Project Development Phase
Model Performance Test

Date	19-11-23
Team ID	Team-592384
Project Name	Deep Learning Model For Detecting Diseases In Tea Leaves
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	Model: "model_2" _____ _____ Layer (type) Output Shape Param # ========== ========== input_3 (InputLayer) [(None, 224, 224, 3)] 0 block1_conv1 (Conv2D) (None, 224, 224, 64) 1792 block1_conv2 (Conv2D) (None, 224, 224, 64) 36928 block1_pool (MaxPooling2D) (None, 112, 112, 64) 0 block2_conv1 (Conv2D) (None, 112, 112, 128) 73856 block2_conv2 (Conv2D) (None, 112, 112, 128) 147584 block2_pool (MaxPooling2D) (None, 56, 56, 128) 0 block3_conv1 (Conv2D) (None, 56, 56, 256) 295168 block3_conv2 (Conv2D) (None, 56, 56, 256) 590080 block3_conv3 (Conv2D) (None, 56, 56, 256) 590080 block3_pool (MaxPooling2D) (None, 28, 28, 256) 0 block4_conv1 (Conv2D) (None, 28, 28, 512) 1180160 block4_conv2 (Conv2D) (None, 28, 28, 512) 2359808 block4_conv3 (Conv2D) (None, 28, 28, 512) 2359808	(Screen Shot is added at bottom of the Page) Fig - 1

		block4_pool (MaxPooling2D) (None, 14, 14, 512) 0 block5_conv1 (Conv2D) (None, 14, 14, 512) 2359808 block5_conv2 (Conv2D) (None, 14, 14, 512) 2359808 block5_conv3 (Conv2D) (None, 14, 14, 512) 2359808 block5_pool (MaxPooling2D) (None, 7, 7, 512) 0 flatten_2 (Flatten) (None, 25088) 0 dense_2 (Dense) (None, 8) 200712 ========== ========== Total params: 14915400 (56.90 MB) Trainable params: 200712 (784.03 KB) Non-trainable params: 14714688 (56.13 MB)	
2.	Accuracy	Training Accuracy - 0.9984 Validation Accuracy - 0.7481	(Screen Shot is added at bottom of the Page) Fig - 2

Fig - 1:

```
model.summary()
```

```
Model: "model_2"
_________________________________________________________________
 Layer (type)                Output Shape              Param #
=================================================================
 input_3 (InputLayer)        [(None, 224, 224, 3)]     0

 block1_conv1 (Conv2D)       (None, 224, 224, 64)      1792

 block1_conv2 (Conv2D)       (None, 224, 224, 64)      36928

 block1_pool (MaxPooling2D)  (None, 112, 112, 64)      0

 block2_conv1 (Conv2D)       (None, 112, 112, 128)     73856

 block2_conv2 (Conv2D)       (None, 112, 112, 128)     147584

 block2_pool (MaxPooling2D)  (None, 56, 56, 128)       0

 block3_conv1 (Conv2D)       (None, 56, 56, 256)       295168

 block3_conv2 (Conv2D)       (None, 56, 56, 256)       590080

 block3_conv3 (Conv2D)       (None, 56, 56, 256)       590080

 block3_pool (MaxPooling2D)  (None, 28, 28, 256)       0

 block4_conv1 (Conv2D)       (None, 28, 28, 512)       1180160

 block4_conv2 (Conv2D)       (None, 28, 28, 512)       2359808

 block4_conv3 (Conv2D)       (None, 28, 28, 512)       2359808

 block4_pool (MaxPooling2D)  (None, 14, 14, 512)       0

 block5_conv1 (Conv2D)       (None, 14, 14, 512)       2359808

 block5_conv2 (Conv2D)       (None, 14, 14, 512)       2359808

 block5_conv3 (Conv2D)       (None, 14, 14, 512)       2359808

 block5_pool (MaxPooling2D)  (None, 7, 7, 512)         0

 flatten_2 (Flatten)         (None, 25088)             0

 dense_2 (Dense)             (None, 8)                 200712

=================================================================
Total params: 14915400 (56.90 MB)
Trainable params: 200712 (784.03 KB)
Non-trainable params: 14714688 (56.13 MB)
_________________________________________________________________
```

Fig – 2:

```
r=model.fit(training_set,validation_data=test_set,epochs=30)
```

```
Epoch 1/30
20/20 [==============================] - 280s 14s/step - loss: 2.3965 - accuracy: 0.2649 - val_loss: 1.7144 - val_accuracy: 0.4286
Epoch 2/30
20/20 [==============================] - 289s 14s/step - loss: 1.1195 - accuracy: 0.6123 - val_loss: 1.0040 - val_accuracy: 0.6353
Epoch 3/30
20/20 [==============================] - 264s 13s/step - loss: 0.7379 - accuracy: 0.7464 - val_loss: 0.8184 - val_accuracy: 0.6992
Epoch 4/30
20/20 [==============================] - 266s 13s/step - loss: 0.6020 - accuracy: 0.7916 - val_loss: 0.7828 - val_accuracy: 0.6842
Epoch 5/30
20/20 [==============================] - 269s 13s/step - loss: 0.4882 - accuracy: 0.8384 - val_loss: 1.1662 - val_accuracy: 0.5602
Epoch 6/30
20/20 [==============================] - 268s 13s/step - loss: 0.5040 - accuracy: 0.8304 - val_loss: 0.8353 - val_accuracy: 0.6917
Epoch 7/30
20/20 [==============================] - 269s 13s/step - loss: 0.3953 - accuracy: 0.8740 - val_loss: 0.8281 - val_accuracy: 0.6692
Epoch 8/30
20/20 [==============================] - 282s 14s/step - loss: 0.3192 - accuracy: 0.9031 - val_loss: 0.6364 - val_accuracy: 0.7368
Epoch 9/30
20/20 [==============================] - 287s 14s/step - loss: 0.2596 - accuracy: 0.9418 - val_loss: 0.6968 - val_accuracy: 0.7256
Epoch 10/30
20/20 [==============================] - 287s 14s/step - loss: 0.2091 - accuracy: 0.9467 - val_loss: 0.6494 - val_accuracy: 0.7293
Epoch 11/30
20/20 [==============================] - 287s 14s/step - loss: 0.1966 - accuracy: 0.9628 - val_loss: 0.6408 - val_accuracy: 0.7632
Epoch 12/30
20/20 [==============================] - 287s 14s/step - loss: 0.1863 - accuracy: 0.9596 - val_loss: 0.6375 - val_accuracy: 0.7406
Epoch 13/30
...
Epoch 29/30
20/20 [==============================] - 278s 14s/step - loss: 0.0567 - accuracy: 0.9968 - val_loss: 0.6819 - val_accuracy: 0.7368
Epoch 30/30
20/20 [==============================] - 263s 13s/step - loss: 0.0422 - accuracy: 0.9984 - val_loss: 0.6608 - val_accuracy: 0.7481
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