

Syrian Arab Republic

Lattakia - Tishreen University

Department of Communication and electrical  
engineering

5<sup>th</sup>, Network Programming : Homework No2



الجمهورية العربية السورية

اللائقية جامعة تشرين

كلية الهندسة الكهربائية والميكانيكية

قسم هندسة الاتصالات والإلكترونيات

السنة الخامسة: وظيفة 2 برمجة شبكات

Name: \_Rama assaf, Number: 2732, To GitHub: \_\_no\_\_ Submitted

## Second Network programming Homework

### Question 1: TCP Server/Client Quiz App with Multi-threading?

As an improvement to previous first homework, build a TCP server and client quiz application using Python. The server should handle multiple client connections simultaneously using multi-threading. The application should allow clients to connect, participate in a quiz, and receive their quiz scores upon completion

```
1 import socket, threading
2
3 questions = [
4     "The Eiffel Tower was completed on March 31, 1889": "f",
5     "Lightning is seen before it is heard because light travels faster than sound": "t",
6     "Vatican City is a country": "t",
7     "Melbourne is the capital of Australia": "f",
8     "Penicillin was discovered in Vietnam to treat malaria": "f",
9     "Mount Fuji is the highest mountain in Japan": "t",
10    "Broccoli contains more vitamin C than lemon": "f",
11    "The Eiffel Tower was completed on March 31, 1889": "f",
12    "Electric bulbs were invented by Thomas Edison": "t",
13    "Google was initially named BackRub": "t",
14    "The black box in the plane is black": "f",
15    "Tomato is a fruit": "t",
16    "Mercury's atmosphere consists of carbon dioxide": "f",
17    "Depression is the leading cause of disability worldwide": "t",
18    "Cleopatra was of Egyptian descent": "t",
19    "The skull is the strongest bone in the human body": "f",
20    "You can sneeze while sleeping": "f",
21    "It is impossible to sneeze with your eyes open": "t",
22    "Banana is blueberry": "t",
23    "Scallops can not be seen": "f"
24 ]
25
26 result = {}
```

```
Run: server_final (1)
O:\Users\DELL\AppData\Local\Programs\Python\Python310\python.exe O:\Users\DELL\Desktop\شبكات\server_final.py
Our Quiz Server is Ready for clients .
```

```
helloworld [C:\Users\DELL\PycharmProjects\helloworld - C:\Users\DELL\Desktop\quiz_server_final.py - PyCharm
File Edit View Navigate Code Refactor Run Tools VCS Window Help
C:\Users\DELL\Desktop\quiz_server_final.py
Project
helloworld C:\Users\DELL\PycharmProjects\helloworld
External Libraries
Python 3.11 C:\Users\DELL\AppData\Local\Programs\Python\Python311\python.exe
Scratches and Consoles
server_final.py client_final.py
def handle_request(cs, caddr):
    cs.send(str(len(questions)).encode())
    for question in questions:
        cs.send(question.encode())
        client_ans = cs.recv(1024).decode().strip()
        if client_ans.upper() == questions[question].upper():
            result[caddr] = result.get(caddr, 0) + 1
        score = result.get(caddr, 0)
    cs.send(f"Score: {score}/{len(questions)}\n".encode())
    cs.close()

class handle_client_thread(threading.Thread):
    def __init__(self, cs, caddr):
        threading.Thread.__init__(self)
        self.cs = cs
        self.caddr = caddr

    def run(self):
        handle_request(self.cs, self.caddr)

ss = socket.socket(socket.AF_INET, socket.SOCK_STREAM)
ss.bind(('127.0.0.1', 12345))
ss.listen(5)
print("Our Quiz Server is Ready for clients.")
while True:
    cs, caddr = ss.accept()

Run: server_final (1)
C:\Users\DELL\AppData\Local\Programs\Python\Python311\python.exe C:\Users\DELL\Desktop\quiz_server_final.py
Our Quiz Server is Ready for clients.
```

```
helloworld [C:\Users\DELL\PycharmProjects\helloworld - C:\Users\DELL\Desktop\client_final.py - PyCharm
File Edit View Navigate Code Refactor Run Tools VCS Window Help
C:\Users\DELL\Desktop\client_final.py
Project
helloworld C:\Users\DELL\PycharmProjects\helloworld
External Libraries
Python 3.11 C:\Users\DELL\AppData\Local\Programs\Python\Python311\python.exe
Scratches and Consoles
server_final.py client_final.py
import socket

cs = socket.socket(socket.AF_INET, socket.SOCK_STREAM)
cs.connect(('127.0.0.1', 12345))
num_questions = int(cs.recv(1024).decode())
for i in range(num_questions):
    question = cs.recv(1024).decode()
    answer = input(f"Question: ")
    cs.sendall(answer.encode())
final_score = cs.recv(1024).decode()
print(f"Final score: {final_score}")

Run: server_final (1) client_final (1)
Depression is the leading cause of disability worldwide :
Cleopatra was of Egyptian descent :
You can sneeze while sleeping :
It is impossible to sneeze with your eyes open :
Banana is blueberry :
Scallops can not be seen :
Final score: Score: 11/19
Process finished with exit code 0
```

```
1 import socket
2
3 cs = socket.socket(socket.AF_INET, socket.SOCK_STREAM)
4 cs.connect(('127.0.0.1', 12345))
5 num_questions = int(cs.recv(1024).decode())
6 for i in range(num_questions):
7     question = cs.recv(1024).decode()
8     answer = input(f'{question}: ')
9     cs.sendall(answer.encode())
10 final_score = cs.recv(1024).decode()
11 print(f'Final score: {final_score}')
12
13
```

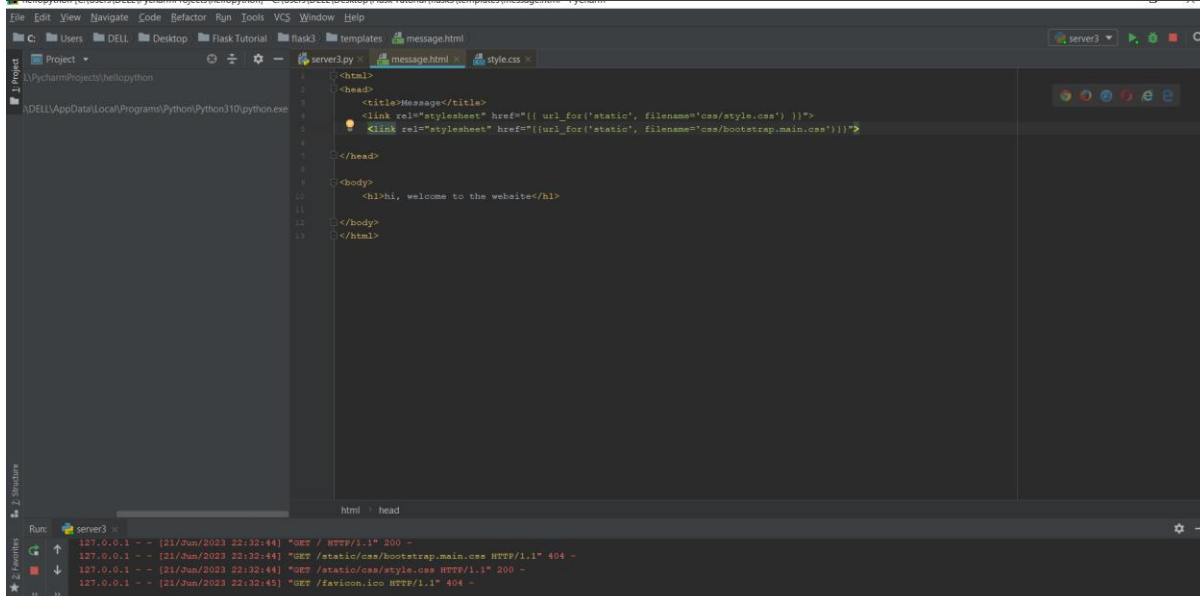
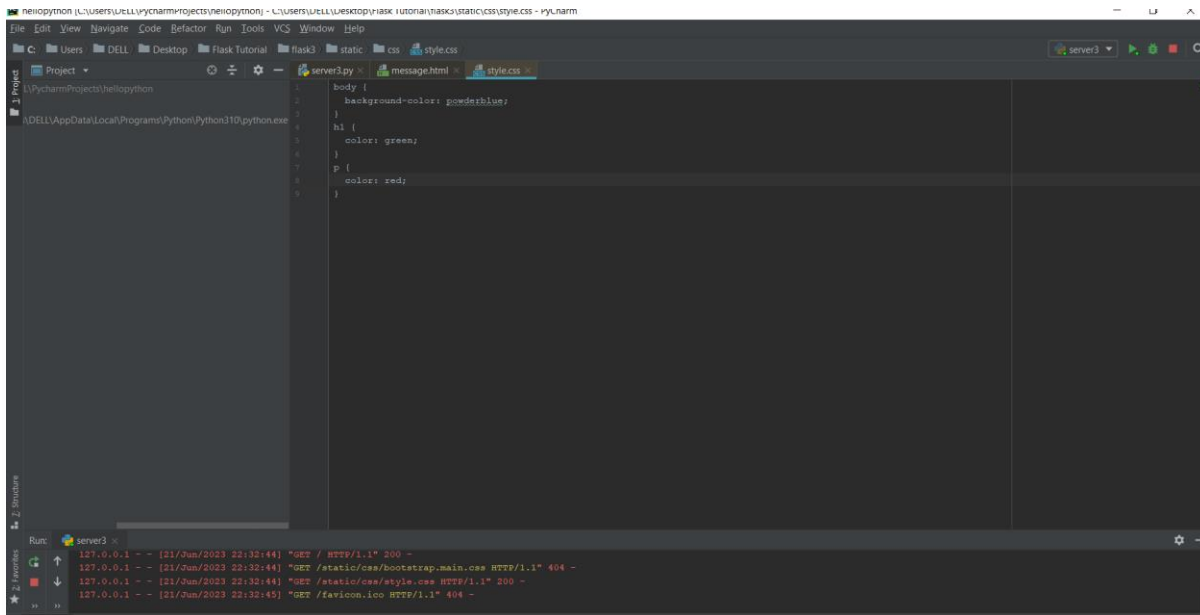
```
Run: server_final (1) x client_final (1) x client1_final x
C:\Users\DELL\AppData\Local\Programs\Python\Python310\python.exe C:/Users/DELL/Desktop//client1_final.py
The Eiffel Tower was completed on March 31, 1887 :
Lightning is seen before it is heard because light travels faster than sound :
Vatican City is a country :
Melbourne is the capital of Australia :
Penicillin was discovered in Vietnam to treat malaria :
Mount Fuji is the highest mountain in Japan :
Broccoli contains more vitamin C than lemon :
The skull is the strongest bone in the human body :
Electric bulbs were invented by Thomas Edison :
```

## Question 2: Simple Website with Python Flask Framework

Create a simple website with multiple pages using Flask, HTML, CSS, and Bootstrap. The website should demonstrate your understanding of web design principles.

```
1 from flask import *
2
3 app = Flask(__name__)
4
5 @app.route("/")
6 def message():
7     return render_template("message.html")
8
9 @app.route("/info")
10 def info():
11     return render_template("info.html")
12
13 if __name__ == "__main__":
14     app.run(debug=True)
```

```
Run: server3 x
127.0.0.1 - - [21/04/2023 22:32:44] "GET / HTTP/1.1" 200 -
127.0.0.1 - - [21/04/2023 22:32:44] "GET /static/css/bootstrap.min.css HTTP/1.1" 404 -
127.0.0.1 - - [21/04/2023 22:32:44] "GET /static/css/style.css HTTP/1.1" 200 -
127.0.0.1 - - [21/04/2023 22:32:45] "GET /favicon.ico HTTP/1.1" 404 -
```





العائق الذي واجهني عند العمل على برنامج pycharm هو عدم وجود حزمة ال flask وبالتالي قمت بتنزيل هذه الحزمة على البرنامج لنجاح الوصول الى صفحة الويب المطلوبة