

Indian Institute of Technology Roorkee
Department of Computer Science and Engineering
CSN-361: Computer Networks Laboratory (Autumn 2019-2020)

Lab Assignment-2 (L2)

Date: July 25, 2019

Duration: 1 Week

General Instructions:

1. Every Lab Assignment will be performed by the students individually. No group formation is required and the evaluations will be done every week for the students individually.
2. Use of Linux OS is mandatory for this Lab to complete all the Lab Assignments.
3. The student should use Doxygen tool (<http://www.doxygen.nl>) for getting automatic documentation of the codes written by him/her.
4. For version control of the written codes, the students are being instructed to learn and use any open-source CSV tool (<https://www.nongnu.org/cvs>) or GitHub (<https://github.com>).

Submission and Evaluation Instructions:

1. **Submit your** zipped folder (<filename>.zip or <filename>.tar.gz) through your account in Moodle through the submission link for this Lab Assignment in Moodle course site: <https://moodle.iitr.ac.in/course/view.php?id=47>
2. **Hard deadline for Final submission in Moodle: August 1, 2019 (9:00 am Indian Time).** For any submission after Final Deadline, 20% marks will be deducted (irrespective of it is delayed by a few seconds or a few days). The key to success is starting early. You can always take a break, if you finish early.
3. The submitted zipped folder (<filename>.zip or <filename>.tar.gz) must contain the following:
 - (a) The source code files in a folder.
 - (b) A report file (<filename>.DOC or <filename>.PDF) should contain the details like:
 - i. Title page with details of the student
 - ii. Problem statements
 - iii. Algorithms and data structures used in the implementation
 - iv. Snapshots of running the codes for each of the problems
4. The submission by each student will be checked with others' submission to identify any copy case (using such detection software). If we detect that the code submitted by a student is a copy (partially or fully) of other's code, then the total marks obtained by one student will be divided by the total number of students sharing the same code.

Instructions for L2:

1. Objective of this Lab Assignment L1 is to make the students familiar with the hardware and software aspects of computer networking and extracting information related to computer networking using C/C++ programs.
2. The students are expected to have a basic knowledge of C/C++ programming language.
3. It is mandatory to learn and use gdb (GNU Debugger) for debugging the programs in Linux platform after installing gdb (<https://www.gnu.org/software/gdb>). There is also an interesting online GDB tool to learn: <https://www.onlinegdb.com>
4. The student will have to demonstrate and explain the coding done for this Lab Assignment L1 in the next laboratory class to be held on **August 1, 2019** for evaluation.

Problem Statement 1:

Write a socket program in C to connect two nodes on a network to communicate with each other, where one socket listens on a particular port at an IP, while other socket reaches out to the other to form a connection.

Problem Statement 2:

Write a C program to demonstrate both Zombie and Orphan process.