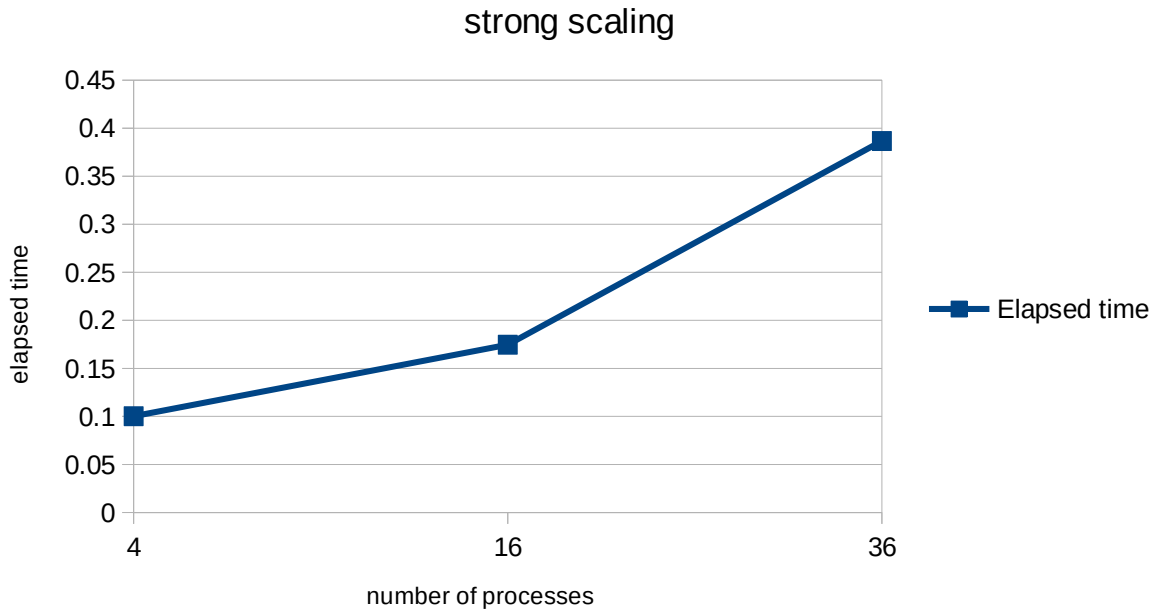
Jacobi Iteration with matrix decomposition in MPI

Mursalin Sayeed

#1942882

Strong scaling

Number of process	Elapsed time
4	0.1003046
16	0.1746429
36	0.3866424

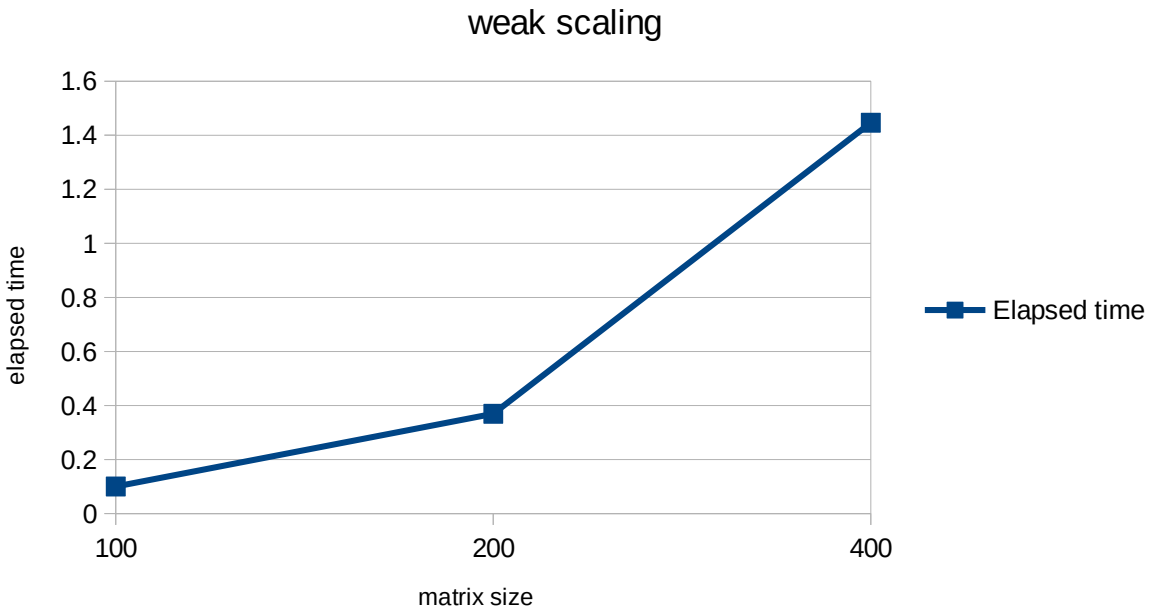


For Strong Scaling:

This measures the speedup of solving a fixed total problem size as more processors are added. In this case, the problem size is constant, but the number of processes increases from 4 to 16 to 36. Ideally, the elapsed time should decrease as the number of processes increases, but results show that the time increases. Where communication overhead between processes is a issue, also there are certain bags or not proper implementation of my code.

Weak scaling

Matrix size	Elapsed time
100	0.1003046
200	0.3690564
400	1.446174



For Weak Scaling:

In this case, as the matrix size (problem size) increases, the elapsed time also increases. This is expected behavior as larger problems take more time to solve.