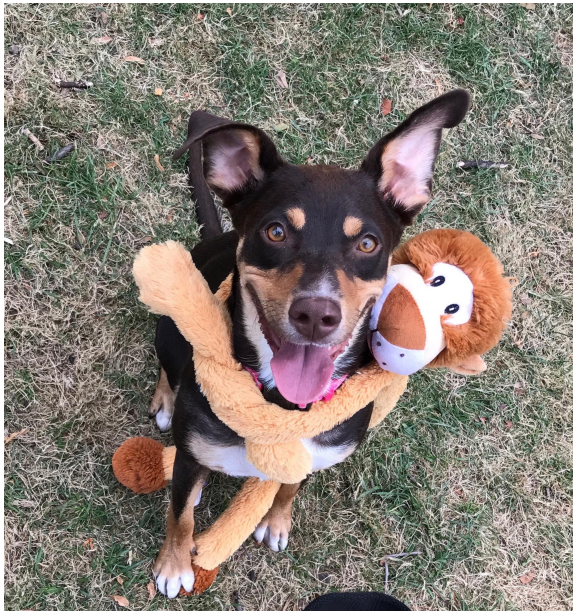
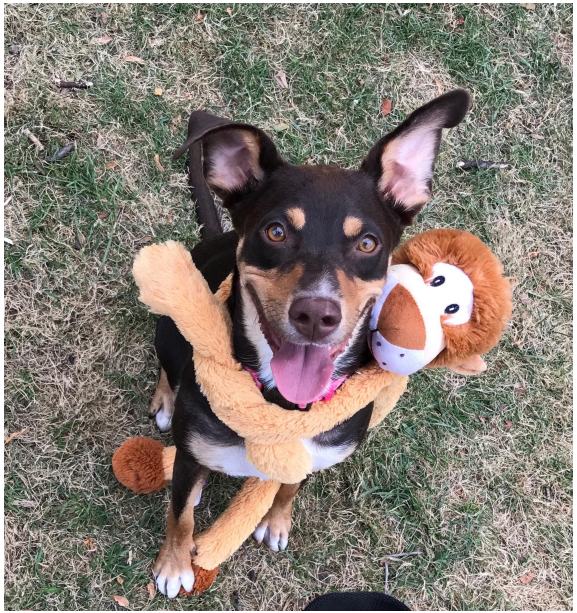
# Predicting Dog Adoption

Chris Murdock



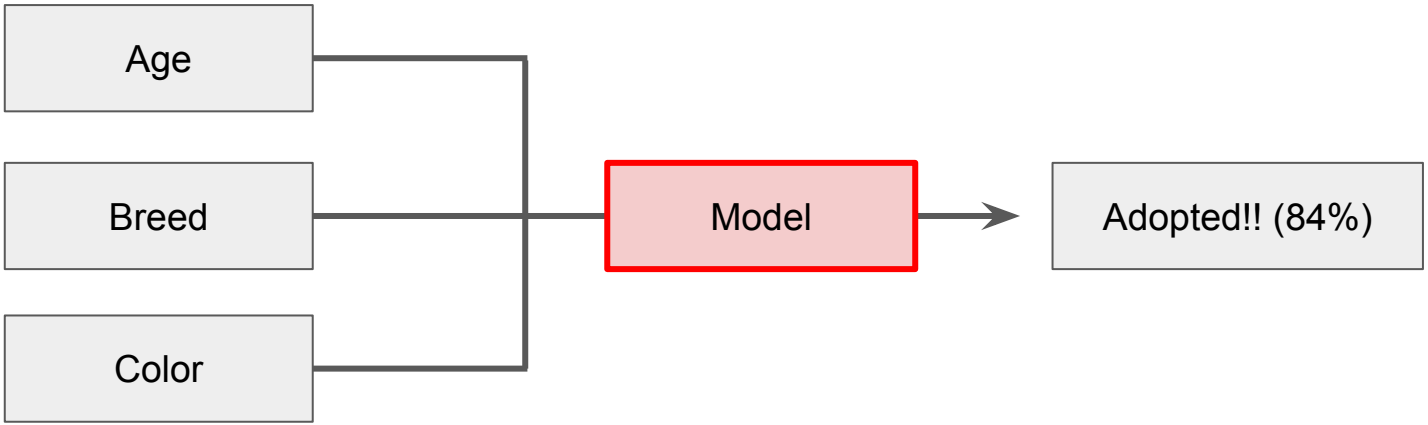
# Pet Statistics



- There are approximately 1.6 million dogs that go unadopted every year

# Objective

Can we build a model that, when given certain inputs, will predict the probability of a dog being adopted?



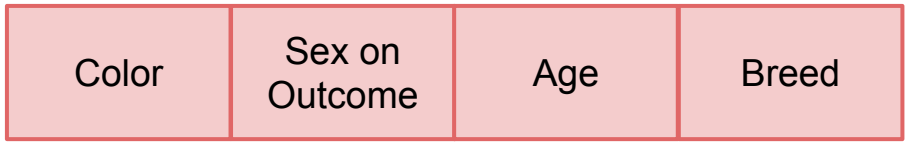
# Feature Selection

- Houston Animal Shelter from Oct 2013 - Every animal has a unique Animal ID

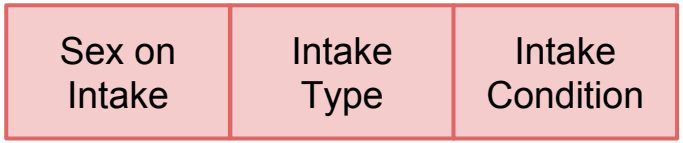
| Color | Sex on Outcome | Age | Breed |
| --- | --- | --- | --- |

# Feature Selection

- Outcome data from Oct 2013 - Every animal has a unique Animal ID




- Intake data from Oct 2013 in a different dataset



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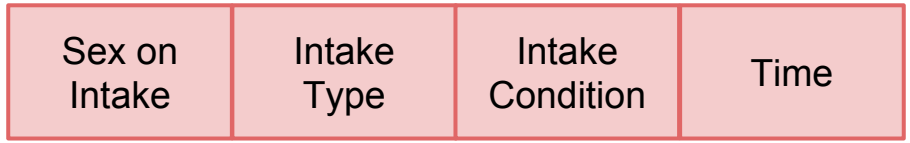
- Intake data from Oct 2013 in a different dataset




Calculate time spent in shelter

# Outcome Distribution

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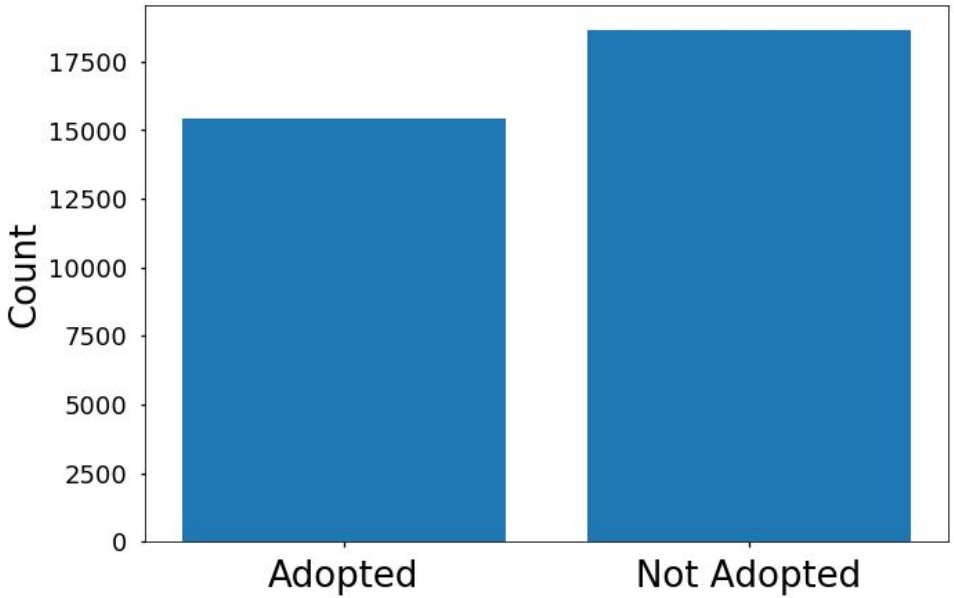
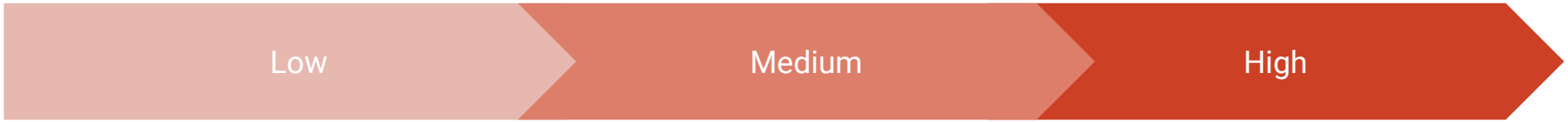



< 50 % chance to be adopted

# Modeling Strategy

Increasing Complexity




- KNN
- Decision Trees
- Random Forest

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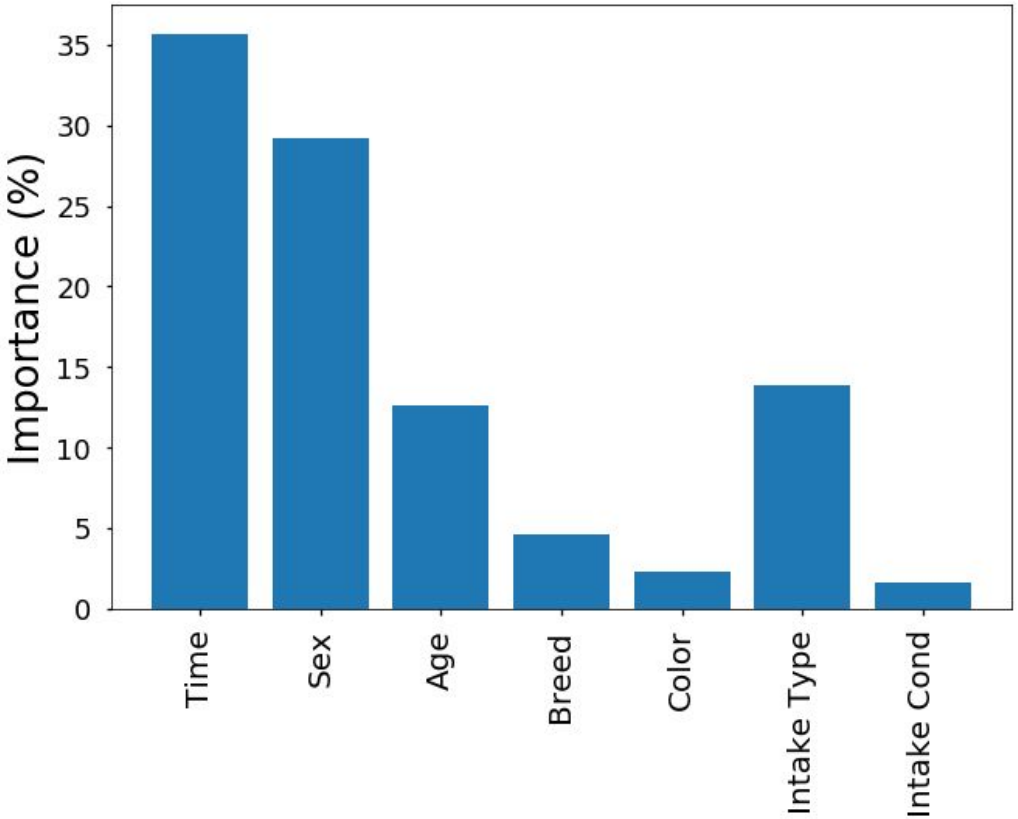
- Log Loss: 0.40
  - Takes into account uncertainty of predictions based on how much the prediction varies from the actual label

# Modeling Results

- Used Random Forest
- Accuracy Score: 0.81
- Log Loss: 0.40
- Feature importances



# App Demo

# Maya Says Thank You

# Model 1 - Predict Adoption Given Time in Shelter