# Rental Pricing

# Meet Our Team

We are a dynamic team of rising analysts from Deloitte's AI Academy, specialized in creating Machine Learning and Artificial Intelligence solutions.


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# Overview

**Business Task**:
Develop an AI model to predict rental property prices to that your company can have more completive pricing.

**Approach**:
Examine rental property data and build out multiple models to decide which AI model is the best for this business problem.

**Key Metrics**:
Longitude, Latitude, Price

# About the Data

The data were collected Kaggle (see appendix)

Data set is two years old, limited accuracy

# Model Grading Rubric

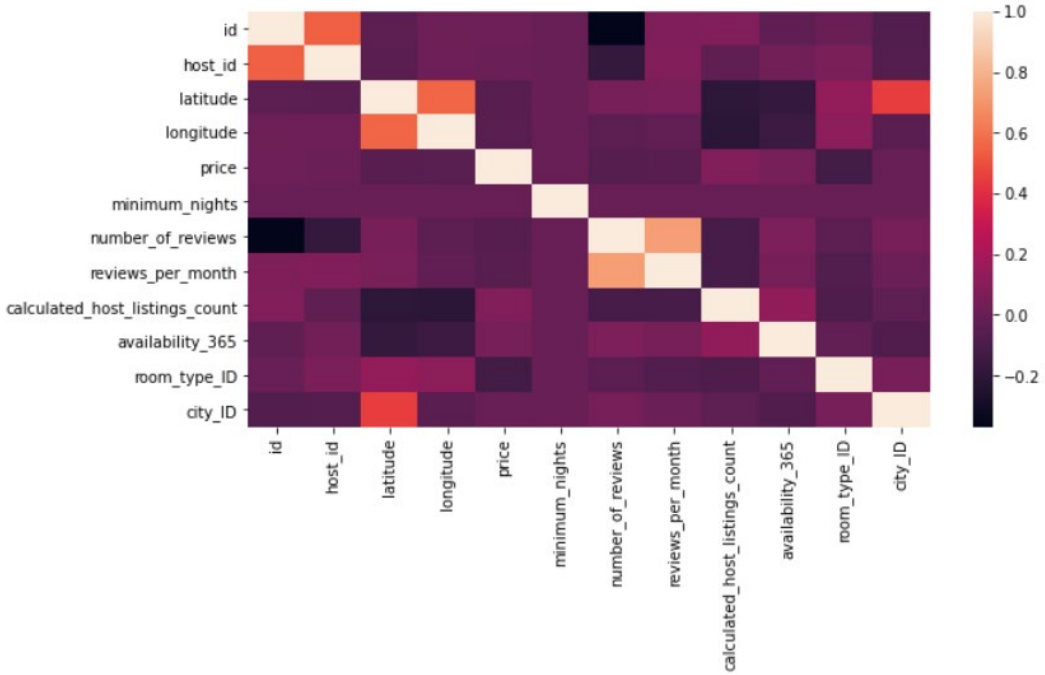
Mean Squared Error (MSE): The amount of error in a Model

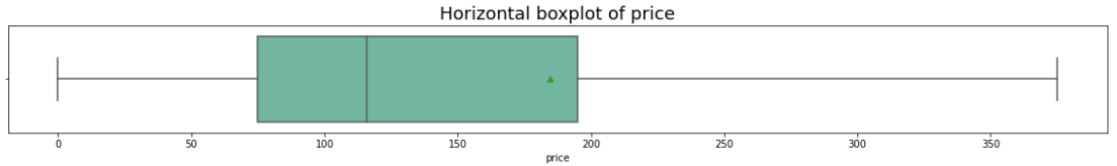
Root Mean Square Error (RMSE): The difference between the predicted value and the actual values

# Business Understanding

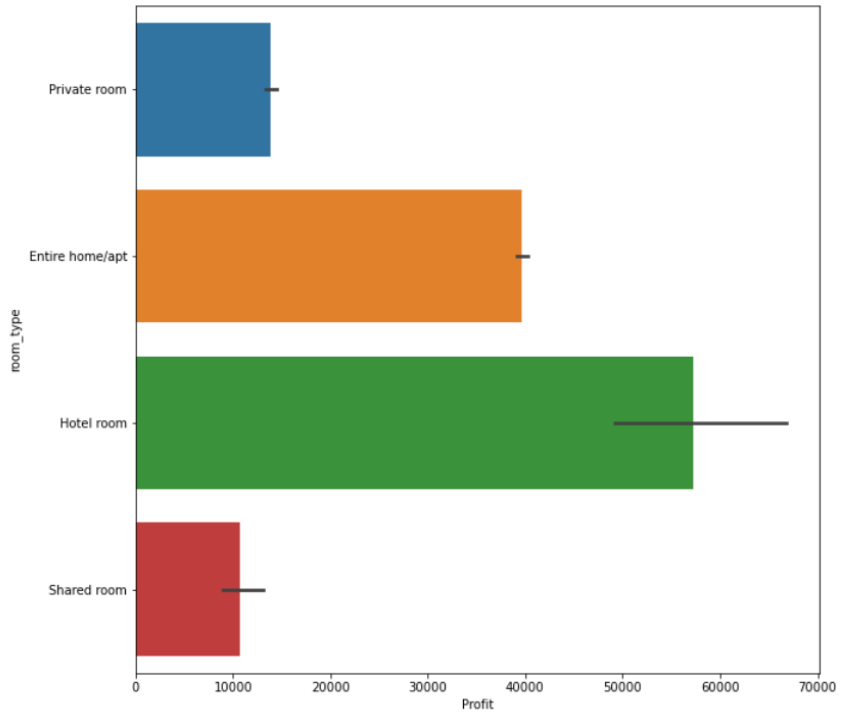
- Model is designed to be sold to rental companies and hotels to help them get more completive pricing.
- **Business Recommendation:** We recommend that your company should use an XGBoost Model to run their predict analytics for rental property pricing

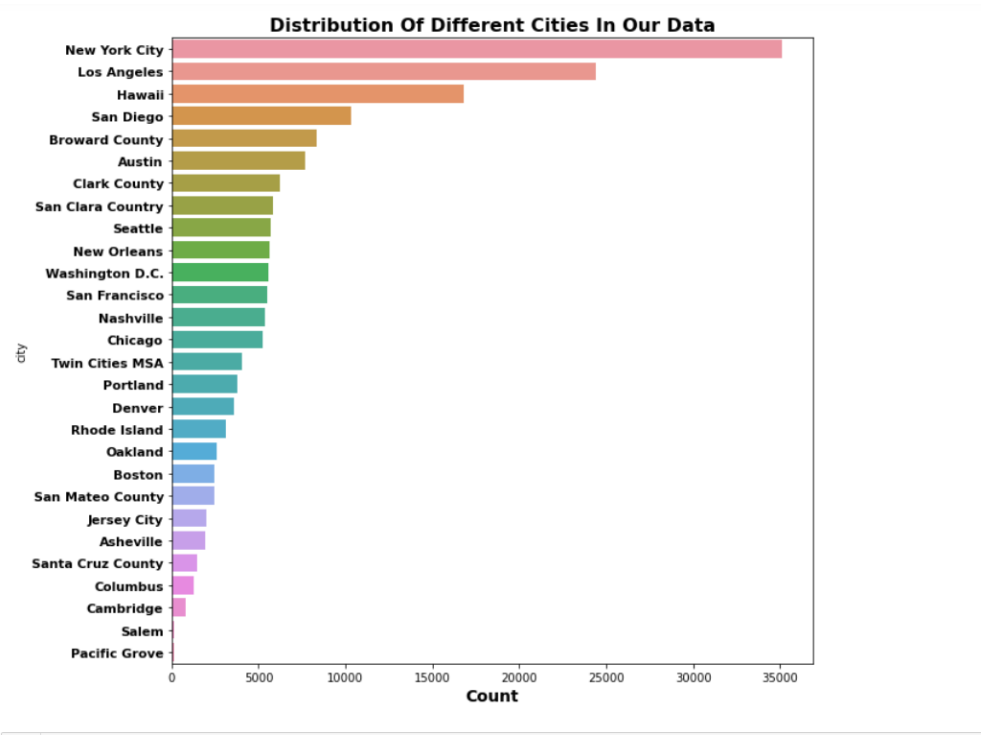
# Data overview



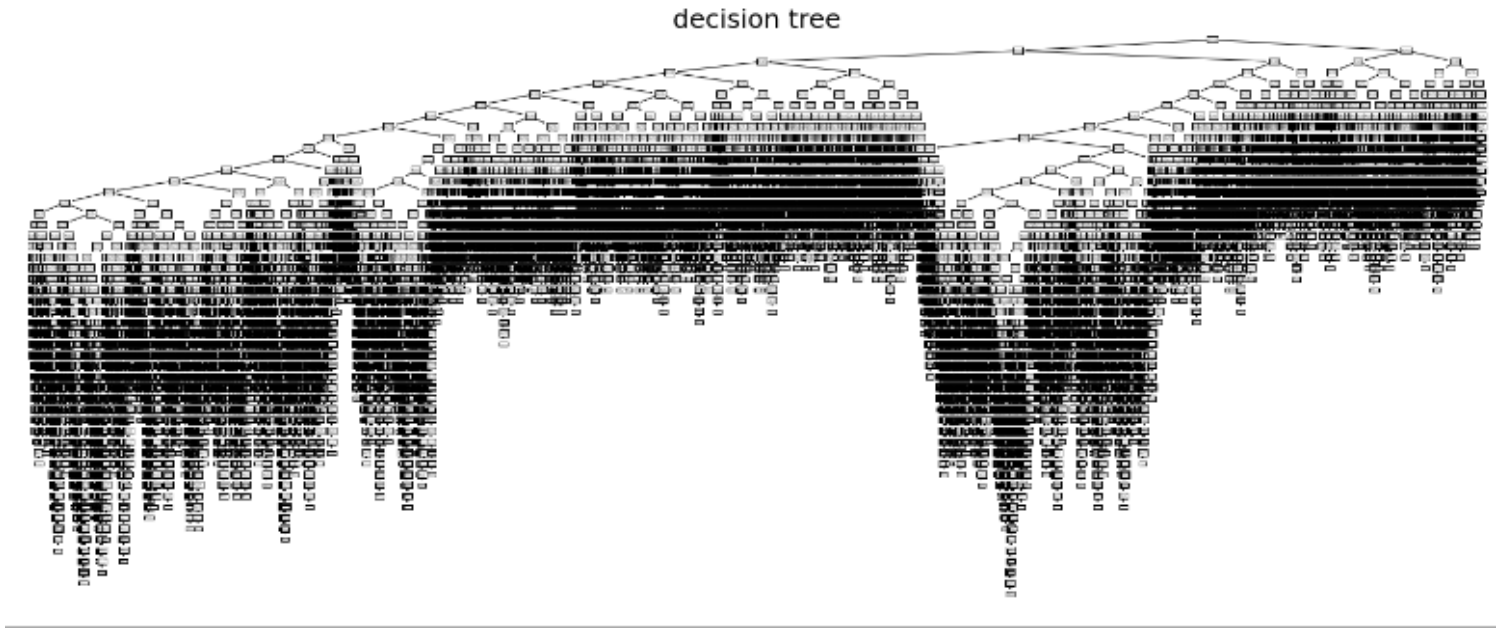
# Data Biases


Private room
Entire home/apt
Hotel room
Shared room
room_type
0
10000
20000
30000
40000
50000
60000
70000
Profit


Distribution Of Different Cities In Our Data
New York City
Los Angeles
Hawaii
San Diego
Broward County
Austin
Clark County
San Clara Country
Seattle
New Orleans
Washington D.C.
San Francisco
Nashville
Chicago
Twin Cities MSA
Portland
Denver
Rhode Island
Oakland
Boston
San Mateo County
Jersey City
Asheville
Santa Cruz County
Columbus
Cambridge
Salem
Pacific Grove
city
0
5000
10000
15000
20000
25000
30000
35000
Count

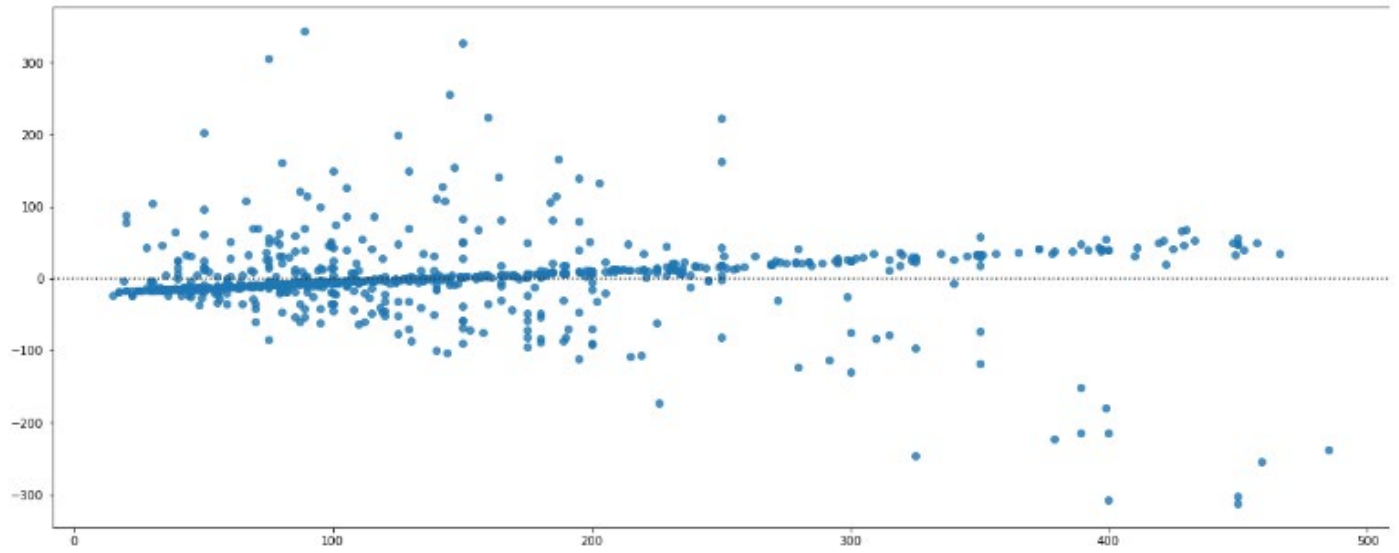
# Decision Tree

- Pros:
  - Faster
  - Not complex
- Cons:
  - Less Accurate
  - Less Consistent



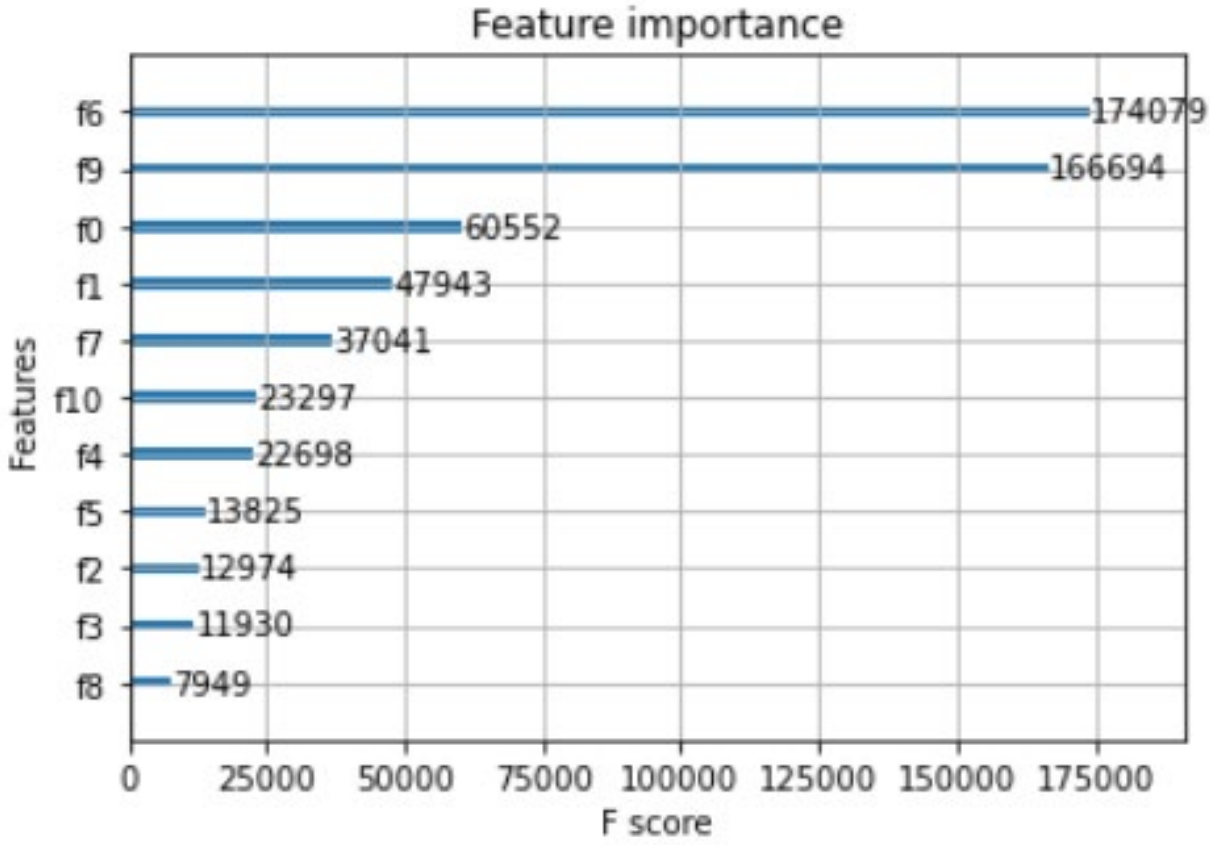
# Decision Tree

- MSE Score: 2408
- RMSE Score: 49



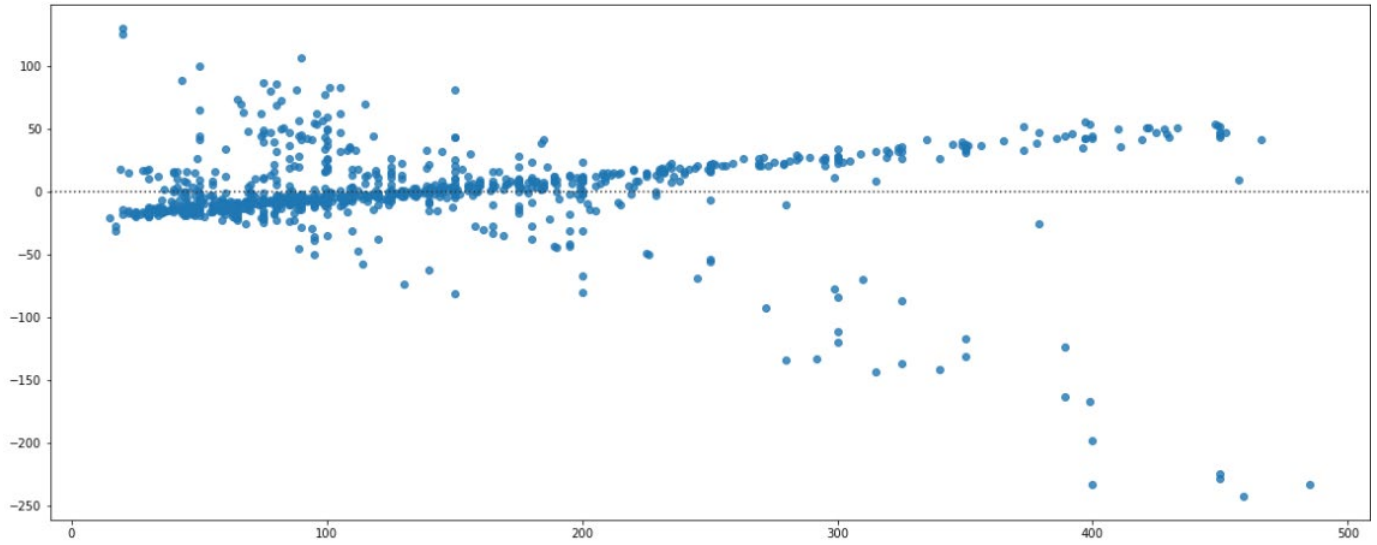
# XGBoost

- Pros:
  - More accurate
  - More function-ability
- Cons:
  - Complex
  - Longer runtime



# XGBoost

- MSE Score: 1148
- RMSE Score: 33



# Summary and Recommendation

GO WITH AN XGBOOST

ACCURACY OVER RUNTIME

# Limitations and Future Research

MORE RECENT DATA

PROFIT

# Q&A

Thank you for your time.

# Appendix

- GitHub Repository
- Data sources
  - Kaggle