

# Multi-User Chat Application using Client Server Architecture

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## ABSTRACT

In this Application we create a server and number of client's interfaces in which the clients communicate with server using a socket module. These sockets are interior endpoints for sending and receiving data. A single network will have two sockets. This program is implemented using TCP socket [TCP refers to connection oriented]. In this socket will be connected to some port in the machine or a localhost. In the case of client, we will connect a socket to that server, on the same port that the server-side code is using.

**Keywords :** Socket, Client, GUI, Local Host, Tkinter.

## I. INTRODUCTION

A multi-User chat application runs using a socket programming, in this we create a server-client application where multiple clients can communicate with each other individually or it can communicate with all the clients. By using this we can create a sever client application such as medical interface, customer report and service organization, and other applications which can run by using this programming.

As chat applications are very important in day to day life and it require an internet to chat with each other and plays an important role for communication. As this application are used widely in all the fields such as IT companies, schools, colleges, personal texts etc. As the chat application needs an internet to chat it makes a major drawback because there are many outskirts area and many villages which do not have proper internet connections where they can communicate even locally.

As this application does not require internet to chat when the people are nearby, as it provides local host know as server using the method know as sockets where the people know as clients can communicate with each other. Here the clients who are connected to the local host know as server can communicate with all other clients who are connected through local host.

## II. EXISTING SYSTEM

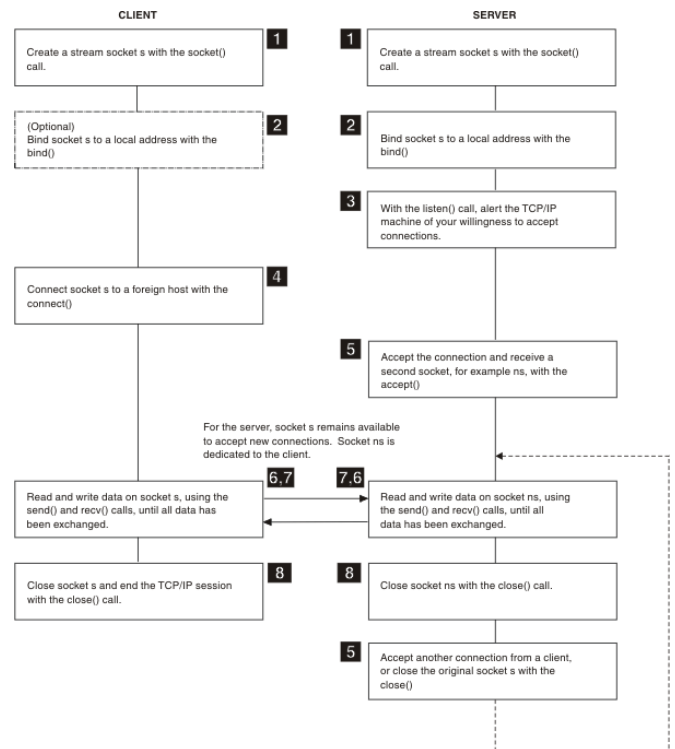
As the chat applications which are in use requires an internet to communicate even the distance is short which make an major drawback in the outskirts area where the internet connection is poor, and the schools where internet cannot be provided to large number of students, companies which make the information more confidential cannot be texted through internet. [5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35] It needs an application which is required to be installed by every user who needs to chat makes it difficult. Most of the chat application

doesn't provide end-to-end encryption which makes the texts more public.

### III. PROPOSED SYSTEM

This application runs using a socket programming which is a combination of IP address and a port number. This module consists of built-in methods that are required for creating sockets and help them to associate with each other. In this we create a server (denoted to manage network resource) and clients (client request for services from a server).

This socket and socket API which are used to send message across various. These are provided in the form of IPC i.e. Inter-Process communication. The network can be a logical, local network to the computer, or one that is physically connected to the network. We can display this application in the GUI [Graphical user interface] form using a module called Tkinter which provides a great deal and information on using Tk from python and links to other source. This makes the proposed system to use better and makes the user to feel comfortable while using it. Sockets in python can be described as it provide two level of network services which can be accessed. In the low level we can access the operating system by underlaying the basic socket support which allows to implement clients and servers for both connection oriented and connectionless protocols. Sockets also has library to access the higher-level modules in the such as FTP, HTTP etc.



1. Create a socket object and call the socket function using that object.
2. Bind the socket object in the server side which is must using a local address using bind() prebuilt function.
3. Using listen() function we accept the new connections and arrange them in the queue format.
4. Using function connect() we clients connect to the local host of server.
5. Accept the connections of clients using the function accept() from the server side.
6. Accept the other connections of clients by closing the present client using the function close().
7. Create an object from that read and write the data in the server side.
8. Repeat the same process in the client side.
9. Close the socket of both server and client side using the function close().

### IV. SYSTEM ARCHITECTURE

Modules used are:

1. Socket module: These are the programs that run on a network using a two-way communication endpoint link among which form a socket.
2. Threading Module: Running as many threads is same as running many different programs at the same time.
3. Tkinter module: Tkinter is a standard library module used for creating GUI in python. Tkinter provides easy and faster way for creating GUI application in python.

## V. IMPLEMENTATION

Below are the implementations of the project Multi-user chat application.

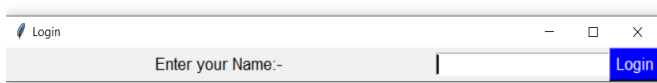


Fig 1: when a client starts the application, it asks the user to enter the name. multiple clients can be logged in using this application.

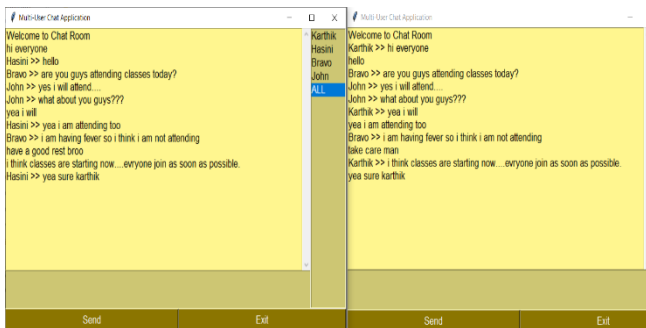


Fig 2. Chat application where multiple clients can communicate with each other.

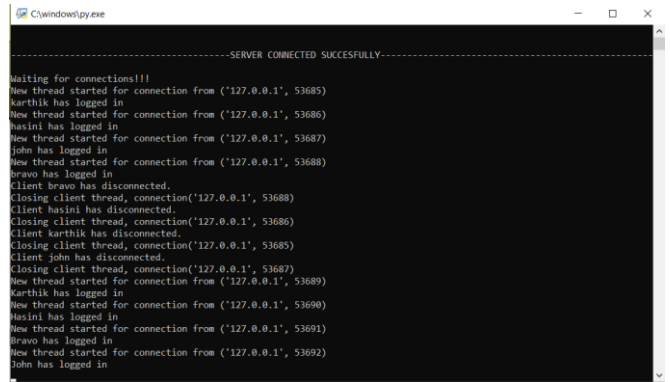


Fig 3: Server connection data of the clients connect and disconnect the application.

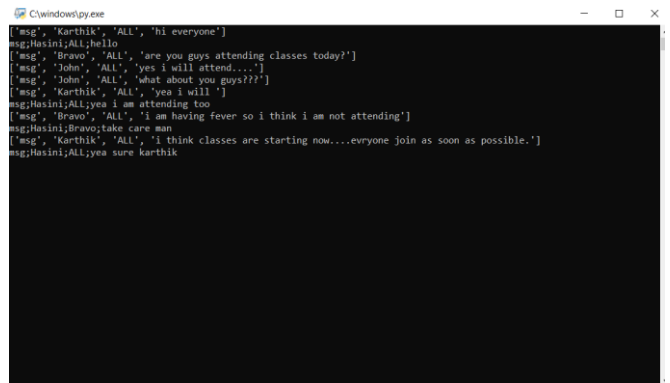


Fig 4: clients chats can be saved for further usage.

## VI. FUTURE ENHANCEMENT

There are many applications which can be created using these methods in which server holds all the information where clients can communicate with that.

It can be made by storing the information in the servers where the client texts automatically get a reply for by creating a simple chatbots.

These can be used widely in many schools or colleges where teachers can interact with students or conduct an exam.

## VII. CONCLUSION

This application can help many of the professional institutions and Universities like schools, colleges and IT companies. So, we intend to design this application for LAN of these organizations. The

people could use many features of this chat application to communicate and brainstorm within a LAN. So, basically server client application can be used to do various types of queries such as medical helpline services, customer report organization, which can be used in different scenarios. This provides the efficient way of communicating with the server, in which these days it can be used to create a chat process without any user interface or other man operation.

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