In [1]:
```
import tensorflow as tf
print(tf.__version__)
```

```
2.16.1
```

In [2]:
```
#import tensorflow.compat.v1 as tf
#tf.compat.v1.disable_v2_behavior()
```

In [ ]:
```
import pandas as pd
import numpy as np
import tensorflow.compat.v1 as tf
from sklearn.manifold import TSNE
from tensorboard.plugins import projector
import os

# Reset the default graph and disable eager execution
print("Resetting default graph and disabling eager execution...")
tf.compat.v1.reset_default_graph()
tf.compat.v1.disable_eager_execution()

# Load data
print("Loading data...")
data = pd.read_csv(r"C:\Users\arfa0\Downloads\data (1).csv", header=None)  # Assuming first column contains words

print("Data shape:", data.shape)
print("First 5 rows of data:\n", data.head())

# Initialize TensorFlow session
print("Initializing TensorFlow session...")
session = tf.compat.v1.Session()

# Use the session's graph for creating variables
with session.graph.as_default():
    # Create a TensorFlow variable to store embeddings
    print("Creating TensorFlow variable to store embeddings...")
    embedding_var = tf.Variable(np.random.rand(len(data), 128), name='word_embeddings')

    # Initialize global variables
    print("Initializing global variables...")
```

```
    session.run(tf.compat.v1.global_variables_initializer())

    # Project embeddings to lower dimensions using t-SNE
    print("Projecting embeddings to lower dimensions using t-SNE...")
    embeddings_ = session.run(embedding_var)
    tsne = TSNE(n_components=3, n_iter=1000, random_state=42)
    embeddings_3d = tsne.fit_transform(embeddings_)

    # After t-SNE transformation
    print("Embeddings shape after t-SNE:", embeddings_3d.shape)

    # Write metadata file
    print("Writing metadata file...")
    with open(r"C:\Users\arfa0\Downloads\logs\metadata.tsv", 'w') as metadata_file:
        for word in data.iloc[:, 0]:  # Assuming the first column contains words
            metadata_file.write(str(word) + '\n')

    # Create a TensorFlow saver object to save the embeddings
    print("Creating TensorFlow saver object...")
    saver = tf.compat.v1.train.Saver([embedding_var])

    # Configure a TensorFlow summary writer
    print("Configuring TensorFlow summary writer...")
    summary_writer = tf.compat.v1.summary.FileWriter(r"C:\Users\arfa0\Downloads\logs")

    # Create a TensorFlow configuration for projector
    print("Creating TensorFlow configuration for projector...")
    config = projector.ProjectorConfig()
    embedding = config.embeddings.add()
    embedding.tensor_name = embedding_var.name
    embedding.metadata_path = os.path.join(r'C:\Users\arfa0\Downloads\logs', 'metadata.tsv')
    projector.visualize_embeddings(summary_writer, config)

    # Before saving the model
    print("Saving model with global step:", len(data))

    # Save the embeddings
    print("Saving embeddings...")
    saver.save(session, r"C:\Users\arfa0\Downloads\logs\model.ckpt", global_step=len(data))

# Close TensorFlow session
```

```
print("Closing TensorFlow session...")
session.close()

# Start TensorBoard
print("Starting TensorBoard...")
os.system('tensorboard --logdir=C:\\Users\\arfa0\\Downloads\\logs')
```

```
Resetting default graph and disabling eager execution...
WARNING:tensorflow:From C:\Users\arfa0\AppData\Local\Temp\ipykernel_14916\655420370.py:10: The name tf.reset_default_graph is d
eprecated. Please use tf.compat.v1.reset_default_graph instead.

Loading data...
Data shape: (8266, 1)
First 5 rows of data:
              0
0  foolishness
1         hath
2    wholesome
3       takest
4     feelings
Initializing TensorFlow session...
Creating TensorFlow variable to store embeddings...
Initializing global variables...
Projecting embeddings to lower dimensions using t-SNE...
Embeddings shape after t-SNE: (8266, 3)
Writing metadata file...
Creating TensorFlow saver object...
WARNING:tensorflow:From C:\Users\arfa0\AppData\Local\Temp\ipykernel_14916\655420370.py:51: The name tf.train.Saver is deprecate
d. Please use tf.compat.v1.train.Saver instead.

Configuring TensorFlow summary writer...
WARNING:tensorflow:From C:\Users\arfa0\AppData\Local\Temp\ipykernel_14916\655420370.py:55: The name tf.summary.FileWriter is de
precated. Please use tf.compat.v1.summary.FileWriter instead.

Creating TensorFlow configuration for projector...
Saving model with global step: 8266
Saving embeddings...
Closing TensorFlow session...
Starting TensorBoard...
```

In [ ]:
```
import pandas as pd
import numpy as np
import tensorflow.compat.v1 as tf
from sklearn.manifold import TSNE
from tensorboard.plugins import projector
import os

# Reset the default graph and disable eager execution
tf.compat.v1.reset_default_graph()
tf.compat.v1.disable_eager_execution()

# Load data
data = pd.read_csv(r"C:\Users\arfa0\Downloads\data (1).csv", header=None)  # Assuming first column contains words
print(data.head())
# Initialize TensorFlow session
session = tf.compat.v1.Session()

# Use the session's graph for creating variables
with session.graph.as_default():
    # Create a TensorFlow variable to store embeddings
    embedding_var = tf.Variable(np.random.rand(len(data), 128), name='word_embeddings')

    # Initialize global variables
    session.run(tf.compat.v1.global_variables_initializer())

    # Project embeddings to lower dimensions using t-SNE
    embeddings_ = session.run(embedding_var)
    tsne = TSNE(n_components=3, n_iter=1000, random_state=42)
    embeddings_3d = tsne.fit_transform(embeddings_)

    # After t-SNE transformation
    print("Embeddings shape after t-SNE:", embeddings_3d.shape)

    # Find the index of the word "love" in the data DataFrame
    love_index = data[data.iloc[:, 0] == "love"].index[0]

    # Extract the corresponding 3D coordinates from the embeddings_3d array
    love_coordinates = embeddings_3d[love_index]

    print("3D coordinates of the word 'love':", love_coordinates)
```

```
    # Write metadata file
    with open(r"C:\Users\arfa0\Downloads\logs\metadata.tsv", 'w') as metadata_file:
        for word in data.iloc[:, 0]:  # Assuming the first column contains words
            metadata_file.write(str(word) + '\n')

    # Create a TensorFlow saver object to save the embeddings
    saver = tf.compat.v1.train.Saver([embedding_var])

    # Configure a TensorFlow summary writer
    summary_writer = tf.compat.v1.summary.FileWriter(r"C:\Users\arfa0\Downloads\logs", session.graph)

    # Create a TensorFlow configuration for projector
    config = projector.ProjectorConfig()
    embedding = config.embeddings.add()
    embedding.tensor_name = embedding_var.name
    embedding.metadata_path = os.path.join(r'C:\Users\arfa0\Downloads\logs', 'metadata.tsv')
    projector.visualize_embeddings(summary_writer, config)

    # Before saving the model
    print("Saving model with global step:", len(data))

    # Save the embeddings
    saver.save(session, r"C:\Users\arfa0\Downloads\logs\model.ckpt", global_step=len(data))

# Close TensorFlow session
session.close()

# Start TensorBoard
os.system('tensorboard --logdir=C:\\Users\\arfa0\\Downloads\\logs')
```

```
WARNING:tensorflow:From C:\Users\arfa0\AppData\Local\Temp\ipykernel_25072\1939398255.py:9: The name tf.reset_default_graph is d
eprecated. Please use tf.compat.v1.reset_default_graph instead.

             0
0  foolishness
1         hath
2    wholesome
3       takest
4     feelings
Embeddings shape after t-SNE: (8266, 3)
3D coordinates of the word 'love': [ 53.352192 -24.558563 -20.70836 ]
WARNING:tensorflow:From C:\Users\arfa0\AppData\Local\Temp\ipykernel_25072\1939398255.py:48: The name tf.train.Saver is deprecat
ed. Please use tf.compat.v1.train.Saver instead.

WARNING:tensorflow:From C:\Users\arfa0\AppData\Local\Temp\ipykernel_25072\1939398255.py:51: The name tf.summary.FileWriter is d
eprecated. Please use tf.compat.v1.summary.FileWriter instead.

Saving model with global step: 8266
```

3D Coordinates of the word LOVE = 'love':[53.352192 -24.558563 -20.70836]

In [ ]: