

unknown

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1 "E:\1_2\3_0\00001\1_000000001_LW_00002\6_0000\2 python code\01_My_Python_Code\Scripts\python.exe" "D:\Python\Pycharm\setroute\PyCharm Community Edition 2021.2.3\plugins\python-ce\helpers\pydev\pydeconsole.py" --mode=client --port=22225
2
3 import sys; print('Python %s on %s' % (sys.version, sys.platform))
4 sys.path.extend(['E:\1_2\3_0\00001_000000001_LW_00002\6_0000\2 python code\01_My_Python_Code', 'E:/1_2\3_0\00001_000000001_LW_00002\6_0000\2 python code/01_My_Python_Code'])
5
6 PyDev console: starting.
7
8 Python 3.9.7 (tags/v3.9.7:1016ef3, Aug 30 2021, 20:19:38) [MSC v.1929 64 bit (AMD64)] on win32
9 >>> runfile('E:/1_2\3_0\00001_000000001_LW_00002\6_0000\2 python code\01_My_Python_Code/main_BACASP_offical_PSO_2D_Bin_berth_line.py', wdir='E:/1_2\3_0\00001_000000001_LW_00002\6_0000\2 python code/01_My_Python_Code')
10 Backend TkAgg is interactive backend. Turning interactive mode on.
11 Waiting 1s.....
12
13 This is the R_12_5_standerd_test.xlsx optimization process.
14
15 Start
16     Read basic data
17         V = 12
18         T = 36
19         Q = 23
20         L = 30
21 PSO parameter setting:
22     Trail = 31
23     maxIter_num = 20
24     W_inertia = 2.0
25     oder_type_num = 25
26     c1 = 1.5
27     c2 = 1.5
28     r1 = 0.17402967806580927
29     r2 = 0.17402967806580927
30 Begin iteration:
31
32 iter = 0
33     cord_individual_obj[individual_i, :] = [ 0.  7. 61. 68.]
34     cord_individual_obj[individual_i, :] = [ 1.  6. 88. 94.]
35     cord_individual_obj[individual_i, :] = [ 2.  7. 54. 61.]
36     cord_individual_obj[individual_i, :] = [ 3.  6. 57. 63.]
37     cord_individual_obj[individual_i, :] = [ 4. 10. 51. 61.]
38     cord_individual_obj[individual_i, :] = [ 5.  8. 149. 157.]
39     cord_individual_obj[individual_i, :] = [ 6.  5. 80. 85.]
40     cord_individual_obj[individual_i, :] = [ 7.  5. 117. 122.]
41     cord_individual_obj[individual_i, :] = [ 8.  5. 84. 89.]
42     cord_individual_obj[individual_i, :] = [ 9.  9. 76. 85.]
43     cord_individual_obj[individual_i, :] = [10.  5. 69. 74.]
44     cord_individual_obj[individual_i, :] = [11.  7. 90. 97.]
45     cord_individual_obj[individual_i, :] = [12.  6. 91. 97.]
46     cord_individual_obj[individual_i, :] = [13.  7. 42. 49.]
47     cord_individual_obj[individual_i, :] = [14.  5. 54. 59.]
48     cord_individual_obj[individual_i, :] = [15.  6. 95. 101.]
49     cord_individual_obj[individual_i, :] = [16.  7. 70. 77.]
50     cord_individual_obj[individual_i, :] = [17.  8. 86. 94.]
51     cord_individual_obj[individual_i, :] = [18.  7. 133. 140.]
52     cord_individual_obj[individual_i, :] = [19.  6. 58. 64.]
53     cord_individual_obj[individual_i, :] = [20.  8. 101. 109.]
54     cord_individual_obj[individual_i, :] = [21.  7. 79. 86.]
55     cord_individual_obj[individual_i, :] = [22.  8. 49. 57.]
56     cord_individual_obj[individual_i, :] = [23.  7. 54. 61.]
57     cord_individual_obj[individual_i, :] = [24.  8. 86. 94.]
58
59 min(cord_individual_obj[:, 3]) = 49.0
60 histor1_G_best_iter[iter, 3] = 49.0
61 Begin iteration:
62
63 iter = 1
64     cord_individual_obj[individual_i, :] = [ 0.  7. 90. 97.]
65     cord_individual_obj[individual_i, :] = [ 1.  7. 71. 78.]
66     cord_individual_obj[individual_i, :] = [ 2.  7. 55. 62.]
67     cord_individual_obj[individual_i, :] = [ 3.  7. 75. 82.]
68     cord_individual_obj[individual_i, :] = [ 4.  6. 50. 56.]
69     cord_individual_obj[individual_i, :] = [ 5.  7. 42. 49.]
70     cord_individual_obj[individual_i, :] = [ 6.  6. 93. 99.]
71     cord_individual_obj[individual_i, :] = [ 7.  6. 71. 77.]
72     cord_individual_obj[individual_i, :] = [ 8.  7. 116. 123.]
73     cord_individual_obj[individual_i, :] = [ 9.  7. 84. 91.]
74     cord_individual_obj[individual_i, :] = [10.  8. 53. 61.]
75     cord_individual_obj[individual_i, :] = [11.  6. 33. 39.]
76     cord_individual_obj[individual_i, :] = [12.  5. 76. 81.]
77     cord_individual_obj[individual_i, :] = [13.  8. 118. 126.]
78     cord_individual_obj[individual_i, :] = [14.  5. 70. 75.]
79     cord_individual_obj[individual_i, :] = [15.  8. 31. 39.]

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80 cord_individual_obj[indivial_i,:] = [16. 6. 72. 78.]
81 cord_individual_obj[indivial_i,:] = [17. 6. 63. 69.]
82 cord_individual_obj[indivial_i,:] = [18. 6. 73. 79.]
83 cord_individual_obj[indivial_i,:] = [19. 7. 33. 40.]
84 cord_individual_obj[indivial_i,:] = [20. 7. 138. 145.]
85 cord_individual_obj[indivial_i,:] = [21. 8. 90. 98.]
86 cord_individual_obj[indivial_i,:] = [22. 8. 48. 56.]
87 cord_individual_obj[indivial_i,:] = [23. 7. 63. 70.]
88 cord_individual_obj[indivial_i,:] = [24. 6. 96. 102.]
89
90 min(cord_individual_obj[:,3]) = 39.0
91 historl_G_best_iter[iter, 3] = 39.0
92 Begin iteration:
93
94 iter = 2
95 cord_individual_obj[indivial_i,:] = [ 0. 9. 75. 84.]
96 cord_individual_obj[indivial_i,:] = [ 1. 9. 74. 83.]
97 cord_individual_obj[indivial_i,:] = [ 2. 7. 133. 140.]
98 cord_individual_obj[indivial_i,:] = [ 3. 6. 43. 49.]
99 cord_individual_obj[indivial_i,:] = [ 4. 7. 85. 92.]
100 cord_individual_obj[indivial_i,:] = [ 5. 5. 124. 129.]
101 cord_individual_obj[indivial_i,:] = [ 6. 7. 82. 89.]
102 cord_individual_obj[indivial_i,:] = [ 7. 6. 91. 97.]
103 cord_individual_obj[indivial_i,:] = [ 8. 6. 93. 99.]
104 cord_individual_obj[indivial_i,:] = [ 9. 7. 65. 72.]
105 cord_individual_obj[indivial_i,:] = [10. 5. 48. 53.]
106 cord_individual_obj[indivial_i,:] = [11. 6. 52. 58.]
107 cord_individual_obj[indivial_i,:] = [12. 5. 87. 92.]
108 cord_individual_obj[indivial_i,:] = [13. 7. 73. 80.]
109 cord_individual_obj[indivial_i,:] = [14. 6. 33. 39.]
110 cord_individual_obj[indivial_i,:] = [15. 8. 61. 69.]
111 cord_individual_obj[indivial_i,:] = [16. 7. 41. 48.]
112 cord_individual_obj[indivial_i,:] = [17. 6. 64. 70.]
113 cord_individual_obj[indivial_i,:] = [18. 6. 94. 100.]
114 cord_individual_obj[indivial_i,:] = [19. 7. 103. 110.]
115 cord_individual_obj[indivial_i,:] = [20. 6. 33. 39.]
116 cord_individual_obj[indivial_i,:] = [21. 5. 49. 54.]
117 cord_individual_obj[indivial_i,:] = [22. 6. 46. 52.]
118 cord_individual_obj[indivial_i,:] = [23. 6. 43. 49.]
119 cord_individual_obj[indivial_i,:] = [24. 5. 76. 81.]
120
121 min(cord_individual_obj[:,3]) = 39.0
122 historl_G_best_iter[iter, 3] = 39.0
123 Begin iteration:
124
125 iter = 3
126 cord_individual_obj[indivial_i,:] = [ 0. 7. 71. 78.]
127 cord_individual_obj[indivial_i,:] = [ 1. 6. 63. 69.]
128 cord_individual_obj[indivial_i,:] = [ 2. 6. 33. 39.]
129 cord_individual_obj[indivial_i,:] = [ 3. 5. 118. 123.]
130 cord_individual_obj[indivial_i,:] = [ 4. 7. 47. 54.]
131 cord_individual_obj[indivial_i,:] = [ 5. 7. 96. 103.]
132 cord_individual_obj[indivial_i,:] = [ 6. 8. 81. 89.]
133 cord_individual_obj[indivial_i,:] = [ 7. 6. 78. 84.]
134 cord_individual_obj[indivial_i,:] = [ 8. 7. 77. 84.]
135 cord_individual_obj[indivial_i,:] = [ 9. 8. 60. 68.]
136 cord_individual_obj[indivial_i,:] = [10. 10. 89. 99.]
137 cord_individual_obj[indivial_i,:] = [11. 6. 69. 75.]
138 cord_individual_obj[indivial_i,:] = [12. 6. 51. 57.]
139 cord_individual_obj[indivial_i,:] = [13. 8. 52. 60.]
140 cord_individual_obj[indivial_i,:] = [14. 5. 56. 61.]
141 cord_individual_obj[indivial_i,:] = [15. 7. 102. 109.]
142 cord_individual_obj[indivial_i,:] = [16. 6. 47. 53.]
143 cord_individual_obj[indivial_i,:] = [17. 6. 58. 64.]
144 cord_individual_obj[indivial_i,:] = [18. 7. 112. 119.]
145 cord_individual_obj[indivial_i,:] = [19. 5. 89. 94.]
146 cord_individual_obj[indivial_i,:] = [20. 6. 81. 87.]
147 cord_individual_obj[indivial_i,:] = [21. 6. 56. 62.]
148 cord_individual_obj[indivial_i,:] = [22. 6. 68. 74.]
149 cord_individual_obj[indivial_i,:] = [23. 7. 65. 72.]
150 cord_individual_obj[indivial_i,:] = [24. 6. 142. 148.]
151
152 min(cord_individual_obj[:,3]) = 39.0
153 historl_G_best_iter[iter, 3] = 39.0
154 Begin iteration:
155
156 iter = 4
157 cord_individual_obj[indivial_i,:] = [ 0. 7. 76. 83.]
158 cord_individual_obj[indivial_i,:] = [ 1. 7. 93. 100.]
159 cord_individual_obj[indivial_i,:] = [ 2. 6. 37. 43.]
160 cord_individual_obj[indivial_i,:] = [ 3. 6. 66. 72.]
161 cord_individual_obj[indivial_i,:] = [ 4. 6. 56. 62.]
162 cord_individual_obj[indivial_i,:] = [ 5. 7. 89. 96.]
163 cord_individual_obj[indivial_i,:] = [ 6. 6. 88. 94.]

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164 cord_individual_obj[indivial_i,:] = [ 7. 8. 39. 47.]
165 cord_individual_obj[indivial_i,:] = [ 8. 8. 92. 100.]
166 cord_individual_obj[indivial_i,:] = [ 9. 6. 99. 105.]
167 cord_individual_obj[indivial_i,:] = [10. 7. 75. 82.]
168 cord_individual_obj[indivial_i,:] = [11. 6. 94. 100.]
169 cord_individual_obj[indivial_i,:] = [12. 5. 70. 75.]
170 cord_individual_obj[indivial_i,:] = [13. 7. 42. 49.]
171 cord_individual_obj[indivial_i,:] = [14. 7. 44. 51.]
172 cord_individual_obj[indivial_i,:] = [15. 8. 56. 64.]
173 cord_individual_obj[indivial_i,:] = [16. 7. 89. 96.]
174 cord_individual_obj[indivial_i,:] = [17. 7. 51. 58.]
175 cord_individual_obj[indivial_i,:] = [18. 6. 79. 85.]
176 cord_individual_obj[indivial_i,:] = [19. 6. 85. 91.]
177 cord_individual_obj[indivial_i,:] = [20. 5. 34. 39.]
178 cord_individual_obj[indivial_i,:] = [21. 6. 68. 74.]
179 cord_individual_obj[indivial_i,:] = [22. 6. 136. 142.]
180 cord_individual_obj[indivial_i,:] = [23. 8. 94. 102.]
181 cord_individual_obj[indivial_i,:] = [24. 6. 33. 39.]
182
183 min(cord_individual_obj[:,3]) = 39.0
184 historl_G_best_iter[iter,3] = 39.0
185 Begin iteration:
186
187 iter = 5
188 cord_individual_obj[indivial_i,:] = [ 0. 7. 63. 70.]
189 cord_individual_obj[indivial_i,:] = [ 1. 5. 74. 79.]
190 cord_individual_obj[indivial_i,:] = [ 2. 8. 92. 100.]
191 cord_individual_obj[indivial_i,:] = [ 3. 8. 167. 175.]
192 cord_individual_obj[indivial_i,:] = [ 4. 9. 69. 78.]
193 cord_individual_obj[indivial_i,:] = [ 5. 7. 35. 42.]
194 cord_individual_obj[indivial_i,:] = [ 6. 9. 67. 76.]
195 cord_individual_obj[indivial_i,:] = [ 7. 7. 45. 52.]
196 cord_individual_obj[indivial_i,:] = [ 8. 6. 36. 42.]
197 cord_individual_obj[indivial_i,:] = [ 9. 8. 88. 96.]
198 cord_individual_obj[indivial_i,:] = [10. 6. 106. 112.]
199 cord_individual_obj[indivial_i,:] = [11. 6. 41. 47.]
200 cord_individual_obj[indivial_i,:] = [12. 4. 73. 77.]
201 cord_individual_obj[indivial_i,:] = [13. 7. 76. 83.]
202 cord_individual_obj[indivial_i,:] = [14. 7. 87. 94.]
203 cord_individual_obj[indivial_i,:] = [15. 8. 95. 103.]
204 cord_individual_obj[indivial_i,:] = [16. 6. 84. 90.]
205 cord_individual_obj[indivial_i,:] = [17. 9. 39. 48.]
206 cord_individual_obj[indivial_i,:] = [18. 9. 47. 56.]
207 cord_individual_obj[indivial_i,:] = [19. 7. 37. 44.]
208 cord_individual_obj[indivial_i,:] = [20. 7. 75. 82.]
209 cord_individual_obj[indivial_i,:] = [21. 7. 62. 69.]
210 cord_individual_obj[indivial_i,:] = [22. 5. 34. 39.]
211 cord_individual_obj[indivial_i,:] = [23. 10. 112. 122.]
212 cord_individual_obj[indivial_i,:] = [24. 8. 58. 66.]
213
214 min(cord_individual_obj[:,3]) = 39.0
215 historl_G_best_iter[iter,3] = 39.0
216 Begin iteration:
217
218 iter = 6
219 cord_individual_obj[indivial_i,:] = [ 0. 9. 96. 105.]
220 cord_individual_obj[indivial_i,:] = [ 1. 6. 102. 108.]
221 cord_individual_obj[indivial_i,:] = [ 2. 9. 118. 127.]
222 cord_individual_obj[indivial_i,:] = [ 3. 5. 34. 39.]
223 cord_individual_obj[indivial_i,:] = [ 4. 8. 78. 86.]
224 cord_individual_obj[indivial_i,:] = [ 5. 6. 110. 116.]
225 cord_individual_obj[indivial_i,:] = [ 6. 8. 80. 88.]
226 cord_individual_obj[indivial_i,:] = [ 7. 6. 46. 52.]
227 cord_individual_obj[indivial_i,:] = [ 8. 6. 137. 143.]
228 cord_individual_obj[indivial_i,:] = [ 9. 7. 92. 99.]
229 cord_individual_obj[indivial_i,:] = [10. 7. 77. 84.]
230 cord_individual_obj[indivial_i,:] = [11. 6. 75. 81.]
231 cord_individual_obj[indivial_i,:] = [12. 8. 48. 56.]
232 cord_individual_obj[indivial_i,:] = [13. 7. 114. 121.]
233 cord_individual_obj[indivial_i,:] = [14. 7. 78. 85.]
234 cord_individual_obj[indivial_i,:] = [15. 8. 30. 38.]
235 cord_individual_obj[indivial_i,:] = [16. 7. 78. 85.]
236 cord_individual_obj[indivial_i,:] = [17. 7. 85. 92.]
237 cord_individual_obj[indivial_i,:] = [18. 5. 104. 109.]
238 cord_individual_obj[indivial_i,:] = [19. 7. 59. 66.]
239 cord_individual_obj[indivial_i,:] = [20. 8. 42. 50.]
240 cord_individual_obj[indivial_i,:] = [21. 7. 51. 58.]
241 cord_individual_obj[indivial_i,:] = [22. 8. 60. 68.]
242 cord_individual_obj[indivial_i,:] = [23. 7. 51. 58.]
243 cord_individual_obj[indivial_i,:] = [24. 6. 120. 126.]
244
245 min(cord_individual_obj[:,3]) = 38.0
246 historl_G_best_iter[iter,3] = 38.0
247 Begin iteration:

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248
249 iter = 7
250 cord_individual_obj[indivial_i, :] = [ 0.  8. 86. 94.]
251 cord_individual_obj[indivial_i, :] = [ 1.  7. 76. 83.]
252 cord_individual_obj[indivial_i, :] = [ 2.  7. 111. 118.]
253 cord_individual_obj[indivial_i, :] = [ 3.  7. 88. 95.]
254 cord_individual_obj[indivial_i, :] = [ 4.  8. 71. 79.]
255 cord_individual_obj[indivial_i, :] = [ 5.  8. 55. 63.]
256 cord_individual_obj[indivial_i, :] = [ 6.  7. 106. 113.]
257 cord_individual_obj[indivial_i, :] = [ 7.  7. 52. 59.]
258 cord_individual_obj[indivial_i, :] = [ 8.  8. 30. 38.]
259 cord_individual_obj[indivial_i, :] = [ 9.  8. 114. 122.]
260 cord_individual_obj[indivial_i, :] = [10.  6. 105. 111.]
261 cord_individual_obj[indivial_i, :] = [11.  9. 84. 93.]
262 cord_individual_obj[indivial_i, :] = [12.  6. 93. 99.]
263 cord_individual_obj[indivial_i, :] = [13.  6. 71. 77.]
264 cord_individual_obj[indivial_i, :] = [14.  8. 56. 64.]
265 cord_individual_obj[indivial_i, :] = [15.  8. 107. 115.]
266 cord_individual_obj[indivial_i, :] = [16.  7. 109. 116.]
267 cord_individual_obj[indivial_i, :] = [17.  5. 45. 50.]
268 cord_individual_obj[indivial_i, :] = [18.  8. 103. 111.]
269 cord_individual_obj[indivial_i, :] = [19.  6. 104. 110.]
270 cord_individual_obj[indivial_i, :] = [20.  7. 70. 77.]
271 cord_individual_obj[indivial_i, :] = [21.  8. 93. 101.]
272 cord_individual_obj[indivial_i, :] = [22.  9. 77. 86.]
273 cord_individual_obj[indivial_i, :] = [23.  6. 122. 128.]
274 cord_individual_obj[indivial_i, :] = [24.  7. 96. 103.]
275
276 min(cord_individual_obj[:, 3]) = 38.0
277 historl_G_best_iter[iter, 3] = 38.0
278 Begin iteration:
279
280 iter = 8
281 cord_individual_obj[indivial_i, :] = [ 0.  8. 47. 55.]
282 cord_individual_obj[indivial_i, :] = [ 1.  7. 102. 109.]
283 cord_individual_obj[indivial_i, :] = [ 2.  7. 59. 66.]
284 cord_individual_obj[indivial_i, :] = [ 3.  6. 71. 77.]
285 cord_individual_obj[indivial_i, :] = [ 4.  6. 83. 89.]
286 cord_individual_obj[indivial_i, :] = [ 5.  7. 71. 78.]
287 cord_individual_obj[indivial_i, :] = [ 6.  7. 57. 64.]
288 cord_individual_obj[indivial_i, :] = [ 7.  7. 56. 63.]
289 cord_individual_obj[indivial_i, :] = [ 8.  6. 77. 83.]
290 cord_individual_obj[indivial_i, :] = [ 9.  8. 143. 151.]
291 cord_individual_obj[indivial_i, :] = [10.  6. 102. 108.]
292 cord_individual_obj[indivial_i, :] = [11.  6. 98. 104.]
293 cord_individual_obj[indivial_i, :] = [12.  7. 77. 84.]
294 cord_individual_obj[indivial_i, :] = [13.  6. 82. 88.]
295 cord_individual_obj[indivial_i, :] = [14.  8. 47. 55.]
296 cord_individual_obj[indivial_i, :] = [15.  7. 56. 63.]
297 cord_individual_obj[indivial_i, :] = [16.  7. 64. 71.]
298 cord_individual_obj[indivial_i, :] = [17.  6. 41. 47.]
299 cord_individual_obj[indivial_i, :] = [18.  7. 48. 55.]
300 cord_individual_obj[indivial_i, :] = [19.  7. 54. 61.]
301 cord_individual_obj[indivial_i, :] = [20.  7. 48. 55.]
302 cord_individual_obj[indivial_i, :] = [21.  9. 57. 66.]
303 cord_individual_obj[indivial_i, :] = [22.  8. 84. 92.]
304 cord_individual_obj[indivial_i, :] = [23.  8. 30. 38.]
305 cord_individual_obj[indivial_i, :] = [24.  6. 90. 96.]
306
307 min(cord_individual_obj[:, 3]) = 38.0
308 historl_G_best_iter[iter, 3] = 38.0
309 Begin iteration:
310
311 iter = 9
312 cord_individual_obj[indivial_i, :] = [ 0.  7. 72. 79.]
313 cord_individual_obj[indivial_i, :] = [ 1.  7. 91. 98.]
314 cord_individual_obj[indivial_i, :] = [ 2.  6. 85. 91.]
315 cord_individual_obj[indivial_i, :] = [ 3.  6. 87. 93.]
316 cord_individual_obj[indivial_i, :] = [ 4.  6. 94. 100.]
317 cord_individual_obj[indivial_i, :] = [ 5.  7. 50. 57.]
318 cord_individual_obj[indivial_i, :] = [ 6.  6. 77. 83.]
319 cord_individual_obj[indivial_i, :] = [ 7.  8. 51. 59.]
320 cord_individual_obj[indivial_i, :] = [ 8.  8. 73. 81.]
321 cord_individual_obj[indivial_i, :] = [ 9.  8. 30. 38.]
322 cord_individual_obj[indivial_i, :] = [10.  7. 104. 111.]
323 cord_individual_obj[indivial_i, :] = [11.  7. 125. 132.]
324 cord_individual_obj[indivial_i, :] = [12.  6. 72. 78.]
325 cord_individual_obj[indivial_i, :] = [13.  6. 100. 106.]
326 cord_individual_obj[indivial_i, :] = [14.  7. 58. 65.]
327 cord_individual_obj[indivial_i, :] = [15.  5. 100. 105.]
328 cord_individual_obj[indivial_i, :] = [16.  7. 103. 110.]
329 cord_individual_obj[indivial_i, :] = [17.  6. 31. 37.]
330 cord_individual_obj[indivial_i, :] = [18.  6. 143. 149.]
331 cord_individual_obj[indivial_i, :] = [19.  6. 147. 153.]

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332 cord_individual_obj[indivial_i,:] = [20. 8. 71. 79.]
333 cord_individual_obj[indivial_i,:] = [21. 7. 79. 86.]
334 cord_individual_obj[indivial_i,:] = [22. 7. 56. 63.]
335 cord_individual_obj[indivial_i,:] = [23. 6. 119. 125.]
336 cord_individual_obj[indivial_i,:] = [24. 7. 134. 141.]
337
338 min(cord_individual_obj[:,3]) = 37.0
339 histol_G_best_iter[iter,3] = 37.0
340 Begin iteration:
341
342 iter = 10
343 cord_individual_obj[indivial_i,:] = [ 0. 7. 45. 52.]
344 cord_individual_obj[indivial_i,:] = [ 1. 6. 120. 126.]
345 cord_individual_obj[indivial_i,:] = [ 2. 8. 65. 73.]
346 cord_individual_obj[indivial_i,:] = [ 3. 8. 45. 53.]
347 cord_individual_obj[indivial_i,:] = [ 4. 9. 67. 76.]
348 cord_individual_obj[indivial_i,:] = [ 5. 6. 54. 60.]
349 cord_individual_obj[indivial_i,:] = [ 6. 8. 79. 87.]
350 cord_individual_obj[indivial_i,:] = [ 7. 9. 105. 114.]
351 cord_individual_obj[indivial_i,:] = [ 8. 7. 67. 74.]
352 cord_individual_obj[indivial_i,:] = [ 9. 7. 90. 97.]
353 cord_individual_obj[indivial_i,:] = [10. 7. 36. 43.]
354 cord_individual_obj[indivial_i,:] = [11. 8. 81. 89.]
355 cord_individual_obj[indivial_i,:] = [12. 6. 52. 58.]
356 cord_individual_obj[indivial_i,:] = [13. 6. 144. 150.]
357 cord_individual_obj[indivial_i,:] = [14. 8. 63. 71.]
358 cord_individual_obj[indivial_i,:] = [15. 7. 81. 88.]
359 cord_individual_obj[indivial_i,:] = [16. 7. 48. 55.]
360 cord_individual_obj[indivial_i,:] = [17. 7. 23. 30.]
361 cord_individual_obj[indivial_i,:] = [18. 7. 97. 104.]
362 cord_individual_obj[indivial_i,:] = [19. 6. 31. 37.]
363 cord_individual_obj[indivial_i,:] = [20. 8. 59. 67.]
364 cord_individual_obj[indivial_i,:] = [21. 8. 69. 77.]
365 cord_individual_obj[indivial_i,:] = [22. 7. 88. 95.]
366 cord_individual_obj[indivial_i,:] = [23. 8. 34. 42.]
367 cord_individual_obj[indivial_i,:] = [24. 6. 72. 78.]
368
369 min(cord_individual_obj[:,3]) = 30.0
370 histol_G_best_iter[iter,3] = 30.0
371 Begin iteration:
372
373 iter = 11
374 cord_individual_obj[indivial_i,:] = [ 0. 9. 65. 74.]
375 cord_individual_obj[indivial_i,:] = [ 1. 6. 101. 107.]
376 cord_individual_obj[indivial_i,:] = [ 2. 6. 69. 75.]
377 cord_individual_obj[indivial_i,:] = [ 3. 6. 113. 119.]
378 cord_individual_obj[indivial_i,:] = [ 4. 7. 47. 54.]
379 cord_individual_obj[indivial_i,:] = [ 5. 6. 41. 47.]
380 cord_individual_obj[indivial_i,:] = [ 6. 7. 72. 79.]
381 cord_individual_obj[indivial_i,:] = [ 7. 8. 124. 132.]
382 cord_individual_obj[indivial_i,:] = [ 8. 8. 51. 59.]
383 cord_individual_obj[indivial_i,:] = [ 9. 8. 67. 75.]
384 cord_individual_obj[indivial_i,:] = [10. 5. 99. 104.]
385 cord_individual_obj[indivial_i,:] = [11. 8. 38. 46.]
386 cord_individual_obj[indivial_i,:] = [12. 6. 105. 111.]
387 cord_individual_obj[indivial_i,:] = [13. 7. 23. 30.]
388 cord_individual_obj[indivial_i,:] = [14. 8. 106. 114.]
389 cord_individual_obj[indivial_i,:] = [15. 6. 64. 70.]
390 cord_individual_obj[indivial_i,:] = [16. 8. 66. 74.]
391 cord_individual_obj[indivial_i,:] = [17. 7. 50. 57.]
392 cord_individual_obj[indivial_i,:] = [18. 9. 48. 57.]
393 cord_individual_obj[indivial_i,:] = [19. 7. 153. 160.]
394 cord_individual_obj[indivial_i,:] = [20. 6. 115. 121.]
395 cord_individual_obj[indivial_i,:] = [21. 5. 104. 109.]
396 cord_individual_obj[indivial_i,:] = [22. 7. 79. 86.]
397 cord_individual_obj[indivial_i,:] = [23. 7. 125. 132.]
398 cord_individual_obj[indivial_i,:] = [24. 7. 78. 85.]
399
400 min(cord_individual_obj[:,3]) = 30.0
401 histol_G_best_iter[iter,3] = 30.0
402 Begin iteration:
403
404 iter = 12
405 cord_individual_obj[indivial_i,:] = [ 0. 7. 46. 53.]
406 cord_individual_obj[indivial_i,:] = [ 1. 7. 65. 72.]
407 cord_individual_obj[indivial_i,:] = [ 2. 8. 52. 60.]
408 cord_individual_obj[indivial_i,:] = [ 3. 7. 102. 109.]
409 cord_individual_obj[indivial_i,:] = [ 4. 7. 107. 114.]
410 cord_individual_obj[indivial_i,:] = [ 5. 7. 85. 92.]
411 cord_individual_obj[indivial_i,:] = [ 6. 6. 73. 79.]
412 cord_individual_obj[indivial_i,:] = [ 7. 6. 75. 81.]
413 cord_individual_obj[indivial_i,:] = [ 8. 6. 46. 52.]
414 cord_individual_obj[indivial_i,:] = [ 9. 8. 60. 68.]
415 cord_individual_obj[indivial_i,:] = [10. 5. 64. 69.]

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416 cord_individual_obj[indivial_i,:] = [11. 7. 75. 82.]
417 cord_individual_obj[indivial_i,:] = [12. 7. 128. 135.]
418 cord_individual_obj[indivial_i,:] = [13. 7. 54. 61.]
419 cord_individual_obj[indivial_i,:] = [14. 7. 73. 80.]
420 cord_individual_obj[indivial_i,:] = [15. 7. 143. 150.]
421 cord_individual_obj[indivial_i,:] = [16. 9. 70. 79.]
422 cord_individual_obj[indivial_i,:] = [17. 5. 119. 124.]
423 cord_individual_obj[indivial_i,:] = [18. 6. 74. 80.]
424 cord_individual_obj[indivial_i,:] = [19. 7. 23. 30.]
425 cord_individual_obj[indivial_i,:] = [20. 6. 126. 132.]
426 cord_individual_obj[indivial_i,:] = [21. 7. 63. 70.]
427 cord_individual_obj[indivial_i,:] = [22. 8. 88. 96.]
428 cord_individual_obj[indivial_i,:] = [23. 8. 33. 41.]
429 cord_individual_obj[indivial_i,:] = [24. 6. 48. 54.]
430
431 min(cord_individual_obj[:,3]) = 30.0
432 histol_G_best_iter[iter,3] = 30.0
433 Begin iteration:
434
435 iter = 13
436 cord_individual_obj[indivial_i,:] = [0. 7. 58. 65.]
437 cord_individual_obj[indivial_i,:] = [1. 6. 75. 81.]
438 cord_individual_obj[indivial_i,:] = [2. 7. 116. 123.]
439 cord_individual_obj[indivial_i,:] = [3. 7. 75. 82.]
440 cord_individual_obj[indivial_i,:] = [4. 7. 93. 100.]
441 cord_individual_obj[indivial_i,:] = [5. 7. 44. 51.]
442 cord_individual_obj[indivial_i,:] = [6. 6. 121. 127.]
443 cord_individual_obj[indivial_i,:] = [7. 8. 133. 141.]
444 cord_individual_obj[indivial_i,:] = [8. 7. 173. 180.]
445 cord_individual_obj[indivial_i,:] = [9. 8. 76. 84.]
446 cord_individual_obj[indivial_i,:] = [10. 5. 73. 78.]
447 cord_individual_obj[indivial_i,:] = [11. 9. 41. 50.]
448 cord_individual_obj[indivial_i,:] = [12. 6. 59. 65.]
449 cord_individual_obj[indivial_i,:] = [13. 7. 141. 148.]
450 cord_individual_obj[indivial_i,:] = [14. 8. 42. 50.]
451 cord_individual_obj[indivial_i,:] = [15. 7. 23. 30.]
452 cord_individual_obj[indivial_i,:] = [16. 7. 67. 74.]
453 cord_individual_obj[indivial_i,:] = [17. 5. 73. 78.]
454 cord_individual_obj[indivial_i,:] = [18. 8. 82. 90.]
455 cord_individual_obj[indivial_i,:] = [19. 8. 59. 67.]
456 cord_individual_obj[indivial_i,:] = [20. 5. 96. 101.]
457 cord_individual_obj[indivial_i,:] = [21. 6. 52. 58.]
458 cord_individual_obj[indivial_i,:] = [22. 7. 61. 68.]
459 cord_individual_obj[indivial_i,:] = [23. 8. 73. 81.]
460 cord_individual_obj[indivial_i,:] = [24. 7. 110. 117.]
461
462 min(cord_individual_obj[:,3]) = 30.0
463 histol_G_best_iter[iter,3] = 30.0
464 Begin iteration:
465
466 iter = 14
467 cord_individual_obj[indivial_i,:] = [0. 8. 54. 62.]
468 cord_individual_obj[indivial_i,:] = [1. 6. 110. 116.]
469 cord_individual_obj[indivial_i,:] = [2. 7. 144. 151.]
470 cord_individual_obj[indivial_i,:] = [3. 5. 31. 36.]
471 cord_individual_obj[indivial_i,:] = [4. 6. 103. 109.]
472 cord_individual_obj[indivial_i,:] = [5. 6. 91. 97.]
473 cord_individual_obj[indivial_i,:] = [6. 5. 101. 106.]
474 cord_individual_obj[indivial_i,:] = [7. 8. 129. 137.]
475 cord_individual_obj[indivial_i,:] = [8. 7. 23. 30.]
476 cord_individual_obj[indivial_i,:] = [9. 8. 66. 74.]
477 cord_individual_obj[indivial_i,:] = [10. 7. 76. 83.]
478 cord_individual_obj[indivial_i,:] = [11. 7. 96. 103.]
479 cord_individual_obj[indivial_i,:] = [12. 5. 111. 116.]
480 cord_individual_obj[indivial_i,:] = [13. 9. 139. 148.]
481 cord_individual_obj[indivial_i,:] = [14. 8. 74. 82.]
482 cord_individual_obj[indivial_i,:] = [15. 6. 58. 64.]
483 cord_individual_obj[indivial_i,:] = [16. 7. 77. 84.]
484 cord_individual_obj[indivial_i,:] = [17. 6. 120. 126.]
485 cord_individual_obj[indivial_i,:] = [18. 6. 146. 152.]
486 cord_individual_obj[indivial_i,:] = [19. 6. 73. 79.]
487 cord_individual_obj[indivial_i,:] = [20. 6. 148. 154.]
488 cord_individual_obj[indivial_i,:] = [21. 7. 49. 56.]
489 cord_individual_obj[indivial_i,:] = [22. 7. 49. 56.]
490 cord_individual_obj[indivial_i,:] = [23. 7. 94. 101.]
491 cord_individual_obj[indivial_i,:] = [24. 7. 62. 69.]
492
493 min(cord_individual_obj[:,3]) = 30.0
494 histol_G_best_iter[iter,3] = 30.0
495 Begin iteration:
496
497 iter = 15
498 cord_individual_obj[indivial_i,:] = [0. 7. 58. 65.]
499 cord_individual_obj[indivial_i,:] = [1. 7. 79. 86.]

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500 cord_individual_obj[indivial_i,:] = [ 2. 7. 74. 81.]
501 cord_individual_obj[indivial_i,:] = [ 3. 8. 52. 60.]
502 cord_individual_obj[indivial_i,:] = [ 4. 6. 156. 162.]
503 cord_individual_obj[indivial_i,:] = [ 5. 5. 105. 110.]
504 cord_individual_obj[indivial_i,:] = [ 6. 6. 106. 112.]
505 cord_individual_obj[indivial_i,:] = [ 7. 8. 127. 135.]
506 cord_individual_obj[indivial_i,:] = [ 8. 7. 44. 51.]
507 cord_individual_obj[indivial_i,:] = [ 9. 6. 91. 97.]
508 cord_individual_obj[indivial_i,:] = [10. 7. 87. 94.]
509 cord_individual_obj[indivial_i,:] = [11. 9. 65. 74.]
510 cord_individual_obj[indivial_i,:] = [12. 5. 63. 68.]
511 cord_individual_obj[indivial_i,:] = [13. 7. 49. 56.]
512 cord_individual_obj[indivial_i,:] = [14. 7. 93. 100.]
513 cord_individual_obj[indivial_i,:] = [15. 8. 64. 72.]
514 cord_individual_obj[indivial_i,:] = [16. 7. 39. 46.]
515 cord_individual_obj[indivial_i,:] = [17. 5. 80. 85.]
516 cord_individual_obj[indivial_i,:] = [18. 7. 99. 106.]
517 cord_individual_obj[indivial_i,:] = [19. 7. 148. 155.]
518 cord_individual_obj[indivial_i,:] = [20. 7. 23. 30.]
519 cord_individual_obj[indivial_i,:] = [21. 7. 95. 102.]
520 cord_individual_obj[indivial_i,:] = [22. 9. 72. 81.]
521 cord_individual_obj[indivial_i,:] = [23. 7. 122. 129.]
522 cord_individual_obj[indivial_i,:] = [24. 6. 70. 76.]
523
524 min(cord_individual_obj[:, 3]) = 30.0
525 histol_G_best_iter[iter, 3] = 30.0
526 Begin iteration:
527
528 iter = 16
529 cord_individual_obj[indivial_i,:] = [ 0. 7. 44. 51.]
530 cord_individual_obj[indivial_i,:] = [ 1. 8. 106. 114.]
531 cord_individual_obj[indivial_i,:] = [ 2. 8. 122. 130.]
532 cord_individual_obj[indivial_i,:] = [ 3. 9. 113. 122.]
533 cord_individual_obj[indivial_i,:] = [ 4. 7. 23. 30.]
534 cord_individual_obj[indivial_i,:] = [ 5. 5. 52. 57.]
535 cord_individual_obj[indivial_i,:] = [ 6. 7. 77. 84.]
536 cord_individual_obj[indivial_i,:] = [ 7. 8. 103. 111.]
537 cord_individual_obj[indivial_i,:] = [ 8. 7. 123. 130.]
538 cord_individual_obj[indivial_i,:] = [ 9. 9. 72. 81.]
539 cord_individual_obj[indivial_i,:] = [10. 6. 59. 65.]
540 cord_individual_obj[indivial_i,:] = [11. 7. 70. 77.]
541 cord_individual_obj[indivial_i,:] = [12. 7. 75. 82.]
542 cord_individual_obj[indivial_i,:] = [13. 8. 84. 92.]
543 cord_individual_obj[indivial_i,:] = [14. 5. 37. 42.]
544 cord_individual_obj[indivial_i,:] = [15. 6. 80. 86.]
545 cord_individual_obj[indivial_i,:] = [16. 9. 70. 79.]
546 cord_individual_obj[indivial_i,:] = [17. 6. 38. 44.]
547 cord_individual_obj[indivial_i,:] = [18. 8. 39. 47.]
548 cord_individual_obj[indivial_i,:] = [19. 10. 99. 109.]
549 cord_individual_obj[indivial_i,:] = [20. 7. 156. 163.]
550 cord_individual_obj[indivial_i,:] = [21. 8. 66. 74.]
551 cord_individual_obj[indivial_i,:] = [22. 6. 83. 89.]
552 cord_individual_obj[indivial_i,:] = [23. 9. 103. 112.]
553 cord_individual_obj[indivial_i,:] = [24. 6. 28. 34.]
554
555 min(cord_individual_obj[:, 3]) = 30.0
556 histol_G_best_iter[iter, 3] = 30.0
557 Begin iteration:
558
559 iter = 17
560 cord_individual_obj[indivial_i,:] = [ 0. 8. 63. 71.]
561 cord_individual_obj[indivial_i,:] = [ 1. 6. 68. 74.]
562 cord_individual_obj[indivial_i,:] = [ 2. 8. 47. 55.]
563 cord_individual_obj[indivial_i,:] = [ 3. 7. 52. 59.]
564 cord_individual_obj[indivial_i,:] = [ 4. 8. 55. 63.]
565 cord_individual_obj[indivial_i,:] = [ 5. 5. 36. 41.]
566 cord_individual_obj[indivial_i,:] = [ 6. 7. 54. 61.]
567 cord_individual_obj[indivial_i,:] = [ 7. 7. 73. 80.]
568 cord_individual_obj[indivial_i,:] = [ 8. 7. 39. 46.]
569 cord_individual_obj[indivial_i,:] = [ 9. 7. 88. 95.]
570 cord_individual_obj[indivial_i,:] = [10. 6. 84. 90.]
571 cord_individual_obj[indivial_i,:] = [11. 8. 131. 139.]
572 cord_individual_obj[indivial_i,:] = [12. 5. 64. 69.]
573 cord_individual_obj[indivial_i,:] = [13. 9. 59. 68.]
574 cord_individual_obj[indivial_i,:] = [14. 7. 59. 66.]
575 cord_individual_obj[indivial_i,:] = [15. 7. 61. 68.]
576 cord_individual_obj[indivial_i,:] = [16. 7. 39. 46.]
577 cord_individual_obj[indivial_i,:] = [17. 5. 50. 55.]
578 cord_individual_obj[indivial_i,:] = [18. 8. 69. 77.]
579 cord_individual_obj[indivial_i,:] = [19. 7. 39. 46.]
580 cord_individual_obj[indivial_i,:] = [20. 7. 23. 30.]
581 cord_individual_obj[indivial_i,:] = [21. 6. 34. 40.]
582 cord_individual_obj[indivial_i,:] = [22. 8. 140. 148.]
583 cord_individual_obj[indivial_i,:] = [23. 6. 126. 132.]

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unknown

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584     cord_individual_obj[indivial_i, :] = [24. 7. 84. 91.]
585
586     min(cord_individual_obj[:, 3]) = 30.0
587     historl_G_best_iter[iter, 3] = 30.0
588 Begin iteration:
589
590 iter = 18
591     cord_individual_obj[indivial_i, :] = [ 0. 8. 71. 79.]
592     cord_individual_obj[indivial_i, :] = [ 1. 6. 80. 86.]
593     cord_individual_obj[indivial_i, :] = [ 2. 8. 47. 55.]
594     cord_individual_obj[indivial_i, :] = [ 3. 7. 49. 56.]
595     cord_individual_obj[indivial_i, :] = [ 4. 7. 101. 108.]
596     cord_individual_obj[indivial_i, :] = [ 5. 7. 40. 47.]
597     cord_individual_obj[indivial_i, :] = [ 6. 8. 48. 56.]
598     cord_individual_obj[indivial_i, :] = [ 7. 9. 50. 59.]
599     cord_individual_obj[indivial_i, :] = [ 8. 8. 79. 87.]
600     cord_individual_obj[indivial_i, :] = [ 9. 8. 102. 110.]
601     cord_individual_obj[indivial_i, :] = [10. 6. 74. 80.]
602     cord_individual_obj[indivial_i, :] = [11. 8. 147. 155.]
603     cord_individual_obj[indivial_i, :] = [12. 5. 64. 69.]
604     cord_individual_obj[indivial_i, :] = [13. 7. 52. 59.]
605     cord_individual_obj[indivial_i, :] = [14. 6. 93. 99.]
606     cord_individual_obj[indivial_i, :] = [15. 6. 72. 78.]
607     cord_individual_obj[indivial_i, :] = [16. 8. 56. 64.]
608     cord_individual_obj[indivial_i, :] = [17. 7. 60. 67.]
609     cord_individual_obj[indivial_i, :] = [18. 8. 57. 65.]
610     cord_individual_obj[indivial_i, :] = [19. 8. 50. 58.]
611     cord_individual_obj[indivial_i, :] = [20. 8. 167. 175.]
612     cord_individual_obj[indivial_i, :] = [21. 5. 93. 98.]
613     cord_individual_obj[indivial_i, :] = [22. 7. 23. 30.]
614     cord_individual_obj[indivial_i, :] = [23. 7. 95. 102.]
615     cord_individual_obj[indivial_i, :] = [24. 7. 84. 91.]
616
617     min(cord_individual_obj[:, 3]) = 30.0
618     historl_G_best_iter[iter, 3] = 30.0
619 Begin iteration:
620
621 iter = 19
622     cord_individual_obj[indivial_i, :] = [ 0. 7. 32. 39.]
623     cord_individual_obj[indivial_i, :] = [ 1. 7. 68. 75.]
624     cord_individual_obj[indivial_i, :] = [ 2. 8. 98. 106.]
625     cord_individual_obj[indivial_i, :] = [ 3. 9. 87. 96.]
626     cord_individual_obj[indivial_i, :] = [ 4. 6. 55. 61.]
627     cord_individual_obj[indivial_i, :] = [ 5. 7. 48. 55.]
628     cord_individual_obj[indivial_i, :] = [ 6. 6. 76. 82.]
629     cord_individual_obj[indivial_i, :] = [ 7. 8. 110. 118.]
630     cord_individual_obj[indivial_i, :] = [ 8. 7. 39. 46.]
631     cord_individual_obj[indivial_i, :] = [ 9. 6. 79. 85.]
632     cord_individual_obj[indivial_i, :] = [10. 7. 69. 76.]
633     cord_individual_obj[indivial_i, :] = [11. 7. 38. 45.]
634     cord_individual_obj[indivial_i, :] = [12. 7. 154. 161.]
635     cord_individual_obj[indivial_i, :] = [13. 7. 56. 63.]
636     cord_individual_obj[indivial_i, :] = [14. 5. 90. 95.]
637     cord_individual_obj[indivial_i, :] = [15. 6. 103. 109.]
638     cord_individual_obj[indivial_i, :] = [16. 8. 142. 150.]
639     cord_individual_obj[indivial_i, :] = [17. 5. 92. 97.]
640     cord_individual_obj[indivial_i, :] = [18. 5. 95. 100.]
641     cord_individual_obj[indivial_i, :] = [19. 7. 74. 81.]
642     cord_individual_obj[indivial_i, :] = [20. 7. 23. 30.]
643     cord_individual_obj[indivial_i, :] = [21. 9. 46. 55.]
644     cord_individual_obj[indivial_i, :] = [22. 8. 62. 70.]
645     cord_individual_obj[indivial_i, :] = [23. 7. 53. 60.]
646     cord_individual_obj[indivial_i, :] = [24. 5. 92. 97.]
647
648     min(cord_individual_obj[:, 3]) = 30.0
649     historl_G_best_iter[iter, 3] = 30.0
650 Begin iteration:
651
652 iter = 20
653     cord_individual_obj[indivial_i, :] = [ 0. 8. 87. 95.]
654     cord_individual_obj[indivial_i, :] = [ 1. 5. 74. 79.]
655     cord_individual_obj[indivial_i, :] = [ 2. 6. 84. 90.]
656     cord_individual_obj[indivial_i, :] = [ 3. 8. 71. 79.]
657     cord_individual_obj[indivial_i, :] = [ 4. 9. 56. 65.]
658     cord_individual_obj[indivial_i, :] = [ 5. 7. 42. 49.]
659     cord_individual_obj[indivial_i, :] = [ 6. 6. 151. 157.]
660     cord_individual_obj[indivial_i, :] = [ 7. 9. 101. 110.]
661     cord_individual_obj[indivial_i, :] = [ 8. 8. 52. 60.]
662     cord_individual_obj[indivial_i, :] = [ 9. 7. 94. 101.]
663     cord_individual_obj[indivial_i, :] = [10. 7. 73. 80.]
664     cord_individual_obj[indivial_i, :] = [11. 7. 84. 91.]
665     cord_individual_obj[indivial_i, :] = [12. 7. 23. 30.]
666     cord_individual_obj[indivial_i, :] = [13. 8. 47. 55.]
667     cord_individual_obj[indivial_i, :] = [14. 6. 89. 95.]
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668 cord_individual_obj[indivial_i,:] = [15. 6. 56. 62.]
669 cord_individual_obj[indivial_i,:] = [16. 7. 49. 56.]
670 cord_individual_obj[indivial_i,:] = [17. 8. 134. 142.]
671 cord_individual_obj[indivial_i,:] = [18. 8. 75. 83.]
672 cord_individual_obj[indivial_i,:] = [19. 7. 66. 73.]
673 cord_individual_obj[indivial_i,:] = [20. 6. 117. 123.]
674 cord_individual_obj[indivial_i,:] = [21. 8. 79. 87.]
675 cord_individual_obj[indivial_i,:] = [22. 7. 77. 84.]
676 cord_individual_obj[indivial_i,:] = [23. 7. 79. 86.]
677 cord_individual_obj[indivial_i,:] = [24. 8. 58. 66.]
678
679 min(cord_individual_obj[:, 3]) = 30.0
680 historl_G_best_iter[iter, 3] = 30.0
681 Iteration calculate over
682
683
684
685
686 All item are in Bin and:
687 Bin area = 1080
688 Real_area = 173.0
689 Proportion_of_area = 0.16018518518518518
690 BEST_CHROM =
691 berth: [25.5 3. 16.5 22.5 2. 6.5 11.5 10. 16.5 21.5 4. 17.5]
692 time: [0. 2. 1. 3. 0. 0. 0. 2. 3. 4. 4. 0.]
693 num_QC: [2. 5. 2. 3. 3. 4. 4. 4. 4. 4. 2. 5.]
694 Objective function values and some other indicators:
695 Obj0 = 7.00          Obj1 = 23.00          Obj0 + Obj1 = 30.00
696 Total movement of crane: 0.00
697 Total waiting time in berth position: 19.00
698 Total index of q during berthing: 696.00
699 Specific arrangement for each vessel:
700 V_id: 0           li: 9.0           xi: 25.5           bow of i: 21.0           tail of i: 30.0           gama_i0: 0.0           gama_i1: 2
.0           gama_i1 + 1: 3.0           gama_i1 - gama_i0: 2.0           duration_time_i: 3.0           demand_i: 100.0           work
load_i: 100.0           work load gap_i: 0
701 V_id: 1           li: 6.0           xi: 3.0           bow of i: 0.0           tail of i: 6.0           gama_i0: 2.0           gama_i1: 3.0
.0           gama_i1 + 1: 4.0           gama_i1 - gama_i0: 1.0           duration_time_i: 2.0           demand_i: 120.0           work load_i:
120.0           work load gap_i: 0
702 V_id: 2           li: 5.0           xi: 16.5           bow of i: 14.0           tail of i: 19.0           gama_i0: 1.0           gama_i1: 2
.0           gama_i1 + 1: 3.0           gama_i1 - gama_i0: 1.0           duration_time_i: 2.0           demand_i: 80.0           work
load_i: 80.0           work load gap_i: 0
703 V_id: 3           li: 7.0           xi: 22.5           bow of i: 19.0           tail of i: 26.0           gama_i0: 3.0           gama_i1: 3
.0           gama_i1 + 1: 4.0           gama_i1 - gama_i0: 0.0           duration_time_i: 1.0           demand_i: 60.0           work
load_i: 60.0           work load gap_i: 0
704 V_id: 4           li: 4.0           xi: 2.0           bow of i: 0.0           tail of i: 4.0           gama_i0: 0.0           gama_i1: 1
.0           gama_i1 + 1: 2.0           gama_i1 - gama_i0: 1.0           duration_time_i: 2.0           demand_i: 120.0           work load_i:
120.0           work load gap_i: 0
705 V_id: 5           li: 5.0           xi: 6.5           bow of i: 4.0           tail of i: 9.0           gama_i0: 0.0           gama_i1: 0
.0           gama_i1 + 1: 1.0           gama_i1 - gama_i0: 0.0           duration_time_i: 1.0           demand_i: 80.0           work load_i:
80.0           work load gap_i: 0
706 V_id: 6           li: 5.0           xi: 11.5           bow of i: 9.0           tail of i: 14.0           gama_i0: 0.0           gama_i1: 1
.0           gama_i1 + 1: 2.0           gama_i1 - gama_i0: 1.0           duration_time_i: 2.0           demand_i: 100.0           work
load_i: 100.0           work load gap_i: 0
707 V_id: 7           li: 8.0           xi: 10.0           bow of i: 6.0           tail of i: 14.0           gama_i0: 2.0           gama_i1: 3
.0           gama_i1 + 1: 4.0           gama_i1 - gama_i0: 1.0           duration_time_i: 2.0           demand_i: 140.0           work
load_i: 140.0           work load gap_i: 0
708 V_id: 8           li: 5.0           xi: 16.5           bow of i: 14.0           tail of i: 19.0           gama_i0: 3.0           gama_i1: 4
.0           gama_i1 + 1: 5.0           gama_i1 - gama_i0: 1.0           duration_time_i: 2.0           demand_i: 160.0           work
load_i: 160.0           work load gap_i: 0
709 V_id: 9           li: 5.0           xi: 21.5           bow of i: 19.0           tail of i: 24.0           gama_i0: 4.0           gama_i1: 5
.0           gama_i1 + 1: 6.0           gama_i1 - gama_i0: 1.0           duration_time_i: 2.0           demand_i: 140.0           work
load_i: 140.0           work load gap_i: 0
710 V_id: 10          li: 8.0           xi: 4.0           bow of i: 0.0           tail of i: 8.0           gama_i0: 4.0           gama_i1: 7
.0           gama_i1 + 1: 8.0           gama_i1 - gama_i0: 3.0           duration_time_i: 4.0           demand_i: 140.0           work load_i:
140.0           work load gap_i: 0
711 V_id: 11          li: 7.0           xi: 17.5           bow of i: 14.0           tail of i: 21.0           gama_i0: 0.0           gama_i1: 0
.0           gama_i1 + 1: 1.0           gama_i1 - gama_i0: 0.0           duration_time_i: 1.0           demand_i: 80.0           work
load_i: 80.0           work load gap_i: 0
712
713 Algorithm finished and the total CPU time: 315 s
714 End
715

```