Assignment #1

Date Due: October 17, 2017

Total: 100 marks

Inter Process Communication

Write there suites of C programs to calculate your final mark in a course.
Requirements:

- The program accepting the input and displaying the output, i.e., the interface program should not do any other computation then communicating with a server program. Your client program should accept input from the programmer and send it to the server program. It receives the result from the server and prints it.

- The server program will perform all the computations and send the results back to the interface program. Your server program will accept connections and compute final mark.

- The type of communication between the programs will constitute a complete suite.

- A default marking scheme is stored on the server. However, as an optional feature, a new marking scheme may be sent to the server, by the client, or read from another server, either by client, either by server, if the option `-m` is used. The exact syntax should be well documented and included in a Readme file. Compiling should be done using an appropriate make files.

  Each suite is marked as follows:

  1. client program 5 marks
  2. server program 5 marks
  3. communication protocol 5 marks
  4. For each suite the master program will start the server program and also 2 other client programs.
     - After the client programs terminates or after k minutes, the master program should suspend the client programs and display their status.(5 marks)
     - The user should interact with the master program and decide to allow m more minutes for execution. In case there is no client running a new client is generated. (5 marks).
     - After m minutes (in case $m = 0$, we stop without waiting) the master program should kill all its children (all client programs, then the server program). If they are still running it will display their status (all successful, one killed , or both killed). For each killed/suspended program we also need to display their PID. If no programs are killed this should be displayed. (5 marks)

- Communication protocol is one of the following:
  1. named pipes (fixed names one for client to server the other one for server to client)
  2. named sockets (one for each connection)
  3. internet sockets on localhost.

For each program(35 marks): the Readme file, Makefile and proper documentation will worth be another 5 marks.

All programs should work on our Virtual machines(provided).