```python
# This code is based off: https://www.geeksforgeeks.org/port-scanner-using-
python/

from datetime import datetime
import socket

def main():
    # method to get scan target
    scanTarget = input("Enter a target to scan: ")
    #print(scanTarget)


    print("Please enter the range of ports you would like to scan on the target")


    # method to get start port
    startPort = input("Enter a start port: ")
    #print(startPort)


    # method to get end port
    endPort = input("Enter a end port: ")
    #print(endPort)


    # print start time
    print("Scanning started at: ", datetime.now())
    # start scanning here


    # for port scanning, we just iterate over the given ports
    # (non incluseive) so we go [startPort, endPort)
    # and check all of them to see if they are open
    for port in range(int(startPort), int(endPort)):
        # here we initialize a socket that uses the INET address family
        # and uses the a SOCK_STREAM type, which is essentially TCP
        s = socket.socket(socket.AF_INET,
                          socket.SOCK_STREAM)

        # setting the default timeout to 10 seconds
        # can't use "socket.settimeout" so have to use setdefaulttimeout
        socket.setdefaulttimeout(10)

        # in the case that we connect (connect_ex returns 0)
        # we just say that the port is open
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        # otherwise the port is closed
        if ( s.connect_ex((scanTarget, port)) == 0 ):
            print("Port {} is open".format(port))
        else:
            print("Port {} is closed".format(port))

        # and we close the said socket after every attempted connection
        s.close()

if __name__ == "__main__":
    main()
```

Code working screenshot:

I am using one of the IP addresses/port ranges we found in Lab 2.

```
student@kali:~/Downloads$ python3 portscanner.py
Enter a target to scan: 10.1.82.252
10.1.82.252
Please enter the range of ports you would like to scan on the target
Enter a start port: 22
22
Enter a end port: 81
81
Scanning started at:  2023-02-26 20:59:54.153844
Port 22 is open
Port 23 is closed
Port 24 is closed
Port 25 is closed
Port 26 is closed
Port 27 is closed
Port 28 is closed
Port 29 is closed
Port 30 is closed
Port 31 is closed
Port 32 is closed
Port 33 is closed
Port 34 is closed
Port 35 is closed
Port 36 is closed
Port 37 is closed
Port 38 is closed
Port 39 is closed
Port 40 is closed
Port 41 is closed
Port 42 is closed
Port 43 is closed
Port 44 is closed
Port 45 is closed
Port 46 is closed
Port 47 is closed
Port 48 is closed
Port 49 is closed
Port 50 is closed
Port 51 is closed
Port 52 is closed
Port 53 is closed
Port 54 is closed
Port 55 is closed
Port 56 is closed
Port 57 is closed
Port 58 is closed
Port 59 is closed
Port 60 is closed
Port 61 is closed
Port 62 is closed
Port 63 is closed
Port 64 is closed
Port 65 is closed
Port 66 is closed
Port 67 is closed
Port 68 is closed
Port 69 is closed
Port 70 is closed
Port 71 is closed
Port 72 is closed
Port 73 is closed
Port 74 is closed
Port 75 is closed
Port 76 is closed
Port 77 is closed
Port 78 is closed
Port 79 is closed
Port 80 is open
student@kali:~/Downloads$
```