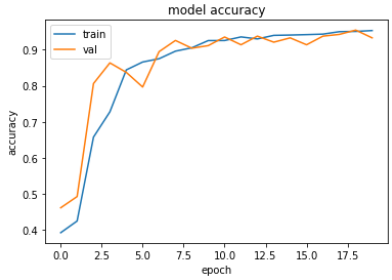
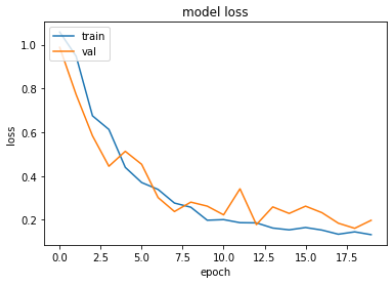
```
Epoch 1/20
136/136 [==============================] - 68s 501ms/step - loss: 1.0584 - accuracy: 0.3926 - val_loss: 0.9876 - val_accuracy: 0.4617

Epoch 00001: val_accuracy improved from -inf to 0.46172, saving model to /content/drive/My Drive/COVID/Vanshika/Models/squeezeNet_lr0005.h5
Epoch 2/20
136/136 [==============================] - 64s 470ms/step - loss: 0.9456 - accuracy: 0.4250 - val_loss: 0.7720 - val_accuracy: 0.4928

Epoch 00002: val_accuracy improved from 0.46172 to 0.49282, saving model to /content/drive/My Drive/COVID/Vanshika/Models/squeezeNet_lr0005.h5
Epoch 3/20
136/136 [==============================] - 64s 467ms/step - loss: 0.6781 - accuracy: 0.6577 - val_loss: 0.5837 - val_accuracy: 0.8062

Epoch 00003: val_accuracy improved from 0.49282 to 0.80622, saving model to /content/drive/My Drive/COVID/Vanshika/Models/squeezeNet_lr0005.h5
Epoch 4/20
136/136 [==============================] - 64s 468ms/step - loss: 0.6209 - accuracy: 0.7279 - val_loss: 0.4445 - val_accuracy: 0.8636

Epoch 00004: val_accuracy improved from 0.80622 to 0.86364, saving model to /content/drive/My Drive/COVID/Vanshika/Models/squeezeNet_lr0005.h5
Epoch 5/20
136/136 [==============================] - 63s 464ms/step - loss: 0.4450 - accuracy: 0.8441 - val_loss: 0.5128 - val_accuracy: 0.8373

Epoch 00005: val_accuracy did not improve from 0.86364
Epoch 6/20
136/136 [==============================] - 63s 463ms/step - loss: 0.3666 - accuracy: 0.8660 - val_loss: 0.4535 - val_accuracy: 0.7967

Epoch 00006: val_accuracy did not improve from 0.86364
Epoch 7/20
136/136 [==============================] - 63s 466ms/step - loss: 0.3469 - accuracy: 0.8751 - val_loss: 0.3016 - val_accuracy: 0.8947

Epoch 00007: val_accuracy improved from 0.86364 to 0.89474, saving model to /content/drive/My Drive/COVID/Vanshika/Models/squeezeNet_lr0005.h5
Epoch 8/20
136/136 [==============================] - 64s 468ms/step - loss: 0.2843 - accuracy: 0.8961 - val_loss: 0.2377 - val_accuracy: 0.9258

Epoch 00008: val_accuracy improved from 0.89474 to 0.92584, saving model to /content/drive/My Drive/COVID/Vanshika/Models/squeezeNet_lr0005.h5
Epoch 9/20
136/136 [==============================] - 63s 462ms/step - loss: 0.2556 - accuracy: 0.9054 - val_loss: 0.2807 - val_accuracy: 0.9043

Epoch 00009: val_accuracy did not improve from 0.92584
Epoch 10/20
136/136 [==============================] - 63s 466ms/step - loss: 0.1970 - accuracy: 0.9255 - val_loss: 0.2624 - val_accuracy: 0.9115

Epoch 00010: val_accuracy did not improve from 0.92584
Epoch 11/20
136/136 [==============================] - 63s 462ms/step - loss: 0.1985 - accuracy: 0.9256 - val_loss: 0.2226 - val_accuracy: 0.9354

Epoch 00011: val_accuracy improved from 0.92584 to 0.93541, saving model to /content/drive/My Drive/COVID/Vanshika/Models/squeezeNet_lr0005.h5
Epoch 12/20
136/136 [==============================] - 64s 468ms/step - loss: 0.1869 - accuracy: 0.9357 - val_loss: 0.3416 - val_accuracy: 0.9139

Epoch 00012: val_accuracy did not improve from 0.93541
Epoch 13/20
136/136 [==============================] - 63s 465ms/step - loss: 0.1837 - accuracy: 0.9301 - val_loss: 0.1780 - val_accuracy: 0.9378

Epoch 00013: val_accuracy improved from 0.93541 to 0.93780, saving model to /content/drive/My Drive/COVID/Vanshika/Models/squeezeNet_lr0005.h5
Epoch 14/20
136/136 [==============================] - 63s 462ms/step - loss: 0.1590 - accuracy: 0.9399 - val_loss: 0.2590 - val_accuracy: 0.9211

Epoch 00014: val_accuracy did not improve from 0.93780
Epoch 15/20
136/136 [==============================] - 63s 465ms/step - loss: 0.1524 - accuracy: 0.9408 - val_loss: 0.2290 - val_accuracy: 0.9330

Epoch 00015: val_accuracy did not improve from 0.93780
Epoch 16/20
136/136 [==============================] - 63s 466ms/step - loss: 0.1650 - accuracy: 0.9420 - val_loss: 0.2623 - val_accuracy: 0.9139

Epoch 00016: val_accuracy did not improve from 0.93780
Epoch 17/20
136/136 [==============================] - 63s 466ms/step - loss: 0.1510 - accuracy: 0.9434 - val_loss: 0.2326 - val_accuracy: 0.9378

Epoch 00017: val_accuracy did not improve from 0.93780
Epoch 18/20
136/136 [==============================] - 63s 466ms/step - loss: 0.1324 - accuracy: 0.9501 - val_loss: 0.1844 - val_accuracy: 0.9426

Epoch 00018: val_accuracy improved from 0.93780 to 0.94258, saving model to /content/drive/My Drive/COVID/Vanshika/Models/squeezeNet_lr0005.h5
Epoch 19/20
136/136 [==============================] - 63s 467ms/step - loss: 0.1430 - accuracy: 0.9508 - val_loss: 0.1611 - val_accuracy: 0.9545

Epoch 00019: val_accuracy improved from 0.94258 to 0.95455, saving model to /content/drive/My Drive/COVID/Vanshika/Models/squeezeNet_lr0005.h5
Epoch 20/20
136/136 [==============================] - 64s 470ms/step - loss: 0.1321 - accuracy: 0.9533 - val_loss: 0.1976 - val_accuracy: 0.9330

Epoch 00020: val_accuracy did not improve from 0.95455
dict_keys(['val_loss', 'val_accuracy', 'loss', 'accuracy'])
```




model loss
train
val
loss
epoch
1.0
0.8
0.6
0.4
0.2
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5

```
                  precision    recall  f1-score   support

       COVID-19       0.94      0.97      0.95        31
         Normal       0.94      0.96      0.95       193
Viral Pneumonia       0.97      0.94      0.96       194

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

Confusion Matrix
[[ 30   1   0]
 [  1 186   6]
 [  1  10 183]]
```