```
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```

```
!pip install gensim
```

```
Collecting gensim
  Downloading gensim-4.4.0-cp312-cp312-manylinux_2_24_x86_64.manylinux_2_28_x86_64.whl.metadata (8.4 kB)
Requirement already satisfied: numpy>=1.18.5 in /usr/local/lib/python3.12/dist-packages (from gensim) (2.0.2)
Requirement already satisfied: scipy>=1.7.0 in /usr/local/lib/python3.12/dist-packages (from gensim) (1.16.3)
Requirement already satisfied: smart_open>=1.8.1 in /usr/local/lib/python3.12/dist-packages (from gensim) (7.5.0)
Requirement already satisfied: wrapt in /usr/local/lib/python3.12/dist-packages (from smart_open>=1.8.1->gensim) (2.1.1)
Downloading gensim-4.4.0-cp312-cp312-manylinux_2_24_x86_64.manylinux_2_28_x86_64.whl (27.9 MB)
   ━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 27.9/27.9 MB 21.4 MB/s eta 0:00:00
Installing collected packages: gensim
Successfully installed gensim-4.4.0
```

```
import gensim.downloader as api
import numpy as np
import matplotlib.pyplot as plt
from sklearn.manifold import TSNE
```

```
model = api.load("glove-wiki-gigaword-100")
```

```
[==================================================] 100.0% 128.1/128.1MB downloaded
```

```
print("Vocabulary size:", len(model))
```

```
Vocabulary size: 400000
```

```
print("Vector for 'king':\n", model['king'])
```

```
Vector for 'king':
 [-0.32307  -0.87616   0.21977   0.25268   0.22976   0.7388   -0.37954
 -0.35307  -0.84369  -1.1113   -0.30266   0.33178  -0.25113   0.30448
 -0.077491 -0.89815   0.092496 -1.1407   -0.58324   0.66869  -0.23122
 -0.95855   0.28262  -0.078848  0.75315   0.26584   0.3422   -0.33949
  0.95608   0.065641  0.45747   0.39835   0.57965   0.39267  -0.21851
  0.58795  -0.55999   0.63368  -0.043983 -0.68731  -0.37841   0.38026
  0.61641  -0.88269  -0.12346  -0.37928  -0.38318   0.23868   0.6685
 -0.43321  -0.11065   0.081723  1.1569    0.78958  -0.21223  -2.3211
 -0.67806   0.44561   0.65707   0.1045    0.46217   0.19912   0.25802
  0.057194  0.53443  -0.43133  -0.34311   0.59789  -0.58417   0.068995
  0.23944  -0.85181   0.30379  -0.34177  -0.25746  -0.031101 -0.16285
  0.45169  -0.91627   0.64521   0.73281  -0.22752   0.30226   0.044801
 -0.83741   0.55006  -0.52506  -1.7357    0.4751   -0.70487   0.056939
 -0.7132    0.089623  0.41394  -1.3363   -0.61915  -0.33089  -0.52881
  0.16483  -0.98878 ]
```

```
words = [
    # Animals
    "cat", "dog", "lion", "tiger", "elephant", "horse",

    # Fruits
```

```
    "apple", "banana", "mango", "grape", "orange",

    # Countries
    "india", "china", "france", "germany", "japan",

    # Technology
    "computer", "laptop", "keyboard", "mouse", "internet",

    # Royalty
    "king", "queen", "prince", "princess",

    # Vehicles
    "car", "bus", "train", "bike", "truck"
]
```

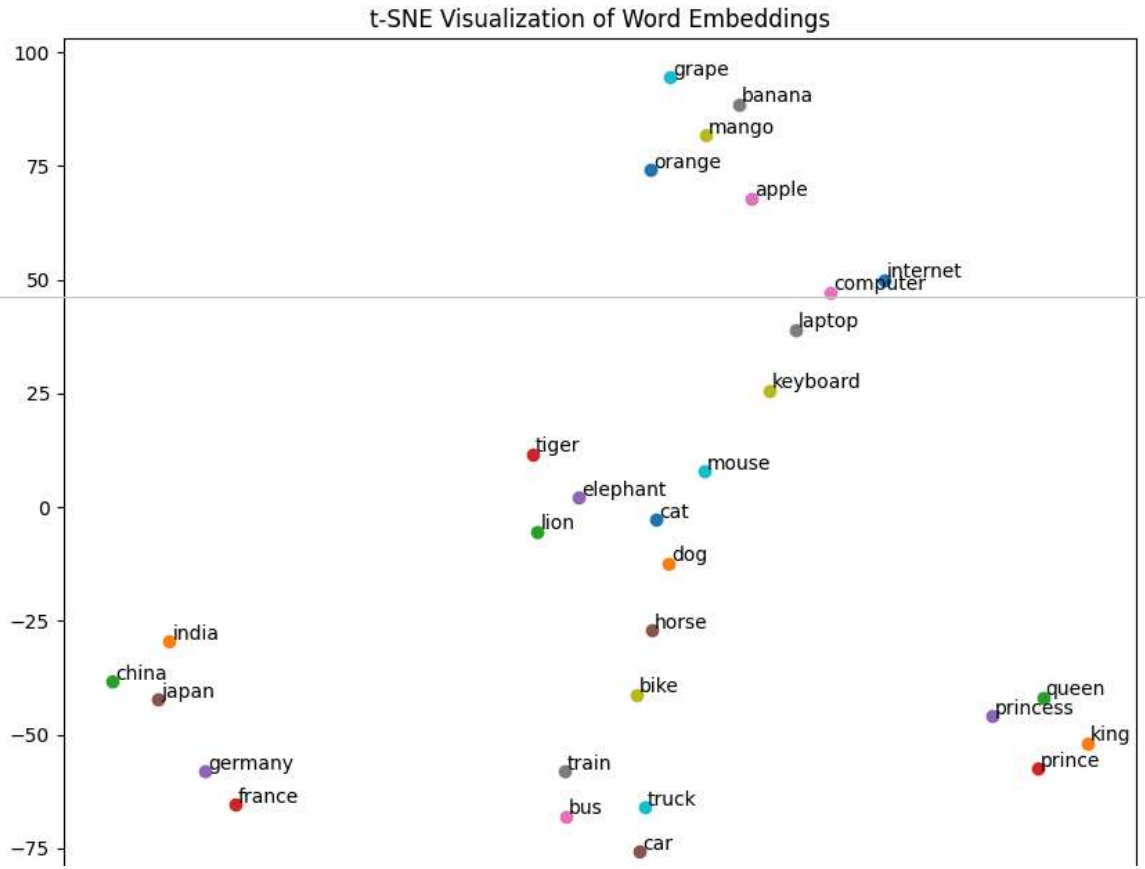
```
vectors = np.array([model[word] for word in words])
```

```
tsne = TSNE(n_components=2, random_state=42, perplexity=5)
reduced_vectors = tsne.fit_transform(vectors)
```

```
plt.figure(figsize=(10,8))

for i, word in enumerate(words):
    x, y = reduced_vectors[i]
    plt.scatter(x, y)
    plt.text(x+0.5, y+0.5, word)

plt.title("t-SNE Visualization of Word Embeddings")
plt.show()
```


t-SNE Visualization of Word Embeddings
100
75
50
25
0
−25
−50
−75
grape
banana
mango
orange
apple
internet
computer
laptop
keyboard
tiger
mouse
elephant
cat
lion
dog
horse
india
china
japan
bike
queen
princess
king
prince
germany
train
france
truck
bus
car