Python Scripting for CS – Lab 4

Port Scanner

# Purpose

In this lab, you will have the opportunity to practice modifying an existing script and setting up a port scanner on your machine.

## Skills

The purpose of this assignment is to help you practice the following skills that are essential to your success:

* Modify an existing script
* Use Visual Studio Code
* Use Kali Linux
* Use logic
* Utilize Python libraries and modules

## Knowledge

This assignment will also help you become familiar with the following important content knowledge in this discipline:

* Utilize the basic syntax, data types, and control structures of Python
* Apply Python scripting skills to cybersecurity tasks
* Write Python scripts in a virtual environment

# Instructions

Follow the instructions laid out in this lab. Your lab activities will begin with Task 1. Tasks will build on each other and should not be done out of order.

Answer the critical thinking questions as best you can.

# Formatting

|  |  |  |
| --- | --- | --- |
| Formatting | Explanation | Example |
| Definitions | Definitions are defined in bold | **Word:** This is the definition |
| Employability Skills | Employability skills are defined in green and associated with critical thinking questions | **Think Critically and Creatively** |
| Commands | Commands are written in Consolas and highlighted in yellow. Commands that are case sensitive will have an underline underneath the capitalized letter. | get-service |
| File names/paths, programs, & buttons | File names, programs, and buttons are written in Consolas and highlighted in gray. | C:\Tools\processes.txt |
| <dynamic content> | Content in <> should be replaced with what is required, removing the <> as well | \\<servername>\Home |
| Examples | Examples will be in Consolas and highlighted in blue | **skywalker.local** |
| Recall & Apply | Tasks that connect to previous course work will ask you to recall and apply learning from previous Learning Modules or classes | **Recall & Apply Learning from Network Essentials** |

# Criteria for Success

This assignment is worth 20 points. You will be graded on the script you created as part of this lab.

# Lab Environment

In this class, you will be using VMs set up in Cloud.

# Log into Cloud

1. Access NWTC cloud at <https://lab.nwtc.edu>
2. Login using your username and password assigned in Lab 1
3. Start your Kali Linux VM

# Task 1: Download and Run portscanner.py

1. On your Kali VM, navigate to <https://github.com/RachelGehrke/PythonCS>
2. Go to LM05
3. Download portscanner.py and save it in your pythoncs/vepython3 folder
4. Open portscanner.py in VS Code
5. Open a terminal window
6. **Recall & Apply Learning from Lab 0** & **Think Critically and Creatively:** Activate your virtual environment
   1. This *must* be done prior to installing any packages or running our script
7. From your terminal and in your activated environment, run the following command:
   1. python portscanner.py
   2. HINT: Make sure your terminal window is pointing to your pythoncs/vepython3 folder. You may have to modify the above command depending on the current working directory of your terminal
8. **Think Critically and Creatively:** In your own words, describe what this script is doing.

# Task 2: Modifying portscanner.py

1. Save a copy of the portscanner.py as portscannerv2.py
2. Open portscannerv2.py in VS Code if you are not already in VS Code.
3. Our goal is to modify our port scanner script to do the following:
   1. Read a file of IP addresses
      1. 127.0.0.1
      2. 10.240.89.102
   2. Scan a given range of ports for each IP address
      1. Your choice! I used 49665-49667
   3. Create a report for each IP address with open and closed ports
4. **Think Critically and Creatively:** What modules would you need to import?
5. Turn in your .py file and your keylog.txt file to the dropbox on Canvas for up to 20 points.