

unknown

```

80 cord_individual_obj[indivial_i,:] = [16. 4. 56. 60.]
81 cord_individual_obj[indivial_i,:] = [17. 5. 47. 52.]
82 cord_individual_obj[indivial_i,:] = [18. 4. 97. 101.]
83 cord_individual_obj[indivial_i,:] = [19. 5. 79. 84.]
84 cord_individual_obj[indivial_i,:] = [20. 6. 127. 133.]
85 cord_individual_obj[indivial_i,:] = [21. 4. 64. 68.]
86 cord_individual_obj[indivial_i,:] = [22. 3. 70. 73.]
87 cord_individual_obj[indivial_i,:] = [23. 4. 70. 74.]
88 cord_individual_obj[indivial_i,:] = [24. 3. 60. 63.]
89
90 min(cord_individual_obj[:,3]) = 10.0
91 historl_G_best_iter[iter,3] = 10.0
92 Begin iteration:
93
94 iter = 2
95 cord_individual_obj[indivial_i,:] = [ 0. 4. 139. 143.]
96 cord_individual_obj[indivial_i,:] = [ 1. 3. 7. 10.]
97 cord_individual_obj[indivial_i,:] = [ 2. 5. 21. 26.]
98 cord_individual_obj[indivial_i,:] = [ 3. 7. 105. 112.]
99 cord_individual_obj[indivial_i,:] = [ 4. 5. 30. 35.]
100 cord_individual_obj[indivial_i,:] = [ 5. 5. 68. 73.]
101 cord_individual_obj[indivial_i,:] = [ 6. 5. 63. 68.]
102 cord_individual_obj[indivial_i,:] = [ 7. 5. 85. 90.]
103 cord_individual_obj[indivial_i,:] = [ 8. 5. 70. 75.]
104 cord_individual_obj[indivial_i,:] = [ 9. 4. 56. 60.]
105 cord_individual_obj[indivial_i,:] = [ 10. 3. 102. 105.]
106 cord_individual_obj[indivial_i,:] = [ 11. 5. 26. 31.]
107 cord_individual_obj[indivial_i,:] = [ 12. 4. 105. 109.]
108 cord_individual_obj[indivial_i,:] = [ 13. 6. 15. 21.]
109 cord_individual_obj[indivial_i,:] = [ 14. 4. 42. 46.]
110 cord_individual_obj[indivial_i,:] = [ 15. 4. 140. 144.]
111 cord_individual_obj[indivial_i,:] = [ 16. 4. 108. 112.]
112 cord_individual_obj[indivial_i,:] = [ 17. 5. 126. 131.]
113 cord_individual_obj[indivial_i,:] = [ 18. 3. 62. 65.]
114 cord_individual_obj[indivial_i,:] = [ 19. 5. 43. 48.]
115 cord_individual_obj[indivial_i,:] = [ 20. 8. 93. 101.]
116 cord_individual_obj[indivial_i,:] = [ 21. 5. 33. 38.]
117 cord_individual_obj[indivial_i,:] = [ 22. 3. 115. 118.]
118 cord_individual_obj[indivial_i,:] = [ 23. 4. 38. 42.]
119 cord_individual_obj[indivial_i,:] = [ 24. 3. 91. 94.]
120
121 min(cord_individual_obj[:,3]) = 10.0
122 historl_G_best_iter[iter,3] = 10.0
123 Begin iteration:
124
125 iter = 3
126 cord_individual_obj[indivial_i,:] = [ 0. 4. 110. 114.]
127 cord_individual_obj[indivial_i,:] = [ 1. 6. 93. 99.]
128 cord_individual_obj[indivial_i,:] = [ 2. 5. 21. 26.]
129 cord_individual_obj[indivial_i,:] = [ 3. 5. 68. 73.]
130 cord_individual_obj[indivial_i,:] = [ 4. 5. 25. 30.]
131 cord_individual_obj[indivial_i,:] = [ 5. 6. 42. 48.]
132 cord_individual_obj[indivial_i,:] = [ 6. 6. 43. 49.]
133 cord_individual_obj[indivial_i,:] = [ 7. 3. 79. 82.]
134 cord_individual_obj[indivial_i,:] = [ 8. 4. 28. 32.]
135 cord_individual_obj[indivial_i,:] = [ 9. 6. 24. 30.]
136 cord_individual_obj[indivial_i,:] = [ 10. 4. 14. 18.]
137 cord_individual_obj[indivial_i,:] = [ 11. 5. 6. 11.]
138 cord_individual_obj[indivial_i,:] = [ 12. 6. 73. 79.]
139 cord_individual_obj[indivial_i,:] = [ 13. 6. 23. 29.]
140 cord_individual_obj[indivial_i,:] = [ 14. 5. 42. 47.]
141 cord_individual_obj[indivial_i,:] = [ 15. 3. 7. 10.]
142 cord_individual_obj[indivial_i,:] = [ 16. 6. 91. 97.]
143 cord_individual_obj[indivial_i,:] = [ 17. 5. 126. 131.]
144 cord_individual_obj[indivial_i,:] = [ 18. 3. 112. 115.]
145 cord_individual_obj[indivial_i,:] = [ 19. 5. 53. 58.]
146 cord_individual_obj[indivial_i,:] = [ 20. 6. 17. 23.]
147 cord_individual_obj[indivial_i,:] = [ 21. 5. 46. 51.]
148 cord_individual_obj[indivial_i,:] = [ 22. 3. 97. 100.]
149 cord_individual_obj[indivial_i,:] = [ 23. 4. 73. 77.]
150 cord_individual_obj[indivial_i,:] = [ 24. 4. 33. 37.]
151
152 min(cord_individual_obj[:,3]) = 10.0
153 historl_G_best_iter[iter,3] = 10.0
154 Begin iteration:
155
156 iter = 4
157 cord_individual_obj[indivial_i,:] = [ 0. 6. 119. 125.]
158 cord_individual_obj[indivial_i,:] = [ 1. 5. 116. 121.]
159 cord_individual_obj[indivial_i,:] = [ 2. 6. 35. 41.]
160 cord_individual_obj[indivial_i,:] = [ 3. 5. 59. 64.]
161 cord_individual_obj[indivial_i,:] = [ 4. 7. 77. 84.]
162 cord_individual_obj[indivial_i,:] = [ 5. 5. 62. 67.]
163 cord_individual_obj[indivial_i,:] = [ 6. 4. 98. 102.]

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164 cord_individual_obj[indivial_i,:] = [ 7. 5. 55. 60.]
165 cord_individual_obj[indivial_i,:] = [ 8. 3. 50. 53.]
166 cord_individual_obj[indivial_i,:] = [ 9. 6. 107. 113.]
167 cord_individual_obj[indivial_i,:] = [10. 4. 25. 29.]
168 cord_individual_obj[indivial_i,:] = [11. 6. 86. 92.]
169 cord_individual_obj[indivial_i,:] = [12. 4. 81. 85.]
170 cord_individual_obj[indivial_i,:] = [13. 5. 15. 20.]
171 cord_individual_obj[indivial_i,:] = [14. 5. 51. 56.]
172 cord_individual_obj[indivial_i,:] = [15. 4. 140. 144.]
173 cord_individual_obj[indivial_i,:] = [16. 4. 105. 109.]
174 cord_individual_obj[indivial_i,:] = [17. 3. 7. 10.]
175 cord_individual_obj[indivial_i,:] = [18. 3. 65. 68.]
176 cord_individual_obj[indivial_i,:] = [19. 5. 74. 79.]
177 cord_individual_obj[indivial_i,:] = [20. 6. 151. 157.]
178 cord_individual_obj[indivial_i,:] = [21. 4. 16. 20.]
179 cord_individual_obj[indivial_i,:] = [22. 4. 159. 163.]
180 cord_individual_obj[indivial_i,:] = [23. 4. 44. 48.]
181 cord_individual_obj[indivial_i,:] = [24. 3. 34. 37.]
182
183 min(cord_individual_obj[:,3]) = 10.0
184 historl_G_best_iter[iter,3] = 10.0
185 Begin iteration:
186
187 iter = 5
188 cord_individual_obj[indivial_i,:] = [ 0. 5. 90. 95.]
189 cord_individual_obj[indivial_i,:] = [ 1. 4. 40. 44.]
190 cord_individual_obj[indivial_i,:] = [ 2. 5. 12. 17.]
191 cord_individual_obj[indivial_i,:] = [ 3. 5. 38. 43.]
192 cord_individual_obj[indivial_i,:] = [ 4. 5. 30. 35.]
193 cord_individual_obj[indivial_i,:] = [ 5. 5. 22. 27.]
194 cord_individual_obj[indivial_i,:] = [ 6. 4. 16. 20.]
195 cord_individual_obj[indivial_i,:] = [ 7. 4. 21. 25.]
196 cord_individual_obj[indivial_i,:] = [ 8. 4. 34. 38.]
197 cord_individual_obj[indivial_i,:] = [ 9. 4. 66. 70.]
198 cord_individual_obj[indivial_i,:] = [10. 3. 88. 91.]
199 cord_individual_obj[indivial_i,:] = [11. 4. 20. 24.]
200 cord_individual_obj[indivial_i,:] = [12. 4. 33. 37.]
201 cord_individual_obj[indivial_i,:] = [13. 7. 9. 16.]
202 cord_individual_obj[indivial_i,:] = [14. 4. 65. 69.]
203 cord_individual_obj[indivial_i,:] = [15. 3. 59. 62.]
204 cord_individual_obj[indivial_i,:] = [16. 5. 116. 121.]
205 cord_individual_obj[indivial_i,:] = [17. 5. 163. 168.]
206 cord_individual_obj[indivial_i,:] = [18. 3. 122. 125.]
207 cord_individual_obj[indivial_i,:] = [19. 3. 10. 13.]
208 cord_individual_obj[indivial_i,:] = [20. 4. 64. 68.]
209 cord_individual_obj[indivial_i,:] = [21. 4. 103. 107.]
210 cord_individual_obj[indivial_i,:] = [22. 3. 7. 10.]
211 cord_individual_obj[indivial_i,:] = [23. 3. 50. 53.]
212 cord_individual_obj[indivial_i,:] = [24. 5. 169. 174.]
213
214 min(cord_individual_obj[:,3]) = 10.0
215 historl_G_best_iter[iter,3] = 10.0
216 Begin iteration:
217
218 iter = 6
219 cord_individual_obj[indivial_i,:] = [ 0. 6. 87. 93.]
220 cord_individual_obj[indivial_i,:] = [ 1. 7. 46. 53.]
221 cord_individual_obj[indivial_i,:] = [ 2. 5. 34. 39.]
222 cord_individual_obj[indivial_i,:] = [ 3. 6. 98. 104.]
223 cord_individual_obj[indivial_i,:] = [ 4. 5. 39. 44.]
224 cord_individual_obj[indivial_i,:] = [ 5. 5. 66. 71.]
225 cord_individual_obj[indivial_i,:] = [ 6. 8. 61. 69.]
226 cord_individual_obj[indivial_i,:] = [ 7. 8. 32. 40.]
227 cord_individual_obj[indivial_i,:] = [ 8. 5. 47. 52.]
228 cord_individual_obj[indivial_i,:] = [ 9. 3. 83. 86.]
229 cord_individual_obj[indivial_i,:] = [10. 4. 103. 107.]
230 cord_individual_obj[indivial_i,:] = [11. 5. 22. 27.]
231 cord_individual_obj[indivial_i,:] = [12. 4. 59. 63.]
232 cord_individual_obj[indivial_i,:] = [13. 6. 39. 45.]
233 cord_individual_obj[indivial_i,:] = [14. 5. 54. 59.]
234 cord_individual_obj[indivial_i,:] = [15. 5. 47. 52.]
235 cord_individual_obj[indivial_i,:] = [16. 5. 132. 137.]
236 cord_individual_obj[indivial_i,:] = [17. 4. 89. 93.]
237 cord_individual_obj[indivial_i,:] = [18. 5. 82. 87.]
238 cord_individual_obj[indivial_i,:] = [19. 5. 15. 20.]
239 cord_individual_obj[indivial_i,:] = [20. 6. 30. 36.]
240 cord_individual_obj[indivial_i,:] = [21. 4. 47. 51.]
241 cord_individual_obj[indivial_i,:] = [22. 3. 119. 122.]
242 cord_individual_obj[indivial_i,:] = [23. 3. 92. 95.]
243 cord_individual_obj[indivial_i,:] = [24. 3. 7. 10.]
244
245 min(cord_individual_obj[:,3]) = 10.0
246 historl_G_best_iter[iter,3] = 10.0
247 Begin iteration:

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248
249 iter = 7
250 cord_individual_obj[indivial_i, :] = [ 0.  4. 52. 56.]
251 cord_individual_obj[indivial_i, :] = [ 1.  6. 101. 107.]
252 cord_individual_obj[indivial_i, :] = [ 2.  4. 85. 89.]
253 cord_individual_obj[indivial_i, :] = [ 3.  5. 40. 45.]
254 cord_individual_obj[indivial_i, :] = [ 4.  5. 32. 37.]
255 cord_individual_obj[indivial_i, :] = [ 5.  5. 104. 109.]
256 cord_individual_obj[indivial_i, :] = [ 6.  5. 10. 15.]
257 cord_individual_obj[indivial_i, :] = [ 7.  6. 47. 53.]
258 cord_individual_obj[indivial_i, :] = [ 8.  4. 42. 46.]
259 cord_individual_obj[indivial_i, :] = [ 9.  4. 20. 24.]
260 cord_individual_obj[indivial_i, :] = [10. 4. 71. 75.]
261 cord_individual_obj[indivial_i, :] = [11. 4. 118. 122.]
262 cord_individual_obj[indivial_i, :] = [12. 4. 21. 25.]
263 cord_individual_obj[indivial_i, :] = [13. 5. 9. 14.]
264 cord_individual_obj[indivial_i, :] = [14. 6. 14. 20.]
265 cord_individual_obj[indivial_i, :] = [15. 4. 108. 112.]
266 cord_individual_obj[indivial_i, :] = [16. 3. 7. 10.]
267 cord_individual_obj[indivial_i, :] = [17. 6. 118. 124.]
268 cord_individual_obj[indivial_i, :] = [18. 4. 115. 119.]
269 cord_individual_obj[indivial_i, :] = [19. 5. 48. 53.]
270 cord_individual_obj[indivial_i, :] = [20. 6. 82. 88.]
271 cord_individual_obj[indivial_i, :] = [21. 4. 73. 77.]
272 cord_individual_obj[indivial_i, :] = [22. 3. 96. 99.]
273 cord_individual_obj[indivial_i, :] = [23. 3. 89. 92.]
274 cord_individual_obj[indivial_i, :] = [24. 3. 91. 94.]
275

276 min(cord_individual_obj[:, 3]) = 10.0
277 historl_G_best_iter[iter, 3] = 10.0
278 Begin iteration:
279
280 iter = 8
281 cord_individual_obj[indivial_i, :] = [ 0.  3. 122. 125.]
282 cord_individual_obj[indivial_i, :] = [ 1.  5. 97. 102.]
283 cord_individual_obj[indivial_i, :] = [ 2.  5. 68. 73.]
284 cord_individual_obj[indivial_i, :] = [ 3.  7. 97. 104.]
285 cord_individual_obj[indivial_i, :] = [ 4.  5. 32. 37.]
286 cord_individual_obj[indivial_i, :] = [ 5.  5. 56. 61.]
287 cord_individual_obj[indivial_i, :] = [ 6.  4. 70. 74.]
288 cord_individual_obj[indivial_i, :] = [ 7.  3. 88. 91.]
289 cord_individual_obj[indivial_i, :] = [ 8.  4. 13. 17.]
290 cord_individual_obj[indivial_i, :] = [ 9.  4. 68. 72.]
291 cord_individual_obj[indivial_i, :] = [10. 4. 34. 38.]
292 cord_individual_obj[indivial_i, :] = [11. 7. 61. 68.]
293 cord_individual_obj[indivial_i, :] = [12. 3. 19. 22.]
294 cord_individual_obj[indivial_i, :] = [13. 4. 102. 106.]
295 cord_individual_obj[indivial_i, :] = [14. 4. 101. 105.]
296 cord_individual_obj[indivial_i, :] = [15. 3. 47. 50.]
297 cord_individual_obj[indivial_i, :] = [16. 3. 86. 89.]
298 cord_individual_obj[indivial_i, :] = [17. 3. 7. 10.]
299 cord_individual_obj[indivial_i, :] = [18. 5. 77. 82.]
300 cord_individual_obj[indivial_i, :] = [19. 4. 29. 33.]
301 cord_individual_obj[indivial_i, :] = [20. 5. 146. 151.]
302 cord_individual_obj[indivial_i, :] = [21. 4. 79. 83.]
303 cord_individual_obj[indivial_i, :] = [22. 3. 134. 137.]
304 cord_individual_obj[indivial_i, :] = [23. 4. 123. 127.]
305 cord_individual_obj[indivial_i, :] = [24. 5. 15. 20.]
306

307 min(cord_individual_obj[:, 3]) = 10.0
308 historl_G_best_iter[iter, 3] = 10.0
309 Begin iteration:
310
311 iter = 9
312 cord_individual_obj[indivial_i, :] = [ 0.  4. 139. 143.]
313 cord_individual_obj[indivial_i, :] = [ 1.  5. 94. 99.]
314 cord_individual_obj[indivial_i, :] = [ 2.  3. 41. 44.]
315 cord_individual_obj[indivial_i, :] = [ 3.  7. 68. 75.]
316 cord_individual_obj[indivial_i, :] = [ 4.  5. 32. 37.]
317 cord_individual_obj[indivial_i, :] = [ 5.  5. 68. 73.]
318 cord_individual_obj[indivial_i, :] = [ 6.  4. 93. 97.]
319 cord_individual_obj[indivial_i, :] = [ 7.  6. 85. 91.]
320 cord_individual_obj[indivial_i, :] = [ 8.  5. 51. 56.]
321 cord_individual_obj[indivial_i, :] = [ 9.  6. 32. 38.]
322 cord_individual_obj[indivial_i, :] = [10. 5. 29. 34.]
323 cord_individual_obj[indivial_i, :] = [11. 6. 53. 59.]
324 cord_individual_obj[indivial_i, :] = [12. 4. 105. 109.]
325 cord_individual_obj[indivial_i, :] = [13. 6. 15. 21.]
326 cord_individual_obj[indivial_i, :] = [14. 5. 51. 56.]
327 cord_individual_obj[indivial_i, :] = [15. 5. 119. 124.]
328 cord_individual_obj[indivial_i, :] = [16. 3. 86. 89.]
329 cord_individual_obj[indivial_i, :] = [17. 5. 163. 168.]
330 cord_individual_obj[indivial_i, :] = [18. 5. 54. 59.]
331 cord_individual_obj[indivial_i, :] = [19. 5. 92. 97.]

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332 cord_individual_obj[indivial_i,:] = [20. 3. 7. 10.]
333 cord_individual_obj[indivial_i,:] = [21. 5. 28. 33.]
334 cord_individual_obj[indivial_i,:] = [22. 4. 99. 103.]
335 cord_individual_obj[indivial_i,:] = [23. 4. 44. 48.]
336 cord_individual_obj[indivial_i,:] = [24. 3. 91. 94.]
337
338 min(cord_individual_obj[:,3]) = 10.0
339 histol_G_best_iter[iter,3] = 10.0
340 Begin iteration:
341
342 iter = 10
343 cord_individual_obj[indivial_i,:] = [ 0. 4. 139. 143.]
344 cord_individual_obj[indivial_i,:] = [ 1. 6. 93. 99.]
345 cord_individual_obj[indivial_i,:] = [ 2. 5. 40. 45.]
346 cord_individual_obj[indivial_i,:] = [ 3. 5. 68. 73.]
347 cord_individual_obj[indivial_i,:] = [ 4. 5. 40. 45.]
348 cord_individual_obj[indivial_i,:] = [ 5. 6. 42. 48.]
349 cord_individual_obj[indivial_i,:] = [ 6. 6. 45. 51.]
350 cord_individual_obj[indivial_i,:] = [ 7. 5. 93. 98.]
351 cord_individual_obj[indivial_i,:] = [ 8. 4. 49. 53.]
352 cord_individual_obj[indivial_i,:] = [ 9. 5. 69. 74.]
353 cord_individual_obj[indivial_i,:] = [10. 5. 37. 42.]
354 cord_individual_obj[indivial_i,:] = [11. 5. 8. 13.]
355 cord_individual_obj[indivial_i,:] = [12. 6. 73. 79.]
356 cord_individual_obj[indivial_i,:] = [13. 6. 25. 31.]
357 cord_individual_obj[indivial_i,:] = [14. 4. 18. 22.]
358 cord_individual_obj[indivial_i,:] = [15. 5. 107. 112.]
359 cord_individual_obj[indivial_i,:] = [16. 4. 52. 56.]
360 cord_individual_obj[indivial_i,:] = [17. 3. 7. 10.]
361 cord_individual_obj[indivial_i,:] = [18. 3. 80. 83.]
362 cord_individual_obj[indivial_i,:] = [19. 5. 107. 112.]
363 cord_individual_obj[indivial_i,:] = [20. 5. 109. 114.]
364 cord_individual_obj[indivial_i,:] = [21. 5. 46. 51.]
365 cord_individual_obj[indivial_i,:] = [22. 4. 120. 124.]
366 cord_individual_obj[indivial_i,:] = [23. 4. 99. 103.]
367 cord_individual_obj[indivial_i,:] = [24. 5. 9. 14.]
368
369 min(cord_individual_obj[:,3]) = 10.0
370 histol_G_best_iter[iter,3] = 10.0
371 Begin iteration:
372
373 iter = 11
374 cord_individual_obj[indivial_i,:] = [ 0. 3. 7. 10.]
375 cord_individual_obj[indivial_i,:] = [ 1. 5. 90. 95.]
376 cord_individual_obj[indivial_i,:] = [ 2. 6. 58. 64.]
377 cord_individual_obj[indivial_i,:] = [ 3. 4. 13. 17.]
378 cord_individual_obj[indivial_i,:] = [ 4. 7. 66. 73.]
379 cord_individual_obj[indivial_i,:] = [ 5. 5. 78. 83.]
380 cord_individual_obj[indivial_i,:] = [ 6. 5. 63. 68.]
381 cord_individual_obj[indivial_i,:] = [ 7. 8. 85. 93.]
382 cord_individual_obj[indivial_i,:] = [ 8. 5. 45. 50.]
383 cord_individual_obj[indivial_i,:] = [ 9. 6. 17. 23.]
384 cord_individual_obj[indivial_i,:] = [10. 6. 7. 13.]
385 cord_individual_obj[indivial_i,:] = [11. 5. 47. 52.]
386 cord_individual_obj[indivial_i,:] = [12. 6. 77. 83.]
387 cord_individual_obj[indivial_i,:] = [13. 5. 63. 68.]
388 cord_individual_obj[indivial_i,:] = [14. 5. 63. 68.]
389 cord_individual_obj[indivial_i,:] = [15. 5. 119. 124.]
390 cord_individual_obj[indivial_i,:] = [16. 3. 34. 37.]
391 cord_individual_obj[indivial_i,:] = [17. 5. 163. 168.]
392 cord_individual_obj[indivial_i,:] = [18. 4. 13. 17.]
393 cord_individual_obj[indivial_i,:] = [19. 5. 74. 79.]
394 cord_individual_obj[indivial_i,:] = [20. 5. 139. 144.]
395 cord_individual_obj[indivial_i,:] = [21. 4. 31. 35.]
396 cord_individual_obj[indivial_i,:] = [22. 4. 165. 169.]
397 cord_individual_obj[indivial_i,:] = [23. 4. 61. 65.]
398 cord_individual_obj[indivial_i,:] = [24. 5. 46. 51.]
399
400 min(cord_individual_obj[:,3]) = 10.0
401 histol_G_best_iter[iter,3] = 10.0
402 Begin iteration:
403
404 iter = 12
405 cord_individual_obj[indivial_i,:] = [ 0. 4. 139. 143.]
406 cord_individual_obj[indivial_i,:] = [ 1. 6. 89. 95.]
407 cord_individual_obj[indivial_i,:] = [ 2. 4. 123. 127.]
408 cord_individual_obj[indivial_i,:] = [ 3. 6. 74. 80.]
409 cord_individual_obj[indivial_i,:] = [ 4. 7. 116. 123.]
410 cord_individual_obj[indivial_i,:] = [ 5. 7. 89. 96.]
411 cord_individual_obj[indivial_i,:] = [ 6. 6. 75. 81.]
412 cord_individual_obj[indivial_i,:] = [ 7. 7. 84. 91.]
413 cord_individual_obj[indivial_i,:] = [ 8. 3. 69. 72.]
414 cord_individual_obj[indivial_i,:] = [ 9. 6. 13. 19.]
415 cord_individual_obj[indivial_i,:] = [10. 3. 102. 105.]
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416 cord_individual_obj[indivial_i,:] = [11. 5. 86. 91.]
417 cord_individual_obj[indivial_i,:] = [12. 6. 77. 83.]
418 cord_individual_obj[indivial_i,:] = [13. 4. 19. 23.]
419 cord_individual_obj[indivial_i,:] = [14. 4. 18. 22.]
420 cord_individual_obj[indivial_i,:] = [15. 4. 119. 123.]
421 cord_individual_obj[indivial_i,:] = [16. 7. 113. 120.]
422 cord_individual_obj[indivial_i,:] = [17. 5. 126. 131.]
423 cord_individual_obj[indivial_i,:] = [18. 4. 91. 95.]
424 cord_individual_obj[indivial_i,:] = [19. 5. 93. 98.]
425 cord_individual_obj[indivial_i,:] = [20. 5. 26. 31.]
426 cord_individual_obj[indivial_i,:] = [21. 7. 10. 17.]
427 cord_individual_obj[indivial_i,:] = [22. 3. 7. 10.]
428 cord_individual_obj[indivial_i,:] = [23. 3. 61. 64.]
429 cord_individual_obj[indivial_i,:] = [24. 5. 46. 51.]
430
431 min(cord_individual_obj[:,3]) = 10.0
432 histol_G_best_iter[iter,3] = 10.0
433 Begin iteration:
434
435 iter = 13
436 cord_individual_obj[indivial_i,:] = [ 0. 3. 7. 10.]
437 cord_individual_obj[indivial_i,:] = [ 1. 5. 98. 103.]
438 cord_individual_obj[indivial_i,:] = [ 2. 3. 75. 78.]
439 cord_individual_obj[indivial_i,:] = [ 3. 5. 40. 45.]
440 cord_individual_obj[indivial_i,:] = [ 4. 7. 45. 52.]
441 cord_individual_obj[indivial_i,:] = [ 5. 5. 84. 89.]
442 cord_individual_obj[indivial_i,:] = [ 6. 5. 95. 100.]
443 cord_individual_obj[indivial_i,:] = [ 7. 6. 31. 37.]
444 cord_individual_obj[indivial_i,:] = [ 8. 4. 52. 56.]
445 cord_individual_obj[indivial_i,:] = [ 9. 4. 49. 53.]
446 cord_individual_obj[indivial_i,:] = [10. 5. 86. 91.]
447 cord_individual_obj[indivial_i,:] = [11. 6. 75. 81.]
448 cord_individual_obj[indivial_i,:] = [12. 6. 37. 43.]
449 cord_individual_obj[indivial_i,:] = [13. 6. 84. 90.]
450 cord_individual_obj[indivial_i,:] = [14. 5. 37. 42.]
451 cord_individual_obj[indivial_i,:] = [15. 5. 46. 51.]
452 cord_individual_obj[indivial_i,:] = [16. 3. 120. 123.]
453 cord_individual_obj[indivial_i,:] = [17. 5. 154. 159.]
454 cord_individual_obj[indivial_i,:] = [18. 5. 8. 13.]
455 cord_individual_obj[indivial_i,:] = [19. 5. 99. 104.]
456 cord_individual_obj[indivial_i,:] = [20. 5. 42. 47.]
457 cord_individual_obj[indivial_i,:] = [21. 3. 111. 114.]
458 cord_individual_obj[indivial_i,:] = [22. 3. 127. 130.]
459 cord_individual_obj[indivial_i,:] = [23. 3. 113. 116.]
460 cord_individual_obj[indivial_i,:] = [24. 5. 89. 94.]
461
462 min(cord_individual_obj[:,3]) = 10.0
463 histol_G_best_iter[iter,3] = 10.0
464 Begin iteration:
465
466 iter = 14
467 cord_individual_obj[indivial_i,:] = [ 0. 4. 139. 143.]
468 cord_individual_obj[indivial_i,:] = [ 1. 6. 87. 93.]
469 cord_individual_obj[indivial_i,:] = [ 2. 4. 102. 106.]
470 cord_individual_obj[indivial_i,:] = [ 3. 6. 64. 70.]
471 cord_individual_obj[indivial_i,:] = [ 4. 5. 106. 111.]
472 cord_individual_obj[indivial_i,:] = [ 5. 5. 25. 30.]
473 cord_individual_obj[indivial_i,:] = [ 6. 6. 12. 18.]
474 cord_individual_obj[indivial_i,:] = [ 7. 4. 22. 26.]
475 cord_individual_obj[indivial_i,:] = [ 8. 4. 46. 50.]
476 cord_individual_obj[indivial_i,:] = [ 9. 7. 109. 116.]
477 cord_individual_obj[indivial_i,:] = [10. 4. 14. 18.]
478 cord_individual_obj[indivial_i,:] = [11. 5. 57. 62.]
479 cord_individual_obj[indivial_i,:] = [12. 5. 41. 46.]
480 cord_individual_obj[indivial_i,:] = [13. 4. 101. 105.]
481 cord_individual_obj[indivial_i,:] = [14. 5. 31. 36.]
482 cord_individual_obj[indivial_i,:] = [15. 4. 101. 105.]
483 cord_individual_obj[indivial_i,:] = [16. 5. 32. 37.]
484 cord_individual_obj[indivial_i,:] = [17. 3. 7. 10.]
485 cord_individual_obj[indivial_i,:] = [18. 3. 33. 36.]
486 cord_individual_obj[indivial_i,:] = [19. 4. 7. 11.]
487 cord_individual_obj[indivial_i,:] = [20. 6. 138. 144.]
488 cord_individual_obj[indivial_i,:] = [21. 4. 78. 82.]
489 cord_individual_obj[indivial_i,:] = [22. 4. 83. 87.]
490 cord_individual_obj[indivial_i,:] = [23. 4. 120. 124.]
491 cord_individual_obj[indivial_i,:] = [24. 5. 72. 77.]
492
493 min(cord_individual_obj[:,3]) = 10.0
494 histol_G_best_iter[iter,3] = 10.0
495 Begin iteration:
496
497 iter = 15
498 cord_individual_obj[indivial_i,:] = [ 0. 6. 113. 119.]
499 cord_individual_obj[indivial_i,:] = [ 1. 6. 75. 81.]

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500 cord_individual_obj[indivial_i,:] = [ 2. 3. 23. 26.]
501 cord_individual_obj[indivial_i,:] = [ 3. 5. 52. 57.]
502 cord_individual_obj[indivial_i,:] = [ 4. 7. 67. 74.]
503 cord_individual_obj[indivial_i,:] = [ 5. 7. 66. 73.]
504 cord_individual_obj[indivial_i,:] = [ 6. 5. 76. 81.]
505 cord_individual_obj[indivial_i,:] = [ 7. 3. 79. 82.]
506 cord_individual_obj[indivial_i,:] = [ 8. 4. 32. 36.]
507 cord_individual_obj[indivial_i,:] = [ 9. 6. 14. 20.]
508 cord_individual_obj[indivial_i,:] = [10. 6. 45. 51.]
509 cord_individual_obj[indivial_i,:] = [11. 5. 26. 31.]
510 cord_individual_obj[indivial_i,:] = [12. 5. 93. 98.]
511 cord_individual_obj[indivial_i,:] = [13. 6. 23. 29.]
512 cord_individual_obj[indivial_i,:] = [14. 5. 75. 80.]
513 cord_individual_obj[indivial_i,:] = [15. 5. 107. 112.]
514 cord_individual_obj[indivial_i,:] = [16. 5. 53. 58.]
515 cord_individual_obj[indivial_i,:] = [17. 5. 126. 131.]
516 cord_individual_obj[indivial_i,:] = [18. 3. 94. 97.]
517 cord_individual_obj[indivial_i,:] = [19. 5. 93. 98.]
518 cord_individual_obj[indivial_i,:] = [20. 3. 7. 10.]
519 cord_individual_obj[indivial_i,:] = [21. 4. 27. 31.]
520 cord_individual_obj[indivial_i,:] = [22. 5. 129. 134.]
521 cord_individual_obj[indivial_i,:] = [23. 4. 58. 62.]
522 cord_individual_obj[indivial_i,:] = [24. 3. 89. 92.]
523
524 min(cord_individual_obj[:, 3]) = 10.0
525 histol_G_best_iter[iter, 3] = 10.0
526 Begin iteration:
527
528 iter = 16
529 cord_individual_obj[indivial_i,:] = [ 0. 5. 84. 89.]
530 cord_individual_obj[indivial_i,:] = [ 1. 5. 62. 67.]
531 cord_individual_obj[indivial_i,:] = [ 2. 4. 17. 21.]
532 cord_individual_obj[indivial_i,:] = [ 3. 5. 39. 44.]
533 cord_individual_obj[indivial_i,:] = [ 4. 5. 44. 49.]
534 cord_individual_obj[indivial_i,:] = [ 5. 6. 79. 85.]
535 cord_individual_obj[indivial_i,:] = [ 6. 6. 99. 105.]
536 cord_individual_obj[indivial_i,:] = [ 7. 4. 102. 106.]
537 cord_individual_obj[indivial_i,:] = [ 8. 5. 38. 43.]
538 cord_individual_obj[indivial_i,:] = [ 9. 4. 49. 53.]
539 cord_individual_obj[indivial_i,:] = [10. 3. 107. 110.]
540 cord_individual_obj[indivial_i,:] = [11. 4. 49. 53.]
541 cord_individual_obj[indivial_i,:] = [12. 5. 9. 14.]
542 cord_individual_obj[indivial_i,:] = [13. 5. 49. 54.]
543 cord_individual_obj[indivial_i,:] = [14. 4. 50. 54.]
544 cord_individual_obj[indivial_i,:] = [15. 4. 116. 120.]
545 cord_individual_obj[indivial_i,:] = [16. 4. 100. 104.]
546 cord_individual_obj[indivial_i,:] = [17. 5. 154. 159.]
547 cord_individual_obj[indivial_i,:] = [18. 5. 28. 33.]
548 cord_individual_obj[indivial_i,:] = [19. 5. 99. 104.]
549 cord_individual_obj[indivial_i,:] = [20. 5. 109. 114.]
550 cord_individual_obj[indivial_i,:] = [21. 4. 114. 118.]
551 cord_individual_obj[indivial_i,:] = [22. 3. 7. 10.]
552 cord_individual_obj[indivial_i,:] = [23. 4. 65. 69.]
553 cord_individual_obj[indivial_i,:] = [24. 5. 25. 30.]
554
555 min(cord_individual_obj[:, 3]) = 10.0
556 histol_G_best_iter[iter, 3] = 10.0
557 Begin iteration:
558
559 iter = 17
560 cord_individual_obj[indivial_i,:] = [ 0. 4. 110. 114.]
561 cord_individual_obj[indivial_i,:] = [ 1. 6. 65. 71.]
562 cord_individual_obj[indivial_i,:] = [ 2. 4. 13. 17.]
563 cord_individual_obj[indivial_i,:] = [ 3. 7. 97. 104.]
564 cord_individual_obj[indivial_i,:] = [ 4. 4. 13. 17.]
565 cord_individual_obj[indivial_i,:] = [ 5. 6. 42. 48.]
566 cord_individual_obj[indivial_i,:] = [ 6. 6. 33. 39.]
567 cord_individual_obj[indivial_i,:] = [ 7. 4. 55. 59.]
568 cord_individual_obj[indivial_i,:] = [ 8. 4. 28. 32.]
569 cord_individual_obj[indivial_i,:] = [ 9. 6. 37. 43.]
570 cord_individual_obj[indivial_i,:] = [10. 4. 87. 91.]
571 cord_individual_obj[indivial_i,:] = [11. 4. 91. 95.]
572 cord_individual_obj[indivial_i,:] = [12. 5. 58. 63.]
573 cord_individual_obj[indivial_i,:] = [13. 6. 25. 31.]
574 cord_individual_obj[indivial_i,:] = [14. 5. 42. 47.]
575 cord_individual_obj[indivial_i,:] = [15. 4. 140. 144.]
576 cord_individual_obj[indivial_i,:] = [16. 4. 44. 48.]
577 cord_individual_obj[indivial_i,:] = [17. 3. 7. 10.]
578 cord_individual_obj[indivial_i,:] = [18. 3. 112. 115.]
579 cord_individual_obj[indivial_i,:] = [19. 5. 107. 112.]
580 cord_individual_obj[indivial_i,:] = [20. 6. 17. 23.]
581 cord_individual_obj[indivial_i,:] = [21. 4. 111. 115.]
582 cord_individual_obj[indivial_i,:] = [22. 4. 99. 103.]
583 cord_individual_obj[indivial_i,:] = [23. 4. 90. 94.]

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unknown

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584     cord_individual_obj[indivial_i, :] = [24. 7. 46. 53.]  
585  
586     min(cord_individual_obj[:, 3]) = 10.0  
587     historl_G_best_iter[iter, 3] = 10.0  
588 Begin iteration:  
589  
590 iter = 18  
591     cord_individual_obj[indivial_i, :] = [ 0. 4. 110. 114.]  
592     cord_individual_obj[indivial_i, :] = [ 1. 6. 117. 123.]  
593     cord_individual_obj[indivial_i, :] = [ 2. 4. 98. 102.]  
594     cord_individual_obj[indivial_i, :] = [ 3. 6. 88. 94.]  
595     cord_individual_obj[indivial_i, :] = [ 4. 5. 64. 69.]  
596     cord_individual_obj[indivial_i, :] = [ 5. 7. 64. 71.]  
597     cord_individual_obj[indivial_i, :] = [ 6. 5. 73. 78.]  
598     cord_individual_obj[indivial_i, :] = [ 7. 5. 37. 42.]  
599     cord_individual_obj[indivial_i, :] = [ 8. 5. 46. 51.]  
600     cord_individual_obj[indivial_i, :] = [ 9. 4. 30. 34.]  
601     cord_individual_obj[indivial_i, :] = [10. 5. 29. 34.]  
602     cord_individual_obj[indivial_i, :] = [11. 4. 91. 95.]  
603     cord_individual_obj[indivial_i, :] = [12. 4. 70. 74.]  
604     cord_individual_obj[indivial_i, :] = [13. 6. 77. 83.]  
605     cord_individual_obj[indivial_i, :] = [14. 5. 51. 56.]  
606     cord_individual_obj[indivial_i, :] = [15. 3. 7. 10.]  
607     cord_individual_obj[indivial_i, :] = [16. 4. 46. 50.]  
608     cord_individual_obj[indivial_i, :] = [17. 5. 163. 168.]  
609     cord_individual_obj[indivial_i, :] = [18. 3. 48. 51.]  
610     cord_individual_obj[indivial_i, :] = [19. 5. 93. 98.]  
611     cord_individual_obj[indivial_i, :] = [20. 6. 151. 157.]  
612     cord_individual_obj[indivial_i, :] = [21. 5. 29. 34.]  
613     cord_individual_obj[indivial_i, :] = [22. 3. 107. 110.]  
614     cord_individual_obj[indivial_i, :] = [23. 4. 44. 48.]  
615     cord_individual_obj[indivial_i, :] = [24. 5. 46. 51.]  
616  
617     min(cord_individual_obj[:, 3]) = 10.0  
618     historl_G_best_iter[iter, 3] = 10.0  
619 Begin iteration:  
620  
621 iter = 19  
622     cord_individual_obj[indivial_i, :] = [ 0. 3. 38. 41.]  
623     cord_individual_obj[indivial_i, :] = [ 1. 6. 22. 28.]  
624     cord_individual_obj[indivial_i, :] = [ 2. 5. 7. 12.]  
625     cord_individual_obj[indivial_i, :] = [ 3. 7. 56. 63.]  
626     cord_individual_obj[indivial_i, :] = [ 4. 5. 50. 55.]  
627     cord_individual_obj[indivial_i, :] = [ 5. 5. 134. 139.]  
628     cord_individual_obj[indivial_i, :] = [ 6. 6. 87. 93.]  
629     cord_individual_obj[indivial_i, :] = [ 7. 5. 42. 47.]  
630     cord_individual_obj[indivial_i, :] = [ 8. 5. 77. 82.]  
631     cord_individual_obj[indivial_i, :] = [ 9. 5. 95. 100.]  
632     cord_individual_obj[indivial_i, :] = [10. 5. 81. 86.]  
633     cord_individual_obj[indivial_i, :] = [11. 3. 48. 51.]  
634     cord_individual_obj[indivial_i, :] = [12. 6. 48. 54.]  
635     cord_individual_obj[indivial_i, :] = [13. 5. 25. 30.]  
636     cord_individual_obj[indivial_i, :] = [14. 4. 65. 69.]  
637     cord_individual_obj[indivial_i, :] = [15. 5. 119. 124.]  
638     cord_individual_obj[indivial_i, :] = [16. 5. 112. 117.]  
639     cord_individual_obj[indivial_i, :] = [17. 3. 7. 10.]  
640     cord_individual_obj[indivial_i, :] = [18. 3. 12. 15.]  
641     cord_individual_obj[indivial_i, :] = [19. 5. 74. 79.]  
642     cord_individual_obj[indivial_i, :] = [20. 8. 35. 43.]  
643     cord_individual_obj[indivial_i, :] = [21. 3. 109. 112.]  
644     cord_individual_obj[indivial_i, :] = [22. 3. 83. 86.]  
645     cord_individual_obj[indivial_i, :] = [23. 4. 107. 111.]  
646     cord_individual_obj[indivial_i, :] = [24. 3. 70. 73.]  
647  
648     min(cord_individual_obj[:, 3]) = 10.0  
649     historl_G_best_iter[iter, 3] = 10.0  
650 Begin iteration:  
651  
652 iter = 20  
653     cord_individual_obj[indivial_i, :] = [ 0. 4. 118. 122.]  
654     cord_individual_obj[indivial_i, :] = [ 1. 4. 91. 95.]  
655     cord_individual_obj[indivial_i, :] = [ 2. 5. 50. 55.]  
656     cord_individual_obj[indivial_i, :] = [ 3. 5. 68. 73.]  
657     cord_individual_obj[indivial_i, :] = [ 4. 7. 66. 73.]  
658     cord_individual_obj[indivial_i, :] = [ 5. 3. 7. 10.]  
659     cord_individual_obj[indivial_i, :] = [ 6. 5. 43. 48.]  
660     cord_individual_obj[indivial_i, :] = [ 7. 4. 72. 76.]  
661     cord_individual_obj[indivial_i, :] = [ 8. 5. 84. 89.]  
662     cord_individual_obj[indivial_i, :] = [ 9. 4. 54. 58.]  
663     cord_individual_obj[indivial_i, :] = [10. 6. 9. 15.]  
664     cord_individual_obj[indivial_i, :] = [11. 4. 86. 90.]  
665     cord_individual_obj[indivial_i, :] = [12. 4. 62. 66.]  
666     cord_individual_obj[indivial_i, :] = [13. 4. 164. 168.]  
667     cord_individual_obj[indivial_i, :] = [14. 3. 18. 21.]
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668 cord_individual_obj[indivial_i, :] = [ 15. 3. 116. 119.]
669 cord_individual_obj[indivial_i, :] = [ 16. 7. 107. 114.]
670 cord_individual_obj[indivial_i, :] = [ 17. 5. 163. 168.]
671 cord_individual_obj[indivial_i, :] = [ 18. 3. 98. 101.]
672 cord_individual_obj[indivial_i, :] = [19. 5. 78. 83.]
673 cord_individual_obj[indivial_i, :] = [20. 5. 76. 81.]
674 cord_individual_obj[indivial_i, :] = [21. 3. 62. 65.]
675 cord_individual_obj[indivial_i, :] = [ 22. 4. 113. 117.]
676 cord_individual_obj[indivial_i, :] = [23. 4. 92. 96.]
677 cord_individual_obj[indivial_i, :] = [24. 8. 63. 71.]
678
679 min(cord_individual_obj[:, 3]) = 10.0
680 historl_G_best_iter[iter, 3] = 10.0
681 Iteration calculate over
682
683
684
685
686 All item are in Bin and:
687 Bin area = 1080
688 Real_area = 102.0
689 Proportion_of_area = 0.09444444444444444
690 BEST_CHROM =
691 berth: [ 4.5 12.5 25. 20.5 1.5 6. 14. 8. ]
692 time: [0. 2. 0. 0. 3. 0. 0.]
693 num_QC: [3. 3. 1. 4. 2. 5. 8. 2.]
694 Objective function values and some other indicators:
695 Obj0 = 3.00          Obj1 = 7.00          Obj0 + Obj1 = 10.00
696 Total movement of crane: 2.00
697 Total waiting time in berth position: 5.00
698 Total index of q during berthing: 427.00
699 Specific arrangement for each vessel:
700 V_id: 0           li: 3.0           xi: 4.5           bow of i: 3.0           tail of i: 6.0           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: 160.0           work load_i:
702 V_id: 1           li: 7.0           xi: 12.5           bow of i: 9.0           tail of i: 16.0           gama_i0: 2.0           gama_i1: 3
703 .0             gama_i1 + 1: 4.0           gama_i1 - gama_i0: 1.0           duration_time_i: 2.0           demand_i: 100.0           work
704 V_id: 2           li: 4.0           xi: 25.0           bow of i: 23.0           tail of i: 27.0           gama_i0: 0.0           gama_i1: 3
705 .0             gama_i1 + 1: 4.0           gama_i1 - gama_i0: 3.0           duration_time_i: 4.0           demand_i: 80.0           work
706 V_id: 3           li: 5.0           xi: 20.5           bow of i: 18.0           tail of i: 23.0           gama_i0: 0.0           gama_i1: 1
707 .0             gama_i1 + 1: 2.0           gama_i1 - gama_i0: 1.0           duration_time_i: 2.0           demand_i: 100.0           work
708 V_id: 4           li: 3.0           xi: 1.5           bow of i: 0.0           tail of i: 3.0           gama_i0: 0.0           gama_i1: 3.0
709 .0             gama_i1 + 1: 4.0           gama_i1 - gama_i0: 3.0           duration_time_i: 4.0           demand_i: 160.0           work load_i:
710 V_id: 5           li: 6.0           xi: 6.0           bow of i: 3.0           tail of i: 9.0           gama_i0: 3.0           gama_i1: 3.0
711 .0             gama_i1 + 1: 4.0           gama_i1 - gama_i0: 0.0           duration_time_i: 1.0           demand_i: 100.0           work load_i:
712 V_id: 6           li: 8.0           xi: 14.0           bow of i: 10.0           tail of i: 18.0           gama_i0: 0.0           gama_i1: 0
713 .0             gama_i1 + 1: 1.0           gama_i1 - gama_i0: 0.0           duration_time_i: 1.0           demand_i: 160.0           work
714 V_id: 7           li: 4.0           xi: 8.0           bow of i: 6.0           tail of i: 10.0           gama_i0: 0.0           gama_i1: 1.0
715 .0             gama_i1 + 1: 2.0           gama_i1 - gama_i0: 1.0           duration_time_i: 2.0           demand_i: 80.0           work load_i:
716
717 Algorithm finished and the total CPU time: 224 s
718 End
719

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