

MPI-SETUP-IN-UBUNTU

Step1 : Open the terminal and Update the package repository by using the below command.
sudo apt update

Step2 : Download the MPI Library by using the command in the terminal.
sudo apt install mpich

Step3 : Now write the MPI Program with C extension(For ex: HelloWorld.c).

```
#include<stdio.h>
#include<stdlib.h>
#include<mpi.h>
int main(int argc, char *argv[]){
    int size;
    int myRank;
    MPI_Init(&argc, &argv);
    MPI_Comm_rank(MPI_COMM_WORLD, &myRank);
    MPI_Comm_size(MPI_COMM_WORLD, &size);

    printf("The processess and size are = [ %d ] , [ %d ] \n", myRank, size);

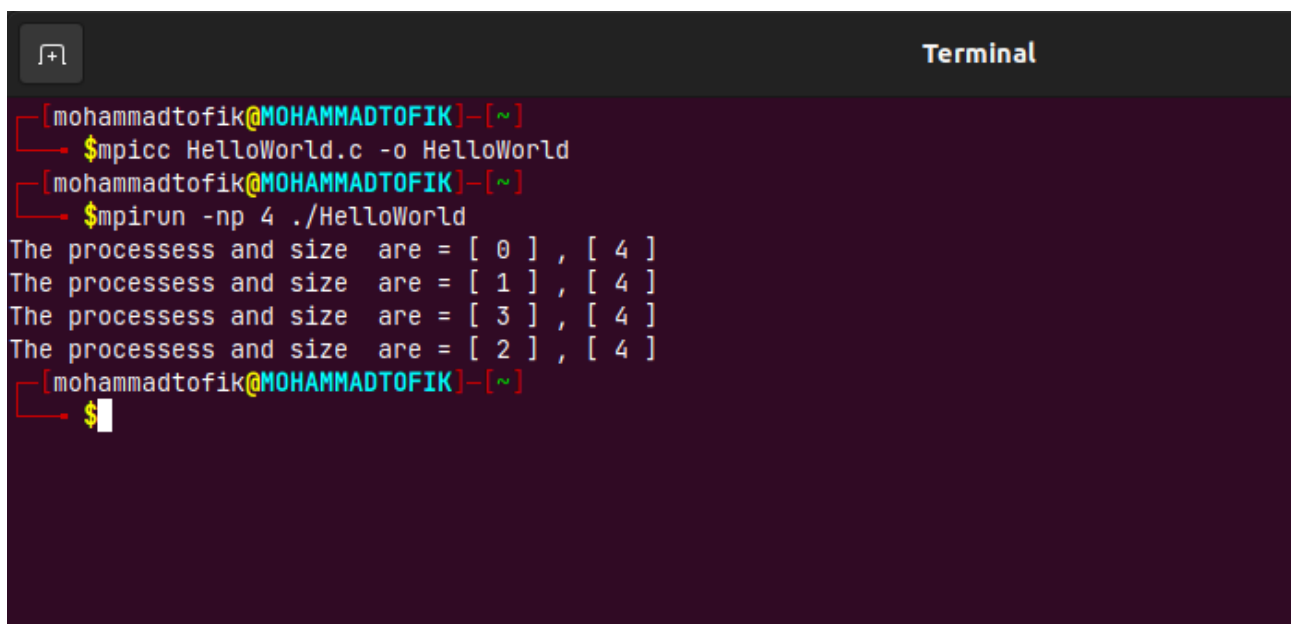
    MPI_Finalize();
    return 0;

}
```

Step4 : Now run the above program by using the command below.
mpicc HelloWorld.c -o HelloWorld

Step5 : After compiling then execute the program by using the command .
mpirun -np 4 ./HelloWorld

Step6 : You will get the following output .

A terminal window titled "Terminal" with a dark background. It shows the execution of MPI-related commands. The user is mohammadtofik@MOHAMMADTOFIK. The commands executed are: \$mpicc HelloWorld.c -o HelloWorld, followed by \$mpirun -np 4 ./HelloWorld. The output shows four lines of text, each representing a process: "The processess and size are = [0] , [4]", "The processess and size are = [1] , [4]", "The processess and size are = [3] , [4]", and "The processess and size are = [2] , [4]". The terminal ends with a prompt \$ and a cursor.

```
Terminal
[mohammadtofik@MOHAMMADTOFIK]~$
$mpicc HelloWorld.c -o HelloWorld
[mohammadtofik@MOHAMMADTOFIK]~$
$mpirun -np 4 ./HelloWorld
The processess and size are = [ 0 ] , [ 4 ]
The processess and size are = [ 1 ] , [ 4 ]
The processess and size are = [ 3 ] , [ 4 ]
The processess and size are = [ 2 ] , [ 4 ]
[mohammadtofik@MOHAMMADTOFIK]~$
$
```

