Chapter 8

**ChatBot: Running a Pre-trained ChatBot**

Required TF version 1.4.0 and TF==0.12.1 (suriadipan)

**8.1 Cloning a conda environment for TF==1.4.0**

**(base) C:\Users\ >conda env list**

# conda environments:

#

base \* C:\Users\anaconda3

py354 C:\Users\anaconda3\envs\py354

**(base) C:\Users\>conda deactivate**

**C:\Users\>conda create --name py354TF1\_4 --clone py354**

Source: C:\Users\anaconda3\envs\py354

Destination: C:\Users\anaconda3\envs\py354TF1\_4

Packages: 98

Files: 4002

Preparing transaction: done

Verifying transaction: done

**C:\Users\>conda activate py354TF1\_4**

**(py354TF1\_4) C:\Users\>pip install --upgrade tensorflow==1.4.0**

Collecting tensorflow==1.4.0

Downloading

**(py354TF1\_4) C:\Users\>pip show tensorflow**

Name: tensorflow

Version: 1.4.0

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* **Note**: Spyder is already installed to cloned environment.

Also this environment supports following TF versions

(TF versions: 0.12.0, 0.12.1, 1.0.0, 1.0.1, 1.1.0, 1.2.0, 1.2.1, 1.3.0, 1.4.0, 1.5.0, 1.5.1, 1.6.0, 1.7.0, 1.7.1, 1.8.0, 1.9.0, 1.10.0, 1.11.0, 1.12.0, 1.12.2, 1.12.3, 1.13.1, 1.13.2, 1.14.0, 1.15.0, 1.15.2, 1.15.3, 1.15.4, 2.0.0, 2.0.1, 2.0.2, 2.0.3, 2.1.0, 2.1.1, 2.1.2, 2.2.0, 2.2.1, 2.3.0, 2.3.1)

**8.2 Creating Anaconda environment for TF==0.12.1**

Remove already existing environment, for example

conda env remove -n env\_name

* Anaconda environment for TF==0.12.1:

conda env remove -n bestCTBT

conda deactivate

conda create --name bestCTBT --clone py354

conda activate bestCTBT

pip uninstall tensorflow

pip install tensorflow==0.12.1

pip install nltk==3.2.5

pip install pipwin

pip install nltk

Error:

Collecting nltk

….

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Running setup.py bdist\_wheel for regex ... error

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error: Microsoft Visual C++ 14.0 is required. Get it with "Microsoft Visual C++ Build Tools": https://visualstudio.microsoft.com/downloads/

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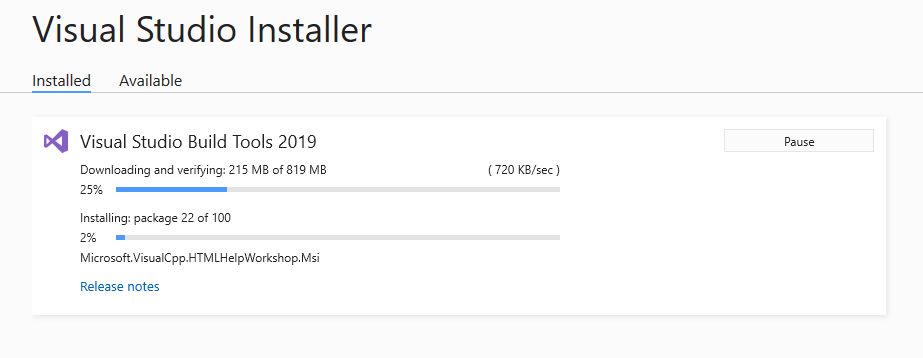
Failed building wheel for regex

Running setup.py clean for regex

NB: above error arise for nltk==3.6.2

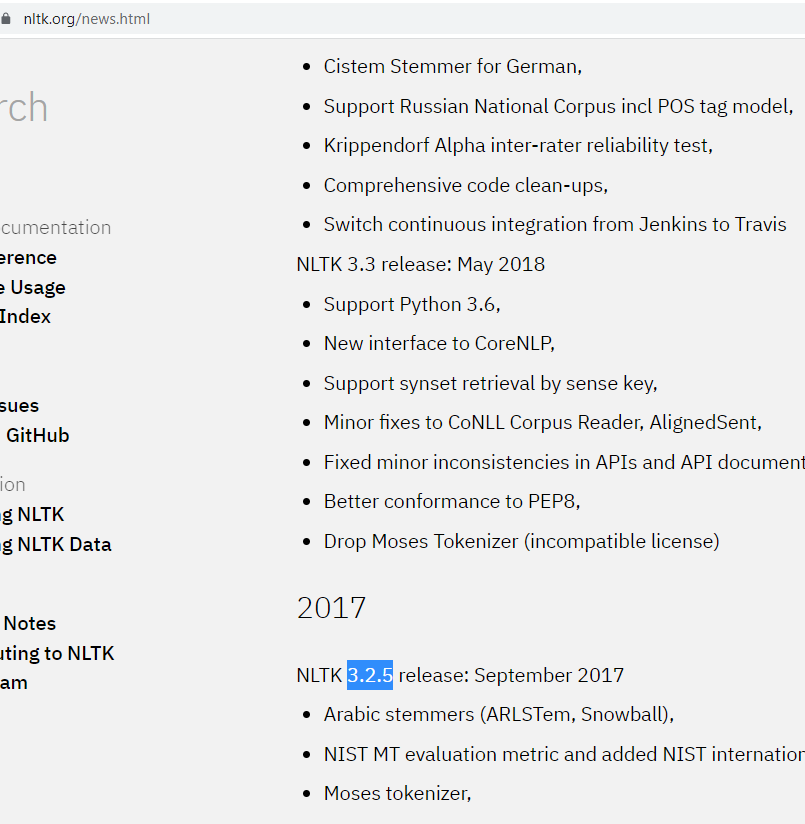
Install visual studio installer (if NLTK doesn't install).

Select **MVC 140** from Individual Components > compiler



* However nltk==3.2.5 successfully installed

pip install nltk==3.2.5



**8.3 Best Chatbot**

This Chatbot is from : **Suriaeepan**.

<https://github.com/suriyadeepan>

Easy seq2seq:

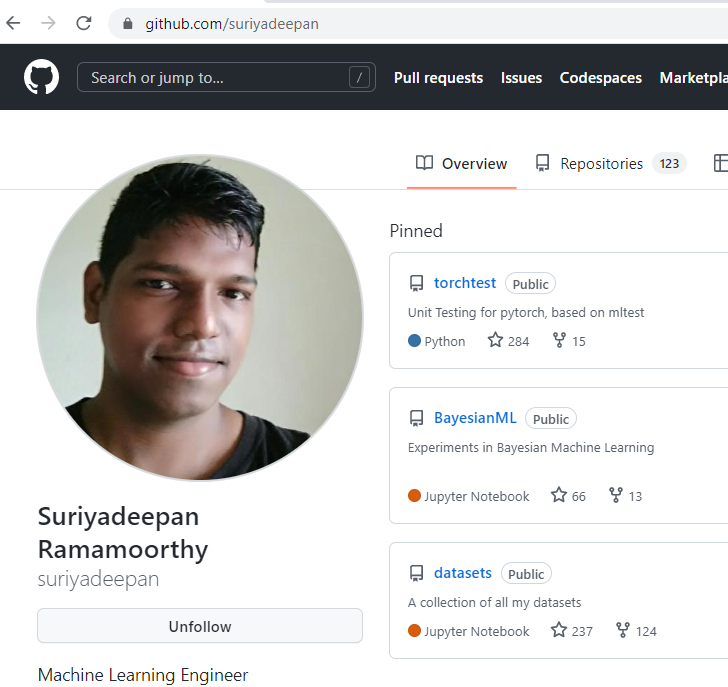
<https://blog.suriya.app/2016-06-28-easy-seq2seq/>

<https://github.com/suriyadeepan/easy_seq2seq>

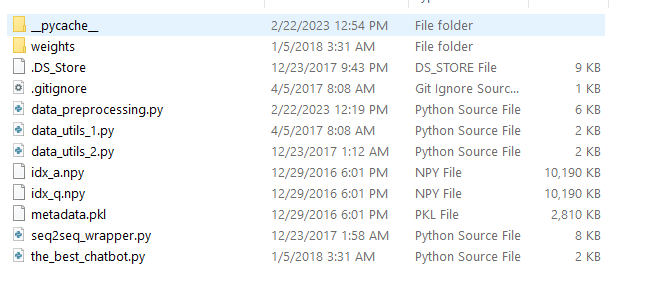
Practical seq2seq

<https://blog.suriya.app/2016-12-31-practical-seq2seq/>

<https://github.com/suriyadeepan/practical_seq2seq>



File Description:



* Weights: Contains the checkpoint of the saved weights.
* Preprocess: Following three files preprocess the data.

data\_preprocessing.py

data\_utils\_1.py

data\_utils\_2.py

* Dataset: Following are the dataset. It’s the "Twitter Dataset" and much better than "Movie dataset". This "Twitter Dataset" is best for general conversation.

idx\_a.npy

idx\_q.npy

metadata.pkl

* Train the model with following file: It contains the architecture of the seq2seq and the training mechanisms.

seq2seq\_wrapper.py

* Chat with the Chabot: If we just want to talk with the chatbot, we can use following file. (No training happens).

the\_best\_chatbot.py

* Open Spyder from anaconda prompt on **bestCTBT** active environment.

**Running the Trained Chatbot**

# *Building The Best ChatBot with Deep NLP*

# *Importing the libraries*

**import** seq2seq\_wrapper

**import** importlib

**importlib.reload**(seq2seq\_wrapper)

**import** data\_preprocessing

**import** data\_utils\_1

**import** data\_utils\_2

#*######### PART 1 - DATA PREPROCESSING ##########*

# *Importing the dataset*

metadata, idx\_q, idx\_a = **data\_preprocessing.load\_data**(PATH = './')

# *Splitting the dataset into the Training set and the Test set*

(trainX, trainY), (testX, testY), (validX, validY) = **data\_utils\_1.split\_dataset**(idx\_q, idx\_a)

# *Embedding*

xseq\_len = trainX.shape[-1]

yseq\_len = trainY.shape[-1]

batch\_size = 16

vocab\_twit = metadata['idx2w']

xvocab\_size = **len**(metadata['idx2w'])

yvocab\_size = xvocab\_size

emb\_dim = 1024

idx2w, w2idx, limit = **data\_utils\_2.get\_metadata**()

#*######### PART 2 - BUILDING THE SEQ2SEQ MODEL ##########*

# *Building the seq2seq model*

model = **seq2seq\_wrapper.Seq2Seq**(xseq\_len = xseq\_len,

                                yseq\_len = yseq\_len,

                                xvocab\_size = xvocab\_size,

                                yvocab\_size = yvocab\_size,

                                ckpt\_path = './weights',

                                emb\_dim = emb\_dim,

                                num\_layers = 3)

#*######### PART 3 - TRAINING THE SEQ2SEQ MODEL ##########*

# *See the Training in seq2seq\_wrapper.py*

#*######### PART 4 - TESTING THE SEQ2SEQ MODEL ##########*

# *Loading the weights and Running the session*

session = **model.restore\_last\_session**()

# *Getting the ChatBot predicted answer*

**def** **respond**(question):

    encoded\_question = **data\_utils\_2.encode**(question, w2idx, limit['maxq'])

    answer = **model.predict**(session, encoded\_question)[0]

**return** **data\_utils\_2.decode**(answer, idx2w)

# *Setting up the chat*

**while** **True** :

  question = **input**("You: ")

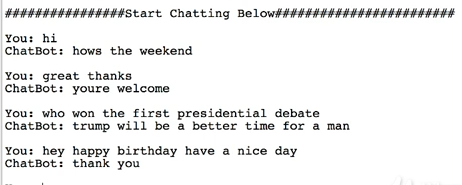
**if** question **==** "End\_Chat\_Now":

**break**

**else**:

      answer = **respond**(question)

**print** ("ChatBot: "+answer)



**8.4 Running Cornel movie dataset trained in TF 1.4**

* This chatbot from Abraham Sanders

<https://github.com/AbrahamSanders/seq2seq-chatbot>

<https://github.com/AbrahamSanders/seq2seq-chatbot/blob/master/seq2seq-chatbot/models/cornell_movie_dialog/README.md>

* To chat with a trained model from the model directory:

(Batch files are only available for windows as of now. For mac and linux users see instructions below for python console.)

* Make sure a model exists in the models directory (to get started, download and unzip trained\_model\_v2 into the seq2seq-chatbot/models/cornell\_movie\_dialog folder)
* For console chat:

From the model directory run chat\_console\_best\_weights\_training.bat

or chat\_console\_best\_weights\_validation.bat

* Install following packages:

pip install --upgrade jsonpickle

pip install click==6.7

pip install flask==0.12.4

pip install --upgrade flask-restful

* Open conda environment " py354TF1\_4" of python 3.5.4 and TF==1.4.0

python chat.py "models\cornell\_movie\_dialog\trained\_model\_v2\best\_weights\_training.ckpt"

(py354TF1\_4) E:\1\_Development\_2.0\ML\_phase\_4\_prj\_1\_CtBt\_NLP\seq2seq-chatbot-master\seq2seq-chatbot>python chat.py "models\cornell\_movie\_dialog\trained\_model\_v2\best\_weights\_training.ckpt"

