

w	Iteration	Time[sec]
0.100	9813	0.289863
0.200	5141	0.140544
0.300	3430	0.096141
0.400	2524	0.070281
0.500	1958	0.053929
0.600	1567	0.042769
0.700	1279	0.034924
0.800	1058	0.028872
0.900	881	0.024065
1.000	737	0.020121
1.100	616	0.016729
1.200	512	0.013936
1.300	423	0.011516
1.400	344	0.009367
1.500	274	0.007498
1.600	210	0.005722
1.700	151	0.004122
1.800	92	0.002550
1.900	99	0.002697
2.000	39686	1.085977

Table 1- Different values of relaxation parameter (w) for Point SOR

It can be seen that at around $w = 1.8$ and $w = 1.9$, the solution converges faster (less iterations and less computational time). After testing with different values between 1.8 and 1.9, it is decided that $w = 1.801$ is the optimum relaxation parameter. In the code, setting $w = 1.801$ takes 91 iterations and 0.002460 seconds.