Initializing Identity Matrix using MPI

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Overview:

The objective of this lab was to implement an identity matrix and distribute it for the number of processes and given dimension of the identity matrix. The dimension of the matrix,N*N was passed through the command line in interactive mood. The number of rows (N) was allocated for each process and the modulus operator was used to take account of the remainder in case N was not divisible by number of process (np) .

The code prints the matrix ordered on standard output if N is smaller than 10 ; otherwise prints the matrix on a binary file.

The same code was modified and compiled and ran using non blocking and overlapping api MPI_Irecv () . It initiates a receive without blocking on its completion .The status of the posted receive can be checked with the request handle.

*int MPI_Irecv(void *buf, int count, MPI_Datatype dtype,*
int source, int tag, MPI_Comm comm,
*MPI_Request *request);*

Implementing the code:

The code for this exercise was compiled and tested by logging in Ulysses cluster. The **openmpi** module was uploaded and the code was compiled using **mpicc .** Then the executable was ran using **mpirun -np 4 ./ Id_matrix.x 8 .** For N values equal or bigger than 10 , the result was printed on a binary file which can be viewed using the command **od -i idtenity.dat .**

*** The code is well documented with necessary comments ***