

Plant, Soil and Weed Identification

Grad Team 6

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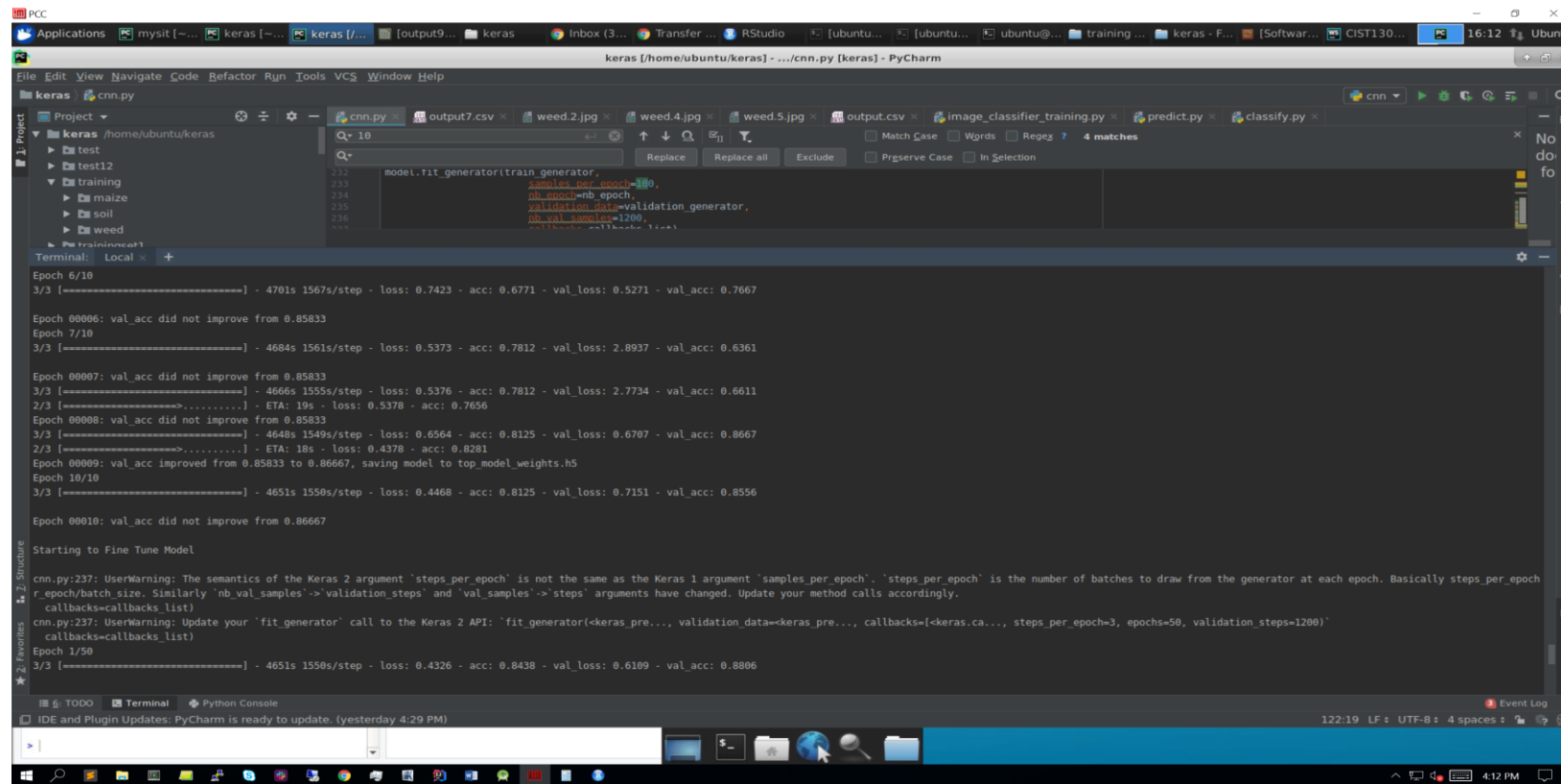
Preprocess the RGB data

- ▶ Simplified the given data
- ▶ Set Image size
- ▶ Convert to grayscale
- ▶ Set Classification Categories (1-3)
- ▶ Note: Converting RGB to hexadecimal value is a terrible idea

Data Augmentation & Batch Size

- ▶ Horizontal Flip
- ▶ Rotation
- ▶ Rescale
- ▶ Sheer Range
- ▶ Echo:- 10-150
- ▶ Batch Size:- 10-16

Xception(48 Hours including Tuning)

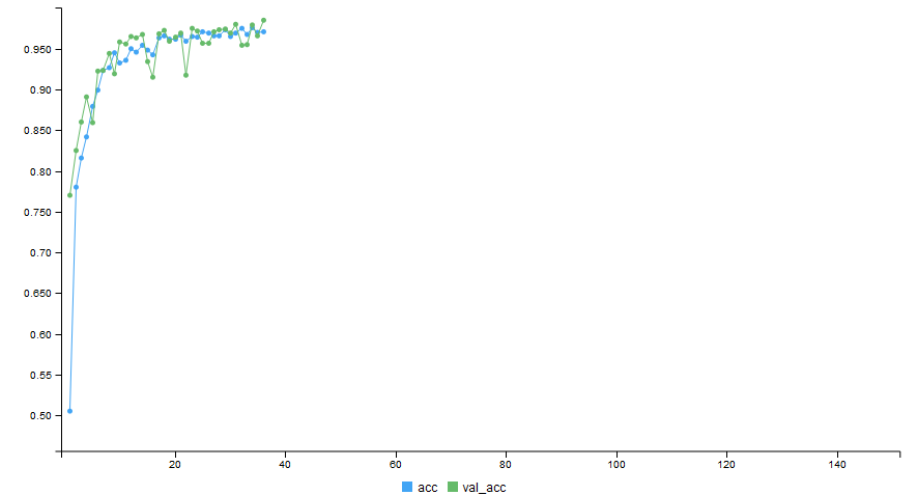
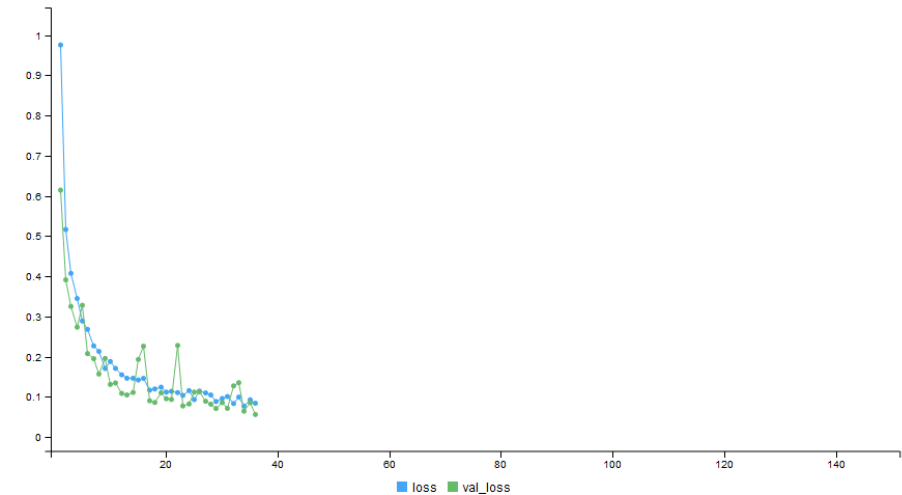


The image shows a PyCharm IDE window with a project named 'keras' and a file named 'cnn.py'. The terminal output displays the training progress of an Xception model. The training is divided into epochs, with progress bars and metrics (loss, accuracy, validation loss, validation accuracy) shown for each. The model is trained for 10 epochs, with the first 9 epochs showing progress and the 10th epoch showing the final results. The terminal also displays warnings about the Keras 2 API and a message about the model being saved to 'top_model_weights.h5'.

```
keras [home/ubuntu/keras] - .../cnn.py [keras] - PyCharm
File Edit View Navigate Code Refactor Run Tools VCS Window Help
keras /home/ubuntu/keras
Project
  keras
  test
  test12
  training
  maize
  soil
  weed
Terminal: Local
Epoch 6/10
3/3 [=====] - 4701s 1567s/step - loss: 0.7423 - acc: 0.6771 - val_loss: 0.5271 - val_acc: 0.7667
Epoch 00006: val_acc did not improve from 0.85833
Epoch 7/10
3/3 [=====] - 4684s 1561s/step - loss: 0.5373 - acc: 0.7812 - val_loss: 2.8937 - val_acc: 0.6361
Epoch 00007: val_acc did not improve from 0.85833
3/3 [=====] - 4666s 1555s/step - loss: 0.5376 - acc: 0.7812 - val_loss: 2.7734 - val_acc: 0.6611
2/3 [=====] - ETA: 19s - loss: 0.5378 - acc: 0.7656
Epoch 00008: val_acc did not improve from 0.85833
3/3 [=====] - 4648s 1549s/step - loss: 0.6564 - acc: 0.8125 - val_loss: 0.6707 - val_acc: 0.8667
2/3 [=====] - ETA: 18s - loss: 0.4378 - acc: 0.8281
Epoch 00009: val_acc improved from 0.85833 to 0.86667, saving model to top_model_weights.h5
Epoch 10/10
3/3 [=====] - 4651s 1550s/step - loss: 0.4468 - acc: 0.8125 - val_loss: 0.7151 - val_acc: 0.8556
Epoch 00010: val_acc did not improve from 0.86667
Starting to Fine Tune Model
cnn.py:237: UserWarning: The semantics of the Keras 2 argument 'steps_per_epoch' is not the same as the Keras 1 argument 'samples_per_epoch'. 'steps_per_epoch' is the number of batches to draw from the generator at each epoch. Basically steps_per_epoch
r_epoch/batch size. Similarly 'nb_val_samples' -> 'validation_steps' and 'val_samples' -> 'steps' arguments have changed. Update your method calls accordingly.
callbacks=callbacks_list)
cnn.py:237: UserWarning: Update your 'fit_generator' call to the Keras 2 API: 'fit_generator(keras_pre..., validation_data=keras_pre..., callbacks=[keras.ca..., steps_per_epoch=3, epochs=50, validation_steps=1200])'
callbacks=callbacks_list)
Epoch 1/50
3/3 [=====] - 4651s 1550s/step - loss: 0.4326 - acc: 0.8438 - val_loss: 0.6109 - val_acc: 0.8806
122:19 LF : UTF-8 : 4 spaces : 4:12 PM
```

Final Predictions

- Using the Keras package we generated approx 98.33% accuracy with initial Kaggle submission
- Xception Model took time 48 hours (including Tuning)



Thank You!