Download zip from <https://github.com/scpd-proed/XCS224N-A2>

Unzip content into

C:\Users\ADMIN\Documents\Stanford\NLP\_DeepLearning\Assignment2\XCS224N-A2-master

* Open Anaconda Prompt

(base) C:\Users\ADMIN>python --version

Python 3.7.3

* navigate to your project

(base) C:\Users\ADMIN>cd C:\Users\ADMIN\Documents\Stanford\NLP\_DeepLearning\Assignment2\XCS224N-A2-master

* Create a virtual environment (The following commands will create a new subfolder named venv for the virtual environment)

(base) C:\Users\ADMIN\Documents\Stanford\NLP\_DeepLearning\Assignment2\XCS224N-A2-master> virtualenv --python C:\Anaconda3\python.exe venv

* Activate the virtual environment

(base) C:\Users\ADMIN\Documents\Stanford\NLP\_DeepLearning\Assignment2\XCS224N-A2-master>.\venv\Scripts\activate

(venv) (base) C:\Users\ADMIN\Documents\Stanford\NLP\_DeepLearning\Assignment2\XCS224N-A2-master>

* Install all the requirements

(venv) (base) C:\Users\ADMIN\Documents\Stanford\NLP\_DeepLearning\Assignment2\XCS224N-A2-master> pip install -r requirements.txt

Collecting matplotlib

Downloading https://files.pythonhosted.org/packages/44/fb/132de6a4b803d8ce909a89043b7d3f775f64e0a39398fc98c02e3e144b61/matplotlib-3.1.2-cp36-cp36m-win\_amd64.whl (9.1MB)

|████████████████████████████████| 9.1MB 3.3MB/s

Collecting numpy

Downloading https://files.pythonhosted.org/packages/ec/23/75dfc62331c8c49f073051512718f3f36ee67cf3be290f58b4b03ec3cb51/numpy-1.18.0-cp36-cp36m-win\_amd64.whl (12.8MB)

|████████████████████████████████| 12.8MB 6.4MB/s

Collecting scikit-learn

Downloading https://files.pythonhosted.org/packages/21/d9/7da9d5afdf901ab069226853c84a432c5db80fd616849ebcee29fd8a04e0/scikit\_learn-0.22.1-cp36-cp36m-win\_amd64.whl (6.3MB)

|████████████████████████████████| 6.3MB 6.4MB/s

Collecting kiwisolver>=1.0.1

Using cached https://files.pythonhosted.org/packages/64/46/75ab48386cbd56065f5542360562be524ad599911455b6d95520cb118613/kiwisolver-1.1.0-cp36-none-win\_amd64.whl

Collecting pyparsing!=2.0.4,!=2.1.2,!=2.1.6,>=2.0.1

Downloading https://files.pythonhosted.org/packages/5d/bc/1e58593167fade7b544bfe9502a26dc860940a79ab306e651e7f13be68c2/pyparsing-2.4.6-py2.py3-none-any.whl (67kB)

|████████████████████████████████| 71kB 4.8MB/s

Collecting cycler>=0.10

Using cached https://files.pythonhosted.org/packages/f7/d2/e07d3ebb2bd7af696440ce7e754c59dd546ffe1bbe732c8ab68b9c834e61/cycler-0.10.0-py2.py3-none-any.whl

Collecting python-dateutil>=2.1

Using cached https://files.pythonhosted.org/packages/d4/70/d60450c3dd48ef87586924207ae8907090de0b306af2bce5d134d78615cb/python\_dateutil-2.8.1-py2.py3-none-any.whl

Collecting joblib>=0.11

Downloading https://files.pythonhosted.org/packages/28/5c/cf6a2b65a321c4a209efcdf64c2689efae2cb62661f8f6f4bb28547cf1bf/joblib-0.14.1-py2.py3-none-any.whl (294kB)

|████████████████████████████████| 296kB ...

Collecting scipy>=0.17.0

Downloading https://files.pythonhosted.org/packages/8d/2f/fcb6150813b89d628749784370132e431f687ebab5a1063eb298cc941f76/scipy-1.4.1-cp36-cp36m-win\_amd64.whl (30.8MB)

|████████████████████████████████| 30.8MB 6.8MB/s

Requirement already satisfied: setuptools in c:\users\admin\documents\stanford\nlp\_deeplearning\assignment2\xcs224n-a2-master\venv\lib\site-packages (from kiwisolver>=1.0.1->matplotlib->-r requirements.txt (line 1)) (44.0.0)

Collecting six

Using cached https://files.pythonhosted.org/packages/65/26/32b8464df2a97e6dd1b656ed26b2c194606c16fe163c695a992b36c11cdf/six-1.13.0-py2.py3-none-any.whl

Installing collected packages: kiwisolver, numpy, pyparsing, six, cycler, python-dateutil, matplotlib, joblib, scipy, scikit-learn

Successfully installed cycler-0.10.0 joblib-0.14.1 kiwisolver-1.1.0 matplotlib-3.1.2 numpy-1.18.0 pyparsing-2.4.6 python-dateutil-2.8.1 scikit-learn-0.22.1 scipy-1.4.1 six-1.13.0

* Double-check python version

(venv) (base) C:\Users\ADMIN\Documents\Stanford\NLP\_DeepLearning\Assignment2\XCS224N-A2-master> python –version

Python 3.6.3 :: Anaconda, Inc.

* Implement 3 functions in word2vec.py and test them by running python word2vec.py.

(venv) (base) C:\Users\ADMIN\Documents\Stanford\NLP\_DeepLearning\Assignment2\XCS224N-A2-master> python word2vec.py

==== Gradient check for skip-gram with naiveSoftmaxLossAndGradient ====

Gradient check passed!

Skip-Gram with naiveSoftmaxLossAndGradient

Your Result:

Loss: 11.16610900153398

Gradient wrt Center Vectors (dJ/dV):

[[ 0. 0. 0. ]

[ 0. 0. 0. ]

[-1.26947339 -1.36873189 2.45158957]

[ 0. 0. 0. ]

[ 0. 0. 0. ]]

Gradient wrt Outside Vectors (dJ/dU):

[[-0.41045956 0.18834851 1.43272264]

[ 0.38202831 -0.17530219 -1.33348241]

[ 0.07009355 -0.03216399 -0.24466386]

[ 0.09472154 -0.04346509 -0.33062865]

[-0.13638384 0.06258276 0.47605228]]

Expected Result: Value should approximate these:

Loss: 11.16610900153398

Gradient wrt Center Vectors (dJ/dV):

[[ 0. 0. 0. ]

[ 0. 0. 0. ]

[-1.26947339 -1.36873189 2.45158957]

[ 0. 0. 0. ]

[ 0. 0. 0. ]]

Gradient wrt Outside Vectors (dJ/dU):

[[-0.41045956 0.18834851 1.43272264]

[ 0.38202831 -0.17530219 -1.33348241]

[ 0.07009355 -0.03216399 -0.24466386]

[ 0.09472154 -0.04346509 -0.33062865]

[-0.13638384 0.06258276 0.47605228]]

NaiveSoftmaxLossAndGradient

Your Result:

Loss: 2.217424879078895

Gradient wrt Center Vector (dJ/dV):

[-0.17249875 0.64873661 0.67821423]

Gradient wrt Outside Vectors (dJ/dU):

[[-0.11394934 0.05228819 0.39774391]

[-0.02740743 0.01257651 0.09566654]

[-0.03385715 0.01553611 0.11817949]

[ 0.24348396 -0.11172803 -0.84988879]

[-0.06827005 0.03132723 0.23829885]]

Expected Result: Value should approximate these:

Loss: 2.217424877675181

Gradient wrt Center Vectors(dJ/dV):

[-0.17249875 0.64873661 0.67821423]

Gradient wrt Outside Vectors (dJ/dU):

[[-0.11394933 0.05228819 0.39774391]

[-0.02740743 0.01257651 0.09566654]

[-0.03385715 0.01553611 0.11817949]

[ 0.24348396 -0.11172803 -0.84988879]

[-0.06827005 0.03132723 0.23829885]]

test sigmoid

Your Result:

[0.38553435 0.29385824 0.6337228 0.40988622 0.29385824 0.58343371

0.29385824 0.58343371 0.40988622 0.40988622 0.6337228 ]

Expected Result: Value should approximate these:

[0.38553435 0.29385824 0.63372281 0.40988622 0.29385824 0.5834337

0.29385824 0.5834337 0.40988622 0.40988622 0.63372281]

* Complete the sgd function in the sgd.py and test

(venv) (base) C:\Users\ADMIN\Documents\Stanford\NLP\_DeepLearning\Assignment2\XCS224N-A2-master> python sgd.py

Running sanity checks...

iter 100: 0.004578

iter 200: 0.004353

iter 300: 0.004136

iter 400: 0.003929

iter 500: 0.003733

iter 600: 0.003546

iter 700: 0.003369

iter 800: 0.003200

iter 900: 0.003040

iter 1000: 0.002888

test 1 result: 8.414836786079764e-10

iter 100: 0.000000

iter 200: 0.000000

iter 300: 0.000000

iter 400: 0.000000

iter 500: 0.000000

iter 600: 0.000000

iter 700: 0.000000

iter 800: 0.000000

iter 900: 0.000000

iter 1000: 0.000000

test 2 result: 0.0

iter 100: 0.041205

iter 200: 0.039181

iter 300: 0.037222

iter 400: 0.035361

iter 500: 0.033593

iter 600: 0.031913

iter 700: 0.030318

iter 800: 0.028802

iter 900: 0.027362

iter 1000: 0.025994

test 3 result: -2.524451035823933e-09

----------------------------------------

ALL TESTS PASSED

----------------------------------------

* Train word2vec and generate files \*sampleVectors.json\* and \*word\_vectors.png\*

\*\*Note: Do not change the hyperparameter values in run.py script\*\*

(venv) (base) C:\Users\ADMIN\Documents\Stanford\NLP\_DeepLearning\Assignment2\XCS224N-A2-master>python run.py

………….

iter 39630: 9.240681

iter 39640: 9.243792

iter 39650: 9.262415

iter 39660: 9.286713

iter 39670: 9.303074

iter 39680: 9.347061

iter 39690: 9.351811

iter 39700: 9.346526

iter 39710: 9.348751

iter 39720: 9.376277

iter 39730: 9.377825

iter 39740: 9.403598

iter 39750: 9.449631

iter 39760: 9.411052

iter 39770: 9.470179

iter 39780: 9.515252

iter 39790: 9.602017

iter 39800: 9.575306

iter 39810: 9.535311

iter 39820: 9.545193

iter 39830: 9.634330

iter 39840: 9.667367

iter 39850: 9.728679

iter 39860: 9.773566

iter 39870: 9.726360

iter 39880: 9.816947

iter 39890: 9.796976

iter 39900: 9.756038

iter 39910: 9.709420

iter 39920: 9.708453

iter 39930: 9.681717

iter 39940: 9.611494

iter 39950: 9.629689

iter 39960: 9.717683

iter 39970: 9.776979

iter 39980: 9.813174

iter 39990: 9.854022

iter 40000: 9.812206

sanity check: cost at convergence should be around or below 10

training took 10296 seconds

* Sanity check on sampleVectors.json

(venv) (base) C:\Users\ADMIN\Documents\Stanford\NLP\_DeepLearning\Assignment2\XCS224N-A2-master>python test\_sample\_vectors.py

Your output

[0.6029723815239837,

0.16789318536724743,

0.22520087305967562,

-0.28873306487925615,

-0.914615719505456,

-0.22069970363834449,

0.2238454978107194,

-0.2716921472488911,

0.6634932978039562,

0.23203231101065186]

Expected output

[0.6029723815239835,

0.16789318536724746,

0.22520087305967568,

-0.2887330648792561,

-0.914615719505456,

-0.2206997036383445,

0.2238454978107194,

-0.27169214724889107,

0.6634932978039564,

0.2320323110106518]

Are the vectors similar: True

Your output

[0.5641256072125872,

0.13722982658305438,

0.2082364803517175,

-0.29296957234563636,

-0.8704480862547579,

-0.1882296279977101,

0.24239616047158674,

-0.2941009195992252,

0.6979644655991715,

0.21475297647656114]

Expected output

[0.5641256072125872,

0.13722982658305444,

0.2082364803517175,

-0.2929695723456364,

-0.8704480862547578,

-0.18822962799771015,

0.24239616047158674,

-0.29410091959922546,

0.6979644655991716,

0.2147529764765611]

Are the vectors similar: True

* Clear command windows

(venv) (base) C:\Users\ADMIN\Documents\Stanford\NLP\_DeepLearning\Assignment2\XCS224N-A2-master>cls