

unknown

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80 cord_individual_obj[indivial_i,:] = [16. 4. 38. 42.]
81 cord_individual_obj[indivial_i,:] = [17. 4. 49. 53.]
82 cord_individual_obj[indivial_i,:] = [18. 4. 45. 49.]
83 cord_individual_obj[indivial_i,:] = [19. 6. 15. 21.]
84 cord_individual_obj[indivial_i,:] = [20. 4. 48. 52.]
85 cord_individual_obj[indivial_i,:] = [21. 5. 68. 73.]
86 cord_individual_obj[indivial_i,:] = [22. 5. 46. 51.]
87 cord_individual_obj[indivial_i,:] = [23. 4. 45. 49.]
88 cord_individual_obj[indivial_i,:] = [24. 4. 34. 38.]
89
90 min(cord_individual_obj[:,3]) = 21.0
91 historl_G_best_iter[iter, 3] = 21.0
92 Begin iteration:
93
94 iter = 2
95 cord_individual_obj[indivial_i,:] = [ 0. 6. 38. 44.]
96 cord_individual_obj[indivial_i,:] = [ 1. 3. 115. 118.]
97 cord_individual_obj[indivial_i,:] = [ 2. 5. 55. 60.]
98 cord_individual_obj[indivial_i,:] = [ 3. 4. 81. 85.]
99 cord_individual_obj[indivial_i,:] = [ 4. 7. 31. 38.]
100 cord_individual_obj[indivial_i,:] = [ 5. 6. 88. 94.]
101 cord_individual_obj[indivial_i,:] = [ 6. 6. 83. 89.]
102 cord_individual_obj[indivial_i,:] = [ 7. 6. 61. 67.]
103 cord_individual_obj[indivial_i,:] = [ 8. 4. 49. 53.]
104 cord_individual_obj[indivial_i,:] = [ 9. 5. 25. 30.]
105 cord_individual_obj[indivial_i,:] = [10. 6. 15. 21.]
106 cord_individual_obj[indivial_i,:] = [11. 5. 68. 73.]
107 cord_individual_obj[indivial_i,:] = [12. 4. 53. 57.]
108 cord_individual_obj[indivial_i,:] = [13. 5. 22. 27.]
109 cord_individual_obj[indivial_i,:] = [14. 5. 26. 31.]
110 cord_individual_obj[indivial_i,:] = [15. 4. 34. 38.]
111 cord_individual_obj[indivial_i,:] = [16. 5. 51. 56.]
112 cord_individual_obj[indivial_i,:] = [17. 5. 97. 102.]
113 cord_individual_obj[indivial_i,:] = [18. 5. 12. 17.]
114 cord_individual_obj[indivial_i,:] = [19. 4. 79. 83.]
115 cord_individual_obj[indivial_i,:] = [20. 5. 69. 74.]
116 cord_individual_obj[indivial_i,:] = [21. 7. 59. 66.]
117 cord_individual_obj[indivial_i,:] = [22. 5. 58. 63.]
118 cord_individual_obj[indivial_i,:] = [23. 4. 27. 31.]
119 cord_individual_obj[indivial_i,:] = [24. 5. 9. 14.]
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. 5. 124. 129.]
127 cord_individual_obj[indivial_i,:] = [ 1. 5. 9. 14.]
128 cord_individual_obj[indivial_i,:] = [ 2. 4. 77. 81.]
129 cord_individual_obj[indivial_i,:] = [ 3. 8. 56. 64.]
130 cord_individual_obj[indivial_i,:] = [ 4. 5. 12. 17.]
131 cord_individual_obj[indivial_i,:] = [ 5. 4. 54. 58.]
132 cord_individual_obj[indivial_i,:] = [ 6. 5. 103. 108.]
133 cord_individual_obj[indivial_i,:] = [ 7. 6. 50. 56.]
134 cord_individual_obj[indivial_i,:] = [ 8. 6. 15. 21.]
135 cord_individual_obj[indivial_i,:] = [ 9. 5. 20. 25.]
136 cord_individual_obj[indivial_i,:] = [10. 5. 61. 66.]
137 cord_individual_obj[indivial_i,:] = [11. 5. 125. 130.]
138 cord_individual_obj[indivial_i,:] = [12. 5. 47. 52.]
139 cord_individual_obj[indivial_i,:] = [13. 5. 108. 113.]
140 cord_individual_obj[indivial_i,:] = [14. 5. 51. 56.]
141 cord_individual_obj[indivial_i,:] = [15. 4. 70. 74.]
142 cord_individual_obj[indivial_i,:] = [16. 5. 42. 47.]
143 cord_individual_obj[indivial_i,:] = [17. 6. 103. 109.]
144 cord_individual_obj[indivial_i,:] = [18. 6. 21. 27.]
145 cord_individual_obj[indivial_i,:] = [19. 7. 23. 30.]
146 cord_individual_obj[indivial_i,:] = [20. 5. 131. 136.]
147 cord_individual_obj[indivial_i,:] = [21. 7. 92. 99.]
148 cord_individual_obj[indivial_i,:] = [22. 4. 21. 25.]
149 cord_individual_obj[indivial_i,:] = [23. 5. 91. 96.]
150 cord_individual_obj[indivial_i,:] = [24. 5. 62. 67.]
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. 6. 62. 68.]
158 cord_individual_obj[indivial_i,:] = [ 1. 4. 82. 86.]
159 cord_individual_obj[indivial_i,:] = [ 2. 6. 47. 53.]
160 cord_individual_obj[indivial_i,:] = [ 3. 5. 69. 74.]
161 cord_individual_obj[indivial_i,:] = [ 4. 5. 11. 16.]
162 cord_individual_obj[indivial_i,:] = [ 5. 5. 76. 81.]
163 cord_individual_obj[indivial_i,:] = [ 6. 5. 104. 109.]

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164 cord_individual_obj[indivial_i,:] = [ 7. 7. 61. 68.]
165 cord_individual_obj[indivial_i,:] = [ 8. 5. 52. 57.]
166 cord_individual_obj[indivial_i,:] = [ 9. 6. 26. 32.]
167 cord_individual_obj[indivial_i,:] = [10. 7. 13. 20.]
168 cord_individual_obj[indivial_i,:] = [11. 5. 22. 27.]
169 cord_individual_obj[indivial_i,:] = [12. 7. 109. 116.]
170 cord_individual_obj[indivial_i,:] = [13. 6. 66. 72.]
171 cord_individual_obj[indivial_i,:] = [14. 5. 26. 31.]
172 cord_individual_obj[indivial_i,:] = [15. 6. 105. 111.]
173 cord_individual_obj[indivial_i,:] = [16. 7. 32. 39.]
174 cord_individual_obj[indivial_i,:] = [17. 5. 52. 57.]
175 cord_individual_obj[indivial_i,:] = [18. 6. 72. 78.]
176 cord_individual_obj[indivial_i,:] = [19. 4. 33. 37.]
177 cord_individual_obj[indivial_i,:] = [20. 5. 9. 14.]
178 cord_individual_obj[indivial_i,:] = [21. 5. 51. 56.]
179 cord_individual_obj[indivial_i,:] = [22. 6. 30. 36.]
180 cord_individual_obj[indivial_i,:] = [23. 5. 86. 91.]
181 cord_individual_obj[indivial_i,:] = [24. 8. 87. 95.]
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. 6. 66. 72.]
189 cord_individual_obj[indivial_i,:] = [ 1. 6. 92. 98.]
190 cord_individual_obj[indivial_i,:] = [ 2. 5. 34. 39.]
191 cord_individual_obj[indivial_i,:] = [ 3. 5. 79. 84.]
192 cord_individual_obj[indivial_i,:] = [ 4. 6. 80. 86.]
193 cord_individual_obj[indivial_i,:] = [ 5. 5. 57. 62.]
194 cord_individual_obj[indivial_i,:] = [ 6. 5. 18. 23.]
195 cord_individual_obj[indivial_i,:] = [ 7. 6. 43. 49.]
196 cord_individual_obj[indivial_i,:] = [ 8. 5. 29. 34.]
197 cord_individual_obj[indivial_i,:] = [ 9. 5. 53. 58.]
198 cord_individual_obj[indivial_i,:] = [10. 5. 86. 91.]
199 cord_individual_obj[indivial_i,:] = [11. 5. 98. 103.]
200 cord_individual_obj[indivial_i,:] = [12. 5. 9. 14.]
201 cord_individual_obj[indivial_i,:] = [13. 4. 33. 37.]
202 cord_individual_obj[indivial_i,:] = [14. 5. 33. 38.]
203 cord_individual_obj[indivial_i,:] = [15. 6. 58. 64.]
204 cord_individual_obj[indivial_i,:] = [16. 5. 119. 124.]
205 cord_individual_obj[indivial_i,:] = [17. 5. 33. 38.]
206 cord_individual_obj[indivial_i,:] = [18. 7. 40. 47.]
207 cord_individual_obj[indivial_i,:] = [19. 5. 33. 38.]
208 cord_individual_obj[indivial_i,:] = [20. 6. 45. 51.]
209 cord_individual_obj[indivial_i,:] = [21. 6. 74. 80.]
210 cord_individual_obj[indivial_i,:] = [22. 5. 22. 27.]
211 cord_individual_obj[indivial_i,:] = [23. 5. 78. 83.]
212 cord_individual_obj[indivial_i,:] = [24. 6. 97. 103.]
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. 4. 27. 31.]
220 cord_individual_obj[indivial_i,:] = [ 1. 5. 103. 108.]
221 cord_individual_obj[indivial_i,:] = [ 2. 5. 35. 40.]
222 cord_individual_obj[indivial_i,:] = [ 3. 5. 79. 84.]
223 cord_individual_obj[indivial_i,:] = [ 4. 5. 98. 103.]
224 cord_individual_obj[indivial_i,:] = [ 5. 5. 92. 97.]
225 cord_individual_obj[indivial_i,:] = [ 6. 5. 59. 64.]
226 cord_individual_obj[indivial_i,:] = [ 7. 5. 74. 79.]
227 cord_individual_obj[indivial_i,:] = [ 8. 7. 42. 49.]
228 cord_individual_obj[indivial_i,:] = [ 9. 6. 78. 84.]
229 cord_individual_obj[indivial_i,:] = [10. 7. 25. 32.]
230 cord_individual_obj[indivial_i,:] = [11. 6. 25. 31.]
231 cord_individual_obj[indivial_i,:] = [12. 6. 79. 85.]
232 cord_individual_obj[indivial_i,:] = [13. 4. 43. 47.]
233 cord_individual_obj[indivial_i,:] = [14. 5. 76. 81.]
234 cord_individual_obj[indivial_i,:] = [15. 5. 12. 17.]
235 cord_individual_obj[indivial_i,:] = [16. 5. 9. 14.]
236 cord_individual_obj[indivial_i,:] = [17. 5. 47. 52.]
237 cord_individual_obj[indivial_i,:] = [18. 4. 40. 44.]
238 cord_individual_obj[indivial_i,:] = [19. 4. 102. 106.]
239 cord_individual_obj[indivial_i,:] = [20. 4. 57. 61.]
240 cord_individual_obj[indivial_i,:] = [21. 6. 25. 31.]
241 cord_individual_obj[indivial_i,:] = [22. 7. 87. 94.]
242 cord_individual_obj[indivial_i,:] = [23. 4. 41. 45.]
243 cord_individual_obj[indivial_i,:] = [24. 6. 15. 21.]
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.  5. 64. 69.]
251 cord_individual_obj[indivial_i, :] = [ 1.  5. 9. 14.]
252 cord_individual_obj[indivial_i, :] = [ 2.  7. 97. 104.]
253 cord_individual_obj[indivial_i, :] = [ 3.  4. 26. 30.]
254 cord_individual_obj[indivial_i, :] = [ 4.  4. 21. 25.]
255 cord_individual_obj[indivial_i, :] = [ 5.  5. 54. 59.]
256 cord_individual_obj[indivial_i, :] = [ 6.  6. 97. 103.]
257 cord_individual_obj[indivial_i, :] = [ 7.  7. 18. 25.]
258 cord_individual_obj[indivial_i, :] = [ 8.  6. 62. 68.]
259 cord_individual_obj[indivial_i, :] = [ 9.  4. 68. 72.]
260 cord_individual_obj[indivial_i, :] = [10. 7. 50. 57.]
261 cord_individual_obj[indivial_i, :] = [11. 6. 66. 72.]
262 cord_individual_obj[indivial_i, :] = [12. 6. 13. 19.]
263 cord_individual_obj[indivial_i, :] = [13. 5. 11. 16.]
264 cord_individual_obj[indivial_i, :] = [14. 7. 55. 62.]
265 cord_individual_obj[indivial_i, :] = [15. 4. 51. 55.]
266 cord_individual_obj[indivial_i, :] = [16. 5. 20. 25.]
267 cord_individual_obj[indivial_i, :] = [17. 5. 36. 41.]
268 cord_individual_obj[indivial_i, :] = [18. 5. 44. 49.]
269 cord_individual_obj[indivial_i, :] = [19. 6. 114. 120.]
270 cord_individual_obj[indivial_i, :] = [20. 3. 118. 121.]
271 cord_individual_obj[indivial_i, :] = [21. 6. 61. 67.]
272 cord_individual_obj[indivial_i, :] = [22. 6. 56. 62.]
273 cord_individual_obj[indivial_i, :] = [23. 5. 70. 75.]
274 cord_individual_obj[indivial_i, :] = [24. 5. 90. 95.]
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. 160. 166.]
282 cord_individual_obj[indivial_i, :] = [ 1.  4. 73. 77.]
283 cord_individual_obj[indivial_i, :] = [ 2.  4. 48. 52.]
284 cord_individual_obj[indivial_i, :] = [ 3.  4. 83. 87.]
285 cord_individual_obj[indivial_i, :] = [ 4.  7. 67. 74.]
286 cord_individual_obj[indivial_i, :] = [ 5.  6. 74. 80.]
287 cord_individual_obj[indivial_i, :] = [ 6.  5. 109. 114.]
288 cord_individual_obj[indivial_i, :] = [ 7.  4. 127. 131.]
289 cord_individual_obj[indivial_i, :] = [ 8.  6. 27. 33.]
290 cord_individual_obj[indivial_i, :] = [ 9.  7. 35. 42.]
291 cord_individual_obj[indivial_i, :] = [10. 4. 87. 91.]
292 cord_individual_obj[indivial_i, :] = [11. 5. 35. 40.]
293 cord_individual_obj[indivial_i, :] = [12. 4. 68. 72.]
294 cord_individual_obj[indivial_i, :] = [13. 6. 73. 79.]
295 cord_individual_obj[indivial_i, :] = [14. 7. 40. 47.]
296 cord_individual_obj[indivial_i, :] = [15. 5. 118. 123.]
297 cord_individual_obj[indivial_i, :] = [16. 6. 42. 48.]
298 cord_individual_obj[indivial_i, :] = [17. 4. 49. 53.]
299 cord_individual_obj[indivial_i, :] = [18. 5. 38. 43.]
300 cord_individual_obj[indivial_i, :] = [19. 5. 102. 107.]
301 cord_individual_obj[indivial_i, :] = [20. 5. 9. 14.]
302 cord_individual_obj[indivial_i, :] = [21. 5. 46. 51.]
303 cord_individual_obj[indivial_i, :] = [22. 5. 17. 22.]
304 cord_individual_obj[indivial_i, :] = [23. 7. 16. 23.]
305 cord_individual_obj[indivial_i, :] = [24. 5. 52. 57.]
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. 9. 14.]
313 cord_individual_obj[indivial_i, :] = [ 1.  3. 49. 52.]
314 cord_individual_obj[indivial_i, :] = [ 2.  4. 18. 22.]
315 cord_individual_obj[indivial_i, :] = [ 3.  5. 9. 14.]
316 cord_individual_obj[indivial_i, :] = [ 4.  4. 67. 71.]
317 cord_individual_obj[indivial_i, :] = [ 5.  5. 80. 85.]
318 cord_individual_obj[indivial_i, :] = [ 6.  6. 85. 91.]
319 cord_individual_obj[indivial_i, :] = [ 7.  6. 79. 85.]
320 cord_individual_obj[indivial_i, :] = [ 8.  6. 106. 112.]
321 cord_individual_obj[indivial_i, :] = [ 9.  5. 101. 106.]
322 cord_individual_obj[indivial_i, :] = [10. 6. 70. 76.]
323 cord_individual_obj[indivial_i, :] = [11. 5. 51. 56.]
324 cord_individual_obj[indivial_i, :] = [12. 7. 94. 101.]
325 cord_individual_obj[indivial_i, :] = [13. 8. 61. 69.]
326 cord_individual_obj[indivial_i, :] = [14. 5. 47. 52.]
327 cord_individual_obj[indivial_i, :] = [15. 7. 46. 53.]
328 cord_individual_obj[indivial_i, :] = [16. 4. 109. 113.]
329 cord_individual_obj[indivial_i, :] = [17. 6. 93. 99.]
330 cord_individual_obj[indivial_i, :] = [18. 6. 20. 26.]
331 cord_individual_obj[indivial_i, :] = [19. 4. 9. 13.]

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332 cord_individual_obj[indivial_i, :] = [20. 5. 42. 47.]
333 cord_individual_obj[indivial_i, :] = [21. 6. 61. 67.]
334 cord_individual_obj[indivial_i, :] = [22. 6. 36. 42.]
335 cord_individual_obj[indivial_i, :] = [23. 7. 59. 66.]
336 cord_individual_obj[indivial_i, :] = [24. 5. 26. 31.]
337
338 min(cord_individual_obj[:, 3]) = 13.0
339 histol_G_best_iter[iter, 3] = 13.0
340 Begin iteration:
341
342 iter = 10
343 cord_individual_obj[indivial_i, :] = [ 0. 4. 95. 99.]
344 cord_individual_obj[indivial_i, :] = [ 1. 4. 151. 155.]
345 cord_individual_obj[indivial_i, :] = [ 2. 5. 95. 100.]
346 cord_individual_obj[indivial_i, :] = [ 3. 4. 68. 72.]
347 cord_individual_obj[indivial_i, :] = [ 4. 3. 83. 86.]
348 cord_individual_obj[indivial_i, :] = [ 5. 4. 86. 90.]
349 cord_individual_obj[indivial_i, :] = [ 6. 4. 26. 30.]
350 cord_individual_obj[indivial_i, :] = [ 7. 5. 129. 134.]
351 cord_individual_obj[indivial_i, :] = [ 8. 4. 51. 55.]
352 cord_individual_obj[indivial_i, :] = [ 9. 5. 73. 78.]
353 cord_individual_obj[indivial_i, :] = [10. 4. 125. 129.]
354 cord_individual_obj[indivial_i, :] = [11. 4. 37. 41.]
355 cord_individual_obj[indivial_i, :] = [12. 4. 139. 143.]
356 cord_individual_obj[indivial_i, :] = [13. 4. 103. 107.]
357 cord_individual_obj[indivial_i, :] = [14. 6. 55. 61.]
358 cord_individual_obj[indivial_i, :] = [15. 5. 95. 100.]
359 cord_individual_obj[indivial_i, :] = [16. 4. 9. 13.]
360 cord_individual_obj[indivial_i, :] = [17. 5. 77. 82.]
361 cord_individual_obj[indivial_i, :] = [18. 5. 43. 48.]
362 cord_individual_obj[indivial_i, :] = [19. 4. 93. 97.]
363 cord_individual_obj[indivial_i, :] = [20. 4. 111. 115.]
364 cord_individual_obj[indivial_i, :] = [21. 4. 54. 58.]
365 cord_individual_obj[indivial_i, :] = [22. 5. 49. 54.]
366 cord_individual_obj[indivial_i, :] = [23. 5. 74. 79.]
367 cord_individual_obj[indivial_i, :] = [24. 4. 91. 95.]
368
369 min(cord_individual_obj[:, 3]) = 13.0
370 histol_G_best_iter[iter, 3] = 13.0
371 Begin iteration:
372
373 iter = 11
374 cord_individual_obj[indivial_i, :] = [ 0. 6. 28. 34.]
375 cord_individual_obj[indivial_i, :] = [ 1. 4. 9. 13.]
376 cord_individual_obj[indivial_i, :] = [ 2. 5. 101. 106.]
377 cord_individual_obj[indivial_i, :] = [ 3. 4. 40. 44.]
378 cord_individual_obj[indivial_i, :] = [ 4. 6. 71. 77.]
379 cord_individual_obj[indivial_i, :] = [ 5. 6. 52. 58.]
380 cord_individual_obj[indivial_i, :] = [ 6. 7. 45. 52.]
381 cord_individual_obj[indivial_i, :] = [ 7. 5. 44. 49.]
382 cord_individual_obj[indivial_i, :] = [ 8. 5. 66. 71.]
383 cord_individual_obj[indivial_i, :] = [ 9. 6. 20. 26.]
384 cord_individual_obj[indivial_i, :] = [10. 6. 111. 117.]
385 cord_individual_obj[indivial_i, :] = [11. 5. 91. 96.]
386 cord_individual_obj[indivial_i, :] = [12. 5. 69. 74.]
387 cord_individual_obj[indivial_i, :] = [13. 3. 74. 77.]
388 cord_individual_obj[indivial_i, :] = [14. 7. 30. 37.]
389 cord_individual_obj[indivial_i, :] = [15. 4. 28. 32.]
390 cord_individual_obj[indivial_i, :] = [16. 5. 51. 56.]
391 cord_individual_obj[indivial_i, :] = [17. 4. 95. 99.]
392 cord_individual_obj[indivial_i, :] = [18. 5. 82. 87.]
393 cord_individual_obj[indivial_i, :] = [19. 5. 50. 55.]
394 cord_individual_obj[indivial_i, :] = [20. 6. 30. 36.]
395 cord_individual_obj[indivial_i, :] = [21. 6. 39. 45.]
396 cord_individual_obj[indivial_i, :] = [22. 7. 31. 38.]
397 cord_individual_obj[indivial_i, :] = [23. 4. 66. 70.]
398 cord_individual_obj[indivial_i, :] = [24. 5. 94. 99.]
399
400 min(cord_individual_obj[:, 3]) = 13.0
401 histol_G_best_iter[iter, 3] = 13.0
402 Begin iteration:
403
404 iter = 12
405 cord_individual_obj[indivial_i, :] = [ 0. 5. 53. 58.]
406 cord_individual_obj[indivial_i, :] = [ 1. 5. 129. 134.]
407 cord_individual_obj[indivial_i, :] = [ 2. 4. 112. 116.]
408 cord_individual_obj[indivial_i, :] = [ 3. 4. 131. 135.]
409 cord_individual_obj[indivial_i, :] = [ 4. 4. 136. 140.]
410 cord_individual_obj[indivial_i, :] = [ 5. 5. 69. 74.]
411 cord_individual_obj[indivial_i, :] = [ 6. 5. 113. 118.]
412 cord_individual_obj[indivial_i, :] = [ 7. 6. 33. 39.]
413 cord_individual_obj[indivial_i, :] = [ 8. 5. 86. 91.]
414 cord_individual_obj[indivial_i, :] = [ 9. 6. 13. 19.]
415 cord_individual_obj[indivial_i, :] = [10. 4. 9. 13.]

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416 cord_individual_obj[indivial_i,:] = [11. 5. 51. 56.]
417 cord_individual_obj[indivial_i,:] = [12. 5. 48. 53.]
418 cord_individual_obj[indivial_i,:] = [13. 5. 59. 64.]
419 cord_individual_obj[indivial_i,:] = [14. 6. 39. 45.]
420 cord_individual_obj[indivial_i,:] = [15. 5. 63. 68.]
421 cord_individual_obj[indivial_i,:] = [16. 5. 39. 44.]
422 cord_individual_obj[indivial_i,:] = [17. 4. 128. 132.]
423 cord_individual_obj[indivial_i,:] = [18. 5. 97. 102.]
424 cord_individual_obj[indivial_i,:] = [19. 5. 89. 94.]
425 cord_individual_obj[indivial_i,:] = [20. 5. 109. 114.]
426 cord_individual_obj[indivial_i,:] = [21. 7. 90. 97.]
427 cord_individual_obj[indivial_i,:] = [22. 6. 95. 101.]
428 cord_individual_obj[indivial_i,:] = [23. 5. 25. 30.]
429 cord_individual_obj[indivial_i,:] = [24. 4. 48. 52.]
430
431 min(cord_individual_obj[:,3]) = 13.0
432 histol_G_best_iter[iter,3] = 13.0
433 Begin iteration:
434
435 iter = 13
436 cord_individual_obj[indivial_i,:] = [ 0. 5. 117. 122.]
437 cord_individual_obj[indivial_i,:] = [ 1. 4. 145. 149.]
438 cord_individual_obj[indivial_i,:] = [ 2. 5. 136. 141.]
439 cord_individual_obj[indivial_i,:] = [ 3. 4. 67. 71.]
440 cord_individual_obj[indivial_i,:] = [ 4. 4. 9. 13.]
441 cord_individual_obj[indivial_i,:] = [ 5. 4. 87. 91.]
442 cord_individual_obj[indivial_i,:] = [ 6. 5. 27. 32.]
443 cord_individual_obj[indivial_i,:] = [ 7. 4. 135. 139.]
444 cord_individual_obj[indivial_i,:] = [ 8. 5. 75. 80.]
445 cord_individual_obj[indivial_i,:] = [ 9. 5. 59. 64.]
446 cord_individual_obj[indivial_i,:] = [10. 4. 125. 129.]
447 cord_individual_obj[indivial_i,:] = [11. 4. 29. 33.]
448 cord_individual_obj[indivial_i,:] = [12. 5. 118. 123.]
449 cord_individual_obj[indivial_i,:] = [13. 4. 73. 77.]
450 cord_individual_obj[indivial_i,:] = [14. 5. 40. 45.]
451 cord_individual_obj[indivial_i,:] = [15. 6. 125. 131.]
452 cord_individual_obj[indivial_i,:] = [16. 5. 76. 81.]
453 cord_individual_obj[indivial_i,:] = [17. 5. 113. 118.]
454 cord_individual_obj[indivial_i,:] = [18. 6. 73. 79.]
455 cord_individual_obj[indivial_i,:] = [19. 4. 119. 123.]
456 cord_individual_obj[indivial_i,:] = [20. 4. 111. 115.]
457 cord_individual_obj[indivial_i,:] = [21. 6. 51. 57.]
458 cord_individual_obj[indivial_i,:] = [22. 6. 37. 43.]
459 cord_individual_obj[indivial_i,:] = [23. 4. 55. 59.]
460 cord_individual_obj[indivial_i,:] = [24. 5. 48. 53.]
461
462 min(cord_individual_obj[:,3]) = 13.0
463 histol_G_best_iter[iter,3] = 13.0
464 Begin iteration:
465
466 iter = 14
467 cord_individual_obj[indivial_i,:] = [ 0. 5. 57. 62.]
468 cord_individual_obj[indivial_i,:] = [ 1. 4. 9. 13.]
469 cord_individual_obj[indivial_i,:] = [ 2. 4. 168. 172.]
470 cord_individual_obj[indivial_i,:] = [ 3. 5. 27. 32.]
471 cord_individual_obj[indivial_i,:] = [ 4. 5. 87. 92.]
472 cord_individual_obj[indivial_i,:] = [ 5. 6. 24. 30.]
473 cord_individual_obj[indivial_i,:] = [ 6. 7. 36. 43.]
474 cord_individual_obj[indivial_i,:] = [ 7. 5. 44. 49.]
475 cord_individual_obj[indivial_i,:] = [ 8. 6. 12. 18.]
476 cord_individual_obj[indivial_i,:] = [ 9. 5. 79. 84.]
477 cord_individual_obj[indivial_i,:] = [10. 7. 76. 83.]
478 cord_individual_obj[indivial_i,:] = [11. 4. 41. 45.]
479 cord_individual_obj[indivial_i,:] = [12. 5. 51. 56.]
480 cord_individual_obj[indivial_i,:] = [13. 3. 86. 89.]
481 cord_individual_obj[indivial_i,:] = [14. 6. 14. 20.]
482 cord_individual_obj[indivial_i,:] = [15. 5. 15. 20.]
483 cord_individual_obj[indivial_i,:] = [16. 6. 50. 56.]
484 cord_individual_obj[indivial_i,:] = [17. 4. 121. 125.]
485 cord_individual_obj[indivial_i,:] = [18. 5. 78. 83.]
486 cord_individual_obj[indivial_i,:] = [19. 5. 34. 39.]
487 cord_individual_obj[indivial_i,:] = [20. 5. 37. 42.]
488 cord_individual_obj[indivial_i,:] = [21. 4. 97. 101.]
489 cord_individual_obj[indivial_i,:] = [22. 6. 10. 16.]
490 cord_individual_obj[indivial_i,:] = [23. 4. 61. 65.]
491 cord_individual_obj[indivial_i,:] = [24. 6. 15. 21.]
492
493 min(cord_individual_obj[:,3]) = 13.0
494 histol_G_best_iter[iter,3] = 13.0
495 Begin iteration:
496
497 iter = 15
498 cord_individual_obj[indivial_i,:] = [ 0. 5. 63. 68.]
499 cord_individual_obj[indivial_i,:] = [ 1. 4. 129. 133.]

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500 cord_individual_obj[indivial_i,:] = [ 2. 4. 9. 13.]
501 cord_individual_obj[indivial_i,:] = [ 3. 5. 35. 40.]
502 cord_individual_obj[indivial_i,:] = [ 4. 6. 111. 117.]
503 cord_individual_obj[indivial_i,:] = [ 5. 7. 17. 24.]
504 cord_individual_obj[indivial_i,:] = [ 6. 5. 97. 102.]
505 cord_individual_obj[indivial_i,:] = [ 7. 5. 89. 94.]
506 cord_individual_obj[indivial_i,:] = [ 8. 5. 10. 15.]
507 cord_individual_obj[indivial_i,:] = [ 9. 6. 45. 51.]
508 cord_individual_obj[indivial_i,:] = [10. 7. 45. 52.]
509 cord_individual_obj[indivial_i,:] = [11. 6. 23. 29.]
510 cord_individual_obj[indivial_i,:] = [12. 5. 32. 37.]
511 cord_individual_obj[indivial_i,:] = [13. 4. 64. 68.]
512 cord_individual_obj[indivial_i,:] = [14. 7. 41. 48.]
513 cord_individual_obj[indivial_i,:] = [15. 6. 51. 57.]
514 cord_individual_obj[indivial_i,:] = [16. 5. 57. 62.]
515 cord_individual_obj[indivial_i,:] = [17. 5. 59. 64.]
516 cord_individual_obj[indivial_i,:] = [18. 5. 27. 32.]
517 cord_individual_obj[indivial_i,:] = [19. 4. 62. 66.]
518 cord_individual_obj[indivial_i,:] = [20. 4. 98. 102.]
519 cord_individual_obj[indivial_i,:] = [21. 6. 58. 64.]
520 cord_individual_obj[indivial_i,:] = [22. 5. 40. 45.]
521 cord_individual_obj[indivial_i,:] = [23. 5. 133. 138.]
522 cord_individual_obj[indivial_i,:] = [24. 5. 66. 71.]
523
524 min(cord_individual_obj[:, 3]) = 13.0
525 histol_G_best_iter[iter, 3] = 13.0
526 Begin iteration:
527
528 iter = 16
529 cord_individual_obj[indivial_i,:] = [ 0. 5. 95. 100.]
530 cord_individual_obj[indivial_i,:] = [ 1. 4. 129. 133.]
531 cord_individual_obj[indivial_i,:] = [ 2. 5. 74. 79.]
532 cord_individual_obj[indivial_i,:] = [ 3. 5. 38. 43.]
533 cord_individual_obj[indivial_i,:] = [ 4. 4. 107. 111.]
534 cord_individual_obj[indivial_i,:] = [ 5. 6. 59. 65.]
535 cord_individual_obj[indivial_i,:] = [ 6. 6. 51. 57.]
536 cord_individual_obj[indivial_i,:] = [ 7. 5. 147. 152.]
537 cord_individual_obj[indivial_i,:] = [ 8. 5. 79. 84.]
538 cord_individual_obj[indivial_i,:] = [ 9. 6. 46. 52.]
539 cord_individual_obj[indivial_i,:] = [10. 4. 91. 95.]
540 cord_individual_obj[indivial_i,:] = [11. 6. 15. 21.]
541 cord_individual_obj[indivial_i,:] = [12. 4. 167. 171.]
542 cord_individual_obj[indivial_i,:] = [13. 4. 103. 107.]
543 cord_individual_obj[indivial_i,:] = [14. 6. 13. 19.]
544 cord_individual_obj[indivial_i,:] = [15. 4. 93. 97.]
545 cord_individual_obj[indivial_i,:] = [16. 4. 98. 102.]
546 cord_individual_obj[indivial_i,:] = [17. 6. 83. 89.]
547 cord_individual_obj[indivial_i,:] = [18. 5. 85. 90.]
548 cord_individual_obj[indivial_i,:] = [19. 5. 56. 61.]
549 cord_individual_obj[indivial_i,:] = [20. 5. 99. 104.]
550 cord_individual_obj[indivial_i,:] = [21. 4. 24. 28.]
551 cord_individual_obj[indivial_i,:] = [22. 5. 67. 72.]
552 cord_individual_obj[indivial_i,:] = [23. 4. 9. 13.]
553 cord_individual_obj[indivial_i,:] = [24. 4. 29. 33.]
554
555 min(cord_individual_obj[:, 3]) = 13.0
556 histol_G_best_iter[iter, 3] = 13.0
557 Begin iteration:
558
559 iter = 17
560 cord_individual_obj[indivial_i,:] = [ 0. 6. 14. 20.]
561 cord_individual_obj[indivial_i,:] = [ 1. 5. 212. 217.]
562 cord_individual_obj[indivial_i,:] = [ 2. 6. 75. 81.]
563 cord_individual_obj[indivial_i,:] = [ 3. 4. 68. 72.]
564 cord_individual_obj[indivial_i,:] = [ 4. 5. 102. 107.]
565 cord_individual_obj[indivial_i,:] = [ 5. 4. 76. 80.]
566 cord_individual_obj[indivial_i,:] = [ 6. 7. 75. 82.]
567 cord_individual_obj[indivial_i,:] = [ 7. 4. 156. 160.]
568 cord_individual_obj[indivial_i,:] = [ 8. 6. 53. 59.]
569 cord_individual_obj[indivial_i,:] = [ 9. 5. 120. 125.]
570 cord_individual_obj[indivial_i,:] = [10. 4. 157. 161.]
571 cord_individual_obj[indivial_i,:] = [11. 5. 71. 76.]
572 cord_individual_obj[indivial_i,:] = [12. 4. 9. 13.]
573 cord_individual_obj[indivial_i,:] = [13. 3. 76. 79.]
574 cord_individual_obj[indivial_i,:] = [14. 5. 55. 60.]
575 cord_individual_obj[indivial_i,:] = [15. 5. 95. 100.]
576 cord_individual_obj[indivial_i,:] = [16. 5. 53. 58.]
577 cord_individual_obj[indivial_i,:] = [17. 6. 83. 89.]
578 cord_individual_obj[indivial_i,:] = [18. 4. 76. 80.]
579 cord_individual_obj[indivial_i,:] = [19. 4. 119. 123.]
580 cord_individual_obj[indivial_i,:] = [20. 5. 111. 116.]
581 cord_individual_obj[indivial_i,:] = [21. 5. 98. 103.]
582 cord_individual_obj[indivial_i,:] = [22. 5. 25. 30.]
583 cord_individual_obj[indivial_i,:] = [23. 5. 92. 97.]

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unknown

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584     cord_individual_obj[indivial_i, :] = [24. 5. 73. 78.]  
585  
586     min(cord_individual_obj[:, 3]) = 13.0  
587     historl_G_best_iter[iter, 3] = 13.0  
588 Begin iteration:  
589  
590 iter = 18  
591     cord_individual_obj[indivial_i, :] = [ 0. 5. 34. 39.]  
592     cord_individual_obj[indivial_i, :] = [ 1. 4. 9. 13.]  
593     cord_individual_obj[indivial_i, :] = [ 2. 4. 163. 167.]  
594     cord_individual_obj[indivial_i, :] = [ 3. 4. 56. 60.]  
595     cord_individual_obj[indivial_i, :] = [ 4. 5. 20. 25.]  
596     cord_individual_obj[indivial_i, :] = [ 5. 6. 109. 115.]  
597     cord_individual_obj[indivial_i, :] = [ 6. 5. 12. 17.]  
598     cord_individual_obj[indivial_i, :] = [ 7. 6. 50. 56.]  
599     cord_individual_obj[indivial_i, :] = [ 8. 5. 21. 26.]  
600     cord_individual_obj[indivial_i, :] = [ 9. 7. 10. 17.]  
601     cord_individual_obj[indivial_i, :] = [10. 6. 58. 64.]  
602     cord_individual_obj[indivial_i, :] = [11. 5. 10. 15.]  
603     cord_individual_obj[indivial_i, :] = [12. 4. 120. 124.]  
604     cord_individual_obj[indivial_i, :] = [13. 3. 38. 41.]  
605     cord_individual_obj[indivial_i, :] = [14. 5. 25. 30.]  
606     cord_individual_obj[indivial_i, :] = [15. 5. 29. 34.]  
607     cord_individual_obj[indivial_i, :] = [16. 6. 69. 75.]  
608     cord_individual_obj[indivial_i, :] = [17. 5. 81. 86.]  
609     cord_individual_obj[indivial_i, :] = [18. 5. 89. 94.]  
610     cord_individual_obj[indivial_i, :] = [19. 5. 67. 72.]  
611     cord_individual_obj[indivial_i, :] = [20. 6. 62. 68.]  
612     cord_individual_obj[indivial_i, :] = [21. 6. 62. 68.]  
613     cord_individual_obj[indivial_i, :] = [22. 6. 50. 56.]  
614     cord_individual_obj[indivial_i, :] = [23. 6. 40. 46.]  
615     cord_individual_obj[indivial_i, :] = [24. 6. 33. 39.]  
616  
617     min(cord_individual_obj[:, 3]) = 13.0  
618     historl_G_best_iter[iter, 3] = 13.0  
619 Begin iteration:  
620  
621 iter = 19  
622     cord_individual_obj[indivial_i, :] = [ 0. 5. 123. 128.]  
623     cord_individual_obj[indivial_i, :] = [ 1. 5. 129. 134.]  
624     cord_individual_obj[indivial_i, :] = [ 2. 4. 9. 13.]  
625     cord_individual_obj[indivial_i, :] = [ 3. 4. 68. 72.]  
626     cord_individual_obj[indivial_i, :] = [ 4. 4. 92. 96.]  
627     cord_individual_obj[indivial_i, :] = [ 5. 4. 112. 116.]  
628     cord_individual_obj[indivial_i, :] = [ 6. 7. 27. 34.]  
629     cord_individual_obj[indivial_i, :] = [ 7. 5. 157. 162.]  
630     cord_individual_obj[indivial_i, :] = [ 8. 7. 75. 82.]  
631     cord_individual_obj[indivial_i, :] = [ 9. 5. 41. 46.]  
632     cord_individual_obj[indivial_i, :] = [10. 4. 107. 111.]  
633     cord_individual_obj[indivial_i, :] = [11. 5. 36. 41.]  
634     cord_individual_obj[indivial_i, :] = [12. 4. 110. 114.]  
635     cord_individual_obj[indivial_i, :] = [13. 3. 86. 89.]  
636     cord_individual_obj[indivial_i, :] = [14. 6. 55. 61.]  
637     cord_individual_obj[indivial_i, :] = [15. 4. 94. 98.]  
638     cord_individual_obj[indivial_i, :] = [16. 5. 61. 66.]  
639     cord_individual_obj[indivial_i, :] = [17. 5. 63. 68.]  
640     cord_individual_obj[indivial_i, :] = [18. 6. 46. 52.]  
641     cord_individual_obj[indivial_i, :] = [19. 4. 93. 97.]  
642     cord_individual_obj[indivial_i, :] = [20. 6. 67. 73.]  
643     cord_individual_obj[indivial_i, :] = [21. 6. 88. 94.]  
644     cord_individual_obj[indivial_i, :] = [22. 6. 27. 33.]  
645     cord_individual_obj[indivial_i, :] = [23. 5. 116. 121.]  
646     cord_individual_obj[indivial_i, :] = [24. 4. 69. 73.]  
647  
648     min(cord_individual_obj[:, 3]) = 13.0  
649     historl_G_best_iter[iter, 3] = 13.0  
650 Begin iteration:  
651  
652 iter = 20  
653     cord_individual_obj[indivial_i, :] = [ 0. 5. 166. 171.]  
654     cord_individual_obj[indivial_i, :] = [ 1. 5. 70. 75.]  
655     cord_individual_obj[indivial_i, :] = [ 2. 4. 74. 78.]  
656     cord_individual_obj[indivial_i, :] = [ 3. 6. 47. 53.]  
657     cord_individual_obj[indivial_i, :] = [ 4. 7. 100. 107.]  
658     cord_individual_obj[indivial_i, :] = [ 5. 5. 65. 70.]  
659     cord_individual_obj[indivial_i, :] = [ 6. 5. 11. 16.]  
660     cord_individual_obj[indivial_i, :] = [ 7. 4. 9. 13.]  
661     cord_individual_obj[indivial_i, :] = [ 8. 5. 56. 61.]  
662     cord_individual_obj[indivial_i, :] = [ 9. 5. 40. 45.]  
663     cord_individual_obj[indivial_i, :] = [10. 6. 83. 89.]  
664     cord_individual_obj[indivial_i, :] = [11. 6. 16. 22.]  
665     cord_individual_obj[indivial_i, :] = [12. 6. 29. 35.]  
666     cord_individual_obj[indivial_i, :] = [13. 3. 76. 79.]  
667     cord_individual_obj[indivial_i, :] = [14. 6. 47. 53.]
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668 cord_individual_obj[indivial_i,:] = [15. 5. 56. 61.]
669 cord_individual_obj[indivial_i,:] = [16. 4. 73. 77.]
670 cord_individual_obj[indivial_i,:] = [17. 4. 72. 76.]
671 cord_individual_obj[indivial_i,:] = [18. 4. 32. 36.]
672 cord_individual_obj[indivial_i,:] = [19. 5. 34. 39.]
673 cord_individual_obj[indivial_i,:] = [20. 4. 109. 113.]
674 cord_individual_obj[indivial_i,:] = [21. 6. 35. 41.]
675 cord_individual_obj[indivial_i,:] = [22. 7. 51. 58.]
676 cord_individual_obj[indivial_i,:] = [23. 4. 61. 65.]
677 cord_individual_obj[indivial_i,:] = [24. 5. 76. 81.]
678
679 min(cord_individual_obj[:, 3]) = 13.0
680 historl_G_best_iter[iter, 3] = 13.0
681 Iteration calculate over
682
683
684
685
686 All item are in Bin and:
687 Bin area = 1080
688 Real_area = 112.0
689 Proportion_of_area = 0.1037037037037037
690 BEST_CHROM =
691 berth: [13.5 7. 7.5 1.5 7.5 2.5 17.5 24. 14.5]
692 time: [0. 1. 3. 0. 0. 2. 0. 0. 3.]
693 num_QC: [3. 3. 5. 3. 5. 3. 4. 2. 6.]
694 Objective function values and some other indicators:
695 Obj0 = 4.00          Obj1 = 9.00          Obj0 + Obj1 = 13.00
696 Total movement of crane: 0.00
697 Total waiting time in berth position: 9.00
698 Total index of q during berthing: 561.00
699 Specific arrangement for each vessel:
700 V_id: 0           li: 3.0           xi: 13.5           bow of i: 12.0           tail of i: 15.0           gama_i0: 0.0           gama_i1: 2
701 .0             gama_i1 + 1: 3.0       gama_i1 - gama_i0: 2.0           duration_time_i: 3.0           demand_i: 140.0           work
load_i: 140.0       work load gap_i: 0
702 V_id: 1           li: 4.0           xi: 7.0           bow of i: 5.0           tail of i: 9.0           gama_i0: 1.0           gama_i1: 2.0
703 .0             gama_i1 + 1: 3.0       gama_i1 - gama_i0: 1.0           duration_time_i: 2.0           demand_i: 120.0           work load_i:
120.0       work load gap_i: 0
704 V_id: 2           li: 5.0           xi: 7.5           bow of i: 5.0           tail of i: 10.0           gama_i0: 3.0           gama_i1: 3.0
705 .0             gama_i1 + 1: 4.0       gama_i1 - gama_i0: 0.0           duration_time_i: 1.0           demand_i: 80.0           work load_i:
80.0       work load gap_i: 0
706 V_id: 3           li: 3.0           xi: 1.5           bow of i: 0.0           tail of i: 3.0           gama_i0: 0.0           gama_i1: 1.0
707 .0             gama_i1 + 1: 2.0       gama_i1 - gama_i0: 1.0           duration_time_i: 2.0           demand_i: 100.0           work load_i:
100.0       work load gap_i: 0
708 V_id: 4           li: 9.0           xi: 7.5           bow of i: 3.0           tail of i: 12.0           gama_i0: 0.0           gama_i1: 0.0
709 .0             gama_i1 + 1: 1.0       gama_i1 - gama_i0: 0.0           duration_time_i: 1.0           demand_i: 80.0           work load_i:
80.0       work load gap_i: 0
710 V_id: 5           li: 5.0           xi: 2.5           bow of i: 0.0           tail of i: 5.0           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: 140.0           work load_i:
140.0       work load gap_i: 0
712 V_id: 6           li: 5.0           xi: 17.5           bow of i: 15.0           tail of i: 20.0           gama_i0: 0.0           gama_i1: 1
713 .0             gama_i1 + 1: 2.0       gama_i1 - gama_i0: 1.0           duration_time_i: 2.0           demand_i: 160.0           work
load_i: 160.0       work load gap_i: 0
714 V_id: 7           li: 8.0           xi: 24.0           bow of i: 20.0           tail of i: 28.0           gama_i0: 0.0           gama_i1: 3
715 .0             gama_i1 + 1: 4.0       gama_i1 - gama_i0: 3.0           duration_time_i: 4.0           demand_i: 160.0           work
load_i: 160.0       work load gap_i: 0
716 V_id: 8           li: 9.0           xi: 14.5           bow of i: 10.0           tail of i: 19.0           gama_i0: 3.0           gama_i1: 4
717 .0             gama_i1 + 1: 5.0       gama_i1 - gama_i0: 1.0           duration_time_i: 2.0           demand_i: 140.0           work
load_i: 140.0       work load gap_i: 0
718
719 Algorithm finished and the total CPU time: 266 s
720 End
721

```