TCP/IP for Programmers

Setup

Note: labs not tested on Windows. Will work on Mac and Ubuntu.

```
python3 -m pip install requests
```

Mac Address and REST API

Find the vendor of a device with its Mac Address using a REST API. We use the requests module to send a MAC Address to MacVendorLookup and then parse the response.

lab-mac.py

```
import requests

mac = 'a8:51:ab:98:8e:52'
try:
    response = requests.get(f'https://www.macvendorlookup.com/api/v2/
{mac}').json()
except:
    response = f'{mac} not found'

print(response)

print(f"Company: {response[0]['company']}")
```

Vendor Lookup from ARP Dump

This lab grabs all of the records from your ARP Table. We then pull out the MAC Addresses, and run all of them through the MacVendorLookup REST API.

lab-mac-arp.py

```
import os
import requests

response_arp = os.popen('arp -a').readlines()

print(response_arp)

mac_list = []
for line in response_arp:
    host = line.split(' ')
    for item in host:
        if ":" in item:
            mac_list.append(item)

print(mac_list)

for host in mac_list:
    try:
        response = requests.get(f'https://www.macvendorlookup.com/api/v2/
{host}').json()
        print(f'{host} - {response[0]['company']}')
    except:
        response = 'not found'
        print(f'{host} - {response}')
```

Ping Test

This lab pings the hosts in a list and prints the response to the screen.

lab-ping.py

```
import os

command = 'ping -c 1 '
host_list = ['192.168.1.1','cnn.com','fox.com']


for host in host_list:
    try:
        response = os.popen(f'{command} {host}').read()
    except:
        response = ('problem')

    print(f'{host}\n{response}')
```

Ping Loop with Latency

This lab creates a continuous loop that pings all hosts in a list. It will also print out the line with latency.

lab-ping-loop.py

```
import os
from time import sleep

command = 'ping -c 1 '
host_list = ['192.168.1.1','cnn.com','192.168.1.99','fox.com']
arg = '| grep time='

while True:
    os.system('clear')
    for host in host_list:
        try:
            response = os.popen(f'{command} {host} {arg}').read()
        except:
            response = ('problem')
        else:
            if response == '':
                response = 'no response\n'

        print(f'{host}\n{response}')

    sleep(10)
```