PYTHON PROJECT
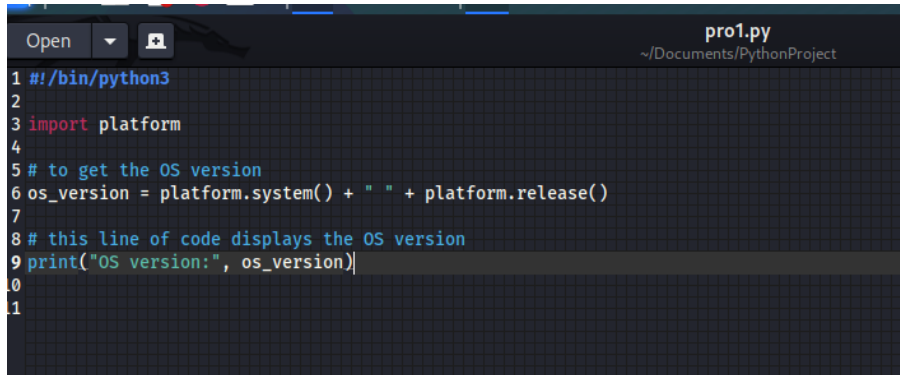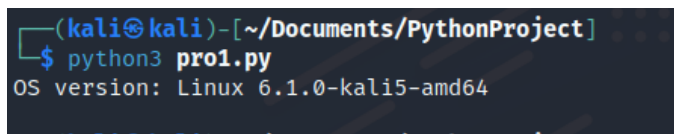
1. Display the OS version – if Windows, display the Windows details; if executed on Linux, display the Linux details

Script:
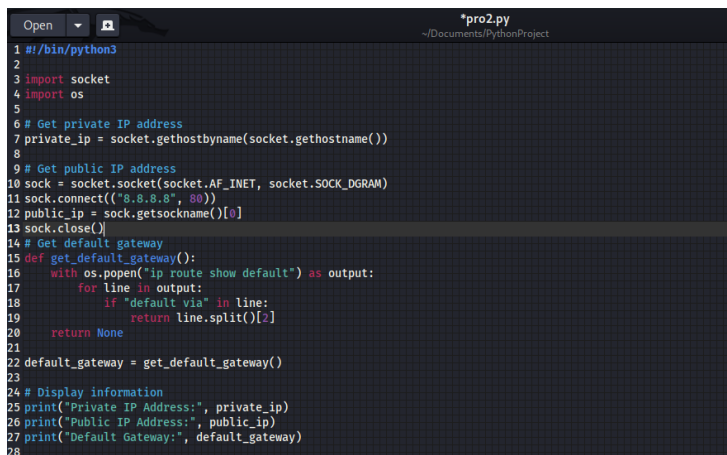
Result:
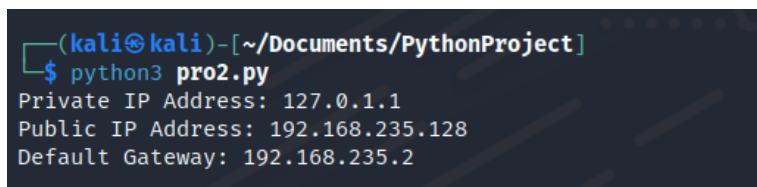
2. Display the private IP address, public IP address, and the default gateway

Script:

3. Display the hard disk size; free and used space

Script:

```
pro3.py
~/Documents/PythonProject

1 #!/bin/python3
2
3 import psutil
4
5 # To get the disk usage statistics
6 disk_usage = psutil.disk_usage('/')
7
8 # Display disk size, free space, and used space
9 print("Total Disk Size: {:.2f} GB".format(disk_usage.total / (1024**3)))
10 print("Free Disk Space: {:.2f} GB".format(disk_usage.free / (1024**3)))
11 print("Used Disk Space: {:.2f} GB".format(disk_usage.used / (1024**3)))
12
```

Result:

```
┌──(kali㉿kali)-[~/Documents/PythonProject]
└─$ python3 pro3.py
Total Disk Size: 77.25 GB
Free Disk Space: 54.11 GB
Used Disk Space: 19.17 GB
```

4. Display the top five (5) directories and their size.

Script:

```
pro4.py
~/Documents/PythonProject

1 #!/bin/python3
2
3 import subprocess
4 import glob
5
6 directories = glob.glob('/home/kali/*/')
7 du_output = ""
8
9 for directory in directories:
10     output = subprocess.check_output(['du', '-sh', directory], universal_newlines=True)
11     du_output += output
12
13 lines = du_output.strip().split('\n')
14 sorted_lines = sorted(lines, key=lambda x: float(x.split()[0][:-1]), reverse=True)
15
16 print("Top 5 directories in /home/kali:")
17 for line in sorted_lines[:5]:
18     size, directory = line.split('\t')
19     print(f"{directory}\t{size}")
20
```

```
┌──(kali㉿kali)-[~/Documents/PythonProject]
└─$ python3 pro4.py
Top 5 directories in /home/kali:
/home/kali/Pictures/    804K
/home/kali/Documents/   514M
/home/kali/Public/      4.0K
/home/kali/Desktop/     4.0K
/home/kali/Downloads/   4.0K
```

5. Display the CPU usage; refresh every 10 seconds.

Script:

```python
1 #!/bin/python3
2
3 import psutil
4 import time
5
6 while True:
7     cpu_percent = psutil.cpu_percent(interval=None)
8     print(f"CPU usage: {cpu_percent}%")
9     time.sleep(10)
10
```

Result:

```
┌──(kali㊐kali)-[~/Documents/PythonProject]
└─$ python3 pro5.py
CPU usage: 0.0%
CPU usage: 5.2%
CPU usage: 4.9%
```

COMBINATION OF ALL 5 SCRIPTS

Script:

```python
#!/bin/python3

import platform
import socket
import os
import psutil
import subprocess
import glob
import time

# Script 1
print("Script 1 - OS Version")
print("====================")
time.sleep(2)
os_version = platform.system() + " " + platform.release()
print("OS version:", os_version)
print("\n")

# Script 2
print("Script 2 - IP Addresses")
print("====================")
time.sleep(2)
private_ip = socket.gethostbyname(socket.gethostname())
sock = socket.socket(socket.AF_INET, socket.SOCK_DGRAM)
sock.connect(("8.8.8.8", 80))
public_ip = sock.getsockname()[0]
sock.close()
def get_default_gateway():
```

```python
    with os.popen("ip route show default") as output:
        for line in output:
            if "default via" in line:
                return line.split()[2]
    return None
default_gateway = get_default_gateway()
print("Private IP Address:", private_ip)
print("Public IP Address:", public_ip)
print("Default Gateway:", default_gateway)
print("\n")

# Script 3
print("Script 3 - Disk Usage")
print("====================")
time.sleep(2)
disk_usage = psutil.disk_usage('/')
print("Total Disk Size: {:.2f} GB".format(disk_usage.total / (1024**3)))
print("Free Disk Space: {:.2f} GB".format(disk_usage.free / (1024**3)))
print("Used Disk Space: {:.2f} GB".format(disk_usage.used / (1024**3)))
print("\n")

# Script 4
print("Script 4 - Top Directories")
print("====================")
time.sleep(2)
directories = glob.glob('/home/kali/*/')
du_output = ""
for directory in directories:
```

```python
    output = subprocess.check_output(['du', '-sh', directory], universal_newlines=True)
    du_output += output
lines = du_output.strip().split('\n')
sorted_lines = sorted(lines, key=lambda x: float(x.split()[0][:-1]), reverse=True)
print("Top 5 directories in /home/kali:")
for line in sorted_lines[:5]:
    size, directory = line.split('\t')
    print(f"{directory}\t{size}")
print("\n")

# Script 5
print("Script 5 - CPU Usage")
print("====================")
time.sleep(2)
while True:
    cpu_percent = psutil.cpu_percent(interval=None)
    print(f"CPU usage: {cpu_percent}%")
    time.sleep(10)
    print("\n")
```

Result:


```
kali@kali: ~/Documents/PythonProject

File   Actions   Edit   View   Help

┌──(kali㉿kali)-[~/Documents/PythonProject]
└─$ python3 pro7.py
Script 1 - OS Version
========================

OS version: Linux 6.1.0-kali5-amd64


Script 2 - IP Addresses
========================

Private IP Address: 127.0.1.1
Public IP Address: 192.168.235.128
Default Gateway: 192.168.235.2


Script 3 - Disk Usage
========================

Total Disk Size: 77.25 GB
Free Disk Space: 54.11 GB
Used Disk Space: 19.17 GB


Script 4 - Top Directories
========================

Top 5 directories in /home/kali:
/home/kali/Pictures/    804K
/home/kali/Documents/   514M
/home/kali/Public/      4.0K
/home/kali/Desktop/     4.0K
/home/kali/Downloads/   4.0K


Script 5 - CPU Usage
========================

CPU usage: 6.8%


CPU usage: 6.0%
```