Submission Instructions

1. Submission Deadline: Feburary 23, 11:59pm. No extension will be allowed.
2. How to submit: To turn in your source code files, execute turnin command "turnin -c cs525 -p hw2 DIR" where **DIR** is the directory your code reside in; to check your submission, use "turnin -c cs525 -p hw2 -v". A guide to turnin command can be found here and here.
3. Machine to use: You can use MC servers to run your program. The information of MC servers can be found here. Before executing your program, you can use system system monitoring command such as "top" to check the utilization of your current machine.

1. **Problem:** Parallelizing Quicksort using MPI

   This assignment requires you to write a parallel quicksort using MPI. The program takes one input instead of two, which we had in last assignment. This time, your program only takes in the number of integers in the array. The number of instances can be accessed with *MPI_Comm_size*.

   Notes: Algorithm Details

   1 The algorithm is close to the threaded quicksort you just implemented in last assignment. You can find the description on page 60 and page 61 of the slides.

   Grading:

   Your program will be run on a 16-core machine (mc18) with the 16-instance settings, which means the number of processes spawned is 16 in total.

   For debug and test, you can use the mc01-16 machines.

   Your work will be graded on the following rubric:

   Your program will be executed on a list of 100M entries.

   - Basic execution: 25% (A single-thread version will give you 25%)
   - Speedup of 4 - 8 compared to baseline (single process): 50%
   - Speedup of 8 - 12 compared to baseline: 75%
   - Speedup of over 12 compared to baseline: 100%