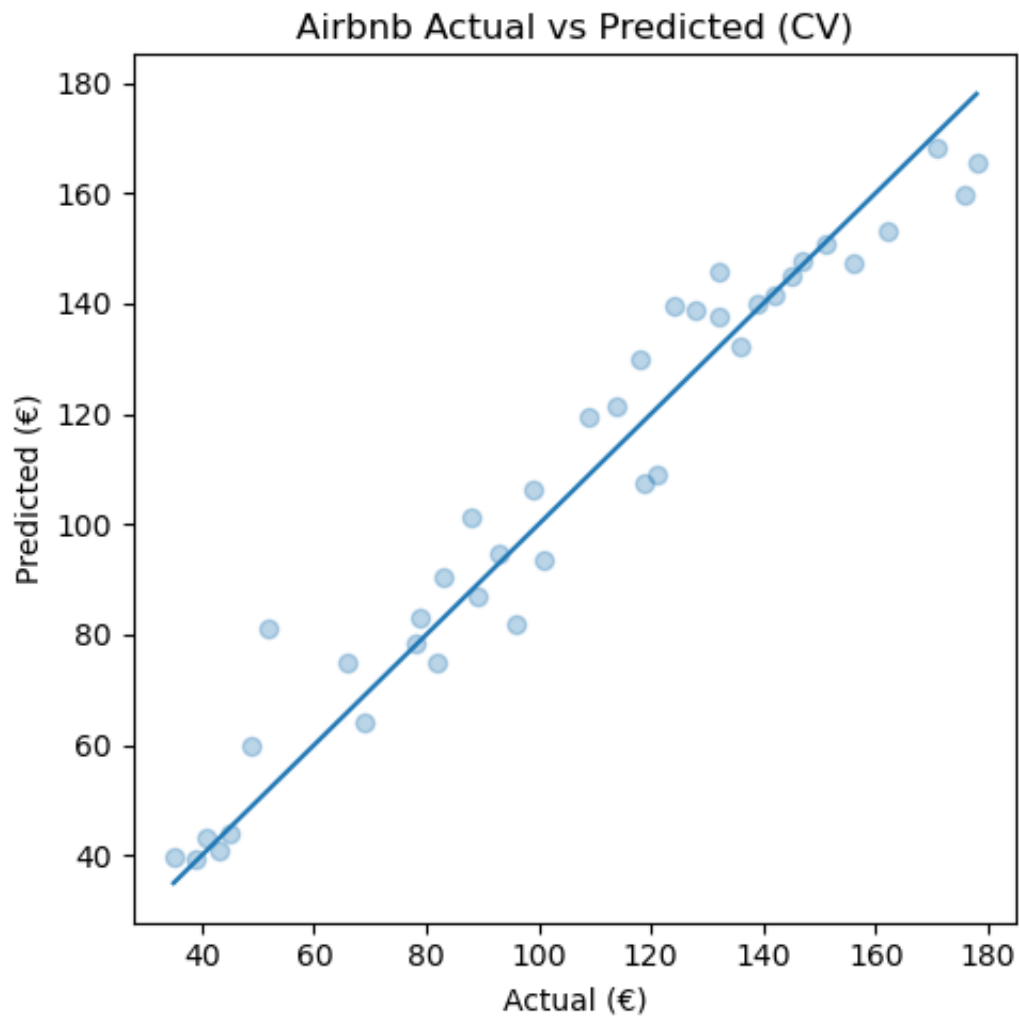
R^2: 0.947 — MAE: 7.2 € — RMSE: 9.4 €

Batch Predictions (median & q10–q90)

accommodates	bedrooms	bathrooms_text	minimum_nights	number_of_reviews	availability_365	review_scores_rating	latitude	lo
4	2	1.5 baths	2	85	210	4.8	37.979	2
2	1	1 bath	1	40	280	4.6	37.964	2
5	2	2 baths	3	120	150	4.9	37.974	2

Top Feature Importances

feature	importance
num__review_scores_rating	0.472752
cat__room_type_Private room	0.263864
num__availability_365	0.202427
num__number_of_reviews	0.011792
num__minimum_nights	0.009349
num__longitude	0.009204
cat__room_type_Entire home/apt	0.005391
num__reviews_density	0.004894
num__accommodates	0.004428
num__price_per_guest	0.003855
num__bathrooms	0.002665
cat__bathrooms_text_1 bath	0.00225
num__id	0.002131
num__bedrooms	0.002101
num__latitude	0.001139
cat__bathrooms_text_0.5 bath	0.0006
cat__neighbourhood_cleansed_Exarchia	0.000384
cat__neighbourhood_cleansed_Koukaki	0.000306
cat__neighbourhood_cleansed_Syntagma	0.000171
cat__neighbourhood_cleansed_Kolonaki	8.5e-05

Actual vs Predicted

Airbnb Actual vs Predicted (CV)

Σχ■λιο: Το μοντ■λο δε■χνει υψηλ■ επεξηγητικ■ ισχ■. Η μεταβλητ■ *review_scores_rating* ε■ναι ο ισχυρ■τερος *driver,* εν■ ο τ■πος δωματ■ου και η διαθεσιμ■τητα επηρε■ζουν ■ντονα το *pricing.* Τα *quantile* μοντ■λα *(q10–q90)* παρ■χουν ρεαλιστικ■ ε■ρη τιμολ■γησης.