CYBR 493A Introduction

Chapter 3: Ping in Python
text: chapter 3 of Python for Cybersecurity

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TOPICS

- Importing modules in Python
- Creating scripts to ping devices in a network
- Pause: Installing git on Ubuntu
- Python Conditionals
- Extending our script to work on multiple Operating Systems
- Python Loops
- Using loops to ping multiple hosts
- Python Functions
- Ping function

Introduction

- We can import pre-defined modules, libraries, and packages in python.
- Programmer and developers do not write everything they need from scratch
- They import codes that were developed by others.
- Then, we can simply use the capabilities of these modules.

Importing modules into Python

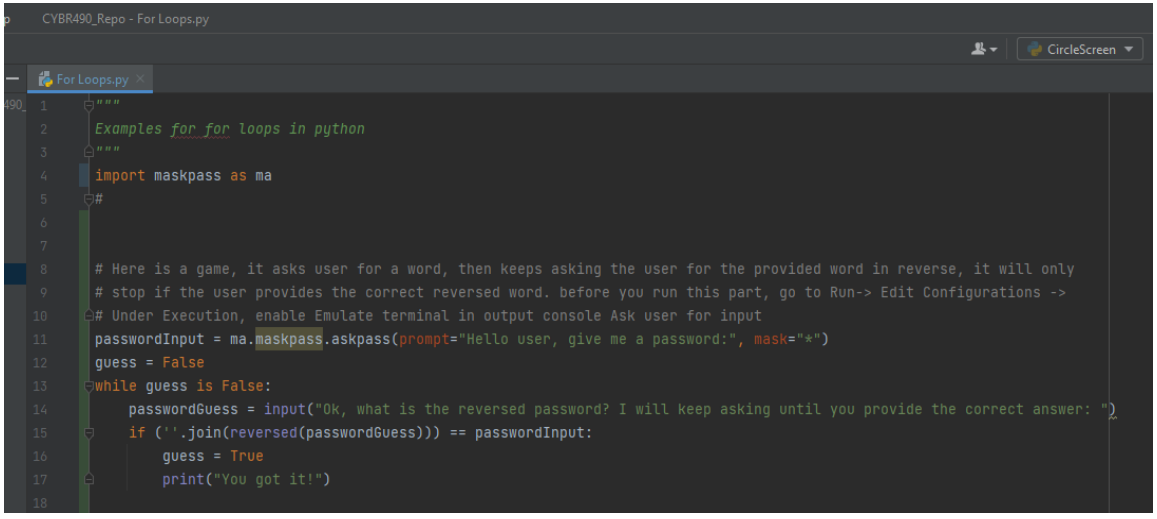
- Before we can import any modules, we need to make sure they are installed/ available in our miniconda environment.
- Navigate to your miniconda prompt and activate the environment you are wish to use. Make sure you run as administrator
- Then install the module (e.g., maskpass) type this command:

>> pip install [module name]

Importing modules into Python

- After installing the module, you may import it from your pycharm using the command:
  - Import [package name].
  - If you see redline under the module name, this means one of two things:
    - You have not installed the module
    - You have installed it in a different miniconda environment.

Importing modules into Python



- An optional parameter is to assign a name to the module.
- See the two screenshot.
- On the top screenshot, we imported maskpass and were able to use it by its name directly in line 11.
- On the bottom screenshot, we gave maskpass a name (ma). And we can use the maskpass built-in function by using the name ma, instead of the name of the whole module.

Pinging devices in a network

- As with all things related to computers, there are several ways to perform the same task. One example is the process of pinging an address.
- Ping is a method of sending a message to a remote computer, and then having them respond back.
- This is useful for security and network engineers to find out which resources are online

Note before we start

- Remember that we may run python codes from several places:
  1. PyCharm: write your entire code and run all of it at once
  2. Jupyter Notebook: write each functionality of your code and then run it.
  3. Python interactive mode: similar to Jupyter, but without the ability to save.
     - Activate miniconda environment, then type python and hit enter. You are now in the Python interactive mode.

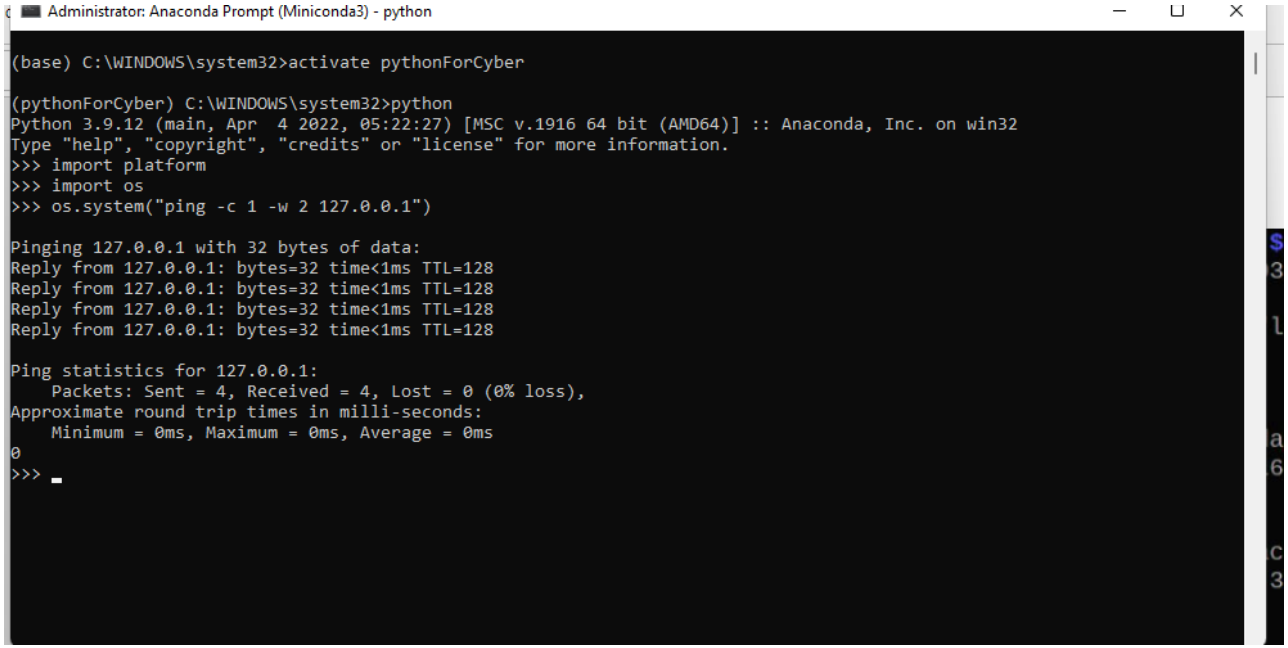
Pinging in Python

- Lets us first try the command by pinging the default loopback address 127.0.0.1.
- Syntax:

```
os.system ("ping [options] [ip address])
```

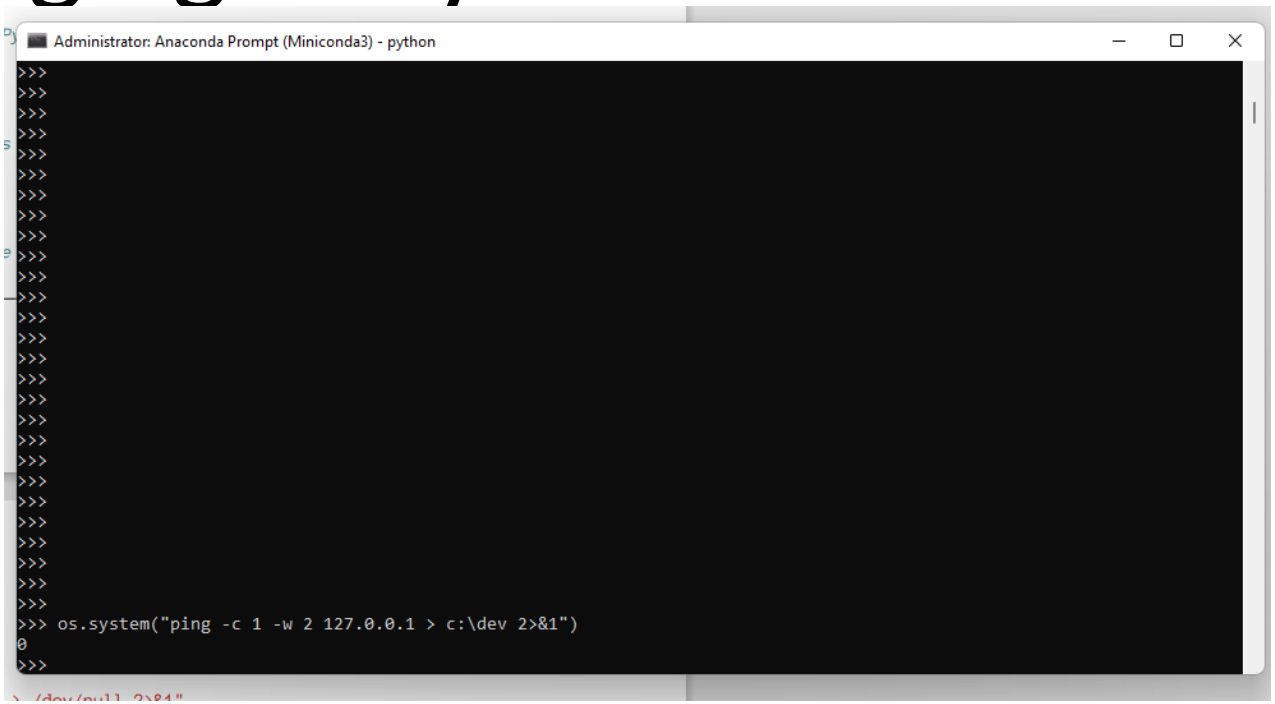
- You will need to import platform and os

Pinging in Python



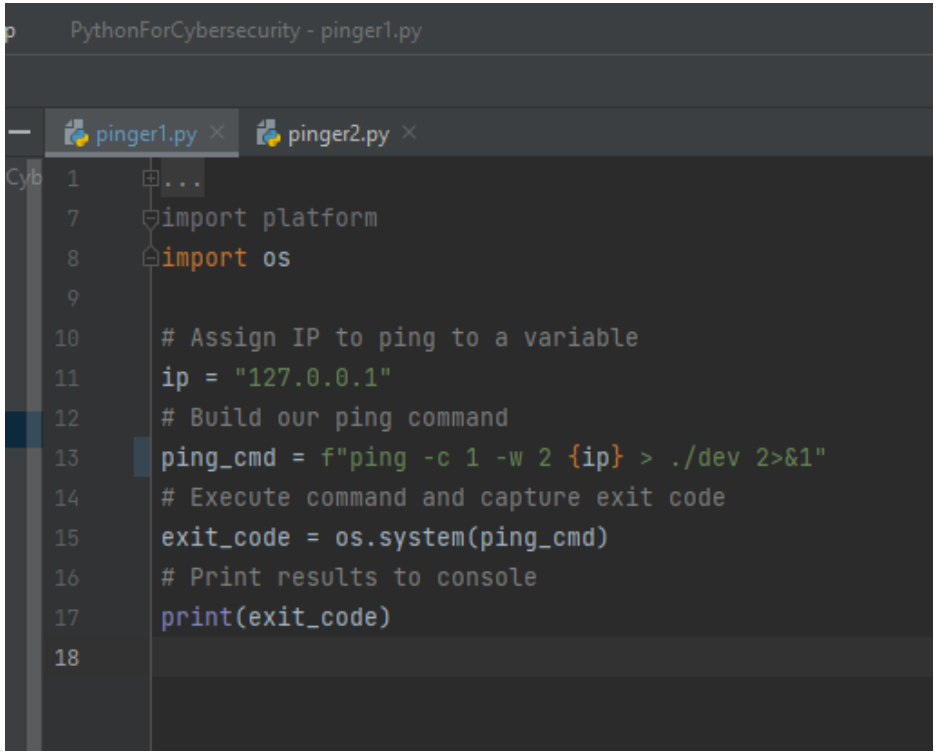
- The number 0, the exit code, at the end shows the command is successfully executed, otherwise it will be something else.
- The first option (-c) allows us to specify the number of packets, or attempts, to send to the target.
- The second option (-w) allows us to specify how long we should wait for a response.

Pinging in Python



- We can modify ping to a binary response (failure or success)
- Add > location followed by c:\dev and 2>&1

First Ping



- Notice what happens after you run this code.

Let us retake a look at Linux

- Download and install Oracle Virtual Box
- Download a copy of Kali Linux
- Add Ubuntu (or Kali) Virtual Machine:
  - https://ubuntu.com/tutorials/how-to-run-ubuntu-desktop-on-a-virtual-machine-using-virtualbox#1-overview
  - https://www.youtube.com/watch?v=x5MhydijWmc

Designate a folder for repositories

- Let us create a new folder, in the terminal type:
- `>> mkdir [git_repos]`
- Then, cd to your repo.

Clone repo in Linux

- In the terminal, type:

```
>> git clone [url from github.com]
```

- View all files in repo:

```
>> ls
```

- OR

```
>> ls -l
```

Run Python Files

- In the miniconda environment, run:

```
>> python [python file name.py]
```