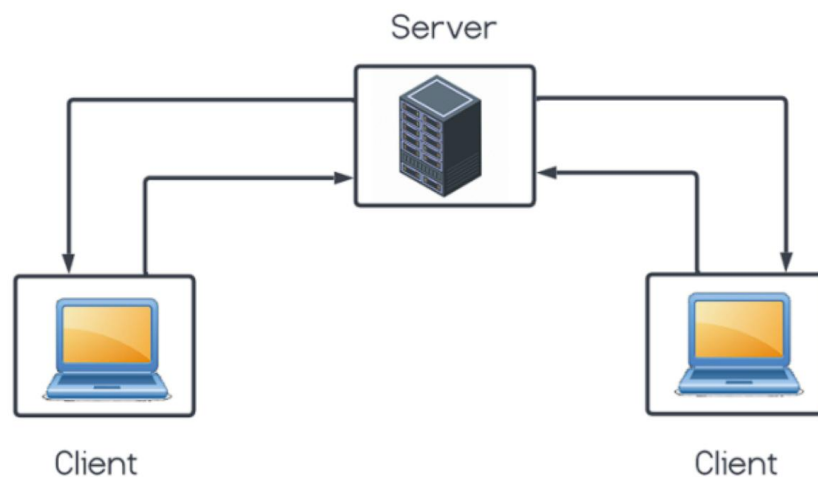


Term Project: Socket Programming

Simple Chat Application



Background

Socket programming is an alternative way of developing a communication channel between two hosts over the network. A socket is bound to a port number to identify the application process. To develop a chat application, students can implement it based on any language socket programming. Students may write their programs in Java, C++, Python, or C on any platform (Linux/Unix, Mac, PC). The client and server processes must be implemented in separate files. The chat application can communicate between two or more computers as a regular chat application.

Objectives

- To understand socket programming
- To apply socket programming with a simple chat application

Materials

- Socket programming in Python
 - <https://realpython.com/python-sockets/>
- Socket.IO - Bidirectional and low-latency communication for every platform
 - <https://socket.io/docs/v4/>
- Socket.IO and React tutorial
 - <https://developer.okta.com/blog/2021/07/14/socket-io-react-tutorial>
- Go websocket tutorial
 - <https://tutorialedge.net/golang/go-websocket-tutorial/>
- WebSockets with Spring
 - <https://www.baeldung.com/websockets-spring>

Score Criteria (Full score = 12.5 points)

1. (8.5) Fundamental requirement
2. (4.0) Special points

Requirements [Fundamental implementation]

- (1.5) The system must have at least 2 physical computers (no VMs on the same PC allowed) for implementing the chat application, one for the server and client and others for the client, using Socket Programming.
- (1.0) Each client can set a name.
- (1.0) Each client can see a list of all clients, including themselves, that are currently connected to the server.
- (1.0) Each chat must have a chat box and chat window for sending text messages.
- **Private message**
 - (1.0) Each client can send a direct text message to other clients in the list. Only the sender and receiver can see the messages.
- **Group message**
 - (1.0) Each client can create a chat group(s).
 - (1.0) Each client can see a list of all created chat groups, see the members in each group, and join the chat group(s).
 - (1.0) In a chat group, each client must see new incoming text messages from other clients in that chat group. Only the members of the chat group can see the messages.

Special points [1.0 per feature]

1.	2.
3.	4.

Note: Fundamental requirements must be completely implemented then special points will be graded.