



Paw Print

Dog Breed Predictor

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Data Science West Cohort
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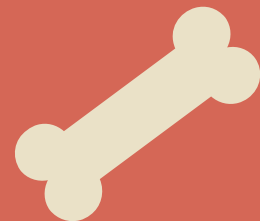


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Project Overview & Business Understanding



Project Overview

- Seattle Animal Shelter
- Create a model that predicts a dogs breed from an image
- Give corresponding personality traits
- Top 5 Breed Predictions





3.3M Dogs

End Up in the Shelter Every Year

67%

Correctly Identified (Visually)

“What breed are they?”

#1 Question Asked by People Looking to Adopt

Business Understanding

- Visual Identification Traits:
 - Color
 - Size (Height & Weight)
 - Fur length
 - Distinguishable features/markings
 - Ears (floppy or upright)
- Save time and resources
- Lead to increased dog adoptions





Data & Modeling



Data Understanding



Training Images

- 10,222 images
- 120 breeds
- Dataframe: image filename & corresponding breed label.
- Source: [Kaggle](#)

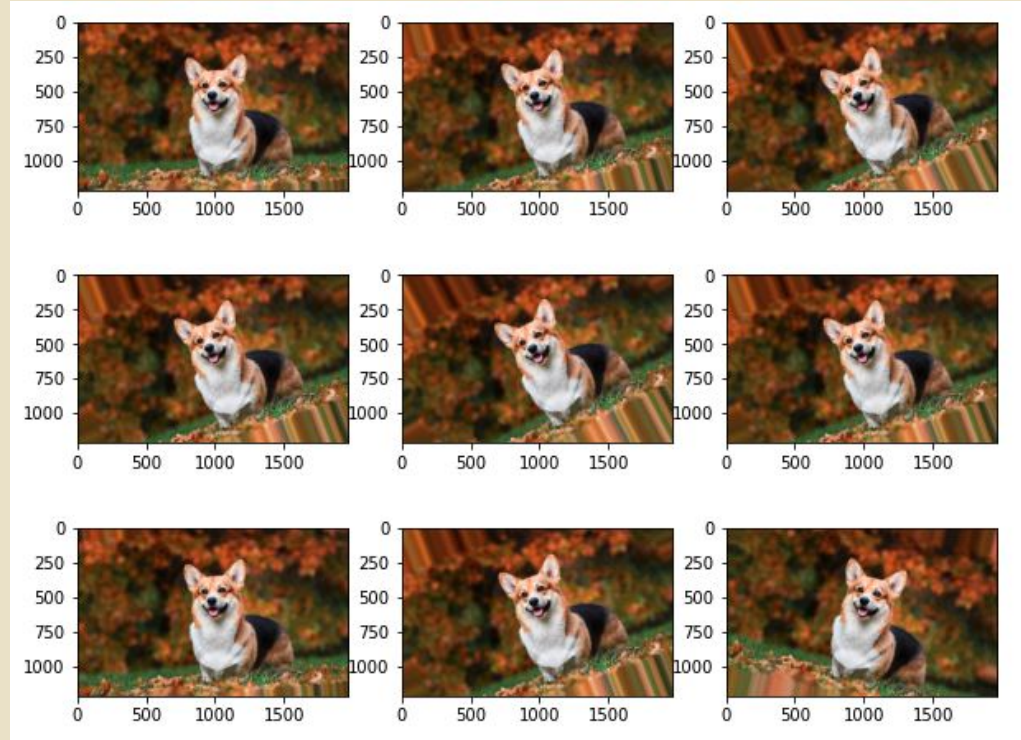


Breed Traits

- 277 AKC dog breeds.
- Temperament, height, weight, trainability, energy level, etc
- Source: [AKC Data](#)

Modeling

- Image augmentation - rotation, flip, zoom, etc
- Tensorflow MobileNetV2
- Test data: holdout of 34 non-augmented images



Model Results



78%

Accuracy

97%

Accuracy
within Top 5



Evaluation

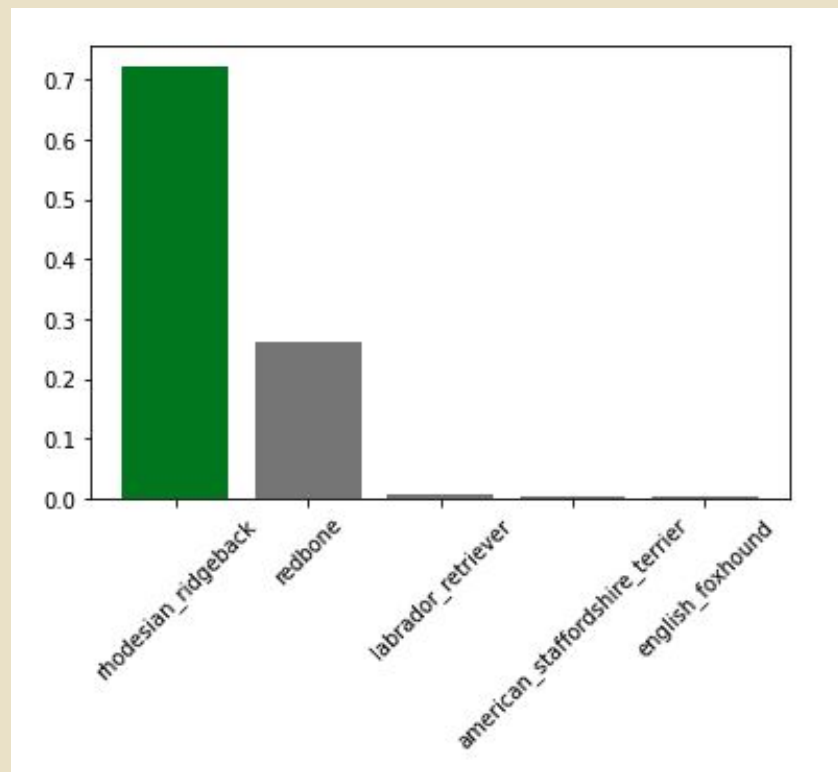
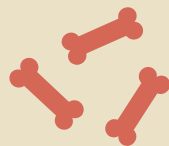
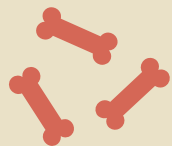


Breed Prediction: 72.2% rhodesian_ridgeback



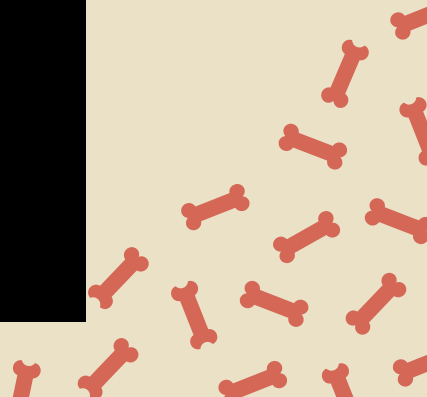
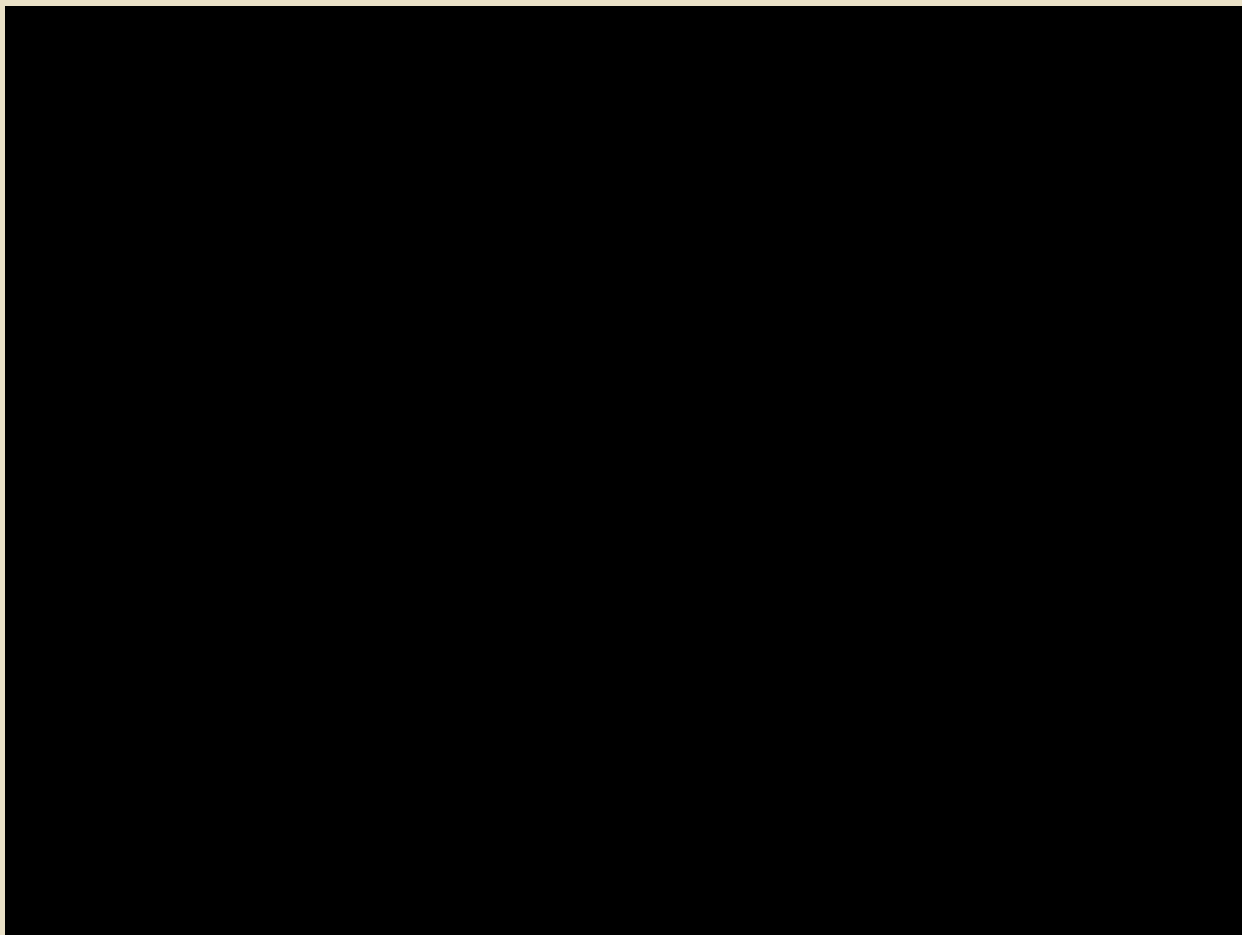
Breed: Rhodesian Ridgeback
Breed Group: Hound Group
Temperament: Affectionate, Dignified, Even-Tempered
Popularity: 41/270
Average Height: 64.77 inches
Average Weight: 35.15 lbs
Energy Level: 6/10







Mobile App Demo





Next Steps





Recommendations

Accuracy

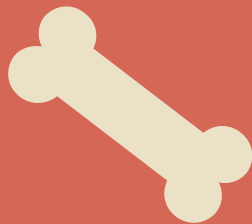
- Breed Prediction Accuracy: 78%.
- Improvement Over Shelter Accuracy: 67%

For best results:

- Environment: Good lighting, minimize image noise, show distinguishable features
- Purebred vs mixed breed
- DNA Test - most accurate

Next Steps

- Collect more training data - improve model accuracy and overfitting
- Improve accuracy for mixed-breed dogs (more effective for use in animal shelters)





Woof!

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medium.com/@hannah.schurman1

github.com/hannah-schurman/dog-breed-identification



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