MA6252 Topics in Applied Mathematics II
Third homework (20%)

1. Write a program that uses MPI and has each MPI process print

   Hello world from process i of n

using the rank for i and the size for n in MPI_COMM_WORLD. Note the order that the output appears in. Depending on the MPI implementation, characters from different lines may be intermixed.

2. Write a program to test how fair the message passing implementation is. To do this, have all processes except process 0 send 100 messages to process 0. Have process 0 print out the messages as it receives them, using MPI_ANY_SOURCE and MPI_ANY_TAG in MPI_Recv. Is the MPI implementation fair?

3. Implement a (serial) Jacobi algorithm for an one-dimensional domain for the Laplace equation. Keep it as simple as you want to.