Parshvanath Charitable Trust's

A. P. SHAH INSTITUTE OF TECHNOLOGY

(Approved by AICTE New Delhi & Govt. of Maharashtra, Affiliated to University of Mumbai)
(Religious Jain Minority)

Department of Computer Engineering

Experiment: 08

Aim:

Socket programming using TCP.
Design TCP iterative Client and Server application to reverse the given input sentence.
Theory:

Description:

Most interprocess communication uses the client server model . These terms refer to the two processes which will be communicating with each other. One of the two processes, the client , connects to the other process, the server , typically to make a request for information. A good analogy is a person who makes a phone call to another person.

The system calls for establishing a connection are somewhat different for the client and the server, but both involve the basic construct of a socket . A socket is one end of an interprocess communication channel. The two processes each establish their own socket.

The steps involved in establishing a socket on the client side are as follows:

1. Create a socket with the socket() system call
2. Connect the socket to the address of the server using the connect() system call
3. Send and receive data. There are a number of ways to do this, but the simplest is to use the read() and write() system calls.

The steps involved in establishing a socket on the server side are as follows:

1. Create a socket with the socket() system call
2. Bind the socket to an address using the bind() system call. For a server socket on the Internet, an address consists of a port number on the host machine.
3. Listen for connection s with the listen() system call
4. Accept a connection with the accept() system call. This call typically blocks until a client connects with the server.
5. Send and receive data
6. When a socket is created, the program has to specify the address domain and the socket type. Two processes can communicate with each other only if their sockets are of the same type and in the same domain. There are two widely used address domains, the unix domain, in which two processes which share a common file system communicate, and the Internet do-main, in which two processes running on any two hosts on the Internet communicate. Each of these has its own address format.
7. The address of a socket in the Unix domain is a character string which is basically an entry in the file system.
8. The address of a socket in the Internet domain consists of the Internet address of the host machine (every computer on the Internet has a unique 32 bit address, often referred to as its IP address). In addition, each socket needs a port number on that host. Port numbers are 16 bit unsigned integers. The lower numbers are reserved in Unix for standard services. For example, the port number for the FTP server is 21. It is important that standard services be at

the same port on all computers so that clients will know their addresses. However, port num-bers above 2000 are generally available.
9. There are two widely used socket types, stream sockets, and datagram sockets. Stream sockets treat communications as a continuous stream of characters, while datagram sockets have to read entire messages at once. Each uses its own communications protocol. Stream sockets use TCP (Transmission Control Protocol), which is a reliable, stream oriented protocol, and data-gram sockets use UDP (Unix Datagram Protocol), which is unreliable and message oriented.

Conclusion

Studied TCP Client and Server application to reverse the given input sentence.