Project Development Phase
Model Performance Test

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

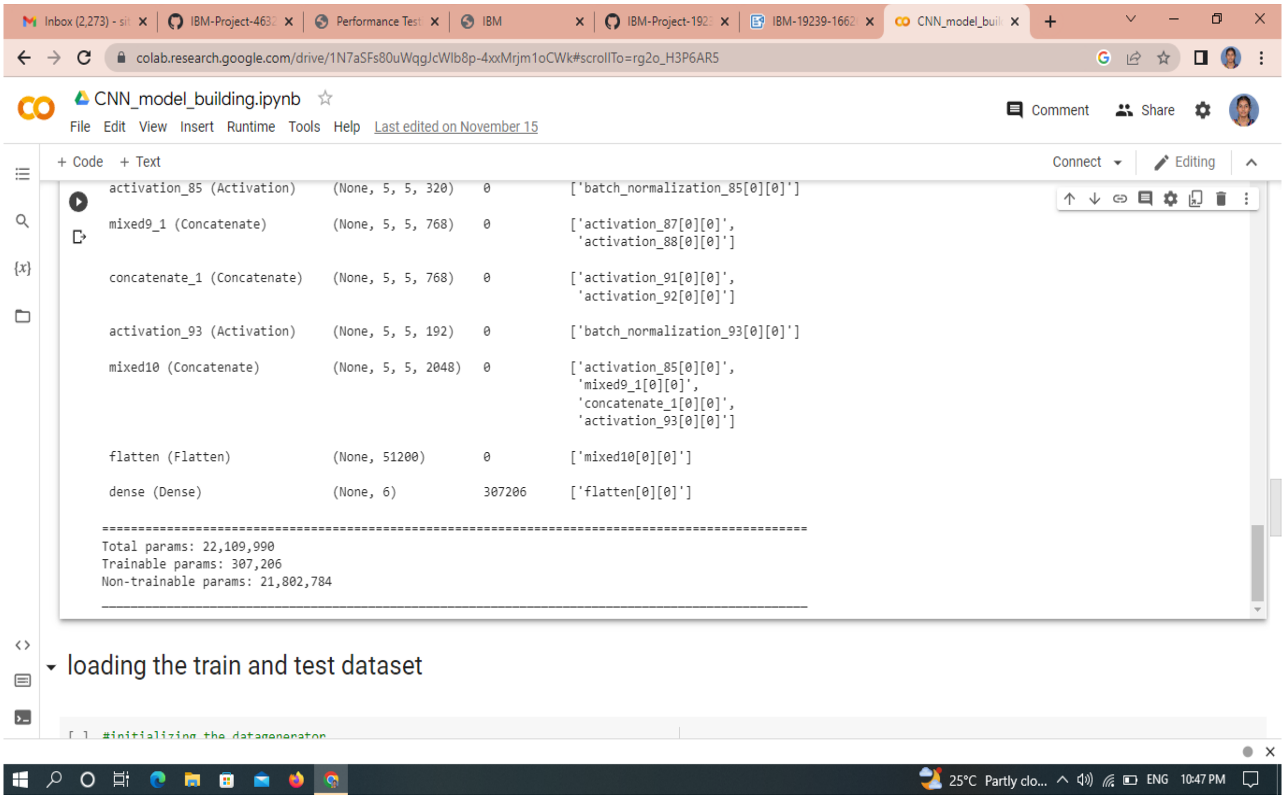
Model Performance Testing:

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

S.No.	Parameter	Values	Screenshot
1.	Model Summary	**Total params: 22,109,990** **Trainable params: 307,206** **Non-trainable params: 21,802,784**	Screenshot 1
2.	Accuracy	Training Accuracy - 90.9% Validation Accuracy - 96.3%	Screenshot 2

Screenshots - Please refer to the next page:

Screenshot 1 :

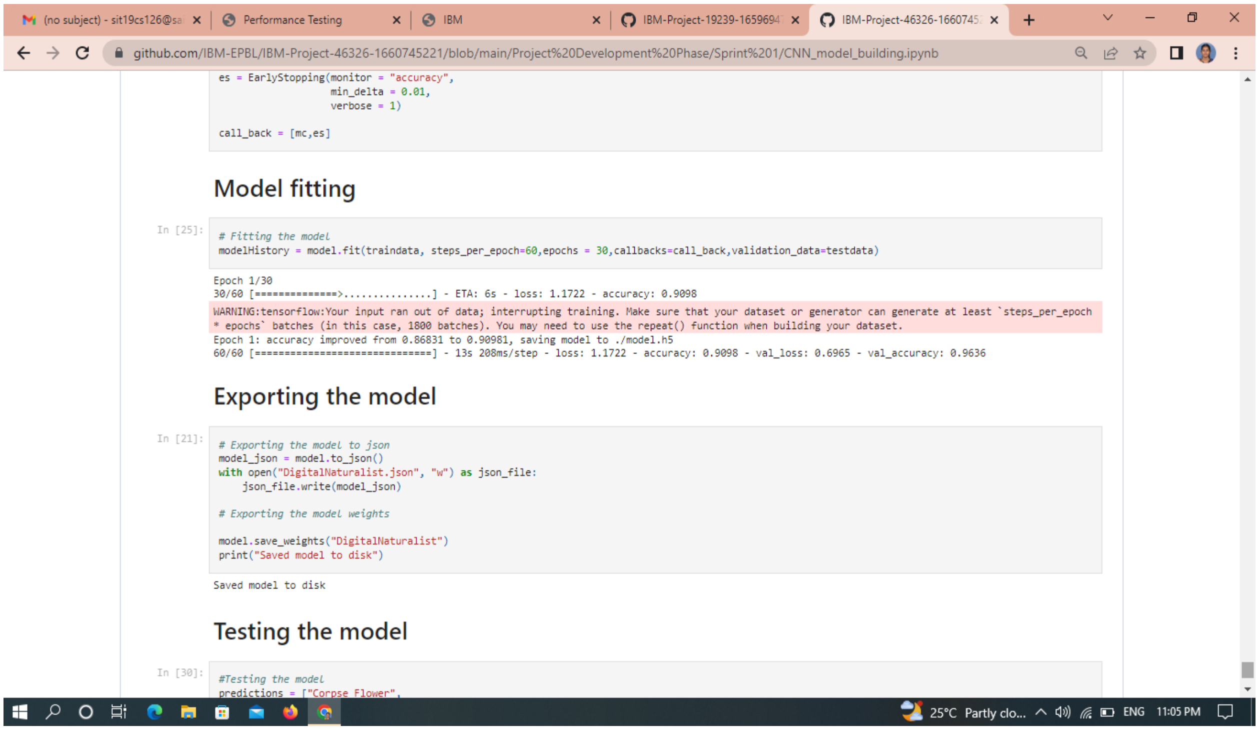


```
 activation_85 (Activation)     (None, 5, 5, 320)    0           ['batch_normalization_85[0][0]']

 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
__________________________________________________________________________________________________
```

loading the train and test dataset

```
[ ] #initializing the datagenerator
```

Screenshot 2:


(no subject) - sit19cs126@sa
Performance Testing
IBM
IBM-Project-19239-1659694
IBM-Project-46326-166074
github.com/IBM-EPBL/IBM-Project-46326-1660745221/blob/main/Project%20Development%20Phase/Sprint%201/CNN_model_building.ipynb
25°C Partly clo...
ENG
11:05 PM

```
es = EarlyStopping(monitor = "accuracy",
                   min_delta = 0.01,
                   verbose = 1)

call_back = [mc,es]
```

Model fitting

In [25]:

```
# Fitting the model
modelHistory = model.fit(traindata, steps_per_epoch=60,epochs = 30,callbacks=call_back,validation_data=testdata)
```

```
Epoch 1/30
30/60 [==============>...............] - ETA: 6s - loss: 1.1722 - accuracy: 0.9098
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 0.86831 to 0.90981, saving model to ./model.h5
60/60 [==============================] - 13s 208ms/step - loss: 1.1722 - accuracy: 0.9098 - val_loss: 0.6965 - val_accuracy: 0.9636
```

Exporting the model

In [21]:

```
# Exporting the model to json
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
```

Testing the model

In [30]:

```
#Testing the model
predictions = ["Corpse Flower",
```