Assignment MPI: Hello World

The purpose of this assignment is for you to learn more about

- getting started with MPI by implementing a hello world

As usual all time measurements are to be performed on the cluster.

To be able to compile and run an MPI program on Centaurus, **you need to add the line** `module load openmpi/4.1.0` **at the end of the file** `.bashrc` **located in the home directory of your account on Centaurus**. (log off and back in afterward.)

To compile an MPI application, use the `mpicc` compiler in C and the `mpicxx` compiler in C++. They also serve as linker. To run an MPI application using 19 processes, you can run `mpirun -n 19 ./myprogram`. But you will need to have a proper node allocation first. And if you have a proper node allocation then specifying `-n` is not necessary because the cluster scheduler does that for you.

1 Hello World (15 pts)

This problem is fairly simple. It consists in initializing the MPI application and getting each process to print a message of the form "I am process i out of P. I am running on *machine*.".

Question: Go into the `hello_world/` directory and write the code in `hello.cpp`. You can test your code on your machine with `make run`.

Question: Run the code on Centaurus using `make bench` and confirm that the run happen on different machines by looking at the output generated in the `slurm-`xyz`.out` files. Submit an archive of your code and `slurm-`xyz`.out` files.