CSE 5351 Parallel Processing – Lab2- Simulation & Results

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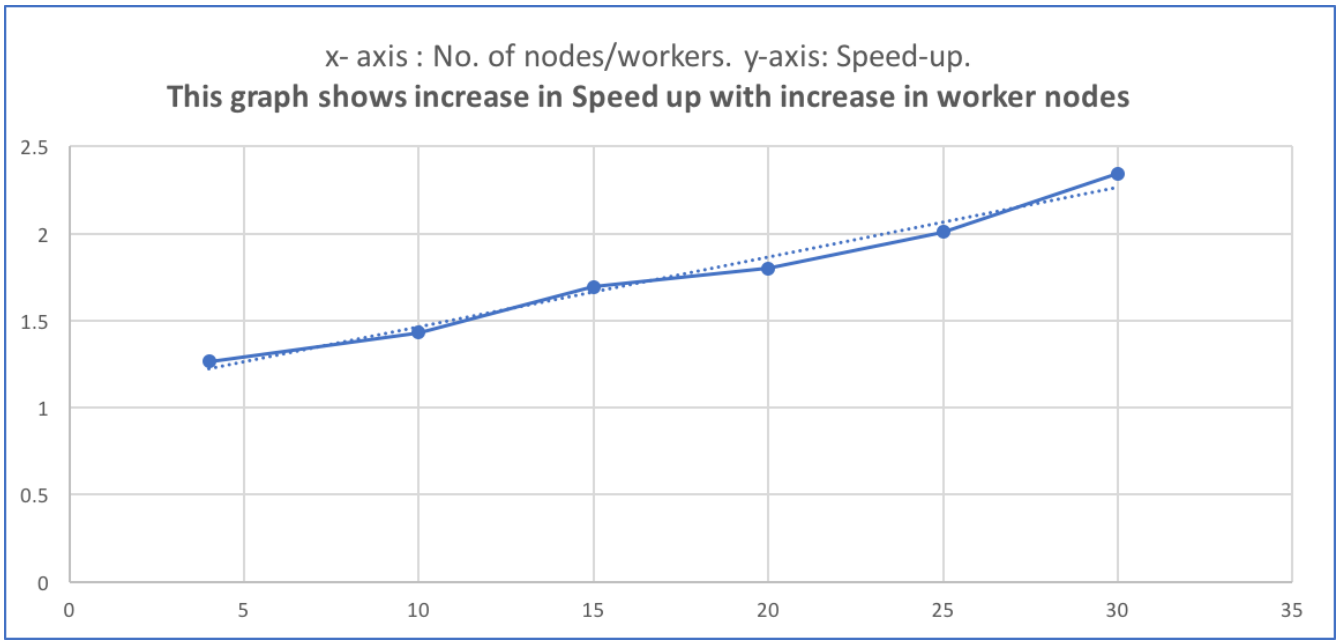
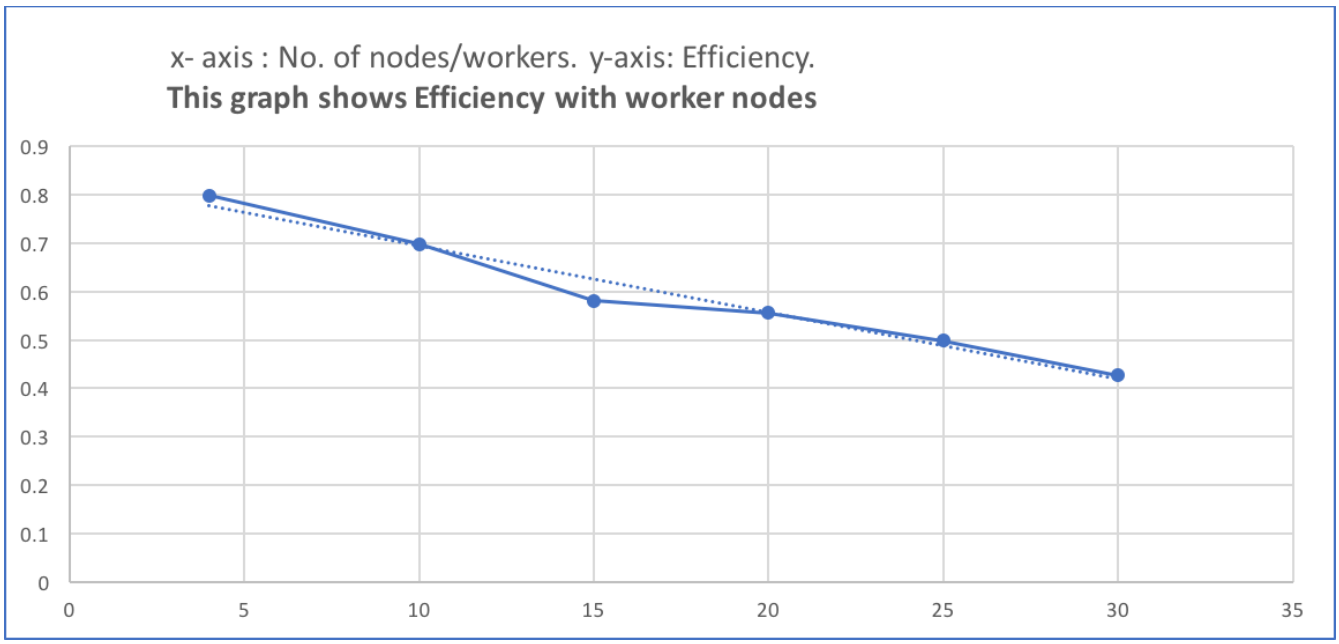
Case1: By keeping matrix size same, changing the no. of processors

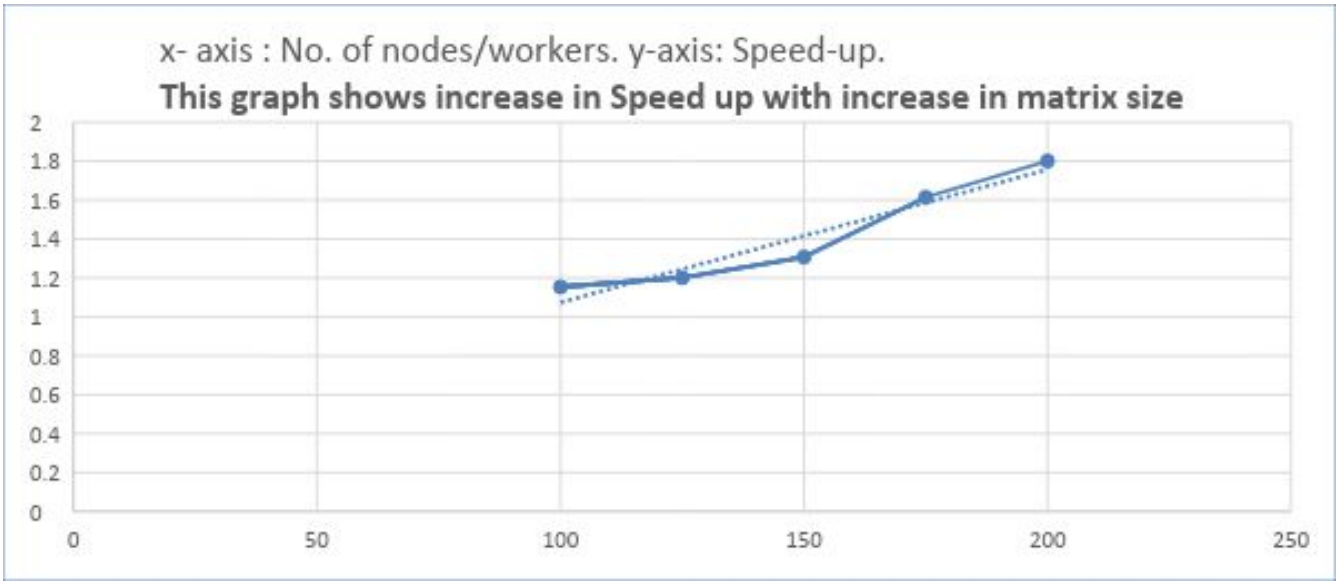
Test No.	Matrix Size	No. of process nodes	Serial Execution (Ts)	Parallel Execution(Tp)	Speed up (Ts/Tp)	Efficiency (Ts/pTp)
1	100	4	0.095641	0.075674	1.26385	0.79822
2	100	10	0.275533	0.192409	1.43201	0.69831
3	100	15	0.917435	0.542351	1.69158	0.58116
4	100	20	1.943572	1.079427	1.80055	0.55538
5	100	25	2.193341	1.192743	2.00718	0.49820
6	100	30	3.515857	1.500125	2.34370	0.42667

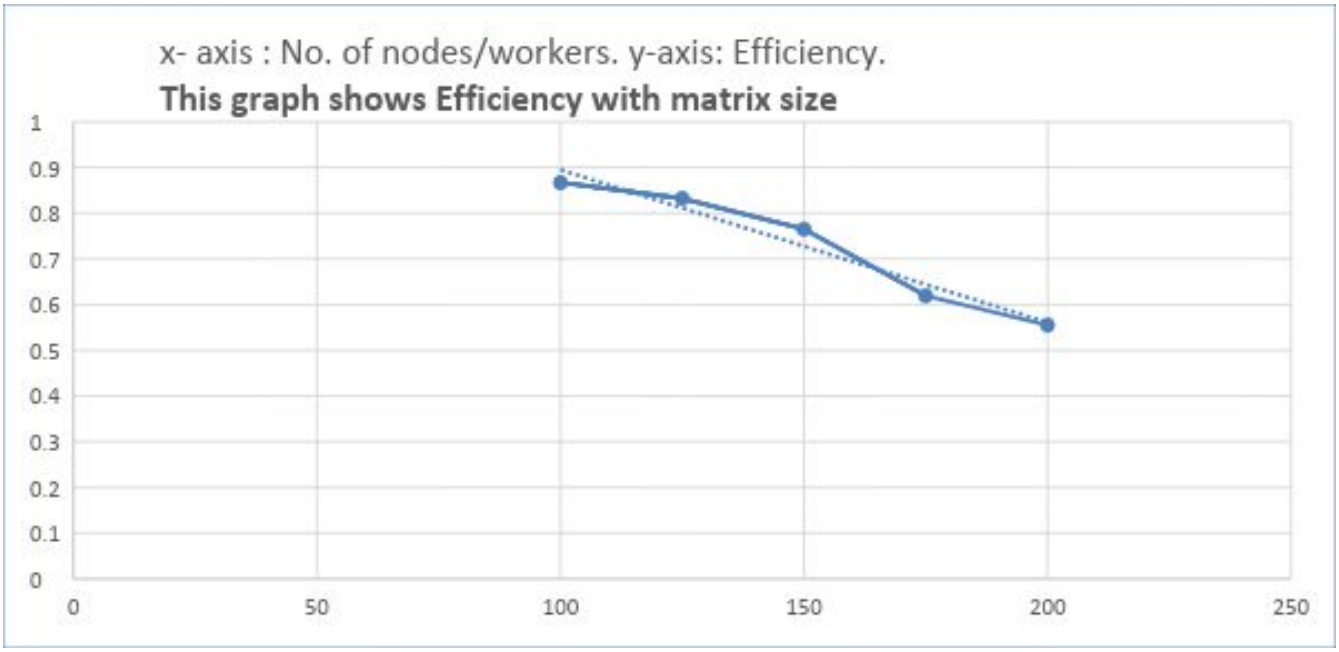




Case 2: By keeping no. of processors same and changing the matrix size

Test No.	Matrix Size	No. of process nodes	Speed up (Ts/Tp)	Efficiency (Ts/pTp)
1	100	20	1.15364	0.86681
2	125	20	1.20100	0.83263
3	150	20	1.30732	0.76492
4	175	20	1.61464	0.61933
5	200	20	1.80055	0.55538





Summary of the simulated results:

I was surprised to see efficiency decreasing with more no. of nodes in case 1
My learning from this Lab are:

- For small problem size, i.e. no. of matrix size smaller no. of nodes is sufficient for faster execution
- In other words, few times lesser no. of processes work faster (because there is no overhead)
- For bigger problems, we can increase no. of nodes to achieve the work faster