CNN Model Results

Performance Metrics & Loss Curve:

Training Set Performance:

Training Performance Table:

Epoch	Training Accuracy	Training Precision	Training Recall	Training F1 Score
1	0.8581	0.8245	0.9109	0.8656
2	0.8796	0.8609	0.9064	0.8831
3	0.8941	0.8684	0.9298	0.8980

Training Loss Table:

Epoch	Training Loss
1	0.4132
2	0.3430
3	0.3052

Validation Set Performance:

Validation Performance Table:

Epoch	Validation Accuracy	Validation Precision	Validation Recall	Validation F1 Score
1	0.8450	0.8142	0.8971	0.8536
2	0.8547	0.8396	0.8798	0.8592
3	0.8595	0.8374	0.8949	0.8652

Validation Loss Table:

Epoch	Validation Loss
1	0.3598
2	0.3379
3	0.3330

Loss Curve Graph:
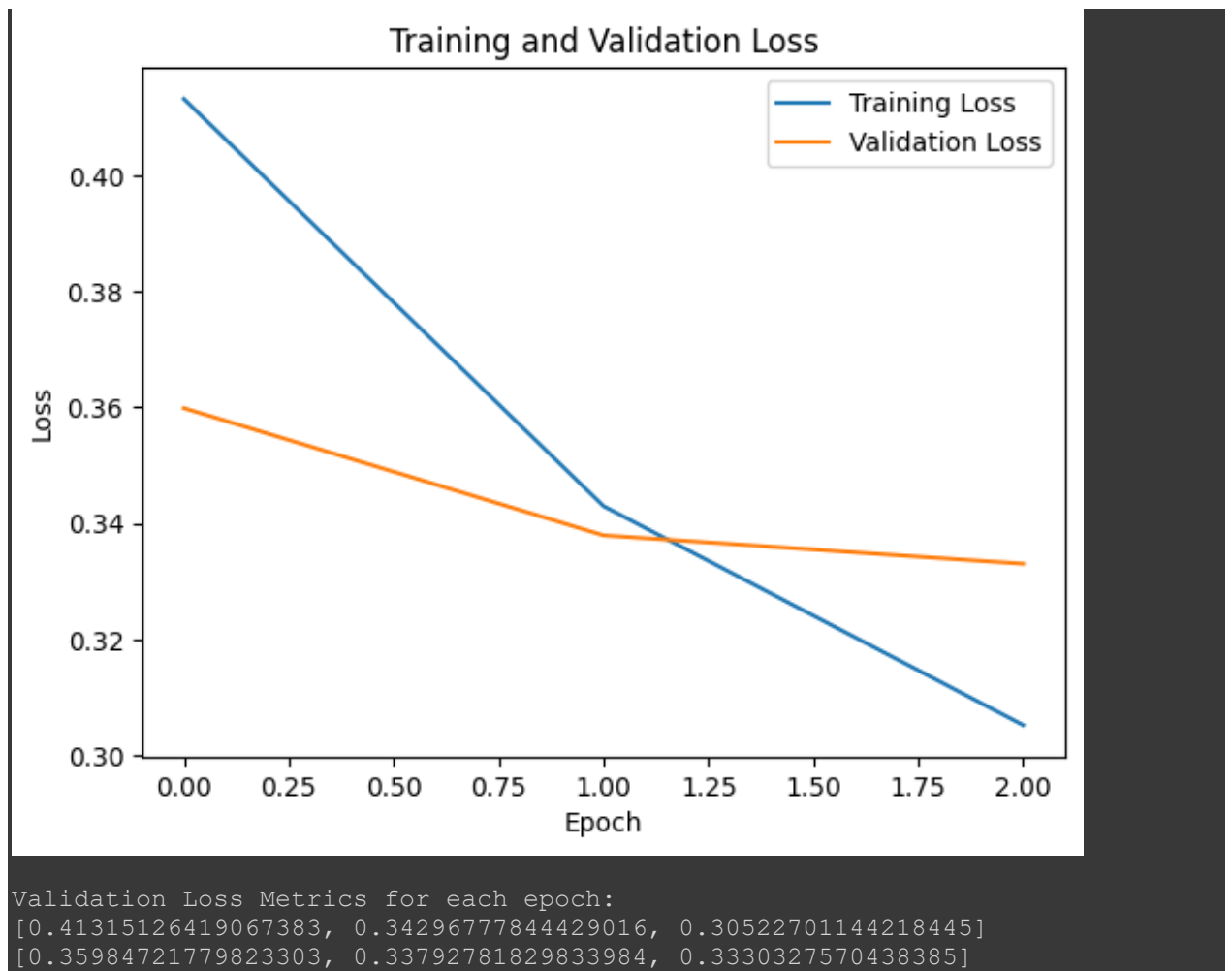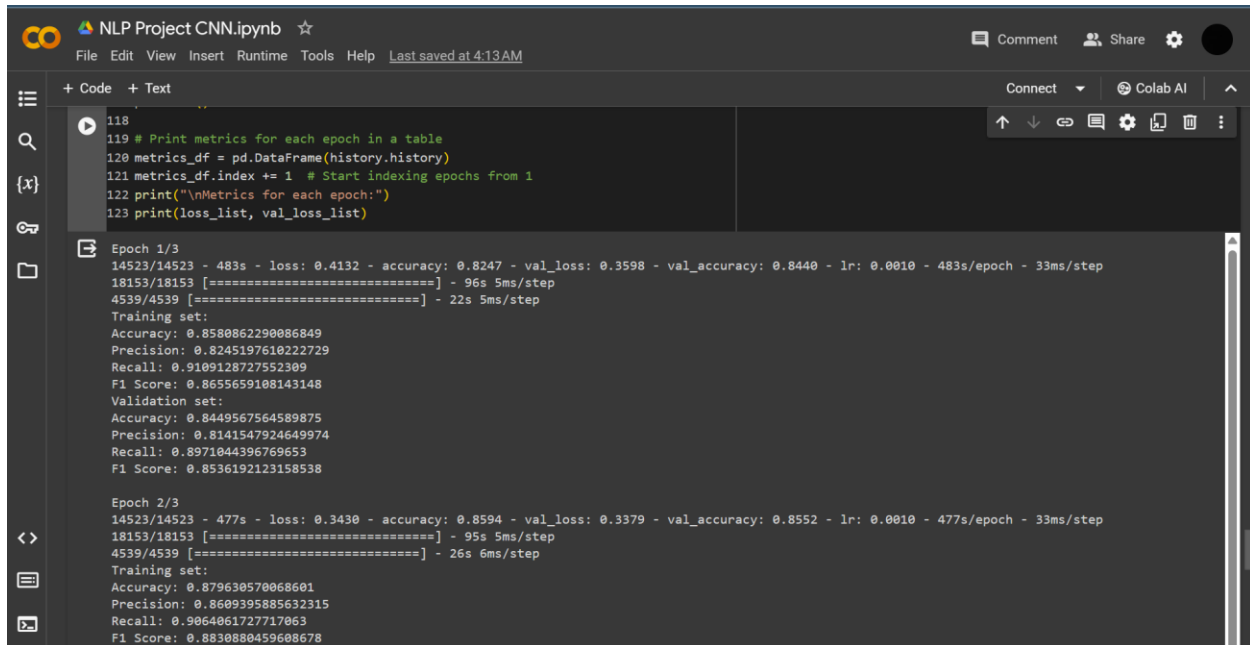

Training and Validation Loss
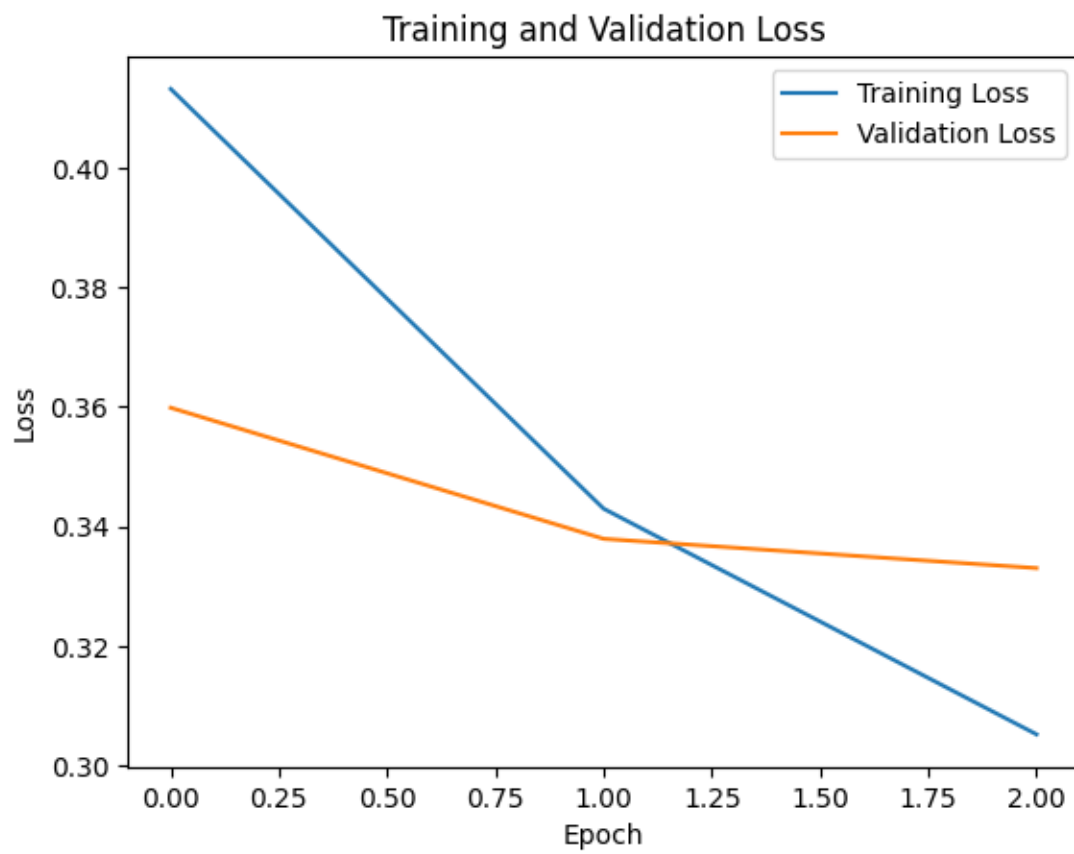
RAW RESULTS:

```
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
```
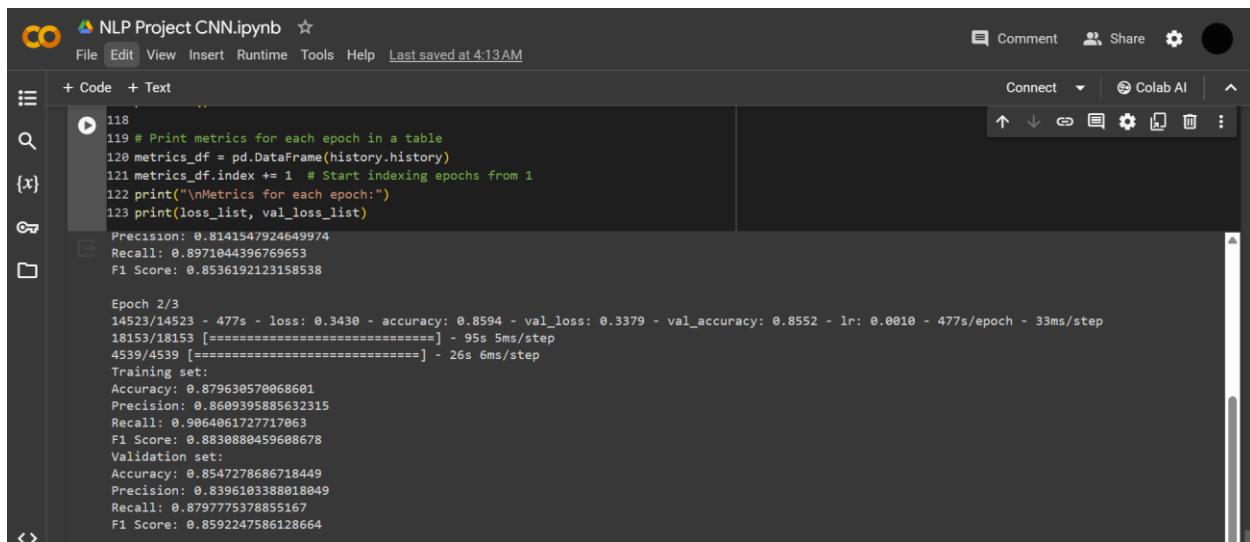
Training and Validation Loss

Validation Loss Metrics for each epoch:
[0.41315126419067383, 0.34296777844429016, 0.30522701144218445]
[0.35984721779823303, 0.33792781829833984, 0.3330327570438385]

Screenshots:

```
14523/14523 - 477s - loss: 0.3430 - accuracy: 0.8594 - val_loss: 0.3379 - val_accuracy: 0.8552 - lr: 0.0010 - 477s/ep
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
```

Training and Validation Loss

Training and Validation Loss

```
Metrics for each epoch:
[0.41315126419067383, 0.34296777844429016, 0.30522701144218445] [0.35984721779823303, 0.33792781829833984, 0.3330327570438385]
```