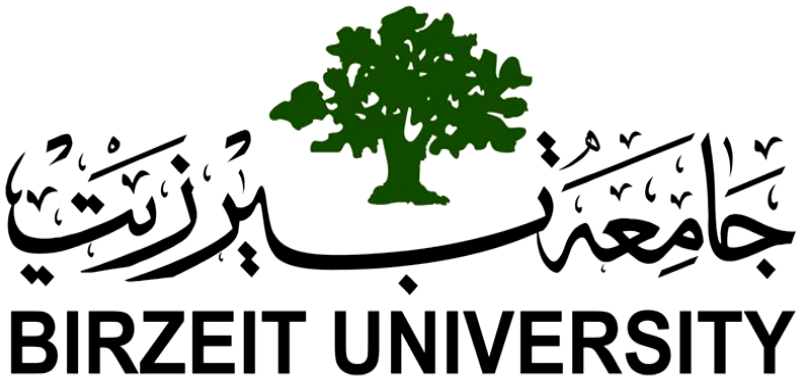


Faculty of Engineering & Technology
Electrical & Computer Engineering Department
ENCS3320 - Computer Networks
Project #1 Report

Prepared by:

Mohammad Makhamreh **1200227**

Ahmad Zubaidea **1200105**

Islam Jihad **1191375**

Instructor: **Dr. Abdalkarim Awad**

Section: 3

Date: 23/12/2022

Part1:

1.1 - In your own words, what are ping, tracert, nslookup (write one sentence for each one)

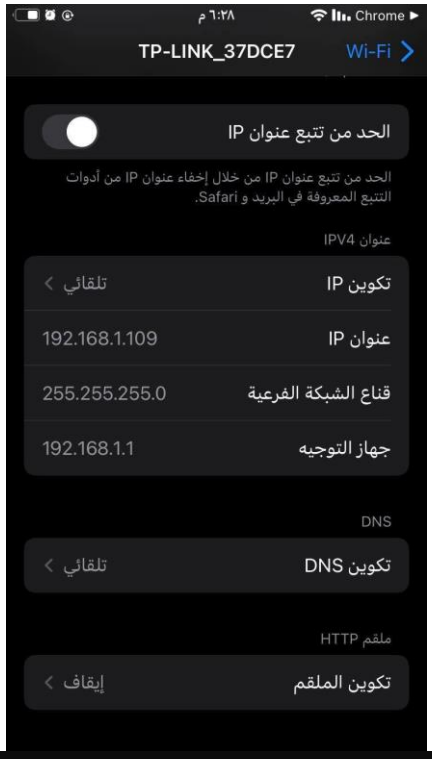
- **Ping : a command to check if the address is exists and if we can request it. And check if we connected to the network by getting response from our router.**

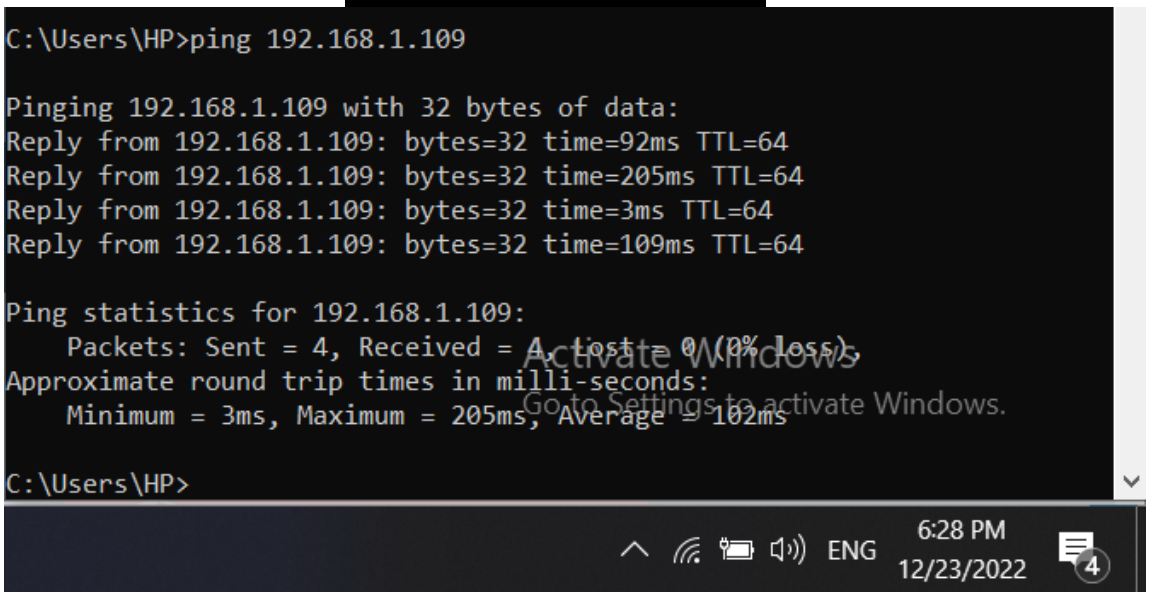
- **Tracert: it gives more details than "ping" , so we use it to see the path of request messages among routers that between the sender and receiver.**

- **Nslookup : a command that we use it to query DNS, it takes the name and return the address of the website.**

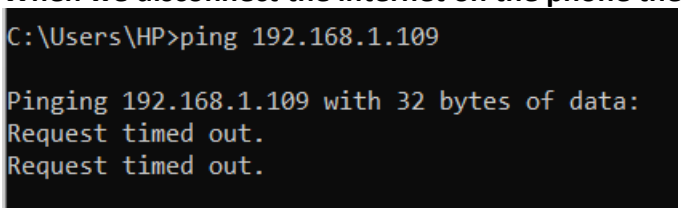
1.2 - Make sure that your computer is connected to the internet and then run the following commands:

1.1.2 Ping a device in the same network, e.g. from a laptop to a smartphone.
We found that the phone ip is " 192.168.1.109"



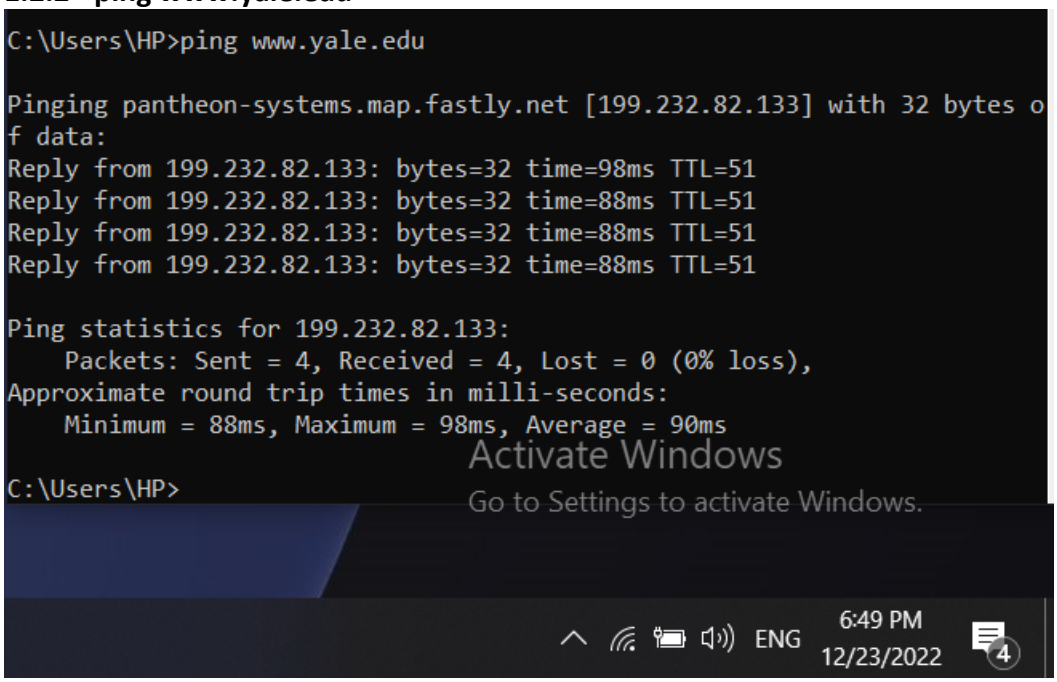


When we disconnect the internet on the phone the result was request timed out.



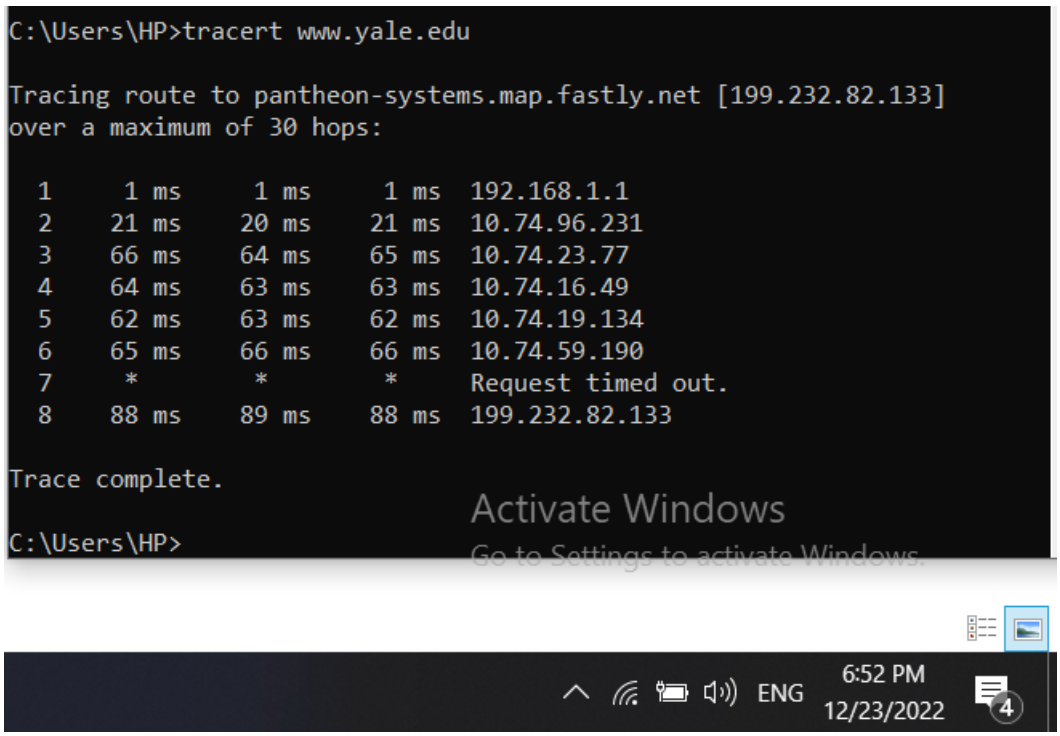
- **It sent 4 packets and received them all, and it takes 3ms.**

1.2.2 - ping www.yale.edu

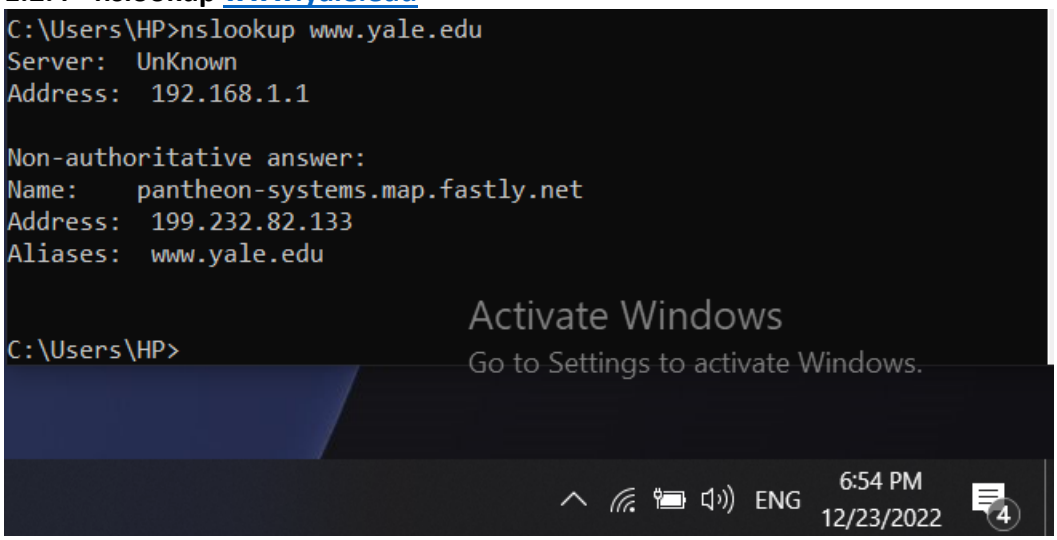


The minimum round trip times was 88ms greater than the phone.

1.2.3 - tracert www.yale.edu



1.2.4 - nslookup www.yale.edu



Part 2.

Implement the following server and client application both for TCP and for UDP: A client continuously sends the numbers from 0 to 1000,000 to a server listening on port 5566. The server counts the received messages. Run the programs

2.1- on same computer

First, The UDP by Python Socket Programing and we calculate the time and the number of packets received.

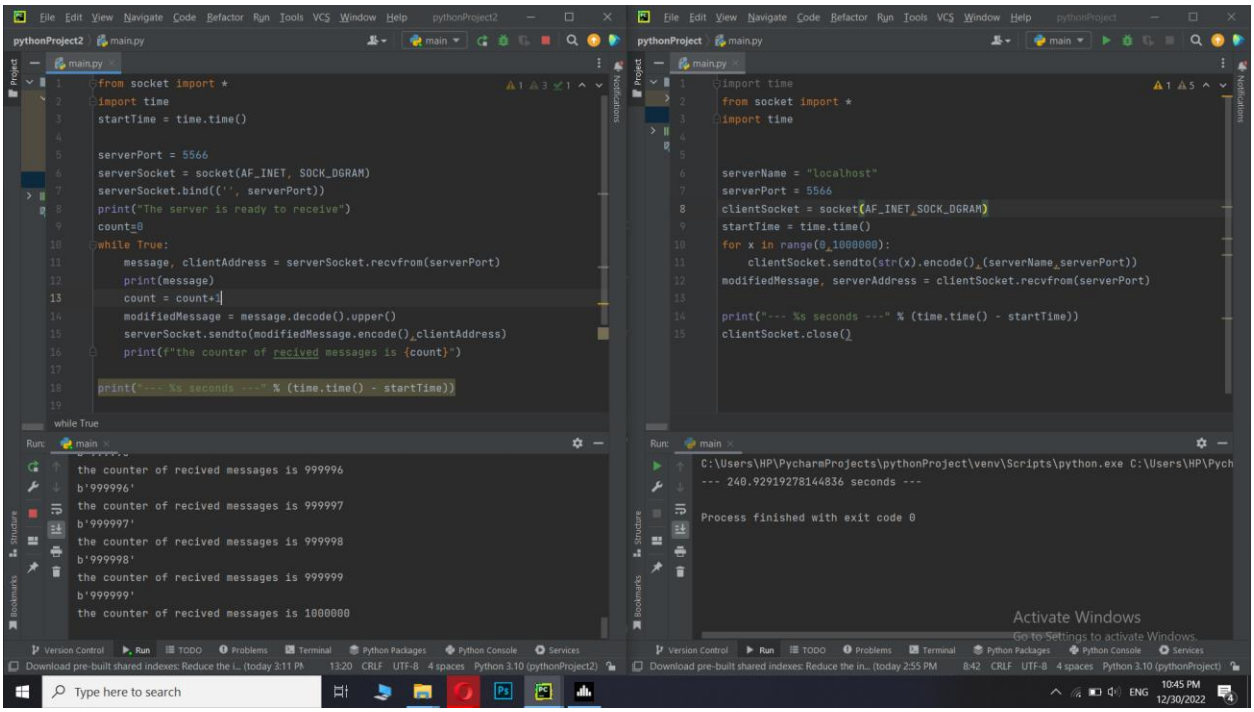


Figure 1 : Client and server UDP system on the same computer

We have the results UCP time to send from a client to server is 240.92 seconds, and there is no packet loss.

Second, The TCP by Python Socket Programing and we calculate the time and the number of packets received.

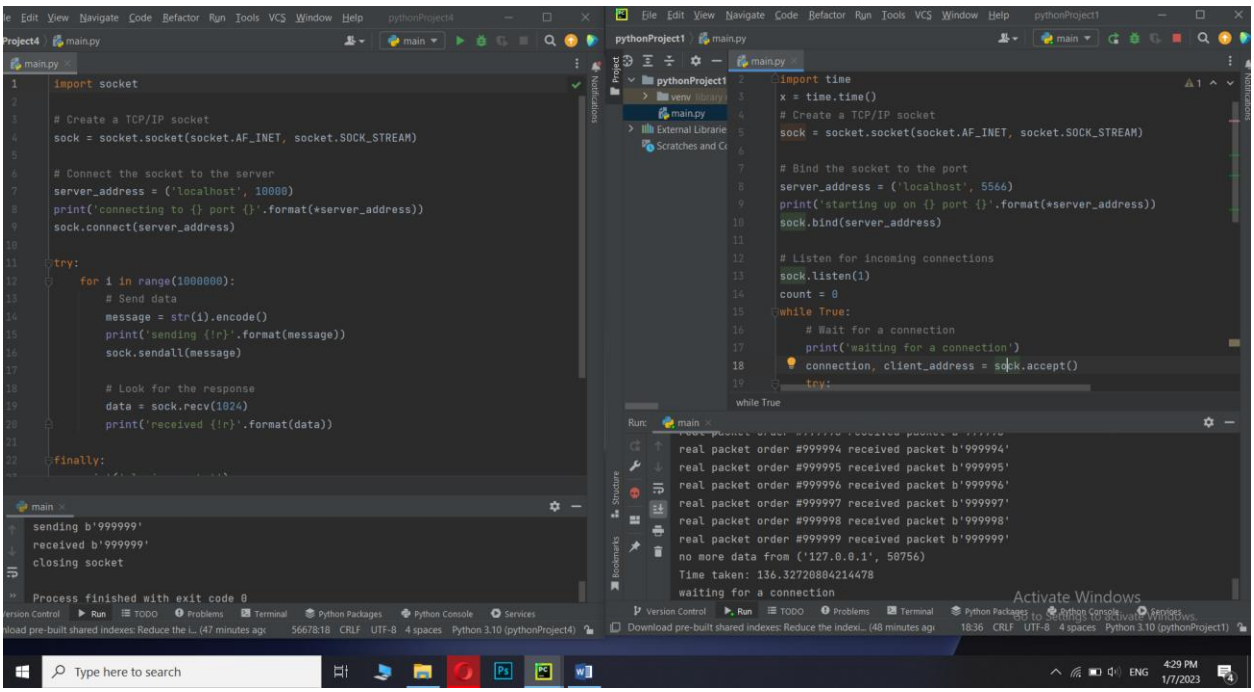


figure: TCP Client and Server System at the same computer

We recognized that there are no loss, and time taken is 136.327 seconds.

2.2) on 2 different computers connected by a cable directly or through a switch

We faced problems in this part, the code didn't run in 3 labtops.

2.3) on 2 different computers connected through WiFi

On the UDP, we use the IP of server address computer that both computers are connected on the same Wi-fi, and put it as a server name, then we have run both codes.

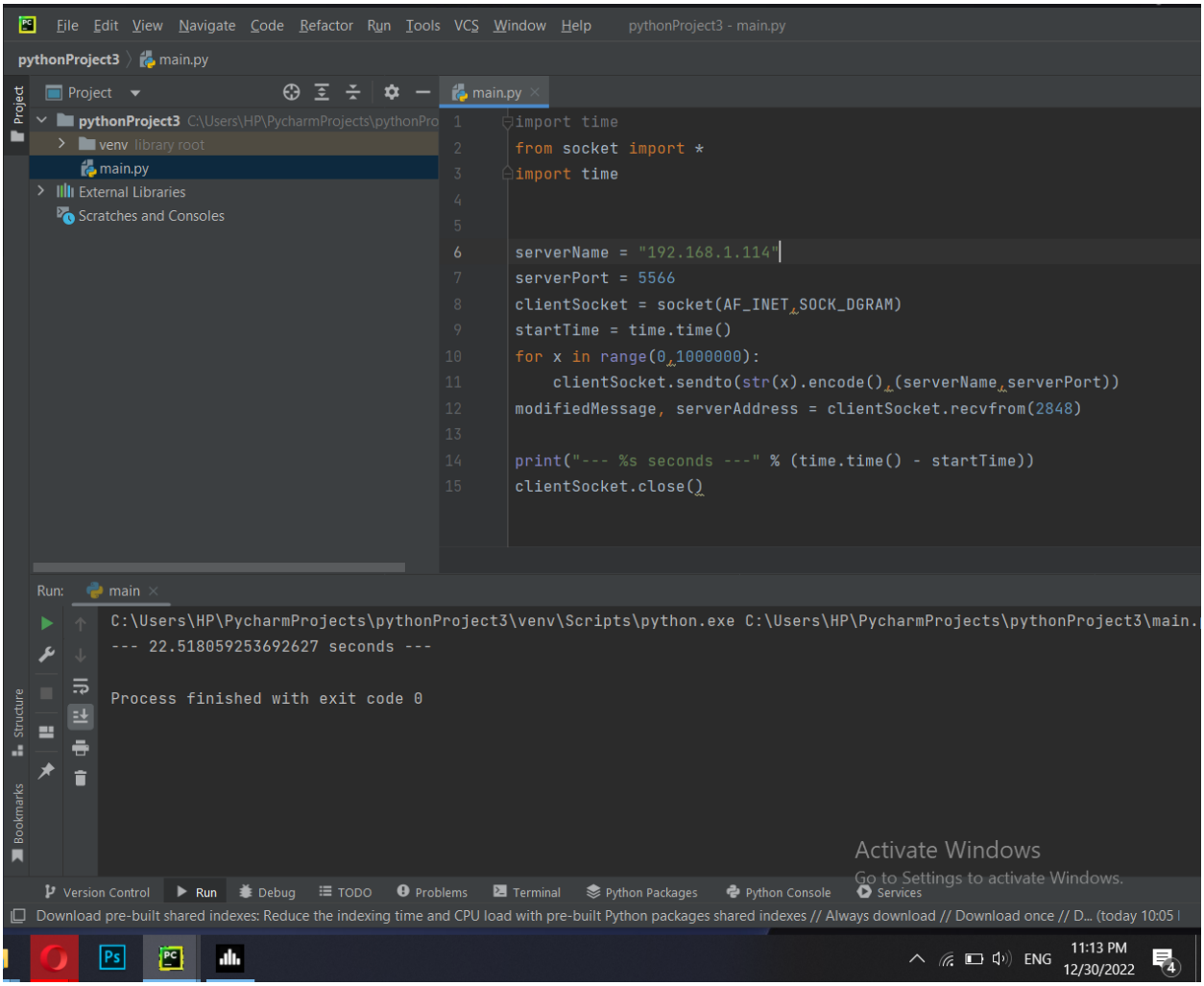


Figure n : The UDP Client on different computers with same Wi-fi

We noticed that the time that the process takes is 22.5 seconds that is less than the system on the same computer, because of packet loss from the server side.

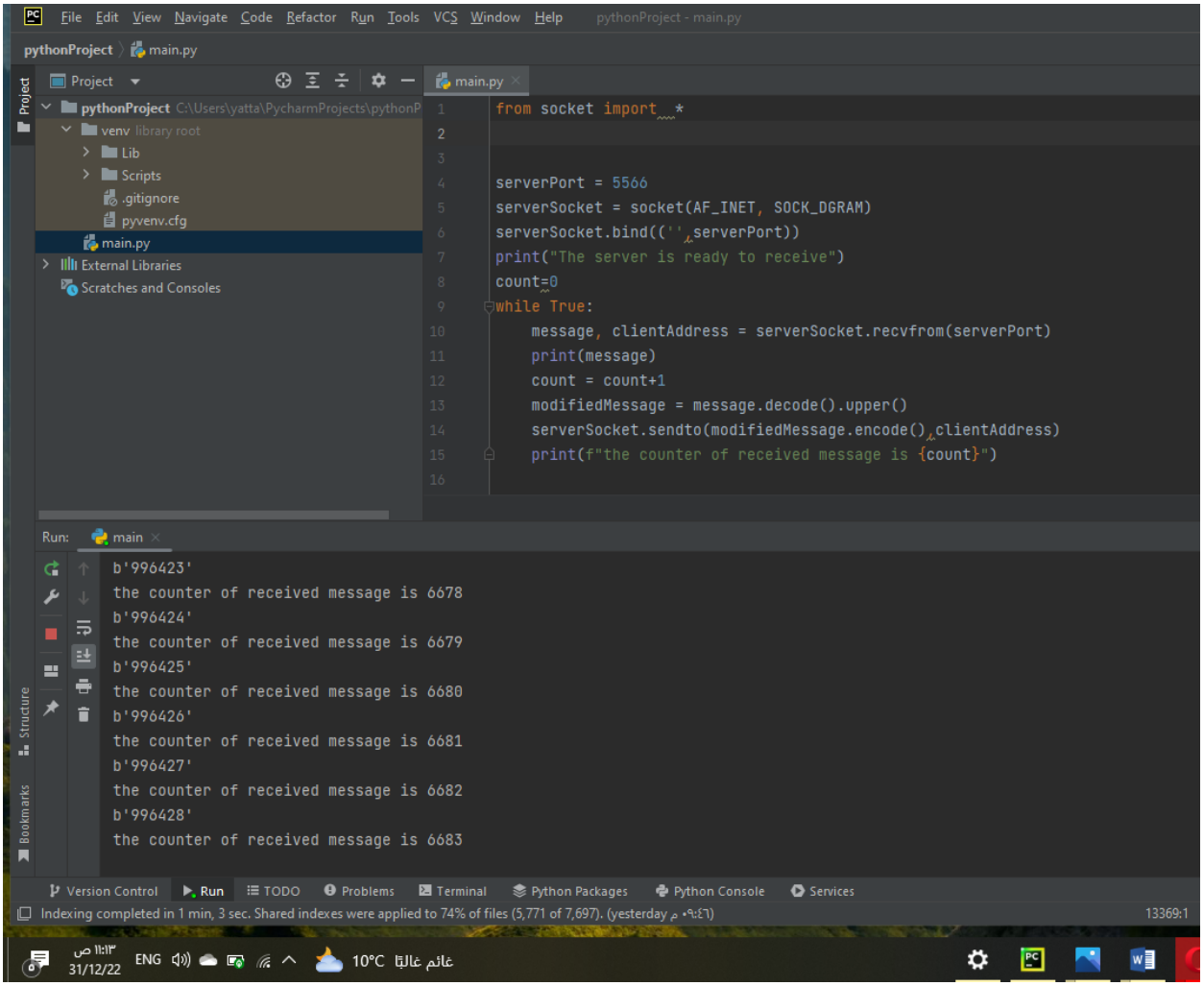
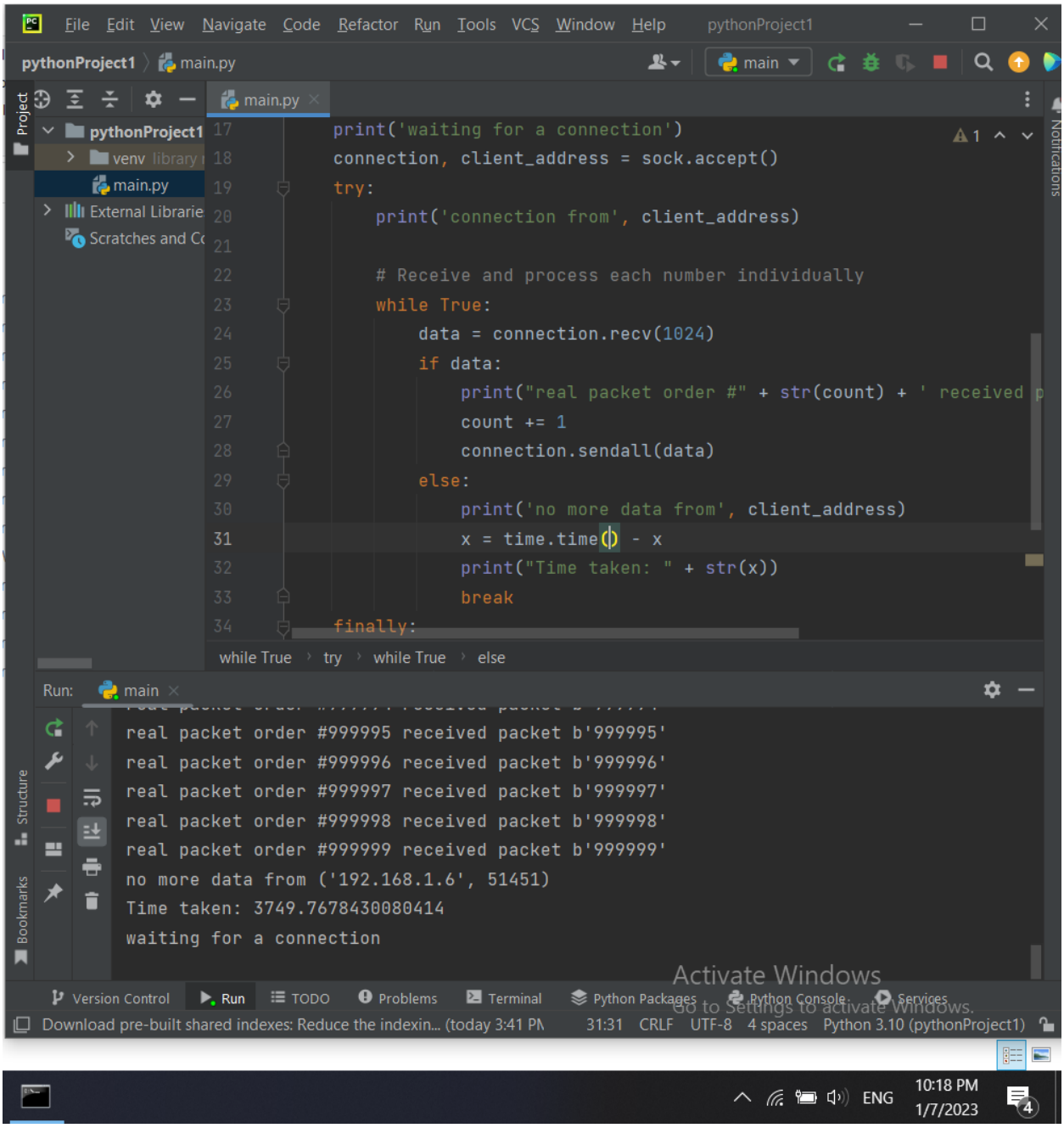


Figure n : The UDP Server on different computers with same Wi-fi

We noticed that there is a loss of packets by comparing the counter of the received messages and the number of the packet that came and they are not the same, and the UDP keep his work without resend it (that's how the UDP works!).

- TCP Client and Server in different Computers connected at the Same Wifi
-



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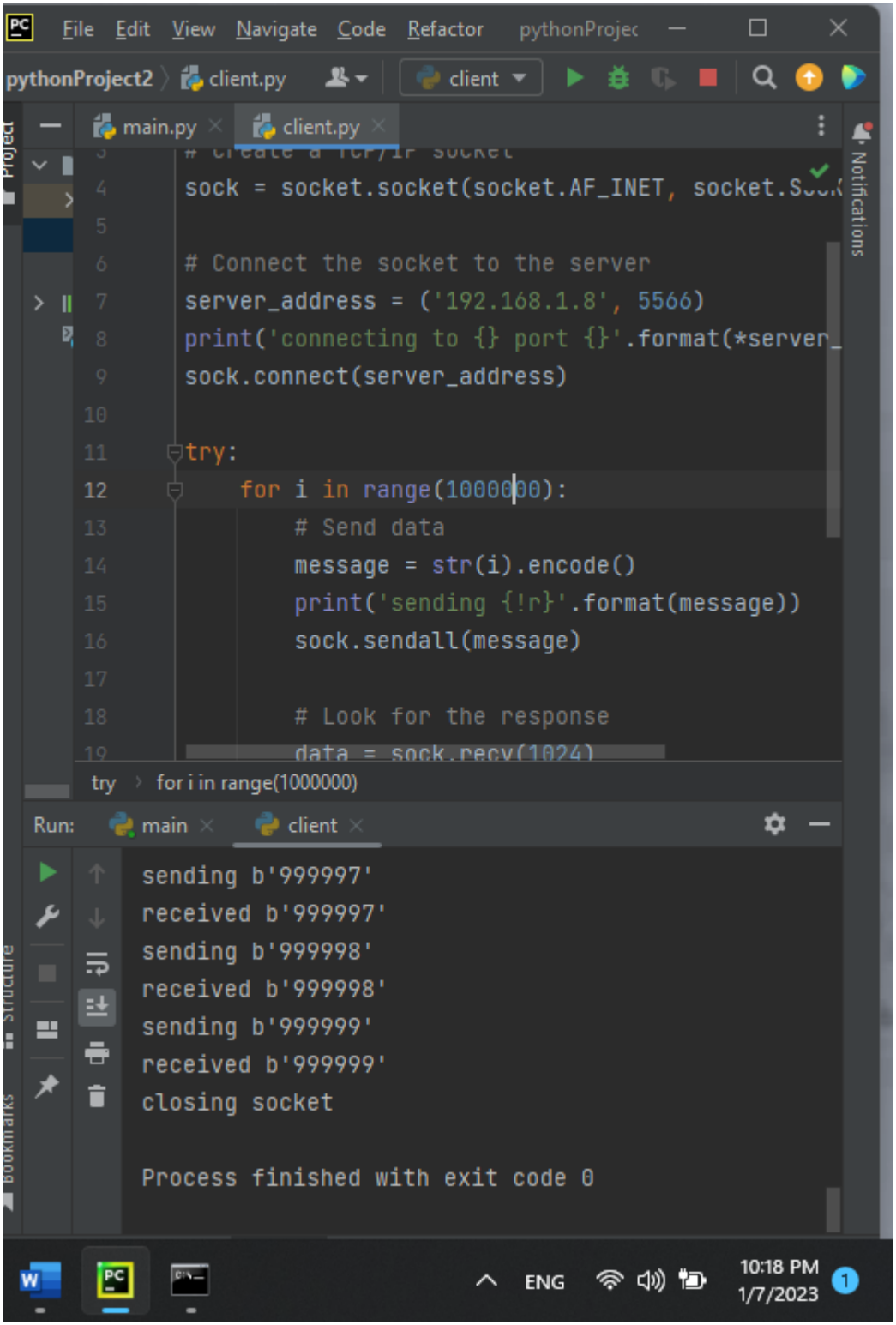
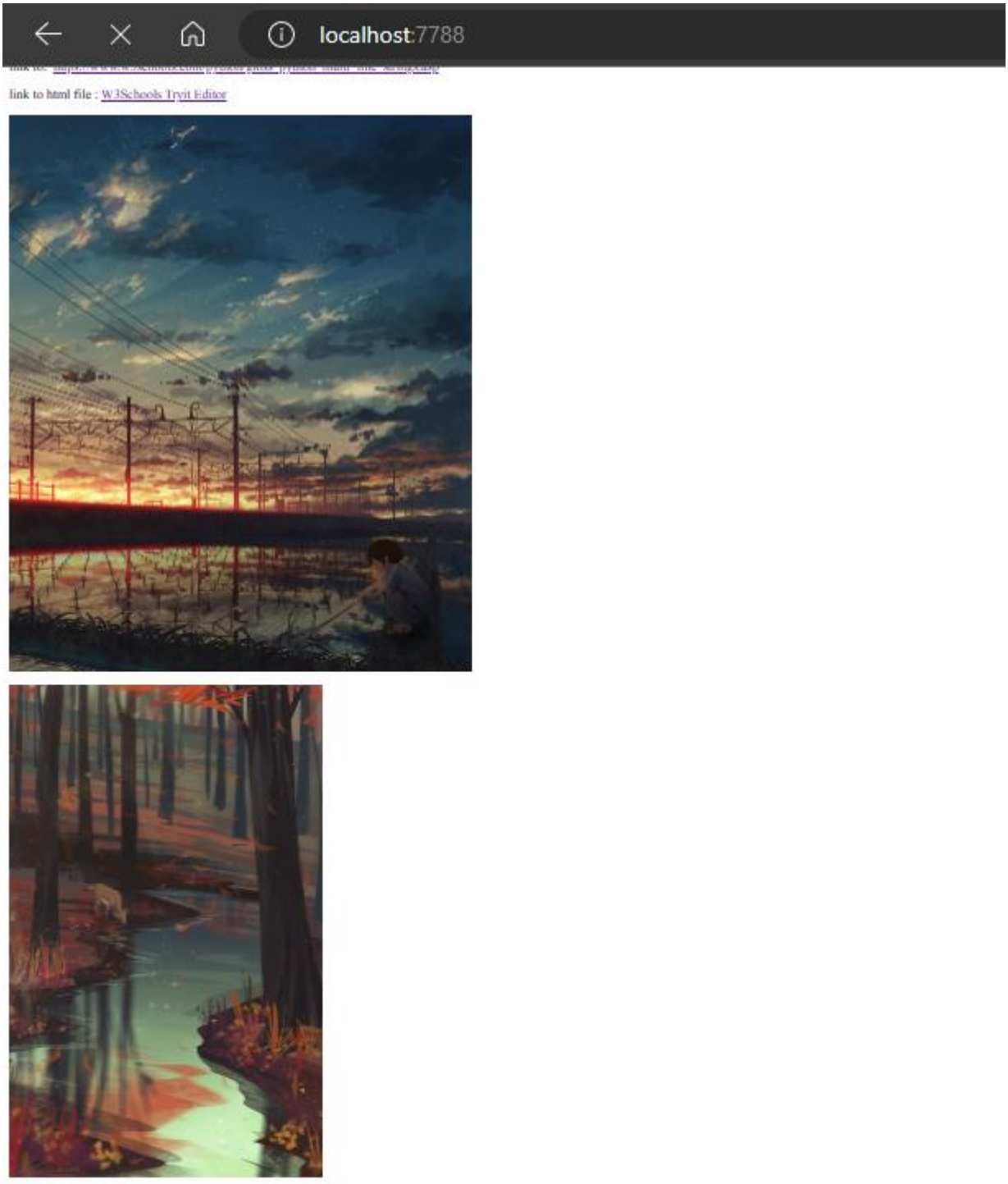


We recognize that all packets have been received(no packet loss), not Like the udp case, but the time 3450 second.

1- **if the request is / or /index.html or /main_en.html or /en (for example localhost:7788/ or localhost:7788/en) then the server should send main_en.html file with Content-Type: text/html.**



2-

localhost:7788

ENCS3320-My First Webserver

Welcome to our course Computer Networks

Group members

Ahmad zubaidia , id 1200105

Mohammad Makamri , id 1200227

Islam jihad , id 1191375

Some informaiton about the group

Ahmad is good, and love c languge

mohammad is good , and love java language

islam is the leader of the club and he is good , and love python

---

link to: https://www.w3schools.com/python/gloss_python_multi_line_strings.asp

link to html file : W3Schools Tryit Editor

```
The server is ready to receive
Got connection from IP: 127.0.0.1, Port: 49941
GET / HTTP/1.1
Host: localhost:7788
Connection: keep-alive
Cache-Control: max-age=0
sec-ch-ua: "Not?A_Brand";v="8", "Chromium";v="108", "Microsoft Edge";v="108"
sec-ch-ua-mobile: ?0
sec-ch-ua-platform: "Windows"
Upgrade-Insecure-Requests: 1
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/108.0.0.0 Safari/537.36 Edg/108.0.1462.76
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,image/apng,*/*;q=0.8,application/signed-exchange;v=b3;q=0.9
Sec-Fetch-Site: none
Sec-Fetch-Mode: navigate
Sec-Fetch-User: ?1
Sec-Fetch-Dest: document
Accept-Encoding: gzip, deflate, br
Accept-Language: en-US,en;q=0.9
Cookie: Idea-8296eef1=ec27e1f8-8821-4da4-b0c7-770c146c346a
```

localhost:7788/main_en.html

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link to: https://www.w3schools.com/python/gloss_python_multi_line_strings.asp

link to html file : W3Schools Tryit Editor

```
Got connection from IP: 127.0.0.1, Port: 49971
GET /main_en.html HTTP/1.1
Host: localhost:7788
Connection: keep-alive
sec-ch-ua: "Not?A_Brand";v="8", "Chromium";v="108", "Microsoft Edge";v="108"
sec-ch-ua-mobile: ?0
sec-ch-ua-platform: "Windows"
Upgrade-Insecure-Requests: 1
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/108.0.0.0 Safari/537.36 Edg/108.0.1462.76
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,image/apng,*/*;q=0.8,application/signed-exchange;v=b3;q=0.9
Sec-Fetch-Site: none
Sec-Fetch-Mode: navigate
Sec-Fetch-User: ?1
Sec-Fetch-Dest: document
Accept-Encoding: gzip, deflate, br
Accept-Language: en-US,en;q=0.9
Cookie: Idea-8296eef1=ec27e1f8-8821-4da4-b0c7-770c146c346a
```

localhost:7788/index.html

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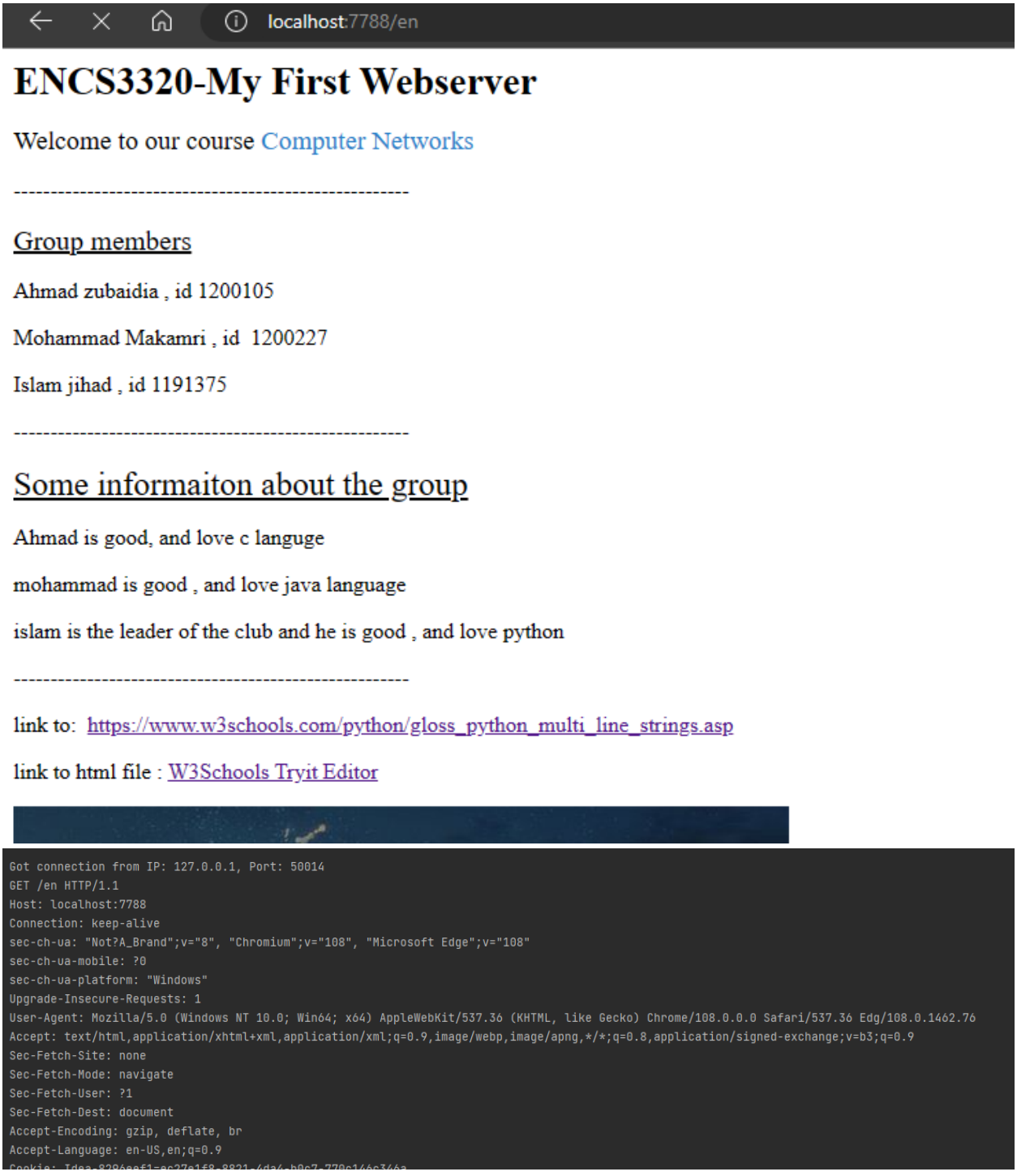
---

link to: https://www.w3schools.com/python/gloss_python_multi_line_strings.asp

link to html file : W3Schools Tryit Editor

```
Got connection from IP: 127.0.0.1, Port: 50000
GET /index.html HTTP/1.1
Host: localhost:7788
Connection: keep-alive
sec-ch-ua: "Not?A_Brand";v="8", "Chromium";v="108", "Microsoft Edge";v="108"
sec-ch-ua-mobile: ?0
sec-ch-ua-platform: "Windows"
Upgrade-Insecure-Requests: 1
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/108.0.0.0 Safari/537.36 Edg/108.0.1462.76
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,image/apng,*/*;q=0.8,application/signed-exchange;v=b3;q=0.9
Sec-Fetch-Site: none
Sec-Fetch-Mode: navigate
Sec-Fetch-User: ?1
Sec-Fetch-Dest: document
Accept-Encoding: gzip, deflate, br
Accept-Language: en-US,en;q=0.9
Cookie: Idea-8296eef1=ec27e1f8-8821-4da4-b0c7-770c146c346a
```

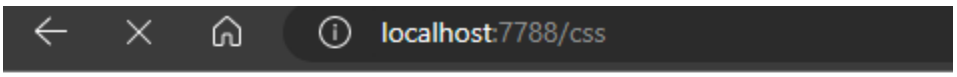


3&if the request is an .html file then the server should send the requested html file with Content-Type: text/html. You can use any html file. 4- 5- if the request is a .css file then the server should send the requested css file with Content-Type: text/css. You can use any CSS file

My Html file that the 3- part required

My first html.

```
Got connection from IP: 127.0.0.1, Port: 50018
GET /htmlfile HTTP/1.1
Host: localhost:7788
Connection: keep-alive
sec-ch-ua: "Not?A_Brand";v="8", "Chromium";v="108", "Microsoft Edge";v="108"
sec-ch-ua-mobile: ?0
sec-ch-ua-platform: "Windows"
Upgrade-Insecure-Requests: 1
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/108.0.0.0 Safari/537.36 Edg/108.0.1462.76
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,image/apng,*/*;q=0.8,application/signed-exchange;v=b3;q=0.9
Sec-Fetch-Site: none
Sec-Fetch-Mode: navigate
Sec-Fetch-User: ?1
Sec-Fetch-Dest: document
Accept-Encoding: gzip, deflate, br
Accept-Language: en-US,en;q=0.9
Cookie: Idea-8296eef1=ec27e1f8-8821-4da4-b0c7-770c146c346a
```



A Blue Heading

A red paragraph.

```
Got connection from IP: 127.0.0.1, Port: 50023
GET /css HTTP/1.1
Host: localhost:7788
Connection: keep-alive
sec-ch-ua: "Not?A_Brand";v="8", "Chromium";v="108", "Microsoft Edge";v="108"
sec-ch-ua-mobile: ?0
sec-ch-ua-platform: "Windows"
Upgrade-Insecure-Requests: 1
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/108.0.0.0 Safari/537.36 Edg/108.0.1462.76
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,image/apng,*/*;q=0.8,application/signed-exchange;v=b3;q=0.9
Sec-Fetch-Site: none
Sec-Fetch-Mode: navigate
Sec-Fetch-User: ?1
Sec-Fetch-Dest: document
Accept-Encoding: gzip, deflate, br
Accept-Language: en-US,en;q=0.9
Cookie: Idea-8296eef1=ec27e1f8-8821-4da4-b0c7-770c146c346a
```

2- If the request is /ar then the server response with main_ar.html which is an Arabic version of main_en.html

أول سيرفر لي-ENCS3320

مرحبا بكم في دوراتنا التدريبية حول شبكات الكمبيوتر

أعضاء المجموعة

احمد زيبيبا 1200105

محمد مكامري 1200227

جهاد الإسلام ، 1191375

بعض المعلومات عن المجموعة

```
Got connection from IP: 127.0.0.1, Port: 50336
GET /main_ar.html HTTP/1.1
Host: localhost:7788
Connection: keep-alive
sec-ch-ua: "Not?A_Brand";v="8", "Chromium";v="108", "Microsoft Edge";v="108"
sec-ch-ua-mobile: ?0
sec-ch-ua-platform: "Windows"
Upgrade-Insecure-Requests: 1
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/108.0.0.0 Safari/537.36 Edg/108.0.1462.76
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,image/apng,*/*;q=0.8,application/signed-exchange;v=b3;q=0.9
Sec-Fetch-Site: none
Sec-Fetch-Mode: navigate
Sec-Fetch-User: ?1
Sec-Fetch-Dest: document
Accept-Encoding: gzip, deflate, br
Accept-Language: en-US,en;q=0.9
Cookie: Idea-8296eef1=ec27e1f8-8821-4da4-b0c7-770c146c346a
```

localhost:7788/ar

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محمد مكاوي 1200227

جهاد الإسلام ، 1191375

بعض المعلومات عن المجموعة

احمد طيب ويحب لغة سي

محمد طيب ويحب لغة جافا

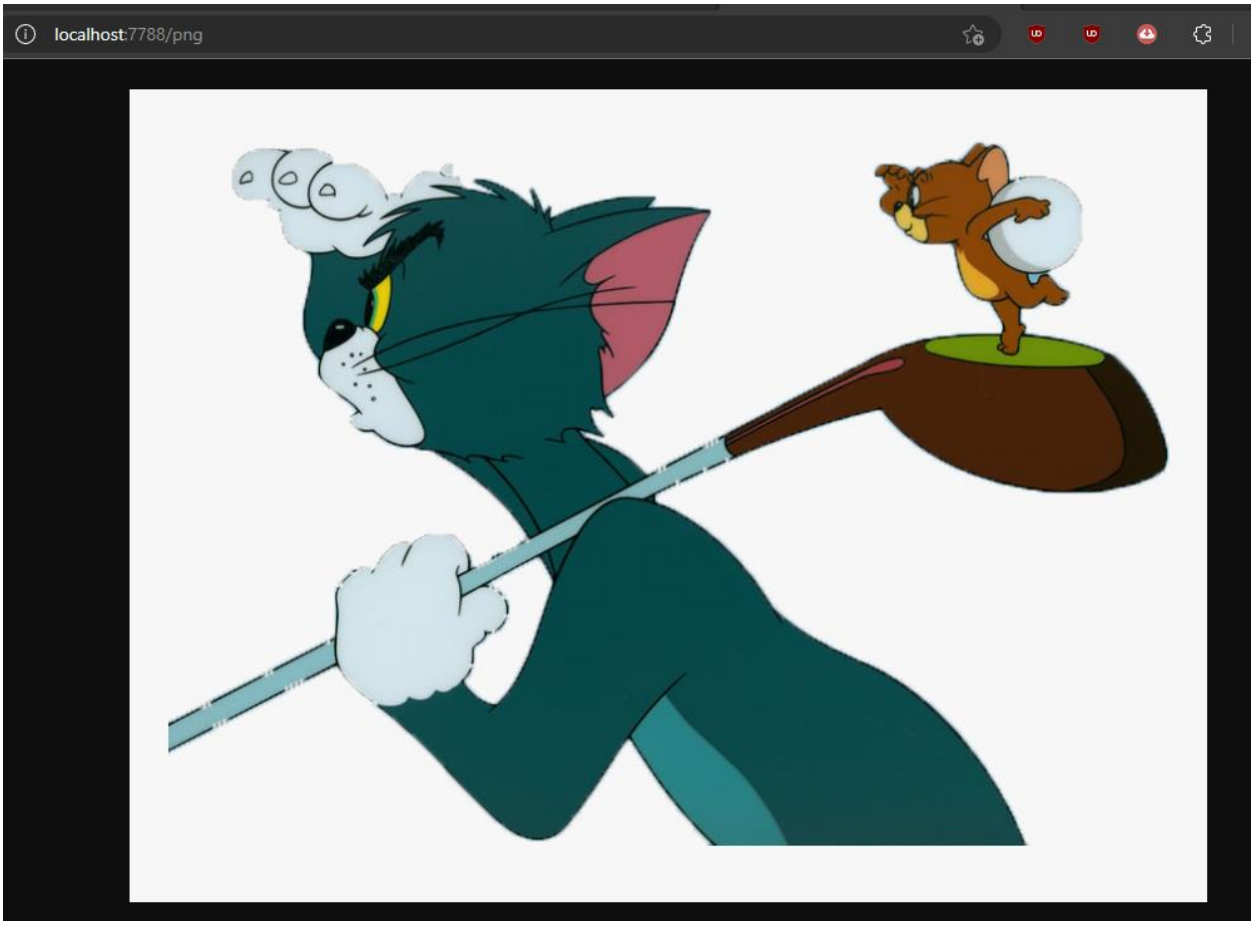
الاسلام زعيم النادي وهو طيب ويحب البايثون

رابط الى: https://www.w3schools.com/python/gloss_python_multi_line_st

ملف اشتيمل : W3Schools Tryit Editor

```
Got connection from IP: 127.0.0.1, Port: 50027
GET /ar HTTP/1.1
Host: localhost:7788
Connection: keep-alive
sec-ch-ua: "Not?A_Brand";v="8", "Chromium";v="108", "Microsoft Edge";v="108"
sec-ch-ua-mobile: ?0
sec-ch-ua-platform: "Windows"
Upgrade-Insecure-Requests: 1
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/108.0.0.0 Safari/537.36 Edg/108.0.1462.76
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,image/apng,*/*;q=0.8,application/signed-exchange;v=b3;q=0.9
Sec-Fetch-Site: none
Sec-Fetch-Mode: navigate
Sec-Fetch-User: ?1
Sec-Fetch-Dest: document
Accept-Encoding: gzip, deflate, br
Accept-Language: en-US,en;q=0.9
Cookie: Idea-8296eef1=ec27e1f8-8821-4da4-b0c7-770c146c346a
```

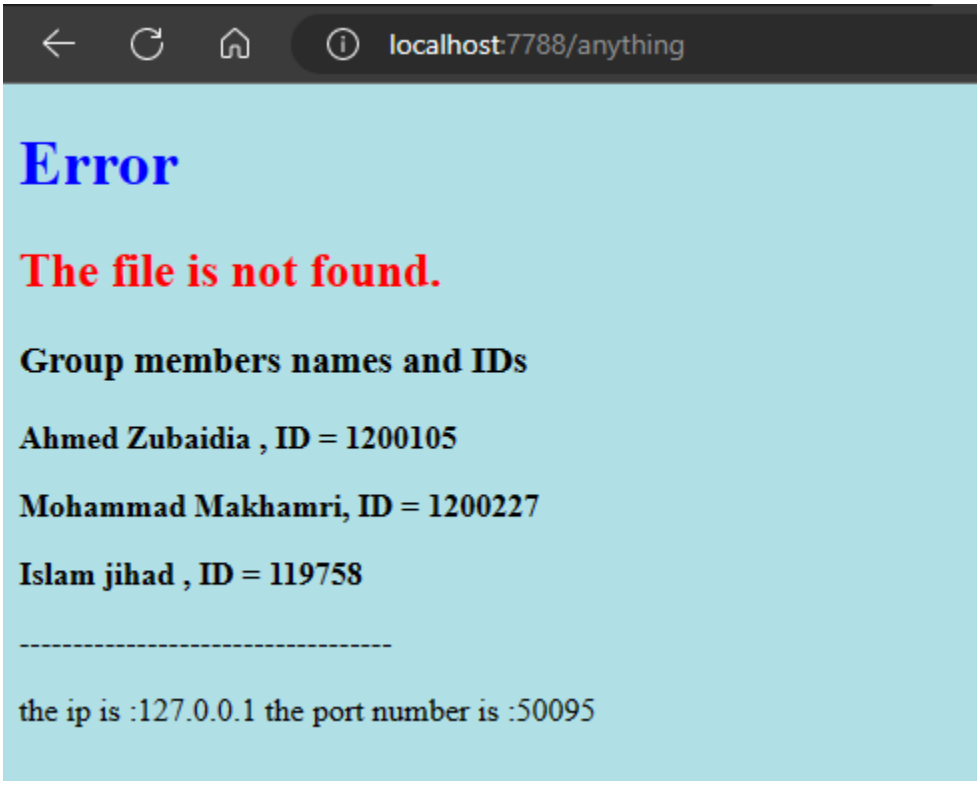
7- if the request is a .png then the server should send the png image with Content-Type: image/png. You can use any image. 8- if the request is a .jpg then the server should send the jpg image with Content-Type: image/jpeg. You can use any image.



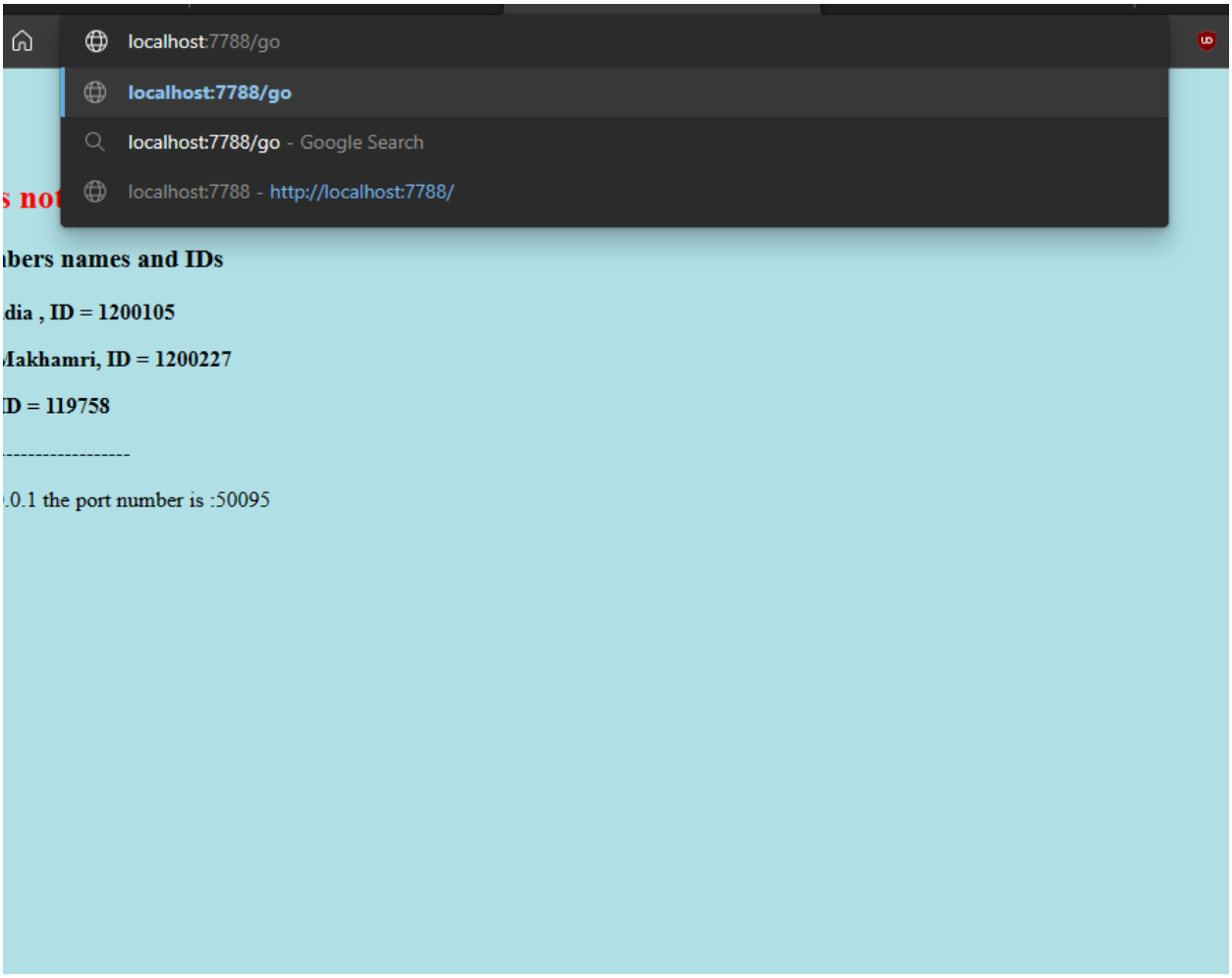
```
Got connection from IP: 127.0.0.1, Port: 50049
GET /png HTTP/1.1
Host: localhost:7788
Connection: keep-alive
sec-ch-ua: "Not?A_Brand";v="8", "Chromium";v="108", "Microsoft Edge";v="108"
sec-ch-ua-mobile: ?0
sec-ch-ua-platform: "Windows"
Upgrade-Insecure-Requests: 1
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/108.0.0.0 Safari/537.36 Edg/108.0.1462.76
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,image/apng,*/*;q=0.8,application/signed-exchange;v=b3;q=0.9
Sec-Fetch-Site: none
Sec-Fetch-Mode: navigate
Sec-Fetch-User: ?1
Sec-Fetch-Dest: document
Accept-Encoding: gzip, deflate, br
Accept-Language: en-US,en;q=0.9
Cookie: Idea-8296eef1=ec27e1f8-8821-4da4-b0c7-770c146c346a
```

```
Got connection from IP: 127.0.0.1, Port: 50056
GET /jpg HTTP/1.1
Host: localhost:7788
Connection: keep-alive
sec-ch-ua: "Not?A_Brand";v="8", "Chromium";v="108", "Microsoft Edge";v="108"
sec-ch-ua-mobile: ?0
sec-ch-ua-platform: "Windows"
Upgrade-Insecure-Requests: 1
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/108.0.0.0 Safari/537.36 Edg/108.0.1462.76
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,image/apng,*/*;q=0.8,application/signed-exchange;v=b3;q=0.9
Sec-Fetch-Site: none
Sec-Fetch-Mode: navigate
Sec-Fetch-User: ?1
Sec-Fetch-Dest: document
Accept-Encoding: gzip, deflate, br
Accept-Language: en-US,en;q=0.9
Cookie: Idea-8296eef1=ec27e1f8-8821-4da4-b0c7-770c146c346a
```

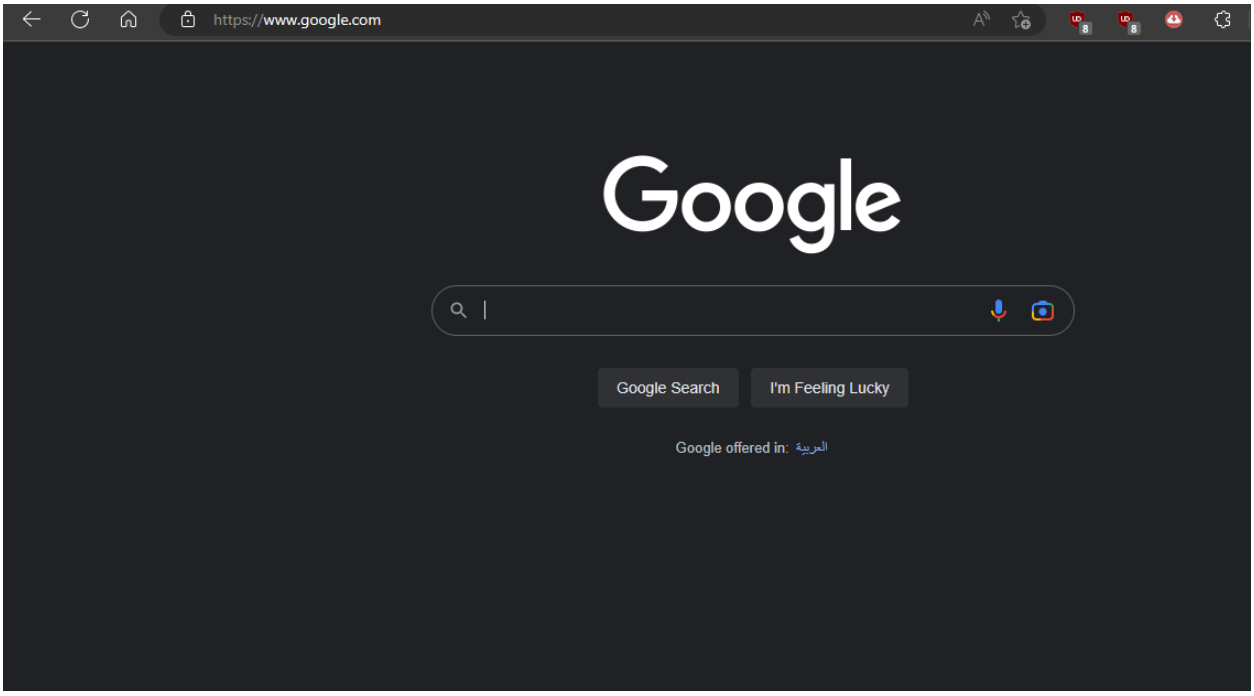
10- If the request is wrong or the file doesn't exist the server should return a simple HTML webpage that contains (Content-Type: text/html) 1- "HTTP/1.1 404 Not Found" in the response status 2- "Error" in the title 3- "The file is not found" in the body in red 4- Your names and IDs in Bold 5- The IP and port number of the client



```
Got connection from IP: 127.0.0.1, Port: 50095
GET /anything HTTP/1.1
Host: localhost:7788
Connection: keep-alive
sec-ch-ua: "Not?A_Brand";v="8", "Chromium";v="108", "Microsoft Edge";v="108"
sec-ch-ua-mobile: ?0
sec-ch-ua-platform: "Windows"
Upgrade-Insecure-Requests: 1
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/108.0.0.0 Safari/537.36 Edg/108.0.1462.76
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,image/apng,*/*;q=0.8,application/signed-exchange;v=b3;q=0.9
Sec-Fetch-Site: none
Sec-Fetch-Mode: navigate
Sec-Fetch-User: ?1
Sec-Fetch-Dest: document
Accept-Encoding: gzip, deflate, br
Accept-Language: en-US,en;q=0.9
Cookie: Idea-8296eef1=ec27e1f8-8821-4da4-b0c7-770c146c346a
```



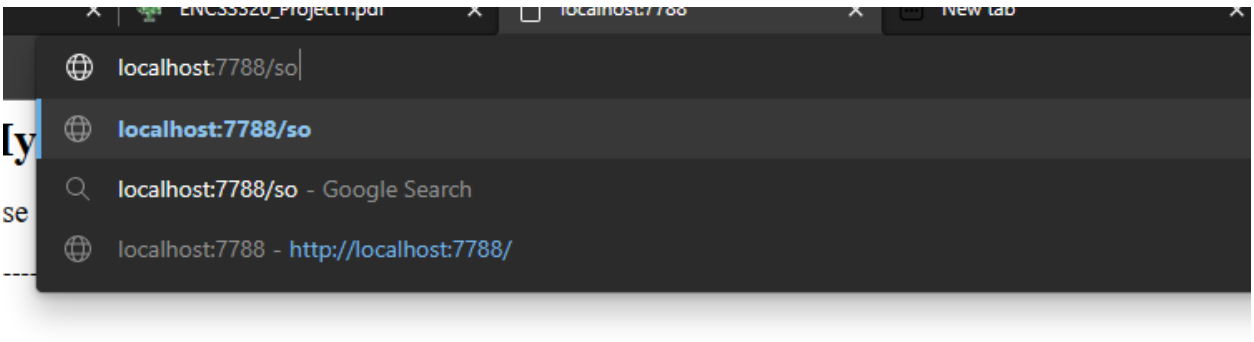
9- Use the status code 307 Temporary Redirect to redirect the following a. If the request is /go then redirect to google website b. If the request is /so then redirect to stackoverflow.com website c. If the request is /bzu then redirect to birzeit university website




```
The server is ready to receive
Got connection from IP: 127.0.0.1, Port: 50151
GET /go HTTP/1.1
Host: localhost:7788
Connection: keep-alive
sec-ch-ua: "Not?A_Brand";v="8", "Chromium";v="108", "Mi
sec-ch-ua-mobile: ?0
sec-ch-ua-platform: "Windows"
Upgrade-Insecure-Requests: 1
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) A
Accept: text/html,application/xhtml+xml,application/xml
Sec-Fetch-Site: none
Sec-Fetch-Mode: navigate
Sec-Fetch-User: ?1
Sec-Fetch-Dest: document
Accept-Encoding: gzip, deflate, br
Accept-Language: en-US,en;q=0.9
```

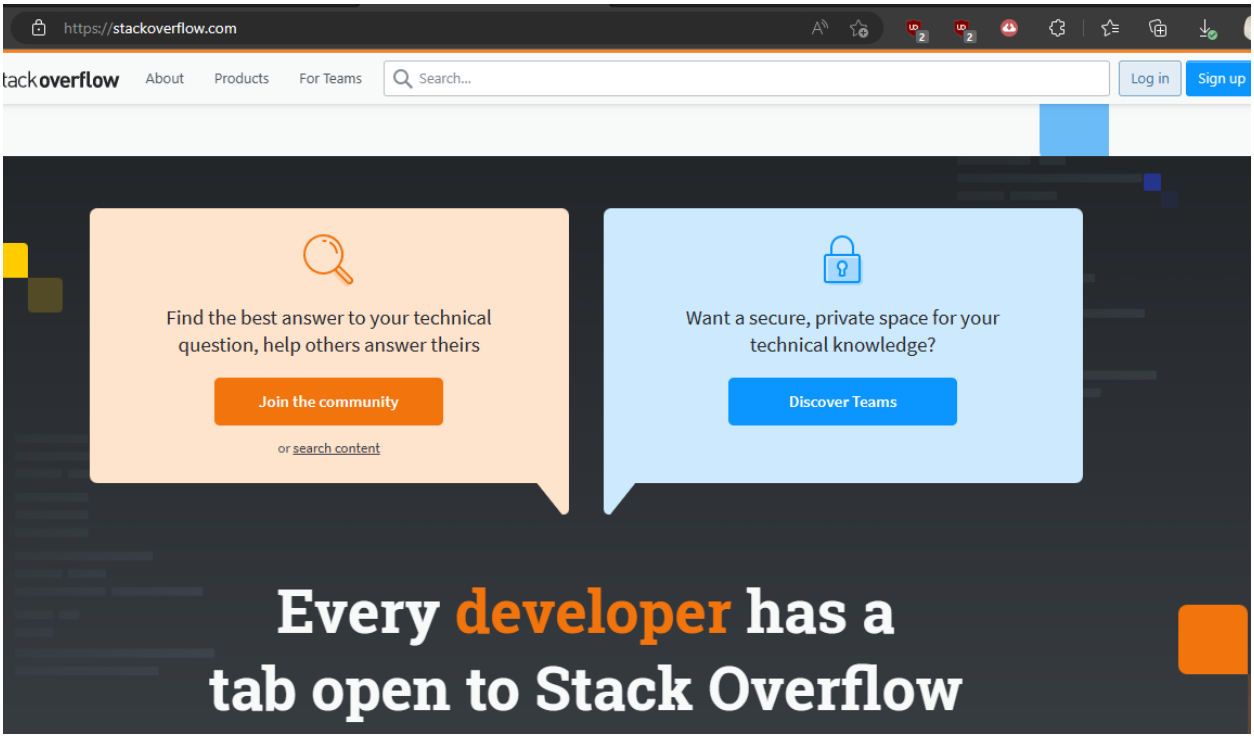
```
elif s[0] == 'go':
    connectionSocket.send("HTTP/1.1 307 Temporary Redirect \r\n".encode())
    connectionSocket.send('Content-Type: text/html \r\n'.encode())
    connectionSocket.send("Location: https://www.google.com \r\n".encode())
    connectionSocket.send('\r\n'.encode())
elif s[0] == 'so':
    connectionSocket.send("HTTP/1.1 307 Temporary Redirect \r\n".encode())
    connectionSocket.send('Content-Type: text/html \r\n'.encode())
    connectionSocket.send("Location: https://stackoverflow.com/ \r\n".encode())
    connectionSocket.send('\r\n'.encode())

elif s[0] == 'bzu':
    connectionSocket.send("HTTP/1.1 307 Temporary Redirect \r\n".encode())
    connectionSocket.send('Content-Type: text/html \r\n'.encode())
    connectionSocket.send("Location: https://www.birzeit.edu/ \r\n".encode())
    connectionSocket.send('\r\n'.encode())
```

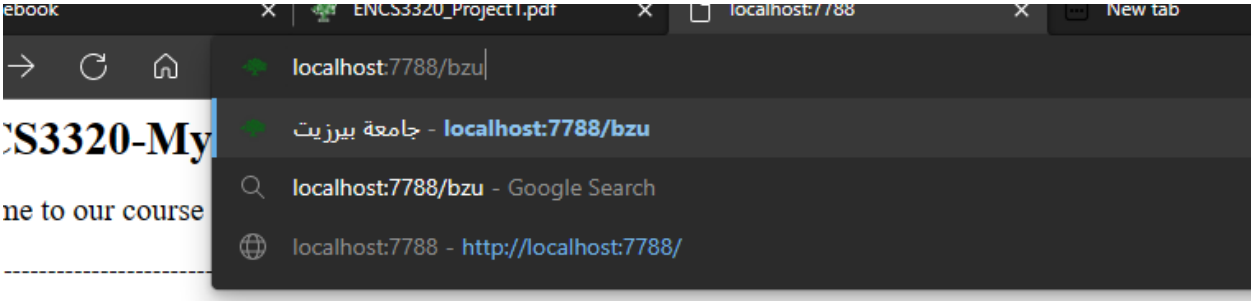


)105

i 1200227




```
The server is ready to receive
Got connection from IP: 127.0.0.1, Port: 50184
GET /so HTTP/1.1
Host: localhost:7788
Connection: keep-alive
Cache-Control: max-age=0
sec-ch-ua: "Not?A_Brand";v="8", "Chromium";v="108", "Microsoft Edge";v="108"
sec-ch-ua-mobile: ?0
sec-ch-ua-platform: "Windows"
Upgrade-Insecure-Requests: 1
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/108.0.0.0 Safari/537.36 Edg/108.0.1462.76
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,image/apng,*/*;q=0.8,application/signed-exchange;v=b3;q=0.9
Sec-Fetch-Site: none
Sec-Fetch-Mode: navigate
Sec-Fetch-User: ?1
Sec-Fetch-Dest: document
Accept-Encoding: gzip, deflate, br
Accept-Language: en-US,en;q=0.9
Cookie: Idea-8296eef1=ec27e1f8-8821-4da4-b0c7-770c146c346a
```

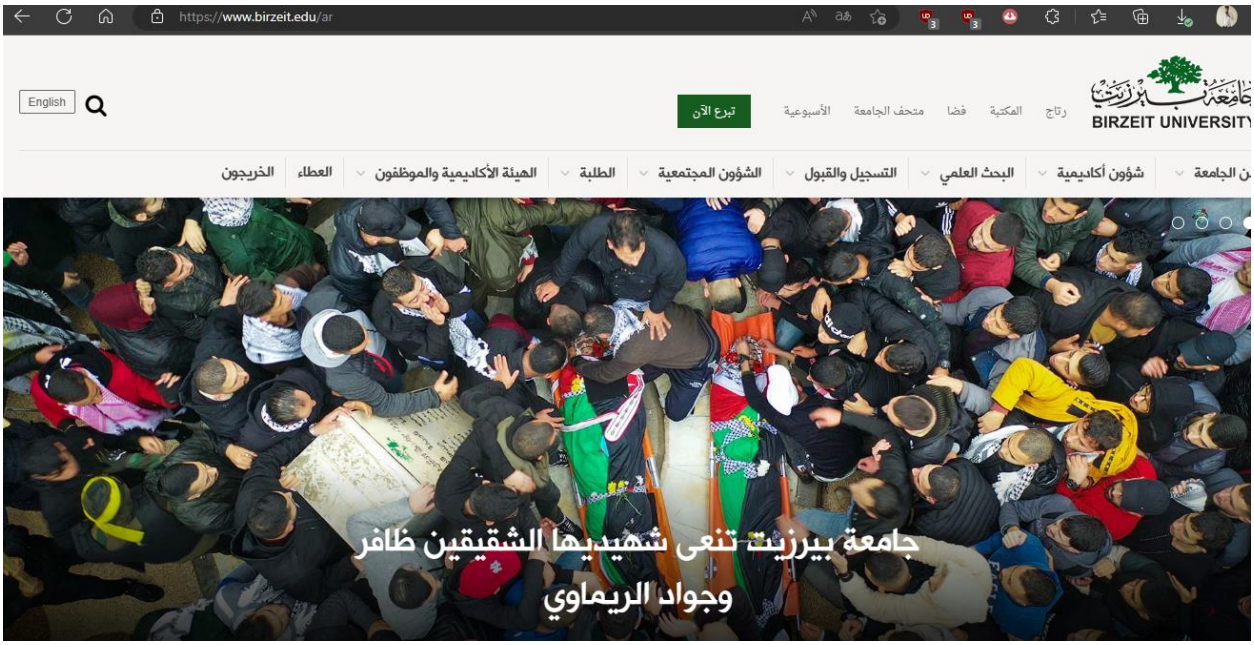


members

zubaidia , id 1200105

nad Makamri , id 1200227

ıad , id 1191375




```
Got connection from IP: 127.0.0.1, Port: 50207
GET /bzu HTTP/1.1
Host: localhost:7788
Connection: keep-alive
sec-ch-ua: "Not?A_Brand";v="8", "Chromium";v="108", "Microsoft Edge";v="108"
sec-ch-ua-mobile: ?0
sec-ch-ua-platform: "Windows"
Upgrade-Insecure-Requests: 1
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/108.0.0.0 Safari/537.36 Edg/108.0.1462.76
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,image/apng,*/*;q=0.8,application/signed-exchange;v=b3;q=0.9
Sec-Fetch-Site: none
Sec-Fetch-Mode: navigate
Sec-Fetch-User: ?1
Sec-Fetch-Dest: document
Accept-Encoding: gzip, deflate, br
Accept-Language: en-US,en;q=0.9
Cookie: Idea-8296eef1=ec27e1f8-8821-4da4-b0c7-770c146c346a
```

Code :

```
import re
from socket import *

serverPort = 7788
serverSocket = socket(AF_INET, SOCK_STREAM)
serverSocket.bind(("localhost", serverPort))
serverSocket.listen(1)
print('The server is ready to receive')
while True:
    connectionSocket, addr = serverSocket.accept()
    ip = addr[0]
    port = addr[1]
    print('Got connection from', "IP: " + ip + ", Port: " + str(port))
    sentence = connectionSocket.recv(1024).decode()
    print(sentence)



    x = re.split('/', sentence)
    s = x[1].split()
    a = 'HTTP'

    if   s[0] == 'en' or s[0] == 'index.html' or s[0] == 'main_en.html' or
s[0] == a:

         f1 = open("mainEn.html", "rb")
         connectionSocket.send("HTTP/1.1 200 OK\r\n".encode())
         connectionSocket.send('Content-Type: text/html \r\n'.encode())
         connectionSocket.send('\r\n'.encode())
```

```
        connectionSocket.send(f1.read())
    elif s[0] == 'ar'or 'main_ar.html':
        f2 = open("arabic.html", "rb")
        connectionSocket.send("HTTP/1.1 200 OK\r\n".encode())
        connectionSocket.send('Content-Type: text/html \r\n'.encode())
        connectionSocket.send('\r\n'.encode())
        connectionSocket.send(f2.read())

    elif s[0] == 'htmlfile':
        connectionSocket.send("HTTP/1.1 200 OK\r\n".encode())
        connectionSocket.send('Content-Type: text/html \r\n'.encode())
        f2 = open("3_htmlfile.html", "rb")
        connectionSocket.send(f2.read())
    elif s[0] == 'css':
        connectionSocket.send("HTTP/1.1 200 OK\r\n".encode())
        connectionSocket.send('Content-Type: text/html \r\n'.encode())
        f2 = open("CSS.css", "rb")
        connectionSocket.send(f2.read())
    elif s[0] == 'png':
        ip = addr[0]
        port = addr[1]
        connectionSocket.send("HTTP/1.1 200 OK\r\n".encode())
        connectionSocket.send('Content-Type: image/png \r\n'.encode())
        connectionSocket.send('\r\n'.encode())

        f2 = open("tom-and-jerry.png", "rb")
        connectionSocket.send(f2.read())

    elif s[0] == 'jpg':
        connectionSocket.send("HTTP/1.1 200 OK\r\n".encode())
        connectionSocket.send('Content-Type: image/jpeg\r\n'.encode())
        connectionSocket.send('\r\n'.encode())

        f2 = open("el.jpg", "rb")
        connectionSocket.send(f2.read())
    elif s[0] == 'go':
        connectionSocket.send("HTTP/1.1 307 Temporary Redirect
\r\n".encode())
        connectionSocket.send('Content-Type: text/html \r\n'.encode())
        connectionSocket.send("Location: https://www.google.com
\r\n".encode())
        connectionSocket.send('\r\n'.encode())
    elif s[0] == 'so':
        connectionSocket.send("HTTP/1.1 307 Temporary Redirect
\r\n".encode())
        connectionSocket.send('Content-Type: text/html \r\n'.encode())
        connectionSocket.send("Location: https://stackoverflow.com/
\r\n".encode())
        connectionSocket.send('\r\n'.encode())

    elif s[0] == 'bzu':
        connectionSocket.send("HTTP/1.1 307 Temporary Redirect
\r\n".encode())
        connectionSocket.send('Content-Type: text/html \r\n'.encode())
        connectionSocket.send("Location: https://www.birzeit.edu/
\r\n".encode())
        connectionSocket.send('\r\n'.encode())
```

```
    elif s[0] == 'jpg':
        connectionSocket.send("HTTP/1.1 200 OK\r\n".encode())
        connectionSocket.send('Content-Type: image/jpeg\r\n'.encode())
        connectionSocket.send('\r\n'.encode())
    else :
        f2 = open("erorr.html", "rb")
        connectionSocket.send("`HTTP/1.1 404 Not Found \r\n".encode())
        connectionSocket.send('Content-Type: text/html \r\n'.encode())
        connectionSocket.send('\r\n'.encode())
        connectionSocket.send(f2.read())
        s= ip
        z=str(port)

        r= "ip is"


        connectionSocket.send("the ip is :".encode() )
        connectionSocket.send(s.encode() )
        connectionSocket.send("\n".encode() )
        connectionSocket.send("the port number is :".encode())
        connectionSocket.send(z.encode())


      #  connectionSocket.send("the port number is".encode() z.encode())
# connectionSocket.close()
```