```
! pip install gensim import
gensim.downloader as api import
numpy as np import pandas as pd
import matplotlib. pyplot as PI t
from sklearn.manifold import T
SNE
```

```
Collecting gensim
  Downloading gensim-4.4.e-cp312-cp312-many1inux_2_24_x86_64.many1inux_2_28_x86_64.wh1.metadata (E
Requirement already satisfied: numpY>=1.18.5 in /usr/10ca1/1ib/python3.12/dist-packages (from gens
Requirement already satisfied:    in /usr/10ca1/1ib/python3.12/dist-packages (from gensi Requirement
already satisfied: smart_open>=1.8.1 in /usr/10ca1/1ib/python3.12/dist-packages (from Requirement
already satisfied: wrapt in /usr/10ca1/1ib/python3.12/dist-packages (from smart_open>=
Downloading gensim-4.4.0-cp312-cp312-many1inux_2_24_x86_64.many1inux_2_28 x86_64.wh1 (27.9 MB)
                                        27.9/27.9 MB 53.1 MB/s eta
Installing collected packages: gensim
Successfully installed gensim-4.4.0
```

```
model - api.      # 100-dim GloVe print ("Vocabulary size: " len
(model . key_to_index) ) print ("Vector for 'computer' : " , model [
' computer' ] )
```

```
                                                    100.0% 128.1/128. IMB downloaded

Vector for 'computer' :    -1.6298e-01  3.0141e-01  5.7978e-01  6.6548e-02  4.5835e-01 -1.5329e-01
                                        3.6375+01   5.6524e-01 -5.6281e-01
                                        5.2753e-01  3.8839e-01  9.6185e-01
                                        -3.2442e-01 1 .1202e+00 7 .5126e-
                                                                02
                                        4.7862e-02 -4.5158e-01  9.3723e-02
                                        6.3889e-02  3.8002e-01  2.1109e-01
                                                -01 -1.8577e-01 -1.9913e-01
                                        2.3831e-01  1.2992e-01  8.7721e-02
                                        -3.1748e-01 -2.4632e-03 1.6615e-01
                                        2 .3949e-01             3.6111e-01
                                        5.7282e-02 -4.9317e-01  2.2765e-01
                                        1.1262e+oe  -1.3526e    7 .1972e-
                                                                01
                                        2.1780e-01  3.4355e-01  3.7731e-01
                                        -2.7196e-01 -8.6093e-01  9.0053e-02
                                                -01 -1.0324e-01 -1.6979e-01
```

-5.9160e-02 1.5152e-01 -2.8388e-01

Vocabulary size: 400000

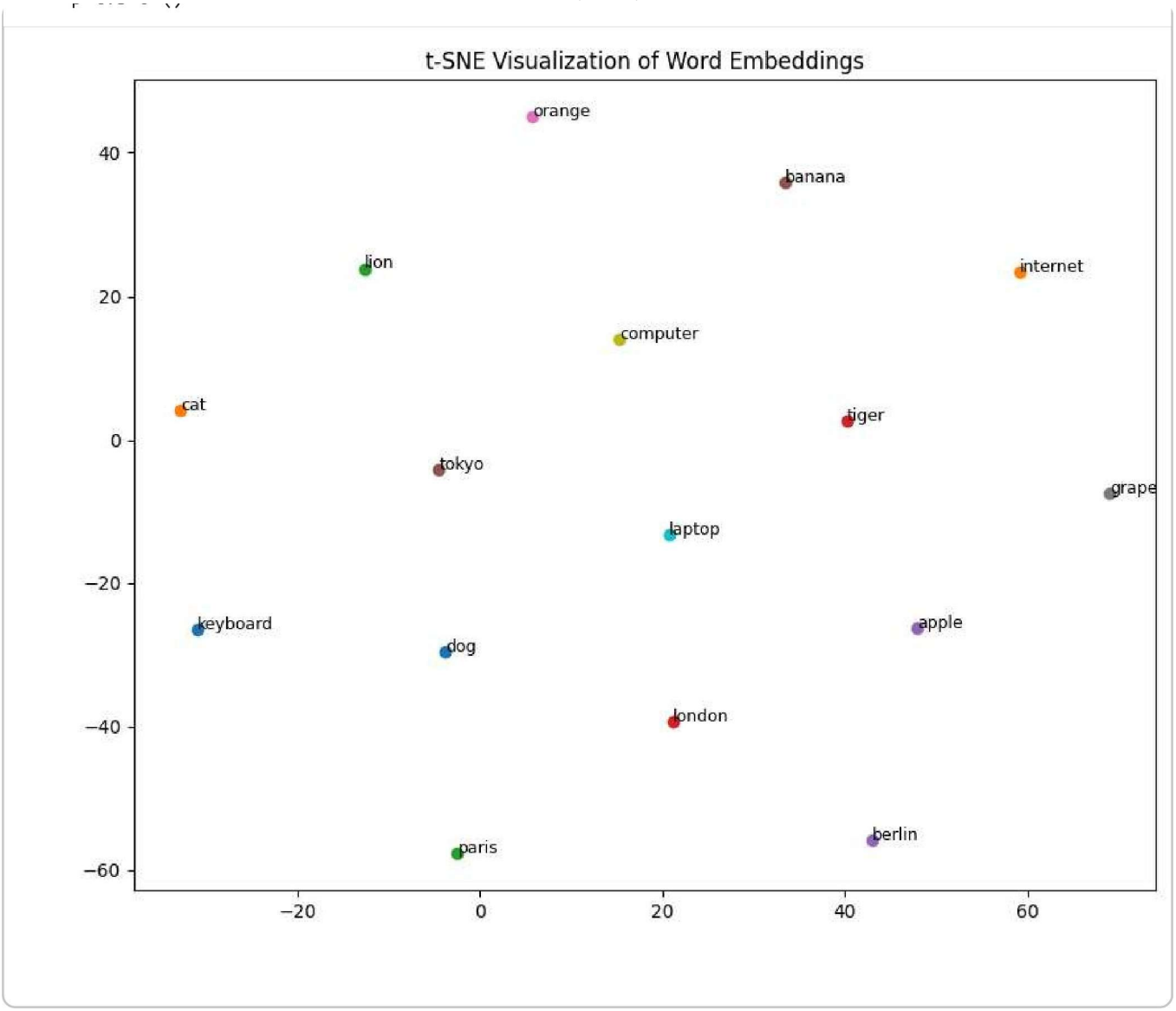
4.3258e-01 -8.9215e-01 5.7747e-01
3.5659e-01 -3.6096e-01 -9 .9662e-
02
1.8841e-01 3.0741e-01 -8 .7842e-01
4.2661e-01 -6.0651e-01 -1.3893e-01
1.7463e-01 1.0962e+eo -1.0044e+oe
-6.6247e-01 -4.0736e-01 8 .9442 e-01
-6.9226e-01 -3.1806e-01 -7 .8565e-
01
4.3205e-01 -2.2662e-01 3.1549e-01
4.2358e-01 -1.8087e+00 _ 3.6699e-01
3 .9486e-02 4.8607e-01 -3.6974e-01
7 .9966e-01 2.1428e-01 6.9811e-01
-9.9605e-04 -2.6842e-01 -8.3038e-01
-4.0251e-01 3.3124e-01 1.2576e+ee
-2.4876e+ee 4.5200e-01 6.6945e-01
5.9437e-01 1 .1280e+00 7 .5755e-01
4.9452e-01 -9.1703e-01 9.1289e-01
-3.0927e-01]

```
words = ["dog " , "cat" , "lion" , "tiger" ,
         "apple" , "banana" , "orange" , "grape" ,
           'computer" , "laptop" , "keyboard" ,
           "internet" ,
          'paris" , "london" , "berlin" , "tokyo" ]

vectors = np.array([model[w] for w in words])

tsne = TSNE(n_components=2, random_state=42, perplexity-15) word
coords = tsne . fit _transform(vectors)

plt.figure(figsize=(10,8)) for i,
word in enumerate(words) :
    x, y = word_coords[i] plt.scatter(x, y)
plt.text(x+0.02, )'+0.02, word, fontsize=9) plt.tit1e("t-SNE
Visualization of Word Embeddings") n l t . shown
https://colab.research.google.com/drive/l rhQ491
```


t-SNE Visualization of Word Embeddings
orange
banana
lion
internet
computer
cat
tiger
tokyo
grape
laptop
keyboard
apple
dog
london
berlin
paris
40
20
0
−20
−40
−60
−20
0
20
40
60