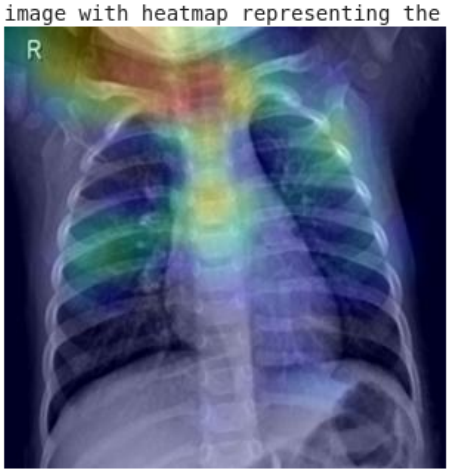
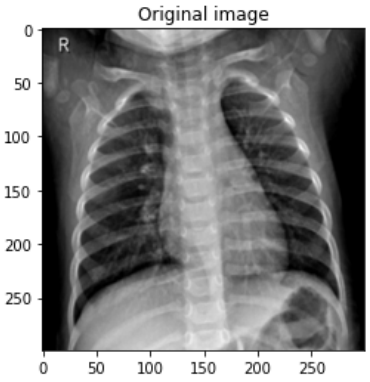
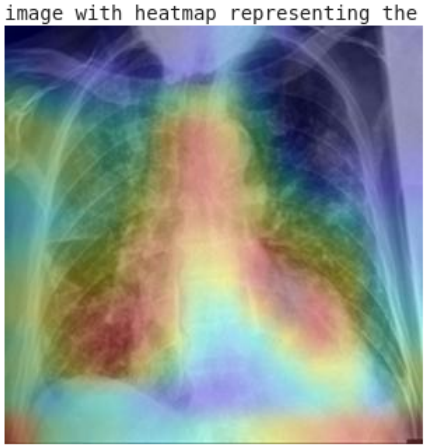
```
The given X-Ray image is of type = Normal

The chances of image being Covid is : 8.306345343589783 %
The chances of image being Normal is : 90.17686247825623 %

image with heatmap representing the covid spot
```



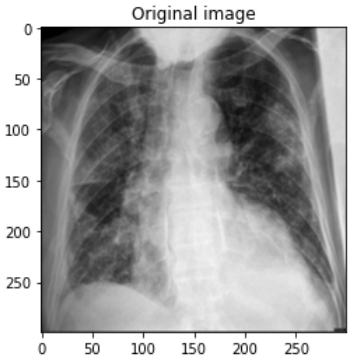

```
the original input image
```



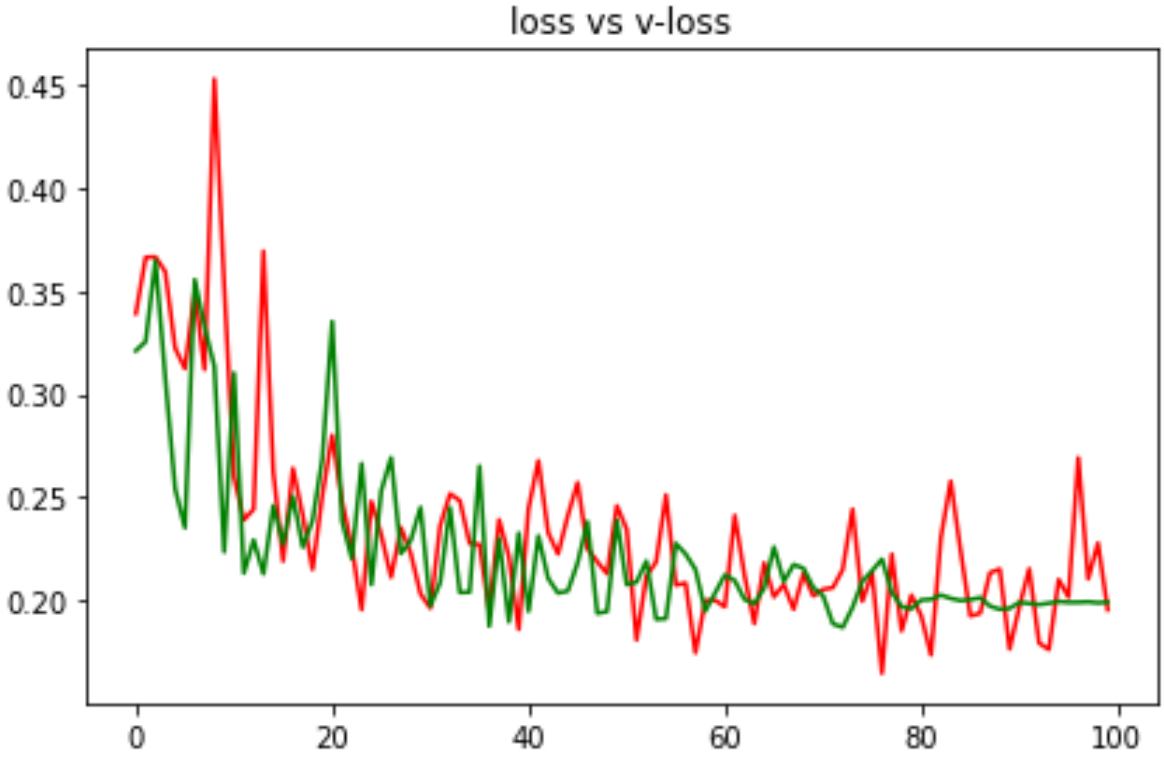
```
The given X-Ray image is of type = Covid

The chances of image being Covid is : 87.96427249908447 %
The chances of image being Normal is : 9.105725586414337 %

image with heatmap representing the covid spot
```

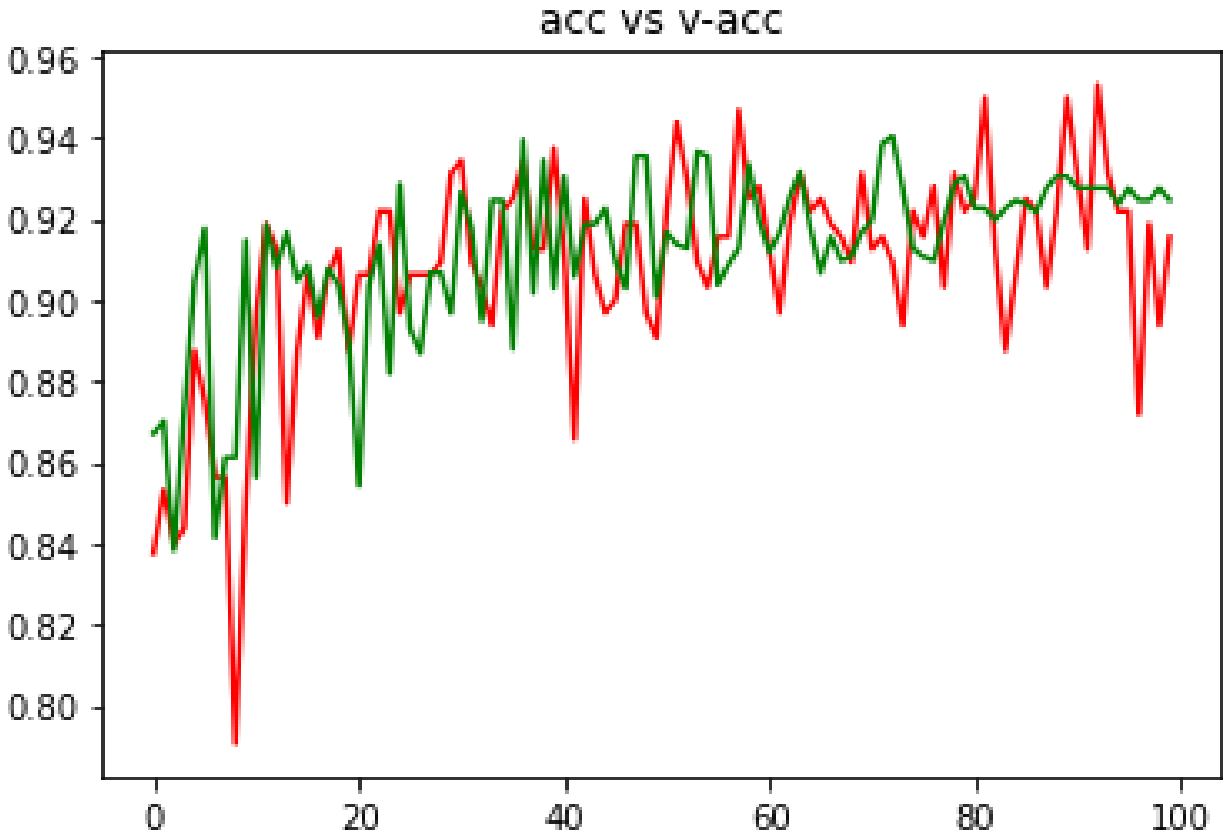


```
the original input image
```




```
#accuracy

acc = model.evaluate_generator(generator= test)[1]

print(f"The accuracy of your model is = {acc} ")

The accuracy of your model is = 0.9237499833106995
```


loss vs v-loss
0.45
0.40
0.35
0.30
0.25
0.20
0
20
40
60
80
100

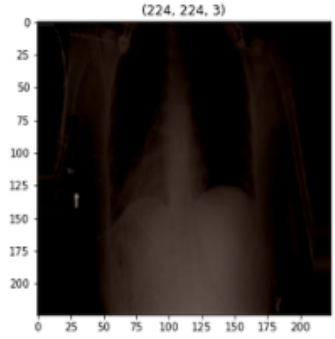



```
Epoch 1/100
10/10 [==============================] - ETA: 0s - loss: 0.3392 - accuracy: 0.8375
Epoch 1: accuracy improved from -inf to 0.83750, saving model to bestmodel.h5
10/10 [==============================] - 10s 1s/step - loss: 0.3392 - accuracy: 0.8375 - val_loss: 0.3211 - val_accuracy: 0.8671 - lr: 0.0010
Epoch 2/100
10/10 [==============================] - ETA: 0s - loss: 0.3664 - accuracy: 0.8531
Epoch 2: accuracy improved from 0.83750 to 0.85312, saving model to bestmodel.h5
10/10 [==============================] - 9s 951ms/step - loss: 0.3664 - accuracy: 0.8531 - val_loss: 0.3256 - val_accuracy: 0.8700 - lr: 0.0010
Epoch 3/100
10/10 [==============================] - ETA: 0s - loss: 0.3666 - accuracy: 0.8397
Epoch 3: accuracy did not improve from 0.85312
10/10 [==============================] - 11s 1s/step - loss: 0.3666 - accuracy: 0.8397 - val_loss: 0.3649 - val_accuracy: 0.8383 - lr: 0.0010
Epoch 4/100
10/10 [==============================] - ETA: 0s - loss: 0.3595 - accuracy: 0.8438
Epoch 4: accuracy did not improve from 0.85312
10/10 [==============================] - 16s 2s/step - loss: 0.3595 - accuracy: 0.8438 - val_loss: 0.3079 - val_accuracy: 0.8730 - lr: 0.0010
Epoch 5/100
10/10 [==============================] - ETA: 0s - loss: 0.3224 - accuracy: 0.8875
Epoch 5: accuracy improved from 0.85312 to 0.88750, saving model to bestmodel.h5


Epoch 98: accuracy did not improve from 0.95312
10/10 [==============================] - 9s 980ms/step - loss: 0.2104 - accuracy: 0.9187 - val_loss: 0.1993 - val_accuracy: 0.9246 - lr: 3.3233e-06
Epoch 99/100
10/10 [==============================] - ETA: 0s - loss: 0.2277 - accuracy: 0.8938
Epoch 99: accuracy did not improve from 0.95312
10/10 [==============================] - 9s 977ms/step - loss: 0.2277 - accuracy: 0.8938 - val_loss: 0.1988 - val_accuracy: 0.9276 - lr: 2.3263e-06
Epoch 100/100
10/10 [==============================] - ETA: 0s - loss: 0.1954 - accuracy: 0.9156
Epoch 100: accuracy did not improve from 0.95312
10/10 [==============================] - 9s 980ms/step - loss: 0.1954 - accuracy: 0.9156 - val_loss: 0.1991 - val_accuracy: 0.9246 - lr: 2.3263e-06
```

```
Model: "model"
_________________________________________________________________
 Layer (type)                Output Shape              Param #
=================================================================
 input_1 (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

 predictions (Dense)         (None, 2)                 50178

=================================================================
Total params: 14,764,866
Trainable params: 50,178
Non-trainable params: 14,714,688
_________________________________________________________________
```

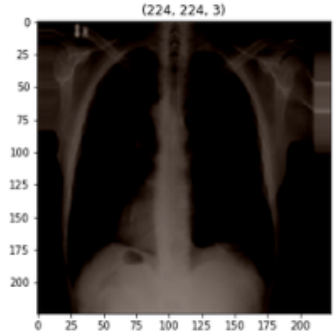
```
Clipping input data to the valid range for imshow with RGB data ([0..1] for floats or [0..255] for integers).
```

(224, 224, 3)



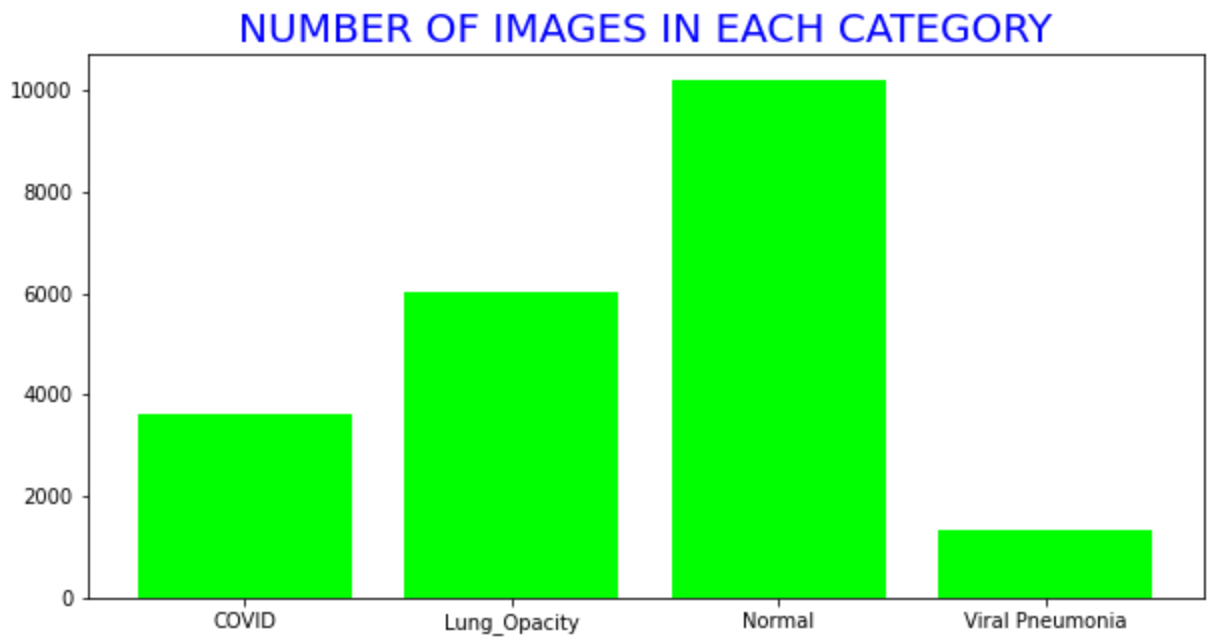

```
Clipping input data to the valid range for imshow with RGB data ([0..1] for floats or [0..255] for integers).
```

(224, 224, 3)



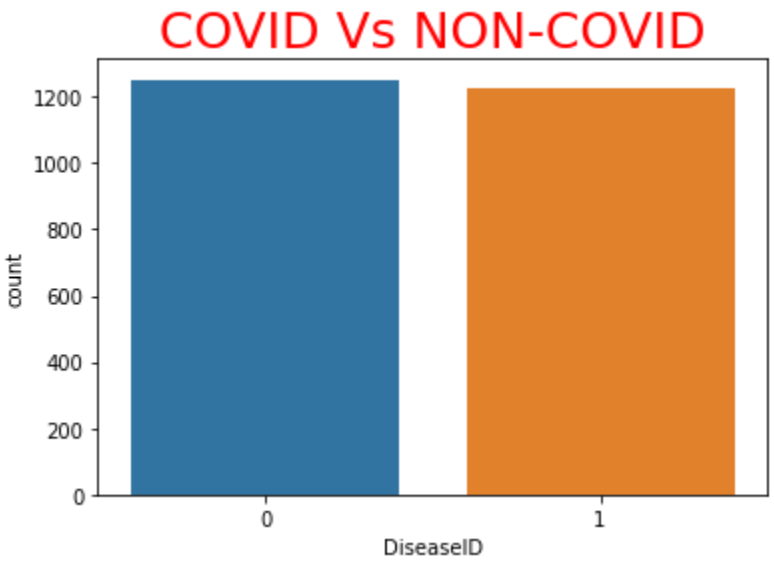

```
Clipping input data to the valid range for imshow with RGB data ([0..1] for floats or [0..255] for integers).
```

(224, 224, 3)



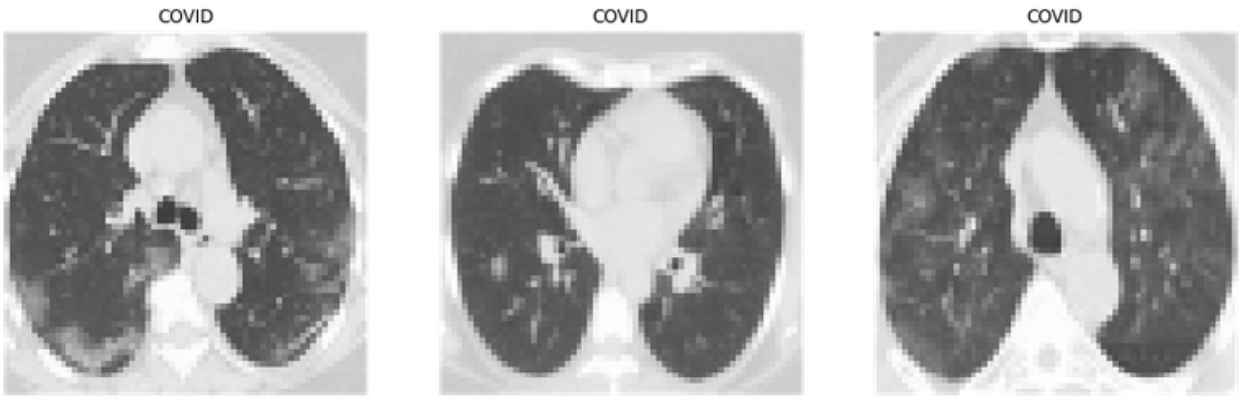
	File	DiseaseID	Disease Type
0	COVID/Covid (1073).png	0	COVID
1	COVID/Covid (593).png	0	COVID
2	COVID/Covid (768).png	0	COVID
3	COVID/Covid (797).png	0	COVID
4	COVID/Covid (207).png	0	COVID
5	COVID/Covid (1225).png	0	COVID
6	COVID/Covid (876).png	0	COVID
7	COVID/Covid (400).png	0	COVID
8	COVID/Covid (408).png	0	COVID
9	COVID/Covid (127).png	0	COVID
10	COVID/Covid (869).png	0	COVID
11	COVID/Covid (523).png	0	COVID
12	COVID/Covid (156).png	0	COVID
13	COVID/Covid (64).png	0	COVID
14	COVID/Covid (569).png	0	COVID
15	COVID/Covid (341).png	0	COVID
16	COVID/Covid (1099).png	0	COVID
17	COVID/Covid (904).png	0	COVID
18	COVID/Covid (1119).png	0	COVID
19	COVID/Covid (956).png	0	COVID

	File	DiseaseID	Disease Type
0	COVID/Covid (986).png	0	COVID
1	COVID/Covid (49).png	0	COVID
2	non-COVID/Non-Covid (1074).png	1	non-COVID
3	non-COVID/Non-Covid (537).png	1	non-COVID
4	COVID/Covid (1251).png	0	COVID
5	non-COVID/Non-Covid (444).png	1	non-COVID
6	COVID/Covid (242).png	0	COVID
7	non-COVID/Non-Covid (543).png	1	non-COVID
8	non-COVID/Non-Covid (436).png	1	non-COVID
9	COVID/Covid (1064).png	0	COVID
10	COVID/Covid (391).png	0	COVID
11	COVID/Covid (1163).png	0	COVID
12	non-COVID/Non-Covid (161).png	1	non-COVID
13	non-COVID/Non-Covid (971).png	1	non-COVID
14	COVID/Covid (365).png	0	COVID
15	COVID/Covid (500).png	0	COVID
16	COVID/Covid (1074).png	0	COVID
17	COVID/Covid (706).png	0	COVID
18	non-COVID/Non-Covid (921).png	1	non-COVID
19	non-COVID/Non-Covid (385).png	1	non-COVID



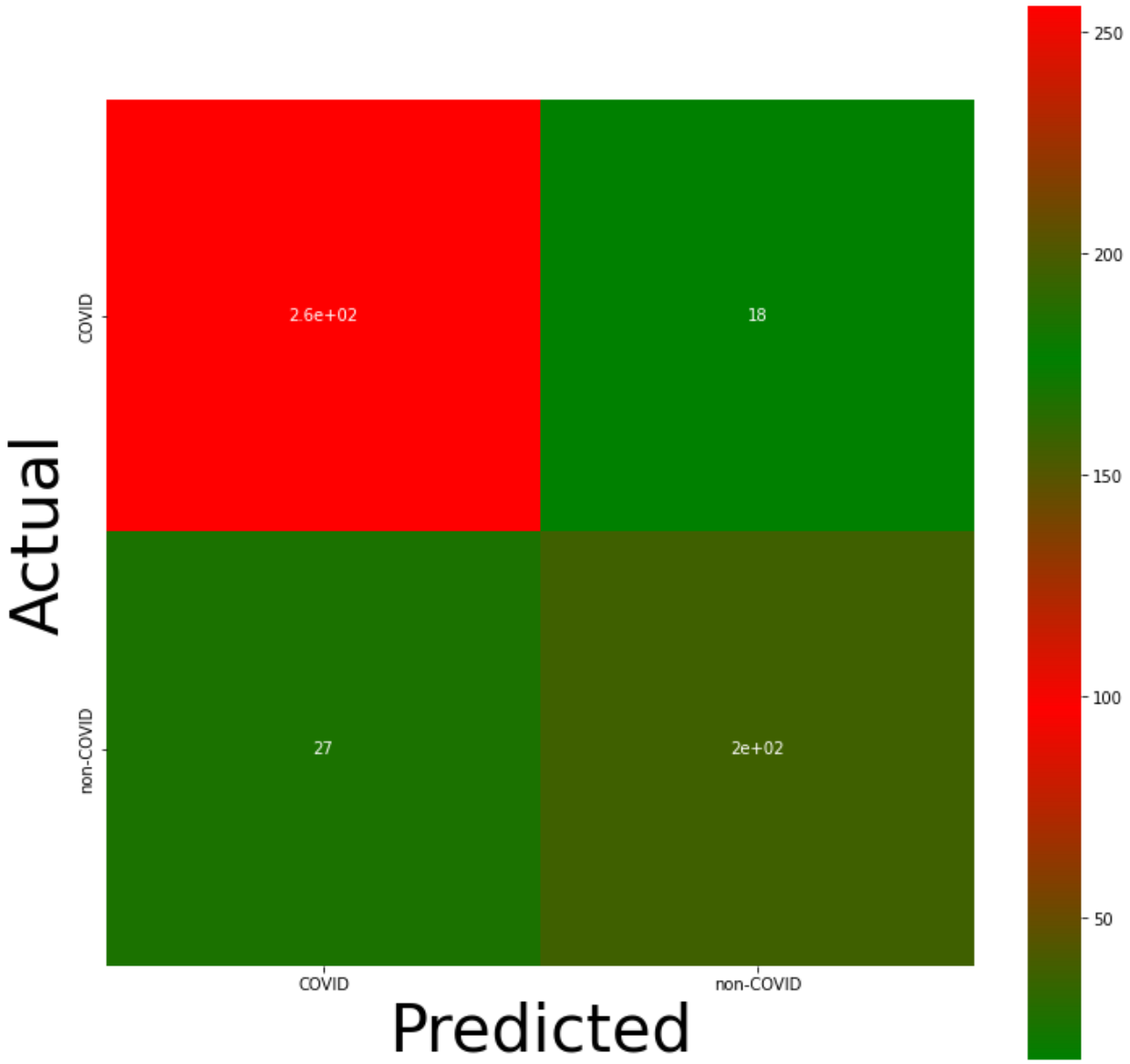
COVID

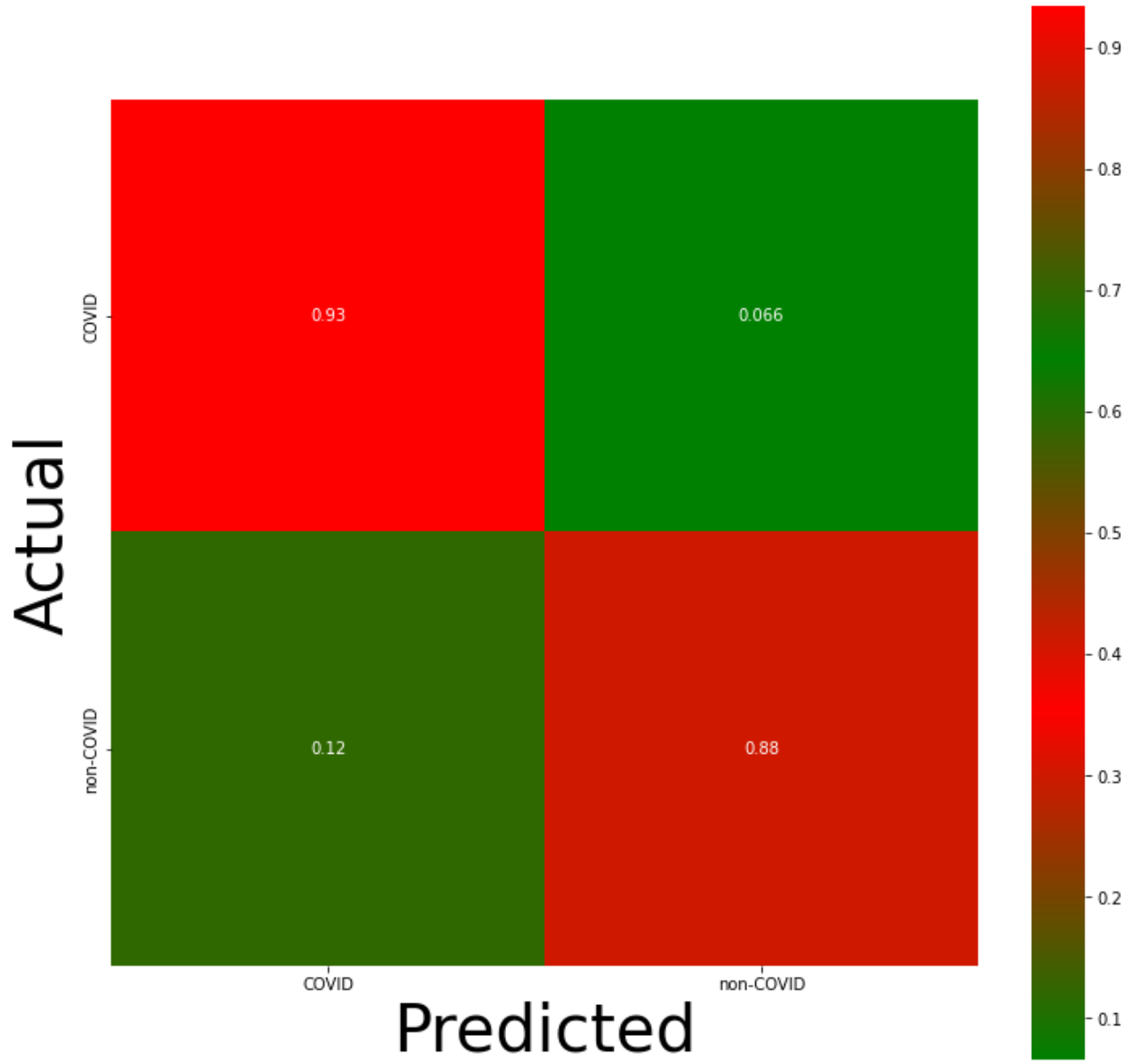
NON-COVID



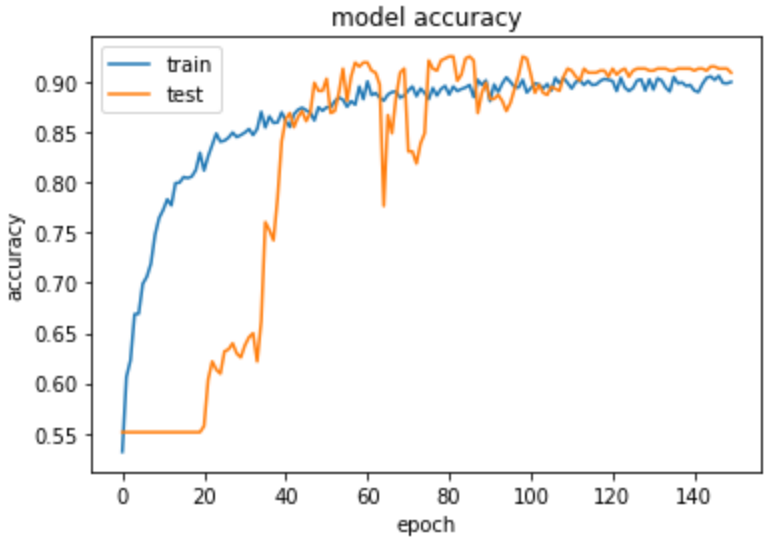

```
Model: "model"
_________________________________________________________________
Layer (type)                 Output Shape              Param #
=================================================================
input_2 (InputLayer)         [(None, 64, 64, 3)]       0
_________________________________________________________________
conv2d (Conv2D)              (None, 64, 64, 3)         84
_________________________________________________________________
resnet50 (Functional)        (None, None, None, 2048)  23587712
_________________________________________________________________
global_average_pooling2d (Gl (None, 2048)              0
_________________________________________________________________
batch_normalization (BatchNo (None, 2048)              8192
_________________________________________________________________
dropout (Dropout)            (None, 2048)              0
_________________________________________________________________
dense (Dense)                (None, 256)               524544
_________________________________________________________________
batch_normalization_1 (Batch (None, 256)               1024
_________________________________________________________________
dropout_1 (Dropout)          (None, 256)               0
_________________________________________________________________
root (Dense)                 (None, 2)                 514
=================================================================
Total params: 24,122,070
Trainable params: 24,064,342
Non-trainable params: 57,728
```

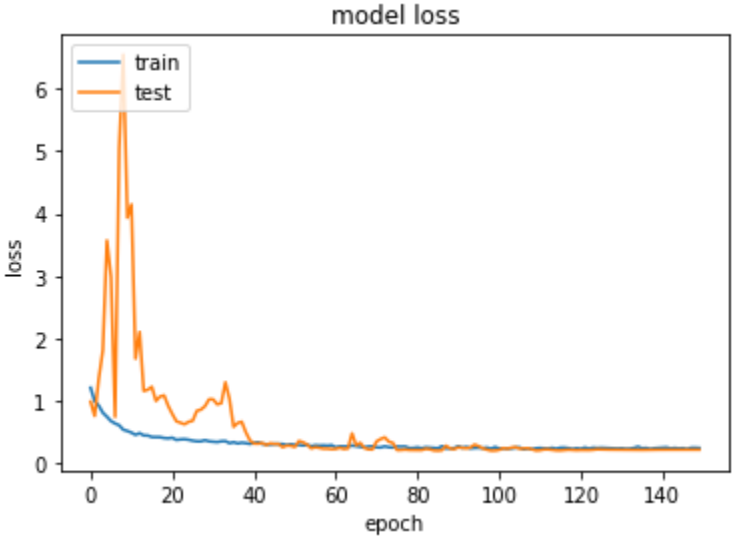
```
31/31 [==============================] - 57s 2s/step - loss: 0.2295 - accuracy: 0.9062 - val_loss: 0.2196 - val_acc
uracy: 0.9135

Epoch 00147: val_loss did not improve from 0.20534
Epoch 148/150
31/31 [==============================] - 57s 2s/step - loss: 0.2514 - accuracy: 0.8992 - val_loss: 0.2190 - val_acc
uracy: 0.9135

Epoch 00148: val_loss did not improve from 0.20534
Epoch 149/150
31/31 [==============================] - 57s 2s/step - loss: 0.2516 - accuracy: 0.8987 - val_loss: 0.2210 - val_acc
uracy: 0.9135

Epoch 00149: val_loss did not improve from 0.20534
Epoch 150/150
31/31 [==============================] - 57s 2s/step - loss: 0.2476 - accuracy: 0.9002 - val_loss: 0.2215 - val_acc
uracy: 0.9095

Epoch 00150: val_loss did not improve from 0.20534


16/16 [==============================] - 1s 82ms/step - loss: 0.2215 - accuracy: 0.9095
Final Loss: 0.22152909636497498, Final Accuracy: 0.909456729888916
```


Actual
COVID
non-COVID
2.6e+02
18
27
2e+02
COVID
non-COVID
Predicted
250
200
150
100
50

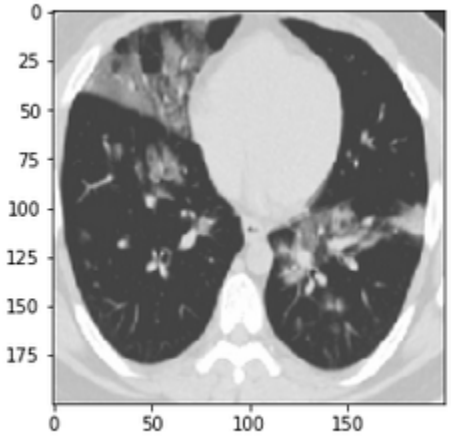


	precision	recall	f1-score	support
0	0.90	0.93	0.92	274
1	0.92	0.88	0.90	223
accuracy			0.91	497
macro avg	0.91	0.91	0.91	497
weighted avg	0.91	0.91	0.91	497



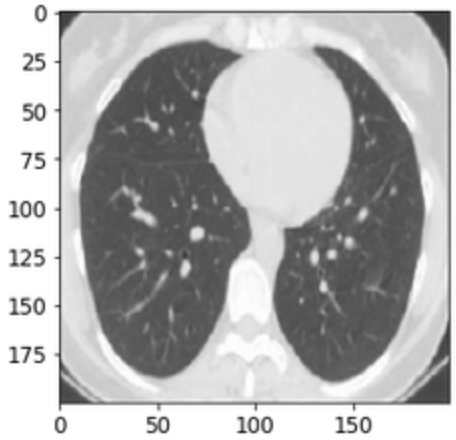



```
[0.99696785 0.00303217]
```

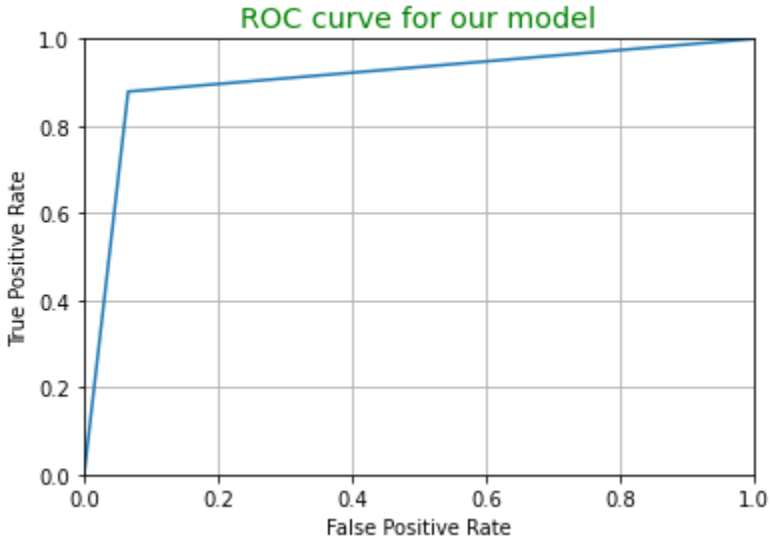


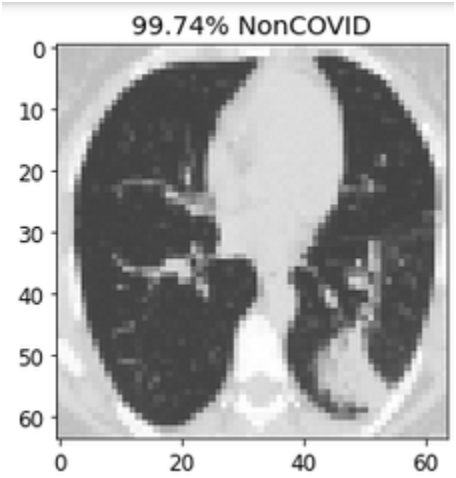
```
Prediction: Covid-19
```

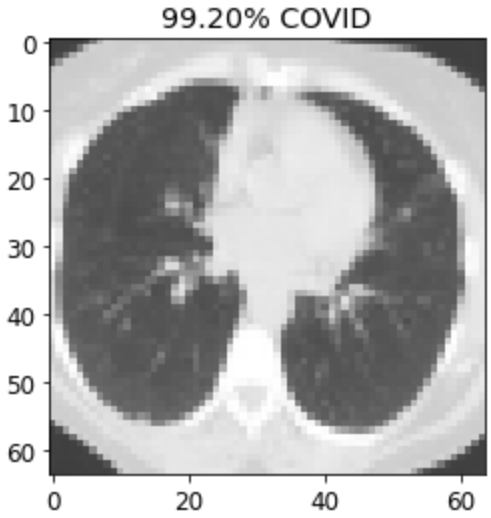
```
[0.11544413 0.8845559 ]
```




```
Prediction: Non Covid-19
```






99.20% COVID
0
10
20
30
40
50
60
0
20
40
60