CheXNet Model: (with the changed EDA and batching process)

Epoch 1/10
44/44 [==============================] - ETA: 0s - loss: 2.8986 - accuracy: 0.6087
Epoch 1: val_loss improved from inf to 2.45562, saving model to model_filename
44/44 [==============================] - 1887s 41s/step - loss: 2.8986 - accuracy: 0.6087 - val_loss: 2.4556 - val_accuracy: 0.6386 - lr: 0.0100
Epoch 2/10
44/44 [==============================] - ETA: 0s - loss: 2.0881 - accuracy: 0.7562
Epoch 2: val_loss improved from 2.45562 to 1.98027, saving model to model_filename
44/44 [==============================] - 1688s 38s/step - loss: 2.0881 - accuracy: 0.7562 - val_loss: 1.9803 - val_accuracy: 0.7221 - lr: 0.0100
Epoch 3/10
44/44 [==============================] - ETA: 0s - loss: 1.6656 - accuracy: 0.8406
Epoch 3: val_loss improved from 1.98027 to 1.74058, saving model to model_filename
44/44 [==============================] - 1644s 37s/step - loss: 1.6656 - accuracy: 0.8406 - val_loss: 1.7406 - val_accuracy: 0.7777 - lr: 0.0100
Epoch 4/10
44/44 [==============================] - ETA: 0s - loss: 1.3538 - accuracy: 0.8946
Epoch 4: val_loss improved from 1.74058 to 1.55755, saving model to model_filename
44/44 [==============================] - 1701s 39s/step - loss: 1.3538 - accuracy: 0.8946 - val_loss: 1.5575 - val_accuracy: 0.7892 - lr: 0.0100
Epoch 5/10
44/44 [==============================] - ETA: 0s - loss: 1.1096 - accuracy: 0.9180
Epoch 5: val_loss improved from 1.55755 to 1.41606, saving model to model_filename
44/44 [==============================] - 1649s 38s/step - loss: 1.1096 - accuracy: 0.9180 - val_loss: 1.4161 - val_accuracy: 0.7871 - lr: 0.0100
Epoch 6/10
44/44 [==============================] - ETA: 0s - loss: 0.8974 - accuracy: 0.9308
Epoch 6: val_loss improved from 1.41606 to 1.28356, saving model to model_filename
44/44 [==============================] - 1646s 37s/step - loss: 0.8974 - accuracy: 0.9308 - val_loss: 1.2836 - val_accuracy: 0.7887 - lr: 0.0100
Epoch 7/10
44/44 [==============================] - ETA: 0s - loss: 0.7094 - accuracy: 0.9372
Epoch 7: val_loss improved from 1.28356 to 1.15910, saving model to model_filename
44/44 [==============================] - 1650s 38s/step - loss: 0.7094 - accuracy: 0.9372 - val_loss: 1.1591 - val_accuracy: 0.7866 - lr: 0.0100
Epoch 8/10
44/44 [==============================] - ETA: 0s - loss: 0.5430 - accuracy: 0.9420
Epoch 8: val_loss improved from 1.15910 to 1.05946, saving model to model_filename
44/44 [==============================] - 1726s 39s/step - loss: 0.5430 - accuracy: 0.9420 - val_loss: 1.0595 - val_accuracy: 0.7909 - lr: 0.0100
Epoch 9/10
44/44 [==============================] - ETA: 0s - loss: 0.4141 - accuracy: 0.9442
Epoch 9: val_loss improved from 1.05946 to 0.99319, saving model to model_filename
44/44 [==============================] - 1659s 38s/step - loss: 0.4141 - accuracy: 0.9442 - val_loss: 0.9932 - val_accuracy: 0.7735 - lr: 0.0100
Epoch 10/10
44/44 [==============================] - ETA: 0s - loss: 0.3173 - accuracy: 0.9479
Epoch 10: val_loss improved from 0.99319 to 0.93956, saving model to model_filename
44/44 [==============================] - 1690s 38s/step - loss: 0.3173 - accuracy: 0.9479 - val_loss: 0.9396 - val_accuracy: 0.7788 - lr: 0.0100
<keras.callbacks.History at 0x7f13b9673c10>

InceptionV3 without pretrained weights(with changed EDA and batching process):

```
Epoch 1/10
44/44 [==============================] - ETA: 0s - loss: 3.0222 -
accuracy: 0.5949
Epoch 1: val_loss improved from inf to 2.05986, saving model to
model_filename
44/44 [==============================] - 1492s 33s/step - loss: 3.0222 -
accuracy: 0.5949 - val_loss: 2.0599 - val_accuracy: 0.7680 - lr: 0.0100
Epoch 2/10
44/44 [==============================] - ETA: 0s - loss: 2.1811 -
accuracy: 0.7293
Epoch 2: val_loss improved from 2.05986 to 1.84301, saving model to
model_filename
44/44 [==============================] - 1272s 29s/step - loss: 2.1811 -
accuracy: 0.7293 - val_loss: 1.8430 - val_accuracy: 0.7907 - lr: 0.0100
Epoch 3/10
44/44 [==============================] - ETA: 0s - loss: 1.7077 -
accuracy: 0.8232
Epoch 3: val_loss improved from 1.84301 to 1.69126, saving model to
model_filename
44/44 [==============================] - 1297s 30s/step - loss: 1.7077 -
accuracy: 0.8232 - val_loss: 1.6913 - val_accuracy: 0.7881 - lr: 0.0100
Epoch 4/10
44/44 [==============================] - ETA: 0s - loss: 1.3706 -
accuracy: 0.8860
Epoch 4: val_loss improved from 1.69126 to 1.56039, saving model to
model_filename
44/44 [==============================] - 1288s 29s/step - loss: 1.3706 -
accuracy: 0.8860 - val_loss: 1.5604 - val_accuracy: 0.7807 - lr: 0.0100
Epoch 5/10
44/44 [==============================] - ETA: 0s - loss: 1.1081 -
accuracy: 0.9182
Epoch 5: val_loss improved from 1.56039 to 1.43405, saving model to
model_filename
44/44 [==============================] - 1300s 30s/step - loss: 1.1081 -
accuracy: 0.9182 - val_loss: 1.4340 - val_accuracy: 0.7843 - lr: 0.0100
Epoch 6/10
44/44 [==============================] - ETA: 0s - loss: 0.8815 -
accuracy: 0.9376
Epoch 6: val_loss improved from 1.43405 to 1.30406, saving model to
model_filename
44/44 [==============================] - 1287s 29s/step - loss: 0.8815 -
accuracy: 0.9376 - val_loss: 1.3041 - val_accuracy: 0.7806 - lr: 0.0100
Epoch 7/10
44/44 [==============================] - ETA: 0s - loss: 0.6853 -
accuracy: 0.9474
Epoch 7: val_loss improved from 1.30406 to 1.19375, saving model to
model_filename
```

```
44/44 [==============================] - 1285s 29s/step - loss: 0.6853 -
accuracy: 0.9474 - val_loss: 1.1938 - val_accuracy: 0.7697 - lr: 0.0100
Epoch 8/10
44/44 [==============================] - ETA: 0s - loss: 0.5121 -
accuracy: 0.9571
Epoch 8: val_loss improved from 1.19375 to 1.07604, saving model to
model_filename
44/44 [==============================] - 1287s 29s/step - loss: 0.5121 -
accuracy: 0.9571 - val_loss: 1.0760 - val_accuracy: 0.7847 - lr: 0.0100
Epoch 9/10
44/44 [==============================] - ETA: 0s - loss: 0.3726 -
accuracy: 0.9645
Epoch 9: val_loss improved from 1.07604 to 1.00981, saving model to
model_filename
44/44 [==============================] - 1287s 29s/step - loss: 0.3726 -
accuracy: 0.9645 - val_loss: 1.0098 - val_accuracy: 0.7676 - lr: 0.0100
Epoch 10/10
31/44 [====================>.........] - ETA: 5:38 - loss: 0.2821 -
accuracy: 0.9691
```

ChexNet Model(2nd run):

```
Epoch 1/10
44/44 [==============================] - ETA: 0s - loss: 3.1383 - accuracy: 0.5783
Epoch 1: val_loss improved from inf to 2.26575, saving model to /content/gdrive/MyDrive/Colab
Notebooks/densenet_attention_2.h5
44/44 [==============================] - 2541s 56s/step - loss: 3.1383 - accuracy: 0.5783 - val_loss:
2.2657 - val_accuracy: 0.7236 - lr: 0.0100
Epoch 2/10
44/44 [==============================] - ETA: 0s - loss: 2.4844 - accuracy: 0.6589
Epoch 2: val_loss improved from 2.26575 to 1.89365, saving model to /content/gdrive/MyDrive/Colab
Notebooks/densenet_attention_2.h5
44/44 [==============================] - 106s 2s/step - loss: 2.4844 - accuracy: 0.6589 - val_loss:
1.8937 - val_accuracy: 0.7815 - lr: 0.0100
Epoch 3/10
44/44 [==============================] - ETA: 0s - loss: 2.1129 - accuracy: 0.6976
Epoch 3: val_loss improved from 1.89365 to 1.70152, saving model to /content/gdrive/MyDrive/Colab
Notebooks/densenet_attention_2.h5
44/44 [==============================] - 107s 2s/step - loss: 2.1129 - accuracy: 0.6976 - val_loss:
1.7015 - val_accuracy: 0.7929 - lr: 0.0100
Epoch 4/10
44/44 [==============================] - ETA: 0s - loss: 1.8031 - accuracy: 0.7257
Epoch 4: val_loss improved from 1.70152 to 1.53575, saving model to /content/gdrive/MyDrive/Colab
Notebooks/densenet_attention_2.h5
44/44 [==============================] - 106s 2s/step - loss: 1.8031 - accuracy: 0.7257 - val_loss:
1.5357 - val_accuracy: 0.7773 - lr: 0.0100
Epoch 5/10
44/44 [==============================] - ETA: 0s - loss: 1.5027 - accuracy: 0.7623
Epoch 5: val_loss improved from 1.53575 to 1.36829, saving model to /content/gdrive/MyDrive/Colab
Notebooks/densenet_attention_2.h5
44/44 [==============================] - 107s 2s/step - loss: 1.5027 - accuracy: 0.7623 - val_loss:
1.3683 - val_accuracy: 0.7865 - lr: 0.0100
Epoch 6/10
```

44/44 [==============================] - ETA: 0s - loss: 1.2112 - accuracy: 0.8054
Epoch 6: val_loss improved from 1.36829 to 1.23100, saving model to /content/gdrive/MyDrive/Colab Notebooks/densenet_attention_2.h5
44/44 [==============================] - 110s 2s/step - loss: 1.2112 - accuracy: 0.8054 - val_loss: 1.2310 - val_accuracy: 0.7844 - lr: 0.0100
Epoch 7/10
44/44 [==============================] - ETA: 0s - loss: 0.9404 - accuracy: 0.8505
Epoch 7: val_loss improved from 1.23100 to 1.10406, saving model to /content/gdrive/MyDrive/Colab Notebooks/densenet_attention_2.h5
44/44 [==============================] - 109s 2s/step - loss: 0.9404 - accuracy: 0.8505 - val_loss: 1.1041 - val_accuracy: 0.7860 - lr: 0.0100
Epoch 8/10
44/44 [==============================] - ETA: 0s - loss: 0.7121 - accuracy: 0.8863
Epoch 8: val_loss improved from 1.10406 to 0.99707, saving model to /content/gdrive/MyDrive/Colab Notebooks/densenet_attention_2.h5
44/44 [==============================] - 113s 3s/step - loss: 0.7121 - accuracy: 0.8863 - val_loss: 0.9971 - val_accuracy: 0.7941 - lr: 0.0100
Epoch 9/10
44/44 [==============================] - ETA: 0s - loss: 0.5370 - accuracy: 0.9075
Epoch 9: val_loss improved from 0.99707 to 0.91860, saving model to /content/gdrive/MyDrive/Colab Notebooks/densenet_attention_2.h5
44/44 [==============================] - 112s 3s/step - loss: 0.5370 - accuracy: 0.9075 - val_loss: 0.9186 - val_accuracy: 0.7885 - lr: 0.0100
Epoch 10/10
44/44 [==============================] - ETA: 0s - loss: 0.4062 - accuracy: 0.9227
Epoch 10: val_loss improved from 0.91860 to 0.87269, saving model to /content/gdrive/MyDrive/Colab Notebooks/densenet_attention_2.h5
44/44 [==============================] - 113s 3s/step - loss: 0.4062 - accuracy: 0.9227 - val_loss: 0.8727 - val_accuracy: 0.7923 - lr: 0.0100
<keras.callbacks.History at 0x7fee0c41bfa0>

Inception V3 without Pretrained Weights:

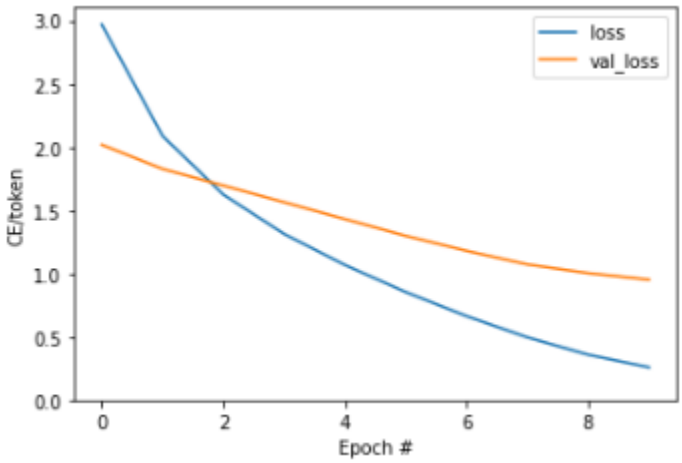
```
Epoch 1/10
44/44 [==============================] - ETA: 0s - loss: 2.3135 - accuracy: 0.7182
Epoch 1: val_loss improved from inf to 2.21875, saving model to /content/gdrive/MyDrive/Colab Notebooks/densenet_attention_2.h5
44/44 [==============================] - 951s 22s/step - loss: 2.3135 - accuracy: 0.7182 - val_loss: 2.2188 - val_accuracy: 0.7387 - lr: 0.0100
Epoch 2/10
44/44 [==============================] - ETA: 0s - loss: 1.7570 - accuracy: 0.8368
Epoch 2: val_loss improved from 2.21875 to 1.76646, saving model to /content/gdrive/MyDrive/Colab Notebooks/densenet_attention_2.h5
44/44 [==============================] - 95s 2s/step - loss: 1.7570 - accuracy: 0.8368 - val_loss: 1.7665 - val_accuracy: 0.7819 - lr: 0.0100
Epoch 3/10
44/44 [==============================] - ETA: 0s - loss: 1.3945 - accuracy: 0.9093
Epoch 3: val_loss improved from 1.76646 to 1.63305, saving model to /content/gdrive/MyDrive/Colab Notebooks/densenet_attention_2.h5
```

```
44/44 [==============================] - 94s 2s/step - loss: 1.3945 -
accuracy: 0.9093 - val_loss: 1.6330 - val_accuracy: 0.7853 - lr: 0.0100
Epoch 4/10
44/44 [==============================] - ETA: 0s - loss: 1.1314 -
accuracy: 0.9415
Epoch 4: val_loss improved from 1.63305 to 1.50352, saving model to
/content/gdrive/MyDrive/Colab Notebooks/densenet_attention_2.h5
44/44 [==============================] - 94s 2s/step - loss: 1.1314 -
accuracy: 0.9415 - val_loss: 1.5035 - val_accuracy: 0.7803 - lr: 0.0100
Epoch 5/10
44/44 [==============================] - ETA: 0s - loss: 0.9069 -
accuracy: 0.9571
Epoch 5: val_loss improved from 1.50352 to 1.36854, saving model to
/content/gdrive/MyDrive/Colab Notebooks/densenet_attention_2.h5
44/44 [==============================] - 95s 2s/step - loss: 0.9069 -
accuracy: 0.9571 - val_loss: 1.3685 - val_accuracy: 0.7807 - lr: 0.0100
Epoch 6/10
44/44 [==============================] - ETA: 0s - loss: 0.7042 -
accuracy: 0.9686
Epoch 6: val_loss improved from 1.36854 to 1.24111, saving model to
/content/gdrive/MyDrive/Colab Notebooks/densenet_attention_2.h5
44/44 [==============================] - 94s 2s/step - loss: 0.7042 -
accuracy: 0.9686 - val_loss: 1.2411 - val_accuracy: 0.7764 - lr: 0.0100
Epoch 7/10
44/44 [==============================] - ETA: 0s - loss: 0.5251 -
accuracy: 0.9765
Epoch 7: val_loss improved from 1.24111 to 1.13545, saving model to
/content/gdrive/MyDrive/Colab Notebooks/densenet_attention_2.h5
44/44 [==============================] - 97s 2s/step - loss: 0.5251 -
accuracy: 0.9765 - val_loss: 1.1354 - val_accuracy: 0.7808 - lr: 0.0100
Epoch 8/10
44/44 [==============================] - ETA: 0s - loss: 0.3769 -
accuracy: 0.9820
Epoch 8: val_loss improved from 1.13545 to 1.05352, saving model to
/content/gdrive/MyDrive/Colab Notebooks/densenet_attention_2.h5
44/44 [==============================] - 96s 2s/step - loss: 0.3769 -
accuracy: 0.9820 - val_loss: 1.0535 - val_accuracy: 0.7808 - lr: 0.0100
Epoch 9/10
44/44 [==============================] - ETA: 0s - loss: 0.2692 -
accuracy: 0.9844
Epoch 9: val_loss improved from 1.05352 to 0.99831, saving model to
/content/gdrive/MyDrive/Colab Notebooks/densenet_attention_2.h5
44/44 [==============================] - 96s 2s/step - loss: 0.2692 -
accuracy: 0.9844 - val_loss: 0.9983 - val_accuracy: 0.7775 - lr: 0.0100
Epoch 10/10
44/44 [==============================] - ETA: 0s - loss: 0.1967 -
accuracy: 0.9853
Epoch 10: val_loss improved from 0.99831 to 0.97298, saving model to
/content/gdrive/MyDrive/Colab Notebooks/densenet_attention_2.h5
44/44 [==============================] - 96s 2s/step - loss: 0.1967 -
accuracy: 0.9853 - val_loss: 0.9730 - val_accuracy: 0.7720 - lr: 0.0100
```

InceptionV3 with pretrained Weights:

```
Epoch 1/10
44/44 [==============================] - ETA: 0s - loss: 2.9686 -
accuracy: 0.5908
Epoch 1: val_loss improved from inf to 2.01855, saving model to
/content/gdrive/MyDrive/Colab
Notebooks/inceptionv3_withoutweights_attention_2.h5
44/44 [==============================] - 958s 20s/step - loss: 2.9686 -
accuracy: 0.5908 - val_loss: 2.0186 - val_accuracy: 0.7857 - lr: 0.0100
Epoch 2/10
44/44 [==============================] - ETA: 0s - loss: 2.0879 -
accuracy: 0.7583
Epoch 2: val_loss improved from 2.01855 to 1.82724, saving model to
/content/gdrive/MyDrive/Colab
Notebooks/inceptionv3_withoutweights_attention_2.h5
44/44 [==============================] - 104s 2s/step - loss: 2.0879 -
accuracy: 0.7583 - val_loss: 1.8272 - val_accuracy: 0.7963 - lr: 0.0100
Epoch 3/10
44/44 [==============================] - ETA: 0s - loss: 1.6243 -
accuracy: 0.8589
Epoch 3: val_loss improved from 1.82724 to 1.69593, saving model to
/content/gdrive/MyDrive/Colab
Notebooks/inceptionv3_withoutweights_attention_2.h5
44/44 [==============================] - 104s 2s/step - loss: 1.6243 -
accuracy: 0.8589 - val_loss: 1.6959 - val_accuracy: 0.7801 - lr: 0.0100
Epoch 4/10
44/44 [==============================] - ETA: 0s - loss: 1.3127 -
accuracy: 0.9120
Epoch 4: val_loss improved from 1.69593 to 1.56378, saving model to
/content/gdrive/MyDrive/Colab
Notebooks/inceptionv3_withoutweights_attention_2.h5
44/44 [==============================] - 102s 2s/step - loss: 1.3127 -
accuracy: 0.9120 - val_loss: 1.5638 - val_accuracy: 0.7800 - lr: 0.0100
Epoch 5/10
44/44 [==============================] - ETA: 0s - loss: 1.0673 -
accuracy: 0.9371
Epoch 5: val_loss improved from 1.56378 to 1.43043, saving model to
/content/gdrive/MyDrive/Colab
Notebooks/inceptionv3_withoutweights_attention_2.h5
44/44 [==============================] - 102s 2s/step - loss: 1.0673 -
accuracy: 0.9371 - val_loss: 1.4304 - val_accuracy: 0.7903 - lr: 0.0100
Epoch 6/10
44/44 [==============================] - ETA: 0s - loss: 0.8534 -
accuracy: 0.9500
Epoch 6: val_loss improved from 1.43043 to 1.29789, saving model to
/content/gdrive/MyDrive/Colab
Notebooks/inceptionv3_withoutweights_attention_2.h5
44/44 [==============================] - 102s 2s/step - loss: 0.8534 -
accuracy: 0.9500 - val_loss: 1.2979 - val_accuracy: 0.7874 - lr: 0.0100
Epoch 7/10
44/44 [==============================] - ETA: 0s - loss: 0.6630 -
accuracy: 0.9569
```

```
Epoch 7: val_loss improved from 1.29789 to 1.17943, saving model to
/content/gdrive/MyDrive/Colab
Notebooks/inceptionv3_withoutweights_attention_2.h5
44/44 [==============================] - 102s 2s/step - loss: 0.6630 -
accuracy: 0.9569 - val_loss: 1.1794 - val_accuracy: 0.7853 - lr: 0.0100
Epoch 8/10
44/44 [==============================] - ETA: 0s - loss: 0.4953 -
accuracy: 0.9634
Epoch 8: val_loss improved from 1.17943 to 1.07199, saving model to
/content/gdrive/MyDrive/Colab
Notebooks/inceptionv3_withoutweights_attention_2.h5
44/44 [==============================] - 102s 2s/step - loss: 0.4953 -
accuracy: 0.9634 - val_loss: 1.0720 - val_accuracy: 0.7827 - lr: 0.0100
Epoch 9/10
44/44 [==============================] - ETA: 0s - loss: 0.3580 -
accuracy: 0.9705
Epoch 9: val_loss improved from 1.07199 to 1.00319, saving model to
/content/gdrive/MyDrive/Colab
Notebooks/inceptionv3_withoutweights_attention_2.h5
44/44 [==============================] - 102s 2s/step - loss: 0.3580 -
accuracy: 0.9705 - val_loss: 1.0032 - val_accuracy: 0.7815 - lr: 0.0100
Epoch 10/10
44/44 [==============================] - ETA: 0s - loss: 0.2587 -
accuracy: 0.9750
Epoch 10: val_loss improved from 1.00319 to 0.95165, saving model to
/content/gdrive/MyDrive/Colab
Notebooks/inceptionv3_withoutweights_attention_2.h5
44/44 [==============================] - 102s 2s/step - loss: 0.2587 -
accuracy: 0.9750 - val_loss: 0.9517 - val_accuracy: 0.7814 - lr: 0.0100
```



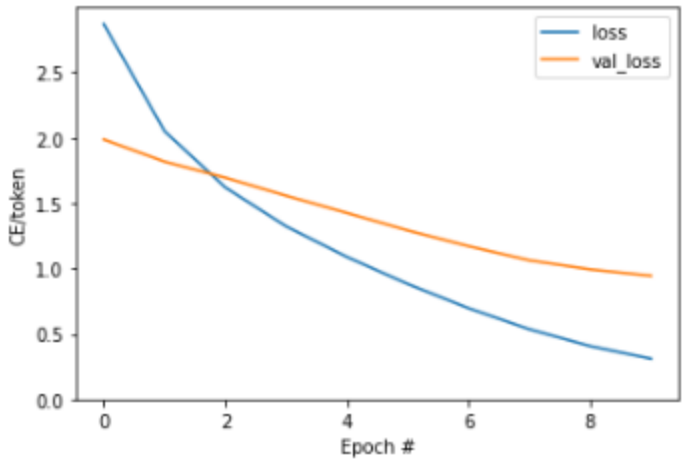
Modified InceptionV3 without Pretrained weights:

Epoch 1/10
(None, 2, 2, 2048)
(None, 2, 2, 2048)
(None, 2, 2, 2048)
(None, 2, 2, 2048)
44/44 [==============================] - ETA: 0s - loss: 2.9015 - accuracy: 0.5932 (None, 2, 2, 2048)

(None, 2, 2, 2048)

Epoch 1: val_loss improved from inf to 1.99844, saving model to model_filename
44/44 [==============================] - 2812s 61s/step - loss: 2.9015 - accuracy: 0.5932 - val_loss: 1.9984 - val_accuracy: 0.7933 - lr: 0.0100
Epoch 2/10
44/44 [==============================] - ETA: 0s - loss: 2.0552 - accuracy: 0.7672
Epoch 2: val_loss improved from 1.99844 to 1.82944, saving model to model_filename
44/44 [==============================] - 1067s 24s/step - loss: 2.0552 - accuracy: 0.7672 - val_loss: 1.8294 - val_accuracy: 0.8037 - lr: 0.0100
Epoch 3/10
44/44 [==============================] - ETA: 0s - loss: 1.6117 - accuracy: 0.8634
Epoch 3: val_loss improved from 1.82944 to 1.69978, saving model to model_filename
44/44 [==============================] - 1072s 24s/step - loss: 1.6117 - accuracy: 0.8634 - val_loss: 1.6998 - val_accuracy: 0.7971 - lr: 0.0100
Epoch 4/10
44/44 [==============================] - ETA: 0s - loss: 1.3174 - accuracy: 0.9097
Epoch 4: val_loss improved from 1.69978 to 1.56503, saving model to model_filename
44/44 [==============================] - 1065s 24s/step - loss: 1.3174 - accuracy: 0.9097 - val_loss: 1.5650 - val_accuracy: 0.7977 - lr: 0.0100
Epoch 5/10
44/44 [==============================] - ETA: 0s - loss: 1.0812 - accuracy: 0.9299
Epoch 5: val_loss improved from 1.56503 to 1.42846, saving model to model_filename
44/44 [==============================] - 1109s 25s/step - loss: 1.0812 - accuracy: 0.9299 - val_loss: 1.4285 - val_accuracy: 0.8023 - lr: 0.0100
Epoch 6/10
44/44 [==============================] - ETA: 0s - loss: 0.8776 - accuracy: 0.9387
Epoch 6: val_loss improved from 1.42846 to 1.29594, saving model to model_filename
44/44 [==============================] - 1069s 24s/step - loss: 0.8776 - accuracy: 0.9387 - val_loss: 1.2959 - val_accuracy: 0.8019 - lr: 0.0100
Epoch 7/10
44/44 [==============================] - ETA: 0s - loss: 0.6933 - accuracy: 0.9436
Epoch 7: val_loss improved from 1.29594 to 1.17282, saving model to model_filename
44/44 [==============================] - 1089s 25s/step - loss: 0.6933 - accuracy: 0.9436 - val_loss: 1.1728 - val_accuracy: 0.7898 - lr: 0.0100
Epoch 8/10
44/44 [==============================] - ETA: 0s - loss: 0.5314 - accuracy: 0.9478
Epoch 8: val_loss improved from 1.17282 to 1.07011, saving model to model_filename
44/44 [==============================] - 1106s 25s/step - loss: 0.5314 - accuracy: 0.9478 - val_loss: 1.0701 - val_accuracy: 0.7913 - lr: 0.0100
Epoch 9/10
44/44 [==============================] - ETA: 0s - loss: 0.4000 - accuracy: 0.9508
Epoch 9: val_loss improved from 1.07011 to 0.98814, saving model to model_filename
44/44 [==============================] - 1067s 24s/step - loss: 0.4000 - accuracy: 0.9508 - val_loss: 0.9881 - val_accuracy: 0.7932 - lr: 0.0100
Epoch 10/10
44/44 [==============================] - ETA: 0s - loss: 0.3049 - accuracy: 0.9541
Epoch 10: val_loss improved from 0.98814 to 0.93332, saving model to model_filename
44/44 [==============================] - 1070s 24s/step - loss: 0.3049 - accuracy: 0.9541 - val_loss: 0.9333 - val_accuracy: 0.7843 - lr: 0.0100
<keras.callbacks.History at 0x7f343c037fa0>

<matplotlib.legend.Legend at 0x7efd571835e0>



Simple Models:

Inception V3 and Local attention model: (Nov 11)

Epoch 1 Batch 0 Loss 0.5524

Epoch 1 Training Loss 0.601662

Time taken : 1098.77 sec

Epoch 2 Batch 0 Loss 0.6718

Epoch 2 Loss 0.589933

Time taken for 1 epoch 1090.02 sec

Epoch 3 Batch 0 Loss 0.5552

Epoch 3 Loss 0.569064

Time taken for 1 epoch 1092.98 sec

Epoch 4 Batch 0 Loss 0.4847

Epoch 4 Loss 0.545482

Time taken for 1 epoch 1095.32 sec

Epoch 5 Batch 0 Loss 0.4352

Epoch 5 Loss 0.530359

Time taken for 1 epoch 1100.73 sec

Epoch 6 Batch 0 Loss 0.4744

Epoch 6 Loss 0.503660

Time taken for 1 epoch 1093.28 sec

Epoch 7 Batch 0 Loss 0.4139

Epoch 7 Loss 0.471447

Time taken for 1 epoch 1099.95 sec

Epoch 8 Batch 0 Loss 0.4360

Epoch 8 Loss 0.451778

Time taken for 1 epoch 1090.87 sec

Epoch 9 Batch 0 Loss 0.4088

Epoch 9 Loss 0.435346

Time taken for 1 epoch 1098.73 sec

Epoch 10 Batch 0 Loss 0.3714

Epoch 10 Loss 0.411106

Time taken for 1 epoch 1087.87 sec

Epoch 11 Batch 0 Loss 0.3512

Epoch 11 Loss 0.376809

Time taken for 1 epoch 1086.24 sec

Epoch 12 Batch 0 Loss 0.4105

Epoch 12 Loss 0.350580

Time taken for 1 epoch 1090.54 sec

Epoch 13 Batch 0 Loss 0.3177

Epoch 13 Loss 0.329625

Time taken for 1 epoch 1095.77 sec Epoch 14 Batch 0 Loss 0.3395

Epoch 14 Loss 0.309838

Time taken for 1 epoch 1099.98 sec

Epoch 15 Batch 0 Loss 0.2562

Epoch 15 Loss 0.283875

Time taken for 1 epoch 1089.92 sec

Epoch 16 Batch 0 Loss 0.2201

Epoch 16 Loss 0.268317

Time taken for 1 epoch 1092.05 sec

Epoch 17 Batch 0 Loss 0.2239

Epoch 17 Loss 0.240265

Time taken for 1 epoch 1090.83 sec

Epoch 18 Batch 0 Loss 0.2325

Epoch 18 Loss 0.223652

Time taken for 1 epoch 1097.84 sec

Epoch 19 Batch 0 Loss 0.2038

Epoch 19 Loss 0.197886

Time taken for 1 epoch 1098.68 sec

Epoch 20 Batch 0 Loss 0.1917

Epoch 20 Loss 0.184295

Time taken for 1 epoch 1096.73 sec

Epoch 21 Batch 0 Loss 0.1801

Epoch 21 Loss 0.181398

Time taken for 1 epoch 1093.11 sec

Experimental Log for Chexnet model: (Nov 20)

EPOCH : 1

Training set Loss: 0.003062505385793385,

Val Loss: 0.0027549521201440403

Time taken: 1674.4416286945343 sec

EPOCH : 2

Training set Loss: 0.0025208271549819338,

Val Loss: 0.0022250045158509766

Time taken: 1660.766678571701 sec EPOCH : 3

Training set Loss: 0.0020913893165397305, Val Loss: 0.0018580025324838297

Time taken: 1646.007263660431 sec

EPOCH : 4

Training set Loss: 0.0018284335035845757,

Val Loss: 0.0016663793376797149

Time taken: 1639.0196206569672 sec

EPOCH : 5

Training set Loss: 0.0016193831505651975,

Val Loss: 0.001524893544434059

Time taken: 1646.8845493793488 sec

EPOCH : 6

Training set Loss: 0.001468113964825358,

Val Loss: 0.0014003183272096418

Time taken: 1654.095490694046 sec

EPOCH : 7

Training set Loss: 0.0013331430804570236,

Val Loss: 0.0013235638391286616

Time taken: 1640.0586755275726 sec

EPOCH : 8

Training set Loss: 0.001228704415787492,

Val Loss: 0.0012363663408905268

Time taken: 1633.9343984127045 sec

EPOCH : 10

Training Loss: 0.0010730923619887203,

Val Loss: 0.0011560023160295952

Time taken: 1652.14926743507385 sec

EPOCH : 11

Training Loss: 0.001029170845868066, Val Loss: 0.001153238205006346

Time taken : 1654.08501195907593 sec

EPOCH : 12

Training Loss: 0.0009859995227184538,

Val Loss: 0.0011536159053273302

Time taken : 1635.9404296875 sec

EPOCH : 13

Training Loss: 0.0009436880393064042,

Val Loss: 0.0011427830292009993

Time Taken for this Epoch : 1627.02314782142639 sec

EPOCH : 14

Training Loss: 0.0009103017923495683,

Val Loss: 0.0011496859109396801

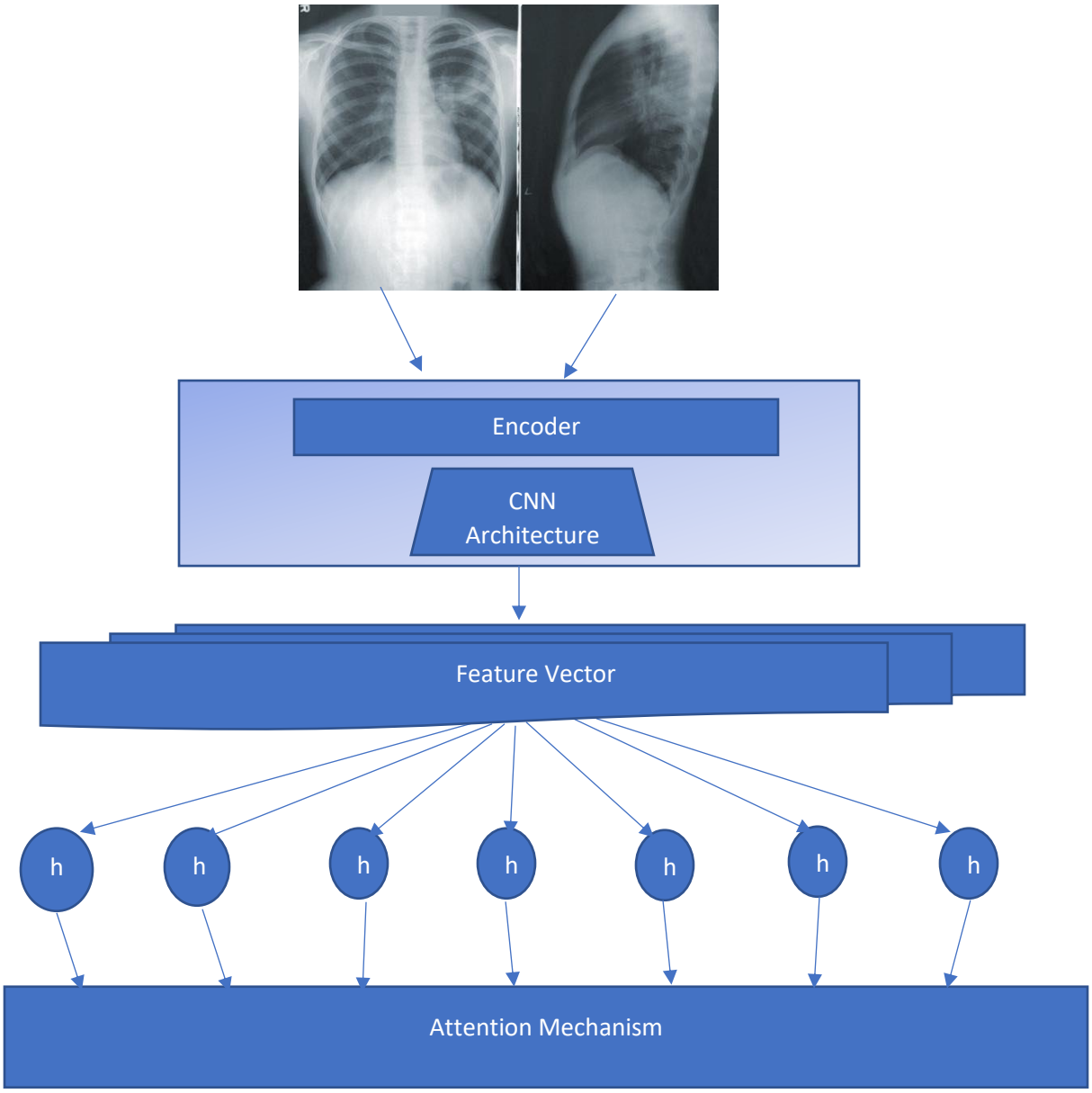
Time Taken for this Epoch : 1632.917213439941406 sec

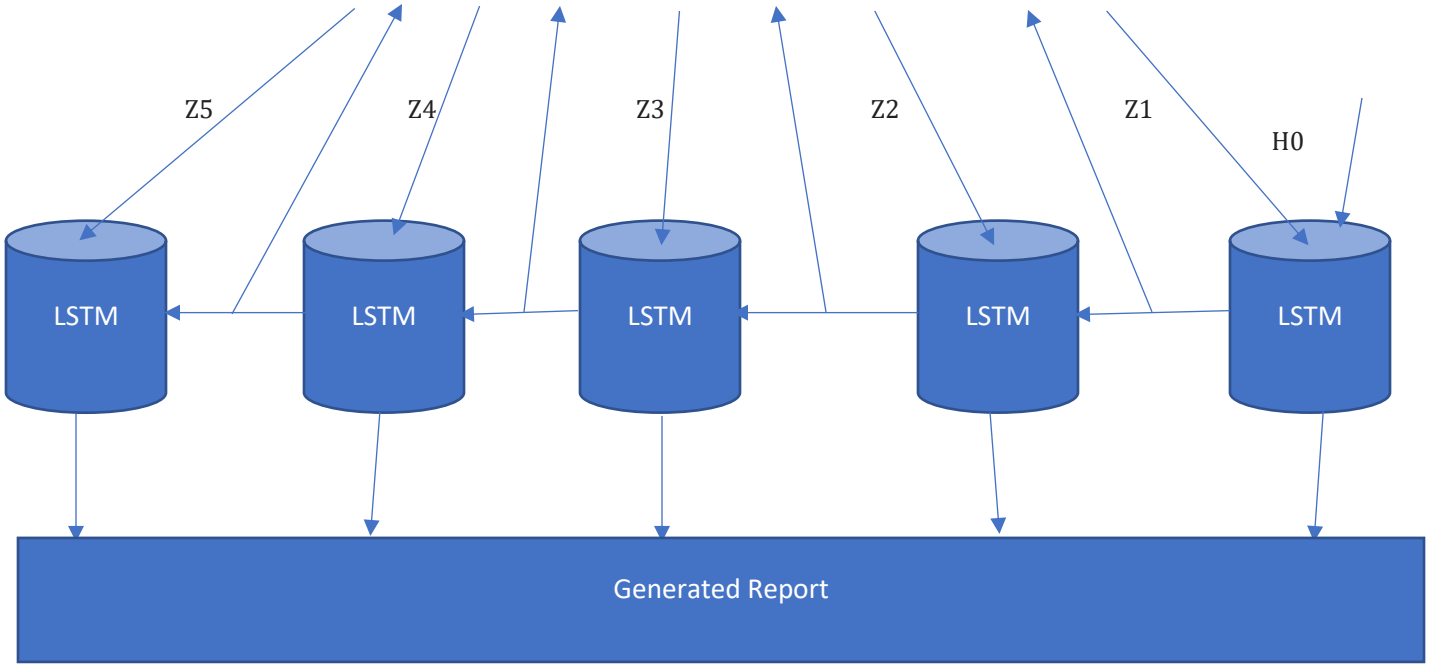
EPOCH : 15

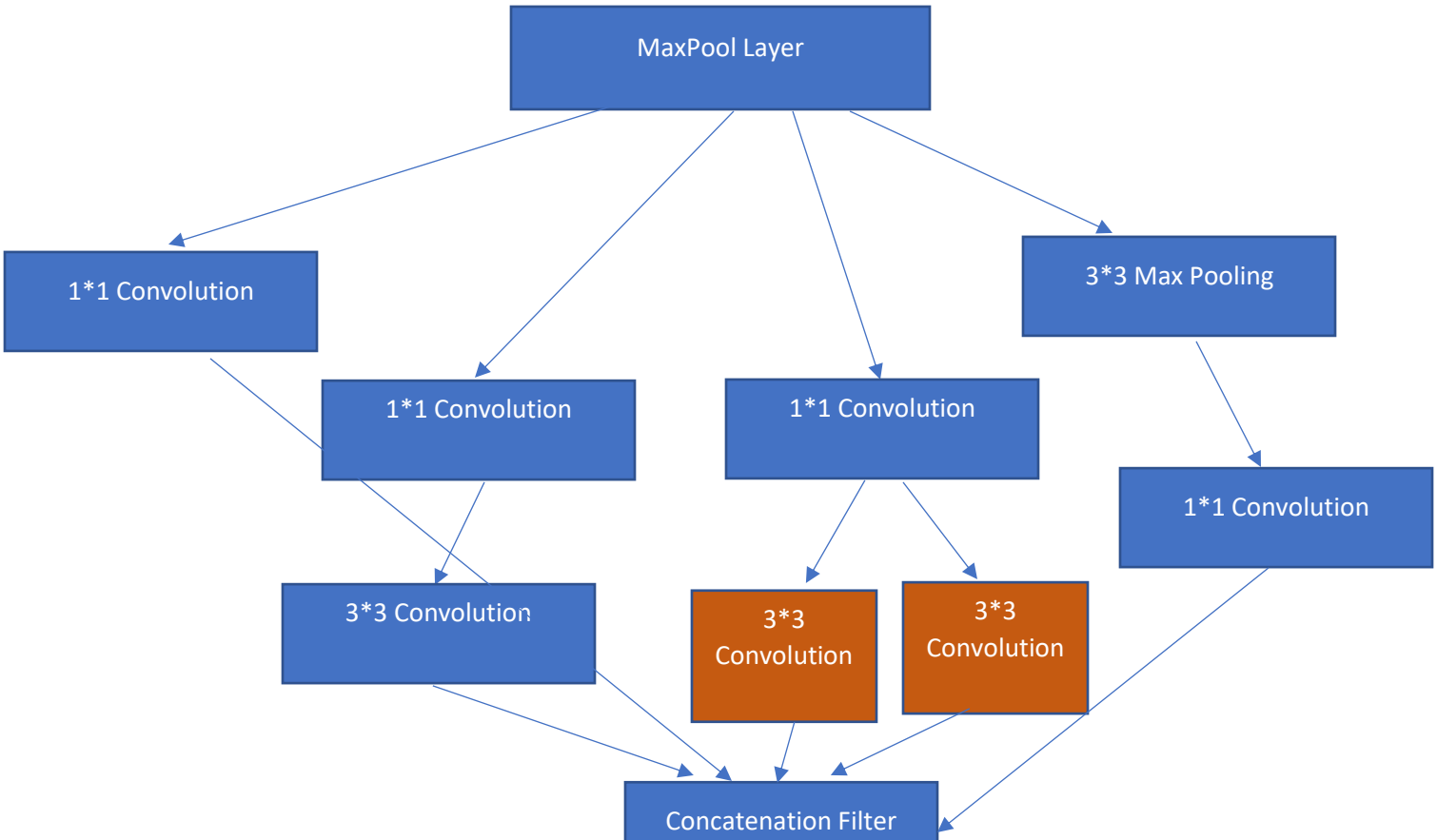
Training Loss: 0.0008765646830158259,

Val Loss: 0.0011560427251664038

Time Taken for this Epoch : 1639.10411548614502 sec


Encoder
CNN
Architecture
Feature Vector
h
h
h
h
h
h
h
Attention Mechanism


Z5
Z4
Z3
Z2
Z1
H0
LSTM
LSTM
LSTM
LSTM
LSTM
Generated Report


MaxPool Layer
1*1 Convolution
1*1 Convolution
1*1 Convolution
3*3 Max Pooling
1*1 Convolution
3*3 Convolution
3*3 Convolution
3*3 Convolution
Concatenation Filter