Predicting_Heart_Problem_with_BERT_in_Tensorflow Cleaned

July 30, 2020

##Mounting Google Drive

```
[1]: from google.colab import drive
     drive.mount("/GD")
```

```
Go to this URL in a browser: https://accounts.google.com/o/oauth2/auth?client_id
=947318989803-6bn6qk8qdgf4n4g3pfee6491hc0brc4i.apps.googleusercontent.com&redire
ct_uri=urn%3aietf%3awg%3aoauth%3a2.0%3aoob&response_type=code&scope=email%20http
s%3a%2f%2fwww.googleapis.com%2fauth%2fdocs.test%20https%3a%2f%2fwww.googleapis.c
om%2fauth%2fdrive%20https%3a%2f%2fwww.googleapis.com%2fauth%2fdrive.photos.reado
nly%20https%3a%2f%2fwww.googleapis.com%2fauth%2fpeopleapi.readonly

Enter your authorization code:
··········
Mounted at /GD
```

0.1 Importing Necessary Libraries

```
[2]: !pip install tensorflow==1.15.0
     import tensorflow as tf
     print(tf.__version__)
```

```
Collecting tensorflow==1.15.0
  Downloading https://files.pythonhosted.org/packages/3f/98/5a99af92fb911d
7a88a0005ad55005f35b4c1ba8d75fba02df726cd936e6/tensorflow-1.15.0-cp36-cp36m-many
linux2010_x86_64.whl (412.3MB)
     |                 | 412.3MB 45kB/s
Requirement already satisfied: opt-einsum>=2.3.2 in
/usr/local/lib/python3.6/dist-packages (from tensorflow==1.15.0) (3.3.0)
Requirement already satisfied: astor>=0.6.0 in /usr/local/lib/python3.6/dist-
packages (from tensorflow==1.15.0) (0.8.1)
Requirement already satisfied: termcolor>=1.1.0 in
/usr/local/lib/python3.6/dist-packages (from tensorflow==1.15.0) (1.1.0)
Requirement already satisfied: google-pasta>=0.1.6 in
/usr/local/lib/python3.6/dist-packages (from tensorflow==1.15.0) (0.2.0)
Requirement already satisfied: wrapt>=1.11.1 in /usr/local/lib/python3.6/dist-
packages (from tensorflow==1.15.0) (1.12.1)
Requirement already satisfied: grpcio>=1.8.6 in /usr/local/lib/python3.6/dist-
```

```
packages (from tensorflow==1.15.0) (1.30.0)
Requirement already satisfied: wheel>=0.26 in /usr/local/lib/python3.6/dist-
packages (from tensorflow==1.15.0) (0.34.2)
WARNING: Retrying (Retry(total=4, connect=None, read=None, redirect=None,
status=None)) after connection broken by 'ProtocolError('Connection aborted.',
ConnectionResetError(104, 'Connection reset by peer'))': /simple/gast/
Collecting gast==0.2.2
  WARNING: Retrying (Retry(total=4, connect=None, read=None, redirect=None,
status=None)) after connection broken by 'ProtocolError('Connection aborted.',
ConnectionResetError(104, 'Connection reset by peer'))': /packages/4e/35/11749bf
99b2d4e3cceb4d55ca22590b0d7c2c62b9de38ac4a4a7f4687421/gast-0.2.2.tar.gz
  Downloading https://files.pythonhosted.org/packages/4e/35/11749bf99b2d4e3cceb4
d55ca22590b0d7c2c62b9de38ac4a4a7f4687421/gast-0.2.2.tar.gz
Requirement already satisfied: protobuf>=3.6.1 in /usr/local/lib/python3.6/dist-
packages (from tensorflow==1.15.0) (3.12.2)
Requirement already satisfied: keras-preprocessing>=1.0.5 in
/usr/local/lib/python3.6/dist-packages (from tensorflow==1.15.0) (1.1.2)
Requirement already satisfied: six>=1.10.0 in /usr/local/lib/python3.6/dist-
packages (from tensorflow==1.15.0) (1.15.0)
Requirement already satisfied: keras-applications>=1.0.8 in
/usr/local/lib/python3.6/dist-packages (from tensorflow==1.15.0) (1.0.8)
Requirement already satisfied: numpy<2.0,>=1.16.0 in
/usr/local/lib/python3.6/dist-packages (from tensorflow==1.15.0) (1.18.5)
Collecting tensorboard<1.16.0,>=1.15.0
  Downloading https://files.pythonhosted.org/packages/1e/e9/d3d747a97f7188
f48aa5eda486907f3b345cd409f0a0850468ba867db246/tensorboard-1.15.0-py3-none-
any.whl (3.8MB)
     |                 | 3.8MB 3.8MB/s
Requirement already satisfied: absl-py>=0.7.0 in
/usr/local/lib/python3.6/dist-packages (from tensorflow==1.15.0) (0.9.0)
Collecting tensorflow-estimator==1.15.1
  Downloading https://files.pythonhosted.org/packages/de/62/2ee9cd74c9fa2f
a450877847ba560b260f5d0fb70ee0595203082dafcc9d/tensorflow_estimator-1.15.1-py2.p
y3-none-any.whl (503kB)
     |                 | 512kB 30.6MB/s
Requirement already satisfied: setuptools in
/usr/local/lib/python3.6/dist-packages (from
protobuf>=3.6.1->tensorflow==1.15.0) (49.1.0)
Requirement already satisfied: h5py in /usr/local/lib/python3.6/dist-packages
(from keras-applications>=1.0.8->tensorflow==1.15.0) (2.10.0)
Requirement already satisfied: werkzeug>=0.11.15 in
/usr/local/lib/python3.6/dist-packages (from
tensorboard<1.16.0,>=1.15.0->tensorflow==1.15.0) (1.0.1)
Requirement already satisfied: markdown>=2.6.8 in /usr/local/lib/python3.6/dist-
packages (from tensorboard<1.16.0,>=1.15.0->tensorflow==1.15.0) (3.2.2)
```

```
Requirement already satisfied: importlib-metadata; python_version < "3.8" in
/usr/local/lib/python3.6/dist-packages (from
markdown>=2.6.8->tensorboard<1.16.0,>=1.15.0->tensorflow==1.15.0) (1.7.0)
Requirement already satisfied: zipp>=0.5 in /usr/local/lib/python3.6/dist-
packages (from importlib-metadata; python_version <
"3.8"->markdown>=2.6.8->tensorboard<1.16.0,>=1.15.0->tensorflow==1.15.0) (3.1.0)
Building wheels for collected packages: gast
  Building wheel for gast (setup.py) … done
  Created wheel for gast: filename=gast-0.2.2-cp36-none-any.whl size=7540
sha256=e293d00edbce7b8b7af416dc0ecc0c15d02b1ce5e18515b5982ef532e14b2ad8
  Stored in directory: /root/.cache/pip/wheels/5c/2e/7e/a1d4d4fcebe6c381f378ce77
43a3ced3699feb89bcfbdadadd
Successfully built gast
ERROR: tensorflow-probability 0.10.0 has requirement gast>=0.3.2, but

you'll have gast 0.2.2 which is incompatible.
Installing collected packages: gast, tensorboard, tensorflow-estimator,
tensorflow
  Found existing installation: gast 0.3.3
    Uninstalling gast-0.3.3:
      Successfully uninstalled gast-0.3.3
  Found existing installation: tensorboard 2.2.2
    Uninstalling tensorboard-2.2.2:
      Successfully uninstalled tensorboard-2.2.2
  Found existing installation: tensorflow-estimator 2.2.0
    Uninstalling tensorflow-estimator-2.2.0:
      Successfully uninstalled tensorflow-estimator-2.2.0
  Found existing installation: tensorflow 2.2.0
    Uninstalling tensorflow-2.2.0:
      Successfully uninstalled tensorflow-2.2.0
Successfully installed gast-0.2.2 tensorboard-1.15.0 tensorflow-1.15.0
tensorflow-estimator-1.15.1
1.15.0
```

[3]:
```
import pandas as pd
import tensorflow as tf
import tensorflow_hub as hub
from datetime import datetime
from sklearn.model_selection import train_test_split
import os

print("tensorflow version : ", tf.__version__)
print("tensorflow_hub version : ", hub.__version__)
```

```
tensorflow version :  1.15.0
tensorflow_hub version :  0.8.0
```

[4]:
```
#Installing BERT module
!pip install bert-tensorflow
```

```
Collecting bert-tensorflow
  Downloading https://files.pythonhosted.org/packages/a6/66/7eb4e8b6ea35b7
cc54c322c816f976167a43019750279a8473d355800a93/bert_tensorflow-1.0.1-py2.py3-non
e-any.whl (67kB)
     |                 | 71kB 2.1MB/s
Requirement already satisfied: six in /usr/local/lib/python3.6/dist-
packages (from bert-tensorflow) (1.15.0)
Installing collected packages: bert-tensorflow
Successfully installed bert-tensorflow-1.0.1
```

[5]:
```
#Importing BERT modules
import bert
from bert import run_classifier
from bert import optimization
from bert import tokenization
```

```
WARNING:tensorflow:From /usr/local/lib/python3.6/dist-
packages/bert/optimization.py:87: The name tf.train.Optimizer is deprecated.
Please use tf.compat.v1.train.Optimizer instead.
```

0.2 ##Setting The Output Directory

While fine-tuning the model, we will save the training checkpoints and the model in an output directory so that we can use the trained model for our predictions later.

The following code block sets an output directory :

[6]:
```
# Set the output directory for saving model file
OUTPUT_DIR = '/GD/My Drive/Colab Notebooks/5epochs'

#@markdown Whether or not to clear/delete the directory and create a new one
DO_DELETE = False #@param {type:"boolean"}

if DO_DELETE:
  try:
    tf.gfile.DeleteRecursively(OUTPUT_DIR)
  except:
    pass

tf.gfile.MakeDirs(OUTPUT_DIR)
print('***** Model output directory: {} *****'.format(OUTPUT_DIR))
```

```
***** Model output directory: /GD/My Drive/Colab Notebooks/5epochs *****
```

0.3 ##Loading The Data

We will now load the data from a Google Drive directory and will also split the training set in to training and validation sets.

```
[7]: train = pd.read_csv("/GD/My Drive/Colab Notebooks/5epochs/cleaned_sampled_data.
      ↪csv", encoding = "ISO-8859-1")
     train['question'] = train['question'].apply(str)

     from sklearn.model_selection import train_test_split

     train, val =  train_test_split(train, test_size = 0.2, random_state = 100)
```

```
[8]: #Training set sample
     train.head(15)
```

```
[8]:       Unnamed: 0  …                                          question
     629          629  …    , sy mau .  menderita hipertensi. sudah di ba…
     669          669  …   , 1 bulan yang lalu saya periksa ke puskesmas …
     25            25  …    saya wanita berusia 24 tahu. sejak 5 tahun te…
     88            88  …    dada trasa aga sesak tapi tidak batuk, 3hari …
     395          395  …   , sy pengidap jantung bocor, selalu kontrol se…
     685          685  …   permisi, . saya berusia 21th, 3minggu yang lal…
     1049        1049  …   , 6 bulan lalu saya terkena stroke (pecah pemb…
     975          975  …    saya kaya terasa sesak  terus kadang dada say…
     356          356  …   bapak saya skrg lg d rawat di rs\r\nkepala pus…
     146          146  …     ?  denyut nadi bisa di pakai untuk menentuka…
     1281        1281  …   , , ketika menjulurkan lidah, lidah saya domin…
     45            45  …    , detakan jantung saya tiba-tiba kuat dan ter…
     330          330  …    ,  tan mamah saya tangan dan kaki membengkak …
     160          160  …   , akhir" ini ketika saya menaiki tangga jantun…
     306          306  …   ,,  kira" umur 37th.. saring kaget kadang juga…

     [15 rows x 5 columns]
```

```
[9]: print("Training Set Shape :", train.shape)
     print("Validation Set Shape :", val.shape)
     #print("Test Set Shape :", test.shape)
```

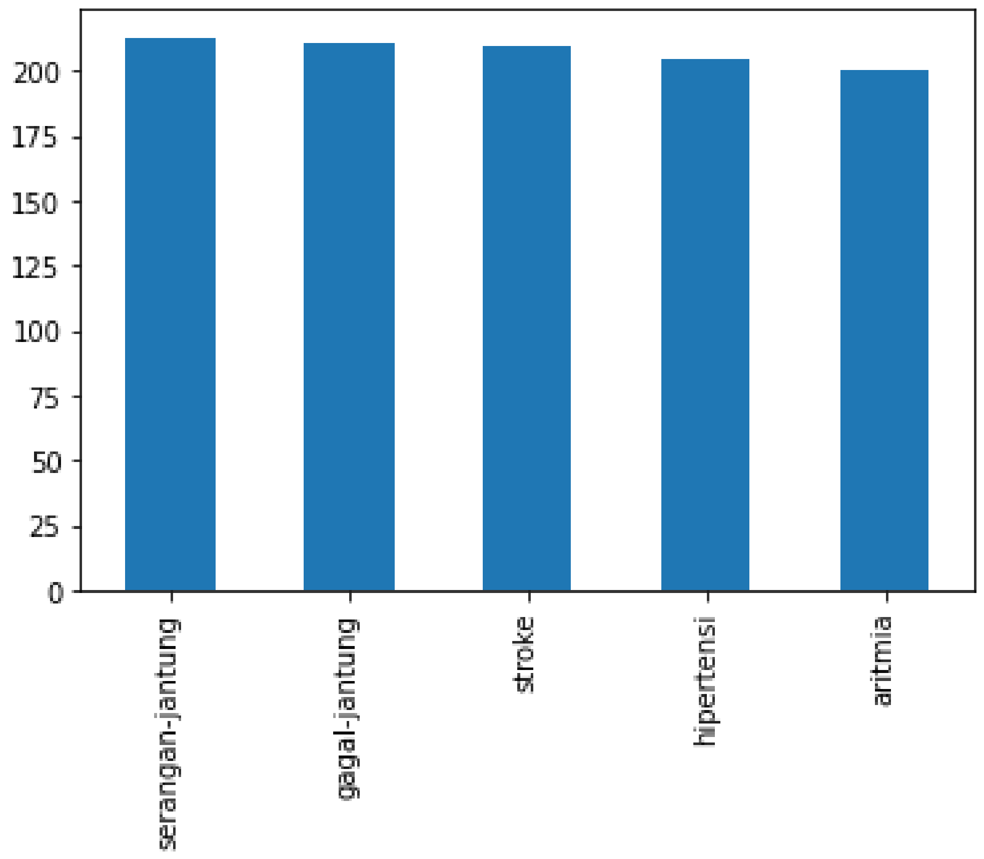
```
Training Set Shape : (1040, 5)
Validation Set Shape : (260, 5)
```

```
[10]: #unique classes
      train['category'].unique()
```

```
[10]: array(['hipertensi', 'aritmia', 'gagal-jantung', 'stroke',
             'serangan-jantung'], dtype=object)
```

```
[11]: #Distribution of classes
      train['category'].value_counts().plot(kind = 'bar')
```

```
[11]: <matplotlib.axes._subplots.AxesSubplot at 0x7f807a0b01d0>
```



```
[12]: DATA_COLUMN = 'question'
      LABEL_COLUMN = 'category'
      # The list containing all the classes (train['SECTION'].unique())
      label_list = list(train['category'].unique())
```

0.4 Data Preprocessing

BERT model accept only a specific type of input and the datasets are usually structured to have have the following four features:

- guid : A unique id that represents an observation.
- text_a : The text we need to classify into given categories
- text_b: It is used when we're training a model to understand the relationship between sentences and it does not apply for classification problems.
- label: It consists of the labels or classes or categories that a given text belongs to.

In our dataset we have text_a and label. The following code block will create objects for each of the above mentioned features for all the records in our dataset using the InputExample class provided in the BERT library.

```
[13]: train_InputExamples = train.apply(lambda x: bert.run_classifier.
       ↪InputExample(guid=None,
                                                                      text_a =␣
       ↪x[DATA_COLUMN],
                                                                      text_b =␣
       ↪None,
                                                                      label =␣
       ↪x[LABEL_COLUMN]), axis = 1)

      val_InputExamples = val.apply(lambda x: bert.run_classifier.
       ↪InputExample(guid=None,
                                                                      text_a =␣
       ↪x[DATA_COLUMN],
                                                                      text_b =␣
       ↪None,
                                                                      label =␣
       ↪x[LABEL_COLUMN]), axis = 1)
```

```
[14]: train_InputExamples
```

```
[14]: 629    <bert.run_classifier.InputExample object at 0x…
      669    <bert.run_classifier.InputExample object at 0x…
      25     <bert.run_classifier.InputExample object at 0x…
      88     <bert.run_classifier.InputExample object at 0x…
      395    <bert.run_classifier.InputExample object at 0x…
                                                   …
      802    <bert.run_classifier.InputExample object at 0x…
      53     <bert.run_classifier.InputExample object at 0x…
      350    <bert.run_classifier.InputExample object at 0x…
      79     <bert.run_classifier.InputExample object at 0x…
      792    <bert.run_classifier.InputExample object at 0x…
      Length: 1040, dtype: object
```

```
[15]: print("Row 0 - guid of training set : ", train_InputExamples.iloc[0].guid)
      print("\n__________\nRow 0 - text_a of training set : ", train_InputExamples.
       ↪iloc[0].text_a)
      print("\n__________\nRow 0 - text_b of training set : ", train_InputExamples.
       ↪iloc[0].text_b)
      print("\n__________\nRow 0 - label of training set : ", train_InputExamples.
       ↪iloc[0].label)
```

```
Row 0 - guid of training set :  None
```

```
----------
Row 0 - text_a of training set :   , sy mau .  menderita hipertensi. sudah di
bawa ke  dan diberi obat penurun hipertensi. tapi  kok tekanan darahnya tidak
kunjung normal? padahal sudah rutin minum obat & mengkonsumsi banyak buah2an
(timun, semangka, dll). malah badannya terasa lemas, pusing & penglihatan kabur.
terimakasih. w ð  ð


----------
Row 0 - text_b of training set :  None


----------
Row 0 - label of training set :  hipertensi
```

We will now get down to business with the pretrained BERT. In this example we will use the `bert_uncased_L-12_H-768_A-12/1` model. To check all available versions click here.

We will be using the vocab.txt file in the model to map the words in the dataset to indexes. Also the loaded BERT model is trained on uncased/lowercase data and hence the data we feed to train the model should also be of lowercase.

The following code block loads the pre-trained BERT model and initializers a tokenizer object for tokenizing the texts.

[16]:
```python
# This is a path to an uncased (all lowercase) version of BERT
BERT_MODEL_HUB = "https://tfhub.dev/google/bert_multi_cased_L-12_H-768_A-12/1"

def create_tokenizer_from_hub_module():
  """Get the vocab file and casing info from the Hub module."""
  with tf.Graph().as_default():
    bert_module = hub.Module(BERT_MODEL_HUB)
    tokenization_info = bert_module(signature="tokenization_info", as_dict=True)
    with tf.Session() as sess:
      vocab_file, do_lower_case = sess.run([tokenization_info["vocab_file"],
                                            tokenization_info["do_lower_case"]])

  return bert.tokenization.FullTokenizer(
      vocab_file=vocab_file, do_lower_case=do_lower_case)

tokenizer = create_tokenizer_from_hub_module()
```

```
INFO:tensorflow:Saver not created because there are no variables in the graph to
restore

INFO:tensorflow:Saver not created because there are no variables in the graph to
restore

WARNING:tensorflow:From /usr/local/lib/python3.6/dist-
packages/bert/tokenization.py:125: The name tf.gfile.GFile is deprecated. Please
```

```
use tf.io.gfile.GFile instead.


WARNING:tensorflow:From /usr/local/lib/python3.6/dist-
packages/bert/tokenization.py:125: The name tf.gfile.GFile is deprecated. Please
use tf.io.gfile.GFile instead.
```

[17]:
```
#Here is what the tokenised sample of the first training set observation looks␣
↪like
print(tokenizer.tokenize(train_InputExamples.iloc[9].text_a))
```

```
['?', 'den', '##yu', '##t', 'nad', '##i', 'bisa', 'di', 'pak', '##ai', 'untuk',
'menentukan', 'be', '##ban', 'kerja', 'fi', '##sik', ',', 'tingkat', 'kes',
'##eh', '##atan', ',', 'tingkat', 'ke', '##bu', '##garan', 'dan', 'tingkat',
'stress', '?']
```

We will now format out text in to input features which the BERT model expects. We will also set a sequence length which will be the length of the input features.

[18]:
```
max_len = max([len(tokenizer.tokenize(train_InputExamples.iloc[IDX].text_a))␣
↪for IDX in range(1040)])
print('Max length: ', max_len)
```

```
Max length:  2130
```

[19]:
```
# We'll set sequences to be at most 128 tokens long.
MAX_SEQ_LENGTH = 256

# Convert our train and validation features to InputFeatures that BERT␣
↪understands.
train_features = bert.run_classifier.
↪convert_examples_to_features(train_InputExamples, label_list,␣
↪MAX_SEQ_LENGTH, tokenizer)

val_features = bert.run_classifier.
↪convert_examples_to_features(val_InputExamples, label_list, MAX_SEQ_LENGTH,␣
↪tokenizer)
```

```
WARNING:tensorflow:From /usr/local/lib/python3.6/dist-
packages/bert/run_classifier.py:774: The name tf.logging.info is deprecated.
Please use tf.compat.v1.logging.info instead.


WARNING:tensorflow:From /usr/local/lib/python3.6/dist-
packages/bert/run_classifier.py:774: The name tf.logging.info is deprecated.
Please use tf.compat.v1.logging.info instead.


INFO:tensorflow:Writing example 0 of 1040
```

```
INFO:tensorflow:Writing example 0 of 1040

INFO:tensorflow:*** Example ***

INFO:tensorflow:*** Example ***

INFO:tensorflow:guid: None

INFO:tensorflow:guid: None

INFO:tensorflow:tokens: [CLS] , sy mau . men ##der ##ita hip ##erten ##si .
sudah di ba ##wa ke dan diberi oba ##t pen ##uru ##n hip ##erten ##si . tapi ko
##k tekanan darah ##nya tidak kun ##jung normal ? pada ##hal sudah ru ##tin min
##um oba ##t & men ##g ##kon ##sum ##si banyak buah ##2 ##an ( tim ##un , sem
##ang ##ka , dl ##l ) . malah badan ##nya ter ##asa lema ##s , pus ##ing & pen
##gli ##hat ##an ka ##bur . ter ##ima ##kasi ##h . w ð ##ð [SEP]

INFO:tensorflow:tokens: [CLS] , sy mau . men ##der ##ita hip ##erten ##si .
sudah di ba ##wa ke dan diberi oba ##t pen ##uru ##n hip ##erten ##si . tapi ko
##k tekanan darah ##nya tidak kun ##jung normal ? pada ##hal sudah ru ##tin min
##um oba ##t & men ##g ##kon ##sum ##si banyak buah ##2 ##an ( tim ##un , sem
##ang ##ka , dl ##l ) . malah badan ##nya ter ##asa lema ##s , pus ##ing & pen
##gli ##hat ##an ka ##bur . ter ##ima ##kasi ##h . w ð ##ð [SEP]

INFO:tensorflow:input_ids: 101 117 12261 43024 119 10588 11304 11622 25377 26645
10449 119 25147 10120 15688 11037 11163 10215 50479 35355 10123 66558 25279
10115 25377 26645 10449 119 64747 11252 10174 93131 43947 10676 11868 13158
30425 16626 136 10585 18453 25147 13483 15364 13484 10465 35355 10123 111 10588
10240 17423 31417 10449 15175 21988 10729 10206 113 19604 11107 117 11531 11889
10371 117 63940 10161 114 119 73682 51463 10676 12718 23031 93661 10107 117
46960 10230 111 66558 20986 19180 10206 10730 34660 119 12718 12443 37997 10237
119 191 270 12332 102 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0

INFO:tensorflow:input_ids: 101 117 12261 43024 119 10588 11304 11622 25377 26645
10449 119 25147 10120 15688 11037 11163 10215 50479 35355 10123 66558 25279
10115 25377 26645 10449 119 64747 11252 10174 93131 43947 10676 11868 13158
30425 16626 136 10585 18453 25147 13483 15364 13484 10465 35355 10123 111 10588
10240 17423 31417 10449 15175 21988 10729 10206 113 19604 11107 117 11531 11889
10371 117 63940 10161 114 119 73682 51463 10676 12718 23031 93661 10107 117
46960 10230 111 66558 20986 19180 10206 10730 34660 119 12718 12443 37997 10237
119 191 270 12332 102 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0

INFO:tensorflow:input_mask: 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
```

```
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

INFO:tensorflow:input_mask: 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

INFO:tensorflow:segment_ids: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
```

```
INFO:tensorflow:segment_ids: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
```

```
INFO:tensorflow:label: hipertensi (id = 0)
```

```
INFO:tensorflow:label: hipertensi (id = 0)
```

```
INFO:tensorflow:*** Example ***
```

```
INFO:tensorflow:*** Example ***
```

```
INFO:tensorflow:guid: None
```

```
INFO:tensorflow:guid: None
```

```
INFO:tensorflow:tokens: [CLS] , 1 bulan yang lalu saya per ##iks ##a ke pus
##kes ##mas dan ten ##si saya 180 / 120 dan diberikan oba ##t cap ##top ##ril 25
##m ##g dan corsa ##neur ##on . du ##lu pernah diberikan kom ##bina ##si cap
##top ##ril dan fur ##ose ##mide . yang saya kan lebih baik mana dari 2 kom
##bina ##si oba ##t tersebut ? [SEP]
```

```
INFO:tensorflow:tokens: [CLS] , 1 bulan yang lalu saya per ##iks ##a ke pus
##kes ##mas dan ten ##si saya 180 / 120 dan diberikan oba ##t cap ##top ##ril 25
##m ##g dan corsa ##neur ##on . du ##lu pernah diberikan kom ##bina ##si cap
##top ##ril dan fur ##ose ##mide . yang saya kan lebih baik mana dari 2 kom
##bina ##si oba ##t tersebut ? [SEP]
```

```
INFO:tensorflow:input_ids: 101 117 122 12385 10265 31288 64981 10178 40670 10113
11163 46960 21885 12922 10215 11769 10449 64981 13912 120 12048 10215 44141
35355 10123 13337 37253 31860 10258 10147 10240 10215 50583 38780 10263 119
10168 11435 21407 44141 12240 29368 10449 13337 37253 31860 10215 61001 14569
58137 119 10265 64981 10905 13394 24604 18970 10397 123 12240 29368 10449 35355
10123 12848 136 102 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

INFO:tensorflow:input_ids: 101 117 122 12385 10265 31288 64981 10178 40670 10113
11163 46960 21885 12922 10215 11769 10449 64981 13912 120 12048 10215 44141
35355 10123 13337 37253 31860 10258 10147 10240 10215 50583 38780 10263 119
10168 11435 21407 44141 12240 29368 10449 13337 37253 31860 10215 61001 14569
58137 119 10265 64981 10905 13394 24604 18970 10397 123 12240 29368 10449 35355
10123 12848 136 102 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

INFO:tensorflow:input_mask: 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

INFO:tensorflow:input_mask: 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

INFO:tensorflow:segment_ids: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

INFO:tensorflow:segment_ids: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
```

```
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

INFO:tensorflow:label: hipertensi (id = 0)

INFO:tensorflow:label: hipertensi (id = 0)

INFO:tensorflow:*** Example ***

INFO:tensorflow:*** Example ***

INFO:tensorflow:guid: None

INFO:tensorflow:guid: None

INFO:tensorflow:tokens: [CLS] saya wanita berusia 24 tahu . sejak 5 tahun ter
##ak ##hr saya sering mengalami det ##ak jan ##tung yang tidak normal . mula
##nya det ##ak jan ##tung normal seperti biasa kemudian akan me ##lam ##bat be
##rhenti beberapa det ##ik lalu be ##rde ##tak kembali dengan henta ##kan y ##g
ken ##cang dis ##erta ##i batu ##k dan ses ##ak . jika sudah bg ##tu dada saya
ter ##asa dite ##kan dan na ##fas menjadi pendek hanya se ##batas le ##her .
menarik na ##fas panjang ##pun hanya dapat sedikit . kemudian ter ##kada ##ng
saya menjadi pus ##ing , per ##ut ter ##asa ke ##mbung , mua ##l bahkan mun
##tah . ge ##jala y ##g saya alam ##i ini semakin sering kam ##bu ##h selama set
##ahun ini . kira kira terdapat penyakit seri ##us atau tidak ? [SEP]

INFO:tensorflow:tokens: [CLS] saya wanita berusia 24 tahu . sejak 5 tahun ter
##ak ##hr saya sering mengalami det ##ak jan ##tung yang tidak normal . mula
##nya det ##ak jan ##tung normal seperti biasa kemudian akan me ##lam ##bat be
##rhenti beberapa det ##ik lalu be ##rde ##tak kembali dengan henta ##kan y ##g
ken ##cang dis ##erta ##i batu ##k dan ses ##ak . jika sudah bg ##tu dada saya
ter ##asa dite ##kan dan na ##fas menjadi pendek hanya se ##batas le ##her .
menarik na ##fas panjang ##pun hanya dapat sedikit . kemudian ter ##kada ##ng
saya menjadi pus ##ing , per ##ut ter ##asa ke ##mbung , mua ##l bahkan mun
##tah . ge ##jala y ##g saya alam ##i ini semakin sering kam ##bu ##h selama set
##ahun ini . kira kira terdapat penyakit seri ##us atau tidak ? [SEP]

INFO:tensorflow:input_ids: 101 64981 27763 56440 10233 81565 119 22731 126 10989
12718 10710 16757 64981 28586 42060 10349 10710 63923 23091 10265 11868 16626
119 20133 10676 10349 10710 63923 23091 16626 13908 34384 16113 13549 10911
21114 18234 10347 107329 15334 10349 10896 31288 10347 17229 19049 20879 10659
98336 10706 193 10240 67680 65301 27920 43861 10116 25514 10174 10215 10974
10710 119 37873 25147 91542 10991 42020 64981 12718 23031 44586 10706 10215
10132 57797 11999 32444 18029 10126 92101 10141 14206 119 59236 10132 57797
15907 19554 18029 13377 51193 119 16113 12718 76010 10376 64981 11999 46960
10230 117 10178 11159 12718 23031 11163 110448 117 56944 10161 57177 101833
53538 119 46503 30216 193 10240 64981 40796 10116 10592 50902 28586 12438 12177
10237 21041 11847 108702 10592 119 32105 32105 21343 64951 46972 10251 11754
11868 136 102 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
```

```
INFO:tensorflow:input_ids: 101 64981 27763 56440 10233 81565 119 22731 126 10989
12718 10710 16757 64981 28586 42060 10349 10710 63923 23091 10265 11868 16626
119 20133 10676 10349 10710 63923 23091 16626 13908 34384 16113 13549 10911
21114 18234 10347 107329 15334 10349 10896 31288 10347 17229 19049 20879 10659
98336 10706 193 10240 67680 65301 27920 43861 10116 25514 10174 10215 10974
10710 119 37873 25147 91542 10991 42020 64981 12718 23031 44586 10706 10215
10132 57797 11999 32444 18029 10126 92101 10141 14206 119 59236 10132 57797
15907 19554 18029 13377 51193 119 16113 12718 76010 10376 64981 11999 46960
10230 117 10178 11159 12718 23031 11163 110448 117 56944 10161 57177 101833
53538 119 46503 30216 193 10240 64981 40796 10116 10592 50902 28586 12438 12177
10237 21041 11847 108702 10592 119 32105 32105 21343 64951 46972 10251 11754
11868 136 102 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
```

```
INFO:tensorflow:input_mask: 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
```

```
INFO:tensorflow:input_mask: 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
```

```
INFO:tensorflow:segment_ids: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
```

```
INFO:tensorflow:segment_ids: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
```

```
INFO:tensorflow:label: aritmia (id = 1)
```

```
INFO:tensorflow:label: aritmia (id = 1)
```

```
INFO:tensorflow:*** Example ***

INFO:tensorflow:*** Example ***

INFO:tensorflow:guid: None

INFO:tensorflow:guid: None

INFO:tensorflow:tokens: [CLS] dada trasa aga ses ##ak tapi tidak batu ##k , 3
##hari yang lalu k ##pala saya aga pus ##ing lalu mun ##tah stel ##ahi ##tu di
##kro ##ki sama istri langsung aga men ##ding tapi trasa aga ses ##ak sampai
sekarang dan jan ##tung be ##rde ##gu ##p ##nya aga ken ##cang . [SEP]

INFO:tensorflow:tokens: [CLS] dada trasa aga ses ##ak tapi tidak batu ##k , 3
##hari yang lalu k ##pala saya aga pus ##ing lalu mun ##tah stel ##ahi ##tu di
##kro ##ki sama istri langsung aga men ##ding tapi trasa aga ses ##ak sampai
sekarang dan jan ##tung be ##rde ##gu ##p ##nya aga ken ##cang . [SEP]

INFO:tensorflow:input_ids: 101 42020 101608 25510 10974 10710 64747 11868 25514
10174 117 124 44830 10265 31288 179 70272 64981 25510 46960 10230 31288 101833
53538 91829 100962 10991 10120 66184 10506 14469 93716 35091 25510 10588 13971
64747 101608 25510 10974 10710 20853 28344 10215 63923 23091 10347 17229 12589
10410 10676 25510 67680 65301 119 102 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

INFO:tensorflow:input_ids: 101 42020 101608 25510 10974 10710 64747 11868 25514
10174 117 124 44830 10265 31288 179 70272 64981 25510 46960 10230 31288 101833
53538 91829 100962 10991 10120 66184 10506 14469 93716 35091 25510 10588 13971
64747 101608 25510 10974 10710 20853 28344 10215 63923 23091 10347 17229 12589
10410 10676 25510 67680 65301 119 102 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

INFO:tensorflow:input_mask: 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

INFO:tensorflow:input_mask: 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
```

```
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

INFO:tensorflow:segment_ids: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

INFO:tensorflow:segment_ids: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

INFO:tensorflow:label: aritmia (id = 1)

INFO:tensorflow:label: aritmia (id = 1)

INFO:tensorflow:*** Example ***

INFO:tensorflow:*** Example ***

INFO:tensorflow:guid: None

INFO:tensorflow:guid: None

INFO:tensorflow:tokens: [CLS] , sy pen ##gida ##p jan ##tung bo ##cor , selalu
kontrol setiap 2 bulan sekali & ce ##k tekanan darah , & hasil ##nya normal (
ter ##kada ##ng hip ##oten ##si ) , sekali ##nya tinggi j ##g ms ##h batas wa
##jar . tapi kepala sy selalu pen ##ing setiap se ##hab ##is makan daging kam
##bing ? apa ##kah ini h ##nya su ##gest ##i atau me ##mang sy men ##gida ##p
hip ##erten ##si ? apa ##kah ada kor ##elas ##i d ##gn ke ##bo ##cora ##n jan
##tung dan tekanan darah tinggi ? [SEP]

INFO:tensorflow:tokens: [CLS] , sy pen ##gida ##p jan ##tung bo ##cor , selalu
kontrol setiap 2 bulan sekali & ce ##k tekanan darah , & hasil ##nya normal (
ter ##kada ##ng hip ##oten ##si ) , sekali ##nya tinggi j ##g ms ##h batas wa
##jar . tapi kepala sy selalu pen ##ing setiap se ##hab ##is makan daging kam
##bing ? apa ##kah ini h ##nya su ##gest ##i atau me ##mang sy men ##gida ##p
hip ##erten ##si ? apa ##kah ada kor ##elas ##i d ##gn ke ##bo ##cora ##n jan
##tung dan tekanan darah tinggi ? [SEP]

INFO:tensorflow:input_ids: 101 117 12261 66558 32556 10410 63923 23091 20506
49167 117 56894 55605 24590 123 12385 46233 111 10794 10174 93131 43947 117 111
31102 10676 16626 113 12718 76010 10376 25377 44073 10449 114 117 46233 10676
23057 178 10240 92287 10237 70733 11471 17502 119 64747 46687 12261 56894 66558
10230 24590 10126 100025 10291 76306 75902 12438 27300 136 32500 28977 10592 176
```

```
10676 10198 63952 10116 11754 10911 45306 12261 10588 32556 10410 25377 26645
10449 136 32500 28977 15290 33705 50567 10116 172 19962 11163 11790 75347 10115
63923 23091 10215 93131 43947 23057 136 102 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

INFO:tensorflow:input_ids: 101 117 12261 66558 32556 10410 63923 23091 20506
49167 117 56894 55605 24590 123 12385 46233 111 10794 10174 93131 43947 117 111
31102 10676 16626 113 12718 76010 10376 25377 44073 10449 114 117 46233 10676
23057 178 10240 92287 10237 70733 11471 17502 119 64747 46687 12261 56894 66558
10230 24590 10126 100025 10291 76306 75902 12438 27300 136 32500 28977 10592 176
10676 10198 63952 10116 11754 10911 45306 12261 10588 32556 10410 25377 26645
10449 136 32500 28977 15290 33705 50567 10116 172 19962 11163 11790 75347 10115
63923 23091 10215 93131 43947 23057 136 102 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

INFO:tensorflow:input_mask: 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

INFO:tensorflow:input_mask: 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

INFO:tensorflow:segment_ids: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

INFO:tensorflow:segment_ids: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
```

```
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

INFO:tensorflow:label: gagal-jantung (id = 2)

INFO:tensorflow:label: gagal-jantung (id = 2)

INFO:tensorflow:Writing example 0 of 260

INFO:tensorflow:Writing example 0 of 260

INFO:tensorflow:*** Example ***

INFO:tensorflow:*** Example ***

INFO:tensorflow:guid: None

INFO:tensorflow:guid: None

INFO:tensorflow:tokens: [CLS] as ##mua ##lai ##kum , nama saya ri ##in , sudah 2
##haf ##i ini saya mengalami nye ##ri dada hingga sakit sekali seperti jan
##tung saya ter ##teka ##n , hingga ter ##asa be ##rhenti be ##rde ##tak dan
membuat saya sul ##it bern ##afa ##s serta tubuh saya menjadi ka ##ku dan sul
##it bergerak . sakit ##nya sangat lama . namun jika saya mulai ter ##asa
seperti itu saya akan sec ##ep ##at mungkin berdiri dan berjalan . harus ##kah
saya pergi ke ? [SEP]

INFO:tensorflow:tokens: [CLS] as ##mua ##lai ##kum , nama saya ri ##in , sudah 2
##haf ##i ini saya mengalami nye ##ri dada hingga sakit sekali seperti jan
##tung saya ter ##teka ##n , hingga ter ##asa be ##rhenti be ##rde ##tak dan
membuat saya sul ##it bern ##afa ##s serta tubuh saya menjadi ka ##ku dan sul
##it bergerak . sakit ##nya sangat lama . namun jika saya mulai ter ##asa
seperti itu saya akan sec ##ep ##at mungkin berdiri dan berjalan . harus ##kah
saya pergi ke ? [SEP]

INFO:tensorflow:input_ids: 101 10146 78314 31181 36811 117 15359 64981 29956
10245 117 25147 123 109294 10116 10592 64981 42060 17731 10401 42020 18295 57236
46233 13908 63923 23091 64981 12718 74990 10115 117 18295 12718 23031 10347
107329 10347 17229 19049 10215 21261 64981 12037 10486 102696 90804 10107 17604
49306 64981 11999 10730 10853 10215 12037 10486 74291 119 57236 10676 20365
26994 119 22736 37873 64981 24591 12718 23031 13908 11910 64981 13549 37913
19986 10526 33125 76965 10215 84242 119 29062 28977 64981 59159 11163 136 102 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0

INFO:tensorflow:input_ids: 101 10146 78314 31181 36811 117 15359 64981 29956
10245 117 25147 123 109294 10116 10592 64981 42060 17731 10401 42020 18295 57236
46233 13908 63923 23091 64981 12718 74990 10115 117 18295 12718 23031 10347
107329 10347 17229 19049 10215 21261 64981 12037 10486 102696 90804 10107 17604
49306 64981 11999 10730 10853 10215 12037 10486 74291 119 57236 10676 20365
26994 119 22736 37873 64981 24591 12718 23031 13908 11910 64981 13549 37913
```

```
19986 10526 33125 76965 10215 84242 119 29062 28977 64981 59159 11163 136 102 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0

INFO:tensorflow:input_mask: 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

INFO:tensorflow:input_mask: 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

INFO:tensorflow:segment_ids: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

INFO:tensorflow:segment_ids: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

INFO:tensorflow:label: serangan-jantung (id = 4)

INFO:tensorflow:label: serangan-jantung (id = 4)

INFO:tensorflow:*** Example ***

INFO:tensorflow:*** Example ***

INFO:tensorflow:guid: None

INFO:tensorflow:guid: None

INFO:tensorflow:tokens: [CLS] ass , . ke ##mari ##n masuk rumah sakit karena dia
mengalami step . sol ##usi bu ##at anak bay ##i y ##g umur 8 bulan apa . satu
```

```
lagi . orang tua saya ada ben ##gka ##k di le ##her nya . terus di operasi .
sakit nya itu tiro ##id . tapi ef ##ek nya sampai ke stroke ring ##an . sekarang
jalan pun kaki nya sus ##ah bu ##at jalan . [SEP]
```

```
INFO:tensorflow:tokens: [CLS] ass , . ke ##mari ##n masuk rumah sakit karena dia
mengalami step . sol ##usi bu ##at anak bay ##i y ##g umur 8 bulan apa . satu
lagi . orang tua saya ada ben ##gka ##k di le ##her nya . terus di operasi .
sakit nya itu tiro ##id . tapi ef ##ek nya sampai ke stroke ring ##an . sekarang
jalan pun kaki nya sus ##ah bu ##at jalan . [SEP]
```

```
INFO:tensorflow:input_ids: 101 13935 117 119 11163 65899 10115 34675 22740 57236
15786 10671 42060 31877 119 15566 15780 11499 10526 16444 16184 10116 193 10240
25453 129 12385 32500 119 12591 21129 119 12430 29095 64981 15290 11015 76898
10174 10120 10141 14206 24091 119 37605 10120 56516 119 57236 24091 11910 53302
11249 119 64747 56331 10707 24091 20853 11163 57071 21550 10206 119 28344 29974
32310 45340 24091 10846 12257 11499 10526 29974 119 102 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0
```

```
INFO:tensorflow:input_ids: 101 13935 117 119 11163 65899 10115 34675 22740 57236
15786 10671 42060 31877 119 15566 15780 11499 10526 16444 16184 10116 193 10240
25453 129 12385 32500 119 12591 21129 119 12430 29095 64981 15290 11015 76898
10174 10120 10141 14206 24091 119 37605 10120 56516 119 57236 24091 11910 53302
11249 119 64747 56331 10707 24091 20853 11163 57071 21550 10206 119 28344 29974
32310 45340 24091 10846 12257 11499 10526 29974 119 102 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0
```

```
INFO:tensorflow:input_mask: 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
```

```
INFO:tensorflow:input_mask: 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
```

```
INFO:tensorflow:segment_ids: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
```

```
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

INFO:tensorflow:segment_ids: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

INFO:tensorflow:label: stroke (id = 3)

INFO:tensorflow:label: stroke (id = 3)

INFO:tensorflow:*** Example ***

INFO:tensorflow:*** Example ***

INFO:tensorflow:guid: None

INFO:tensorflow:guid: None

INFO:tensorflow:tokens: [CLS] . . apa ##kah orang y ##g mengalami sakit jan
##tung pada stadium 4 bisa be ##rku ##rang menjadi stadium 3 , stadium 3 menjadi
stadium 2 , stadium 2 menjadi stadium 1 , dan stadium 1 menjadi sem ##bu ##h
total ? jika bisa , bagaimana cara pen ##go ##batan ##nya ? moh ##on pen ##jela
##san ##nya . [SEP]

INFO:tensorflow:tokens: [CLS] . . apa ##kah orang y ##g mengalami sakit jan
##tung pada stadium 4 bisa be ##rku ##rang menjadi stadium 3 , stadium 3 menjadi
stadium 2 , stadium 2 menjadi stadium 1 , dan stadium 1 menjadi sem ##bu ##h
total ? jika bisa , bagaimana cara pen ##go ##batan ##nya ? moh ##on pen ##jela
##san ##nya . [SEP]

INFO:tensorflow:input_ids: 101 119 119 32500 28977 12430 193 10240 42060 57236
63923 23091 10585 27915 125 17103 10347 96315 24141 11999 27915 124 117 27915
124 11999 27915 123 117 27915 123 11999 27915 122 117 10215 27915 122 11999
11531 12177 10237 11339 136 37873 17103 117 100831 15903 66558 10797 47693 10676
136 49234 10263 66558 37142 14434 10676 119 102 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

INFO:tensorflow:input_ids: 101 119 119 32500 28977 12430 193 10240 42060 57236
63923 23091 10585 27915 125 17103 10347 96315 24141 11999 27915 124 117 27915
124 11999 27915 123 117 27915 123 11999 27915 122 117 10215 27915 122 11999
```

```
11531 12177 10237 11339 136 37873 17103 117 100831 15903 66558 10797 47693 10676
136 49234 10263 66558 37142 14434 10676 119 102 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

INFO:tensorflow:input_mask: 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

INFO:tensorflow:input_mask: 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

INFO:tensorflow:segment_ids: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

INFO:tensorflow:segment_ids: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

INFO:tensorflow:label: gagal-jantung (id = 2)

INFO:tensorflow:label: gagal-jantung (id = 2)

INFO:tensorflow:*** Example ***

INFO:tensorflow:*** Example ***

INFO:tensorflow:guid: None

INFO:tensorflow:guid: None
```

```
INFO:tensorflow:tokens: [CLS] pen ##der ##ita darah tinggi boleh min ##um oba
##t neu ##ro ##bio ##n [SEP]

INFO:tensorflow:tokens: [CLS] pen ##der ##ita darah tinggi boleh min ##um oba
##t neu ##ro ##bio ##n [SEP]

INFO:tensorflow:input_ids: 101 66558 11304 11622 43947 23057 23079 13484 10465
35355 10123 14861 10567 16813 10115 102 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

INFO:tensorflow:input_ids: 101 66558 11304 11622 43947 23057 23079 13484 10465
35355 10123 14861 10567 16813 10115 102 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

INFO:tensorflow:input_mask: 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

INFO:tensorflow:input_mask: 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

INFO:tensorflow:segment_ids: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

INFO:tensorflow:segment_ids: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
```

```
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

INFO:tensorflow:label: hipertensi (id = 0)

INFO:tensorflow:label: hipertensi (id = 0)

INFO:tensorflow:*** Example ***

INFO:tensorflow:*** Example ***

INFO:tensorflow:guid: None

INFO:tensorflow:guid: None

INFO:tensorflow:tokens: [CLS] , ab ##ang saya baru saja meninggal 3 hari yang
lalu . pen ##ye ##bab ##nya kata yang mera ##wat adalah gagal jan ##tung . nah ,
. kira - kira penyakit jan ##tung yang ia alam ##i apa ##kah ada hubungan ##nya
dengan penyakit seperti masuk angin , bu ##ang air dan lain - lain ? sia ##ng
itu me ##mang dia men ##gel ##uhkan kepala pus ##ing , bu ##ang air , mun ##tah
, dan dada ses ##ak . kami kira dia masuk angin , jadi kami kas ##ih tola ##k
angin dan lain - lain . kemudian dia men ##gel ##uhkan , kala ##u tangan ##nya
itu dan ja ##ri - ja ##rin ##ya sul ##it dig ##era ##kkan ( dia be ##rp ##iki
##r ken ##a stroke ) . karena masih mua ##l - mua ##l , saya akhirnya pergi
untuk amb ##il salon ##pas , dan teman saya men ##jaga ab ##ang saya . lalu saya
pulang , ab ##ang saya sudah tidak ada . ka sebelum meninggal itu , dia ke
##jang - ke ##jang luar biasa . sudah dibawa di rumah sakit , dilakukan c ##pr ,
namun tidak ter ##sel ##amat ##kan . beliau me ##mang memiliki ri ##way ##at
darah rendah . dari semua ini , apa ##kah ada pen ##jela ##san yang saling
berkaitan antara ge ##jala - ge ##jala yang disebut ##kan dia ##tas ? . . [SEP]

INFO:tensorflow:tokens: [CLS] , ab ##ang saya baru saja meninggal 3 hari yang
lalu . pen ##ye ##bab ##nya kata yang mera ##wat adalah gagal jan ##tung . nah ,
. kira - kira penyakit jan ##tung yang ia alam ##i apa ##kah ada hubungan ##nya
dengan penyakit seperti masuk angin , bu ##ang air dan lain - lain ? sia ##ng
itu me ##mang dia men ##gel ##uhkan kepala pus ##ing , bu ##ang air , mun ##tah
, dan dada ses ##ak . kami kira dia masuk angin , jadi kami kas ##ih tola ##k
angin dan lain - lain . kemudian dia men ##gel ##uhkan , kala ##u tangan ##nya
itu dan ja ##ri - ja ##rin ##ya sul ##it dig ##era ##kkan ( dia be ##rp ##iki
##r ken ##a stroke ) . karena masih mua ##l - mua ##l , saya akhirnya pergi
untuk amb ##il salon ##pas , dan teman saya men ##jaga ab ##ang saya . lalu saya
pulang , ab ##ang saya sudah tidak ada . ka sebelum meninggal itu , dia ke
##jang - ke ##jang luar biasa . sudah dibawa di rumah sakit , dilakukan c ##pr ,
namun tidak ter ##sel ##amat ##kan . beliau me ##mang memiliki ri ##way ##at
darah rendah . dari semua ini , apa ##kah ada pen ##jela ##san yang saling
berkaitan antara ge ##jala - ge ##jala yang disebut ##kan dia ##tas ? . . [SEP]

INFO:tensorflow:input_ids: 101 117 11357 11889 64981 18049 44725 31585 124 18370
10265 31288 119 66558 12871 51382 10676 21907 10265 71959 33670 10784 70591
63923 23091 119 64770 117 119 32105 118 32105 64951 63923 23091 10265 12729
```

```
40796 10116 32500 28977 15290 41585 10676 10659 64951 13908 34675 105676 117
11499 11889 12566 10215 13514 118 13514 136 13687 10376 11910 10911 45306 10671
10588 16039 68637 46687 46960 10230 117 11499 11889 12566 117 101833 53538 117
10215 42020 10974 10710 119 64985 32105 10671 34675 105676 117 17760 64985 14399
13187 90470 10174 105676 10215 13514 118 13514 119 16113 10671 10588 16039 68637
117 84844 10138 48371 10676 11910 10215 10201 10401 118 10201 13778 10679 12037
10486 80592 12015 33928 113 10671 10347 33394 20897 10129 67680 10113 57071 114
119 15786 20535 56944 10161 118 56944 10161 117 64981 30448 59159 10782 10559
11030 61658 20084 117 10215 71476 64981 10588 55539 11357 11889 64981 119 31288
64981 107874 117 11357 11889 64981 25147 11868 15290 119 10730 23667 31585 11910
117 10671 11163 37445 118 11163 37445 27120 34384 119 25147 95118 10120 22740
57236 117 28920 171 52302 117 22736 11868 12718 12912 49158 10706 119 19876
10911 45306 13363 29956 14132 10526 43947 47102 119 10397 23367 10592 117 32500
28977 15290 66558 37142 14434 10265 109002 85783 15345 46503 30216 118 46503
30216 10265 21250 10706 10671 11390 136 119 119 102 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0

INFO:tensorflow:input_ids: 101 117 11357 11889 64981 18049 44725 31585 124 18370
10265 31288 119 66558 12871 51382 10676 21907 10265 71959 33670 10784 70591
63923 23091 119 64770 117 119 32105 118 32105 64951 63923 23091 10265 12729
40796 10116 32500 28977 15290 41585 10676 10659 64951 13908 34675 105676 117
11499 11889 12566 10215 13514 118 13514 136 13687 10376 11910 10911 45306 10671
10588 16039 68637 46687 46960 10230 117 11499 11889 12566 117 101833 53538 117
10215 42020 10974 10710 119 64985 32105 10671 34675 105676 117 17760 64985 14399
13187 90470 10174 105676 10215 13514 118 13514 119 16113 10671 10588 16039 68637
117 84844 10138 48371 10676 11910 10215 10201 10401 118 10201 13778 10679 12037
10486 80592 12015 33928 113 10671 10347 33394 20897 10129 67680 10113 57071 114
119 15786 20535 56944 10161 118 56944 10161 117 64981 30448 59159 10782 10559
11030 61658 20084 117 10215 71476 64981 10588 55539 11357 11889 64981 119 31288
64981 107874 117 11357 11889 64981 25147 11868 15290 119 10730 23667 31585 11910
117 10671 11163 37445 118 11163 37445 27120 34384 119 25147 95118 10120 22740
57236 117 28920 171 52302 117 22736 11868 12718 12912 49158 10706 119 19876
10911 45306 13363 29956 14132 10526 43947 47102 119 10397 23367 10592 117 32500
28977 15290 66558 37142 14434 10265 109002 85783 15345 46503 30216 118 46503
30216 10265 21250 10706 10671 11390 136 119 119 102 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0

INFO:tensorflow:input_mask: 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

INFO:tensorflow:input_mask: 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
```

```
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

INFO:tensorflow:segment_ids: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

INFO:tensorflow:segment_ids: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

INFO:tensorflow:label: gagal-jantung (id = 2)

INFO:tensorflow:label: gagal-jantung (id = 2)
```

[20]:
```python
#Example on first observation in the training set
print("Sentence : ", train_InputExamples.iloc[0].text_a)
print("-"*30)
print("Tokens : ", tokenizer.tokenize(train_InputExamples.iloc[0].text_a))
print("-"*30)
print("Input IDs : ", train_features[0].input_ids)
print("-"*30)
print("Input Masks : ", train_features[0].input_mask)
print("-"*30)
print("Segment IDs : ", train_features[0].segment_ids)
```

```
Sentence :   , sy mau .  menderita hipertensi. sudah di bawa ke  dan diberi obat
penurun hipertensi. tapi  kok tekanan darahnya tidak kunjung normal? padahal
sudah rutin minum obat & mengkonsumsi banyak buah2an (timun, semangka, dll).
malah badannya terasa lemas, pusing & penglihatan kabur. terimakasih. w ð  ð
------------------------------
Tokens :  [',', 'sy', 'mau', '.', 'men', '##der', '##ita', 'hip', '##erten',
'##si', '.', 'sudah', 'di', 'ba', '##wa', 'ke', 'dan', 'diberi', 'oba', '##t',
'pen', '##uru', '##n', 'hip', '##erten', '##si', '.', 'tapi', 'ko', '##k',
'tekanan', 'darah', '##nya', 'tidak', 'kun', '##jung', 'normal', '?', 'pada',
'##hal', 'sudah', 'ru', '##tin', 'min', '##um', 'oba', '##t', '&', 'men', '##g',
'##kon', '##sum', '##si', 'banyak', 'buah', '##2', '##an', '(', 'tim', '##un',
',', 'sem', '##ang', '##ka', ',', 'dl', '##l', ')', '.', 'malah', 'badan',
'##nya', 'ter', '##asa', 'lema', '##s', ',', 'pus', '##ing', '&', 'pen',
'##gli', '##hat', '##an', 'ka', '##bur', '.', 'ter', '##ima', '##kasi', '##h',
'.', 'w', 'ð', '##ð']
```

```
------------------------------
Input IDs :  [101, 117, 12261, 43024, 119, 10588, 11304, 11622, 25377, 26645,
10449, 119, 25147, 10120, 15688, 11037, 11163, 10215, 50479, 35355, 10123,
66558, 25279, 10115, 25377, 26645, 10449, 119, 64747, 11252, 10174, 93131,
43947, 10676, 11868, 13158, 30425, 16626, 136, 10585, 18453, 25147, 13483,
15364, 13484, 10465, 35355, 10123, 111, 10588, 10240, 17423, 31417, 10449,
15175, 21988, 10729, 10206, 113, 19604, 11107, 117, 11531, 11889, 10371, 117,
63940, 10161, 114, 119, 73682, 51463, 10676, 12718, 23031, 93661, 10107, 117,
46960, 10230, 111, 66558, 20986, 19180, 10206, 10730, 34660, 119, 12718, 12443,
37997, 10237, 119, 191, 270, 12332, 102, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0]
------------------------------
Input Masks :  [1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,
1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,
1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,
1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0]
------------------------------
Segment IDs :  [0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0]
```

##Creating A Multi-Class Classifier Model

[21]:
```python
def create_model(is_predicting, input_ids, input_mask, segment_ids, labels,
                 num_labels):

  bert_module = hub.Module(
      BERT_MODEL_HUB,
      trainable=True)
  bert_inputs = dict(
        input_ids=input_ids,
        input_mask=input_mask,
        segment_ids=segment_ids)
    bert_outputs = bert_module(
        inputs=bert_inputs,
        signature="tokens",
        as_dict=True)

    # Use "pooled_output" for classification tasks on an entire sentence.
    # Use "sequence_outputs" for token-level output.
    output_layer = bert_outputs["pooled_output"]

    hidden_size = output_layer.shape[-1].value

    # Create our own layer to tune for politeness data.
    output_weights = tf.get_variable(
        "output_weights", [num_labels, hidden_size],
        initializer=tf.truncated_normal_initializer(stddev=0.02))

    output_bias = tf.get_variable(
        "output_bias", [num_labels], initializer=tf.zeros_initializer())

    with tf.variable_scope("loss"):

      # Dropout helps prevent overfitting
      output_layer = tf.nn.dropout(output_layer, keep_prob=0.9)

      logits = tf.matmul(output_layer, output_weights, transpose_b=True)
      logits = tf.nn.bias_add(logits, output_bias)
      log_probs = tf.nn.log_softmax(logits, axis=-1)

      # Convert labels into one-hot encoding
      one_hot_labels = tf.one_hot(labels, depth=num_labels, dtype=tf.float32)

      predicted_labels = tf.squeeze(tf.argmax(log_probs, axis=-1, output_type=tf.
↪int32))
      # If we're predicting, we want predicted labels and the probabiltiies.
      if is_predicting:
        return (predicted_labels, log_probs)

      # If we're train/eval, compute loss between predicted and actual label
      per_example_loss = -tf.reduce_sum(one_hot_labels * log_probs, axis=-1)
      loss = tf.reduce_mean(per_example_loss)
      return (loss, predicted_labels, log_probs)
```

[22]:
```
#A function that adapts our model to work for training, evaluation, and␣
↪prediction.
```

```
# model_fn_builder actually creates our model function
# using the passed parameters for num_labels, learning_rate, etc.
def model_fn_builder(num_labels, learning_rate, num_train_steps,
                     num_warmup_steps):
  """Returns `model_fn` closure for TPUEstimator."""
  def model_fn(features, labels, mode, params):  # pylint:␣
↪disable=unused-argument
    """The `model_fn` for TPUEstimator."""

    input_ids = features["input_ids"]
    input_mask = features["input_mask"]
    segment_ids = features["segment_ids"]
    label_ids = features["label_ids"]

    is_predicting = (mode == tf.estimator.ModeKeys.PREDICT)

    # TRAIN and EVAL
    if not is_predicting:

      (loss, predicted_labels, log_probs) = create_model(
        is_predicting, input_ids, input_mask, segment_ids, label_ids,␣
↪num_labels)

      train_op = bert.optimization.create_optimizer(
          loss, learning_rate, num_train_steps, num_warmup_steps, use_tpu=False)

      # Calculate evaluation metrics.
      def metric_fn(label_ids, predicted_labels):
        accuracy = tf.metrics.accuracy(label_ids, predicted_labels)
        true_pos = tf.metrics.true_positives(
            label_ids,
            predicted_labels)
        true_neg = tf.metrics.true_negatives(
            label_ids,
            predicted_labels)
        false_pos = tf.metrics.false_positives(
            label_ids,
            predicted_labels)
        false_neg = tf.metrics.false_negatives(
            label_ids,
            predicted_labels)

        return {
            "eval_accuracy": accuracy,
            "true_positives": true_pos,
            "true_negatives": true_neg,
            "false_positives": false_pos,
            "false_negatives": false_neg
            }

      eval_metrics = metric_fn(label_ids, predicted_labels)

      if mode == tf.estimator.ModeKeys.TRAIN:
        return tf.estimator.EstimatorSpec(mode=mode,
          loss=loss,
          train_op=train_op)
      else:
          return tf.estimator.EstimatorSpec(mode=mode,
            loss=loss,
            eval_metric_ops=eval_metrics)
    else:
      (predicted_labels, log_probs) = create_model(
        is_predicting, input_ids, input_mask, segment_ids, label_ids,␣
↪num_labels)

      predictions = {
          'probabilities': log_probs,
          'labels': predicted_labels
      }
      return tf.estimator.EstimatorSpec(mode, predictions=predictions)

  # Return the actual model function in the closure
  return model_fn
```

[23]:
```
# Compute train and warmup steps from batch size
# These hyperparameters are copied from this colab notebook (https://colab.
↪sandbox.google.com/github/tensorflow/tpu/blob/master/tools/colab/
↪bert_finetuning_with_cloud_tpus.ipynb)
BATCH_SIZE = 16
LEARNING_RATE = 2e-5
NUM_TRAIN_EPOCHS = 5
# Warmup is a period of time where the learning rate is small and gradually␣
↪increases--usually helps training.
WARMUP_PROPORTION = 0.1
# Model configs
SAVE_CHECKPOINTS_STEPS = 300
SAVE_SUMMARY_STEPS = 100

# Compute train and warmup steps from batch size
num_train_steps = int(len(train_features) / BATCH_SIZE * NUM_TRAIN_EPOCHS)
num_warmup_steps = int(num_train_steps * WARMUP_PROPORTION)

# Specify output directory and number of checkpoint steps to save
```

```
run_config = tf.estimator.RunConfig(
    model_dir=OUTPUT_DIR,
    save_summary_steps=SAVE_SUMMARY_STEPS,
    save_checkpoints_steps=SAVE_CHECKPOINTS_STEPS)

# Specify output directory and number of checkpoint steps to save
run_config = tf.estimator.RunConfig(
    model_dir=OUTPUT_DIR,
    save_summary_steps=SAVE_SUMMARY_STEPS,
    save_checkpoints_steps=SAVE_CHECKPOINTS_STEPS)
```

[24]:
```
#Initializing the model and the estimator
model_fn = model_fn_builder(
  num_labels=len(label_list),
  learning_rate=LEARNING_RATE,
  num_train_steps=num_train_steps,
  num_warmup_steps=num_warmup_steps)

estimator = tf.estimator.Estimator(
  model_fn=model_fn,
  config=run_config,
  params={"batch_size": BATCH_SIZE})
```

```
INFO:tensorflow:Using config: {'_model_dir': '/GD/My Drive/Colab
Notebooks/5epochs', '_tf_random_seed': None, '_save_summary_steps': 100,
'_save_checkpoints_steps': 300, '_save_checkpoints_secs': None,
'_session_config': allow_soft_placement: true
graph_options {
  rewrite_options {
    meta_optimizer_iterations: ONE
  }
}
, '_keep_checkpoint_max': 5, '_keep_checkpoint_every_n_hours': 10000,
'_log_step_count_steps': 100, '_train_distribute': None, '_device_fn': None,
'_protocol': None, '_eval_distribute': None, '_experimental_distribute': None,
'_experimental_max_worker_delay_secs': None, '_session_creation_timeout_secs':
7200, '_service': None, '_cluster_spec':
<tensorflow.python.training.server_lib.ClusterSpec object at 0x7f800eec26a0>,
'_task_type': 'worker', '_task_id': 0, '_global_id_in_cluster': 0, '_master':
'', '_evaluation_master': '', '_is_chief': True, '_num_ps_replicas': 0,
'_num_worker_replicas': 1}
```

```
INFO:tensorflow:Using config: {'_model_dir': '/GD/My Drive/Colab
Notebooks/5epochs', '_tf_random_seed': None, '_save_summary_steps': 100,
'_save_checkpoints_steps': 300, '_save_checkpoints_secs': None,
'_session_config': allow_soft_placement: true
graph_options {
  rewrite_options {
    meta_optimizer_iterations: ONE
  }
}
, '_keep_checkpoint_max': 5, '_keep_checkpoint_every_n_hours': 10000,
'_log_step_count_steps': 100, '_train_distribute': None, '_device_fn': None,
'_protocol': None, '_eval_distribute': None, '_experimental_distribute': None,
'_experimental_max_worker_delay_secs': None, '_session_creation_timeout_secs':
7200, '_service': None, '_cluster_spec':
<tensorflow.python.training.server_lib.ClusterSpec object at 0x7f800eec26a0>,
'_task_type': 'worker', '_task_id': 0, '_global_id_in_cluster': 0, '_master':
'', '_evaluation_master': '', '_is_chief': True, '_num_ps_replicas': 0,
'_num_worker_replicas': 1}
```

we will now create an input builder function that takes our training feature set (`train_features`) and produces a generator. This is a pretty standard design pattern for working with Tensorflow Estimators.

[25]:
```
# Create an input function for training. drop_remainder = True for using TPUs.
train_input_fn = bert.run_classifier.input_fn_builder(
    features=train_features,
    seq_length=MAX_SEQ_LENGTH,
    is_training=True,
    drop_remainder=False)

# Create an input function for validating. drop_remainder = True for using TPUs.
val_input_fn = run_classifier.input_fn_builder(
    features=val_features,
    seq_length=MAX_SEQ_LENGTH,
    is_training=False,
    drop_remainder=False)
```

##Training & Evaluating

[26]:
```
#Training the model
print(f'Beginning Training!')
current_time = datetime.now()
estimator.train(input_fn=train_input_fn, max_steps=num_train_steps)
print("Training took time ", datetime.now() - current_time)
```

```
Beginning Training!
WARNING:tensorflow:From /usr/local/lib/python3.6/dist-
packages/tensorflow_core/python/training/training_util.py:236:
Variable.initialized_value (from tensorflow.python.ops.variables) is deprecated
and will be removed in a future version.
Instructions for updating:
Use Variable.read_value. Variables in 2.X are initialized automatically both in
eager and graph (inside tf.defun) contexts.

WARNING:tensorflow:From /usr/local/lib/python3.6/dist-
```

```
packages/tensorflow_core/python/training/training_util.py:236:
Variable.initialized_value (from tensorflow.python.ops.variables) is deprecated
and will be removed in a future version.
Instructions for updating:
Use Variable.read_value. Variables in 2.X are initialized automatically both in
eager and graph (inside tf.defun) contexts.

INFO:tensorflow:Calling model_fn.

INFO:tensorflow:Calling model_fn.

INFO:tensorflow:Saver not created because there are no variables in the graph to
restore

INFO:tensorflow:Saver not created because there are no variables in the graph to
restore

WARNING:tensorflow:From <ipython-input-21-bdfb628bf45b>:33: calling dropout
(from tensorflow.python.ops.nn_ops) with keep_prob is deprecated and will be
removed in a future version.
Instructions for updating:
Please use `rate` instead of `keep_prob`. Rate should be set to `rate = 1 -
keep_prob`.

WARNING:tensorflow:From <ipython-input-21-bdfb628bf45b>:33: calling dropout
(from tensorflow.python.ops.nn_ops) with keep_prob is deprecated and will be
removed in a future version.
Instructions for updating:
Please use `rate` instead of `keep_prob`. Rate should be set to `rate = 1 -
keep_prob`.

WARNING:tensorflow:From /usr/local/lib/python3.6/dist-
packages/bert/optimization.py:27: The name tf.train.get_or_create_global_step is
deprecated. Please use tf.compat.v1.train.get_or_create_global_step instead.


WARNING:tensorflow:From /usr/local/lib/python3.6/dist-
packages/bert/optimization.py:27: The name tf.train.get_or_create_global_step is
deprecated. Please use tf.compat.v1.train.get_or_create_global_step instead.


WARNING:tensorflow:From /usr/local/lib/python3.6/dist-
packages/bert/optimization.py:32: The name tf.train.polynomial_decay is
deprecated. Please use tf.compat.v1.train.polynomial_decay instead.


WARNING:tensorflow:From /usr/local/lib/python3.6/dist-
packages/bert/optimization.py:32: The name tf.train.polynomial_decay is
deprecated. Please use tf.compat.v1.train.polynomial_decay instead.


WARNING:tensorflow:From /usr/local/lib/python3.6/dist-
packages/bert/optimization.py:70: The name tf.trainable_variables is deprecated.
```

```
Please use tf.compat.v1.trainable_variables instead.


WARNING:tensorflow:From /usr/local/lib/python3.6/dist-
packages/bert/optimization.py:70: The name tf.trainable_variables is deprecated.
Please use tf.compat.v1.trainable_variables instead.


WARNING:tensorflow:From /usr/local/lib/python3.6/dist-
packages/tensorflow_core/python/ops/math_grad.py:1375: where (from
tensorflow.python.ops.array_ops) is deprecated and will be removed in a future
version.
Instructions for updating:
Use tf.where in 2.0, which has the same broadcast rule as np.where

WARNING:tensorflow:From /usr/local/lib/python3.6/dist-
packages/tensorflow_core/python/ops/math_grad.py:1375: where (from
tensorflow.python.ops.array_ops) is deprecated and will be removed in a future
version.
Instructions for updating:
Use tf.where in 2.0, which has the same broadcast rule as np.where
/usr/local/lib/python3.6/dist-
packages/tensorflow_core/python/framework/indexed_slices.py:424: UserWarning:
Converting sparse IndexedSlices to a dense Tensor of unknown shape. This may
consume a large amount of memory.
  "Converting sparse IndexedSlices to a dense Tensor of unknown shape. "

INFO:tensorflow:Done calling model_fn.

INFO:tensorflow:Done calling model_fn.

INFO:tensorflow:Create CheckpointSaverHook.

INFO:tensorflow:Create CheckpointSaverHook.

INFO:tensorflow:Graph was finalized.

INFO:tensorflow:Graph was finalized.

INFO:tensorflow:Running local_init_op.

INFO:tensorflow:Running local_init_op.

INFO:tensorflow:Done running local_init_op.

INFO:tensorflow:Done running local_init_op.

INFO:tensorflow:Saving checkpoints for 0 into /GD/My Drive/Colab
Notebooks/5epochs/model.ckpt.

INFO:tensorflow:Saving checkpoints for 0 into /GD/My Drive/Colab
Notebooks/5epochs/model.ckpt.

INFO:tensorflow:loss = 1.6338559, step = 0

INFO:tensorflow:loss = 1.6338559, step = 0
```

```
INFO:tensorflow:global_step/sec: 1.41112
```

```
INFO:tensorflow:global_step/sec: 1.41112
```

```
INFO:tensorflow:loss = 0.7266385, step = 100 (70.870 sec)
```

```
INFO:tensorflow:loss = 0.7266385, step = 100 (70.870 sec)
```

```
INFO:tensorflow:global_step/sec: 1.95412
```

```
INFO:tensorflow:global_step/sec: 1.95412
```

```
INFO:tensorflow:loss = 0.6878239, step = 200 (51.173 sec)
```

```
INFO:tensorflow:loss = 0.6878239, step = 200 (51.173 sec)
```

```
INFO:tensorflow:Saving checkpoints for 300 into /GD/My Drive/Colab
Notebooks/5epochs/model.ckpt.
```

```
INFO:tensorflow:Saving checkpoints for 300 into /GD/My Drive/Colab
Notebooks/5epochs/model.ckpt.
```

```
INFO:tensorflow:global_step/sec: 1.26026
```

```
INFO:tensorflow:global_step/sec: 1.26026
```

```
INFO:tensorflow:loss = 0.60935867, step = 300 (79.349 sec)
```

```
INFO:tensorflow:loss = 0.60935867, step = 300 (79.349 sec)
```

```
INFO:tensorflow:Saving checkpoints for 325 into /GD/My Drive/Colab
Notebooks/5epochs/model.ckpt.
```

```
INFO:tensorflow:Saving checkpoints for 325 into /GD/My Drive/Colab
Notebooks/5epochs/model.ckpt.
```

```
INFO:tensorflow:Loss for final step: 0.27258664.
```

```
INFO:tensorflow:Loss for final step: 0.27258664.
```

```
Training took time  0:05:27.361957
```

[27]:
```
#Evaluating the model with Validation set
eval_results = estimator.evaluate(input_fn=val_input_fn, steps=None)
```

```
INFO:tensorflow:Calling model_fn.
```

```
INFO:tensorflow:Calling model_fn.
```

```
INFO:tensorflow:Saver not created because there are no variables in the graph to
restore
```

```
INFO:tensorflow:Saver not created because there are no variables in the graph to
restore
```

```
/usr/local/lib/python3.6/dist-
packages/tensorflow_core/python/framework/indexed_slices.py:424: UserWarning:
Converting sparse IndexedSlices to a dense Tensor of unknown shape. This may
```

```
consume a large amount of memory.
  "Converting sparse IndexedSlices to a dense Tensor of unknown shape. "

INFO:tensorflow:Done calling model_fn.

INFO:tensorflow:Done calling model_fn.

INFO:tensorflow:Starting evaluation at 2020-07-29T19:14:13Z

INFO:tensorflow:Starting evaluation at 2020-07-29T19:14:13Z

INFO:tensorflow:Graph was finalized.

INFO:tensorflow:Graph was finalized.

INFO:tensorflow:Restoring parameters from /GD/My Drive/Colab
Notebooks/5epochs/model.ckpt-325

INFO:tensorflow:Restoring parameters from /GD/My Drive/Colab
Notebooks/5epochs/model.ckpt-325

INFO:tensorflow:Running local_init_op.

INFO:tensorflow:Running local_init_op.

INFO:tensorflow:Done running local_init_op.

INFO:tensorflow:Done running local_init_op.

INFO:tensorflow:Finished evaluation at 2020-07-29-19:14:44

INFO:tensorflow:Finished evaluation at 2020-07-29-19:14:44

INFO:tensorflow:Saving dict for global step 325: eval_accuracy = 0.7307692,
false_negatives = 7.0, false_positives = 10.0, global_step = 325, loss =
0.78519255, true_negatives = 45.0, true_positives = 198.0

INFO:tensorflow:Saving dict for global step 325: eval_accuracy = 0.7307692,
false_negatives = 7.0, false_positives = 10.0, global_step = 325, loss =
0.78519255, true_negatives = 45.0, true_positives = 198.0

INFO:tensorflow:Saving 'checkpoint_path' summary for global step 325: /GD/My
Drive/Colab Notebooks/5epochs/model.ckpt-325

INFO:tensorflow:Saving 'checkpoint_path' summary for global step 325: /GD/My
Drive/Colab Notebooks/5epochs/model.ckpt-325
```

[28]:
```
eval_results
```

[28]:
```
{'eval_accuracy': 0.7307692,
 'false_negatives': 7.0,
 'false_positives': 10.0,
 'global_step': 325,
 'loss': 0.78519255,
 'true_negatives': 45.0,
 'true_positives': 198.0}
```

[29]:
```
predictions = estimator.predict(val_input_fn)
```

[30]:
```
preds_result = []
for prediction in predictions:
  preds_result.append((prediction['probabilities'], prediction['labels']))
```

```
INFO:tensorflow:Calling model_fn.

INFO:tensorflow:Calling model_fn.

INFO:tensorflow:Saver not created because there are no variables in the graph to
restore

INFO:tensorflow:Saver not created because there are no variables in the graph to
restore

INFO:tensorflow:Done calling model_fn.

INFO:tensorflow:Done calling model_fn.

INFO:tensorflow:Graph was finalized.

INFO:tensorflow:Graph was finalized.

INFO:tensorflow:Restoring parameters from /GD/My Drive/Colab
Notebooks/5epochs/model.ckpt-325

INFO:tensorflow:Restoring parameters from /GD/My Drive/Colab
Notebooks/5epochs/model.ckpt-325

INFO:tensorflow:Running local_init_op.

INFO:tensorflow:Running local_init_op.

INFO:tensorflow:Done running local_init_op.

INFO:tensorflow:Done running local_init_op.
```

[31]:
```
y_pred = list(map(lambda x: x[1], preds_result))
```

[32]:
```
mapping = dict()

for i in range(len(label_list)):
  mapping[label_list[i]] = i

y_actual = list(map(lambda x: mapping[x], val['category'].tolist()))
```

[33]:
```
from sklearn.metrics import confusion_matrix

confusion_matrix(y_actual, y_pred)
```

[33]:
```
array([[45,  1,  2,  6,  1],
       [ 0, 40,  6,  2, 11],
       [ 4,  3, 31,  5,  6],
       [ 2,  0,  2, 45,  1],
       [ 1,  4, 12,  2, 28]])
```

[34]:
```
val_pred = val.copy()
val_pred['pred'] = list(map(lambda x: label_list[x], y_pred))
val_pred.to_csv('prediction_final_raw.csv')
```

[35]:
```
from sklearn.metrics import classification_report
print(classification_report(val_pred['category'], val_pred['pred']))
```

```
                  precision    recall  f1-score   support

         aritmia       0.83      0.68      0.75        59
    gagal-jantung       0.58      0.63      0.61        49
      hipertensi       0.87      0.82      0.84        55
serangan-jantung       0.60      0.60      0.60        47
          stroke       0.75      0.90      0.82        50

        accuracy                           0.73       260
       macro avg       0.73      0.72      0.72       260
    weighted avg       0.73      0.73      0.73       260
```

[36]:
```
val_pred.head()
```

[36]:
```
      Unnamed: 0  …              pred
1001        1001  …  serangan-jantung
1266        1266  …            stroke
503          503  …     gagal-jantung
756          756  …        hipertensi
459          459  …            stroke

[5 rows x 6 columns]
```

#Reference: Most of the code has been taken from the following resource:

- https://colab.research.google.com/github/google-research/bert/blob/master/predicting_movie_reviews_w