Objective

The program is used to calculate strike rate of a fleet which means the number of launches over a minute. In this program, each task represents a vessel while all tasks in the communicator stands for a fleet. All the tasks (vessels) will be allocated a random location value and launches are counting whenever there are three or more than three tasks share an identical location value. This process will be executed in a loop until the time period exceeds 60 seconds. The complete program is implemented in Fleet_Sim.c file.

Compile

In PartB directory, execute ‘make’ command with attaching ‘Makefile’ or directly compile using:

mpicc –o Fleet_Sim Fleet_Sim.c

Execution

The number of the tasks represents the number of vessels. In PartB directory, execute command:

mpirun –np 20 ./Fleet_Sim

The command will utilize 20 vessels in the computing.

Instruction

Running the program, it will display the number of vessels involved in the computing.

Start computing on [20] vessels...

The interim data (number of rounds and launches) will be displayed during the execution. For example:

Round 100 - Total Launches: 23

After completion, the final launches will be displayed. For example:

In a minute there are 12 launches in 10918 rounds.