

unknown

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1 "E:\My_Python_Code\3_Standard\My_Python_Code\My_Python_Code\1_LW_000002\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\pydevconsole.py" --mode=client --port=53096
2
3 import sys; print('Python %s on %s' % (sys.version, sys.platform))
4 sys.path.extend(['E:\My_Python_Code\3_Standard\My_Python_Code\My_Python_Code\1_LW_000002\6_0000\2 python code\01_My_Python_Code', 'E:/1_Standard/3_Standard/1_Standard/1_Standard/_Standard/1_LW_000002/6_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_Standard/3_Standard/1_Standard/1_Standard/_Standard/1_LW_000002/6_0000/2 python code/01_My_Python_Code/main_BACASP_offical_PSO_2D_Bin_berth_line.py', wdir='E:/1_Standard/3_Standard/1_Standard/1_Standard/_Standard/1_LW_000002/6_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_7_8_standerd_test.xlsx optimization process.
14
15 Start
16     Read basic data
17         V = 7
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     order_type_num = 25
26     c1 = 1.5
27     c2 = 1.5
28     r1 = 0.7047883896052136
29     r2 = 0.7047883896052136
30 Begin iteration:
31
32 iter = 0
33     cord_individual_obj[individual_i, :] = [ 0. 4. 82. 86.]
34     cord_individual_obj[individual_i, :] = [ 1. 4. 6. 10.]
35     cord_individual_obj[individual_i, :] = [ 2. 3. 96. 99.]
36     cord_individual_obj[individual_i, :] = [ 3. 6. 59. 65.]
37     cord_individual_obj[individual_i, :] = [ 4. 3. 4. 7.]
38     cord_individual_obj[individual_i, :] = [ 5. 5. 6. 11.]
39     cord_individual_obj[individual_i, :] = [ 6. 5. 18. 23.]
40     cord_individual_obj[individual_i, :] = [ 7. 3. 4. 7.]
41     cord_individual_obj[individual_i, :] = [ 8. 3. 17. 20.]
42     cord_individual_obj[individual_i, :] = [ 9. 4. 34. 38.]
43     cord_individual_obj[individual_i, :] = [ 10. 3. 59. 62.]
44     cord_individual_obj[individual_i, :] = [ 11. 4. 82. 86.]
45     cord_individual_obj[individual_i, :] = [ 12. 4. 17. 21.]
46     cord_individual_obj[individual_i, :] = [ 13. 4. 77. 81.]
47     cord_individual_obj[individual_i, :] = [ 14. 4. 41. 45.]
48     cord_individual_obj[individual_i, :] = [ 15. 5. 30. 35.]
49     cord_individual_obj[individual_i, :] = [ 16. 5. 55. 60.]
50     cord_individual_obj[individual_i, :] = [ 17. 4. 44. 48.]
51     cord_individual_obj[individual_i, :] = [ 18. 4. 75. 79.]
52     cord_individual_obj[individual_i, :] = [ 19. 4. 15. 19.]
53     cord_individual_obj[individual_i, :] = [ 20. 4. 5. 9.]
54     cord_individual_obj[individual_i, :] = [ 21. 4. 9. 13.]
55     cord_individual_obj[individual_i, :] = [ 22. 4. 78. 82.]
56     cord_individual_obj[individual_i, :] = [ 23. 6. 43. 49.]
57     cord_individual_obj[individual_i, :] = [ 24. 5. 46. 51.]
58
59 min(cord_individual_obj[:, 3]) = 7.0
60 historl_G_best_iter[iter, 3] = 7.0
61 Begin iteration:
62
63 iter = 1
64     cord_individual_obj[individual_i, :] = [ 0. 3. 33. 36.]
65     cord_individual_obj[individual_i, :] = [ 1. 4. 4. 8.]
66     cord_individual_obj[individual_i, :] = [ 2. 3. 4. 7.]
67     cord_individual_obj[individual_i, :] = [ 3. 4. 113. 117.]
68     cord_individual_obj[individual_i, :] = [ 4. 3. 19. 22.]
69     cord_individual_obj[individual_i, :] = [ 5. 3. 33. 36.]
70     cord_individual_obj[individual_i, :] = [ 6. 4. 32. 36.]
71     cord_individual_obj[individual_i, :] = [ 7. 3. 4. 7.]
72     cord_individual_obj[individual_i, :] = [ 8. 3. 13. 16.]
73     cord_individual_obj[individual_i, :] = [ 9. 3. 45. 48.]
74     cord_individual_obj[individual_i, :] = [ 10. 3. 10. 13.]
75     cord_individual_obj[individual_i, :] = [ 11. 5. 6. 11.]
76     cord_individual_obj[individual_i, :] = [ 12. 3. 28. 31.]
77     cord_individual_obj[individual_i, :] = [ 13. 4. 5. 9.]
78     cord_individual_obj[individual_i, :] = [ 14. 3. 43. 46.]
79     cord_individual_obj[individual_i, :] = [ 15. 4. 6. 10.]

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80 cord_individual_obj[indivial_i,:] = [16. 4. 6. 10.]
81 cord_individual_obj[indivial_i,:] = [17. 4. 11. 15.]
82 cord_individual_obj[indivial_i,:] = [18. 4. 43. 47.]
83 cord_individual_obj[indivial_i,:] = [19. 4. 4. 8.]
84 cord_individual_obj[indivial_i,:] = [20. 3. 9. 12.]
85 cord_individual_obj[indivial_i,:] = [21. 4. 5. 9.]
86 cord_individual_obj[indivial_i,:] = [22. 3. 5. 8.]
87 cord_individual_obj[indivial_i,:] = [23. 6. 7. 13.]
88 cord_individual_obj[indivial_i,:] = [24. 5. 13. 18.]
89
90 min(cord_individual_obj[:,3]) = 7.0
91 historl_G_best_iter[iter,3] = 7.0
92 Begin iteration:
93
94 iter = 2
95 cord_individual_obj[indivial_i,:] = [0. 4. 5. 9.]
96 cord_individual_obj[indivial_i,:] = [1. 3. 4. 7.]
97 cord_individual_obj[indivial_i,:] = [2. 4. 29. 33.]
98 cord_individual_obj[indivial_i,:] = [3. 3. 4. 7.]
99 cord_individual_obj[indivial_i,:] = [4. 3. 13. 16.]
100 cord_individual_obj[indivial_i,:] = [5. 4. 34. 38.]
101 cord_individual_obj[indivial_i,:] = [6. 4. 11. 15.]
102 cord_individual_obj[indivial_i,:] = [7. 5. 6. 11.]
103 cord_individual_obj[indivial_i,:] = [8. 5. 15. 20.]
104 cord_individual_obj[indivial_i,:] = [9. 3. 34. 37.]
105 cord_individual_obj[indivial_i,:] = [10. 4. 4. 8.]
106 cord_individual_obj[indivial_i,:] = [11. 4. 21. 25.]
107 cord_individual_obj[indivial_i,:] = [12. 3. 44. 47.]
108 cord_individual_obj[indivial_i,:] = [13. 3. 10. 13.]
109 cord_individual_obj[indivial_i,:] = [14. 3. 29. 32.]
110 cord_individual_obj[indivial_i,:] = [15. 5. 6. 11.]
111 cord_individual_obj[indivial_i,:] = [16. 5. 18. 23.]
112 cord_individual_obj[indivial_i,:] = [17. 4. 17. 21.]
113 cord_individual_obj[indivial_i,:] = [18. 3. 17. 20.]
114 cord_individual_obj[indivial_i,:] = [19. 3. 14. 17.]
115 cord_individual_obj[indivial_i,:] = [20. 3. 4. 7.]
116 cord_individual_obj[indivial_i,:] = [21. 3. 13. 16.]
117 cord_individual_obj[indivial_i,:] = [22. 3. 5. 8.]
118 cord_individual_obj[indivial_i,:] = [23. 6. 7. 13.]
119 cord_individual_obj[indivial_i,:] = [24. 3. 12. 15.]
120
121 min(cord_individual_obj[:,3]) = 7.0
122 historl_G_best_iter[iter,3] = 7.0
123 Begin iteration:
124
125 iter = 3
126 cord_individual_obj[indivial_i,:] = [0. 4. 20. 24.]
127 cord_individual_obj[indivial_i,:] = [1. 3. 24. 27.]
128 cord_individual_obj[indivial_i,:] = [2. 3. 32. 35.]
129 cord_individual_obj[indivial_i,:] = [3. 5. 5. 10.]
130 cord_individual_obj[indivial_i,:] = [4. 4. 11. 15.]
131 cord_individual_obj[indivial_i,:] = [5. 5. 14. 19.]
132 cord_individual_obj[indivial_i,:] = [6. 4. 14. 18.]
133 cord_individual_obj[indivial_i,:] = [7. 5. 6. 11.]
134 cord_individual_obj[indivial_i,:] = [8. 4. 12. 16.]
135 cord_individual_obj[indivial_i,:] = [9. 4. 22. 26.]
136 cord_individual_obj[indivial_i,:] = [10. 5. 6. 11.]
137 cord_individual_obj[indivial_i,:] = [11. 4. 13. 17.]
138 cord_individual_obj[indivial_i,:] = [12. 3. 4. 7.]
139 cord_individual_obj[indivial_i,:] = [13. 4. 4. 8.]
140 cord_individual_obj[indivial_i,:] = [14. 3. 11. 14.]
141 cord_individual_obj[indivial_i,:] = [15. 4. 12. 16.]
142 cord_individual_obj[indivial_i,:] = [16. 5. 5. 10.]
143 cord_individual_obj[indivial_i,:] = [17. 4. 42. 46.]
144 cord_individual_obj[indivial_i,:] = [18. 4. 13. 17.]
145 cord_individual_obj[indivial_i,:] = [19. 3. 4. 7.]
146 cord_individual_obj[indivial_i,:] = [20. 3. 11. 14.]
147 cord_individual_obj[indivial_i,:] = [21. 6. 26. 32.]
148 cord_individual_obj[indivial_i,:] = [22. 5. 7. 12.]
149 cord_individual_obj[indivial_i,:] = [23. 5. 23. 28.]
150 cord_individual_obj[indivial_i,:] = [24. 4. 13. 17.]
151
152 min(cord_individual_obj[:,3]) = 7.0
153 historl_G_best_iter[iter,3] = 7.0
154 Begin iteration:
155
156 iter = 4
157 cord_individual_obj[indivial_i,:] = [0. 4. 12. 16.]
158 cord_individual_obj[indivial_i,:] = [1. 4. 26. 30.]
159 cord_individual_obj[indivial_i,:] = [2. 4. 5. 9.]
160 cord_individual_obj[indivial_i,:] = [3. 3. 43. 46.]
161 cord_individual_obj[indivial_i,:] = [4. 4. 5. 9.]
162 cord_individual_obj[indivial_i,:] = [5. 4. 13. 17.]
163 cord_individual_obj[indivial_i,:] = [6. 3. 11. 14.]

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164 cord_individual_obj[indivial_i,:] = [ 7. 4. 11. 15.]
165 cord_individual_obj[indivial_i,:] = [ 8. 4. 5. 9.]
166 cord_individual_obj[indivial_i,:] = [ 9. 4. 15. 19.]
167 cord_individual_obj[indivial_i,:] = [10. 3. 4. 7.]
168 cord_individual_obj[indivial_i,:] = [11. 4. 4. 8.]
169 cord_individual_obj[indivial_i,:] = [12. 3. 4. 7.]
170 cord_individual_obj[indivial_i,:] = [13. 4. 5. 9.]
171 cord_individual_obj[indivial_i,:] = [14. 3. 65. 68.]
172 cord_individual_obj[indivial_i,:] = [15. 3. 4. 7.]
173 cord_individual_obj[indivial_i,:] = [16. 4. 6. 10.]
174 cord_individual_obj[indivial_i,:] = [17. 3. 4. 7.]
175 cord_individual_obj[indivial_i,:] = [18. 4. 13. 17.]
176 cord_individual_obj[indivial_i,:] = [19. 4. 5. 9.]
177 cord_individual_obj[indivial_i,:] = [20. 5. 4. 9.]
178 cord_individual_obj[indivial_i,:] = [21. 6. 14. 20.]
179 cord_individual_obj[indivial_i,:] = [22. 5. 14. 19.]
180 cord_individual_obj[indivial_i,:] = [23. 4. 5. 9.]
181 cord_individual_obj[indivial_i,:] = [24. 5. 6. 11.]
182
183 min(cord_individual_obj[:,3]) = 7.0
184 historl_G_best_iter[iter,3] = 7.0
185 Begin iteration:
186
187 iter = 5
188 cord_individual_obj[indivial_i,:] = [ 0. 4. 12. 16.]
189 cord_individual_obj[indivial_i,:] = [ 1. 4. 5. 9.]
190 cord_individual_obj[indivial_i,:] = [ 2. 4. 5. 9.]
191 cord_individual_obj[indivial_i,:] = [ 3. 4. 13. 17.]
192 cord_individual_obj[indivial_i,:] = [ 4. 3. 10. 13.]
193 cord_individual_obj[indivial_i,:] = [ 5. 4. 12. 16.]
194 cord_individual_obj[indivial_i,:] = [ 6. 4. 5. 9.]
195 cord_individual_obj[indivial_i,:] = [ 7. 4. 6. 10.]
196 cord_individual_obj[indivial_i,:] = [ 8. 4. 12. 16.]
197 cord_individual_obj[indivial_i,:] = [ 9. 4. 26. 30.]
198 cord_individual_obj[indivial_i,:] = [10. 4. 5. 9.]
199 cord_individual_obj[indivial_i,:] = [11. 3. 12. 15.]
200 cord_individual_obj[indivial_i,:] = [12. 3. 12. 15.]
201 cord_individual_obj[indivial_i,:] = [13. 4. 6. 10.]
202 cord_individual_obj[indivial_i,:] = [14. 3. 4. 7.]
203 cord_individual_obj[indivial_i,:] = [15. 3. 4. 7.]
204 cord_individual_obj[indivial_i,:] = [16. 6. 8. 14.]
205 cord_individual_obj[indivial_i,:] = [17. 4. 22. 26.]
206 cord_individual_obj[indivial_i,:] = [18. 3. 28. 31.]
207 cord_individual_obj[indivial_i,:] = [19. 4. 12. 16.]
208 cord_individual_obj[indivial_i,:] = [20. 5. 13. 18.]
209 cord_individual_obj[indivial_i,:] = [21. 3. 4. 7.]
210 cord_individual_obj[indivial_i,:] = [22. 5. 7. 12.]
211 cord_individual_obj[indivial_i,:] = [23. 6. 13. 19.]
212 cord_individual_obj[indivial_i,:] = [24. 4. 35. 39.]
213
214 min(cord_individual_obj[:,3]) = 7.0
215 historl_G_best_iter[iter,3] = 7.0
216 Begin iteration:
217
218 iter = 6
219 cord_individual_obj[indivial_i,:] = [ 0. 4. 15. 19.]
220 cord_individual_obj[indivial_i,:] = [ 1. 3. 4. 7.]
221 cord_individual_obj[indivial_i,:] = [ 2. 3. 4. 7.]
222 cord_individual_obj[indivial_i,:] = [ 3. 4. 15. 19.]
223 cord_individual_obj[indivial_i,:] = [ 4. 4. 6. 10.]
224 cord_individual_obj[indivial_i,:] = [ 5. 3. 4. 7.]
225 cord_individual_obj[indivial_i,:] = [ 6. 4. 5. 9.]
226 cord_individual_obj[indivial_i,:] = [ 7. 3. 4. 7.]
227 cord_individual_obj[indivial_i,:] = [ 8. 4. 5. 9.]
228 cord_individual_obj[indivial_i,:] = [ 9. 4. 15. 19.]
229 cord_individual_obj[indivial_i,:] = [10. 5. 6. 11.]
230 cord_individual_obj[indivial_i,:] = [11. 3. 4. 7.]
231 cord_individual_obj[indivial_i,:] = [12. 3. 10. 13.]
232 cord_individual_obj[indivial_i,:] = [13. 4. 14. 18.]
233 cord_individual_obj[indivial_i,:] = [14. 4. 14. 18.]
234 cord_individual_obj[indivial_i,:] = [15. 3. 4. 7.]
235 cord_individual_obj[indivial_i,:] = [16. 5. 6. 11.]
236 cord_individual_obj[indivial_i,:] = [17. 3. 21. 24.]
237 cord_individual_obj[indivial_i,:] = [18. 4. 5. 9.]
238 cord_individual_obj[indivial_i,:] = [19. 3. 4. 7.]
239 cord_individual_obj[indivial_i,:] = [20. 4. 5. 9.]
240 cord_individual_obj[indivial_i,:] = [21. 4. 4. 8.]
241 cord_individual_obj[indivial_i,:] = [22. 4. 5. 9.]
242 cord_individual_obj[indivial_i,:] = [23. 3. 13. 16.]
243 cord_individual_obj[indivial_i,:] = [24. 3. 4. 7.]
244
245 min(cord_individual_obj[:,3]) = 7.0
246 historl_G_best_iter[iter,3] = 7.0
247 Begin iteration:

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248
249 iter = 7
250 cord_individual_obj[indivial_i, :] = [ 0. 3. 54. 57.]
251 cord_individual_obj[indivial_i, :] = [ 1. 4. 99. 103.]
252 cord_individual_obj[indivial_i, :] = [ 2. 4. 100. 104.]
253 cord_individual_obj[indivial_i, :] = [ 3. 3. 22. 25.]
254 cord_individual_obj[indivial_i, :] = [ 4. 5. 41. 46.]
255 cord_individual_obj[indivial_i, :] = [ 5. 5. 42. 47.]
256 cord_individual_obj[indivial_i, :] = [ 6. 6. 52. 58.]
257 cord_individual_obj[indivial_i, :] = [ 7. 5. 38. 43.]
258 cord_individual_obj[indivial_i, :] = [ 8. 6. 65. 71.]
259 cord_individual_obj[indivial_i, :] = [ 9. 4. 83. 87.]
260 cord_individual_obj[indivial_i, :] = [10. 4. 58. 62.]
261 cord_individual_obj[indivial_i, :] = [11. 5. 57. 62.]
262 cord_individual_obj[indivial_i, :] = [12. 5. 64. 69.]
263 cord_individual_obj[indivial_i, :] = [13. 3. 40. 43.]
264 cord_individual_obj[indivial_i, :] = [14. 3. 28. 31.]
265 cord_individual_obj[indivial_i, :] = [15. 3. 52. 55.]
266 cord_individual_obj[indivial_i, :] = [16. 3. 52. 55.]
267 cord_individual_obj[indivial_i, :] = [17. 3. 4. 7.]
268 cord_individual_obj[indivial_i, :] = [18. 3. 131. 134.]
269 cord_individual_obj[indivial_i, :] = [19. 5. 64. 69.]
270 cord_individual_obj[indivial_i, :] = [20. 3. 21. 24.]
271 cord_individual_obj[indivial_i, :] = [21. 4. 22. 26.]
272 cord_individual_obj[indivial_i, :] = [22. 4. 13. 17.]
273 cord_individual_obj[indivial_i, :] = [23. 4. 43. 47.]
274 cord_individual_obj[indivial_i, :] = [24. 4. 66. 70.]
275

276 min(cord_individual_obj[:, 3]) = 7.0
277 historl_G_best_iter[iter, 3] = 7.0
278 Begin iteration:
279
280 iter = 8
281 cord_individual_obj[indivial_i, :] = [0. 3. 4. 7.]
282 cord_individual_obj[indivial_i, :] = [1. 5. 22. 27.]
283 cord_individual_obj[indivial_i, :] = [2. 3. 81. 84.]
284 cord_individual_obj[indivial_i, :] = [3. 5. 102. 107.]
285 cord_individual_obj[indivial_i, :] = [4. 3. 3. 6.]
286 cord_individual_obj[indivial_i, :] = [5. 3. 20. 23.]
287 cord_individual_obj[indivial_i, :] = [6. 3. 36. 39.]
288 cord_individual_obj[indivial_i, :] = [7. 5. 4. 9.]
289 cord_individual_obj[indivial_i, :] = [8. 4. 4. 8.]
290 cord_individual_obj[indivial_i, :] = [9. 4. 35. 39.]
291 cord_individual_obj[indivial_i, :] = [10. 3. 86. 89.]
292 cord_individual_obj[indivial_i, :] = [11. 3. 24. 27.]
293 cord_individual_obj[indivial_i, :] = [12. 3. 66. 69.]
294 cord_individual_obj[indivial_i, :] = [13. 4. 13. 17.]
295 cord_individual_obj[indivial_i, :] = [14. 3. 63. 66.]
296 cord_individual_obj[indivial_i, :] = [15. 4. 17. 21.]
297 cord_individual_obj[indivial_i, :] = [16. 5. 5. 10.]
298 cord_individual_obj[indivial_i, :] = [17. 3. 98. 101.]
299 cord_individual_obj[indivial_i, :] = [18. 3. 4. 7.]
300 cord_individual_obj[indivial_i, :] = [19. 3. 86. 89.]
301 cord_individual_obj[indivial_i, :] = [20. 5. 74. 79.]
302 cord_individual_obj[indivial_i, :] = [21. 3. 14. 17.]
303 cord_individual_obj[indivial_i, :] = [22. 3. 71. 74.]
304 cord_individual_obj[indivial_i, :] = [23. 4. 37. 41.]
305 cord_individual_obj[indivial_i, :] = [24. 4. 62. 66.]
306

307 min(cord_individual_obj[:, 3]) = 6.0
308 historl_G_best_iter[iter, 3] = 6.0
309 Begin iteration:
310
311 iter = 9
312 cord_individual_obj[indivial_i, :] = [ 0. 3. 19. 22.]
313 cord_individual_obj[indivial_i, :] = [ 1. 3. 12. 15.]
314 cord_individual_obj[indivial_i, :] = [ 2. 4. 16. 20.]
315 cord_individual_obj[indivial_i, :] = [ 3. 3. 3. 6.]
316 cord_individual_obj[indivial_i, :] = [ 4. 4. 13. 17.]
317 cord_individual_obj[indivial_i, :] = [ 5. 5. 14. 19.]
318 cord_individual_obj[indivial_i, :] = [ 6. 4. 14. 18.]
319 cord_individual_obj[indivial_i, :] = [ 7. 4. 17. 21.]
320 cord_individual_obj[indivial_i, :] = [ 8. 5. 5. 10.]
321 cord_individual_obj[indivial_i, :] = [ 9. 6. 76. 82.]
322 cord_individual_obj[indivial_i, :] = [10. 6. 42. 48.]
323 cord_individual_obj[indivial_i, :] = [11. 3. 31. 34.]
324 cord_individual_obj[indivial_i, :] = [12. 3. 100. 103.]
325 cord_individual_obj[indivial_i, :] = [13. 4. 58. 62.]
326 cord_individual_obj[indivial_i, :] = [14. 4. 38. 42.]
327 cord_individual_obj[indivial_i, :] = [15. 4. 48. 52.]
328 cord_individual_obj[indivial_i, :] = [16. 4. 40. 44.]
329 cord_individual_obj[indivial_i, :] = [17. 4. 19. 23.]
330 cord_individual_obj[indivial_i, :] = [18. 3. 131. 134.]
331 cord_individual_obj[indivial_i, :] = [19. 6. 34. 40.]

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332     cord_individual_obj[indivial_i,:] = [20. 4. 51. 55.]  
333     cord_individual_obj[indivial_i,:] = [21. 2. 34. 36.]  
334     cord_individual_obj[indivial_i,:] = [22. 5. 59. 64.]  
335     cord_individual_obj[indivial_i,:] = [23. 5. 40. 45.]  
336     cord_individual_obj[indivial_i,:] = [24. 5. 38. 43.]  
337  
338     min(cord_individual_obj[:,3]) = 6.0  
339     historl_G_best_iter[iter,3] = 6.0  
340 Begin iteration:  
341  
342 iter = 10  
343     cord_individual_obj[indivial_i,:] = [ 0. 4. 6. 10.]  
344     cord_individual_obj[indivial_i,:] = [ 1. 3. 31. 34.]  
345     cord_individual_obj[indivial_i,:] = [ 2. 4. 22. 26.]  
346     cord_individual_obj[indivial_i,:] = [ 3. 3. 4. 7.]  
347     cord_individual_obj[indivial_i,:] = [ 4. 4. 13. 17.]  
348     cord_individual_obj[indivial_i,:] = [ 5. 3. 36. 39.]  
349     cord_individual_obj[indivial_i,:] = [ 6. 4. 14. 18.]  
350     cord_individual_obj[indivial_i,:] = [ 7. 4. 26. 30.]  
351     cord_individual_obj[indivial_i,:] = [ 8. 5. 12. 17.]  
352     cord_individual_obj[indivial_i,:] = [ 9. 4. 41. 45.]  
353     cord_individual_obj[indivial_i,:] = [10. 3. 36. 39.]  
354     cord_individual_obj[indivial_i,:] = [11. 4. 25. 29.]  
355     cord_individual_obj[indivial_i,:] = [12. 3. 12. 15.]  
356     cord_individual_obj[indivial_i,:] = [13. 4. 22. 26.]  
357     cord_individual_obj[indivial_i,:] = [14. 3. 58. 61.]  
358     cord_individual_obj[indivial_i,:] = [15. 5. 14. 19.]  
359     cord_individual_obj[indivial_i,:] = [16. 4. 8. 12.]  
360     cord_individual_obj[indivial_i,:] = [17. 7. 42. 49.]  
361     cord_individual_obj[indivial_i,:] = [18. 3. 3. 6.]  
362     cord_individual_obj[indivial_i,:] = [19. 4. 39. 43.]  
363     cord_individual_obj[indivial_i,:] = [20. 5. 34. 39.]  
364     cord_individual_obj[indivial_i,:] = [21. 4. 4. 8.]  
365     cord_individual_obj[indivial_i,:] = [22. 6. 28. 34.]  
366     cord_individual_obj[indivial_i,:] = [23. 6. 34. 40.]  
367     cord_individual_obj[indivial_i,:] = [24. 4. 79. 83.]  
368  
369     min(cord_individual_obj[:,3]) = 6.0  
370     historl_G_best_iter[iter,3] = 6.0  
371 Begin iteration:  
372  
373 iter = 11  
374     cord_individual_obj[indivial_i,:] = [ 0. 3. 12. 15.]  
375     cord_individual_obj[indivial_i,:] = [ 1. 3. 4. 7.]  
376     cord_individual_obj[indivial_i,:] = [ 2. 2. 19. 21.]  
377     cord_individual_obj[indivial_i,:] = [ 3. 3. 4. 7.]  
378     cord_individual_obj[indivial_i,:] = [ 4. 4. 13. 17.]  
379     cord_individual_obj[indivial_i,:] = [ 5. 3. 12. 15.]  
380     cord_individual_obj[indivial_i,:] = [ 6. 3. 12. 15.]  
381     cord_individual_obj[indivial_i,:] = [ 7. 3. 11. 14.]  
382     cord_individual_obj[indivial_i,:] = [ 8. 4. 20. 24.]  
383     cord_individual_obj[indivial_i,:] = [ 9. 4. 4. 8.]  
384     cord_individual_obj[indivial_i,:] = [10. 3. 12. 15.]  
385     cord_individual_obj[indivial_i,:] = [11. 4. 25. 29.]  
386     cord_individual_obj[indivial_i,:] = [12. 3. 4. 7.]  
387     cord_individual_obj[indivial_i,:] = [13. 3. 21. 24.]  
388     cord_individual_obj[indivial_i,:] = [14. 3. 20. 23.]  
389     cord_individual_obj[indivial_i,:] = [15. 4. 6. 10.]  
390     cord_individual_obj[indivial_i,:] = [16. 3. 12. 15.]  
391     cord_individual_obj[indivial_i,:] = [17. 3. 11. 14.]  
392     cord_individual_obj[indivial_i,:] = [18. 5. 14. 19.]  
393     cord_individual_obj[indivial_i,:] = [19. 4. 12. 16.]  
394     cord_individual_obj[indivial_i,:] = [20. 4. 6. 10.]  
395     cord_individual_obj[indivial_i,:] = [21. 4. 4. 8.]  
396     cord_individual_obj[indivial_i,:] = [22. 3. 12. 15.]  
397     cord_individual_obj[indivial_i,:] = [23. 3. 12. 15.]  
398     cord_individual_obj[indivial_i,:] = [24. 3. 3. 6.]  
399  
400     min(cord_individual_obj[:,3]) = 6.0  
401     historl_G_best_iter[iter,3] = 6.0  
402 Begin iteration:  
403  
404 iter = 12  
405     cord_individual_obj[indivial_i,:] = [ 0. 3. 12. 15.]  
406     cord_individual_obj[indivial_i,:] = [ 1. 4. 5. 9.]  
407     cord_individual_obj[indivial_i,:] = [ 2. 4. 67. 71.]  
408     cord_individual_obj[indivial_i,:] = [ 3. 3. 33. 36.]  
409     cord_individual_obj[indivial_i,:] = [ 4. 3. 23. 26.]  
410     cord_individual_obj[indivial_i,:] = [ 5. 5. 6. 11.]  
411     cord_individual_obj[indivial_i,:] = [ 6. 4. 6. 10.]  
412     cord_individual_obj[indivial_i,:] = [ 7. 4. 5. 9.]  
413     cord_individual_obj[indivial_i,:] = [ 8. 5. 6. 11.]  
414     cord_individual_obj[indivial_i,:] = [ 9. 2. 18. 20.]  
415     cord_individual_obj[indivial_i,:] = [10. 3. 36. 39.]
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416 cord_individual_obj[indivial_i,:] = [11. 3. 3. 6.]
417 cord_individual_obj[indivial_i,:] = [12. 5. 14. 19.]
418 cord_individual_obj[indivial_i,:] = [13. 3. 4. 7.]
419 cord_individual_obj[indivial_i,:] = [14. 3. 12. 15.]
420 cord_individual_obj[indivial_i,:] = [15. 3. 5. 8.]
421 cord_individual_obj[indivial_i,:] = [16. 3. 15. 18.]
422 cord_individual_obj[indivial_i,:] = [17. 3. 5. 8.]
423 cord_individual_obj[indivial_i,:] = [18. 3. 59. 62.]
424 cord_individual_obj[indivial_i,:] = [19. 4. 28. 32.]
425 cord_individual_obj[indivial_i,:] = [20. 3. 5. 8.]
426 cord_individual_obj[indivial_i,:] = [21. 3. 12. 15.]
427 cord_individual_obj[indivial_i,:] = [22. 4. 5. 9.]
428 cord_individual_obj[indivial_i,:] = [23. 3. 22. 25.]
429 cord_individual_obj[indivial_i,:] = [24. 3. 11. 14.]
430
431 min(cord_individual_obj[:,3]) = 6.0
432 histol_G_best_iter[iter,3] = 6.0
433 Begin iteration:
434
435 iter = 13
436 cord_individual_obj[indivial_i,:] = [ 0. 4. 6. 10.]
437 cord_individual_obj[indivial_i,:] = [ 1. 4. 25. 29.]
438 cord_individual_obj[indivial_i,:] = [ 2. 3. 3. 6.]
439 cord_individual_obj[indivial_i,:] = [ 3. 3. 10. 13.]
440 cord_individual_obj[indivial_i,:] = [ 4. 3. 22. 25.]
441 cord_individual_obj[indivial_i,:] = [ 5. 5. 14. 19.]
442 cord_individual_obj[indivial_i,:] = [ 6. 4. 14. 18.]
443 cord_individual_obj[indivial_i,:] = [ 7. 3. 23. 26.]
444 cord_individual_obj[indivial_i,:] = [ 8. 5. 12. 17.]
445 cord_individual_obj[indivial_i,:] = [ 9. 3. 11. 14.]
446 cord_individual_obj[indivial_i,:] = [10. 3. 13. 16.]
447 cord_individual_obj[indivial_i,:] = [11. 4. 25. 29.]
448 cord_individual_obj[indivial_i,:] = [12. 4. 13. 17.]
449 cord_individual_obj[indivial_i,:] = [13. 3. 8. 11.]
450 cord_individual_obj[indivial_i,:] = [14. 3. 20. 23.]
451 cord_individual_obj[indivial_i,:] = [15. 4. 21. 25.]
452 cord_individual_obj[indivial_i,:] = [16. 6. 8. 14.]
453 cord_individual_obj[indivial_i,:] = [17. 5. 46. 51.]
454 cord_individual_obj[indivial_i,:] = [18. 3. 51. 54.]
455 cord_individual_obj[indivial_i,:] = [19. 3. 9. 12.]
456 cord_individual_obj[indivial_i,:] = [20. 5. 13. 18.]
457 cord_individual_obj[indivial_i,:] = [21. 5. 15. 20.]
458 cord_individual_obj[indivial_i,:] = [22. 4. 7. 11.]
459 cord_individual_obj[indivial_i,:] = [23. 6. 42. 48.]
460 cord_individual_obj[indivial_i,:] = [24. 4. 33. 37.]
461
462 min(cord_individual_obj[:,3]) = 6.0
463 histol_G_best_iter[iter,3] = 6.0
464 Begin iteration:
465
466 iter = 14
467 cord_individual_obj[indivial_i,:] = [ 0. 3. 20. 23.]
468 cord_individual_obj[indivial_i,:] = [ 1. 3. 11. 14.]
469 cord_individual_obj[indivial_i,:] = [ 2. 4. 20. 24.]
470 cord_individual_obj[indivial_i,:] = [ 3. 4. 39. 43.]
471 cord_individual_obj[indivial_i,:] = [ 4. 4. 15. 19.]
472 cord_individual_obj[indivial_i,:] = [ 5. 3. 12. 15.]
473 cord_individual_obj[indivial_i,:] = [ 6. 3. 13. 16.]
474 cord_individual_obj[indivial_i,:] = [ 7. 4. 13. 17.]
475 cord_individual_obj[indivial_i,:] = [ 8. 4. 20. 24.]
476 cord_individual_obj[indivial_i,:] = [ 9. 4. 23. 27.]
477 cord_individual_obj[indivial_i,:] = [10. 4. 13. 17.]
478 cord_individual_obj[indivial_i,:] = [11. 4. 25. 29.]
479 cord_individual_obj[indivial_i,:] = [12. 4. 5. 9.]
480 cord_individual_obj[indivial_i,:] = [13. 4. 21. 25.]
481 cord_individual_obj[indivial_i,:] = [14. 3. 20. 23.]
482 cord_individual_obj[indivial_i,:] = [15. 4. 6. 10.]
483 cord_individual_obj[indivial_i,:] = [16. 4. 6. 10.]
484 cord_individual_obj[indivial_i,:] = [17. 4. 22. 26.]
485 cord_individual_obj[indivial_i,:] = [18. 3. 3. 6.]
486 cord_individual_obj[indivial_i,:] = [19. 5. 7. 12.]
487 cord_individual_obj[indivial_i,:] = [20. 6. 6. 12.]
488 cord_individual_obj[indivial_i,:] = [21. 4. 4. 8.]
489 cord_individual_obj[indivial_i,:] = [22. 4. 6. 10.]
490 cord_individual_obj[indivial_i,:] = [23. 5. 12. 17.]
491 cord_individual_obj[indivial_i,:] = [24. 3. 11. 14.]
492
493 min(cord_individual_obj[:,3]) = 6.0
494 histol_G_best_iter[iter,3] = 6.0
495 Begin iteration:
496
497 iter = 15
498 cord_individual_obj[indivial_i,:] = [0. 3. 4. 7.]
499 cord_individual_obj[indivial_i,:] = [1. 3. 28. 31.]

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500 cord_individual_obj[indivial_i, :] = [ 2. 4. 45. 49.]
501 cord_individual_obj[indivial_i, :] = [ 3. 3. 3. 6.]
502 cord_individual_obj[indivial_i, :] = [ 4. 3. 14. 17.]
503 cord_individual_obj[indivial_i, :] = [ 5. 3. 12. 15.]
504 cord_individual_obj[indivial_i, :] = [ 6. 3. 13. 16.]
505 cord_individual_obj[indivial_i, :] = [ 7. 3. 25. 28.]
506 cord_individual_obj[indivial_i, :] = [ 8. 4. 12. 16.]
507 cord_individual_obj[indivial_i, :] = [ 9. 4. 24. 28.]
508 cord_individual_obj[indivial_i, :] = [10. 4. 13. 17.]
509 cord_individual_obj[indivial_i, :] = [11. 4. 25. 29.]
510 cord_individual_obj[indivial_i, :] = [12. 5. 6. 11.]
511 cord_individual_obj[indivial_i, :] = [13. 4. 5. 9.]
512 cord_individual_obj[indivial_i, :] = [14. 3. 20. 23.]
513 cord_individual_obj[indivial_i, :] = [15. 4. 21. 25.]
514 cord_individual_obj[indivial_i, :] = [16. 4. 6. 10.]
515 cord_individual_obj[indivial_i, :] = [17. 4. 6. 10.]
516 cord_individual_obj[indivial_i, :] = [18. 5. 14. 19.]
517 cord_individual_obj[indivial_i, :] = [19. 5. 7. 12.]
518 cord_individual_obj[indivial_i, :] = [20. 4. 6. 10.]
519 cord_individual_obj[indivial_i, :] = [21. 4. 4. 8.]
520 cord_individual_obj[indivial_i, :] = [22. 4. 5. 9.]
521 cord_individual_obj[indivial_i, :] = [23. 4. 5. 9.]
522 cord_individual_obj[indivial_i, :] = [24. 3. 11. 14.]
523
524 min(cord_individual_obj[:, 3]) = 6.0
525 histol_G_best_iter[iter, 3] = 6.0
526 Begin iteration:
527
528 iter = 16
529 cord_individual_obj[indivial_i, :] = [ 0. 3. 20. 23.]
530 cord_individual_obj[indivial_i, :] = [ 1. 3. 10. 13.]
531 cord_individual_obj[indivial_i, :] = [ 2. 3. 3. 6.]
532 cord_individual_obj[indivial_i, :] = [ 3. 3. 4. 7.]
533 cord_individual_obj[indivial_i, :] = [ 4. 2. 16. 18.]
534 cord_individual_obj[indivial_i, :] = [ 5. 3. 12. 15.]
535 cord_individual_obj[indivial_i, :] = [ 6. 3. 13. 16.]
536 cord_individual_obj[indivial_i, :] = [ 7. 4. 13. 17.]
537 cord_individual_obj[indivial_i, :] = [ 8. 4. 20. 24.]
538 cord_individual_obj[indivial_i, :] = [ 9. 3. 42. 45.]
539 cord_individual_obj[indivial_i, :] = [10. 4. 14. 18.]
540 cord_individual_obj[indivial_i, :] = [11. 3. 25. 28.]
541 cord_individual_obj[indivial_i, :] = [12. 3. 12. 15.]
542 cord_individual_obj[indivial_i, :] = [13. 2. 19. 21.]
543 cord_individual_obj[indivial_i, :] = [14. 3. 20. 23.]
544 cord_individual_obj[indivial_i, :] = [15. 4. 5. 9.]
545 cord_individual_obj[indivial_i, :] = [16. 4. 12. 16.]
546 cord_individual_obj[indivial_i, :] = [17. 4. 11. 15.]
547 cord_individual_obj[indivial_i, :] = [18. 3. 13. 16.]
548 cord_individual_obj[indivial_i, :] = [19. 4. 12. 16.]
549 cord_individual_obj[indivial_i, :] = [20. 3. 11. 14.]
550 cord_individual_obj[indivial_i, :] = [21. 3. 10. 13.]
551 cord_individual_obj[indivial_i, :] = [22. 4. 12. 16.]
552 cord_individual_obj[indivial_i, :] = [23. 4. 22. 26.]
553 cord_individual_obj[indivial_i, :] = [24. 3. 11. 14.]
554
555 min(cord_individual_obj[:, 3]) = 6.0
556 histol_G_best_iter[iter, 3] = 6.0
557 Begin iteration:
558
559 iter = 17
560 cord_individual_obj[indivial_i, :] = [ 0. 3. 4. 7.]
561 cord_individual_obj[indivial_i, :] = [ 1. 3. 4. 7.]
562 cord_individual_obj[indivial_i, :] = [ 2. 4. 20. 24.]
563 cord_individual_obj[indivial_i, :] = [ 3. 4. 5. 9.]
564 cord_individual_obj[indivial_i, :] = [ 4. 5. 13. 18.]
565 cord_individual_obj[indivial_i, :] = [ 5. 4. 12. 16.]
566 cord_individual_obj[indivial_i, :] = [ 6. 3. 13. 16.]
567 cord_individual_obj[indivial_i, :] = [ 7. 4. 6. 10.]
568 cord_individual_obj[indivial_i, :] = [ 8. 5. 12. 17.]
569 cord_individual_obj[indivial_i, :] = [ 9. 3. 3. 6.]
570 cord_individual_obj[indivial_i, :] = [10. 4. 13. 17.]
571 cord_individual_obj[indivial_i, :] = [11. 3. 54. 57.]
572 cord_individual_obj[indivial_i, :] = [12. 3. 4. 7.]
573 cord_individual_obj[indivial_i, :] = [13. 4. 5. 9.]
574 cord_individual_obj[indivial_i, :] = [14. 3. 12. 15.]
575 cord_individual_obj[indivial_i, :] = [15. 4. 5. 9.]
576 cord_individual_obj[indivial_i, :] = [16. 6. 8. 14.]
577 cord_individual_obj[indivial_i, :] = [17. 4. 6. 10.]
578 cord_individual_obj[indivial_i, :] = [18. 4. 12. 16.]
579 cord_individual_obj[indivial_i, :] = [19. 5. 13. 18.]
580 cord_individual_obj[indivial_i, :] = [20. 5. 13. 18.]
581 cord_individual_obj[indivial_i, :] = [21. 5. 6. 11.]
582 cord_individual_obj[indivial_i, :] = [22. 5. 15. 20.]
583 cord_individual_obj[indivial_i, :] = [23. 6. 15. 21.]

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unknown

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584     cord_individual_obj[indivial_i, :] = [24. 5. 22. 27.]  
585  
586     min(cord_individual_obj[:, 3]) = 6.0  
587     historl_G_best_iter[iter, 3] = 6.0  
588 Begin iteration:  
589  
590 iter = 18  
591     cord_individual_obj[indivial_i, :] = [ 0. 3. 20. 23.]  
592     cord_individual_obj[indivial_i, :] = [1. 3. 4. 7.]  
593     cord_individual_obj[indivial_i, :] = [ 2. 4. 45. 49.]  
594     cord_individual_obj[indivial_i, :] = [3. 4. 5. 9.]  
595     cord_individual_obj[indivial_i, :] = [4. 3. 4. 7.]  
596     cord_individual_obj[indivial_i, :] = [ 5. 3. 12. 15.]  
597     cord_individual_obj[indivial_i, :] = [ 6. 3. 13. 16.]  
598     cord_individual_obj[indivial_i, :] = [ 7. 4. 13. 17.]  
599     cord_individual_obj[indivial_i, :] = [ 8. 4. 20. 24.]  
600     cord_individual_obj[indivial_i, :] = [ 9. 4. 32. 36.]  
601     cord_individual_obj[indivial_i, :] = [10. 4. 13. 17.]  
602     cord_individual_obj[indivial_i, :] = [11. 3. 3. 6.]  
603     cord_individual_obj[indivial_i, :] = [12. 4. 5. 9.]  
604     cord_individual_obj[indivial_i, :] = [13. 4. 21. 25.]  
605     cord_individual_obj[indivial_i, :] = [14. 3. 12. 15.]  
606     cord_individual_obj[indivial_i, :] = [15. 5. 14. 19.]  
607     cord_individual_obj[indivial_i, :] = [16. 4. 12. 16.]  
608     cord_individual_obj[indivial_i, :] = [17. 4. 29. 33.]  
609     cord_individual_obj[indivial_i, :] = [18. 4. 11. 15.]  
610     cord_individual_obj[indivial_i, :] = [19. 4. 6. 10.]  
611     cord_individual_obj[indivial_i, :] = [20. 4. 22. 26.]  
612     cord_individual_obj[indivial_i, :] = [21. 4. 4. 8.]  
613     cord_individual_obj[indivial_i, :] = [22. 4. 5. 9.]  
614     cord_individual_obj[indivial_i, :] = [23. 4. 11. 15.]  
615     cord_individual_obj[indivial_i, :] = [24. 4. 13. 17.]  
616  
617     min(cord_individual_obj[:, 3]) = 6.0  
618     historl_G_best_iter[iter, 3] = 6.0  
619 Begin iteration:  
620  
621 iter = 19  
622     cord_individual_obj[indivial_i, :] = [ 0. 3. 15. 18.]  
623     cord_individual_obj[indivial_i, :] = [1. 4. 4. 8.]  
624     cord_individual_obj[indivial_i, :] = [ 2. 3. 3. 6.]  
625     cord_individual_obj[indivial_i, :] = [ 3. 3. 55. 58.]  
626     cord_individual_obj[indivial_i, :] = [ 4. 3. 23. 26.]  
627     cord_individual_obj[indivial_i, :] = [ 5. 5. 6. 11.]  
628     cord_individual_obj[indivial_i, :] = [ 6. 4. 6. 10.]  
629     cord_individual_obj[indivial_i, :] = [ 7. 4. 26. 30.]  
630     cord_individual_obj[indivial_i, :] = [ 8. 5. 5. 10.]  
631     cord_individual_obj[indivial_i, :] = [ 9. 4. 36. 40.]  
632     cord_individual_obj[indivial_i, :] = [10. 3. 4. 7.]  
633     cord_individual_obj[indivial_i, :] = [11. 5. 14. 19.]  
634     cord_individual_obj[indivial_i, :] = [12. 3. 36. 39.]  
635     cord_individual_obj[indivial_i, :] = [13. 4. 4. 8.]  
636     cord_individual_obj[indivial_i, :] = [14. 3. 4. 7.]  
637     cord_individual_obj[indivial_i, :] = [15. 5. 6. 11.]  
638     cord_individual_obj[indivial_i, :] = [16. 5. 21. 26.]  
639     cord_individual_obj[indivial_i, :] = [17. 4. 20. 24.]  
640     cord_individual_obj[indivial_i, :] = [18. 3. 91. 94.]  
641     cord_individual_obj[indivial_i, :] = [19. 4. 90. 94.]  
642     cord_individual_obj[indivial_i, :] = [20. 4. 12. 16.]  
643     cord_individual_obj[indivial_i, :] = [21. 3. 12. 15.]  
644     cord_individual_obj[indivial_i, :] = [22. 4. 60. 64.]  
645     cord_individual_obj[indivial_i, :] = [23. 6. 36. 42.]  
646     cord_individual_obj[indivial_i, :] = [24. 5. 57. 62.]  
647  
648     min(cord_individual_obj[:, 3]) = 6.0  
649     historl_G_best_iter[iter, 3] = 6.0  
650 Begin iteration:  
651  
652 iter = 20  
653     cord_individual_obj[indivial_i, :] = [ 0. 4. 6. 10.]  
654     cord_individual_obj[indivial_i, :] = [ 1. 3. 24. 27.]  
655     cord_individual_obj[indivial_i, :] = [ 2. 4. 20. 24.]  
656     cord_individual_obj[indivial_i, :] = [ 3. 3. 10. 13.]  
657     cord_individual_obj[indivial_i, :] = [ 4. 4. 13. 17.]  
658     cord_individual_obj[indivial_i, :] = [ 5. 5. 14. 19.]  
659     cord_individual_obj[indivial_i, :] = [ 6. 4. 14. 18.]  
660     cord_individual_obj[indivial_i, :] = [ 7. 4. 7. 11.]  
661     cord_individual_obj[indivial_i, :] = [ 8. 5. 12. 17.]  
662     cord_individual_obj[indivial_i, :] = [ 9. 4. 32. 36.]  
663     cord_individual_obj[indivial_i, :] = [10. 4. 13. 17.]  
664     cord_individual_obj[indivial_i, :] = [11. 3. 4. 7.]  
665     cord_individual_obj[indivial_i, :] = [12. 3. 4. 7.]  
666     cord_individual_obj[indivial_i, :] = [13. 4. 30. 34.]  
667     cord_individual_obj[indivial_i, :] = [14. 3. 4. 7.]
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668 cord_individual_obj[indivial_i,:] = [15. 4. 5. 9.]
669 cord_individual_obj[indivial_i,:] = [16. 6. 6. 12.]
670 cord_individual_obj[indivial_i,:] = [17. 6. 39. 45.]
671 cord_individual_obj[indivial_i,:] = [18. 3. 3. 6.]
672 cord_individual_obj[indivial_i,:] = [19. 5. 11. 16.]
673 cord_individual_obj[indivial_i,:] = [20. 5. 5. 10.]
674 cord_individual_obj[indivial_i,:] = [21. 3. 21. 24.]
675 cord_individual_obj[indivial_i,:] = [22. 3. 34. 37.]
676 cord_individual_obj[indivial_i,:] = [23. 5. 22. 27.]
677 cord_individual_obj[indivial_i,:] = [24. 4. 33. 37.]
678
679 min(cord_individual_obj[:, 3]) = 6.0
680 historl_G_best_iter[iter, 3] = 6.0
681 Iteration calculate over
682
683
684
685
686 All item are in Bin and:
687 Bin area = 1080
688 Real_area = 90.0
689 Proportion_of_area = 0.0833333333333333
690 BEST_CHROM =
691     berth: [16.5 23.5 22.5 3. 2.5 11.5 7. ]
692     time: [0. 0. 1. 2. 0. 0. 0.]
693     num_QC: [4. 4. 4. 3. 4. 4. 4.]
694 Objective function values and some other indicators:
695 Obj0 = 3.00          Obj1 = 3.00          Obj0 + Obj1 = 6.00
696 Total movement of crane: 0.00
697 Total waiting time in berth position: 3.00
698 Total index of q during berthing: 394.00
699 Specific arrangement for each vessel:
700
    V_id: 0           li: 5.0           xi: 16.5           bow of i: 14.0           tail of i: 19.0           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
701 load_i: 80.0      work load gap_i: 0
    V_id: 1           li: 9.0           xi: 23.5           bow of i: 19.0           tail of i: 28.0           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
702 load_i: 80.0      work load gap_i: 0
    V_id: 2           li: 7.0           xi: 22.5           bow of i: 19.0           tail of i: 26.0           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: 100.0        work
703 load_i: 100.0     work load gap_i: 0
    V_id: 3           li: 6.0           xi: 3.0            bow of i: 0.0            tail of i: 6.0            gama_i0: 2.0           gama_i1: 3.0
    100.0              gama_i1 + 1: 4.0      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
    V_id: 4           li: 5.0           xi: 2.5            bow of i: 0.0            tail of i: 5.0            gama_i0: 0.0           gama_i1: 1.0
    140.0              gama_i1 + 1: 2.0      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
    V_id: 5           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: 160.0         work
705 load_i: 160.0     work load gap_i: 0
    V_id: 6           li: 4.0           xi: 7.0            bow of i: 5.0            tail of i: 9.0            gama_i0: 0.0           gama_i1: 1.0
    160.0              gama_i1 + 1: 2.0      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
706
707 Algorithm finished and the total CPU time: 201 s
708 End
709
710

```