ASSIGNMENT 3

Basics of Network Programming

An introduction to the basics of writing client-server stubs in C/C++ in UNIX environment

Introduction : What will we learn here ?

In all computer networks, one of the computers acts as a server (for applications, data, services) to client computers. In this assignment, we will learn how to develop the C/C++ code which is used to program this functionality on the client and on the server.

Problem Statement C1 (Compulsory; Difficulty level *; 100 points)

Using C/C++ develop a client-server scenario in which server acts as a data provider to clients. The server holds a student directory which contains Name, Entry Number and Email ID for each student. A client can request for a student's email ID by providing either his/her name or entry number. In response server should return the corresponding student record (all fields). Use TCP sockets and a text file for database which has been mailed to the group.

Problem Statement O1 (Optional; Difficulty level **; 10 bonus marks)

Implement a query based system as follows:

RETURN <year> (e.g. RETURN 2012 should return records of all students with entry in 2012)

RETURN * (return all records)

ADD <name> <entry no> <email id> (e.g. add a new student record for given arguments)

Problem Statement O2 (Optional; Difficulty level ***; 20 bonus marks)

Upgrade your server code to serve multiple clients simultaneously. Please note that server must be able to handle several write requests at the same time.

NOTE:

- The assignment must be uploaded to https://sakai.iitd.ac.in (in certain exceptional cases, the TAs may allow it to be mailed to dslab2013.iitd@gmail.com)
- Submission deadline is 5 PM today
- Submit a zip file named assignno_entryno having 2 folders:
  1. CODE: Suitable files associated with the assignment
  2. DOCUMENTATION: .pdf and .tex file of your report

Copying is counter-productive and will be penalized.

Reading instructions for the next week

Next week, we will be doing assignments on network programming using datagrams. Please read about UDP in the tutorial here.