Indian Institute of Information Technology, Allahabad

Course: Computer Networks
Batch: B.Tech (IT) 4th Semester; Section B
Lab Assignment #2
Assignment Date: 17.01.2020
Deadline: 24.01.2020

1. Introduction to Sockets and Tasks shall be performed using DGRAM socket:
   i. Create three programs, two of which are clients to a single server. Client1 will send a character to the server process. The server will decrement the letter to the next letter in the alphabet and send the result to client2. Client2 prints the letter it receives and then all the processes terminate. Compile and run this exercise in both the UNIX and the Internet domains.
   ii. Follow the same procedure as in part a except that the data type of the message should be integer and the server should decrement the integer before transmitting it to client2.
   iii. Next write a socket program to enable client1 to send a float value to the server. The server process should increase the value of the number it receives by a power of 1.5. The server should print both the value it receives and the value that it sends. Client2 should print the value it receives from the server.
   iv. Send a C structure that includes data of type character, integer and float from client1 to the server. The server should change the values so that client2 receives a structure with entirely different data. It is not permitted that the data should be converted to any other data type before transmission. Do this exercise in both the UNIX and the Internet domains.

2. You need to build a very simple client-server operation using the Stream capabilities. You are to build a client and server pair, to implement your own little directory service. Suppose that the server has the following database:

0	Bob
3	Anne
5	Barb
7	Ray
9	Denbigh
10	Terri
104	John

   This can be in a file that is read. The client is to read a request, which is a numeric address to be sent to the server. The servers look up the matching name and send it back to the client to be printed out. If the address isn't found, the server should send back an error message. For example, "Address not found".