Plant Seedlings Classification using CNNs

MACHINE LEARNING - IMAGE CLASSIFICATION

INTRODUCTION

If the process of classifying plant seedlings is carried out effectively, it can result in yielding better quality crops and plantation. It can also help in better supervision of the crop-producing lands.

Dataset - 4750 images (12 classes)

- Training Images - 3040

- Validation Images - 950

- Testing Images - 760

Framework

Keras

▸ Open-source Python library

▸ Neural Network library

▸ Supports Convolutional

   Neural Network

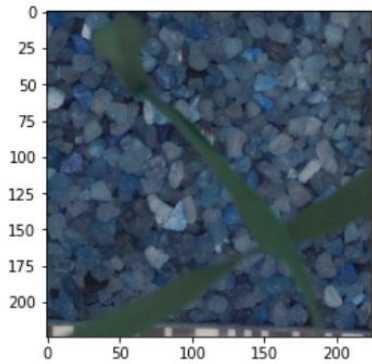▸ Enables fast experimentation

Model:
Simplified VGG Net

‣ 5 Convolutional Layers

‣ ReLu - Activation Function

‣ Max Pooling

‣ Batch Normalization

‣ DropOut

‣ Fully Connected Layer

‣ Sigmoid - Activation Function

‣ SGD - Loss Function

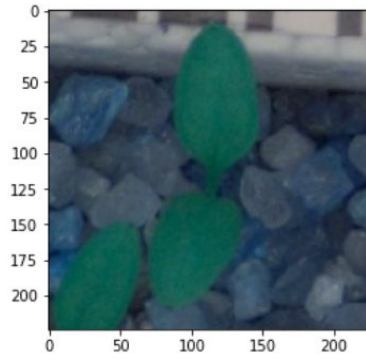# Training and Validation Accuracy and Loss
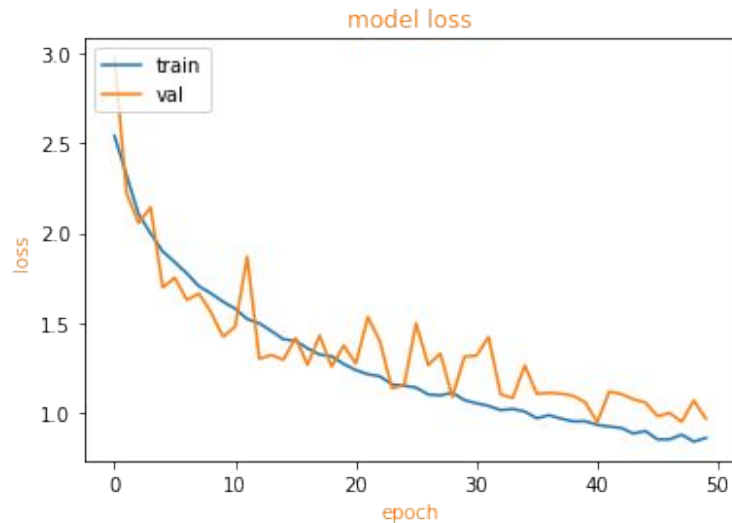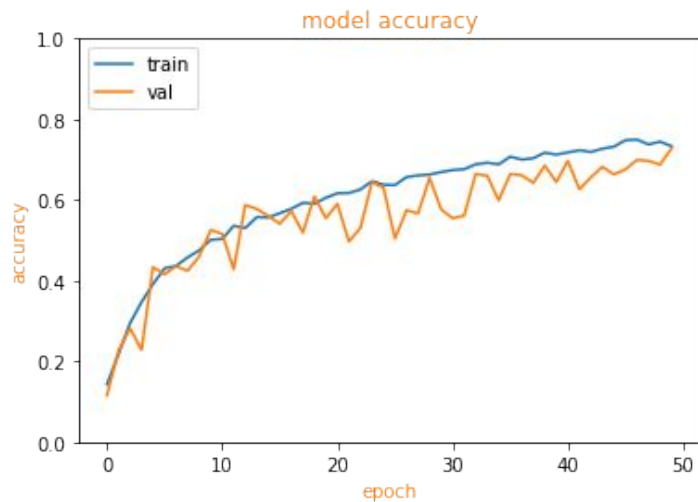
Trained over : 50 epochs
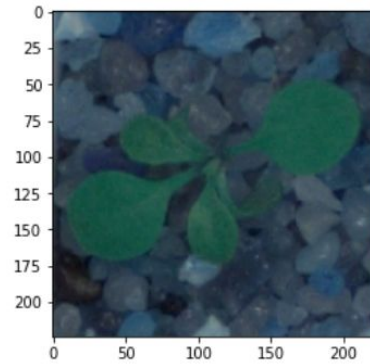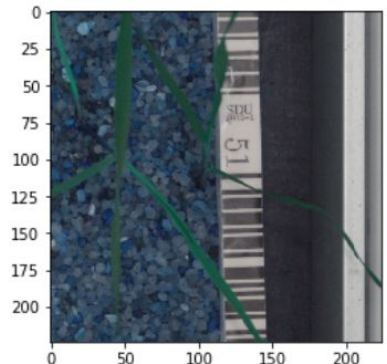**Validation Accuracy : 72.74%**

Results

Predicted class is: Common wheat
Original class is: Common wheat

Predicted class is: Common Chickweed
Original class is: Common Chickweed

Predicted class is: Fat Hen
Original class is: Shepherds Purse

Predicted class is: Loose Silky-bent
Original class is: Black-grass

Test Accuracy : 71.71%

Thankyou