

unknown

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80 cord_individual_obj[indivial_i,:] = [16. 8. 38. 46.]
81 cord_individual_obj[indivial_i,:] = [17. 6. 50. 56.]
82 cord_individual_obj[indivial_i,:] = [18. 5. 58. 63.]
83 cord_individual_obj[indivial_i,:] = [19. 7. 55. 62.]
84 cord_individual_obj[indivial_i,:] = [20. 4. 27. 31.]
85 cord_individual_obj[indivial_i,:] = [21. 5. 48. 53.]
86 cord_individual_obj[indivial_i,:] = [22. 6. 38. 44.]
87 cord_individual_obj[indivial_i,:] = [23. 7. 54. 61.]
88 cord_individual_obj[indivial_i,:] = [24. 7. 45. 52.]
89
90 min(cord_individual_obj[:,3]) = 24.0
91 historl_G_best_iter[iter, 3] = 24.0
92 Begin iteration:
93
94 iter = 2
95 cord_individual_obj[indivial_i,:] = [ 0. 5. 84. 89.]
96 cord_individual_obj[indivial_i,:] = [ 1. 6. 80. 86.]
97 cord_individual_obj[indivial_i,:] = [ 2. 7. 30. 37.]
98 cord_individual_obj[indivial_i,:] = [ 3. 6. 28. 34.]
99 cord_individual_obj[indivial_i,:] = [ 4. 6. 27. 33.]
100 cord_individual_obj[indivial_i,:] = [ 5. 6. 43. 49.]
101 cord_individual_obj[indivial_i,:] = [ 6. 5. 30. 35.]
102 cord_individual_obj[indivial_i,:] = [ 7. 7. 17. 24.]
103 cord_individual_obj[indivial_i,:] = [ 8. 8. 83. 91.]
104 cord_individual_obj[indivial_i,:] = [ 9. 6. 91. 97.]
105 cord_individual_obj[indivial_i,:] = [10. 7. 51. 58.]
106 cord_individual_obj[indivial_i,:] = [11. 6. 51. 57.]
107 cord_individual_obj[indivial_i,:] = [12. 7. 33. 40.]
108 cord_individual_obj[indivial_i,:] = [13. 7. 35. 42.]
109 cord_individual_obj[indivial_i,:] = [14. 7. 30. 37.]
110 cord_individual_obj[indivial_i,:] = [15. 6. 36. 42.]
111 cord_individual_obj[indivial_i,:] = [16. 8. 58. 66.]
112 cord_individual_obj[indivial_i,:] = [17. 6. 65. 71.]
113 cord_individual_obj[indivial_i,:] = [18. 5. 50. 55.]
114 cord_individual_obj[indivial_i,:] = [19. 4. 53. 57.]
115 cord_individual_obj[indivial_i,:] = [20. 8. 39. 47.]
116 cord_individual_obj[indivial_i,:] = [21. 6. 84. 90.]
117 cord_individual_obj[indivial_i,:] = [22. 7. 45. 52.]
118 cord_individual_obj[indivial_i,:] = [23. 6. 78. 84.]
119 cord_individual_obj[indivial_i,:] = [24. 7. 40. 47.]
120
121 min(cord_individual_obj[:,3]) = 24.0
122 historl_G_best_iter[iter, 3] = 24.0
123 Begin iteration:
124
125 iter = 3
126 cord_individual_obj[indivial_i,:] = [ 0. 7. 18. 25.]
127 cord_individual_obj[indivial_i,:] = [ 1. 5. 19. 24.]
128 cord_individual_obj[indivial_i,:] = [ 2. 7. 41. 48.]
129 cord_individual_obj[indivial_i,:] = [ 3. 6. 19. 25.]
130 cord_individual_obj[indivial_i,:] = [ 4. 8. 62. 70.]
131 cord_individual_obj[indivial_i,:] = [ 5. 6. 22. 28.]
132 cord_individual_obj[indivial_i,:] = [ 6. 6. 50. 56.]
133 cord_individual_obj[indivial_i,:] = [ 7. 6. 28. 34.]
134 cord_individual_obj[indivial_i,:] = [ 8. 8. 60. 68.]
135 cord_individual_obj[indivial_i,:] = [ 9. 7. 17. 24.]
136 cord_individual_obj[indivial_i,:] = [10. 7. 56. 63.]
137 cord_individual_obj[indivial_i,:] = [11. 6. 65. 71.]
138 cord_individual_obj[indivial_i,:] = [12. 7. 60. 67.]
139 cord_individual_obj[indivial_i,:] = [13. 6. 57. 63.]
140 cord_individual_obj[indivial_i,:] = [14. 5. 55. 60.]
141 cord_individual_obj[indivial_i,:] = [15. 6. 56. 62.]
142 cord_individual_obj[indivial_i,:] = [16. 6. 42. 48.]
143 cord_individual_obj[indivial_i,:] = [17. 4. 52. 56.]
144 cord_individual_obj[indivial_i,:] = [18. 7. 44. 51.]
145 cord_individual_obj[indivial_i,:] = [19. 5. 62. 67.]
146 cord_individual_obj[indivial_i,:] = [20. 6. 61. 67.]
147 cord_individual_obj[indivial_i,:] = [21. 6. 83. 89.]
148 cord_individual_obj[indivial_i,:] = [22. 6. 29. 35.]
149 cord_individual_obj[indivial_i,:] = [23. 8. 31. 39.]
150 cord_individual_obj[indivial_i,:] = [24. 7. 46. 53.]
151
152 min(cord_individual_obj[:,3]) = 24.0
153 historl_G_best_iter[iter, 3] = 24.0
154 Begin iteration:
155
156 iter = 4
157 cord_individual_obj[indivial_i,:] = [ 0. 6. 107. 113.]
158 cord_individual_obj[indivial_i,:] = [ 1. 6. 131. 137.]
159 cord_individual_obj[indivial_i,:] = [ 2. 8. 95. 103.]
160 cord_individual_obj[indivial_i,:] = [ 3. 7. 108. 115.]
161 cord_individual_obj[indivial_i,:] = [ 4. 8. 108. 116.]
162 cord_individual_obj[indivial_i,:] = [ 5. 6. 101. 107.]
163 cord_individual_obj[indivial_i,:] = [ 6. 9. 136. 145.]

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164 cord_individual_obj[indivial_i,:] = [ 7. 8. 106. 114.]
165 cord_individual_obj[indivial_i,:] = [ 8. 6. 45. 51.]
166 cord_individual_obj[indivial_i,:] = [ 9. 6. 111. 117.]
167 cord_individual_obj[indivial_i,:] = [10. 7. 61. 68.]
168 cord_individual_obj[indivial_i,:] = [11. 6. 73. 79.]
169 cord_individual_obj[indivial_i,:] = [12. 8. 64. 72.]
170 cord_individual_obj[indivial_i,:] = [13. 7. 98. 105.]
171 cord_individual_obj[indivial_i,:] = [14. 7. 81. 88.]
172 cord_individual_obj[indivial_i,:] = [15. 5. 90. 95.]
173 cord_individual_obj[indivial_i,:] = [16. 7. 60. 67.]
174 cord_individual_obj[indivial_i,:] = [17. 7. 97. 104.]
175 cord_individual_obj[indivial_i,:] = [18. 5. 58. 63.]
176 cord_individual_obj[indivial_i,:] = [19. 5. 73. 78.]
177 cord_individual_obj[indivial_i,:] = [20. 5. 73. 78.]
178 cord_individual_obj[indivial_i,:] = [21. 5. 19. 24.]
179 cord_individual_obj[indivial_i,:] = [22. 6. 75. 81.]
180 cord_individual_obj[indivial_i,:] = [23. 4. 70. 74.]
181 cord_individual_obj[indivial_i,:] = [24. 8. 64. 72.]
182
183 min(cord_individual_obj[:,3]) = 24.0
184 historl_G_best_iter[iter,3] = 24.0
185 Begin iteration:
186
187 iter = 5
188 cord_individual_obj[indivial_i,:] = [ 0. 8. 43. 51.]
189 cord_individual_obj[indivial_i,:] = [ 1. 6. 65. 71.]
190 cord_individual_obj[indivial_i,:] = [ 2. 7. 113. 120.]
191 cord_individual_obj[indivial_i,:] = [ 3. 7. 87. 94.]
192 cord_individual_obj[indivial_i,:] = [ 4. 7. 92. 99.]
193 cord_individual_obj[indivial_i,:] = [ 5. 7. 108. 115.]
194 cord_individual_obj[indivial_i,:] = [ 6. 5. 19. 24.]
195 cord_individual_obj[indivial_i,:] = [ 7. 8. 66. 74.]
196 cord_individual_obj[indivial_i,:] = [ 8. 6. 93. 99.]
197 cord_individual_obj[indivial_i,:] = [ 9. 7. 48. 55.]
198 cord_individual_obj[indivial_i,:] = [10. 6. 60. 66.]
199 cord_individual_obj[indivial_i,:] = [11. 6. 110. 116.]
200 cord_individual_obj[indivial_i,:] = [12. 8. 83. 91.]
201 cord_individual_obj[indivial_i,:] = [13. 7. 63. 70.]
202 cord_individual_obj[indivial_i,:] = [14. 5. 39. 44.]
203 cord_individual_obj[indivial_i,:] = [15. 6. 75. 81.]
204 cord_individual_obj[indivial_i,:] = [16. 7. 84. 91.]
205 cord_individual_obj[indivial_i,:] = [17. 8. 89. 97.]
206 cord_individual_obj[indivial_i,:] = [18. 6. 71. 77.]
207 cord_individual_obj[indivial_i,:] = [19. 7. 96. 103.]
208 cord_individual_obj[indivial_i,:] = [20. 7. 79. 86.]
209 cord_individual_obj[indivial_i,:] = [21. 6. 80. 86.]
210 cord_individual_obj[indivial_i,:] = [22. 8. 76. 84.]
211 cord_individual_obj[indivial_i,:] = [23. 6. 87. 93.]
212 cord_individual_obj[indivial_i,:] = [24. 8. 67. 75.]
213
214 min(cord_individual_obj[:,3]) = 24.0
215 historl_G_best_iter[iter,3] = 24.0
216 Begin iteration:
217
218 iter = 6
219 cord_individual_obj[indivial_i,:] = [ 0. 8. 43. 51.]
220 cord_individual_obj[indivial_i,:] = [ 1. 8. 93. 101.]
221 cord_individual_obj[indivial_i,:] = [ 2. 5. 19. 24.]
222 cord_individual_obj[indivial_i,:] = [ 3. 8. 68. 76.]
223 cord_individual_obj[indivial_i,:] = [ 4. 7. 74. 81.]
224 cord_individual_obj[indivial_i,:] = [ 5. 7. 133. 140.]
225 cord_individual_obj[indivial_i,:] = [ 6. 7. 73. 80.]
226 cord_individual_obj[indivial_i,:] = [ 7. 6. 87. 93.]
227 cord_individual_obj[indivial_i,:] = [ 8. 6. 105. 111.]
228 cord_individual_obj[indivial_i,:] = [ 9. 7. 80. 87.]
229 cord_individual_obj[indivial_i,:] = [10. 7. 61. 68.]
230 cord_individual_obj[indivial_i,:] = [11. 5. 49. 54.]
231 cord_individual_obj[indivial_i,:] = [12. 7. 88. 95.]
232 cord_individual_obj[indivial_i,:] = [13. 7. 101. 108.]
233 cord_individual_obj[indivial_i,:] = [14. 5. 74. 79.]
234 cord_individual_obj[indivial_i,:] = [15. 8. 81. 89.]
235 cord_individual_obj[indivial_i,:] = [16. 7. 60. 67.]
236 cord_individual_obj[indivial_i,:] = [17. 5. 57. 62.]
237 cord_individual_obj[indivial_i,:] = [18. 7. 63. 70.]
238 cord_individual_obj[indivial_i,:] = [19. 10. 110. 120.]
239 cord_individual_obj[indivial_i,:] = [20. 6. 77. 83.]
240 cord_individual_obj[indivial_i,:] = [21. 6. 80. 86.]
241 cord_individual_obj[indivial_i,:] = [22. 7. 90. 97.]
242 cord_individual_obj[indivial_i,:] = [23. 6. 88. 94.]
243 cord_individual_obj[indivial_i,:] = [24. 7. 63. 70.]
244
245 min(cord_individual_obj[:,3]) = 24.0
246 historl_G_best_iter[iter,3] = 24.0
247 Begin iteration:

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248
249 iter = 7
250 cord_individual_obj[indivial_i, :] = [ 0. 7. 116. 123.]
251 cord_individual_obj[indivial_i, :] = [ 1. 7. 42. 49.]
252 cord_individual_obj[indivial_i, :] = [ 2. 8. 101. 109.]
253 cord_individual_obj[indivial_i, :] = [ 3. 6. 132. 138.]
254 cord_individual_obj[indivial_i, :] = [ 4. 6. 31. 37.]
255 cord_individual_obj[indivial_i, :] = [ 5. 5. 19. 24.]
256 cord_individual_obj[indivial_i, :] = [ 6. 5. 104. 109.]
257 cord_individual_obj[indivial_i, :] = [ 7. 8. 125. 133.]
258 cord_individual_obj[indivial_i, :] = [ 8. 6. 18. 24.]
259 cord_individual_obj[indivial_i, :] = [ 9. 6. 45. 51.]
260 cord_individual_obj[indivial_i, :] = [10. 7. 53. 60.]
261 cord_individual_obj[indivial_i, :] = [11. 6. 101. 107.]
262 cord_individual_obj[indivial_i, :] = [12. 5. 96. 101.]
263 cord_individual_obj[indivial_i, :] = [13. 7. 41. 48.]
264 cord_individual_obj[indivial_i, :] = [14. 6. 114. 120.]
265 cord_individual_obj[indivial_i, :] = [15. 6. 121. 127.]
266 cord_individual_obj[indivial_i, :] = [16. 7. 62. 69.]
267 cord_individual_obj[indivial_i, :] = [17. 8. 92. 100.]
268 cord_individual_obj[indivial_i, :] = [18. 6. 15. 21.]
269 cord_individual_obj[indivial_i, :] = [19. 7. 62. 69.]
270 cord_individual_obj[indivial_i, :] = [20. 5. 87. 92.]
271 cord_individual_obj[indivial_i, :] = [21. 5. 110. 115.]
272 cord_individual_obj[indivial_i, :] = [22. 8. 132. 140.]
273 cord_individual_obj[indivial_i, :] = [23. 8. 68. 76.]
274 cord_individual_obj[indivial_i, :] = [24. 5. 58. 63.]
275

276 min(cord_individual_obj[:, 3]) = 21.0
277 historl_G_best_iter[iter, 3] = 21.0
278 Begin iteration:
279
280 iter = 8
281 cord_individual_obj[indivial_i, :] = [ 0. 7. 49. 56.]
282 cord_individual_obj[indivial_i, :] = [ 1. 5. 67. 72.]
283 cord_individual_obj[indivial_i, :] = [ 2. 9. 89. 98.]
284 cord_individual_obj[indivial_i, :] = [ 3. 5. 16. 21.]
285 cord_individual_obj[indivial_i, :] = [ 4. 5. 68. 73.]
286 cord_individual_obj[indivial_i, :] = [ 5. 8. 37. 45.]
287 cord_individual_obj[indivial_i, :] = [ 6. 6. 107. 113.]
288 cord_individual_obj[indivial_i, :] = [ 7. 7. 65. 72.]
289 cord_individual_obj[indivial_i, :] = [ 8. 6. 74. 80.]
290 cord_individual_obj[indivial_i, :] = [ 9. 6. 36. 42.]
291 cord_individual_obj[indivial_i, :] = [10. 7. 60. 67.]
292 cord_individual_obj[indivial_i, :] = [11. 8. 86. 94.]
293 cord_individual_obj[indivial_i, :] = [12. 6. 37. 43.]
294 cord_individual_obj[indivial_i, :] = [13. 6. 148. 154.]
295 cord_individual_obj[indivial_i, :] = [14. 9. 48. 57.]
296 cord_individual_obj[indivial_i, :] = [15. 6. 65. 71.]
297 cord_individual_obj[indivial_i, :] = [16. 6. 47. 53.]
298 cord_individual_obj[indivial_i, :] = [17. 5. 35. 40.]
299 cord_individual_obj[indivial_i, :] = [18. 5. 140. 145.]
300 cord_individual_obj[indivial_i, :] = [19. 7. 96. 103.]
301 cord_individual_obj[indivial_i, :] = [20. 8. 52. 60.]
302 cord_individual_obj[indivial_i, :] = [21. 7. 89. 96.]
303 cord_individual_obj[indivial_i, :] = [22. 6. 15. 21.]
304 cord_individual_obj[indivial_i, :] = [23. 6. 104. 110.]
305 cord_individual_obj[indivial_i, :] = [24. 5. 115. 120.]
306

307 min(cord_individual_obj[:, 3]) = 21.0
308 historl_G_best_iter[iter, 3] = 21.0
309 Begin iteration:
310
311 iter = 9
312 cord_individual_obj[indivial_i, :] = [ 0. 5. 81. 86.]
313 cord_individual_obj[indivial_i, :] = [ 1. 5. 78. 83.]
314 cord_individual_obj[indivial_i, :] = [ 2. 8. 68. 76.]
315 cord_individual_obj[indivial_i, :] = [ 3. 8. 85. 93.]
316 cord_individual_obj[indivial_i, :] = [ 4. 6. 76. 82.]
317 cord_individual_obj[indivial_i, :] = [ 5. 8. 69. 77.]
318 cord_individual_obj[indivial_i, :] = [ 6. 6. 118. 124.]
319 cord_individual_obj[indivial_i, :] = [ 7. 7. 49. 56.]
320 cord_individual_obj[indivial_i, :] = [ 8. 7. 77. 84.]
321 cord_individual_obj[indivial_i, :] = [ 9. 6. 66. 72.]
322 cord_individual_obj[indivial_i, :] = [10. 9. 96. 105.]
323 cord_individual_obj[indivial_i, :] = [11. 7. 24. 31.]
324 cord_individual_obj[indivial_i, :] = [12. 7. 88. 95.]
325 cord_individual_obj[indivial_i, :] = [13. 5. 16. 21.]
326 cord_individual_obj[indivial_i, :] = [14. 6. 39. 45.]
327 cord_individual_obj[indivial_i, :] = [15. 5. 94. 99.]
328 cord_individual_obj[indivial_i, :] = [16. 8. 56. 64.]
329 cord_individual_obj[indivial_i, :] = [17. 6. 79. 85.]
330 cord_individual_obj[indivial_i, :] = [18. 5. 50. 55.]
331 cord_individual_obj[indivial_i, :] = [19. 7. 86. 93.]

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332 cord_individual_obj[indivial_i, :] = [20. 6. 27. 33.]
333 cord_individual_obj[indivial_i, :] = [21. 6. 40. 46.]
334 cord_individual_obj[indivial_i, :] = [22. 7. 44. 51.]
335 cord_individual_obj[indivial_i, :] = [23. 5. 47. 52.]
336 cord_individual_obj[indivial_i, :] = [24. 7. 53. 60.]
337
338 min(cord_individual_obj[:, 3]) = 21.0
339 histol_G_best_iter[iter, 3] = 21.0
340 Begin iteration:
341
342 iter = 10
343 cord_individual_obj[indivial_i, :] = [ 0. 7. 116. 123.]
344 cord_individual_obj[indivial_i, :] = [ 1. 6. 53. 59.]
345 cord_individual_obj[indivial_i, :] = [ 2. 4. 172. 176.]
346 cord_individual_obj[indivial_i, :] = [ 3. 6. 16. 22.]
347 cord_individual_obj[indivial_i, :] = [ 4. 4. 82. 86.]
348 cord_individual_obj[indivial_i, :] = [ 5. 7. 68. 75.]
349 cord_individual_obj[indivial_i, :] = [ 6. 5. 16. 21.]
350 cord_individual_obj[indivial_i, :] = [ 7. 8. 110. 118.]
351 cord_individual_obj[indivial_i, :] = [ 8. 8. 39. 47.]
352 cord_individual_obj[indivial_i, :] = [ 9. 5. 64. 69.]
353 cord_individual_obj[indivial_i, :] = [10. 8. 44. 52.]
354 cord_individual_obj[indivial_i, :] = [11. 10. 72. 82.]
355 cord_individual_obj[indivial_i, :] = [12. 7. 109. 116.]
356 cord_individual_obj[indivial_i, :] = [13. 5. 42. 47.]
357 cord_individual_obj[indivial_i, :] = [14. 6. 61. 67.]
358 cord_individual_obj[indivial_i, :] = [15. 5. 65. 70.]
359 cord_individual_obj[indivial_i, :] = [16. 6. 29. 35.]
360 cord_individual_obj[indivial_i, :] = [17. 6. 96. 102.]
361 cord_individual_obj[indivial_i, :] = [18. 7. 76. 83.]
362 cord_individual_obj[indivial_i, :] = [19. 5. 47. 52.]
363 cord_individual_obj[indivial_i, :] = [20. 6. 48. 54.]
364 cord_individual_obj[indivial_i, :] = [21. 7. 59. 66.]
365 cord_individual_obj[indivial_i, :] = [22. 6. 99. 105.]
366 cord_individual_obj[indivial_i, :] = [23. 8. 105. 113.]
367 cord_individual_obj[indivial_i, :] = [24. 6. 26. 32.]
368
369 min(cord_individual_obj[:, 3]) = 21.0
370 histol_G_best_iter[iter, 3] = 21.0
371 Begin iteration:
372
373 iter = 11
374 cord_individual_obj[indivial_i, :] = [ 0. 7. 44. 51.]
375 cord_individual_obj[indivial_i, :] = [ 1. 6. 88. 94.]
376 cord_individual_obj[indivial_i, :] = [ 2. 5. 16. 21.]
377 cord_individual_obj[indivial_i, :] = [ 3. 7. 79. 86.]
378 cord_individual_obj[indivial_i, :] = [ 4. 5. 80. 85.]
379 cord_individual_obj[indivial_i, :] = [ 5. 7. 39. 46.]
380 cord_individual_obj[indivial_i, :] = [ 6. 6. 25. 31.]
381 cord_individual_obj[indivial_i, :] = [ 7. 7. 21. 28.]
382 cord_individual_obj[indivial_i, :] = [ 8. 8. 43. 51.]
383 cord_individual_obj[indivial_i, :] = [ 9. 5. 99. 104.]
384 cord_individual_obj[indivial_i, :] = [10. 6. 61. 67.]
385 cord_individual_obj[indivial_i, :] = [11. 7. 40. 47.]
386 cord_individual_obj[indivial_i, :] = [12. 6. 51. 57.]
387 cord_individual_obj[indivial_i, :] = [13. 7. 58. 65.]
388 cord_individual_obj[indivial_i, :] = [14. 6. 54. 60.]
389 cord_individual_obj[indivial_i, :] = [15. 5. 58. 63.]
390 cord_individual_obj[indivial_i, :] = [16. 7. 20. 27.]
391 cord_individual_obj[indivial_i, :] = [17. 7. 75. 82.]
392 cord_individual_obj[indivial_i, :] = [18. 6. 57. 63.]
393 cord_individual_obj[indivial_i, :] = [19. 5. 109. 114.]
394 cord_individual_obj[indivial_i, :] = [20. 9. 73. 82.]
395 cord_individual_obj[indivial_i, :] = [21. 6. 81. 87.]
396 cord_individual_obj[indivial_i, :] = [22. 7. 87. 94.]
397 cord_individual_obj[indivial_i, :] = [23. 7. 91. 98.]
398 cord_individual_obj[indivial_i, :] = [24. 5. 130. 135.]
399
400 min(cord_individual_obj[:, 3]) = 21.0
401 histol_G_best_iter[iter, 3] = 21.0
402 Begin iteration:
403
404 iter = 12
405 cord_individual_obj[indivial_i, :] = [ 0. 6. 51. 57.]
406 cord_individual_obj[indivial_i, :] = [ 1. 5. 112. 117.]
407 cord_individual_obj[indivial_i, :] = [ 2. 6. 114. 120.]
408 cord_individual_obj[indivial_i, :] = [ 3. 8. 99. 107.]
409 cord_individual_obj[indivial_i, :] = [ 4. 6. 52. 58.]
410 cord_individual_obj[indivial_i, :] = [ 5. 7. 39. 46.]
411 cord_individual_obj[indivial_i, :] = [ 6. 6. 103. 109.]
412 cord_individual_obj[indivial_i, :] = [ 7. 6. 29. 35.]
413 cord_individual_obj[indivial_i, :] = [ 8. 7. 36. 43.]
414 cord_individual_obj[indivial_i, :] = [ 9. 5. 139. 144.]
415 cord_individual_obj[indivial_i, :] = [10. 6. 92. 98.]

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416 cord_individual_obj[indivial_i,:] = [11. 8. 42. 50.]
417 cord_individual_obj[indivial_i,:] = [12. 5. 144. 149.]
418 cord_individual_obj[indivial_i,:] = [13. 6. 94. 100.]
419 cord_individual_obj[indivial_i,:] = [14. 7. 81. 88.]
420 cord_individual_obj[indivial_i,:] = [15. 7. 59. 66.]
421 cord_individual_obj[indivial_i,:] = [16. 8. 90. 98.]
422 cord_individual_obj[indivial_i,:] = [17. 6. 112. 118.]
423 cord_individual_obj[indivial_i,:] = [18. 9. 46. 55.]
424 cord_individual_obj[indivial_i,:] = [19. 6. 41. 47.]
425 cord_individual_obj[indivial_i,:] = [20. 6. 49. 55.]
426 cord_individual_obj[indivial_i,:] = [21. 6. 102. 108.]
427 cord_individual_obj[indivial_i,:] = [22. 5. 111. 116.]
428 cord_individual_obj[indivial_i,:] = [23. 7. 79. 86.]
429 cord_individual_obj[indivial_i,:] = [24. 5. 16. 21.]
430
431 min(cord_individual_obj[:,3]) = 21.0
432 histol_G_best_iter[iter,3] = 21.0
433 Begin iteration:
434
435 iter = 13
436 cord_individual_obj[indivial_i,:] = [0. 6. 52. 58.]
437 cord_individual_obj[indivial_i,:] = [1. 6. 60. 66.]
438 cord_individual_obj[indivial_i,:] = [2. 6. 104. 110.]
439 cord_individual_obj[indivial_i,:] = [3. 7. 71. 78.]
440 cord_individual_obj[indivial_i,:] = [4. 5. 61. 66.]
441 cord_individual_obj[indivial_i,:] = [5. 7. 92. 99.]
442 cord_individual_obj[indivial_i,:] = [6. 6. 96. 102.]
443 cord_individual_obj[indivial_i,:] = [7. 7. 41. 48.]
444 cord_individual_obj[indivial_i,:] = [8. 9. 42. 51.]
445 cord_individual_obj[indivial_i,:] = [9. 6. 37. 43.]
446 cord_individual_obj[indivial_i,:] = [10. 6. 33. 39.]
447 cord_individual_obj[indivial_i,:] = [11. 7. 43. 50.]
448 cord_individual_obj[indivial_i,:] = [12. 5. 16. 21.]
449 cord_individual_obj[indivial_i,:] = [13. 6. 110. 116.]
450 cord_individual_obj[indivial_i,:] = [14. 9. 79. 88.]
451 cord_individual_obj[indivial_i,:] = [15. 7. 58. 65.]
452 cord_individual_obj[indivial_i,:] = [16. 7. 78. 85.]
453 cord_individual_obj[indivial_i,:] = [17. 7. 47. 54.]
454 cord_individual_obj[indivial_i,:] = [18. 5. 30. 35.]
455 cord_individual_obj[indivial_i,:] = [19. 6. 56. 62.]
456 cord_individual_obj[indivial_i,:] = [20. 8. 41. 49.]
457 cord_individual_obj[indivial_i,:] = [21. 7. 95. 102.]
458 cord_individual_obj[indivial_i,:] = [22. 6. 124. 130.]
459 cord_individual_obj[indivial_i,:] = [23. 5. 208. 213.]
460 cord_individual_obj[indivial_i,:] = [24. 9. 43. 52.]
461
462 min(cord_individual_obj[:,3]) = 21.0
463 histol_G_best_iter[iter,3] = 21.0
464 Begin iteration:
465
466 iter = 14
467 cord_individual_obj[indivial_i,:] = [0. 5. 82. 87.]
468 cord_individual_obj[indivial_i,:] = [1. 5. 79. 84.]
469 cord_individual_obj[indivial_i,:] = [2. 6. 24. 30.]
470 cord_individual_obj[indivial_i,:] = [3. 7. 78. 85.]
471 cord_individual_obj[indivial_i,:] = [4. 6. 94. 100.]
472 cord_individual_obj[indivial_i,:] = [5. 6. 70. 76.]
473 cord_individual_obj[indivial_i,:] = [6. 4. 63. 67.]
474 cord_individual_obj[indivial_i,:] = [7. 6. 23. 29.]
475 cord_individual_obj[indivial_i,:] = [8. 9. 51. 60.]
476 cord_individual_obj[indivial_i,:] = [9. 5. 151. 156.]
477 cord_individual_obj[indivial_i,:] = [10. 7. 152. 159.]
478 cord_individual_obj[indivial_i,:] = [11. 6. 29. 35.]
479 cord_individual_obj[indivial_i,:] = [12. 6. 51. 57.]
480 cord_individual_obj[indivial_i,:] = [13. 5. 59. 64.]
481 cord_individual_obj[indivial_i,:] = [14. 6. 30. 36.]
482 cord_individual_obj[indivial_i,:] = [15. 5. 41. 46.]
483 cord_individual_obj[indivial_i,:] = [16. 8. 56. 64.]
484 cord_individual_obj[indivial_i,:] = [17. 8. 118. 126.]
485 cord_individual_obj[indivial_i,:] = [18. 8. 38. 46.]
486 cord_individual_obj[indivial_i,:] = [19. 6. 78. 84.]
487 cord_individual_obj[indivial_i,:] = [20. 8. 45. 53.]
488 cord_individual_obj[indivial_i,:] = [21. 5. 18. 23.]
489 cord_individual_obj[indivial_i,:] = [22. 5. 91. 96.]
490 cord_individual_obj[indivial_i,:] = [23. 5. 16. 21.]
491 cord_individual_obj[indivial_i,:] = [24. 6. 75. 81.]
492
493 min(cord_individual_obj[:,3]) = 21.0
494 histol_G_best_iter[iter,3] = 21.0
495 Begin iteration:
496
497 iter = 15
498 cord_individual_obj[indivial_i,:] = [0. 7. 58. 65.]
499 cord_individual_obj[indivial_i,:] = [1. 7. 57. 64.]

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500 cord_individual_obj[indivial_i,:] = [ 2. 7. 105. 112.]
501 cord_individual_obj[indivial_i,:] = [ 3. 5. 101. 106.]
502 cord_individual_obj[indivial_i,:] = [ 4. 6. 76. 82.]
503 cord_individual_obj[indivial_i,:] = [ 5. 7. 68. 75.]
504 cord_individual_obj[indivial_i,:] = [ 6. 6. 103. 109.]
505 cord_individual_obj[indivial_i,:] = [ 7. 6. 77. 83.]
506 cord_individual_obj[indivial_i,:] = [ 8. 8. 40. 48.]
507 cord_individual_obj[indivial_i,:] = [ 9. 8. 74. 82.]
508 cord_individual_obj[indivial_i,:] = [10. 5. 16. 21.]
509 cord_individual_obj[indivial_i,:] = [11. 9. 73. 82.]
510 cord_individual_obj[indivial_i,:] = [12. 6. 122. 128.]
511 cord_individual_obj[indivial_i,:] = [13. 6. 49. 55.]
512 cord_individual_obj[indivial_i,:] = [14. 7. 38. 45.]
513 cord_individual_obj[indivial_i,:] = [15. 6. 75. 81.]
514 cord_individual_obj[indivial_i,:] = [16. 7. 93. 100.]
515 cord_individual_obj[indivial_i,:] = [17. 6. 50. 56.]
516 cord_individual_obj[indivial_i,:] = [18. 9. 70. 79.]
517 cord_individual_obj[indivial_i,:] = [19. 6. 102. 108.]
518 cord_individual_obj[indivial_i,:] = [20. 8. 66. 74.]
519 cord_individual_obj[indivial_i,:] = [21. 8. 56. 64.]
520 cord_individual_obj[indivial_i,:] = [22. 5. 97. 102.]
521 cord_individual_obj[indivial_i,:] = [23. 5. 167. 172.]
522 cord_individual_obj[indivial_i,:] = [24. 5. 93. 98.]
523
524 min(cord_individual_obj[:, 3]) = 21.0
525 histort_G_best_iter[iter, 3] = 21.0
526 Begin iteration:
527
528 iter = 16
529 cord_individual_obj[indivial_i,:] = [ 0. 8. 50. 58.]
530 cord_individual_obj[indivial_i,:] = [ 1. 7. 41. 48.]
531 cord_individual_obj[indivial_i,:] = [ 2. 5. 67. 72.]
532 cord_individual_obj[indivial_i,:] = [ 3. 7. 56. 63.]
533 cord_individual_obj[indivial_i,:] = [ 4. 8. 58. 66.]
534 cord_individual_obj[indivial_i,:] = [ 5. 5. 45. 50.]
535 cord_individual_obj[indivial_i,:] = [ 6. 5. 148. 153.]
536 cord_individual_obj[indivial_i,:] = [ 7. 8. 100. 108.]
537 cord_individual_obj[indivial_i,:] = [ 8. 8. 56. 64.]
538 cord_individual_obj[indivial_i,:] = [ 9. 6. 73. 79.]
539 cord_individual_obj[indivial_i,:] = [10. 6. 61. 67.]
540 cord_individual_obj[indivial_i,:] = [11. 5. 69. 74.]
541 cord_individual_obj[indivial_i,:] = [12. 5. 50. 55.]
542 cord_individual_obj[indivial_i,:] = [13. 5. 78. 83.]
543 cord_individual_obj[indivial_i,:] = [14. 6. 71. 77.]
544 cord_individual_obj[indivial_i,:] = [15. 8. 61. 69.]
545 cord_individual_obj[indivial_i,:] = [16. 7. 80. 87.]
546 cord_individual_obj[indivial_i,:] = [17. 8. 43. 51.]
547 cord_individual_obj[indivial_i,:] = [18. 7. 44. 51.]
548 cord_individual_obj[indivial_i,:] = [19. 7. 108. 115.]
549 cord_individual_obj[indivial_i,:] = [20. 7. 43. 50.]
550 cord_individual_obj[indivial_i,:] = [21. 7. 45. 52.]
551 cord_individual_obj[indivial_i,:] = [22. 5. 66. 71.]
552 cord_individual_obj[indivial_i,:] = [23. 5. 16. 21.]
553 cord_individual_obj[indivial_i,:] = [24. 6. 98. 104.]
554
555 min(cord_individual_obj[:, 3]) = 21.0
556 histort_G_best_iter[iter, 3] = 21.0
557 Begin iteration:
558
559 iter = 17
560 cord_individual_obj[indivial_i,:] = [ 0. 8. 59. 67.]
561 cord_individual_obj[indivial_i,:] = [ 1. 6. 64. 70.]
562 cord_individual_obj[indivial_i,:] = [ 2. 5. 95. 100.]
563 cord_individual_obj[indivial_i,:] = [ 3. 8. 79. 87.]
564 cord_individual_obj[indivial_i,:] = [ 4. 7. 64. 71.]
565 cord_individual_obj[indivial_i,:] = [ 5. 7. 39. 46.]
566 cord_individual_obj[indivial_i,:] = [ 6. 5. 16. 21.]
567 cord_individual_obj[indivial_i,:] = [ 7. 7. 28. 35.]
568 cord_individual_obj[indivial_i,:] = [ 8. 8. 33. 41.]
569 cord_individual_obj[indivial_i,:] = [ 9. 8. 61. 69.]
570 cord_individual_obj[indivial_i,:] = [10. 6. 37. 43.]
571 cord_individual_obj[indivial_i,:] = [11. 7. 32. 39.]
572 cord_individual_obj[indivial_i,:] = [12. 7. 39. 46.]
573 cord_individual_obj[indivial_i,:] = [13. 6. 110. 116.]
574 cord_individual_obj[indivial_i,:] = [14. 6. 82. 88.]
575 cord_individual_obj[indivial_i,:] = [15. 6. 50. 56.]
576 cord_individual_obj[indivial_i,:] = [16. 7. 76. 83.]
577 cord_individual_obj[indivial_i,:] = [17. 6. 44. 50.]
578 cord_individual_obj[indivial_i,:] = [18. 6. 32. 38.]
579 cord_individual_obj[indivial_i,:] = [19. 5. 105. 110.]
580 cord_individual_obj[indivial_i,:] = [20. 7. 54. 61.]
581 cord_individual_obj[indivial_i,:] = [21. 5. 93. 98.]
582 cord_individual_obj[indivial_i,:] = [22. 5. 66. 71.]
583 cord_individual_obj[indivial_i,:] = [23. 5. 207. 212.]

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584     cord_individual_obj[indivial_i, :] = [24. 8. 40. 48.]
585
586     min(cord_individual_obj[:, 3]) = 21.0
587     historl_G_best_iter[iter, 3] = 21.0
588 Begin iteration:
589
590 iter = 18
591     cord_individual_obj[indivial_i, :] = [ 0. 9. 65. 74.]
592     cord_individual_obj[indivial_i, :] = [ 1. 5. 60. 65.]
593     cord_individual_obj[indivial_i, :] = [ 2. 7. 20. 27.]
594     cord_individual_obj[indivial_i, :] = [ 3. 5. 15. 20.]
595     cord_individual_obj[indivial_i, :] = [ 4. 6. 129. 135.]
596     cord_individual_obj[indivial_i, :] = [ 5. 6. 68. 74.]
597     cord_individual_obj[indivial_i, :] = [ 6. 6. 25. 31.]
598     cord_individual_obj[indivial_i, :] = [ 7. 9. 52. 61.]
599     cord_individual_obj[indivial_i, :] = [ 8. 7. 31. 38.]
600     cord_individual_obj[indivial_i, :] = [ 9. 8. 61. 69.]
601     cord_individual_obj[indivial_i, :] = [10. 6. 33. 39.]
602     cord_individual_obj[indivial_i, :] = [11. 7. 41. 48.]
603     cord_individual_obj[indivial_i, :] = [12. 6. 36. 42.]
604     cord_individual_obj[indivial_i, :] = [13. 7. 88. 95.]
605     cord_individual_obj[indivial_i, :] = [14. 6. 108. 114.]
606     cord_individual_obj[indivial_i, :] = [15. 6. 50. 56.]
607     cord_individual_obj[indivial_i, :] = [16. 8. 78. 86.]
608     cord_individual_obj[indivial_i, :] = [17. 7. 47. 54.]
609     cord_individual_obj[indivial_i, :] = [18. 8. 42. 50.]
610     cord_individual_obj[indivial_i, :] = [19. 6. 66. 72.]
611     cord_individual_obj[indivial_i, :] = [20. 7. 47. 54.]
612     cord_individual_obj[indivial_i, :] = [21. 8. 79. 87.]
613     cord_individual_obj[indivial_i, :] = [22. 7. 81. 88.]
614     cord_individual_obj[indivial_i, :] = [23. 5. 16. 21.]
615     cord_individual_obj[indivial_i, :] = [24. 6. 129. 135.]
616
617     min(cord_individual_obj[:, 3]) = 20.0
618     historl_G_best_iter[iter, 3] = 20.0
619 Begin iteration:
620
621 iter = 19
622     cord_individual_obj[indivial_i, :] = [ 0. 5. 129. 134.]
623     cord_individual_obj[indivial_i, :] = [ 1. 7. 88. 95.]
624     cord_individual_obj[indivial_i, :] = [ 2. 6. 35. 41.]
625     cord_individual_obj[indivial_i, :] = [ 3. 7. 73. 80.]
626     cord_individual_obj[indivial_i, :] = [ 4. 5. 15. 20.]
627     cord_individual_obj[indivial_i, :] = [ 5. 6. 25. 31.]
628     cord_individual_obj[indivial_i, :] = [ 6. 5. 22. 27.]
629     cord_individual_obj[indivial_i, :] = [ 7. 6. 22. 28.]
630     cord_individual_obj[indivial_i, :] = [ 8. 8. 77. 85.]
631     cord_individual_obj[indivial_i, :] = [ 9. 6. 55. 61.]
632     cord_individual_obj[indivial_i, :] = [10. 7. 82. 89.]
633     cord_individual_obj[indivial_i, :] = [11. 5. 16. 21.]
634     cord_individual_obj[indivial_i, :] = [12. 5. 41. 46.]
635     cord_individual_obj[indivial_i, :] = [13. 5. 41. 46.]
636     cord_individual_obj[indivial_i, :] = [14. 7. 60. 67.]
637     cord_individual_obj[indivial_i, :] = [15. 8. 51. 59.]
638     cord_individual_obj[indivial_i, :] = [16. 8. 78. 86.]
639     cord_individual_obj[indivial_i, :] = [17. 8. 47. 55.]
640     cord_individual_obj[indivial_i, :] = [18. 9. 45. 54.]
641     cord_individual_obj[indivial_i, :] = [19. 7. 84. 91.]
642     cord_individual_obj[indivial_i, :] = [20. 7. 21. 28.]
643     cord_individual_obj[indivial_i, :] = [21. 5. 137. 142.]
644     cord_individual_obj[indivial_i, :] = [22. 7. 75. 82.]
645     cord_individual_obj[indivial_i, :] = [23. 5. 120. 125.]
646     cord_individual_obj[indivial_i, :] = [24. 7. 51. 58.]
647
648     min(cord_individual_obj[:, 3]) = 20.0
649     historl_G_best_iter[iter, 3] = 20.0
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. 140. 145.]
655     cord_individual_obj[indivial_i, :] = [ 2. 7. 81. 88.]
656     cord_individual_obj[indivial_i, :] = [ 3. 9. 60. 69.]
657     cord_individual_obj[indivial_i, :] = [ 4. 5. 79. 84.]
658     cord_individual_obj[indivial_i, :] = [ 5. 6. 25. 31.]
659     cord_individual_obj[indivial_i, :] = [ 6. 5. 66. 71.]
660     cord_individual_obj[indivial_i, :] = [ 7. 6. 52. 58.]
661     cord_individual_obj[indivial_i, :] = [ 8. 5. 15. 20.]
662     cord_individual_obj[indivial_i, :] = [ 9. 7. 114. 121.]
663     cord_individual_obj[indivial_i, :] = [10. 5. 31. 36.]
664     cord_individual_obj[indivial_i, :] = [11. 6. 101. 107.]
665     cord_individual_obj[indivial_i, :] = [12. 6. 46. 52.]
666     cord_individual_obj[indivial_i, :] = [13. 8. 57. 65.]
667     cord_individual_obj[indivial_i, :] = [14. 8. 50. 58.]

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668 cord_individual_obj[indivial_i, :] = [15. 6. 46. 52.]
669 cord_individual_obj[indivial_i, :] = [16. 7. 94. 101.]
670 cord_individual_obj[indivial_i, :] = [17. 7. 158. 165.]
671 cord_individual_obj[indivial_i, :] = [18. 6. 47. 53.]
672 cord_individual_obj[indivial_i, :] = [19. 6. 104. 110.]
673 cord_individual_obj[indivial_i, :] = [20. 7. 26. 33.]
674 cord_individual_obj[indivial_i, :] = [21. 5. 15. 20.]
675 cord_individual_obj[indivial_i, :] = [22. 6. 57. 63.]
676 cord_individual_obj[indivial_i, :] = [23. 5. 119. 124.]
677 cord_individual_obj[indivial_i, :] = [24. 6. 92. 98.]
678
679 min(cord_individual_obj[:, 3]) = 20.0
680 historl_G_best_iter[iter, 3] = 20.0
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: [4.5 22. 24.5 13. 18.5 6.5 24.5 2.5 9.5 15.5]
692 time: [0. 0. 2. 0. 0. 2. 4. 2. 2. 3.]
693 num_QC: [6. 3. 2. 3. 3. 2. 3. 4. 2. 4.]
694 Objective function values and some other indicators:
695 Obj0 = 5.00          Obj1 = 15.00          Obj0 + Obj1 = 20.00
696 Total movement of crane: 0.00
697 Total waiting time in berth position: 15.00
698 Total index of q during berthing: 607.00
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: 1.0
701 .0           gama_i1 + 1: 2.0           gama_i1 - gama_i0: 1.0           duration_time_i: 2.0           demand_i: 140.0           work load_i:
702 V_id: 1           li: 4.0           xi: 22.0           bow of i: 20.0           tail of i: 24.0           gama_i0: 0.0           gama_i1: 1
703 .0           gama_i1 + 1: 2.0           gama_i1 - gama_i0: 1.0           duration_time_i: 2.0           demand_i: 100.0           work
704 V_id: 2           li: 9.0           xi: 24.5           bow of i: 20.0           tail of i: 29.0           gama_i0: 2.0           gama_i1: 3
705 .0           gama_i1 + 1: 4.0           gama_i1 - gama_i0: 1.0           duration_time_i: 2.0           demand_i: 60.0           work
706 V_id: 3           li: 8.0           xi: 13.0           bow of i: 9.0           tail of i: 17.0           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: 120.0           work
708 V_id: 4           li: 3.0           xi: 18.5           bow of i: 17.0           tail of i: 20.0           gama_i0: 0.0           gama_i1: 2
709 .0           gama_i1 + 1: 3.0           gama_i1 - gama_i0: 2.0           duration_time_i: 3.0           demand_i: 140.0           work
710 V_id: 5           li: 3.0           xi: 6.5           bow of i: 5.0           tail of i: 8.0           gama_i0: 2.0           gama_i1: 4.0
711 .0           gama_i1 + 1: 5.0           gama_i1 - gama_i0: 2.0           duration_time_i: 3.0           demand_i: 100.0           work load_i:
712 V_id: 6           li: 9.0           xi: 24.5           bow of i: 20.0           tail of i: 29.0           gama_i0: 4.0           gama_i1: 5
713 .0           gama_i1 + 1: 6.0           gama_i1 - gama_i0: 1.0           duration_time_i: 2.0           demand_i: 80.0           work
714 V_id: 7           li: 5.0           xi: 2.5           bow of i: 0.0           tail of i: 5.0           gama_i0: 2.0           gama_i1: 3.0
715 .0           gama_i1 + 1: 4.0           gama_i1 - gama_i0: 1.0           duration_time_i: 2.0           demand_i: 160.0           work load_i:
716 V_id: 8           li: 3.0           xi: 9.5           bow of i: 8.0           tail of i: 11.0           gama_i0: 2.0           gama_i1: 5.0
717 .0           gama_i1 + 1: 6.0           gama_i1 - gama_i0: 3.0           duration_time_i: 4.0           demand_i: 140.0           work load_i:
718 V_id: 9           li: 9.0           xi: 15.5           bow of i: 11.0           tail of i: 20.0           gama_i0: 3.0           gama_i1: 4
719 .0           gama_i1 + 1: 5.0           gama_i1 - gama_i0: 1.0           duration_time_i: 2.0           demand_i: 100.0           work
720
721 Algorithm finished and the total CPU time: 263 s
722 End
723

```