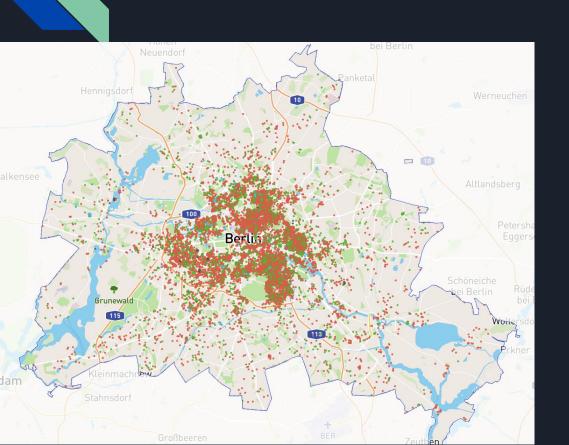
AirBnB Berlin

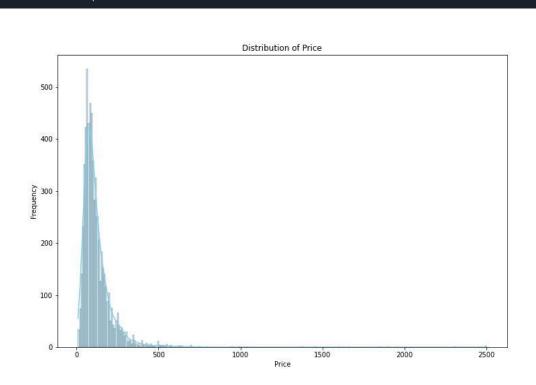
What property owners in Berlin learn about their trade?

Berlin, and data



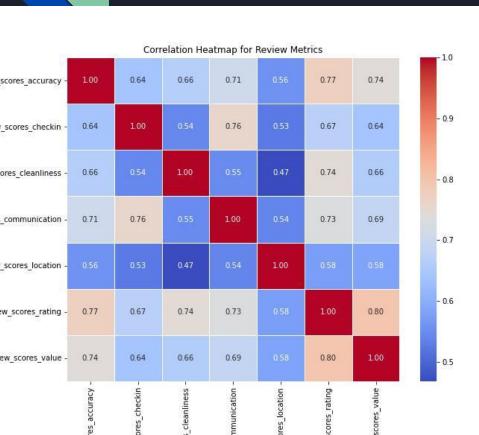
- AirBnb official dataset
- Listings, price, reviews
 as text, reviews as score
 etc
- Data collected roughly through the last year

Price Distribution Histogram



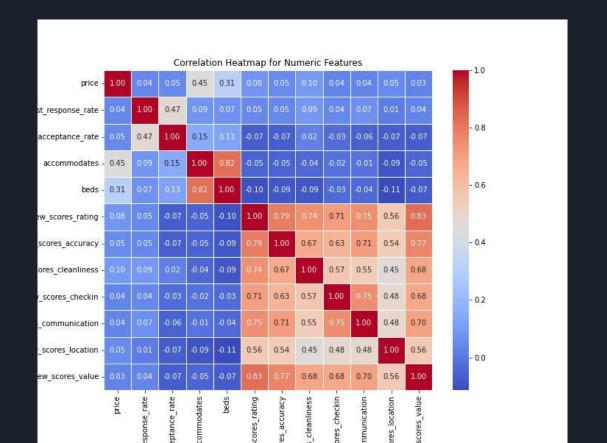
- Appears gamma distributed
- Vast majority of the listing prices are less than \$200
- They go up to \$2500

Correlations for Review

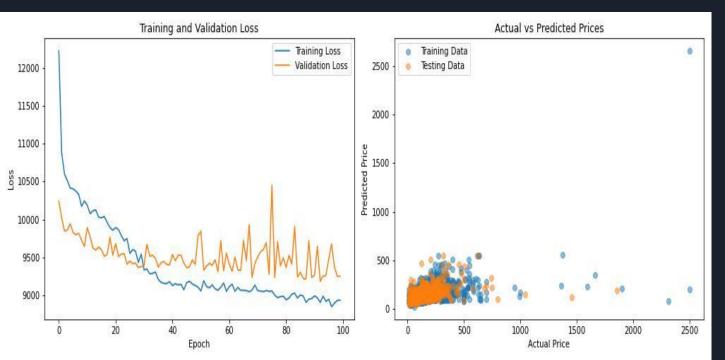


- Seven different rating metrics
- Moderate pairwise correlations
- Added as predictors in model

Heatmap for All Numeric Predictors

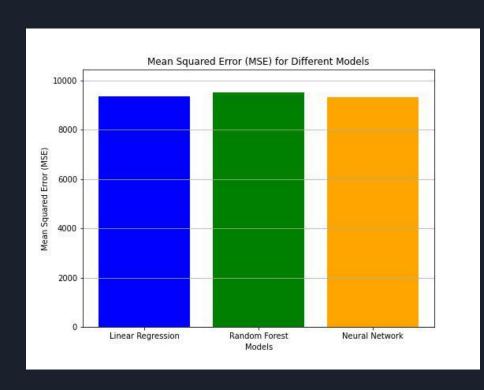


Neural Network Report



- Training and validation loss come close together
- Predictions do not look too bad

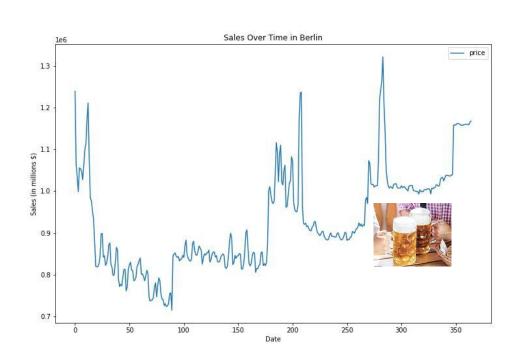
MSE Report For All Models



- All three models performed similarly
- Around 9300 MSE

E

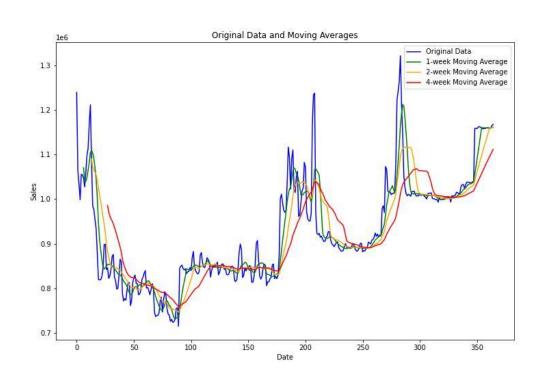
Demand Forecasting



- The horizontal axis begins at zero indicating mid December
- Spikes around holiday season, spring, summer season, Oktoberfest

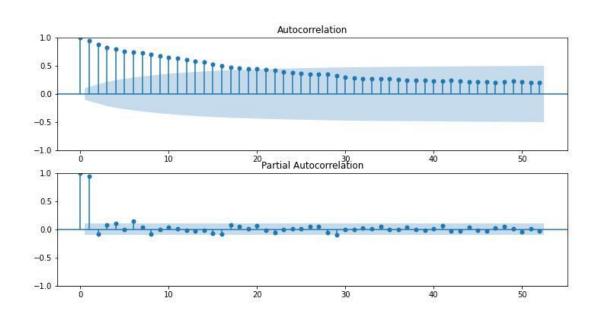


Various Moving Averages



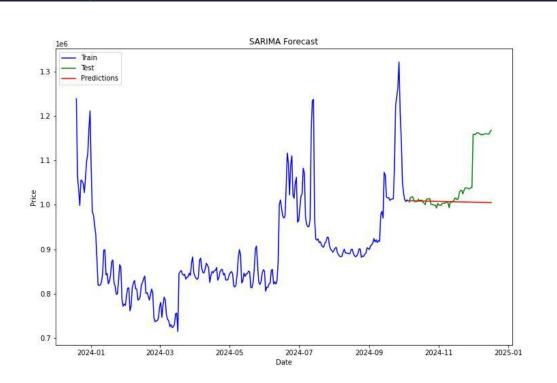
- Moving averages

Autocorrelations



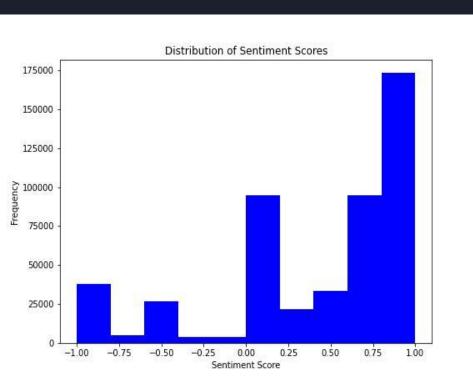
- We see a lot of evidence for seasonality
- Therefore a SARIMA model is justified

SARIMA Model



- Great for until holiday season
- High MSE because of the spike
- We can conclude the model performs well until a seasonal spike occurs
- Sales data for Berlin has complexities which need more data to be totally captured

Sentiment Analysis



- Overwhelmingly positive reviews for stays in Berlin
- Many different languages

Thank you

