Project Development Phase
Model Performance Test

Date	10 November 2022
Team ID	PNT2022TMID52996
Project Name	Project – Digital Naturalist AI Enabled Tool for Biodiversity Researchers
Maximum Marks	10 Marks

Model Performance Testing:

S.No.	Parameter	Values	Screenshots
1.	Model Summary	-	
2.	Accuracy	Training Accuracy – **71%** Validation Accuracy – **76%**	Attached as separate sheet below

```python
In [28]: #printing the keys we have for the stores values
         print(h.history.keys())
         #appendind the data for each epoch in a arr, and for each batch size
         histories_acc.append(h.history['accuracy'])
         histories_val_acc.append(h.history['val_accuracy'])
         histories_loss.append(h.history['loss'])
         histories_val_loss.append(h.history['val_loss'])
         #converting into numpy arrays
         histories_acc = np.array(histories_acc)
         histories_val_acc=np.array(histories_val_acc)
         histories_loss = np.array (histories_loss)
         histories_val_loss = np.array(histories_val_loss)

         #here we have 3 columns and 6 rows each, ever row represetns differnt bath size, #every column represent different epoch scores.
         print('histories_acc',histories_acc,
         'histories_loss', histories_loss,
         'histories_val_acc', histories_val_acc, 'histories_val_loss', histories_val_loss)
```

```
dict_keys(['loss', 'accuracy', 'val_loss', 'val_accuracy'])
histories_acc [[0.49351853]] histories_loss [[1.2544775]] histories_val_acc [[0.71496564]] histories_val_loss [[0.76086265]]
```

```python
In [27]: #\\\\\\\\///////\\\
         #\\\\\\\\/////////\\\\\\\\\\\\\\\/\\\\\\\\\/////////
         #Fitting the model on different batch sizes to see which ones turns out to be the best #\

         #some arrays to store the result of each model (model trained on each bath size)
         histories_acc = []
         histories_val_acc = []
         histories_loss = []
         histories_val_loss = []
         model.set_weights(weights)
         h=model.fit(X_train, y_train, batch_size=16,
         epochs=1,
         verbose=1,
         callbacks=[early_stop_loss],
         shuffle=True,
         validation_data= (X_test, y_test))
         model.summary() #to print model summary
```

```
473/473 [==============================] - 2275s 5s/step - loss: 1.2545 - accuracy: 0.4935 - val_loss: 0.7609 - val_accuracy:
0.7150
Model: "sequential"
```

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 (MaxPooling 2D)	(None, 54, 54, 128)	0
conv2d_2 (Conv2D)	(None, 52, 52, 64)	73792
max_pooling2d_2 (MaxPooling 2D)	(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

```
 dropout_3 (Dropout)          (None, 128)              0

 dense_3 (Dense)              (None, 6)                774

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

Table Risk Assessment

S.NO	Project Name	NFT Test approach	NFR - Met	Test Outcome	GO/NO-GO decisi on	Recom mendati on	Identified Defects (Detected/Clo sed/Open)	Approval s/signoff
1	Digital Naturalist - AI enabled tool for biodiversity researchers	Load Change	Yes	Load change Testing Response time - 90ms CPU Usage - 8% GPU Usage - 4%	Go	-	Closed	Vinu Abinayaa
2		Functional Change	Yes	Functional Testing Response time - 140ms CPU Usage - 17% GPU Usage - 8%	Go	-	Closed	Rakshaa Madhuri