Computer Networks Assignment

A Simple Chat application using Socket Programming

Description

The aim of this project was to create a simple chat application in such a way that any number of clients, as long as they are all connected to the same network, can communicate with each other interactively through text messages. Messages are sent and received through one main server system, to which all the clients are connected to.

The only requirement needed here is the IP Address of the server system, and one can begin chatting with other clients on the network.

How it works

The server system will be running the program, server.py. In this program, using the Socket module available in Python, the system will be listening for clients through a specified port number coded into the program.

As soon as a client connects, a thread is created for that client. It is through the process of threading that multiple clients can be connected at once to the server. If there are already existing clients that are connected to the server, they will receive a message saying that

user has joined the chat. All the packets that are sent and received within this application use TCP, but can easily be changed to UDP through small changes in the code. By default, we use UTF-8 encoding scheme for the messages.

On the client side, once a system runs the program, client.py, a window opens and the program asks the user to enter the IP Address of the server through the terminal. As soon as the IP Address is entered, the chat window asks for the user's name and welcomes said user to the chat.

The window was made using the Tkinter module in Python. It comprises of a space to read all sent/received messages, a text box to enter your own message and a ‘Send’ button to send the message.

If the user wishes to leave the chat, he/she just needs to type ‘{quit}’ in the message box and the chat box will close, in turn closing the connection between the server and client. Other connected clients will receive a message saying that that user has left the chat.

Modules used

Most of the modules used for this assignment are in-built into Python by default.

For the server:

Modules used are **socket** and **thread**.

For the client:

Modules used are **socket, thread** and **tkinter**.