Project Development Phase

Model Performance Test

Date	13 NOvember 2022
Team ID	PNT2022TMID12576
Project Name	Deep Learning Fundus Image Analysis for Early Detection of Diabetic Retinopathy

Model Performance Testing:

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

S.No.	Parameter	Values	Screenshot
1.	Model Summary	Total Parameters:21,885,485 Trainable Parameters:1,024,005 Non-trainable Parameters:20,861,480	Attached Below
2.	Accuracy	Training Accuracy:0.7188 Validation Accuracy:0.7452	Attached Below
3.	Confidence Score	Class Detected:N/A Confidence Score: N/A	N/A

Screenshots:

```
    x=Flatten()(xception.output)
    pred=Dense(5,activation='softmax')(x)
    model=Model(inputs=xception.input,outputs=pred)
    model.summary()
```

```
Output exceeds the size limit. Open the full output data in a text editor
Model: "model"
_________________________________________________________________
 Layer (type)                Output Shape              Param #
=================================================================
 input_1 (InputLayer)        [(None, 299, 299, 3       0
                             )]

 block1_conv1 (Conv2D)       (None, 149, 149, 32       864
                             )

 block1_conv1_bn (BatchNormaliz  (None, 149, 149, 32       128
 ation)                      )

 block1_conv1_act (Activation)  (None, 149, 149, 32       0
                             )

 block1_conv2 (Conv2D)       (None, 147, 147, 64       18432
                             )

 block1_conv2_bn (BatchNormaliz  (None, 147, 147, 64       256
 ation)                      )

 block1_conv2_act (Activation)  (None, 147, 147, 64       0
                             )

...
Total params: 21,885,485
Trainable params: 1,024,005
Non-trainable params: 20,861,480
```

```
model.compile(loss='categorical_crossentropy',optimizer='adam',metrics=['accuracy'])
r=model.fit(training_set,validation_data=testing_set,epochs=40,steps_per_epoch=len(training_set)//32,validation_steps=len(testing_set)//32)
```

```
Output exceeds the size limit. Open the full output data in a text editor
Epoch 1/40
3/3 [==============================] - 52s 15s/step - loss: 12.2394 - accuracy: 0.3750
Epoch 2/40
3/3 [==============================] - 43s 13s/step - loss: 8.6126 - accuracy: 0.5417
Epoch 3/40
3/3 [==============================] - 45s 14s/step - loss: 9.1320 - accuracy: 0.4375
Epoch 4/40
3/3 [==============================] - 44s 12s/step - loss: 7.3251 - accuracy: 0.4896
Epoch 5/40
3/3 [==============================] - 45s 14s/step - loss: 6.6415 - accuracy: 0.5938
Epoch 6/40
3/3 [==============================] - 44s 13s/step - loss: 5.1138 - accuracy: 0.5938
Epoch 7/40
3/3 [==============================] - 42s 13s/step - loss: 2.6672 - accuracy: 0.7083
Epoch 8/40
3/3 [==============================] - 44s 12s/step - loss: 3.9675 - accuracy: 0.6354
Epoch 9/40
3/3 [==============================] - 45s 14s/step - loss: 3.7436 - accuracy: 0.6146
Epoch 10/40
3/3 [==============================] - 44s 13s/step - loss: 2.9330 - accuracy: 0.6771
Epoch 11/40
3/3 [==============================] - 47s 14s/step - loss: 3.3618 - accuracy: 0.6562
Epoch 12/40
3/3 [==============================] - 46s 13s/step - loss: 3.5601 - accuracy: 0.6354
Epoch 13/40
...
Epoch 39/40
3/3 [==============================] - 51s 16s/step - loss: 3.9316 - accuracy: 0.5833
Epoch 40/40
3/3 [==============================] - 43s 12s/step - loss: 1.9106 - accuracy: 0.7188
```

```
[17]
model.evaluate(testing_set)
```

```
23/23 [==============================] - 287s 12s/step - loss: 2.6429 - accuracy: 0.7452

[2.642930507659912, 0.7452316284179688]
```