Tutorial - 9

In this tutorial, you will develop and test collective communication function calls in MPI, as well as compute a row block-decomposed matrix-vector multiplication.

1. Develop MPI programs to demonstrate collective functions such as MPI_Reduce, MPI_Allreduce, MPI_Scatter, MPI_Gather, MPI_Allgather. Convince yourself that these programs are producing the intended output by running them.

2. Develop an MPI program that computes matrix-vector multiplication and produces the resulting vector using block-decomposition along rows. Convince yourself that you obtain the same answer as that of the serial program. Use collective communication functions as much as possible. Run the program on $p = 2, 4$ and 8 processes.