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Layer (type) Output Shape Param #

=================================================================

input\_4 (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\_conv4 (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\_conv4 (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\_conv4 (Conv2D) (None, 14, 14, 512) 2359808

block5\_pool (MaxPooling2D) (None, 7, 7, 512) 0

flatten\_1 (Flatten) (None, 25088) 0

dense\_1 (Dense) (None, 1) 25089

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Total params: 20,049,473

Trainable params: 25,089

Non-trainable params: 20,024,384

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Epoch 1/100

70/70 [==============================] - 99s 1s/step - loss: 0.5048 - accuracy: 0.7670 - val\_loss: 0.3561 - val\_accuracy: 0.8513 - lr: 0.0010

Epoch 2/100

70/70 [==============================] - 96s 1s/step - loss: 0.2748 - accuracy: 0.8907 - val\_loss: 0.2559 - val\_accuracy: 0.8961 - lr: 0.0010

Epoch 3/100

70/70 [==============================] - 94s 1s/step - loss: 0.2649 - accuracy: 0.8875 - val\_loss: 0.2317 - val\_accuracy: 0.8961 - lr: 0.0010

Epoch 4/100

70/70 [==============================] - 96s 1s/step - loss: 0.2230 - accuracy: 0.9077 - val\_loss: 0.2221 - val\_accuracy: 0.9140 - lr: 0.0010

Epoch 5/100

70/70 [==============================] - 93s 1s/step - loss: 0.1879 - accuracy: 0.9220 - val\_loss: 0.2094 - val\_accuracy: 0.9140 - lr: 0.0010

Epoch 6/100

70/70 [==============================] - 91s 1s/step - loss: 0.1832 - accuracy: 0.9279 - val\_loss: 0.1826 - val\_accuracy: 0.9409 - lr: 0.0010

Epoch 7/100

70/70 [==============================] - 94s 1s/step - loss: 0.1669 - accuracy: 0.9341 - val\_loss: 0.2602 - val\_accuracy: 0.8817 - lr: 0.0010

Epoch 8/100

70/70 [==============================] - 95s 1s/step - loss: 0.1582 - accuracy: 0.9386 - val\_loss: 0.1713 - val\_accuracy: 0.9427 - lr: 0.0010

Epoch 9/100

70/70 [==============================] - 92s 1s/step - loss: 0.1484 - accuracy: 0.9467 - val\_loss: 0.1425 - val\_accuracy: 0.9373 - lr: 0.0010

Epoch 10/100

70/70 [==============================] - 92s 1s/step - loss: 0.1406 - accuracy: 0.9458 - val\_loss: 0.1458 - val\_accuracy: 0.9444 - lr: 0.0010

Epoch 11/100

70/70 [==============================] - 92s 1s/step - loss: 0.1391 - accuracy: 0.9530 - val\_loss: 0.1514 - val\_accuracy: 0.9427 - lr: 0.0010

Epoch 12/100

70/70 [==============================] - 92s 1s/step - loss: 0.1366 - accuracy: 0.9431 - val\_loss: 0.1451 - val\_accuracy: 0.9444 - lr: 0.0010

Epoch 13/100

70/70 [==============================] - 92s 1s/step - loss: 0.1211 - accuracy: 0.9583 - val\_loss: 0.1416 - val\_accuracy: 0.9444 - lr: 1.0000e-04

Epoch 14/100

70/70 [==============================] - 94s 1s/step - loss: 0.1210 - accuracy: 0.9552 - val\_loss: 0.1507 - val\_accuracy: 0.9391 - lr: 1.0000e-04

Epoch 15/100

70/70 [==============================] - 92s 1s/step - loss: 0.1205 - accuracy: 0.9556 - val\_loss: 0.1554 - val\_accuracy: 0.9391 - lr: 1.0000e-04

Epoch 16/100

70/70 [==============================] - 93s 1s/step - loss: 0.1262 - accuracy: 0.9498 - val\_loss: 0.1457 - val\_accuracy: 0.9355 - lr: 1.0000e-04

Epoch 17/100

70/70 [==============================] - 91s 1s/step - loss: 0.1219 - accuracy: 0.9574 - val\_loss: 0.1740 - val\_accuracy: 0.9319 - lr: 1.0000e-05

Epoch 18/100

70/70 [==============================] - 91s 1s/step - loss: 0.1229 - accuracy: 0.9597 - val\_loss: 0.1341 - val\_accuracy: 0.9462 - lr: 1.0000e-05

Epoch 19/100

70/70 [==============================] - 92s 1s/step - loss: 0.1153 - accuracy: 0.9583 - val\_loss: 0.1281 - val\_accuracy: 0.9534 - lr: 1.0000e-05

Epoch 20/100

70/70 [==============================] - 92s 1s/step - loss: 0.1199 - accuracy: 0.9552 - val\_loss: 0.1408 - val\_accuracy: 0.9480 - lr: 1.0000e-05

Epoch 21/100

70/70 [==============================] - 93s 1s/step - loss: 0.1184 - accuracy: 0.9543 - val\_loss: 0.1277 - val\_accuracy: 0.9606 - lr: 1.0000e-05

Epoch 22/100

70/70 [==============================] - 94s 1s/step - loss: 0.1198 - accuracy: 0.9583 - val\_loss: 0.1425 - val\_accuracy: 0.9552 - lr: 1.0000e-05

Epoch 23/100

70/70 [==============================] - 93s 1s/step - loss: 0.1238 - accuracy: 0.9552 - val\_loss: 0.1631 - val\_accuracy: 0.9391 - lr: 1.0000e-05

Epoch 24/100

70/70 [==============================] - 91s 1s/step - loss: 0.1257 - accuracy: 0.9530 - val\_loss: 0.1502 - val\_accuracy: 0.9498 - lr: 1.0000e-05

Epoch 25/100

70/70 [==============================] - 90s 1s/step - loss: 0.1193 - accuracy: 0.9539 - val\_loss: 0.1647 - val\_accuracy: 0.9247 - lr: 1.0000e-06

Epoch 26/100

70/70 [==============================] - 90s 1s/step - loss: 0.1220 - accuracy: 0.9547 - val\_loss: 0.1496 - val\_accuracy: 0.9462 - lr: 1.0000e-06

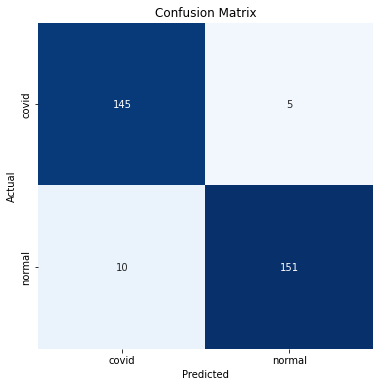
INFO:tensorflow:Assets written to: /content/drive/MyDrive/vgg19Split0.9/assets

Test Loss: 0.11509

Test Accuracy: 95.18%

/usr/local/lib/python3.7/dist-packages/ipykernel\_launcher.py:123: DeprecationWarning: `np.int` is a deprecated alias for the builtin `int`. To silence this warning, use `int` by itself. Doing this will not modify any behavior and is safe. When replacing `np.int`, you may wish to use e.g. `np.int64` or `np.int32` to specify the precision. If you wish to review your current use, check the release note link for additional information.

Deprecated in NumPy 1.20; for more details and guidance: <https://numpy.org/devdocs/release/1.20.0-notes.html#deprecations>



Classification Report:

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precision recall f1-score support

covid 0.94 0.97 0.95 150

normal 0.97 0.94 0.95 161

accuracy 0.95 311

macro avg 0.95 0.95 0.95 311

weighted avg 0.95 0.95 0.95 311

INFO:tensorflow:Assets written to: /content/drive/MyDrive/vgg16/assets

