



airbnb

Top Listings

Opportunity

Objective: support hosts in optimizing their listings

Impact Hyp: by providing visibility on the expected performance of a listing, Airbnb will allow hosts to optimize their listing's most critical features and achieve *Top Listing* status

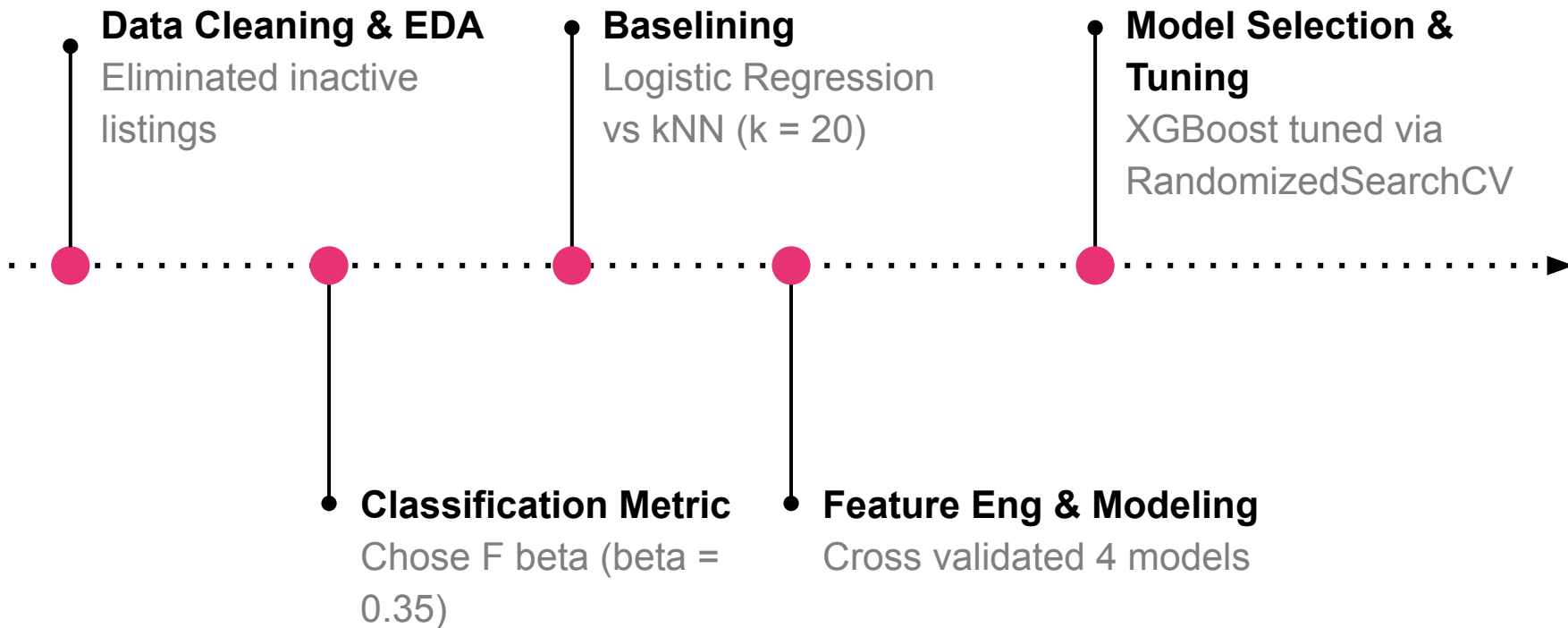
The New York Times

Airbnb Is Driving Hosts Elsewhere With Costly Pandemic Policies

Hurt by refunds, some are trying to cut the site out of bookings or taking legal action. The company says it is working to reduce tensions.



Methodology



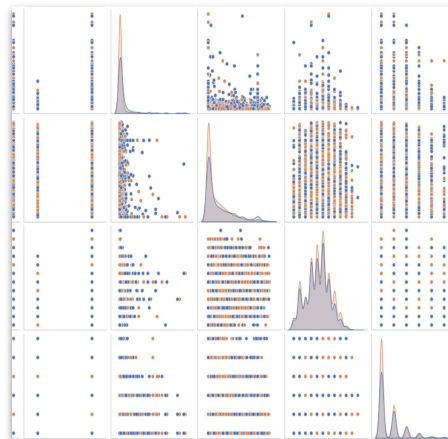
Data

Listings NYC: Inside Airbnb

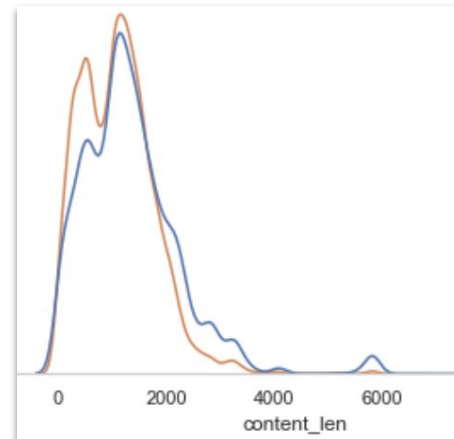
Target: *Top Listing*
i.e. listing with less
available days than the
median for the next 365d

Features: 44 in XGboost

EDA



Feature Engineering



Removed Inactive Listings

Availability 365 = 0

Last review < Apr 7,
2020

Created Multiple Features

Content length
Long term rental
Price per person
Amenities count
And others

XGBoost

Confusion Matrix

$$TP + TN > FP + FN$$

Model is better than a Naive Classifier

$$FN > FP$$

Overperforming hosts optimizing their listing > underperforming hosts keeping status quo

$$TN > TP$$

Aligned with selectivity of *Top Listing*

XGBOOST
CONFUSION MATRIX

Actual Top Listings	0	1
	0	1
0	1939 TN (True Negative)	661 FP (False Positive)
1	718 FN (False Positive)	1888 TP (True Positive)

XGBoost

Feature Importance

Learning by doing

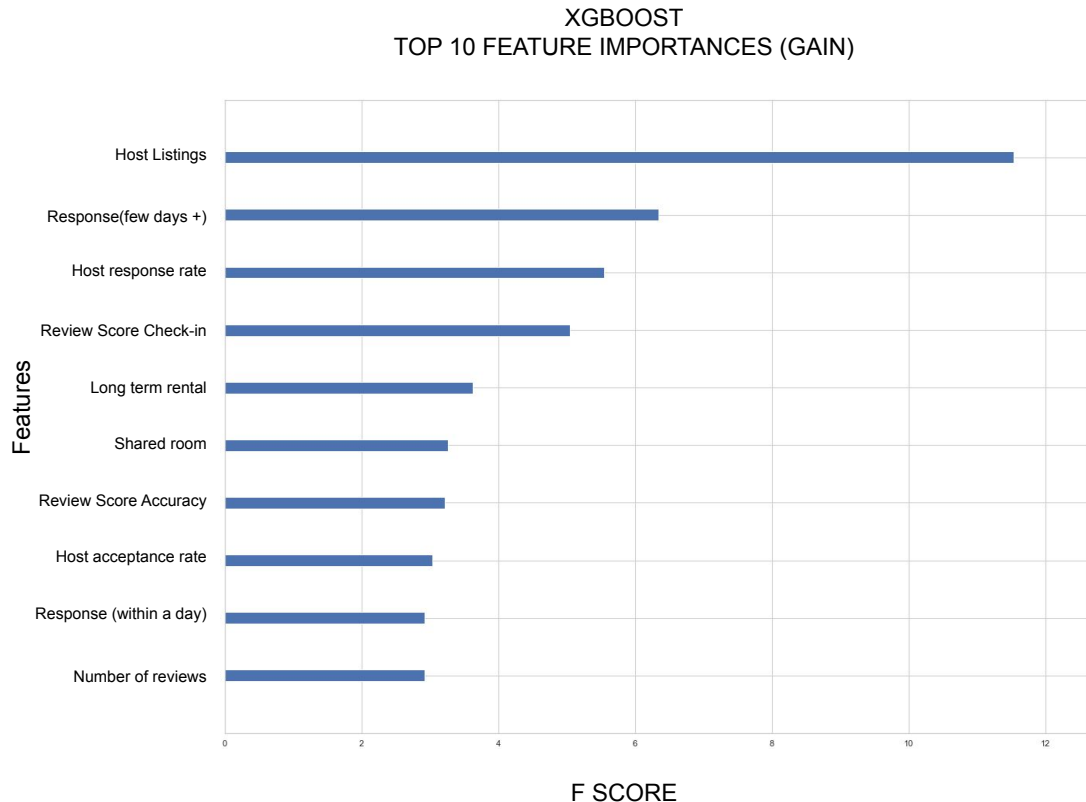
Listings/host is the most important in generating a prediction

Response time matters

Response time appears twice in the top 10 ranking

Reviews are critical

Reviews-related features appear three times in the top 10 ranking



Summary Metrics

XGBoost Model

0.74

F beta ($\beta = .35$)

0.74

Precision

0.74

Accuracy

0.72

Recall

Final Recommendations

- **Learning:** support first-time hosts in optimizing their listing by working on a localized NYC Playbook with product marketing
- **Response Time:** encourage hosts to respond within a day
- **Check-in:** hosts should understand this is critical to the rest of the guest's experience (surprise & delight goes a long way)
- **Accuracy:** descriptions should be true to the actual listing
- **Reviews:** given their impact on the user's trust, hosts should devote time to building their reviews base

Questions?