

Simple Group Chat (Client)

Problem Description

In this problem, you are given a skeleton of a simple chat client application written in Python. The application uses sockets for networking, allowing it to connect to a chat server, send messages, and receive broadcast messages from other clients. Your task is to infer the required functionalities of the chat client based on the unit tests and then complete the client code accordingly.

Tasks

Based on the unit tests provided, your implementation should support the following features:

- Client Setup: Implement client initialization, including setting up a socket connection to the chat server using the provided host and port. The client should send its nickname to the server immediately after establishing a connection.
 - Main Loop: Implement the main loop of the client, which continuously checks for incoming messages from the server or user input from the standard input.
 - Sending Messages: Allow the user to send messages to the chat server by typing into the standard input. These messages should then be broadcast by the server to all connected clients.
 - Receiving and Displaying Messages: Implement functionality for the client to receive broadcast messages from the server and display them to the user.
 - Error Handling: Ensure the client handles any potential errors gracefully, such as server disconnection or network issues.
- Your submission should include the complete server code with all the requested features implemented.

Expected Client Output:

Testing connect to server ...

connect called with: call(('127.0.0.1', 65432))

send called with: call(b'TestNickname')

Testing nickname, host, and port ...

test attribute passed: 127.0.0.1 is equal to 127.0.0.1

test attribute passed: 65432 is equal to 65432

test attribute passed: b'testuser' is equal to b'testuser'

Testing receive message ...

recv return value: b'Hello, World!\n'

write called with: call('Hello, World!\n')

Testing send message ...

readline return value: Hi there!

send called with: call(b'Hi there!')