

FITZHUGH

CSIA 450 – 8372 CYBER SECURITY CAPSTONE

SPRING 2020

Project 2

## Objectives

- Learn Python and Git fundamentals through application to network security fundamentals.

## Problems

### A. PYTHON FUNDAMENTALS

It is essential for security professionals to learn Python 3.

There are many great online resources for learning computing and Python. Use the search engine of choice to find relevant materials. I think this course from code academy is succinct and well done:

<https://www.codecademy.com/learn/learn-python-3>. However, there are thousands (if not millions! :-)) of other Python resources available for learning, both free and paid.

Use `test_python.py` as an example if needed to ensure your Python distribution is installed correctly.

\*\*\*IMPORTANT\*\*\*(!)

NOTE: For this project, you will submit two files: a normal PDF for ALL of the answers below and a supporting .py source code file.

Use the template `re_robinson_project2.py` for your Python code submission.

\*\*\*\*

- Please use Python to complete the following.

For Problems 1-15 please refer to `FITZHUGH_PROJECT2.py`.

Use <https://docs.python.org/3/library/socket.html> and <https://docs.python.org/3/library/socketserver.html> If you need some background on Python sockets.

Use `TCPServer.py` and `TCPClient.py` as needed to complete the following. --- try running in linux

**12. Change the port number to 8500 and run `TCPServer.py` and `TCPClient.py`, sending a network message that contains your name.**

Encounter Attribute error in parrot.

```

[user@parrot]~$ python TCPServer.py
Traceback (most recent call last):
  File "TCPServer.py", line 24, in <module>
    with socketserver.TCPServer((HOST, PORT), MyTCPHandler) as server:
AttributeError: TCPServer instance has no attribute '__exit__'

[user@parrot]~$

[user@parrot]~$ python TCPClient.py
Traceback (most recent call last):
  File "TCPClient.py", line 8, in <module>
    with socket.socket(socket.AF_INET, socket.SOCK_STREAM) as sock:
AttributeError: __exit__

[user@parrot]~$

```

Use `email_start.py` as an example if needed.

16. Use the 'urllib' and 're' modules, ATTEMPT to extract the email address from my CBC staff directory page (<http://www.columbiabasin.edu/index.aspx?recordid=2956&page=45>). You MUST submit code showing your email regular expression and an example of it working.

I was not successful with attempting to extract Mr. Robinsons email address for his staff directory page.

I found code online, that uses the 're' module, along with 'requests' module to extract email addresses from a URL.

I first tested it with the given URL to see if the code works, and it does. It only pulls the email addresses from the URL, as seen in the screenshots below.

```

6  """
7  #code from https://ide.geeksforgeeks.org/
8
9  # library that handles the URL stuff
10 import requests
11
12 # Importing module required for
13 # regular expressions
14 import re
15
16 # Assign urlopen to a urllib object variable
17 fhand = requests.get('https://cdncontributor.geeksforgeeks.org/wp-content/uploads/e-mail-1.txt')
18
19 email_pat = re.compile(r"[A-Za-z0-9._%+-]+@[A-Za-z0-9.-]+\.[A-Za-z]{2,4}")
20
21 for line in fhand:
22     # Getting the text
23     # content line by line.
24     s = line.decode().strip()
25
26     # regex for extracting all email-ids
27     # from the text
28     reg = re.findall(email_pat, s)
29
30     # printing the list output
31     print(reg)

```

```

In [5]: runfile('F:/Spring Qtr 20/CSIA 450/Lib/
untitled5.py', wdir='F:/Spring Qtr 20/CSIA 450/Lib')
['review-team@geeksforgeeks.org',
'contribute@geeksforgeeks.org']
['careers@geeksforgeeks.org']

In [6]:

```



**23. Modify `PyNmap.py` so that `ndiff` will work and report TCP port "diffs" in the network.**

## **B. GIT FUNDAMENTALS**

It is essential for security professionals to have a **basic** understanding of Git as it is widely used

- Please use Git to complete the following.

**24. Follow the instructions to create a GitHub account at <https://github.com/> and create a public GitHub repository.**

I've created the public repository CBC-Code to post my python code to. The url is:  
<https://github.com/redeyesyami/CBC-Code>.

**25. Upload your `PyNmap.py` file to the GitHub repository to make your code public and accessible.**