EE 5453 Cloud Computing
HW 5

Point to Point Communication

Due Thursday, November 7th at the beginning of the class

Please provide all code and output created to answer the following questions:

1. Rewrite the first example of code "passRandomDraw.py" so that it passes instead a n x 1 vector of random draws from one process to the other. For practice, write it so that the user inputs at execution the value of n on the command-line (similar to the code developed in this section for the trapezoid rule.

2. Try modifying some of the parameters in comm.Send and comm.Recv in the code from the previous exercise (dest, source, and tag). What happens to the program? Does it hang or crash? What do you suppose the tag parameter does?

3. We will again rewrite the first example code "passRandomDraw.py". This time write the program so that each process i sends a random draw to to process i+1. The process with the highest number will send to the root process. Notice that we are communicating in a ring. For communication, only use Send and Recv. The program should work for any number of processes. (Hint: Remember that Send and Recv are blocking functions. Because each process will be sending and receiving, if every process calls its Recv first, the program will hang. What about if each calls Send?)

4. Implement the Load-balancing fix to the code trapParallel_1.py. The program should be able to take in any number of trapezoids n for any number of processes and the trapezoids should divide themselves among the processes evenly, differing by at most one between any two processes.