

# LAB Logbook

## Week 9

```
1 # modified LSTM
2 history2= model.fit(X_train, y_train, batch_size=18, epochs=38,
3                     validation_split=0.2, shuffle= True,
4                     verbose=1, callbacks= [es,mc],
5                     class_weight=class_weight_dict)
```

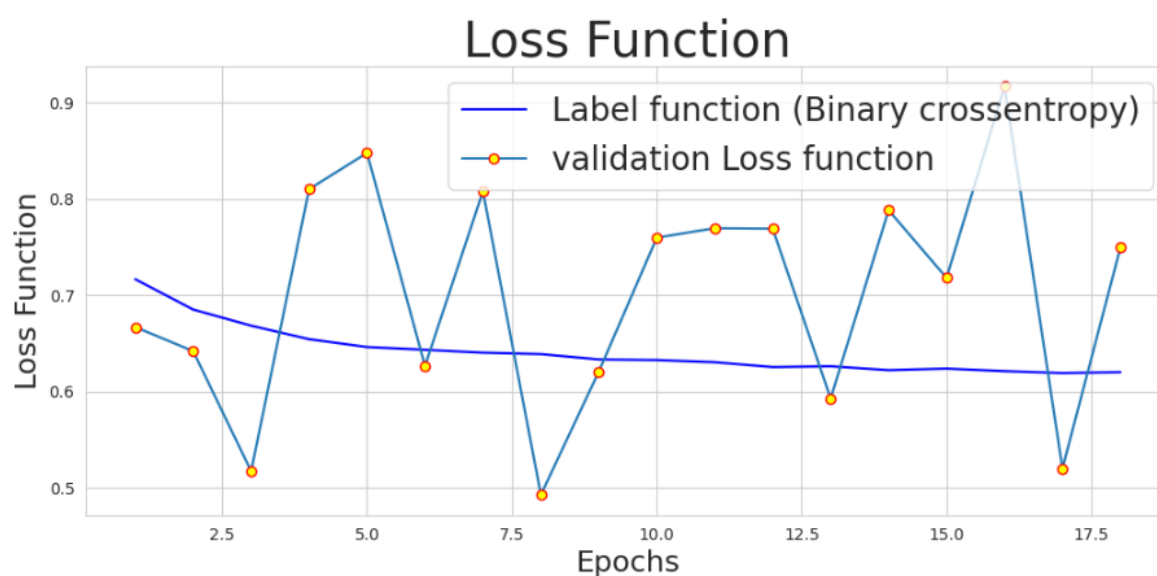
```
Epoch 1/38
478/478 ----- 0s 6ms/step - accuracy: 0.5917 - loss: 0.6031
Epoch 1: val_loss did not improve from 0.49259
478/478 ----- 6s 9ms/step - accuracy: 0.5918 - loss: 0.6031 - val_accuracy: 0.6090 - val_loss: 0.6454
Epoch 2/38
470/478 ----- 0s 6ms/step - accuracy: 0.6069 - loss: 0.6098
Epoch 2: val_loss did not improve from 0.49259
478/478 ----- 3s 7ms/step - accuracy: 0.6071 - loss: 0.6097 - val_accuracy: 0.3845 - val_loss: 0.8529
Epoch 3/38
474/478 ----- 0s 6ms/step - accuracy: 0.5898 - loss: 0.6124
Epoch 3: val_loss did not improve from 0.49259
478/478 ----- 6s 7ms/step - accuracy: 0.5900 - loss: 0.6124 - val_accuracy: 0.7415 - val_loss: 0.5265
Epoch 4/38
472/478 ----- 0s 6ms/step - accuracy: 0.6478 - loss: 0.5932
Epoch 4: val_loss did not improve from 0.49259
478/478 ----- 4s 7ms/step - accuracy: 0.6474 - loss: 0.5934 - val_accuracy: 0.6448 - val_loss: 0.5788
Epoch 5/38
478/478 ----- 0s 6ms/step - accuracy: 0.6154 - loss: 0.6051
Epoch 5: val_loss did not improve from 0.49259
478/478 ----- 5s 7ms/step - accuracy: 0.6154 - loss: 0.6051 - val_accuracy: 0.6560 - val_loss: 0.6042
Epoch 6/38
474/478 ----- 0s 6ms/step - accuracy: 0.6195 - loss: 0.6050
Epoch 6: val_loss improved from 0.49259 to 0.46697, saving model to best_Trand_Flat_model_LSTM_GOLD.keras
478/478 ----- 5s 7ms/step - accuracy: 0.6195 - loss: 0.6050 - val_accuracy: 0.7592 - val_loss: 0.4670
Epoch 7/38
Epoch 7: val_loss did not improve from 0.46697
478/478 ----- 5s 7ms/step - accuracy: 0.6049 - loss: 0.6135 - val_accuracy: 0.7522 - val_loss: 0.6185
Epoch 8/38
476/478 ----- 0s 6ms/step - accuracy: 0.5725 - loss: 0.6450
Epoch 8: val_loss did not improve from 0.46697
478/478 ----- 3s 6ms/step - accuracy: 0.5725 - loss: 0.6449 - val_accuracy: 0.3631 - val_loss: 0.7980
Epoch 9/38
474/478 ----- 0s 7ms/step - accuracy: 0.5905 - loss: 0.6204
Epoch 9: val_loss did not improve from 0.46697
478/478 ----- 6s 7ms/step - accuracy: 0.5908 - loss: 0.6202 - val_accuracy: 0.5593 - val_loss: 0.6636
Epoch 10/38
478/478 ----- 0s 6ms/step - accuracy: 0.5867 - loss: 0.6073
Epoch 10: val_loss did not improve from 0.46697
478/478 ----- 3s 6ms/step - accuracy: 0.5867 - loss: 0.6073 - val_accuracy: 0.7169 - val_loss: 0.5556
Epoch 11/38
475/478 ----- 0s 6ms/step - accuracy: 0.6199 - loss: 0.5975
Epoch 11: val_loss did not improve from 0.46697
478/478 ----- 3s 6ms/step - accuracy: 0.6198 - loss: 0.5975 - val_accuracy: 0.4993 - val_loss: 0.6922
Epoch 12/38
473/478 ----- 0s 6ms/step - accuracy: 0.6246 - loss: 0.5991
Epoch 12: val_loss improved from 0.46697 to 0.46621, saving model to best_Trand_Flat_model_LSTM_GOLD.keras
478/478 ----- 3s 7ms/step - accuracy: 0.6245 - loss: 0.5992 - val_accuracy: 0.7741 - val_loss: 0.4662
Epoch 13/38
475/478 ----- 0s 6ms/step - accuracy: 0.6257 - loss: 0.6046
Epoch 13: val_loss did not improve from 0.46621
478/478 ----- 4s 8ms/step - accuracy: 0.6255 - loss: 0.6046 - val_accuracy: 0.5760 - val_loss: 0.6702
Epoch 14/38
476/478 ----- 0s 6ms/step - accuracy: 0.6371 - loss: 0.5917
Epoch 14: val_loss did not improve from 0.46621
478/478 ----- 5s 7ms/step - accuracy: 0.6370 - loss: 0.5918 - val_accuracy: 0.5388 - val_loss: 0.6825
Epoch 15/38
471/478 ----- 0s 6ms/step - accuracy: 0.5993 - loss: 0.6106
Epoch 15: val_loss did not improve from 0.46621
```

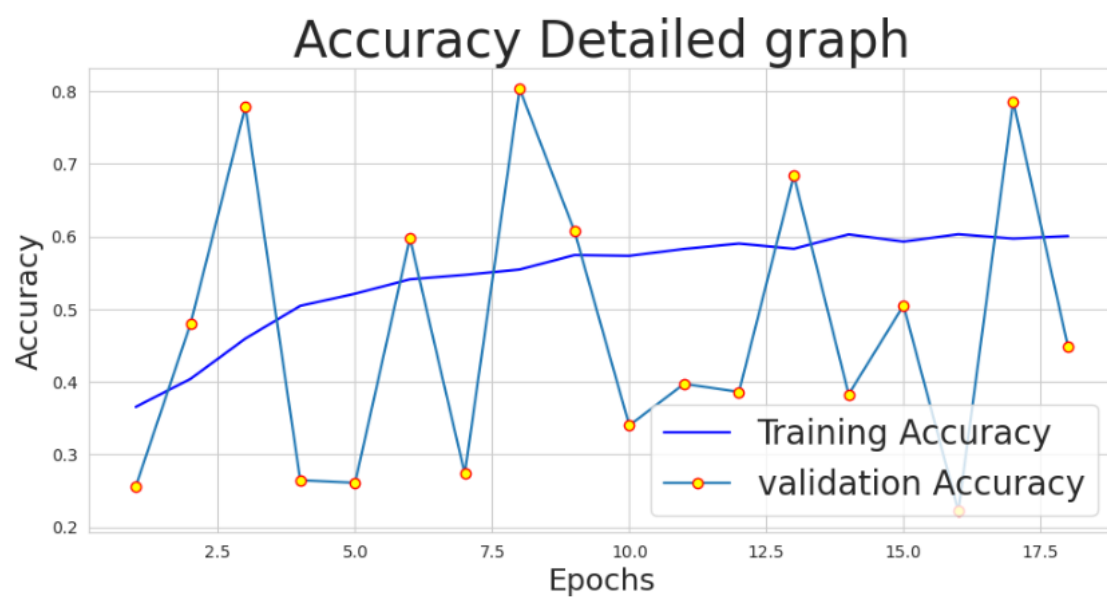
```

Epoch 16/38
476/478 — 0s 6ms/step - accuracy: 0.6238 - loss: 0.5885
Epoch 16: val_loss did not improve from 0.46621
478/478 — 5s 8ms/step - accuracy: 0.6238 - loss: 0.5886 - val_accuracy: 0.7159 - val_loss: 0.5755
Epoch 17/38
473/478 — 0s 6ms/step - accuracy: 0.5974 - loss: 0.6042
Epoch 17: val_loss did not improve from 0.46621
478/478 — 5s 7ms/step - accuracy: 0.5975 - loss: 0.6041 - val_accuracy: 0.6760 - val_loss: 0.5453
Epoch 18/38
478/478 — 0s 6ms/step - accuracy: 0.6228 - loss: 0.5895
Epoch 18: val_loss did not improve from 0.46621
478/478 — 4s 8ms/step - accuracy: 0.6228 - loss: 0.5895 - val_accuracy: 0.6402 - val_loss: 0.6077
Epoch 19/38
474/478 — 0s 6ms/step - accuracy: 0.6168 - loss: 0.6078
Epoch 19: val_loss did not improve from 0.46621
478/478 — 3s 7ms/step - accuracy: 0.6168 - loss: 0.6077 - val_accuracy: 0.7364 - val_loss: 0.5213
Epoch 20/38
471/478 — 0s 6ms/step - accuracy: 0.6450 - loss: 0.5916
Epoch 20: val_loss did not improve from 0.46621
478/478 — 5s 7ms/step - accuracy: 0.6451 - loss: 0.5915 - val_accuracy: 0.5323 - val_loss: 0.6882
Epoch 21/38
471/478 — 0s 6ms/step - accuracy: 0.6573 - loss: 0.5636
Epoch 21: val_loss did not improve from 0.46621
478/478 — 4s 8ms/step - accuracy: 0.6571 - loss: 0.5639 - val_accuracy: 0.5216 - val_loss: 0.7308
Epoch 22/38
473/478 — 0s 6ms/step - accuracy: 0.5981 - loss: 0.6006
Epoch 22: val_loss did not improve from 0.46621
478/478 — 5s 8ms/step - accuracy: 0.5982 - loss: 0.6006 - val_accuracy: 0.6220 - val_loss: 0.6133
Epoch 22: early stopping

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	precision	recall	f1-score	support
0.0	0.93	0.83	0.88	1058
1.0	0.29	0.54	0.38	137
accuracy			0.80	1195
macro avg	0.61	0.68	0.63	1195
weighted avg	0.86	0.80	0.82	1195

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