National University of Computer and Emerging Sciences

Laboratory Manuals
for
Computer Networks

(CL -307)

Course Instructor	
Lab Instructor(s)	
Section	
Semester	

Department of Computer Science
FAST-NU, Lahore, Pakistan

Objective:

- UDP Socket Programming

UDP Socket Programming

UDP (User Datagram Protocol):

UDP uses a simple connectionless transmission model with a minimum of protocol mechanism. With UDP, computer applications can send messages, referred to as datagrams, to other hosts on an Internet Protocol (IP) network without prior communications to set up special transmission channels or data paths. Following are its characteristics:

1.   There is no guarantee of delivery, ordering, or duplicate protection.
2.   Ideal for network applications where we can tolerate data loss but want to achieve low latency

In lab Statement: [20]

Create a UDP based **Check in/Check out System.** In this system, the user should be able to Check in and Check out from the system by sending a data packet from its host machine. For instance

User **must** send a message with the following format

YY-AAAA-CI (For check in) (e.g., 12-4159-CI)

Or

YY-AAAA-CO (For check out) (e.g., 12-4159-CO)

 (YY-AAAA is your roll number)

The system must get the packet sent by the client and must process the packet accordingly. Your system must cater the following cases.

Check in:

- Marks the in attendance of the client in a database of the students and returns a welcome message **"Welcome Student YY-AAAA"**
- If the user is already checked in it must send the message **"You are already here."**

Check out:

- Marks the out attendance for the client from the student database and then fill the empty place in the database (e.g., if a student initially placed at place 5 has left then all the students above position 5 must come one position down to fill that position). The server must send the message **"Good Bye Student YY-AAAA! Have a nice day."**
- If the user didn't check in and sent the checkout packet, the server must return the message **"You didn't check in today. Contact System Administrator."**

<u>Note:</u>

- <mark>**You must print all the members present in the database each time client makes a request to check in or check out.**</mark>

- <mark>**Server must not be restarted once started**</mark>**.**