```
C:\Users\lukez\AppData\Local\Microsoft\WindowsApps\python3.10.exe "C:/Users/lukez
/Desktop/CS4641/Untitled Folder/NeuroNetwork.py"
2022-07-19 00:24:16.396413: W tensorflow/stream_executor/platform/default/
dso_loader.cc:64] Could not load dynamic library 'cudart64_110.dll'; dlerror:
cudart64_110.dll not found
2022-07-19 00:24:16.396539: I tensorflow/stream_executor/cuda/cudart_stub.cc:29]
Ignore above cudart dlerror if you do not have a GPU set up on your machine.
No. of training examples: 7777
No. of testing examples: 1945
2022-07-19 00:24:18.911443: W tensorflow/stream_executor/platform/default/
dso_loader.cc:64] Could not load dynamic library 'nvcuda.dll'; dlerror: nvcuda.
dll not found
2022-07-19 00:24:18.911550: W tensorflow/stream_executor/cuda/cuda_driver.cc:269
] failed call to cuInit: UNKNOWN ERROR (303)
2022-07-19 00:24:18.914576: I tensorflow/stream_executor/cuda/cuda_diagnostics.cc
:169] retrieving CUDA diagnostic information for host: DESKTOP-SKDN5SP
2022-07-19 00:24:18.914758: I tensorflow/stream_executor/cuda/cuda_diagnostics.cc
:176] hostname: DESKTOP-SKDN5SP
2022-07-19 00:24:18.915119: I tensorflow/core/platform/cpu_feature_guard.cc:193]
This TensorFlow binary is optimized with oneAPI Deep Neural Network Library (
oneDNN) to use the following CPU instructions in performance-critical operations
:   AVX AVX2
To enable them in other operations, rebuild TensorFlow with the appropriate
compiler flags.
Epoch 1/150
778/778 [==============================] - 1s 857us/step - loss: 0.6311 -
accuracy: 0.6667
Epoch 2/150
778/778 [==============================] - 1s 1ms/step - loss: 0.5018 - accuracy
: 0.7972
Epoch 3/150
778/778 [==============================] - 1s 1ms/step - loss: 0.4489 - accuracy
: 0.8075
Epoch 4/150
778/778 [==============================] - 1s 1ms/step - loss: 0.4190 - accuracy
: 0.8177
Epoch 5/150
778/778 [==============================] - 1s 1ms/step - loss: 0.4055 - accuracy
: 0.8183
Epoch 6/150
778/778 [==============================] - 1s 1ms/step - loss: 0.4001 - accuracy
: 0.8187
Epoch 7/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3964 - accuracy
: 0.8220
Epoch 8/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3931 - accuracy
: 0.8246
Epoch 9/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3919 - accuracy
: 0.8251
Epoch 10/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3875 - accuracy
: 0.8267
Epoch 11/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3853 - accuracy
: 0.8295
Epoch 12/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3895 - accuracy
```

```
: 0.8246
Epoch 13/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3864 - accuracy
: 0.8264
Epoch 14/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3869 - accuracy
: 0.8286
Epoch 15/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3864 - accuracy
: 0.8287
Epoch 16/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3831 - accuracy
: 0.8274
Epoch 17/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3842 - accuracy
: 0.8299
Epoch 18/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3840 - accuracy
: 0.8291
Epoch 19/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3828 - accuracy
: 0.8296
Epoch 20/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3808 - accuracy
: 0.8313
Epoch 21/150
778/778 [==============================] - 1s 992us/step - loss: 0.3799 -
accuracy: 0.8326
Epoch 22/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3783 - accuracy
: 0.8341
Epoch 23/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3826 - accuracy
: 0.8290
Epoch 24/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3786 - accuracy
: 0.8300
Epoch 25/150
778/778 [==============================] - 1s 2ms/step - loss: 0.3801 - accuracy
: 0.8307
Epoch 26/150
778/778 [==============================] - 1s 2ms/step - loss: 0.3832 - accuracy
: 0.8290
Epoch 27/150
778/778 [==============================] - 1s 2ms/step - loss: 0.3763 - accuracy
: 0.8344
Epoch 28/150
778/778 [==============================] - 1s 2ms/step - loss: 0.3774 - accuracy
: 0.8301
Epoch 29/150
778/778 [==============================] - 2s 2ms/step - loss: 0.3759 - accuracy
: 0.8334
Epoch 30/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3801 - accuracy
: 0.8312
Epoch 31/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3766 - accuracy
: 0.8308
Epoch 32/150
```

```
778/778 [==============================] - 1s 982us/step - loss: 0.3755 -
accuracy: 0.8345
Epoch 33/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3778 - accuracy
: 0.8354
Epoch 34/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3778 - accuracy
: 0.8325
Epoch 35/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3762 - accuracy
: 0.8337
Epoch 36/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3739 - accuracy
: 0.8339
Epoch 37/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3739 - accuracy
: 0.8362
Epoch 38/150
778/778 [==============================] - 1s 983us/step - loss: 0.3746 -
accuracy: 0.8368
Epoch 39/150
778/778 [==============================] - 1s 997us/step - loss: 0.3752 -
accuracy: 0.8359
Epoch 40/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3743 - accuracy
: 0.8357
Epoch 41/150
778/778 [==============================] - 1s 996us/step - loss: 0.3740 -
accuracy: 0.8336
Epoch 42/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3725 - accuracy
: 0.8332
Epoch 43/150
778/778 [==============================] - 1s 972us/step - loss: 0.3735 -
accuracy: 0.8355
Epoch 44/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3719 - accuracy
: 0.8346
Epoch 45/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3711 - accuracy
: 0.8358
Epoch 46/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3720 - accuracy
: 0.8354
Epoch 47/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3705 - accuracy
: 0.8364
Epoch 48/150
778/778 [==============================] - 1s 2ms/step - loss: 0.3701 - accuracy
: 0.8361
Epoch 49/150
778/778 [==============================] - 2s 2ms/step - loss: 0.3713 - accuracy
: 0.8336
Epoch 50/150
778/778 [==============================] - 2s 2ms/step - loss: 0.3706 - accuracy
: 0.8370
Epoch 51/150
778/778 [==============================] - 1s 2ms/step - loss: 0.3703 - accuracy
: 0.8352
```

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Epoch 52/150
778/778 [==============================] - 1s 2ms/step - loss: 0.3687 - accuracy
: 0.8368
Epoch 53/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3713 - accuracy
: 0.8366
Epoch 54/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3695 - accuracy
: 0.8377
Epoch 55/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3700 - accuracy
: 0.8381
Epoch 56/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3695 - accuracy
: 0.8379
Epoch 57/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3676 - accuracy
: 0.8377
Epoch 58/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3662 - accuracy
: 0.8407
Epoch 59/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3667 - accuracy
: 0.8397
Epoch 60/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3673 - accuracy
: 0.8382
Epoch 61/150
778/778 [==============================] - 1s 2ms/step - loss: 0.3662 - accuracy
: 0.8384
Epoch 62/150
778/778 [==============================] - 1s 2ms/step - loss: 0.3654 - accuracy
: 0.8379
Epoch 63/150
778/778 [==============================] - 1s 2ms/step - loss: 0.3653 - accuracy
: 0.8385
Epoch 64/150
778/778 [==============================] - 1s 2ms/step - loss: 0.3639 - accuracy
: 0.8377
Epoch 65/150
778/778 [==============================] - 1s 2ms/step - loss: 0.3675 - accuracy
: 0.8376
Epoch 66/150
778/778 [==============================] - 1s 2ms/step - loss: 0.3654 - accuracy
: 0.8388
Epoch 67/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3625 - accuracy
: 0.8403
Epoch 68/150
778/778 [==============================] - 1s 2ms/step - loss: 0.3648 - accuracy
: 0.8376
Epoch 69/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3639 - accuracy
: 0.8412
Epoch 70/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3661 - accuracy
: 0.8388
Epoch 71/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3654 - accuracy
```

```
 : 0.8380
 Epoch 72/150
 778/778 [==============================] - 1s 2ms/step - loss: 0.3646 - accuracy
 : 0.8402
 Epoch 73/150
 778/778 [==============================] - 1s 1ms/step - loss: 0.3611 - accuracy
 : 0.8381
 Epoch 74/150
 778/778 [==============================] - 1s 1ms/step - loss: 0.3621 - accuracy
 : 0.8370
 Epoch 75/150
 778/778 [==============================] - 2s 3ms/step - loss: 0.3636 - accuracy
 : 0.8390
 Epoch 76/150
 778/778 [==============================] - 2s 2ms/step - loss: 0.3623 - accuracy
 : 0.8375
 Epoch 77/150
 778/778 [==============================] - 2s 2ms/step - loss: 0.3600 - accuracy
 : 0.8430
 Epoch 78/150
 778/778 [==============================] - 1s 2ms/step - loss: 0.3615 - accuracy
 : 0.8393
 Epoch 79/150
 778/778 [==============================] - 1s 1ms/step - loss: 0.3607 - accuracy
 : 0.8385
 Epoch 80/150
 778/778 [==============================] - 1s 1ms/step - loss: 0.3588 - accuracy
 : 0.8426
 Epoch 81/150
 778/778 [==============================] - 1s 1ms/step - loss: 0.3618 - accuracy
 : 0.8399
 Epoch 82/150
 778/778 [==============================] - 1s 1ms/step - loss: 0.3580 - accuracy
 : 0.8413
 Epoch 83/150
 778/778 [==============================] - 1s 1ms/step - loss: 0.3566 - accuracy
 : 0.8404
 Epoch 84/150
 778/778 [==============================] - 1s 1ms/step - loss: 0.3540 - accuracy
 : 0.8440
 Epoch 85/150
 778/778 [==============================] - 1s 1ms/step - loss: 0.3539 - accuracy
 : 0.8433
 Epoch 86/150
 778/778 [==============================] - 1s 1ms/step - loss: 0.3542 - accuracy
 : 0.8424
 Epoch 87/150
 778/778 [==============================] - 1s 1ms/step - loss: 0.3555 - accuracy
 : 0.8438
 Epoch 88/150
 778/778 [==============================] - 1s 2ms/step - loss: 0.3541 - accuracy
 : 0.8427
 Epoch 89/150
 778/778 [==============================] - 2s 2ms/step - loss: 0.3533 - accuracy
 : 0.8426
 Epoch 90/150
 778/778 [==============================] - 2s 2ms/step - loss: 0.3535 - accuracy
 : 0.8451
 Epoch 91/150
```

```
778/778 [==============================] - 1s 2ms/step - loss: 0.3558 - accuracy
: 0.8425
Epoch 92/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3515 - accuracy
: 0.8409
Epoch 93/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3546 - accuracy
: 0.8430
Epoch 94/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3510 - accuracy
: 0.8442
Epoch 95/150
778/778 [==============================] - 1s 2ms/step - loss: 0.3511 - accuracy
: 0.8422
Epoch 96/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3510 - accuracy
: 0.8444
Epoch 97/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3489 - accuracy
: 0.8434
Epoch 98/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3513 - accuracy
: 0.8422
Epoch 99/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3500 - accuracy
: 0.8457
Epoch 100/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3510 - accuracy
: 0.8429
Epoch 101/150
778/778 [==============================] - 1s 2ms/step - loss: 0.3491 - accuracy
: 0.8416
Epoch 102/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3486 - accuracy
: 0.8433
Epoch 103/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3500 - accuracy
: 0.8411
Epoch 104/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3490 - accuracy
: 0.8431
Epoch 105/150
778/778 [==============================] - 2s 2ms/step - loss: 0.3465 - accuracy
: 0.8453
Epoch 106/150
778/778 [==============================] - 1s 2ms/step - loss: 0.3478 - accuracy
: 0.8449
Epoch 107/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3472 - accuracy
: 0.8431
Epoch 108/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3490 - accuracy
: 0.8430
Epoch 109/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3439 - accuracy
: 0.8436
Epoch 110/150
778/778 [==============================] - 1s 2ms/step - loss: 0.3488 - accuracy
: 0.8431
```

```
Epoch 111/150
778/778 [==============================] - 1s 2ms/step - loss: 0.3464 - accuracy
: 0.8444
Epoch 112/150
778/778 [==============================] - 1s 2ms/step - loss: 0.3457 - accuracy
: 0.8466
Epoch 113/150
778/778 [==============================] - 1s 2ms/step - loss: 0.3480 - accuracy
: 0.8451
Epoch 114/150
778/778 [==============================] - 1s 2ms/step - loss: 0.3455 - accuracy
: 0.8456
Epoch 115/150
778/778 [==============================] - 1s 2ms/step - loss: 0.3465 - accuracy
: 0.8439
Epoch 116/150
778/778 [==============================] - 1s 2ms/step - loss: 0.3483 - accuracy
: 0.8466
Epoch 117/150
778/778 [==============================] - 2s 2ms/step - loss: 0.3494 - accuracy
: 0.8474
Epoch 118/150
778/778 [==============================] - 2s 2ms/step - loss: 0.3457 - accuracy
: 0.8436
Epoch 119/150
778/778 [==============================] - 1s 2ms/step - loss: 0.3486 - accuracy
: 0.8465
Epoch 120/150
778/778 [==============================] - 1s 2ms/step - loss: 0.3471 - accuracy
: 0.8469
Epoch 121/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3442 - accuracy
: 0.8471
Epoch 122/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3459 - accuracy
: 0.8422
Epoch 123/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3443 - accuracy
: 0.8434
Epoch 124/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3450 - accuracy
: 0.8472
Epoch 125/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3461 - accuracy
: 0.8475
Epoch 126/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3429 - accuracy
: 0.8487
Epoch 127/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3442 - accuracy
: 0.8478
Epoch 128/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3430 - accuracy
: 0.8476
Epoch 129/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3440 - accuracy
: 0.8463
Epoch 130/150
778/778 [==============================] - 1s 2ms/step - loss: 0.3457 - accuracy
```

: 0.8466
Epoch 131/150
778/778 [==============================] - 2s 2ms/step - loss: 0.3419 - accuracy
: 0.8458
Epoch 132/150
778/778 [==============================] - 1s 2ms/step - loss: 0.3445 - accuracy
: 0.8463
Epoch 133/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3413 - accuracy
: 0.8474
Epoch 134/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3441 - accuracy
: 0.8427
Epoch 135/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3429 - accuracy
: 0.8476
Epoch 136/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3406 - accuracy
: 0.8478
Epoch 137/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3443 - accuracy
: 0.8456
Epoch 138/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3397 - accuracy
: 0.8496
Epoch 139/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3419 - accuracy
: 0.8470
Epoch 140/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3404 - accuracy
: 0.8503
Epoch 141/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3403 - accuracy
: 0.8484
Epoch 142/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3417 - accuracy
: 0.8463
Epoch 143/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3411 - accuracy
: 0.8476
Epoch 144/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3400 - accuracy
: 0.8475
Epoch 145/150
778/778 [==============================] - 2s 2ms/step - loss: 0.3428 - accuracy
: 0.8492
Epoch 146/150
778/778 [==============================] - 1s 2ms/step - loss: 0.3433 - accuracy
: 0.8470
Epoch 147/150
778/778 [==============================] - 1s 2ms/step - loss: 0.3424 - accuracy
: 0.8453
Epoch 148/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3412 - accuracy
: 0.8462
Epoch 149/150
778/778 [==============================] - 1s 1ms/step - loss: 0.3412 - accuracy
: 0.8460
Epoch 150/150

```
778/778 [==============================] - 1s 1ms/step - loss: 0.3387 - accuracy
: 0.8472
244/244 [==============================] - 0s 1ms/step - loss: 0.3419 - accuracy
: 0.8483
Accuracy: 84.83
244/244 [==============================] - 0s 919us/step
              precision    recall  f1-score   support

           0       0.90      0.78      0.84      3896
           1       0.81      0.91      0.86      3881

    accuracy                           0.85      7777
   macro avg       0.85      0.85      0.85      7777
weighted avg       0.85      0.85      0.85      7777


Process finished with exit code 0
```