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Layer (type) Output Shape Param #

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

input\_14 (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\_6 (Flatten) (None, 25088) 0

dense\_6 (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 [==============================] - 68s 928ms/step - loss: 0.3275 - accuracy: 0.8773 - val\_loss: 0.2275 - val\_accuracy: 0.9240 - lr: 0.0010

Epoch 2/100

55/55 [==============================] - 50s 905ms/step - loss: 0.1819 - accuracy: 0.9389 - val\_loss: 0.1705 - val\_accuracy: 0.9447 - lr: 0.0010

Epoch 3/100

55/55 [==============================] - 50s 900ms/step - loss: 0.1403 - accuracy: 0.9603 - val\_loss: 0.1478 - val\_accuracy: 0.9539 - lr: 0.0010

Epoch 4/100

55/55 [==============================] - 49s 898ms/step - loss: 0.1162 - accuracy: 0.9741 - val\_loss: 0.1308 - val\_accuracy: 0.9516 - lr: 0.0010

Epoch 5/100

55/55 [==============================] - 49s 897ms/step - loss: 0.1010 - accuracy: 0.9770 - val\_loss: 0.1171 - val\_accuracy: 0.9562 - lr: 0.0010

Epoch 6/100

55/55 [==============================] - 49s 889ms/step - loss: 0.0898 - accuracy: 0.9793 - val\_loss: 0.1090 - val\_accuracy: 0.9585 - lr: 0.0010

Epoch 7/100

55/55 [==============================] - 49s 892ms/step - loss: 0.0824 - accuracy: 0.9827 - val\_loss: 0.1016 - val\_accuracy: 0.9654 - lr: 0.0010

Epoch 8/100

55/55 [==============================] - 49s 890ms/step - loss: 0.0750 - accuracy: 0.9827 - val\_loss: 0.1043 - val\_accuracy: 0.9539 - lr: 0.0010

Epoch 9/100

55/55 [==============================] - 49s 898ms/step - loss: 0.0684 - accuracy: 0.9844 - val\_loss: 0.0937 - val\_accuracy: 0.9700 - lr: 0.0010

Epoch 10/100

55/55 [==============================] - 49s 891ms/step - loss: 0.0632 - accuracy: 0.9873 - val\_loss: 0.0929 - val\_accuracy: 0.9585 - lr: 0.0010

Epoch 11/100

55/55 [==============================] - 49s 897ms/step - loss: 0.0588 - accuracy: 0.9879 - val\_loss: 0.0848 - val\_accuracy: 0.9654 - lr: 0.0010

Epoch 12/100

55/55 [==============================] - 50s 896ms/step - loss: 0.0534 - accuracy: 0.9908 - val\_loss: 0.0843 - val\_accuracy: 0.9631 - lr: 0.0010

Epoch 13/100

55/55 [==============================] - 50s 901ms/step - loss: 0.0497 - accuracy: 0.9919 - val\_loss: 0.0798 - val\_accuracy: 0.9700 - lr: 0.0010

Epoch 14/100

55/55 [==============================] - 50s 908ms/step - loss: 0.0467 - accuracy: 0.9914 - val\_loss: 0.0788 - val\_accuracy: 0.9654 - lr: 0.0010

Epoch 15/100

55/55 [==============================] - 50s 911ms/step - loss: 0.0434 - accuracy: 0.9937 - val\_loss: 0.0760 - val\_accuracy: 0.9631 - lr: 0.0010

Epoch 16/100

55/55 [==============================] - 50s 912ms/step - loss: 0.0411 - accuracy: 0.9937 - val\_loss: 0.0725 - val\_accuracy: 0.9700 - lr: 0.0010

Epoch 17/100

55/55 [==============================] - 50s 914ms/step - loss: 0.0380 - accuracy: 0.9948 - val\_loss: 0.0729 - val\_accuracy: 0.9677 - lr: 0.0010

Epoch 18/100

55/55 [==============================] - 50s 909ms/step - loss: 0.0366 - accuracy: 0.9937 - val\_loss: 0.0754 - val\_accuracy: 0.9724 - lr: 0.0010

Epoch 19/100

55/55 [==============================] - 50s 907ms/step - loss: 0.0337 - accuracy: 0.9954 - val\_loss: 0.0688 - val\_accuracy: 0.9677 - lr: 0.0010

Epoch 20/100

55/55 [==============================] - 50s 908ms/step - loss: 0.0332 - accuracy: 0.9954 - val\_loss: 0.0768 - val\_accuracy: 0.9700 - lr: 0.0010

Epoch 21/100

55/55 [==============================] - 50s 907ms/step - loss: 0.0325 - accuracy: 0.9960 - val\_loss: 0.0663 - val\_accuracy: 0.9677 - lr: 0.0010

Epoch 22/100

55/55 [==============================] - 50s 905ms/step - loss: 0.0283 - accuracy: 0.9960 - val\_loss: 0.0642 - val\_accuracy: 0.9700 - lr: 0.0010

Epoch 23/100

55/55 [==============================] - 50s 905ms/step - loss: 0.0268 - accuracy: 0.9960 - val\_loss: 0.0699 - val\_accuracy: 0.9724 - lr: 0.0010

Epoch 24/100

55/55 [==============================] - 50s 905ms/step - loss: 0.0255 - accuracy: 0.9965 - val\_loss: 0.0706 - val\_accuracy: 0.9747 - lr: 0.0010

Epoch 25/100

55/55 [==============================] - 50s 904ms/step - loss: 0.0239 - accuracy: 0.9977 - val\_loss: 0.0643 - val\_accuracy: 0.9770 - lr: 0.0010

Epoch 26/100

55/55 [==============================] - 51s 922ms/step - loss: 0.0223 - accuracy: 0.9977 - val\_loss: 0.0612 - val\_accuracy: 0.9700 - lr: 1.0000e-04

Epoch 27/100

55/55 [==============================] - 51s 923ms/step - loss: 0.0220 - accuracy: 0.9977 - val\_loss: 0.0615 - val\_accuracy: 0.9700 - lr: 1.0000e-04

Epoch 28/100

55/55 [==============================] - 50s 918ms/step - loss: 0.0218 - accuracy: 0.9977 - val\_loss: 0.0610 - val\_accuracy: 0.9700 - lr: 1.0000e-04

Epoch 29/100

55/55 [==============================] - 50s 904ms/step - loss: 0.0218 - accuracy: 0.9977 - val\_loss: 0.0609 - val\_accuracy: 0.9700 - lr: 1.0000e-04

Epoch 30/100

55/55 [==============================] - 51s 921ms/step - loss: 0.0215 - accuracy: 0.9977 - val\_loss: 0.0609 - val\_accuracy: 0.9700 - lr: 1.0000e-04

Epoch 31/100

55/55 [==============================] - 50s 914ms/step - loss: 0.0217 - accuracy: 0.9971 - val\_loss: 0.0606 - val\_accuracy: 0.9700 - lr: 1.0000e-04

Epoch 32/100

55/55 [==============================] - 50s 913ms/step - loss: 0.0214 - accuracy: 0.9977 - val\_loss: 0.0609 - val\_accuracy: 0.9700 - lr: 1.0000e-04

Epoch 33/100

55/55 [==============================] - 51s 924ms/step - loss: 0.0212 - accuracy: 0.9977 - val\_loss: 0.0611 - val\_accuracy: 0.9700 - lr: 1.0000e-04

Epoch 34/100

55/55 [==============================] - 50s 907ms/step - loss: 0.0210 - accuracy: 0.9977 - val\_loss: 0.0607 - val\_accuracy: 0.9700 - lr: 1.0000e-04

Epoch 35/100

55/55 [==============================] - 50s 915ms/step - loss: 0.0207 - accuracy: 0.9977 - val\_loss: 0.0606 - val\_accuracy: 0.9700 - lr: 1.0000e-05

Epoch 36/100

55/55 [==============================] - 51s 918ms/step - loss: 0.0207 - accuracy: 0.9983 - val\_loss: 0.0606 - val\_accuracy: 0.9700 - lr: 1.0000e-05

Epoch 37/100

55/55 [==============================] - 50s 912ms/step - loss: 0.0207 - accuracy: 0.9977 - val\_loss: 0.0605 - val\_accuracy: 0.9700 - lr: 1.0000e-05

Epoch 38/100

55/55 [==============================] - 51s 922ms/step - loss: 0.0206 - accuracy: 0.9977 - val\_loss: 0.0605 - val\_accuracy: 0.9700 - lr: 1.0000e-05

Epoch 39/100

55/55 [==============================] - 51s 930ms/step - loss: 0.0206 - accuracy: 0.9977 - val\_loss: 0.0603 - val\_accuracy: 0.9700 - lr: 1.0000e-05

Epoch 40/100

55/55 [==============================] - 51s 931ms/step - loss: 0.0206 - accuracy: 0.9977 - val\_loss: 0.0603 - val\_accuracy: 0.9700 - lr: 1.0000e-05

Epoch 41/100

55/55 [==============================] - 51s 924ms/step - loss: 0.0206 - accuracy: 0.9977 - val\_loss: 0.0603 - val\_accuracy: 0.9700 - lr: 1.0000e-05

Epoch 42/100

55/55 [==============================] - 51s 920ms/step - loss: 0.0206 - accuracy: 0.9977 - val\_loss: 0.0602 - val\_accuracy: 0.9700 - lr: 1.0000e-05

Epoch 43/100

55/55 [==============================] - 51s 925ms/step - loss: 0.0205 - accuracy: 0.9977 - val\_loss: 0.0602 - val\_accuracy: 0.9700 - lr: 1.0000e-05

Epoch 44/100

55/55 [==============================] - 51s 923ms/step - loss: 0.0205 - accuracy: 0.9977 - val\_loss: 0.0603 - val\_accuracy: 0.9700 - lr: 1.0000e-05

Epoch 45/100

55/55 [==============================] - 50s 908ms/step - loss: 0.0205 - accuracy: 0.9983 - val\_loss: 0.0602 - val\_accuracy: 0.9700 - lr: 1.0000e-05

Epoch 46/100

55/55 [==============================] - 50s 915ms/step - loss: 0.0205 - accuracy: 0.9977 - val\_loss: 0.0602 - val\_accuracy: 0.9700 - lr: 1.0000e-06

Epoch 47/100

55/55 [==============================] - 50s 909ms/step - loss: 0.0205 - accuracy: 0.9977 - val\_loss: 0.0602 - val\_accuracy: 0.9700 - lr: 1.0000e-06

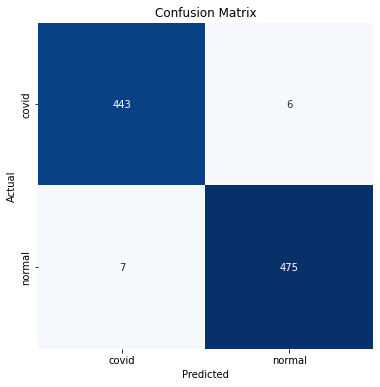
INFO:tensorflow:Assets written to: /content/drive/MyDrive/AdamaxVGG16Split0.7noAug/assets

Test Loss: 0.06395

Test Accuracy: 98.60%

/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 0.98 0.99 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

