Department of Electrical and Computer Engineering

ENCS3320-Computer Networks

First Semester, 2023/2024

Project1

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PART I:

1) In your own words, what are ping, tracert, nslookup, and telnet (write one sentence for each one)

Ping: Ping is a network protocol used to test the availability and responsiveness of a device or server on a network.

Tracert: Short for "traceroute", a command-line networking tool that is used to identify the path that network packets take as they travel from a source to a destination over an IP network.

Nslookup: Short for "name server lookup" is a command-line networking tool used to query the Domain Name System (DNS) to obtain information about domain names, IP addresses, and other related information.

Telnet: is a network protocol used for establishing a remote connection between computers over a network.

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

1. **Ping a device in the same network, e.g. from a laptop to a smartphone**
2. **ping www.cornell.edu**
3. **tracert www.cornell.edu**
4. **nslookup www.cornell.edu**

1) Ping a device in the same network from laptop to a smartphone

The previous image shows that data packets have been sent have the same TTL (time to live), and the result of each transmission is one line, all packets are received with the average 71 ms.

2) **ping www.cornell.edu**

The figure below shows that we received a response from 13.107.213.45 when we sent 4 packets, each with the same TTL (time to live), and that the average delay for all packets received is 15 ms. Additionally, we can see that it takes longer to receive a response from cornell.net than it does from a smartphone connected to the same network as my laptop.

3) **tracert www.cornell.com**

As you can see, there are several rows divided into columns on the report. Each row represents a "hop" along the route. Think of it as a check-in point where the signal gets its next set of directions. Each row is divided into five columns.

Hop #	RTT 1	RTT 2	RTT 3	Name/IP Address

4) nslookup www.cornell.com

We can see that it publishes the name and addresses of the server, which is the host that we sent a probe to, as well as the IP address that corresponds to the host, which in this case is the IP address of my laptop.

3.Use wireshark to capture some DNS messages.

This DNS analysis provides insights into the DNS communication patterns between the client and the DNS server. Understanding these patterns is crucial for maintaining network performance, security, and reliability. Ongoing monitoring and periodic reviews will contribute to a robust and efficient DNS infrastructure.

From the ping results, do you think the response you have got is from USA? Explain your answer briefly.

In the first set of pings to IP address 192.168.1.9, the times are relatively low (between 49ms and 95ms), suggesting a low-latency connection within a local network. However, the IP address 192.168.1.9 is typically associated with a local device on a private network, and it does not provide information about the geographic location.

In the second set of pings to www.cornell.edu (resolved to IP address 13.107.213.45), the response times are slightly higher (between 64ms and 86ms). While this indicates a moderate level of latency, it doesn't inherently reveal the geographic location of the server. The IP address belongs to Microsoft's content delivery network (CDN), and Microsoft has data centers distributed globally.

PART II:

Using socket programming, implement TCP client and server applications in go, python, java or C. The server should listen on port 9955. The server waits for a message from a client.
If the message is with one of the students ID, the sever should do the following:

1. **display a message on the server side that the OS will lock screen after 10 seconds**
2. **send a message to the client that the sever will lock screen after 10 seconds**
3. **then wait 10 seconds**
4. **then call a function lock the screen of the operating system (windows or Linux or MAC).**

Any student ID of the group member should work. Any other student number or any text should display an error message on the server side and no lock screen should be done.

CLIENT CODE:

SERVER CODE:

```python
import socket  # the library that the sockets and related methods in and it is used to creat the server
import time  # for the 10 seconds timer
import ctypes  # the library that contains lock screen method


# defining the method that validates student id the message reseved will only cintain the 7 digits student id
1 usage
def howManyDigits(id):  # this method checks if the id that was sent from client is 7 digits long
    count = len(
        str(id))  # we count the digits in many ways one of them is this built in function/count represents the number of digits
    return count == 7  # will return true if count ==7 else will return false


1 usage
def isValid(
        ID):  # this method takes a student id as a parameter then decides if it is one of the 3 ids or not after checking if it is 7 didits
    check = howManyDigits(ID)  # we imlemented this method to save time
    groupIdList = [1221098, 1211047, 1202199]
    return check and ID in groupIdList  # if number of digets is 7 and the ID is in the range of the three selected ids then return true else


# implementing the server
s = socket.socket(socket.AF_INET,
                  socket.SOCK_STREAM)  # a socket object/socket.AF_INET specifies the address (and protocol) family, in this case, IPv4./sock
# just to know that the socket is created
print("socket created")
# listening on port
port = 9955
# binding the port the bind method taked 2 parameters the ip number and port,ip number is for local host but we can leave it empty to send an
s.bind(('127.0.0.1',port))  # the method socket.gethostname() will get the local host ip adress//the used ip adress means:  the server to onl
print('socket binded to port')  # to know that the socket is bound
```

```python
# put the socket in listening mode
s.listen(5)  # five is the number of connections the socket can handle
print("server is listening")
# we will use an infinite loop until the student id is sent if not sent keep reseving messages
while True:

    c_socket, c_adrress = s.accept()  # c:client socket , adrr:client adress, the server accepts the connection//.accept() returns two values
    print(f'connected with client{c_adrress}')  # will delete
    resevedId = c_socket.recv(
        1024).decode()  # the method .recv(1024) reseves a msg from client and the argument declares the max amount of data reseved ,but clie
    studentId = int(resevedId)
    # the method decode is to convert the msg from byte stream to character stream
    idValidation = isValid(int(studentId))  # first convert from string to in then compare
    if idValidation:
        # these lines can be also implemented in idValidation fanction
        msg = ('sever will lock screen after 10 seconds')  # the msg that the server will send
        c_socket.send(
            msg.encode())  # this method send msg in form of bytes because of that we used encode method to convert the message
        print(msg)
        time.sleep(10)  # the method .sleep is to make the server wait 10 seconds then contenue
        ctypes.windll.user32.LockWorkStation()  # this is a built method from ctypes that locks a windowes os computer
        # close the connection but after or before shutting down the os?
        c_socket.close()
        s.close()
        break


    else:
        print("Invalid student ID received.")  # used print because this msg will apear on server side not client
    c_socket.close()
    s.close()
```

RUN CODE:

Windows PowerShell
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.
Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows
PS C:\Users\twitter> cd PycharmProjects
PS C:\Users\twitter\PycharmProjects> cd network_server
PS C:\Users\twitter\PycharmProjects\network_server> python Server.py
socket created
socket binded to port
server is listening
connected with client('127.0.0.1', 64793)
Windows PowerShell
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.
Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows
PS C:\Users\twitter> cd PycharmProjects
PS C:\Users\twitter\PycharmProjects> cd network_client
PS C:\Users\twitter\PycharmProjects\network_client> python Client.py
inter student id:
22°C
Sunny
Search
ENG
1:19 PM
11/18/2023

ENTER NUMBER FROM LIST:

```
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\twitter> cd PycharmProjects
PS C:\Users\twitter\PycharmProjects> cd network_server
PS C:\Users\twitter\PycharmProjects\network_server> python Server.py
socket created
socket binded to port
server is listening
connected with client('127.0.0.1', 64793)
sever will lock screen after 10 seconds
```

```
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\twitter> cd PycharmProjects
PS C:\Users\twitter\PycharmProjects> cd network_client
PS C:\Users\twitter\PycharmProjects\network_client> python Client.py
inter student id: 1202199
sever will lock screen after 10 seconds
PS C:\Users\twitter\PycharmProjects\network_client>
```

After print this message the server will look the screen

ENTER NUMBER NOT IN LIST:

```
PS C:\Users\twitter\PycharmProjects\network_server> python Server.py
socket created
socket binded to port
server is listening
connected with client('127.0.0.1', 64840)
Invalid student ID received.
PS C:\Users\twitter\PycharmProjects\network_server>
```

```
PS C:\Users\twitter\PycharmProjects\network_client> python Client.py
inter student id: 120

PS C:\Users\twitter\PycharmProjects\network_client>
```

PART III:

Python Code…

```python
from socket import *  # it is not same as import socket, if you use import socket you need to add a prefex to the function you want to use (socket.function)

host = '0.0.0.0'  # (no particular adress place holder)special ip address that means "any" or "all available interfaces." and also means I want to listen on all available IP
# A network interface is a connection point for connecting the computer to a network, and a machine can have multiple network interfaces (such as Ethernet, Wi-Fi,llopback,
# interface: a point of connection between computer and network
# 127.0.0.1(loopback adress) it is used to connect to aserver running on a local machine and accept connection from local machine. it only listen to loopback interface
serverPort = 9966  # Port number
serverSocket = socket(AF_INET, SOCK_STREAM)  # TCP socket for incoming request
serverSocket.bind(("",
                   serverPort))  # the server port number "serverPort" with this socket//empty ip address has the same meaning as 0.0.0.0
serverSocket.listen(
    1)  # The server listen for TCP connection requests  with 1 queued connections.//1 is the number of connections the socket can handle#bind=address is created
print("The web server is ready to receive")  # Print a message to tell  server is ready.

while True:
    connectionSocket, addr = serverSocket.accept()  # When a client sends a TCP connection request create "connectionSocket"
    sentence = connectionSocket.recv(
        1024).decode()  # the method .recv(1024) reseves a msg from client and the argument declares the max amount of data reseved ,but client can send less than that
    print(
        addr)  # client address and it is made of two pats:client ip address,port number used by the client for this connection
    print(sentence)  # the msg reseved from client
    # how did you split it?
    ip = addr[0]  # htos will be the client ip address
    port = addr[1]  # this is the port number that the client is usin for connection
    # how did you know that the object will be at [1]?
    object = sentence.split()[
        1]  # Get the regested object from client//the object requested is the second word of the scentence
    print("\nThe HTTP request is:\n", object)  # print the HTTP request//this messag will apear on server side only

    if (
            object == '/' or object == '/index.html' or object == '/main_en.html' or object == '/en'):  # if statement checks what is the requested object
```

```python
            object == '/' or object == '/index.html' or object == '/main_en.html' or object == '/en'):  # if statement checks what is the requested object
        # this is an http status line it is a common response when a requested resource is found, and the server is able to successfully fulfill the request
        # Status codes are three-digit numbers that indicate the result of the HTTP request
        connectionSocket.send(
            "HTTP/1.1 200 OK \r\n".encode())  # 1.1 is used http protocol vs //it sends an HTTP response with a "200 OK" wich is a status code that means:received, understood
        # http msg header that sets the content type to HTML with a character set of UTF-8// character set of UTF-8 covers almost all characters and symbols in the world
        connectionSocket.send(
            "Content-Type: text/html;charset=UTF-8\r\n".encode())  # send the HTML file// \r\n is used as a line ending sequence and  is used to delimit lines in HTTP messag
        connectionSocket.send(
            "\r\n".encode())  # and an additional \r\n sequence indicates the end of the headers section in the HTTP response
        file1 = open("main_en.html",
                     "rb")  # server should send main_en.html file//this function will open the html file in binary mode so the content will be red in bytes
        connectionSocket.send(
            file1.read())  # read the file that was open//read the file then send its content in a binary stream


    elif (object == '/ar'):  # If object '/ar', it will send the same HTTP status code and content type,
        # but will serve the contents of the file "main_ar.html" instead. --> (sending a similar HTTP response with a different HTML file as the body).
        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())

    elif (object.endswith(
            '.html')):  # If the object ends with '.html', the server sends an HTTP response with a 200 OK status and a Content-Type
        # The server then opens the file "l1.html" and sends its contents as the response body.
        connectionSocket.send("HTTP/1.1 200 OK \r\n".encode())
        connectionSocket.send("Content-Type: text/html; charset=UTF-8 \r\n".encode())
        connectionSocket.send("\r\n".encode())
        file3 = open("l1.html", "rb")
```

```python
        file3 = open("l1.html", "rb")
        connectionSocket.send(file3.read())

    elif (object.endswith('.css')):  # If the object ends with '.css', the server sends a similar HTTP response with
        # The server then opens the file "styles.css" and sends its contents as the response body.
        connectionSocket.send("HTTP/1.1 200 OK \r\n".encode())
        connectionSocket.send("Content-Type: text/css; charset=UTF-8 \r\n".encode())
        connectionSocket.send("\r\n".encode())
        file4 = open("style.css", "rb")
        connectionSocket.send(file4.read())



    elif (object == "/images/p1.png"):
        connectionSocket.send("HTTP/1.1 200 OK \r\n".encode())
        connectionSocket.send("Content-Type: image/jpg; charset=utf-8\r\n".encode())
        connectionSocket.send("\r\n".encode())
        f1 = open("images/p1.png", "rb")  # this is the way used to open non text files like imgs and html files
        data = f1.read()
        connectionSocket.send(data)

    elif (object == "/images/p2.jpg"):
        connectionSocket.send("HTTP/1.1 200 OK \r\n".encode())
        connectionSocket.send("Content-Type: image/jpg; charset=utf-8\r\n".encode())
        connectionSocket.send("\r\n".encode())
        f1 = open("images/p2.jpg", "rb")
        data = f1.read()
        connectionSocket.send(data)

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

```python
        connectionSocket.send("HTTP/1.1 200 OK \r\n".encode())
        connectionSocket.send("Content-Type: image/jpg; charset=utf-8\r\n".encode())
        connectionSocket.send("\r\n".encode())
        f1 = open("images/flag.png", "rb")
        data = f1.read()
        connectionSocket.send(data)

    elif (object.endswith('.png')):  # files with the extensions '.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())
        file5 = open("images/birzeit.png", "rb")
        connectionSocket.send(file5.read())

    elif (object.endswith('.jpg')):  # The same process occurs for '.jpg' files,
        connectionSocket.send("HTTP/1.1 200 OK \r\n".encode())
        connectionSocket.send("Content-Type: image/jpeg \r\n".encode())
        connectionSocket.send("\r\n".encode())
        file6 = open("images/aqsa.jpg", "rb")
        connectionSocket.send(file6.read())

    elif (object == '/cr'):  # status code 307 Temporary Redirect: If the request is for '/cr',
        # the Location header set to cornell
        connectionSocket.send(
            "HTTP/1.1 307 Temporary Redirect \r\n".encode())  # http respons status line//307: represent a temprary redict , telling the client that the requested resource h
        connectionSocket.send("Content-Type: text/html \r\n".encode())
        connectionSocket.send("Location: https://cornell.edu \r\n".encode())
        connectionSocket.send("\r\n".encode())

    elif (object == '/so'):  # if the request is for '/so', the server sends a 307 Temporary Redirect
        # instructing the client to make a new request to Stack Overflow.
```

```python
        # instructing the client to make a new request to Stack Overflow.
        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 (object == '/rt'):  # HTTP request that includes the string "/bzu" in the URL. If this string is present.
        connectionSocket.send(
            "HTTP/1.1 307 Temporary Redirect \r\n".encode())  # HTTP response to the client with a "307 Temporary Redirect" status code
        connectionSocket.send("Content-Type: text/html \r\n".encode())
        connectionSocket.send(
            "Location: https://ritaj.birzeit.edu \r\n".encode())  # HTTP response with the Location header set to birzeit edu
        connectionSocket.send("\r\n".encode())


    else:  # where a requested resource is not found .
        connectionSocket.send(
            "HTTP/1.1 404 Not Found \r\n".encode())  # the server sends a 404 Not Found HTTP response to the client
        connectionSocket.send("Content-Type: text/html \r\n".encode())  # type text HTML
        connectionSocket.send("\r\n".encode())
        notFoundHtmlString = "<html>" \
                             "<head>" \
                             "<title>Error 404</title>" \
                             "</head>" \
                             "<body style='background-color: white;'>" \
                             "<div>" \
                             "HTTP/1.1 404 Not Found <hr>" \
                             "<p style='font-size: 30px; background-color: black; color:white; text-align: center; border-style: ridge;border-color: white; border-width: thi
                             "Sorry The request is WRONG !!!!</p> <hr>" \
                             "<p style ='font-size: 45px; font-family: georgia;text-align:center; color:Red'>" \
                             "<strong>" \
```

```python
                             "<p style='font-size: 30px; background-color: black; color:white; text-align: center; border-style: ridge;border-color: white; bc
                             "Sorry The request is WRONG !!!!</p> <hr>" \
                             "<p style ='font-size: 45px; font-family: georgia;text-align:center; color:Red'>" \
                             "<strong>" \
                             "The file is not found </strong> </p>" \
                             "<pre style ='font-size: 25px; font-family: arial ;text-align:center; color:Black'> <br>" \
                             "<b>     Name: Mujahed Abuali #121107 <br/>" \
                             "Name: Ziad masalma #1202199<br/>" \
                             "Name: manal nidal #1221098<br/><br/><br/>" \
                             "</b>" \
                             "</pre>" \
                             "<pre style='font-size: 40px; font-family: arial;text-align:center; color:Black'><br>" \
                             f"IP: {ip}     " \
                             f"Port: {port}" \
                             "</pre>" \
                             "</div>" \
                             "</body>" \
                             "</html>"
        # if the request is wrong or the file doesnt exist the server should return a simple HTML webpage that contains with
        # some design and color needed
        notFoundHtmlBytes = bytes(notFoundHtmlString, "UTF-8")
        connectionSocket.send(notFoundHtmlBytes)

    connectionSocket.close()  # close the connection
```

HTML CODE

main_en.html:

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <title>ENCS3320-My Tiny Webserver 23/24</title>
  <link rel="stylesheet" type="text/css" href="style.css">
</head>

<body>
<!-------------header have img and 2 link------------------->
  <header>
    <img src="images/p1.png" alt="image">
    <div class="links">
      <a href="https://www.w3schools.com/python/python_strings.asp">w3School</a>
      <a href=".html">HTMl Page</a>
      <a href="/ar">عربي</a>

    </div>
  </header>

<!-------------welcome phrase------------------->
  <h1 class="wel">Welcome to our course<span> Computer Networks, This is a tiny webserver</span></h1>

<!------------- three box contain information about team member------------------->
<section  class="mainBox">

<article>
  <div class="box-body">
    <h2>Mujahed AbuALI</h2>
    <h2>#1211047</h2>
    <p>Have some old project in web devlopment, server side as api, and other project in java. </p>
```

```html
    <p>Have some old project in web devlopment, server side as api, and other project in java. </p>
  </div>
</article>

<article>
  <div class="box-body">
    <h2>Ziad Masalma</h2>
    <h2>#1202199</h2>
    <p> have a supermarket system and desktop app for company sales cars , and conction with database.</p>
  </div>
</article>

<article>
  <div class="box-body">
    <h2>Manal Nidal</h2>
    <h2>#1221098</h2>
    <p>Game Devlpoment , make some game like Guess the Number and tic tac. </p>
  </div>
</article>

</section >
<!-------------box #4 for point 0------------------->
<section class="box4-main">
 <article id="box4">
   <div class="box-body" id="box-body4" >
     <h2>What is Content-Type in the HTTP request and why do we need it?</h2>
     <p>The Content-Type header is used to indicate the media type of the resource enclosed in the message body. It tells the server what type of data is being sent in the bo
   </div>

   <div class="lists">
```

```html
      <div class="ex">
        <p>For example:</p>
        <ul>
          <li>text/plain: Plain text data.</li>
          <li>text/html: HTML document.</li>
          <li>application/json: JSON data.</li>
          <li>image/jpeg: JPEG image.</li>
        </ul>
      </div>

      <div class="ex">
        <p>Its used for:</p>
        <ul>
          <li>Server Processing.</li>
      <li>Interpretation by Recipient.</li>
      <li>Security Measures.</li>
      <li>Content Negotiation.</li>
    </ul>
  </div>
</div>

</article>
</section>
<!-------------jpg image------------------->
<div class="center-img">
  <img id="i2" src="images/p2.jpg" alt="Image">
</div>
<!-------------footer--------------------->
<footer>
  <p>Copyright 2023 ©T</p>
</footer>
```

main_ar.html:

```html
<!DOCTYPE html>
<html lang="ar">
<head>
    <meta charset="UTF-8">
    <title>ENCS3320-My Tiny Webserver 23/24</title>
  <link rel="stylesheet" type="text/css" href="style.css">
</head>

<body>
<!-------------header have img and 2 link------------------->
  <header>
    <img src="images/p1.png" alt="image">
    <div class="links">
      <a href="https://www.w3schools.com/python/python_strings.asp">w3School</a>
      <a href=".html">HTML Page</a>
      <a href="/en">English</a>
    </div>
  </header>

<!-------------welcome phrase------------------->
  <h1 class="wel">مرحبا بكم في مساقنا<span>شبكات الحاسوب, خادم ويب صغير</span></h1>

<!------------- three box contain information about team member------------------->
<section  class="mainBox">

<article>
  <div class="box-body">
    <h2>جهاد ابو علي</h2>
    <h2>#1211047</h2>
    <p>بعض المشاريع القديمة في تطوير الويب، وجانب الخادم كواجهة برمجة التطبيقات، ومشروع آخر في جافا</p>
  </div>
```

Network_Project · Version control · Current File

main_ar.html

```html
    </div>
  </article>

  <article>
    <div class="box-body">
      <h2>زياد بمانيه</h2>
      <h2>#1202199</h2>
      <p>نظام مورير ماركت وتطبيق سطح مكتب لسيارات مبيعات الشركة، واتصال بقاعدة البيانات </p>
    </div>
  </article>

  <article>
    <div class="box-body">
      <h2>ميثال بضال</h2>
      <h2>#1221098</h2>
      <p>تطوير الألعاب، اصنع بعض الألعاب مثل لعبة اختر الرقم وتيك تاك</p>
    </div>
  </article>

  </section >
  <!-------------box #4 for point 0------------------->
  <section class="box4-main">
   <article id="box4">
     <div class="box-body" id="box-body4" >
       <h2 lang="ar">ولماذا نحتاج اليه؟ <span lang="en"> HTML </span> ما هو نوع المحتوى في طلب  </h2>
       <p>يتم استخدام رأس نوع المحتوى للإشارة إلى نوع الوسائط للمورد الموجود في نص الرسالة، يخبر الخادم بنوع البيانات التي يتم إرسالها في نص الطلب</p>
      </div>

      <div class="lists">
        <div class="ex">
          <p>مثال</p>
```

Network_Project > main_ar.html · 1:1 · CRLF · UTF-8 · 2 spaces* · Python 3.9

17°C Windy · Search · ENG · 11:23 AM 11/19/2023

Network_Project · Version control · Current File

main_ar.html

```html
          <p>مثال</p>
          <ul>
            <li>text/plain: Plain text data.</li>
            <li>text/html: HTML document.</li>
            <li>application/json: JSON data.</li>
            <li>image/jpeg: JPEG image.</li>
          </ul>
        </div>

        <div class="ex">
          <p lang="ar">يستخدم في</p>
          <ul>
            <li>Server Processing.</li>
        <li>Interpretation by Recipient.</li>
        <li>Security Measures.</li>
        <li>Content Negotiation.</li>
      </ul>
    </div>
  </div>

  </article>
  </section>
  <!-------------jpg image------------------->
  <div class="center-img">
    <img id="i2" src="images/p2.jpg" alt="Image">
  </div>
  <!--------------footer--------------------->
  <footer>
    <p>Copyright 2023 ©T</p>
  </footer>
```

Network_Project > main_ar.html · 1:1 · CRLF · UTF-8 · 2 spaces* · Python 3.9

17°C Windy · Search · ENG · 11:23 AM 11/19/2023

L1html:

Network_Project
Version control
Current File
main_ar.html
l1.html
<!DOCTYPE html>
<html>
<head>
<meta charset="UTF-8">
<title>ENCS3320-My Tiny Webserver</title> <!--gives the document this title: "ENCS3320-My Tiny Webserver"-->
</head>
<body> <!--represents the content of an HTML document-->
<img src="images/flag.png" style="...">
<a href="main_en.html" target="_blank">GO BACK</a> <!-- hyperlink on the webpage named "GO Back" which opens the "main_en" -->
</body>
</html>
html
body
Network_Project
l1.html
8:57
CRLF
UTF-8
4 spaces
Python 3.9
17°C
Windy
Search
ENG
11:24 AM
11/19/2023

Screenshots in the Terminal for all requests:

```
PROBLEMS    OUTPUT    DEBUG CONSOLE    TERMINAL    PORTS                                                    Python

PS C:\Users\Lenovo\Network_Project> & C:/Users/Lenovo/AppData/Local/Programs/Python/Python39/python.exe c:/Users/Lenovo/Network_Project/main.py
The web server is ready to receive
('127.0.0.1', 49759)
GET / HTTP/1.1
Host: localhost:9966
Connection: keep-alive
Cache-Control: max-age=0
sec-ch-ua: "Google Chrome";v="119", "Chromium";v="119", "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/119.0.0.0 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


The HTTP request is:
 /
('127.0.0.1', 49760)
GET /style.css HTTP/1.1
Host: localhost:9966
Connection: keep-alive
sec-ch-ua: "Google Chrome";v="119", "Chromium";v="119", "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/119.0.0.0 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:9966/
Accept-Encoding: gzip, deflate, br
Accept-Language: en-US,en;q=0.9

Ln 1, Col 1   Spaces: 4   UTF-8   CRLF   Python   3.9.13 64-bit
```

Screenshots in the browser for all requests:

Localhost:9966 or Localhost:9966/index.html or /main_en.html

Localhost:9966/ar

Localhost:9966/l1.html

Localhost:9966/.css

```
body{
  background: rgb(255, 255, 255);
  margin: 0;
  padding: 0;
}
/*-------For header------*/
header {
    overflow: hidden;
    background-color: #f1f1f1;
    padding: 20px 10px;
    text-align: center;
  }
header img{
    float: left;
    max-width: 150px;
    display: block;
    margin: 0 auto;
  }
.links{
    float: right;
    margin: auto;
    height: 40px;
  }
.links a{
    margin: 3px;
    color: #28666e;
    text-decoration: none;
  }
 /*-------For welcome phrase--------*/
 .wel{
    text-align: center;
 }
 h1 span{
    color: rgba(2, 2, 222, 0.50);;
 }
/*-------three boxes--------*/
.mainBox{
    display: grid;
    max-width: 1200px;
    margin-inline: auto;
    grid-template-columns: repeat(auto-fill, minmax(320px, 1fr));
    gap: 24px;
    align-items: center;

   }

article{
position: relative;
```

Localhost:9966/p1.png

Localhost:9966/aqsa.jpg

Localhost:9966/error

Wrong request

Screenshots from phone:

5:33
192.168.88.11:9966
w3School HTMl Page English
مرحبا بكم في مساقنا شبكات الحاسوب, خادم ويب صغير
مجاهد ابوعلي
#1211047
بعض المشاريع القديمة في تطوير الويب، وجانب الخادم كواجهة برمجة التطبيقات، ومشروع اخر في جافا
زياد مسالمه
#1202199
نظام سوبر ماركت وتطبيق سطح مكتب لسيارات مبيعات الشركة، واتصال بقاعدة البيانات
مثال نضال
#1221098
تطوير الألعاب. اصنع بعض الألعاب مثل لعبة اختر الرقم وتيك تاك
ما هو نوع المحتوى في طلب HTML ولماذا نحتاج اليه؟
يتم استخدام رأس نوع المحتوى للإشارة إلى نوع الوسائط للمورد الموجود في نص الرسالة. يخبر الخادم بنوع البيانات التي يتم إرسالها في نص الطلب
مثال
text/plain: Plain text data.
text/html: HTML document.
application/json: JSON data.
image/jpeg: JPEG image.
يستخدم في
Server Processing.
Interpretation by Recipient.
Security Measures.
Content Negotiation.

5:36
192.168.88.11:9966
GO BACK

Ziad Masalma 1202199 Section : 1

Mujahed Abuali 1211047 Section : 2

Manal Abubaker 1221098 Section : 4

Thank You