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Lab Assignment 6 (CN)

* Aim:
Write a C program for wired network using TCP socket to demonstrate mathematical operations.

* Objectives:
To understand concept of socket programming.

* Theory:
Client Server communication involves two components namely a client and a server. Client sends request to server and server responds to client request TCP or Transmission control protocol a communications standard that enable application programs and computing device to exchange messages over network TCP Header.

Socket is a software structure within a network node of computer network that serves as end point.
TCP socket flow and functions on client side.

i) Socket ().
ii) Connect ()
iii) Write ()
iv) Read ()
v) Close ()

TCP socket flow and functions on server side:

i) Socket () Bind ()
ii) Connect () Listen ()
iii) Write () accept ()
iv) Read () read ()
v) Close () write ()
vi) close ()

FAQ

1. State the IANA range for ports. List atleast six well known ports?

Ans Port range division is are as follows:

i) well known port - 0-1023
ii) Registered port: 1024-49157
iii) Dynamic port - 49152-65535

Some well known ports are A) 7-ECHO B) 20-21 → FTP. C) 20, 21 → FTP D) 22-SSH E) 37-Time F) 53-DNS G) 80-HTTP. H) 115 → SFTP IX I) SQL service J) 443 → HTTPS K) 546-547 → DHCP client

2. If bind () fails, what should I do with the socket descriptor?

Ans On bind () fails the unix system will close all open file descriptor on exit. If the code is not exited immediately the programmer can close it with a regular close () call.

3. Draw and explain header?

Ans TCP header – i) Source Port – 16 bit field that specifies sender.

ii) Destination Port – 16 bit field that specifies receiver.

iii) Sequence number 32 bit field indicates how much data is sent during TCP session.

iv) Acknowledge number – 32 bit field is used by receiver to request next TCP segment.

v) Header length – 4 bit data indicating length of TCP Header.

vi) Reserved 3 bit reserved data.

vii) Flag – 9 bit your flag also called as control bits

viii) checksum – 16 bit Check Sum

ix) options – optional field can range 0 to 320 bits.