**15 Puzzle Problem**

*Background:*

The 15-Puzzle consists of a 4x4 frame of square tiles (numbered from 1 to 15), with one tile missing. The object of the game is to place the tiles in numerical order by sliding tiles, using the empty space.

*Algorithm:*

*Parallel – Thread Pool Executor*

If the puzzle is solvable and it is not solved, create a random tile to move per thread.

*Distributed – MPI*

Each process makes a random move on the board created by the master process.

*Performance:*

|  |  |  |
| --- | --- | --- |
| count | Thread pool | MPI |
| *10* | *1040 ms* | *45 ms* |
| *20* | *1004 ms* | *227 ms* |
| *50* | *1005 ms* | *206 ms* |
| *100* | *1004 ms* | *324 ms* |