

unknown

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80 cord_individual_obj[indivial_i, :] = [16. 4. 4. 8.]
81 cord_individual_obj[indivial_i, :] = [17. 4. 63. 67.]
82 cord_individual_obj[indivial_i, :] = [18. 4. 4. 8.]
83 cord_individual_obj[indivial_i, :] = [19. 5. 94. 99.]
84 cord_individual_obj[indivial_i, :] = [20. 5. 50. 55.]
85 cord_individual_obj[indivial_i, :] = [21. 3. 120. 123.]
86 cord_individual_obj[indivial_i, :] = [22. 6. 54. 60.]
87 cord_individual_obj[indivial_i, :] = [23. 4. 91. 95.]
88 cord_individual_obj[indivial_i, :] = [24. 5. 93. 98.]
89
90 min(cord_individual_obj[:, 3]) = 8.0
91 historl_G_best_iter[iter, 3] = 8.0
92 Begin iteration:
93
94 iter = 2
95 cord_individual_obj[indivial_i, :] = [ 0. 4. 79. 83.]
96 cord_individual_obj[indivial_i, :] = [ 1. 4. 16. 20.]
97 cord_individual_obj[indivial_i, :] = [ 2. 3. 100. 103.]
98 cord_individual_obj[indivial_i, :] = [ 3. 4. 76. 80.]
99 cord_individual_obj[indivial_i, :] = [ 4. 5. 26. 31.]
100 cord_individual_obj[indivial_i, :] = [ 5. 6. 21. 27.]
101 cord_individual_obj[indivial_i, :] = [ 6. 4. 5. 9.]
102 cord_individual_obj[indivial_i, :] = [ 7. 5. 55. 60.]
103 cord_individual_obj[indivial_i, :] = [ 8. 4. 4. 8.]
104 cord_individual_obj[indivial_i, :] = [ 9. 5. 69. 74.]
105 cord_individual_obj[indivial_i, :] = [10. 3. 72. 75.]
106 cord_individual_obj[indivial_i, :] = [11. 4. 90. 94.]
107 cord_individual_obj[indivial_i, :] = [12. 5. 73. 78.]
108 cord_individual_obj[indivial_i, :] = [13. 4. 61. 65.]
109 cord_individual_obj[indivial_i, :] = [14. 4. 21. 25.]
110 cord_individual_obj[indivial_i, :] = [15. 3. 120. 123.]
111 cord_individual_obj[indivial_i, :] = [16. 4. 52. 56.]
112 cord_individual_obj[indivial_i, :] = [17. 3. 46. 49.]
113 cord_individual_obj[indivial_i, :] = [18. 6. 64. 70.]
114 cord_individual_obj[indivial_i, :] = [19. 3. 84. 87.]
115 cord_individual_obj[indivial_i, :] = [20. 4. 72. 76.]
116 cord_individual_obj[indivial_i, :] = [21. 3. 61. 64.]
117 cord_individual_obj[indivial_i, :] = [22. 5. 41. 46.]
118 cord_individual_obj[indivial_i, :] = [23. 4. 84. 88.]
119 cord_individual_obj[indivial_i, :] = [24. 4. 75. 79.]
120
121 min(cord_individual_obj[:, 3]) = 8.0
122 historl_G_best_iter[iter, 3] = 8.0
123 Begin iteration:
124
125 iter = 3
126 cord_individual_obj[indivial_i, :] = [ 0. 5. 65. 70.]
127 cord_individual_obj[indivial_i, :] = [ 1. 5. 39. 44.]
128 cord_individual_obj[indivial_i, :] = [ 2. 4. 33. 37.]
129 cord_individual_obj[indivial_i, :] = [ 3. 4. 25. 29.]
130 cord_individual_obj[indivial_i, :] = [ 4. 4. 36. 40.]
131 cord_individual_obj[indivial_i, :] = [ 5. 4. 40. 44.]
132 cord_individual_obj[indivial_i, :] = [ 6. 4. 40. 44.]
133 cord_individual_obj[indivial_i, :] = [ 7. 4. 46. 50.]
134 cord_individual_obj[indivial_i, :] = [ 8. 4. 65. 69.]
135 cord_individual_obj[indivial_i, :] = [ 9. 5. 33. 38.]
136 cord_individual_obj[indivial_i, :] = [10. 4. 79. 83.]
137 cord_individual_obj[indivial_i, :] = [11. 3. 100. 103.]
138 cord_individual_obj[indivial_i, :] = [12. 3. 58. 61.]
139 cord_individual_obj[indivial_i, :] = [13. 4. 62. 66.]
140 cord_individual_obj[indivial_i, :] = [14. 3. 82. 85.]
141 cord_individual_obj[indivial_i, :] = [15. 4. 4. 8.]
142 cord_individual_obj[indivial_i, :] = [16. 3. 74. 77.]
143 cord_individual_obj[indivial_i, :] = [17. 4. 59. 63.]
144 cord_individual_obj[indivial_i, :] = [18. 6. 64. 70.]
145 cord_individual_obj[indivial_i, :] = [19. 4. 38. 42.]
146 cord_individual_obj[indivial_i, :] = [20. 4. 48. 52.]
147 cord_individual_obj[indivial_i, :] = [21. 3. 104. 107.]
148 cord_individual_obj[indivial_i, :] = [22. 5. 47. 52.]
149 cord_individual_obj[indivial_i, :] = [23. 4. 84. 88.]
150 cord_individual_obj[indivial_i, :] = [24. 3. 77. 80.]
151
152 min(cord_individual_obj[:, 3]) = 8.0
153 historl_G_best_iter[iter, 3] = 8.0
154 Begin iteration:
155
156 iter = 4
157 cord_individual_obj[indivial_i, :] = [ 0. 4. 66. 70.]
158 cord_individual_obj[indivial_i, :] = [ 1. 5. 80. 85.]
159 cord_individual_obj[indivial_i, :] = [ 2. 4. 51. 55.]
160 cord_individual_obj[indivial_i, :] = [ 3. 5. 62. 67.]
161 cord_individual_obj[indivial_i, :] = [ 4. 4. 102. 106.]
162 cord_individual_obj[indivial_i, :] = [ 5. 4. 25. 29.]
163 cord_individual_obj[indivial_i, :] = [ 6. 4. 56. 60.]

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164 cord_individual_obj[indivial_i,:] = [ 7. 5. 40. 45.]
165 cord_individual_obj[indivial_i,:] = [ 8. 4. 36. 40.]
166 cord_individual_obj[indivial_i,:] = [ 9. 4. 48. 52.]
167 cord_individual_obj[indivial_i,:] = [10. 4. 91. 95.]
168 cord_individual_obj[indivial_i,:] = [11. 4. 84. 88.]
169 cord_individual_obj[indivial_i,:] = [12. 4. 40. 44.]
170 cord_individual_obj[indivial_i,:] = [13. 3. 104. 107.]
171 cord_individual_obj[indivial_i,:] = [14. 3. 90. 93.]
172 cord_individual_obj[indivial_i,:] = [15. 3. 82. 85.]
173 cord_individual_obj[indivial_i,:] = [16. 5. 47. 52.]
174 cord_individual_obj[indivial_i,:] = [17. 3. 83. 86.]
175 cord_individual_obj[indivial_i,:] = [18. 5. 11. 16.]
176 cord_individual_obj[indivial_i,:] = [19. 4. 61. 65.]
177 cord_individual_obj[indivial_i,:] = [20. 4. 16. 20.]
178 cord_individual_obj[indivial_i,:] = [21. 4. 4. 8.]
179 cord_individual_obj[indivial_i,:] = [22. 4. 74. 78.]
180 cord_individual_obj[indivial_i,:] = [23. 4. 15. 19.]
181 cord_individual_obj[indivial_i,:] = [24. 5. 54. 59.]
182
183 min(cord_individual_obj[:,3]) = 8.0
184 historl_G_best_iter[iter,3] = 8.0
185 Begin iteration:
186
187 iter = 5
188 cord_individual_obj[indivial_i,:] = [ 0. 5. 31. 36.]
189 cord_individual_obj[indivial_i,:] = [ 1. 3. 34. 37.]
190 cord_individual_obj[indivial_i,:] = [ 2. 5. 6. 11.]
191 cord_individual_obj[indivial_i,:] = [ 3. 5. 11. 16.]
192 cord_individual_obj[indivial_i,:] = [ 4. 4. 6. 10.]
193 cord_individual_obj[indivial_i,:] = [ 5. 5. 103. 108.]
194 cord_individual_obj[indivial_i,:] = [ 6. 4. 64. 68.]
195 cord_individual_obj[indivial_i,:] = [ 7. 3. 105. 108.]
196 cord_individual_obj[indivial_i,:] = [ 8. 5. 73. 78.]
197 cord_individual_obj[indivial_i,:] = [ 9. 5. 64. 69.]
198 cord_individual_obj[indivial_i,:] = [10. 3. 76. 79.]
199 cord_individual_obj[indivial_i,:] = [11. 4. 84. 88.]
200 cord_individual_obj[indivial_i,:] = [12. 5. 70. 75.]
201 cord_individual_obj[indivial_i,:] = [13. 4. 4. 8.]
202 cord_individual_obj[indivial_i,:] = [14. 3. 72. 75.]
203 cord_individual_obj[indivial_i,:] = [15. 3. 112. 115.]
204 cord_individual_obj[indivial_i,:] = [16. 6. 87. 93.]
205 cord_individual_obj[indivial_i,:] = [17. 3. 46. 49.]
206 cord_individual_obj[indivial_i,:] = [18. 6. 44. 50.]
207 cord_individual_obj[indivial_i,:] = [19. 4. 38. 42.]
208 cord_individual_obj[indivial_i,:] = [20. 6. 42. 48.]
209 cord_individual_obj[indivial_i,:] = [21. 3. 50. 53.]
210 cord_individual_obj[indivial_i,:] = [22. 4. 49. 53.]
211 cord_individual_obj[indivial_i,:] = [23. 4. 10. 14.]
212 cord_individual_obj[indivial_i,:] = [24. 4. 51. 55.]
213
214 min(cord_individual_obj[:,3]) = 8.0
215 historl_G_best_iter[iter,3] = 8.0
216 Begin iteration:
217
218 iter = 6
219 cord_individual_obj[indivial_i,:] = [ 0. 4. 57. 61.]
220 cord_individual_obj[indivial_i,:] = [ 1. 5. 45. 50.]
221 cord_individual_obj[indivial_i,:] = [ 2. 3. 56. 59.]
222 cord_individual_obj[indivial_i,:] = [ 3. 3. 94. 97.]
223 cord_individual_obj[indivial_i,:] = [ 4. 4. 10. 14.]
224 cord_individual_obj[indivial_i,:] = [ 5. 5. 136. 141.]
225 cord_individual_obj[indivial_i,:] = [ 6. 3. 72. 75.]
226 cord_individual_obj[indivial_i,:] = [ 7. 5. 76. 81.]
227 cord_individual_obj[indivial_i,:] = [ 8. 5. 97. 102.]
228 cord_individual_obj[indivial_i,:] = [ 9. 5. 26. 31.]
229 cord_individual_obj[indivial_i,:] = [10. 4. 34. 38.]
230 cord_individual_obj[indivial_i,:] = [11. 4. 84. 88.]
231 cord_individual_obj[indivial_i,:] = [12. 4. 26. 30.]
232 cord_individual_obj[indivial_i,:] = [13. 5. 63. 68.]
233 cord_individual_obj[indivial_i,:] = [14. 4. 68. 72.]
234 cord_individual_obj[indivial_i,:] = [15. 4. 4. 8.]
235 cord_individual_obj[indivial_i,:] = [16. 4. 47. 51.]
236 cord_individual_obj[indivial_i,:] = [17. 3. 82. 85.]
237 cord_individual_obj[indivial_i,:] = [18. 3. 112. 115.]
238 cord_individual_obj[indivial_i,:] = [19. 4. 41. 45.]
239 cord_individual_obj[indivial_i,:] = [20. 3. 52. 55.]
240 cord_individual_obj[indivial_i,:] = [21. 3. 50. 53.]
241 cord_individual_obj[indivial_i,:] = [22. 5. 47. 52.]
242 cord_individual_obj[indivial_i,:] = [23. 4. 84. 88.]
243 cord_individual_obj[indivial_i,:] = [24. 5. 86. 91.]
244
245 min(cord_individual_obj[:,3]) = 8.0
246 historl_G_best_iter[iter,3] = 8.0
247 Begin iteration:

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248
249 iter = 7
250 cord_individual_obj[indivial_i, :] = [ 0.  5. 75. 80.]
251 cord_individual_obj[indivial_i, :] = [ 1.  4. 44. 48.]
252 cord_individual_obj[indivial_i, :] = [ 2.  3. 118. 121.]
253 cord_individual_obj[indivial_i, :] = [ 3.  4. 25. 29.]
254 cord_individual_obj[indivial_i, :] = [ 4.  5. 56. 61.]
255 cord_individual_obj[indivial_i, :] = [ 5.  4. 4. 8.]
256 cord_individual_obj[indivial_i, :] = [ 6.  3. 88. 91.]
257 cord_individual_obj[indivial_i, :] = [ 7.  4. 10. 14.]
258 cord_individual_obj[indivial_i, :] = [ 8.  3. 60. 63.]
259 cord_individual_obj[indivial_i, :] = [ 9.  4. 41. 45.]
260 cord_individual_obj[indivial_i, :] = [10.  4. 64. 68.]
261 cord_individual_obj[indivial_i, :] = [11.  4. 40. 44.]
262 cord_individual_obj[indivial_i, :] = [12.  6. 47. 53.]
263 cord_individual_obj[indivial_i, :] = [13.  3. 88. 91.]
264 cord_individual_obj[indivial_i, :] = [14.  3. 82. 85.]
265 cord_individual_obj[indivial_i, :] = [15.  3. 127. 130.]
266 cord_individual_obj[indivial_i, :] = [16.  5. 6. 11.]
267 cord_individual_obj[indivial_i, :] = [17.  3. 99. 102.]
268 cord_individual_obj[indivial_i, :] = [18.  5. 42. 47.]
269 cord_individual_obj[indivial_i, :] = [19.  5. 31. 36.]
270 cord_individual_obj[indivial_i, :] = [20.  6. 30. 36.]
271 cord_individual_obj[indivial_i, :] = [21.  3. 4. 7.]
272 cord_individual_obj[indivial_i, :] = [22.  4. 18. 22.]
273 cord_individual_obj[indivial_i, :] = [23.  4. 60. 64.]
274 cord_individual_obj[indivial_i, :] = [24.  3. 80. 83.]
275

276 min(cord_individual_obj[:, 3]) = 7.0
277 historl_G_best_iter[iter, 3] = 7.0
278 Begin iteration:
279
280 iter = 8
281 cord_individual_obj[indivial_i, :] = [ 0.  3. 64. 67.]
282 cord_individual_obj[indivial_i, :] = [ 1.  3. 64. 67.]
283 cord_individual_obj[indivial_i, :] = [ 2.  4. 51. 55.]
284 cord_individual_obj[indivial_i, :] = [ 3.  3. 47. 50.]
285 cord_individual_obj[indivial_i, :] = [ 4.  3. 88. 91.]
286 cord_individual_obj[indivial_i, :] = [ 5.  4. 45. 49.]
287 cord_individual_obj[indivial_i, :] = [ 6.  3. 78. 81.]
288 cord_individual_obj[indivial_i, :] = [ 7.  5. 29. 34.]
289 cord_individual_obj[indivial_i, :] = [ 8.  3. 64. 67.]
290 cord_individual_obj[indivial_i, :] = [ 9.  4. 46. 50.]
291 cord_individual_obj[indivial_i, :] = [10.  3. 102. 105.]
292 cord_individual_obj[indivial_i, :] = [11.  5. 6. 11.]
293 cord_individual_obj[indivial_i, :] = [12.  4. 76. 80.]
294 cord_individual_obj[indivial_i, :] = [13.  5. 96. 101.]
295 cord_individual_obj[indivial_i, :] = [14.  4. 69. 73.]
296 cord_individual_obj[indivial_i, :] = [15.  3. 4. 7.]
297 cord_individual_obj[indivial_i, :] = [16.  4. 94. 98.]
298 cord_individual_obj[indivial_i, :] = [17.  3. 48. 51.]
299 cord_individual_obj[indivial_i, :] = [18.  4. 47. 51.]
300 cord_individual_obj[indivial_i, :] = [19.  3. 50. 53.]
301 cord_individual_obj[indivial_i, :] = [20.  4. 49. 53.]
302 cord_individual_obj[indivial_i, :] = [21.  5. 48. 53.]
303 cord_individual_obj[indivial_i, :] = [22.  4. 84. 88.]
304 cord_individual_obj[indivial_i, :] = [23.  4. 94. 98.]
305 cord_individual_obj[indivial_i, :] = [24.  3. 45. 48.]
306

307 min(cord_individual_obj[:, 3]) = 7.0
308 historl_G_best_iter[iter, 3] = 7.0
309 Begin iteration:
310
311 iter = 9
312 cord_individual_obj[indivial_i, :] = [ 0.  4. 79. 83.]
313 cord_individual_obj[indivial_i, :] = [ 1.  3. 146. 149.]
314 cord_individual_obj[indivial_i, :] = [ 2.  4. 48. 52.]
315 cord_individual_obj[indivial_i, :] = [ 3.  3. 23. 26.]
316 cord_individual_obj[indivial_i, :] = [ 4.  4. 30. 34.]
317 cord_individual_obj[indivial_i, :] = [ 5.  4. 50. 54.]
318 cord_individual_obj[indivial_i, :] = [ 6.  3. 3. 6.]
319 cord_individual_obj[indivial_i, :] = [ 7.  4. 50. 54.]
320 cord_individual_obj[indivial_i, :] = [ 8.  4. 95. 99.]
321 cord_individual_obj[indivial_i, :] = [ 9.  4. 75. 79.]
322 cord_individual_obj[indivial_i, :] = [10.  3. 4. 7.]
323 cord_individual_obj[indivial_i, :] = [11.  4. 84. 88.]
324 cord_individual_obj[indivial_i, :] = [12.  3. 27. 30.]
325 cord_individual_obj[indivial_i, :] = [13.  3. 154. 157.]
326 cord_individual_obj[indivial_i, :] = [14.  3. 26. 29.]
327 cord_individual_obj[indivial_i, :] = [15.  2. 88. 90.]
328 cord_individual_obj[indivial_i, :] = [16.  4. 52. 56.]
329 cord_individual_obj[indivial_i, :] = [17.  5. 75. 80.]
330 cord_individual_obj[indivial_i, :] = [18.  6. 26. 32.]
331 cord_individual_obj[indivial_i, :] = [19.  4. 16. 20.]

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332 cord_individual_obj[indivial_i, :] = [20. 3. 42. 45.]
333 cord_individual_obj[indivial_i, :] = [21. 4. 4. 8.]
334 cord_individual_obj[indivial_i, :] = [22. 4. 65. 69.]
335 cord_individual_obj[indivial_i, :] = [23. 5. 53. 58.]
336 cord_individual_obj[indivial_i, :] = [24. 5. 39. 44.]
337
338 min(cord_individual_obj[:, 3]) = 6.0
339 histol_G_best_iter[iter, 3] = 6.0
340 Begin iteration:
341
342 iter = 10
343 cord_individual_obj[indivial_i, :] = [ 0. 4. 98. 102.]
344 cord_individual_obj[indivial_i, :] = [ 1. 3. 124. 127.]
345 cord_individual_obj[indivial_i, :] = [ 2. 3. 98. 101.]
346 cord_individual_obj[indivial_i, :] = [ 3. 3. 64. 67.]
347 cord_individual_obj[indivial_i, :] = [ 4. 4. 10. 14.]
348 cord_individual_obj[indivial_i, :] = [ 5. 4. 26. 30.]
349 cord_individual_obj[indivial_i, :] = [ 6. 4. 4. 8.]
350 cord_individual_obj[indivial_i, :] = [ 7. 5. 31. 36.]
351 cord_individual_obj[indivial_i, :] = [ 8. 4. 99. 103.]
352 cord_individual_obj[indivial_i, :] = [ 9. 4. 47. 51.]
353 cord_individual_obj[indivial_i, :] = [10. 2. 106. 108.]
354 cord_individual_obj[indivial_i, :] = [11. 3. 78. 81.]
355 cord_individual_obj[indivial_i, :] = [12. 3. 88. 91.]
356 cord_individual_obj[indivial_i, :] = [13. 3. 3. 6.]
357 cord_individual_obj[indivial_i, :] = [14. 3. 122. 125.]
358 cord_individual_obj[indivial_i, :] = [15. 4. 102. 106.]
359 cord_individual_obj[indivial_i, :] = [16. 3. 108. 111.]
360 cord_individual_obj[indivial_i, :] = [17. 3. 114. 117.]
361 cord_individual_obj[indivial_i, :] = [18. 4. 94. 98.]
362 cord_individual_obj[indivial_i, :] = [19. 4. 53. 57.]
363 cord_individual_obj[indivial_i, :] = [20. 4. 44. 48.]
364 cord_individual_obj[indivial_i, :] = [21. 6. 51. 57.]
365 cord_individual_obj[indivial_i, :] = [22. 4. 51. 55.]
366 cord_individual_obj[indivial_i, :] = [23. 2. 82. 84.]
367 cord_individual_obj[indivial_i, :] = [24. 4. 95. 99.]
368
369 min(cord_individual_obj[:, 3]) = 6.0
370 histol_G_best_iter[iter, 3] = 6.0
371 Begin iteration:
372
373 iter = 11
374 cord_individual_obj[indivial_i, :] = [ 0. 5. 99. 104.]
375 cord_individual_obj[indivial_i, :] = [1. 3. 3. 6.]
376 cord_individual_obj[indivial_i, :] = [ 2. 3. 114. 117.]
377 cord_individual_obj[indivial_i, :] = [ 3. 3. 114. 117.]
378 cord_individual_obj[indivial_i, :] = [ 4. 4. 70. 74.]
379 cord_individual_obj[indivial_i, :] = [ 5. 3. 80. 83.]
380 cord_individual_obj[indivial_i, :] = [ 6. 3. 76. 79.]
381 cord_individual_obj[indivial_i, :] = [ 7. 5. 48. 53.]
382 cord_individual_obj[indivial_i, :] = [ 8. 3. 82. 85.]
383 cord_individual_obj[indivial_i, :] = [ 9. 4. 47. 51.]
384 cord_individual_obj[indivial_i, :] = [10. 3. 82. 85.]
385 cord_individual_obj[indivial_i, :] = [11. 5. 4. 9.]
386 cord_individual_obj[indivial_i, :] = [12. 3. 64. 67.]
387 cord_individual_obj[indivial_i, :] = [13. 3. 114. 117.]
388 cord_individual_obj[indivial_i, :] = [14. 3. 134. 137.]
389 cord_individual_obj[indivial_i, :] = [15. 4. 48. 52.]
390 cord_individual_obj[indivial_i, :] = [16. 5. 51. 56.]
391 cord_individual_obj[indivial_i, :] = [17. 5. 31. 36.]
392 cord_individual_obj[indivial_i, :] = [18. 4. 47. 51.]
393 cord_individual_obj[indivial_i, :] = [19. 5. 69. 74.]
394 cord_individual_obj[indivial_i, :] = [20. 3. 101. 104.]
395 cord_individual_obj[indivial_i, :] = [21. 4. 46. 50.]
396 cord_individual_obj[indivial_i, :] = [22. 3. 116. 119.]
397 cord_individual_obj[indivial_i, :] = [23. 3. 46. 49.]
398 cord_individual_obj[indivial_i, :] = [24. 5. 31. 36.]
399
400 min(cord_individual_obj[:, 3]) = 6.0
401 histol_G_best_iter[iter, 3] = 6.0
402 Begin iteration:
403
404 iter = 12
405 cord_individual_obj[indivial_i, :] = [ 0. 3. 62. 65.]
406 cord_individual_obj[indivial_i, :] = [ 1. 4. 164. 168.]
407 cord_individual_obj[indivial_i, :] = [ 2. 3. 90. 93.]
408 cord_individual_obj[indivial_i, :] = [ 3. 4. 64. 68.]
409 cord_individual_obj[indivial_i, :] = [ 4. 4. 84. 88.]
410 cord_individual_obj[indivial_i, :] = [ 5. 4. 5. 9.]
411 cord_individual_obj[indivial_i, :] = [ 6. 3. 52. 55.]
412 cord_individual_obj[indivial_i, :] = [ 7. 3. 114. 117.]
413 cord_individual_obj[indivial_i, :] = [ 8. 3. 82. 85.]
414 cord_individual_obj[indivial_i, :] = [ 9. 4. 47. 51.]
415 cord_individual_obj[indivial_i, :] = [10. 3. 5. 8.]

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```

416 cord_individual_obj[indivial_i,:] = [11. 3. 78. 81.]
417 cord_individual_obj[indivial_i,:] = [12. 4. 49. 53.]
418 cord_individual_obj[indivial_i,:] = [13. 3. 142. 145.]
419 cord_individual_obj[indivial_i,:] = [14. 3. 3. 6.]
420 cord_individual_obj[indivial_i,:] = [15. 4. 84. 88.]
421 cord_individual_obj[indivial_i,:] = [16. 4. 64. 68.]
422 cord_individual_obj[indivial_i,:] = [17. 3. 130. 133.]
423 cord_individual_obj[indivial_i,:] = [18. 4. 110. 114.]
424 cord_individual_obj[indivial_i,:] = [19. 5. 54. 59.]
425 cord_individual_obj[indivial_i,:] = [20. 4. 108. 112.]
426 cord_individual_obj[indivial_i,:] = [21. 6. 51. 57.]
427 cord_individual_obj[indivial_i,:] = [22. 3. 114. 117.]
428 cord_individual_obj[indivial_i,:] = [23. 2. 72. 74.]
429 cord_individual_obj[indivial_i,:] = [24. 3. 98. 101.]
430
431 min(cord_individual_obj[:,3]) = 6.0
432 histol_G_best_iter[iter,3] = 6.0
433 Begin iteration:
434
435 iter = 13
436 cord_individual_obj[indivial_i,:] = [0. 4. 76. 80.]
437 cord_individual_obj[indivial_i,:] = [1. 3. 3. 6.]
438 cord_individual_obj[indivial_i,:] = [2. 4. 5. 9.]
439 cord_individual_obj[indivial_i,:] = [3. 4. 42. 46.]
440 cord_individual_obj[indivial_i,:] = [4. 4. 4. 8.]
441 cord_individual_obj[indivial_i,:] = [5. 4. 94. 98.]
442 cord_individual_obj[indivial_i,:] = [6. 5. 6. 11.]
443 cord_individual_obj[indivial_i,:] = [7. 4. 90. 94.]
444 cord_individual_obj[indivial_i,:] = [8. 3. 76. 79.]
445 cord_individual_obj[indivial_i,:] = [9. 3. 75. 78.]
446 cord_individual_obj[indivial_i,:] = [10. 3. 34. 37.]
447 cord_individual_obj[indivial_i,:] = [11. 3. 78. 81.]
448 cord_individual_obj[indivial_i,:] = [12. 3. 74. 77.]
449 cord_individual_obj[indivial_i,:] = [13. 3. 130. 133.]
450 cord_individual_obj[indivial_i,:] = [14. 4. 88. 92.]
451 cord_individual_obj[indivial_i,:] = [15. 3. 144. 147.]
452 cord_individual_obj[indivial_i,:] = [16. 3. 108. 111.]
453 cord_individual_obj[indivial_i,:] = [17. 4. 75. 79.]
454 cord_individual_obj[indivial_i,:] = [18. 4. 5. 9.]
455 cord_individual_obj[indivial_i,:] = [19. 4. 50. 54.]
456 cord_individual_obj[indivial_i,:] = [20. 6. 18. 24.]
457 cord_individual_obj[indivial_i,:] = [21. 4. 4. 8.]
458 cord_individual_obj[indivial_i,:] = [22. 3. 142. 145.]
459 cord_individual_obj[indivial_i,:] = [23. 3. 119. 122.]
460 cord_individual_obj[indivial_i,:] = [24. 4. 54. 58.]
461
462 min(cord_individual_obj[:,3]) = 6.0
463 histol_G_best_iter[iter,3] = 6.0
464 Begin iteration:
465
466 iter = 14
467 cord_individual_obj[indivial_i,:] = [0. 5. 111. 116.]
468 cord_individual_obj[indivial_i,:] = [1. 3. 100. 103.]
469 cord_individual_obj[indivial_i,:] = [2. 4. 46. 50.]
470 cord_individual_obj[indivial_i,:] = [3. 3. 124. 127.]
471 cord_individual_obj[indivial_i,:] = [4. 4. 9. 13.]
472 cord_individual_obj[indivial_i,:] = [5. 4. 5. 9.]
473 cord_individual_obj[indivial_i,:] = [6. 4. 34. 38.]
474 cord_individual_obj[indivial_i,:] = [7. 5. 29. 34.]
475 cord_individual_obj[indivial_i,:] = [8. 3. 49. 52.]
476 cord_individual_obj[indivial_i,:] = [9. 4. 47. 51.]
477 cord_individual_obj[indivial_i,:] = [10. 3. 46. 49.]
478 cord_individual_obj[indivial_i,:] = [11. 5. 31. 36.]
479 cord_individual_obj[indivial_i,:] = [12. 4. 116. 120.]
480 cord_individual_obj[indivial_i,:] = [13. 3. 49. 52.]
481 cord_individual_obj[indivial_i,:] = [14. 4. 62. 66.]
482 cord_individual_obj[indivial_i,:] = [15. 3. 3. 6.]
483 cord_individual_obj[indivial_i,:] = [16. 4. 51. 55.]
484 cord_individual_obj[indivial_i,:] = [17. 4. 64. 68.]
485 cord_individual_obj[indivial_i,:] = [18. 4. 47. 51.]
486 cord_individual_obj[indivial_i,:] = [19. 6. 52. 58.]
487 cord_individual_obj[indivial_i,:] = [20. 4. 35. 39.]
488 cord_individual_obj[indivial_i,:] = [21. 4. 46. 50.]
489 cord_individual_obj[indivial_i,:] = [22. 4. 52. 56.]
490 cord_individual_obj[indivial_i,:] = [23. 3. 114. 117.]
491 cord_individual_obj[indivial_i,:] = [24. 5. 31. 36.]
492
493 min(cord_individual_obj[:,3]) = 6.0
494 histol_G_best_iter[iter,3] = 6.0
495 Begin iteration:
496
497 iter = 15
498 cord_individual_obj[indivial_i,:] = [0. 4. 62. 66.]
499 cord_individual_obj[indivial_i,:] = [1. 4. 52. 56.]

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500 cord_individual_obj[indivial_i,:] = [ 2. 3. 52. 55.]
501 cord_individual_obj[indivial_i,:] = [ 3. 3. 3. 6.]
502 cord_individual_obj[indivial_i,:] = [ 4. 4. 4. 8.]
503 cord_individual_obj[indivial_i,:] = [ 5. 4. 40. 44.]
504 cord_individual_obj[indivial_i,:] = [ 6. 4. 10. 14.]
505 cord_individual_obj[indivial_i,:] = [ 7. 3. 74. 77.]
506 cord_individual_obj[indivial_i,:] = [ 8. 4. 84. 88.]
507 cord_individual_obj[indivial_i,:] = [ 9. 3. 74. 77.]
508 cord_individual_obj[indivial_i,:] = [10. 5. 75. 80.]
509 cord_individual_obj[indivial_i,:] = [11. 4. 6. 10.]
510 cord_individual_obj[indivial_i,:] = [12. 3. 100. 103.]
511 cord_individual_obj[indivial_i,:] = [13. 3. 102. 105.]
512 cord_individual_obj[indivial_i,:] = [14. 3. 93. 96.]
513 cord_individual_obj[indivial_i,:] = [15. 4. 84. 88.]
514 cord_individual_obj[indivial_i,:] = [16. 3. 33. 36.]
515 cord_individual_obj[indivial_i,:] = [17. 3. 34. 37.]
516 cord_individual_obj[indivial_i,:] = [18. 4. 36. 40.]
517 cord_individual_obj[indivial_i,:] = [19. 3. 110. 113.]
518 cord_individual_obj[indivial_i,:] = [20. 3. 127. 130.]
519 cord_individual_obj[indivial_i,:] = [21. 5. 5. 10.]
520 cord_individual_obj[indivial_i,:] = [22. 3. 35. 38.]
521 cord_individual_obj[indivial_i,:] = [23. 4. 75. 79.]
522 cord_individual_obj[indivial_i,:] = [24. 3. 52. 55.]
523
524 min(cord_individual_obj[:,3]) = 6.0
525 histol_G_best_iter[iter, 3] = 6.0
526 Begin iteration:
527
528 iter = 16
529 cord_individual_obj[indivial_i,:] = [ 0. 4. 4. 8.]
530 cord_individual_obj[indivial_i,:] = [ 1. 4. 114. 118.]
531 cord_individual_obj[indivial_i,:] = [ 2. 4. 35. 39.]
532 cord_individual_obj[indivial_i,:] = [ 3. 3. 82. 85.]
533 cord_individual_obj[indivial_i,:] = [ 4. 4. 96. 100.]
534 cord_individual_obj[indivial_i,:] = [ 5. 5. 27. 32.]
535 cord_individual_obj[indivial_i,:] = [ 6. 3. 74. 77.]
536 cord_individual_obj[indivial_i,:] = [ 7. 3. 72. 75.]
537 cord_individual_obj[indivial_i,:] = [ 8. 4. 72. 76.]
538 cord_individual_obj[indivial_i,:] = [ 9. 5. 70. 75.]
539 cord_individual_obj[indivial_i,:] = [10. 2. 70. 72.]
540 cord_individual_obj[indivial_i,:] = [11. 3. 72. 75.]
541 cord_individual_obj[indivial_i,:] = [12. 2. 82. 84.]
542 cord_individual_obj[indivial_i,:] = [13. 4. 88. 92.]
543 cord_individual_obj[indivial_i,:] = [14. 4. 16. 20.]
544 cord_individual_obj[indivial_i,:] = [15. 3. 130. 133.]
545 cord_individual_obj[indivial_i,:] = [16. 5. 48. 53.]
546 cord_individual_obj[indivial_i,:] = [17. 3. 88. 91.]
547 cord_individual_obj[indivial_i,:] = [18. 5. 9. 14.]
548 cord_individual_obj[indivial_i,:] = [19. 3. 82. 85.]
549 cord_individual_obj[indivial_i,:] = [20. 3. 3. 6.]
550 cord_individual_obj[indivial_i,:] = [21. 4. 50. 54.]
551 cord_individual_obj[indivial_i,:] = [22. 4. 53. 57.]
552 cord_individual_obj[indivial_i,:] = [23. 3. 90. 93.]
553 cord_individual_obj[indivial_i,:] = [24. 5. 62. 67.]
554
555 min(cord_individual_obj[:,3]) = 6.0
556 histol_G_best_iter[iter, 3] = 6.0
557 Begin iteration:
558
559 iter = 17
560 cord_individual_obj[indivial_i,:] = [ 0. 4. 96. 100.]
561 cord_individual_obj[indivial_i,:] = [ 1. 3. 130. 133.]
562 cord_individual_obj[indivial_i,:] = [ 2. 3. 114. 117.]
563 cord_individual_obj[indivial_i,:] = [ 3. 4. 94. 98.]
564 cord_individual_obj[indivial_i,:] = [ 4. 4. 9. 13.]
565 cord_individual_obj[indivial_i,:] = [ 5. 5. 26. 31.]
566 cord_individual_obj[indivial_i,:] = [ 6. 3. 10. 13.]
567 cord_individual_obj[indivial_i,:] = [ 7. 4. 49. 53.]
568 cord_individual_obj[indivial_i,:] = [ 8. 3. 82. 85.]
569 cord_individual_obj[indivial_i,:] = [ 9. 5. 48. 53.]
570 cord_individual_obj[indivial_i,:] = [10. 3. 106. 109.]
571 cord_individual_obj[indivial_i,:] = [11. 5. 4. 9.]
572 cord_individual_obj[indivial_i,:] = [12. 4. 96. 100.]
573 cord_individual_obj[indivial_i,:] = [13. 4. 46. 50.]
574 cord_individual_obj[indivial_i,:] = [14. 3. 2. 5.]
575 cord_individual_obj[indivial_i,:] = [15. 3. 3. 6.]
576 cord_individual_obj[indivial_i,:] = [16. 4. 50. 54.]
577 cord_individual_obj[indivial_i,:] = [17. 4. 96. 100.]
578 cord_individual_obj[indivial_i,:] = [18. 4. 47. 51.]
579 cord_individual_obj[indivial_i,:] = [19. 5. 47. 52.]
580 cord_individual_obj[indivial_i,:] = [20. 4. 108. 112.]
581 cord_individual_obj[indivial_i,:] = [21. 3. 49. 52.]
582 cord_individual_obj[indivial_i,:] = [22. 4. 106. 110.]
583 cord_individual_obj[indivial_i,:] = [23. 4. 48. 52.]

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unknown

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584     cord_individual_obj[indivial_i, :] = [24. 4. 46. 50.]  
585  
586     min(cord_individual_obj[:, 3]) = 5.0  
587     historl_G_best_iter[iter, 3] = 5.0  
588 Begin iteration:  
589  
590 iter = 18  
591     cord_individual_obj[indivial_i, :] = [ 0. 4. 106. 110.]  
592     cord_individual_obj[indivial_i, :] = [1. 3. 2. 5.]  
593     cord_individual_obj[indivial_i, :] = [ 2. 3. 100. 103.]  
594     cord_individual_obj[indivial_i, :] = [ 3. 4. 53. 57.]  
595     cord_individual_obj[indivial_i, :] = [ 4. 3. 18. 21.]  
596     cord_individual_obj[indivial_i, :] = [ 5. 6. 23. 29.]  
597     cord_individual_obj[indivial_i, :] = [6. 4. 4. 8.]  
598     cord_individual_obj[indivial_i, :] = [ 7. 5. 31. 36.]  
599     cord_individual_obj[indivial_i, :] = [ 8. 5. 31. 36.]  
600     cord_individual_obj[indivial_i, :] = [ 9. 5. 6. 11.]  
601     cord_individual_obj[indivial_i, :] = [10. 5. 5. 10.]  
602     cord_individual_obj[indivial_i, :] = [11. 4. 5. 9.]  
603     cord_individual_obj[indivial_i, :] = [12. 3. 27. 30.]  
604     cord_individual_obj[indivial_i, :] = [13. 5. 52. 57.]  
605     cord_individual_obj[indivial_i, :] = [14. 5. 10. 15.]  
606     cord_individual_obj[indivial_i, :] = [15. 5. 32. 37.]  
607     cord_individual_obj[indivial_i, :] = [16. 5. 6. 11.]  
608     cord_individual_obj[indivial_i, :] = [17. 3. 88. 91.]  
609     cord_individual_obj[indivial_i, :] = [18. 3. 114. 117.]  
610     cord_individual_obj[indivial_i, :] = [19. 3. 68. 71.]  
611     cord_individual_obj[indivial_i, :] = [20. 5. 55. 60.]  
612     cord_individual_obj[indivial_i, :] = [21. 4. 5. 9.]  
613     cord_individual_obj[indivial_i, :] = [22. 3. 14. 17.]  
614     cord_individual_obj[indivial_i, :] = [23. 3. 52. 55.]  
615     cord_individual_obj[indivial_i, :] = [24. 4. 5. 9.]  
616  
617     min(cord_individual_obj[:, 3]) = 5.0  
618     historl_G_best_iter[iter, 3] = 5.0  
619 Begin iteration:  
620  
621 iter = 19  
622     cord_individual_obj[indivial_i, :] = [ 0. 4. 47. 51.]  
623     cord_individual_obj[indivial_i, :] = [ 1. 4. 130. 134.]  
624     cord_individual_obj[indivial_i, :] = [ 2. 3. 10. 13.]  
625     cord_individual_obj[indivial_i, :] = [ 3. 3. 114. 117.]  
626     cord_individual_obj[indivial_i, :] = [ 4. 3. 18. 21.]  
627     cord_individual_obj[indivial_i, :] = [ 5. 4. 47. 51.]  
628     cord_individual_obj[indivial_i, :] = [ 6. 3. 140. 143.]  
629     cord_individual_obj[indivial_i, :] = [ 7. 4. 49. 53.]  
630     cord_individual_obj[indivial_i, :] = [ 8. 5. 31. 36.]  
631     cord_individual_obj[indivial_i, :] = [ 9. 6. 49. 55.]  
632     cord_individual_obj[indivial_i, :] = [10. 4. 46. 50.]  
633     cord_individual_obj[indivial_i, :] = [11. 4. 3. 7.]  
634     cord_individual_obj[indivial_i, :] = [12. 4. 64. 68.]  
635     cord_individual_obj[indivial_i, :] = [13. 3. 50. 53.]  
636     cord_individual_obj[indivial_i, :] = [14. 5. 22. 27.]  
637     cord_individual_obj[indivial_i, :] = [15. 4. 64. 68.]  
638     cord_individual_obj[indivial_i, :] = [16. 5. 50. 55.]  
639     cord_individual_obj[indivial_i, :] = [17. 5. 10. 15.]  
640     cord_individual_obj[indivial_i, :] = [18. 3. 2. 5.]  
641     cord_individual_obj[indivial_i, :] = [19. 3. 61. 64.]  
642     cord_individual_obj[indivial_i, :] = [20. 6. 12. 18.]  
643     cord_individual_obj[indivial_i, :] = [21. 4. 5. 9.]  
644     cord_individual_obj[indivial_i, :] = [22. 3. 106. 109.]  
645     cord_individual_obj[indivial_i, :] = [23. 3. 16. 19.]  
646     cord_individual_obj[indivial_i, :] = [24. 3. 5. 8.]  
647  
648     min(cord_individual_obj[:, 3]) = 5.0  
649     historl_G_best_iter[iter, 3] = 5.0  
650 Begin iteration:  
651  
652 iter = 20  
653     cord_individual_obj[indivial_i, :] = [ 0. 4. 106. 110.]  
654     cord_individual_obj[indivial_i, :] = [ 1. 4. 130. 134.]  
655     cord_individual_obj[indivial_i, :] = [ 2. 3. 10. 13.]  
656     cord_individual_obj[indivial_i, :] = [ 3. 4. 76. 80.]  
657     cord_individual_obj[indivial_i, :] = [ 4. 3. 52. 55.]  
658     cord_individual_obj[indivial_i, :] = [ 5. 6. 5. 11.]  
659     cord_individual_obj[indivial_i, :] = [ 6. 3. 2. 5.]  
660     cord_individual_obj[indivial_i, :] = [ 7. 4. 49. 53.]  
661     cord_individual_obj[indivial_i, :] = [ 8. 4. 52. 56.]  
662     cord_individual_obj[indivial_i, :] = [ 9. 6. 31. 37.]  
663     cord_individual_obj[indivial_i, :] = [10. 4. 62. 66.]  
664     cord_individual_obj[indivial_i, :] = [11. 3. 4. 7.]  
665     cord_individual_obj[indivial_i, :] = [12. 4. 108. 112.]  
666     cord_individual_obj[indivial_i, :] = [13. 4. 99. 103.]  
667     cord_individual_obj[indivial_i, :] = [14. 4. 52. 56.]
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668 cord_individual_obj[indivial_i, :] = [15. 4. 50. 54.]
669 cord_individual_obj[indivial_i, :] = [16. 5. 50. 55.]
670 cord_individual_obj[indivial_i, :] = [17. 4. 6. 10.]
671 cord_individual_obj[indivial_i, :] = [18. 5. 31. 36.]
672 cord_individual_obj[indivial_i, :] = [19. 4. 25. 29.]
673 cord_individual_obj[indivial_i, :] = [20. 4. 37. 41.]
674 cord_individual_obj[indivial_i, :] = [21. 3. 4. 7.]
675 cord_individual_obj[indivial_i, :] = [22. 4. 4. 8.]
676 cord_individual_obj[indivial_i, :] = [23. 3. 16. 19.]
677 cord_individual_obj[indivial_i, :] = [24. 4. 5. 9.]
678
679 min(cord_individual_obj[:, 3]) = 5.0
680 historl_G_best_iter[iter, 3] = 5.0
681 Iteration calculate over
682
683
684
685
686 All item are in Bin and:
687 Bin area = 1080
688 Real_area = 83.0
689 Proportion_of_area = 0.07685185185185185
690 BEST_CHROM =
691     berth: [ 7.5 3. 25.5 19.5 13.5 10.5 14.5]
692     time: [0. 0. 0. 0. 1. 1.]
693     num_QC: [2. 3. 2. 3. 9. 2. 4.]
694 Objective function values and some other indicators:
695 Obj0 = 3.00          Obj1 = 2.00          Obj0 + Obj1 = 5.00
696 Total movement of crane: 0.00
697 Total waiting time in berth position: 2.00
698 Total index of q during berthing: 529.00
699 Specific arrangement for each vessel:
700
    V_id: 0           li: 3.0           xi: 7.5           bow of i: 6.0           tail of i: 9.0           gama_i0: 0.0           gama_i1: 3.0
    .0                 gama_i1 + 1: 4.0      gama_i1 - gama_i0: 3.0      duration_time_i: 4.0
160.0             work load gap_i: 0
701
    V_id: 1           li: 6.0           xi: 3.0           bow of i: 0.0           tail of i: 6.0           gama_i0: 0.0           gama_i1: 1.0
    .0                 gama_i1 + 1: 2.0      gama_i1 - gama_i0: 1.0      duration_time_i: 2.0
100.0             work load gap_i: 0
702
    V_id: 2           li: 9.0           xi: 25.5          bow of i: 21.0          tail of i: 30.0          gama_i0: 0.0           gama_i1: 3
    .0                 gama_i1 + 1: 4.0      gama_i1 - gama_i0: 3.0      duration_time_i: 4.0
load_i: 160.0       work load gap_i: 0
703
    V_id: 3           li: 3.0           xi: 19.5          bow of i: 18.0          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
load_i: 100.0        work load gap_i: 0
704
    V_id: 4           li: 9.0           xi: 13.5          bow of i: 9.0           tail of i: 18.0          gama_i0: 0.0           gama_i1: 0
    .0                 gama_i1 + 1: 1.0      gama_i1 - gama_i0: 0.0      duration_time_i: 1.0
load_i: 140.0        work load gap_i: 0
705
    V_id: 5           li: 3.0           xi: 10.5          bow of i: 9.0           tail of i: 12.0          gama_i0: 1.0           gama_i1: 3
    .0                 gama_i1 + 1: 4.0      gama_i1 - gama_i0: 2.0      duration_time_i: 3.0
load_i: 120.0        work load gap_i: 0
706
    V_id: 6           li: 5.0           xi: 14.5          bow of i: 12.0          tail of i: 17.0          gama_i0: 1.0           gama_i1: 2
    .0                 gama_i1 + 1: 3.0      gama_i1 - gama_i0: 1.0      duration_time_i: 2.0
load_i: 100.0        work load gap_i: 0
707
708 Algorithm finished and the total CPU time: 196 s
709 End
710

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