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1 C:\ProgramData\Anaconda3\envs\NLP\python.exe C:/Users
  /Luca/PycharmProjects/NLP/Bert/Bert.py
2 2022-05-16 09:48:09.854794: W tensorflow/
  stream_executor/platform/default/dso_loader.cc:64]
  Could not load dynamic library 'cudart64_110.dll';
  dlerror: cudart64_110.dll not found
3 2022-05-16 09:48:09.854980: 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.
4 Ham Dataset Shape: (21312, 2)
5 Spam Dataset Shape: (17571, 2)
6 (17571, 2)
7 spam      17571
8 ham       17571
9 Name: label, dtype: int64
10          label
                                     text
11 21454  spam  unica direccion de contacto psico
   argentina ho...
12 935     spam  Dear Matthew please call 09063440451
   from a la...
13 36715  spam  eat out a babi doll tonit http com sse
   endthez...
14 27996  ham   staf lead commerci staf lead salli beck
   prc me...
15 30672  spam  you have not tri ciall yet than you
   cannot eve...
16 24419  spam  hey what up my name is jen and i m new
   to this...
17 950     ham           Is that what time you want me
   to come?
18 22836  ham   start date horahead hour no ancillari
   schedul...
19 13958  ham   vinc the number you will need to call in
   for t...
20 30897  spam  think of breath new life into your busi
   start ...
21          label
                                     text
   spam

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22 15775  spam  you have not tri ciall yet than you
    cannot eve...      1
23 18081  ham   i ve confirm that the block on the east
    side o...          0
24 33631  ham   jeff michell ken here s the daili updat
    for th...          0
25 11720  ham   hi thank you for your email i am inde
    interest...        0
26 2022-05-16 09:48:14.355311: W tensorflow/
    stream_executor/platform/default/dso_loader.cc:64]
    Could not load dynamic library 'nvcuda.dll'; dlerror
    : nvcuda.dll not found
27 2022-05-16 09:48:14.355403: W tensorflow/
    stream_executor/cuda/cuda_driver.cc:269] failed call
    to cuInit: UNKNOWN ERROR (303)
28 2022-05-16 09:48:14.357622: I tensorflow/
    stream_executor/cuda/cuda_diagnostics.cc:169]
    retrieving CUDA diagnostic information for host: PC-
    Luca
29 2022-05-16 09:48:14.357728: I tensorflow/
    stream_executor/cuda/cuda_diagnostics.cc:176]
    hostname: PC-Luca
30 2022-05-16 09:48:14.358590: I tensorflow/core/
    platform/cpu_feature_guard.cc:151] This TensorFlow
    binary is optimized with oneAPI Deep Neural Network
    Library (oneDNN) to use the following CPU
    instructions in performance-critical operations:  AVX
    AVX2
31 To enable them in other operations, rebuild
    TensorFlow with the appropriate compiler flags.
32 Model: "model"
33 -----
    -----
34 Layer (type)                                Output Shape
    Param #      Connected to
35 =====
    =====
36 Inputs (InputLayer)                        [(None,)]
    0              []
37

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38 keras_layer (KerasLayer)      {'input_mask': (Non
   0          ['Inputs[0][0]']
39                                e, 128
   ),
40                                'input_type_ids
   ':
41                                (None, 128
   ),
42                                'input_word_ids
   ':
43                                (None, 128
   )}
44
45 keras_layer_1 (KerasLayer)      {'default': (None,
109482241  ['keras_layer[0][0]',
46                                768
   ),                                'keras_layer[0][1
   ]',
47                                'encoder_outputs
   ':                                'keras_layer[0][2]']
48                                [(None, 128, 768
   ),
49                                (None, 128, 768
   ),
50                                (None, 128, 768
   ),
51                                (None, 128, 768
   ),
52                                (None, 128, 768
   ),
53                                (None, 128, 768
   ),
54                                (None, 128, 768
   ),
55                                (None, 128, 768
   ),
56                                (None, 128, 768

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56 ),
57                                     (None, 128, 768
    ),
58                                     (None, 128, 768
    ),
59                                     (None, 128, 768
    )],
60                                     'pooled_output
    ': (
61                                     None, 768
    ),

62                                     'sequence_output
    ':
63                                     (None, 128, 768
    )}
64

65 Dropout (Dropout)                (None, 768)
    0                                ['keras_layer_1[0][13]']
66

67 Dense (Dense)                    (None, 1)
    769                             ['Dropout[0][0]']
68

69 =====
    =====
70 Total params: 109,483,010
71 Trainable params: 769
72 Non-trainable params: 109,482,241
73 -----
    -----
74 None
75 Epoch 1/6
76 824/824 [=====] - 1605s 2s/
    step - loss: 0.5310 - accuracy: 0.7516 - precision: 0
    .7508 - recall: 0.7532
77 Epoch 2/6
78 824/824 [=====] - 1599s 2s/
    step - loss: 0.4009 - accuracy: 0.8463 - precision: 0

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78 .8451 - recall: 0.8481
79 Epoch 3/6
80 824/824 [=====] - 1603s 2s/
  step - loss: 0.3547 - accuracy: 0.8640 - precision:
    0.8632 - recall: 0.8650
81 Epoch 4/6
82 824/824 [=====] - 1606s 2s/
  step - loss: 0.3303 - accuracy: 0.8717 - precision:
    0.8696 - recall: 0.8745
83 Epoch 5/6
84 824/824 [=====] - 1606s 2s/
  step - loss: 0.3158 - accuracy: 0.8762 - precision:
    0.8752 - recall: 0.8775
85 Epoch 6/6
86 824/824 [=====] - 1606s 2s/
  step - loss: 0.3063 - accuracy: 0.8799 - precision:
    0.8768 - recall: 0.8839
87 275/275 [=====] - 539s 2s/
  step - loss: 0.2765 - accuracy: 0.8955 - precision:
    0.8790 - recall: 0.9174
88 <class 'numpy.ndarray'> <class 'numpy.ndarray'>
89 [1 0 1 ... 0 0 0]
90 [1 0 1 ... 0 0 0]
91 [[3838  555]
92  [ 363 4030]]
93           precision    recall  f1-score
94  support
95           0           0.91      0.87      0.89
    4393
96           1           0.88      0.92      0.90
    4393
97
98  accuracy                                0.90
    8786
99  macro avg           0.90      0.90      0.90
    8786
100 weighted avg           0.90      0.90      0.90
    8786
101
102 [['ham']]

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```
103 ['spam']
104 ['spam']
105 ['ham']
106 ['ham']
107 ['ham']]
108
109 Process finished with exit code 0
110
```