National University of Computer and Emerging Sciences

Laboratory Manuals

for

Computer Networks - Lab

(CL -3001)

Department of Computer Science
FAST-NU, Lahore, Pakistan

Lab Manual 06

Objective:

Students should know:

•What a computer network is and what its advantages are.
•What is OSI Model?
•What is a socket?
•Client-Server Model
•TCP Socket Programming.

In-lab Statement 1: [5]

- Write **TCP** client and server that can communicate to each other saying "Hello I am client and My id is 1" and "Hello I am server. Your received id is 1"

- The ID of the client should be only a **single digit** i.e from 0 to 9
- Run one client and server on same machine
- Your server should be in running state **infinitely** and should not terminate after serving one client only. The clients will keep on coming one by one and server will keep on serving them unless terminated intentionally.
- **Sample Test Bench**
  - Client1 sends : "Hello I am client and My id is 1"
  - Client2 sends: "Hello I am client and My id is 2"
  - Server response on client1: "Hello I am server. Your received id is 1"
  - Server response on client2: "Hello I am server. Your received id is 2"

In-lab Statement 2: [15]

- Write TCP client and server program such that client will send one string to a server and server will display the string with all the words containing one or

more vowels in an inverted fashion e.g., computer must be inverted as ‘retupmoc’.

- The server will then send the resulting string to client and client as a result will invert all the words containing no vowels and display it on the terminal e.g., dry must be inverted as ‘ryd’.
- Your server should be in running state **infinitely** and should not terminate after serving one client only. The clients will keep on coming one by one and server will keep on serving them unless terminated intentionally.
- Sample Test Bench
  - Client sends to server: “the birds fly in dry sky at night”
  - Server displays the string and returns to client: “eht sdirb fly ni dry sky ta thgin”
  - Client displays the string: “eht sdirb ylf ni yrd yks ta thgin”