Modern Education Society's

Wadia **College of Engineering, Pune**

NAME OF STUDENT:	**CLASS:**
SEMESTER/YEAR:	**ROLL NO:**
DATE OF PERFORMANCE:	**DATE OF SUBMISSION:**
EXAMINED BY:	**EXPERIMENT NO:**

Assignment No. 8(Group - B)

PROBLEM STATEMENT:

Write a program using TCP socket for wired network for following

a. Say Hello to Each other

b. File transfer

c. Calculator

THEORY:

TCP:

The Transmission Control Protocol provides a communication service at an intermediate level between an application program and the Internet Protocol. It provides host-to-host connectivity at the Transport Layer of the Internet model. The client server model 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 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 connections 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.

FTP:

The File Transfer Protocol (FTP) is a standard network protocol used to transfer computer files from one host to another host over a TCP-based network, such as the Internet. FTP is built on client-server architecture and uses separate control and data connections between the client and the server. FTP users may authenticate themselves using a clear-text sign-in protocol, normally 59 in the form of a username and password, but can connect anonymously if the server is configured to allow it. For secure transmission that protects the username and password, and encrypts the content, FTP is often secured with SSL/TLS (FTPS).

Communication and data transfer:

FTP may run in active or passive mode, which determines how the data connection is established. In both cases, the client creates a TCP control connection from a random unprivileged port N to the FTP server command port 21. In active modes, the client starts listening for incoming data connections on port N+1 from the server (the client sends the FTP command PORT N+1 to inform the server on which port it is listening). In situations where the client is behind a firewall and unable to accept incoming TCP connections, passive mode may be used. In this mode, the client uses the control connection to send a PASV command to the server and then receives a server IP address and server port number from the server, which the client then uses to open a data connection from an arbitrary client port to the server IP address and server port number received. Both modes were updated in September 1998 to support IPV6. Further changes were introduced to the passive mode at that time, updating it to extended passive mode. The server responds over the control connection with three-digit status codes in ASCII with an optional text message. The numbers represent the code for the response and the optional text represents a human-readable explanation or request . An ongoing transfer of file data over the data connection can be aborted using an interrupt message sent over the control connection.

Login

FTP login utilizes a normal username and password scheme for granting access. The username is sent to the server using the USER command, and the password is sent using the

PASS command. If the information provided by the client is accepted by the server, the server will send a greeting to the client and the session will commence. If the server supports it, users may log in without providing login credentials, but the same server may authorize only limited access for such sessions.

Anonymous FTP

A host that provides an FTP service may provide anonymous FTP access. Users ypically log into the service with an 'anonymous' (lower-case and case-sensitive in some FTP servers) account when prompted for user name. Although users are commonly asked to send their email address instead of a password, no verification is actually performed on the supplied data. Many FTP hosts whose purpose is to provide software updates will allow anonymous logins.

CONCLUSION:

Thus we have successfully implemented the socket programming for TCP using C.

QUESTIONS

1) What is Socket? Explain different types of socket?

2)Differenciate between TCP & UDP.

3)Explain FTP Protocol.

4) Write down steps involved in establishing a socket on the client side & server side.