邱名彰 100060007

HW04 Resistor Networks

Note: my maximum iteration number is 50000

n-norm	Method	Iterations	Difference with HW4	CPU time(s)
1-norm	Jacobi	13792	9.62E-05	29.367
	Gauss-Seidel	7221	4.8E-05	15.16
	symmetric Gauss-Seidel	7221	4.8E-05	28.04
2-norm	Jacobi	11210	6.813E-05	23.966
	Gauss-Seidel	5763	4.8E-05	12.19
	symmetric Gauss-Seidel	5763	4.8E-05	22.46
infinite-norm	Jacobi	8846	4.82E-05	18.97
	Gauss-Seidel	4414	4.81E-05	9.47
	symmetric Gauss-Seidel	4414	4.81E-05	17.35

Flowchart(start from left to right):

Based on the data above, using infinite-norm seems to be a wise choice to do this kind of problems if one does not require ultimate accuracy. Using infinite-norm not only manifest that the iterations can be reduced but also demonstrate that the CPU time can be lowered. Symmetric Gauss-Seidel method is roughly about 2 times slower than Gauss-Seidel method since it does double assignment. Amazingly, the difference with respect to HW4's answer are almost the same except for the case of 1-norm. And we can observe from the data that the accuracy of 1-norm is the best. Finally, I am astonished that the accuracy of these three methods are not as good as I thought. Compared with the result in HW4, seems that iterative methods are not that good since not only the CPU time are longer but also the accuracy is not that precise.