GROUP PROGRAMMING PROJECT
1st Submission due: Oct 29th , 11:59 PM

2nd Submission due: Nov 5th , 11:59 PM

Final Submission due: Nov 20th , 11:59 PM

Project Description:

Please form a group of 3 or 4 students to work on this project.

The project consists of designing and implementing a simple game using a server and at least two clients. The server will execute in one of the osnodes and the clients on a different osnode.

The object of the game is simple: the clients will select one of sixteen locations, arranged as shown below, by typing in the letter of that location. Each of the locations is associated with a "value" which has been set by the server at the beginning of the game and unknown to the clients. The server keeps scores for each client and after all the letters have been selected, it announces the winner.

$$\begin{matrix} a & b & c & d \\ e & f & g & h \\ i & j & k & l \\ m & n & o & p \end{matrix}$$

After a client selects a location, that location cannot be selected again during that game by either client. Whichever client selects a location first will receive the points for that location. The server will serve the updated matrix to the clients after each choice. It is up to you to decide whether to show the value of the locations that have already been selected or to keep the values hidden. Both alternatives are shown below.

$$\begin{matrix} a & b & c & d \\ e & f & - & h \\ i & j & k & l \\ m & n & o & p \end{matrix}$$

OR

$$\begin{matrix} a & b & c & d \\ e & f & +10 & h \\ i & j & k & l \\ m & n & o & p \end{matrix}$$

Group presentation: There will be a 10 minute presentation by each group at the end of the project. The presentation must include:

1. A slide for each group member (and presented by that member) showing
    a. what they were responsible for
    b. how they accomplished it
    c. amount of effort they put into it
    d. how they coordinated with the rest of the group members
2. Project demo.
3. Main thing learned from the project.

There will be intermediate submissions required for each group:

1st Submission (20% of total project points): Oct 29th: Successful creation of Server and two Clients (5%). Server and Clients can run concurrently on different osnodes(5%). After each client sends " ready to play" message to server, server will first display 4X4 array of letters and values on its own screen and then send 4X4 array of letters to each client(5%). Each client will then display on their own screen the 4X4 array of letters sent by server (5%). The clients will then exit.

2nd Submission (20% of total project points): Nov 5th: Clients can successfully select array locations (10%) and server can record and print on screen the location and value of each client's selection (10%).

Final Submission (50% of total project points): Nov 20th: Game can be played successfully with clients executing on different computers than server (10%). Server protects critical section successfully (10%). Server correctly recognizes choices made by clients as well as keeps scores and selects winner (20%). Server provides clients with appropriate message at the end of the game and gives clients a choice to continue playing (10%) or exit.

Presentation (10% of total project points). Slides will also be due Nov 20th.

Presentation Dates: Nov 21, Nov 26, Dec 3.

1st and 2nd Submission: Via Canvas. A zip file containing: a server program named "server.c", and a client program named "client.c".

3rd Submission: Via Canvas. A zip file containing: a server program named "server.c", a client program named "client.c" and a power point presentation named "presentation.ppt"