loading data...

loaded

cleaning data...

cleaned

training model...

Some layers from the model checkpoint at google/electra-small-discriminator were not used when initializing TFElectraForSequenceClassification: ['discriminator\_predictions']

- This IS expected if you are initializing TFElectraForSequenceClassification from the checkpoint of a model trained on another task or with another architecture (e.g. initializing a BertForSequenceClassification model from a BertForPreTraining model).

- This IS NOT expected if you are initializing TFElectraForSequenceClassification from the checkpoint of a model that you expect to be exactly identical (initializing a BertForSequenceClassification model from a BertForSequenceClassification model).

Some layers of TFElectraForSequenceClassification were not initialized from the model checkpoint at google/electra-small-discriminator and are newly initialized: ['classifier']

You should probably TRAIN this model on a down-stream task to be able to use it for predictions and inference.

Epoch 1/5

845/845 [==============================] - ETA: 0s - loss: 0.5025 - accuracy: 0.8016 - precision\_9: 0.7961 - recall\_9: 0.7797

Epoch 1: val\_accuracy improved from -inf to 0.85611, saving model to c:/Users/schil/OneDrive/Desktop/School/6450\_BigData/Project/Model\_electra\best\_model

WARNING:absl:Found untraced functions such as serving, \_update\_step\_xla, embeddings\_layer\_call\_fn, embeddings\_layer\_call\_and\_return\_conditional\_losses, embeddings\_project\_layer\_call\_fn while saving (showing 5 of 426). These functions will not be directly callable after loading.

INFO:tensorflow:Assets written to: c:/Users/schil/OneDrive/Desktop/School/6450\_BigData/Project/Model\_electra\best\_model\assets

INFO:tensorflow:Assets written to: c:/Users/schil/OneDrive/Desktop/School/6450\_BigData/Project/Model\_electra\best\_model\assets

845/845 [==============================] - 14930s 18s/step - loss: 0.5025 - accuracy: 0.8016 - precision\_9: 0.7961 - recall\_9: 0.7797 - val\_loss: 0.3647 - val\_accuracy: 0.8561 - val\_precision\_9: 0.7923 - val\_recall\_9: 0.9034

Epoch 2/5

845/845 [==============================] - ETA: 0s - loss: 0.3250 - accuracy: 0.8704 - precision\_9: 0.8067 - recall\_9: 0.9154

Epoch 2: val\_accuracy improved from 0.85611 to 0.86543, saving model to c:/Users/schil/OneDrive/Desktop/School/6450\_BigData/Project/Model\_electra\best\_model

WARNING:absl:Found untraced functions such as serving, \_update\_step\_xla, embeddings\_layer\_call\_fn, embeddings\_layer\_call\_and\_return\_conditional\_losses, embeddings\_project\_layer\_call\_fn while saving (showing 5 of 426). These functions will not be directly callable after loading.

INFO:tensorflow:Assets written to: c:/Users/schil/OneDrive/Desktop/School/6450\_BigData/Project/Model\_electra\best\_model\assets

INFO:tensorflow:Assets written to: c:/Users/schil/OneDrive/Desktop/School/6450\_BigData/Project/Model\_electra\best\_model\assets

845/845 [==============================] - 19156s 23s/step - loss: 0.3250 - accuracy: 0.8704 - precision\_9: 0.8067 - recall\_9: 0.9154 - val\_loss: 0.3501 - val\_accuracy: 0.8654 - val\_precision\_9: 0.7943 - val\_recall\_9: 0.9181

Epoch 3/5

845/845 [==============================] - ETA: 0s - loss: 0.2665 - accuracy: 0.8960 - precision\_9: 0.8201 - recall\_9: 0.9397

Epoch 3: val\_accuracy did not improve from 0.86543

845/845 [==============================] - 19443s 23s/step - loss: 0.2665 - accuracy: 0.8960 - precision\_9: 0.8201 - recall\_9: 0.9397 - val\_loss: 0.3510 - val\_accuracy: 0.8625 - val\_precision\_9: 0.7864 - val\_recall\_9: 0.9225

Epoch 4/5

845/845 [==============================] - ETA: 0s - loss: 0.2192 - accuracy: 0.9162 - precision\_9: 0.8409 - recall\_9: 0.9558

Epoch 4: val\_accuracy improved from 0.86543 to 0.86950, saving model to c:/Users/schil/OneDrive/Desktop/School/6450\_BigData/Project/Model\_electra\best\_model

WARNING:absl:Found untraced functions such as serving, \_update\_step\_xla, embeddings\_layer\_call\_fn, embeddings\_layer\_call\_and\_return\_conditional\_losses, embeddings\_project\_layer\_call\_fn while saving (showing 5 of 426). These functions will not be directly callable after loading.

INFO:tensorflow:Assets written to: c:/Users/schil/OneDrive/Desktop/School/6450\_BigData/Project/Model\_electra\best\_model\assets

INFO:tensorflow:Assets written to: c:/Users/schil/OneDrive/Desktop/School/6450\_BigData/Project/Model\_electra\best\_model\assets

845/845 [==============================] - 19342s 23s/step - loss: 0.2192 - accuracy: 0.9162 - precision\_9: 0.8409 - recall\_9: 0.9558 - val\_loss: 0.3554 - val\_accuracy: 0.8695 - val\_precision\_9: 0.7919 - val\_recall\_9: 0.9285

Epoch 5/5

845/845 [==============================] - ETA: 0s - loss: 0.1828 - accuracy: 0.9302 - precision\_9: 0.8566 - recall\_9: 0.9665

Epoch 5: val\_accuracy improved from 0.86950 to 0.87113, saving model to c:/Users/schil/OneDrive/Desktop/School/6450\_BigData/Project/Model\_electra\best\_model

WARNING:absl:Found untraced functions such as serving, \_update\_step\_xla, embeddings\_layer\_call\_fn, embeddings\_layer\_call\_and\_return\_conditional\_losses, embeddings\_project\_layer\_call\_fn while saving (showing 5 of 426). These functions will not be directly callable after loading.

INFO:tensorflow:Assets written to: c:/Users/schil/OneDrive/Desktop/School/6450\_BigData/Project/Model\_electra\best\_model\assets

INFO:tensorflow:Assets written to: c:/Users/schil/OneDrive/Desktop/School/6450\_BigData/Project/Model\_electra\best\_model\assets

845/845 [==============================] - 19365s 23s/step - loss: 0.1828 - accuracy: 0.9302 - precision\_9: 0.8566 - recall\_9: 0.9665 - val\_loss: 0.3629 - val\_accuracy: 0.8711 - val\_precision\_9: 0.7972 - val\_recall\_9: 0.9293

235/235 [==============================] - 828s 4s/step - loss: 0.3405 - accuracy: 0.8751 - precision\_9: 0.8005 - recall\_9: 0.9309

[0.34047213196754456, 0.8750832080841064, 0.8005039095878601, 0.9308829307556152]

Evaluation Result on Test Data:

- Loss: 0.34047213196754456

- Accuracy: 0.8750832080841064

- Precision: 0.8005039095878601

- Recall: 0.9308829307556152

- F1 Score: 0.8607844394735565

Model: "tf\_electra\_for\_sequence\_classification\_10"

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Layer (type) Output Shape Param #

=================================================================

electra (TFElectraMainLayer multiple 13483008

)

classifier (TFElectraClassi multiple 66563

ficationHead)

=================================================================

Total params: 13,549,571

Trainable params: 13,549,571

Non-trainable params: 0

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None