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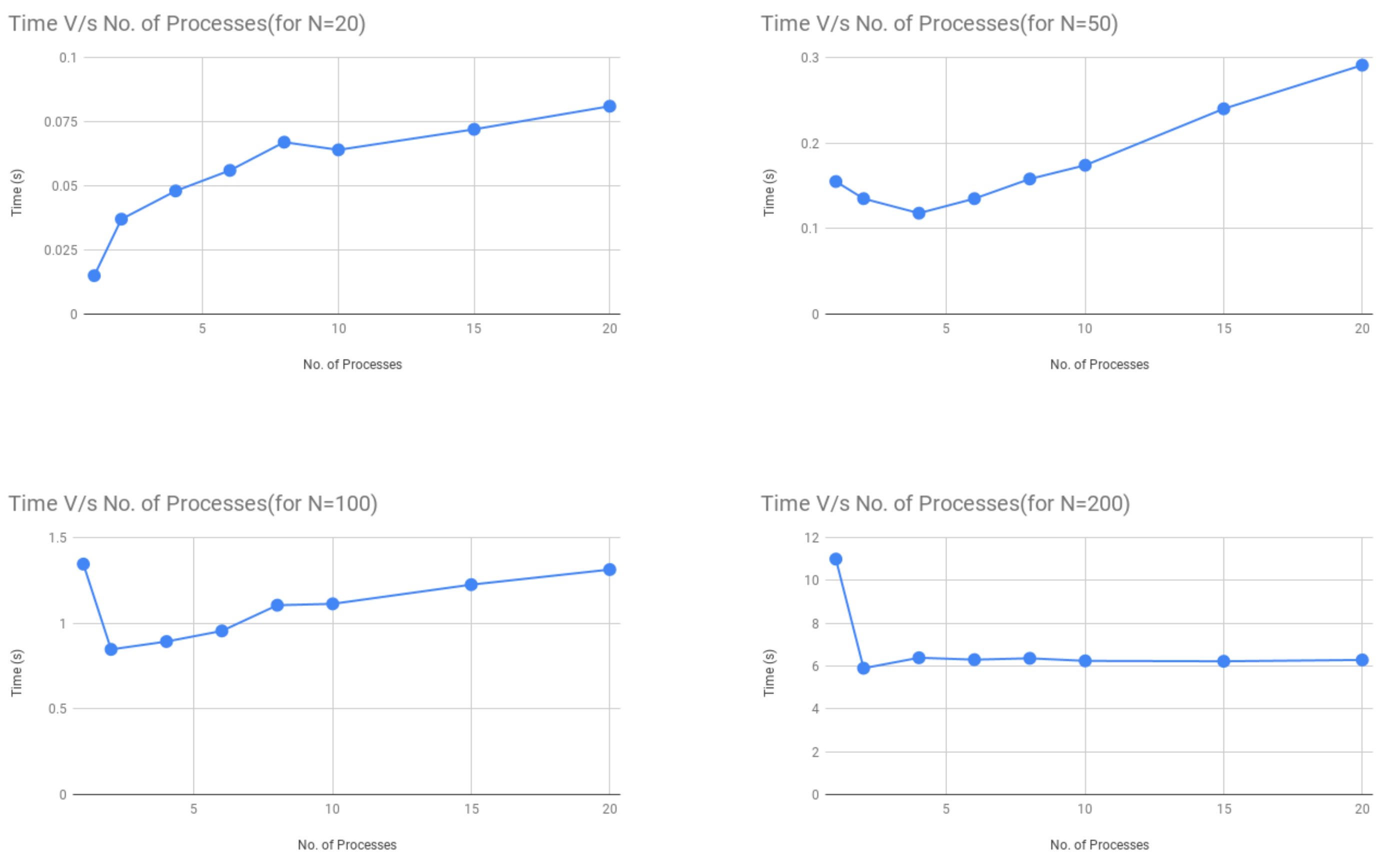
2016CS10355
Group-3

COL331 Assignment-2 Report

Jacobi Algorithm

a) Graphs of Time V/s No. of Processes for N=(20, 50, 100, 200)



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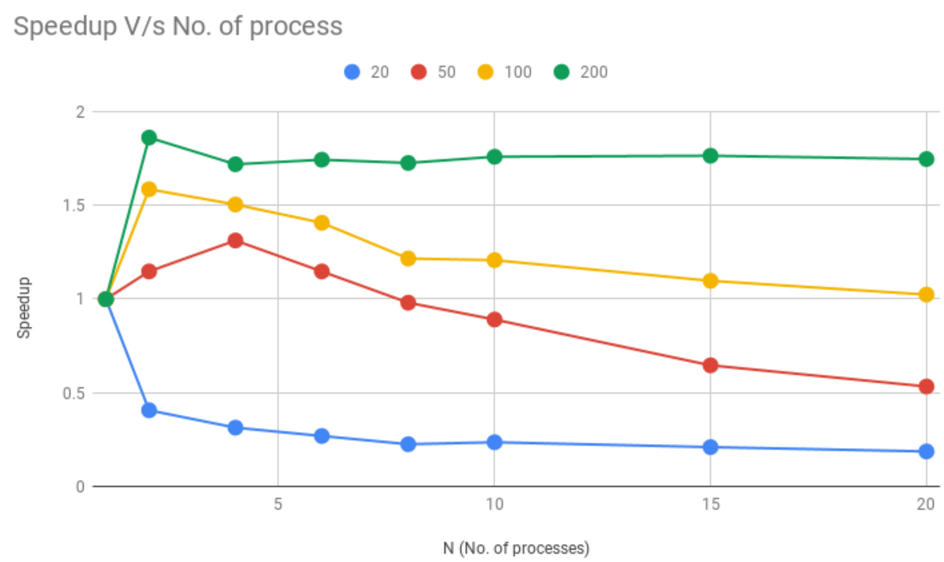
b) Graphs of Speedup V/s No. of Processes for N=(20, 50, 100, 200)



c) Observations

- In the first series of graphs, i.e., **Time V/s No. of Processes:** The common trend that is observed is that the time taken for computation reduces as we increase the No. of processes. However, as we increase the No. of Process above a certain number the time taken does not change much due to large no. of overheads of communication using pipes. Also, strange behaviour for N=20 could be explained by computation time being of the same order as overheads. So increasing the no. of process increases the overheads more as it contributes in parallelizing the program.

- In the second graph, i.e., **Speedup V/s No. of Processes:** The speedup increases as we increase the no. of processes but saturates for larger value due to introduction of large overheads. These result also agree with Amdahl's Law. Again, for the case of N=20 the strange behaviour is due to computational time being of the same order as overheads which increases the time taken for large values of P.

d) Verification

Verification of the program was done by matching the output of parallelized version of the program with sequential program provided.