

Code:-

```
import socket
from scapy.all import sr1, IP, ICMP
import ipaddress

def is_host_live(host):
    """
    Check if a host is live by sending an ICMP ping request.
    """
    try:
        packet = IP(dst=host)/ICMP()
        response = sr1(packet, timeout=2, verbose=False)
        if response:
            return True
        else:
            return False
    except Exception as e:
        print(f"An error occurred: {e}")
        return False
```

```
def scan_ports(host, ports):
    """
    Scan a list of ports on a given host to determine if they are open or closed.
    """
    open_ports = []
    closed_ports = []
```

```
    for port in ports:
        sock = socket.socket(socket.AF_INET, socket.SOCK_STREAM)
        sock.settimeout(1) # 1 second timeout
        result = sock.connect_ex((host, port))
        if result == 0:
            open_ports.append(port)
        else:
            closed_ports.append(port)
        sock.close()
```

```
    return open_ports, closed_ports
```

```
if __name__ == "__main__":
    start_ip = input("Enter the starting IP address: ")
    end_ip = input("Enter the ending IP address: ")
    ports = input("Enter the ports to scan (comma-separated): ")
    ports = [int(port.strip()) for port in ports.split(',')]

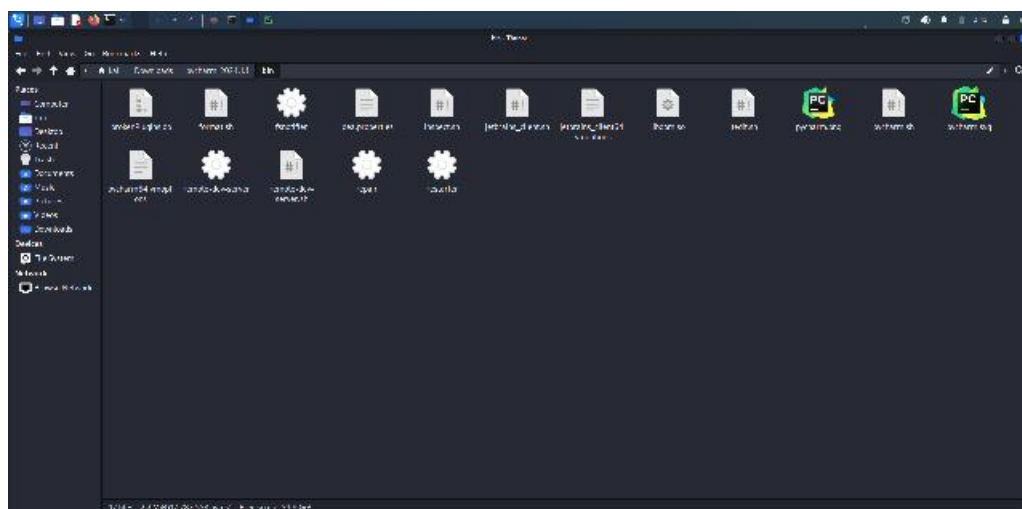
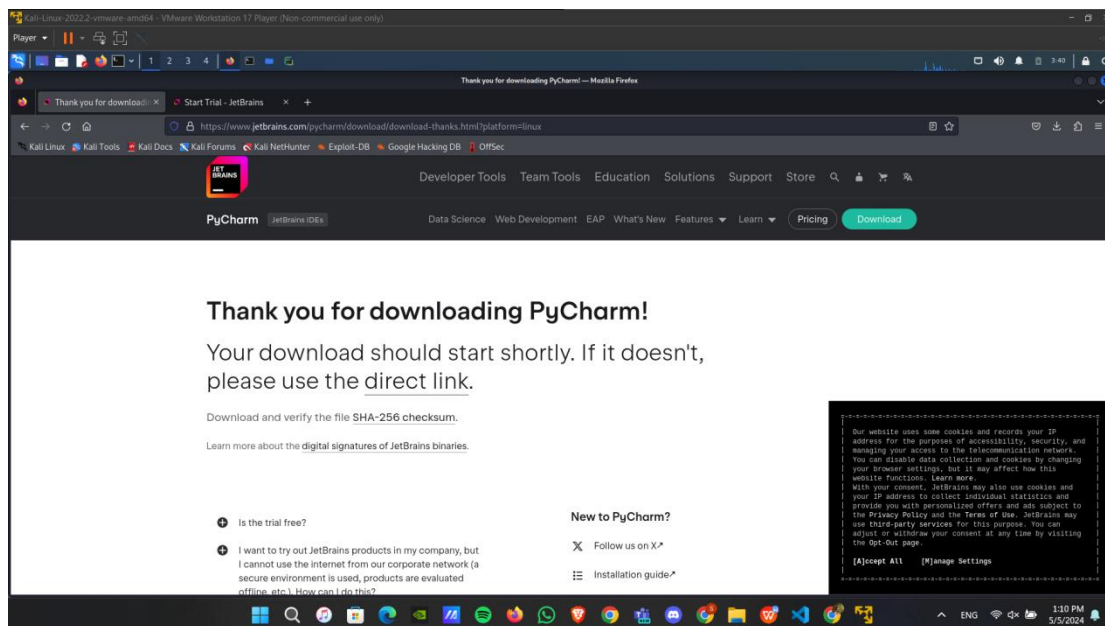

```

```
    try:
        start_ip = ipaddress.ip_address(start_ip)
        end_ip = ipaddress.ip_address(end_ip)
    except ValueError as e:
        print(f"Invalid IP address: {e}")
        exit(1)
```

```
    for ip in ipaddress.summarize_address_range(start_ip, end_ip):
        for host in ip:
            print(f"Scanning {host}...")
            if is_host_live(str(host)):
                print(f"{host} is live.")
                open_ports, closed_ports = scan_ports(str(host), ports)
                print(f"Open ports: {open_ports}")
```

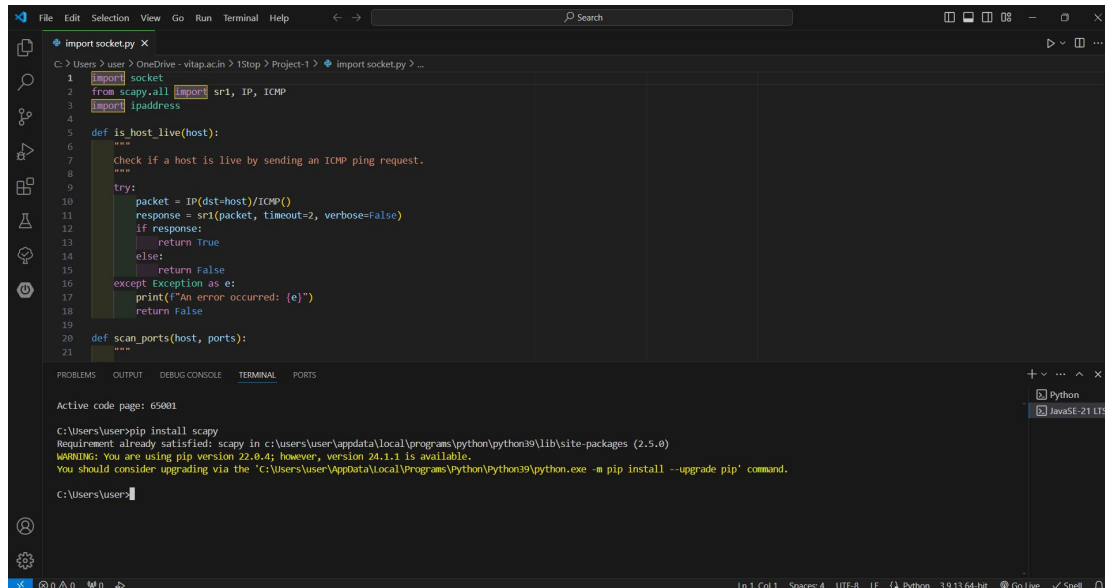
```
print(f"Closed ports: {closed_ports}")
else:
    print(f"{host} is not live.")
```

Setting up the Environment linux is used in vm ware



Setting up the environment required in vs code:-

pip install scapy



The screenshot shows the Visual Studio Code interface. The editor window displays a Python script named `import socket.py`. The script includes imports for `socket`, `sr1`, `IP`, `ICMP`, and `ipaddress` from `scapy.all`. It defines two functions: `is_host_live(host)` and `scan_ports(host, ports)`. The `is_host_live` function sends an ICMP ping request to a host and returns a boolean value. The `scan_ports` function is partially visible. The terminal window at the bottom shows the command `pip install scapy` being executed. The output indicates that the requirement is already satisfied, as `scapy` is installed in the current environment. A warning message suggests upgrading `pip` from version 22.0.4 to 24.1.1.

```
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from scapy.all import sr1, IP, ICMP
import ipaddress

def is_host_live(host):
    """
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    try:
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            return True
        else:
            return False
    except Exception as e:
        print(f"An error occurred: {e}")
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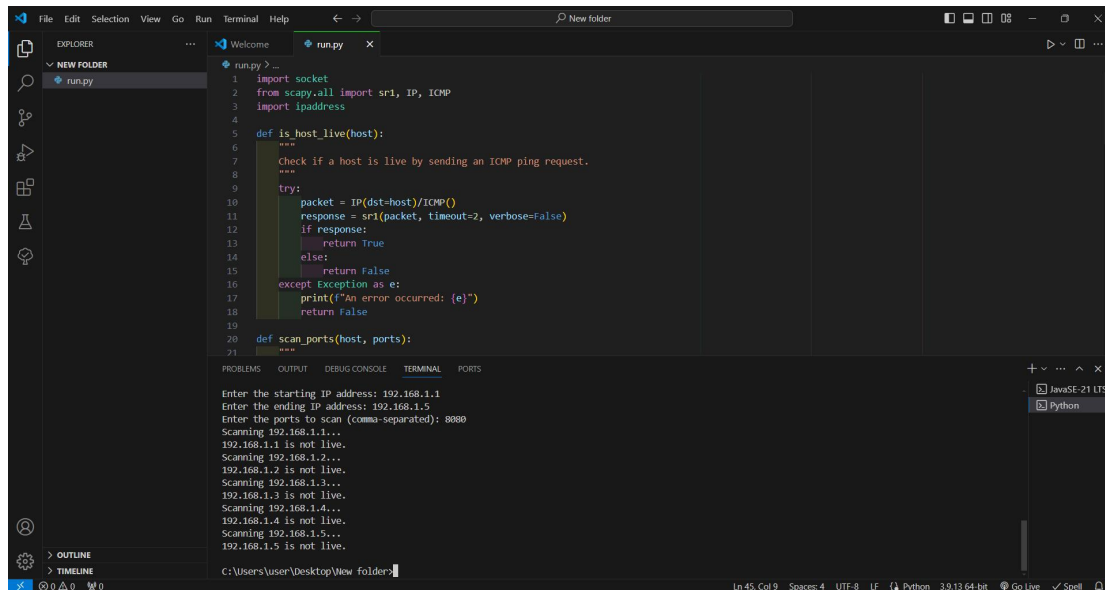
def scan_ports(host, ports):
    """
```

Active code page: 65001

```
C:\Users\user>pip install scapy
Requirement already satisfied: scapy in c:\users\user\appdata\local\programs\python\python39\lib\site-packages (2.5.0)
WARNING: You are using pip version 22.0.4; however, version 24.1.1 is available.
You should consider upgrading via the 'C:\Users\user\AppData\Local\Programs\Python\Python39\python.exe -m pip install --upgrade pip' command.

C:\Users\user>
```

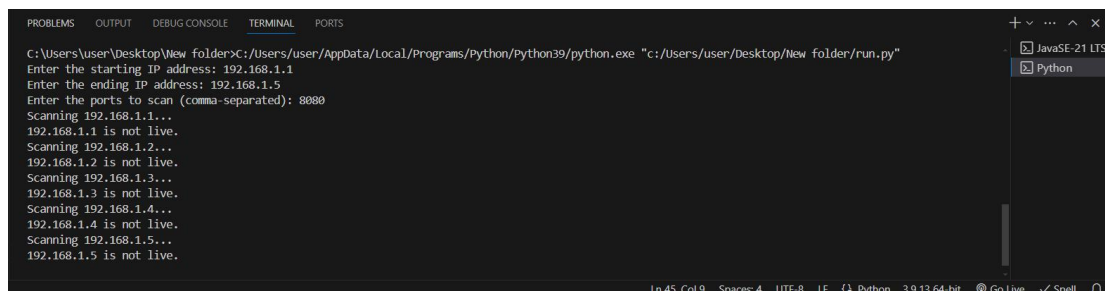
Python code:-



```
1 import socket
2 from scapy.all import sr1, IP, ICMP
3 import ipaddress
4
5 def is_host_live(host):
6     """
7     Check if a host is live by sending an ICMP ping request.
8     """
9     try:
10         packet = IP(dst=host)/ICMP()
11         response = sr1(packet, timeout=2, verbose=False)
12         if response:
13             return True
14         else:
15             return False
16     except Exception as e:
17         print(f"An error occurred: {e}")
18         return False
19
20 def scan_ports(host, ports):
21     """
```

Enter the starting IP address: 192.168.1.1
Enter the ending IP address: 192.168.1.5
Enter the ports to scan (comma-separated): 8080
Scanning 192.168.1.1...
192.168.1.1 is not live.
Scanning 192.168.1.2...
192.168.1.2 is not live.
Scanning 192.168.1.3...
192.168.1.3 is not live.
Scanning 192.168.1.4...
192.168.1.4 is not live.
Scanning 192.168.1.5...
192.168.1.5 is not live.

Output:-



```
C:\Users\user\Desktop\New folder>C:/Users/user/AppData/Local/Programs/Python/Python39/python.exe "c:/Users/user/Desktop/New folder/run.py"
Enter the starting IP address: 192.168.1.1
Enter the ending IP address: 192.168.1.5
Enter the ports to scan (comma-separated): 8080
Scanning 192.168.1.1...
192.168.1.1 is not live.
Scanning 192.168.1.2...
192.168.1.2 is not live.
Scanning 192.168.1.3...
192.168.1.3 is not live.
Scanning 192.168.1.4...
192.168.1.4 is not live.
Scanning 192.168.1.5...
192.168.1.5 is not live.
```