

```
import os
import sys
from tempfile import NamedTemporaryFile
from urllib.request import urlopen
from urllib.parse import unquote, urlparse
from urllib.error import HTTPError
from zipfile import ZipFile
import tarfile
import shutil

CHUNK_SIZE = 40960
DATA_SOURCE_MAPPING = 'llm-detect-ai-generated-text:https%3A%2F%2Fstorage.googleapis.com%2Fkaggle-competitions-data%2Fkaggle-v2%2F61542%2F7516023%2Fbundle%2Farchive.zip%3FX-Goog-Algorithm%3DG00G4-RSA-SHA256%26X-Goog-Credential%3Dgcp-kaggle-com%2540kaggle-161607.iam.gserviceaccount.com%252F20240130%252Fauto%252Fstorage%252Fgoog4_request%26X-Goog-Date%3D20240130T163529Z%26X-Goog-Expires%3D259200%26X-Goog-SignedHeaders%3Dhost%26X-Goog-Signature%3D5afff7106974184943e9d840fa8be84f7f8e67a05bcfdb14f639e1fb713be1331854a377c7f389ff7a7fbde7f7bc695bfbdb75f40eaf502f691d7205b642be966a0b876ac547a8b960df8c60baf8c17b45b59078135e2fdae029e506fe357c701241baba3257a603ccf3853eeeff6d7fa4ccb9b00d2cd84035027b814e0fcb28257c1324d7772ce6990fcc6b8a1b6de17934ed1ee67ca0995bd11ec4fb298d61b697ac7b09c28541817df4511f4e9a8cb384e5eddd27c33ec5153725a917c8e6b15479fb03a59752c63207501f2177703ecbb8f9f19bcb9cc4f566b52a97124e00ca038fd00d4e8a05f9c52ddab3776590325d516957bcc3d09505001d5c0,daigt-v2-train-dataset:https%3A%2F%2Fstorage.googleapis.com%2Fkaggle-data-sets%2F4005256%2F6977472%2Fbundle%2Farchive.zip%3FX-Goog-Algorithm%3DG00G4-RSA-SHA256%26X-Goog-Credential%3Dgcp-kaggle-com%2540kaggle-161607.iam.gserviceaccount.com%252F20240130%252Fauto%252Fstorage%252Fgoog4_request%26X-Goog-Date%3D20240130T163529Z%26X-Goog-Expires%3D259200%26X-Goog-SignedHeaders%3Dhost%26X-Goog-Signature%3D5f688af1cb89a4f6991621dc74213c4fb405b5f227da006526065c09acfb0bb0f668bd74463c1e6085d31912e1efb67c6c8f9f15bf9b36e3b24e3f5d828cc49ba9b084562767b6a30e584aa67aceb3f887373bf724fd8fc4edf582ff19f1ca7c24d0f65e6a2ecd8ee4a801879cdb77e894a339ee56e57571b92ec6619b54753afa4cbf8d11f35ee299fc1cffe666789337782a956aed45693681d8da960febd02e5ff8c4b3fe279fdad8a1c7b1d602a4c71e36c0f1c56456bff281fe3e7cffe32c124a102c8478e48145416bf96816186f8bf9b97c0c91fc0c522eed4fb7689d8d792688d0f371c67dadcd695b472c18ccf2cb7b3e983fcc43b6771aa2e46de,cleaned-texts:https%3A%2F%2Fstorage.googleapis.com%2Fkaggle-data-sets%2F4335364%2F7448092%2Fbundle%2Farchive.zip%3FX-Goog-Algorithm%3DG00G4-RSA-SHA256%26X-Goog-Credential%3Dgcp-kaggle-com%2540kaggle-161607.iam.gserviceaccount.com%252F20240130%252Fauto%252Fstorage%252Fgoog4_request%26X-Goog-Date%3D20240130T163529Z%26X-Goog-Expires%3D259200%26X-Goog-SignedHeaders%3Dhost%26X-Goog-Signature%3Dbd379303db039a3580574b93c86891777e7d6a78296a9496a062ca00a2c776413d35dce2232e3b6461b7d9e365acc04a6cd5461a7b4af5ae24635424d85070cbf69d0a2305d10b6c7b49a847d353d4f4bd95f1505bd150a343912d8aae283a3adfcdba086f2556d
```

```
b656179756c5204217332aab91006b8f20271e23fd1571b967180ae6fbc42f43e04a06
8ce2653d12ee18ca8b2ecc4f321fa496d050ec23a03bd9b815eefdddef8ef698c562c19
682e44d5f1798b94653ea67c5b574b742acabe9f9be93c0a400c7c40f3de0c3ece9e68
00c34dd86b040481051240b2f474e70e060b7578e75c8f267519c639c59d342244b81a
968d8e894228c9adfbale2868'
```

```
KAGGLE_INPUT_PATH='/kaggle/input'
KAGGLE_WORKING_PATH='/kaggle/working'
KAGGLE_SYMLINK='kaggle'
```

```
!umount /kaggle/input/ 2> /dev/null
shutil.rmtree('/kaggle/input', ignore_errors=True)
os.makedirs(KAGGLE_INPUT_PATH, 0o777, exist_ok=True)
os.makedirs(KAGGLE_WORKING_PATH, 0o777, exist_ok=True)
```

```
try:
    os.symlink(KAGGLE_INPUT_PATH, os.path.join(".", 'input'),
target_is_directory=True)
except FileExistsError:
    pass
try:
    os.symlink(KAGGLE_WORKING_PATH, os.path.join(".", 'working'),
target_is_directory=True)
except FileExistsError:
    pass
```

```
for data_source_mapping in DATA_SOURCE_MAPPING.split(','):
    directory, download_url_encoded = data_source_mapping.split(':')
    download_url = unquote(download_url_encoded)
    filename = urlparse(download_url).path
    destination_path = os.path.join(KAGGLE_INPUT_PATH, directory)
    try:
        with urlopen(download_url) as fileres, NamedTemporaryFile() as
tfile:
            total_length = fileres.headers['content-length']
            print(f'Downloading {directory}, {total_length} bytes
compressed')
            dl = 0
            data = fileres.read(CHUNK_SIZE)
            while len(data) > 0:
                dl += len(data)
                tfile.write(data)
                done = int(50 * dl / int(total_length))
                sys.stdout.write(f"\r[{'=' * done}{' ' * (50-done)}]
{dl} bytes downloaded")
                sys.stdout.flush()
                data = fileres.read(CHUNK_SIZE)
            if filename.endswith('.zip'):
                with ZipFile(tfile) as zfile:
                    zfile.extractall(destination_path)
```

```

        else:
            with tarfile.open(tfile.name) as tarfile:
                tarfile.extractall(destination_path)
            print(f'\nDownloaded and uncompressed: {directory}')
        except HTTPError as e:
            print(f'Failed to load (likely expired) {download_url} to path
{destination_path}')
            continue
        except OSError as e:
            print(f'Failed to load {download_url} to path
{destination_path}')
            continue

print('Data source import complete.')

```

Failed to load (likely expired) https://storage.googleapis.com/kaggle-competitions-data/kaggle-v2/61542/7516023/bundle/archive.zip?X-Goog-Algorithm=G00G4-RSA-SHA256&X-Goog-Credential=gcp-kaggle-com%40kaggle-161607.iam.gserviceaccount.com%2F20240130%2Fauto%2Fstorage%2Fgoog4_request&X-Goog-Date=20240130T163529Z&X-Goog-Expires=259200&X-Goog-SignedHeaders=host&X-Goog-Signature=5afff7106974184943e9d840fa8be84f7f8e67a05bcfdbba14f639e1fb713be1331854a377c7f389ff7a7fbde7f7bc695bfbdb75f40eaf502f691d7205b642be966a0b876ac547a8b960df8c60bafc817b45b59078135e2fdae029e506fe357c701241baba3257a603ccf3853eeeff6d7fa4ccb9b00d2cd84035027b814e0fcb28257c1324d7772ce6990fcc6b8a1b6de17934ed1ee67ca0995bd11ec4fb298d61b697ac7b09c28541817df4511f4e9a8cb384e5eddd27c33ec5153725a917c8e6b15479fb03a59752c63207501f2177703ecbb8f9f19bcb9cc4f566b52a97124e00ca038fd00d4e8a05f9c52ddab3776590325d516957bcc3d09505001d5c0 to path /kaggle/input/llm-detect-ai-generated-text

Failed to load (likely expired) https://storage.googleapis.com/kaggle-data-sets/4005256/6977472/bundle/archive.zip?X-Goog-Algorithm=G00G4-RSA-SHA256&X-Goog-Credential=gcp-kaggle-com%40kaggle-161607.iam.gserviceaccount.com%2F20240130%2Fauto%2Fstorage%2Fgoog4_request&X-Goog-Date=20240130T163529Z&X-Goog-Expires=259200&X-Goog-SignedHeaders=host&X-Goog-Signature=5f688af1cb89a4f6991621dc74213c4fb405b5f227da006526065c09acfb0bb0f668bd74463c1e6085d31912e1efb67c6c8f9f15bf9b36e3b24e3f5d828cc49ba9b084562767b6a30e584aa67aceb3f887373bf724fd8fc4edf582ff19f1ca7c24d0f65e6a2ecd8ee4a801879cdb77e894a339ee56e57571b92ec6619b54753afa4cbf8d11f35ee299fc1cffe666789337782a956aed45693681d8da960febd02e5ff8c4b3fe279fdad8a1c7b1d602a4c71e36c0f1c56456bfff281fe3e7cfffbe32c124a102c8478e48145416bf96816186f8bf9b97c0c91fc0c522eed4fb7689d8d792688d0f371c67dadcd695b472c18ccf2cb7b3e983fcc43b6771aa2e46de to path /kaggle/input/daigt-v2-train-dataset

Failed to load (likely expired) https://storage.googleapis.com/kaggle-data-sets/4335364/7448092/bundle/archive.zip?X-Goog-Algorithm=G00G4-RSA-SHA256&X-Goog-Credential=gcp-kaggle-com%40kaggle-161607.iam.gserviceaccount.com%2F20240130%2Fauto%2Fstorage%2Fgoog4_request&X-Goog-Date=20240130T163529Z&X-Goog-Expires=259200&X-

```
Goog-SignedHeaders=host&X-Goog-  
Signature=bd379303db039a3580574b93c86891777e7d6a78296a9496a062ca00a2c7  
76413d35dce2232e3b6461b7d9e365acc04a6cd5461a7b4af5ae24635424d85070cbf6  
9d0a2305d10b6c7b49a847d353d4f4bd95f1505bd150a343912d8aae283a3adfcdba08  
6f2556db656179756c5204217332aab91006b8f20271e23fd1571b967180ae6fbc42f4  
3e04a068ce2653d12ee18ca8b2ecc4f321fa496d050ec23a03bd9b815eefddef8ef698  
c562c19682e44d5f1798b94653ea67c5b574b742acabe9f9be93c0a400c7c40f3de0c3  
ece9e6800c34dd86b040481051240b2f474e70e060b7578e75c8f267519c639c59d342  
244b81a968d8e894228c9adfbale2868 to path /kaggle/input/cleaned-texts  
Data source import complete.
```

```
!pip install tensorflow_text  
!pip install sentence_transformers
```

```
Collecting tensorflow_text  
  Downloading tensorflow_text-2.16.1-cp310-cp310-  
manylinux_2_17_x86_64.manylinux2014_x86_64.whl (5.2 MB)  
_____ 5.2/5.2 MB 14.3 MB/s eta
```

```
0:00:00  
  tensorflow_text)  
  Downloading tensorflow-2.16.1-cp310-cp310-  
manylinux_2_17_x86_64.manylinux2014_x86_64.whl (589.8 MB)  
_____ 589.8/589.8 MB 2.3 MB/s eta
```

```
0:00:00  
ent already satisfied: absl-py>=1.0.0 in  
/usr/local/lib/python3.10/dist-packages (from  
tensorflow<2.17,>=2.16.1->tensorflow_text) (1.4.0)  
Requirement already satisfied: astunparse>=1.6.0 in  
/usr/local/lib/python3.10/dist-packages (from  
tensorflow<2.17,>=2.16.1->tensorflow_text) (1.6.3)  
Requirement already satisfied: flatbuffers>=23.5.26 in  
/usr/local/lib/python3.10/dist-packages (from  
tensorflow<2.17,>=2.16.1->tensorflow_text) (24.3.25)  
Requirement already satisfied: gast!=0.5.0,!0.5.1,!0.5.2,>=0.2.1  
in /usr/local/lib/python3.10/dist-packages (from  
tensorflow<2.17,>=2.16.1->tensorflow_text) (0.5.4)  
Requirement already satisfied: google-pasta>=0.1.1 in  
/usr/local/lib/python3.10/dist-packages (from  
tensorflow<2.17,>=2.16.1->tensorflow_text) (0.2.0)  
Collecting h5py>=3.10.0 (from tensorflow<2.17,>=2.16.1-  
>tensorflow_text)
```

```
  Downloading h5py-3.11.0-cp310-cp310-  
manylinux_2_17_x86_64.manylinux2014_x86_64.whl (5.3 MB)  
_____ 5.3/5.3 MB 68.1 MB/s eta
```

```
0:00:00  
ent already satisfied: libclang>=13.0.0 in  
/usr/local/lib/python3.10/dist-packages (from  
tensorflow<2.17,>=2.16.1->tensorflow_text) (18.1.1)  
Collecting ml-dtypes~=0.3.1 (from tensorflow<2.17,>=2.16.1-  
>tensorflow_text)
```

Downloading ml_dtypes-0.3.2-cp310-cp310-manylinux_2_17_x86_64.manylinux2014_x86_64.whl (2.2 MB)
2.2/2.2 MB 52.9 MB/s eta

0:00:00

Requirement already satisfied: opt-einsum>=2.3.2 in /usr/local/lib/python3.10/dist-packages (from tensorflow<2.17,>=2.16.1->tensorflow_text) (3.3.0)
Requirement already satisfied: packaging in /usr/local/lib/python3.10/dist-packages (from tensorflow<2.17,>=2.16.1->tensorflow_text) (24.0)
Requirement already satisfied: protobuf!=4.21.0,! =4.21.1,! =4.21.2,! =4.21.3,! =4.21.4,! =4.21.5,<5.0.0dev,>=3.20.3 in /usr/local/lib/python3.10/dist-packages (from tensorflow<2.17,>=2.16.1->tensorflow_text) (3.20.3)
Requirement already satisfied: requests<3,>=2.21.0 in /usr/local/lib/python3.10/dist-packages (from tensorflow<2.17,>=2.16.1->tensorflow_text) (2.31.0)
Requirement already satisfied: setuptools in /usr/local/lib/python3.10/dist-packages (from tensorflow<2.17,>=2.16.1->tensorflow_text) (67.7.2)
Requirement already satisfied: six>=1.12.0 in /usr/local/lib/python3.10/dist-packages (from tensorflow<2.17,>=2.16.1->tensorflow_text) (1.16.0)
Requirement already satisfied: termcolor>=1.1.0 in /usr/local/lib/python3.10/dist-packages (from tensorflow<2.17,>=2.16.1->tensorflow_text) (2.4.0)
Requirement already satisfied: typing-extensions>=3.6.6 in /usr/local/lib/python3.10/dist-packages (from tensorflow<2.17,>=2.16.1->tensorflow_text) (4.11.0)
Requirement already satisfied: wrapt>=1.11.0 in /usr/local/lib/python3.10/dist-packages (from tensorflow<2.17,>=2.16.1->tensorflow_text) (1.14.1)
Requirement already satisfied: grpcio<2.0,>=1.24.3 in /usr/local/lib/python3.10/dist-packages (from tensorflow<2.17,>=2.16.1->tensorflow_text) (1.62.2)
Collecting tensorboard<2.17,>=2.16 (from tensorflow<2.17,>=2.16.1->tensorflow_text)

Downloading tensorboard-2.16.2-py3-none-any.whl (5.5 MB)
5.5/5.5 MB 97.4 MB/s eta

0:00:00

tensorflow<2.17,>=2.16.1->tensorflow_text)

Downloading keras-3.3.2-py3-none-any.whl (1.1 MB)
1.1/1.1 MB 76.5 MB/s eta

0:00:00

Requirement already satisfied: tensorflow-io-gcs-filesystem>=0.23.1 in /usr/local/lib/python3.10/dist-packages (from tensorflow<2.17,>=2.16.1->tensorflow_text) (0.36.0)
Requirement already satisfied: numpy<2.0.0,>=1.23.5 in /usr/local/lib/python3.10/dist-packages (from

```

tensorflow<2.17,>=2.16.1->tensorflow_text) (1.25.2)
Requirement already satisfied: wheel<1.0,>=0.23.0 in
/usr/local/lib/python3.10/dist-packages (from astunparse>=1.6.0-
>tensorflow<2.17,>=2.16.1->tensorflow_text) (0.43.0)
Requirement already satisfied: rich in /usr/local/lib/python3.10/dist-
packages (from keras>=3.0.0->tensorflow<2.17,>=2.16.1-
>tensorflow_text) (13.7.1)
Collecting namex (from keras>=3.0.0->tensorflow<2.17,>=2.16.1-
>tensorflow_text)
  Downloading namex-0.0.8-py3-none-any.whl (5.8 kB)
Collecting optree (from keras>=3.0.0->tensorflow<2.17,>=2.16.1-
>tensorflow_text)
  Downloading optree-0.11.0-cp310-cp310-
manylinux_2_17_x86_64.manylinux2014_x86_64.whl (311 kB)
----- 311.2/311.2 kB 33.2 MB/s eta
0:00:00
Requirement already satisfied: charset-normalizer<4,>=2 in
/usr/local/lib/python3.10/dist-packages (from requests<3,>=2.21.0-
>tensorflow<2.17,>=2.16.1->tensorflow_text) (3.3.2)
Requirement already satisfied: idna<4,>=2.5 in
/usr/local/lib/python3.10/dist-packages (from requests<3,>=2.21.0-
>tensorflow<2.17,>=2.16.1->tensorflow_text) (3.7)
Requirement already satisfied: urllib3<3,>=1.21.1 in
/usr/local/lib/python3.10/dist-packages (from requests<3,>=2.21.0-
>tensorflow<2.17,>=2.16.1->tensorflow_text) (2.0.7)
Requirement already satisfied: certifi>=2017.4.17 in
/usr/local/lib/python3.10/dist-packages (from requests<3,>=2.21.0-
>tensorflow<2.17,>=2.16.1->tensorflow_text) (2024.2.2)
Requirement already satisfied: markdown>=2.6.8 in
/usr/local/lib/python3.10/dist-packages (from tensorboard<2.17,>=2.16-
>tensorflow<2.17,>=2.16.1->tensorflow_text) (3.6)
Requirement already satisfied: tensorboard-data-server<0.8.0,>=0.7.0
in /usr/local/lib/python3.10/dist-packages (from
tensorboard<2.17,>=2.16->tensorflow<2.17,>=2.16.1->tensorflow_text)
(0.7.2)
Requirement already satisfied: werkzeug>=1.0.1 in
/usr/local/lib/python3.10/dist-packages (from tensorboard<2.17,>=2.16-
>tensorflow<2.17,>=2.16.1->tensorflow_text) (3.0.2)
Requirement already satisfied: MarkupSafe>=2.1.1 in
/usr/local/lib/python3.10/dist-packages (from werkzeug>=1.0.1-
>tensorboard<2.17,>=2.16->tensorflow<2.17,>=2.16.1->tensorflow_text)
(2.1.5)
Requirement already satisfied: markdown-it-py>=2.2.0 in
/usr/local/lib/python3.10/dist-packages (from rich->keras>=3.0.0-
>tensorflow<2.17,>=2.16.1->tensorflow_text) (3.0.0)
Requirement already satisfied: pygments<3.0.0,>=2.13.0 in
/usr/local/lib/python3.10/dist-packages (from rich->keras>=3.0.0-
>tensorflow<2.17,>=2.16.1->tensorflow_text) (2.16.1)
Requirement already satisfied: mdurl~=0.1 in

```

```

/usr/local/lib/python3.10/dist-packages (from markdown-it-py>=2.2.0-
>rich->keras>=3.0.0->tensorflow<2.17,>=2.16.1->tensorflow_text)
(0.1.2)
Installing collected packages: namex, optree, ml-dtypes, h5py,
tensorboard, keras, tensorflow, tensorflow_text
  Attempting uninstall: ml-dtypes
    Found existing installation: ml-dtypes 0.2.0
    Uninstalling ml-dtypes-0.2.0:
      Successfully uninstalled ml-dtypes-0.2.0
  Attempting uninstall: h5py
    Found existing installation: h5py 3.9.0
    Uninstalling h5py-3.9.0:
      Successfully uninstalled h5py-3.9.0
  Attempting uninstall: tensorboard
    Found existing installation: tensorboard 2.15.2
    Uninstalling tensorboard-2.15.2:
      Successfully uninstalled tensorboard-2.15.2
  Attempting uninstall: keras
    Found existing installation: keras 2.15.0
    Uninstalling keras-2.15.0:
      Successfully uninstalled keras-2.15.0
  Attempting uninstall: tensorflow
    Found existing installation: tensorflow 2.15.0
    Uninstalling tensorflow-2.15.0:
      Successfully uninstalled tensorflow-2.15.0
ERROR: pip's dependency resolver does not currently take into account
all the packages that are installed. This behaviour is the source of
the following dependency conflicts.
tf-keras 2.15.1 requires tensorflow<2.16,>=2.15, but you have
tensorflow 2.16.1 which is incompatible.
Successfully installed h5py-3.11.0 keras-3.3.2 ml-dtypes-0.3.2 namex-
0.0.8 optree-0.11.0 tensorboard-2.16.2 tensorflow-2.16.1
tensorflow_text-2.16.1
Collecting sentence_transformers
  Downloading sentence_transformers-2.7.0-py3-none-any.whl (171 kB)
    171.5/171.5 kB 3.8 MB/s eta
0:00:00
Requirement already satisfied: transformers<5.0.0,>=4.34.0 in
/usr/local/lib/python3.10/dist-packages (from sentence_transformers)
(4.40.0)
Requirement already satisfied: tqdm in /usr/local/lib/python3.10/dist-
packages (from sentence_transformers) (4.66.2)
Requirement already satisfied: torch>=1.11.0 in
/usr/local/lib/python3.10/dist-packages (from sentence_transformers)
(2.2.1+cu121)
Requirement already satisfied: numpy in
/usr/local/lib/python3.10/dist-packages (from sentence_transformers)
(1.25.2)
Requirement already satisfied: scikit-learn in

```

```
/usr/local/lib/python3.10/dist-packages (from sentence_transformers)
(1.2.2)
Requirement already satisfied: scipy in
/usr/local/lib/python3.10/dist-packages (from sentence_transformers)
(1.11.4)
Requirement already satisfied: huggingface-hub>=0.15.1 in
/usr/local/lib/python3.10/dist-packages (from sentence_transformers)
(0.20.3)
Requirement already satisfied: Pillow in
/usr/local/lib/python3.10/dist-packages (from sentence_transformers)
(9.4.0)
Requirement already satisfied: filelock in
/usr/local/lib/python3.10/dist-packages (from huggingface-hub>=0.15.1-
>sentence_transformers) (3.13.4)
Requirement already satisfied: fsspec>=2023.5.0 in
/usr/local/lib/python3.10/dist-packages (from huggingface-hub>=0.15.1-
>sentence_transformers) (2023.6.0)
Requirement already satisfied: requests in
/usr/local/lib/python3.10/dist-packages (from huggingface-hub>=0.15.1-
>sentence_transformers) (2.31.0)
Requirement already satisfied: pyyaml>=5.1 in
/usr/local/lib/python3.10/dist-packages (from huggingface-hub>=0.15.1-
>sentence_transformers) (6.0.1)
Requirement already satisfied: typing-extensions>=3.7.4.3 in
/usr/local/lib/python3.10/dist-packages (from huggingface-hub>=0.15.1-
>sentence_transformers) (4.11.0)
Requirement already satisfied: packaging>=20.9 in
/usr/local/lib/python3.10/dist-packages (from huggingface-hub>=0.15.1-
>sentence_transformers) (24.0)
Requirement already satisfied: sympy in
/usr/local/lib/python3.10/dist-packages (from torch>=1.11.0-
>sentence_transformers) (1.12)
Requirement already satisfied: networkx in
/usr/local/lib/python3.10/dist-packages (from torch>=1.11.0-
>sentence_transformers) (3.3)
Requirement already satisfied: jinja2 in
/usr/local/lib/python3.10/dist-packages (from torch>=1.11.0-
>sentence_transformers) (3.1.3)
Collecting nvidia-cuda-nvrtc-cu12==12.1.105 (from torch>=1.11.0-
>sentence_transformers)
  Using cached nvidia_cuda_nvrtc_cu12-12.1.105-py3-none-
manylinux1_x86_64.whl (23.7 MB)
Collecting nvidia-cuda-runtime-cu12==12.1.105 (from torch>=1.11.0-
>sentence_transformers)
  Using cached nvidia_cuda_runtime_cu12-12.1.105-py3-none-
manylinux1_x86_64.whl (823 kB)
Collecting nvidia-cuda-cupti-cu12==12.1.105 (from torch>=1.11.0-
>sentence_transformers)
  Using cached nvidia_cuda_cupti_cu12-12.1.105-py3-none-
```



```
manylinux1_x86_64.whl (14.1 MB)
Collecting nvidia-cudnn-cu12==8.9.2.26 (from torch>=1.11.0->sentence_transformers)
  Using cached nvidia_cudnn_cu12-8.9.2.26-py3-none-manylinux1_x86_64.whl (731.7 MB)
Collecting nvidia-cublas-cu12==12.1.3.1 (from torch>=1.11.0->sentence_transformers)
  Using cached nvidia_cublas_cu12-12.1.3.1-py3-none-manylinux1_x86_64.whl (410.6 MB)
Collecting nvidia-cufft-cu12==11.0.2.54 (from torch>=1.11.0->sentence_transformers)
  Using cached nvidia_cufft_cu12-11.0.2.54-py3-none-manylinux1_x86_64.whl (121.6 MB)
Collecting nvidia-curand-cu12==10.3.2.106 (from torch>=1.11.0->sentence_transformers)
  Using cached nvidia_curand_cu12-10.3.2.106-py3-none-manylinux1_x86_64.whl (56.5 MB)
Collecting nvidia-cusolver-cu12==11.4.5.107 (from torch>=1.11.0->sentence_transformers)
  Using cached nvidia_cusolver_cu12-11.4.5.107-py3-none-manylinux1_x86_64.whl (124.2 MB)
Collecting nvidia-cuspars-cu12==12.1.0.106 (from torch>=1.11.0->sentence_transformers)
  Using cached nvidia_cuspars-cu12-12.1.0.106-py3-none-manylinux1_x86_64.whl (196.0 MB)
Collecting nvidia-nccl-cu12==2.19.3 (from torch>=1.11.0->sentence_transformers)
  Using cached nvidia_nccl_cu12-2.19.3-py3-none-manylinux1_x86_64.whl (166.0 MB)
Collecting nvidia-nvtx-cu12==12.1.105 (from torch>=1.11.0->sentence_transformers)
  Using cached nvidia_nvtx_cu12-12.1.105-py3-none-manylinux1_x86_64.whl (99 kB)
Requirement already satisfied: triton==2.2.0 in /usr/local/lib/python3.10/dist-packages (from torch>=1.11.0->sentence_transformers) (2.2.0)
Collecting nvidia-nvjitlink-cu12 (from nvidia-cusolver-cu12==11.4.5.107->torch>=1.11.0->sentence_transformers)
  Using cached nvidia_nvjitlink_cu12-12.4.127-py3-none-manylinux2014_x86_64.whl (21.1 MB)
Requirement already satisfied: regex!=2019.12.17 in /usr/local/lib/python3.10/dist-packages (from transformers<5.0.0,>=4.34.0->sentence_transformers) (2023.12.25)
Requirement already satisfied: tokenizers<0.20,>=0.19 in /usr/local/lib/python3.10/dist-packages (from transformers<5.0.0,>=4.34.0->sentence_transformers) (0.19.1)
Requirement already satisfied: safetensors>=0.4.1 in /usr/local/lib/python3.10/dist-packages (from transformers<5.0.0,>=4.34.0->sentence_transformers) (0.4.3)
```

```
Requirement already satisfied: joblib>=1.1.1 in
/usr/local/lib/python3.10/dist-packages (from scikit-learn-
>sentence_transformers) (1.4.0)
Requirement already satisfied: threadpoolctl>=2.0.0 in
/usr/local/lib/python3.10/dist-packages (from scikit-learn-
>sentence_transformers) (3.4.0)
Requirement already satisfied: MarkupSafe>=2.0 in
/usr/local/lib/python3.10/dist-packages (from jinja2->torch>=1.11.0-
>sentence_transformers) (2.1.5)
Requirement already satisfied: charset-normalizer<4,>=2 in
/usr/local/lib/python3.10/dist-packages (from requests->huggingface-
hub>=0.15.1->sentence_transformers) (3.3.2)
Requirement already satisfied: idna<4,>=2.5 in
/usr/local/lib/python3.10/dist-packages (from requests->huggingface-
hub>=0.15.1->sentence_transformers) (3.7)
Requirement already satisfied: urllib3<3,>=1.21.1 in
/usr/local/lib/python3.10/dist-packages (from requests->huggingface-
hub>=0.15.1->sentence_transformers) (2.0.7)
Requirement already satisfied: certifi>=2017.4.17 in
/usr/local/lib/python3.10/dist-packages (from requests->huggingface-
hub>=0.15.1->sentence_transformers) (2024.2.2)
Requirement already satisfied: mpmath>=0.19 in
/usr/local/lib/python3.10/dist-packages (from sympy->torch>=1.11.0-
>sentence_transformers) (1.3.0)
Installing collected packages: nvidia-nvtx-cu12, nvidia-nvjitlink-
cu12, nvidia-nccl-cu12, nvidia-curand-cu12, nvidia-cufft-cu12, nvidia-
cuda-runtime-cu12, nvidia-cuda-nvrtc-cu12, nvidia-cuda-cupti-cu12,
nvidia-cublas-cu12, nvidia-cusparse-cu12, nvidia-cudnn-cu12, nvidia-
cusolver-cu12, sentence_transformers
Successfully installed nvidia-cublas-cu12-12.1.3.1 nvidia-cuda-cupti-
cu12-12.1.105 nvidia-cuda-nvrtc-cu12-12.1.105 nvidia-cuda-runtime-
cu12-12.1.105 nvidia-cudnn-cu12-8.9.2.26 nvidia-cufft-cu12-11.0.2.54
nvidia-curand-cu12-10.3.2.106 nvidia-cusolver-cu12-11.4.5.107 nvidia-
cusparse-cu12-12.1.0.106 nvidia-nccl-cu12-2.19.3 nvidia-nvjitlink-
cu12-12.4.127 nvidia-nvtx-cu12-12.1.105 sentence_transformers-2.7.0
```

```
!pip install tensorflow-addons
```

```
Requirement already satisfied: tensorflow-addons in
/usr/local/lib/python3.10/dist-packages (0.23.0)
Requirement already satisfied: packaging in
/usr/local/lib/python3.10/dist-packages (from tensorflow-addons)
(24.0)
Requirement already satisfied: typeguard<3.0.0,>=2.7 in
/usr/local/lib/python3.10/dist-packages (from tensorflow-addons)
(2.13.3)
```

```
import pandas as pd
import numpy as np
import seaborn as sns
```

```

import matplotlib.pyplot as plt
import warnings
warnings.filterwarnings("ignore")
import tensorflow as tf
from sklearn.model_selection import train_test_split
import re
import tensorflow_text as tf_text
from tensorflow.keras.layers import TextVectorization, Embedding,
Bidirectional, LSTM, Conv1D, GlobalMaxPooling1D, Dense, Dropout
from tensorflow.keras import Model, Input
from keras.callbacks import EarlyStopping, ModelCheckpoint
from sklearn.metrics import confusion_matrix
from sklearn.metrics import classification_report
from imblearn.over_sampling import SMOTE

from google.colab import drive
drive.mount('/content/drive')

Mounted at /content/drive

```

**

Read Data

Tabel of Contents

```

train=pd.read_csv('/content/drive/MyDrive/TrainingData/
train_essays.csv')
train.head()

{"summary":{"\n  \"name\": \"train\", \n  \"rows\": 1378, \n
\"fields\": [\n    {\n      \"column\": \"id\", \n      \"properties\":
{\n        \"dtype\": \"string\", \n        \"num_unique_values\":
1378, \n        \"samples\": [\n          \"70d7c567\", \n
\"81977e6c\", \n          \"e43869b8\" \n        ], \n
\"semantic_type\": \"\", \n        \"description\": \"\" \n      } \n
    }, \n    {\n      \"column\": \"prompt_id\", \n
\"properties\": {\n        \"dtype\": \"number\", \n        \"std\":
0, \n        \"min\": 0, \n        \"max\": 1, \n
\"num_unique_values\": 2, \n        \"samples\": [\n          1, \n
0 \n        ], \n        \"semantic_type\": \"\", \n
\"description\": \"\" \n      } \n    }, \n    {\n      \"column\":
\"text\", \n      \"properties\": {\n        \"dtype\": \"string\", \n
\"num_unique_values\": 1378, \n        \"samples\": [\n          \"Can
you imagine living in a place where there is no driving? It is an
amazing thing to think if every person doesn't drive in one big city
that it saves so much pollution going in to the air. Another thing to
think about is if everyone in a city didn't drive and walked

```

everywhere, more people would stay healthier by staying in shape. Some people think that owning a car is more stressful than just walking everywhere. If you don't own a car you don't have to pay for insurance, don't have to pay for gas, and don't have to pay for repairs when something goes wrong in a vehicle. To me it sounds like there is a lot of advantages in limiting car use.\\n\\nOne solid reason why not using cars as much is the pollution going in the air. In Paris, France motorists with even numbered license plates were ordered to leave their cars at their house or else they would be fined. The next day odd numbered license plates motorists had to leave their vehicles at home. It was a hardship at first to get people to follow these new rules, but after about five days everything started to cool down. The pollution had dropped 60 percent in Paris which is exactly what the city was looking for. Limiting the car usage didn't just save pollution from going in the air, but also there wasn't as much traffic as there usually was. It also made Paris a safer place to be outside and not damage the citizens lungs. The capital city of France also made transportation free MondayFriday to help the cause. Soon enough people that had both license plates could drive on the same day.\\n\\nIn Bogota, Colombia they do a car free day that is becoming popular in that part of the world. It is awesome to think there are 7 million people in that city and none of them are using a car. People that violated this goal on this day were charged a 25 fine. People from other countries came to see how this day worked and they loved it. The mayor of Asuncion, Paraguay said \\\"\\\"These people are generating a revolutionary change, and this is crossing borders.\\\"\\\" You can just imagine all the benefits of everyone not using a car in a city for a whole day. Restaurants and parks would be visited and used more and everyone would be getting more exercise. All in all this idea was genius.\\n\\nAs you can see limiting car usage can help out the area big time that it is taking place. It is better breathing air, businesses like restaurants and parks would be used more and grow steadily, and the city would be taken care of better.\\\",\\n \\\"Limiting car usage could have many advantages on our planet. Many cities, such as Vauban in Germany, have given up on using cars to help the world around them. \\\"\\\"vaughn's streets are completely carfree,except the main thoroughfare, where the tram to downtown Freiburg runs, and a few streets on one edge of the community.\\\"\\\" There is a movement going on called, \\\"\\\"smart planning\\\"\\\" and Vauban is just one example of a growing trend in Europe of limiting auto use. The article says that passenger cars are responsible for twelve percent of greenhouse gas emissions in Europe. It seems that the people in Europe are realizing that so much car usage is harming their environment, and they are trying to set a trend for other countries like the United States to follow to limit using cars.\\n\\nHow much people use their cars is very important. Polluted air is a very widespread problem in many regions of the world. Paris had days of nearrecord pollution, and decided to enforce a partial driving ban to try to help clear the air of the city. The article says

that almost 4,000 drivers were fined, and twentyseven had their cars impounded for their reaction to the fine. \\\\"Congestion was down 60 percent in the capital of France, after five days of intensifying smog.\\\" The driving ban helped clear the smog, because it reduced car emissions. Paris has more smog than many other European capitals, which is why reducing how much citizens drive their cars is a good idea.\\n\\nSome cities have days that are completely car free. Bogota, Colombia is one of them. They have been having a Day Without Cars for three straight years. Cars are banned for the day and buses and taxis are the only exception. The city holds about 7 million people, and had a large turnout. \\\\"It's a good opportunity to take away stress and lower air pollution,\\\" said businessman Carlos Arturo Plaza. The mayor of Asuncion, Paraguay even said that, \\\\"These people are generating a revolutionary change, and this is crossing borders.\\\" The Day Without Cars has even helped stores and sports center come up throughout the city. Instead of shopping centers along a highway, those stores are now in the city and easy to get to without having to use a car.\\n\\nResearchers have been studying America's ways of car usage and driving. America is home to the first cars like the Model T, or \\\\"Mustang Sally.\\\" Vehicles have always been a huge part of culture, but it seems now that that might not be the case anymore. \\\\"As of April 2013, the number of miles driven per person was nearly 9 percent below the peak and equal to where the country was in January 1995.\\\" Researchers are actually hoping that the pattern continues because it will have beneficial implications for carbon emissions on the environment. Transportation is the second largest source, behind power plants, of emissions. Many changes have now happened in America, which are making using cars not as important. \\\\"With all these changes, people who stopped car commuting as a result of the recession may find less reason to resume the habit.\\\" The article says. If we could slow down the usage of cars and emission, maybe we could help the planet become a better place.\\n\\nSince the percentage of car usage has gone down in America, so has the percentage of getting a license. There has been a large drop in 1639 year olds getting a license, Mr. Sivak's research has found. Older people are also likely to retain their licenses as they age. Mr. Sivak and another man both have children of about the same age, 19 and 21, and live in busy cities where a car could be useful. Neither one of them has their licenses, even though they are interested, but they don't really see the need for one when they can use public transportation or carpool with their friends. The article says that a study last year has also found that driving by young people decreased 23 percent between 2001 and 2009. Whether or not this changes as these young people grow older, these decreases in driving are proving that cars might just not be as important as they used to be.\\n\\nOur planet is just continuing to get worse from emissions from cars. Some countries are starting to realize this and are working hard to limit car usage and have citizens rely just on public transportation, walking, or riding a bike. Bill Ford proposed partnering with the telecommunications industry to

```

create cities in which, \\\\"pedestrian, bicycle, private cars,
commercial, and public transportation traffic are woven into a
connected network to save time, conserve resources, lower emissions,
and improve safety.\\\" Citizens all over the world can work together
to reduce car usage and better improve our planet.\\\"
    ],\n
    \"semantic_type\": \"\", \n
    \"description\": \"\", \n
    },\n
    {\n
    \"column\": \"generated\", \n
    \"properties\": {\n
    \"dtype\": \"number\", \n
    \"std\":
0, \n
    \"min\": 0, \n
    \"max\": 1, \n
    \"num_unique_values\": 2, \n
    \"samples\": [\n
    1, \n
0 \n
    ], \n
    \"semantic_type\": \"\", \n
    \"description\": \"\", \n
    } \n
    } \n
    ] \n
    }\", \"type\": \"dataframe\", \"variable_name\": \"train\"}

```

```

test=pd.read_csv('/content/drive/MyDrive/TrainingData/
test_essays.csv')
test.head()

```

```

{\"summary\": \"{\\n  \"name\": \"test\",\\n  \"rows\": 3,\\n  \"fields\": [\\n
    {\\n
    \"column\": \"id\",\\n
    \"properties\": {\\n
    \"dtype\": \"string\",\\n
    \"num_unique_values\": 3,\\n
    \"samples\": [\\n
    \"0000aaaa\",\\n
    \"1111bbbb\",\\n
    \"2222cccc\"\\n
    ],\\n
    \"semantic_type\": \"\",\\n
    \"description\": \"\",\\n
    },\\n
    {\\n
    \"column\":
    \"prompt_id\",\\n
    \"properties\": {\\n
    \"dtype\":
    \"number\",\\n
    \"std\": 1,\\n
    \"min\": 2,\\n
    \"max\": 4,\\n
    \"num_unique_values\": 3,\\n
    \"samples\":
    [\\n
    2,\\n
    3,\\n
    4\\n
    ],\\n
    \"semantic_type\": \"\",\\n
    \"description\": \"\",\\n
    },\\n
    {\\n
    \"column\": \"text\",\\n
    \"properties\": {\\n
    \"dtype\": \"string\",\\n
    \"num_unique_values\": 3,\\n
    \"samples\": [\\n
    \"Aaa bbb ccc.\",\\n
    \"Bbb ccc
ddd.\",\\n
    \"CCC ddd eee.\"\\n
    ],\\n
    \"semantic_type\": \"\",\\n
    \"description\": \"\",\\n
    }\\n
    }\\n
    ]\\n
    }\", \"type\": \"dataframe\", \"variable_name\": \"test\"}

```

```

train_prompts=pd.read_csv('/content/drive/MyDrive/TrainingData/
train_prompts.csv')
train_prompts

```

```

{\"summary\": \"{\\n  \"name\": \"train_prompts\",\\n  \"rows\": 2,\\n
\\\"fields\": [\\n
    {\\n
    \"column\": \"prompt_id\",\\n
    \"properties\": {\\n
    \"dtype\": \"number\",\\n
    \"std\":
0,\\n
    \"min\": 0,\\n
    \"max\": 1,\\n
    \"num_unique_values\": 2,\\n
    \"samples\": [\\n
    1,\\n
0\\n
    ],\\n
    \"semantic_type\": \"\",\\n
    \"description\": \"\",\\n
    },\\n
    {\\n
    \"column\":
    \"prompt_name\",\\n
    \"properties\": {\\n
    \"dtype\":
    \"string\",\\n
    \"num_unique_values\": 2,\\n
    \"samples\":
    [\\n
    \"Does the electoral college work?\",\\n
    \"Car-

```

```

free cities\\n      ],\\n      \\\"semantic_type\\\": \\\"\\\",\\n
\\\"description\\\": \\\"\\\"\\n      }\\n      },\\n      {\\n      \\\"column\\\":
\\\"instructions\\\",\\n      \\\"properties\\\": {\\n      \\\"dtype\\\":
\\\"string\\\",\\n      \\\"num_unique_values\\\": 2,\\n      \\\"samples\\\":
[\\n      \\\"Write a letter to your state senator in which you argue
in favor of keeping the Electoral College or changing to election by
popular vote for the president of the United States. Use the
information from the texts in your essay. Manage your time carefully
so that you can read the passages; plan your response; write your
response; and revise and edit your response. Be sure to include a
claim; address counterclaims; use evidence from multiple sources; and
avoid overly relying on one source. Your response should be in the
form of a multiparagraph essay. Write your response in the space
provided.\\\",\\n      \\\"Write an explanatory essay to inform fellow
citizens about the advantages of limiting car usage. Your essay must
be based on ideas and information that can be found in the passage
set. Manage your time carefully so that you can read the passages;
plan your response; write your response; and revise and edit your
response. Be sure to use evidence from multiple sources; and avoid
overly relying on one source. Your response should be in the form of a
multiparagraph essay. Write your essay in the space provided.\\\"\\n
],\\n      \\\"semantic_type\\\": \\\"\\\",\\n      \\\"description\\\": \\\"\\\"\\n
}\\n      },\\n      {\\n      \\\"column\\\": \\\"source_text\\\",\\n
\\\"properties\\\": {\\n      \\\"dtype\\\": \\\"string\\\",\\n
\\\"num_unique_values\\\": 2,\\n      \\\"samples\\\": [\\n      \\\"# What
Is the Electoral College? by the Office of the Federal Register\\n\\n1
The Electoral College is a process, not a place. The founding fathers
established it in the Constitution as a compromise between election of
the President by a vote in Congress and election of the President by a
popular vote of qualified citizens.\\n\\n2 The Electoral College
process consists of the selection of the electors, the meeting of the
electors where they vote for President and Vice President, and the
counting of the electoral votes by Congress.\\n\\n3 The Electoral
College consists of 538 electors. A majority of 270 electoral votes is
required to elect the President. Your state\\u2019s entitled allotment
of electors equals the number of members in its Congressional
delegation: one for each member in the House of Representatives plus
two for your Senators. . . .\\n\\n4 Under the 23rd Amendment of the
Constitution, the District of Columbia is allocated 3 electors and
treated like a state for purposes of the Electoral College. For this
reason, in the following discussion, the word \\u201cstate\\u201d also
refers to the District of Columbia.\\n\\n5 Each candidate running for
President in your state has his or her own group of electors. The
electors are generally chosen by the candidate\\u2019s political
party, but state laws vary on how the electors are selected and what
their responsibilities are. . . .\\n\\n6 The presidential election is
held every four years on the Tuesday after the first Monday in
November. You help choose your state\\u2019s electors when you vote
for President because when you vote for your candidate you are

```


actually voting for your candidate's electors. Most states have a "winner-take-all" system that awards all electors to the winning presidential candidate. However, Maine and Nebraska each have a variation of "proportional representation".

After the presidential election, your governor prepares a "Certificate of Ascertainment" listing all of the candidates who ran for President in your state along with the names of their respective electors. The Certificate of Ascertainment also declares the winning presidential candidate in your state and shows which electors will represent your state at the meeting of the electors in December of the election year. Your state's Certificates of Ascertainments are sent to the Congress and the National Archives as part of the official records of the presidential election.

The Indefensible Electoral College: Why even the best-laid defenses of the system are wrong by Bradford Plumer

What have Richard Nixon, Jimmy Carter, Bob Dole, the U.S. Chamber of Commerce, and the AFL-CIO all, in their time, agreed on? Answer: Abolishing the electoral college! They're not alone; according to a Gallup poll in 2000, taken shortly after Al Gore thanks to the quirks of the electoral college won the popular vote but lost the presidency, 1 over 60 percent of voters would prefer a direct election to the kind we have now. This year voters can expect another close election in which the popular vote winner could again lose the presidency. And yet, the electoral college still has its defenders. What gives? . . . What's wrong with the electoral college?

Under the electoral college system, voters vote not for the president, but for a slate of electors, who in turn elect the president. If you lived in Texas, for instance, and wanted to vote for John Kerry, you'd vote for a slate of 34 Democratic electors pledged to Kerry. On the offchance that those electors won the statewide election, they would go to Congress and Kerry would get 34 electoral votes. Who are the electors? They can be anyone not holding public office. Who picks the electors in the first place? It depends on the state. Sometimes state conventions, sometimes the state party's central committee, sometimes the presidential candidates themselves. Can voters control whom their electors vote for? Not always. Do voters sometimes get confused about the electors and vote for the wrong candidate? Sometimes.

The single best argument against the electoral college is what we might call the disaster factor. The American people should consider themselves lucky that the 2000 fiasco was the biggest election crisis in a century; the system allows for much worse. Consider that state legislatures are technically responsible for picking electors, and that those electors could always defy the will of the people. Back in 1960, segregationists in the Louisiana legislature nearly succeeded in replacing the Democratic electors with new electors who would oppose John F. Kennedy. (So that a popular vote for Kennedy would not have actually gone to Kennedy.) In the same vein, "faithless" electors have occasionally refused to vote for their party's

candidate and cast a deciding vote for whomever they please. . . . Oh, and what if a state sends two slates of electors to Congress? It happened in Hawaii in 1960. Luckily, Vice President Richard Nixon, who was presiding over the Senate, validated only his opponent's electors, but he made sure to do so without establishing a precedent. What if it happened again?

Perhaps most worrying is the prospect of a tie in the electoral vote. In that case, the election would be thrown to the House of Representatives, where state delegations vote on the president. (The Senate would choose the vice-president.) Because each state casts only one vote, the single representative from Wyoming, representing 500,000 voters, would have as much say as the 55 representatives from California, who represent 35 million voters. Given that many voters vote one party for president and another for Congress, the House's selection can hardly be expected to reflect the will of the people. And if an electoral tie seems unlikely, consider this: In 1968, a shift of just 41,971 votes would have deadlocked the election; In 1976, a tie would have occurred if a mere 5,559 voters in Ohio and 3,687 voters in Hawaii had voted the other way. The election is only a few swing voters away from catastrophe.

At the most basic level, the electoral college is unfair to voters. Because of the winner-takeall system in each state, candidates don't spend time in states they know they have no chance of winning, focusing only on the tight races in the swing states. During the 2000 campaign, seventeen states didn't see the candidates at all, including Rhode Island and South Carolina, and voters in 25 of the largest media markets didn't get to see a single campaign ad. If anyone has a good argument for putting the fate of the presidency in the hands of a few swing voters in Ohio, they have yet to make it. . . .

It's official: The electoral college is unfair, outdated, and irrational. The best arguments in favor of it are mostly assertions without much basis in reality. And the arguments against direct elections are spurious at best. It's hard to say this, but Bob Dole was right: Abolish the electoral college!

In Defense of the Electoral College: Five reasons to keep our despised method of choosing the President by Judge Richard A. Posner

The Electoral College is widely regarded as an anachronism, a non-democratic method of selecting a president that ought to be overruled by declaring the candidate who receives the most popular votes the winner. The advocates of this position are correct in arguing that the Electoral College method is not democratic in a modern sense . . . it is the electors who elect the president, not the people. When you vote for a presidential candidate you're actually voting for a slate of electors.

But each party selects a slate of electors trusted to vote for the party's nominee (and that trust is rarely betrayed) . . . however, it is entirely possible that the winner of the electoral vote will not win the national popular vote. Yet that has happened very rarely. It happened in 2000, when Gore had more popular votes than Bush yet fewer electoral votes, but that was the first time since 1888.

There

are five reasons for retaining the Electoral College despite its lack of democratic pedigree;² all are practical reasons, not liberal or conservative³ reasons.

1) Certainty of Outcome

18 A dispute over the outcome of an Electoral College vote is possible--it happened in 2000--but it's less likely than a dispute over the popular vote. The reason is that the winning candidate's share of the Electoral College invariably exceeds his share of the popular vote. In 2012's election, for example, Obama⁴ received 61.7 percent of the electoral vote compared to only 51.3 percent of the popular votes cast for him and Romney.⁵ . . . Because almost all states award electoral votes on a winner-take-all basis, even a very slight plurality⁶ in a state creates a landslide electoral-vote victory in that state. A tie in the nationwide electoral vote is possible because the total number of votes--538--is an even number, but it is highly unlikely. . . .

2) Everyone's President

19 The Electoral College requires a presidential candidate to have trans-regional appeal. No region (South, Northeast, etc.) has enough electoral votes to elect a president. So a solid regional favorite, such as Romney was in the South, has no incentive to campaign heavily in those states, for he gains no electoral votes by increasing his plurality in states that he knows he will win. This is a desirable result because a candidate with only regional appeal is unlikely to be a successful president. The residents of the other regions are likely to feel disenfranchised--to feel that their votes do not count, that the new president will have no regard for their interests, that he really isn't their president.

3) Swing States

20 The winner-take-all method of awarding electoral votes induces the candidates--as we saw in 2012's election--to focus their campaign efforts on the toss-up states Voters in toss-up states are more likely to pay close attention to the campaign--to really listen to the competing candidates--knowing that they are going to decide the election. They are likely to be the most thoughtful voters, on average (and for the further reason that they will have received the most information and attention from the candidates), and the most thoughtful voters should be the ones to decide the election.

4) Big States

21 The Electoral College restores some of the weight in the political balance that large states (by population) lose by virtue of the mal-apportionment of the Senate decreed in the Constitution. . . . The popular vote was very close in Florida in 2012; nevertheless Obama, who won that vote, got 29 electoral votes. A victory by the same margin in Wyoming would net the winner only 3 electoral votes. So, other things being equal, a large state gets more attention from presidential candidates in a campaign than a small state does. . . .

5) Avoid Run-Off Elections

22 The Electoral College avoids the problem of elections in which no candidate receives a majority of the votes cast. For example, Nixon in 1968 and Clinton in 1992 both had only a 43 percent plurality of the popular votes, while winning a majority in the Electoral College (301

and 370 electoral votes, respectively). There is pressure for run-off elections when no candidate wins a majority of the votes cast; that pressure, which would greatly complicate the presidential election process, is reduced by the Electoral College, which invariably produces a clear winner. . . .

23 It can be argued that the Electoral College method of selecting the president may turn off potential voters for a candidate who has no hope of carrying their state. Democrats in Texas, for example, or Republicans in California. Knowing their vote will have no effect, they have less incentive to pay attention to the campaign than they would have if the president were picked by popular vote But of course no voter's vote swings a national election, and in spite of that, about one-half the eligible American population did vote in 2012's election. Voters in presidential elections are people who want to express a political preference rather than people who think that a single vote may decide an election. . . .

"# In German Suburb, Life Goes On Without Cars by Elisabeth Rosenthal

1 VAUBAN, Germany

Residents of this upscale community are suburban pioneers, going where few soccer moms or commuting executives have ever gone before: they have given up their cars.

2 Street parking, driveways and home garages are generally forbidden in this experimental new district on the outskirts of Freiburg, near the French and Swiss borders. Vauban's streets are completely car-free

except the main thoroughfare, where the tram to downtown Freiburg runs, and a few streets on one edge of the community. Car ownership is allowed, but there are only two places to park

large garages at the edge of the development, where a car-owner buys a space, for \$40,000, along with a home.

3 As a result, 70 percent of Vauban's families do not own cars, and 57 percent sold a car to move here.

4 When I had a car I was always tense. I'm much happier this way,

5 said Heidrun Walter, a media trainer and mother of two, as she walked verdant streets where the swish of bicycles and the chatter of wandering children drown out the occasional distant motor.

6 Vauban, completed in 2006, is an example of a growing trend in Europe, the United States and elsewhere to separate suburban life from auto use, as a component of a movement called smart planning.

7 Automobiles are the linchpin of suburbs, where middle-class families from Chicago to Shanghai tend to make their homes. And that, experts say, is a huge impediment to current efforts to drastically reduce greenhouse gas emissions from tailpipes Passenger cars are responsible for 12 percent of greenhouse gas emissions in Europe . . . and up to 50 percent in some car-intensive areas in the United States.

8 While there have been efforts in the past two decades to make cities denser, and better for walking, planners are now taking the concept to the suburbs Vauban, home to 5,500 residents within a rectangular square mile, may be the most advanced experiment in low-car suburban life. But its basic precepts are being adopted around the world in attempts to make suburbs more compact and more accessible to public

transportation, with less space for parking. In this new approach, stores are placed a walk away, on a main street, rather than in malls along some distant highway.

7 All of our development since World War II has been centered on the car, and that will have to change,

8 said David Goldberg, an official of Transportation for America, a fast-growing coalition of hundreds of groups in the United States . . . who are promoting new communities that are less dependent on cars. Mr. Goldberg added:

9 How much you drive is as important as whether you have a hybrid.

10 Levittown and Scarsdale, New York suburbs with spread-out homes and private garages, were the dream towns of the 1950s and still exert a strong appeal. But some new suburbs may well look more Vauban-like, not only in developed countries but also in the developing world, where emissions from an increasing number of private cars owned by the burgeoning middle class are choking cities.

11 In the United States, the Environmental Protection Agency is promoting car reduced communities, and legislators are starting to act, if cautiously. Many experts expect public transport serving suburbs to play a much larger role in a new six-year federal transportation bill to be approved this year, Mr. Goldberg said. In previous bills, 80 percent of appropriations have by law gone to highways and only 20 percent to other transport.

12 Excerpt from In German Suburb, Life Goes On Without Cars

13 by Elisabeth Rosenthal, from the New York Times. Copyright 2009 by the New York Times Company. Reprinted by permission of the New York Times Company via Copyright Clearance Center.

14 # Paris bans driving due to smog by Robert Duffer

15 After days of near-record pollution, Paris enforced a partial driving ban to clear the air of the global city.

16 On Monday motorists with even-numbered license plates were ordered to leave their cars at home or suffer a 22-euro fine (\$31). The same would apply to odd-numbered plates the following day.

17 Almost 4,000 drivers were fined, according to Reuters

18 . . . [Twenty-seven] people had their cars impounded for their reaction to the fine.

19 That 2019s easier to imagine than a car-free Champs-Elysees.

20 Congestion 3 was down 60 percent in the capital of France, after five-days of intensifying smog . . . [The smog] rivaled Beijing, China, which is known as one of the most polluted cities in the world.

21 Cold nights and warm days caused the warmer layer of air to trap car emissions.

22 Diesel fuel was blamed, since France has . . . [a] tax policy that favors diesel over gasoline. Diesels make up 67 percent of vehicles in France, compared to a 53.3 percent average of diesel engines in the rest of Western Europe, according to Reuters.

23 Paris typically has more smog than other European capitals . . . [Last] week Paris had 147 micrograms of particulate matter (PM) per cubic meter compared with 114 in Brussels and 79.7 in London, Reuters found.

24 Delivery companies complained of lost revenue, while exceptions were made for plug-in cars, hybrids, and cars carrying three or more passengers. Public transit was free of charge from Friday to Monday, according to the BBC.

25 The smog

cleared enough Monday for the ruling French party to rescind the ban for odd-numbered plates on Tuesday. 1

Excerpt from "Paris bans driving due to smog" by Robert Duffer, from the Chicago Tribune. Copyright 2014 by the Chicago Tribune. Reprinted by permission of the Chicago Tribune via Copyright Clearance Center.

Car-free day is spinning into a big hit in Bogota by Andrew Selsky

BOGOTA, Colombia In a program that's set to spread to other countries, millions of Colombians hiked, biked, skated or took buses to work during a car-free day yesterday, leaving the streets of this capital city eerily devoid of traffic jams.

21 It was the third straight year cars have been banned with only buses and taxis permitted for the Day Without Cars in this capital city of 7 million. The goal is to promote alternative transportation and reduce smog. Violators faced \$25 fines.

22 The turnout was large, despite gray clouds that dumped occasional rain showers on Bogota.

23 The rain hasn't stopped people from participating,

24 said Bogota Mayor Antanas Mockus . . .

It's a good opportunity to take away stress and lower air pollution,

25 said businessman Carlos Arturo Plaza as he rode a two-seat bicycle with his wife.

26 For the first time, two other Colombian cities, Cali and Valledupar, joined the event.

27 Municipal authorities from other countries came to Bogota to see the event and were enthusiastic.

These people are generating a revolutionary change, and this is crossing borders,

28 said Enrique Riera, the mayor of Asunci3n, Paraguay. . .

The day without cars is part of an improvement campaign that began in Bogota in the mid-1990s. It has seen the construction of 118 miles of bicycle paths, the most of any Latin American city, according to Mockus, the city's mayor.

29 Parks and sports centers also have bloomed throughout the city; uneven, pitted sidewalks have been replaced by broad, smooth sidewalks; rush-hour restrictions have dramatically cut traffic; and new restaurants and upscale shopping districts have cropped up.

Excerpt from "Car-free day is spinning into a big hit in Bogota" by Andrew Selsky, from the Seattle Times. Copyright 2002 by the Seattle Times Company. Reprinted by permission of the Seattle Times Company via Copyright Clearance Center.

The End of Car Culture by Elisabeth Rosenthal

29 President Obama's ambitious goals to curb the United States' greenhouse gas emissions, unveiled last week, will get a fortuitous assist from an incipient shift in American behavior: recent studies suggest that Americans are buying fewer cars, driving less and getting fewer licenses as each year goes by.

30 That has left researchers pondering a fundamental question: Has America passed peak driving?

31 The United States, with its broad expanses and suburban ideals, had long been one of the world's prime car cultures. It is the birthplace of the Model T; the home of Detroit; the place where Wilson Pickett immortalized Mustang Sally.

32 But America's love affair with its vehicles seems to be cooling. When adjusted for population growth, the

number of miles driven in the United States peaked in 2005 and dropped steadily thereafter, according to an analysis by Doug Short of Advisor Perspectives, an investment research company. As of April 2013, the number of miles driven per person was nearly 9 percent below the peak and equal to where the country was in January 1995. Part of the explanation certainly lies in the recession, because cash-strapped Americans could not afford new cars, and the unemployed weren't going to work anyway. But by many measures the decrease in driving preceded the downturn and appears to be persisting now that recovery is under way. The next few years will be telling.

What most intrigues me is that rates of car ownership per household and per person started to come down two to three years before the downturn, said Michael Sivak, who studies the trend and who is a research professor at the University of Michigan's Transportation Research Institute. I think that means something more fundamental is going on.

If the pattern persists and many sociologists believe it will, it will have beneficial implications for carbon emissions and the environment, since transportation is the second largest source of America's emissions, just behind power plants. But it could have negative implications for the car industry. Indeed, companies like Ford and Mercedes are already rebranding themselves mobility companies with a broader product range beyond the personal vehicle.

Different things are converging which suggest that we are witnessing a long-term cultural shift, said Mimi Sheller, a sociology professor at Drexel University and director of its Mobilities Research and Policy Center. She cites various factors: the Internet makes telecommuting possible and allows people to feel more connected without driving to meet friends. The renewal of center cities has made the suburbs less appealing and has drawn empty nesters back in. Likewise the rise in cellphones and car-pooling apps has facilitated more flexible commuting arrangements, including the evolution of shared van services for getting to work.

With all these changes, people who stopped car commuting as a result of the recession may find less reason to resume the habit. . . .

New York's new bike-sharing program and its skyrocketing bridge and tunnel tolls reflect those new priorities, as do a proliferation of car-sharing programs across the nation.

Demographic shifts in the driving population suggest that the trend may accelerate. There has been a large drop in the percentage of 16- to 39-year-olds getting a license, while older people are likely to retain their licenses as they age, Mr. Sivak's research has found.

He and I have similar observations about our children. Mine (19 and 21) have not bothered to get a driver's license, even though they both live in places where one could come in handy. They are interested, but it's not a priority. They organize their summer jobs and social life around where they can walk or take public transportation or car-pool with friends.

Mr. Sivak's son lives in San Francisco and has a car but takes Bay Area Rapid Transit, when he can, even though

that often takes longer than driving. When I was in my 20s and 30s, Mr. Sivak said, I was curious about what kind of car people drove, but young people don't really care. A car is just a means of getting from A to B when BART doesn't work. A study last year found that driving by young people decreased 23 percent between 2001 and 2009. . . . Whether members of the millennial generation will start buying more cars once they have kids to take to soccer practice and school plays remains an open question. But such projections have important business implications, even if car buyers are merely older or buying fewer cars in a lifetime rather than rejecting car culture outright.

At the Mobile World Congress last year in Barcelona, Spain, Bill Ford, executive chairman of the Ford Motor Company, laid out a business plan for a world in which personal vehicle ownership is impractical or undesirable. He proposed partnering with the telecommunications industry to create cities in which pedestrian, bicycle, private cars, commercial and public transportation traffic are woven into a connected network to save time, conserve resources, lower emissions and improve safety.

Excerpt from The End of Car Culture by Elisabeth Rosenthal, from the New York Times. Copyright 2013 by the New York Times Company. Reprinted by permission of the New York Times Company via Copyright Clearance Center.

```

    ],\n        \"semantic_type\": \"\", \n    \"description\": \"\" \n    } \n    ] \n    }\", \"type\": \"dataframe\", \"variable_name\": \"train_prompts\"}

```

```
train['prompt_id'].value_counts()
```

```

prompt_id
0      708
1      670
Name: count, dtype: int64

```

```

import matplotlib.pyplot as plt
import seaborn as sns

```

```

plt.figure(figsize=(8, 5))
ax = sns.countplot(data=train, x="prompt_id", palette='Set3')
abs_values = train['prompt_id'].value_counts().values

```

Function to add labels on top of the bars

```

def autolabel(rects):
    for rect, value in zip(rects, abs_values):
        height = rect.get_height()
        ax.annotate('{}' .format(value),
                    xy=(rect.get_x() + rect.get_width() / 2, height),
                    xytext=(0, 3), # 3 points vertical offset
                    textcoords="offset points",
                    ha='center', va='bottom')

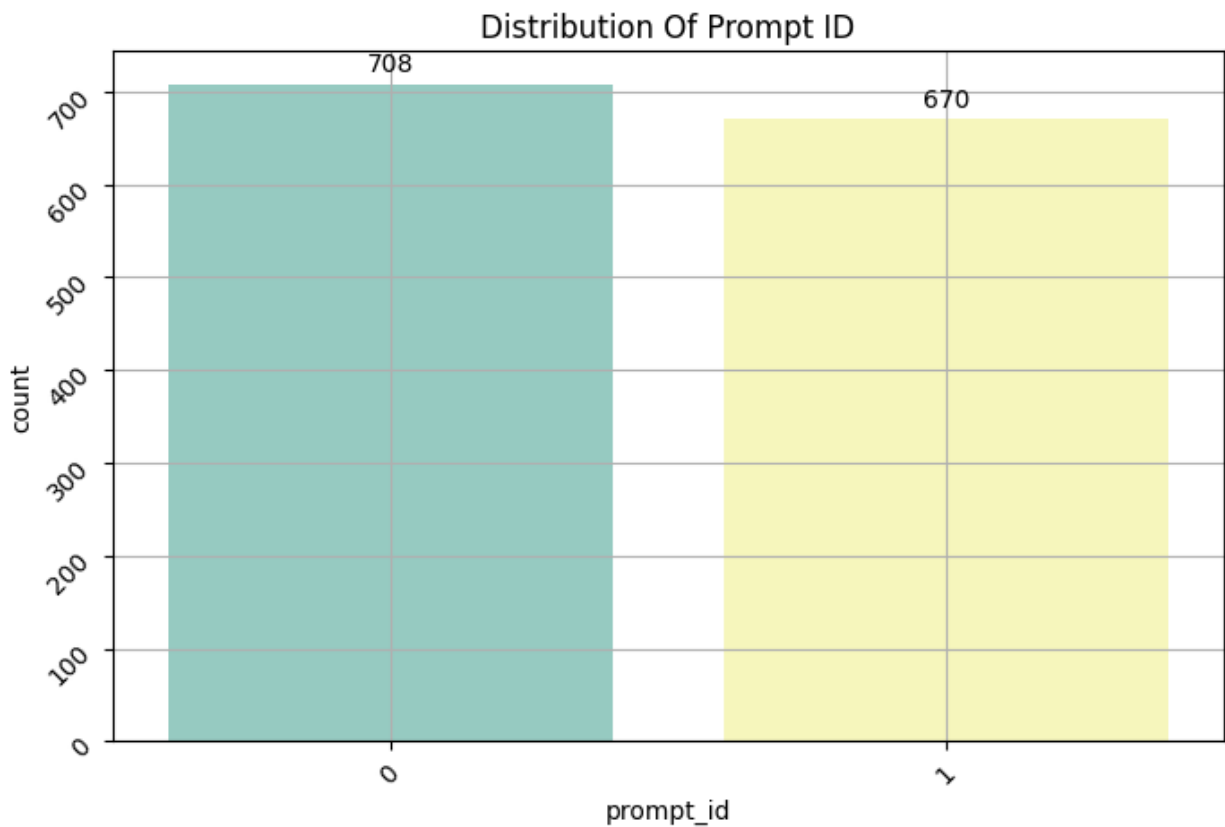
```

```

autolabel(ax.patches)

ax.set_title("Distribution Of Prompt ID")
plt.grid(True)
plt.xticks(rotation=45)
plt.yticks(rotation=45)
plt.show()

```



```

train['generated'].value_counts()

generated
0    1375
1         3
Name: count, dtype: int64

import matplotlib.pyplot as plt
import seaborn as sns

plt.figure(figsize=(8, 5))
ax = sns.countplot(data=train, x="generated", palette='Set3')
abs_values = train['generated'].value_counts().values

# Function to add labels on top of the bars
def autolabel(rects):

```



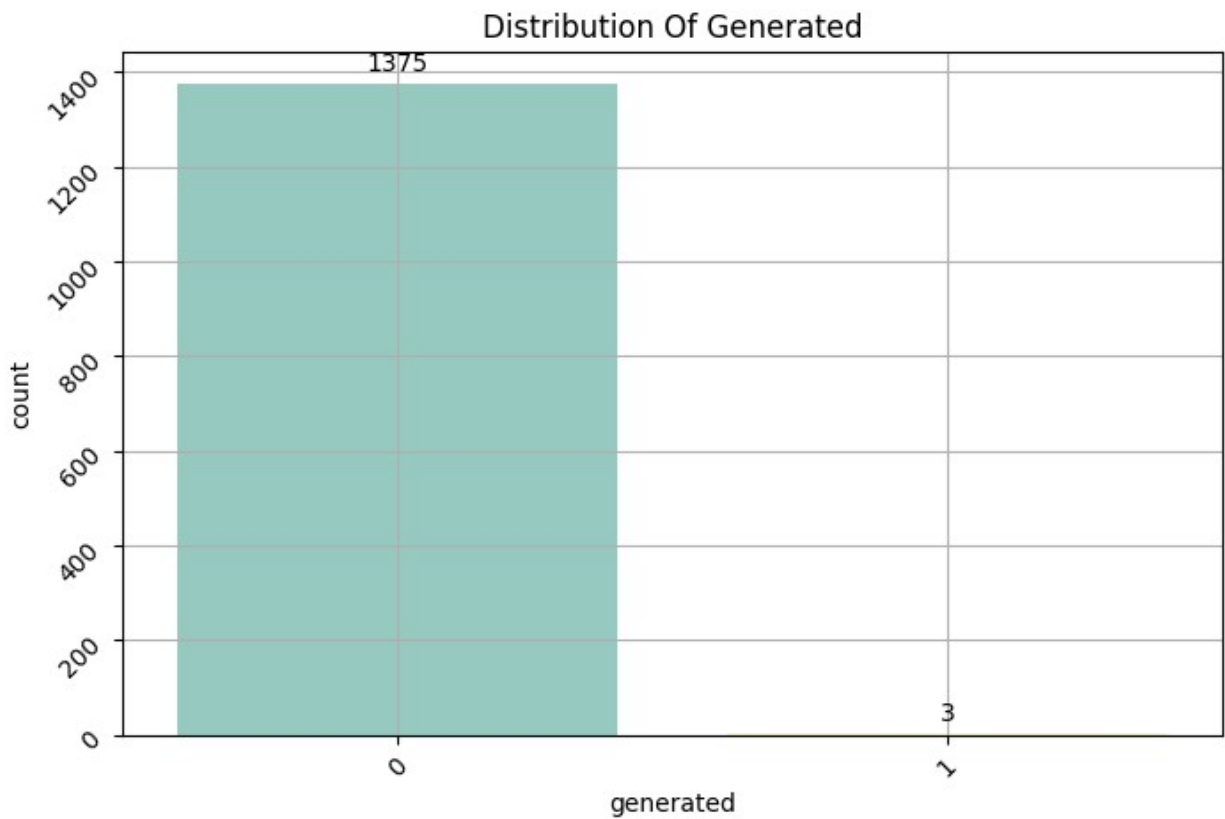
```

for rect, value in zip(rects, abs_values):
    height = rect.get_height()
    ax.annotate('{}'.format(value),
                xy=(rect.get_x() + rect.get_width() / 2, height),
                xytext=(0, 3), # 3 points vertical offset
                textcoords="offset points",
                ha='center', va='bottom')

# Use autolabel function to add labels manually
autolabel(ax.patches)

ax.set_title("Distribution Of Generated")
plt.grid(True)
plt.xticks(rotation=45)
plt.yticks(rotation=45)
plt.show()

```



```

new_data=pd.read_csv('/content/drive/MyDrive/TrainingData/
train_v2_drcat_02.csv')
new_data.head()

```

```

{"summary": "{\n  \"name\": \"new_data\",\n  \"rows\": 44868,\n  \"fields\": [\n    {\n      \"column\": \"text\",\n      \"properties\": {\n        \"dtype\": \"string\",\n        \"num_unique_values\": 44868,\n        \"samples\": [\n          \"Ummm... hey there! So, like, I know it's kinda cliché, but mistakes are like, super important for success, you know? Like, I mean, think about it. If we didn't make mistakes, we wouldn't learn anything new! \\n\\nI mean, like, think about it. When I was learning how to ride a bike, I fell off like, a million times. But, like, each time I got back up, I got better! And now I can ride like, a total pro! \\n\\nBut, like, mistakes aren't just for learning how to ride a bike. They can be for, like, anything! You know, like, in science experiments, sometimes things don't go right, but that's okay! It's like, an opportunity to learn what went wrong and how to fix it! \\n\\nAnd, like, the same thing goes for, like, sports and stuff. Sometimes you might make a mistake, but if you don't get discouraged, you can learn from it and get better! \\n\\nSo, like, the next time you make a mistake, don't be all, like, '\"Oh no, I'm a total failure! '\" Instead, be all, like, '\"Okay, what can I learn from this? How can I improve? '\" \\n\\nAnd, like, the more you practice, the better you'll get! So, like, don't be afraid to make mistakes. Embrace them, because they're, like, totally part of the journey to success! \\n\\nSo, like, yeah. That's my essay. I hope you liked it!\",\n          \"Dear Principal,\\n\\nAs you may know, many students are A and B students which is above average.\\n\\nBut there are also some students who are average, which is a C. I think that the students may have a grade average of a C to play sports and other activities. One of my reasons is because it is average, in all schools a C is average and many students do have a C it is neither good or bad, its average. Making students not to be able to play any sports or any school activities will put a lot of pressure for students to get good grades, and some kids just cant get above average. Another reason is many students by playing sports and doing activities, it helps them to do better in life. By playing sports a student is doing something that they love, it helps them have better leadership skills, better team work, and overall just a better perspective on life.\\n\\nIf these kids who don't get above average grades are banned from sports and activities, they will not gain those skills that you gain when you are playing on a team, in a club or school activities. Also the students that don't have the above average grades might get encouraged by his/her family, friends, and teammates to study a little harder for a quiz, spend more time on their homework, or maybe just asking someone to help you with the things you are struggling with at school. lastly by kids getting out and playing a sport or other activities they stay healthy, make new friends, and grow closer with their families by similar interest they may have of a sport or other activities.\\n\\nSincerely,\\n\\nSTUDENT_NAME\",
          \"The cafeteria at our school is an important resource for our students, offering meals that are both nutritious and tasty. With the same lunch menu options served every week, students may become bored with the same meals and make

```

poor food choices. To add more variety to our cafeteria menu, we can provide three new meals each week that incorporate fresh, healthy ingredients. By offering more exciting options, students are more inclined to come to school and make more nutritional food choices. In addition, we can offer more fresh fruits as part of our lunch menu options to provide even healthier meals.

```

    ],\n
    \"semantic_type\": \"\", \n      \"description\": \"\"\n  }\n  },\n  {\n    \"column\": \"label\", \n    \"properties\": {\n      \"dtype\": \"number\", \n      \"std\": 0, \n      \"min\": 0, \n      \"max\": 1, \n      \"num_unique_values\": 2, \n      \"samples\": [\n        1, \n        0\n      ], \n      \"semantic_type\": \"\", \n      \"description\": \"\"\n    }, \n    {\n      \"column\": \"prompt_name\", \n      \"properties\": {\n        \"dtype\": \"category\", \n        \"num_unique_values\": 15, \n        \"samples\": [\n          \"Grades for extracurricular activities\", \n          \"Does the electoral college work?\"\n        ], \n        \"semantic_type\": \"\", \n        \"description\": \"\"\n      }, \n      {\n        \"column\": \"source\", \n        \"properties\": {\n          \"dtype\": \"category\", \n          \"num_unique_values\": 17, \n          \"samples\": [\n            \"persuade_corpus\", \n            \"mistral7binstruct_v2\", \n            \"RDizzl3_seven\" \n          ], \n          \"semantic_type\": \"\", \n          \"description\": \"\"\n        }, \n        {\n          \"column\": \"\", \n          \"properties\": {\n            \"dtype\": \"boolean\", \n            \"num_unique_values\": 2, \n            \"samples\": [\n              true, \n              false\n            ], \n            \"semantic_type\": \"\", \n            \"description\": \"\"\n          }, \n          {\n            \"column\": \"\", \n            \"properties\": {\n              \"dtype\": \"string\", \n              \"num_unique_values\": 2, \n              \"samples\":

```

```
new_data.label.value_counts()
```

```
label
```

```
0    27371
```

```
1    17497
```

```
Name: count, dtype: int64
```

```
train_prompts =
```

```
pd.read_csv('/content/drive/MyDrive/TrainingData/train_prompts.csv')
```

```
train_prompts.head()
```

```
# train_prompts.prompt_id.value_counts()
```

```

{\"summary\": \"{\\n  \"name\": \"# train_prompts\",\\n  \"rows\": 2,\\n
  \"fields\": [\\n    {\\n      \"column\": \"prompt_id\",\\n
    \"properties\": {\\n      \"dtype\": \"number\",\\n      \"std\": 0,\\n
    \"min\": 0,\\n      \"max\": 1,\\n
    \"num_unique_values\": 2,\\n      \"samples\": [\\n        1,\\n
    0\\n      ],\\n      \"semantic_type\": \"\",\\n
    \"description\": \"\"\\n    },\\n    {\\n      \"column\": \"prompt_name\",\\n
    \"properties\": {\\n      \"dtype\": \"string\",\\n
    \"num_unique_values\": 2,\\n      \"samples\":

```

```
[\n          \"Does the electoral college work?\", \n          \"Car-free cities\" \n          ], \n          \"semantic_type\": \"\", \n          \"description\": \"\" \n          } \n          }, \n          { \n          \"column\": \"instructions\", \n          \"properties\": { \n          \"dtype\": \"string\", \n          \"num_unique_values\": 2, \n          \"samples\": [\n          \"Write a letter to your state senator in which you argue in favor of keeping the Electoral College or changing to election by popular vote for the president of the United States. Use the information from the texts in your essay. Manage your time carefully so that you can read the passages; plan your response; write your response; and revise and edit your response. Be sure to include a claim; address counterclaims; use evidence from multiple sources; and avoid overly relying on one source. Your response should be in the form of a multiparagraph essay. Write your response in the space provided.\", \n          \"Write an explanatory essay to inform fellow citizens about the advantages of limiting car usage. Your essay must be based on ideas and information that can be found in the passage set. Manage your time carefully so that you can read the passages; plan your response; write your response; and revise and edit your response. Be sure to use evidence from multiple sources; and avoid overly relying on one source. Your response should be in the form of a multiparagraph essay. Write your essay in the space provided.\" \n          ], \n          \"semantic_type\": \"\", \n          \"description\": \"\" \n          } \n          }, \n          { \n          \"column\": \"source_text\", \n          \"properties\": { \n          \"dtype\": \"string\", \n          \"num_unique_values\": 2, \n          \"samples\": [\n          \"# What Is the Electoral College? by the Office of the Federal Register\\n\\n1 The Electoral College is a process, not a place. The founding fathers established it in the Constitution as a compromise between election of the President by a vote in Congress and election of the President by a popular vote of qualified citizens.\\n\\n2 The Electoral College process consists of the selection of the electors, the meeting of the electors where they vote for President and Vice President, and the counting of the electoral votes by Congress.\\n\\n3 The Electoral College consists of 538 electors. A majority of 270 electoral votes is required to elect the President. Your state\\u2019s entitled allotment of electors equals the number of members in its Congressional delegation: one for each member in the House of Representatives plus two for your Senators. . . .\\n\\n4 Under the 23rd Amendment of the Constitution, the District of Columbia is allocated 3 electors and treated like a state for purposes of the Electoral College. For this reason, in the following discussion, the word \\u201cstate\\u201d also refers to the District of Columbia.\\n\\n5 Each candidate running for President in your state has his or her own group of electors. The electors are generally chosen by the candidate\\u2019s political party, but state laws vary on how the electors are selected and what their responsibilities are. . . .\\n\\n6 The presidential election is held every four years on the Tuesday after the first Monday in November. You help choose your state\\u2019s electors when you vote
```

for President because when you vote for your candidate you are actually voting for your candidate's electors.

Most states have a "winner-take-all" system that awards all electors to the winning presidential candidate. However, Maine and Nebraska each have a variation of "proportional representation."

After the presidential election, your governor prepares a "Certificate of Ascertainment" listing all of the candidates who ran for President in your state along with the names of their respective electors. The Certificate of Ascertainment also declares the winning presidential candidate in your state and shows which electors will represent your state at the meeting of the electors in December of the election year. Your state's Certificates of Ascertainments are sent to the Congress and the National Archives as part of the official records of the presidential election.

The Indefensible Electoral College: Why even the best-laid defenses of the system are wrong by Bradford Plumer

What have Richard Nixon, Jimmy Carter, Bob Dole, the U.S. Chamber of Commerce, and the AFL-CIO all, in their time, agreed on? Answer: Abolishing the electoral college! They're not alone; according to a Gallup poll in 2000, taken shortly after Al Gore thanks to the quirks of the electoral college won the popular vote but lost the presidency, 1 over 60 percent of voters would prefer a direct election to the kind we have now. This year voters can expect another close election in which the popular vote winner could again lose the presidency. And yet, the electoral college still has its defenders. What gives? . . . What's wrong with the electoral college?

Under the electoral college system, voters vote not for the president, but for a slate of electors, who in turn elect the president. If you lived in Texas, for instance, and wanted to vote for John Kerry, you'd vote for a slate of 34 Democratic electors pledged to Kerry. On the offchance that those electors won the statewide election, they would go to Congress and Kerry would get 34 electoral votes. Who are the electors? They can be anyone not holding public office. Who picks the electors in the first place? It depends on the state. Sometimes state conventions, sometimes the state party's central committee, sometimes the presidential candidates themselves. Can voters control whom their electors vote for? Not always. Do voters sometimes get confused about the electors and vote for the wrong candidate? Sometimes.

The single best argument against the electoral college is what we might call the disaster factor. The American people should consider themselves lucky that the 2000 fiasco was the biggest election crisis in a century; the system allows for much worse. Consider that state legislatures are technically responsible for picking electors, and that those electors could always defy the will of the people. Back in 1960, segregationists in the Louisiana legislature nearly succeeded in replacing the Democratic electors with new electors who would oppose John F. Kennedy. (So that a popular vote for Kennedy would not have actually gone to Kennedy.) In the same vein, "faithless" could

electors have occasionally refused to vote for their party's candidate and cast a deciding vote for whomever they please. . . . Oh, and what if a state sends two slates of electors to Congress? It happened in Hawaii in 1960. Luckily, Vice President Richard Nixon, who was presiding over the Senate, validated only his opponent's electors, but he made sure to do so without establishing a precedent. What if it happened again?

Perhaps most worrying is the prospect of a tie in the electoral vote. In that case, the election would be thrown to the House of Representatives, where state delegations vote on the president. (The Senate would choose the vice-president.) Because each state casts only one vote, the single representative from Wyoming, representing 500,000 voters, would have as much say as the 55 representatives from California, who represent 35 million voters. Given that many voters vote one party for president and another for Congress, the House's selection can hardly be expected to reflect the will of the people. And if an electoral tie seems unlikely, consider this: In 1968, a shift of just 41,971 votes would have deadlocked the election; In 1976, a tie would have occurred if a mere 5,559 voters in Ohio and 3,687 voters in Hawaii had voted the other way. The election is only a few swing voters away from catastrophe.

At the most basic level, the electoral college is unfair to voters. Because of the winner-takeall system in each state, candidates don't spend time in states they know they have no chance of winning, focusing only on the tight races in the swing states. During the 2000 campaign, seventeen states didn't see the candidates at all, including Rhode Island and South Carolina, and voters in 25 of the largest media markets didn't get to see a single campaign ad. If anyone has a good argument for putting the fate of the presidency in the hands of a few swing voters in Ohio, they have yet to make it.

It's official: The electoral college is unfair, outdated, and irrational. The best arguments in favor of it are mostly assertions without much basis in reality. And the arguments against direct elections are spurious at best. It's hard to say this, but Bob Dole was right: Abolish the electoral college!

In Defense of the Electoral College: Five reasons to keep our despised method of choosing the President by Judge Richard A. Posner

The Electoral College is widely regarded as an anachronism, a non-democratic method of selecting a president that ought to be overruled by declaring the candidate who receives the most popular votes the winner. The advocates of this position are correct in arguing that the Electoral College method is not democratic in a modern sense . . . it is the electors who elect the president, not the people. When you vote for a presidential candidate you're actually voting for a slate of electors.

But each party selects a slate of electors trusted to vote for the party's nominee (and that trust is rarely betrayed) . . . however, it is entirely possible that the winner of the electoral vote will not win the national popular vote. Yet that has happened very rarely. It happened in 2000, when Gore had more popular votes than Bush yet fewer

electoral votes, but that was the first time since 1888.

17 There are five reasons for retaining the Electoral College despite its lack of democratic pedigree;2 all are practical reasons, not liberal or conservative3 reasons.

1) Certainty of Outcome

18 A dispute over the outcome of an Electoral College vote is possible2014--it happened in 2000--2014but it2019s less likely than a dispute over the popular vote. The reason is that the winning candidate2019s share of the Electoral College invariably exceeds his share of the popular vote. In 20122019s election, for example, Obama4 received 61.7 percent of the electoral vote compared to only 51.3 percent of the popular votes cast for him and Romney.5 . . . Because almost all states award electoral votes on a winner-take-all basis, even a very slight plurality6 in a state creates a landslide electoral-vote victory in that state. A tie in the nationwide electoral vote is possible because the total number of votes2014--5382014--is an even number, but it is highly unlikely. . . .

2) Everyone2019s President

19 The Electoral College requires a presidential candidate to have trans-regional appeal. No region (South, Northeast, etc.) has enough electoral votes to elect a president. So a solid regional favorite, such as Romney was in the South, has no incentive to campaign heavily in those states, for he gains no electoral votes by increasing his plurality in states that he knows he will win. This is a desirable result because a candidate with only regional appeal is unlikely to be a successful president. The residents of the other regions are likely to feel disenfranchised2014to feel that their votes do not count, that the new president will have no regard for their interests, that he really isn2019t their president.

3) Swing States

20 The winner-take-all method of awarding electoral votes induces the candidates2014as we saw in 20122019s election2014to focus their campaign efforts on the toss-up states Voters in toss-up states are more likely to pay close attention to the campaign2014to really listen to the competing candidates2014knowing that they are going to decide the election. They are likely to be the most thoughtful voters, on average (and for the further reason that they will have received the most information and attention from the candidates), and the most thoughtful voters should be the ones to decide the election.

4) Big States

21 The Electoral College restores some of the weight in the political balance that large states (by population) lose by virtue of the mal-apportionment of the Senate decreed in the Constitution. . . . The popular vote was very close in Florida in 2012; nevertheless Obama, who won that vote, got 29 electoral votes. A victory by the same margin in Wyoming would net the winner only 3 electoral votes. So, other things being equal, a large state gets more attention from presidential candidates in a campaign than a small state does. . . .

5) Avoid Run-Off Elections

22 The Electoral College avoids the problem of elections in which no candidate receives a majority of the votes cast. For example, Nixon in 1968 and Clinton in 1992 both had only a 43 percent plurality of the

popular votes, while winning a majority in the Electoral College (301 and 370 electoral votes, respectively). There is pressure for run-off elections when no candidate wins a majority of the votes cast; that pressure, which would greatly complicate the presidential election process, is reduced by the Electoral College, which invariably produces a clear winner. . . .

23 It can be argued that the Electoral College method of selecting the president may turn off potential voters for a candidate who has no hope of carrying their state—Democrats in Texas, for example, or Republicans in California. Knowing their vote will have no effect, they have less incentive to pay attention to the campaign than they would have if the president were picked by popular vote But of course no voter's vote swings a national election, and in spite of that, about one-half the eligible American population did vote in 2012's election. Voters in presidential elections are people who want to express a political preference rather than people who think that a single vote may decide an election. . . .

"# In German Suburb, Life Goes On Without Cars by Elisabeth Rosenthal

1 VAUBAN, Germany—Residents of this upscale community are suburban pioneers, going where few soccer moms or commuting executives have ever gone before: they have given up their cars.

2 Street parking, driveways and home garages are generally forbidden in this experimental new district on the outskirts of Freiburg, near the French and Swiss borders. Vauban's streets are completely car-free—except the main thoroughfare, where the tram to downtown Freiburg runs, and a few streets on one edge of the community. Car ownership is allowed, but there are only two places to park—large garages at the edge of the development, where a car-owner buys a space, for \$40,000, along with a home.

3 As a result, 70 percent of Vauban's families do not own cars, and 57 percent sold a car to move here. When I had a car I was always tense. I'm much happier this way," said Heidrun Walter, a media trainer and mother of two, as she walked verdant streets where the swish of bicycles and the chatter of wandering children drown out the occasional distant motor.

4 Vauban, completed in 2006, is an example of a growing trend in Europe, the United States and elsewhere to separate suburban life from auto use, as a component of a movement called smart planning.

5 Automobiles are the linchpin of suburbs, where middle-class families from Chicago to Shanghai tend to make their homes. And that, experts say, is a huge impediment to current efforts to drastically reduce greenhouse gas emissions from tailpipes Passenger cars are responsible for 12 percent of greenhouse gas emissions in Europe . . . and up to 50 percent in some car-intensive areas in the United States.

6 While there have been efforts in the past two decades to make cities denser, and better for walking, planners are now taking the concept to the suburbs Vauban, home to 5,500 residents within a rectangular square mile, may be the most advanced experiment in low-car suburban life. But its basic precepts are being adopted around the world in

attempts to make suburbs more compact and more accessible to public transportation, with less space for parking. In this new approach, stores are placed a walk away, on a main street, rather than in malls along some distant highway.

All of our development since World War II has been centered on the car, and that will have to change," said David Goldberg, an official of Transportation for America, a fast-growing coalition of hundreds of groups in the United States . . . who are promoting new communities that are less dependent on cars. Mr. Goldberg added: "How much you drive is as important as whether you have a hybrid."

Levittown and Scarsdale, New York suburbs with spread-out homes and private garages, were the dream towns of the 1950s and still exert a strong appeal. But some new suburbs may well look more Vauban-like, not only in developed countries but also in the developing world, where emissions from an increasing number of private cars owned by the burgeoning middle class are choking cities.

In the United States, the Environmental Protection Agency is promoting "car reduced" communities, and legislators are starting to act, if cautiously. Many experts expect public transport serving suburbs to play a much larger role in a new six-year federal transportation bill to be approved this year, Mr. Goldberg said. In previous bills, 80 percent of appropriations have by law gone to highways and only 20 percent to other transport.

Excerpt from "In German Suburb, Life Goes On Without Cars" by Elisabeth Rosenthal, from the New York Times. Copyright © 2009 by the New York Times Company. Reprinted by permission of the New York Times Company via Copyright Clearance Center.

Paris bans driving due to smog by Robert Duffer

After days of near-record pollution, Paris enforced a partial driving ban to clear the air of the global city.

On Monday motorists with even-numbered license plates were ordered to leave their cars at home or suffer a 22-euro fine (\$31). The same would apply to odd-numbered plates the following day.

Almost 4,000 drivers were fined, according to Reuters . . . [Twenty-seven] people had their cars impounded for their reaction to the fine.

That "19s easier to imagine than a car-free Champs-Élysées."

Congestion 3 was down 60 percent in the capital of France, after five-days of intensifying smog . . . [The smog] rivaled Beijing, China, which is known as one of the most polluted cities in the world.

Cold nights and warm days caused the warmer layer of air to trap car emissions.

Diesel fuel was blamed, since France has . . . [a] tax policy that favors diesel over gasoline. Diesels make up 67 percent of vehicles in France, compared to a 53.3 percent average of diesel engines in the rest of Western Europe, according to Reuters.

Paris typically has more smog than other European capitals . . . [Last] week Paris had 147 micrograms of particulate matter (PM) per cubic meter compared with 114 in Brussels and 79.7 in London, Reuters found.

Delivery companies complained of lost revenue, while exceptions were made for plug-in cars, hybrids, and cars carrying three or more passengers. Public transit was free of

charge from Friday to Monday, according to the BBC.

19 The smog cleared enough Monday for the ruling French party to rescind the ban for odd-numbered plates on Tuesday.

1 Excerpt from "Paris bans driving due to smog" by Robert Duffer, from the Chicago Tribune. Copyright © 2014 by the Chicago Tribune. Reprinted by permission of the Chicago Tribune via Copyright Clearance Center.

Car-free day is spinning into a big hit in Bogota by Andrew Selsky

BOGOTA, Colombia In a program that's set to spread to other countries, millions of Colombians hiked, biked, skated or took buses to work during a car-free day yesterday, leaving the streets of this capital city eerily devoid of traffic jams.

21 It was the third straight year cars have been banned with only buses and taxis permitted for the Day Without Cars in this capital city of 7 million. The goal is to promote alternative transportation and reduce smog. Violators faced \$25 fines.

22 The turnout was large, despite gray clouds that dumped occasional rain showers on Bogota.

23 "The rain hasn't stopped people from participating," said Bogota Mayor Antanas Mockus . . .

24 "It's a good opportunity to take away stress and lower air pollution," said businessman Carlos Arturo Plaza as he rode a two-seat bicycle with his wife.

25 For the first time, two other Colombian cities, Cali and Valledupar, joined the event.

26 Municipal authorities from other countries came to Bogota to see the event and were enthusiastic. "These people are generating a revolutionary change, and this is crossing borders," said Enrique Riera, the mayor of Asunción, Paraguay. . .

27 The day without cars is part of an improvement campaign that began in Bogota in the mid-1990s. It has seen the construction of 118 miles of bicycle paths, the most of any Latin American city, according to Mockus, the city's mayor.

28 Parks and sports centers also have bloomed throughout the city; uneven, pitted sidewalks have been replaced by broad, smooth sidewalks; rush-hour restrictions have dramatically cut traffic; and new restaurants and upscale shopping districts have cropped up.

Excerpt from "Car-free day is spinning into a big hit in Bogota" by Andrew Selsky, from the Seattle Times. Copyright © 2002 by the Seattle Times Company. Reprinted by permission of the Seattle Times Company via Copyright Clearance Center.

The End of Car Culture by Elisabeth Rosenthal

29 President Obama's ambitious goals to curb the United States' greenhouse gas emissions, unveiled last week, will get a fortuitous assist from an incipient shift in American behavior: recent studies suggest that Americans are buying fewer cars, driving less and getting fewer licenses as each year goes by.

30 That has left researchers pondering a fundamental question: Has America passed peak driving?

31 The United States, with its broad expanses and suburban ideals, had long been one of the world's prime car cultures. It is the birthplace of the Model T; the home of Detroit; the place where Wilson Pickett immortalized "Mustang Sally" . . .

32 But America's love affair with its

vehicles seems to be cooling. When adjusted for population growth, the number of miles driven in the United States peaked in 2005 and dropped steadily thereafter, according to an analysis by Doug Short of Advisor Perspectives, an investment research company. As of April 2013, the number of miles driven per person was nearly 9 percent below the peak and equal to where the country was in January 1995. Part of the explanation certainly lies in the recession, because cash-strapped Americans could not afford new cars, and the unemployed weren't going to work anyway. But by many measures the decrease in driving preceded the downturn and appears to be persisting now that recovery is under way. The next few years will be telling.

What most intrigues me is that rates of car ownership per household and per person started to come down two to three years before the downturn, said Michael Sivak, who studies the trend and who is a research professor at the University of Michigan's Transportation Research Institute. I think that means something more fundamental is going on.

If the pattern persists and many sociologists believe it will, it will have beneficial implications for carbon emissions and the environment, since transportation is the second largest source of America's emissions, just behind power plants. But it could have negative implications for the car industry. Indeed, companies like Ford and Mercedes are already rebranding themselves mobility companies with a broader product range beyond the personal vehicle.

Different things are converging which suggest that we are witnessing a long-term cultural shift, said Mimi Sheller, a sociology professor at Drexel University and director of its Mobilities Research and Policy Center. She cites various factors: the Internet makes telecommuting possible and allows people to feel more connected without driving to meet friends. The renewal of center cities has made the suburbs less appealing and has drawn empty nesters back in. Likewise the rise in cellphones and car-pooling apps has facilitated more flexible commuting arrangements, including the evolution of shared van services for getting to work.

With all these changes, people who stopped car commuting as a result of the recession may find less reason to resume the habit. . . .

New York's new bike-sharing program and its skyrocketing bridge and tunnel tolls reflect those new priorities, as do a proliferation of car-sharing programs across the nation.

Demographic shifts in the driving population suggest that the trend may accelerate. There has been a large drop in the percentage of 16- to 39-year-olds getting a license, while older people are likely to retain their licenses as they age, Mr. Sivak's research has found.

He and I have similar observations about our children. Mine (19 and 21) have not bothered to get a driver's license, even though they both live in places where one could come in handy. They are interested, but it's not a priority. They organize their summer jobs and social life around where they can walk or take public transportation or car-pool with friends.

Mr. Sivak's son lives in San Francisco and

has a car but takes Bay Area Rapid Transit, when he can, even though that often takes longer than driving. \u201cWhen I was in my 20s and 30s,\u201d Mr. Sivak said, \u201cI was curious about what kind of car people drove, but young people don\u2019t really care. A car is just a means of getting from A to B when BART doesn\u2019t work.\u201d \u201d A study last year found that driving by young people decreased 23 percent between 2001 and 2009. . . . \u201d Whether members of the millennial generation will start buying more cars once they have kids to take to soccer practice and school plays remains an open question. But such projections have important business implications, even if car buyers are merely older or buying fewer cars in a lifetime rather than rejecting car culture outright. \u201d At the Mobile World Congress last year in Barcelona, Spain, Bill Ford, executive chairman of the Ford Motor Company, laid out a business plan for a world in which personal vehicle ownership is impractical or undesirable. He proposed partnering with the telecommunications industry to create cities in which \u201cpedestrian, bicycle, private cars, commercial and public transportation traffic are woven into a connected network to save time, conserve resources, lower emissions and improve safety.\u201d \u201d Excerpt from \u201cThe End of Car Culture\u201d by Elisabeth Rosenthal, from the New York Times. Copyright \u00a9 2013 by the New York Times Company. Reprinted by permission of the New York Times Company via Copyright Clearance Center. \n\n],\n\n \"semantic_type\": \"\", \n\n \"description\": \"\" \n\n } \n\n } \n\n } \n\n }\", \"type\": \"dataframe\"}

```
new_data.prompt_name.value_counts()
```

prompt_name	
Distance learning	5554
Seeking multiple opinions	5176
Car-free cities	4717
Does the electoral college work?	4434
Facial action coding system	3084
Mandatory extracurricular activities	3077
Summer projects	2701
Driverless cars	2250
Exploring Venus	2176
Cell phones at school	2119
Grades for extracurricular activities	2116
Community service	2092
"A Cowboy Who Rode the Waves"	1896
The Face on Mars	1893
Phones and driving	1583
Name: count, dtype: int64	

```
new_=new_data.iloc[:, 0:2]
[new_data['prompt_name'].isin(train_prompts['prompt_name'].values)]
new_
```

```
{"summary": "{\n  \"name\": \"new_\", \n  \"rows\": 9151, \n  \"fields\": [\n    {\n      \"column\": \"text\", \n      \"properties\": {\n        \"dtype\": \"string\", \n        \"num_unique_values\": 9151, \n        \"samples\": [\n          \"In recent years, there has been a growing movement to limit car usage. This movement is based on the belief that cars are harmful to the environment, unhealthy for individuals, and inefficient in terms of time and money. There are many advantages to limiting car usage, and these advantages should be considered by all citizens.\\n\\nOne of the main advantages of limiting car usage is that it is good for the environment. Cars produce a significant amount of pollution, which contributes to climate change and other environmental problems. When people limit their car usage, they are helping to reduce pollution and protect the environment.\\n\\nAnother advantage of limiting car usage is that it is good for personal health. Cars are a major source of sedentary behavior, which can lead to obesity, heart disease, and other health problems. When people walk, bike, or take public transportation instead of driving, they are getting more exercise and reducing their risk of developing chronic diseases.\\n\\nFinally, limiting car usage is efficient in terms of time and money. Cars are often slow and expensive to operate, especially in urban areas with heavy traffic. When people walk, bike, or take public transportation, they can save time and money.\\n\\nIn conclusion, there are many advantages to limiting car usage. These advantages should be considered by all citizens who are concerned about the environment, personal health, and efficient use of time and money.\\n\\nIn addition to the advantages mentioned above, limiting car usage can also improve public health by reducing air pollution and noise levels. It can also promote social interaction and community building by encouraging people to walk, bike, or take public transportation together. And it can help to create more livable, walkable cities that are more enjoyable to live in.\\n\\nOf course, there are also some challenges associated with limiting car usage. One challenge is that it can be difficult to make changes to our habits and routines. Another challenge is that many cities are not designed to be easily walkable or bikeable. But these challenges can be overcome with planning and effort.\\n\\nOverall, the advantages of limiting car usage far outweigh the challenges. If we are serious about protecting the environment, improving our health, and creating more livable cities, we need to make a concerted effort to reduce our reliance on cars.\\n\", \n          \"At first the Electoral College is a process of compromising between election of the president by a vote in congress and by popular votes from citizens. To my opinion I could favor this as a smart compromise.\\n\\nSecond it goes to show that when a president gets elected and wins by popular vote by only citizens is not a good idea. Reason is that people only vote for a certain president based on not their support or ideas for america, but based on their looks. When the Electoral College comes into play, Citizens vote for a slate to pledge a candidate. Then it depends on the state.\\n\\nFinally when the electors who elected the president and not the people, the citizens votes goes into a good cause. When
```


they agree to a final vote then that candidate gets the job.\\n\\nIn conclusion, I think the Electoral College is a good idea becuase when an idea strikes from a candidate ,and approved by congress. Then everybody wins the vote. \\u00a0 \",\\n
\"MONTH_DAY_YEAR\\n\\nGoodmoring senator before I start , I would like to ask how are you doing and how's your family. I hope everybody health is great and family problems. Today I want to talk to you about some little problem that's not going as well as I thought it was going to go. Electoral College is not a good idea for us citizens. Because everybody in this country that works and come from another country , should be able to vote for their President. The Electoral College consists of 583 electors. A majority of 270 electoral vote is required to elect the President.\\n\\nThe presidential election is held every four years on the Tuesday after the first Monday in November. Us citizens think that's a better idea. Don't you think? The presidential election most have a \\\\\"winner-take-all\\\" system that awards all electors to the winning presidential candidate. And after the presidential election, yout governor prepares a \\\\\"Certificate of Ascertainment\\\". Listing all of the candidates who ran for President in your state along with the names of their respective electors. The electors are generally chosen by the candidate's political party.\\n\\nAccording to Richard Nixon, Jimmy Carter, Bob Dole they agreed on abolishing the electoral college . The electoral college won the popular vote but lost the presidency over 60% of voters. What that means? 60% of the people didn't agree with the electoral college. The single best argument against the electoral college is what they might call the disaster factor. Us the American people should consider themselves lucky that the 2000 fiasco was\\u00a0 the biggest election crisis in a century. The state legislatures are technically responsible for picking electors , and that those electors could always defy the will of the people.\\n\\nAt the most basic level, the electoral college is unfair to voters. Because of the winner-take-all system in each states they know they have no chance of winning , focusing only on the tight races on the \\\\\"swing\\\" states. During the 2000 compaign seventeen states did not see the canditates at all. Including Rhode Island and South Carolina. Also\\u00a0 voters in 25 of the lrgest media markets didn't get to see a single campaign ad. The electoral college is unfair, outdated , and irrational. The best arguments in favor of it are mostly assertionw without much basis in reality. Bob Dole was right. Abolish the elctoral college!\\n\\nIn conclusion, The Electoral College is widely regarded as an anachronism , a non-democratic method of selecting a president that ought to be overruled by declaring the candidate who receives the most popular votes the winner. There are five reasons for retaining the Electoral College despite its lack of democratic pedigree; all are practical reasons, not liberal or conservative reasons. This is all I wanted to tell you , I hope you listen to what I'm trying to tell you. I know I am not the only one that thinks like this. If you would like to contact me back you could email me at EMAIL_ADDRESS. Thankyou and have a great day!\\n\\nPROPER_NAME \",\\n]\\n

```

\"semantic_type\": \"\", \n      \"description\": \"\" \n    } \n  }, \n  { \n    \"column\": \"label\", \n    \"properties\": { \n      \"dtype\": \"number\", \n      \"std\": 0, \n      \"min\": 0, \n      \"max\": 1, \n      \"num_unique_values\": 2, \n      \"samples\": [ \n        1, \n        0 \n      ], \n      \"semantic_type\": \"\", \n      \"description\": \"\" \n    } \n  ] \n} \", \"type\": \"dataframe\", \"variable_name\": \"new_\"}

```

```

t=train.iloc[:,2:]
t.columns=['text','label']
train_data=pd.concat([new_,t])
train_data=train_data.reset_index().iloc[:,1:]
train_data.head()

```

```

{"summary": "{ \n  \"name\": \"train_data\", \n  \"rows\": 10529, \n  \"fields\": [ \n    { \n      \"column\": \"text\", \n      \"properties\": { \n        \"dtype\": \"string\", \n        \"num_unique_values\": 9151, \n        \"samples\": [ \n          \"In recent years, there has been a growing movement to limit car usage. This movement is based on the belief that cars are harmful to the environment, unhealthy for individuals, and inefficient in terms of time and money. There are many advantages to limiting car usage, and these advantages should be considered by all citizens.\\n\\nOne of the main advantages of limiting car usage is that it is good for the environment. Cars produce a significant amount of pollution, which contributes to climate change and other environmental problems. When people limit their car usage, they are helping to reduce pollution and protect the environment.\\n\\nAnother advantage of limiting car usage is that it is good for personal health. Cars are a major source of sedentary behavior, which can lead to obesity, heart disease, and other health problems. When people walk, bike, or take public transportation instead of driving, they are getting more exercise and reducing their risk of developing chronic diseases.\\n\\nFinally, limiting car usage is efficient in terms of time and money. Cars are often slow and expensive to operate, especially in urban areas with heavy traffic. When people walk, bike, or take public transportation, they can save time and money.\\n\\nIn conclusion, there are many advantages to limiting car usage. These advantages should be considered by all citizens who are concerned about the environment, personal health, and efficient use of time and money.\\n\\nIn addition to the advantages mentioned above, limiting car usage can also improve public health by reducing air pollution and noise levels. It can also promote social interaction and community building by encouraging people to walk, bike, or take public transportation together. And it can help to create more livable, walkable cities that are more enjoyable to live in.\\n\\nOf course, there are also some challenges associated with limiting car usage. One challenge is that it can be difficult to make changes to our habits and routines. Another challenge is that many cities are not designed to be easily walkable or bikeable. But these challenges can be overcome with planning and

```

effort.\\n\\nOverall, the advantages of limiting car usage far outweigh the challenges. If we are serious about protecting the environment, improving our health, and creating more livable cities, we need to make a concerted effort to reduce our reliance on cars.\\",\\n

"At first the Electoral College is a process of compromising between election of the president by a vote in congress and by popular votes from citizens. To my opinion I could favor this as a smart compromise.\\n\\nSecond it goes to show that when a president gets elected and wins by popular vote by only citizens is not a good idea. Reason is that people only vote for a certain president based on not their support or ideas for america, but based on their looks. When the Electoral College comes into play, Citizens vote for a slate to pledge a candidate. Then it depends on the state.\\n\\nFinally when the electors who elected the president and not the people, the citizens votes goes into a good cause. When they agree to a final vote then that candidate gets the job.\\n\\nIn conclusion, I think the Electoral College is a good idea becuase when an idea strikes from a candidate ,and approved by congress. Then everybody wins the vote. \\u00a0 \\",\\n

"MONTH_DAY_YEAR\\n\\nGoodmoring senator before I start , I would like to ask how are you doing and how's your family. I hope everybody health is great and family problems. Today I want to talk to you about some little problem that's not going as well as I thought it was going to go. Electoral College is not a good idea for us citizens. Because everybody in this country that works and come from another country , should be able to vote for their President. The Electoral College consists of 583 electors. A majority of 270 electoral vote is required to elect the President.\\n\\nThe presidential election is held every four years on the Tuesday after the first Monday in November. Us citizens think that's a better idea. Don't you think? The presidential election most have a \\\"winner-take-all\\\" system that awards all electors to the winning presidential candidate. And after the presidential election, yout governor prepares a \\\"Certificate of Ascertainment\\\". Listing all of the candidates who ran for President in your state along with the names of their respective electors. The electors are generally chosen by the candidate's political party.\\n\\nAccording to Richard Nixon, Jimmy Carter, Bob Dole they agreed on abolishing the electoral college . The electoral college won the popular vote but lost the presidency over 60% of voters. What that means? 60% of the people didn't agree with the electoral college. The single best argument against the electoral college is what they might call the disaster factor. Us the American people should consider themselves lucky that the 2000 fiasco was\\u00a0 the biggest election crisis in a century. The state legislatures are technically responsible for picking electors , and that those electors could always defy the will of the people.\\n\\nAt the most basic level, the electoral college is unfair to voters. Because of the winner-take-all system in each states they know they have no chance of winning , focusing only on the tight races on the \\\"swing\\\" states. During

the 2000 campaign seventeen states did not see the candidates at all. Including Rhode Island and South Carolina. Also voters in 25 of the largest media markets didn't get to see a single campaign ad. The electoral college is unfair, outdated, and irrational. The best arguments in favor of it are mostly assertions without much basis in reality. Bob Dole was right. Abolish the electoral college!

In conclusion, The Electoral College is widely regarded as an anachronism, a non-democratic method of selecting a president that ought to be overruled by declaring the candidate who receives the most popular votes the winner. There are five reasons for retaining the Electoral College despite its lack of democratic pedigree; all are practical reasons, not liberal or conservative reasons. This is all I wanted to tell you, I hope you listen to what I'm trying to tell you. I know I am not the only one that thinks like this. If you would like to contact me back you could email me at EMAIL_ADDRESS. Thank you and have a great day!

```
PROPER_NAME      "\n      ],\n\n\"semantic_type\": \"\", \n      \"description\": \"\" \n      },\n      {\n      \"column\": \"label\", \n      \"properties\": {\n      \"dtype\": \"number\", \n      \"std\": 0, \n      \"min\": 0, \n      \"max\": 1, \n      \"num_unique_values\": 2, \n      \"samples\": [\n      1, \n      0 \n      ], \n      \"semantic_type\": \"\", \n      \"description\": \"\" \n      } \n      ] \n      }\", \"type\": \"dataframe\", \"variable_name\": \"train_data\"}
```

```
train_data.label.value_counts()
```

```
label
```

```
0      6755
```

```
1      3774
```

```
Name: count, dtype: int64
```

```
# plt.figure(figsize=(8,5))
# ax=sns.countplot(data=train_data,x="label",palette='Set3')
# abs_values = train_data['label'].value_counts().values
# ax.bar_label(container=ax.containers[0], labels=abs_values)
# ax.set_title("Distribution Of Label")
# plt.grid(True)
# plt.xticks(rotation=45)
# plt.yticks(rotation=45)
# plt.show()
```

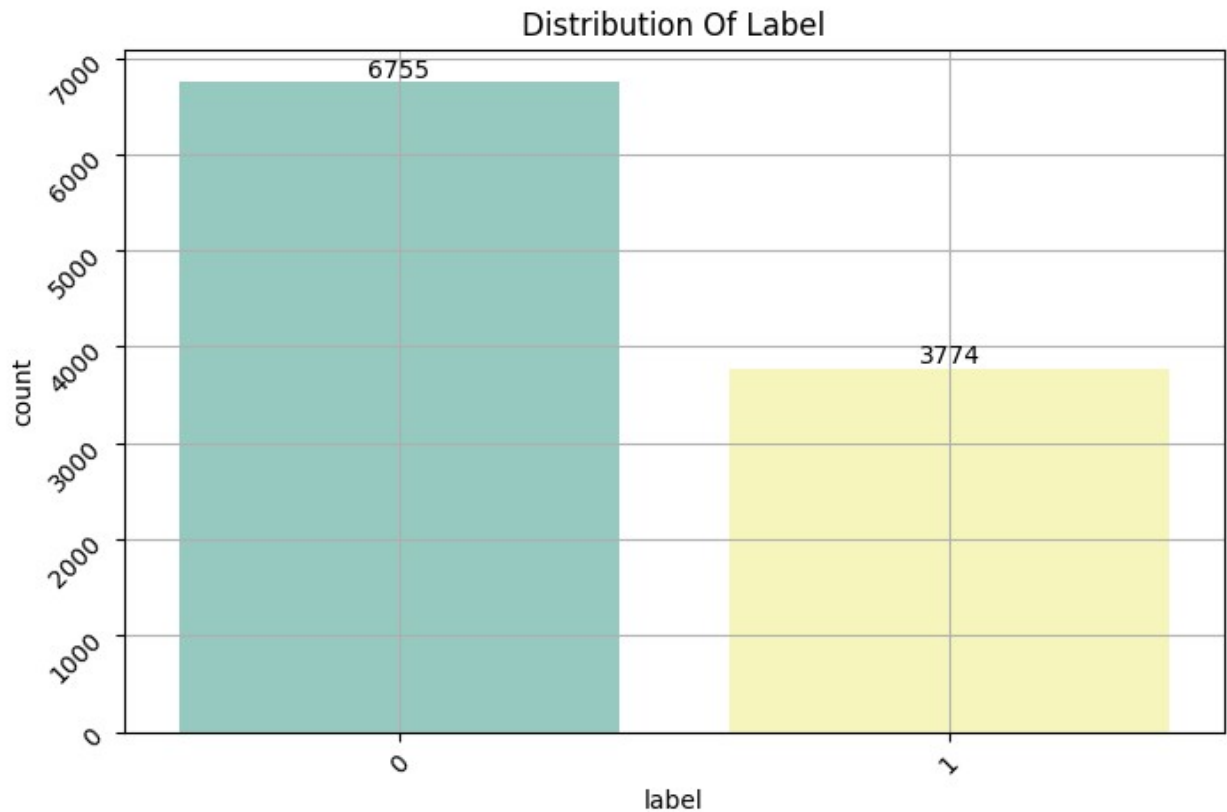
```
import matplotlib.pyplot as plt
import seaborn as sns
```

```
plt.figure(figsize=(8, 5))
ax = sns.countplot(data=train_data, x="label", palette='Set3')
abs_values = train_data['label'].value_counts().values
for i, v in enumerate(abs_values):
    ax.text(i, v + 0.2, str(v), ha='center', va='bottom')
```

```

ax.set_title("Distribution Of Label")
plt.grid(True)
plt.xticks(rotation=45)
plt.yticks(rotation=45)
plt.show()

```



**

Text Cleaning

Tabel of Contents

```

def Clean(text):
    text = tf_text.normalize_utf8(text, 'NFKD')
    text = tf.strings.lower(text)
    text = tf.strings.regex_replace(text, '[^ a-z.?!,;]', '')
    text = tf.strings.regex_replace(text, '[.?!;]', r' \0 ')
    text = tf.strings.strip(text)
    text = tf.strings.regex_replace(text, '\\.\\.\\.\\. ', ' ')
    text = tf.strings.join(['', text, ''], separator=' ')
    return text
def clean_text(text):

```

```

# Remove Twitter handles starting with '@'
text = re.sub(r'@\w+', '', text)
# Remove non-alphanumeric characters and extra whitespace
text = re.sub(r'[^a-zA-Z\s]', '', text)
# Convert multiple whitespace characters to a single space
text = re.sub(r'\s+', ' ', text)
# Convert the text to lowercase
text = text.lower()
return text

```

```
train_data['text'][0]
```

```
{"type": "string"}
```

```
Clean(train_data['text'][0])
```

```
<tf.Tensor: shape=(), dtype=string, numpy=b' cars have been around for
awhile and they have had a major impact on society . many people
believe that there is no problem with the frequency of cars being
driven . but , there are many advantages to less car use such as
improving our cities and suburbs , improving safety , and decreasing
pollution . many have tried to make cities a little more dense and
better for walking but nothing has seemed to work therefore , they
have moved on to suburbs . now , people are trying to make suburbs
better for getting around while walking instead of driving . by doing
so , places such as shops will be made closer and more convenient
which allows people to be able to consider walking as a better
option . by having these suburbs , and soon hopefully cities ,
reduce the amount of cars used , the people living in these areas
will be able to accomplish more in a healthier and safer way . safety
has been an issue in almost all areas due to a variety of reasons one
being cars . people pass by drive safely signs or memorials on the
side of the road too often . many accidents occur because of all the
cars and traffic and careless driving . by reducing the amount of
cars being driven , the moment of deaths in car accidents can be
reduced as well . in the end of car culture , author elisabeth
rosenthal states , mine and have not bothered to get a drivers
license , even though they both live in places where one could come
in handy . they are interested , but its not a priority . they
organize their summer jobs and social life around where they can walk
or take public transportation or carpool with friends . recently ,
teenagers who are able to get their license havent really made it a
priority . this could be caused by factors such as fear of driving or
just because theyve figured out a way around driving . not everyone
needs a car to get around there are plenty of other ways to safely get
from point a to point b . another large issue cars contribute to is
pollution . pollution is in every city , every state , every
country , every continent . cars are a huge impediment to current
efforts to drastically reduce greenhouse gas emissions from
tailpipes . . . rosenthal , elisabeth , in german suburb , life
```

goes on without cars . cars dont help with environmental issues whatsoever . they add to the smog issues and they increase the about of greenhouse gases in the atmosphere . in the capital of france , for example , congestion was down sixty percent due to smog causing delivery companies to lose money since they couldnt delieve what was needed . cars are extremely harmful to the environment and they make the issues we already have even larger . by limiting car usage , people could hopefully work on repairing the damage we have already done to the environment instead of worsening it . cars have impacted society ever since they were made . by reducing the amount of cars driven , cities and suburbs can be improved , better safety can be implimented , and pollution will reduce . until then , the issues cars create will continue to get worse and by the time people see it , the problems will be too late to fix . '>

```
clean_text(train_data['text'][0])
```

```
{"type": "string"}
```

```
from sentence_transformers import SentenceTransformer  
model = SentenceTransformer("all-MiniLM-L6-v2")
```

```
embeddings = model.encode(train_data['text'])
```

```
{"model_id": "ee2bb30152a140df8f387e8955d7302a", "version_major": 2, "version_minor": 0}
```

```
{"model_id": "f59c6cec2a10489ea95e9920f630d438", "version_major": 2, "version_minor": 0}
```

```
{"model_id": "8f201ba424d8454ba055e450eb86ebcd", "version_major": 2, "version_minor": 0}
```

```
{"model_id": "80d22211464e4c3fbb65bf000e993f18", "version_major": 2, "version_minor": 0}
```

```
{"model_id": "dd1799f38425462b86dfd3fbeb14f9d", "version_major": 2, "version_minor": 0}
```

```
{"model_id": "5c4d42a5d2ea48d2902f060686f9fc16", "version_major": 2, "version_minor": 0}
```

```
{"model_id": "d14e12ecffff47008122ec08f96fce2c", "version_major": 2, "version_minor": 0}
```

```
{"model_id": "339a7fd2ed984e3bb596594a5c1c5bd7", "version_major": 2, "version_minor": 0}
```

```
{"model_id": "c296cc019ad54959a22593f504ab0e31", "version_major": 2, "version_minor": 0}
```

```
{"model_id":"7654263263c84f2199360020936ad37a","version_major":2,"version_minor":0}
```

```
{"model_id":"84a11d64b509493ab716fa14246a100b","version_major":2,"version_minor":0}
```

```
import pickle
with open('/content/drive/MyDrive/TrainingData/embeddings.pkl', 'wb')
as file:
    pickle.dump(embeddings, file)
```

```
print("Embeddings saved to embeddings.pkl")
```

Embeddings saved to embeddings.pkl

```
embeddings[0]
```

```
array([ 6.59394711e-02,  2.89025698e-02,  9.18317437e-02,
 4.22577523e-02,
        5.08281067e-02,  8.28350484e-02,  3.04870624e-02,
 9.98250619e-02,
        -2.55813822e-02,  3.04450374e-02,  7.84706548e-02,
 5.76347224e-02,
        2.55157147e-02,  1.45826917e-02,  1.90481581e-02, -
 5.44827385e-03,
        3.34285460e-02,  6.30008131e-02, -1.11557886e-01,
 3.39529142e-02,
        -3.57255302e-02, -1.52937630e-02,  4.40641977e-02,
 8.05255100e-02,
        -1.45293370e-01,  1.21695744e-02, -3.13828364e-02,
 2.88766082e-02,
        -1.24732833e-02, -3.92545089e-02,  8.27868283e-02,
 9.67754275e-02,
        3.88696231e-02, -2.20837388e-02, -7.07798377e-02, -
 4.23962995e-02,
        3.52457091e-02,  4.52563316e-02,  1.78953819e-02, -
 4.54943068e-02,
        1.37415268e-02, -9.40764099e-02, -2.98210829e-02,
 3.65407183e-03,
        -2.77550314e-02, -5.44902235e-02,  3.60981114e-02, -
 3.58375385e-02,
        1.31921684e-02, -1.12134799e-01,  2.84451805e-02,
 4.00472991e-02,
        1.09357387e-02, -6.95647299e-02, -4.89875600e-02, -
 9.57547054e-02,
        -1.93584226e-02,  4.06159870e-02, -7.92057887e-02,
 3.89304161e-02,
        4.73662987e-02, -7.89568797e-02, -6.34672418e-02, -
 1.19476104e-02,
        9.83345136e-03, -1.02699377e-01,  4.65701148e-02, -
```

1.35721806e-02,
-4.52044467e-03, 9.27652046e-02, 1.21087721e-02, -
3.89292873e-02,
2.46120468e-02, -4.69178595e-02, 2.03023981e-02, -
3.18906233e-02,
-7.19231647e-03, 2.28283778e-02, 2.67522093e-02, -
9.97013878e-03,
2.30912492e-02, -1.27276098e-02, 2.37526391e-02,
1.47008179e-02,
-3.11250165e-02, 3.55355740e-02, -3.23515534e-02, -
1.54090961e-02,
-5.72797656e-03, -3.85734178e-02, -5.21993004e-02,
4.48634326e-02,
-3.94248636e-03, 1.32920397e-02, 1.70523506e-02,
1.81192104e-02,
-2.41248738e-02, -3.83422337e-02, 6.59575388e-02,
6.75965287e-03,
6.12781290e-03, -8.88941111e-04, 5.24465069e-02, -
1.92029625e-02,
3.54273133e-02, -2.94282380e-02, -6.29570782e-02,
2.47743148e-02,
-4.03153710e-02, 9.72151756e-02, 4.52885553e-02, -
2.25374494e-02,
-1.42291933e-02, 7.14878784e-03, -4.58381101e-02, -
2.80902330e-02,
-1.39688759e-03, 1.82121377e-02, 6.68791123e-04,
9.64677930e-02,
-5.76049723e-02, -5.26192822e-02, -4.88076583e-02, -
1.50528736e-02,
4.15947810e-02, 2.10201181e-02, 3.38541307e-02,
7.29359568e-33,
-7.71937221e-02, -2.72054076e-02, 5.43512478e-02,
5.56655489e-02,
1.44775985e-02, -5.90548180e-02, -8.34677294e-02, -
3.57100144e-02,
1.09844990e-02, -5.82661480e-02, 5.64309284e-02, -
5.95728010e-02,
3.84950079e-02, 1.95630267e-02, 8.56230706e-02, -
4.67729531e-02,
-5.48846535e-02, -2.66189799e-02, -7.17638656e-02, -
7.77982324e-02,
-2.78932955e-02, -4.68942113e-02, 3.52469943e-02, -
5.25544807e-02,
1.77202132e-02, 2.30987314e-02, 2.42659505e-02,
3.80075388e-02,
1.99630670e-02, -5.14928065e-03, 7.28300912e-03,
9.46449414e-02,
-3.10363211e-02, 4.51556295e-02, -5.70145203e-03,
3.44328396e-02,

-6.75770044e-02, 3.91633064e-02, -3.24993692e-02, -
3.21721844e-02,
-8.09078962e-02, -2.71334667e-02, -5.73338903e-02,
3.14679667e-02,
8.33392814e-02, 6.47055656e-02, 1.14648789e-01, -
1.97110558e-03,
-1.06012091e-01, 2.98746675e-02, -1.90212540e-02, -
1.66298989e-02,
-4.89772409e-02, 7.46839680e-03, -3.92683633e-02,
4.06239033e-02,
-4.60625999e-02, -5.75237088e-02, -4.50098105e-02, -
9.02564917e-03,
-4.06738706e-02, 2.61101965e-02, 3.52395549e-02, -
2.93247066e-02,
4.46206518e-02, -8.58580023e-02, 5.12738600e-02,
2.86037531e-02,
6.80831680e-03, 1.02777228e-01, 3.92218828e-02,
1.55318752e-02,
5.90668351e-04, 4.08097580e-02, 3.92051674e-02,
1.24200732e-02,
-4.19551805e-02, -5.88223757e-03, -5.09041324e-02, -
3.55946906e-02,
-3.87033597e-02, 6.74369857e-02, -7.13374764e-02, -
5.01348637e-02,
1.91046581e-01, 1.14284577e-02, -1.14874365e-02, -
4.04847972e-02,
-1.84571240e-02, -9.88896657e-03, -2.52095144e-02, -
2.19426546e-02,
1.73305534e-02, 6.55410141e-02, -4.46660519e-02, -
8.83946479e-33,
-2.76732650e-02, 2.13837922e-02, -1.28410775e-02, -
2.43408214e-02,
-7.20394924e-02, -3.99827398e-02, -8.22373014e-03, -
9.91942063e-02,
1.70830023e-02, -7.35640200e-03, -1.16762675e-01,
4.79845214e-04,
1.16048150e-01, 6.03325106e-03, -3.29466574e-02, -
7.50341639e-02,
1.32865191e-01, -4.64176983e-02, -6.19493239e-02, -
4.96924259e-02,
-2.15300564e-02, -1.82028953e-02, -5.61057590e-02, -
1.82787403e-02,
-4.39664237e-02, -2.02900879e-02, -1.36039644e-01,
7.22155906e-03,
-1.87669322e-02, -6.48144260e-02, 5.00835478e-02, -
1.84988733e-02,
2.96888817e-02, -4.41757925e-02, 2.35674763e-03, -
1.74473077e-02,
1.62765402e-02, -3.76614742e-02, -2.16320697e-02, -

3.08345556e-02,
-1.78630371e-03, -6.20009936e-02, 7.17166364e-02, -
3.59193273e-02,
7.56778345e-02, -8.91689956e-03, -3.57910655e-02, -
1.02979140e-02,
-6.74835965e-02, -7.83372598e-05, 1.12852208e-01, -
7.11204205e-03,
-7.98897967e-02, 5.67781255e-02, 5.82523122e-02, -
4.52045258e-03,
8.86199549e-02, -1.29861180e-02, -4.24958952e-02,
6.14975346e-03,
-8.61197710e-03, 6.04341403e-02, -3.71772423e-02,
5.87970167e-02,
8.83301720e-03, -1.01513147e-01, -7.79950842e-02, -
8.53717998e-02,
5.37092984e-02, -5.42864986e-02, -4.31368910e-02,
3.54536735e-02,
-1.01074845e-01, -1.44061614e-02, -3.16137671e-02, -
7.86797795e-03,
5.82462363e-02, 1.12602552e-02, -5.46317641e-03,
4.97866073e-04,
-2.21170522e-02, -3.69876623e-02, 3.47576030e-02,
2.29441505e-02,
-9.14209783e-02, -2.05991939e-02, -8.15251544e-02, -
5.17739803e-02,
6.34459360e-03, 1.00293562e-01, -4.02174890e-02,
1.07261404e-01,
-5.59924766e-02, 6.31206706e-02, -9.31400210e-02, -
6.37528217e-08,
3.90145592e-02, 5.12975268e-04, -3.67639996e-02, -
5.38900197e-02,
1.13246432e-02, -9.61180963e-03, 3.83246355e-02,
1.02860026e-01,
-5.06119765e-02, 8.27567875e-02, 6.40637726e-02,
5.77440225e-02,
3.72108705e-02, 1.07482970e-01, 9.03303735e-03,
3.21833859e-03,
5.82491048e-02, -2.03000493e-02, -4.22727764e-02,
2.67046411e-02,
2.67399643e-02, -1.32022090e-02, -3.35881934e-02,
5.30493110e-02,
7.78676793e-02, -6.84671924e-02, -2.52920706e-02,
1.85197908e-02,
-2.72869915e-02, -3.82496603e-02, 2.55483519e-02, -
9.51595232e-03,
6.99112713e-02, 9.74350497e-02, 2.04380099e-02, -
2.67310850e-02,
6.13141879e-02, 3.02260425e-02, 4.57494408e-02,
6.03076853e-02,

```

        1.17501818e-01, -6.13183305e-02, -1.68323505e-03,
4.43691239e-02,
        2.03213398e-03, -7.37691820e-02,  1.69046875e-02,
3.36374193e-02,
        -1.47133274e-02,  4.04444858e-02, -8.07792097e-02, -
6.29236847e-02,
        2.63388213e-02,  4.89931740e-02, -3.42416484e-03, -
5.08857220e-02,
        -4.02491800e-02,  1.70148369e-02,  3.07960305e-02,
1.91499181e-02,
        -2.15159226e-02,  5.23922630e-02, -1.61960740e-02,
6.92044944e-02],
        dtype=float32)

```

**

Text Vectorization

Tabel of Contents

```

max_features = 75000
embedding_dim = 64
sequence_length = 512*2
vectorize_layer = tf.keras.layers.TextVectorization(
    standardize=Clean ,
    max_tokens=max_features,
    ngrams = (3,5),
    output_mode="int",
    output_sequence_length=sequence_length,
    pad_to_max_tokens=True
)
vectorize_layer.adapt(train_data['text'])
Text = vectorize_layer(train_data['text']).numpy()
Text

array([[ 1138, 19101,  5729, ...,    1,    1,    1],
       [ 3796, 10859,    1, ...,    0,    0,    0],
       [28184,    1, 53697, ...,    1,    1,    1],
       ...,
       [    1, 31053,    1, ...,    1,    1,    1],
       [24714,  8587,    1, ...,    1,    1,    1],
       [ 1138, 19101, 21592, ...,    0,    0,    0]])

sm = SMOTE(random_state=44)
Text,labels= sm.fit_resample(Text,train_data['label'])

X_train, X_test, y_train, y_test = train_test_split(Text,labels,
    test_size=0.2, random_state=44, shuffle =True,stratify=labels)

```

```

print('X_train shape is ' , X_train.shape)
print('X_test shape is ' , X_test.shape)
print('y_train shape is ' , y_train.shape)
print('y_test shape is ' , y_test.shape)

X_train shape is (10808, 1024)
X_test shape is (2702, 1024)
y_train shape is (10808,)
y_test shape is (2702,)

!pip install tensorflow-addons

Collecting tensorflow-addons
  Downloading tensorflow-addons-0.23.0-cp310-cp310-
manylinux2_17_x86_64.manylinux2014_x86_64.whl (611 kB)
 611.8/611.8 kB 6.6 MB/s eta
0:00:00
ent already satisfied: packaging in /usr/local/lib/python3.10/dist-
packages (from tensorflow-addons) (24.0)
Collecting typeguard<3.0.0,>=2.7 (from tensorflow-addons)
  Downloading typeguard-2.13.3-py3-none-any.whl (17 kB)
Installing collected packages: typeguard, tensorflow-addons
Successfully installed tensorflow-addons-0.23.0 typeguard-2.13.3

```

**

TransformerBlock Model

Tabel of Contents

```

from keras.layers import Layer
from keras.saving import register_keras_serializable

@register_keras_serializable()
class TransformerBlock(tf.keras.layers.Layer):
    def __init__(self, embed_dim, num_heads, ff_dim,
rate=0.1,**kwargs):
        super(TransformerBlock, self).__init__(**kwargs)
        self.att =
tf.keras.layers.MultiHeadAttention(num_heads=num_heads,
key_dim=embed_dim)
        self.ffn = tf.keras.Sequential(
            [tf.keras.layers.Dense(ff_dim, activation="relu"),
tf.keras.layers.Dense(embed_dim),]
        )
        self.layernorm1 =
tf.keras.layers.LayerNormalization(epsilon=1e-6)

```

```

        self.layernorm2 =
tf.keras.layers.LayerNormalization(epsilon=1e-6)
        self.dropout1 = tf.keras.layers.Dropout(rate)
        self.dropout2 = tf.keras.layers.Dropout(rate)

    def call(self, inputs, training=False): # Add training argument
with default value
        attn_output = self.att(inputs, inputs)
        attn_output = self.dropout1(attn_output, training=training)
        out1 = self.layernorm1(inputs + attn_output)
        ffn_output = self.ffn(out1)
        ffn_output = self.dropout2(ffn_output, training=training)
        return self.layernorm2(out1 + ffn_output)
    @classmethod
    def from_config(cls, config):
        return cls(**config)

inputs = tf.keras.layers.Input(shape=(sequence_length,),
dtype="int64")
x = tf.keras.layers.Embedding(max_features, embedding_dim)(inputs)
x = tf.keras.layers.Bidirectional(tf.keras.layers.LSTM(32,
return_sequences=True))(x)
transformer_block = TransformerBlock(embedding_dim, 2, 32)
x = transformer_block(x, training=True) # Pass training argument
x = tf.keras.layers.Conv1D(128, 7, padding="valid", activation="relu",
strides=3)(x)
x = tf.keras.layers.GlobalMaxPooling1D()(x)
x = tf.keras.layers.Dense(128, activation="relu")(x)
x = tf.keras.layers.Dropout(0.5)(x)
predictions = tf.keras.layers.Dense(1, activation="sigmoid",
name="predictions")(x)

model = tf.keras.Model(inputs=inputs, outputs=predictions)
model.summary()

```

Model: "functional_2"

Layer (type) Param #	Output Shape
input_layer (InputLayer) 0	(None, 1024)
embedding (Embedding) 4,800,000	(None, 1024, 64)

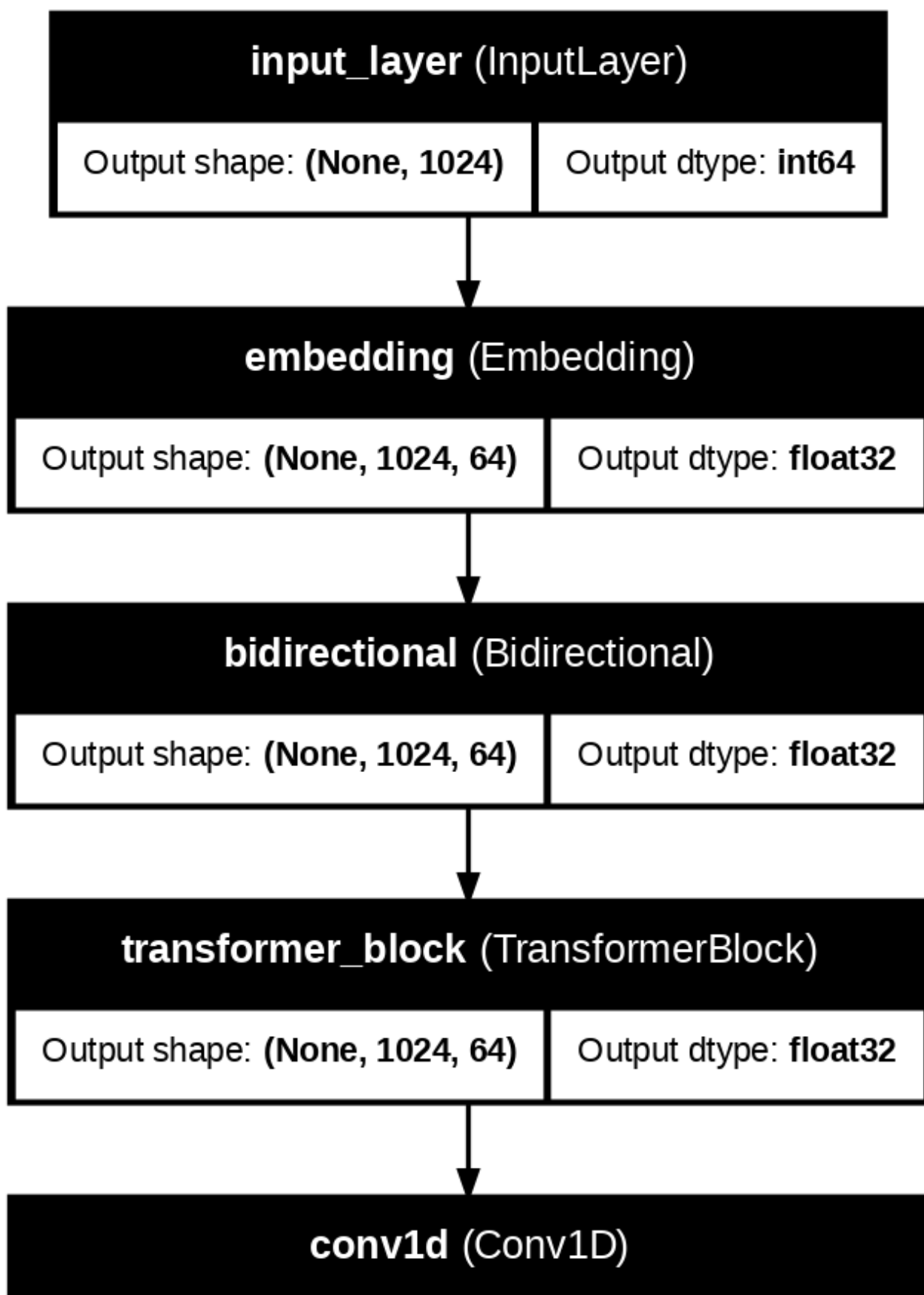
bidirectional (Bidirectional)	(None, 1024, 64)	
24,832		
transformer_block (TransformerBlock)	(None, 1024, 64)	
37,664		
conv1d (Conv1D)	(None, 340, 128)	
57,472		
global_max_pooling1d	(None, 128)	
0 (GlobalMaxPooling1D)		
dense_2 (Dense)	(None, 128)	
16,512		
dropout_3 (Dropout)	(None, 128)	
0		
predictions (Dense)	(None, 1)	
129		

Total params: 4,936,609 (18.83 MB)

Trainable params: 4,936,609 (18.83 MB)

Non-trainable params: 0 (0.00 B)

```
tf.keras.utils.plot_model(model,
to_file='/content/drive/MyDrive/TrainingData/model.png',
show_shapes=True, show_layer_names=True, show_dtype=True, dpi=120)
```

```
# checkpoint_cb =ModelCheckpoint("model.h5", save_best_only=True)
checkpoint_cb = ModelCheckpoint("model.keras", save_best_only=True)
early_stopping_cb =EarlyStopping(patience=3,
restore_best_weights=True)
model.compile(optimizer='adam', loss='binary_crossentropy',
metrics=['accuracy'])
hist = model.fit(X_train,y_train, epochs=10, validation_split=.1,
callbacks=[checkpoint_cb, early_stopping_cb])

Epoch 1/10
304/304 _____ 56s 115ms/step - accuracy: 0.8816 - loss:
0.2822 - val_accuracy: 0.9889 - val_loss: 0.0392
Epoch 2/10
304/304 _____ 72s 112ms/step - accuracy: 0.9944 - loss:
0.0181 - val_accuracy: 0.9880 - val_loss: 0.0275
Epoch 3/10
304/304 _____ 40s 109ms/step - accuracy: 0.9975 - loss:
0.0056 - val_accuracy: 0.9870 - val_loss: 0.0512
Epoch 4/10
304/304 _____ 42s 111ms/step - accuracy: 0.9999 - loss:
8.7621e-04 - val_accuracy: 0.9907 - val_loss: 0.0373
Epoch 5/10
304/304 _____ 41s 112ms/step - accuracy: 0.9999 - loss:
4.1136e-04 - val_accuracy: 0.9917 - val_loss: 0.0394

model.save('/content/drive/MyDrive/TrainingData/trained_model.keras')
```

**

Evaluation

Tabel of Contents

```
hist_=pd.DataFrame(hist.history)
hist_

{"summary":{"\n  \"name\": \"hist_\", \n  \"rows\": 5, \n  \"fields\": [\n    {\n      \"column\": \"accuracy\", \n      \"properties\": {\n        \"dtype\": \"number\", \n        \"std\": 0.02328501310703829, \n        \"min\": 0.9460265040397644, \n        \"max\": 0.9998971819877625, \n        \"num_unique_values\": 5, \n        \"samples\": [\n          0.9951680898666382, \n          0.999485969543457, \n          0.9971213936805725\n        ], \n        \"semantic_type\": \"\", \n        \"description\": \"\"\n      }\n    }, \n    {\n      \"column\": \"loss\", \n      \"properties\": {\n        \"dtype\": \"number\", \n        \"std\": 0.059681832547535486, \n        \"min\": 0.0007353297551162541, \n        \"max\": 0.13915646076202393, \n        \"num_unique_values\": 5, \n        \"samples\": [\n
```

```

0.01626541279256344,\n                0.0018020657589659095,\n
0.006844089366495609\n                ],\n                \nsemantic_type\n": \n\n",\n
\n"description\n": \n\n",\n                }\n                },\n                {\n                \ncolumn\n":
\n"val_accuracy\n",\n                \nproperties\n": {\n                \n"dtype\n":
\n"number\n",\n                \nstd\n": 0.0019182537186363115,\n                \nmin\n":
0.9870490431785583,\n                \nmax\n": 0.9916743636131287,\n
\nnum_unique_values\n": 5,\n                \nsamples\n": [\n
0.9879741072654724,\n                0.9916743636131287,\n
0.9870490431785583\n                ],\n                \nsemantic_type\n": \n\n",\n
\n"description\n": \n\n",\n                }\n                },\n                {\n                \ncolumn\n":
\n"val_loss\n",\n                \nproperties\n": {\n                \n"dtype\n":
\n"number\n",\n                \nstd\n": 0.008401998691061226,\n                \nmin\n":
0.02754291333258152,\n                \nmax\n": 0.05116606503725052,\n
\nnum_unique_values\n": 5,\n                \nsamples\n": [\n
0.02754291333258152,\n                0.039445411413908005,\n
0.05116606503725052\n                ],\n                \nsemantic_type\n": \n\n",\n
\n"description\n": \n\n",\n                }\n                }\n                ]\n
n}\n", "type": "dataframe", "variable_name": "hist_"
}

```

```

# from tensorflow.keras.models import load_model

```

```

# # load model

```

```

# model1 =

```

```

load_model('/content/drive/MyDrive/TrainingData/trained_model.keras')

```

```

# # check model info

```

```

# model1.summary()

```

```

score, acc= model.evaluate(X_test,y_test)

```

```

print('Test Loss =', score)

```

```

print('Test Accuracy =', acc)

```

```

85/85 ————— 4s 46ms/step - accuracy: 0.9924 - loss:
0.0170

```

```

Test Loss = 0.022624872624874115

```

```

Test Accuracy = 0.9918578863143921

```

```

# sample_text = '''Dear, or. President I need to get something off my
chest, we need to change the way we the people vote. An Electoral
college isn't the right way to do it anymore. We need to change to the
peoples popular vote. Because this is a country for the people, we
aren't voting for the president, and because electoral vote just isn't
fair.

```

```

# or. President the first reason why we should change the popular vote
is because this country is supposed to be for the people and in an
electoral vote it's not. In the electoral vote its about the
government and who they want as president and alot of people DO NOT
like that. People of the United States of America should be able to
vote and pick who they as a president of there country. It should be

```

our right as Americans to be able to pick our own president not a bunch of old smart people in suits in Congress. I understand that there is 538 as it says in the article What Is the Electoral College? by the Office of the Federal Register, but there is more than 300 million Americans. So technically we aren't even voting for you.

Which brings me to my next reason, we aren't even voting for the president. When there is an Electoral college we are voting for the slate of electors in congress that will vote for the president as it says in the article "The Indefensible Electoral College: Why even the bestlaid defenses of the systems are wrong" by Bradford Plumer. So like I said before a bunch of old men and old women are they taking our votes away from us. For example, in 2000 Al Gore would've won the election but because the electoral vote beat him. He had the popular vote of the people but says the congress chose other wise he lost the election. According to the same article as it says above. Over 60% of people rather people's popular vote other the electoral vote.

Last but definitely not least, the electoral college just isn't fair at all. Maybe it's fair for the government before they can basically just pick the president that they want, but it's supposed to be a country for the people. It says it in the Constitution We The Government. Also the winner takes all system, the candidates don't pay attention to the smaller states they just look and the big states like California, Florida, or New York. So technically they are cheating the electoral college because they don't pay attention to all the elected slates of those small states. According to the article " The indefensible Electoral College: Why even the bestlaid defenses of the sytem are wrong" by bradford Plumer.

In Conclusion, or. President if you care about what the people want you would abolish the Electoral college. Because this is a country for the people, we aren't even voting for the president, and because it's just not fair. It needs to be changed to the popular vote. I've been waiting to get that off my chest for a while.

Yours Truly, P.s: I hope you read this and take off the electoral college'''

```
from sentence_transformers import SentenceTransformer
embModel = SentenceTransformer("all-MiniLM-L6-v2")

# sample_input = embModel.encode([sample_text])

# import numpy as np
# from keras.preprocessing.sequence import pad_sequences
# from keras.preprocessing.text import Tokenizer
```

```

# # Example text
# sample_text = "Your sample text goes here."

# # Tokenize the text
# tokenizer = Tokenizer()
# tokenizer.fit_on_texts([sample_text])
# sequences = tokenizer.texts_to_sequences([sample_text])

# # Pad sequences to the same length as expected by your model
# max_length = 64 # Adjust according to your model's input shape
# padded_sequences = pad_sequences(sequences, maxlen=max_length,
padding='post')

# # Now, you can feed the padded_sequences to your model for inference
# predictions = model.predict(padded_sequences)

import numpy as np

def classify_text(sample_text):

    from sentence_transformers import SentenceTransformer
    embModel = SentenceTransformer("all-MiniLM-L6-v2")

    if not sample_text:
        return "Input text is empty."

    # Encode the sample text
    sample_input = embModel.encode([sample_text])

    # Pad or reshape the embeddings to match the expected input shape
    padded_input = np.pad(sample_input, ((0, 0), (0, 1024 -
len(sample_input[0]))), mode='constant')

    # Perform inference
    predictions = model.predict(padded_input)

    # Check if predictions are within valid range
    if not 0 <= predictions[0][0] <= 1:
        return "Error: Model output out of range."

    # Calculate the percentage of AI content
    ai_content_percentage = int(predictions[0][0] * 100)
    return f"{ai_content_percentage}% AI content"

!pip install gradio

Requirement already satisfied: gradio in
/usr/local/lib/python3.10/dist-packages (4.27.0)
Requirement already satisfied: aiofiles<24.0,>=22.0 in
/usr/local/lib/python3.10/dist-packages (from gradio) (23.2.1)

```

Requirement already satisfied: altair<6.0,>=4.2.0 in
/usr/local/lib/python3.10/dist-packages (from gradio) (4.2.2)
Requirement already satisfied: fastapi in
/usr/local/lib/python3.10/dist-packages (from gradio) (0.110.2)
Requirement already satisfied: ffmpeg in
/usr/local/lib/python3.10/dist-packages (from gradio) (0.3.2)
Requirement already satisfied: gradio-client==0.15.1 in
/usr/local/lib/python3.10/dist-packages (from gradio) (0.15.1)
Requirement already satisfied: httpx>=0.24.1 in
/usr/local/lib/python3.10/dist-packages (from gradio) (0.27.0)
Requirement already satisfied: huggingface-hub>=0.19.3 in
/usr/local/lib/python3.10/dist-packages (from gradio) (0.20.3)
Requirement already satisfied: importlib-resources<7.0,>=1.3 in
/usr/local/lib/python3.10/dist-packages (from gradio) (6.4.0)
Requirement already satisfied: jinja2<4.0 in
/usr/local/lib/python3.10/dist-packages (from gradio) (3.1.3)
Requirement already satisfied: markupsafe~=2.0 in
/usr/local/lib/python3.10/dist-packages (from gradio) (2.1.5)
Requirement already satisfied: matplotlib~=3.0 in
/usr/local/lib/python3.10/dist-packages (from gradio) (3.7.1)
Requirement already satisfied: numpy~=1.0 in
/usr/local/lib/python3.10/dist-packages (from gradio) (1.25.2)
Requirement already satisfied: orjson~=3.0 in
/usr/local/lib/python3.10/dist-packages (from gradio) (3.10.1)
Requirement already satisfied: packaging in
/usr/local/lib/python3.10/dist-packages (from gradio) (24.0)
Requirement already satisfied: pandas<3.0,>=1.0 in
/usr/local/lib/python3.10/dist-packages (from gradio) (2.0.3)
Requirement already satisfied: pillow<11.0,>=8.0 in
/usr/local/lib/python3.10/dist-packages (from gradio) (9.4.0)
Requirement already satisfied: pydantic>=2.0 in
/usr/local/lib/python3.10/dist-packages (from gradio) (2.7.0)
Requirement already satisfied: pydub in
/usr/local/lib/python3.10/dist-packages (from gradio) (0.25.1)
Requirement already satisfied: python-multipart>=0.0.9 in
/usr/local/lib/python3.10/dist-packages (from gradio) (0.0.9)
Requirement already satisfied: pyyaml<7.0,>=5.0 in
/usr/local/lib/python3.10/dist-packages (from gradio) (6.0.1)
Requirement already satisfied: ruff>=0.2.2 in
/usr/local/lib/python3.10/dist-packages (from gradio) (0.4.2)
Requirement already satisfied: semantic-version~=2.0 in
/usr/local/lib/python3.10/dist-packages (from gradio) (2.10.0)
Requirement already satisfied: tomlkit==0.12.0 in
/usr/local/lib/python3.10/dist-packages (from gradio) (0.12.0)
Requirement already satisfied: typer<1.0,>=0.12 in
/usr/local/lib/python3.10/dist-packages (from gradio) (0.12.3)
Requirement already satisfied: typing-extensions~=4.0 in
/usr/local/lib/python3.10/dist-packages (from gradio) (4.11.0)
Requirement already satisfied: urllib3~=2.0 in

/usr/local/lib/python3.10/dist-packages (from gradio) (2.0.7)
Requirement already satisfied: uvicorn>=0.14.0 in
/usr/local/lib/python3.10/dist-packages (from gradio) (0.29.0)
Requirement already satisfied: fsspec in
/usr/local/lib/python3.10/dist-packages (from gradio-client==0.15.1->gradio) (2023.6.0)
Requirement already satisfied: websockets<12.0,>=10.0 in
/usr/local/lib/python3.10/dist-packages (from gradio-client==0.15.1->gradio) (11.0.3)
Requirement already satisfied: entrypoints in
/usr/local/lib/python3.10/dist-packages (from altair<6.0,>=4.2.0->gradio) (0.4)
Requirement already satisfied: jsonschema>=3.0 in
/usr/local/lib/python3.10/dist-packages (from altair<6.0,>=4.2.0->gradio) (4.19.2)
Requirement already satisfied: toolz in
/usr/local/lib/python3.10/dist-packages (from altair<6.0,>=4.2.0->gradio) (0.12.1)
Requirement already satisfied: anyio in
/usr/local/lib/python3.10/dist-packages (from httpx>=0.24.1->gradio) (3.7.1)
Requirement already satisfied: certifi in
/usr/local/lib/python3.10/dist-packages (from httpx>=0.24.1->gradio) (2024.2.2)
Requirement already satisfied: httpcore==1.* in
/usr/local/lib/python3.10/dist-packages (from httpx>=0.24.1->gradio) (1.0.5)
Requirement already satisfied: idna in /usr/local/lib/python3.10/dist-packages (from httpx>=0.24.1->gradio) (3.7)
Requirement already satisfied: sniffio in
/usr/local/lib/python3.10/dist-packages (from httpx>=0.24.1->gradio) (1.3.1)
Requirement already satisfied: h11<0.15,>=0.13 in
/usr/local/lib/python3.10/dist-packages (from httpcore==1.*->httpx>=0.24.1->gradio) (0.14.0)
Requirement already satisfied: filelock in
/usr/local/lib/python3.10/dist-packages (from huggingface-hub>=0.19.3->gradio) (3.13.4)
Requirement already satisfied: requests in
/usr/local/lib/python3.10/dist-packages (from huggingface-hub>=0.19.3->gradio) (2.31.0)
Requirement already satisfied: tqdm>=4.42.1 in
/usr/local/lib/python3.10/dist-packages (from huggingface-hub>=0.19.3->gradio) (4.66.2)
Requirement already satisfied: contourpy>=1.0.1 in
/usr/local/lib/python3.10/dist-packages (from matplotlib~=3.0->gradio) (1.2.1)
Requirement already satisfied: cycler>=0.10 in
/usr/local/lib/python3.10/dist-packages (from matplotlib~=3.0->gradio)

```
(0.12.1)
Requirement already satisfied: fonttools>=4.22.0 in
/usr/local/lib/python3.10/dist-packages (from matplotlib~=3.0->gradio)
(4.51.0)
Requirement already satisfied: kiwisolver>=1.0.1 in
/usr/local/lib/python3.10/dist-packages (from matplotlib~=3.0->gradio)
(1.4.5)
Requirement already satisfied: pyparsing>=2.3.1 in
/usr/local/lib/python3.10/dist-packages (from matplotlib~=3.0->gradio)
(3.1.2)
Requirement already satisfied: python-dateutil>=2.7 in
/usr/local/lib/python3.10/dist-packages (from matplotlib~=3.0->gradio)
(2.8.2)
ERROR: Operation cancelled by user
```

```
import gradio as gr
iface = gr.Interface(
    fn=classify_text,
    inputs="text",
    outputs="text",
    title="AI Content Classifier",
    description="Enter some text and we'll tell you the percentage of
AI content."
)
```

```
iface.launch(debug = True)
```

Setting queue=True in a Colab notebook requires sharing enabled.
Setting `share=True` (you can turn this off by setting `share=False`
in `launch()`) explicitly).

Colab notebook detected. This cell will run indefinitely so that you
can see errors and logs. To turn off, set debug=False in launch().
Running on public URL: <https://f860049706344987e0.gradio.live>

This share link expires in 72 hours. For free permanent hosting and
GPU upgrades, run `gradio deploy` from Terminal to deploy to Spaces
(<https://huggingface.co/spaces>)

<IPython.core.display.HTML object>

```
1/1 ————— 2s 2s/step
Keyboard interruption in main thread... closing server.
Killing tunnel 127.0.0.1:7860 <>
https://f860049706344987e0.gradio.live
```

```
print(X_test)
predictions = model.predict(X_test)
y_pred = np.where(predictions>=.5,1,0)
```

```

y_test_1d = np.ravel(y_test)
y_pred_1d = np.ravel(y_pred)
df = pd.DataFrame({'Actual': y_test_1d, 'Prediction': y_pred_1d})
df

CM = confusion_matrix(y_test_1d,y_pred_1d)
CM_percent = CM.astype('float') / CM.sum(axis=1)[:, np.newaxis]
sns.heatmap(CM_percent,fmt='g',center =
True,cbar=False,annot=True,cmap='Blues')
CM

ClassificationReport = classification_report(y_test_1d,y_pred_1d)
print('Classification Report is : ', ClassificationReport )

```

**

Submission

Table of Contents

```

test_text = vectorize_layer(test['text']).numpy()
predictions = model.predict(test_text)
y_pred = np.where(predictions>=.5,1,0)
sub=pd.DataFrame()
sub['id'],sub['generated']=test['id'],predictions
sub.to_csv('/kaggle/working/submission.csv', index=False)
sub

!test -f /bin/data/train_v2_dr_cat_02.csv

```