

**Project Development
Phase Model
Performance Test**

Date	19 November 2022
Team ID	PNT2022TMID49396
Project Name	Digital Naturalist – AI Enabled tool for Biodiversity Researchers
Maximum Marks	10 Marks

Model Performance Testing:

S. No	Parameter	Values	Screenshot
1.	Model Summary	Total params: 22,704,966 Trainable params: 22,704,966 Non-trainable params: 0	Screenshot 1

2.	Accuracy	Training Accuracy - 92.73%	Screenshot 2
		Validation Accuracy – 80.73%	

SCREENSHOT 1:

The screenshot shows a Jupyter Notebook interface with a Keras sequential model architecture. The model is defined with the following layers:

Layer (type)	Output Shape	Param #
dropout (Dropout)	(None, 224, 224, 3)	0
conv2d (Conv2D)	(None, 220, 220, 256)	19456
max_pooling2d (MaxPooling2D)	(None, 110, 110, 256)	0
conv2d_1 (Conv2D)	(None, 108, 108, 128)	295040
max_pooling2d_1 (MaxPooling2D)	(None, 54, 54, 128)	0
conv2d_2 (Conv2D)	(None, 52, 52, 64)	73792
max_pooling2d_2 (MaxPooling2D)	(None, 26, 26, 64)	0
Flatten (Flatten)	(None, 43264)	0
dense (Dense)	(None, 512)	22151680
dropout_1 (Dropout)	(None, 512)	0
dense_1 (Dense)	(None, 256)	131328
dropout_2 (Dropout)	(None, 256)	0
dense_2 (Dense)	(None, 128)	32896
dropout_3 (Dropout)	(None, 128)	0
dense_3 (Dense)	(None, 6)	774

Summary statistics:

- Total params: 22,704,966
- Trainable params: 22,704,966
- Non-trainable params: 0

The code also includes a warning about the deprecated 'lr' argument in the Adam optimizer and a comment indicating the model is being fitted.

The screenshot shows the training progress of the model. The training is completed after 15 epochs. The final training accuracy is 0.9273 (92.73%) and the final validation accuracy is 0.8073 (80.73%).

Epoch 1/15: 7/7 [=====] - 91s 13s/step - loss: 1.9735 - accuracy: 0.1182 - val_loss: 1.7991 - val_accuracy: 0.1071

Epoch 2/15: 7/7 [=====] - 79s 11s/step - loss: 1.8036 - accuracy: 0.1727 - val_loss: 1.8049 - val_accuracy: 0.1786

Epoch 3/15: 7/7 [=====] - 81s 11s/step - loss: 1.8095 - accuracy: 0.1091 - val_loss: 1.7935 - val_accuracy: 0.1429

Epoch 4/15: 7/7 [=====] - 88s 12s/step - loss: 1.8223 - accuracy: 0.2545 - val_loss: 1.7937 - val_accuracy: 0.1786

Epoch 5/15: 7/7 [=====] - 79s 11s/step - loss: 1.7786 - accuracy: 0.2364 - val_loss: 1.7892 - val_accuracy: 0.1786

Epoch 6/15: 7/7 [=====] - 78s 11s/step - loss: 1.7422 - accuracy: 0.3000 - val_loss: 1.7855 - val_accuracy: 0.2143

Epoch 7/15: 7/7 [=====] - 81s 12s/step - loss: 1.7244 - accuracy: 0.3182 - val_loss: 1.7824 - val_accuracy: 0.1429

Epoch 8/15: 7/7 [=====] - 84s 12s/step - loss: 1.5872 - accuracy: 0.3545 - val_loss: 1.7056 - val_accuracy: 0.2500

Epoch 9/15: 7/7 [=====] - 77s 11s/step - loss: 1.2719 - accuracy: 0.5091 - val_loss: 1.6680 - val_accuracy: 0.3571

Epoch 10/15: 7/7 [=====] - 77s 11s/step - loss: 1.0414 - accuracy: 0.6273 - val_loss: 1.5946 - val_accuracy: 0.5000

Epoch 11/15: 7/7 [=====] - 78s 11s/step - loss: 0.6647 - accuracy: 0.7727 - val_loss: 1.6963 - val_accuracy: 0.3571

Epoch 12/15: 7/7 [=====] - 84s 12s/step - loss: 0.4295 - accuracy: 0.8636 - val_loss: 2.2821 - val_accuracy: 0.3929

Epoch 13/15: 7/7 [=====] - 78s 11s/step - loss: 0.3337 - accuracy: 0.8545 - val_loss: 2.2652 - val_accuracy: 0.2500

Epoch 14/15: 7/7 [=====] - 78s 11s/step - loss: 0.3625 - accuracy: 0.9273 - val_loss: 2.7422 - val_accuracy: 0.3571

Epoch 15/15: 7/7 [=====] - 80s 12s/step - loss: 0.1046 - accuracy: 0.9273 - val_loss: 3.5091 - val_accuracy: 0.2857

Evaluation And Model Saving

Evaluation(Accuracy and Losses)

SCREENSHOT 2: