CS5542 Big Data Analytics and App

Lab Assignment #2

Submitted by:

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Team – 5

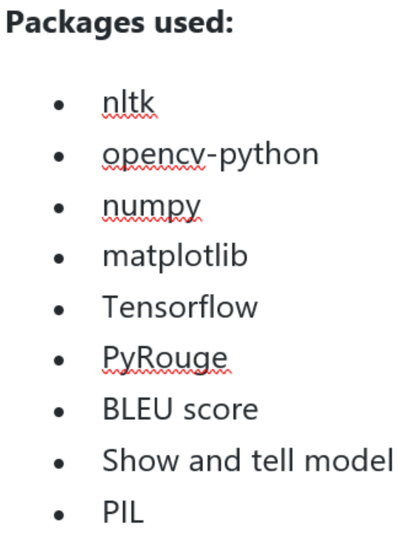
Objectives:

The objectives of the Lab assignment 2:

- Generate captions for your own dataset using the Show and Tell model.
- Generate 4 captions for each image. (Beam Search k=4)
- Report your accuracy in BLEU, CIDER, METEOR and ROGUE measures.

Technologies:

Pycharm – IDE for executing the python files

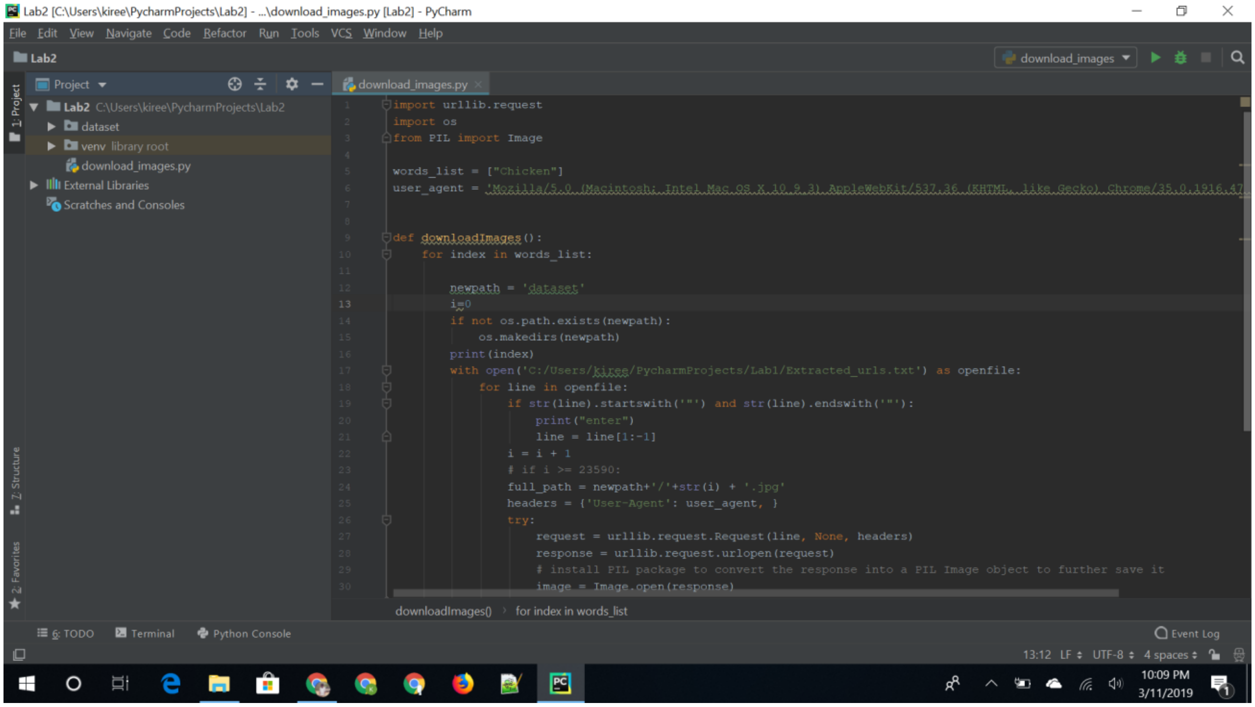


Packages used:

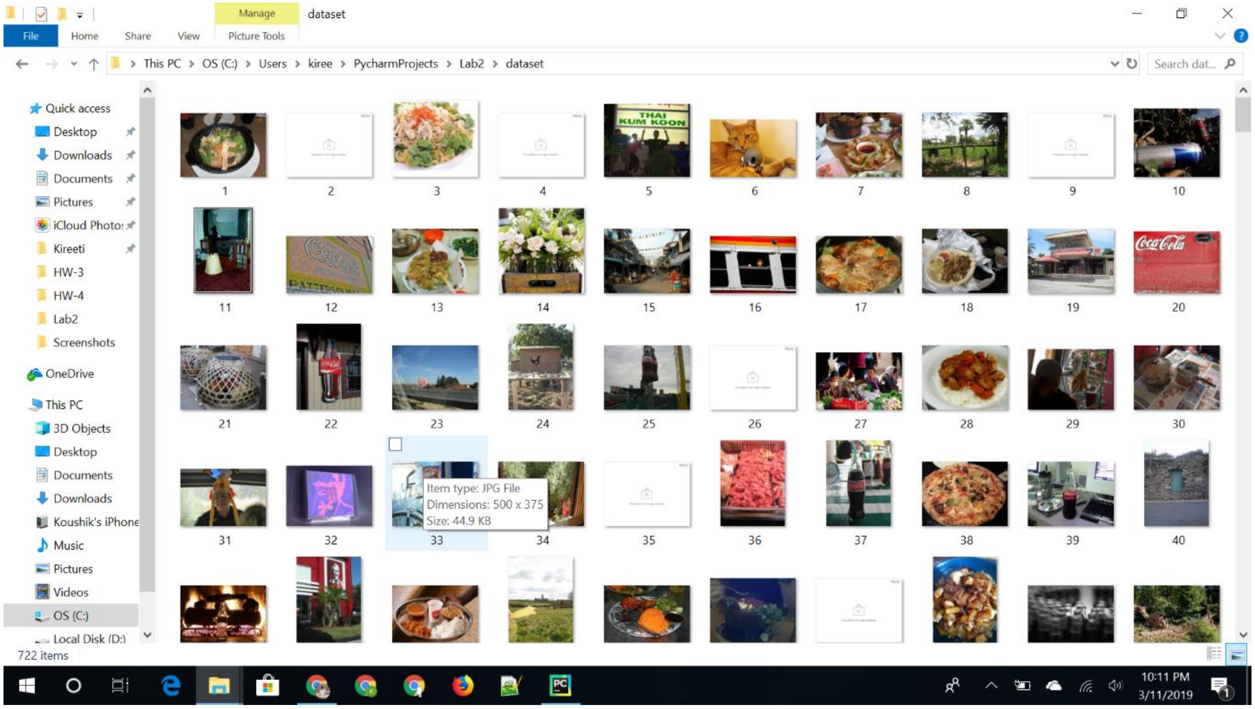
- nltk
- opencv-python
- numpy
- matplotlib
- Tensorflow
- PyRouge
- BLEU score
- Show and tell model
- PIL

Extraction of Images from the URL's:

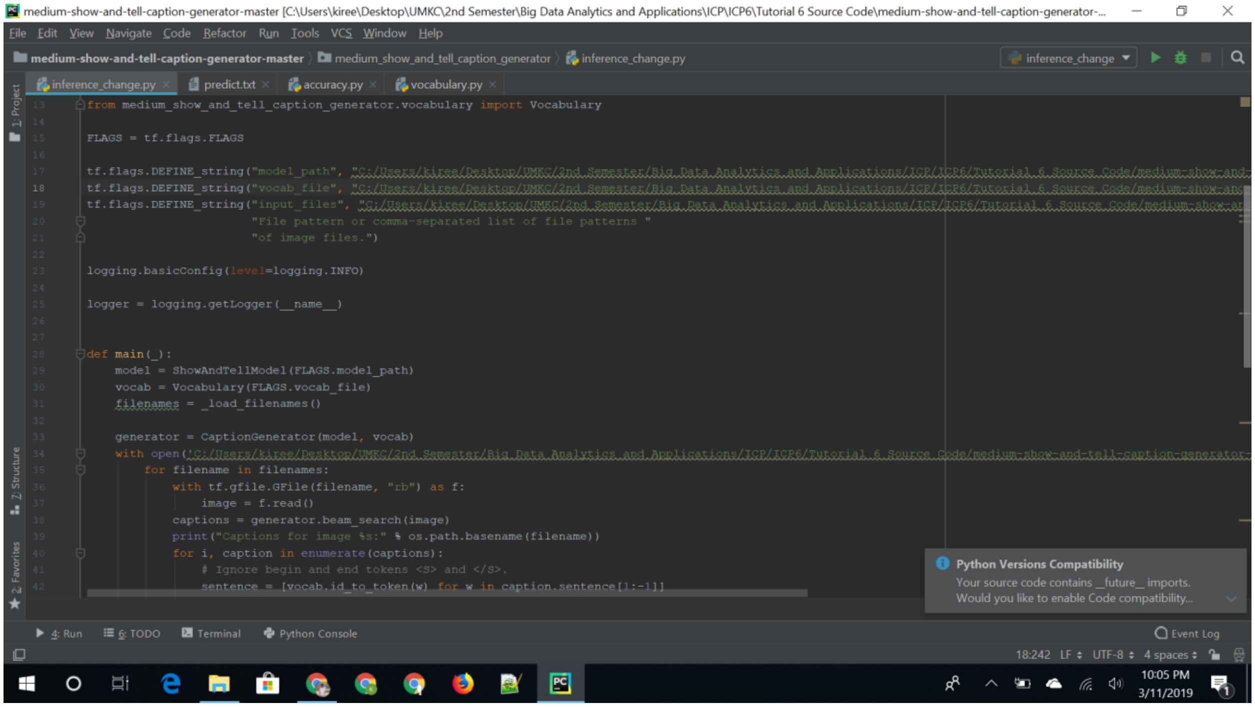
- As our dataset choosen is SBU, we have extracted the images from the URL's. The screenshot is as follows:



```
import urllib.request
import os
from PIL import Image

words_list = ["Chicken"]
user_agent = 'Mozilla/5.0 (Macintosh; Intel Mac OS X 10_9_3) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/35.0.1916.47


def downloadImages():
    for index in words_list:

        newpath = 'dataset'
        i=0
        if not os.path.exists(newpath):
            os.makedirs(newpath)
        print(index)
        with open('C:/Users/kiree/PycharmProjects/Lab1/Extracted_urls.txt') as openfile:
            for line in openfile:
                if str(line).startswith('"') and str(line).endswith('"'):
                    print("enter")
                    line = line[1:-1]
                i = i + 1
                # if i >= 23590:
                full_path = newpath+'/'+str(i) + '.jpg'
                headers = {'User-Agent': user_agent, }
                try:
                    request = urllib.request.Request(line, None, headers)
                    response = urllib.request.urlopen(request)
                    # install PIL package to convert the response into a PIL Image object to further save it
                    image = Image.open(response)
```



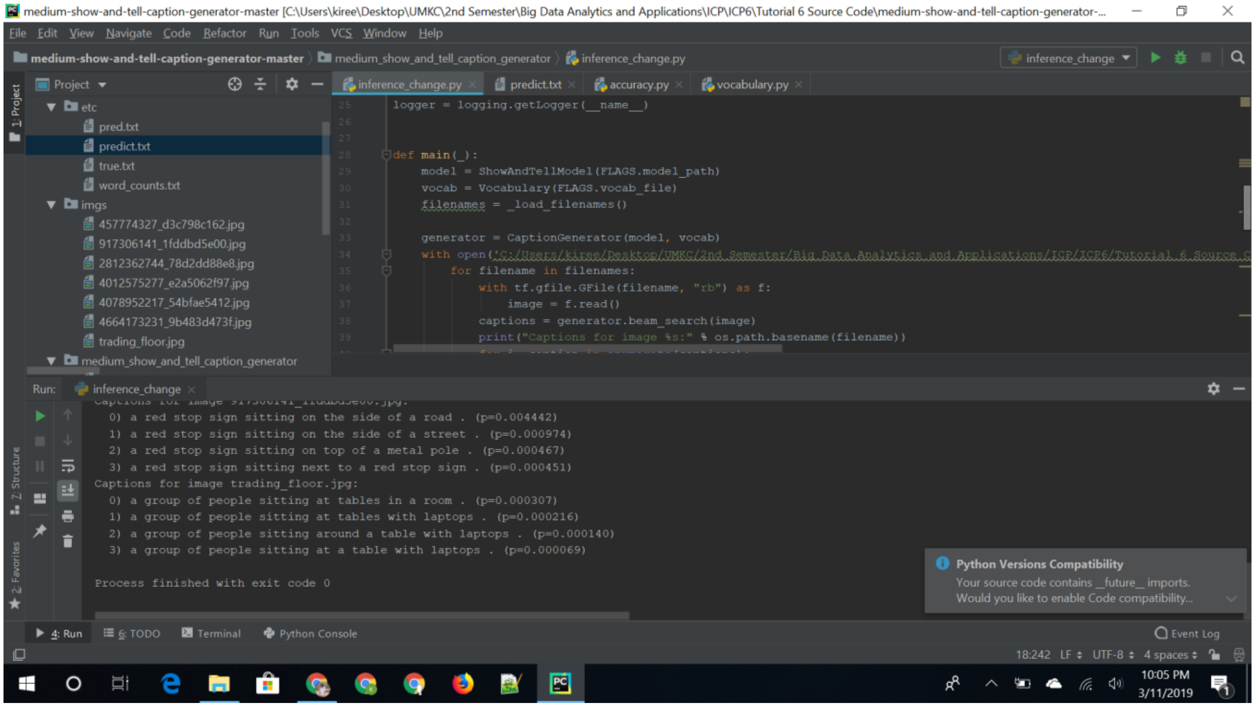
Goals achieved:



medium-show-and-tell-caption-generator-master [C:\Users\kiree\Desktop\UMKC\2nd Semester\Big Data Analytics and Applications\ICP\ICP6\Tutorial 6 Source Code\medium-show-and-tell-caption-generator-...

```
from medium_show_and_tell_caption_generator.vocabulary import Vocabulary

FLAGS = tf.flags.FLAGS

tf.flags.DEFINE_string("model_path", "C:/Users/kiree/Desktop/UMKC/2nd Semester/Big Data Analytics and Applications/ICP/ICP6/Tutorial 6 Source Code/medium-show-and-
tf.flags.DEFINE_string("vocab_file", "C:/Users/kiree/Desktop/UMKC/2nd Semester/Big Data Analytics and Applications/ICP/ICP6/Tutorial 6 Source Code/medium-show-and
tf.flags.DEFINE_string("input_files", "C:/Users/kiree/Desktop/UMKC/2nd Semester/Big Data Analytics and Applications/ICP/ICP6/Tutorial 6 Source Code/medium-show-an
                       "File pattern or comma-separated list of file patterns "
                       "of image files.")

logging.basicConfig(level=logging.INFO)

logger = logging.getLogger(__name__)


def main(_):
    model = ShowAndTellModel(FLAGS.model_path)
    vocab = Vocabulary(FLAGS.vocab_file)
    filenames = _load_filenames()

    generator = CaptionGenerator(model, vocab)
    with open('C:/Users/kiree/Desktop/UMKC/2nd Semester/Big Data Analytics and Applications/ICP/ICP6/Tutorial 6 Source Code/medium-show-and-tell-caption-generator-
        for filename in filenames:
            with tf.gfile.GFile(filename, "rb") as f:
                image = f.read()
            captions = generator.beam_search(image)
            print("Captions for image %s:" % os.path.basename(filename))
            for i, caption in enumerate(captions):
                # Ignore begin and end tokens <S> and </S>.
                sentence = [vocab.id_to_token(w) for w in caption.sentence[1:-1]]
```

Python Versions Compatibility
Your source code contains _future_ imports.
Would you like to enable Code compatibility...



medium-show-and-tell-caption-generator-master [C:\Users\kiree\Desktop\UMKC\2nd Semester\Big Data Analytics and Applications\ICP\ICP6\Tutorial 6 Source Code\medium-show-and-tell-caption-generator-...

```
logger = logging.getLogger(__name__)


def main(_):
    model = ShowAndTellModel(FLAGS.model_path)
    vocab = Vocabulary(FLAGS.vocab_file)
    filenames = _load_filenames()

    generator = CaptionGenerator(model, vocab)
    with open('C:/Users/kiree/Desktop/UMKC/2nd Semester/Big Data Analytics and Applications/ICP/ICP6/Tutorial 6 Source C
        for filename in filenames:
            with tf.gfile.GFile(filename, "rb") as f:
                image = f.read()
            captions = generator.beam_search(image)
            print("Captions for image %s:" % os.path.basename(filename))
```

```
Captions for image 917306141_1fddbd5e00.jpg:
  0) a red stop sign sitting on the side of a road . (p=0.004442)
  1) a red stop sign sitting on the side of a street . (p=0.000974)
  2) a red stop sign sitting on top of a metal pole . (p=0.000467)
  3) a red stop sign sitting next to a red stop sign . (p=0.000451)
Captions for image trading_floor.jpg:
  0) a group of people sitting at tables in a room . (p=0.000307)
  1) a group of people sitting at tables with laptops . (p=0.000216)
  2) a group of people sitting around a table with laptops . (p=0.000140)
  3) a group of people sitting at a table with laptops . (p=0.000069)

Process finished with exit code 0
```

Python Versions Compatibility
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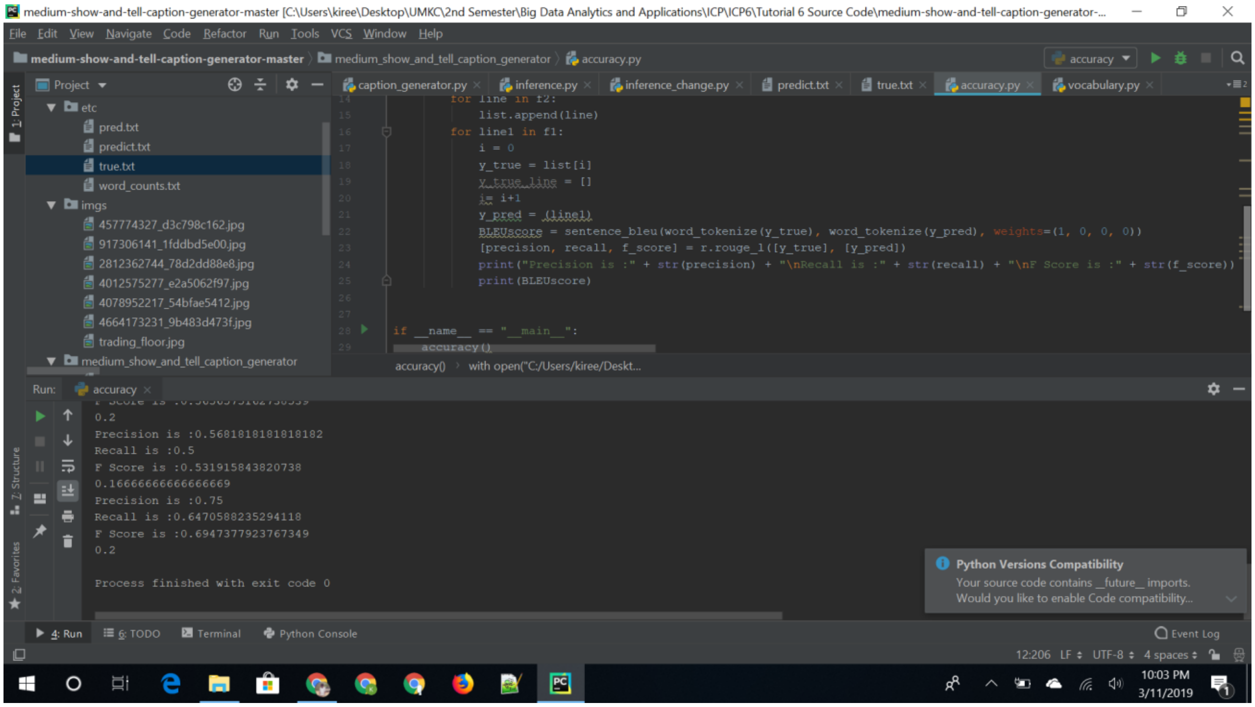
Would you like to enable Code compatibility...


medium-show-and-tell-caption-generator-master [C:\Users\kiree\Desktop\UMKC\2nd Semester\Big Data Analytics and Applications\ICP\ICP6\Tutorial 6 Source Code\medium-show-and-tell-caption-generator-...
File Edit View Navigate Code Refactor Run Tools VCS Window Help
medium-show-and-tell-caption-generator-master
medium_show_and_tell_caption_generator
accuracy.py
accuracy
Project
1: Project
etc
pred.txt
predict.txt
true.txt
word_counts.txt
imgs
457774327_d3c798c162.jpg
917306141_1fddbd5e00.jpg
2812362744_78d2dd88e8.jpg
4012575277_e2a5062f97.jpg
4078952217_54bfae5412.jpg
4664173231_9b483d473f.jpg
trading_floor.jpg
medium_show_and_tell_caption_generator
caption_generator.py
inference.py
inference_change.py
predict.txt
true.txt
accuracy.py
vocabulary.py
accuracy()
with open("C:/Users/kiree/Deskt...
Run:
accuracy
7: Structure
2: Favorites
4: Run
6: TODO
Terminal
Python Console
Event Log
12:206
LF
UTF-8
4 spaces
10:03 PM
3/11/2019

```
            for line in f2:
                list.append(line)
            for line1 in f1:
                i = 0
                y_true = list[i]
                y_true_line = []
                i= i+1
                y_pred = (line1)
                BLEUscore = sentence_bleu(word_tokenize(y_true), word_tokenize(y_pred), weights=(1, 0, 0, 0))
                [precision, recall, f_score] = r.rouge_l([y_true], [y_pred])
                print("Precision is :" + str(precision) + "\nRecall is :" + str(recall) + "\nF Score is :" + str(f_score))
                print(BLEUscore)


if __name__ == "__main__":
    accuracy()
```

```
0.2
Precision is :0.5681818181818182
Recall is :0.5
F Score is :0.531915843820738
0.16666666666666669
Precision is :0.75
Recall is :0.6470588235294118
F Score is :0.6947377923767349
0.2

Process finished with exit code 0
```

Python Versions Compatibility

Your source code contains __future__ imports.
Would you like to enable Code compatibility...