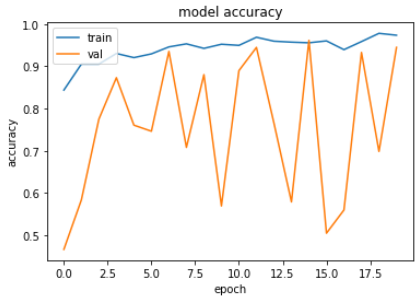
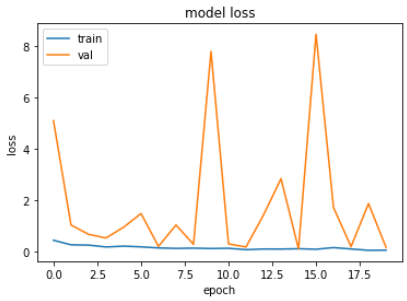
```
Epoch 1/20
136/136 [==============================] - 238s 2s/step - loss: 0.4518 - accuracy: 0.8439 - val_loss: 5.1010 - val_accuracy: 0.4665

Epoch 00001: val_accuracy improved from -inf to 0.46651, saving model to /content/drive/My Drive/COVID/Vanshika/Models/resNet50.h5
Epoch 2/20
136/136 [==============================] - 211s 2s/step - loss: 0.2733 - accuracy: 0.9054 - val_loss: 1.0487 - val_accuracy: 0.5837

Epoch 00002: val_accuracy improved from 0.46651 to 0.58373, saving model to /content/drive/My Drive/COVID/Vanshika/Models/resNet50.h5
Epoch 3/20
136/136 [==============================] - 211s 2s/step - loss: 0.2708 - accuracy: 0.9054 - val_loss: 0.6854 - val_accuracy: 0.7751

Epoch 00003: val_accuracy improved from 0.58373 to 0.77512, saving model to /content/drive/My Drive/COVID/Vanshika/Models/resNet50.h5
Epoch 4/20
136/136 [==============================] - 211s 2s/step - loss: 0.1940 - accuracy: 0.9306 - val_loss: 0.5435 - val_accuracy: 0.8732

Epoch 00004: val_accuracy improved from 0.77512 to 0.87321, saving model to /content/drive/My Drive/COVID/Vanshika/Models/resNet50.h5
Epoch 5/20
136/136 [==============================] - 211s 2s/step - loss: 0.2354 - accuracy: 0.9208 - val_loss: 0.9564 - val_accuracy: 0.7608

Epoch 00005: val_accuracy did not improve from 0.87321
Epoch 6/20
136/136 [==============================] - 211s 2s/step - loss: 0.2224 - accuracy: 0.9296 - val_loss: 1.4923 - val_accuracy: 0.7464

Epoch 00006: val_accuracy did not improve from 0.87321
Epoch 7/20
136/136 [==============================] - 211s 2s/step - loss: 0.1597 - accuracy: 0.9462 - val_loss: 0.2174 - val_accuracy: 0.9354

Epoch 00007: val_accuracy improved from 0.87321 to 0.93541, saving model to /content/drive/My Drive/COVID/Vanshika/Models/resNet50.h5
Epoch 8/20
136/136 [==============================] - 212s 2s/step - loss: 0.1546 - accuracy: 0.9534 - val_loss: 1.0475 - val_accuracy: 0.7081

Epoch 00008: val_accuracy did not improve from 0.93541
Epoch 9/20
136/136 [==============================] - 211s 2s/step - loss: 0.1462 - accuracy: 0.9427 - val_loss: 0.2936 - val_accuracy: 0.8804

Epoch 00009: val_accuracy did not improve from 0.93541
Epoch 10/20
136/136 [==============================] - 211s 2s/step - loss: 0.1444 - accuracy: 0.9525 - val_loss: 7.7905 - val_accuracy: 0.5694

Epoch 00010: val_accuracy did not improve from 0.93541
Epoch 11/20
136/136 [==============================] - 212s 2s/step - loss: 0.1433 - accuracy: 0.9498 - val_loss: 0.3121 - val_accuracy: 0.8900

Epoch 00011: val_accuracy did not improve from 0.93541
Epoch 12/20
136/136 [==============================] - 210s 2s/step - loss: 0.0855 - accuracy: 0.9690 - val_loss: 0.1914 - val_accuracy: 0.9450

Epoch 00012: val_accuracy improved from 0.93541 to 0.94498, saving model to /content/drive/My Drive/COVID/Vanshika/Models/resNet50.h5
Epoch 13/20
136/136 [==============================] - 211s 2s/step - loss: 0.1193 - accuracy: 0.9597 - val_loss: 1.4396 - val_accuracy: 0.7656

Epoch 00013: val_accuracy did not improve from 0.94498
Epoch 14/20
136/136 [==============================] - 212s 2s/step - loss: 0.1127 - accuracy: 0.9574 - val_loss: 2.8479 - val_accuracy: 0.5789

Epoch 00014: val_accuracy did not improve from 0.94498
Epoch 15/20
136/136 [==============================] - 209s 2s/step - loss: 0.1280 - accuracy: 0.9559 - val_loss: 0.1202 - val_accuracy: 0.9617

Epoch 00015: val_accuracy improved from 0.94498 to 0.96172, saving model to /content/drive/My Drive/COVID/Vanshika/Models/resNet50.h5
Epoch 16/20
136/136 [==============================] - 212s 2s/step - loss: 0.1199 - accuracy: 0.9604 - val_loss: 8.4617 - val_accuracy: 0.5048

Epoch 00016: val_accuracy did not improve from 0.96172
Epoch 17/20
136/136 [==============================] - 211s 2s/step - loss: 0.1803 - accuracy: 0.9397 - val_loss: 1.7262 - val_accuracy: 0.5598

Epoch 00017: val_accuracy did not improve from 0.96172
Epoch 18/20
136/136 [==============================] - 213s 2s/step - loss: 0.1140 - accuracy: 0.9588 - val_loss: 0.2054 - val_accuracy: 0.9330

Epoch 00018: val_accuracy did not improve from 0.96172
Epoch 19/20
136/136 [==============================] - 215s 2s/step - loss: 0.0610 - accuracy: 0.9783 - val_loss: 1.8790 - val_accuracy: 0.6986

Epoch 00019: val_accuracy did not improve from 0.96172
Epoch 20/20
136/136 [==============================] - 216s 2s/step - loss: 0.0695 - accuracy: 0.9739 - val_loss: 0.1797 - val_accuracy: 0.9450

Epoch 00020: val_accuracy did not improve from 0.96172
dict_keys(['val_loss', 'val_accuracy', 'loss', 'accuracy'])
```




model loss
train
val
loss
epoch
0
2
4
6
8
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5

```
                  precision    recall  f1-score   support

       COVID-19       0.86      0.97      0.91        31
         Normal       0.97      0.96      0.97       193
Viral Pneumonia       0.97      0.96      0.97       194

       accuracy                           0.96       418
      macro avg       0.93      0.96      0.95       418
   weighted avg       0.96      0.96      0.96       418

Confusion Matrix
[[ 30   1   0]
 [  2 185   6]
 [  3   4 187]]
```