Indian Institute of Information Technology, Allahabad.
Course: Computer Networks (CNE532)
Batch: B.Tech (IT) Section 2
Lab Assignment # 3
Lab Sessions: 04.09.2019
Deadline: 11.09.2019

1. Please refer the problem 1 of Assignment #2. In this lab, you will convert your previous program to work with the Internet protocol family. Use the stream services and build a client and server to perform the same functions that you did before. Determine the Internet address of the machine your server uses and put it in the connect structure. You can use any port that you want, between 13000 and 65535 safely. Note that if you happen to pick the same port as someone else, you could have a conflict and a server may fail when it tries to open the port, but the likelihood is small.

    The only logical change you need to make is to implement your exchange of messages as a protocol. The protocol will be structured as follows (note, a string of digits followed by a b means a binary number):
    Requests:
    byte   content
    ----   -------
    0   request code, 0000001b = name, 00001001b = number
    1-n   request data
    n+1   end-of-request, 00000011b (ETX)

    Replies:
    byte   content
    ----   -------
    0-n   reply data
    n+1   end-of-reply, 00000011b (ETX)

    Note that the requests allow for both name and number matching, so you need to also be able to match a name. Nothing fancy, an exact match is required. Also note that the character string can contain any type of byte oriented data, including binary representations of numbers. For example:

    short val;
    char * message;
    message = &val;
    send (sock, message, 2, 0);

2. Write a client-server program that provides text and voice chat facility using datagram socket. Your application allows a user on one machine to talk to a user on another machine. Your application should provide non blocking chat facility to the users. This means, user can send its message at any time without waiting for replay from the other side. (Hint: Use select() system call).