RBE511 - HW#12 Report
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Table of solutions to Rastrigin function:

	Inertia Parameter		
Run	Constant (w=1)	Decaying (w=1-t/T)	Random (w=U(0,1))
1	Position: 0.09951 -0.04308 -0.03842 0.03197 -0.00941 Minimum Value: 2.77875	Position: 0.99496 0.00000 -0.00000 -0.00000 0.99496 Minimum Value: 1.98992	Position: 0.00000 1.98991 0.99496 -0.99496 0.99496 Minimum Value: 6.96471
2	Position: -0.92046 -1.99537 -0.93348 -0.03036 0.01730 Minimum Value: 8.02977	Position: -0.00000 -0.99496 0.00000 -0.00000 0.00000 Minimum Value: 0.99496	Position: -0.99496 -1.98991 0.00000 -0.99496 -0.99496 Minimum Value: 6.96471
3	Position: -0.95566 0.02827 0.07135 1.12019 -0.00343 Minimum Value: 6.42584	Position: -0.99496 -0.99496 0.00000 -0.00000 0.99496 Minimum Value: 2.98488	Position: -0.00728 0.00575 0.01579 -0.00577 0.00888 Minimum Value: 0.08878
4	Position: -0.04612 -0.04669 0.00382 -0.04898 -0.01182 Minimum Value: 1.35136	Position: -0.00000 -0.99496 0.99496 0.99496 0.00000 Minimum Value: 2.98488	Position: 0.99496 -0.00000 0.99496 1.98991 -0.99496 Minimum Value: 6.96471
5	Position: -1.02833 -1.04283	Position: 0.00000 0.00000	Position: -0.99493 -1.98996

	0.01811 -0.03629 -1.01308 Minimum Value: 4.04811	-0.99496 0.99496 0.00000 Minimum Value: 1.98992	-0.99494 -0.99495 -1.98987 Minimum Value: 10.94454
6	Position: 1.02864 -0.98551 -0.00671 0.05127 1.00698 Minimum Value: 3.78186	Position: -0.99496 0.99496 -0.99496 0.00000 -0.00000 Minimum Value: 2.98488	Position: -0.00265 0.99297 0.00699 0.00240 -0.99516 Minimum Value: 2.00293
7	Position: -0.01734 0.04723 -0.05127 -0.94460 -0.98063 Minimum Value: 3.54348	Position: 0.00000 0.00000 0.00000 -0.00000 0.00000 Minimum Value: 0.00000	Position: -0.99496 -0.99496 -0.99496 0.00000 0.99496 Minimum Value: 3.97984
8	Position: -0.00966 0.02644 0.04099 -0.96330 0.89740 Minimum Value: 4.49313	Position: -0.00000 0.99496 0.99496 -0.00000 -0.00000 Minimum Value: 1.98992	Position: 1.98991 -0.99496 -0.00000 -0.00000 0.99496 Minimum Value: 5.96975
9	Position: 0.04475 -0.05813 0.02421 -1.06929 -0.99355 Minimum Value: 4.24514	Position: 0.00000 -0.00000 0.00000 -0.00000 -0.00000 Minimum Value: 0.00000	Position: 0.00000 0.00000 0.99496 -1.98991 0.00000 Minimum Value: 4.97479
10	Position: 0.02567 0.02725 1.02521 0.05620 0.10662 Minimum Value:	Position: 0.99496 0.99496 -0.99496 0.00000 -0.00000 Minimum Value:	Position: 1.98991 0.99496 0.00000 -0.00000 -2.98486 Minimum Value:

	4.24645	2.98488	13.92939
Avg	Position: -0.17790 -0.40424 0.01538 -0.18332 -0.09836 Minimum Value: 4.29439	Position: 0.00000 0.00000 -0.09950 0.19899 0.19899 Minimum Value: 1.89042	Position: 0.19800 -0.19862 0.10178 -0.29882 -0.49660 Minimum Value: 6.27841
Best	Position: -0.04612 -0.04669 0.00382 -0.04898 -0.01182 Minimum Value: 1.35136	Position: 0.00000 -0.00000 0.00000 -0.00000 -0.00000 Minimum Value: 0.00000	Position: -0.00728 0.00575 0.01579 -0.00577 0.00888 Minimum Value: 0.08878

Questions:

- Which inertia setting strategy produced the closest solution to the optimum on average across runs?
    - The decaying strategy produced the closest solution to the optimum on average. It produced an average position of (0.00000, 0.00000, -0.09950, 0.19899, 0.19899), which was very close to the optimum of (0, 0, 0, 0, 0).
- Which inertia setting strategy produced the closest solution to the optimum? Is it the same as the previous case?
    - The decaying strategy produced the closest solution to the optimum. It achieved a perfect (0, 0, 0, 0, 0). As the decaying strategy also yielded the best results on average, it is unsurprising that it achieved the closest solution to optimum.