CS 535: Assignment #2

Due on 11:59pm February 11, 2018

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1 Problem 1

1.1 Question 1

1. Write a Python program that extracts 1000 unique links from Twitter. You might want to take a look at:

https://pythonprogramming.net/twitter-api-streaming-tweets-python-tutorial/
http://adilmoujahid.com/posts/2014/07/twitter-analytics/

see also:

http://docs.tweepy.org/en/v3.5.0/index.html
https://github.com/bear/python-twitter
https://dev.twitter.com/rest/public

But there are many other similar resources available on the web.
Note that only Twitter API 1.1 is currently available; version 1 code will no longer work.

Also note that you need to verify that the final target URI (i.e., the one that responds with a 200) is unique. You could have many different shortened URIs for www.cnn.com (t.co, bit.ly, goo.gl, etc.). For example:

HTTP/1.1 301 Moved Permanently
location: https://goo.gl/40yQo2
HTTP/1.1 301 Moved Permanently
Location: https://soundcloud.com/roanoketimes/ep-95-talking-hokies-recruiting-one-week-before-signing-day
HTTP/1.1 200 OK

You might want to use the streaming or search feature to find URIs. If you find something inappropriate for any reason you see fit, just discard it and get some more links. We just want 1000 links that were shared via Twitter.

Hold on to this collection and upload it to github – we'll use it later throughout the semester.

1.2 Answer 1

For this problem. I used the program supplied by Alexander C. Nwala in class. I made some modification to the program.

I modified what I was looking for from football to government. This created a lot of links so I added a count to the program to stop at 2000.

I then had all the links and the user names printed on the screen. Since I only wanted the URLs, I sent only that data to a file called twitterlinks.raw.

Because the the twitterlinks.raw file was just links that could have redirects, bad url and other items I needed to clean up that data. I then wrote another program called 02_validate.py in python to verify that the URL was good. After verify the URL was good, I then verified that all URLs listed in the raw data file resulted in a http 200 code.

I created a program called 03_redir.py to clean the data. From the initial links from file twitter_links.raw. Another program to count information for me called 15_count.py

2000 is the number of links from the orginal twitter search.
50 is the number of urls with code greater than 400.
555 is the number of urls with server codes between 300 and 399.

1368 is the number of urls with server codes between 200.
27 is the number of links that were not valid.
2000 is the total number of links gathered.

There were 27 links that were found to be bad (ie the page did not return a result). The results can be seen in notvalid.txt. The number of redirects were 555. The redirect links can be seen in redirlink.txt. This left a total of 1368 that can be seen in twitterurl.txt. I then compared the results to make sure that the remain links did not have any duplicate URLs. The new current link number after data cleaning was 909 which are listed in cleantwitterurl.txt.

Another requirement was to remove the twitter.com from the clean data. I used another program called 06_rmtwitcom.py which I created to remove the twitter.com from the cleantwitterurl.txt file. This resulted in 498 URLs that met the requirement.

2 Problem 2

2.1 Question 2

2. Download the TimeMaps for each of the target URIs. We'll use the ODU Memento Aggregator, so for example:

URI-R = http://www.cs.odu.edu/
URI-T = http://memgator.cs.odu.edu/timemap/link/http://www.cs.odu.edu/
or:
URI-T = http://memgator.cs.odu.edu/timemap/json/http://www.cs.odu.edu/
(depending on which format you'd prefer to parse)

Create a histogram* of URIs vs. number of Mementos (as computed from the TimeMaps). For example, 100 URIs with 0 Mementos, 300 URIs with 1 Memento, 400 URIs with 2 Mementos, etc. The x-axis will have the number of mementos, and the y-axis will have the frequency of occurence.

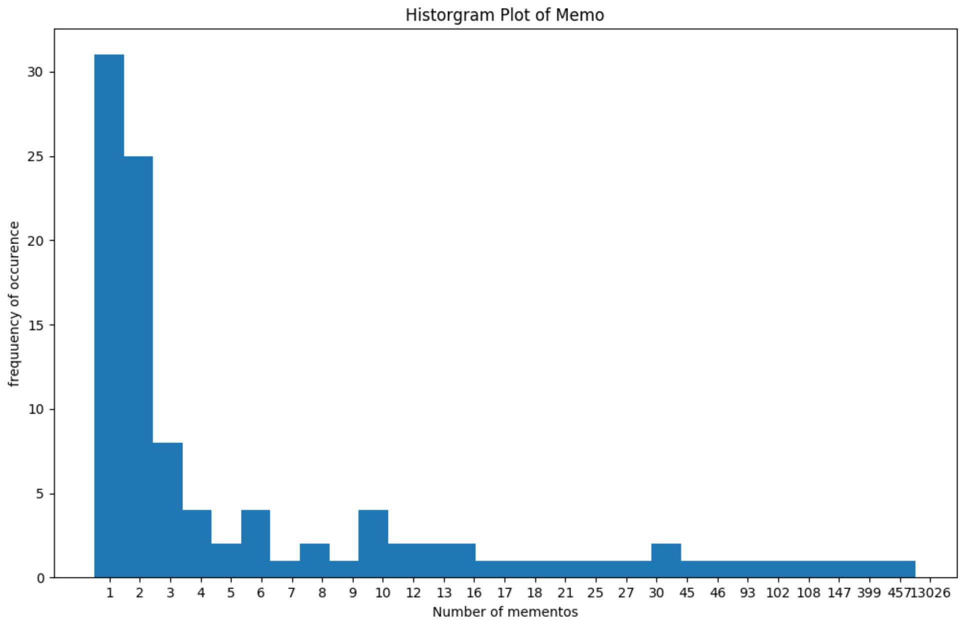
* = https://en.wikipedia.org/wiki/Histogram

What's a TimeMap?
See: http://www.mementoweb.org/guide/quick-intro/
And the week 4 lecture.

2.2 Answer 2

I created a program to add the required text to the urls in a program called 07_memto.py. After that I created another program to get the information and parse it called 09_json.py. Finally using the information I created program 10_memhist.py to create the below graph.
Of the 498 urls only 246 had mementos.

All that were produced my the mementos can be seen in the data directory.



3 Problem 3

3.1 Question 3

3. Estimate the age of each of the 1000 URIs using the ”Carbon Date” tool:

http://ws-dl.blogspot.com/2017/09/2017-09-19-carbon-dating-web-version-40.html

Note: you should use ”docker” and install it locally. You can do it like this:

http://cd.cs.odu.edu/cd?url=http://www.cs.odu.edu/

But it will inevitably crash when everyone tries to use it at the last minute.

For URIs that have ¿ 0 Mementos and an estimated creation date, create a graph with age (in days) on the x-axis and number of mementos on the y-axis.

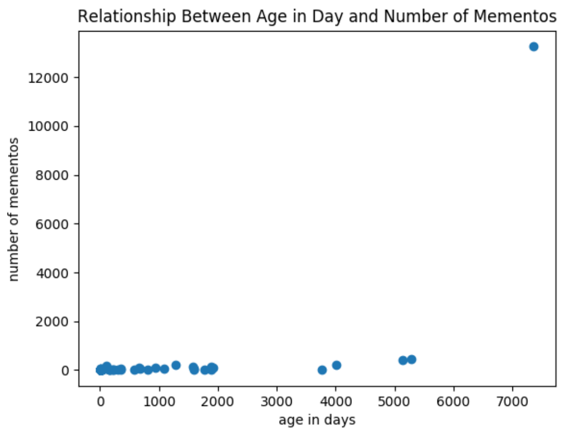
Not all URIs will have Mementos, and not all URIs will have an estimated creation date. Show how many fall into either categories. For example,

total URIs: 1000
no mementos: 137
no date estimate: 212

3.2 Answer 3

Below was the number of links that were submitted to the mementos and carbon date websites.

Total URIs: 498
No mementos: 246
No Date Estimate: 0


Relationship Between Age in Day and Number of Mementos
number of mementos
age in days