

unknown

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80 cord_individual_obj[indivial_i, :] = [16. 3. 54. 57.]
81 cord_individual_obj[indivial_i, :] = [17. 5. 4. 9.]
82 cord_individual_obj[indivial_i, :] = [18. 3. 4. 7.]
83 cord_individual_obj[indivial_i, :] = [19. 4. 3. 7.]
84 cord_individual_obj[indivial_i, :] = [20. 4. 54. 58.]
85 cord_individual_obj[indivial_i, :] = [21. 5. 12. 17.]
86 cord_individual_obj[indivial_i, :] = [22. 4. 32. 36.]
87 cord_individual_obj[indivial_i, :] = [23. 3. 23. 26.]
88 cord_individual_obj[indivial_i, :] = [24. 4. 37. 41.]
89
90 min(cord_individual_obj[:, 3]) = 7.0
91 historl_G_best_iter[iter, 3] = 7.0
92 Begin iteration:
93
94 iter = 2
95 cord_individual_obj[indivial_i, :] = [ 0. 3. 86. 89.]
96 cord_individual_obj[indivial_i, :] = [1. 3. 4. 7.]
97 cord_individual_obj[indivial_i, :] = [ 2. 4. 36. 40.]
98 cord_individual_obj[indivial_i, :] = [ 3. 5. 43. 48.]
99 cord_individual_obj[indivial_i, :] = [ 4. 5. 12. 17.]
100 cord_individual_obj[indivial_i, :] = [ 5. 3. 10. 13.]
101 cord_individual_obj[indivial_i, :] = [ 6. 5. 8. 13.]
102 cord_individual_obj[indivial_i, :] = [ 7. 4. 34. 38.]
103 cord_individual_obj[indivial_i, :] = [ 8. 4. 66. 70.]
104 cord_individual_obj[indivial_i, :] = [ 9. 3. 23. 26.]
105 cord_individual_obj[indivial_i, :] = [10. 5. 54. 59.]
106 cord_individual_obj[indivial_i, :] = [11. 5. 5. 10.]
107 cord_individual_obj[indivial_i, :] = [12. 5. 30. 35.]
108 cord_individual_obj[indivial_i, :] = [13. 4. 34. 38.]
109 cord_individual_obj[indivial_i, :] = [14. 4. 26. 30.]
110 cord_individual_obj[indivial_i, :] = [15. 4. 22. 26.]
111 cord_individual_obj[indivial_i, :] = [16. 5. 5. 10.]
112 cord_individual_obj[indivial_i, :] = [17. 4. 40. 44.]
113 cord_individual_obj[indivial_i, :] = [18. 5. 95. 100.]
114 cord_individual_obj[indivial_i, :] = [19. 5. 22. 27.]
115 cord_individual_obj[indivial_i, :] = [20. 4. 12. 16.]
116 cord_individual_obj[indivial_i, :] = [21. 4. 23. 27.]
117 cord_individual_obj[indivial_i, :] = [22. 5. 11. 16.]
118 cord_individual_obj[indivial_i, :] = [23. 6. 22. 28.]
119 cord_individual_obj[indivial_i, :] = [24. 3. 92. 95.]
120
121 min(cord_individual_obj[:, 3]) = 7.0
122 historl_G_best_iter[iter, 3] = 7.0
123 Begin iteration:
124
125 iter = 3
126 cord_individual_obj[indivial_i, :] = [ 0. 3. 32. 35.]
127 cord_individual_obj[indivial_i, :] = [ 1. 3. 68. 71.]
128 cord_individual_obj[indivial_i, :] = [ 2. 4. 21. 25.]
129 cord_individual_obj[indivial_i, :] = [ 3. 3. 66. 69.]
130 cord_individual_obj[indivial_i, :] = [ 4. 5. 11. 16.]
131 cord_individual_obj[indivial_i, :] = [ 5. 4. 38. 42.]
132 cord_individual_obj[indivial_i, :] = [ 6. 4. 16. 20.]
133 cord_individual_obj[indivial_i, :] = [ 7. 3. 27. 30.]
134 cord_individual_obj[indivial_i, :] = [ 8. 4. 12. 16.]
135 cord_individual_obj[indivial_i, :] = [ 9. 4. 19. 23.]
136 cord_individual_obj[indivial_i, :] = [10. 4. 18. 22.]
137 cord_individual_obj[indivial_i, :] = [11. 3. 24. 27.]
138 cord_individual_obj[indivial_i, :] = [12. 4. 17. 21.]
139 cord_individual_obj[indivial_i, :] = [13. 4. 13. 17.]
140 cord_individual_obj[indivial_i, :] = [14. 4. 82. 86.]
141 cord_individual_obj[indivial_i, :] = [15. 5. 10. 15.]
142 cord_individual_obj[indivial_i, :] = [16. 6. 25. 31.]
143 cord_individual_obj[indivial_i, :] = [17. 4. 23. 27.]
144 cord_individual_obj[indivial_i, :] = [18. 3. 4. 7.]
145 cord_individual_obj[indivial_i, :] = [19. 4. 45. 49.]
146 cord_individual_obj[indivial_i, :] = [20. 5. 13. 18.]
147 cord_individual_obj[indivial_i, :] = [21. 4. 4. 8.]
148 cord_individual_obj[indivial_i, :] = [22. 5. 6. 11.]
149 cord_individual_obj[indivial_i, :] = [23. 4. 48. 52.]
150 cord_individual_obj[indivial_i, :] = [24. 3. 20. 23.]
151
152 min(cord_individual_obj[:, 3]) = 7.0
153 historl_G_best_iter[iter, 3] = 7.0
154 Begin iteration:
155
156 iter = 4
157 cord_individual_obj[indivial_i, :] = [ 0. 3. 58. 61.]
158 cord_individual_obj[indivial_i, :] = [ 1. 4. 15. 19.]
159 cord_individual_obj[indivial_i, :] = [ 2. 3. 50. 53.]
160 cord_individual_obj[indivial_i, :] = [ 3. 4. 43. 47.]
161 cord_individual_obj[indivial_i, :] = [ 4. 5. 12. 17.]
162 cord_individual_obj[indivial_i, :] = [ 5. 3. 16. 19.]
163 cord_individual_obj[indivial_i, :] = [ 6. 5. 30. 35.]

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164 cord_individual_obj[indivial_i,:] = [ 7. 3. 33. 36.]
165 cord_individual_obj[indivial_i,:] = [ 8. 4. 66. 70.]
166 cord_individual_obj[indivial_i,:] = [ 9. 3. 21. 24.]
167 cord_individual_obj[indivial_i,:] = [10. 5. 60. 65.]
168 cord_individual_obj[indivial_i,:] = [11. 5. 23. 28.]
169 cord_individual_obj[indivial_i,:] = [12. 4. 30. 34.]
170 cord_individual_obj[indivial_i,:] = [13. 4. 30. 34.]
171 cord_individual_obj[indivial_i,:] = [14. 3. 4. 7.]
172 cord_individual_obj[indivial_i,:] = [15. 4. 41. 45.]
173 cord_individual_obj[indivial_i,:] = [16. 5. 4. 9.]
174 cord_individual_obj[indivial_i,:] = [17. 4. 48. 52.]
175 cord_individual_obj[indivial_i,:] = [18. 5. 95. 100.]
176 cord_individual_obj[indivial_i,:] = [19. 5. 22. 27.]
177 cord_individual_obj[indivial_i,:] = [20. 4. 12. 16.]
178 cord_individual_obj[indivial_i,:] = [21. 4. 37. 41.]
179 cord_individual_obj[indivial_i,:] = [22. 4. 47. 51.]
180 cord_individual_obj[indivial_i,:] = [23. 5. 46. 51.]
181 cord_individual_obj[indivial_i,:] = [24. 3. 92. 95.]
182
183 min(cord_individual_obj[:,3]) = 7.0
184 historl_G_best_iter[iter,3] = 7.0
185 Begin iteration:
186
187 iter = 5
188 cord_individual_obj[indivial_i,:] = [ 0. 3. 28. 31.]
189 cord_individual_obj[indivial_i,:] = [ 1. 3. 33. 36.]
190 cord_individual_obj[indivial_i,:] = [ 2. 4. 51. 55.]
191 cord_individual_obj[indivial_i,:] = [ 3. 5. 43. 48.]
192 cord_individual_obj[indivial_i,:] = [ 4. 5. 13. 18.]
193 cord_individual_obj[indivial_i,:] = [ 5. 3. 16. 19.]
194 cord_individual_obj[indivial_i,:] = [ 6. 3. 76. 79.]
195 cord_individual_obj[indivial_i,:] = [ 7. 3. 33. 36.]
196 cord_individual_obj[indivial_i,:] = [ 8. 4. 13. 17.]
197 cord_individual_obj[indivial_i,:] = [ 9. 4. 78. 82.]
198 cord_individual_obj[indivial_i,:] = [10. 4. 45. 49.]
199 cord_individual_obj[indivial_i,:] = [11. 5. 4. 9.]
200 cord_individual_obj[indivial_i,:] = [12. 5. 30. 35.]
201 cord_individual_obj[indivial_i,:] = [13. 4. 35. 39.]
202 cord_individual_obj[indivial_i,:] = [14. 4. 52. 56.]
203 cord_individual_obj[indivial_i,:] = [15. 4. 99. 103.]
204 cord_individual_obj[indivial_i,:] = [16. 4. 12. 16.]
205 cord_individual_obj[indivial_i,:] = [17. 4. 40. 44.]
206 cord_individual_obj[indivial_i,:] = [18. 3. 4. 7.]
207 cord_individual_obj[indivial_i,:] = [19. 5. 41. 46.]
208 cord_individual_obj[indivial_i,:] = [20. 5. 14. 19.]
209 cord_individual_obj[indivial_i,:] = [21. 5. 37. 42.]
210 cord_individual_obj[indivial_i,:] = [22. 5. 22. 27.]
211 cord_individual_obj[indivial_i,:] = [23. 5. 46. 51.]
212 cord_individual_obj[indivial_i,:] = [24. 4. 71. 75.]
213
214 min(cord_individual_obj[:,3]) = 7.0
215 historl_G_best_iter[iter,3] = 7.0
216 Begin iteration:
217
218 iter = 6
219 cord_individual_obj[indivial_i,:] = [ 0. 3. 58. 61.]
220 cord_individual_obj[indivial_i,:] = [ 1. 4. 28. 32.]
221 cord_individual_obj[indivial_i,:] = [ 2. 4. 52. 56.]
222 cord_individual_obj[indivial_i,:] = [ 3. 5. 53. 58.]
223 cord_individual_obj[indivial_i,:] = [ 4. 4. 28. 32.]
224 cord_individual_obj[indivial_i,:] = [ 5. 4. 48. 52.]
225 cord_individual_obj[indivial_i,:] = [ 6. 4. 71. 75.]
226 cord_individual_obj[indivial_i,:] = [ 7. 5. 44. 49.]
227 cord_individual_obj[indivial_i,:] = [ 8. 4. 12. 16.]
228 cord_individual_obj[indivial_i,:] = [ 9. 2. 10. 12.]
229 cord_individual_obj[indivial_i,:] = [10. 5. 90. 95.]
230 cord_individual_obj[indivial_i,:] = [11. 4. 5. 9.]
231 cord_individual_obj[indivial_i,:] = [12. 4. 37. 41.]
232 cord_individual_obj[indivial_i,:] = [13. 3. 53. 56.]
233 cord_individual_obj[indivial_i,:] = [14. 5. 41. 46.]
234 cord_individual_obj[indivial_i,:] = [15. 3. 4. 7.]
235 cord_individual_obj[indivial_i,:] = [16. 5. 12. 17.]
236 cord_individual_obj[indivial_i,:] = [17. 3. 30. 33.]
237 cord_individual_obj[indivial_i,:] = [18. 5. 95. 100.]
238 cord_individual_obj[indivial_i,:] = [19. 3. 40. 43.]
239 cord_individual_obj[indivial_i,:] = [20. 4. 30. 34.]
240 cord_individual_obj[indivial_i,:] = [21. 6. 13. 19.]
241 cord_individual_obj[indivial_i,:] = [22. 4. 11. 15.]
242 cord_individual_obj[indivial_i,:] = [23. 4. 46. 50.]
243 cord_individual_obj[indivial_i,:] = [24. 4. 133. 137.]
244
245 min(cord_individual_obj[:,3]) = 7.0
246 historl_G_best_iter[iter,3] = 7.0
247 Begin iteration:

```

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248
249 iter = 7
250 cord_individual_obj[indivial_i, :] = [ 0.  3. 86. 89.]
251 cord_individual_obj[indivial_i, :] = [ 1.  4. 15. 19.]
252 cord_individual_obj[indivial_i, :] = [ 2.  3. 34. 37.]
253 cord_individual_obj[indivial_i, :] = [ 3.  5. 43. 48.]
254 cord_individual_obj[indivial_i, :] = [ 4.  6. 12. 18.]
255 cord_individual_obj[indivial_i, :] = [ 5.  3. 10. 13.]
256 cord_individual_obj[indivial_i, :] = [ 6.  5. 8. 13.]
257 cord_individual_obj[indivial_i, :] = [ 7.  3. 33. 36.]
258 cord_individual_obj[indivial_i, :] = [ 8.  4. 66. 70.]
259 cord_individual_obj[indivial_i, :] = [ 9.  3. 21. 24.]
260 cord_individual_obj[indivial_i, :] = [10.  5. 82. 87.]
261 cord_individual_obj[indivial_i, :] = [11.  5. 22. 27.]
262 cord_individual_obj[indivial_i, :] = [12.  5. 30. 35.]
263 cord_individual_obj[indivial_i, :] = [13.  4. 34. 38.]
264 cord_individual_obj[indivial_i, :] = [14.  5. 27. 32.]
265 cord_individual_obj[indivial_i, :] = [15.  4. 27. 31.]
266 cord_individual_obj[indivial_i, :] = [16.  5. 13. 18.]
267 cord_individual_obj[indivial_i, :] = [17.  4. 48. 52.]
268 cord_individual_obj[indivial_i, :] = [18.  5. 95. 100.]
269 cord_individual_obj[indivial_i, :] = [19.  5. 41. 46.]
270 cord_individual_obj[indivial_i, :] = [20.  5. 14. 19.]
271 cord_individual_obj[indivial_i, :] = [21.  3. 12. 15.]
272 cord_individual_obj[indivial_i, :] = [22.  5. 22. 27.]
273 cord_individual_obj[indivial_i, :] = [23.  6. 22. 28.]
274 cord_individual_obj[indivial_i, :] = [24.  3. 4. 7.]
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.  4. 55. 59.]
282 cord_individual_obj[indivial_i, :] = [ 1.  3. 24. 27.]
283 cord_individual_obj[indivial_i, :] = [ 2.  4. 64. 68.]
284 cord_individual_obj[indivial_i, :] = [ 3.  4. 12. 16.]
285 cord_individual_obj[indivial_i, :] = [ 4.  5. 46. 51.]
286 cord_individual_obj[indivial_i, :] = [ 5.  3. 53. 56.]
287 cord_individual_obj[indivial_i, :] = [ 6.  3. 39. 42.]
288 cord_individual_obj[indivial_i, :] = [ 7.  4. 36. 40.]
289 cord_individual_obj[indivial_i, :] = [ 8.  3. 11. 14.]
290 cord_individual_obj[indivial_i, :] = [ 9.  3. 11. 14.]
291 cord_individual_obj[indivial_i, :] = [10.  4. 76. 80.]
292 cord_individual_obj[indivial_i, :] = [11.  4. 12. 16.]
293 cord_individual_obj[indivial_i, :] = [12.  5. 13. 18.]
294 cord_individual_obj[indivial_i, :] = [13.  3. 67. 70.]
295 cord_individual_obj[indivial_i, :] = [14.  3. 40. 43.]
296 cord_individual_obj[indivial_i, :] = [15.  4. 28. 32.]
297 cord_individual_obj[indivial_i, :] = [16.  5. 12. 17.]
298 cord_individual_obj[indivial_i, :] = [17.  3. 64. 67.]
299 cord_individual_obj[indivial_i, :] = [18.  3. 4. 7.]
300 cord_individual_obj[indivial_i, :] = [19.  4. 28. 32.]
301 cord_individual_obj[indivial_i, :] = [20.  4. 30. 34.]
302 cord_individual_obj[indivial_i, :] = [21.  3. 35. 38.]
303 cord_individual_obj[indivial_i, :] = [22.  4. 30. 34.]
304 cord_individual_obj[indivial_i, :] = [23.  3. 39. 42.]
305 cord_individual_obj[indivial_i, :] = [24.  3. 108. 111.]
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.  5. 6. 11.]
313 cord_individual_obj[indivial_i, :] = [ 1.  3. 4. 7.]
314 cord_individual_obj[indivial_i, :] = [ 2.  4. 28. 32.]
315 cord_individual_obj[indivial_i, :] = [ 3.  4. 3. 7.]
316 cord_individual_obj[indivial_i, :] = [ 4.  4. 22. 26.]
317 cord_individual_obj[indivial_i, :] = [ 5.  4. 14. 18.]
318 cord_individual_obj[indivial_i, :] = [ 6.  5. 76. 81.]
319 cord_individual_obj[indivial_i, :] = [ 7.  4. 22. 26.]
320 cord_individual_obj[indivial_i, :] = [ 8.  4. 16. 20.]
321 cord_individual_obj[indivial_i, :] = [ 9.  3. 76. 79.]
322 cord_individual_obj[indivial_i, :] = [10.  3. 59. 62.]
323 cord_individual_obj[indivial_i, :] = [11.  6. 13. 19.]
324 cord_individual_obj[indivial_i, :] = [12.  5. 3. 8.]
325 cord_individual_obj[indivial_i, :] = [13.  5. 32. 37.]
326 cord_individual_obj[indivial_i, :] = [14.  3. 56. 59.]
327 cord_individual_obj[indivial_i, :] = [15.  6. 51. 57.]
328 cord_individual_obj[indivial_i, :] = [16.  5. 4. 9.]
329 cord_individual_obj[indivial_i, :] = [17.  3. 23. 26.]
330 cord_individual_obj[indivial_i, :] = [18.  5. 95. 100.]
331 cord_individual_obj[indivial_i, :] = [19.  5. 41. 46.]

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332 cord_individual_obj[indivial_i,:] = [20. 5. 14. 19.]
333 cord_individual_obj[indivial_i,:] = [21. 5. 37. 42.]
334 cord_individual_obj[indivial_i,:] = [22. 4. 3. 7.]
335 cord_individual_obj[indivial_i,:] = [23. 4. 10. 14.]
336 cord_individual_obj[indivial_i,:] = [24. 3. 4. 7.]
337
338 min(cord_individual_obj[:,3]) = 7.0
339 histol_G_best_iter[iter,3] = 7.0
340 Begin iteration:
341
342 iter = 10
343 cord_individual_obj[indivial_i,:] = [ 0. 3. 23. 26.]
344 cord_individual_obj[indivial_i,:] = [ 1. 4. 54. 58.]
345 cord_individual_obj[indivial_i,:] = [2. 4. 4. 8.]
346 cord_individual_obj[indivial_i,:] = [3. 4. 5. 9.]
347 cord_individual_obj[indivial_i,:] = [4. 3. 3. 6.]
348 cord_individual_obj[indivial_i,:] = [ 5. 3. 23. 26.]
349 cord_individual_obj[indivial_i,:] = [6. 4. 5. 9.]
350 cord_individual_obj[indivial_i,:] = [ 7. 4. 12. 16.]
351 cord_individual_obj[indivial_i,:] = [ 8. 3. 12. 15.]
352 cord_individual_obj[indivial_i,:] = [ 9. 3. 11. 14.]
353 cord_individual_obj[indivial_i,:] = [10. 6. 4. 10.]
354 cord_individual_obj[indivial_i,:] = [11. 5. 13. 18.]
355 cord_individual_obj[indivial_i,:] = [12. 4. 29. 33.]
356 cord_individual_obj[indivial_i,:] = [13. 3. 36. 39.]
357 cord_individual_obj[indivial_i,:] = [14. 4. 4. 8.]
358 cord_individual_obj[indivial_i,:] = [15. 4. 4. 8.]
359 cord_individual_obj[indivial_i,:] = [16. 5. 5. 10.]
360 cord_individual_obj[indivial_i,:] = [17. 3. 4. 7.]
361 cord_individual_obj[indivial_i,:] = [18. 3. 4. 7.]
362 cord_individual_obj[indivial_i,:] = [19. 5. 6. 11.]
363 cord_individual_obj[indivial_i,:] = [20. 4. 12. 16.]
364 cord_individual_obj[indivial_i,:] = [21. 6. 12. 18.]
365 cord_individual_obj[indivial_i,:] = [22. 4. 5. 9.]
366 cord_individual_obj[indivial_i,:] = [23. 6. 12. 18.]
367 cord_individual_obj[indivial_i,:] = [24. 2. 3. 5.]
368
369 min(cord_individual_obj[:,3]) = 5.0
370 histol_G_best_iter[iter,3] = 5.0
371 Begin iteration:
372
373 iter = 11
374 cord_individual_obj[indivial_i,:] = [0. 4. 4. 8.]
375 cord_individual_obj[indivial_i,:] = [1. 2. 3. 5.]
376 cord_individual_obj[indivial_i,:] = [2. 4. 5. 9.]
377 cord_individual_obj[indivial_i,:] = [3. 3. 30. 33.]
378 cord_individual_obj[indivial_i,:] = [4. 3. 6. 9.]
379 cord_individual_obj[indivial_i,:] = [5. 4. 5. 9.]
380 cord_individual_obj[indivial_i,:] = [ 6. 4. 25. 29.]
381 cord_individual_obj[indivial_i,:] = [ 7. 4. 14. 18.]
382 cord_individual_obj[indivial_i,:] = [ 8. 4. 4. 8.]
383 cord_individual_obj[indivial_i,:] = [ 9. 3. 23. 26.]
384 cord_individual_obj[indivial_i,:] = [10. 4. 5. 9.]
385 cord_individual_obj[indivial_i,:] = [11. 4. 5. 9.]
386 cord_individual_obj[indivial_i,:] = [12. 3. 36. 39.]
387 cord_individual_obj[indivial_i,:] = [13. 4. 13. 17.]
388 cord_individual_obj[indivial_i,:] = [14. 4. 5. 9.]
389 cord_individual_obj[indivial_i,:] = [15. 4. 4. 8.]
390 cord_individual_obj[indivial_i,:] = [16. 4. 32. 36.]
391 cord_individual_obj[indivial_i,:] = [17. 4. 5. 9.]
392 cord_individual_obj[indivial_i,:] = [18. 3. 3. 6.]
393 cord_individual_obj[indivial_i,:] = [19. 3. 4. 7.]
394 cord_individual_obj[indivial_i,:] = [20. 3. 3. 6.]
395 cord_individual_obj[indivial_i,:] = [21. 4. 6. 10.]
396 cord_individual_obj[indivial_i,:] = [22. 5. 6. 11.]
397 cord_individual_obj[indivial_i,:] = [23. 3. 18. 21.]
398 cord_individual_obj[indivial_i,:] = [24. 3. 36. 39.]
399
400 min(cord_individual_obj[:,3]) = 5.0
401 histol_G_best_iter[iter,3] = 5.0
402 Begin iteration:
403
404 iter = 12
405 cord_individual_obj[indivial_i,:] = [0. 3. 4. 7.]
406 cord_individual_obj[indivial_i,:] = [ 1. 3. 22. 25.]
407 cord_individual_obj[indivial_i,:] = [2. 4. 5. 9.]
408 cord_individual_obj[indivial_i,:] = [3. 3. 4. 7.]
409 cord_individual_obj[indivial_i,:] = [4. 3. 4. 7.]
410 cord_individual_obj[indivial_i,:] = [5. 4. 5. 9.]
411 cord_individual_obj[indivial_i,:] = [ 6. 2. 47. 49.]
412 cord_individual_obj[indivial_i,:] = [ 7. 4. 24. 28.]
413 cord_individual_obj[indivial_i,:] = [ 8. 4. 4. 8.]
414 cord_individual_obj[indivial_i,:] = [ 9. 3. 5. 8.]
415 cord_individual_obj[indivial_i,:] = [10. 4. 4. 8.]

```

```

416 cord_individual_obj[indivial_i,:] = [11. 3. 5. 8.]
417 cord_individual_obj[indivial_i,:] = [12. 2. 3. 5.]
418 cord_individual_obj[indivial_i,:] = [13. 4. 13. 17.]
419 cord_individual_obj[indivial_i,:] = [14. 3. 5. 8.]
420 cord_individual_obj[indivial_i,:] = [15. 4. 4. 8.]
421 cord_individual_obj[indivial_i,:] = [16. 5. 20. 25.]
422 cord_individual_obj[indivial_i,:] = [17. 4. 4. 8.]
423 cord_individual_obj[indivial_i,:] = [18. 3. 3. 6.]
424 cord_individual_obj[indivial_i,:] = [19. 3. 4. 7.]
425 cord_individual_obj[indivial_i,:] = [20. 3. 4. 7.]
426 cord_individual_obj[indivial_i,:] = [21. 4. 36. 40.]
427 cord_individual_obj[indivial_i,:] = [22. 4. 6. 10.]
428 cord_individual_obj[indivial_i,:] = [23. 3. 4. 7.]
429 cord_individual_obj[indivial_i,:] = [24. 3. 22. 25.]
430
431 min(cord_individual_obj[:,3]) = 5.0
432 histol_G_best_iter[iter,3] = 5.0
433 Begin iteration:
434
435 iter = 13
436 cord_individual_obj[indivial_i,:] = [0. 4. 4. 8.]
437 cord_individual_obj[indivial_i,:] = [1. 3. 41. 44.]
438 cord_individual_obj[indivial_i,:] = [2. 4. 5. 9.]
439 cord_individual_obj[indivial_i,:] = [3. 4. 6. 10.]
440 cord_individual_obj[indivial_i,:] = [4. 5. 8. 13.]
441 cord_individual_obj[indivial_i,:] = [5. 4. 5. 9.]
442 cord_individual_obj[indivial_i,:] = [6. 2. 3. 5.]
443 cord_individual_obj[indivial_i,:] = [7. 4. 14. 18.]
444 cord_individual_obj[indivial_i,:] = [8. 4. 4. 8.]
445 cord_individual_obj[indivial_i,:] = [9. 3. 22. 25.]
446 cord_individual_obj[indivial_i,:] = [10. 3. 4. 7.]
447 cord_individual_obj[indivial_i,:] = [11. 4. 5. 9.]
448 cord_individual_obj[indivial_i,:] = [12. 4. 13. 17.]
449 cord_individual_obj[indivial_i,:] = [13. 3. 22. 25.]
450 cord_individual_obj[indivial_i,:] = [14. 4. 6. 10.]
451 cord_individual_obj[indivial_i,:] = [15. 4. 4. 8.]
452 cord_individual_obj[indivial_i,:] = [16. 4. 6. 10.]
453 cord_individual_obj[indivial_i,:] = [17. 4. 4. 8.]
454 cord_individual_obj[indivial_i,:] = [18. 3. 3. 6.]
455 cord_individual_obj[indivial_i,:] = [19. 5. 4. 9.]
456 cord_individual_obj[indivial_i,:] = [20. 4. 4. 8.]
457 cord_individual_obj[indivial_i,:] = [21. 4. 6. 10.]
458 cord_individual_obj[indivial_i,:] = [22. 4. 5. 9.]
459 cord_individual_obj[indivial_i,:] = [23. 4. 36. 40.]
460 cord_individual_obj[indivial_i,:] = [24. 3. 22. 25.]
461
462 min(cord_individual_obj[:,3]) = 5.0
463 histol_G_best_iter[iter,3] = 5.0
464 Begin iteration:
465
466 iter = 14
467 cord_individual_obj[indivial_i,:] = [0. 3. 22. 25.]
468 cord_individual_obj[indivial_i,:] = [1. 2. 3. 5.]
469 cord_individual_obj[indivial_i,:] = [2. 5. 22. 27.]
470 cord_individual_obj[indivial_i,:] = [3. 2. 4. 6.]
471 cord_individual_obj[indivial_i,:] = [4. 2. 4. 6.]
472 cord_individual_obj[indivial_i,:] = [5. 3. 3. 6.]
473 cord_individual_obj[indivial_i,:] = [6. 3. 64. 67.]
474 cord_individual_obj[indivial_i,:] = [7. 4. 35. 39.]
475 cord_individual_obj[indivial_i,:] = [8. 5. 55. 60.]
476 cord_individual_obj[indivial_i,:] = [9. 4. 63. 67.]
477 cord_individual_obj[indivial_i,:] = [10. 5. 35. 40.]
478 cord_individual_obj[indivial_i,:] = [11. 5. 6. 11.]
479 cord_individual_obj[indivial_i,:] = [12. 5. 12. 17.]
480 cord_individual_obj[indivial_i,:] = [13. 3. 33. 36.]
481 cord_individual_obj[indivial_i,:] = [14. 4. 6. 10.]
482 cord_individual_obj[indivial_i,:] = [15. 4. 23. 27.]
483 cord_individual_obj[indivial_i,:] = [16. 4. 4. 8.]
484 cord_individual_obj[indivial_i,:] = [17. 4. 15. 19.]
485 cord_individual_obj[indivial_i,:] = [18. 3. 5. 8.]
486 cord_individual_obj[indivial_i,:] = [19. 5. 3. 8.]
487 cord_individual_obj[indivial_i,:] = [20. 2. 47. 49.]
488 cord_individual_obj[indivial_i,:] = [21. 3. 27. 30.]
489 cord_individual_obj[indivial_i,:] = [22. 3. 74. 77.]
490 cord_individual_obj[indivial_i,:] = [23. 3. 32. 35.]
491 cord_individual_obj[indivial_i,:] = [24. 3. 43. 46.]
492
493 min(cord_individual_obj[:,3]) = 5.0
494 histol_G_best_iter[iter,3] = 5.0
495 Begin iteration:
496
497 iter = 15
498 cord_individual_obj[indivial_i,:] = [0. 4. 6. 10.]
499 cord_individual_obj[indivial_i,:] = [1. 3. 26. 29.]

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500 cord_individual_obj[indivial_i,:] = [ 2. 4. 6. 10.]
501 cord_individual_obj[indivial_i,:] = [ 3. 4. 5. 9.]
502 cord_individual_obj[indivial_i,:] = [ 4. 3. 4. 7.]
503 cord_individual_obj[indivial_i,:] = [ 5. 4. 6. 10.]
504 cord_individual_obj[indivial_i,:] = [ 6. 3. 31. 34.]
505 cord_individual_obj[indivial_i,:] = [ 7. 4. 15. 19.]
506 cord_individual_obj[indivial_i,:] = [ 8. 4. 3. 7.]
507 cord_individual_obj[indivial_i,:] = [ 9. 4. 6. 10.]
508 cord_individual_obj[indivial_i,:] = [10. 6. 5. 11.]
509 cord_individual_obj[indivial_i,:] = [11. 4. 5. 9.]
510 cord_individual_obj[indivial_i,:] = [12. 3. 13. 16.]
511 cord_individual_obj[indivial_i,:] = [13. 4. 6. 10.]
512 cord_individual_obj[indivial_i,:] = [14. 3. 5. 8.]
513 cord_individual_obj[indivial_i,:] = [15. 3. 4. 7.]
514 cord_individual_obj[indivial_i,:] = [16. 5. 5. 10.]
515 cord_individual_obj[indivial_i,:] = [17. 4. 5. 9.]
516 cord_individual_obj[indivial_i,:] = [18. 4. 5. 9.]
517 cord_individual_obj[indivial_i,:] = [19. 5. 5. 10.]
518 cord_individual_obj[indivial_i,:] = [20. 4. 4. 8.]
519 cord_individual_obj[indivial_i,:] = [21. 4. 5. 9.]
520 cord_individual_obj[indivial_i,:] = [22. 2. 3. 5.]
521 cord_individual_obj[indivial_i,:] = [23. 4. 6. 10.]
522 cord_individual_obj[indivial_i,:] = [24. 3. 5. 8.]
523
524 min(cord_individual_obj[:, 3]) = 5.0
525 histol_G_best_iter[iter, 3] = 5.0
526 Begin iteration:
527
528 iter = 16
529 cord_individual_obj[indivial_i,:] = [ 0. 3. 22. 25.]
530 cord_individual_obj[indivial_i,:] = [ 1. 3. 61. 64.]
531 cord_individual_obj[indivial_i,:] = [ 2. 4. 6. 10.]
532 cord_individual_obj[indivial_i,:] = [ 3. 4. 5. 9.]
533 cord_individual_obj[indivial_i,:] = [ 4. 3. 22. 25.]
534 cord_individual_obj[indivial_i,:] = [ 5. 3. 22. 25.]
535 cord_individual_obj[indivial_i,:] = [ 6. 2. 3. 5.]
536 cord_individual_obj[indivial_i,:] = [ 7. 3. 32. 35.]
537 cord_individual_obj[indivial_i,:] = [ 8. 5. 37. 42.]
538 cord_individual_obj[indivial_i,:] = [ 9. 4. 4. 8.]
539 cord_individual_obj[indivial_i,:] = [10. 5. 34. 39.]
540 cord_individual_obj[indivial_i,:] = [11. 4. 4. 8.]
541 cord_individual_obj[indivial_i,:] = [12. 5. 58. 63.]
542 cord_individual_obj[indivial_i,:] = [13. 2. 35. 37.]
543 cord_individual_obj[indivial_i,:] = [14. 4. 4. 8.]
544 cord_individual_obj[indivial_i,:] = [15. 4. 5. 9.]
545 cord_individual_obj[indivial_i,:] = [16. 4. 5. 9.]
546 cord_individual_obj[indivial_i,:] = [17. 4. 4. 8.]
547 cord_individual_obj[indivial_i,:] = [18. 4. 66. 70.]
548 cord_individual_obj[indivial_i,:] = [19. 4. 4. 8.]
549 cord_individual_obj[indivial_i,:] = [20. 3. 21. 24.]
550 cord_individual_obj[indivial_i,:] = [21. 4. 18. 22.]
551 cord_individual_obj[indivial_i,:] = [22. 5. 8. 13.]
552 cord_individual_obj[indivial_i,:] = [23. 4. 12. 16.]
553 cord_individual_obj[indivial_i,:] = [24. 3. 4. 7.]
554
555 min(cord_individual_obj[:, 3]) = 5.0
556 histol_G_best_iter[iter, 3] = 5.0
557 Begin iteration:
558
559 iter = 17
560 cord_individual_obj[indivial_i,:] = [ 0. 4. 9. 13.]
561 cord_individual_obj[indivial_i,:] = [ 1. 3. 41. 44.]
562 cord_individual_obj[indivial_i,:] = [ 2. 4. 24. 28.]
563 cord_individual_obj[indivial_i,:] = [ 3. 2. 30. 32.]
564 cord_individual_obj[indivial_i,:] = [ 4. 4. 5. 9.]
565 cord_individual_obj[indivial_i,:] = [ 5. 4. 24. 28.]
566 cord_individual_obj[indivial_i,:] = [ 6. 4. 17. 21.]
567 cord_individual_obj[indivial_i,:] = [ 7. 3. 23. 26.]
568 cord_individual_obj[indivial_i,:] = [ 8. 4. 4. 8.]
569 cord_individual_obj[indivial_i,:] = [ 9. 3. 36. 39.]
570 cord_individual_obj[indivial_i,:] = [10. 7. 7. 14.]
571 cord_individual_obj[indivial_i,:] = [11. 3. 4. 7.]
572 cord_individual_obj[indivial_i,:] = [12. 6. 10. 16.]
573 cord_individual_obj[indivial_i,:] = [13. 6. 20. 26.]
574 cord_individual_obj[indivial_i,:] = [14. 3. 4. 7.]
575 cord_individual_obj[indivial_i,:] = [15. 4. 4. 8.]
576 cord_individual_obj[indivial_i,:] = [16. 4. 6. 10.]
577 cord_individual_obj[indivial_i,:] = [17. 4. 4. 8.]
578 cord_individual_obj[indivial_i,:] = [18. 2. 3. 5.]
579 cord_individual_obj[indivial_i,:] = [19. 3. 4. 7.]
580 cord_individual_obj[indivial_i,:] = [20. 4. 17. 21.]
581 cord_individual_obj[indivial_i,:] = [21. 3. 5. 8.]
582 cord_individual_obj[indivial_i,:] = [22. 3. 13. 16.]
583 cord_individual_obj[indivial_i,:] = [23. 4. 24. 28.]

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unknown

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584     cord_individual_obj[indivial_i, :] = [24. 3. 23. 26.]  
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. 3. 4. 7.]  
592     cord_individual_obj[indivial_i, :] = [1. 2. 3. 5.]  
593     cord_individual_obj[indivial_i, :] = [2. 4. 5. 9.]  
594     cord_individual_obj[indivial_i, :] = [3. 3. 30. 33.]  
595     cord_individual_obj[indivial_i, :] = [4. 5. 8. 13.]  
596     cord_individual_obj[indivial_i, :] = [5. 4. 5. 9.]  
597     cord_individual_obj[indivial_i, :] = [6. 4. 25. 29.]  
598     cord_individual_obj[indivial_i, :] = [7. 4. 14. 18.]  
599     cord_individual_obj[indivial_i, :] = [8. 3. 3. 6.]  
600     cord_individual_obj[indivial_i, :] = [9. 4. 23. 27.]  
601     cord_individual_obj[indivial_i, :] = [10. 3. 3. 6.]  
602     cord_individual_obj[indivial_i, :] = [11. 4. 5. 9.]  
603     cord_individual_obj[indivial_i, :] = [12. 3. 23. 26.]  
604     cord_individual_obj[indivial_i, :] = [13. 3. 36. 39.]  
605     cord_individual_obj[indivial_i, :] = [14. 3. 5. 8.]  
606     cord_individual_obj[indivial_i, :] = [15. 4. 4. 8.]  
607     cord_individual_obj[indivial_i, :] = [16. 3. 5. 8.]  
608     cord_individual_obj[indivial_i, :] = [17. 4. 4. 8.]  
609     cord_individual_obj[indivial_i, :] = [18. 3. 3. 6.]  
610     cord_individual_obj[indivial_i, :] = [19. 4. 5. 9.]  
611     cord_individual_obj[indivial_i, :] = [20. 4. 4. 8.]  
612     cord_individual_obj[indivial_i, :] = [21. 4. 36. 40.]  
613     cord_individual_obj[indivial_i, :] = [22. 5. 8. 13.]  
614     cord_individual_obj[indivial_i, :] = [23. 3. 4. 7.]  
615     cord_individual_obj[indivial_i, :] = [24. 3. 22. 25.]  
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. 3. 4. 7.]  
623     cord_individual_obj[indivial_i, :] = [1. 4. 25. 29.]  
624     cord_individual_obj[indivial_i, :] = [2. 4. 23. 27.]  
625     cord_individual_obj[indivial_i, :] = [3. 2. 4. 6.]  
626     cord_individual_obj[indivial_i, :] = [4. 4. 25. 29.]  
627     cord_individual_obj[indivial_i, :] = [5. 3. 4. 7.]  
628     cord_individual_obj[indivial_i, :] = [6. 5. 5. 10.]  
629     cord_individual_obj[indivial_i, :] = [7. 3. 21. 24.]  
630     cord_individual_obj[indivial_i, :] = [8. 5. 55. 60.]  
631     cord_individual_obj[indivial_i, :] = [9. 3. 76. 79.]  
632     cord_individual_obj[indivial_i, :] = [10. 7. 7. 14.]  
633     cord_individual_obj[indivial_i, :] = [11. 4. 6. 10.]  
634     cord_individual_obj[indivial_i, :] = [12. 5. 5. 10.]  
635     cord_individual_obj[indivial_i, :] = [13. 3. 20. 23.]  
636     cord_individual_obj[indivial_i, :] = [14. 5. 6. 11.]  
637     cord_individual_obj[indivial_i, :] = [15. 4. 12. 16.]  
638     cord_individual_obj[indivial_i, :] = [16. 3. 3. 6.]  
639     cord_individual_obj[indivial_i, :] = [17. 5. 5. 10.]  
640     cord_individual_obj[indivial_i, :] = [18. 4. 5. 9.]  
641     cord_individual_obj[indivial_i, :] = [19. 4. 5. 9.]  
642     cord_individual_obj[indivial_i, :] = [20. 5. 60. 65.]  
643     cord_individual_obj[indivial_i, :] = [21. 2. 3. 5.]  
644     cord_individual_obj[indivial_i, :] = [22. 4. 13. 17.]  
645     cord_individual_obj[indivial_i, :] = [23. 4. 20. 24.]  
646     cord_individual_obj[indivial_i, :] = [24. 4. 4. 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. 14. 18.]  
654     cord_individual_obj[indivial_i, :] = [1. 3. 40. 43.]  
655     cord_individual_obj[indivial_i, :] = [2. 4. 5. 9.]  
656     cord_individual_obj[indivial_i, :] = [3. 4. 6. 10.]  
657     cord_individual_obj[indivial_i, :] = [4. 5. 20. 25.]  
658     cord_individual_obj[indivial_i, :] = [5. 4. 4. 8.]  
659     cord_individual_obj[indivial_i, :] = [6. 2. 59. 61.]  
660     cord_individual_obj[indivial_i, :] = [7. 4. 24. 28.]  
661     cord_individual_obj[indivial_i, :] = [8. 5. 5. 10.]  
662     cord_individual_obj[indivial_i, :] = [9. 2. 3. 5.]  
663     cord_individual_obj[indivial_i, :] = [10. 4. 5. 9.]  
664     cord_individual_obj[indivial_i, :] = [11. 4. 6. 10.]  
665     cord_individual_obj[indivial_i, :] = [12. 4. 13. 17.]  
666     cord_individual_obj[indivial_i, :] = [13. 3. 22. 25.]  
667     cord_individual_obj[indivial_i, :] = [14. 4. 5. 9.]
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668 cord_individual_obj[indivial_i, :] = [15. 4. 14. 18.]
669 cord_individual_obj[indivial_i, :] = [16. 4. 5. 9.]
670 cord_individual_obj[indivial_i, :] = [17. 4. 4. 8.]
671 cord_individual_obj[indivial_i, :] = [18. 3. 3. 6.]
672 cord_individual_obj[indivial_i, :] = [19. 5. 5. 10.]
673 cord_individual_obj[indivial_i, :] = [20. 3. 35. 38.]
674 cord_individual_obj[indivial_i, :] = [21. 4. 6. 10.]
675 cord_individual_obj[indivial_i, :] = [22. 4. 40. 44.]
676 cord_individual_obj[indivial_i, :] = [23. 4. 11. 15.]
677 cord_individual_obj[indivial_i, :] = [24. 3. 23. 26.]
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 = 87.0
689 Proportion_of_area = 0.08055555555555556
690 BEST_CHROM =
691     berth: [ 6.5 17. 12. 2.5 24.5 17.5 11. ]
692     time: [0. 0. 2. 0. 0. 1. 0.]
693     num_QC: [2. 5. 3. 3. 3. 3. 2.]
694 Objective function values and some other indicators:
695 Obj0 = 2.00          Obj1 = 3.00          Obj0 + Obj1 = 5.00
696 Total movement of crane: 0.00
697 Total waiting time in berth position: 3.00
698 Total index of q during berthing: 444.00
699 Specific arrangement for each vessel:
700 V_id: 0      li: 3.0      xi: 6.5      bow of i: 5.0      tail of i: 8.0      gama_i0: 0.0      gama_i1: 2.0
701 .0          gama_i1 + 1: 3.0      gama_i1 - gama_i0: 2.0      duration_time_i: 3.0      demand_i: 100.0      work load_i:
702 V_id: 1      li: 6.0      xi: 17.0      bow of i: 14.0      tail of i: 20.0      gama_i0: 0.0      gama_i1: 0
703 .0          gama_i1 + 1: 1.0      gama_i1 - gama_i0: 0.0      duration_time_i: 1.0      demand_i: 100.0      work
704 load_i: 100.0      work load gap_i: 0
705 V_id: 2      li: 8.0      xi: 12.0      bow of i: 8.0      tail of i: 16.0      gama_i0: 2.0      gama_i1: 2
706 .0          gama_i1 + 1: 3.0      gama_i1 - gama_i0: 0.0      duration_time_i: 1.0      demand_i: 60.0      work
707 load_i: 60.0      work load gap_i: 0
708 V_id: 3      li: 5.0      xi: 2.5      bow of i: 0.0      tail of i: 5.0      gama_i0: 0.0      gama_i1: 2.0
709 .0          gama_i1 + 1: 3.0      gama_i1 - gama_i0: 2.0      duration_time_i: 3.0      demand_i: 160.0      work load_i:
710 load_i: 160.0      work load gap_i: 0
711 V_id: 4      li: 9.0      xi: 24.5      bow of i: 20.0      tail of i: 29.0      gama_i0: 0.0      gama_i1: 2
712 .0          gama_i1 + 1: 3.0      gama_i1 - gama_i0: 2.0      duration_time_i: 3.0      demand_i: 160.0      work
713 load_i: 120.0      work load gap_i: 0
714 V_id: 5      li: 3.0      xi: 17.5      bow of i: 16.0      tail of i: 19.0      gama_i0: 1.0      gama_i1: 2
715 .0          gama_i1 + 1: 3.0      gama_i1 - gama_i0: 1.0      duration_time_i: 2.0      demand_i: 120.0      work
716 load_i: 80.0      work load gap_i: 0
717
718 Algorithm finished and the total CPU time: 196 s
719 End
720

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