

Yoga Pose Classifier

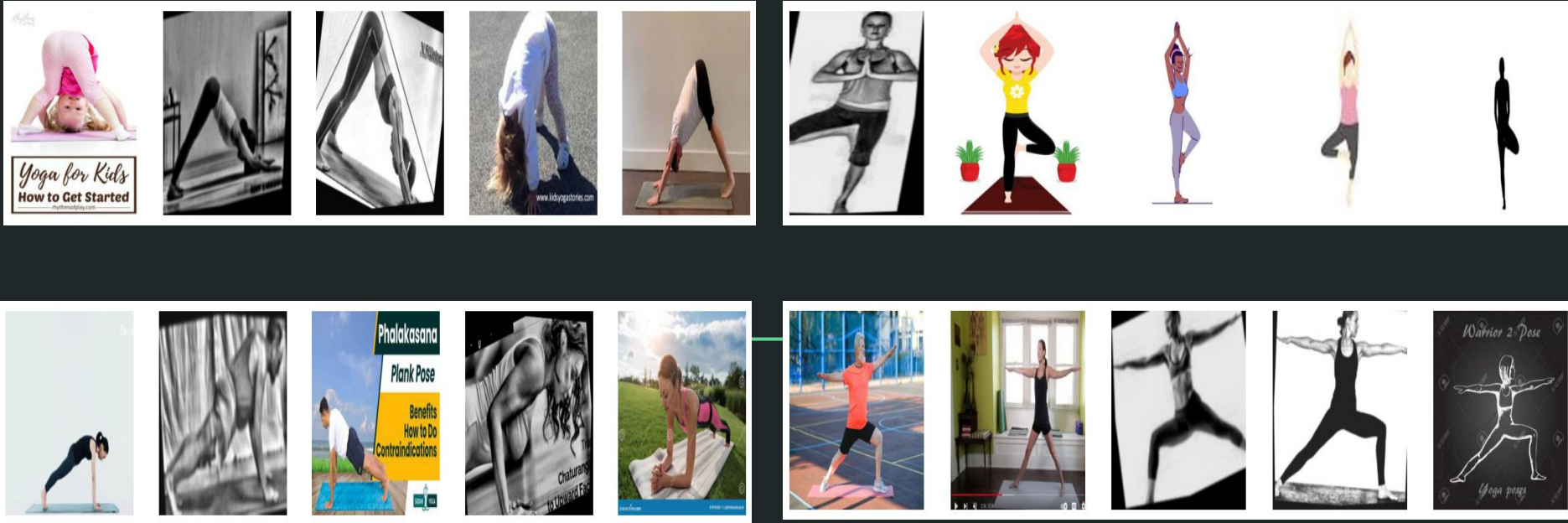
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The Problem:

Given a picture of a yoga pose, can a model be built within 1 year to return the name of the pose?

The Solution:

Convolutional neural networks show promise as an ideal model. The most promising model delivered 89% accuracy.

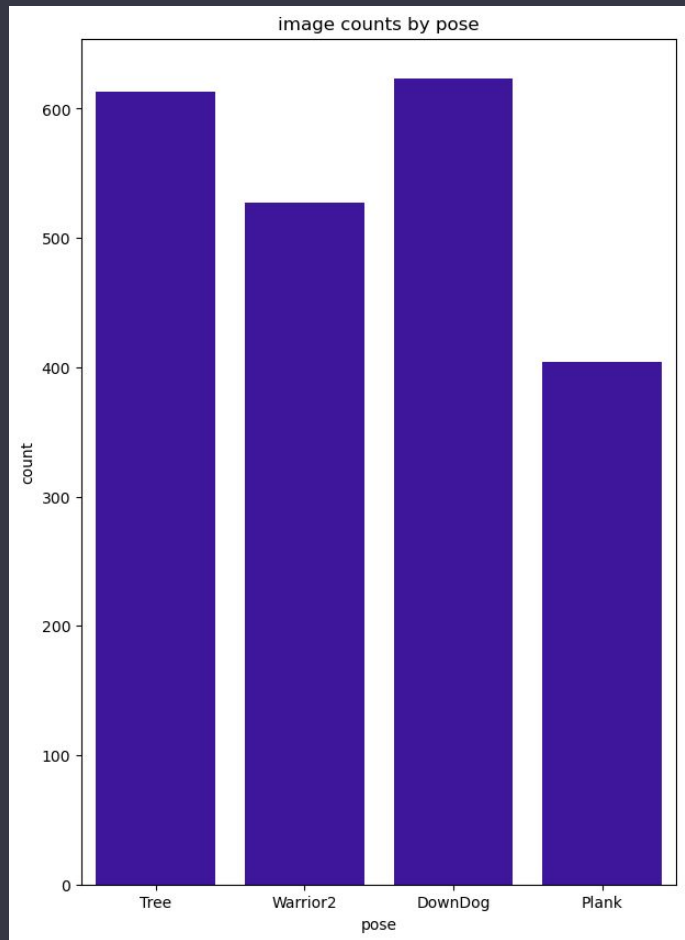


Data Source: Google Image Search

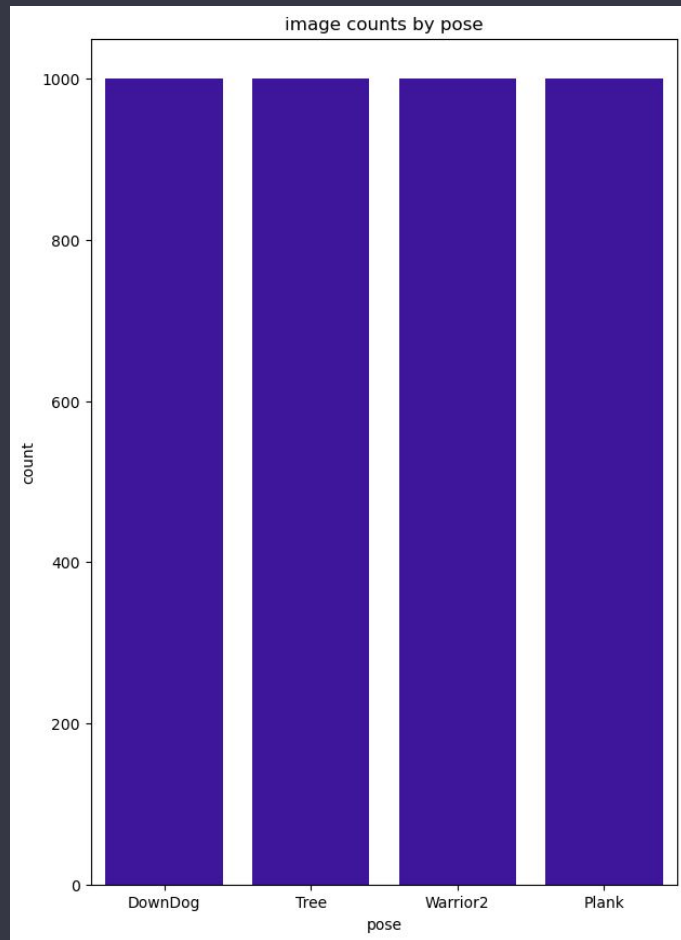
Data Wrangling

Goal is to provide a clean and accurate set of images depicting each pose from multiple angles and subjects

- Be selective of what images are used
 - Find as many original images as possible
 - Remove duplicate images
 - Ensure images are from multiple angles
 - Select poses with best available images
 - Balance for bias in skin tone, shape and sex as much as possible
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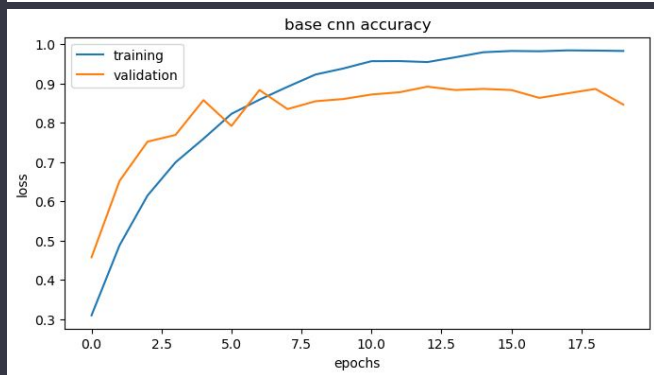
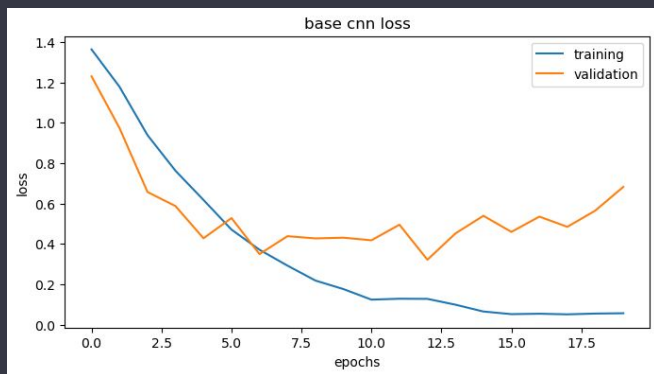


Exploratory Data Analysis



Metric Selection

Accuracy selected as success metric



Model Selection

- ❖ Convolutional Neural Network
- ❖ Accuracy of predictions
- ❖ Expected generalization strength
- ❖ Scored per pose

Hyperparameter Tuning

Random Search

Best CNN parameters

- 5 intermediate layers
 - Relu activation
 - 600 total epochs trained
 - No improvement
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Takeaways

- CNNs were an appropriate choice of model
- Each pose was identified roughly equally well
- This model can be used as an MVP for further product development.
- Data collection may need to be supplemented with additional practitioners to avoid bias.

Future Research

- ❖ Additional poses
- ❖ Adding pretrained models
- ❖ Additional neural net types
- ❖ Yoga instructor input on proper form



Thank You!

Niharika Pandit and kaggle for the initial dataset

Nicholas Renotte for an excellent demo of an image classifier

Download all images Chrome extension for saving thousands of tedious clicks

Springboard for providing a platform to build additional skills
