Project Development Phase
Model Performance Test

Date	17 November 2022
Team ID	PNT2022TMID31779
Project Name	Digital Naturalist - AI Enabled tool for Biodiversity Researchers
Maximum Marks	10 Marks

Model Performance Testing:

Project team shall fill the following information in model performance testing template.

S. No	Parameter	Values	Screenshot
1.	Model Summary	**Total params: 22,109,990** **Trainable params: 307,206** **Non-trainable params: 21,802,784**	Screenshot 1
2.	Accuracy	Training Accuracy - 92.8% Validation Accuracy - 85.6%	Screenshot 2

Screenshots - Please refer to the next page:

Screenshot 1 :

```
ormalization)

activation_87 (Activation)     (None, 5, 5, 384)    0           ['batch_normalization_87[0][0]']

activation_88 (Activation)     (None, 5, 5, 384)    0           ['batch_normalization_88[0][0]']

activation_91 (Activation)     (None, 5, 5, 384)    0           ['batch_normalization_91[0][0]']

activation_92 (Activation)     (None, 5, 5, 384)    0           ['batch_normalization_92[0][0]']

batch_normalization_93 (BatchN  (None, 5, 5, 192)   576         ['conv2d_93[0][0]']
ormalization)

activation_85 (Activation)     (None, 5, 5, 320)    0           ['batch_normalization_85[0][0]']

mixed9_1 (Concatenate)         (None, 5, 5, 768)    0           ['activation_87[0][0]',
                                                                 'activation_88[0][0]']

concatenate_1 (Concatenate)    (None, 5, 5, 768)    0           ['activation_91[0][0]',
                                                                 'activation_92[0][0]']

activation_93 (Activation)     (None, 5, 5, 192)    0           ['batch_normalization_93[0][0]']

mixed10 (Concatenate)          (None, 5, 5, 2048)   0           ['activation_85[0][0]',
                                                                 'mixed9_1[0][0]',
                                                                 'concatenate_1[0][0]',
                                                                 'activation_93[0][0]']

flatten (Flatten)              (None, 51200)        0           ['mixed10[0][0]']

dense (Dense)                  (None, 6)            307206      ['flatten[0][0]']

==================================================================================================
Total params: 22,109,990
Trainable params: 307,206
Non-trainable params: 21,802,784
```

Screenshot 2:

Model fitting

In [19]:
```
modelHistory = model.fit(traindata, steps_per_epoch=60,epochs = 30,callbacks=call_back,validation_data=testdata)
```

```
Epoch 1/30
34/60 [===============>.............] - ETA: 4:07 - loss: 1.1534 - accuracy: 0.9008
WARNING:tensorflow:Your input ran out of data; interrupting training. Make sure that your dataset or generator can generate at least `steps_per_epoch
* epochs` batches (in this case, 1800 batches). You may need to use the repeat() function when building your dataset.
Epoch 1: accuracy improved from 0.76702 to 0.90083, saving model to ./model.h5
60/60 [==============================] - 449s 7s/step - loss: 1.1534 - accuracy: 0.9008 - val_loss: 0.8294 - val_accuracy: 0.8892
```

Exporting the model

In [20]:
```
model_json = model.to_json()
with open("DigitalNaturalist.json", "w") as json_file:
    json_file.write(model_json)

# Exporting the model weights

model.save_weights("DigitalNaturalist")
print("Saved model to disk")
```

```
Saved model to disk
```