1 Problem 1:

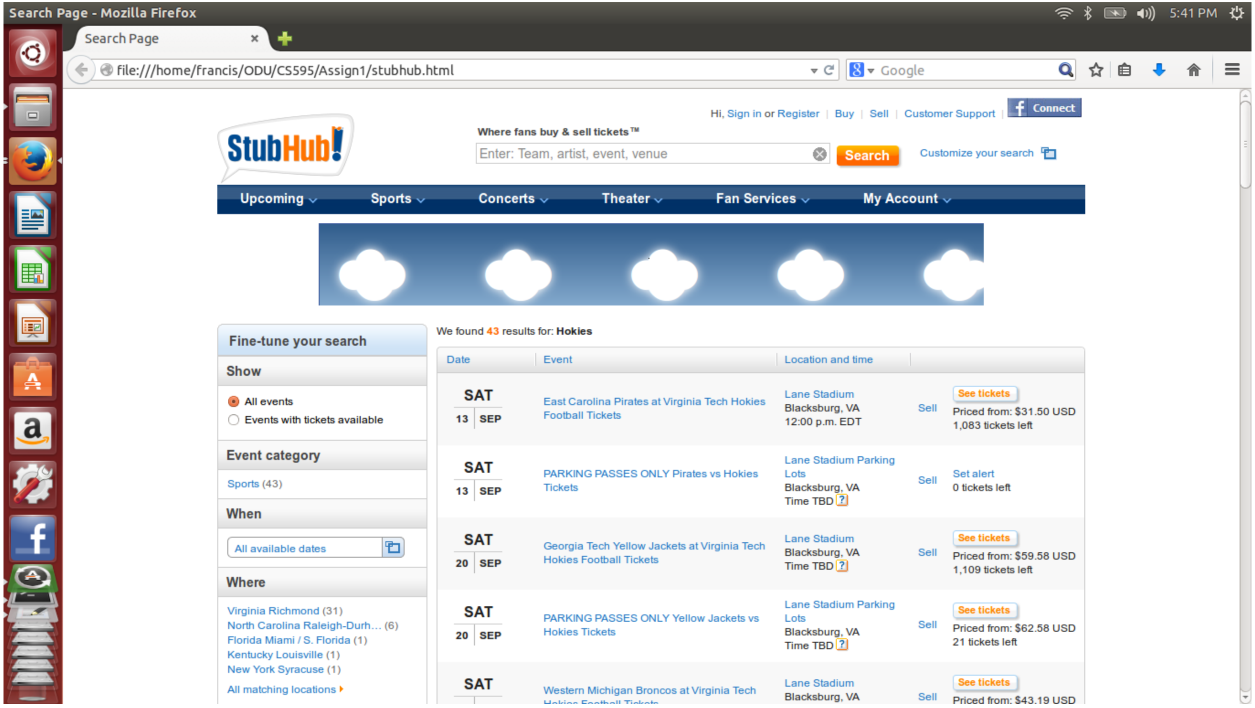
Demonstrate that you know how to use "curl" well enough to correctly POST data to a form. Show that the HTML response that is returned is "correct". That is, the server should take the arguments you POSTed and build a response accordingly. Save the HTML response to a file and then view that file in a browser and take a screen shot.

Below is the Bash code used to POST data to www.stubhub.com to find an event matching "Hokies". -A is used to declare the UserAgent as Firefox. -F is for field to be posted. -v is for more output. -o is used to make the output file to save the response.html

Listing 1: Curl

```
curl -A "Firefox" -vF "searchStr=Hokies" "http://www.stubhub.com/search/
    doSearch" -o stubhub.html
```

Below is the images of the output "stubhub.html"


Search Page - Mozilla Firefox
5:41 PM
Search Page
file:///home/francis/ODU/CS595/Assign1/stubhub.html
Google
Hi, Sign in or Register | Buy | Sell | Customer Support
Connect
StubHub!
Where fans buy & sell tickets™
Enter: Team, artist, event, venue
Search
Customize your search
Upcoming
Sports
Concerts
Theater
Fan Services
My Account

Fine-tune your search

Show

● All events
○ Events with tickets available

Event category

Sports (43)

When

All available dates

Where

Virginia Richmond (31)
North Carolina Raleigh-Durh… (6)
Florida Miami / S. Florida (1)
Kentucky Louisville (1)
New York Syracuse (1)
All matching locations

We found 43 results for: Hokies

Date	Event	Location and time		
SAT 13 SEP	East Carolina Pirates at Virginia Tech Hokies Football Tickets	Lane Stadium Blacksburg, VA 12:00 p.m. EDT	Sell	See tickets Priced from: $31.50 USD 1,083 tickets left
SAT 13 SEP	PARKING PASSES ONLY Pirates vs Hokies Tickets	Lane Stadium Parking Lots Blacksburg, VA Time TBD ?	Sell	Set alert 0 tickets left
SAT 20 SEP	Georgia Tech Yellow Jackets at Virginia Tech Hokies Football Tickets	Lane Stadium Blacksburg, VA Time TBD ?	Sell	See tickets Priced from: $59.58 USD 1,109 tickets left
SAT 20 SEP	PARKING PASSES ONLY Yellow Jackets vs Hokies Tickets	Lane Stadium Parking Lots Blacksburg, VA Time TBD ?	Sell	See tickets Priced from: $62.58 USD 21 tickets left
SAT	Western Michigan Broncos at Virginia Tech	Lane Stadium Blacksburg, VA	Sell	See tickets Priced from: $43.19 USD

2 Problem 2:

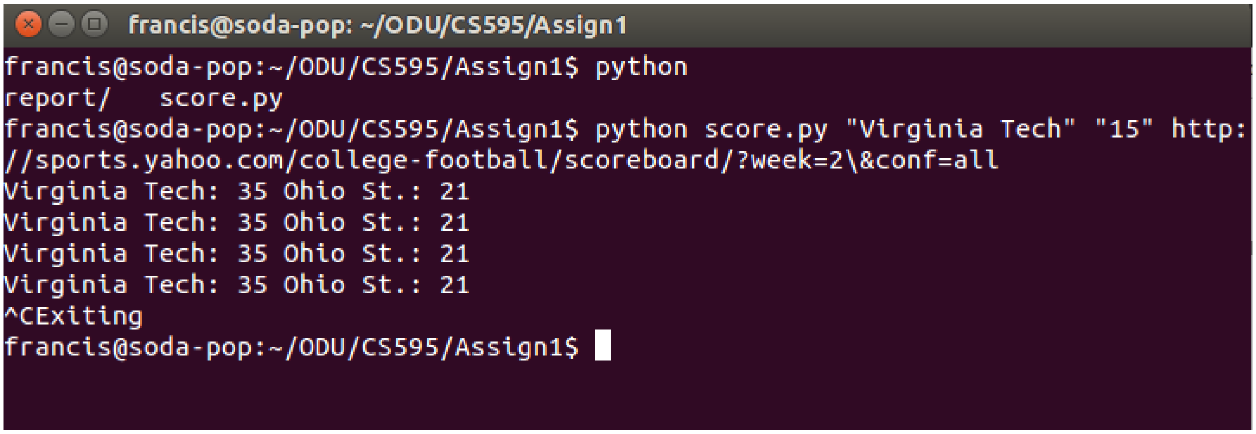
Write a Python program that:
1. takes one argument, like ”Old Dominion” or ”Virginia Tech”
2. takes another argument specified in seconds (e.g., ”60” for one minute). 3. takes a URI as a third argument:
http://sports.yahoo.com/college-football/scoreboard/
or
http://sports.yahoo.com/college-football/scoreboard/?week=2&conf=all
or
http://sports.yahoo.com/college-football/scoreboard/?week=1&conf=72
etc.
4. dereferences the URI, finds the game corresponding to the team argument, prints out the current score (e.g., ”Old Dominion 27, East Carolina 17), sleeps for the specified seconds, and then repeats (until control-C is hit).

Listing 2: score.py

```
# Score.py
# This program will go to any of the http://sports.yahoo.com/college-football/
    scoreboard/*
# It will take 3 arguments: "Team Name", "Time", "URI for sports.yahoo.com/
    college-football/scoreboard"
#
# ex: python score.py "Virginia Tech" "60" http://sports.yahoo.com/college-
    football/scoreboard
#
# Author: Francis W. Pruter
# CS595 - Web Science -Professor Nelson
#
# Learned most of python coding from: http://www.codecademy.com/en/tracks/
    python
# BeautifulSoup portion was adapted from the example provided in class by Hany
     SalahEldeen Khalil; email:hany@cs.odu.edu
# Used http://www.crummy.com/software/BeautifulSoup/bs4/doc/ to gain an
    understanding of the functions avail
# Everything else used google to find the correct syntax.


from bs4 import BeautifulSoup
import time
import urllib2
import sys

#three arguements from the commandline
team = sys.argv[1]
sleep = sys.argv[2]
URI = sys.argv[3]

homeTeam = ""
```

```
homeScore = 0
awayTeam = ""
awayScore = 0

#Continue until Ctrl+C
while 1:
  try:
    #openURI using urllib2 and format with beautifulsoup
    yahooFile = urllib2.urlopen(URI)
    yahooHTML = yahooFile.read()
    soup = BeautifulSoup(yahooHTML)
    #read in each line with the tag <td class="score">
    for score in soup.find_all("td", "score"):
        temp = str(score.h4)
        #search for the team in the <h4> tag until found
        if not team.lower().replace('␣', '-') in temp:
            continue
        else:
            #Gather names of both teams playing
            #go to the previous sibling and see if they are home or away
            #set the away/home Team
            if "away" in score.find_previous_sibling("td").get('class'):
                awayTeam = score.find_previous_sibling("td").em.get_text()
            else:
                homeTeam = score.find_previous_sibling("td").em.get_text()

            #go to the previous sibling and see if they are home or away
            #set the away/home Team after striping all the tags
            if "away" in score.find_next_sibling("td").get('class'):
                awayTeam = score.find_next_sibling("td").em.get_text()
            else:
                homeTeam = score.find_next_sibling("td").em.get_text()
            #Get the score
            s = score.find_all("span")
            if "away" in str(s[0]):
                awayScore = s[0].get_text()
            else:
                homeScore = s[0].get_text()
            if "home" in str(s[1]):
                homeScore = s[1].get_text()
            else:
                awayScore = s[1].get_text()

            #print output in format Away Team: Score, Home Team: Score
            print awayTeam + ":␣" + str(awayScore) + "␣" + homeTeam + ":␣" +
                str(homeScore)

    #sleep for timer
    time.sleep(float(sleep))
```

```
except KeyboardInterrupt: # catch CTRL+C and print close
  print "Exiting"
  yahooFile.close()
  break
except Exception, e: # catch all other errors and post them before closing
  print e
  yahooFile.close()
  break
```



```
francis@soda-pop:~/ODU/CS595/Assign1$ python
report/   score.py
francis@soda-pop:~/ODU/CS595/Assign1$ python score.py "Virginia Tech" "15" http:
//sports.yahoo.com/college-football/scoreboard/?week=2\&conf=all
Virginia Tech: 35 Ohio St.: 21
Virginia Tech: 35 Ohio St.: 21
Virginia Tech: 35 Ohio St.: 21
Virginia Tech: 35 Ohio St.: 21
^CExiting
francis@soda-pop:~/ODU/CS595/Assign1$
```

Figure 1: GO HOKIES!

3 Problem 3:

Consider the "bow-tie" graph in the Broder et al. paper (fig 9): http://www9.org/w9cdrom/160/160.html

Now consider the following graph:

A → B
B → C
C → D
C → A
C → G
E → F
G → C
G → H
I → H
I → J
I → K
J → D
L → D
M → A
M → N
N → D

For the above graph, give the values for:

Based the Figure 2:
IN: *M*
SCC: *A B C G*
OUT: *D H*
Tendrils: *J L I K*
Tubes: *N*
Disconnected: *E F*

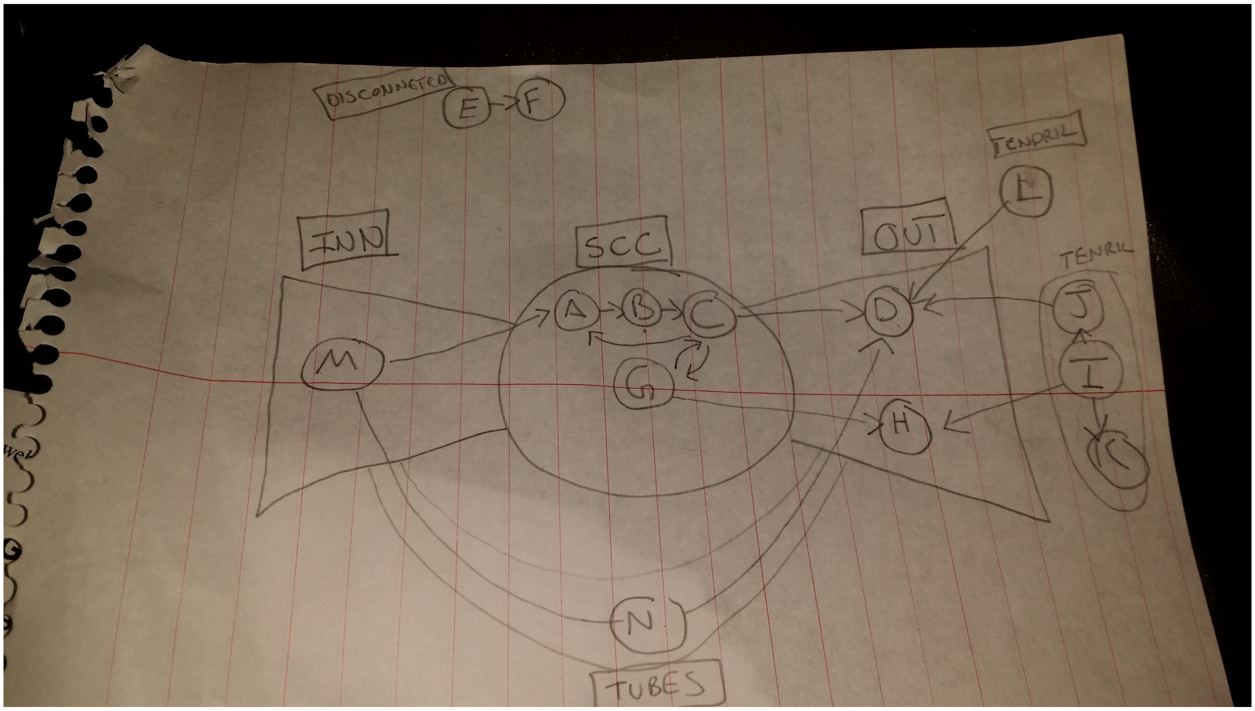


Figure 2: Graphical representation in Bow-Tie format