

Assignment 2

Call_7_Vehicle_3				
✓	Average objective	Best objective	Improvement (%)	Running time
Random	1523967.2	1457231.0	55.06%	0.85s

Best solution: [4, 4, 2, 2, 0, 5, 5, 7, 7, 0, 6, 6, 3, 3, 0, 1, 1]

Call_18_Vehicle_5				
✓	Average objective	Best objective	Improvement (%)	Running time
Random	6997886.2	5981431.0	33.24%	1.76s

Best solution: [17, 17, 0, 15, 15, 0, 7, 7, 4, 4, 1, 1, 0, 12, 12, 0, 14, 14, 0, 10, 10, 6, 6, 9, 9, 16, 16, 8, 8, 2, 2, 5, 5, 11, 11, 18, 18, 3, 3, 13, 13]

Call_35_Vehicle_7				
✓	Average objective	Best objective	Improvement (%)	Running time
Random	18387821.0	18387821.0	0.0%	1.33s

Best solution: Outsource everything

Call_80_Vehicle_20				
✓	Average objective	Best objective	Improvement (%)	Running time
Random	46770347.0	46770347.0	0.0%	1.38s

Best solution: Outsource everything

Call_130_Vehicle_40				
✓	Average objective	Best objective	Improvement (%)	Running time
Random	76627567.0	76627567.0	0.0%	1.94s

Best solution: Outsource everything

Call_300_Vehicle_90				
✓	Average objective	Best objective	Improvement (%)	Running time

Call_300_Vehicle_90				
Random	170784643.0	170784643.0	0.0%	2.59s

Best solution: Outsource everything

Thoughts

Making the problem size larger exponentially increases the solution space, and the change of find a feasible solution at random decreases exponentially. Thats why the random approach stops working already on the 3rd test case.