

ASSIGNMENT REPORT 1: PROCESS AND THREAD IMPLEMENTATION

CENG2034, OPERATING SYSTEMS

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Wednesday 6th May, 2020

1 Introduction

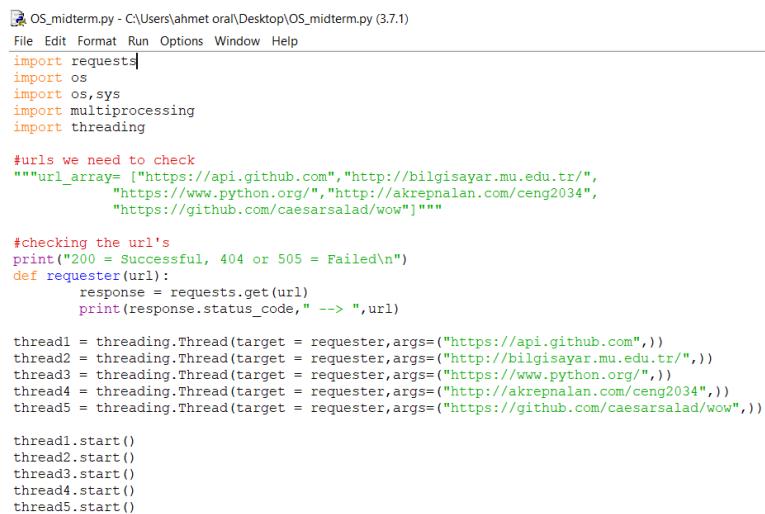
In this assignment I practice some basics about operating systems.I coded a python program to print required parameters and check url's.My goal is to learn and practice as much as I could,while coding required script.

2 Assignments

My objective was to write a script that; checks url's and prints PID,loadavg,cpu core count.Also program should close itself if loadavg value is near to the cpu core count.I stared by researching what I didn't know,then step by step I implemented what I needed to.

2.1 Assignment

I coded required values as shown in the photos below.



```
OS_midterm.py - C:\Users\ahmet oral\Desktop\OS_midterm.py (3.7.1)
File Edit Format Run Options Window Help
import requests
import os
import os,sys
import multiprocessing
import threading

#urls we need to check
"""url_array= ["https://api.github.com","http://bilgisayar.mu.edu.tr/",
             "https://www.python.org/","http://akrepnalan.com/ceng2034",
             "https://github.com/caesarsalad-wow"]"""

#checking the url's
print("200 = Successful, 404 or 505 = Failed\n")
def requester(url):
    response = requests.get(url)
    print(response.status_code, " --> ",url)

thread1 = threading.Thread(target = requester,args=(("https://api.github.com",)))
thread2 = threading.Thread(target = requester,args=(("http://bilgisayar.mu.edu.tr/")))
thread3 = threading.Thread(target = requester,args=(("https://www.python.org/")))
thread4 = threading.Thread(target = requester,args=(("http://akrepnalan.com/ceng2034",)))
thread5 = threading.Thread(target = requester,args=(("https://github.com/caesarsalad-wow",)))

thread1.start()
thread2.start()
thread3.start()
thread4.start()
thread5.start()
```

```

"""I put rest of the code in while loop because,if code works while threads are working too, output
screen becomes a mess.If want you can always delete while loop and code will keep working anyway."""
while(True):
    if(thread5.is_alive()):
        continue

    #printing PID
    print("\nPID value:",os.getpid())

    #printing nproc
    nproc=multiprocessing.cpu_count()
    print("\nNproc value:",nproc)

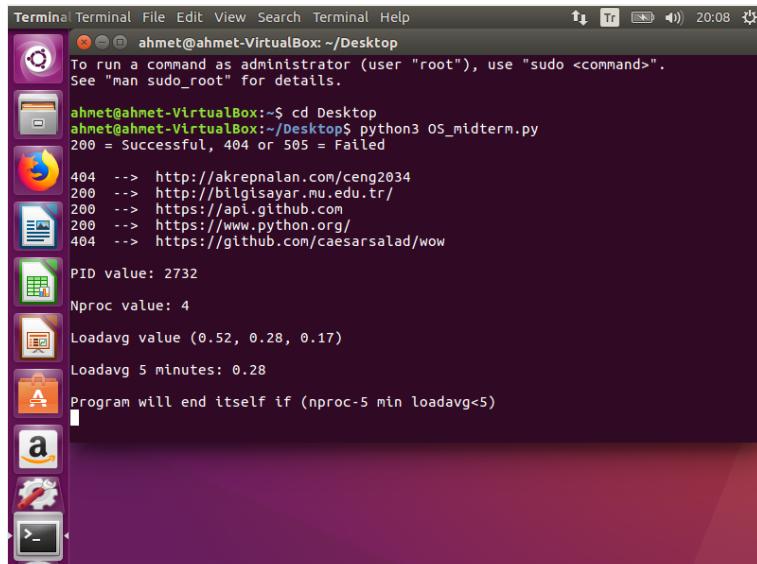
    #printing loadavg
    loadavg=os.getloadavg()
    print("\nLoadavg value",loadavg)

    #printing loadavg 5 minutes
    load1,load5,load15 = os.getloadavg()
    print("\nLoadavg 5 minutes:",load5)

    #condition of when to end program
    print("\nProgram will end itself if (nproc-5 min loadavg<5)")
    while(True):
        #print(load5) #if you want to see load5 value changing you can use this code.
        load1,load5,load15 = os.getloadavg()
        if((nproc-load5)<1):
            print("5minLoadAvg is too close to nproc...\\nProgram Terminated!")
            break
        break

```

3 Results



As shown in the photo, program checks url's and prints if it's working or not. Then program prints PID, load averages and nproc. After that we see there is a note that says "Program will end itself if: nproc - min loadavg < 1" and it keeps working. 5 minute loadavg is constantly changing and program will keep working unless those 2 values are close to each other. There is a comment in the second while loop saying #print(load5). I put this command to check if my code is working and how the load5 changes over time. If you decide to delete the # in that line you can see the 5 mi load avg value changing over and over (outputs per second becomes crazy tho :D).

4 Conclusion

Most important lesson I learned from this project is reading all of the assignment carefully. At first I didn't notice the "*Implement this with threads" at the end of part 4 :D , so I had to change my code. If I didn't realise that I would get less point or if project was complicated and hard maybe I wouldn't have enough time to chance it. Besides that the project was fun to do and because I used linux, I got chance practiced some of the things I forgot. Also now I know I can check url's and take some basic system information. All in all this assignment contributed new skills to me and I enjoyed doing it.