Appendix 3 the example of case j3023\_7.sm. The optimum is 60, given from the open website.

Explanation :

C:\Anaconda\envs\tensorflow\python.exe "C:/Users/yongping/python work/new experiment for j30 random choice.py"

opm 60

the random choice case path in j30 ./rcpsp/j30.sm/j3023\_7.sm case j3023\_7.sm

notation: this is the example for reading the output from our algorithm.

the output from our algorithm is showed as follows:

v5 0 0.5675194263458252 s [67, 225] 11.666666666666666 [0, 0, 2, 0, 2, 12, 13, 4, 13, 17, 23, 27, 17, 29, 5, 29, 41, 32, 41, 42, 13, 32, 12, 18, 51, 52, 41, 57, 50, 64, 27, 67] 0

it can be explained as follows:

v5, ith generation, used cpu time, s(second), [the fitness value for two solutions from our algorithm], deviation from optimum (%), best solution from our algorithm, penalty

the following is the output from our algorithm.

v5 0 0.5675194263458252 s [67, 225] 11.666666666666666 [0, 0, 2, 0, 2, 12, 13, 4, 13, 17, 23, 27, 17, 29, 5, 29, 41, 32, 41, 42, 13, 32, 12, 18, 51, 52, 41, 57, 50, 64, 27, 67] 0

65 67

v5 1 1.1928470134735107 s [65, 72] 8.333333333333332 [0, 11, 0, 0, 13, 10, 11, 15, 11, 15, 21, 25, 15, 27, 16, 27, 39, 30, 39, 40, 17, 30, 10, 19, 49, 50, 39, 55, 48, 62, 28, 65] 0

65 67

v5 2 1.9228570461273193 s [65, 69] 8.333333333333332 [0, 11, 0, 0, 13, 10, 11, 15, 11, 15, 21, 25, 15, 27, 16, 27, 39, 30, 39, 40, 17, 30, 10, 19, 49, 50, 39, 55, 48, 62, 28, 65] 0

65 69

v5 3 2.6618826389312744 s [65, 80] 8.333333333333332 [0, 11, 0, 0, 13, 10, 11, 15, 11, 15, 21, 25, 15, 27, 16, 27, 39, 30, 39, 40, 17, 30, 10, 19, 49, 50, 39, 55, 48, 62, 28, 65] 0

67 63

v5 4 3.2712905406951904 s [63, 91] 5.0 [0, 11, 0, 0, 13, 10, 11, 15, 11, 15, 21, 25, 15, 27, 16, 27, 41, 32, 31, 32, 17, 36, 10, 19, 41, 48, 41, 53, 50, 60, 28, 63] 0

63 65

v5 5 3.8148365020751953 s [63, 63] 5.0 [0, 11, 0, 0, 13, 10, 11, 15, 11, 15, 21, 25, 15, 27, 16, 27, 41, 32, 31, 32, 17, 36, 10, 19, 41, 48, 41, 53, 50, 60, 28, 63] 0

65 63

v5 6 4.448104619979858 s [63, 73] 5.0 [0, 11, 0, 0, 13, 10, 11, 15, 11, 15, 21, 25, 15, 27, 16, 27, 41, 32, 31, 32, 17, 36, 10, 19, 41, 48, 41, 53, 50, 60, 28, 63] 0

70 63

v5 7 5.197141170501709 s [63, 63] 5.0 [0, 11, 0, 0, 13, 10, 11, 15, 11, 15, 21, 25, 15, 27, 16, 27, 41, 32, 31, 32, 17, 36, 10, 19, 41, 48, 41, 53, 50, 60, 28, 63] 0

65 62

v5 8 5.798531770706177 s [62, 93] 3.3333333333333335 [0, 10, 0, 0, 12, 12, 13, 14, 13, 17, 23, 27, 17, 29, 15, 29, 49, 34, 33, 34, 18, 35, 13, 18, 43, 44, 43, 52, 52, 59, 27, 62] 0

67 62

v5 9 6.432835340499878 s [62, 68] 3.3333333333333335 [0, 10, 0, 0, 12, 12, 13, 14, 13, 17, 23, 27, 17, 29, 15, 29, 49, 34, 33, 34, 18, 35, 13, 18, 43, 44, 43, 52, 52, 59, 27, 62] 0

65 71

v5 10 7.1020097732543945 s [62, 67] 3.3333333333333335 [0, 10, 0, 0, 12, 12, 13, 14, 13, 17, 23, 27, 17, 29, 15, 29, 49, 34, 33, 34, 18, 35, 13, 18, 43, 44, 43, 52, 52, 59, 27, 62] 0

62 65

v5 11 7.797192335128784 s [62, 65] 3.3333333333333335 [0, 10, 0, 0, 12, 12, 13, 14, 13, 17, 23, 27, 17, 29, 15, 29, 49, 34, 33, 34, 18, 35, 13, 18, 43, 44, 43, 52, 52, 59, 27, 62] 0

67 62

v5 12 8.473393678665161 s [62, 75] 3.3333333333333335 [0, 10, 0, 0, 12, 12, 13, 14, 13, 17, 23, 27, 17, 29, 15, 29, 49, 34, 33, 34, 18, 35, 13, 18, 43, 44, 43, 52, 52, 59, 27, 62] 0

65 65

v5 13 9.060809135437012 s [62, 104] 3.3333333333333335 [0, 10, 0, 0, 12, 12, 13, 14, 13, 17, 23, 27, 17, 29, 15, 29, 49, 34, 33, 34, 18, 35, 13, 18, 43, 44, 43, 52, 52, 59, 27, 62] 0

67 62

v5 14 9.779889583587646 s [62, 81] 3.3333333333333335 [0, 10, 0, 0, 12, 12, 13, 14, 13, 17, 23, 27, 17, 29, 15, 29, 49, 34, 33, 34, 18, 35, 13, 18, 43, 44, 43, 52, 52, 59, 27, 62] 0

60 62

v5 15 10.433140277862549 s [60, 68] 0.0 [0, 11, 0, 0, 13, 10, 11, 15, 11, 15, 21, 25, 15, 27, 16, 27, 50, 32, 31, 32, 17, 36, 10, 19, 41, 42, 41, 47, 50, 57, 28, 60] 0

71 63

Another example

C:\Anaconda\envs\tensorflow\python.exe "C:/Users/yongping/python work/new experiment for j30 random choice.py"

opm 56

the random choice case path in j30 ./rcpsp/j30.sm/j3018\_3.sm case j3018\_3.sm

v5 0 0.5784823894500732 s [66, 200] 17.857142857142858 [0, 0, 0, 0, 5, 1, 1, 10, 10, 13, 21, 6, 27, 21, 6, 1, 27, 11, 28, 14, 24, 35, 18, 45, 48, 51, 51, 58, 61, 58, 26, 66] 0

56 66

v5 1 1.248697280883789 s [55, 87] -1.7857142857142856 [0, 0, 0, 0, 5, 1, 1, 10, 10, 13, 21, 6, 27, 21, 6, 1, 27, 11, 30, 14, 24, 37, 18, 27, 30, 33, 33, 47, 50, 40, 26, 55] 0

55 55

One more example

C:\Anaconda\envs\tensorflow\python.exe "C:/Users/yongping/python work/new experiment for j30 random choice.py"

opm 103

the random choice case path in j30 ./rcpsp/j30.sm/j3041\_6.sm case j3041\_6.sm

v5 0 0.8078403472900391 s [113, 304] 9.70873786407767 [0, 3, 0, 0, 16, 32, 36, 12, 12, 23, 12, 69, 36, 52, 24, 75, 59, 45, 28, 83, 84, 59, 76, 67, 52, 91, 83, 94, 102, 91, 107, 113] 0

105 111

v5 1 2.9550979137420654 s [105, 110] 1.9417475728155338 [0, 0, 0, 12, 9, 16, 27, 9, 12, 27, 28, 36, 46, 46, 42, 57, 53, 20, 53, 75, 76, 58, 66, 73, 36, 83, 75, 86, 94, 83, 99, 105] 0

114 105

v5 2 5.880315065383911 s [102, 227] -0.9708737864077669 [0, 0, 0, 12, 9, 16, 27, 9, 12, 27, 28, 36, 46, 46, 42, 57, 53, 20, 53, 75, 76, 58, 66, 73, 36, 86, 75, 83, 97, 83, 91, 102] 0

113 105

v5 3 8.884283542633057 s [102, 109] -0.9708737864077669 [0, 0, 0, 12, 9, 16, 27, 9, 12, 27, 28, 36, 46, 46, 42, 57, 53, 20, 53, 75, 76, 58, 66, 73, 36, 86, 75, 83, 97, 83, 91, 102] 0

102 111

v5 4 11.78253436088562 s [102, 387] -0.9708737864077669 [0, 0, 0, 12, 9, 16, 27, 9, 12, 27, 28, 36, 46, 46, 42, 57, 53, 20, 53, 75, 76, 58, 66, 73, 36, 86, 75, 83, 97, 83, 91, 102] 0

103 102

v5 5 14.528234004974365 s [102, 227] -0.9708737864077669 [0, 0, 0, 12, 9, 16, 27, 9, 12, 27, 28, 36, 46, 46, 42, 57, 53, 20, 53, 75, 76, 58, 66, 73, 36, 86, 75, 83, 97, 83, 91, 102] 0

111 102