

unknown

```

1 "E:\1_2\3_0\00001\000000001\000000000\1_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\pydevconsole.py" --mode=client --port=12281
2
3 import sys; print('Python %s on %s' % (sys.version, sys.platform))
4 sys.path.extend(['E:\1_2\3_0\00001\000000001\000000000\1_LW_00002\6 0000\2 python code\01_My_Python_Code', 'E:/1_2/3_0/00001/000000001/000000000/1_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_0/00001/000000001/000000000/1_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_0/00001/000000001/000000000/1_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_14_7_standerd_test.xlsx optimization process.
14
15 Start
16     Read basic data
17         V = 14
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 = 0.24048689071524176
29     r2 = 0.24048689071524176
30 Begin iteration:
31
32 iter = 0
33     cord_individual_obj[individual_i, :] = [ 0.  7. 113. 120.]
34     cord_individual_obj[individual_i, :] = [ 1.  8. 150. 158.]
35     cord_individual_obj[individual_i, :] = [ 2.  9. 94. 103.]
36     cord_individual_obj[individual_i, :] = [ 3.  8. 103. 111.]
37     cord_individual_obj[individual_i, :] = [ 4.  7. 81. 88.]
38     cord_individual_obj[individual_i, :] = [ 5.  8. 134. 142.]
39     cord_individual_obj[individual_i, :] = [ 6.  8. 72. 80.]
40     cord_individual_obj[individual_i, :] = [ 7.  8. 102. 110.]
41     cord_individual_obj[individual_i, :] = [ 8.  7. 84. 91.]
42     cord_individual_obj[individual_i, :] = [ 9.  7. 86. 93.]
43     cord_individual_obj[individual_i, :] = [ 10. 7. 109. 116.]
44     cord_individual_obj[individual_i, :] = [ 11. 7. 109. 116.]
45     cord_individual_obj[individual_i, :] = [ 12. 9. 81. 90.]
46     cord_individual_obj[individual_i, :] = [ 13. 8. 68. 76.]
47     cord_individual_obj[individual_i, :] = [ 14. 9. 167. 176.]
48     cord_individual_obj[individual_i, :] = [ 15. 8. 108. 116.]
49     cord_individual_obj[individual_i, :] = [ 16. 10. 99. 109.]
50     cord_individual_obj[individual_i, :] = [ 17. 9. 184. 193.]
51     cord_individual_obj[individual_i, :] = [ 18. 9. 86. 95.]
52     cord_individual_obj[individual_i, :] = [ 19. 7. 143. 150.]
53     cord_individual_obj[individual_i, :] = [ 20. 9. 107. 116.]
54     cord_individual_obj[individual_i, :] = [ 21. 9. 102. 111.]
55     cord_individual_obj[individual_i, :] = [ 22. 7. 112. 119.]
56     cord_individual_obj[individual_i, :] = [ 23. 8. 142. 150.]
57     cord_individual_obj[individual_i, :] = [ 24. 7. 64. 71.]
58
59 min(cord_individual_obj[:, 3]) = 71.0
60 historl_G_best_iter[iter, 3] = 71.0
61 Begin iteration:
62
63 iter = 1
64     cord_individual_obj[individual_i, :] = [ 0.  7. 148. 155.]
65     cord_individual_obj[individual_i, :] = [ 1.  7. 147. 154.]
66     cord_individual_obj[individual_i, :] = [ 2.  9. 111. 120.]
67     cord_individual_obj[individual_i, :] = [ 3.  9. 86. 95.]
68     cord_individual_obj[individual_i, :] = [ 4.  7. 113. 120.]
69     cord_individual_obj[individual_i, :] = [ 5.  9. 153. 162.]
70     cord_individual_obj[individual_i, :] = [ 6.  7. 136. 143.]
71     cord_individual_obj[individual_i, :] = [ 7.  8. 112. 120.]
72     cord_individual_obj[individual_i, :] = [ 8.  9. 142. 151.]
73     cord_individual_obj[individual_i, :] = [ 9.  7. 178. 185.]
74     cord_individual_obj[individual_i, :] = [ 10. 9. 126. 135.]
75     cord_individual_obj[individual_i, :] = [ 11. 7. 121. 128.]
76     cord_individual_obj[individual_i, :] = [ 12. 6. 126. 132.]
77     cord_individual_obj[individual_i, :] = [ 13. 8. 126. 134.]
78     cord_individual_obj[individual_i, :] = [ 14. 7. 88. 95.]
79     cord_individual_obj[individual_i, :] = [ 15. 7. 115. 122.]

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80 cord_individual_obj[indivial_i,:] = [16. 6. 71. 77.]
81 cord_individual_obj[indivial_i,:] = [17. 7. 64. 71.]
82 cord_individual_obj[indivial_i,:] = [18. 8. 170. 178.]
83 cord_individual_obj[indivial_i,:] = [19. 10. 183. 193.]
84 cord_individual_obj[indivial_i,:] = [20. 8. 126. 134.]
85 cord_individual_obj[indivial_i,:] = [21. 8. 97. 105.]
86 cord_individual_obj[indivial_i,:] = [22. 7. 109. 116.]
87 cord_individual_obj[indivial_i,:] = [23. 8. 98. 106.]
88 cord_individual_obj[indivial_i,:] = [24. 5. 67. 72.]
89
90 min(cord_individual_obj[:,3]) = 71.0
91 historl_G_best_iter[iter,3] = 71.0
92 Begin iteration:
93
94 iter = 2
95 cord_individual_obj[indivial_i,:] = [ 0. 9. 118. 127.]
96 cord_individual_obj[indivial_i,:] = [ 1. 8. 93. 101.]
97 cord_individual_obj[indivial_i,:] = [ 2. 7. 120. 127.]
98 cord_individual_obj[indivial_i,:] = [ 3. 7. 165. 172.]
99 cord_individual_obj[indivial_i,:] = [ 4. 8. 98. 106.]
100 cord_individual_obj[indivial_i,:] = [ 5. 8. 147. 155.]
101 cord_individual_obj[indivial_i,:] = [ 6. 8. 102. 110.]
102 cord_individual_obj[indivial_i,:] = [ 7. 8. 135. 143.]
103 cord_individual_obj[indivial_i,:] = [ 8. 8. 157. 165.]
104 cord_individual_obj[indivial_i,:] = [ 9. 7. 188. 195.]
105 cord_individual_obj[indivial_i,:] = [10. 8. 144. 152.]
106 cord_individual_obj[indivial_i,:] = [11. 6. 73. 79.]
107 cord_individual_obj[indivial_i,:] = [12. 6. 106. 112.]
108 cord_individual_obj[indivial_i,:] = [13. 8. 94. 102.]
109 cord_individual_obj[indivial_i,:] = [14. 8. 105. 113.]
110 cord_individual_obj[indivial_i,:] = [15. 8. 86. 94.]
111 cord_individual_obj[indivial_i,:] = [16. 7. 95. 102.]
112 cord_individual_obj[indivial_i,:] = [17. 8. 115. 123.]
113 cord_individual_obj[indivial_i,:] = [18. 7. 205. 212.]
114 cord_individual_obj[indivial_i,:] = [19. 7. 64. 71.]
115 cord_individual_obj[indivial_i,:] = [20. 7. 137. 144.]
116 cord_individual_obj[indivial_i,:] = [21. 6. 141. 147.]
117 cord_individual_obj[indivial_i,:] = [22. 6. 161. 167.]
118 cord_individual_obj[indivial_i,:] = [23. 7. 97. 104.]
119 cord_individual_obj[indivial_i,:] = [24. 6. 75. 81.]
120
121 min(cord_individual_obj[:,3]) = 71.0
122 historl_G_best_iter[iter,3] = 71.0
123 Begin iteration:
124
125 iter = 3
126 cord_individual_obj[indivial_i,:] = [ 0. 8. 109. 117.]
127 cord_individual_obj[indivial_i,:] = [ 1. 8. 81. 89.]
128 cord_individual_obj[indivial_i,:] = [ 2. 6. 120. 126.]
129 cord_individual_obj[indivial_i,:] = [ 3. 8. 73. 81.]
130 cord_individual_obj[indivial_i,:] = [ 4. 10. 156. 166.]
131 cord_individual_obj[indivial_i,:] = [ 5. 9. 150. 159.]
132 cord_individual_obj[indivial_i,:] = [ 6. 7. 94. 101.]
133 cord_individual_obj[indivial_i,:] = [ 7. 6. 83. 89.]
134 cord_individual_obj[indivial_i,:] = [ 8. 7. 109. 116.]
135 cord_individual_obj[indivial_i,:] = [ 9. 6. 163. 169.]
136 cord_individual_obj[indivial_i,:] = [10. 7. 121. 128.]
137 cord_individual_obj[indivial_i,:] = [11. 7. 128. 135.]
138 cord_individual_obj[indivial_i,:] = [12. 8. 189. 197.]
139 cord_individual_obj[indivial_i,:] = [13. 7. 116. 123.]
140 cord_individual_obj[indivial_i,:] = [14. 8. 85. 93.]
141 cord_individual_obj[indivial_i,:] = [15. 8. 87. 95.]
142 cord_individual_obj[indivial_i,:] = [16. 7. 126. 133.]
143 cord_individual_obj[indivial_i,:] = [17. 7. 71. 78.]
144 cord_individual_obj[indivial_i,:] = [18. 7. 64. 71.]
145 cord_individual_obj[indivial_i,:] = [19. 6. 69. 75.]
146 cord_individual_obj[indivial_i,:] = [20. 7. 100. 107.]
147 cord_individual_obj[indivial_i,:] = [21. 6. 155. 161.]
148 cord_individual_obj[indivial_i,:] = [22. 8. 109. 117.]
149 cord_individual_obj[indivial_i,:] = [23. 9. 121. 130.]
150 cord_individual_obj[indivial_i,:] = [24. 7. 110. 117.]
151
152 min(cord_individual_obj[:,3]) = 71.0
153 historl_G_best_iter[iter,3] = 71.0
154 Begin iteration:
155
156 iter = 4
157 cord_individual_obj[indivial_i,:] = [ 0. 8. 151. 159.]
158 cord_individual_obj[indivial_i,:] = [ 1. 9. 108. 117.]
159 cord_individual_obj[indivial_i,:] = [ 2. 6. 106. 112.]
160 cord_individual_obj[indivial_i,:] = [ 3. 7. 51. 58.]
161 cord_individual_obj[indivial_i,:] = [ 4. 8. 108. 116.]
162 cord_individual_obj[indivial_i,:] = [ 5. 9. 126. 135.]
163 cord_individual_obj[indivial_i,:] = [ 6. 7. 61. 68.]

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164 cord_individual_obj[indivial_i, :] = [ 7. 6. 71. 77.]
165 cord_individual_obj[indivial_i, :] = [ 8. 8. 89. 97.]
166 cord_individual_obj[indivial_i, :] = [ 9. 8. 146. 154.]
167 cord_individual_obj[indivial_i, :] = [ 10. 8. 173. 181.]
168 cord_individual_obj[indivial_i, :] = [ 11. 7. 113. 120.]
169 cord_individual_obj[indivial_i, :] = [12. 7. 64. 71.]
170 cord_individual_obj[indivial_i, :] = [13. 7. 159. 166.]
171 cord_individual_obj[indivial_i, :] = [14. 7. 131. 138.]
172 cord_individual_obj[indivial_i, :] = [15. 9. 97. 106.]
173 cord_individual_obj[indivial_i, :] = [16. 8. 131. 139.]
174 cord_individual_obj[indivial_i, :] = [17. 7. 81. 88.]
175 cord_individual_obj[indivial_i, :] = [18. 8. 60. 68.]
176 cord_individual_obj[indivial_i, :] = [19. 6. 126. 132.]
177 cord_individual_obj[indivial_i, :] = [20. 7. 105. 112.]
178 cord_individual_obj[indivial_i, :] = [21. 6. 133. 139.]
179 cord_individual_obj[indivial_i, :] = [22. 6. 76. 82.]
180 cord_individual_obj[indivial_i, :] = [23. 9. 162. 171.]
181 cord_individual_obj[indivial_i, :] = [24. 8. 143. 151.]
182
183 min(cord_individual_obj[:, 3]) = 58.0
184 historl_G_best_iter[iter, 3] = 58.0
185 Begin iteration:
186
187 iter = 5
188 cord_individual_obj[indivial_i, :] = [ 0. 10. 103. 113.]
189 cord_individual_obj[indivial_i, :] = [ 1. 9. 85. 94.]
190 cord_individual_obj[indivial_i, :] = [ 2. 12. 132. 144.]
191 cord_individual_obj[indivial_i, :] = [ 3. 10. 147. 157.]
192 cord_individual_obj[indivial_i, :] = [ 4. 13. 70. 83.]
193 cord_individual_obj[indivial_i, :] = [ 5. 8. 90. 98.]
194 cord_individual_obj[indivial_i, :] = [ 6. 7. 56. 63.]
195 cord_individual_obj[indivial_i, :] = [ 7. 7. 52. 59.]
196 cord_individual_obj[indivial_i, :] = [ 8. 8. 94. 102.]
197 cord_individual_obj[indivial_i, :] = [ 9. 8. 71. 79.]
198 cord_individual_obj[indivial_i, :] = [10. 7. 51. 58.]
199 cord_individual_obj[indivial_i, :] = [11. 8. 194. 202.]
200 cord_individual_obj[indivial_i, :] = [12. 7. 126. 133.]
201 cord_individual_obj[indivial_i, :] = [13. 10. 96. 106.]
202 cord_individual_obj[indivial_i, :] = [14. 9. 61. 70.]
203 cord_individual_obj[indivial_i, :] = [15. 7. 113. 120.]
204 cord_individual_obj[indivial_i, :] = [16. 7. 70. 77.]
205 cord_individual_obj[indivial_i, :] = [17. 6. 122. 128.]
206 cord_individual_obj[indivial_i, :] = [18. 9. 75. 84.]
207 cord_individual_obj[indivial_i, :] = [19. 9. 94. 103.]
208 cord_individual_obj[indivial_i, :] = [20. 10. 96. 106.]
209 cord_individual_obj[indivial_i, :] = [21. 7. 99. 106.]
210 cord_individual_obj[indivial_i, :] = [22. 9. 56. 65.]
211 cord_individual_obj[indivial_i, :] = [23. 7. 52. 59.]
212 cord_individual_obj[indivial_i, :] = [24. 6. 107. 113.]
213
214 min(cord_individual_obj[:, 3]) = 58.0
215 historl_G_best_iter[iter, 3] = 58.0
216 Begin iteration:
217
218 iter = 6
219 cord_individual_obj[indivial_i, :] = [ 0. 9. 129. 138.]
220 cord_individual_obj[indivial_i, :] = [ 1. 9. 86. 95.]
221 cord_individual_obj[indivial_i, :] = [ 2. 7. 66. 73.]
222 cord_individual_obj[indivial_i, :] = [ 3. 7. 69. 76.]
223 cord_individual_obj[indivial_i, :] = [ 4. 8. 108. 116.]
224 cord_individual_obj[indivial_i, :] = [ 5. 7. 141. 148.]
225 cord_individual_obj[indivial_i, :] = [ 6. 8. 50. 58.]
226 cord_individual_obj[indivial_i, :] = [ 7. 8. 54. 62.]
227 cord_individual_obj[indivial_i, :] = [ 8. 10. 113. 123.]
228 cord_individual_obj[indivial_i, :] = [ 9. 7. 78. 85.]
229 cord_individual_obj[indivial_i, :] = [10. 10. 147. 157.]
230 cord_individual_obj[indivial_i, :] = [11. 7. 51. 58.]
231 cord_individual_obj[indivial_i, :] = [12. 7. 138. 145.]
232 cord_individual_obj[indivial_i, :] = [13. 6. 95. 101.]
233 cord_individual_obj[indivial_i, :] = [14. 9. 71. 80.]
234 cord_individual_obj[indivial_i, :] = [15. 9. 142. 151.]
235 cord_individual_obj[indivial_i, :] = [16. 7. 68. 75.]
236 cord_individual_obj[indivial_i, :] = [17. 8. 94. 102.]
237 cord_individual_obj[indivial_i, :] = [18. 9. 65. 74.]
238 cord_individual_obj[indivial_i, :] = [19. 7. 106. 113.]
239 cord_individual_obj[indivial_i, :] = [20. 8. 111. 119.]
240 cord_individual_obj[indivial_i, :] = [21. 7. 170. 177.]
241 cord_individual_obj[indivial_i, :] = [22. 7. 104. 111.]
242 cord_individual_obj[indivial_i, :] = [23. 8. 97. 105.]
243 cord_individual_obj[indivial_i, :] = [24. 7. 109. 116.]
244
245 min(cord_individual_obj[:, 3]) = 58.0
246 historl_G_best_iter[iter, 3] = 58.0
247 Begin iteration:

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```

248
249 iter = 7
250 cord_individual_obj[indivial_i, :] = [ 0. 10. 120. 130.]
251 cord_individual_obj[indivial_i, :] = [ 1. 8. 173. 181.]
252 cord_individual_obj[indivial_i, :] = [ 2. 9. 138. 147.]
253 cord_individual_obj[indivial_i, :] = [ 3. 11. 106. 117.]
254 cord_individual_obj[indivial_i, :] = [ 4. 8. 74. 82.]
255 cord_individual_obj[indivial_i, :] = [ 5. 9. 88. 97.]
256 cord_individual_obj[indivial_i, :] = [ 6. 6. 115. 121.]
257 cord_individual_obj[indivial_i, :] = [ 7. 9. 128. 137.]
258 cord_individual_obj[indivial_i, :] = [ 8. 7. 98. 105.]
259 cord_individual_obj[indivial_i, :] = [ 9. 9. 127. 136.]
260 cord_individual_obj[indivial_i, :] = [ 10. 8. 128. 136.]
261 cord_individual_obj[indivial_i, :] = [ 11. 7. 148. 155.]
262 cord_individual_obj[indivial_i, :] = [ 12. 7. 113. 120.]
263 cord_individual_obj[indivial_i, :] = [ 13. 9. 110. 119.]
264 cord_individual_obj[indivial_i, :] = [ 14. 7. 102. 109.]
265 cord_individual_obj[indivial_i, :] = [ 15. 10. 113. 123.]
266 cord_individual_obj[indivial_i, :] = [ 16. 7. 78. 85.]
267 cord_individual_obj[indivial_i, :] = [ 17. 9. 181. 190.]
268 cord_individual_obj[indivial_i, :] = [ 18. 7. 77. 84.]
269 cord_individual_obj[indivial_i, :] = [ 19. 10. 115. 125.]
270 cord_individual_obj[indivial_i, :] = [ 20. 10. 131. 141.]
271 cord_individual_obj[indivial_i, :] = [ 21. 8. 50. 58.]
272 cord_individual_obj[indivial_i, :] = [ 22. 9. 139. 148.]
273 cord_individual_obj[indivial_i, :] = [ 23. 8. 58. 66.]
274 cord_individual_obj[indivial_i, :] = [ 24. 9. 93. 102.]
275

276 min(cord_individual_obj[:, 3]) = 58.0
277 historl_G_best_iter[iter, 3] = 58.0
278 Begin iteration:
279
280 iter = 8
281 cord_individual_obj[indivial_i, :] = [ 0. 9. 97. 106.]
282 cord_individual_obj[indivial_i, :] = [ 1. 10. 168. 178.]
283 cord_individual_obj[indivial_i, :] = [ 2. 9. 113. 122.]
284 cord_individual_obj[indivial_i, :] = [ 3. 8. 170. 178.]
285 cord_individual_obj[indivial_i, :] = [ 4. 10. 109. 119.]
286 cord_individual_obj[indivial_i, :] = [ 5. 8. 106. 114.]
287 cord_individual_obj[indivial_i, :] = [ 6. 8. 144. 152.]
288 cord_individual_obj[indivial_i, :] = [ 7. 7. 99. 106.]
289 cord_individual_obj[indivial_i, :] = [ 8. 8. 115. 123.]
290 cord_individual_obj[indivial_i, :] = [ 9. 7. 105. 112.]
291 cord_individual_obj[indivial_i, :] = [ 10. 8. 157. 165.]
292 cord_individual_obj[indivial_i, :] = [ 11. 9. 110. 119.]
293 cord_individual_obj[indivial_i, :] = [ 12. 8. 143. 151.]
294 cord_individual_obj[indivial_i, :] = [ 13. 8. 114. 122.]
295 cord_individual_obj[indivial_i, :] = [ 14. 9. 121. 130.]
296 cord_individual_obj[indivial_i, :] = [ 15. 8. 122. 130.]
297 cord_individual_obj[indivial_i, :] = [ 16. 7. 107. 114.]
298 cord_individual_obj[indivial_i, :] = [ 17. 8. 50. 58.]
299 cord_individual_obj[indivial_i, :] = [ 18. 7. 112. 119.]
300 cord_individual_obj[indivial_i, :] = [ 19. 7. 121. 128.]
301 cord_individual_obj[indivial_i, :] = [ 20. 8. 187. 195.]
302 cord_individual_obj[indivial_i, :] = [ 21. 8. 135. 143.]
303 cord_individual_obj[indivial_i, :] = [ 22. 8. 175. 183.]
304 cord_individual_obj[indivial_i, :] = [ 23. 10. 90. 100.]
305 cord_individual_obj[indivial_i, :] = [ 24. 7. 116. 123.]
306

307 min(cord_individual_obj[:, 3]) = 58.0
308 historl_G_best_iter[iter, 3] = 58.0
309 Begin iteration:
310
311 iter = 9
312 cord_individual_obj[indivial_i, :] = [ 0. 7. 124. 131.]
313 cord_individual_obj[indivial_i, :] = [ 1. 9. 109. 118.]
314 cord_individual_obj[indivial_i, :] = [ 2. 10. 190. 200.]
315 cord_individual_obj[indivial_i, :] = [ 3. 9. 98. 107.]
316 cord_individual_obj[indivial_i, :] = [ 4. 9. 153. 162.]
317 cord_individual_obj[indivial_i, :] = [ 5. 8. 124. 132.]
318 cord_individual_obj[indivial_i, :] = [ 6. 8. 127. 135.]
319 cord_individual_obj[indivial_i, :] = [ 7. 7. 137. 144.]
320 cord_individual_obj[indivial_i, :] = [ 8. 7. 92. 99.]
321 cord_individual_obj[indivial_i, :] = [ 9. 7. 106. 113.]
322 cord_individual_obj[indivial_i, :] = [ 10. 9. 115. 124.]
323 cord_individual_obj[indivial_i, :] = [ 11. 9. 143. 152.]
324 cord_individual_obj[indivial_i, :] = [ 12. 7. 126. 133.]
325 cord_individual_obj[indivial_i, :] = [ 13. 7. 141. 148.]
326 cord_individual_obj[indivial_i, :] = [ 14. 10. 109. 119.]
327 cord_individual_obj[indivial_i, :] = [ 15. 8. 56. 64.]
328 cord_individual_obj[indivial_i, :] = [ 16. 8. 113. 121.]
329 cord_individual_obj[indivial_i, :] = [ 17. 9. 105. 114.]
330 cord_individual_obj[indivial_i, :] = [ 18. 8. 111. 119.]
331 cord_individual_obj[indivial_i, :] = [ 19. 11. 135. 146.]

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332 cord_individual_obj[indivial_i, :] = [20. 8. 50. 58.]  
333 cord_individual_obj[indivial_i, :] = [21. 7. 153. 160.]  
334 cord_individual_obj[indivial_i, :] = [22. 8. 217. 225.]  
335 cord_individual_obj[indivial_i, :] = [23. 10. 183. 193.]  
336 cord_individual_obj[indivial_i, :] = [24. 10. 76. 86.]  
337  
338 min(cord_individual_obj[:, 3]) = 58.0  
339 histol_G_best_iter[iter, 3] = 58.0  
340 Begin iteration:  
341  
342 iter = 10  
343 cord_individual_obj[indivial_i, :] = [ 0. 8. 110. 118.]  
344 cord_individual_obj[indivial_i, :] = [ 1. 9. 133. 142.]  
345 cord_individual_obj[indivial_i, :] = [ 2. 10. 89. 99.]  
346 cord_individual_obj[indivial_i, :] = [ 3. 9. 109. 118.]  
347 cord_individual_obj[indivial_i, :] = [ 4. 10. 137. 147.]  
348 cord_individual_obj[indivial_i, :] = [ 5. 7. 109. 116.]  
349 cord_individual_obj[indivial_i, :] = [ 6. 8. 137. 145.]  
350 cord_individual_obj[indivial_i, :] = [ 7. 8. 102. 110.]  
351 cord_individual_obj[indivial_i, :] = [ 8. 10. 141. 151.]  
352 cord_individual_obj[indivial_i, :] = [ 9. 8. 131. 139.]  
353 cord_individual_obj[indivial_i, :] = [10. 8. 124. 132.]  
354 cord_individual_obj[indivial_i, :] = [11. 9. 71. 80.]  
355 cord_individual_obj[indivial_i, :] = [12. 6. 75. 81.]  
356 cord_individual_obj[indivial_i, :] = [13. 7. 125. 132.]  
357 cord_individual_obj[indivial_i, :] = [14. 8. 93. 101.]  
358 cord_individual_obj[indivial_i, :] = [15. 8. 91. 99.]  
359 cord_individual_obj[indivial_i, :] = [16. 7. 59. 66.]  
360 cord_individual_obj[indivial_i, :] = [17. 8. 86. 94.]  
361 cord_individual_obj[indivial_i, :] = [18. 8. 165. 173.]  
362 cord_individual_obj[indivial_i, :] = [19. 7. 122. 129.]  
363 cord_individual_obj[indivial_i, :] = [20. 8. 161. 169.]  
364 cord_individual_obj[indivial_i, :] = [21. 7. 80. 87.]  
365 cord_individual_obj[indivial_i, :] = [22. 8. 50. 58.]  
366 cord_individual_obj[indivial_i, :] = [23. 11. 172. 183.]  
367 cord_individual_obj[indivial_i, :] = [24. 9. 134. 143.]  
368  
369 min(cord_individual_obj[:, 3]) = 58.0  
370 histol_G_best_iter[iter, 3] = 58.0  
371 Begin iteration:  
372  
373 iter = 11  
374 cord_individual_obj[indivial_i, :] = [ 0. 8. 133. 141.]  
375 cord_individual_obj[indivial_i, :] = [ 1. 8. 132. 140.]  
376 cord_individual_obj[indivial_i, :] = [ 2. 9. 124. 133.]  
377 cord_individual_obj[indivial_i, :] = [ 3. 8. 118. 126.]  
378 cord_individual_obj[indivial_i, :] = [ 4. 11. 136. 147.]  
379 cord_individual_obj[indivial_i, :] = [ 5. 9. 107. 116.]  
380 cord_individual_obj[indivial_i, :] = [ 6. 9. 114. 123.]  
381 cord_individual_obj[indivial_i, :] = [ 7. 8. 76. 84.]  
382 cord_individual_obj[indivial_i, :] = [ 8. 9. 100. 109.]  
383 cord_individual_obj[indivial_i, :] = [ 9. 8. 100. 108.]  
384 cord_individual_obj[indivial_i, :] = [10. 7. 87. 94.]  
385 cord_individual_obj[indivial_i, :] = [11. 9. 164. 173.]  
386 cord_individual_obj[indivial_i, :] = [12. 7. 90. 97.]  
387 cord_individual_obj[indivial_i, :] = [13. 7. 134. 141.]  
388 cord_individual_obj[indivial_i, :] = [14. 10. 98. 108.]  
389 cord_individual_obj[indivial_i, :] = [15. 8. 79. 87.]  
390 cord_individual_obj[indivial_i, :] = [16. 9. 125. 134.]  
391 cord_individual_obj[indivial_i, :] = [17. 9. 94. 103.]  
392 cord_individual_obj[indivial_i, :] = [18. 8. 100. 108.]  
393 cord_individual_obj[indivial_i, :] = [19. 11. 156. 167.]  
394 cord_individual_obj[indivial_i, :] = [20. 10. 141. 151.]  
395 cord_individual_obj[indivial_i, :] = [21. 8. 135. 143.]  
396 cord_individual_obj[indivial_i, :] = [22. 8. 99. 107.]  
397 cord_individual_obj[indivial_i, :] = [23. 8. 50. 58.]  
398 cord_individual_obj[indivial_i, :] = [24. 10. 119. 129.]  
399  
400 min(cord_individual_obj[:, 3]) = 58.0  
401 histol_G_best_iter[iter, 3] = 58.0  
402 Begin iteration:  
403  
404 iter = 12  
405 cord_individual_obj[indivial_i, :] = [ 0. 8. 124. 132.]  
406 cord_individual_obj[indivial_i, :] = [ 1. 10. 116. 126.]  
407 cord_individual_obj[indivial_i, :] = [ 2. 9. 147. 156.]  
408 cord_individual_obj[indivial_i, :] = [ 3. 10. 78. 88.]  
409 cord_individual_obj[indivial_i, :] = [ 4. 9. 102. 111.]  
410 cord_individual_obj[indivial_i, :] = [ 5. 9. 196. 205.]  
411 cord_individual_obj[indivial_i, :] = [ 6. 9. 153. 162.]  
412 cord_individual_obj[indivial_i, :] = [ 7. 7. 117. 124.]  
413 cord_individual_obj[indivial_i, :] = [ 8. 7. 100. 107.]  
414 cord_individual_obj[indivial_i, :] = [ 9. 10. 94. 104.]  
415 cord_individual_obj[indivial_i, :] = [10. 11. 121. 132.]
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416 cord_individual_obj[indivial_i,:] = [11. 8. 50. 58.]
417 cord_individual_obj[indivial_i,:] = [12. 9. 151. 160.]
418 cord_individual_obj[indivial_i,:] = [13. 9. 103. 112.]
419 cord_individual_obj[indivial_i,:] = [14. 8. 85. 93.]
420 cord_individual_obj[indivial_i,:] = [15. 8. 108. 116.]
421 cord_individual_obj[indivial_i,:] = [16. 6. 86. 92.]
422 cord_individual_obj[indivial_i,:] = [17. 9. 95. 104.]
423 cord_individual_obj[indivial_i,:] = [18. 9. 99. 108.]
424 cord_individual_obj[indivial_i,:] = [19. 8. 88. 96.]
425 cord_individual_obj[indivial_i,:] = [20. 10. 132. 142.]
426 cord_individual_obj[indivial_i,:] = [21. 7. 77. 84.]
427 cord_individual_obj[indivial_i,:] = [22. 7. 111. 118.]
428 cord_individual_obj[indivial_i,:] = [23. 10. 84. 94.]
429 cord_individual_obj[indivial_i,:] = [24. 6. 96. 102.]
430
431 min(cord_individual_obj[:,3]) = 58.0
432 histol_G_best_iter[iter,3] = 58.0
433 Begin iteration:
434
435 iter = 13
436 cord_individual_obj[indivial_i,:] = [ 0. 9. 108. 117.]
437 cord_individual_obj[indivial_i,:] = [ 1. 8. 94. 102.]
438 cord_individual_obj[indivial_i,:] = [ 2. 9. 163. 172.]
439 cord_individual_obj[indivial_i,:] = [ 3. 8. 151. 159.]
440 cord_individual_obj[indivial_i,:] = [ 4. 10. 157. 167.]
441 cord_individual_obj[indivial_i,:] = [ 5. 8. 50. 58.]
442 cord_individual_obj[indivial_i,:] = [ 6. 8. 96. 104.]
443 cord_individual_obj[indivial_i,:] = [ 7. 8. 111. 119.]
444 cord_individual_obj[indivial_i,:] = [ 8. 7. 137. 144.]
445 cord_individual_obj[indivial_i,:] = [ 9. 8. 128. 136.]
446 cord_individual_obj[indivial_i,:] = [10. 6. 102. 108.]
447 cord_individual_obj[indivial_i,:] = [11. 11. 125. 136.]
448 cord_individual_obj[indivial_i,:] = [12. 9. 116. 125.]
449 cord_individual_obj[indivial_i,:] = [13. 10. 112. 122.]
450 cord_individual_obj[indivial_i,:] = [14. 8. 76. 84.]
451 cord_individual_obj[indivial_i,:] = [15. 9. 107. 116.]
452 cord_individual_obj[indivial_i,:] = [16. 8. 84. 92.]
453 cord_individual_obj[indivial_i,:] = [17. 7. 135. 142.]
454 cord_individual_obj[indivial_i,:] = [18. 7. 124. 131.]
455 cord_individual_obj[indivial_i,:] = [19. 9. 87. 96.]
456 cord_individual_obj[indivial_i,:] = [20. 9. 178. 187.]
457 cord_individual_obj[indivial_i,:] = [21. 8. 112. 120.]
458 cord_individual_obj[indivial_i,:] = [22. 7. 134. 141.]
459 cord_individual_obj[indivial_i,:] = [23. 9. 84. 93.]
460 cord_individual_obj[indivial_i,:] = [24. 7. 124. 131.]
461
462 min(cord_individual_obj[:,3]) = 58.0
463 histol_G_best_iter[iter,3] = 58.0
464 Begin iteration:
465
466 iter = 14
467 cord_individual_obj[indivial_i,:] = [ 0. 9. 90. 99.]
468 cord_individual_obj[indivial_i,:] = [ 1. 8. 116. 124.]
469 cord_individual_obj[indivial_i,:] = [ 2. 9. 109. 118.]
470 cord_individual_obj[indivial_i,:] = [ 3. 11. 84. 95.]
471 cord_individual_obj[indivial_i,:] = [ 4. 10. 134. 144.]
472 cord_individual_obj[indivial_i,:] = [ 5. 7. 156. 163.]
473 cord_individual_obj[indivial_i,:] = [ 6. 8. 80. 88.]
474 cord_individual_obj[indivial_i,:] = [ 7. 8. 141. 149.]
475 cord_individual_obj[indivial_i,:] = [ 8. 10. 66. 76.]
476 cord_individual_obj[indivial_i,:] = [ 9. 7. 84. 91.]
477 cord_individual_obj[indivial_i,:] = [10. 9. 91. 100.]
478 cord_individual_obj[indivial_i,:] = [11. 6. 112. 118.]
479 cord_individual_obj[indivial_i,:] = [12. 7. 92. 99.]
480 cord_individual_obj[indivial_i,:] = [13. 10. 125. 135.]
481 cord_individual_obj[indivial_i,:] = [14. 9. 114. 123.]
482 cord_individual_obj[indivial_i,:] = [15. 8. 70. 78.]
483 cord_individual_obj[indivial_i,:] = [16. 6. 65. 71.]
484 cord_individual_obj[indivial_i,:] = [17. 10. 110. 120.]
485 cord_individual_obj[indivial_i,:] = [18. 10. 111. 121.]
486 cord_individual_obj[indivial_i,:] = [19. 8. 89. 97.]
487 cord_individual_obj[indivial_i,:] = [20. 8. 50. 58.]
488 cord_individual_obj[indivial_i,:] = [21. 8. 85. 93.]
489 cord_individual_obj[indivial_i,:] = [22. 7. 103. 110.]
490 cord_individual_obj[indivial_i,:] = [23. 8. 143. 151.]
491 cord_individual_obj[indivial_i,:] = [24. 8. 112. 120.]
492
493 min(cord_individual_obj[:,3]) = 58.0
494 histol_G_best_iter[iter,3] = 58.0
495 Begin iteration:
496
497 iter = 15
498 cord_individual_obj[indivial_i,:] = [ 0. 9. 144. 153.]
499 cord_individual_obj[indivial_i,:] = [ 1. 7. 117. 124.]

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500 cord_individual_obj[indivial_i, :] = [ 2. 9. 105. 114.]
501 cord_individual_obj[indivial_i, :] = [ 3. 8. 152. 160.]
502 cord_individual_obj[indivial_i, :] = [ 4. 9. 141. 150.]
503 cord_individual_obj[indivial_i, :] = [ 5. 8. 50. 58.]
504 cord_individual_obj[indivial_i, :] = [ 6. 7. 146. 153.]
505 cord_individual_obj[indivial_i, :] = [ 7. 8. 92. 100.]
506 cord_individual_obj[indivial_i, :] = [ 8. 10. 84. 94.]
507 cord_individual_obj[indivial_i, :] = [ 9. 9. 125. 134.]
508 cord_individual_obj[indivial_i, :] = [10. 7. 92. 99.]
509 cord_individual_obj[indivial_i, :] = [11. 9. 138. 147.]
510 cord_individual_obj[indivial_i, :] = [12. 8. 140. 148.]
511 cord_individual_obj[indivial_i, :] = [13. 7. 96. 103.]
512 cord_individual_obj[indivial_i, :] = [14. 11. 127. 138.]
513 cord_individual_obj[indivial_i, :] = [15. 9. 120. 129.]
514 cord_individual_obj[indivial_i, :] = [16. 8. 126. 134.]
515 cord_individual_obj[indivial_i, :] = [17. 8. 124. 132.]
516 cord_individual_obj[indivial_i, :] = [18. 11. 153. 164.]
517 cord_individual_obj[indivial_i, :] = [19. 8. 122. 130.]
518 cord_individual_obj[indivial_i, :] = [20. 8. 175. 183.]
519 cord_individual_obj[indivial_i, :] = [21. 9. 147. 156.]
520 cord_individual_obj[indivial_i, :] = [22. 8. 147. 155.]
521 cord_individual_obj[indivial_i, :] = [23. 9. 183. 192.]
522 cord_individual_obj[indivial_i, :] = [24. 8. 90. 98.]
523
524 min(cord_individual_obj[:, 3]) = 58.0
525 histol_G_best_iter[iter, 3] = 58.0
526 Begin iteration:
527
528 iter = 16
529 cord_individual_obj[indivial_i, :] = [ 0. 9. 121. 130.]
530 cord_individual_obj[indivial_i, :] = [ 1. 9. 128. 137.]
531 cord_individual_obj[indivial_i, :] = [ 2. 7. 121. 128.]
532 cord_individual_obj[indivial_i, :] = [ 3. 10. 81. 91.]
533 cord_individual_obj[indivial_i, :] = [ 4. 9. 132. 141.]
534 cord_individual_obj[indivial_i, :] = [ 5. 8. 138. 146.]
535 cord_individual_obj[indivial_i, :] = [ 6. 10. 117. 127.]
536 cord_individual_obj[indivial_i, :] = [ 7. 7. 121. 128.]
537 cord_individual_obj[indivial_i, :] = [ 8. 11. 148. 159.]
538 cord_individual_obj[indivial_i, :] = [ 9. 9. 130. 139.]
539 cord_individual_obj[indivial_i, :] = [10. 9. 217. 226.]
540 cord_individual_obj[indivial_i, :] = [11. 6. 112. 118.]
541 cord_individual_obj[indivial_i, :] = [12. 7. 77. 84.]
542 cord_individual_obj[indivial_i, :] = [13. 8. 109. 117.]
543 cord_individual_obj[indivial_i, :] = [14. 9. 104. 113.]
544 cord_individual_obj[indivial_i, :] = [15. 8. 99. 107.]
545 cord_individual_obj[indivial_i, :] = [16. 9. 76. 85.]
546 cord_individual_obj[indivial_i, :] = [17. 8. 90. 98.]
547 cord_individual_obj[indivial_i, :] = [18. 9. 101. 110.]
548 cord_individual_obj[indivial_i, :] = [19. 9. 111. 120.]
549 cord_individual_obj[indivial_i, :] = [20. 9. 98. 107.]
550 cord_individual_obj[indivial_i, :] = [21. 8. 101. 109.]
551 cord_individual_obj[indivial_i, :] = [22. 7. 98. 105.]
552 cord_individual_obj[indivial_i, :] = [23. 8. 50. 58.]
553 cord_individual_obj[indivial_i, :] = [24. 8. 70. 78.]
554
555 min(cord_individual_obj[:, 3]) = 58.0
556 histol_G_best_iter[iter, 3] = 58.0
557 Begin iteration:
558
559 iter = 17
560 cord_individual_obj[indivial_i, :] = [ 0. 10. 163. 173.]
561 cord_individual_obj[indivial_i, :] = [ 1. 8. 136. 144.]
562 cord_individual_obj[indivial_i, :] = [ 2. 8. 105. 113.]
563 cord_individual_obj[indivial_i, :] = [ 3. 9. 158. 167.]
564 cord_individual_obj[indivial_i, :] = [ 4. 9. 164. 173.]
565 cord_individual_obj[indivial_i, :] = [ 5. 8. 115. 123.]
566 cord_individual_obj[indivial_i, :] = [ 6. 9. 115. 124.]
567 cord_individual_obj[indivial_i, :] = [ 7. 8. 147. 155.]
568 cord_individual_obj[indivial_i, :] = [ 8. 9. 157. 166.]
569 cord_individual_obj[indivial_i, :] = [ 9. 8. 139. 147.]
570 cord_individual_obj[indivial_i, :] = [10. 8. 50. 58.]
571 cord_individual_obj[indivial_i, :] = [11. 9. 118. 127.]
572 cord_individual_obj[indivial_i, :] = [12. 8. 118. 126.]
573 cord_individual_obj[indivial_i, :] = [13. 8. 127. 135.]
574 cord_individual_obj[indivial_i, :] = [14. 10. 188. 198.]
575 cord_individual_obj[indivial_i, :] = [15. 7. 111. 118.]
576 cord_individual_obj[indivial_i, :] = [16. 7. 141. 148.]
577 cord_individual_obj[indivial_i, :] = [17. 9. 82. 91.]
578 cord_individual_obj[indivial_i, :] = [18. 7. 127. 134.]
579 cord_individual_obj[indivial_i, :] = [19. 11. 131. 142.]
580 cord_individual_obj[indivial_i, :] = [20. 9. 171. 180.]
581 cord_individual_obj[indivial_i, :] = [21. 7. 129. 136.]
582 cord_individual_obj[indivial_i, :] = [22. 9. 119. 128.]
583 cord_individual_obj[indivial_i, :] = [23. 9. 77. 86.]

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unknown

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584     cord_individual_obj[indivial_i, :] = [ 24.  9. 110. 119.]
585
586     min(cord_individual_obj[:, 3]) = 58.0
587     historl_G_best_iter[iter, 3] = 58.0
588 Begin iteration:
589
590 iter = 18
591     cord_individual_obj[indivial_i, :] = [ 0.  8. 75. 83.]
592     cord_individual_obj[indivial_i, :] = [ 1.  8. 111. 119.]
593     cord_individual_obj[indivial_i, :] = [ 2.  9. 72. 81.]
594     cord_individual_obj[indivial_i, :] = [ 3.  9. 153. 162.]
595     cord_individual_obj[indivial_i, :] = [ 4.  10. 168. 178.]
596     cord_individual_obj[indivial_i, :] = [ 5.  7. 188. 195.]
597     cord_individual_obj[indivial_i, :] = [ 6.  7. 101. 108.]
598     cord_individual_obj[indivial_i, :] = [ 7.  9. 210. 219.]
599     cord_individual_obj[indivial_i, :] = [ 8.  9. 169. 178.]
600     cord_individual_obj[indivial_i, :] = [ 9.  10. 133. 143.]
601     cord_individual_obj[indivial_i, :] = [ 10. 7. 120. 127.]
602     cord_individual_obj[indivial_i, :] = [ 11. 8. 101. 109.]
603     cord_individual_obj[indivial_i, :] = [ 12. 9. 81. 90.]
604     cord_individual_obj[indivial_i, :] = [ 13. 7. 132. 139.]
605     cord_individual_obj[indivial_i, :] = [ 14. 8. 50. 58.]
606     cord_individual_obj[indivial_i, :] = [ 15. 9. 89. 98.]
607     cord_individual_obj[indivial_i, :] = [ 16. 7. 124. 131.]
608     cord_individual_obj[indivial_i, :] = [ 17. 9. 121. 130.]
609     cord_individual_obj[indivial_i, :] = [ 18. 8. 144. 152.]
610     cord_individual_obj[indivial_i, :] = [ 19. 8. 165. 173.]
611     cord_individual_obj[indivial_i, :] = [ 20. 9. 77. 86.]
612     cord_individual_obj[indivial_i, :] = [ 21. 9. 138. 147.]
613     cord_individual_obj[indivial_i, :] = [ 22. 7. 107. 114.]
614     cord_individual_obj[indivial_i, :] = [ 23. 12. 140. 152.]
615     cord_individual_obj[indivial_i, :] = [ 24. 9. 92. 101.]
616
617     min(cord_individual_obj[:, 3]) = 58.0
618     historl_G_best_iter[iter, 3] = 58.0
619 Begin iteration:
620
621 iter = 19
622     cord_individual_obj[indivial_i, :] = [ 0.  8. 115. 123.]
623     cord_individual_obj[indivial_i, :] = [ 1. 11. 118. 129.]
624     cord_individual_obj[indivial_i, :] = [ 2. 8. 123. 131.]
625     cord_individual_obj[indivial_i, :] = [ 3. 8. 119. 127.]
626     cord_individual_obj[indivial_i, :] = [ 4. 9. 171. 180.]
627     cord_individual_obj[indivial_i, :] = [ 5. 8. 202. 210.]
628     cord_individual_obj[indivial_i, :] = [ 6. 8. 147. 155.]
629     cord_individual_obj[indivial_i, :] = [ 7. 8. 50. 58.]
630     cord_individual_obj[indivial_i, :] = [ 8. 8. 118. 126.]
631     cord_individual_obj[indivial_i, :] = [ 9. 8. 132. 140.]
632     cord_individual_obj[indivial_i, :] = [ 10. 7. 89. 96.]
633     cord_individual_obj[indivial_i, :] = [ 11. 8. 92. 100.]
634     cord_individual_obj[indivial_i, :] = [ 12. 8. 133. 141.]
635     cord_individual_obj[indivial_i, :] = [ 13. 11. 155. 166.]
636     cord_individual_obj[indivial_i, :] = [ 14. 11. 132. 143.]
637     cord_individual_obj[indivial_i, :] = [ 15. 8. 143. 151.]
638     cord_individual_obj[indivial_i, :] = [ 16. 7. 126. 133.]
639     cord_individual_obj[indivial_i, :] = [ 17. 7. 188. 195.]
640     cord_individual_obj[indivial_i, :] = [ 18. 9. 111. 120.]
641     cord_individual_obj[indivial_i, :] = [ 19. 7. 105. 112.]
642     cord_individual_obj[indivial_i, :] = [ 20. 8. 121. 129.]
643     cord_individual_obj[indivial_i, :] = [ 21. 10. 83. 93.]
644     cord_individual_obj[indivial_i, :] = [ 22. 9. 140. 149.]
645     cord_individual_obj[indivial_i, :] = [ 23. 10. 125. 135.]
646     cord_individual_obj[indivial_i, :] = [ 24. 7. 93. 100.]
647
648     min(cord_individual_obj[:, 3]) = 58.0
649     historl_G_best_iter[iter, 3] = 58.0
650 Begin iteration:
651
652 iter = 20
653     cord_individual_obj[indivial_i, :] = [ 0.  8. 139. 147.]
654     cord_individual_obj[indivial_i, :] = [ 1.  8. 106. 114.]
655     cord_individual_obj[indivial_i, :] = [ 2. 10. 171. 181.]
656     cord_individual_obj[indivial_i, :] = [ 3. 8. 136. 144.]
657     cord_individual_obj[indivial_i, :] = [ 4. 11. 144. 155.]
658     cord_individual_obj[indivial_i, :] = [ 5. 8. 50. 58.]
659     cord_individual_obj[indivial_i, :] = [ 6. 7. 76. 83.]
660     cord_individual_obj[indivial_i, :] = [ 7. 8. 93. 101.]
661     cord_individual_obj[indivial_i, :] = [ 8. 9. 150. 159.]
662     cord_individual_obj[indivial_i, :] = [ 9. 9. 111. 120.]
663     cord_individual_obj[indivial_i, :] = [ 10. 7. 101. 108.]
664     cord_individual_obj[indivial_i, :] = [ 11. 8. 170. 178.]
665     cord_individual_obj[indivial_i, :] = [ 12. 8. 97. 105.]
666     cord_individual_obj[indivial_i, :] = [ 13. 8. 99. 107.]
667     cord_individual_obj[indivial_i, :] = [ 14. 11. 81. 92.]
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668 cord_individual_obj[indivial_i,:] = [15. 10. 66. 76.]
669 cord_individual_obj[indivial_i,:] = [16. 8. 154. 162.]
670 cord_individual_obj[indivial_i,:] = [17. 9. 108. 117.]
671 cord_individual_obj[indivial_i,:] = [18. 10. 161. 171.]
672 cord_individual_obj[indivial_i,:] = [19. 9. 98. 107.]
673 cord_individual_obj[indivial_i,:] = [20. 9. 171. 180.]
674 cord_individual_obj[indivial_i,:] = [21. 8. 117. 125.]
675 cord_individual_obj[indivial_i,:] = [22. 9. 108. 117.]
676 cord_individual_obj[indivial_i,:] = [23. 11. 89. 100.]
677 cord_individual_obj[indivial_i,:] = [24. 9. 79. 88.]
678
679 min(cord_individual_obj[:, 3]) = 58.0
680 historl_G_best_iter[iter, 3] = 58.0
681 Iteration calculate over
682
683
684
685
686 All item are in Bin and:
687 Bin area = 1080
688 Real_area = 220.0
689 Proportion_of_area = 0.2037037037037037
690 BEST_CHROM =
691 berth: [23.5 3. 10.5 4. 13.5 25.5 19.5 25.5 4. 4. 9.5 2. 6.5 19.5]
692 time: [4. 2. 4. 5. 0. 0. 3. 5. 3. 6. 6. 0. 0. 0.]
693 num_QC: [3. 6. 3. 4. 2. 2. 1. 2. 3. 3. 2. 2. 4. 2.]
694 Objective function values and some other indicators:
695 Obj0 = 8.00 Obj1 = 50.00 Obj0 + Obj1 = 58.00
696 Total movement of crane: 6.00
697 Total waiting time in berth position: 38.00
698 Total index of q during berthing: 744.00
699 Specific arrangement for each vessel:
700 V_id: 0 li: 5.0 xi: 23.5 bow of i: 21.0 tail of i: 26.0 gama_i0: 4.0 gama_i1: 4
701 .0 gama_i1 + 1: 5.0 gama_i1 - gama_i0: 0.0 duration_time_i: 1.0 demand_i: 60.0 work
702 load_i: 60.0 work load gap_i: 0
703 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: 2.0
704 .0 gama_i1 + 1: 3.0 gama_i1 - gama_i0: 0.0 duration_time_i: 1.0 demand_i: 100.0 work load_i:
705 100.0 work load gap_i: 0
706 V_id: 2 li: 5.0 xi: 10.5 bow of i: 8.0 tail of i: 13.0 gama_i0: 4.0 gama_i1: 5
707 .0 gama_i1 + 1: 6.0 gama_i1 - gama_i0: 1.0 duration_time_i: 2.0 demand_i: 100.0 work
708 load_i: 100.0 work load gap_i: 0
709 V_id: 3 li: 8.0 xi: 4.0 bow of i: 0.0 tail of i: 8.0 gama_i0: 5.0 gama_i1: 5
710 .0 gama_i1 + 1: 6.0 gama_i1 - gama_i0: 0.0 duration_time_i: 1.0 demand_i: 80.0 work load_i:
711 80.0 work load gap_i: 0
712 V_id: 4 li: 9.0 xi: 13.5 bow of i: 9.0 tail of i: 18.0 gama_i0: 0.0 gama_i1: 3
713 .0 gama_i1 + 1: 4.0 gama_i1 - gama_i0: 3.0 duration_time_i: 4.0 demand_i: 160.0 work
714 load_i: 160.0 work load gap_i: 0
715 V_id: 5 li: 9.0 xi: 25.5 bow of i: 21.0 tail of i: 30.0 gama_i0: 0.0 gama_i1: 3
716 .0 gama_i1 + 1: 4.0 gama_i1 - gama_i0: 3.0 duration_time_i: 4.0 demand_i: 140.0 work
717 load_i: 140.0 work load gap_i: 0
718 V_id: 6 li: 3.0 xi: 19.5 bow of i: 18.0 tail of i: 21.0 gama_i0: 3.0 gama_i1: 5
719 .0 gama_i1 + 1: 6.0 gama_i1 - gama_i0: 2.0 duration_time_i: 3.0 demand_i: 60.0 work
720 load_i: 60.0 work load gap_i: 0
721 V_id: 7 li: 9.0 xi: 25.5 bow of i: 21.0 tail of i: 30.0 gama_i0: 5.0 gama_i1: 8
722 .0 gama_i1 + 1: 9.0 gama_i1 - gama_i0: 3.0 duration_time_i: 4.0 demand_i: 160.0 work
723 load_i: 160.0 work load gap_i: 0
724 V_id: 8 li: 8.0 xi: 4.0 bow of i: 0.0 tail of i: 8.0 gama_i0: 3.0 gama_i1: 4
725 .0 gama_i1 + 1: 5.0 gama_i1 - gama_i0: 1.0 duration_time_i: 2.0 demand_i: 80.0 work load_i:
726 80.0 work load gap_i: 0
727 V_id: 9 li: 8.0 xi: 4.0 bow of i: 0.0 tail of i: 8.0 gama_i0: 6.0 gama_i1: 8.0
728 .0 gama_i1 + 1: 9.0 gama_i1 - gama_i0: 2.0 duration_time_i: 3.0 demand_i: 160.0 work load_i:
729 160.0 work load gap_i: 0
730 V_id: 10 li: 3.0 xi: 9.5 bow of i: 8.0 tail of i: 11.0 gama_i0: 6.0 gama_i1: 7
731 .0 gama_i1 + 1: 8.0 gama_i1 - gama_i0: 1.0 duration_time_i: 2.0 demand_i: 80.0 work
732 load_i: 80.0 work load gap_i: 0
733 V_id: 11 li: 4.0 xi: 2.0 bow of i: 0.0 tail of i: 4.0 gama_i0: 0.0 gama_i1: 1.0
734 .0 gama_i1 + 1: 2.0 gama_i1 - gama_i0: 1.0 duration_time_i: 2.0 demand_i: 80.0 work load_i:
735 80.0 work load gap_i: 0
736 V_id: 12 li: 5.0 xi: 6.5 bow of i: 4.0 tail of i: 9.0 gama_i0: 0.0 gama_i1: 1.0
737 .0 gama_i1 + 1: 2.0 gama_i1 - gama_i0: 1.0 duration_time_i: 2.0 demand_i: 120.0 work load_i:
738 120.0 work load gap_i: 0
739 V_id: 13 li: 3.0 xi: 19.5 bow of i: 18.0 tail of i: 21.0 gama_i0: 0.0 gama_i1: 0
740 : 2.0 gama_i1 + 1: 3.0 gama_i1 - gama_i0: 2.0 duration_time_i: 3.0 demand_i: 100.0 work
741 load_i: 100.0 work load gap_i: 0
742
743 Algorithm finished and the total CPU time: 394 s
744 End
745

```