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Layer (type) Output Shape Param #

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

input\_2 (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 (Flatten) (None, 25088) 0

dense (Dense) (None, 1) 25089

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

Total params: 14,739,777

Trainable params: 25,089

Non-trainable params: 14,714,688

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Epoch 1/100

55/55 [==============================] - 345s 6s/step - loss: 0.3226 - accuracy: 0.8502 - val\_loss: 0.1659 - val\_accuracy: 0.9378 - lr: 0.0010

Epoch 2/100

55/55 [==============================] - 50s 907ms/step - loss: 0.1147 - accuracy: 0.9643 - val\_loss: 0.1060 - val\_accuracy: 0.9516 - lr: 0.0010

Epoch 3/100

55/55 [==============================] - 51s 919ms/step - loss: 0.0778 - accuracy: 0.9781 - val\_loss: 0.1090 - val\_accuracy: 0.9654 - lr: 0.0010

Epoch 4/100

55/55 [==============================] - 50s 907ms/step - loss: 0.0602 - accuracy: 0.9862 - val\_loss: 0.0804 - val\_accuracy: 0.9677 - lr: 0.0010

Epoch 5/100

55/55 [==============================] - 50s 915ms/step - loss: 0.0444 - accuracy: 0.9914 - val\_loss: 0.0712 - val\_accuracy: 0.9747 - lr: 0.0010

Epoch 6/100

55/55 [==============================] - 50s 907ms/step - loss: 0.0374 - accuracy: 0.9908 - val\_loss: 0.0771 - val\_accuracy: 0.9700 - lr: 0.0010

Epoch 7/100

55/55 [==============================] - 50s 913ms/step - loss: 0.0306 - accuracy: 0.9942 - val\_loss: 0.0740 - val\_accuracy: 0.9700 - lr: 0.0010

Epoch 8/100

55/55 [==============================] - 50s 908ms/step - loss: 0.0279 - accuracy: 0.9954 - val\_loss: 0.0670 - val\_accuracy: 0.9724 - lr: 0.0010

Epoch 9/100

55/55 [==============================] - 51s 919ms/step - loss: 0.0249 - accuracy: 0.9965 - val\_loss: 0.0608 - val\_accuracy: 0.9793 - lr: 0.0010

Epoch 10/100

55/55 [==============================] - 50s 904ms/step - loss: 0.0216 - accuracy: 0.9971 - val\_loss: 0.0582 - val\_accuracy: 0.9770 - lr: 0.0010

Epoch 11/100

55/55 [==============================] - 50s 913ms/step - loss: 0.0162 - accuracy: 0.9983 - val\_loss: 0.0569 - val\_accuracy: 0.9770 - lr: 0.0010

Epoch 12/100

55/55 [==============================] - 50s 904ms/step - loss: 0.0150 - accuracy: 0.9994 - val\_loss: 0.0590 - val\_accuracy: 0.9747 - lr: 0.0010

Epoch 13/100

55/55 [==============================] - 50s 909ms/step - loss: 0.0139 - accuracy: 0.9994 - val\_loss: 0.0547 - val\_accuracy: 0.9770 - lr: 0.0010

Epoch 14/100

55/55 [==============================] - 51s 917ms/step - loss: 0.0117 - accuracy: 0.9994 - val\_loss: 0.0566 - val\_accuracy: 0.9770 - lr: 0.0010

Epoch 15/100

55/55 [==============================] - 50s 908ms/step - loss: 0.0104 - accuracy: 1.0000 - val\_loss: 0.0512 - val\_accuracy: 0.9793 - lr: 0.0010

Epoch 16/100

55/55 [==============================] - 49s 890ms/step - loss: 0.0100 - accuracy: 1.0000 - val\_loss: 0.0587 - val\_accuracy: 0.9770 - lr: 0.0010

Epoch 17/100

55/55 [==============================] - 49s 895ms/step - loss: 0.0092 - accuracy: 1.0000 - val\_loss: 0.0508 - val\_accuracy: 0.9770 - lr: 0.0010

Epoch 18/100

55/55 [==============================] - 50s 910ms/step - loss: 0.0081 - accuracy: 1.0000 - val\_loss: 0.0501 - val\_accuracy: 0.9770 - lr: 0.0010

Epoch 19/100

55/55 [==============================] - 50s 903ms/step - loss: 0.0072 - accuracy: 1.0000 - val\_loss: 0.0523 - val\_accuracy: 0.9793 - lr: 0.0010

Epoch 20/100

55/55 [==============================] - 50s 901ms/step - loss: 0.0069 - accuracy: 1.0000 - val\_loss: 0.0518 - val\_accuracy: 0.9770 - lr: 0.0010

Epoch 21/100

55/55 [==============================] - 49s 889ms/step - loss: 0.0063 - accuracy: 1.0000 - val\_loss: 0.0484 - val\_accuracy: 0.9816 - lr: 0.0010

Epoch 22/100

55/55 [==============================] - 49s 900ms/step - loss: 0.0062 - accuracy: 1.0000 - val\_loss: 0.0472 - val\_accuracy: 0.9770 - lr: 0.0010

Epoch 23/100

55/55 [==============================] - 50s 901ms/step - loss: 0.0053 - accuracy: 1.0000 - val\_loss: 0.0474 - val\_accuracy: 0.9816 - lr: 0.0010

Epoch 24/100

55/55 [==============================] - 50s 904ms/step - loss: 0.0052 - accuracy: 1.0000 - val\_loss: 0.0523 - val\_accuracy: 0.9793 - lr: 0.0010

Epoch 25/100

55/55 [==============================] - 50s 911ms/step - loss: 0.0048 - accuracy: 1.0000 - val\_loss: 0.0472 - val\_accuracy: 0.9839 - lr: 0.0010

Epoch 26/100

55/55 [==============================] - 50s 914ms/step - loss: 0.0043 - accuracy: 1.0000 - val\_loss: 0.0487 - val\_accuracy: 0.9770 - lr: 1.0000e-04

Epoch 27/100

55/55 [==============================] - 49s 893ms/step - loss: 0.0043 - accuracy: 1.0000 - val\_loss: 0.0482 - val\_accuracy: 0.9770 - lr: 1.0000e-04

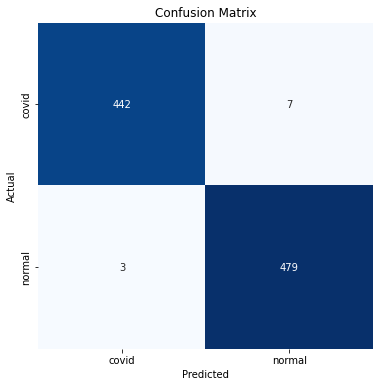
INFO:tensorflow:Assets written to: /content/drive/MyDrive/vgg16Split0.7NoAug/assets

Test Loss: 0.05561

Test Accuracy: 98.93%

/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 0.99 0.98 0.99 449

normal 0.99 0.99 0.99 482

accuracy 0.99 931

macro avg 0.99 0.99 0.99 931

weighted avg 0.99 0.99 0.99 931

