```
# Install Magnitude on Google Colab
! echo "Installing Magnitude.... (please wait, can take a while)"
! (curl https://raw.githubusercontent.com/plasticityai/magnitude/master/install-colab.sh | /bin
! echo "Done installing Magnitude."
```

```
Installing Magnitude.... (please wait, can take a while)
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100   137  100   137    0     0    585      0 --:--:-- --:--:-- --:--:--   585
Done installing Magnitude.
```

```
from google.colab import drive
import sys

# Mount Google Drive
drive.mount('/content/drive')
```

```
Mounted at /content/drive
```

```
from pymagnitude import *
file_path = '/content/drive/My Drive/Colab Notebooks/GoogleNews-vectors-negative300.magnitude'
vectors = Magnitude(file_path)
```

```
pip install virtualenv
```

```
Collecting virtualenv
  Downloading https://files.pythonhosted.org/packages/97/f3/c064343ac58d1a54c393a3f66483a2950
     |████████████████████████████████████████████████████████████████| 4.9MB 9.1MB/s
Requirement already satisfied: filelock<4,>=3.0.0 in /usr/local/lib/python3.6/dist-packages (
Requirement already satisfied: importlib-resources>=1.0; python_version < "3.7" in /usr/local
Requirement already satisfied: importlib-metadata<3,>=0.12; python_version < "3.8" in /usr/lo
Collecting distlib<1,>=0.3.1
  Downloading https://files.pythonhosted.org/packages/f5/0a/490fa011d699bb5a5f3a0cf57de82237f
     |████████████████████████████████████████████████████████████████| 337kB 43kB/s
<2,>=1.9.0 in /usr/local/lib/python3.6/dist-packages (from
hosted.org/packages/3b/00/2344469e2084fb287c2e0b57b72910309
Requirement already satisfied: zipp>=0.4; python_version < "3.8" in /usr/local/lib/python3.6/
Installing collected packages: distlib, appdirs, virtualenv
Successfully installed appdirs-1.4.4 distlib-0.3.1 virtualenv-20.1.0
```

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```
vectors.distance("cat","dog")
```

```
0.69145405
```

Question 1: What is the dimensionality of these word embeddings? Provide an integer answer.

```
vectors.dim
```

```
300
```

Based on the results, the dimension of these word embeddings is 300.

Question 2: What are the top-5 most similar words to picnic (not including picnic itself)?

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```
print(vectors.most_similar("picnic",  topn=5))
```

```
[('picnics', 0.7400875), ('picnic_lunch', 0.721374), ('Picnic', 0.700534), ('potluck_picnic',
```

Based on the results, the top-5 most similar words to picnic are picnics, picnic_lunch, Picnic, Potluck_picnic, picnic_super.

Question 3: According to the word embeddings, which of these words is not like the others? ['tissue', 'papyrus', 'manila', 'newsprint', 'parchment', 'gazette']

```
vectors.doesnt_match(['tissue',  'papyrus',  'manila',  'newsprint',  'parchment',  'gazette'])
```

```
'tissue'
```

Based on the results, the word "tissue" is not like the others.

Question 4: Solve the following analogy: leg is to jump as X is to throw.

```
vectors.most_similar(positive  =  ["leg","throw"],  negative  =  ["jump"])
```

```
[('forearm', 0.48294652),
 ('shin', 0.47376165),
 ('elbow', 0.4679689),
 ('shoulder', 0.46183354),
 ('thigh', 0.45393682),
 ('knee', 0.4455707),
 ('ulna_bone', 0.4423491)]
```

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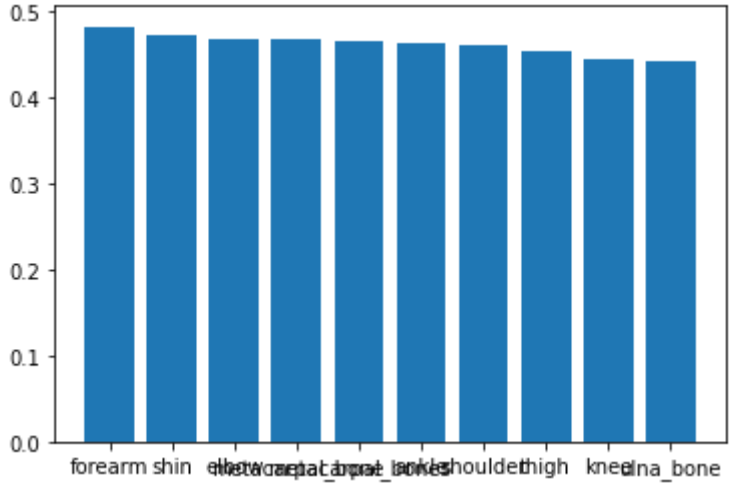
Based on the results, leg is to jump as forearm is to throw.

The visualization result of the word list in Q4 is shown below:

```
import  matplotlib.pyplot  as  plt

name_list  =  ['forearm','shin','elbow','metacarpal_bone','metacarpal_bones','ankle','shoulder','th
num_list  =  [0.48294652,0.47376165,0.4679689,0.46781474,0.46605822,0.46434426,0.46183354,0.4539368
plt.bar(range(len(num_list)),num_list,tick_label=name_list)
```

```
plt.show()
```



Based on the results, we can see the forearm is the most likely answer to Question 4.

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