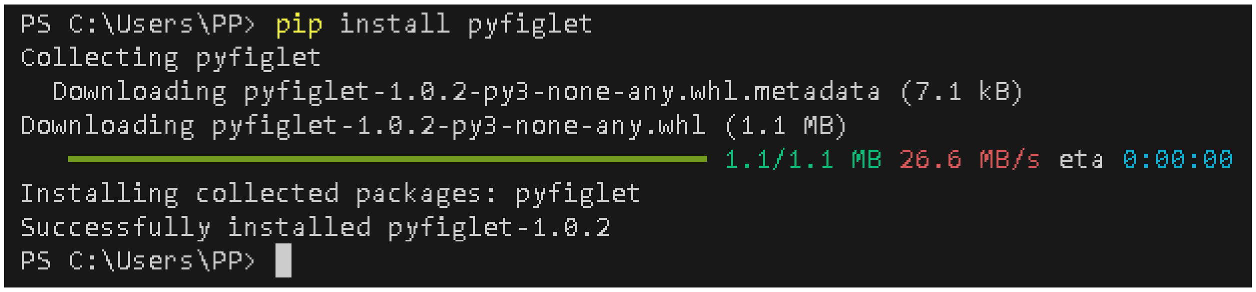
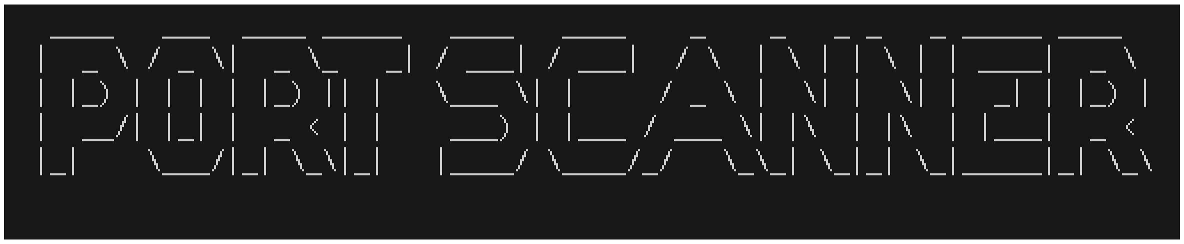
1. (Optional) I installed **pyfiglet** to create this “Port Scanner” banner when the code is run.



```
PS C:\Users\PP> pip install pyfiglet
Collecting pyfiglet
  Downloading pyfiglet-1.0.2-py3-none-any.whl.metadata (7.1 kB)
Downloading pyfiglet-1.0.2-py3-none-any.whl (1.1 MB)
   ━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 1.1/1.1 MB 26.6 MB/s eta 0:00:00
Installing collected packages: pyfiglet
Successfully installed pyfiglet-1.0.2
PS C:\Users\PP> 
```



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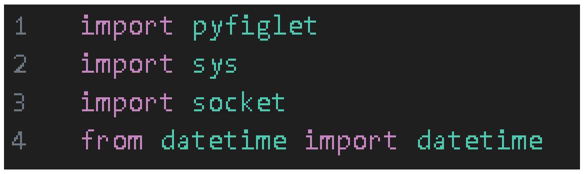
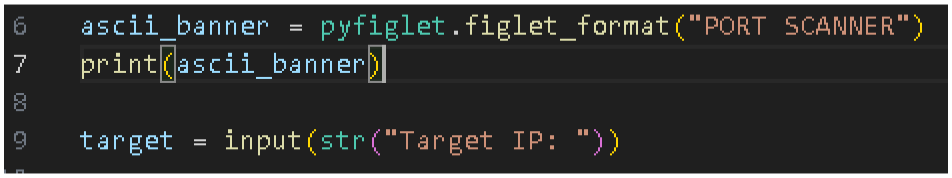
2. Next, I import my modules. **Pyfiglet** is for the banner, **Sys** is used for handling exceptions, and **socket** is an endpoint for sending and receiving data across a network. **Datetime** will help the banner print the date and time on top.



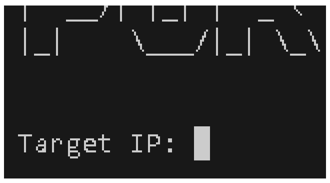
```python
import pyfiglet
import sys
import socket
from datetime import datetime
```

3. I created a variable called **“acsii_banner”** and use **pyfiglet** to create the “PORT SCANNER” banner, and print it on top. I also define the **“target”** variable as an input for the user to type in their target IP address.



```python
ascii_banner = pyfiglet.figlet_format("PORT SCANNER")
print(ascii_banner)

target = input(str("Target IP: "))
```



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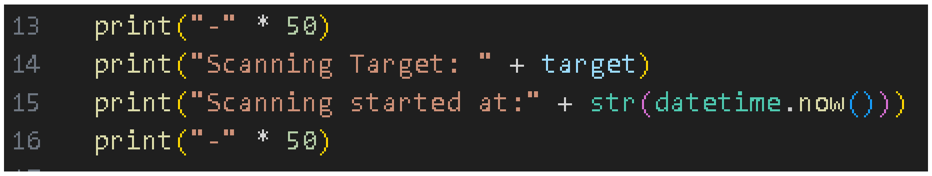
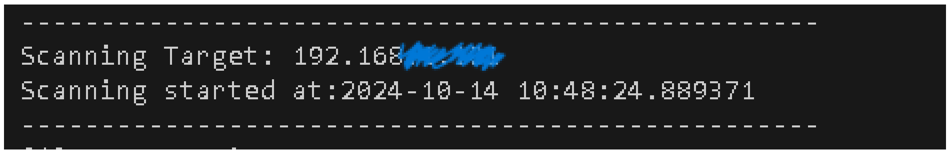
Target IP: 
```

4. Next I start creating a banner stating which target is being scanned and the date and time of the scan. I use **print("_" * 50)** to make lines on the banner for visual purposes.

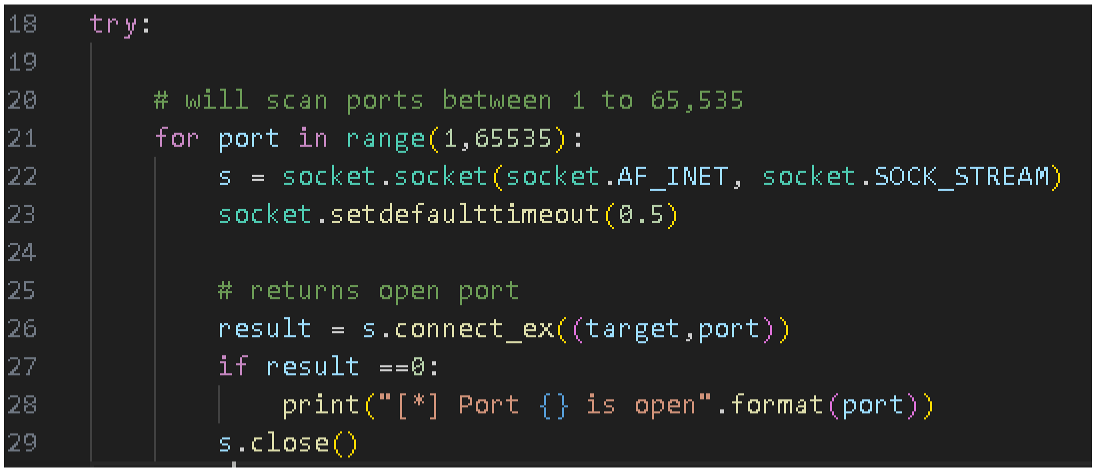


```python
print("-" * 50)
print("Scanning Target: " + target)
print("Scanning started at:" + str(datetime.now()))
print("-" * 50)
```



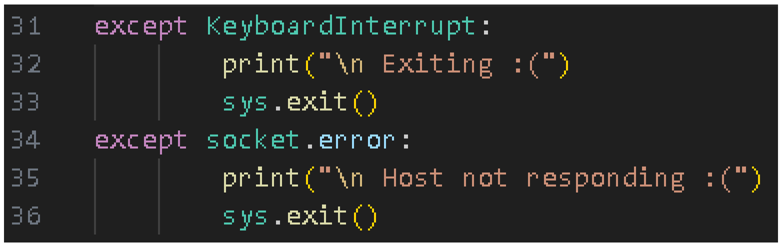
```
--------------------------------------------------
Scanning Target: 192.168[redacted]
Scanning started at:2024-10-14 10:48:24.889371
--------------------------------------------------
```

5. I created the script for detecting all open ports on the server. I use a **for** loop to scan for ports in range from 1 to 65,535 (all ports). Variable **S** is used to create the socket, and **socket.setdefaulttimeout** is how much time it takes before skipping a port and moving on to the next one. Then, the variable **result** is created, which equals the socket (target,port). If **result** of that socket is equal to 0, which means successful connection, it will print a string clarifying the port is open. It will then close the socket and move on to the next port.



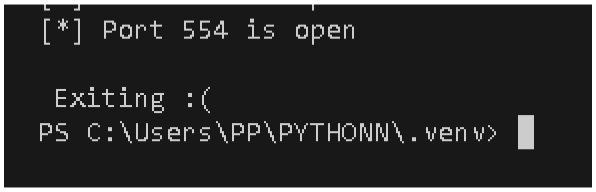
```python
try:

    # will scan ports between 1 to 65,535
    for port in range(1,65535):
        s = socket.socket(socket.AF_INET, socket.SOCK_STREAM)
        socket.setdefaulttimeout(0.5)

        # returns open port
        result = s.connect_ex((target,port))
        if result ==0:
            print("[*] Port {} is open".format(port))
        s.close()
```

6. Finally,I use **KeyboardInterrupt** to grant the ability to use keyboard controls like "CTRL-C" to have it print " **Exiting :(** " and close the application. I am also catching socket errors with **socket.error**, basically any error that the socket library comes across.



```python
    except KeyboardInterrupt:
            print("\n Exiting :(")
            sys.exit()
    except socket.error:
            print("\n Host not responding :(")
            sys.exit()
```

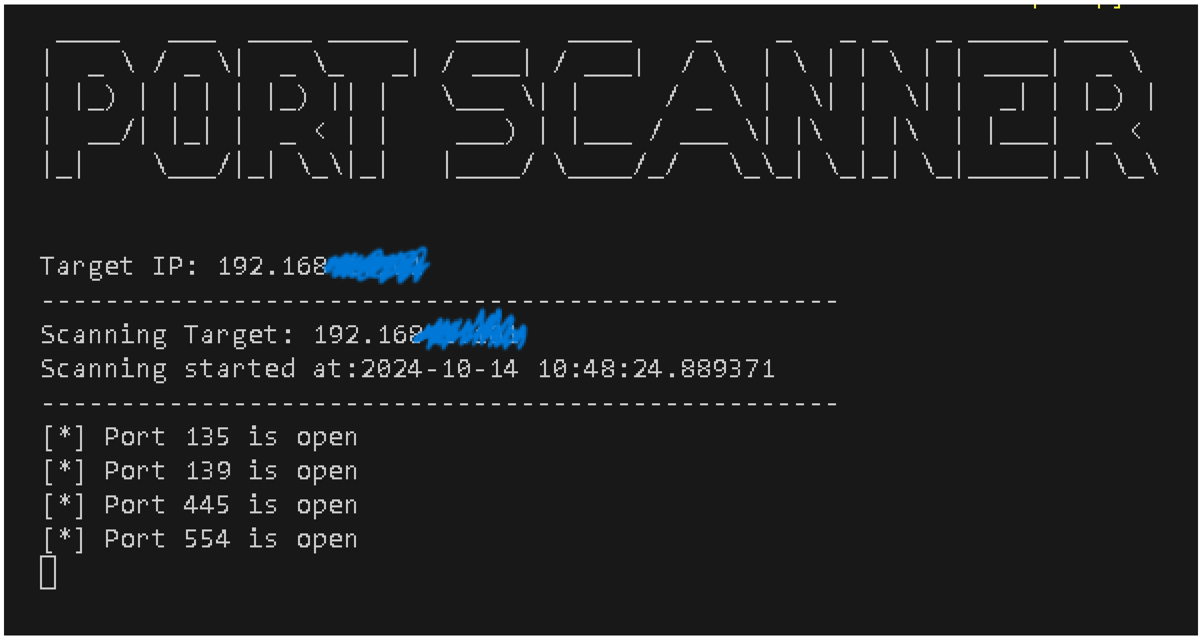
Closing scanner with “**CTRL-C**”



```
[*] Port 554 is open

 Exiting :(
PS C:\Users\PP\PYTHONN\.venv>
```

7. This is the running code.



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Target IP: 192.168[redacted]
--------------------------------------------------
Scanning Target: 192.168[redacted]
Scanning started at:2024-10-14 10:48:24.889371
--------------------------------------------------
[*] Port 135 is open
[*] Port 139 is open
[*] Port 445 is open
[*] Port 554 is open
```