

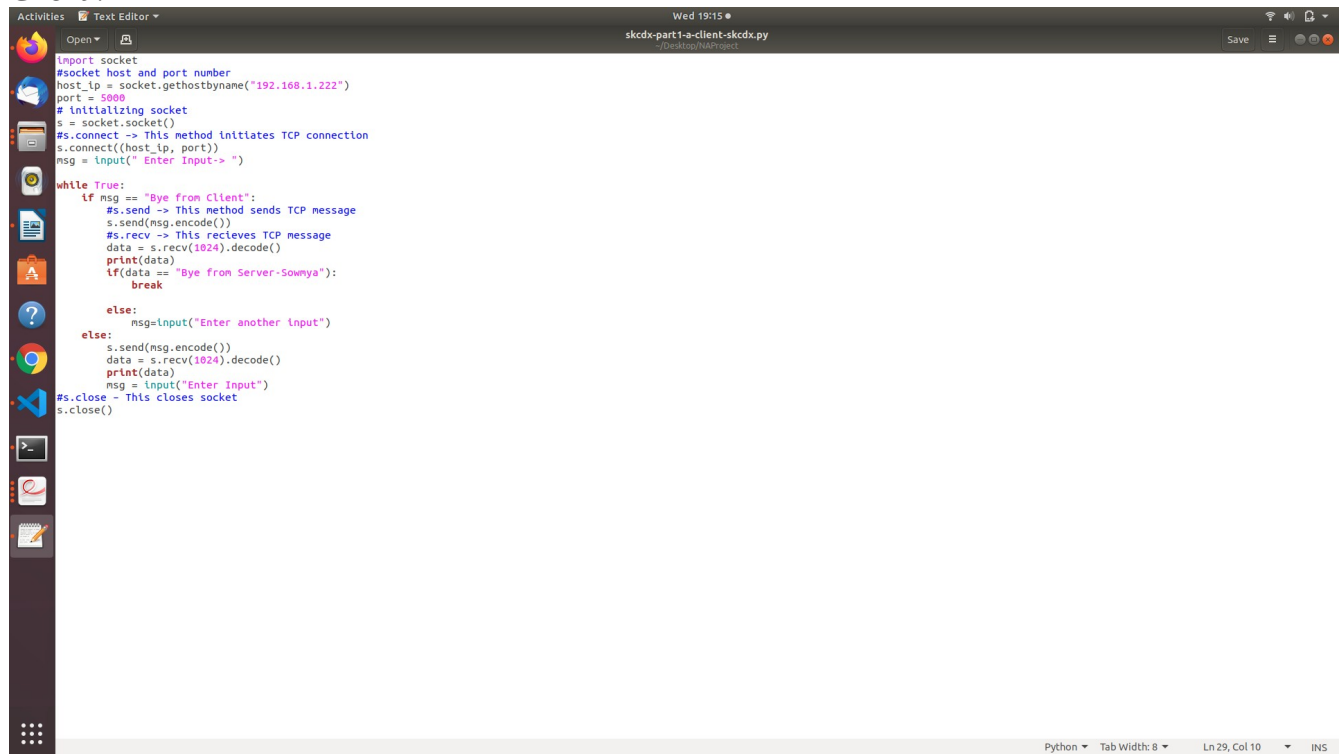
Github Link : <https://github.com/sowmyareddy14/NAProjectpart1>

PART 1 :

(a) Client server communication with two different machines

Code :

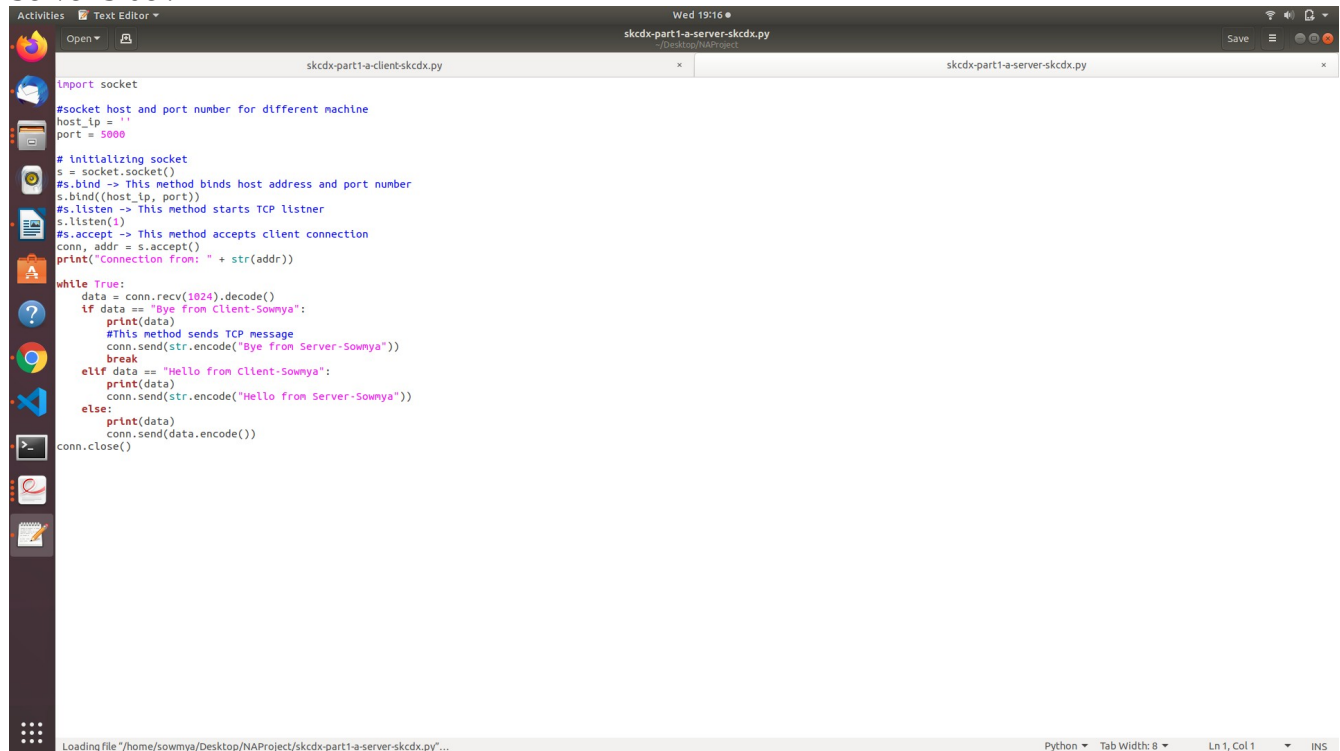
Client :



```
import socket
#socket host and port number
host_ip = socket.gethostbyname("192.168.1.222")
port = 5000
# initializing socket
s = socket.socket()
#s.connect -> This method initiates TCP connection
s.connect((host_ip, port))
msg = input("Enter Input-> ")

while True:
    if msg == "Bye from Client":
        #s.send -> This method sends TCP message
        s.send(msg.encode())
        #s.recv -> This receives TCP message
        data = s.recv(1024).decode()
        print(data)
        if(data == "Bye from Server-Sowmya"):
            break
    else:
        msg=input("Enter another input")
    else:
        s.send(msg.encode())
        data = s.recv(1024).decode()
        print(data)
        msg = input("Enter Input")
#s.close - This closes socket
s.close()
```

Server Side :

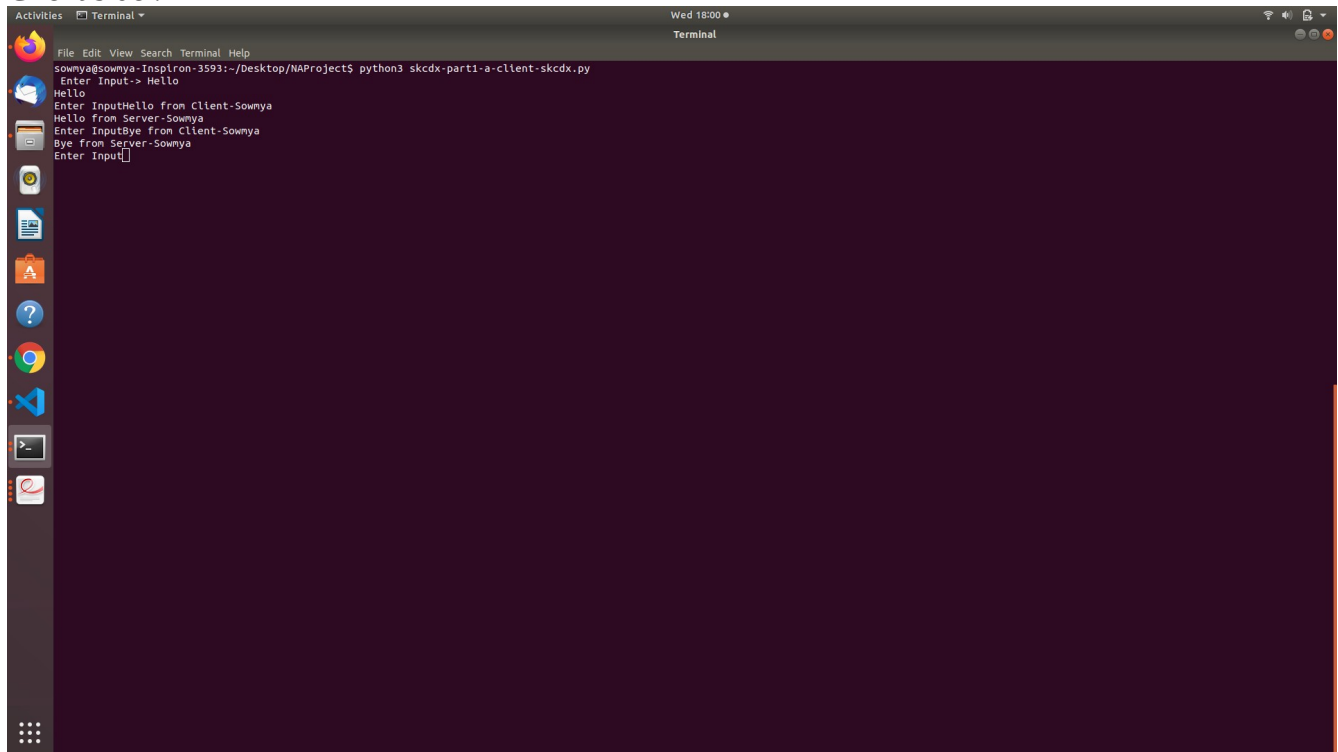


```
import socket
#socket host and port number for different machine
host_ip = ''
port = 5000
# initializing socket
s = socket.socket()
#s.bind -> This method binds host address and port number
s.bind((host_ip, port))
#s.listen -> This method starts TCP listener
s.listen(1)
#s.accept -> This method accepts client connection
conn, addr = s.accept()
print("Connection from: " + str(addr))

while True:
    data = conn.recv(1024).decode()
    if data == "Bye from Client-Sowmya":
        print(data)
        #This method sends TCP message
        conn.send(str.encode("Bye from Server-Sowmya"))
        break
    elif data == "Hello from Client-Sowmya":
        print(data)
        conn.send(str.encode("Hello from Server-Sowmya"))
    else:
        print(data)
        conn.send(data.encode())
    conn.close()
```

Outputs :

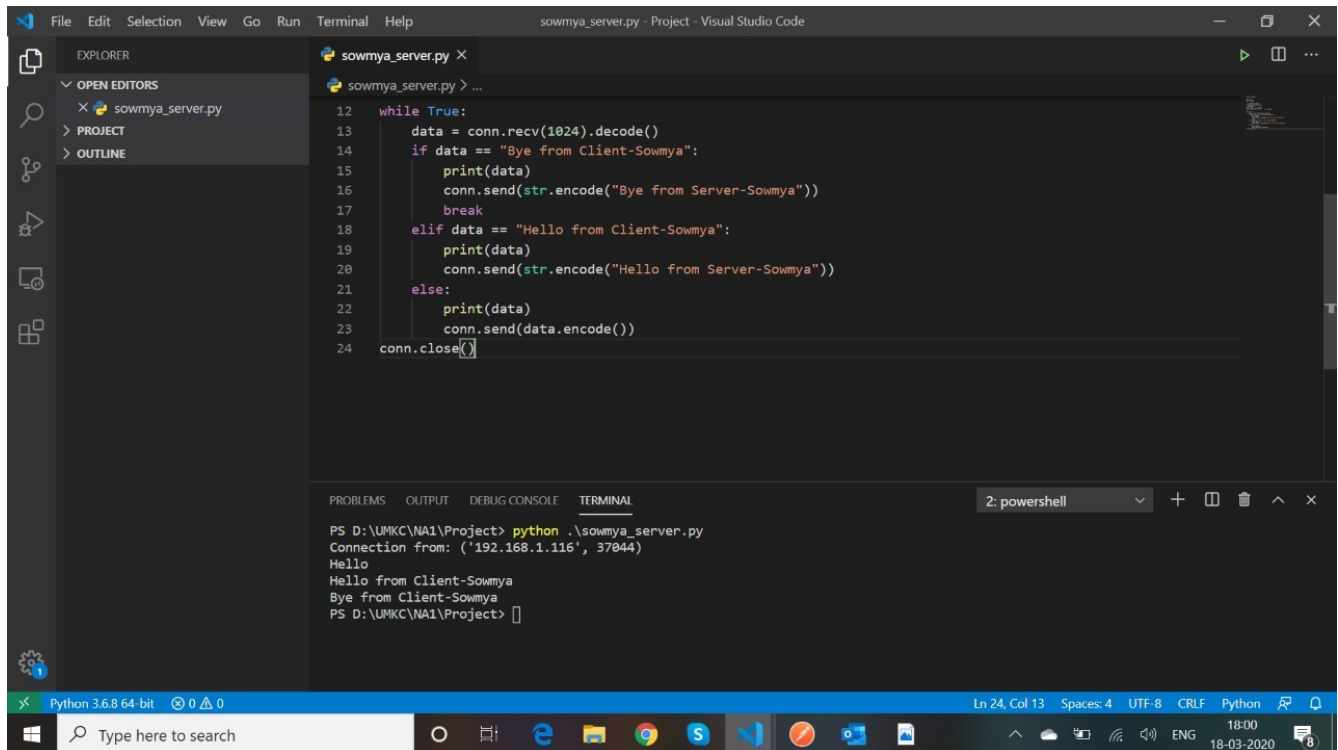
Client side :



A terminal window titled 'Terminal' showing the output of a client-side Python script. The window has a menu bar with 'File', 'Edit', 'View', 'Search', 'Terminal', and 'Help'. The command prompt shows the user running 'python3 skcdx-part1-a-client-skcdx.py'. The output is as follows:

```
sowmya@sowmya-Inspiron-3593:~/Desktop/NAProject$ python3 skcdx-part1-a-client-skcdx.py
Enter Input-> Hello
Hello
Enter InputHello from Client-Sowmya
Hello from Server-Sowmya
Enter InputBye from Client-Sowmya
Bye from server-Sowmya
Enter Input
```

Server side :



A Visual Studio Code window titled 'sowmya\_server.py - Project - Visual Studio Code' showing the server-side Python code and its output in the terminal. The Explorer pane on the left shows the project structure with 'sowmya\_server.py' open. The code in the editor is as follows:

```
12 while True:
13     data = conn.recv(1024).decode()
14     if data == "Bye from Client-Sowmya":
15         print(data)
16         conn.send(str.encode("Bye from Server-Sowmya"))
17         break
18     elif data == "Hello from Client-Sowmya":
19         print(data)
20         conn.send(str.encode("Hello from Server-Sowmya"))
21     else:
22         print(data)
23         conn.send(data.encode())
24 conn.close()
```

The terminal at the bottom shows the output of running the server script in a PowerShell window:

```
PS D:\UMKC\NA1\Project> python .\sowmya_server.py
Connection from: ('192.168.1.116', 37044)
Hello
Hello from Client-Sowmya
Bye from Client-Sowmya
PS D:\UMKC\NA1\Project>
```

## (b) File Transfer : Code :

### Client Side :

```
Activities Text Editor Wed 19:18 ●
skcdx-part1-b-client-skcdx.py
//Desktop/NAProject
skcdx-part1-a-client-skcdx.py x skcdx-part1-a-server-skcdx.py x skcdx-part1-b-client-skcdx.py x

import socket
#socket host and port number
host = socket.gethostbyname("192.168.1.222")
port = 5000
def connect(host,port):
    # Initializing socket
    s=socket.socket()
    #s.connect -> This method initiates TCP connection
    s.connect((host, port))
    return s

def transfer_data(fname,s):
    while True:
        if fname == "quit":
            #s.send -> This method sends TCP message
            s.send(str.encode(fname))
            #s.recv -> This receives TCP message
            data=s.recv(2048).decode()
            print(data)
            break
        else :
            #opens file fname
            f = open(fname,'rb')
            #reads file f
            l = f.read(1024)
            print("data sending ", end = " ")
            while (l):
                print(".", end = " ")
                #s.send -> This method sends TCP message
                s.send(l)
                l = f.read(2048)
            f.close()
            s.send(str.encode("File transfer complete"))
            print("\n")
            while True:
                #s.recv -> This receives TCP message
                data = s.recv(1024)
                if str(data).find("File sent back from server") != -1:
                    break
                print(data)
            print("File received back\n")
            fname= input("Enter another file name or type exit/quit : ")

def main():
    s=connect(host, port)
    fname=input('Enter file name')
    transfer_data(fname,s)
    s.close()

if __name__ == "__main__":
    main()

Python Tab Width: 8 Ln 1, Col 1 INS
```

### Server Side :

```
Activities Text Editor Wed 19:19 ●
*skcdx-part1-b-server-skcdx.py
//Desktop/NAProject
skcdx-part1-a-client-skcdx.py x skcdx-part1-a-server-skcdx.py x skcdx-part1-b-client-skcdx.py x *skcdx-part1-b-server-skcdx.py x

import socket
#socket host and port number for different machine
host = ''
port = 5000
def bind(host,port):
    # Initializing socket
    s=socket.socket()
    #s.bind -> This method binds host address and port number
    s.bind((host, port))
    print('server listening ...')
    #s.listen -> This method starts TCP listener
    s.listen(1)
    #s.accept -> This method accepts client connection
    c,addr = s.accept()
    return c

def transfer_data(c):
    while True:
        #c.recv -> This receives TCP message
        data=c.recv(2048)
        if str(data.decode()) == "quit":
            #c.send -> This method sends TCP message
            c.send(str.encode("server exit"))
            print(str(data.decode()))
            break
        else:
            with open('output.txt', 'wb') as fp:
                while True:
                    print(data)
                    #this writes data into file
                    fp.write(data)
                    if str(data).find("File transfer complete") != -1:
                        fp.write(str.encode("\n This is new line added by the server\n"))
                        print("\n This line is added by me in the Server !!! \n")
                        break
                    data = c.recv(2048)

            fp = open('output.txt','rb')
            chunk = fp.read(2048)
            while (chunk):
                c.send(chunk)
                chunk = fp.read(2048)
            fp.close()
            c.send(str.encode("File sent back from server"))

def main():
    c=bind(host, port)
    transfer_data(c)
    c.close()

if __name__ == "__main__":
    main()

Python Tab Width: 8 Ln 2, Col 1 INS
```

Client side :

