

CNN Model Results

Performance Metrics & Loss Curve:

Training Set Performance:

Training Performance Table:

Epoch	Training Accuracy (%)	Training Precision (%)	Training Recall (%)	Training F1 Score (%)
1	85.81	82.45	91.09	86.56
2	87.96	86.09	90.64	88.31
3	89.41	86.84	92.98	89.80

Training Loss Table:

Epoch	Training Loss (%)
1	41.32
2	34.30
3	30.52

Validation Set Performance:

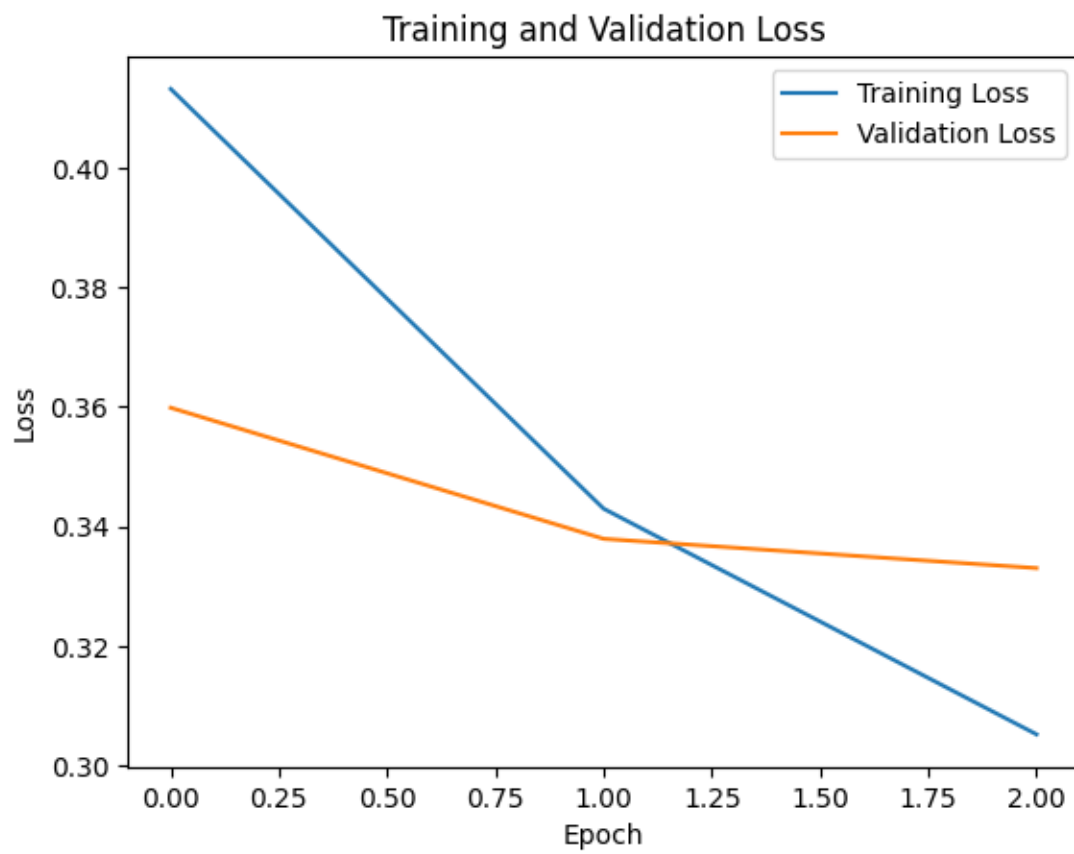
Validation Performance Table:

Epoch	Validation Accuracy (%)	Validation Precision (%)	Validation Recall (%)	Validation F1 Score (%)
1	84.50	81.42	89.71	85.36
2	85.47	83.96	87.98	85.92
3	85.95	83.74	89.49	86.52

Validation Loss Table:

Epoch	Validation Loss (%)
1	35.98
2	33.79
3	33.30

Loss Curve Graph:

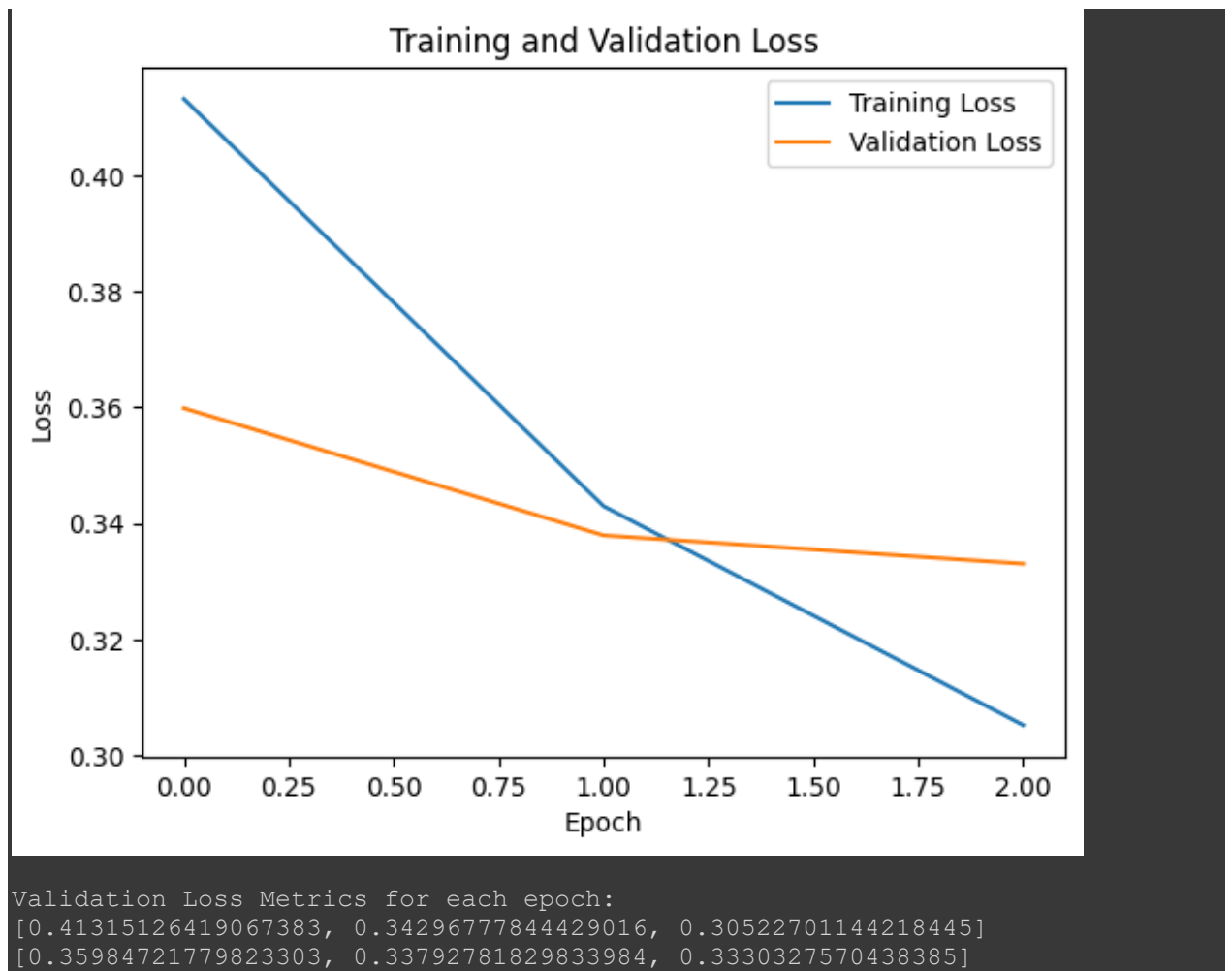


RAW RESULTS:

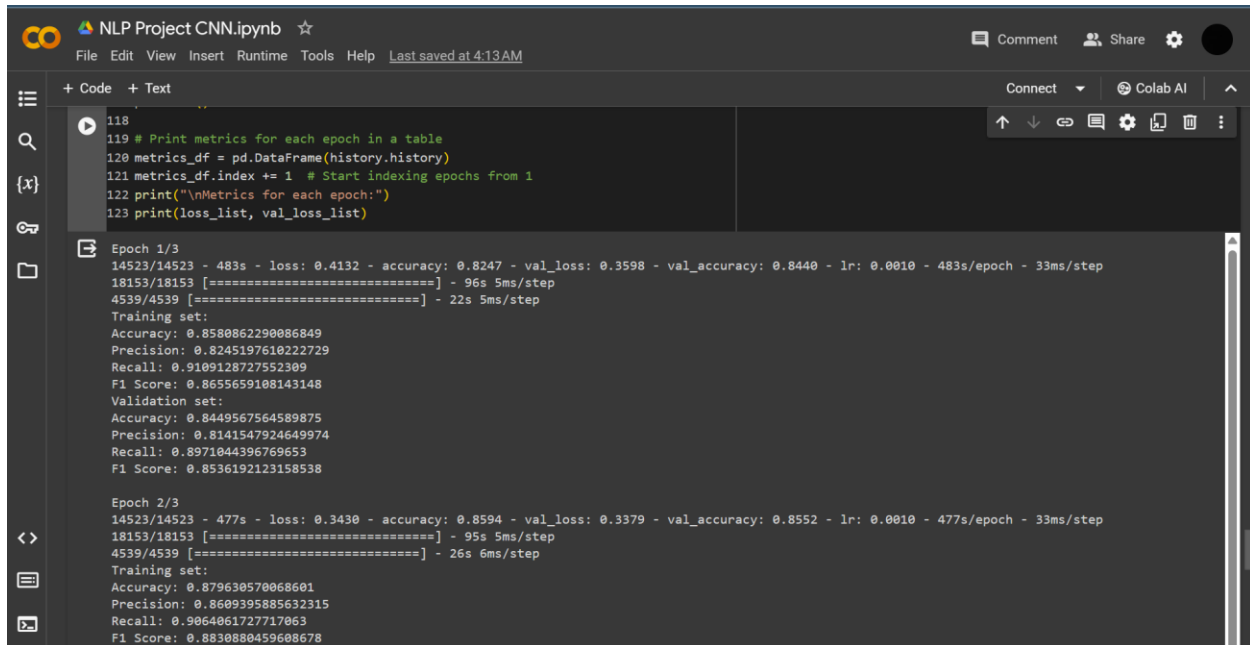
```
Epoch 1/3
14523/14523 - 483s - loss: 0.4132 - accuracy: 0.8247 - val_loss: 0.3598 -
val_accuracy: 0.8440 - lr: 0.0010 - 483s/epoch - 33ms/step
18153/18153 [=====] - 96s 5ms/step
4539/4539 [=====] - 22s 5ms/step
Training set:
Accuracy: 0.8580862290086849
Precision: 0.8245197610222729
Recall: 0.9109128727552309
F1 Score: 0.8655659108143148
Validation set:
Accuracy: 0.8449567564589875
Precision: 0.8141547924649974
Recall: 0.8971044396769653
F1 Score: 0.8536192123158538

Epoch 2/3
14523/14523 - 477s - loss: 0.3430 - accuracy: 0.8594 - val_loss: 0.3379 -
val_accuracy: 0.8552 - lr: 0.0010 - 477s/epoch - 33ms/step
18153/18153 [=====] - 95s 5ms/step
4539/4539 [=====] - 26s 6ms/step
Training set:
Accuracy: 0.879630570068601
Precision: 0.8609395885632315
Recall: 0.9064061727717063
F1 Score: 0.8830880459608678
Validation set:
Accuracy: 0.8547278686718449
Precision: 0.8396103388018049
Recall: 0.8797775378855167
F1 Score: 0.8592247586128664

Epoch 3/3
14523/14523 - 469s - loss: 0.3052 - accuracy: 0.8798 - val_loss: 0.3330 -
val_accuracy: 0.8606 - lr: 0.0010 - 469s/epoch - 32ms/step
18153/18153 [=====] - 96s 5ms/step
4539/4539 [=====] - 22s 5ms/step
Training set:
Accuracy: 0.8940996221348092
Precision: 0.8683656296581238
Recall: 0.9297977648415618
F1 Score: 0.8980323189662174
Validation set:
Accuracy: 0.8594516057951853
Precision: 0.8373782062757333
Recall: 0.8948770855823233
F1 Score: 0.865173363630959
```



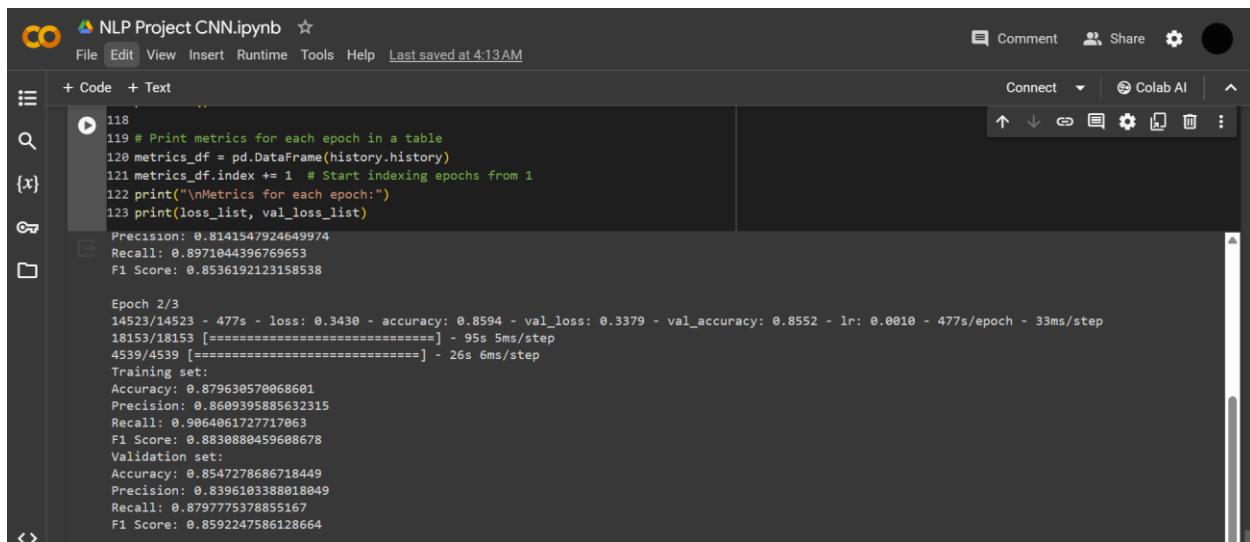
Screenshots:



```
118
119 # Print metrics for each epoch in a table
120 metrics_df = pd.DataFrame(history.history)
121 metrics_df.index += 1 # Start indexing epochs from 1
122 print("\nMetrics for each epoch:")
123 print(loss_list, val_loss_list)
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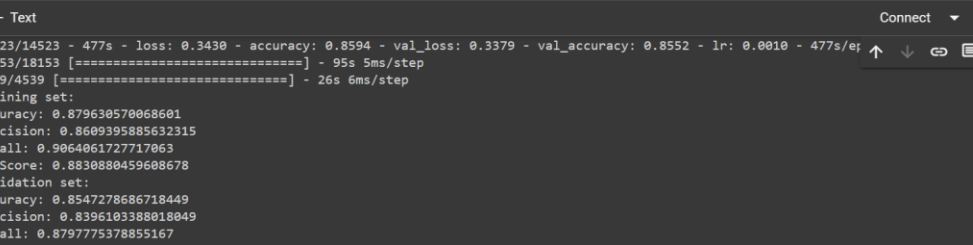
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```
NLP Project CNN.ipynb
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