Faculty of Engineering & Technology
Electrical & Computer Engineering Department

Computer Network

ENCS3320

Project 1 Report

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Abstract:

The goal of this project is to learn about and understand the principles of networking by running some commands and making connections between one server and many clients. We also made HTML webpages using socket programming.

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Solution of the project:

Part 1:

1-What are Ping, Tracert, Nslookup, and Telnet?

Ping: is a network tool that sends a packet of data to a specified IP address or domain name to analyze the response time, TTL (time to live), RTT (round trip time), and overall connection between the sender and the destination.

Tracert: is a command-line utility that traces the path of network packets from the source to the destination.

Nslookup: is a command-line tool used to query DNS to retrieve information about a domain, including its IP address, IPV4 address, and alias name.

Telnet: is a network protocol used to establish a remote connection to a specific device or server.

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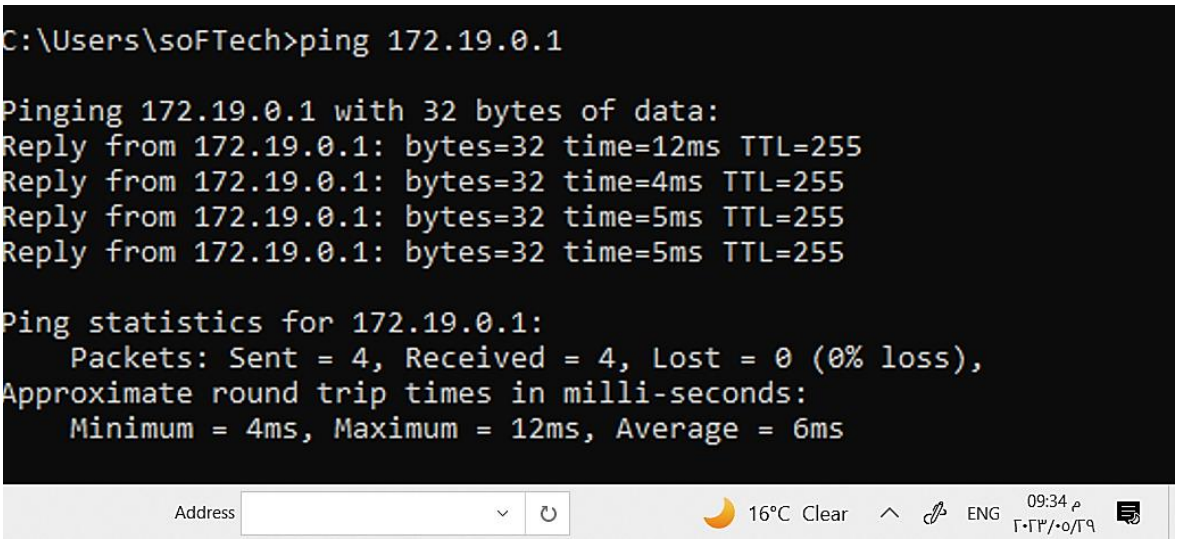
2-run the following commands:

A: Ping a device in the same network



In the previous screenshot, we made Pinging 172.19.0.1 with 32 bytes of data: the ping utility is sending packets of size 32 bytes to the specified IP address.

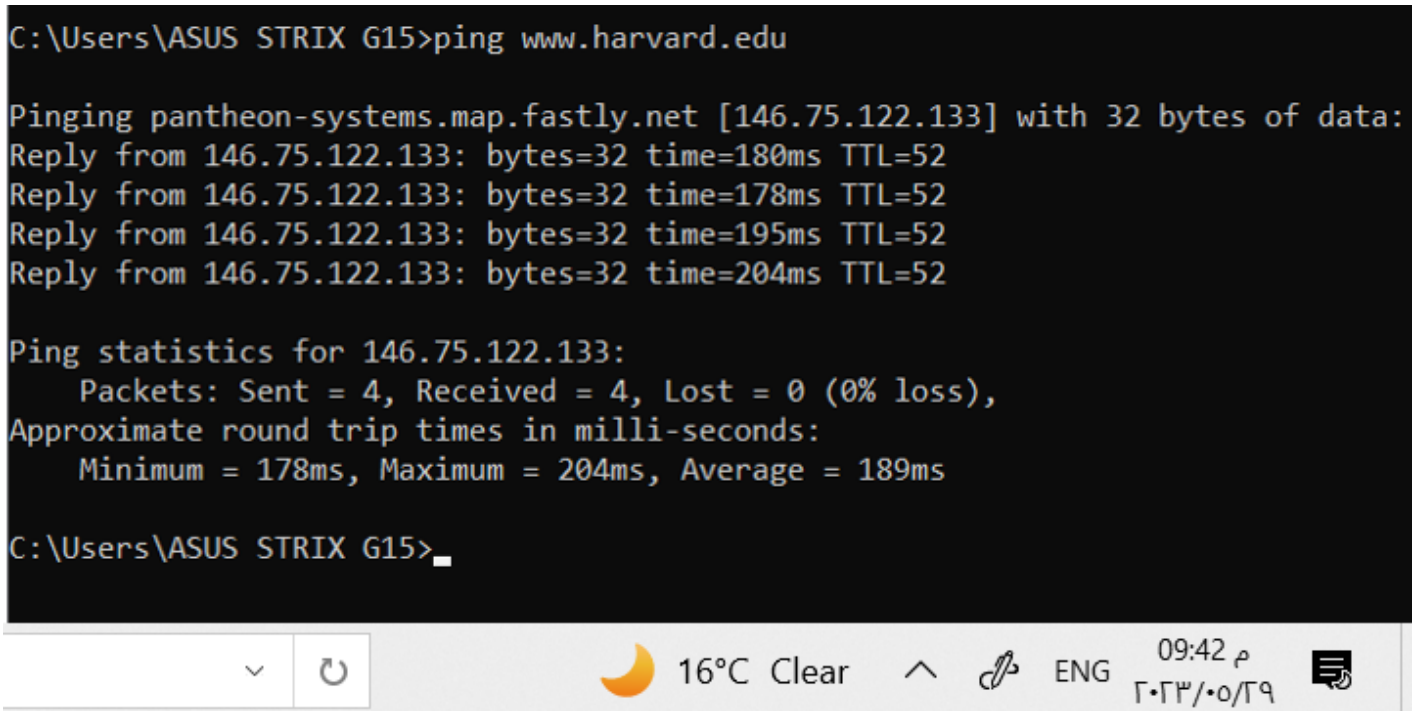
Reply from 172.19.0.1: bytes = 32, time = 12ms TTL=255: These lines represent the replies received from the destination IP address (a smartphone). Each line indicates a successful reply, displaying the response time in milliseconds (time = 12 ms), the size of the packet in bytes (bytes = 32), and the Time to Live (TTL) value, which represents the number of hops the packet can traverse before being discarded (TTL = 255).

The "time=12ms" indicates that the round trip time for the ICMP (Internet Control Message Protocol) echo request and reply packets to travel from the sender (laptop) to the destination (172.19.0.1) and back to the sender is 12 milliseconds.

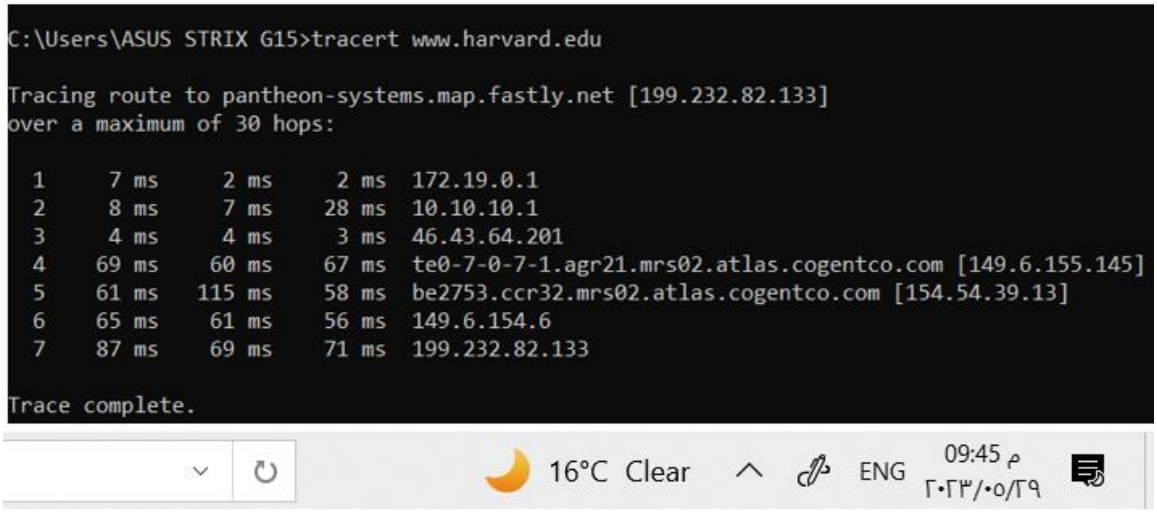
Ping statistics for 172.19.0.1, this line provides a summary of the ping statistics for the destination IP address (a smartphone).
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss): This line indicates the number of packets sent, received, and lost during the ping operation. In our situation, all packets were received successfully, resulting in 0% packet loss.

Approximate round trip times in milliseconds: This section provides additional information about the response times for the sent packets. Minimum = 4ms, Maximum = 12ms, Average = 6ms: These values represent the minimum, maximum, and average response times, respectively, measured in milliseconds.

B: Ping www.harvard.edu

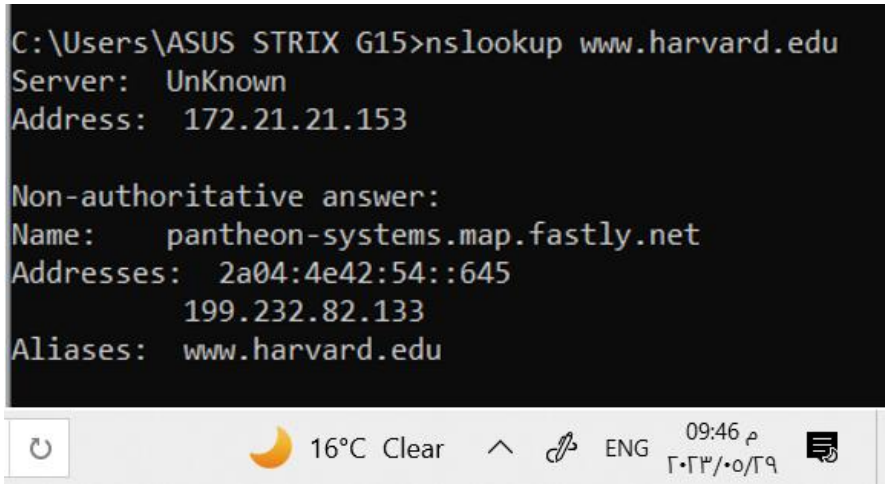


C- Tracert www.harvard.edu



The output shows that the packets pass through seven network devices before reaching the destination, with round-trip times ranging from 4 to 115 milliseconds. The first two hops are on the local network, followed by several hops on the Cogent Communications network, before finally reaching the destination at IP address 199.232.82.133. This server appears to be hosting the website for Harvard University.

D: Nslookup www.harvard.edu



The output above shows the alias name that represents two names for the same IP address. In our case, it shows the actual name for the website, www.harvard.edu, and we discovered it is the alias name, and as we know in the DNS records, the real name takes the type CNAME and the alias name takes the type A.

Part 2:

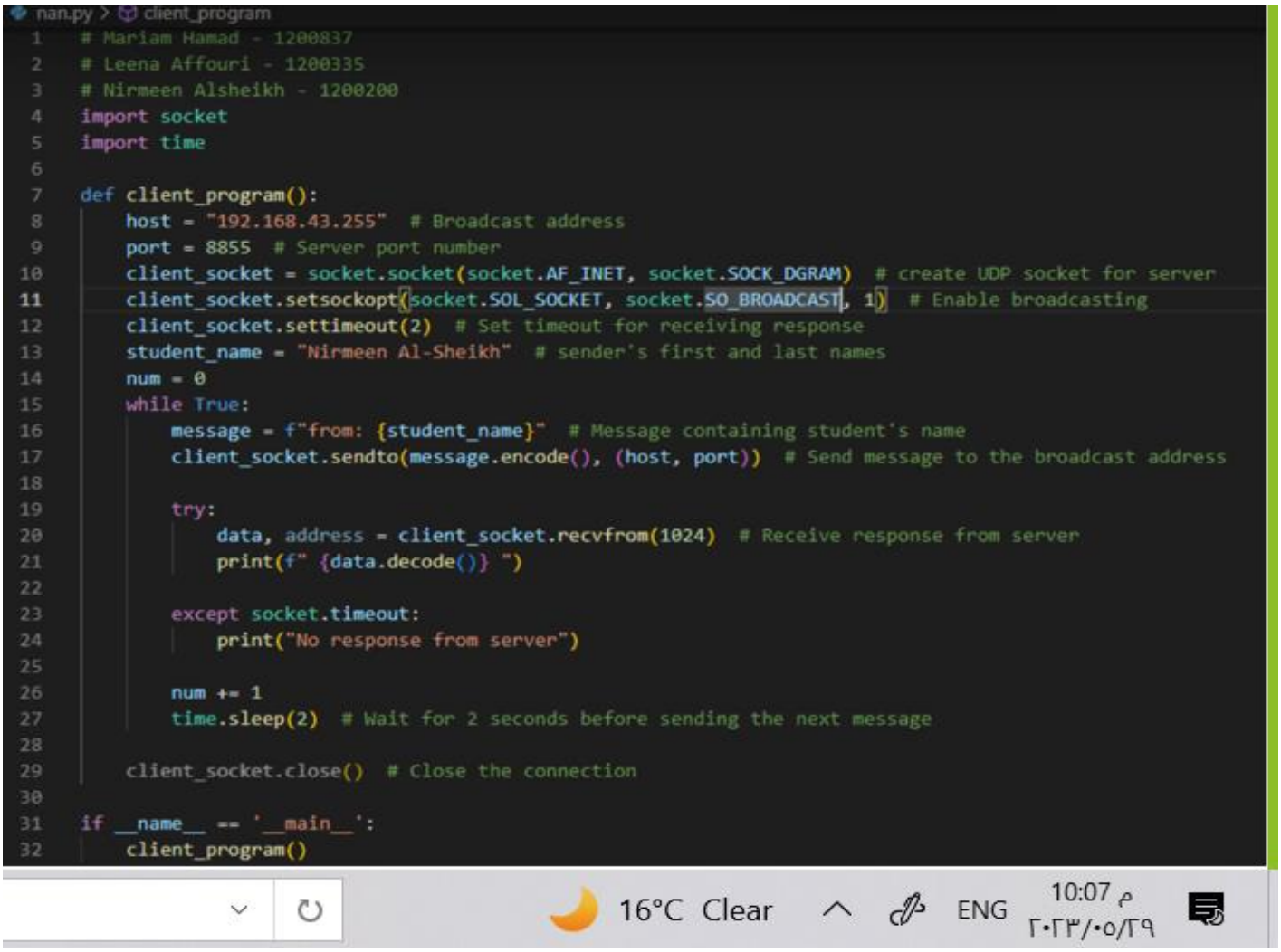
The server code:

```python
# Mariam Hamad - 1200837  & Leena Affouri - 1200335 & Nirmeen Alsheikh - 1200200
import socket
import time
def server_program():          #define server
    host = "192.168.43.246"    # IPv4 Address for server.
    port = 8855                # port number.
    server_socket = socket.socket(socket.AF_INET, socket.SOCK_DGRAM)  # creat UDP socket.
    server_socket.bind((host, port))  # bind socket to local port number.
    clients = {}  # dictionary to store client information
    # Add server name
    server_first_name = "Mariam"
    server_last_name = "Hamad"
    print(f"Server Name: {server_first_name} {server_last_name}")
    while True:
        message, client_address = server_socket.recvfrom(1024) # read from UDP socket into message,getting client address
                                                               # client address = client ip & port number.
        message = message.decode()
        current_time = time.strftime("%H:%M:%S", time.localtime())
        if client_address not in clients:
            # New client
            clients[client_address] = message
        else:
            # Existing client, update the message and time
            clients[client_address] = (message, current_time)
            print(f"Received message from {message} at {current_time}")
            # Send acknowledgment to client
            response_message = f"Server received your message at {current_time}"
            server_socket.sendto(response_message.encode(), client_address)
if __name__ == "__main__":
    server_program()
```

The output of server:

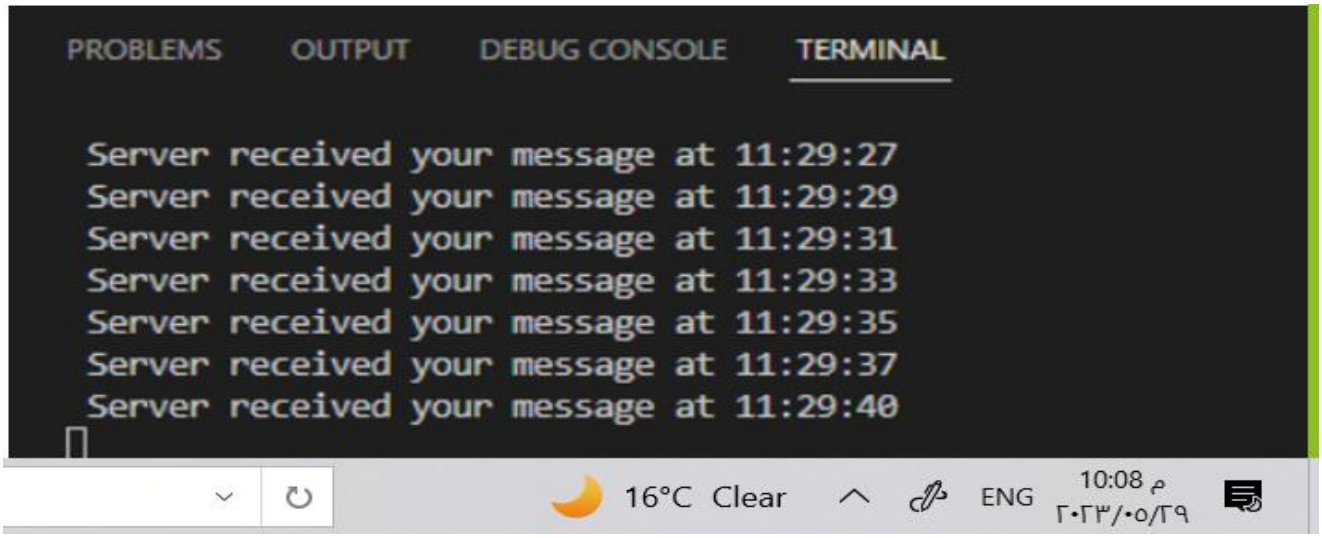
```
Server Name: Mariam Hamad
Received message from from: leena affouri at 11:18:03
Received message from from: leena affouri at 11:18:05
Received message from from: leena affouri at 11:18:07
Received message from from: Nirmeen Al-Sheikh at 11:18:08
Received message from from: leena affouri at 11:18:09
Received message from from: Nirmeen Al-Sheikh at 11:18:10
Received message from from: leena affouri at 11:18:11
Received message from from: Nirmeen Al-Sheikh at 11:18:12
Received message from from: leena affouri at 11:18:13
Received message from from: Nirmeen Al-Sheikh at 11:18:14
Received message from from: leena affouri at 11:18:15
Received message from from: Nirmeen Al-Sheikh at 11:18:16
```

First client code:

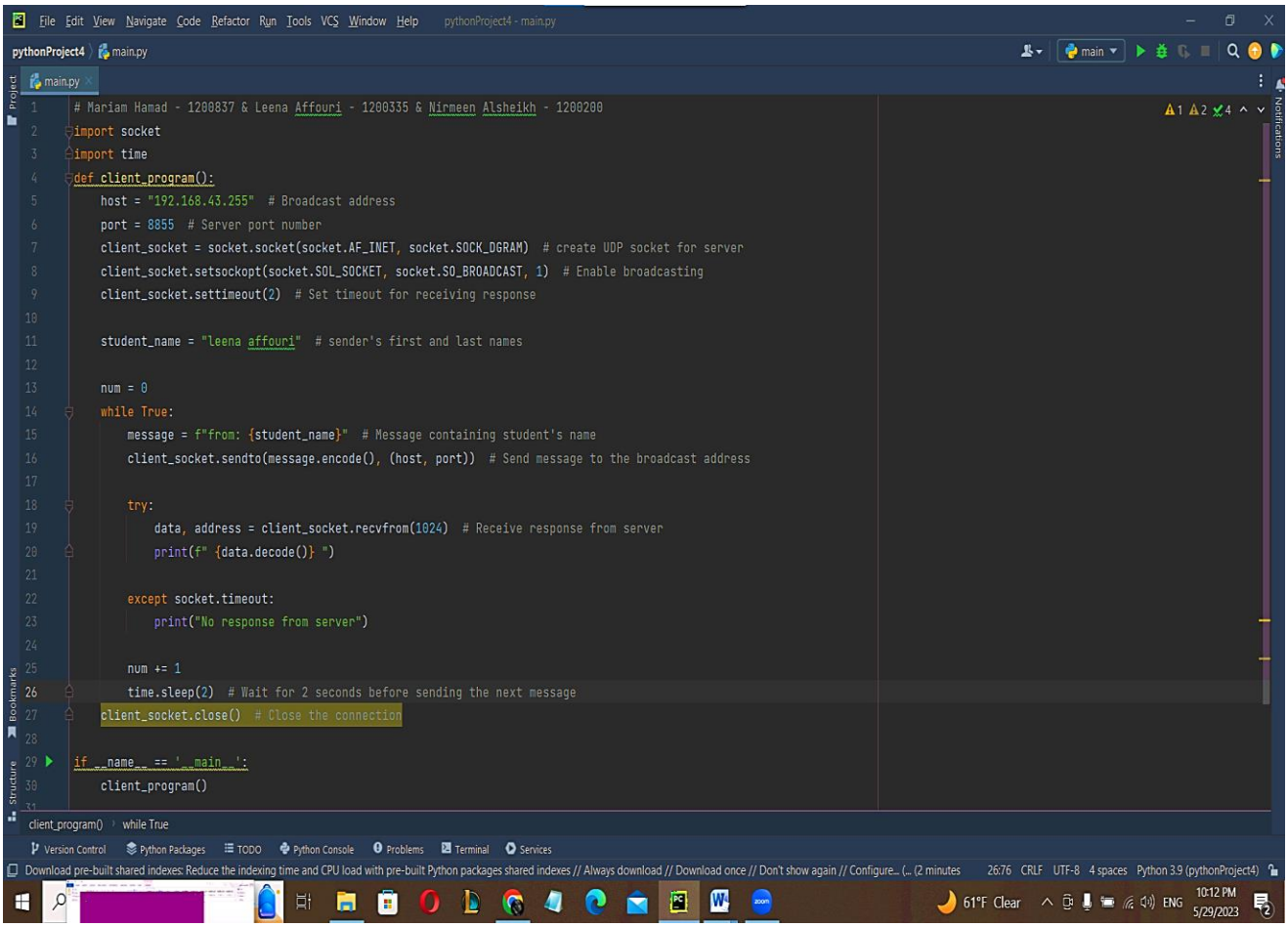


```python
# Mariam Hamad - 1200837
# Leena Affouri - 1200335
# Nirmeen Alsheikh - 1200200
import socket
import time

def client_program():
    host = "192.168.43.255"  # Broadcast address
    port = 8855  # Server port number
    client_socket = socket.socket(socket.AF_INET, socket.SOCK_DGRAM)  # create UDP socket for server
    client_socket.setsockopt(socket.SOL_SOCKET, socket.SO_BROADCAST, 1)  # Enable broadcasting
    client_socket.settimeout(2)  # Set timeout for receiving response
    student_name = "Nirmeen Al-Sheikh"  # sender's first and last names
    num = 0
    while True:
        message = f"from: {student_name}"  # Message containing student's name
        client_socket.sendto(message.encode(), (host, port))  # Send message to the broadcast address

        try:
            data, address = client_socket.recvfrom(1024)  # Receive response from server
            print(f" {data.decode()} ")

        except socket.timeout:
            print("No response from server")

        num += 1
        time.sleep(2)  # Wait for 2 seconds before sending the next message

    client_socket.close()  # Close the connection

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


The output of the first client:

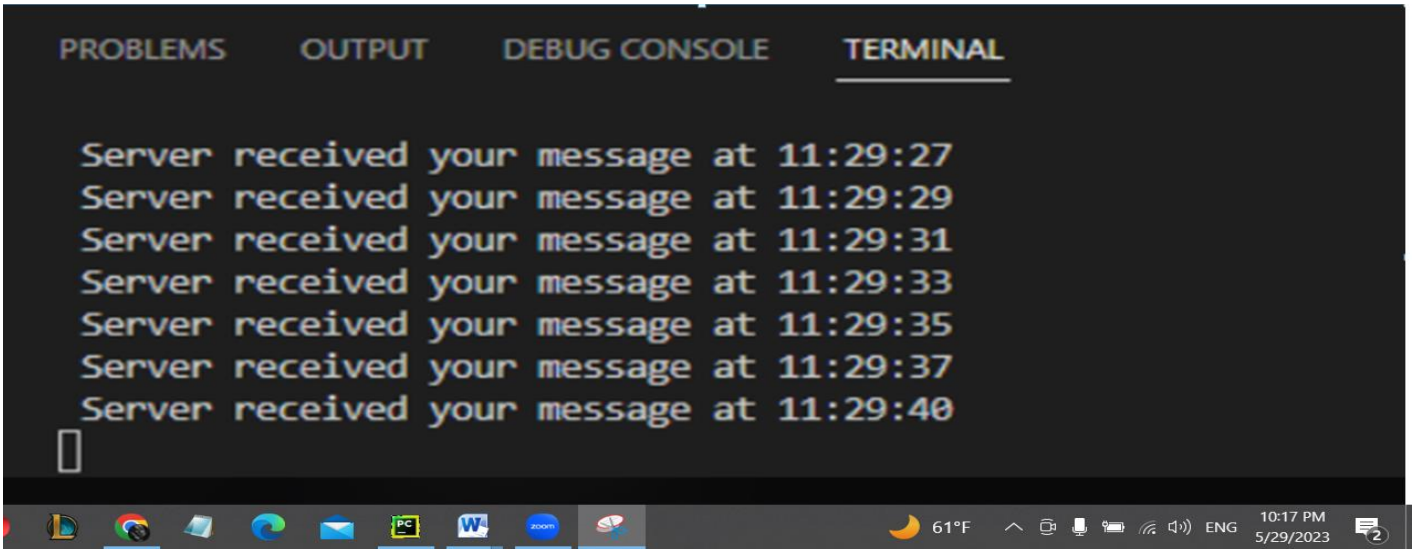


Second client code:



```python
# Mariam Hamad - 1200837 & Leena Affouri - 1200335 & Nirmeen Alsheikh - 1200200
import socket
import time
def client_program():
    host = "192.168.43.255"  # Broadcast address
    port = 8855  # Server port number
    client_socket = socket.socket(socket.AF_INET, socket.SOCK_DGRAM)  # create UDP socket for server
    client_socket.setsockopt(socket.SOL_SOCKET, socket.SO_BROADCAST, 1)  # Enable broadcasting
    client_socket.settimeout(2)  # Set timeout for receiving response

    student_name = "leena affouri"  # sender's first and last names

    num = 0
    while True:
        message = f"from: {student_name}"  # Message containing student's name
        client_socket.sendto(message.encode(), (host, port))  # Send message to the broadcast address

        try:
            data, address = client_socket.recvfrom(1024)  # Receive response from server
            print(f" {data.decode()} ")

        except socket.timeout:
            print("No response from server")

        num += 1
        time.sleep(2)  # Wait for 2 seconds before sending the next message
    client_socket.close()  # Close the connection

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

The output of the second client:



```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL

Server received your message at 11:29:27
Server received your message at 11:29:29
Server received your message at 11:29:31
Server received your message at 11:29:33
Server received your message at 11:29:35
Server received your message at 11:29:37
Server received your message at 11:29:40
```

Explain of part 2:

In this part, we have one server and two clients. The clients send messages to the server every two seconds. The server receives a message from each client and displays a message on its terminal window containing the first and last name of the client, along with the time that the message reached the server. At the same time, the client receives a message from the server, including the time that the message reached the server, after we guarantee that the clients and the server are connected on the same network and the client uses the server IP address.

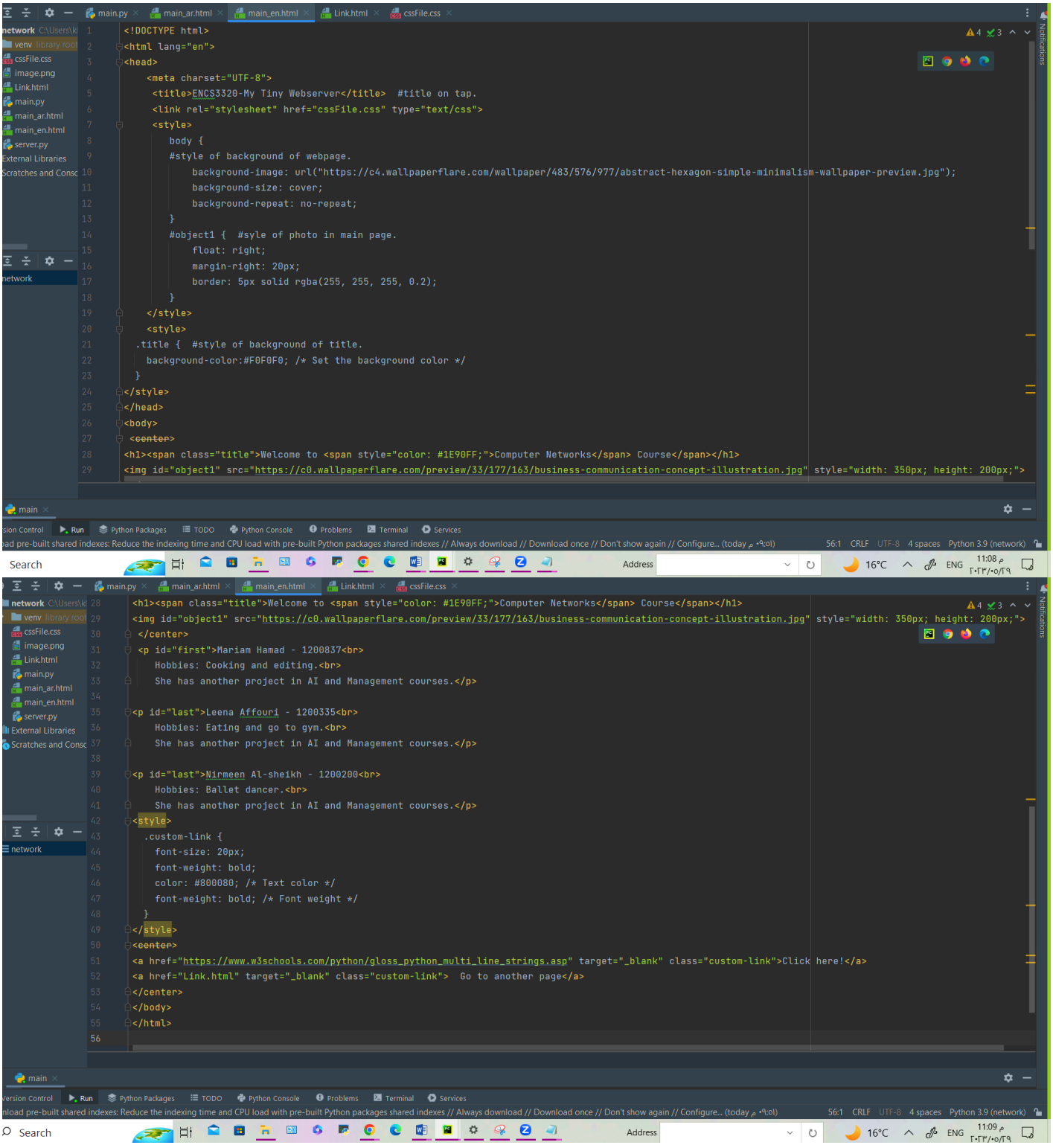
Part 3:

1- Check if the request is **/ or /index.html or /main_en.html or /en (for example localhost: 9977/ or localhost: 9977/en)** then the server should send main_en.html file with Content-Type: text/html.

```
from socket import *
import urllib.request

serverPort = 9977
serverSocket = socket(AF_INET, SOCK_STREAM)
serverSocket.bind(("127.0.0.1", serverPort))
serverSocket.listen(1)
print("The web server is ready to receive")

while True:
    connectionSocket, addr = serverSocket.accept()
    sentence = connectionSocket.recv(1024).decode()
    print("Received sentence:", sentence)
    ip = addr[0]
    port = addr[1]
    sentence_parts = sentence.split()
    if len(sentence_parts) >= 2:
        object = sentence_parts[1]
        print("Requested object:", object)

        if object == '/' or object == '/index.html' or object == '/main_en.html' or object == '/en':
            connectionSocket.send("HTTP/1.1 200 OK \r\n".encode())
            connectionSocket.send("Content-Type: text/html \r\n".encode())
            connectionSocket.send("\r\n".encode())
            file1 = open("main_en.html", "rb")
            connectionSocket.send(file1.read())

        elif object == '/ar':
            connectionSocket.send("HTTP/1.1 200 OK \r\n".encode())
```

In this part, we use socket programming to implement a simple but complete web server in Python on port 9977. First, the program checks the request in the browser. There are four types of requests; if it's one of them, then the server should send the main_en.html file.

The main_en.html file contain HTML webpage that contains:
The code:

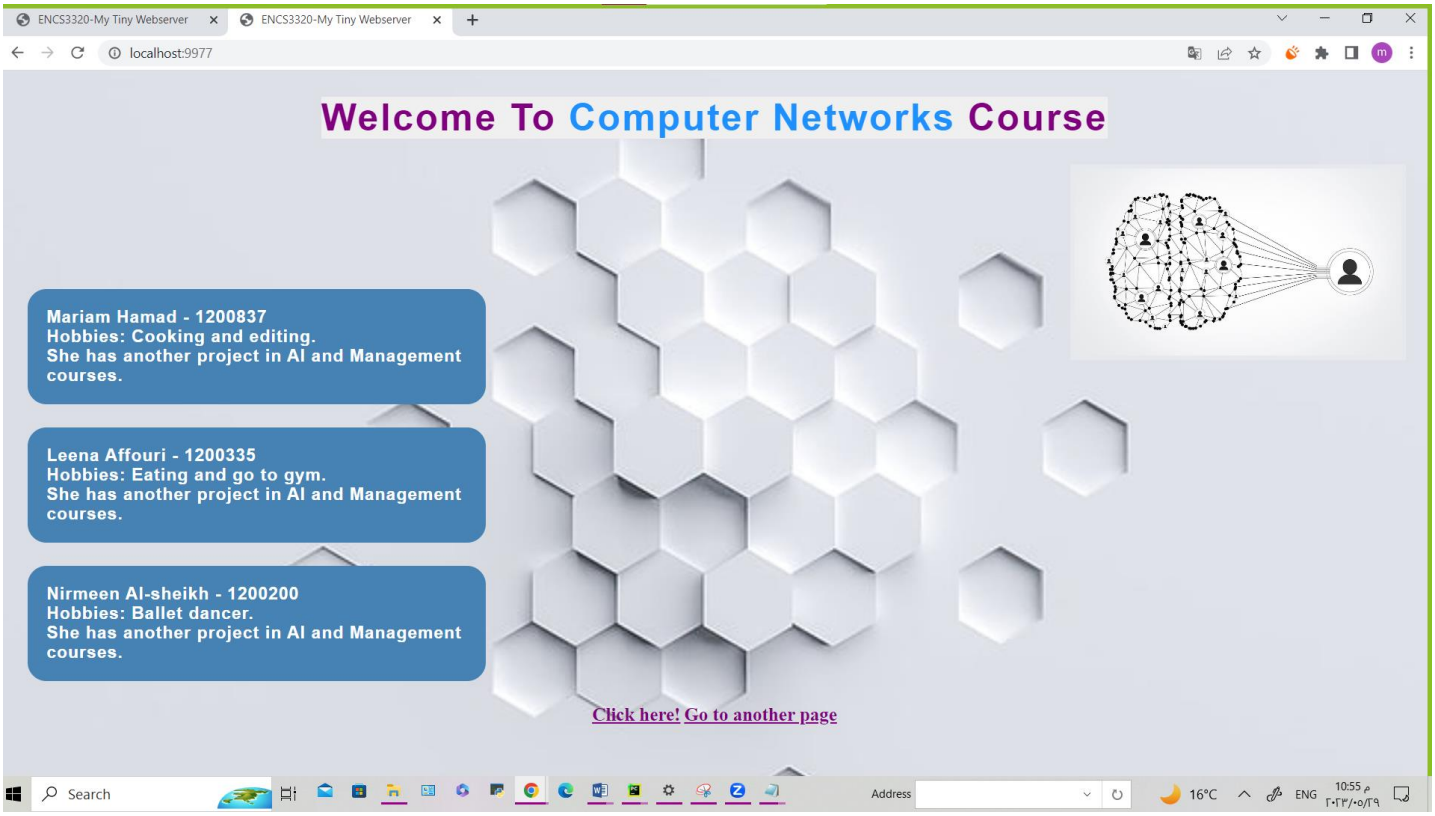


```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
     <title>ENCS3320-My Tiny Webserver</title>  #title on tap.
     <link rel="stylesheet" href="cssFile.css" type="text/css">
     <style>
        body {
        #style of background of webpage.
            background-image: url("https://c4.wallpaperflare.com/wallpaper/483/576/977/abstract-hexagon-simple-minimalism-wallpaper-preview.jpg");
            background-size: cover;
            background-repeat: no-repeat;
        }
        #object1 {  #syle of photo in main page.
            float: right;
            margin-right: 20px;
            border: 5px solid rgba(255, 255, 255, 0.2);
        }
    </style>
    <style>
   .title {  #style of background of title.
    background-color:#F0F0F0; /* Set the background color */
   }
</style>
</head>
<body>
 <center>
<h1><span class="title">Welcome to <span style="color: #1E90FF;">Computer Networks</span> Course</span></h1>
<img id="object1" src="https://c0.wallpaperflare.com/preview/33/177/163/business-communication-concept-illustration.jpg" style="width: 350px; height: 200px;">
</center>
<p id="first">Mariam Hamad - 1200837<br>
    Hobbies: Cooking and editing.<br>
    She has another project in AI and Management courses.</p>

<p id="last">Leena Affouri - 1200335<br>
    Hobbies: Eating and go to gym.<br>
    She has another project in AI and Management courses.</p>

<p id="last">Nirmeen Al-sheikh - 1200200<br>
    Hobbies: Ballet dancer.<br>
    She has another project in AI and Management courses.</p>
<style>
  .custom-link {
    font-size: 20px;
    font-weight: bold;
    color: #800080; /* Text color */
    font-weight: bold; /* Font weight */
  }
</style>
<center>
<a href="https://www.w3schools.com/python/gloss_python_multi_line_strings.asp" target="_blank" class="custom-link">Click here!</a>
<a href="Link.html" target="_blank" class="custom-link">  Go to another page</a>
</center>
</body>
</html>
```

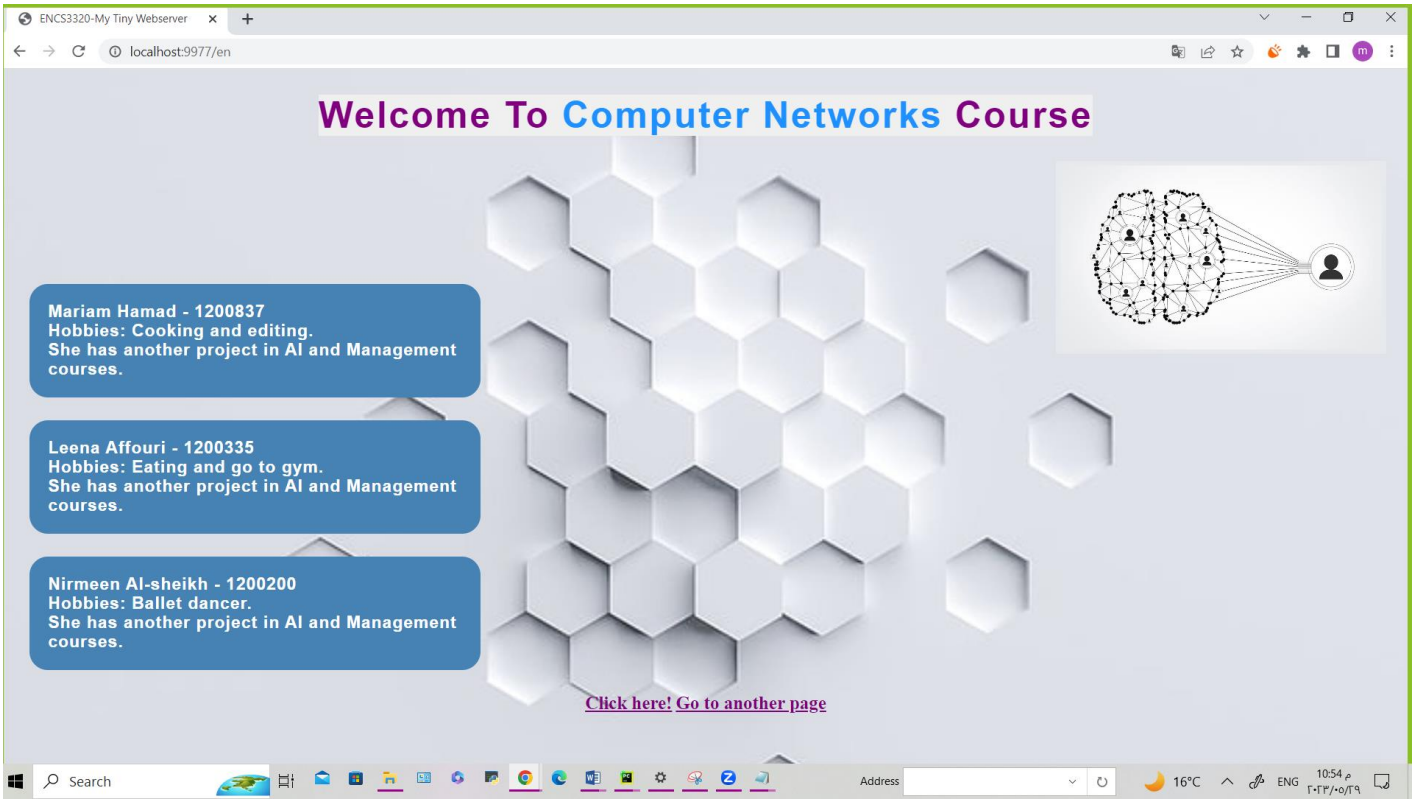
The file that was sent by the server contains an HTML webpage that has in the title our course code ENCS3320-My Tiny Webserver. Then in the webpage we have in the header Welcome to our course Computer Networks," then in the buddy we have our names and ID's and some information about us, including projects that we have done during different courses, some skills, and hobbies. Also, we add a background, another image, and finally a pattern to open a W3Schools page. and we use CSS to make the page look nice. It is the background text box and the color, size, and type of the texts. The width and length of the text box and the position of boxes.

The output:

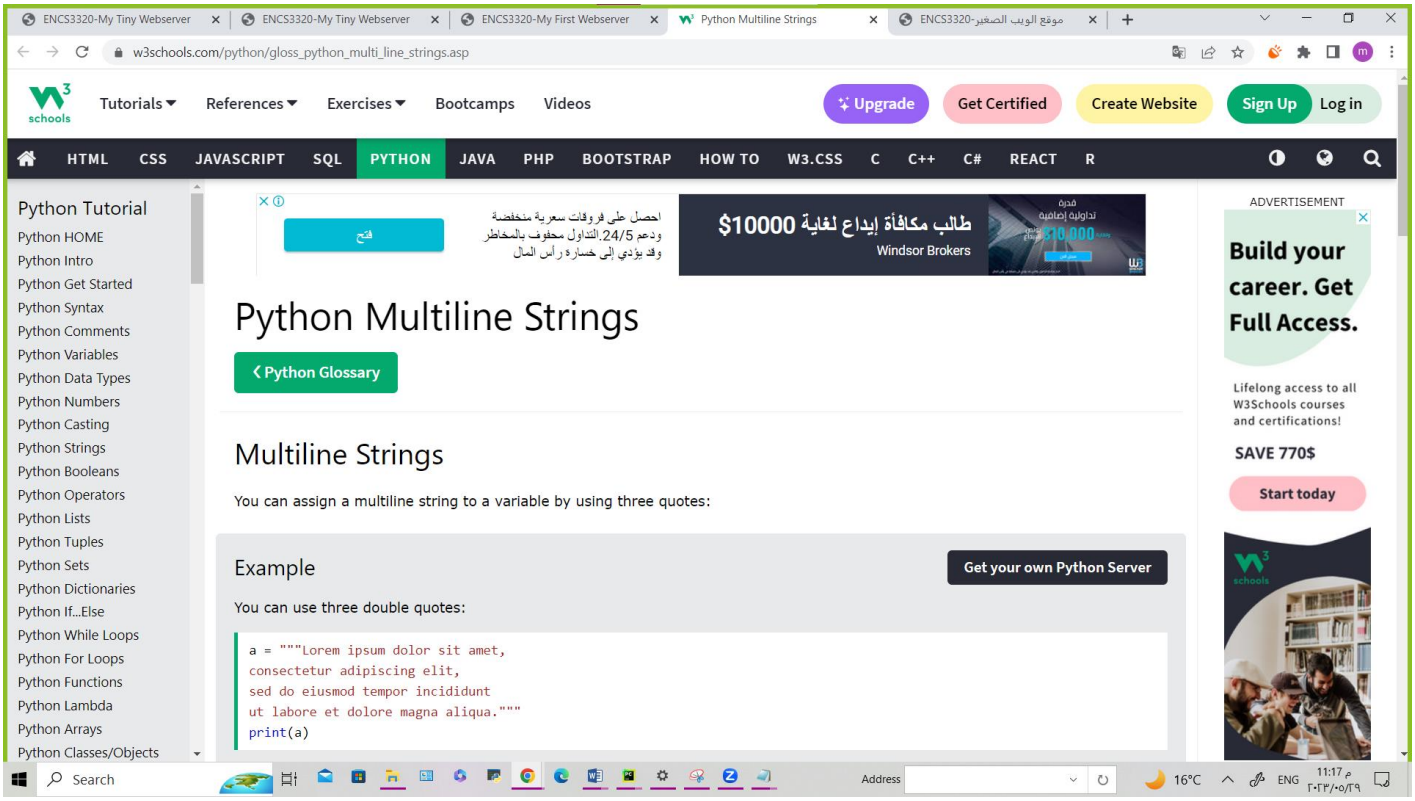
localhost: 9977/



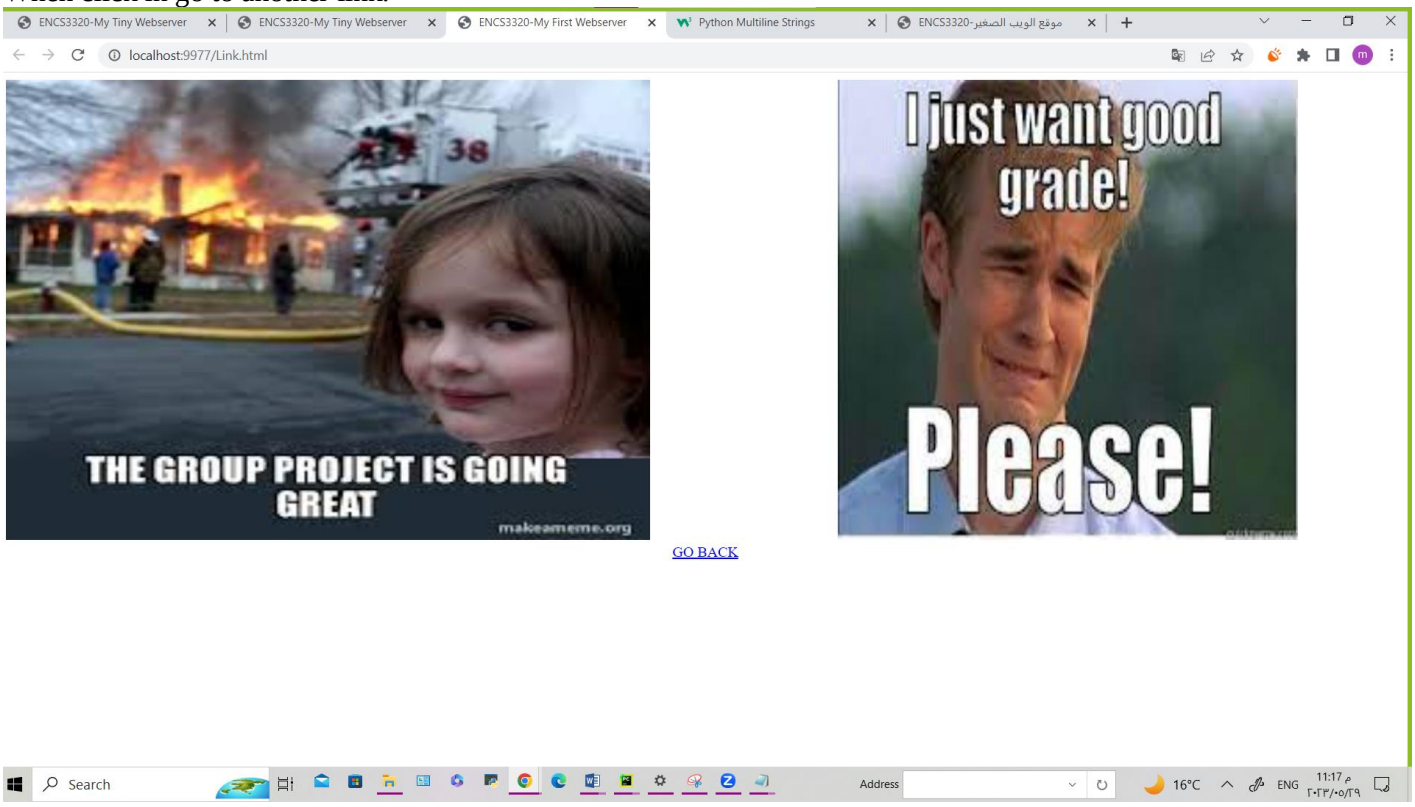
localhost: 9977/en



When click in click here.



When click in go to another link.



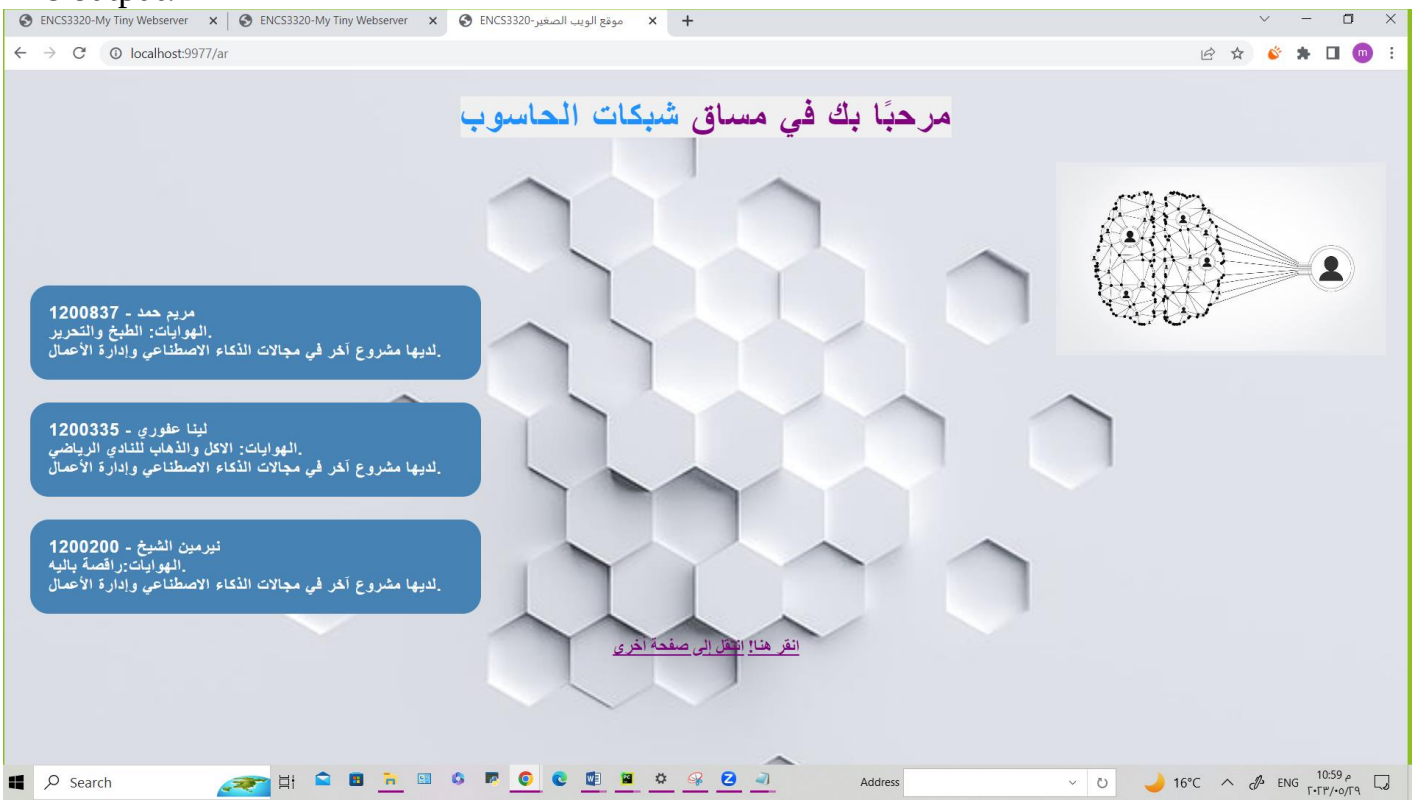
2- If the request is /ar then the server response with main_ar.html which is an Arabic version of main_en.html

The code:

```
<!DOCTYPE html>
<html lang="ar">
<head>
    <meta charset="UTF-8">
    <title>ENCS3320-موقع الويب الصغير</title>
    <link rel="stylesheet" href="cssFile.css" type="text/css">
    <style>
        body {
            background-image: url("https://c4.wallpaperflare.com/wallpaper/483/576/977/abstract-hexagon-simple-minim
            background-size: cover;
            background-repeat: no-repeat;
        }

        #object1 {
            float: right;
            margin-right: 20px;
            border: 5px solid rgba(255, 255, 255, 0.2);
        }
    </style>
    <style>
        .title {
            background-color: #F0F0F0; /* Set the background color */
        }
    </style>
</head>
<body>
<center>
    <h1><span class="title">مرحبًا بك في مساق<span style="color: #1E90FF;">شبكات الحاسوب</span></span></h1>
    <img id="object1" src="https://c0.wallpaperflare.com/preview/33/177/163/business-communication-concept-illustration.jpg" st
</center>
<p id="first">1200837 - مريم حمد<br>
    الهوايات: الطبخ والتحرير<br>
    لديها مشروع آخر في مجالات الذكاء الاصطناعي وإدارة الأعمال.</p>

<p id="last">1200335 - لينا عفوري<br>
    الهوايات: الاكل والذهاب للنادي الرياضي<br>
    لديها مشروع آخر في مجالات الذكاء الاصطناعي وإدارة الأعمال.</p>

<p id="last">1200200 - نيرمين الشيخ<br>
    الهوايات:رقصة باليه<br>
    لديها مشروع آخر في مجالات الذكاء الاصطناعي وإدارة الأعمال.</p>
<style>
    .custom-link {
        /* Add your desired styles here */
        font-size: 20px;
        font-weight: bold;
        color: #800080; /* Text color */
        font-weight: bold; /* Font weight */
    }
</style>
<center>
    <a href="https://www.w3schools.com/python/gloss_python_multi_line_strings.asp" target="_blank" class="custom-link">!انقر هنا</a>
    <a href="Link.html" target="_blank" class="custom-link">انتقل إلى صفحة أخرى</a>
</center>
</body>
</html>
```

```
elif object == '/ar':
    connectionSocket.send("HTTP/1.1 200 OK \r\n".encode())
    connectionSocket.send("Content-Type: text/html \r\n".encode())
    connectionSocket.send("\r\n".encode())
    file2 = open("main_ar.html", "rb")
    connectionSocket.send(file2.read())
```

The output:



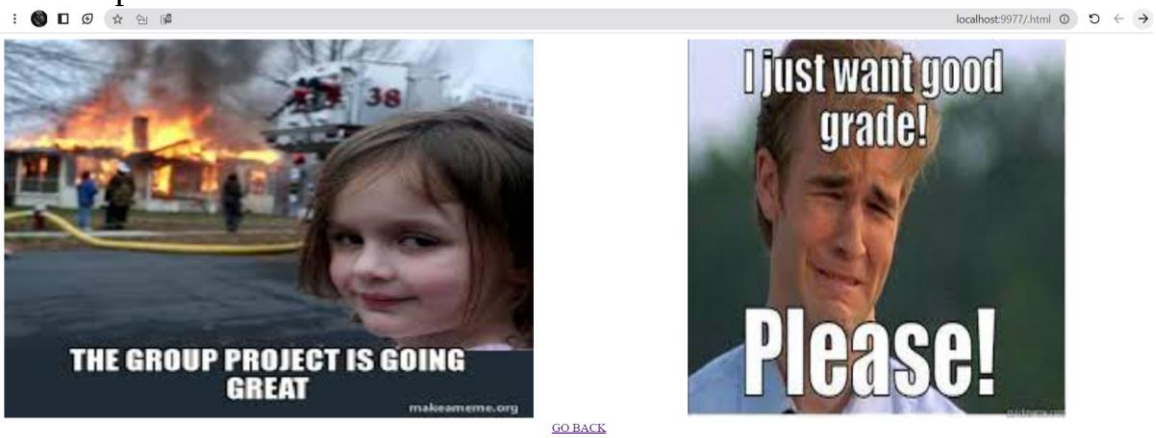
This is a translated copy of the webpage in Arabic.

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.

The code:

```
    elif object.endswith('.html'):
        connectionSocket.send("HTTP/1.1 200 OK \r\n".encode())
        connectionSocket.send("Content-Type: text/html \r\n".encode())
        connectionSocket.send("\r\n".encode())
        file3 = open("Link.html", "rb")
        connectionSocket.send(file3.read())
```

The output:



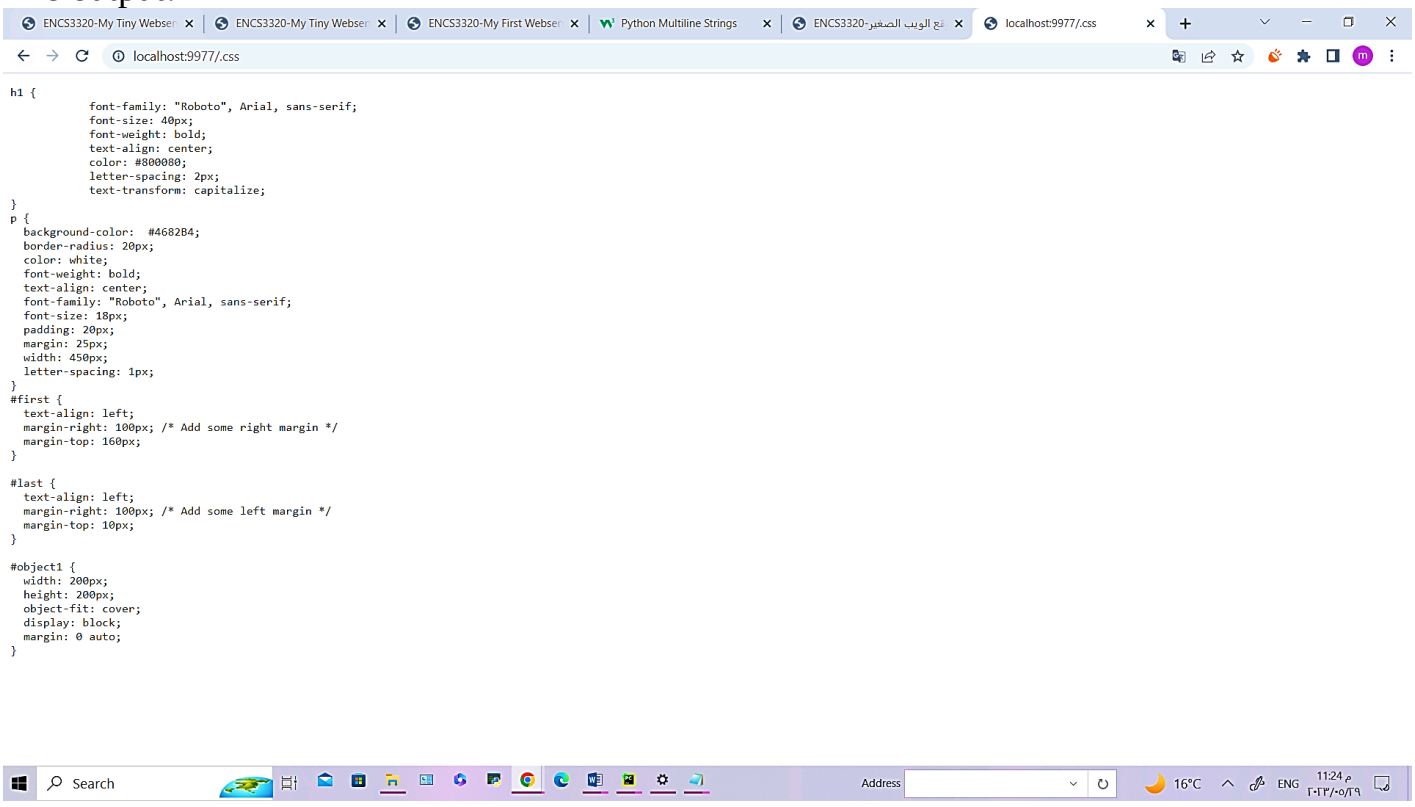
4- If the request is a .css file then the server should send the requested css file with Content-Type: text/css. You can use any CSS file

The code:

```css
h1 {
                font-family: "Roboto", Arial, sans-serif;
                font-size: 40px;
                font-weight: bold;
                text-align: center;
                color: #800080;
                letter-spacing: 2px;
                text-transform: capitalize;

}

p {
   background-color:  #4682B4;
   border-radius: 20px;
   color: white;
   font-weight: bold;
   text-align: center;
   font-family: "Roboto", Arial, sans-serif;
   font-size: 18px;
   padding: 20px;
   margin: 25px;
   width: 450px;
   letter-spacing: 1px;

}
#first {
   text-align: left;
   margin-right: 100px; /* Add some right margin */
   margin-top: 160px;

```

```css
#first {
  text-align: left;
  margin-right: 100px; /* Add some right margin */
  margin-top: 160px;

}

#last {
  text-align: left;
  margin-right: 100px; /* Add some left margin */
  margin-top: 10px;

}

#object1 {
  width: 200px;
  height: 200px;
  object-fit: cover;
  display: block;
  margin: 0 auto;
}
```

The output:

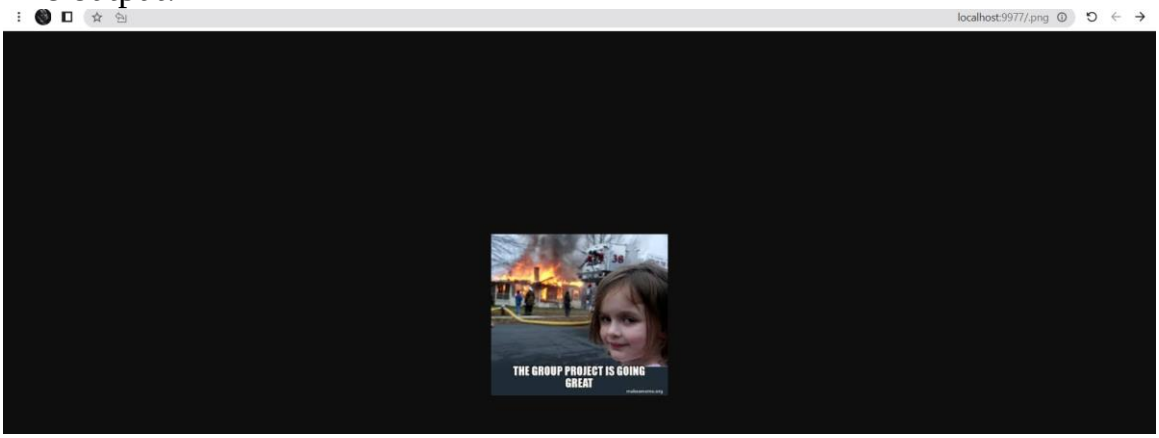


5- If the request is a .png then the server should send the png image with Content-Type: image/png. You can use any image.

The code:

```
elif object.endswith('.png'):
    url = "https://encrypted-tbn0.gstatic.com/images?q=tbn:ANd9GcQ2ZE3oq8SzGWmH6wIEIDFiMtTI9zTLxxLHXA&usqp=CAU.png"
    connectionSocket.send("HTTP/1.1 200 OK \r\n".encode())
    connectionSocket.send("Content-Type: image/png \r\n".encode())
    connectionSocket.send("\r\n".encode())
    # Download the image from the URL and save it locally
    urllib.request.urlretrieve(url, "image.png")
    # Open the local image file and send its content
    file5 = open("image.png", "rb")
    connectionSocket.send(file5.read())
```

The output:

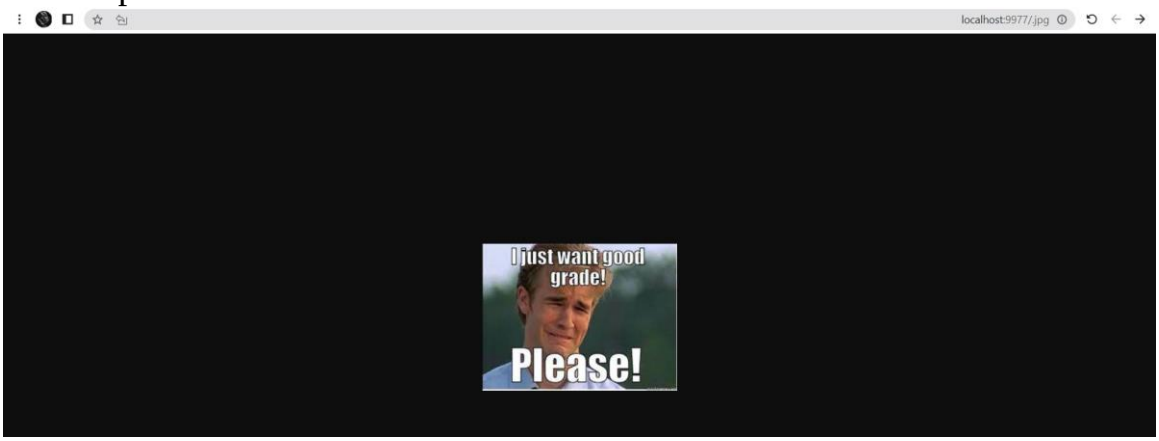


6- If the request is a .jpg then the server should send the jpg image with Content-Type: image/jpeg. You can use any image.

The code:

```
elif object.endswith(".jpg"):

    url = "https://i.imgur.com/fvrP7rn.jpg"
    connectionSocket.send("HTTP/1.1 200 OK\r\n".encode())
    connectionSocket.send("Content-Type: image/jpg \r\n".encode())
    connectionSocket.send("\r\n".encode())
    # Download the image from the URL and save it locally
    urllib.request.urlretrieve(url, "image.jpg")
    # Open the local image file and send its content
    file5 = open("image.jpg", "rb")
    connectionSocket.send(file5.read())
```

The output:



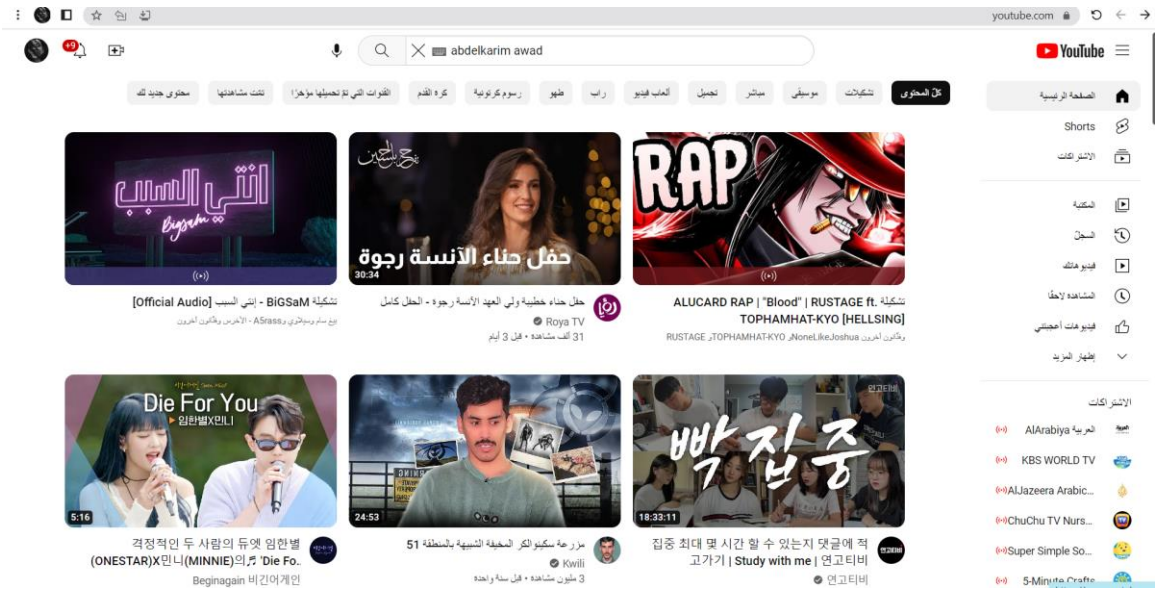
7- Use the status code 307 Temporary Redirect to redirect the following

a- If the request is /yt then redirect to YouTube website

The code:

```
elif object == '/yt':
    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.youtube.com/ \r\n".encode())
    connectionSocket.send("\r\n".encode())
```

The output:

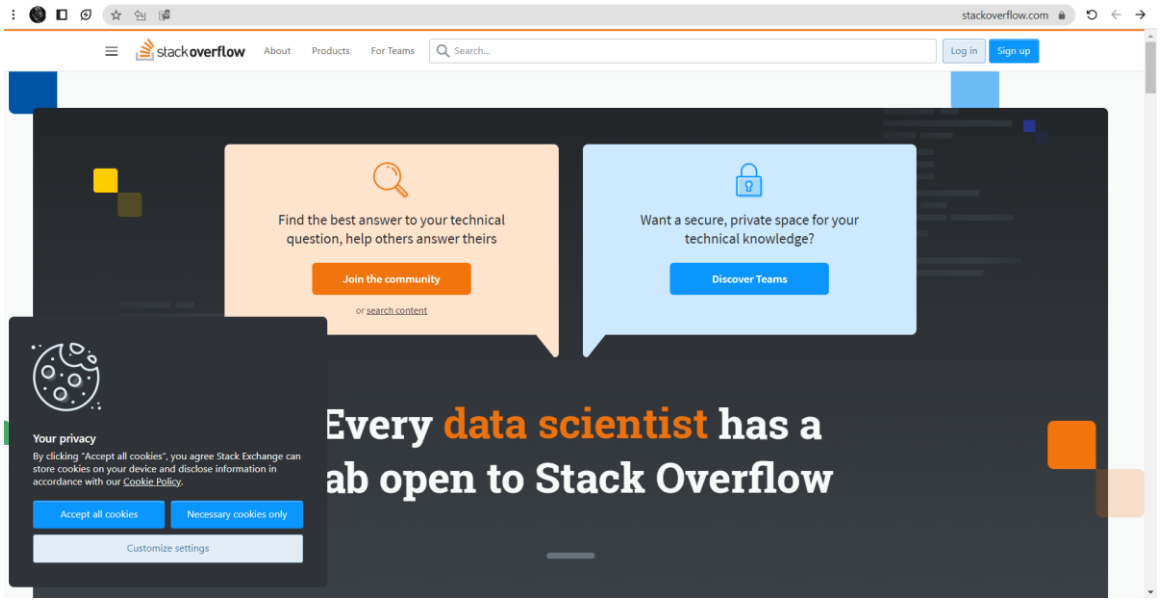


b- If the request is /so then redirect to stackoverflow.com website

The code:

```
elif object == '/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())
```

The output:

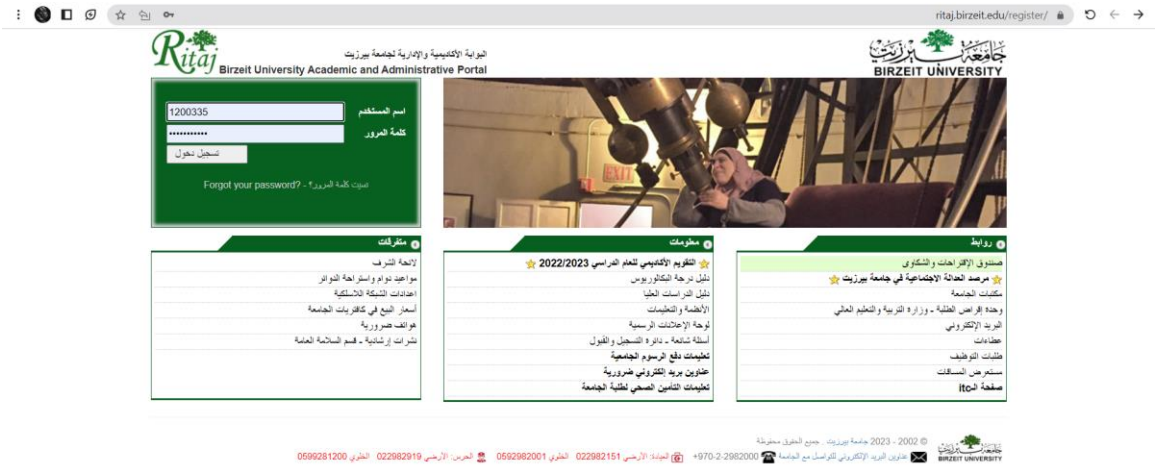


c- If the request is /rt then redirect to ritaj website

The code:

```
elif object == '/rt':
    connectionSocket.send("HTTP/1.1 307 Temporary Redirect \r\n".encode())
    connectionSocket.send("Content-Type: text/html \r\n".encode())
    connectionSocket.send("Location: https://ritaj.birzeit.edu// \r\n".encode())
    connectionSocket.send("\r\n".encode())
```

The output:

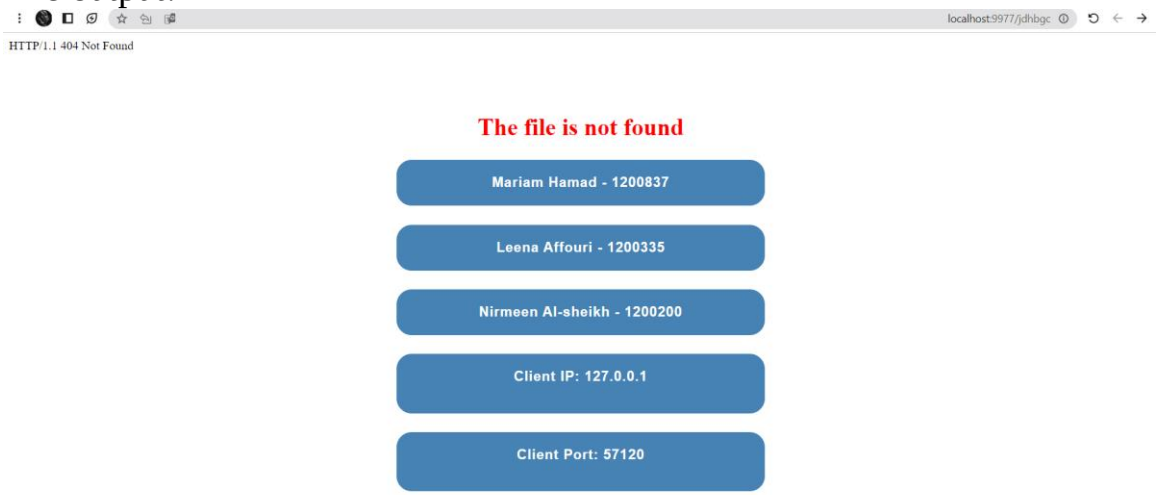


8- If the request is wrong or the file doesn't exist the server should return a simple HTML webpage that contains (Content-Type: text/html)

The code:

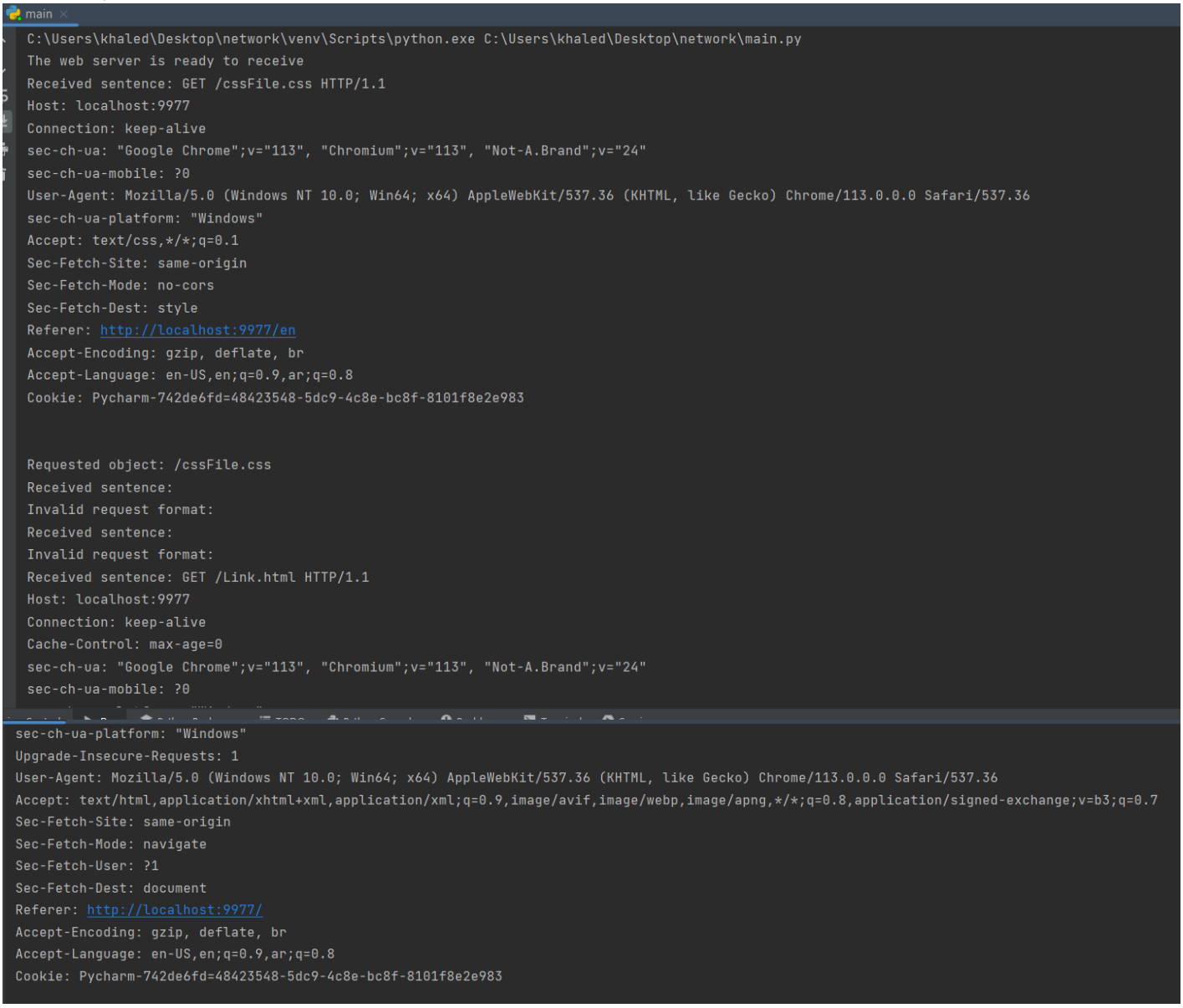
```
    else:
        error_message = f'''HTTP/1.1 404 Not Found <html> <head> <title>Error 404</title> <style>
                        body {{  background-image: url("back.jpg");
                        background-repeat: no-repeat;
                        background-attachment: fixed;
                        background-size: 100% 100%;  }}
                        h1 {{ margin-top: 80px; color: red; font-weight: bold; text-align: center; }}
                        h2 {{background-color: #4682B4;
                        border-radius: 20px;
                        color: white;
                        font-weight: bold;
                        text-align: center;
                        font-family: "Roboto", Arial, sans-serif;
                        font-size: 18px;
                        padding: 20px;
                        margin: 25px auto;
                        max-width: 450px;
                        letter-spacing: 1px;}} </style> </head> <body> <h1>The file is not found</h1>
                        <h2>Mariam Hamad - 1200837</h2>
                        <h2>Leena Affouri - 1200335</h2>
                        <h2>Nirmeen Al-sheikh - 1200200</h2>
                        <h2><b>Client IP: {ip}</b></p>
                        <h2><b>Client Port: {port}</b></p> </body> </html> '''.encode('utf-8')
        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(error_message)
        connectionSocket.close()
    else:
        print("Invalid request format:", sentence)
```

The output:



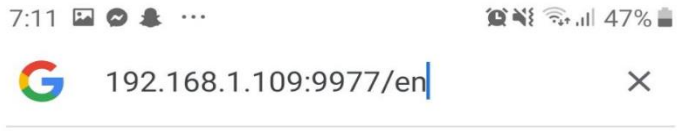
If the request is anything else, it shows a page with an error message that the file was not found and our names and IDs, as well as the client IP and client port.

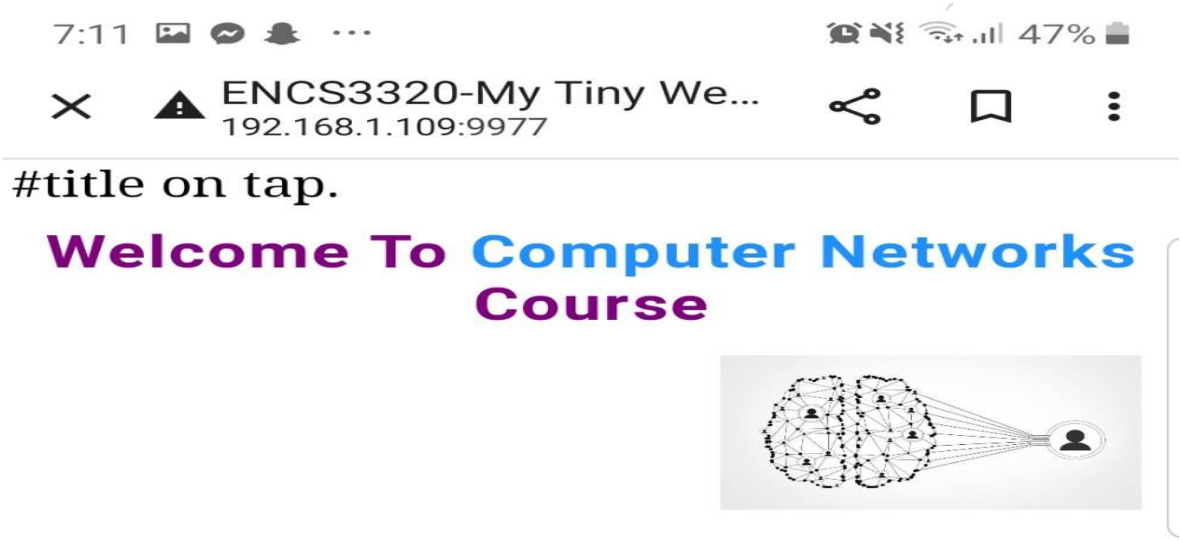
9- The program should print the HTTP requests on the terminal window (command line window).

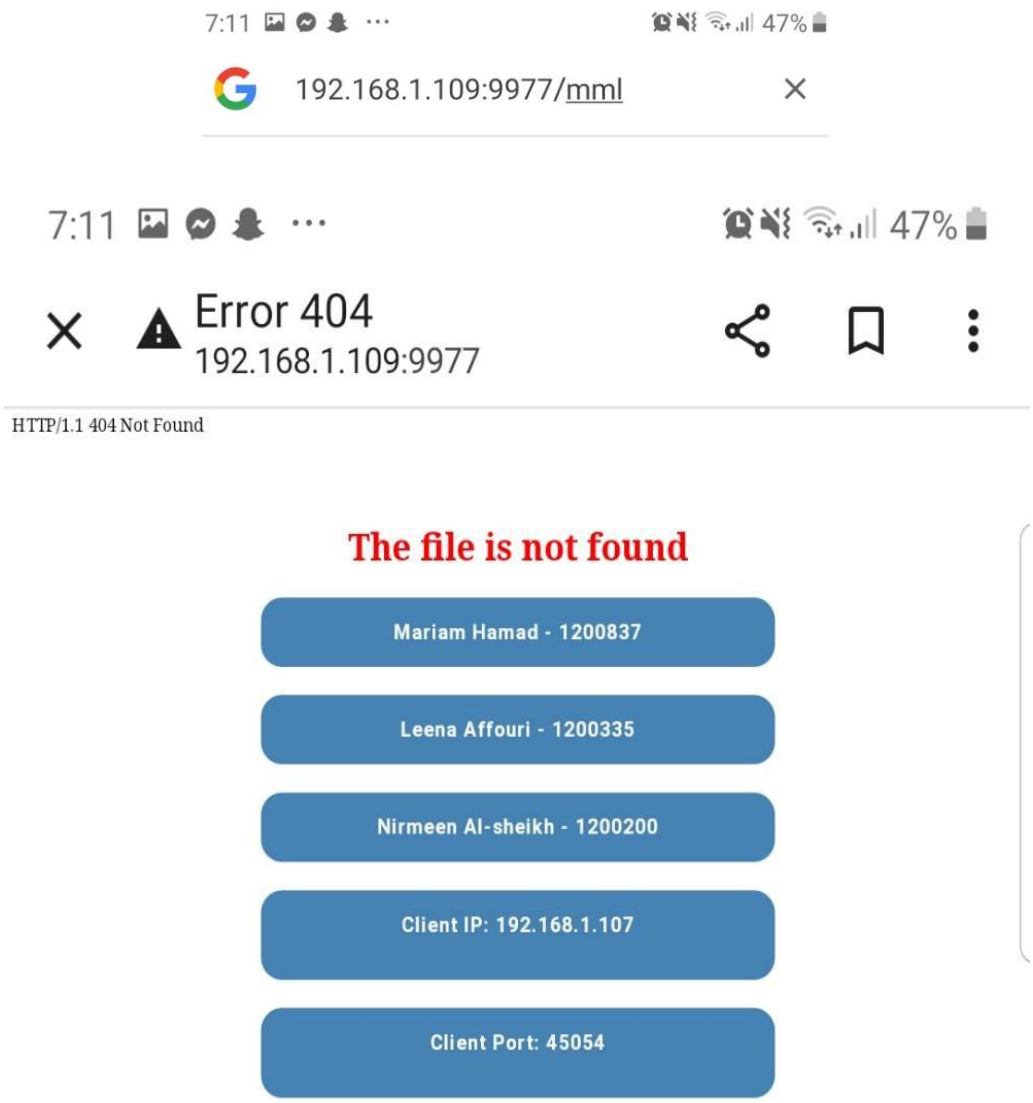


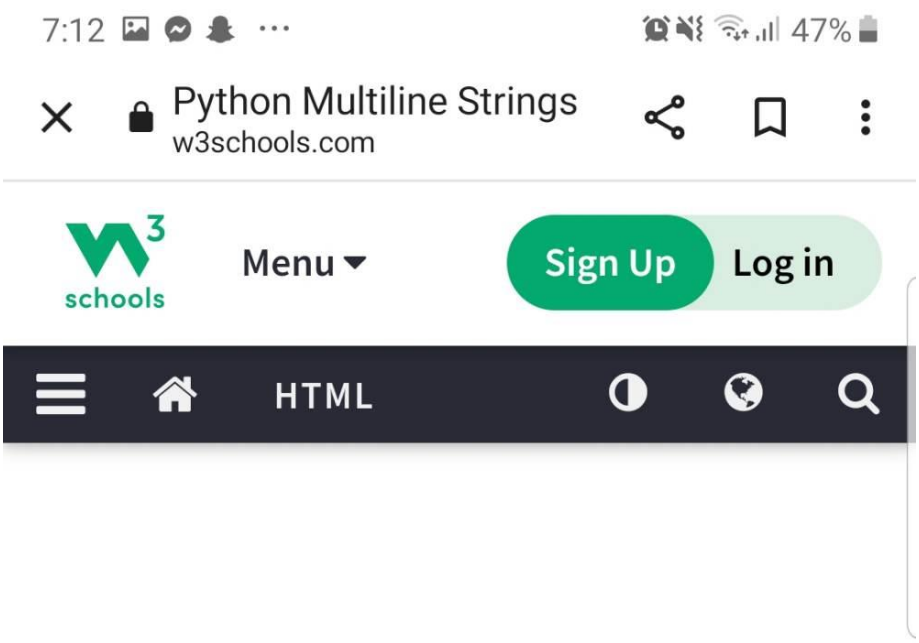
```
main
Requested object: /Link.html
Received sentence: GET /cssFile.css HTTP/1.1
Host: localhost:9977
Connection: keep-alive
sec-ch-ua: "Google Chrome";v="113", "Chromium";v="113", "Not-A.Brand";v="24"
sec-ch-ua-mobile: ?0
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/113.0.0.0 Safari/537.36
sec-ch-ua-platform: "Windows"
Accept: text/css,*/*;q=0.1
Sec-Fetch-Site: same-origin
Sec-Fetch-Mode: no-cors
Sec-Fetch-Dest: style
Referer: http://localhost:9977/
Accept-Encoding: gzip, deflate, br
Accept-Language: en-US,en;q=0.9,ar;q=0.8
Cookie: Pycharm-742de6fd=48423548-5dc9-4c8e-bc8f-8101f8e2e983

Requested object: /cssFile.css
Received sentence: GET /ar HTTP/1.1
Host: localhost:9977
Connection: keep-alive
Cache-Control: max-age=0
sec-ch-ua: "Google Chrome";v="113", "Chromium";v="113", "Not-A.Brand";v="24"
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/113.0.0.0 Safari/537.36
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,image/apng,*/*;q=0.8,application/signed-exchange;v=b3;q=0.7
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,ar;q=0.8
Cookie: Pycharm-742de6fd=48423548-5dc9-4c8e-bc8f-8101f8e2e983

Requested object: /ar
Received sentence:
Invalid request format:
Received sentence: GET /.css HTTP/1.1
Host: localhost:9977
Connection: keep-alive
Cache-Control: max-age=0
sec-ch-ua: "Google Chrome";v="113", "Chromium";v="113", "Not-A.Brand";v="24"
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/113.0.0.0 Safari/537.36
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,image/apng,*/*;q=0.8,application/signed-exchange;v=b3;q=0.7
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,ar;q=0.8
Cookie: Pycharm-742de6fd=48423548-5dc9-4c8e-bc8f-8101f8e2e983
```

Screenshot from another device 192.168.1.109:


7:11
47%
192.168.1.109:9977/en


7:11
47%
ENCS3320-My Tiny We...
192.168.1.109:9977
#title on tap.
Welcome To Computer Networks Course
Mariam Hamad - 1200837
Hobbies: Cooking and editing.
She has another project in AI and Management courses.
Leena Affouri - 1200335
Hobbies: Eating and go to gym.
She has another project in AI and Management courses.
Nirmeen Al-sheikh - 1200200
Hobbies: Ballet dancer.
She has another project in AI and Management courses.
Click here! Go to another page


7:11
47%
192.168.1.109:9977/mml
7:11
47%
Error 404
192.168.1.109:9977
HTTP/1.1 404 Not Found
The file is not found
Mariam Hamad - 1200837
Leena Affouri - 1200335
Nirmeen Al-sheikh - 1200200
Client IP: 192.168.1.107
Client Port: 45054



Python Multiline Strings

Python Glossary

Multiline Strings

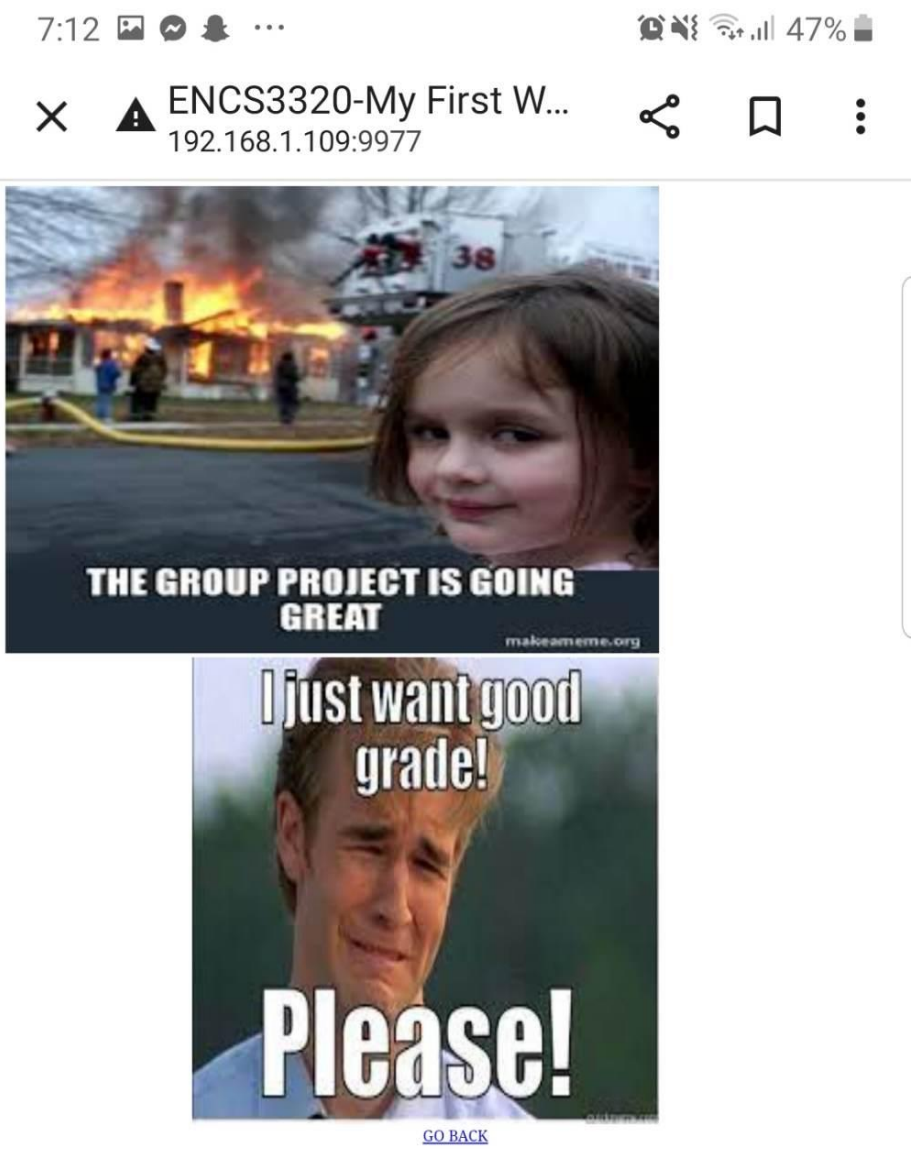
You can assign a multiline string to a variable by using three quotes:

Example

Get your own Python Server

You can use three double quotes:

```
a = """Lorem ipsum dolor sit amet,
consectetur adipiscing elit,
sed do eiusmod tempor incididunt
ut labore et dolore magna
aliqua."""
print(a)
```


7:12
47%
ENCS3320-My First W...
192.168.1.109:9977
THE GROUP PROJECT IS GOING GREAT
makeameme.org
I just want good grade!
Please!
GO BACK

THE END