

WILL THIS CAT FIND A LOVING HOME?

Jayalakshmi Jain



OBJECTIVE

- To build a classification model to predict whether a cat would be adopted or not within 4 weeks given certain features of the cat.

MOTIVATION

- Data collected from Austin Animal Shelter (<https://data.austintexas.gov/>)
- Largest no-kill animal shelter in the US
- Combat overcrowding of the shelter
- Better management of resources

DATA

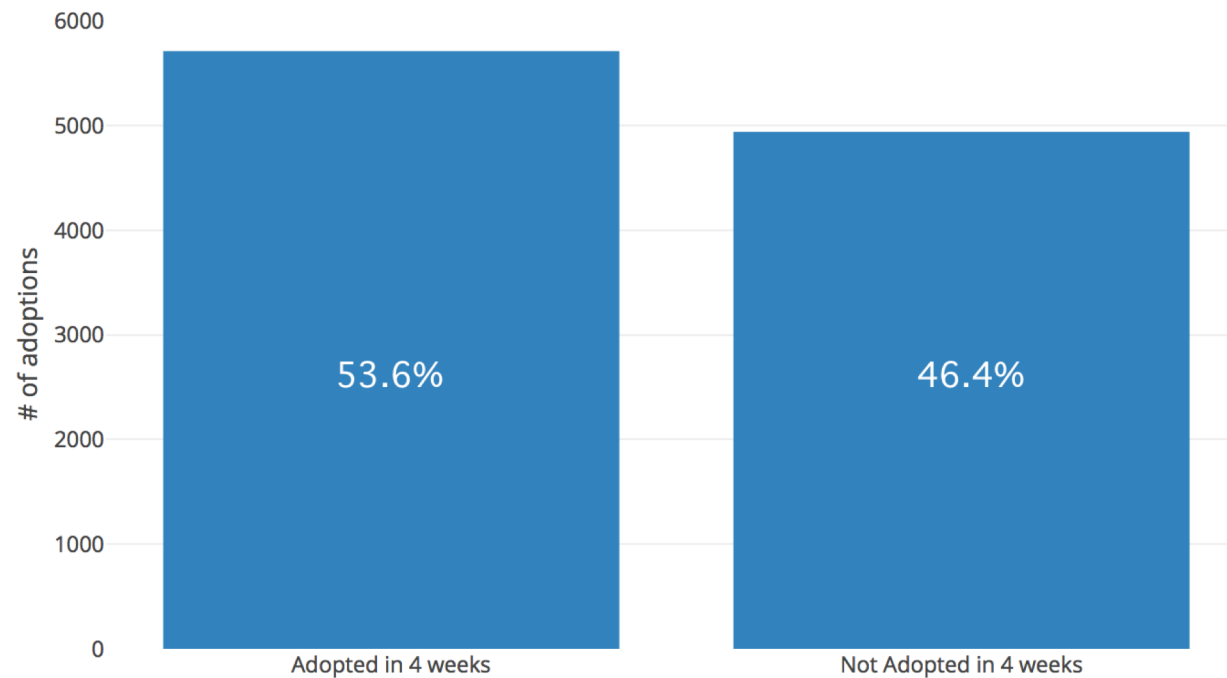
- 10K + rows
- **Name**
- **Age**
- **Color of Fur** {white, black, brown, blue, orange, mixed colors}
- **Patterns on Fur** {Tabby, Calico, Tortie, Point, Torbie, Smoke}
- **Breed** {Domestic Longhair, Domestic Shorthair, Domestic Medium Hair, Siamese}
- **Intake Type** {Stray, Owner Surrender}
- **Intake Condition** {Normal, Sick, Injured}
- **Gender**
- **Neutered**

DATA PREPROCESSING

- Age – only numeric attribute, scaled using standard scaler
- Dummies created for the categorical variables
- Feature engineering done to get color, pattern and breed names
- Resultant data has 26 features and 1 target value.

BASELINE CLASSIFIER

Target Variable Distribution

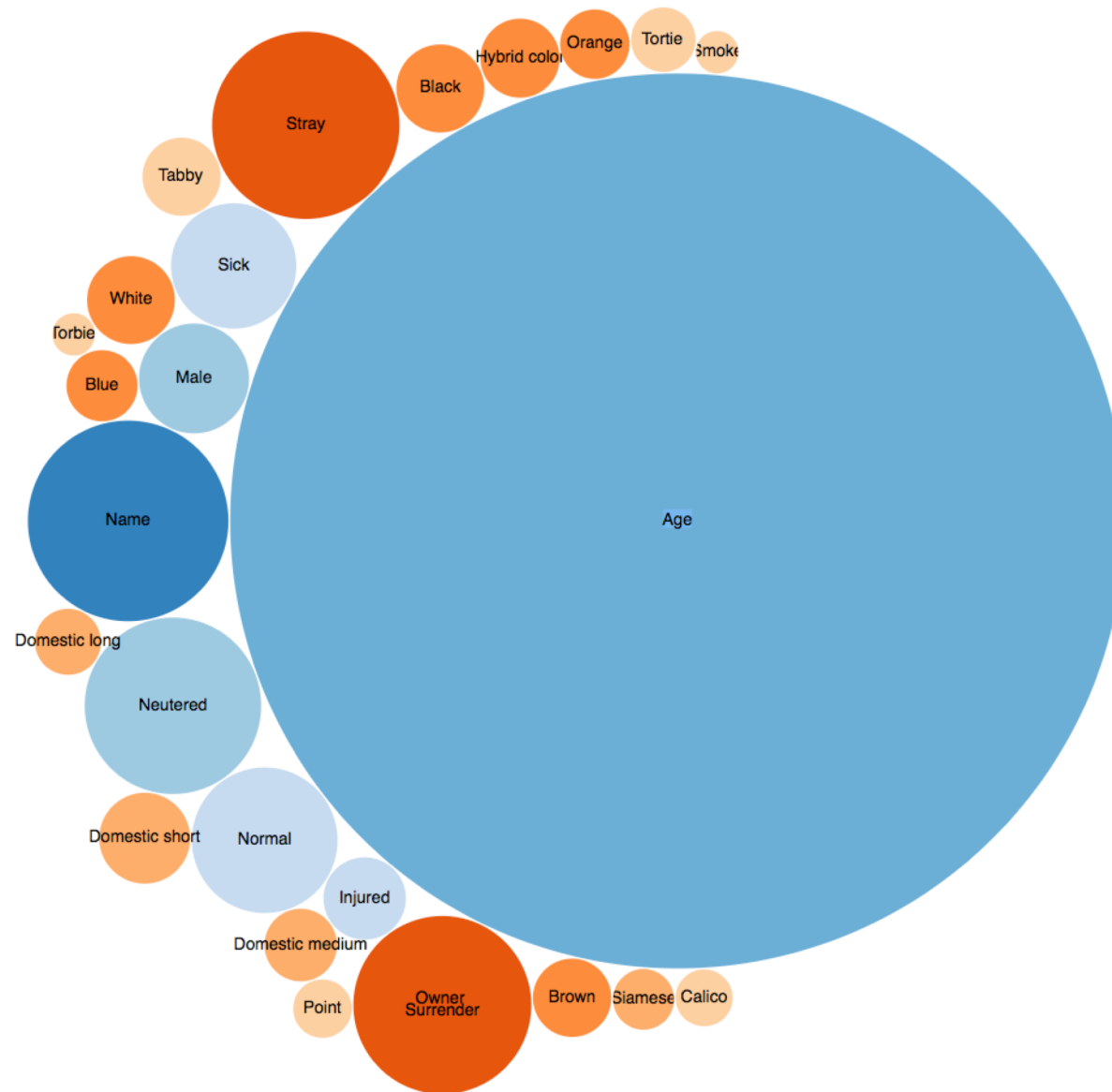


MODEL

- Best classifier – Random Forest
- Optimal Hyperparameters
 - criterion='gini',
 - n_estimators=100,
 - max_depth=8,
 - max_features=7
- Accuracy - 0.906
- Precision - 0.797
- Recall - 0.823
- F1 score - 0.852

FEATURE IMPORTANCE

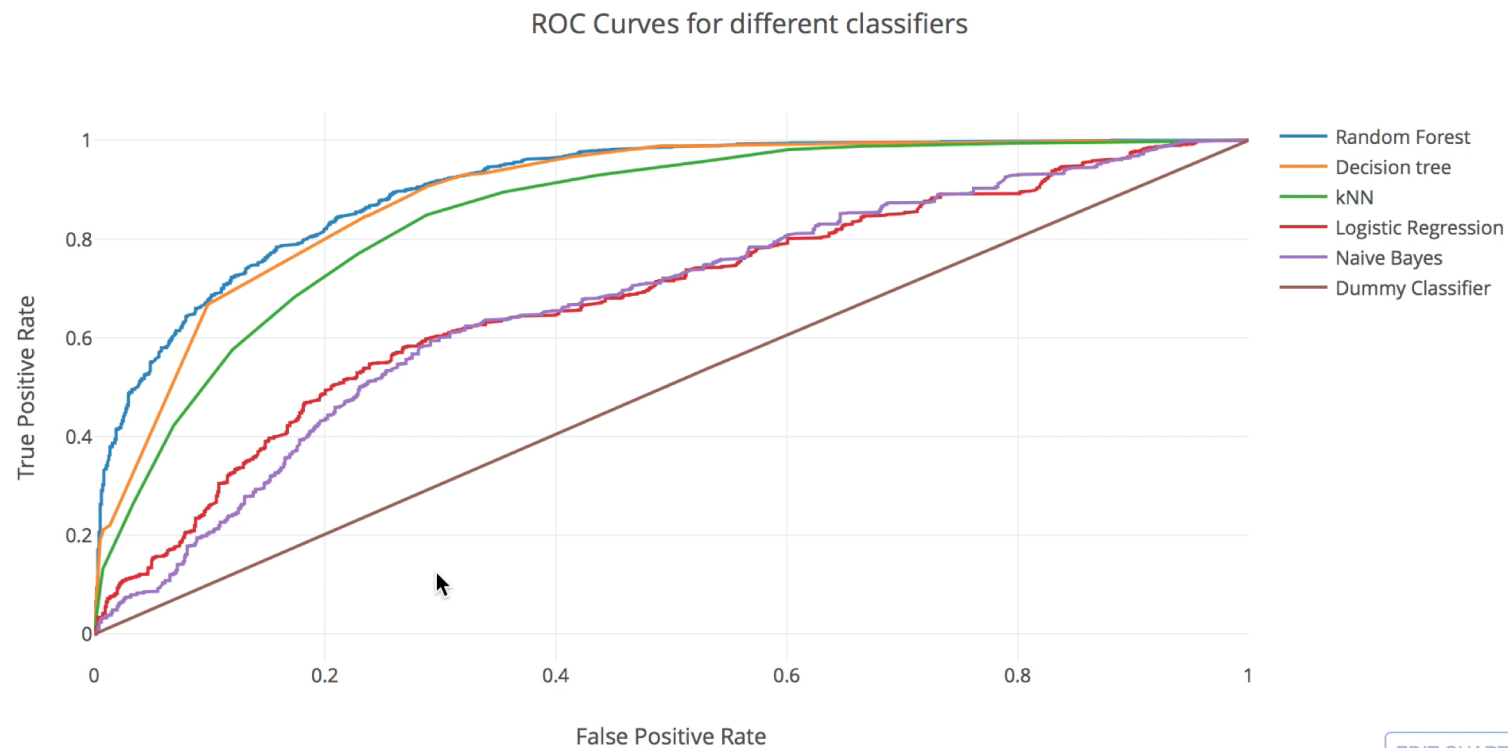




COLOR LEGEND

- Age of the pet
- Name
- Intake Condition
- Intake Type
- Color of fur
- Pattern on fur
- Breed

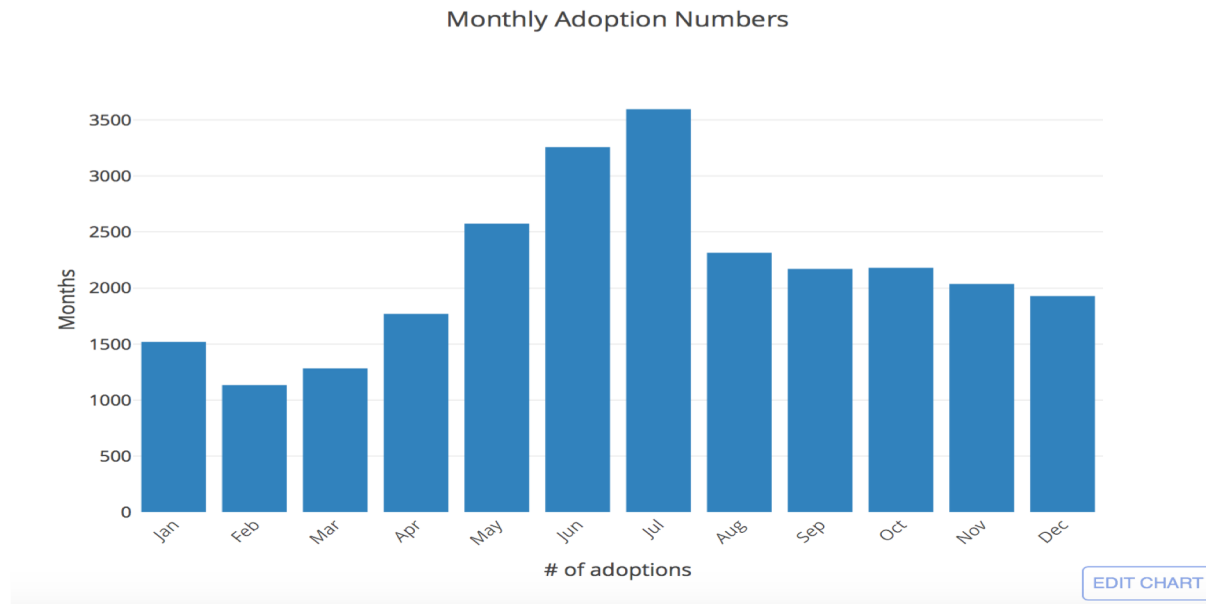
COMPARISON WITH OTHER MODELS



[EDIT CHART](#)

FUTURE WORK

- Build a similar model for dogs.
- Include month of adoption as a feature



THANK YOU



jlakshmi235@gmail.com



Jlakshmi235