

unknown

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80 cord_individual_obj[indivial_i, :] = [16. 3. 60. 63.]
81 cord_individual_obj[indivial_i, :] = [17. 1. 72. 73.]
82 cord_individual_obj[indivial_i, :] = [18. 3. 48. 51.]
83 cord_individual_obj[indivial_i, :] = [19. 3. 48. 51.]
84 cord_individual_obj[indivial_i, :] = [20. 2. 58. 60.]
85 cord_individual_obj[indivial_i, :] = [21. 2. 72. 74.]
86 cord_individual_obj[indivial_i, :] = [22. 2. 84. 86.]
87 cord_individual_obj[indivial_i, :] = [23. 3. 76. 79.]
88 cord_individual_obj[indivial_i, :] = [24. 3. 22. 25.]
89
90 min(cord_individual_obj[:, 3]) = 3.0
91 historl_G_best_iter[iter, 3] = 3.0
92 Begin iteration:
93
94 iter = 2
95 cord_individual_obj[indivial_i, :] = [0. 3. 0. 3.]
96 cord_individual_obj[indivial_i, :] = [1. 3. 84. 87.]
97 cord_individual_obj[indivial_i, :] = [2. 3. 112. 115.]
98 cord_individual_obj[indivial_i, :] = [3. 3. 132. 135.]
99 cord_individual_obj[indivial_i, :] = [4. 3. 114. 117.]
100 cord_individual_obj[indivial_i, :] = [5. 3. 56. 59.]
101 cord_individual_obj[indivial_i, :] = [6. 3. 76. 79.]
102 cord_individual_obj[indivial_i, :] = [7. 3. 36. 39.]
103 cord_individual_obj[indivial_i, :] = [8. 2. 184. 186.]
104 cord_individual_obj[indivial_i, :] = [9. 2. 36. 38.]
105 cord_individual_obj[indivial_i, :] = [10. 3. 76. 79.]
106 cord_individual_obj[indivial_i, :] = [11. 3. 56. 59.]
107 cord_individual_obj[indivial_i, :] = [12. 3. 40. 43.]
108 cord_individual_obj[indivial_i, :] = [13. 3. 0. 3.]
109 cord_individual_obj[indivial_i, :] = [14. 3. 56. 59.]
110 cord_individual_obj[indivial_i, :] = [15. 2. 84. 86.]
111 cord_individual_obj[indivial_i, :] = [16. 3. 76. 79.]
112 cord_individual_obj[indivial_i, :] = [17. 3. 104. 107.]
113 cord_individual_obj[indivial_i, :] = [18. 2. 84. 86.]
114 cord_individual_obj[indivial_i, :] = [19. 3. 40. 43.]
115 cord_individual_obj[indivial_i, :] = [20. 2. 84. 86.]
116 cord_individual_obj[indivial_i, :] = [21. 3. 132. 135.]
117 cord_individual_obj[indivial_i, :] = [22. 3. 72. 75.]
118 cord_individual_obj[indivial_i, :] = [23. 3. 100. 103.]
119 cord_individual_obj[indivial_i, :] = [24. 2. 146. 148.]
120
121 min(cord_individual_obj[:, 3]) = 3.0
122 historl_G_best_iter[iter, 3] = 3.0
123 Begin iteration:
124
125 iter = 3
126 cord_individual_obj[indivial_i, :] = [0. 3. 0. 3.]
127 cord_individual_obj[indivial_i, :] = [1. 3. 0. 3.]
128 cord_individual_obj[indivial_i, :] = [2. 3. 24. 27.]
129 cord_individual_obj[indivial_i, :] = [3. 3. 24. 27.]
130 cord_individual_obj[indivial_i, :] = [4. 2. 132. 134.]
131 cord_individual_obj[indivial_i, :] = [5. 3. 16. 19.]
132 cord_individual_obj[indivial_i, :] = [6. 3. 76. 79.]
133 cord_individual_obj[indivial_i, :] = [7. 2. 62. 64.]
134 cord_individual_obj[indivial_i, :] = [8. 3. 0. 3.]
135 cord_individual_obj[indivial_i, :] = [9. 1. 32. 33.]
136 cord_individual_obj[indivial_i, :] = [10. 3. 36. 39.]
137 cord_individual_obj[indivial_i, :] = [11. 3. 20. 23.]
138 cord_individual_obj[indivial_i, :] = [12. 2. 70. 72.]
139 cord_individual_obj[indivial_i, :] = [13. 2. 118. 120.]
140 cord_individual_obj[indivial_i, :] = [14. 3. 6. 9.]
141 cord_individual_obj[indivial_i, :] = [15. 3. 24. 27.]
142 cord_individual_obj[indivial_i, :] = [16. 3. 6. 9.]
143 cord_individual_obj[indivial_i, :] = [17. 1. 32. 33.]
144 cord_individual_obj[indivial_i, :] = [18. 3. 6. 9.]
145 cord_individual_obj[indivial_i, :] = [19. 3. 12. 15.]
146 cord_individual_obj[indivial_i, :] = [20. 1. 72. 73.]
147 cord_individual_obj[indivial_i, :] = [21. 3. 0. 3.]
148 cord_individual_obj[indivial_i, :] = [22. 3. 40. 43.]
149 cord_individual_obj[indivial_i, :] = [23. 3. 0. 3.]
150 cord_individual_obj[indivial_i, :] = [24. 3. 56. 59.]
151
152 min(cord_individual_obj[:, 3]) = 3.0
153 historl_G_best_iter[iter, 3] = 3.0
154 Begin iteration:
155
156 iter = 4
157 cord_individual_obj[indivial_i, :] = [0. 3. 0. 3.]
158 cord_individual_obj[indivial_i, :] = [1. 3. 66. 69.]
159 cord_individual_obj[indivial_i, :] = [2. 3. 84. 87.]
160 cord_individual_obj[indivial_i, :] = [3. 3. 132. 135.]
161 cord_individual_obj[indivial_i, :] = [4. 3. 0. 3.]
162 cord_individual_obj[indivial_i, :] = [5. 3. 96. 99.]
163 cord_individual_obj[indivial_i, :] = [6. 3. 76. 79.]

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164 cord_individual_obj[indivial_i,:] = [ 7. 2. 62. 64.]
165 cord_individual_obj[indivial_i,:] = [ 8. 3. 114. 117.]
166 cord_individual_obj[indivial_i,:] = [9. 2. 6. 8.]
167 cord_individual_obj[indivial_i,:] = [ 10. 3. 106. 109.]
168 cord_individual_obj[indivial_i,:] = [11. 3. 20. 23.]
169 cord_individual_obj[indivial_i,:] = [12. 3. 48. 51.]
170 cord_individual_obj[indivial_i,:] = [ 13. 2. 118. 120.]
171 cord_individual_obj[indivial_i,:] = [14. 3. 6. 9.]
172 cord_individual_obj[indivial_i,:] = [15. 2. 40. 42.]
173 cord_individual_obj[indivial_i,:] = [16. 3. 84. 87.]
174 cord_individual_obj[indivial_i,:] = [17. 2. 84. 86.]
175 cord_individual_obj[indivial_i,:] = [18. 2. 58. 60.]
176 cord_individual_obj[indivial_i,:] = [19. 3. 28. 31.]
177 cord_individual_obj[indivial_i,:] = [20. 1. 72. 73.]
178 cord_individual_obj[indivial_i,:] = [ 21. 3. 168. 171.]
179 cord_individual_obj[indivial_i,:] = [22. 3. 60. 63.]
180 cord_individual_obj[indivial_i,:] = [23. 3. 76. 79.]
181 cord_individual_obj[indivial_i,:] = [24. 3. 0. 3.]
182
183 min(cord_individual_obj[:,3]) = 3.0
184 historl_G_best_iter[iter,3] = 3.0
185 Begin iteration:
186
187 iter = 5
188 cord_individual_obj[indivial_i,:] = [0. 3. 0. 3.]
189 cord_individual_obj[indivial_i,:] = [1. 3. 0. 3.]
190 cord_individual_obj[indivial_i,:] = [2. 3. 0. 3.]
191 cord_individual_obj[indivial_i,:] = [ 3. 3. 132. 135.]
192 cord_individual_obj[indivial_i,:] = [ 4. 2. 114. 116.]
193 cord_individual_obj[indivial_i,:] = [ 5. 2. 14. 16.]
194 cord_individual_obj[indivial_i,:] = [ 6. 3. 76. 79.]
195 cord_individual_obj[indivial_i,:] = [ 7. 2. 62. 64.]
196 cord_individual_obj[indivial_i,:] = [ 8. 2. 124. 126.]
197 cord_individual_obj[indivial_i,:] = [ 9. 2. 70. 72.]
198 cord_individual_obj[indivial_i,:] = [10. 3. 106. 109.]
199 cord_individual_obj[indivial_i,:] = [11. 2. 72. 74.]
200 cord_individual_obj[indivial_i,:] = [12. 2. 48. 50.]
201 cord_individual_obj[indivial_i,:] = [ 13. 2. 126. 128.]
202 cord_individual_obj[indivial_i,:] = [14. 3. 6. 9.]
203 cord_individual_obj[indivial_i,:] = [15. 2. 40. 42.]
204 cord_individual_obj[indivial_i,:] = [16. 3. 84. 87.]
205 cord_individual_obj[indivial_i,:] = [17. 1. 66. 67.]
206 cord_individual_obj[indivial_i,:] = [18. 3. 58. 61.]
207 cord_individual_obj[indivial_i,:] = [19. 3. 28. 31.]
208 cord_individual_obj[indivial_i,:] = [20. 1. 72. 73.]
209 cord_individual_obj[indivial_i,:] = [21. 3. 0. 3.]
210 cord_individual_obj[indivial_i,:] = [22. 3. 60. 63.]
211 cord_individual_obj[indivial_i,:] = [23. 3. 20. 23.]
212 cord_individual_obj[indivial_i,:] = [24. 3. 0. 3.]
213
214 min(cord_individual_obj[:,3]) = 3.0
215 historl_G_best_iter[iter,3] = 3.0
216 Begin iteration:
217
218 iter = 6
219 cord_individual_obj[indivial_i,:] = [0. 3. 0. 3.]
220 cord_individual_obj[indivial_i,:] = [ 1. 3. 52. 55.]
221 cord_individual_obj[indivial_i,:] = [2. 3. 0. 3.]
222 cord_individual_obj[indivial_i,:] = [3. 3. 0. 3.]
223 cord_individual_obj[indivial_i,:] = [ 4. 1. 140. 141.]
224 cord_individual_obj[indivial_i,:] = [ 5. 3. 28. 31.]
225 cord_individual_obj[indivial_i,:] = [ 6. 3. 76. 79.]
226 cord_individual_obj[indivial_i,:] = [ 7. 2. 44. 46.]
227 cord_individual_obj[indivial_i,:] = [ 8. 2. 84. 86.]
228 cord_individual_obj[indivial_i,:] = [ 9. 1. 16. 17.]
229 cord_individual_obj[indivial_i,:] = [10. 3. 0. 3.]
230 cord_individual_obj[indivial_i,:] = [11. 3. 20. 23.]
231 cord_individual_obj[indivial_i,:] = [12. 3. 4. 7.]
232 cord_individual_obj[indivial_i,:] = [13. 2. 60. 62.]
233 cord_individual_obj[indivial_i,:] = [14. 3. 16. 19.]
234 cord_individual_obj[indivial_i,:] = [15. 2. 12. 14.]
235 cord_individual_obj[indivial_i,:] = [16. 3. 92. 95.]
236 cord_individual_obj[indivial_i,:] = [17. 2. 66. 68.]
237 cord_individual_obj[indivial_i,:] = [18. 3. 0. 3.]
238 cord_individual_obj[indivial_i,:] = [19. 3. 4. 7.]
239 cord_individual_obj[indivial_i,:] = [20. 1. 48. 49.]
240 cord_individual_obj[indivial_i,:] = [21. 3. 132. 135.]
241 cord_individual_obj[indivial_i,:] = [22. 3. 40. 43.]
242 cord_individual_obj[indivial_i,:] = [23. 3. 0. 3.]
243 cord_individual_obj[indivial_i,:] = [24. 3. 0. 3.]
244
245 min(cord_individual_obj[:,3]) = 3.0
246 historl_G_best_iter[iter,3] = 3.0
247 Begin iteration:

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248
249 iter = 7
250 cord_individual_obj[indivial_i, :] = [0. 3. 0. 3.]
251 cord_individual_obj[indivial_i, :] = [1. 3. 0. 3.]
252 cord_individual_obj[indivial_i, :] = [2. 3. 0. 3.]
253 cord_individual_obj[indivial_i, :] = [ 3. 3. 132. 135.]
254 cord_individual_obj[indivial_i, :] = [4. 3. 0. 3.]
255 cord_individual_obj[indivial_i, :] = [ 5. 2. 94. 96.]
256 cord_individual_obj[indivial_i, :] = [ 6. 3. 76. 79.]
257 cord_individual_obj[indivial_i, :] = [ 7. 2. 86. 88.]
258 cord_individual_obj[indivial_i, :] = [ 8. 3. 92. 95.]
259 cord_individual_obj[indivial_i, :] = [ 9. 1. 58. 59.]
260 cord_individual_obj[indivial_i, :] = [10. 3. 140. 143.]
261 cord_individual_obj[indivial_i, :] = [11. 3. 36. 39.]
262 cord_individual_obj[indivial_i, :] = [12. 3. 100. 103.]
263 cord_individual_obj[indivial_i, :] = [13. 3. 104. 107.]
264 cord_individual_obj[indivial_i, :] = [14. 3. 16. 19.]
265 cord_individual_obj[indivial_i, :] = [15. 3. 4. 7.]
266 cord_individual_obj[indivial_i, :] = [16. 3. 92. 95.]
267 cord_individual_obj[indivial_i, :] = [17. 3. 56. 59.]
268 cord_individual_obj[indivial_i, :] = [18. 2. 30. 32.]
269 cord_individual_obj[indivial_i, :] = [19. 3. 28. 31.]
270 cord_individual_obj[indivial_i, :] = [20. 2. 18. 20.]
271 cord_individual_obj[indivial_i, :] = [21. 3. 0. 3.]
272 cord_individual_obj[indivial_i, :] = [22. 3. 40. 43.]
273 cord_individual_obj[indivial_i, :] = [23. 3. 20. 23.]
274 cord_individual_obj[indivial_i, :] = [24. 3. 0. 3.]
275

276 min(cord_individual_obj[:, 3]) = 3.0
277 historl_G_best_iter[iter, 3] = 3.0
278 Begin iteration:
279
280 iter = 8
281 cord_individual_obj[indivial_i, :] = [0. 3. 0. 3.]
282 cord_individual_obj[indivial_i, :] = [ 1. 3. 132. 135.]
283 cord_individual_obj[indivial_i, :] = [ 2. 3. 68. 71.]
284 cord_individual_obj[indivial_i, :] = [ 3. 3. 100. 103.]
285 cord_individual_obj[indivial_i, :] = [ 4. 2. 114. 116.]
286 cord_individual_obj[indivial_i, :] = [ 5. 3. 142. 145.]
287 cord_individual_obj[indivial_i, :] = [ 6. 3. 76. 79.]
288 cord_individual_obj[indivial_i, :] = [ 7. 3. 20. 23.]
289 cord_individual_obj[indivial_i, :] = [ 8. 3. 114. 117.]
290 cord_individual_obj[indivial_i, :] = [ 9. 3. 76. 79.]
291 cord_individual_obj[indivial_i, :] = [10. 3. 0. 3.]
292 cord_individual_obj[indivial_i, :] = [11. 1. 176. 177.]
293 cord_individual_obj[indivial_i, :] = [12. 2. 66. 68.]
294 cord_individual_obj[indivial_i, :] = [13. 3. 168. 171.]
295 cord_individual_obj[indivial_i, :] = [14. 3. 100. 103.]
296 cord_individual_obj[indivial_i, :] = [15. 2. 168. 170.]
297 cord_individual_obj[indivial_i, :] = [16. 3. 76. 79.]
298 cord_individual_obj[indivial_i, :] = [17. 3. 76. 79.]
299 cord_individual_obj[indivial_i, :] = [18. 3. 132. 135.]
300 cord_individual_obj[indivial_i, :] = [19. 3. 56. 59.]
301 cord_individual_obj[indivial_i, :] = [20. 2. 168. 170.]
302 cord_individual_obj[indivial_i, :] = [21. 3. 56. 59.]
303 cord_individual_obj[indivial_i, :] = [22. 3. 76. 79.]
304 cord_individual_obj[indivial_i, :] = [23. 3. 100. 103.]
305 cord_individual_obj[indivial_i, :] = [24. 3. 0. 3.]
306

307 min(cord_individual_obj[:, 3]) = 3.0
308 historl_G_best_iter[iter, 3] = 3.0
309 Begin iteration:
310
311 iter = 9
312 cord_individual_obj[indivial_i, :] = [0. 3. 0. 3.]
313 cord_individual_obj[indivial_i, :] = [1. 3. 0. 3.]
314 cord_individual_obj[indivial_i, :] = [2. 3. 0. 3.]
315 cord_individual_obj[indivial_i, :] = [3. 3. 6. 9.]
316 cord_individual_obj[indivial_i, :] = [ 4. 2. 132. 134.]
317 cord_individual_obj[indivial_i, :] = [ 5. 3. 6. 9.]
318 cord_individual_obj[indivial_i, :] = [ 6. 3. 100. 103.]
319 cord_individual_obj[indivial_i, :] = [ 7. 2. 36. 38.]
320 cord_individual_obj[indivial_i, :] = [ 8. 2. 124. 126.]
321 cord_individual_obj[indivial_i, :] = [ 9. 2. 22. 24.]
322 cord_individual_obj[indivial_i, :] = [10. 3. 106. 109.]
323 cord_individual_obj[indivial_i, :] = [11. 3. 0. 3.]
324 cord_individual_obj[indivial_i, :] = [12. 1. 96. 97.]
325 cord_individual_obj[indivial_i, :] = [13. 3. 118. 121.]
326 cord_individual_obj[indivial_i, :] = [14. 3. 6. 9.]
327 cord_individual_obj[indivial_i, :] = [15. 2. 114. 116.]
328 cord_individual_obj[indivial_i, :] = [16. 3. 84. 87.]
329 cord_individual_obj[indivial_i, :] = [17. 2. 84. 86.]
330 cord_individual_obj[indivial_i, :] = [18. 3. 72. 75.]
331 cord_individual_obj[indivial_i, :] = [19. 3. 28. 31.]

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unknown

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332     cord_individual_obj[indivial_i, :] = [ 20.  1. 100. 101.]
333     cord_individual_obj[indivial_i, :] = [21.  3. 36. 39.]
334     cord_individual_obj[indivial_i, :] = [22.  3. 60. 63.]
335     cord_individual_obj[indivial_i, :] = [23.  3.  0. 3.]
336     cord_individual_obj[indivial_i, :] = [24.  3.  0. 3.]
337
338 min(cord_individual_obj[:, 3]) = 3.0
339 historl_G_best_iter[iter, 3] = 3.0
340 Begin iteration:
341
342 iter = 10
343     cord_individual_obj[indivial_i, :] = [0. 3. 0. 3.]
344     cord_individual_obj[indivial_i, :] = [ 1. 3. 56. 59.]
345     cord_individual_obj[indivial_i, :] = [ 2. 3. 112. 115.]
346     cord_individual_obj[indivial_i, :] = [ 3. 3. 132. 135.]
347     cord_individual_obj[indivial_i, :] = [4. 3. 0. 3.]
348     cord_individual_obj[indivial_i, :] = [ 5. 3. 56. 59.]
349     cord_individual_obj[indivial_i, :] = [ 6. 3. 76. 79.]
350     cord_individual_obj[indivial_i, :] = [ 7. 2. 36. 38.]
351     cord_individual_obj[indivial_i, :] = [ 8. 2. 114. 116.]
352     cord_individual_obj[indivial_i, :] = [ 9. 2. 36. 38.]
353     cord_individual_obj[indivial_i, :] = [10. 3. 76. 79.]
354     cord_individual_obj[indivial_i, :] = [11. 3. 44. 47.]
355     cord_individual_obj[indivial_i, :] = [12. 1. 72. 73.]
356     cord_individual_obj[indivial_i, :] = [13. 2. 126. 128.]
357     cord_individual_obj[indivial_i, :] = [14. 3. 60. 63.]
358     cord_individual_obj[indivial_i, :] = [15. 2. 58. 60.]
359     cord_individual_obj[indivial_i, :] = [16. 3. 76. 79.]
360     cord_individual_obj[indivial_i, :] = [17. 1. 176. 177.]
361     cord_individual_obj[indivial_i, :] = [18. 2. 112. 114.]
362     cord_individual_obj[indivial_i, :] = [19. 3. 40. 43.]
363     cord_individual_obj[indivial_i, :] = [20. 2. 84. 86.]
364     cord_individual_obj[indivial_i, :] = [21. 3. 132. 135.]
365     cord_individual_obj[indivial_i, :] = [22. 3. 72. 75.]
366     cord_individual_obj[indivial_i, :] = [23. 3. 20. 23.]
367     cord_individual_obj[indivial_i, :] = [24. 3. 0. 3.]
368
369 min(cord_individual_obj[:, 3]) = 3.0
370 historl_G_best_iter[iter, 3] = 3.0
371 Begin iteration:
372
373 iter = 11
374     cord_individual_obj[indivial_i, :] = [0. 3. 0. 3.]
375     cord_individual_obj[indivial_i, :] = [1. 3. 0. 3.]
376     cord_individual_obj[indivial_i, :] = [2. 3. 0. 3.]
377     cord_individual_obj[indivial_i, :] = [ 3. 3. 132. 135.]
378     cord_individual_obj[indivial_i, :] = [ 4. 2. 114. 116.]
379     cord_individual_obj[indivial_i, :] = [5. 3. 0. 3.]
380     cord_individual_obj[indivial_i, :] = [ 6. 3. 76. 79.]
381     cord_individual_obj[indivial_i, :] = [ 7. 2. 62. 64.]
382     cord_individual_obj[indivial_i, :] = [ 8. 2. 156. 158.]
383     cord_individual_obj[indivial_i, :] = [9. 2. 6. 8.]
384     cord_individual_obj[indivial_i, :] = [10. 3. 106. 109.]
385     cord_individual_obj[indivial_i, :] = [11. 2. 114. 116.]
386     cord_individual_obj[indivial_i, :] = [12. 3. 48. 51.]
387     cord_individual_obj[indivial_i, :] = [13. 3. 118. 121.]
388     cord_individual_obj[indivial_i, :] = [14. 3. 6. 9.]
389     cord_individual_obj[indivial_i, :] = [15. 3. 40. 43.]
390     cord_individual_obj[indivial_i, :] = [16. 3. 84. 87.]
391     cord_individual_obj[indivial_i, :] = [17. 3. 0. 3.]
392     cord_individual_obj[indivial_i, :] = [18. 3. 90. 93.]
393     cord_individual_obj[indivial_i, :] = [19. 3. 28. 31.]
394     cord_individual_obj[indivial_i, :] = [20. 3. 72. 75.]
395     cord_individual_obj[indivial_i, :] = [21. 3. 56. 59.]
396     cord_individual_obj[indivial_i, :] = [22. 3. 60. 63.]
397     cord_individual_obj[indivial_i, :] = [23. 3. 20. 23.]
398     cord_individual_obj[indivial_i, :] = [24. 3. 0. 3.]
399
400 min(cord_individual_obj[:, 3]) = 3.0
401 historl_G_best_iter[iter, 3] = 3.0
402 Begin iteration:
403
404 iter = 12
405     cord_individual_obj[indivial_i, :] = [0. 3. 0. 3.]
406     cord_individual_obj[indivial_i, :] = [ 1. 3. 56. 59.]
407     cord_individual_obj[indivial_i, :] = [ 2. 3. 112. 115.]
408     cord_individual_obj[indivial_i, :] = [ 3. 3. 132. 135.]
409     cord_individual_obj[indivial_i, :] = [ 4. 2. 114. 116.]
410     cord_individual_obj[indivial_i, :] = [5. 3. 56. 59.]
411     cord_individual_obj[indivial_i, :] = [ 6. 3. 76. 79.]
412     cord_individual_obj[indivial_i, :] = [ 7. 3. 36. 39.]
413     cord_individual_obj[indivial_i, :] = [8. 3. 0. 3.]
414     cord_individual_obj[indivial_i, :] = [9. 2. 6. 8.]
415     cord_individual_obj[indivial_i, :] = [10. 3. 106. 109.]
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416 cord_individual_obj[indivial_i,:] = [11. 2. 84. 86.]
417 cord_individual_obj[indivial_i,:] = [12. 3. 40. 43.]
418 cord_individual_obj[indivial_i,:] = [13. 2. 118. 120.]
419 cord_individual_obj[indivial_i,:] = [14. 3. 60. 63.]
420 cord_individual_obj[indivial_i,:] = [15. 3. 58. 61.]
421 cord_individual_obj[indivial_i,:] = [16. 3. 76. 79.]
422 cord_individual_obj[indivial_i,:] = [17. 2. 126. 128.]
423 cord_individual_obj[indivial_i,:] = [18. 3. 72. 75.]
424 cord_individual_obj[indivial_i,:] = [19. 3. 40. 43.]
425 cord_individual_obj[indivial_i,:] = [20. 2. 84. 86.]
426 cord_individual_obj[indivial_i,:] = [21. 3. 52. 55.]
427 cord_individual_obj[indivial_i,:] = [22. 3. 84. 87.]
428 cord_individual_obj[indivial_i,:] = [23. 3. 20. 23.]
429 cord_individual_obj[indivial_i,:] = [24. 3. 0. 3.]
430
431 min(cord_individual_obj[:,3]) = 3.0
432 histol_G_best_iter[iter,3] = 3.0
433 Begin iteration:
434
435 iter = 13
436 cord_individual_obj[indivial_i,:] = [0. 3. 0. 3.]
437 cord_individual_obj[indivial_i,:] = [1. 3. 0. 3.]
438 cord_individual_obj[indivial_i,:] = [2. 3. 4. 7.]
439 cord_individual_obj[indivial_i,:] = [3. 3. 0. 3.]
440 cord_individual_obj[indivial_i,:] = [4. 2. 140. 142.]
441 cord_individual_obj[indivial_i,:] = [5. 3. 16. 19.]
442 cord_individual_obj[indivial_i,:] = [6. 3. 76. 79.]
443 cord_individual_obj[indivial_i,:] = [7. 3. 72. 75.]
444 cord_individual_obj[indivial_i,:] = [8. 2. 124. 126.]
445 cord_individual_obj[indivial_i,:] = [9. 1. 16. 17.]
446 cord_individual_obj[indivial_i,:] = [10. 3. 36. 39.]
447 cord_individual_obj[indivial_i,:] = [11. 3. 44. 47.]
448 cord_individual_obj[indivial_i,:] = [12. 3. 70. 73.]
449 cord_individual_obj[indivial_i,:] = [13. 3. 40. 43.]
450 cord_individual_obj[indivial_i,:] = [14. 3. 40. 43.]
451 cord_individual_obj[indivial_i,:] = [15. 3. 24. 27.]
452 cord_individual_obj[indivial_i,:] = [16. 3. 6. 9.]
453 cord_individual_obj[indivial_i,:] = [17. 3. 0. 3.]
454 cord_individual_obj[indivial_i,:] = [18. 3. 16. 19.]
455 cord_individual_obj[indivial_i,:] = [19. 3. 12. 15.]
456 cord_individual_obj[indivial_i,:] = [20. 1. 72. 73.]
457 cord_individual_obj[indivial_i,:] = [21. 3. 0. 3.]
458 cord_individual_obj[indivial_i,:] = [22. 3. 40. 43.]
459 cord_individual_obj[indivial_i,:] = [23. 3. 50. 53.]
460 cord_individual_obj[indivial_i,:] = [24. 3. 0. 3.]
461
462 min(cord_individual_obj[:,3]) = 3.0
463 histol_G_best_iter[iter,3] = 3.0
464 Begin iteration:
465
466 iter = 14
467 cord_individual_obj[indivial_i,:] = [0. 3. 0. 3.]
468 cord_individual_obj[indivial_i,:] = [1. 3. 56. 59.]
469 cord_individual_obj[indivial_i,:] = [2. 3. 84. 87.]
470 cord_individual_obj[indivial_i,:] = [3. 3. 132. 135.]
471 cord_individual_obj[indivial_i,:] = [4. 3. 0. 3.]
472 cord_individual_obj[indivial_i,:] = [5. 3. 116. 119.]
473 cord_individual_obj[indivial_i,:] = [6. 3. 76. 79.]
474 cord_individual_obj[indivial_i,:] = [7. 2. 36. 38.]
475 cord_individual_obj[indivial_i,:] = [8. 3. 114. 117.]
476 cord_individual_obj[indivial_i,:] = [9. 2. 6. 8.]
477 cord_individual_obj[indivial_i,:] = [10. 3. 106. 109.]
478 cord_individual_obj[indivial_i,:] = [11. 3. 36. 39.]
479 cord_individual_obj[indivial_i,:] = [12. 2. 72. 74.]
480 cord_individual_obj[indivial_i,:] = [13. 2. 118. 120.]
481 cord_individual_obj[indivial_i,:] = [14. 3. 40. 43.]
482 cord_individual_obj[indivial_i,:] = [15. 2. 58. 60.]
483 cord_individual_obj[indivial_i,:] = [16. 3. 84. 87.]
484 cord_individual_obj[indivial_i,:] = [17. 2. 84. 86.]
485 cord_individual_obj[indivial_i,:] = [18. 3. 48. 51.]
486 cord_individual_obj[indivial_i,:] = [19. 3. 28. 31.]
487 cord_individual_obj[indivial_i,:] = [20. 1. 72. 73.]
488 cord_individual_obj[indivial_i,:] = [21. 3. 132. 135.]
489 cord_individual_obj[indivial_i,:] = [22. 3. 84. 87.]
490 cord_individual_obj[indivial_i,:] = [23. 3. 110. 113.]
491 cord_individual_obj[indivial_i,:] = [24. 3. 0. 3.]
492
493 min(cord_individual_obj[:,3]) = 3.0
494 histol_G_best_iter[iter,3] = 3.0
495 Begin iteration:
496
497 iter = 15
498 cord_individual_obj[indivial_i,:] = [0. 3. 0. 3.]
499 cord_individual_obj[indivial_i,:] = [1. 3. 0. 3.]

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500 cord_individual_obj[indivial_i,:] = [2. 3. 0. 3.]
501 cord_individual_obj[indivial_i,:] = [3. 3. 0. 3.]
502 cord_individual_obj[indivial_i,:] = [4. 2. 114. 116.]
503 cord_individual_obj[indivial_i,:] = [5. 3. 56. 59.]
504 cord_individual_obj[indivial_i,:] = [6. 3. 76. 79.]
505 cord_individual_obj[indivial_i,:] = [7. 2. 62. 64.]
506 cord_individual_obj[indivial_i,:] = [8. 2. 84. 86.]
507 cord_individual_obj[indivial_i,:] = [9. 2. 48. 50.]
508 cord_individual_obj[indivial_i,:] = [10. 3. 106. 109.]
509 cord_individual_obj[indivial_i,:] = [11. 3. 20. 23.]
510 cord_individual_obj[indivial_i,:] = [12. 3. 36. 39.]
511 cord_individual_obj[indivial_i,:] = [13. 3. 118. 121.]
512 cord_individual_obj[indivial_i,:] = [14. 3. 40. 43.]
513 cord_individual_obj[indivial_i,:] = [15. 3. 24. 27.]
514 cord_individual_obj[indivial_i,:] = [16. 3. 84. 87.]
515 cord_individual_obj[indivial_i,:] = [17. 1. 66. 67.]
516 cord_individual_obj[indivial_i,:] = [18. 2. 40. 42.]
517 cord_individual_obj[indivial_i,:] = [19. 3. 12. 15.]
518 cord_individual_obj[indivial_i,:] = [20. 1. 72. 73.]
519 cord_individual_obj[indivial_i,:] = [21. 3. 56. 59.]
520 cord_individual_obj[indivial_i,:] = [22. 3. 60. 63.]
521 cord_individual_obj[indivial_i,:] = [23. 3. 20. 23.]
522 cord_individual_obj[indivial_i,:] = [24. 3. 0. 3.]
523
524 min(cord_individual_obj[:, 3]) = 3.0
525 histol_G_best_iter[iter, 3] = 3.0
526 Begin iteration:
527
528 iter = 16
529 cord_individual_obj[indivial_i,:] = [0. 3. 0. 3.]
530 cord_individual_obj[indivial_i,:] = [1. 3. 0. 3.]
531 cord_individual_obj[indivial_i,:] = [2. 3. 0. 3.]
532 cord_individual_obj[indivial_i,:] = [3. 3. 132. 135.]
533 cord_individual_obj[indivial_i,:] = [4. 2. 132. 134.]
534 cord_individual_obj[indivial_i,:] = [5. 2. 66. 68.]
535 cord_individual_obj[indivial_i,:] = [6. 3. 76. 79.]
536 cord_individual_obj[indivial_i,:] = [7. 2. 62. 64.]
537 cord_individual_obj[indivial_i,:] = [8. 2. 132. 134.]
538 cord_individual_obj[indivial_i,:] = [9. 2. 6. 8.]
539 cord_individual_obj[indivial_i,:] = [10. 3. 106. 109.]
540 cord_individual_obj[indivial_i,:] = [11. 3. 20. 23.]
541 cord_individual_obj[indivial_i,:] = [12. 3. 28. 31.]
542 cord_individual_obj[indivial_i,:] = [13. 3. 0. 3.]
543 cord_individual_obj[indivial_i,:] = [14. 3. 40. 43.]
544 cord_individual_obj[indivial_i,:] = [15. 1. 24. 25.]
545 cord_individual_obj[indivial_i,:] = [16. 3. 84. 87.]
546 cord_individual_obj[indivial_i,:] = [17. 3. 56. 59.]
547 cord_individual_obj[indivial_i,:] = [18. 3. 40. 43.]
548 cord_individual_obj[indivial_i,:] = [19. 3. 12. 15.]
549 cord_individual_obj[indivial_i,:] = [20. 1. 72. 73.]
550 cord_individual_obj[indivial_i,:] = [21. 3. 56. 59.]
551 cord_individual_obj[indivial_i,:] = [22. 3. 60. 63.]
552 cord_individual_obj[indivial_i,:] = [23. 3. 20. 23.]
553 cord_individual_obj[indivial_i,:] = [24. 3. 0. 3.]
554
555 min(cord_individual_obj[:, 3]) = 3.0
556 histol_G_best_iter[iter, 3] = 3.0
557 Begin iteration:
558
559 iter = 17
560 cord_individual_obj[indivial_i,:] = [0. 3. 0. 3.]
561 cord_individual_obj[indivial_i,:] = [1. 3. 0. 3.]
562 cord_individual_obj[indivial_i,:] = [2. 3. 0. 3.]
563 cord_individual_obj[indivial_i,:] = [3. 3. 0. 3.]
564 cord_individual_obj[indivial_i,:] = [4. 2. 114. 116.]
565 cord_individual_obj[indivial_i,:] = [5. 3. 0. 3.]
566 cord_individual_obj[indivial_i,:] = [6. 3. 76. 79.]
567 cord_individual_obj[indivial_i,:] = [7. 3. 20. 23.]
568 cord_individual_obj[indivial_i,:] = [8. 2. 84. 86.]
569 cord_individual_obj[indivial_i,:] = [9. 1. 70. 71.]
570 cord_individual_obj[indivial_i,:] = [10. 3. 36. 39.]
571 cord_individual_obj[indivial_i,:] = [11. 2. 92. 94.]
572 cord_individual_obj[indivial_i,:] = [12. 3. 12. 15.]
573 cord_individual_obj[indivial_i,:] = [13. 3. 118. 121.]
574 cord_individual_obj[indivial_i,:] = [14. 3. 24. 27.]
575 cord_individual_obj[indivial_i,:] = [15. 3. 12. 15.]
576 cord_individual_obj[indivial_i,:] = [16. 3. 84. 87.]
577 cord_individual_obj[indivial_i,:] = [17. 3. 56. 59.]
578 cord_individual_obj[indivial_i,:] = [18. 3. 16. 19.]
579 cord_individual_obj[indivial_i,:] = [19. 3. 132. 135.]
580 cord_individual_obj[indivial_i,:] = [20. 2. 36. 38.]
581 cord_individual_obj[indivial_i,:] = [21. 3. 36. 39.]
582 cord_individual_obj[indivial_i,:] = [22. 3. 40. 43.]
583 cord_individual_obj[indivial_i,:] = [23. 3. 0. 3.]

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584     cord_individual_obj[indivial_i, :] = [24. 3. 0. 3.]
585
586     min(cord_individual_obj[:, 3]) = 3.0
587     historl_G_best_iter[iter, 3] = 3.0
588 Begin iteration:
589
590 iter = 18
591     cord_individual_obj[indivial_i, :] = [0. 3. 0. 3.]
592     cord_individual_obj[indivial_i, :] = [1. 3. 0. 3.]
593     cord_individual_obj[indivial_i, :] = [2. 3. 0. 3.]
594     cord_individual_obj[indivial_i, :] = [ 3. 3. 132. 135.]
595     cord_individual_obj[indivial_i, :] = [ 4. 1. 152. 153.]
596     cord_individual_obj[indivial_i, :] = [ 5. 3. 20. 23.]
597     cord_individual_obj[indivial_i, :] = [ 6. 3. 76. 79.]
598     cord_individual_obj[indivial_i, :] = [ 7. 2. 56. 58.]
599     cord_individual_obj[indivial_i, :] = [ 8. 3. 84. 87.]
600     cord_individual_obj[indivial_i, :] = [ 9. 1. 52. 53.]
601     cord_individual_obj[indivial_i, :] = [10. 3. 140. 143.]
602     cord_individual_obj[indivial_i, :] = [11. 3. 30. 33.]
603     cord_individual_obj[indivial_i, :] = [12. 2. 18. 20.]
604     cord_individual_obj[indivial_i, :] = [13. 2. 12. 14.]
605     cord_individual_obj[indivial_i, :] = [14. 3. 12. 15.]
606     cord_individual_obj[indivial_i, :] = [15. 2. 12. 14.]
607     cord_individual_obj[indivial_i, :] = [16. 3. 92. 95.]
608     cord_individual_obj[indivial_i, :] = [17. 2. 66. 68.]
609     cord_individual_obj[indivial_i, :] = [18. 3. 16. 19.]
610     cord_individual_obj[indivial_i, :] = [19. 3. 0. 3.]
611     cord_individual_obj[indivial_i, :] = [20. 2. 28. 30.]
612     cord_individual_obj[indivial_i, :] = [21. 3. 56. 59.]
613     cord_individual_obj[indivial_i, :] = [22. 3. 24. 27.]
614     cord_individual_obj[indivial_i, :] = [23. 3. 20. 23.]
615     cord_individual_obj[indivial_i, :] = [24. 3. 0. 3.]
616
617     min(cord_individual_obj[:, 3]) = 3.0
618     historl_G_best_iter[iter, 3] = 3.0
619 Begin iteration:
620
621 iter = 19
622     cord_individual_obj[indivial_i, :] = [0. 3. 0. 3.]
623     cord_individual_obj[indivial_i, :] = [1. 3. 0. 3.]
624     cord_individual_obj[indivial_i, :] = [2. 3. 0. 3.]
625     cord_individual_obj[indivial_i, :] = [3. 3. 60. 63.]
626     cord_individual_obj[indivial_i, :] = [4. 3. 0. 3.]
627     cord_individual_obj[indivial_i, :] = [5. 3. 6. 9.]
628     cord_individual_obj[indivial_i, :] = [ 6. 3. 76. 79.]
629     cord_individual_obj[indivial_i, :] = [ 7. 1. 72. 73.]
630     cord_individual_obj[indivial_i, :] = [ 8. 2. 92. 94.]
631     cord_individual_obj[indivial_i, :] = [ 9. 1. 70. 71.]
632     cord_individual_obj[indivial_i, :] = [10. 3. 140. 143.]
633     cord_individual_obj[indivial_i, :] = [11. 3. 30. 33.]
634     cord_individual_obj[indivial_i, :] = [12. 2. 18. 20.]
635     cord_individual_obj[indivial_i, :] = [13. 3. 60. 63.]
636     cord_individual_obj[indivial_i, :] = [14. 3. 24. 27.]
637     cord_individual_obj[indivial_i, :] = [15. 3. 12. 15.]
638     cord_individual_obj[indivial_i, :] = [16. 3. 92. 95.]
639     cord_individual_obj[indivial_i, :] = [17. 2. 6. 8.]
640     cord_individual_obj[indivial_i, :] = [18. 3. 48. 51.]
641     cord_individual_obj[indivial_i, :] = [19. 3. 40. 43.]
642     cord_individual_obj[indivial_i, :] = [20. 1. 48. 49.]
643     cord_individual_obj[indivial_i, :] = [21. 3. 56. 59.]
644     cord_individual_obj[indivial_i, :] = [22. 3. 40. 43.]
645     cord_individual_obj[indivial_i, :] = [23. 3. 20. 23.]
646     cord_individual_obj[indivial_i, :] = [24. 3. 0. 3.]
647
648     min(cord_individual_obj[:, 3]) = 3.0
649     historl_G_best_iter[iter, 3] = 3.0
650 Begin iteration:
651
652 iter = 20
653     cord_individual_obj[indivial_i, :] = [0. 3. 0. 3.]
654     cord_individual_obj[indivial_i, :] = [ 1. 3. 140. 143.]
655     cord_individual_obj[indivial_i, :] = [ 2. 3. 132. 135.]
656     cord_individual_obj[indivial_i, :] = [ 3. 3. 100. 103.]
657     cord_individual_obj[indivial_i, :] = [ 4. 2. 114. 116.]
658     cord_individual_obj[indivial_i, :] = [ 5. 3. 106. 109.]
659     cord_individual_obj[indivial_i, :] = [ 6. 3. 76. 79.]
660     cord_individual_obj[indivial_i, :] = [ 7. 3. 20. 23.]
661     cord_individual_obj[indivial_i, :] = [ 8. 2. 124. 126.]
662     cord_individual_obj[indivial_i, :] = [ 9. 3. 0. 3.]
663     cord_individual_obj[indivial_i, :] = [10. 3. 0. 3.]
664     cord_individual_obj[indivial_i, :] = [11. 3. 76. 79.]
665     cord_individual_obj[indivial_i, :] = [12. 3. 88. 91.]
666     cord_individual_obj[indivial_i, :] = [13. 3. 148. 151.]
667     cord_individual_obj[indivial_i, :] = [14. 3. 76. 79.]

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668 cord_individual_obj[indivial_i, :] = [ 15. 3. 100. 103.]
669 cord_individual_obj[indivial_i, :] = [16. 3. 76. 79.]
670 cord_individual_obj[indivial_i, :] = [ 17. 1. 160. 161.]
671 cord_individual_obj[indivial_i, :] = [ 18. 2. 114. 116.]
672 cord_individual_obj[indivial_i, :] = [19. 3. 72. 75.]
673 cord_individual_obj[indivial_i, :] = [ 20. 3. 100. 103.]
674 cord_individual_obj[indivial_i, :] = [21. 3. 100. 103.]
675 cord_individual_obj[indivial_i, :] = [22. 3. 76. 79.]
676 cord_individual_obj[indivial_i, :] = [ 23. 3. 100. 103.]
677 cord_individual_obj[indivial_i, :] = [24. 3. 0. 3.]
678
679 min(cord_individual_obj[:, 3]) = 3.0
680 historl_G_best_iter[iter, 3] = 3.0
681 Iteration calculate over
682
683
684
685
686 All item are in Bin and:
687 Bin area = 1080
688 Real_area = 104.0
689 Proportion_of_area = 0.0962962962962963
690 BEST_CHROM =
691     berth: [ 4.5 19. 25.5 13. ]
692     time: [0. 0. 0. 0.]
693     num_QC: [3. 2. 2. 7.]
694 Objective function values and some other indicators:
695 Obj0 = 3.00          Obj1 = 0.00          Obj0 + Obj1 = 3.00
696 Total movement of crane: 0.00
697 Total waiting time in berth position: 0.00
698 Total index of q during berthing: 371.00
699 Specific arrangement for each vessel:
700 V_id: 0           li: 9.0           xi: 4.5           bow of i: 0.0           tail of i: 9.0           gama_i0: 0.0           gama_i1: 2.0
701 .0             gama_i1 + 1: 3.0           gama_i1 - gama_i0: 2.0           duration_time_i: 3.0           demand_i: 140.0           work load_i:
140.0           work load gap_i: 0
702 V_id: 1           li: 4.0           xi: 19.0           bow of i: 17.0           tail of i: 21.0           gama_i0: 0.0           gama_i1: 3
.0             gama_i1 + 1: 4.0           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
703 V_id: 2           li: 9.0           xi: 25.5           bow of i: 21.0           tail of i: 30.0           gama_i0: 0.0           gama_i1: 3
.0             gama_i1 + 1: 4.0           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
704
705 Algorithm finished and the total CPU time: 106 s
706 End
707

```