Project Development Phase
Model Performance Test

Date	19 November 2022
Team ID	PNT2022TMID35899
Project Name	Project - 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: 1,225,036** **Trainable params: 1,225,036** **Non-trainable params: 0**	Screenshot 1
2.	Accuracy	Training Accuracy – 98.25% Validation Accuracy - 95.46%	Screenshot 2

Screenshots - Please refer to the next page:

Screenshot 1 :

```
Model: "sequential_3"

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 Layer (type)                Output Shape              Param #
=================================================================
 conv2d_12 (Conv2D)          (None, 222, 222, 16)      448

 max_pooling2d_12 (MaxPoolin (None, 111, 111, 16)      0
 g2D)

 conv2d_13 (Conv2D)          (None, 109, 109, 32)      4640

 max_pooling2d_13 (MaxPoolin (None, 54, 54, 32)        0
 g2D)

 dropout_12 (Dropout)        (None, 54, 54, 32)        0

 conv2d_14 (Conv2D)          (None, 52, 52, 64)        18496

 max_pooling2d_14 (MaxPoolin (None, 26, 26, 64)        0
 g2D)

 dropout_13 (Dropout)        (None, 26, 26, 64)        0

 conv2d_15 (Conv2D)          (None, 24, 24, 32)        18464

 max_pooling2d_15 (MaxPoolin (None, 12, 12, 32)        0
 g2D)

 dropout_14 (Dropout)        (None, 12, 12, 32)        0

 flatten_3 (Flatten)         (None, 4608)              0

 dense_5 (Dense)             (None, 256)               1179904

 dropout_15 (Dropout)        (None, 256)               0

 dense_6 (Dense)             (None, 12)                3084

=================================================================
Total params: 1,225,036
Trainable params: 1,225,036
Non-trainable params: 0
_____
```

Screenshot 2:

```
history = model.fit_generator(train_generator,epochs=20, validation_data=valid_generator)
```

```
Epoch 1/20
180/180 [==============================] - 66s 361ms/step - loss: 2.2439 - accuracy: 0.9176 - val_loss: 1.7700 - val_accuracy: 0.9248
Epoch 2/20
180/180 [==============================] - 65s 360ms/step - loss: 1.3980 - accuracy: 0.9360 - val_loss: 1.2727 - val_accuracy: 0.9373
Epoch 3/20
180/180 [==============================] - 65s 360ms/step - loss: 1.0426 - accuracy: 0.9511 - val_loss: 0.9816 - val_accuracy: 0.9514
Epoch 4/20
180/180 [==============================] - 65s 361ms/step - loss: 0.8965 - accuracy: 0.9572 - val_loss: 0.9574 - val_accuracy: 0.9516
Epoch 5/20
180/180 [==============================] - 65s 360ms/step - loss: 0.8380 - accuracy: 0.9585 - val_loss: 0.9537 - val_accuracy: 0.9477
Epoch 6/20
180/180 [==============================] - 65s 359ms/step - loss: 0.6971 - accuracy: 0.9649 - val_loss: 0.8772 - val_accuracy: 0.9479
Epoch 7/20
180/180 [==============================] - 64s 357ms/step - loss: 0.6713 - accuracy: 0.9656 - val_loss: 0.7969 - val_accuracy: 0.9581
Epoch 8/20
180/180 [==============================] - 65s 360ms/step - loss: 0.6216 - accuracy: 0.9690 - val_loss: 0.7577 - val_accuracy: 0.9565
Epoch 9/20
180/180 [==============================] - 65s 362ms/step - loss: 0.5675 - accuracy: 0.9708 - val_loss: 0.8827 - val_accuracy: 0.9546
Epoch 10/20
180/180 [==============================] - 65s 359ms/step - loss: 0.5080 - accuracy: 0.9740 - val_loss: 0.9970 - val_accuracy: 0.9472
Epoch 11/20
180/180 [==============================] - 64s 356ms/step - loss: 0.4885 - accuracy: 0.9734 - val_loss: 0.8772 - val_accuracy: 0.9556
Epoch 12/20
180/180 [==============================] - 62s 345ms/step - loss: 0.4608 - accuracy: 0.9754 - val_loss: 0.8464 - val_accuracy: 0.9544
Epoch 13/20
180/180 [==============================] - 62s 346ms/step - loss: 0.4508 - accuracy: 0.9749 - val_loss: 0.8298 - val_accuracy: 0.9569
Epoch 14/20
180/180 [==============================] - 63s 348ms/step - loss: 0.4175 - accuracy: 0.9768 - val_loss: 0.7616 - val_accuracy: 0.9609
Epoch 15/20
180/180 [==============================] - 63s 347ms/step - loss: 0.3726 - accuracy: 0.9794 - val_loss: 0.7456 - val_accuracy: 0.9604
Epoch 16/20
180/180 [==============================] - 62s 346ms/step - loss: 0.4158 - accuracy: 0.9781 - val_loss: 0.8010 - val_accuracy: 0.9572
Epoch 17/20
180/180 [==============================] - 63s 347ms/step - loss: 0.3328 - accuracy: 0.9810 - val_loss: 0.8820 - val_accuracy: 0.9551
Epoch 18/20
180/180 [==============================] - 63s 347ms/step - loss: 0.3219 - accuracy: 0.9833 - val_loss: 0.8546 - val_accuracy: 0.9576
Epoch 19/20
180/180 [==============================] - 63s 348ms/step - loss: 0.3157 - accuracy: 0.9817 - val_loss: 0.8109 - val_accuracy: 0.9600
Epoch 20/20
180/180 [==============================] - 62s 346ms/step - loss: 0.3273 - accuracy: 0.9825 - val_loss: 1.0102 - val_accuracy: 0.9546
```