Homework 3

Run my "hello world" MPI and OpenMP executables on grape (in batch and interactive) and Hummingbird (batch only) on (a) 1 node with 4 processes using MPI, (b) 2 nodes with 4 processes per node using MPI, (c) 1 node 4 threads using OpenMP, (d) 1 node 8 threads using OpenMP. You will have to write PBS/SLURM scripts to do the batch jobs! (← key exercise!)

The executables are made for you already and are on HB in `~brummell/AM250_Exercises/`

```
hello_mpi_grape
hello_mpi_hb
hello_omp_grape
hello_omp_hb
```

Submit a tarfile to Canvas containing:

- ✓ the scripts you write for the batch jobs
- ✓ output from your jobs
  - screen shots of the commands and the output on the screen for interactive
  - the standard error and output files of the job for batch

Total # of tests = 3 methods (2 batch, 1 interactive) * 2 types (mpi, openmp) * 2 node/procs distributions (a,b or c,d) = 12 jobs (see next page for summary/list)

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Summary of jobs:

Job#	Executable	Batch/Interactive	#nodes/procs
Job1:	`hello_mpi_grape`	batch	(a) 1 node, 4 procs total
Job2:	`hello_mpi_grape`	batch	(b) 2 nodes, 8 procs total
Job3:	`hello_mpi_grape`	interactive	(a) 1 node, 4 procs total
Job4:	`hello_mpi_grape`	interactive	(b) 2 nodes, 8 procs total
Job5:	`hello_mpi_hb`	batch	(a) 1 node, 4 procs total
Job6:	`hello_mpi_hb`	batch	(b) 2 nodes, 8 procs total
Job7:	`hello_omp_grape`	batch	(c) 1 node, 4 threads
Job8:	`hello_omp_grape`	batch	(d) 1 node, 8 threads
Job9:	`hello_omp_grape`	interactive	(c)) 1 node, 4 threads
Job10:	`hello_omp_grape`	interactive	(d)) 1 node, 8 threads
Job11:	`hello_omp_hb`	batch	(c)) 1 node, 4 threads
Job12:	`hello_omp_hb`	batch	(d)) 1 node, 8 threads