CS 4970 - Parallel Programming

Assignment 1 - Due 2021.08.23

Overview: The purpose of this assignment is to construct a program which will model a guessing game.

Currently:

In class, we examined and compiled the .cpp file: MPI_gather_example.cpp. It currently performs the following:

(1) At runtime, a command line argument for the largest possible random number is entered.
(2) Process 0 generates a random number between 0 and the number from part (1).
(3) Process 0 broadcasts the value from part (1).
(4) All processes with rank > 0 generate a random number in the correct range.
(5) The guesses from all processes are gathered by Process 0, and stored in the array gatherV, whose entries correspond to the guess of the process with the same rank.

Future Work:

So your job is to take MPI_gather_example.cpp. and modify it to perform a guessing game which satisfies the following criteria:

(1) Instead of a single round of guesses, the gather command should be used repeatedly until a process has guessed the correct value.
(2) The total number of rounds needs to be kept track of.
(3) After the round in which a process has guessed the correct answer, Process 0 will communicate who the winner is to all processes.