

unknown

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80 cord_individual_obj[indivial_i,:] = [16. 4. 28. 32.]
81 cord_individual_obj[indivial_i,:] = [17. 4. 21. 25.]
82 cord_individual_obj[indivial_i,:] = [18. 4. 113. 117.]
83 cord_individual_obj[indivial_i,:] = [19. 5. 95. 100.]
84 cord_individual_obj[indivial_i,:] = [20. 4. 40. 44.]
85 cord_individual_obj[indivial_i,:] = [21. 4. 67. 71.]
86 cord_individual_obj[indivial_i,:] = [22. 6. 26. 32.]
87 cord_individual_obj[indivial_i,:] = [23. 5. 37. 42.]
88 cord_individual_obj[indivial_i,:] = [24. 6. 64. 70.]
89
90 min(cord_individual_obj[:,3]) = 14.0
91 historl_G_best_iter[iter, 3] = 14.0
92 Begin iteration:
93
94 iter = 2
95 cord_individual_obj[indivial_i,:] = [ 0. 4. 10. 14.]
96 cord_individual_obj[indivial_i,:] = [ 1. 5. 107. 112.]
97 cord_individual_obj[indivial_i,:] = [ 2. 5. 68. 73.]
98 cord_individual_obj[indivial_i,:] = [ 3. 8. 91. 99.]
99 cord_individual_obj[indivial_i,:] = [ 4. 6. 97. 103.]
100 cord_individual_obj[indivial_i,:] = [ 5. 6. 66. 72.]
101 cord_individual_obj[indivial_i,:] = [ 6. 6. 125. 131.]
102 cord_individual_obj[indivial_i,:] = [ 7. 6. 87. 93.]
103 cord_individual_obj[indivial_i,:] = [ 8. 4. 39. 43.]
104 cord_individual_obj[indivial_i,:] = [ 9. 4. 88. 92.]
105 cord_individual_obj[indivial_i,:] = [10. 7. 72. 79.]
106 cord_individual_obj[indivial_i,:] = [11. 6. 73. 79.]
107 cord_individual_obj[indivial_i,:] = [12. 6. 30. 36.]
108 cord_individual_obj[indivial_i,:] = [13. 4. 54. 58.]
109 cord_individual_obj[indivial_i,:] = [14. 6. 86. 92.]
110 cord_individual_obj[indivial_i,:] = [15. 5. 70. 75.]
111 cord_individual_obj[indivial_i,:] = [16. 7. 111. 118.]
112 cord_individual_obj[indivial_i,:] = [17. 9. 88. 97.]
113 cord_individual_obj[indivial_i,:] = [18. 5. 57. 62.]
114 cord_individual_obj[indivial_i,:] = [19. 7. 87. 94.]
115 cord_individual_obj[indivial_i,:] = [20. 7. 31. 38.]
116 cord_individual_obj[indivial_i,:] = [21. 6. 104. 110.]
117 cord_individual_obj[indivial_i,:] = [22. 5. 48. 53.]
118 cord_individual_obj[indivial_i,:] = [23. 6. 88. 94.]
119 cord_individual_obj[indivial_i,:] = [24. 6. 71. 77.]
120
121 min(cord_individual_obj[:,3]) = 14.0
122 historl_G_best_iter[iter, 3] = 14.0
123 Begin iteration:
124
125 iter = 3
126 cord_individual_obj[indivial_i,:] = [ 0. 7. 92. 99.]
127 cord_individual_obj[indivial_i,:] = [ 1. 5. 107. 112.]
128 cord_individual_obj[indivial_i,:] = [ 2. 6. 110. 116.]
129 cord_individual_obj[indivial_i,:] = [ 3. 5. 57. 62.]
130 cord_individual_obj[indivial_i,:] = [ 4. 5. 100. 105.]
131 cord_individual_obj[indivial_i,:] = [ 5. 4. 69. 73.]
132 cord_individual_obj[indivial_i,:] = [ 6. 4. 10. 14.]
133 cord_individual_obj[indivial_i,:] = [ 7. 4. 44. 48.]
134 cord_individual_obj[indivial_i,:] = [ 8. 4. 105. 109.]
135 cord_individual_obj[indivial_i,:] = [ 9. 6. 95. 101.]
136 cord_individual_obj[indivial_i,:] = [10. 5. 103. 108.]
137 cord_individual_obj[indivial_i,:] = [11. 4. 40. 44.]
138 cord_individual_obj[indivial_i,:] = [12. 6. 41. 47.]
139 cord_individual_obj[indivial_i,:] = [13. 6. 82. 88.]
140 cord_individual_obj[indivial_i,:] = [14. 5. 101. 106.]
141 cord_individual_obj[indivial_i,:] = [15. 6. 41. 47.]
142 cord_individual_obj[indivial_i,:] = [16. 5. 47. 52.]
143 cord_individual_obj[indivial_i,:] = [17. 4. 64. 68.]
144 cord_individual_obj[indivial_i,:] = [18. 6. 102. 108.]
145 cord_individual_obj[indivial_i,:] = [19. 7. 85. 92.]
146 cord_individual_obj[indivial_i,:] = [20. 4. 49. 53.]
147 cord_individual_obj[indivial_i,:] = [21. 6. 24. 30.]
148 cord_individual_obj[indivial_i,:] = [22. 5. 80. 85.]
149 cord_individual_obj[indivial_i,:] = [23. 5. 50. 55.]
150 cord_individual_obj[indivial_i,:] = [24. 5. 64. 69.]
151
152 min(cord_individual_obj[:,3]) = 14.0
153 historl_G_best_iter[iter, 3] = 14.0
154 Begin iteration:
155
156 iter = 4
157 cord_individual_obj[indivial_i,:] = [ 0. 5. 37. 42.]
158 cord_individual_obj[indivial_i,:] = [ 1. 5. 50. 55.]
159 cord_individual_obj[indivial_i,:] = [ 2. 4. 10. 14.]
160 cord_individual_obj[indivial_i,:] = [ 3. 5. 39. 44.]
161 cord_individual_obj[indivial_i,:] = [ 4. 4. 100. 104.]
162 cord_individual_obj[indivial_i,:] = [ 5. 6. 134. 140.]
163 cord_individual_obj[indivial_i,:] = [ 6. 6. 111. 117.]

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164 cord_individual_obj[indivial_i,:] = [ 7. 7. 110. 117.]
165 cord_individual_obj[indivial_i,:] = [ 8. 6. 72. 78.]
166 cord_individual_obj[indivial_i,:] = [ 9. 6. 54. 60.]
167 cord_individual_obj[indivial_i,:] = [10. 6. 80. 86.]
168 cord_individual_obj[indivial_i,:] = [11. 4. 179. 183.]
169 cord_individual_obj[indivial_i,:] = [12. 6. 73. 79.]
170 cord_individual_obj[indivial_i,:] = [13. 8. 29. 37.]
171 cord_individual_obj[indivial_i,:] = [14. 7. 110. 117.]
172 cord_individual_obj[indivial_i,:] = [15. 5. 99. 104.]
173 cord_individual_obj[indivial_i,:] = [16. 6. 103. 109.]
174 cord_individual_obj[indivial_i,:] = [17. 7. 130. 137.]
175 cord_individual_obj[indivial_i,:] = [18. 4. 120. 124.]
176 cord_individual_obj[indivial_i,:] = [19. 7. 51. 58.]
177 cord_individual_obj[indivial_i,:] = [20. 6. 37. 43.]
178 cord_individual_obj[indivial_i,:] = [21. 5. 85. 90.]
179 cord_individual_obj[indivial_i,:] = [22. 4. 63. 67.]
180 cord_individual_obj[indivial_i,:] = [23. 6. 63. 69.]
181 cord_individual_obj[indivial_i,:] = [24. 8. 71. 79.]
182
183 min(cord_individual_obj[:,3]) = 14.0
184 historl_G_best_iter[iter,3] = 14.0
185 Begin iteration:
186
187 iter = 5
188 cord_individual_obj[indivial_i,:] = [ 0. 5. 127. 132.]
189 cord_individual_obj[indivial_i,:] = [ 1. 4. 28. 32.]
190 cord_individual_obj[indivial_i,:] = [ 2. 7. 85. 92.]
191 cord_individual_obj[indivial_i,:] = [ 3. 3. 41. 44.]
192 cord_individual_obj[indivial_i,:] = [ 4. 5. 84. 89.]
193 cord_individual_obj[indivial_i,:] = [ 5. 6. 94. 100.]
194 cord_individual_obj[indivial_i,:] = [ 6. 4. 32. 36.]
195 cord_individual_obj[indivial_i,:] = [ 7. 6. 92. 98.]
196 cord_individual_obj[indivial_i,:] = [ 8. 5. 36. 41.]
197 cord_individual_obj[indivial_i,:] = [ 9. 7. 76. 83.]
198 cord_individual_obj[indivial_i,:] = [10. 8. 75. 83.]
199 cord_individual_obj[indivial_i,:] = [11. 4. 10. 14.]
200 cord_individual_obj[indivial_i,:] = [12. 7. 100. 107.]
201 cord_individual_obj[indivial_i,:] = [13. 6. 81. 87.]
202 cord_individual_obj[indivial_i,:] = [14. 4. 80. 84.]
203 cord_individual_obj[indivial_i,:] = [15. 5. 42. 47.]
204 cord_individual_obj[indivial_i,:] = [16. 5. 67. 72.]
205 cord_individual_obj[indivial_i,:] = [17. 6. 132. 138.]
206 cord_individual_obj[indivial_i,:] = [18. 6. 117. 123.]
207 cord_individual_obj[indivial_i,:] = [19. 5. 105. 110.]
208 cord_individual_obj[indivial_i,:] = [20. 5. 65. 70.]
209 cord_individual_obj[indivial_i,:] = [21. 4. 59. 63.]
210 cord_individual_obj[indivial_i,:] = [22. 5. 65. 70.]
211 cord_individual_obj[indivial_i,:] = [23. 4. 100. 104.]
212 cord_individual_obj[indivial_i,:] = [24. 4. 39. 43.]
213
214 min(cord_individual_obj[:,3]) = 14.0
215 historl_G_best_iter[iter,3] = 14.0
216 Begin iteration:
217
218 iter = 6
219 cord_individual_obj[indivial_i,:] = [ 0. 5. 39. 44.]
220 cord_individual_obj[indivial_i,:] = [ 1. 5. 99. 104.]
221 cord_individual_obj[indivial_i,:] = [ 2. 4. 36. 40.]
222 cord_individual_obj[indivial_i,:] = [ 3. 4. 31. 35.]
223 cord_individual_obj[indivial_i,:] = [ 4. 5. 52. 57.]
224 cord_individual_obj[indivial_i,:] = [ 5. 4. 71. 75.]
225 cord_individual_obj[indivial_i,:] = [ 6. 5. 44. 49.]
226 cord_individual_obj[indivial_i,:] = [ 7. 5. 85. 90.]
227 cord_individual_obj[indivial_i,:] = [ 8. 5. 93. 98.]
228 cord_individual_obj[indivial_i,:] = [ 9. 7. 62. 69.]
229 cord_individual_obj[indivial_i,:] = [10. 5. 52. 57.]
230 cord_individual_obj[indivial_i,:] = [11. 5. 71. 76.]
231 cord_individual_obj[indivial_i,:] = [12. 4. 111. 115.]
232 cord_individual_obj[indivial_i,:] = [13. 5. 47. 52.]
233 cord_individual_obj[indivial_i,:] = [14. 4. 45. 49.]
234 cord_individual_obj[indivial_i,:] = [15. 5. 59. 64.]
235 cord_individual_obj[indivial_i,:] = [16. 6. 75. 81.]
236 cord_individual_obj[indivial_i,:] = [17. 4. 10. 14.]
237 cord_individual_obj[indivial_i,:] = [18. 6. 116. 122.]
238 cord_individual_obj[indivial_i,:] = [19. 4. 13. 17.]
239 cord_individual_obj[indivial_i,:] = [20. 5. 50. 55.]
240 cord_individual_obj[indivial_i,:] = [21. 4. 80. 84.]
241 cord_individual_obj[indivial_i,:] = [22. 5. 33. 38.]
242 cord_individual_obj[indivial_i,:] = [23. 6. 53. 59.]
243 cord_individual_obj[indivial_i,:] = [24. 5. 130. 135.]
244
245 min(cord_individual_obj[:,3]) = 14.0
246 historl_G_best_iter[iter,3] = 14.0
247 Begin iteration:

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248
249 iter = 7
250 cord_individual_obj[indivial_i, :] = [ 0.  7. 103. 110.]
251 cord_individual_obj[indivial_i, :] = [ 1.  4. 50. 54.]
252 cord_individual_obj[indivial_i, :] = [ 2.  6. 88. 94.]
253 cord_individual_obj[indivial_i, :] = [ 3.  7. 63. 70.]
254 cord_individual_obj[indivial_i, :] = [ 4.  6. 59. 65.]
255 cord_individual_obj[indivial_i, :] = [ 5.  4. 156. 160.]
256 cord_individual_obj[indivial_i, :] = [ 6.  5. 62. 67.]
257 cord_individual_obj[indivial_i, :] = [ 7.  6. 83. 89.]
258 cord_individual_obj[indivial_i, :] = [ 8.  7. 85. 92.]
259 cord_individual_obj[indivial_i, :] = [ 9.  5. 70. 75.]
260 cord_individual_obj[indivial_i, :] = [10.  7. 102. 109.]
261 cord_individual_obj[indivial_i, :] = [11.  6. 86. 92.]
262 cord_individual_obj[indivial_i, :] = [12.  8. 68. 76.]
263 cord_individual_obj[indivial_i, :] = [13.  5. 55. 60.]
264 cord_individual_obj[indivial_i, :] = [14.  5. 99. 104.]
265 cord_individual_obj[indivial_i, :] = [15.  5. 85. 90.]
266 cord_individual_obj[indivial_i, :] = [16.  7. 53. 60.]
267 cord_individual_obj[indivial_i, :] = [17.  8. 101. 109.]
268 cord_individual_obj[indivial_i, :] = [18.  4. 73. 77.]
269 cord_individual_obj[indivial_i, :] = [19.  6. 56. 62.]
270 cord_individual_obj[indivial_i, :] = [20.  6. 48. 54.]
271 cord_individual_obj[indivial_i, :] = [21.  6. 81. 87.]
272 cord_individual_obj[indivial_i, :] = [22.  5. 46. 51.]
273 cord_individual_obj[indivial_i, :] = [23.  6. 73. 79.]
274 cord_individual_obj[indivial_i, :] = [24.  4. 10. 14.]
275

276 min(cord_individual_obj[:, 3]) = 14.0
277 historl_G_best_iter[iter, 3] = 14.0
278 Begin iteration:
279
280 iter = 8
281 cord_individual_obj[indivial_i, :] = [ 0.  6. 51. 57.]
282 cord_individual_obj[indivial_i, :] = [ 1.  5. 13. 18.]
283 cord_individual_obj[indivial_i, :] = [ 2.  4. 45. 49.]
284 cord_individual_obj[indivial_i, :] = [ 3.  5. 64. 69.]
285 cord_individual_obj[indivial_i, :] = [ 4.  5. 30. 35.]
286 cord_individual_obj[indivial_i, :] = [ 5.  4. 10. 14.]
287 cord_individual_obj[indivial_i, :] = [ 6.  3. 49. 52.]
288 cord_individual_obj[indivial_i, :] = [ 7.  5. 130. 135.]
289 cord_individual_obj[indivial_i, :] = [ 8.  4. 28. 32.]
290 cord_individual_obj[indivial_i, :] = [ 9.  4. 30. 34.]
291 cord_individual_obj[indivial_i, :] = [10.  4. 87. 91.]
292 cord_individual_obj[indivial_i, :] = [11.  5. 76. 81.]
293 cord_individual_obj[indivial_i, :] = [12.  4. 41. 45.]
294 cord_individual_obj[indivial_i, :] = [13.  4. 24. 28.]
295 cord_individual_obj[indivial_i, :] = [14.  4. 43. 47.]
296 cord_individual_obj[indivial_i, :] = [15.  5. 54. 59.]
297 cord_individual_obj[indivial_i, :] = [16.  4. 102. 106.]
298 cord_individual_obj[indivial_i, :] = [17.  5. 168. 173.]
299 cord_individual_obj[indivial_i, :] = [18.  4. 49. 53.]
300 cord_individual_obj[indivial_i, :] = [19.  4. 92. 96.]
301 cord_individual_obj[indivial_i, :] = [20.  6. 73. 79.]
302 cord_individual_obj[indivial_i, :] = [21.  4. 148. 152.]
303 cord_individual_obj[indivial_i, :] = [22.  5. 33. 38.]
304 cord_individual_obj[indivial_i, :] = [23.  4. 72. 76.]
305 cord_individual_obj[indivial_i, :] = [24.  7. 85. 92.]
306

307 min(cord_individual_obj[:, 3]) = 14.0
308 historl_G_best_iter[iter, 3] = 14.0
309 Begin iteration:
310
311 iter = 9
312 cord_individual_obj[indivial_i, :] = [ 0.  5. 60. 65.]
313 cord_individual_obj[indivial_i, :] = [ 1.  7. 106. 113.]
314 cord_individual_obj[indivial_i, :] = [ 2.  7. 58. 65.]
315 cord_individual_obj[indivial_i, :] = [ 3.  8. 73. 81.]
316 cord_individual_obj[indivial_i, :] = [ 4.  7. 66. 73.]
317 cord_individual_obj[indivial_i, :] = [ 5.  6. 120. 126.]
318 cord_individual_obj[indivial_i, :] = [ 6.  7. 134. 141.]
319 cord_individual_obj[indivial_i, :] = [ 7.  7. 90. 97.]
320 cord_individual_obj[indivial_i, :] = [ 8.  6. 107. 113.]
321 cord_individual_obj[indivial_i, :] = [ 9.  5. 47. 52.]
322 cord_individual_obj[indivial_i, :] = [10.  5. 73. 78.]
323 cord_individual_obj[indivial_i, :] = [11.  7. 97. 104.]
324 cord_individual_obj[indivial_i, :] = [12.  6. 55. 61.]
325 cord_individual_obj[indivial_i, :] = [13.  5. 89. 94.]
326 cord_individual_obj[indivial_i, :] = [14.  6. 42. 48.]
327 cord_individual_obj[indivial_i, :] = [15.  5. 74. 79.]
328 cord_individual_obj[indivial_i, :] = [16.  7. 101. 108.]
329 cord_individual_obj[indivial_i, :] = [17.  4. 10. 14.]
330 cord_individual_obj[indivial_i, :] = [18.  5. 35. 40.]
331 cord_individual_obj[indivial_i, :] = [19.  5. 41. 46.]

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332 cord_individual_obj[indivial_i, :] = [20. 8. 85. 93.]
333 cord_individual_obj[indivial_i, :] = [21. 4. 49. 53.]
334 cord_individual_obj[indivial_i, :] = [22. 5. 46. 51.]
335 cord_individual_obj[indivial_i, :] = [23. 6. 25. 31.]
336 cord_individual_obj[indivial_i, :] = [24. 7. 31. 38.]
337
338 min(cord_individual_obj[:, 3]) = 14.0
339 histol_G_best_iter[iter, 3] = 14.0
340 Begin iteration:
341
342 iter = 10
343 cord_individual_obj[indivial_i, :] = [ 0. 8. 85. 93.]
344 cord_individual_obj[indivial_i, :] = [ 1. 7. 84. 91.]
345 cord_individual_obj[indivial_i, :] = [ 2. 7. 68. 75.]
346 cord_individual_obj[indivial_i, :] = [ 3. 4. 64. 68.]
347 cord_individual_obj[indivial_i, :] = [ 4. 6. 61. 67.]
348 cord_individual_obj[indivial_i, :] = [ 5. 6. 120. 126.]
349 cord_individual_obj[indivial_i, :] = [ 6. 4. 10. 14.]
350 cord_individual_obj[indivial_i, :] = [ 7. 5. 67. 72.]
351 cord_individual_obj[indivial_i, :] = [ 8. 4. 58. 62.]
352 cord_individual_obj[indivial_i, :] = [ 9. 5. 82. 87.]
353 cord_individual_obj[indivial_i, :] = [10. 7. 84. 91.]
354 cord_individual_obj[indivial_i, :] = [11. 6. 71. 77.]
355 cord_individual_obj[indivial_i, :] = [12. 8. 53. 61.]
356 cord_individual_obj[indivial_i, :] = [13. 4. 55. 59.]
357 cord_individual_obj[indivial_i, :] = [14. 9. 96. 105.]
358 cord_individual_obj[indivial_i, :] = [15. 6. 70. 76.]
359 cord_individual_obj[indivial_i, :] = [16. 6. 91. 97.]
360 cord_individual_obj[indivial_i, :] = [17. 5. 103. 108.]
361 cord_individual_obj[indivial_i, :] = [18. 4. 67. 71.]
362 cord_individual_obj[indivial_i, :] = [19. 6. 59. 65.]
363 cord_individual_obj[indivial_i, :] = [20. 7. 31. 38.]
364 cord_individual_obj[indivial_i, :] = [21. 6. 107. 113.]
365 cord_individual_obj[indivial_i, :] = [22. 5. 48. 53.]
366 cord_individual_obj[indivial_i, :] = [23. 5. 86. 91.]
367 cord_individual_obj[indivial_i, :] = [24. 5. 46. 51.]
368
369 min(cord_individual_obj[:, 3]) = 14.0
370 histol_G_best_iter[iter, 3] = 14.0
371 Begin iteration:
372
373 iter = 11
374 cord_individual_obj[indivial_i, :] = [ 0. 8. 125. 133.]
375 cord_individual_obj[indivial_i, :] = [ 1. 3. 42. 45.]
376 cord_individual_obj[indivial_i, :] = [ 2. 6. 74. 80.]
377 cord_individual_obj[indivial_i, :] = [ 3. 5. 57. 62.]
378 cord_individual_obj[indivial_i, :] = [ 4. 5. 110. 115.]
379 cord_individual_obj[indivial_i, :] = [ 5. 4. 10. 14.]
380 cord_individual_obj[indivial_i, :] = [ 6. 5. 58. 63.]
381 cord_individual_obj[indivial_i, :] = [ 7. 7. 89. 96.]
382 cord_individual_obj[indivial_i, :] = [ 8. 4. 74. 78.]
383 cord_individual_obj[indivial_i, :] = [ 9. 6. 110. 116.]
384 cord_individual_obj[indivial_i, :] = [10. 6. 108. 114.]
385 cord_individual_obj[indivial_i, :] = [11. 6. 71. 77.]
386 cord_individual_obj[indivial_i, :] = [12. 7. 92. 99.]
387 cord_individual_obj[indivial_i, :] = [13. 6. 92. 98.]
388 cord_individual_obj[indivial_i, :] = [14. 5. 83. 88.]
389 cord_individual_obj[indivial_i, :] = [15. 6. 70. 76.]
390 cord_individual_obj[indivial_i, :] = [16. 8. 71. 79.]
391 cord_individual_obj[indivial_i, :] = [17. 6. 122. 128.]
392 cord_individual_obj[indivial_i, :] = [18. 4. 92. 96.]
393 cord_individual_obj[indivial_i, :] = [19. 7. 109. 116.]
394 cord_individual_obj[indivial_i, :] = [20. 7. 43. 50.]
395 cord_individual_obj[indivial_i, :] = [21. 6. 59. 65.]
396 cord_individual_obj[indivial_i, :] = [22. 5. 38. 43.]
397 cord_individual_obj[indivial_i, :] = [23. 5. 95. 100.]
398 cord_individual_obj[indivial_i, :] = [24. 5. 54. 59.]
399
400 min(cord_individual_obj[:, 3]) = 14.0
401 histol_G_best_iter[iter, 3] = 14.0
402 Begin iteration:
403
404 iter = 12
405 cord_individual_obj[indivial_i, :] = [ 0. 4. 10. 14.]
406 cord_individual_obj[indivial_i, :] = [ 1. 4. 54. 58.]
407 cord_individual_obj[indivial_i, :] = [ 2. 7. 105. 112.]
408 cord_individual_obj[indivial_i, :] = [ 3. 5. 57. 62.]
409 cord_individual_obj[indivial_i, :] = [ 4. 5. 65. 70.]
410 cord_individual_obj[indivial_i, :] = [ 5. 7. 104. 111.]
411 cord_individual_obj[indivial_i, :] = [ 6. 6. 112. 118.]
412 cord_individual_obj[indivial_i, :] = [ 7. 7. 85. 92.]
413 cord_individual_obj[indivial_i, :] = [ 8. 5. 52. 57.]
414 cord_individual_obj[indivial_i, :] = [ 9. 6. 90. 96.]
415 cord_individual_obj[indivial_i, :] = [10. 6. 108. 114.]

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```

416 cord_individual_obj[indivial_i,:] = [11. 5. 71. 76.]
417 cord_individual_obj[indivial_i,:] = [12. 8. 69. 77.]
418 cord_individual_obj[indivial_i,:] = [13. 6. 91. 97.]
419 cord_individual_obj[indivial_i,:] = [14. 7. 93. 100.]
420 cord_individual_obj[indivial_i,:] = [15. 5. 69. 74.]
421 cord_individual_obj[indivial_i,:] = [16. 5. 150. 155.]
422 cord_individual_obj[indivial_i,:] = [17. 7. 106. 113.]
423 cord_individual_obj[indivial_i,:] = [18. 5. 57. 62.]
424 cord_individual_obj[indivial_i,:] = [19. 6. 107. 113.]
425 cord_individual_obj[indivial_i,:] = [20. 7. 27. 34.]
426 cord_individual_obj[indivial_i,:] = [21. 4. 42. 46.]
427 cord_individual_obj[indivial_i,:] = [22. 4. 45. 49.]
428 cord_individual_obj[indivial_i,:] = [23. 4. 84. 88.]
429 cord_individual_obj[indivial_i,:] = [24. 8. 40. 48.]
430
431 min(cord_individual_obj[:,3]) = 14.0
432 histol_G_best_iter[iter,3] = 14.0
433 Begin iteration:
434
435 iter = 13
436 cord_individual_obj[indivial_i,:] = [0. 7. 81. 88.]
437 cord_individual_obj[indivial_i,:] = [1. 6. 130. 136.]
438 cord_individual_obj[indivial_i,:] = [2. 6. 106. 112.]
439 cord_individual_obj[indivial_i,:] = [3. 5. 57. 62.]
440 cord_individual_obj[indivial_i,:] = [4. 6. 61. 67.]
441 cord_individual_obj[indivial_i,:] = [5. 7. 102. 109.]
442 cord_individual_obj[indivial_i,:] = [6. 5. 89. 94.]
443 cord_individual_obj[indivial_i,:] = [7. 7. 84. 91.]
444 cord_individual_obj[indivial_i,:] = [8. 5. 117. 122.]
445 cord_individual_obj[indivial_i,:] = [9. 6. 122. 128.]
446 cord_individual_obj[indivial_i,:] = [10. 7. 97. 104.]
447 cord_individual_obj[indivial_i,:] = [11. 5. 71. 76.]
448 cord_individual_obj[indivial_i,:] = [12. 5. 28. 33.]
449 cord_individual_obj[indivial_i,:] = [13. 5. 55. 60.]
450 cord_individual_obj[indivial_i,:] = [14. 6. 92. 98.]
451 cord_individual_obj[indivial_i,:] = [15. 5. 77. 82.]
452 cord_individual_obj[indivial_i,:] = [16. 4. 10. 14.]
453 cord_individual_obj[indivial_i,:] = [17. 6. 122. 128.]
454 cord_individual_obj[indivial_i,:] = [18. 5. 55. 60.]
455 cord_individual_obj[indivial_i,:] = [19. 7. 58. 65.]
456 cord_individual_obj[indivial_i,:] = [20. 9. 39. 48.]
457 cord_individual_obj[indivial_i,:] = [21. 6. 88. 94.]
458 cord_individual_obj[indivial_i,:] = [22. 5. 42. 47.]
459 cord_individual_obj[indivial_i,:] = [23. 4. 38. 42.]
460 cord_individual_obj[indivial_i,:] = [24. 5. 42. 47.]
461
462 min(cord_individual_obj[:,3]) = 14.0
463 histol_G_best_iter[iter,3] = 14.0
464 Begin iteration:
465
466 iter = 14
467 cord_individual_obj[indivial_i,:] = [0. 4. 60. 64.]
468 cord_individual_obj[indivial_i,:] = [1. 4. 10. 14.]
469 cord_individual_obj[indivial_i,:] = [2. 5. 109. 114.]
470 cord_individual_obj[indivial_i,:] = [3. 4. 80. 84.]
471 cord_individual_obj[indivial_i,:] = [4. 5. 54. 59.]
472 cord_individual_obj[indivial_i,:] = [5. 4. 157. 161.]
473 cord_individual_obj[indivial_i,:] = [6. 7. 111. 118.]
474 cord_individual_obj[indivial_i,:] = [7. 6. 89. 95.]
475 cord_individual_obj[indivial_i,:] = [8. 4. 119. 123.]
476 cord_individual_obj[indivial_i,:] = [9. 6. 100. 106.]
477 cord_individual_obj[indivial_i,:] = [10. 9. 120. 129.]
478 cord_individual_obj[indivial_i,:] = [11. 5. 92. 97.]
479 cord_individual_obj[indivial_i,:] = [12. 4. 56. 60.]
480 cord_individual_obj[indivial_i,:] = [13. 4. 54. 58.]
481 cord_individual_obj[indivial_i,:] = [14. 6. 83. 89.]
482 cord_individual_obj[indivial_i,:] = [15. 6. 78. 84.]
483 cord_individual_obj[indivial_i,:] = [16. 6. 98. 104.]
484 cord_individual_obj[indivial_i,:] = [17. 5. 110. 115.]
485 cord_individual_obj[indivial_i,:] = [18. 6. 53. 59.]
486 cord_individual_obj[indivial_i,:] = [19. 7. 84. 91.]
487 cord_individual_obj[indivial_i,:] = [20. 8. 65. 73.]
488 cord_individual_obj[indivial_i,:] = [21. 6. 83. 89.]
489 cord_individual_obj[indivial_i,:] = [22. 7. 91. 98.]
490 cord_individual_obj[indivial_i,:] = [23. 6. 85. 91.]
491 cord_individual_obj[indivial_i,:] = [24. 6. 51. 57.]
492
493 min(cord_individual_obj[:,3]) = 14.0
494 histol_G_best_iter[iter,3] = 14.0
495 Begin iteration:
496
497 iter = 15
498 cord_individual_obj[indivial_i,:] = [0. 5. 60. 65.]
499 cord_individual_obj[indivial_i,:] = [1. 6. 113. 119.]

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500 cord_individual_obj[indivial_i,:] = [ 2. 5. 46. 51.]
501 cord_individual_obj[indivial_i,:] = [ 3. 5. 57. 62.]
502 cord_individual_obj[indivial_i,:] = [ 4. 5. 122. 127.]
503 cord_individual_obj[indivial_i,:] = [ 5. 4. 10. 14.]
504 cord_individual_obj[indivial_i,:] = [ 6. 7. 91. 98.]
505 cord_individual_obj[indivial_i,:] = [ 7. 7. 84. 91.]
506 cord_individual_obj[indivial_i,:] = [ 8. 5. 144. 149.]
507 cord_individual_obj[indivial_i,:] = [ 9. 5. 83. 88.]
508 cord_individual_obj[indivial_i,:] = [10. 5. 60. 65.]
509 cord_individual_obj[indivial_i,:] = [11. 5. 71. 76.]
510 cord_individual_obj[indivial_i,:] = [12. 6. 45. 51.]
511 cord_individual_obj[indivial_i,:] = [13. 6. 92. 98.]
512 cord_individual_obj[indivial_i,:] = [14. 7. 106. 113.]
513 cord_individual_obj[indivial_i,:] = [15. 6. 79. 85.]
514 cord_individual_obj[indivial_i,:] = [16. 6. 75. 81.]
515 cord_individual_obj[indivial_i,:] = [17. 9. 99. 108.]
516 cord_individual_obj[indivial_i,:] = [18. 4. 66. 70.]
517 cord_individual_obj[indivial_i,:] = [19. 7. 57. 64.]
518 cord_individual_obj[indivial_i,:] = [20. 6. 31. 37.]
519 cord_individual_obj[indivial_i,:] = [21. 5. 67. 72.]
520 cord_individual_obj[indivial_i,:] = [22. 4. 36. 40.]
521 cord_individual_obj[indivial_i,:] = [23. 7. 74. 81.]
522 cord_individual_obj[indivial_i,:] = [24. 8. 75. 83.]
523
524 min(cord_individual_obj[:,3]) = 14.0
525 histol_G_best_iter[iter,3] = 14.0
526 Begin iteration:
527
528 iter = 16
529 cord_individual_obj[indivial_i,:] = [ 0. 6. 84. 90.]
530 cord_individual_obj[indivial_i,:] = [ 1. 5. 94. 99.]
531 cord_individual_obj[indivial_i,:] = [ 2. 8. 46. 54.]
532 cord_individual_obj[indivial_i,:] = [ 3. 5. 57. 62.]
533 cord_individual_obj[indivial_i,:] = [ 4. 5. 120. 125.]
534 cord_individual_obj[indivial_i,:] = [ 5. 6. 120. 126.]
535 cord_individual_obj[indivial_i,:] = [ 6. 7. 91. 98.]
536 cord_individual_obj[indivial_i,:] = [ 7. 6. 89. 95.]
537 cord_individual_obj[indivial_i,:] = [ 8. 4. 10. 14.]
538 cord_individual_obj[indivial_i,:] = [ 9. 6. 122. 128.]
539 cord_individual_obj[indivial_i,:] = [10. 8. 136. 144.]
540 cord_individual_obj[indivial_i,:] = [11. 5. 92. 97.]
541 cord_individual_obj[indivial_i,:] = [12. 7. 99. 106.]
542 cord_individual_obj[indivial_i,:] = [13. 4. 54. 58.]
543 cord_individual_obj[indivial_i,:] = [14. 6. 90. 96.]
544 cord_individual_obj[indivial_i,:] = [15. 6. 78. 84.]
545 cord_individual_obj[indivial_i,:] = [16. 8. 71. 79.]
546 cord_individual_obj[indivial_i,:] = [17. 9. 88. 97.]
547 cord_individual_obj[indivial_i,:] = [18. 6. 55. 61.]
548 cord_individual_obj[indivial_i,:] = [19. 7. 84. 91.]
549 cord_individual_obj[indivial_i,:] = [20. 4. 56. 60.]
550 cord_individual_obj[indivial_i,:] = [21. 6. 83. 89.]
551 cord_individual_obj[indivial_i,:] = [22. 7. 74. 81.]
552 cord_individual_obj[indivial_i,:] = [23. 6. 104. 110.]
553 cord_individual_obj[indivial_i,:] = [24. 8. 117. 125.]
554
555 min(cord_individual_obj[:,3]) = 14.0
556 histol_G_best_iter[iter,3] = 14.0
557 Begin iteration:
558
559 iter = 17
560 cord_individual_obj[indivial_i,:] = [ 0. 7. 112. 119.]
561 cord_individual_obj[indivial_i,:] = [ 1. 6. 60. 66.]
562 cord_individual_obj[indivial_i,:] = [ 2. 8. 124. 132.]
563 cord_individual_obj[indivial_i,:] = [ 3. 5. 57. 62.]
564 cord_individual_obj[indivial_i,:] = [ 4. 7. 63. 70.]
565 cord_individual_obj[indivial_i,:] = [ 5. 7. 92. 99.]
566 cord_individual_obj[indivial_i,:] = [ 6. 5. 58. 63.]
567 cord_individual_obj[indivial_i,:] = [ 7. 7. 84. 91.]
568 cord_individual_obj[indivial_i,:] = [ 8. 7. 45. 52.]
569 cord_individual_obj[indivial_i,:] = [ 9. 6. 100. 106.]
570 cord_individual_obj[indivial_i,:] = [10. 4. 10. 14.]
571 cord_individual_obj[indivial_i,:] = [11. 5. 83. 88.]
572 cord_individual_obj[indivial_i,:] = [12. 7. 93. 100.]
573 cord_individual_obj[indivial_i,:] = [13. 4. 54. 58.]
574 cord_individual_obj[indivial_i,:] = [14. 4. 82. 86.]
575 cord_individual_obj[indivial_i,:] = [15. 5. 89. 94.]
576 cord_individual_obj[indivial_i,:] = [16. 7. 85. 92.]
577 cord_individual_obj[indivial_i,:] = [17. 6. 140. 146.]
578 cord_individual_obj[indivial_i,:] = [18. 6. 93. 99.]
579 cord_individual_obj[indivial_i,:] = [19. 7. 81. 88.]
580 cord_individual_obj[indivial_i,:] = [20. 7. 26. 33.]
581 cord_individual_obj[indivial_i,:] = [21. 6. 89. 95.]
582 cord_individual_obj[indivial_i,:] = [22. 5. 46. 51.]
583 cord_individual_obj[indivial_i,:] = [23. 5. 74. 79.]

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584     cord_individual_obj[indivial_i, :] = [24. 5. 68. 73.]
585
586     min(cord_individual_obj[:, 3]) = 14.0
587     historl_G_best_iter[iter, 3] = 14.0
588 Begin iteration:
589
590 iter = 18
591     cord_individual_obj[indivial_i, :] = [ 0. 6. 46. 52.]
592     cord_individual_obj[indivial_i, :] = [ 1. 3. 80. 83.]
593     cord_individual_obj[indivial_i, :] = [ 2. 6. 63. 69.]
594     cord_individual_obj[indivial_i, :] = [ 3. 4. 12. 16.]
595     cord_individual_obj[indivial_i, :] = [ 4. 5. 60. 65.]
596     cord_individual_obj[indivial_i, :] = [ 5. 3. 60. 63.]
597     cord_individual_obj[indivial_i, :] = [ 6. 4. 101. 105.]
598     cord_individual_obj[indivial_i, :] = [ 7. 7. 51. 58.]
599     cord_individual_obj[indivial_i, :] = [ 8. 5. 126. 131.]
600     cord_individual_obj[indivial_i, :] = [ 9. 4. 29. 33.]
601     cord_individual_obj[indivial_i, :] = [ 10. 6. 110. 116.]
602     cord_individual_obj[indivial_i, :] = [ 11. 6. 108. 114.]
603     cord_individual_obj[indivial_i, :] = [ 12. 4. 75. 79.]
604     cord_individual_obj[indivial_i, :] = [ 13. 3. 135. 138.]
605     cord_individual_obj[indivial_i, :] = [ 14. 5. 90. 95.]
606     cord_individual_obj[indivial_i, :] = [ 15. 5. 47. 52.]
607     cord_individual_obj[indivial_i, :] = [ 16. 4. 75. 79.]
608     cord_individual_obj[indivial_i, :] = [ 17. 4. 10. 14.]
609     cord_individual_obj[indivial_i, :] = [ 18. 6. 67. 73.]
610     cord_individual_obj[indivial_i, :] = [ 19. 5. 117. 122.]
611     cord_individual_obj[indivial_i, :] = [ 20. 6. 82. 88.]
612     cord_individual_obj[indivial_i, :] = [ 21. 4. 99. 103.]
613     cord_individual_obj[indivial_i, :] = [ 22. 4. 92. 96.]
614     cord_individual_obj[indivial_i, :] = [ 23. 4. 43. 47.]
615     cord_individual_obj[indivial_i, :] = [ 24. 6. 114. 120.]
616
617     min(cord_individual_obj[:, 3]) = 14.0
618     historl_G_best_iter[iter, 3] = 14.0
619 Begin iteration:
620
621 iter = 19
622     cord_individual_obj[indivial_i, :] = [ 0. 5. 62. 67.]
623     cord_individual_obj[indivial_i, :] = [ 1. 5. 104. 109.]
624     cord_individual_obj[indivial_i, :] = [ 2. 4. 64. 68.]
625     cord_individual_obj[indivial_i, :] = [ 3. 6. 117. 123.]
626     cord_individual_obj[indivial_i, :] = [ 4. 5. 41. 46.]
627     cord_individual_obj[indivial_i, :] = [ 5. 6. 66. 72.]
628     cord_individual_obj[indivial_i, :] = [ 6. 4. 100. 104.]
629     cord_individual_obj[indivial_i, :] = [ 7. 6. 103. 109.]
630     cord_individual_obj[indivial_i, :] = [ 8. 6. 94. 100.]
631     cord_individual_obj[indivial_i, :] = [ 9. 5. 54. 59.]
632     cord_individual_obj[indivial_i, :] = [ 10. 7. 90. 97.]
633     cord_individual_obj[indivial_i, :] = [ 11. 6. 66. 72.]
634     cord_individual_obj[indivial_i, :] = [ 12. 6. 31. 37.]
635     cord_individual_obj[indivial_i, :] = [ 13. 4. 10. 14.]
636     cord_individual_obj[indivial_i, :] = [ 14. 4. 55. 59.]
637     cord_individual_obj[indivial_i, :] = [ 15. 6. 54. 60.]
638     cord_individual_obj[indivial_i, :] = [ 16. 6. 98. 104.]
639     cord_individual_obj[indivial_i, :] = [ 17. 8. 102. 110.]
640     cord_individual_obj[indivial_i, :] = [ 18. 4. 105. 109.]
641     cord_individual_obj[indivial_i, :] = [ 19. 7. 31. 38.]
642     cord_individual_obj[indivial_i, :] = [ 20. 6. 84. 90.]
643     cord_individual_obj[indivial_i, :] = [ 21. 4. 72. 76.]
644     cord_individual_obj[indivial_i, :] = [ 22. 5. 46. 51.]
645     cord_individual_obj[indivial_i, :] = [ 23. 6. 48. 54.]
646     cord_individual_obj[indivial_i, :] = [ 24. 5. 31. 36.]
647
648     min(cord_individual_obj[:, 3]) = 14.0
649     historl_G_best_iter[iter, 3] = 14.0
650 Begin iteration:
651
652 iter = 20
653     cord_individual_obj[indivial_i, :] = [ 0. 5. 102. 107.]
654     cord_individual_obj[indivial_i, :] = [ 1. 5. 102. 107.]
655     cord_individual_obj[indivial_i, :] = [ 2. 6. 31. 37.]
656     cord_individual_obj[indivial_i, :] = [ 3. 4. 10. 14.]
657     cord_individual_obj[indivial_i, :] = [ 4. 5. 99. 104.]
658     cord_individual_obj[indivial_i, :] = [ 5. 5. 103. 108.]
659     cord_individual_obj[indivial_i, :] = [ 6. 6. 138. 144.]
660     cord_individual_obj[indivial_i, :] = [ 7. 6. 89. 95.]
661     cord_individual_obj[indivial_i, :] = [ 8. 5. 135. 140.]
662     cord_individual_obj[indivial_i, :] = [ 9. 4. 73. 77.]
663     cord_individual_obj[indivial_i, :] = [ 10. 6. 122. 128.]
664     cord_individual_obj[indivial_i, :] = [ 11. 7. 50. 57.]
665     cord_individual_obj[indivial_i, :] = [ 12. 6. 122. 128.]
666     cord_individual_obj[indivial_i, :] = [ 13. 4. 57. 61.]
667     cord_individual_obj[indivial_i, :] = [ 14. 5. 47. 52.]

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668 cord_individual_obj[indivial_i, :] = [15. 5. 44. 49.]
669 cord_individual_obj[indivial_i, :] = [16. 5. 99. 104.]
670 cord_individual_obj[indivial_i, :] = [17. 7. 80. 87.]
671 cord_individual_obj[indivial_i, :] = [18. 4. 84. 88.]
672 cord_individual_obj[indivial_i, :] = [19. 6. 31. 37.]
673 cord_individual_obj[indivial_i, :] = [20. 6. 31. 37.]
674 cord_individual_obj[indivial_i, :] = [21. 4. 107. 111.]
675 cord_individual_obj[indivial_i, :] = [22. 5. 42. 47.]
676 cord_individual_obj[indivial_i, :] = [23. 6. 65. 71.]
677 cord_individual_obj[indivial_i, :] = [24. 5. 31. 36.]
678
679 min(cord_individual_obj[:, 3]) = 14.0
680 historl_G_best_iter[iter, 3] = 14.0
681 Iteration calculate over
682
683
684
685
686 All item are in Bin and:
687 Bin area = 1080
688 Real_area = 129.0
689 Proportion_of_area = 0.11944444444444445
690 BEST_CHROM =
691     berth: [24.5 13. 1.5 24. 2. 7.5 13.5 5. 8.5 18.5]
692     time: [2. 0. 0. 0. 3. 3. 2. 0. 0. 0.]
693     num_QC: [2. 3. 3. 2. 3. 3. 4. 3. 3. 3.]
694 Objective function values and some other indicators:
695 Obj0 = 4.00          Obj1 = 10.00          Obj0 + Obj1 = 14.00
696 Total movement of crane: 0.00
697 Total waiting time in berth position: 10.00
698 Total index of q during berthing: 433.00
699 Specific arrangement for each vessel:
700
    V_id: 0           li: 7.0           xi: 24.5           bow of i: 21.0           tail of i: 28.0           gama_i0: 2.0           gama_i1: 3
    .0                 gama_i1 + 1: 4.0       gama_i1 - gama_i0: 1.0           duration_time_i: 2.0           demand_i: 60.0           work
701 load_i: 60.0      work load gap_i: 0
    V_id: 1           li: 6.0           xi: 13.0           bow of i: 10.0           tail of i: 16.0           gama_i0: 0.0           gama_i1: 1
    .0                 gama_i1 + 1: 2.0       gama_i1 - gama_i0: 1.0           duration_time_i: 2.0           demand_i: 100.0           work
702 load_i: 100.0     work load gap_i: 0
    V_id: 2           li: 3.0           xi: 1.5            bow of i: 0.0           tail of i: 3.0           gama_i0: 0.0           gama_i1: 2.0
    .0                 gama_i1 + 1: 3.0       gama_i1 - gama_i0: 2.0           duration_time_i: 3.0           demand_i: 140.0           work load_i:
703 load_i: 60.0      work load gap_i: 0
    V_id: 3           li: 6.0           xi: 24.0           bow of i: 21.0           tail of i: 27.0           gama_i0: 0.0           gama_i1: 1
    .0                 gama_i1 + 1: 2.0       gama_i1 - gama_i0: 1.0           duration_time_i: 2.0           demand_i: 60.0           work
704 load_i: 120.0     work load gap_i: 0
    V_id: 4           li: 4.0           xi: 2.0            bow of i: 0.0           tail of i: 4.0           gama_i0: 3.0           gama_i1: 4.0
    .0                 gama_i1 + 1: 5.0       gama_i1 - gama_i0: 1.0           duration_time_i: 2.0           demand_i: 120.0           work load_i:
705 load_i: 120.0     work load gap_i: 0
    V_id: 5           li: 7.0           xi: 7.5            bow of i: 4.0           tail of i: 11.0           gama_i0: 3.0           gama_i1: 4.0
    .0                 gama_i1 + 1: 5.0       gama_i1 - gama_i0: 1.0           duration_time_i: 2.0           demand_i: 120.0           work load_i:
706 load_i: 80.0      work load gap_i: 0
    V_id: 6           li: 7.0           xi: 13.5           bow of i: 10.0           tail of i: 17.0           gama_i0: 2.0           gama_i1: 2
    .0                 gama_i1 + 1: 3.0       gama_i1 - gama_i0: 0.0           duration_time_i: 1.0           demand_i: 80.0           work
707 load_i: 160.0     work load gap_i: 0
    V_id: 7           li: 4.0           xi: 5.0            bow of i: 3.0           tail of i: 7.0           gama_i0: 0.0           gama_i1: 2.0
    .0                 gama_i1 + 1: 3.0       gama_i1 - gama_i0: 2.0           duration_time_i: 3.0           demand_i: 160.0           work load_i:
708 load_i: 120.0     work load gap_i: 0
    V_id: 8           li: 3.0           xi: 8.5            bow of i: 7.0           tail of i: 10.0           gama_i0: 0.0           gama_i1: 1
    .0                 gama_i1 + 1: 2.0       gama_i1 - gama_i0: 1.0           duration_time_i: 2.0           demand_i: 120.0           work load_i:
709 load_i: 100.0     work load gap_i: 0
    V_id: 9           li: 5.0           xi: 18.5           bow of i: 16.0           tail of i: 21.0           gama_i0: 0.0           gama_i1: 1
    .0                 gama_i1 + 1: 2.0       gama_i1 - gama_i0: 1.0           duration_time_i: 2.0           demand_i: 100.0           work
710
711 Algorithm finished and the total CPU time: 261 s
712 End
713

```