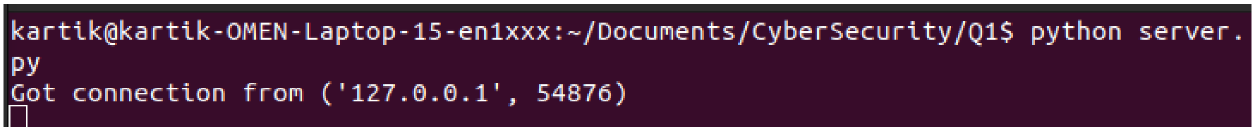
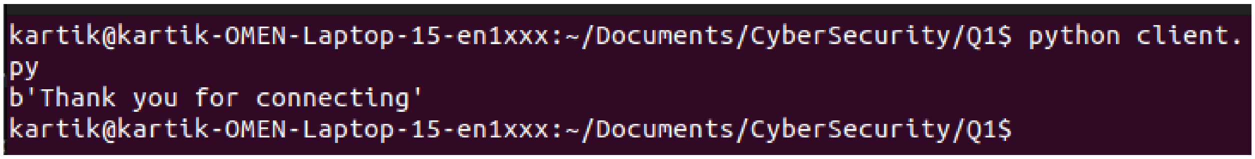
CYBER SECURITY LAB1
B20CS084

QUESTION 1:

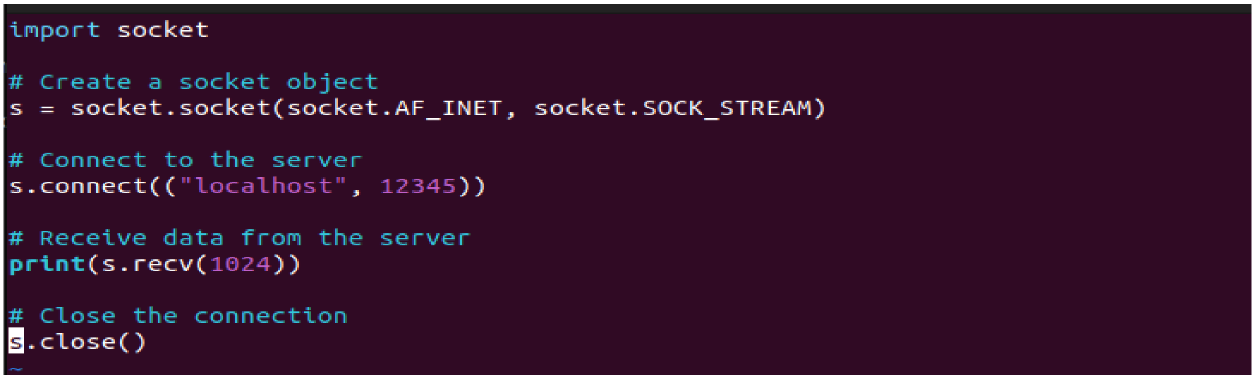


```
kartik@kartik-OMEN-Laptop-15-en1xxx:~/Documents/CyberSecurity/Q1$ python server.
py
Got connection from ('127.0.0.1', 54876)
```



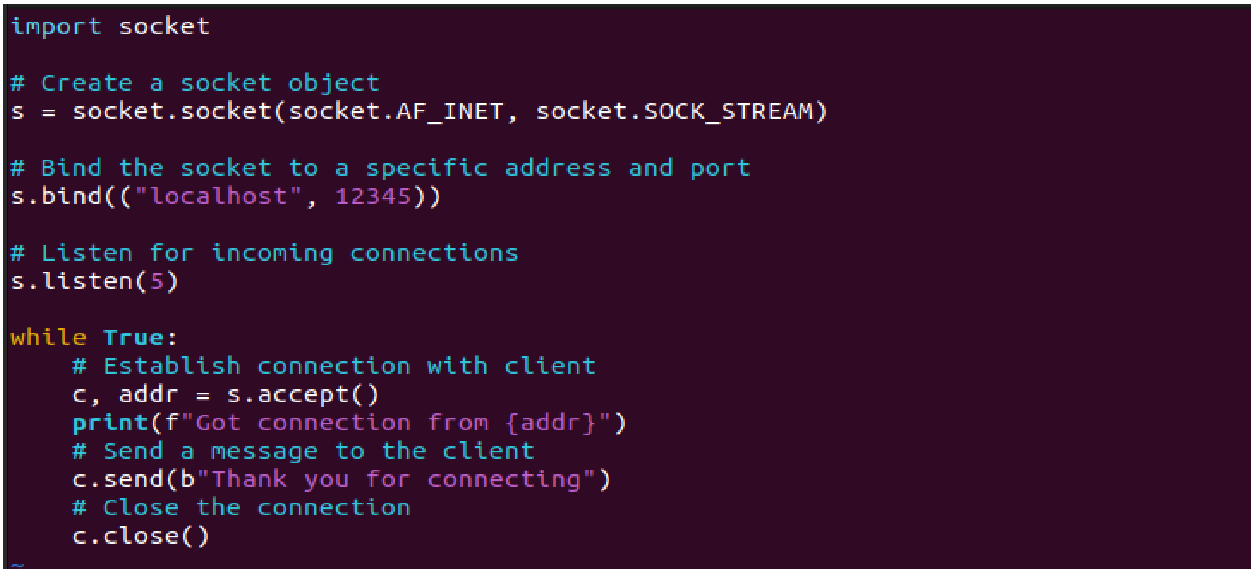
```
kartik@kartik-OMEN-Laptop-15-en1xxx:~/Documents/CyberSecurity/Q1$ python client.
py
b'Thank you for connecting'
kartik@kartik-OMEN-Laptop-15-en1xxx:~/Documents/CyberSecurity/Q1$
```

CLIENT CODE:



```
import socket

# Create a socket object
s = socket.socket(socket.AF_INET, socket.SOCK_STREAM)

# Connect to the server
s.connect(("localhost", 12345))

# Receive data from the server
print(s.recv(1024))

# Close the connection
s.close()
```

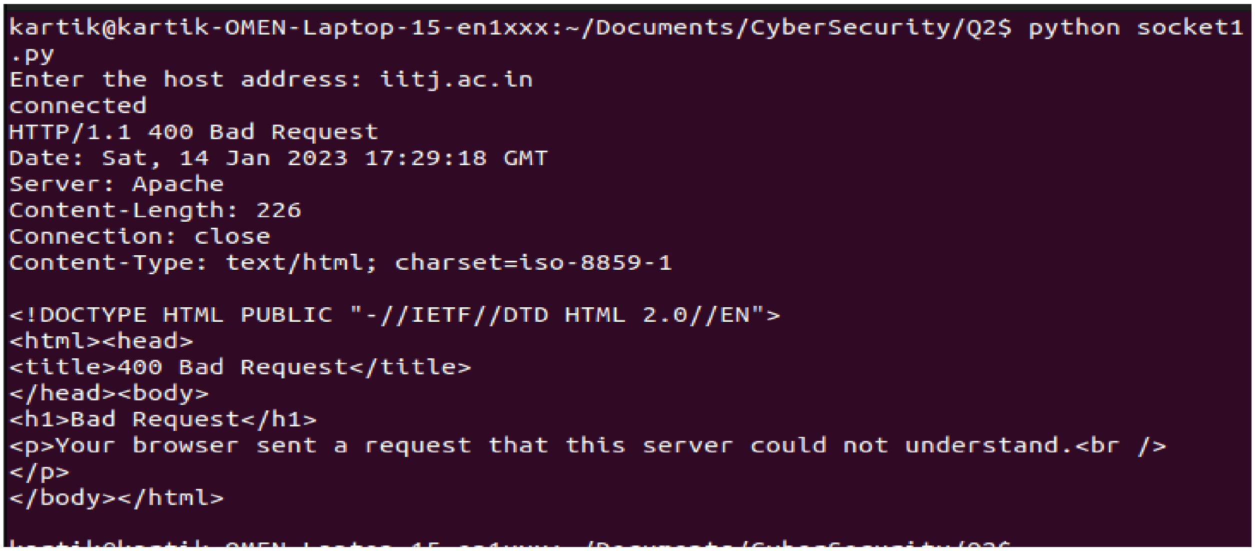
SERVER CODE:



```
import socket

# Create a socket object
s = socket.socket(socket.AF_INET, socket.SOCK_STREAM)

# Bind the socket to a specific address and port
s.bind(("localhost", 12345))

# Listen for incoming connections
s.listen(5)

while True:
    # Establish connection with client
    c, addr = s.accept()
    print(f"Got connection from {addr}")
    # Send a message to the client
    c.send(b"Thank you for connecting")
    # Close the connection
    c.close()
```

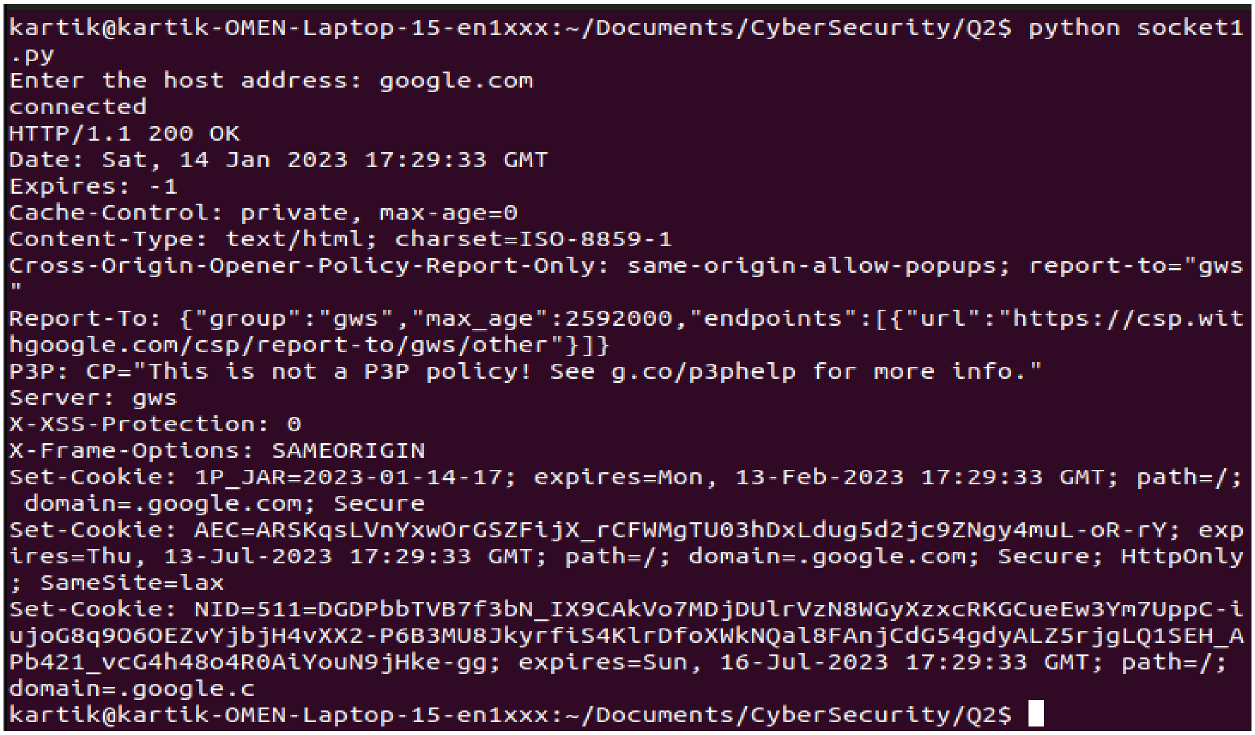
QUESTION 2:

CONNECTING TO iitj.ac.in



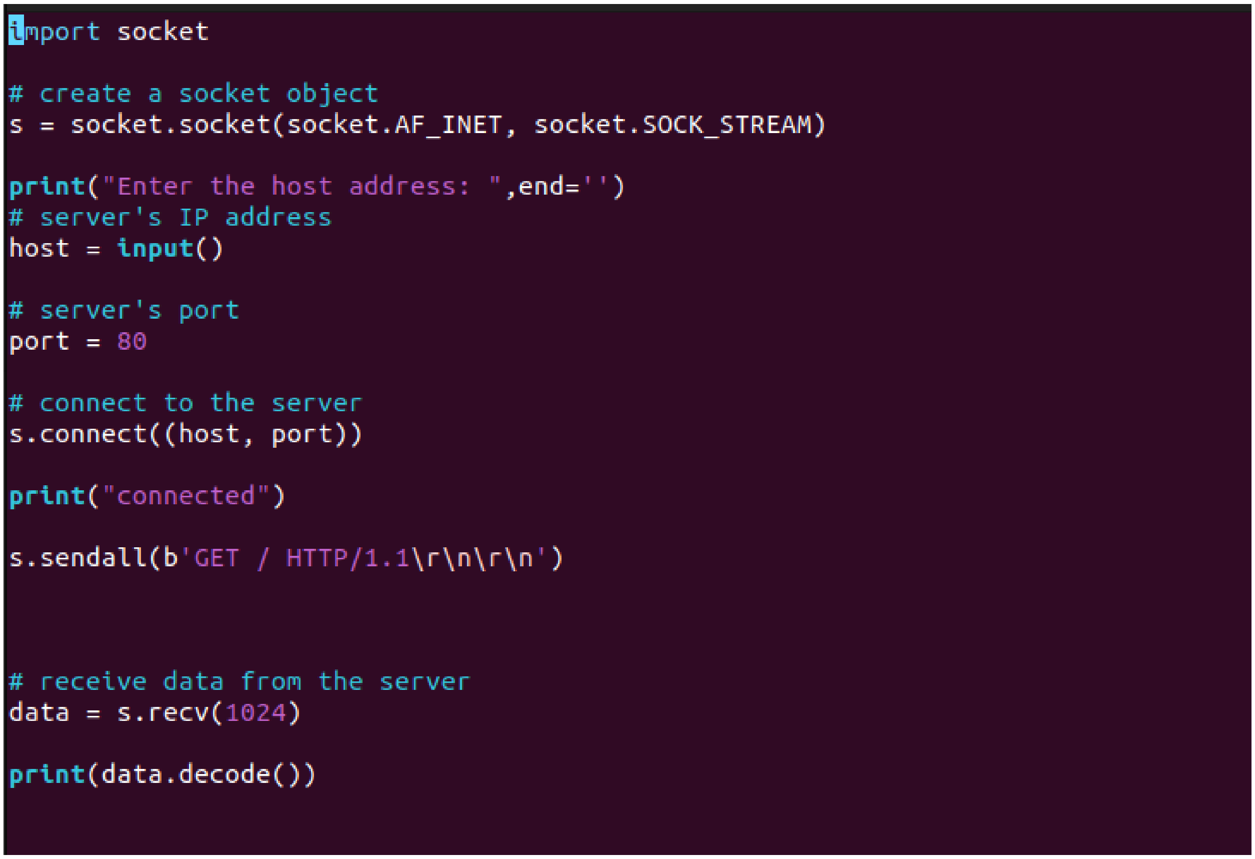
```
kartik@kartik-OMEN-Laptop-15-en1xxx:~/Documents/CyberSecurity/Q2$ python socket1
.py
Enter the host address: iitj.ac.in
connected
HTTP/1.1 400 Bad Request
Date: Sat, 14 Jan 2023 17:29:18 GMT
Server: Apache
Content-Length: 226
Connection: close
Content-Type: text/html; charset=iso-8859-1

<!DOCTYPE HTML PUBLIC "-//IETF//DTD HTML 2.0//EN">
<html><head>
<title>400 Bad Request</title>
</head><body>
<h1>Bad Request</h1>
<p>Your browser sent a request that this server could not understand.<br />
</p>
</body></html>

kartik@kartik-OMEN-Laptop-15-en1xxx:~/Documents/CyberSecurity/Q2$
```

CONNECTING TO google.com



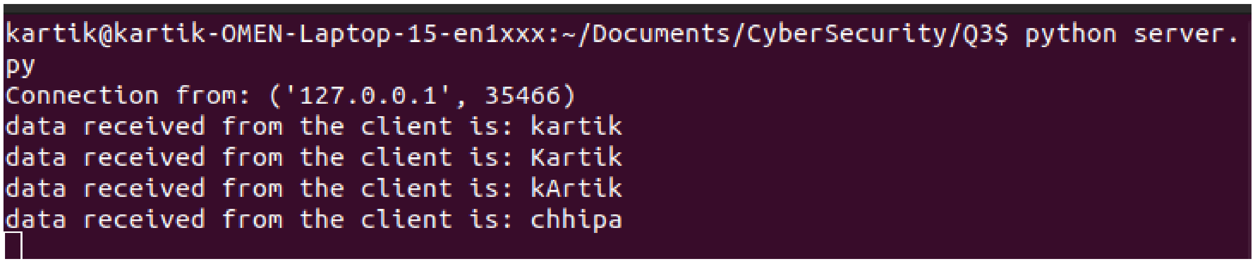
```
kartik@kartik-OMEN-Laptop-15-en1xxx:~/Documents/CyberSecurity/Q2$ python socket1
.py
Enter the host address: google.com
connected
HTTP/1.1 200 OK
Date: Sat, 14 Jan 2023 17:29:33 GMT
Expires: -1
Cache-Control: private, max-age=0
Content-Type: text/html; charset=ISO-8859-1
Cross-Origin-Opener-Policy-Report-Only: same-origin-allow-popups; report-to="gws
"
Report-To: {"group":"gws","max_age":2592000,"endpoints":[{"url":"https://csp.wit
hgoogle.com/csp/report-to/gws/other"}]}
P3P: CP="This is not a P3P policy! See g.co/p3phelp for more info."
Server: gws
X-XSS-Protection: 0
X-Frame-Options: SAMEORIGIN
Set-Cookie: 1P_JAR=2023-01-14-17; expires=Mon, 13-Feb-2023 17:29:33 GMT; path=/;
 domain=.google.com; Secure
Set-Cookie: AEC=ARSKqsLVnYxwOrGSZFijX_rCFWMgTU03hDxLdug5d2jc9ZNgy4muL-oR-rY; exp
ires=Thu, 13-Jul-2023 17:29:33 GMT; path=/; domain=.google.com; Secure; HttpOnly
; SameSite=lax
Set-Cookie: NID=511=DGDPbbTVB7f3bN_IX9CAkVo7MDjDUlrVzN8WGyXzxcRKGCueEw3Ym7UppC-i
ujoG8q9O6OEZvYjbjH4vXX2-P6B3MU8JkyrfiS4KlrDfoXWkNQal8FAnjCdG54gdyALZ5rjgLQ1SEH_A
Pb421_vcG4h48o4R0AiYouN9jHke-gg; expires=Sun, 16-Jul-2023 17:29:33 GMT; path=/;
domain=.google.c
kartik@kartik-OMEN-Laptop-15-en1xxx:~/Documents/CyberSecurity/Q2$ █
```

CODE FOR SOCKET

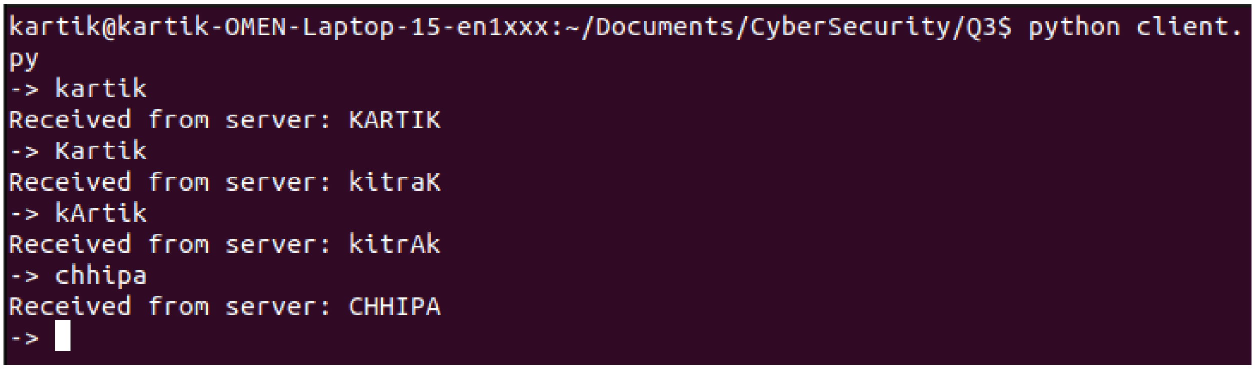


```
import socket

# create a socket object
s = socket.socket(socket.AF_INET, socket.SOCK_STREAM)

print("Enter the host address: ",end='')
# server's IP address
host = input()

# server's port
port = 80

# connect to the server
s.connect((host, port))

print("connected")

s.sendall(b'GET / HTTP/1.1\r\n\r\n')



# receive data from the server
data = s.recv(1024)

print(data.decode())
```

QUESTION 3:

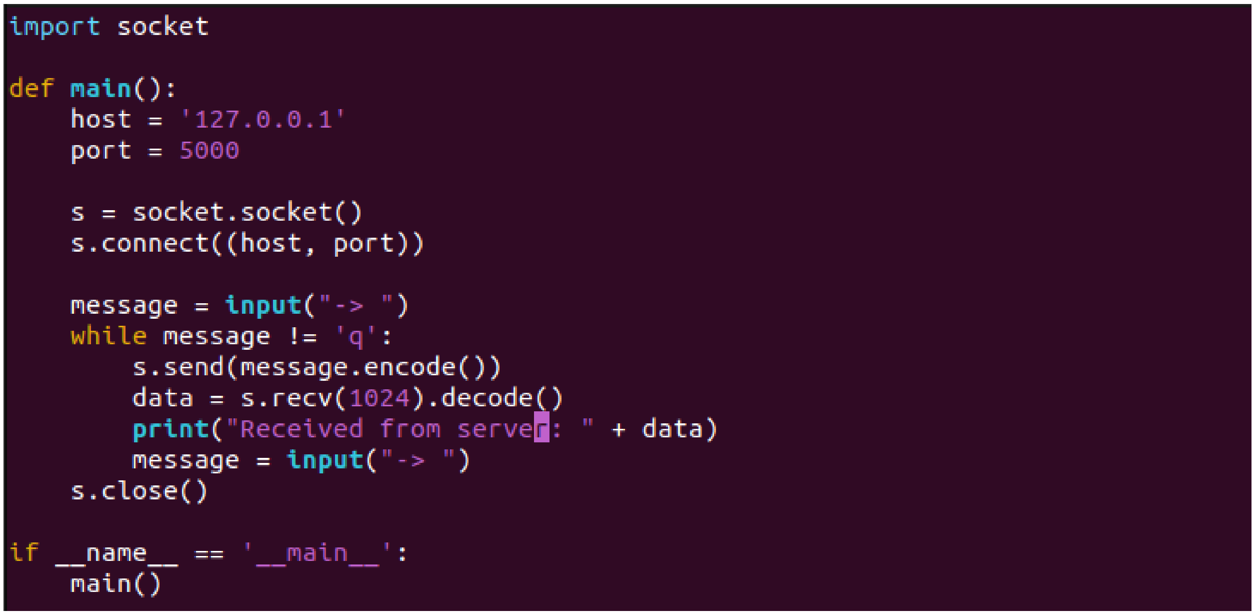


```
kartik@kartik-OMEN-Laptop-15-en1xxx:~/Documents/CyberSecurity/Q3$ python server.
py
Connection from: ('127.0.0.1', 35466)
data received from the client is: kartik
data received from the client is: Kartik
data received from the client is: kArtik
data received from the client is: chhipa
```



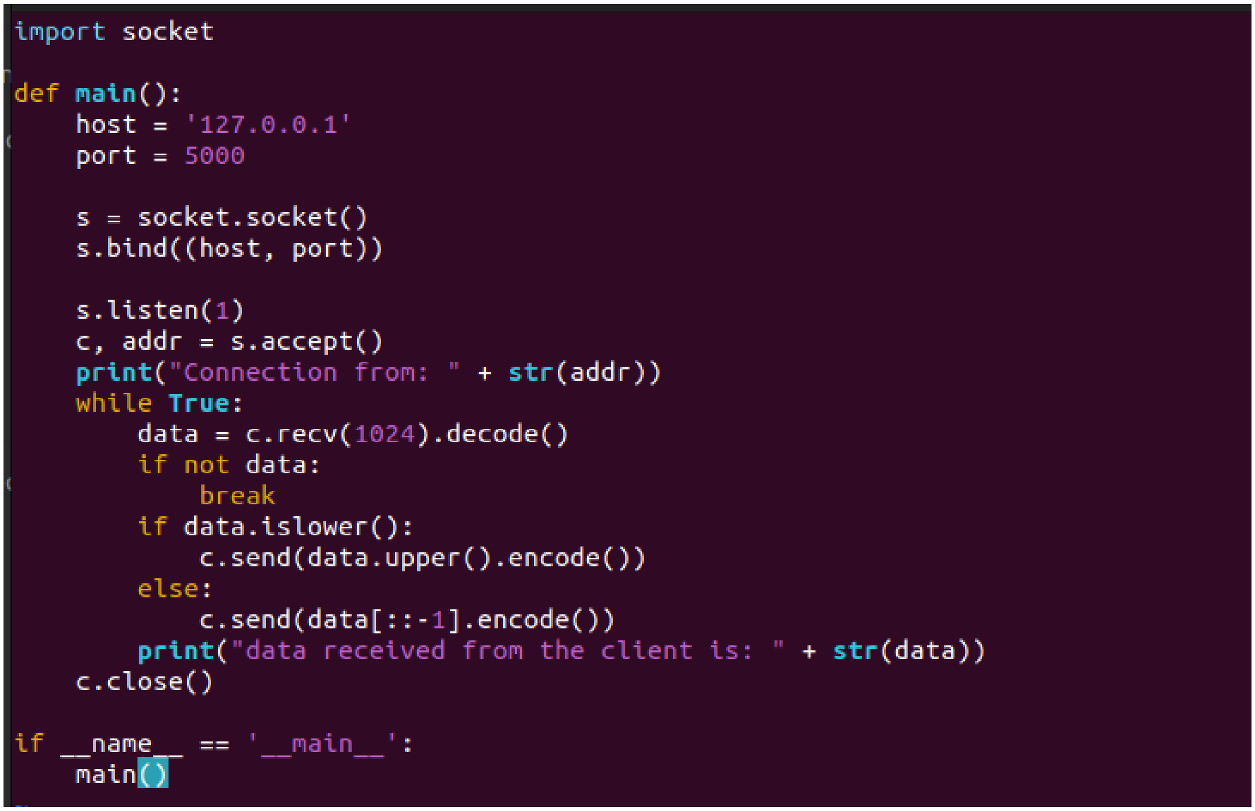
```
kartik@kartik-OMEN-Laptop-15-en1xxx:~/Documents/CyberSecurity/Q3$ python client.
py
-> kartik
Received from server: KARTIK
-> Kartik
Received from server: kitraK
-> kArtik
Received from server: kitrAk
-> chhipa
Received from server: CHHIPA
->
```

CODE FOR CLIENT



```python
import socket

def main():
    host = '127.0.0.1'
    port = 5000

    s = socket.socket()
    s.connect((host, port))

    message = input("-> ")
    while message != 'q':
        s.send(message.encode())
        data = s.recv(1024).decode()
        print("Received from server: " + data)
        message = input("-> ")
    s.close()

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

CODE FOR SERVER



```python
import socket

def main():
    host = '127.0.0.1'
    port = 5000

    s = socket.socket()
    s.bind((host, port))

    s.listen(1)
    c, addr = s.accept()
    print("Connection from: " + str(addr))
    while True:
        data = c.recv(1024).decode()
        if not data:
            break
        if data.islower():
            c.send(data.upper().encode())
        else:
            c.send(data[::-1].encode())
        print("data received from the client is: " + str(data))
    c.close()

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