

Marshall Brown

Professor Hind Aldabagh

CYSE 250

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## NFL Socket Programming Project

I created my Socket Programming project about the NFL. The main idea for the program is for the Client to ask the Server for information on teams who reside inside of the NFC East in the NFL. If the Servers see's the client provided the correct information, it will encode it and send it back to the client where it will decode that information and be displayed.

After further research, I realized I couldn't get all 32 NFL teams like I wanted before the project and make it an automated response based on an API database. However, I was not able to find an API key for any sort of API NFL database. Therefore, I just had to stick with listing out the 4 NFC East teams and information about them going off the NFL website.

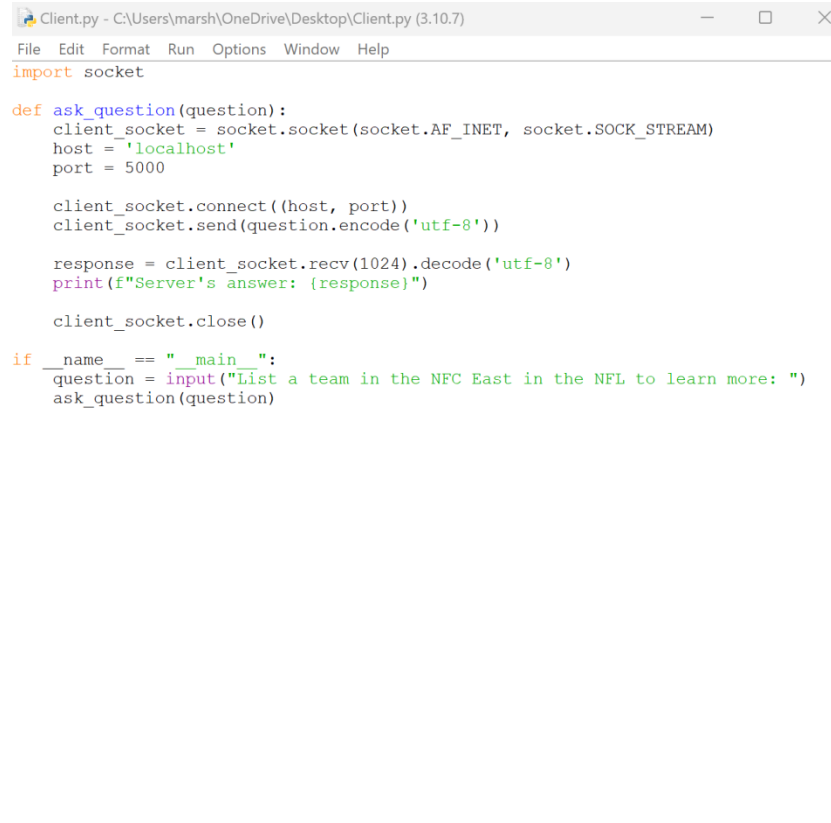
I am working off an HP Envy laptop with 16 GB of RAM and an i7 graphics card with 500 GB of storage. The computer was able to run it perfectly fine with zero issues. I also ran the code in IDLE (Python 3.10 64 bits). I have moved on to Visual Studio Code. However, for the presentation, I just stuck with IDLE.

The biggest challenge I faced was figuring out how to send the responses over to the client. I had it to where it would send the first line of code in the def question part of the code where it talks about the Dallas Cowboys. But if I were to type in any other NFC East team it would only send data about the Cowboys.

A workaround I found to fix that was something very simple, per usual for any error in Python. I had the "or" wrong in the first line where it says Cowboys or Dallas. I didn't word it correctly and that's what made it always respond with the Cowboys data because the line was never broke and just continued to go off that.

## APPENDIX:

### Client Program:

A screenshot of a text editor window titled 'Client.py - C:\Users\marsh\OneDrive\Desktop\Client.py (3.10.7)'. The window has a menu bar with 'File', 'Edit', 'Format', 'Run', 'Options', 'Window', and 'Help'. The code is a Python script for a client program. It imports the 'socket' module and defines a function 'ask\_question(question)'. Inside the function, it creates a 'client\_socket' using 'socket.socket(socket.AF\_INET, socket.SOCK\_STREAM)', sets 'host' to 'localhost' and 'port' to 5000. It then connects to the host, sends the question encoded in 'utf-8', receives a response of 1024 bytes, decodes it, and prints it with the prefix 'Server's answer: '. Finally, it closes the socket. A main block is also present, which sets the question to 'List a team in the NFC East in the NFL to learn more: ' and calls 'ask\_question(question)'.

```
Client.py - C:\Users\marsh\OneDrive\Desktop\Client.py (3.10.7)
File Edit Format Run Options Window Help
import socket

def ask_question(question):
    client_socket = socket.socket(socket.AF_INET, socket.SOCK_STREAM)
    host = 'localhost'
    port = 5000

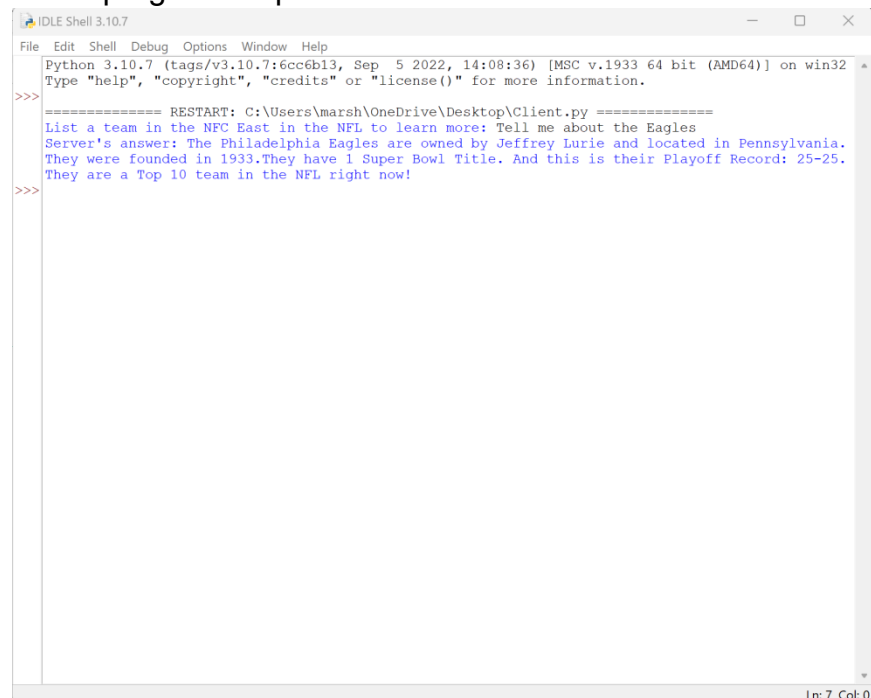
    client_socket.connect((host, port))
    client_socket.send(question.encode('utf-8'))

    response = client_socket.recv(1024).decode('utf-8')
    print(f"Server's answer: {response}")

    client_socket.close()

if __name__ == "__main__":
    question = input("List a team in the NFC East in the NFL to learn more: ")
    ask_question(question)
```

### Client program output:

A screenshot of an IDLE Shell window titled 'IDLE Shell 3.10.7'. The window has a menu bar with 'File', 'Edit', 'Shell', 'Debug', 'Options', 'Window', and 'Help'. The output shows the Python version and architecture, followed by a prompt 'Type "help", "copyright", "credits" or "license()" for more information.'. Then, the user enters the question 'List a team in the NFC East in the NFL to learn more: Tell me about the Eagles'. The program outputs the server's response: 'Server's answer: The Philadelphia Eagles are owned by Jeffrey Lurie and located in Pennsylvania. They were founded in 1933.They have 1 Super Bowl Title. And this is their Playoff Record: 25-25. They are a Top 10 team in the NFL right now!'. The status bar at the bottom indicates 'Ln: 7 Col: 0'.

```
IDLE Shell 3.10.7
File Edit Shell Debug Options Window Help
Python 3.10.7 (tags/v3.10.7:6cc6b13, Sep 5 2022, 14:08:36) [MSC v.1933 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:\Users\marsh\OneDrive\Desktop\Client.py =====
List a team in the NFC East in the NFL to learn more: Tell me about the Eagles
Server's answer: The Philadelphia Eagles are owned by Jeffrey Lurie and located in Pennsylvania.
They were founded in 1933.They have 1 Super Bowl Title. And this is their Playoff Record: 25-25.
They are a Top 10 team in the NFL right now!
>>>
```

## Server Program:

```
Server.py - C:\Users\marsh\OneDrive\Desktop\Server.py (3.10.7)
File Edit Format Run Options Window Help
import socket

def answer_question(question):
    #Add your logic to provide answers based on the question
    if "Cowboys" in question or "Dallas" in question:
        return "The Dallas Cowboys are owned by Jerry Jones and located in Texas."\
               "They were founded in 1960."\
               "They have 5 Super Bowl Titles. And this is their Playoff Record: 36-30."\
               "They are a Top 10 team in the NFL right now!"
    elif "Giants" in question:
        return "The New York Giants are owned by John Mara and located in New Jersey."\
               "They were founded in 1925."\
               "They have 4 Super Bowl Titles. And this is their Playoff Record: 25-26."\
               "They are one of the worst teams in the NFL right now..."
    elif "Eagles" in question:
        return "The Philadelphia Eagles are owned by Jeffrey Lurie and located in Pennsylvania."\
               "They were founded in 1933."\
               "They have 1 Super Bowl Title. And this is their Playoff Record: 25-25."\
               "They are a Top 10 team in the NFL right now!"
    elif "Washington" in question or "Commanders" in question:
        return "The Washington Commanders are owned by Josh Harris and located in Maryland."\
               "They were founded in 1932."\
               "They have 3 Super Bowl Titles. And this is their Playoff Record: 23-20."\
               "They are one of the worst teams in the NFL right now..."
    else:
        return "I'm sorry, I don't have information on that topic."

def start_server():
    server_socket = socket.socket(socket.AF_INET, socket.SOCK_STREAM)
    host = 'localhost'
    port = 5000
    server_socket.bind((host, port))

    server_socket.listen(5)
    print(f"Server listening...")

    while True:
        client_socket, addr = server_socket.accept()
        print(f"Connection from {addr}")

        data = client_socket.recv(1024).decode('utf-8')
        print(f"Received question: {data}")

        answer = answer_question(data)
        client_socket.send(answer.encode('utf-8'))

        client_socket.close()

if __name__ == "__main__":
    start_server()
```

## Server program output:

```
*IDLE Shell 3.10.7*
File Edit Shell Debug Options Window Help
Python 3.10.7 (tags/v3.10.7:6cc6b13, Sep 5 2022, 14:08:36) [MSC v.1933 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:\Users\marsh\OneDrive\Desktop\Server.py =====
Server listening...
Connection from ('127.0.0.1', 62413)
Received question: Tell me about the Eagles
```