Program：

Description

client.py: This program represents a client that communicates with a server using sockets. It sends a string and a number to the server, which responds with a string and a number. The client calculates the sum of its number and the server's number and prints the results. This is written in python3.

server.py: This program acts as a server that listens for incoming connections from clients. Upon connecting, it receives a message containing a string and a number from the client, validates the number's range, calculates the sum, and sends a response back to the client. This is written in python3.

User Guide:

To run and test the program,

You need to use Python3 (both client and server scripts should be run in Python3)

Ensure that no other program is using the same IP address and port.

Running the Server: Open a terminal. Navigate to the directory where server.py is located.

Run the server using the following command: python3 server.py

Run the client using the following command: python3 client.py

Testing:

The client will send the number to the server, which will validate it.

If the number is valid, the server will calculate the sum and send the result back to the client.

The client will display both the client's and server's names, numbers, and the sum.

I tested for three times, just run server.py first and then run client.py , then you can type any number to test the result.

Test a valid number within the range (e.g., 3 and 88) and verify that the client and server correctly calculate and display the sum.

Test an invalid number outside the range (e.g., 120) and ensure that the client displays an error message and the server terminates the connection.

Test with various valid and invalid inputs to verify the robustness of the program.

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Choice of Programming Language:

Python3 was chosen as the programming language for its simplicity in socket programming and cross-platform compatibility.

Collaborate:

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Program Design:

Both the client and server scripts use Python's socket module to establish a connection.

The server listens for incoming connections in a continuous loop.

Communication between the client and server occurs via sending and receiving messages in the form of strings.

Error handling is included to handle invalid input(not in range of 1-100).

Source CodeA screenshot of a computer program

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