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CSCE 3600: Systems Programming
Minor Assignment 6 – Python Sockets (Optional)
Due: 11:59 PM on Thursday, December 15, 2022

Program Description

In this assignment, you will write two complete python programs that will allow two players to play a guessing game. It will include two programs, a server and a client. The game has several parts that will test your knowledge of python and sockets. The server will allow to two clients to connect and play together. The client programs accept a guesses from the player and transmits the guess to the server which will check to see if the number matches.

The client and server programs are to communicate via the Internet (network) using TCP sockets. Your server should be able to handle guesses from either client in any order. Your clients should be able to handle responses from the server or the player. (Hint: use select)

General

The game has very simple rules. The server will choose a random integer from 1 to 20. Once both clients are connected, they will attempt to guess the number. The game is not turn based, meaning that each player can guess without waiting for the other player to guess. After each guess the server will tell that player if their guess was above or below the random number. The first player to guess the correct number wins.

Server

The server will take one command line parameter that is the port number.

To begin the game, start the server. The server should open an ethernet port for connection by the players.

When the first player connects the server should send a message that it is waiting for the other player to connect. Once both players are connected the server should send a message to each client that includes the range of the number to guess. Any guesses received before both players are connected should result in a message to that player that the server is still waiting on the second player.

The server should process guesses from either player as they are received. In processing the guess, the server should respond to the player if the guess was above or below the number. If the player guesses the correct number. The server should inform both players of the correct number and which player had the correct guess.

Client

The clients will connect to the server. Note that the client will require the server's URL and the port number for the connection. You may accept this information on the command line or prompt the user for these values.

The client should display any message received from the server. It will allow the player to enter numbers. These numbers should be sent to the server as a guess.

Suggestions

Use select statement as it should make your task easier. I would avoid using threads. Be sure to handle incomplete send and receives.

Requirements

- Your code should be well documented in terms of comments. For example, good comments in general consist of a header (with your name, course section, date, and brief description), comments for each variable, and commented blocks of code.
- Your server should be named "`minor6server.py`", without the quotes.
- Your client should be named "`minor6client.py`", without the quotes.
- Your programs will be graded based largely on whether it works correctly on the

  CSE machines (e.g., `cse01`, `cse02`, ..., `cse06`), so you should make sure that your scripts do not have any runtime errors and runs on a CSE machine.

- This is an individual programming assignment that must be the sole work of the individual student. Any instance of academic dishonesty will result in a grade of "F" for the course, along with a report filed into the Academic Integrity Database.

Submission

- You will electronically submit your C program to the **Minor 6** dropbox in Canvas by the due date and time.

Bonus

- Keep track of the guesses of each player and display both players at the end of the game you will receive some bonus points.

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