

Assignment #5

Instance #1 (Call_7_Vehicle_3)				
	Average Objective	Best Objective	Improvement (%)	Average Running time (seconds)
Random Search	3286422.0	3286422	0.00%	0,057 seconds
Local Search	1551640.0	1476444	55.07%	0,052 seconds
Simulated Annealing (old)	1494811.0	1476444	55.07%	0,090 seconds
Simulated Annealing (with new operators)	1476444.0	1476444	55.07%	0.312 seconds
New Algorithm	1476444.0	1476444	55.07%	0.438 seconds

Instance #2 (Call_18_Vehicle_5)				
	Average Objective	Best Objective	Improvement (%)	Average Running time (seconds)
Random Search	8761492.0	8761492	0.00%	0,094 seconds
Local Search	3391452.0	2968311	66.12%	0,062 seconds
Simulated Annealing (old)	3094205.0	2686290	69.34%	0,082 seconds
Simulated Annealing (with new operators)	2640187.0	2548493	70.91%	1.182 seconds
New Algorithm	2547127	2497191	71.50%	9.661 seconds

Instance #3 (Call_035_Vehicle_07)				
	Average Objective	Best Objective	Improvement (%)	Average Running time (seconds)
Random Search	1.8322178E7	18322178	0.00%	0,123 seconds
Local Search	9717135.0	8818566	51.9%	0,055 seconds
Simulated Annealing (old)	6731232.0	6053701	67.0%	0,131 seconds
Simulated Annealing (with new operators)	5988826.0	5508979	69.9%	0,944 seconds
New Algorithm	5613722	5413303	70.45	33,723 seconds

Instance #4 (Call_080_Vehicle_20)				
	Average Objective	Best Objective	Improvement (%)	Average Running time (seconds)
Random Search	4.2211425E7	42211425	0.00%	0,210 seconds
Local Search	3.045567E7	28484007	32.5%	0,093 seconds
Simulated Annealing (old)	1.9355629E7	17736007	58.0%	0,292 seconds
Simulated Annealing (with new operators)	1.4595948E7	13725619	67.5%	7.547 seconds
New Algorithm	1.4361801E7	1.3938248E7	67.0%	176.002 seconds

Instance #5 (Call_130_Vehicle_40)				
	Average Objective	Best Objective	Improvement (%)	Average Running time (seconds)
Random Search	7.5446687E7	75446687	0.00%	0,295 seconds
Local Search	5.9988955E7	57646760	23.6%	0,125 seconds
Simulated Annealing (old)	3.7813836E7	35070442	53.5%	0,488 seconds
Simulated Annealing (with new operators)	2.1161632E7	20322456	73.1%	11.46 seconds
New Algorithm	2.1565946E7	2.1322754E7	71.7%	286,001 seconds

Best Solutions

Instance #1 (Call_7_Vehicle_3)

[3, 3, 0, 7, 1, 7, 1, 0, 5, 5, 6, 6, 0, 2, 2, 4, 4]

Instance #2 (Call_18_Vehicle_5)

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

Instance #3 (Call_035_Vehicle_07)

[17, 17, 10, 10, 9, 9, 0, 23, 23, 30, 29, 30, 29, 20, 20, 27, 27, 0, 7, 5, 12, 13, 13, 5, 7, 35, 12, 8, 24, 35, 8, 24, 1, 26, 1, 26, 0, 19, 34, 34, 19, 11, 11, 15, 15, 4, 4, 0, 25, 25, 16, 16, 2, 32, 32, 2, 0, 3, 3, 22, 22, 33, 33, 0, 28, 28, 21, 21, 18, 18, 14, 14, 31, 31, 0, 6, 6]

Instance #4 (Call_080_Vehicle_20)

[61, 61, 11, 31, 11, 6, 6, 31, 0, 67, 53, 53, 67, 19, 19, 0, 47, 47, 23, 23, 40, 40, 73, 73, 0, 59, 72, 59, 70, 72, 70, 2, 2, 0, 80, 80, 24, 24, 38, 35, 35, 38, 0, 55, 57, 55, 36, 36, 57, 17, 17, 10, 10, 0, 68, 68, 28, 27, 27, 28, 41, 1, 41, 1, 0, 4, 4, 54, 39, 54, 39, 64, 64, 0, 74, 74, 30, 5, 5, 30, 75, 75, 0, 33, 33, 22, 22, 0, 79, 79, 12, 42, 12, 18, 42, 18, 0, 50, 50, 14, 60, 14, 60, 71, 71, 43, 43, 0, 49, 49, 0, 34, 26, 26, 34, 51, 51, 65, 78, 78, 65, 0, 69, 69, 37, 16, 16, 37, 9, 9, 58, 58, 0, 3, 29, 3, 29, 0, 46, 46, 7, 15, 7, 15, 0, 77, 77, 45, 21, 21, 45, 0, 32, 32, 56, 13, 13, 56, 76, 76, 0, 20, 20, 63, 63, 44, 44, 8, 25, 8, 25, 0, 66, 66, 62, 62, 48, 48, 52, 52]

Instance #5 (Call_130_Vehicle_40)

[111, 111, 55, 38, 55, 19, 19, 38, 0, 104, 104, 78, 78, 0, 107, 107, 39, 39, 51, 51, 75, 75, 0, 108, 21, 21, 59, 59, 13, 13, 108, 0, 48, 48, 68, 68, 22, 22, 29, 29, 70, 70, 0, 37, 120, 120, 30, 37, 35, 35, 30, 0, 33, 33, 117, 117, 109, 8, 8, 109, 0, 97, 97, 130, 130, 0, 94, 94, 62, 62, 4, 4, 0, 58, 58, 114, 112, 112, 114, 0, 64, 64, 92, 40, 92, 40, 0, 47, 47, 41, 54, 54, 124, 124, 41, 0, 74, 74, 129, 129, 0, 17, 17, 126, 126, 127, 127, 23, 23, 0, 57, 90, 90, 57, 106, 106, 113, 113, 0, 52, 52, 6, 67, 6, 67, 0, 91, 91, 72, 72, 0, 82, 82, 80, 80, 5, 24, 5, 24, 0, 65, 65, 2, 2, 42, 42, 0, 26, 26, 93, 93, 36, 36, 0, 7, 123, 7, 98, 123, 53, 98, 53, 0, 121, 18, 18, 121, 11, 81, 81, 11, 0, 118, 118, 69, 69, 27, 27, 95, 95, 86, 86, 0, 73, 73, 15, 15, 10, 10, 0, 50, 50, 87, 14, 14, 87, 0, 60, 44, 44, 60, 88, 88, 0, 43, 116, 43, 116, 100, 1, 1, 100, 0, 71, 122, 71, 122, 12, 12, 125, 125, 0, 83, 89, 83, 89, 20, 20, 0, 56, 56, 0, 49, 49, 0, 103, 28, 103, 101, 101, 28, 9, 9, 45, 45, 0, 115, 115, 61, 31, 31, 61, 85, 85, 0, 32, 32, 3, 3, 0, 25, 128, 25, 128, 0, 76, 102, 102, 76, 0, 77, 77, 63, 63, 66, 119, 66, 119, 0, 96, 96, 99, 99, 0, 84, 34, 34, 84, 105, 105, 46, 46, 0, 16, 16, 110, 110, 79, 79, 0]