

unknown

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80 cord_individual_obj[indivial_i,:] = [16. 4. 87. 91.]
81 cord_individual_obj[indivial_i,:] = [17. 5. 58. 63.]
82 cord_individual_obj[indivial_i,:] = [18. 5. 42. 47.]
83 cord_individual_obj[indivial_i,:] = [19. 4. 42. 46.]
84 cord_individual_obj[indivial_i,:] = [20. 7. 79. 86.]
85 cord_individual_obj[indivial_i,:] = [21. 4. 31. 35.]
86 cord_individual_obj[indivial_i,:] = [22. 2. 68. 70.]
87 cord_individual_obj[indivial_i,:] = [23. 4. 44. 48.]
88 cord_individual_obj[indivial_i,:] = [24. 4. 24. 28.]
89
90 min(cord_individual_obj[:,3]) = 22.0
91 historl_G_best_iter[iter, 3] = 22.0
92 Begin iteration:
93
94 iter = 2
95 cord_individual_obj[indivial_i,:] = [ 0. 6. 59. 65.]
96 cord_individual_obj[indivial_i,:] = [ 1. 5. 68. 73.]
97 cord_individual_obj[indivial_i,:] = [ 2. 5. 27. 32.]
98 cord_individual_obj[indivial_i,:] = [ 3. 8. 41. 49.]
99 cord_individual_obj[indivial_i,:] = [ 4. 5. 57. 62.]
100 cord_individual_obj[indivial_i,:] = [ 5. 4. 48. 52.]
101 cord_individual_obj[indivial_i,:] = [ 6. 6. 46. 52.]
102 cord_individual_obj[indivial_i,:] = [ 7. 6. 18. 24.]
103 cord_individual_obj[indivial_i,:] = [ 8. 5. 58. 63.]
104 cord_individual_obj[indivial_i,:] = [ 9. 4. 37. 41.]
105 cord_individual_obj[indivial_i,:] = [10. 6. 35. 41.]
106 cord_individual_obj[indivial_i,:] = [11. 5. 59. 64.]
107 cord_individual_obj[indivial_i,:] = [12. 4. 18. 22.]
108 cord_individual_obj[indivial_i,:] = [13. 5. 15. 20.]
109 cord_individual_obj[indivial_i,:] = [14. 5. 26. 31.]
110 cord_individual_obj[indivial_i,:] = [15. 6. 31. 37.]
111 cord_individual_obj[indivial_i,:] = [16. 4. 26. 30.]
112 cord_individual_obj[indivial_i,:] = [17. 7. 25. 32.]
113 cord_individual_obj[indivial_i,:] = [18. 4. 57. 61.]
114 cord_individual_obj[indivial_i,:] = [19. 5. 81. 86.]
115 cord_individual_obj[indivial_i,:] = [20. 5. 61. 66.]
116 cord_individual_obj[indivial_i,:] = [21. 7. 75. 82.]
117 cord_individual_obj[indivial_i,:] = [22. 4. 35. 39.]
118 cord_individual_obj[indivial_i,:] = [23. 6. 57. 63.]
119 cord_individual_obj[indivial_i,:] = [24. 5. 19. 24.]
120
121 min(cord_individual_obj[:,3]) = 20.0
122 historl_G_best_iter[iter, 3] = 20.0
123 Begin iteration:
124
125 iter = 3
126 cord_individual_obj[indivial_i,:] = [ 0. 5. 10. 15.]
127 cord_individual_obj[indivial_i,:] = [ 1. 4. 49. 53.]
128 cord_individual_obj[indivial_i,:] = [ 2. 6. 28. 34.]
129 cord_individual_obj[indivial_i,:] = [ 3. 5. 70. 75.]
130 cord_individual_obj[indivial_i,:] = [ 4. 4. 16. 20.]
131 cord_individual_obj[indivial_i,:] = [ 5. 4. 58. 62.]
132 cord_individual_obj[indivial_i,:] = [ 6. 5. 71. 76.]
133 cord_individual_obj[indivial_i,:] = [ 7. 5. 35. 40.]
134 cord_individual_obj[indivial_i,:] = [ 8. 4. 29. 33.]
135 cord_individual_obj[indivial_i,:] = [ 9. 5. 32. 37.]
136 cord_individual_obj[indivial_i,:] = [10. 4. 17. 21.]
137 cord_individual_obj[indivial_i,:] = [11. 5. 37. 42.]
138 cord_individual_obj[indivial_i,:] = [12. 5. 35. 40.]
139 cord_individual_obj[indivial_i,:] = [13. 5. 70. 75.]
140 cord_individual_obj[indivial_i,:] = [14. 3. 43. 46.]
141 cord_individual_obj[indivial_i,:] = [15. 4. 28. 32.]
142 cord_individual_obj[indivial_i,:] = [16. 5. 59. 64.]
143 cord_individual_obj[indivial_i,:] = [17. 3. 66. 69.]
144 cord_individual_obj[indivial_i,:] = [18. 5. 22. 27.]
145 cord_individual_obj[indivial_i,:] = [19. 5. 15. 20.]
146 cord_individual_obj[indivial_i,:] = [20. 4. 59. 63.]
147 cord_individual_obj[indivial_i,:] = [21. 6. 45. 51.]
148 cord_individual_obj[indivial_i,:] = [22. 5. 66. 71.]
149 cord_individual_obj[indivial_i,:] = [23. 7. 43. 50.]
150 cord_individual_obj[indivial_i,:] = [24. 4. 61. 65.]
151
152 min(cord_individual_obj[:,3]) = 15.0
153 historl_G_best_iter[iter, 3] = 15.0
154 Begin iteration:
155
156 iter = 4
157 cord_individual_obj[indivial_i,:] = [ 0. 5. 87. 92.]
158 cord_individual_obj[indivial_i,:] = [ 1. 5. 43. 48.]
159 cord_individual_obj[indivial_i,:] = [ 2. 5. 64. 69.]
160 cord_individual_obj[indivial_i,:] = [ 3. 5. 30. 35.]
161 cord_individual_obj[indivial_i,:] = [ 4. 5. 33. 38.]
162 cord_individual_obj[indivial_i,:] = [ 5. 6. 79. 85.]
163 cord_individual_obj[indivial_i,:] = [ 6. 5. 10. 15.]

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164 cord_individual_obj[indivial_i, :] = [ 7. 5. 26. 31.]
165 cord_individual_obj[indivial_i, :] = [ 8. 5. 59. 64.]
166 cord_individual_obj[indivial_i, :] = [ 9. 6. 64. 70.]
167 cord_individual_obj[indivial_i, :] = [10. 3. 36. 39.]
168 cord_individual_obj[indivial_i, :] = [11. 5. 30. 35.]
169 cord_individual_obj[indivial_i, :] = [12. 3. 72. 75.]
170 cord_individual_obj[indivial_i, :] = [13. 5. 47. 52.]
171 cord_individual_obj[indivial_i, :] = [14. 5. 63. 68.]
172 cord_individual_obj[indivial_i, :] = [15. 6. 71. 77.]
173 cord_individual_obj[indivial_i, :] = [16. 3. 55. 58.]
174 cord_individual_obj[indivial_i, :] = [17. 7. 65. 72.]
175 cord_individual_obj[indivial_i, :] = [18. 4. 63. 67.]
176 cord_individual_obj[indivial_i, :] = [19. 3. 53. 56.]
177 cord_individual_obj[indivial_i, :] = [20. 7. 68. 75.]
178 cord_individual_obj[indivial_i, :] = [21. 6. 36. 42.]
179 cord_individual_obj[indivial_i, :] = [22. 5. 26. 31.]
180 cord_individual_obj[indivial_i, :] = [23. 6. 38. 44.]
181 cord_individual_obj[indivial_i, :] = [24. 4. 115. 119.]
182
183 min(cord_individual_obj[:, 3]) = 15.0
184 historl_G_best_iter[iter, 3] = 15.0
185 Begin iteration:
186
187 iter = 5
188 cord_individual_obj[indivial_i, :] = [ 0. 8. 99. 107.]
189 cord_individual_obj[indivial_i, :] = [ 1. 4. 20. 24.]
190 cord_individual_obj[indivial_i, :] = [ 2. 4. 91. 95.]
191 cord_individual_obj[indivial_i, :] = [ 3. 4. 35. 39.]
192 cord_individual_obj[indivial_i, :] = [ 4. 7. 21. 28.]
193 cord_individual_obj[indivial_i, :] = [ 5. 6. 88. 94.]
194 cord_individual_obj[indivial_i, :] = [ 6. 5. 91. 96.]
195 cord_individual_obj[indivial_i, :] = [ 7. 6. 57. 63.]
196 cord_individual_obj[indivial_i, :] = [ 8. 7. 70. 77.]
197 cord_individual_obj[indivial_i, :] = [ 9. 4. 55. 59.]
198 cord_individual_obj[indivial_i, :] = [10. 5. 11. 16.]
199 cord_individual_obj[indivial_i, :] = [11. 7. 70. 77.]
200 cord_individual_obj[indivial_i, :] = [12. 5. 54. 59.]
201 cord_individual_obj[indivial_i, :] = [13. 8. 64. 72.]
202 cord_individual_obj[indivial_i, :] = [14. 5. 23. 28.]
203 cord_individual_obj[indivial_i, :] = [15. 4. 44. 48.]
204 cord_individual_obj[indivial_i, :] = [16. 5. 53. 58.]
205 cord_individual_obj[indivial_i, :] = [17. 5. 72. 77.]
206 cord_individual_obj[indivial_i, :] = [18. 5. 21. 26.]
207 cord_individual_obj[indivial_i, :] = [19. 4. 67. 71.]
208 cord_individual_obj[indivial_i, :] = [20. 4. 35. 39.]
209 cord_individual_obj[indivial_i, :] = [21. 6. 69. 75.]
210 cord_individual_obj[indivial_i, :] = [22. 6. 45. 51.]
211 cord_individual_obj[indivial_i, :] = [23. 4. 63. 67.]
212 cord_individual_obj[indivial_i, :] = [24. 5. 10. 15.]
213
214 min(cord_individual_obj[:, 3]) = 15.0
215 historl_G_best_iter[iter, 3] = 15.0
216 Begin iteration:
217
218 iter = 6
219 cord_individual_obj[indivial_i, :] = [ 0. 5. 10. 15.]
220 cord_individual_obj[indivial_i, :] = [ 1. 5. 38. 43.]
221 cord_individual_obj[indivial_i, :] = [ 2. 5. 38. 43.]
222 cord_individual_obj[indivial_i, :] = [ 3. 6. 22. 28.]
223 cord_individual_obj[indivial_i, :] = [ 4. 6. 38. 44.]
224 cord_individual_obj[indivial_i, :] = [ 5. 4. 21. 25.]
225 cord_individual_obj[indivial_i, :] = [ 6. 6. 64. 70.]
226 cord_individual_obj[indivial_i, :] = [ 7. 4. 53. 57.]
227 cord_individual_obj[indivial_i, :] = [ 8. 5. 67. 72.]
228 cord_individual_obj[indivial_i, :] = [ 9. 3. 43. 46.]
229 cord_individual_obj[indivial_i, :] = [10. 6. 52. 58.]
230 cord_individual_obj[indivial_i, :] = [11. 6. 58. 64.]
231 cord_individual_obj[indivial_i, :] = [12. 5. 74. 79.]
232 cord_individual_obj[indivial_i, :] = [13. 5. 49. 54.]
233 cord_individual_obj[indivial_i, :] = [14. 7. 52. 59.]
234 cord_individual_obj[indivial_i, :] = [15. 5. 52. 57.]
235 cord_individual_obj[indivial_i, :] = [16. 4. 95. 99.]
236 cord_individual_obj[indivial_i, :] = [17. 6. 19. 25.]
237 cord_individual_obj[indivial_i, :] = [18. 5. 83. 88.]
238 cord_individual_obj[indivial_i, :] = [19. 5. 78. 83.]
239 cord_individual_obj[indivial_i, :] = [20. 6. 19. 25.]
240 cord_individual_obj[indivial_i, :] = [21. 5. 11. 16.]
241 cord_individual_obj[indivial_i, :] = [22. 6. 39. 45.]
242 cord_individual_obj[indivial_i, :] = [23. 5. 10. 15.]
243 cord_individual_obj[indivial_i, :] = [24. 5. 99. 104.]
244
245 min(cord_individual_obj[:, 3]) = 15.0
246 historl_G_best_iter[iter, 3] = 15.0
247 Begin iteration:

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248
249 iter = 7
250 cord_individual_obj[indivial_i, :] = [ 0.  5. 87. 92.]
251 cord_individual_obj[indivial_i, :] = [ 1.  6. 31. 37.]
252 cord_individual_obj[indivial_i, :] = [ 2.  4. 60. 64.]
253 cord_individual_obj[indivial_i, :] = [ 3.  4. 36. 40.]
254 cord_individual_obj[indivial_i, :] = [ 4.  6. 29. 35.]
255 cord_individual_obj[indivial_i, :] = [ 5.  5. 63. 68.]
256 cord_individual_obj[indivial_i, :] = [ 6.  6. 115. 121.]
257 cord_individual_obj[indivial_i, :] = [ 7.  5. 20. 25.]
258 cord_individual_obj[indivial_i, :] = [ 8.  5. 47. 52.]
259 cord_individual_obj[indivial_i, :] = [ 9.  5. 50. 55.]
260 cord_individual_obj[indivial_i, :] = [10.  5. 21. 26.]
261 cord_individual_obj[indivial_i, :] = [11.  6. 51. 57.]
262 cord_individual_obj[indivial_i, :] = [12.  4. 57. 61.]
263 cord_individual_obj[indivial_i, :] = [13.  6. 24. 30.]
264 cord_individual_obj[indivial_i, :] = [14.  5. 20. 25.]
265 cord_individual_obj[indivial_i, :] = [15.  6. 37. 43.]
266 cord_individual_obj[indivial_i, :] = [16.  4. 121. 125.]
267 cord_individual_obj[indivial_i, :] = [17.  4. 26. 30.]
268 cord_individual_obj[indivial_i, :] = [18.  5. 85. 90.]
269 cord_individual_obj[indivial_i, :] = [19.  3. 15. 18.]
270 cord_individual_obj[indivial_i, :] = [20.  5. 47. 52.]
271 cord_individual_obj[indivial_i, :] = [21.  7. 45. 52.]
272 cord_individual_obj[indivial_i, :] = [22.  5. 20. 25.]
273 cord_individual_obj[indivial_i, :] = [23.  4. 62. 66.]
274 cord_individual_obj[indivial_i, :] = [24.  5. 10. 15.]
275

276 min(cord_individual_obj[:, 3]) = 15.0
277 historl_G_best_iter[iter, 3] = 15.0
278 Begin iteration:
279
280 iter = 8
281 cord_individual_obj[indivial_i, :] = [ 0.  8. 99. 107.]
282 cord_individual_obj[indivial_i, :] = [ 1.  5. 58. 63.]
283 cord_individual_obj[indivial_i, :] = [ 2.  5. 58. 63.]
284 cord_individual_obj[indivial_i, :] = [ 3.  6. 30. 36.]
285 cord_individual_obj[indivial_i, :] = [ 4.  5. 23. 28.]
286 cord_individual_obj[indivial_i, :] = [ 5.  6. 93. 99.]
287 cord_individual_obj[indivial_i, :] = [ 6.  4. 65. 69.]
288 cord_individual_obj[indivial_i, :] = [ 7.  5. 56. 61.]
289 cord_individual_obj[indivial_i, :] = [ 8.  5. 80. 85.]
290 cord_individual_obj[indivial_i, :] = [ 9.  4. 10. 14.]
291 cord_individual_obj[indivial_i, :] = [10.  4. 11. 15.]
292 cord_individual_obj[indivial_i, :] = [11.  5. 43. 48.]
293 cord_individual_obj[indivial_i, :] = [12.  4. 65. 69.]
294 cord_individual_obj[indivial_i, :] = [13.  6. 68. 74.]
295 cord_individual_obj[indivial_i, :] = [14.  5. 13. 18.]
296 cord_individual_obj[indivial_i, :] = [15.  6. 68. 74.]
297 cord_individual_obj[indivial_i, :] = [16.  5. 10. 15.]
298 cord_individual_obj[indivial_i, :] = [17.  4. 65. 69.]
299 cord_individual_obj[indivial_i, :] = [18.  5. 57. 62.]
300 cord_individual_obj[indivial_i, :] = [19.  5. 68. 73.]
301 cord_individual_obj[indivial_i, :] = [20.  5. 9. 14.]
302 cord_individual_obj[indivial_i, :] = [21.  5. 12. 17.]
303 cord_individual_obj[indivial_i, :] = [22.  6. 21. 27.]
304 cord_individual_obj[indivial_i, :] = [23.  4. 10. 14.]
305 cord_individual_obj[indivial_i, :] = [24.  5. 83. 88.]
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.  4. 10. 14.]
313 cord_individual_obj[indivial_i, :] = [ 1.  6. 20. 26.]
314 cord_individual_obj[indivial_i, :] = [ 2.  5. 38. 43.]
315 cord_individual_obj[indivial_i, :] = [ 3.  4. 50. 54.]
316 cord_individual_obj[indivial_i, :] = [ 4.  5. 29. 34.]
317 cord_individual_obj[indivial_i, :] = [ 5.  5. 38. 43.]
318 cord_individual_obj[indivial_i, :] = [ 6.  5. 133. 138.]
319 cord_individual_obj[indivial_i, :] = [ 7.  5. 17. 22.]
320 cord_individual_obj[indivial_i, :] = [ 8.  5. 17. 22.]
321 cord_individual_obj[indivial_i, :] = [ 9.  3. 26. 29.]
322 cord_individual_obj[indivial_i, :] = [10.  5. 39. 44.]
323 cord_individual_obj[indivial_i, :] = [11.  5. 27. 32.]
324 cord_individual_obj[indivial_i, :] = [12.  3. 8. 11.]
325 cord_individual_obj[indivial_i, :] = [13.  3. 43. 46.]
326 cord_individual_obj[indivial_i, :] = [14.  5. 13. 18.]
327 cord_individual_obj[indivial_i, :] = [15.  4. 17. 21.]
328 cord_individual_obj[indivial_i, :] = [16.  5. 140. 145.]
329 cord_individual_obj[indivial_i, :] = [17.  5. 30. 35.]
330 cord_individual_obj[indivial_i, :] = [18.  3. 48. 51.]
331 cord_individual_obj[indivial_i, :] = [19.  4. 59. 63.]

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332 cord_individual_obj[indivial_i, :] = [20. 4. 28. 32.]
333 cord_individual_obj[indivial_i, :] = [21. 5. 30. 35.]
334 cord_individual_obj[indivial_i, :] = [22. 3. 38. 41.]
335 cord_individual_obj[indivial_i, :] = [23. 3. 17. 20.]
336 cord_individual_obj[indivial_i, :] = [24. 5. 17. 22.]
337
338 min(cord_individual_obj[:, 3]) = 11.0
339 histol_G_best_iter[iter, 3] = 11.0
340 Begin iteration:
341
342 iter = 10
343 cord_individual_obj[indivial_i, :] = [ 0. 7. 104. 111.]
344 cord_individual_obj[indivial_i, :] = [ 1. 5. 44. 49.]
345 cord_individual_obj[indivial_i, :] = [ 2. 4. 74. 78.]
346 cord_individual_obj[indivial_i, :] = [ 3. 5. 27. 32.]
347 cord_individual_obj[indivial_i, :] = [ 4. 6. 65. 71.]
348 cord_individual_obj[indivial_i, :] = [ 5. 4. 79. 83.]
349 cord_individual_obj[indivial_i, :] = [ 6. 6. 64. 70.]
350 cord_individual_obj[indivial_i, :] = [ 7. 6. 42. 48.]
351 cord_individual_obj[indivial_i, :] = [ 8. 4. 80. 84.]
352 cord_individual_obj[indivial_i, :] = [ 9. 5. 57. 62.]
353 cord_individual_obj[indivial_i, :] = [10. 5. 7. 12.]
354 cord_individual_obj[indivial_i, :] = [11. 4. 10. 14.]
355 cord_individual_obj[indivial_i, :] = [12. 4. 56. 60.]
356 cord_individual_obj[indivial_i, :] = [13. 7. 55. 62.]
357 cord_individual_obj[indivial_i, :] = [14. 4. 137. 141.]
358 cord_individual_obj[indivial_i, :] = [15. 6. 23. 29.]
359 cord_individual_obj[indivial_i, :] = [16. 3. 8. 11.]
360 cord_individual_obj[indivial_i, :] = [17. 5. 72. 77.]
361 cord_individual_obj[indivial_i, :] = [18. 4. 35. 39.]
362 cord_individual_obj[indivial_i, :] = [19. 3. 65. 68.]
363 cord_individual_obj[indivial_i, :] = [20. 6. 28. 34.]
364 cord_individual_obj[indivial_i, :] = [21. 5. 8. 13.]
365 cord_individual_obj[indivial_i, :] = [22. 6. 93. 99.]
366 cord_individual_obj[indivial_i, :] = [23. 5. 82. 87.]
367 cord_individual_obj[indivial_i, :] = [24. 4. 55. 59.]
368
369 min(cord_individual_obj[:, 3]) = 11.0
370 histol_G_best_iter[iter, 3] = 11.0
371 Begin iteration:
372
373 iter = 11
374 cord_individual_obj[indivial_i, :] = [ 0. 3. 8. 11.]
375 cord_individual_obj[indivial_i, :] = [ 1. 4. 41. 45.]
376 cord_individual_obj[indivial_i, :] = [ 2. 4. 85. 89.]
377 cord_individual_obj[indivial_i, :] = [ 3. 3. 51. 54.]
378 cord_individual_obj[indivial_i, :] = [ 4. 5. 48. 53.]
379 cord_individual_obj[indivial_i, :] = [ 5. 4. 39. 43.]
380 cord_individual_obj[indivial_i, :] = [ 6. 6. 72. 78.]
381 cord_individual_obj[indivial_i, :] = [ 7. 5. 41. 46.]
382 cord_individual_obj[indivial_i, :] = [ 8. 4. 17. 21.]
383 cord_individual_obj[indivial_i, :] = [ 9. 3. 90. 93.]
384 cord_individual_obj[indivial_i, :] = [10. 3. 46. 49.]
385 cord_individual_obj[indivial_i, :] = [11. 7. 34. 41.]
386 cord_individual_obj[indivial_i, :] = [12. 3. 45. 48.]
387 cord_individual_obj[indivial_i, :] = [13. 4. 38. 42.]
388 cord_individual_obj[indivial_i, :] = [14. 3. 8. 11.]
389 cord_individual_obj[indivial_i, :] = [15. 4. 55. 59.]
390 cord_individual_obj[indivial_i, :] = [16. 3. 84. 87.]
391 cord_individual_obj[indivial_i, :] = [17. 4. 51. 55.]
392 cord_individual_obj[indivial_i, :] = [18. 4. 49. 53.]
393 cord_individual_obj[indivial_i, :] = [19. 3. 47. 50.]
394 cord_individual_obj[indivial_i, :] = [20. 4. 10. 14.]
395 cord_individual_obj[indivial_i, :] = [21. 4. 16. 20.]
396 cord_individual_obj[indivial_i, :] = [22. 3. 63. 66.]
397 cord_individual_obj[indivial_i, :] = [23. 6. 47. 53.]
398 cord_individual_obj[indivial_i, :] = [24. 4. 71. 75.]
399
400 min(cord_individual_obj[:, 3]) = 11.0
401 histol_G_best_iter[iter, 3] = 11.0
402 Begin iteration:
403
404 iter = 12
405 cord_individual_obj[indivial_i, :] = [ 0. 3. 39. 42.]
406 cord_individual_obj[indivial_i, :] = [ 1. 4. 46. 50.]
407 cord_individual_obj[indivial_i, :] = [ 2. 5. 22. 27.]
408 cord_individual_obj[indivial_i, :] = [ 3. 5. 39. 44.]
409 cord_individual_obj[indivial_i, :] = [ 4. 5. 27. 32.]
410 cord_individual_obj[indivial_i, :] = [ 5. 4. 37. 41.]
411 cord_individual_obj[indivial_i, :] = [ 6. 6. 10. 16.]
412 cord_individual_obj[indivial_i, :] = [ 7. 4. 36. 40.]
413 cord_individual_obj[indivial_i, :] = [ 8. 4. 19. 23.]
414 cord_individual_obj[indivial_i, :] = [ 9. 3. 8. 11.]
415 cord_individual_obj[indivial_i, :] = [10. 5. 42. 47.]

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416 cord_individual_obj[indivial_i,:] = [ 11. 7. 124. 131.]
417 cord_individual_obj[indivial_i,:] = [12. 4. 36. 40.]
418 cord_individual_obj[indivial_i,:] = [13. 4. 22. 26.]
419 cord_individual_obj[indivial_i,:] = [ 14. 5. 105. 110.]
420 cord_individual_obj[indivial_i,:] = [15. 5. 20. 25.]
421 cord_individual_obj[indivial_i,:] = [16. 4. 56. 60.]
422 cord_individual_obj[indivial_i,:] = [17. 6. 54. 60.]
423 cord_individual_obj[indivial_i,:] = [18. 4. 58. 62.]
424 cord_individual_obj[indivial_i,:] = [19. 3. 8. 11.]
425 cord_individual_obj[indivial_i,:] = [20. 6. 33. 39.]
426 cord_individual_obj[indivial_i,:] = [21. 6. 11. 17.]
427 cord_individual_obj[indivial_i,:] = [22. 5. 34. 39.]
428 cord_individual_obj[indivial_i,:] = [23. 6. 46. 52.]
429 cord_individual_obj[indivial_i,:] = [ 24. 4. 106. 110.]
430
431 min(cord_individual_obj[:,3]) = 11.0
432 histol_G_best_iter[iter,3] = 11.0
433 Begin iteration:
434
435 iter = 13
436 cord_individual_obj[indivial_i,:] = [ 0. 3. 39. 42.]
437 cord_individual_obj[indivial_i,:] = [ 1. 5. 19. 24.]
438 cord_individual_obj[indivial_i,:] = [ 2. 5. 26. 31.]
439 cord_individual_obj[indivial_i,:] = [ 3. 5. 75. 80.]
440 cord_individual_obj[indivial_i,:] = [ 4. 5. 39. 44.]
441 cord_individual_obj[indivial_i,:] = [ 5. 4. 85. 89.]
442 cord_individual_obj[indivial_i,:] = [ 6. 4. 28. 32.]
443 cord_individual_obj[indivial_i,:] = [ 7. 6. 56. 62.]
444 cord_individual_obj[indivial_i,:] = [ 8. 6. 93. 99.]
445 cord_individual_obj[indivial_i,:] = [ 9. 5. 33. 38.]
446 cord_individual_obj[indivial_i,:] = [10. 5. 55. 60.]
447 cord_individual_obj[indivial_i,:] = [11. 3. 8. 11.]
448 cord_individual_obj[indivial_i,:] = [12. 6. 53. 59.]
449 cord_individual_obj[indivial_i,:] = [13. 4. 22. 26.]
450 cord_individual_obj[indivial_i,:] = [14. 6. 28. 34.]
451 cord_individual_obj[indivial_i,:] = [15. 6. 26. 32.]
452 cord_individual_obj[indivial_i,:] = [16. 5. 105. 110.]
453 cord_individual_obj[indivial_i,:] = [17. 5. 55. 60.]
454 cord_individual_obj[indivial_i,:] = [18. 3. 33. 36.]
455 cord_individual_obj[indivial_i,:] = [19. 4. 92. 96.]
456 cord_individual_obj[indivial_i,:] = [20. 3. 53. 56.]
457 cord_individual_obj[indivial_i,:] = [21. 6. 25. 31.]
458 cord_individual_obj[indivial_i,:] = [22. 3. 57. 60.]
459 cord_individual_obj[indivial_i,:] = [23. 5. 9. 14.]
460 cord_individual_obj[indivial_i,:] = [24. 4. 59. 63.]
461
462 min(cord_individual_obj[:,3]) = 11.0
463 histol_G_best_iter[iter,3] = 11.0
464 Begin iteration:
465
466 iter = 14
467 cord_individual_obj[indivial_i,:] = [ 0. 3. 83. 86.]
468 cord_individual_obj[indivial_i,:] = [ 1. 4. 59. 63.]
469 cord_individual_obj[indivial_i,:] = [ 2. 6. 60. 66.]
470 cord_individual_obj[indivial_i,:] = [ 3. 7. 56. 63.]
471 cord_individual_obj[indivial_i,:] = [ 4. 6. 23. 29.]
472 cord_individual_obj[indivial_i,:] = [ 5. 3. 81. 84.]
473 cord_individual_obj[indivial_i,:] = [ 6. 3. 70. 73.]
474 cord_individual_obj[indivial_i,:] = [ 7. 6. 55. 61.]
475 cord_individual_obj[indivial_i,:] = [ 8. 5. 31. 36.]
476 cord_individual_obj[indivial_i,:] = [ 9. 3. 30. 33.]
477 cord_individual_obj[indivial_i,:] = [10. 6. 48. 54.]
478 cord_individual_obj[indivial_i,:] = [11. 4. 65. 69.]
479 cord_individual_obj[indivial_i,:] = [12. 6. 69. 75.]
480 cord_individual_obj[indivial_i,:] = [13. 5. 86. 91.]
481 cord_individual_obj[indivial_i,:] = [14. 4. 78. 82.]
482 cord_individual_obj[indivial_i,:] = [15. 6. 29. 35.]
483 cord_individual_obj[indivial_i,:] = [16. 3. 8. 11.]
484 cord_individual_obj[indivial_i,:] = [17. 5. 36. 41.]
485 cord_individual_obj[indivial_i,:] = [18. 5. 54. 59.]
486 cord_individual_obj[indivial_i,:] = [19. 5. 63. 68.]
487 cord_individual_obj[indivial_i,:] = [20. 3. 54. 57.]
488 cord_individual_obj[indivial_i,:] = [21. 5. 24. 29.]
489 cord_individual_obj[indivial_i,:] = [22. 4. 38. 42.]
490 cord_individual_obj[indivial_i,:] = [23. 4. 66. 70.]
491 cord_individual_obj[indivial_i,:] = [24. 4. 59. 63.]
492
493 min(cord_individual_obj[:,3]) = 11.0
494 histol_G_best_iter[iter,3] = 11.0
495 Begin iteration:
496
497 iter = 15
498 cord_individual_obj[indivial_i,:] = [ 0. 4. 118. 122.]
499 cord_individual_obj[indivial_i,:] = [ 1. 4. 14. 18.]

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500 cord_individual_obj[indivial_i,:] = [ 2. 5. 50. 55.]
501 cord_individual_obj[indivial_i,:] = [ 3. 5. 107. 112.]
502 cord_individual_obj[indivial_i,:] = [ 4. 6. 39. 45.]
503 cord_individual_obj[indivial_i,:] = [ 5. 3. 81. 84.]
504 cord_individual_obj[indivial_i,:] = [ 6. 6. 29. 35.]
505 cord_individual_obj[indivial_i,:] = [ 7. 6. 56. 62.]
506 cord_individual_obj[indivial_i,:] = [ 8. 5. 30. 35.]
507 cord_individual_obj[indivial_i,:] = [ 9. 4. 39. 43.]
508 cord_individual_obj[indivial_i,:] = [10. 6. 47. 53.]
509 cord_individual_obj[indivial_i,:] = [11. 4. 65. 69.]
510 cord_individual_obj[indivial_i,:] = [12. 5. 78. 83.]
511 cord_individual_obj[indivial_i,:] = [13. 3. 8. 11.]
512 cord_individual_obj[indivial_i,:] = [14. 6. 13. 19.]
513 cord_individual_obj[indivial_i,:] = [15. 3. 17. 20.]
514 cord_individual_obj[indivial_i,:] = [16. 5. 105. 110.]
515 cord_individual_obj[indivial_i,:] = [17. 5. 27. 32.]
516 cord_individual_obj[indivial_i,:] = [18. 4. 84. 88.]
517 cord_individual_obj[indivial_i,:] = [19. 6. 16. 22.]
518 cord_individual_obj[indivial_i,:] = [20. 3. 36. 39.]
519 cord_individual_obj[indivial_i,:] = [21. 6. 25. 31.]
520 cord_individual_obj[indivial_i,:] = [22. 3. 34. 37.]
521 cord_individual_obj[indivial_i,:] = [23. 6. 17. 23.]
522 cord_individual_obj[indivial_i,:] = [24. 3. 59. 62.]
523
524 min(cord_individual_obj[:,3]) = 11.0
525 histol_G_best_iter[iter,3] = 11.0
526 Begin iteration:
527
528 iter = 16
529 cord_individual_obj[indivial_i,:] = [ 0. 3. 8. 11.]
530 cord_individual_obj[indivial_i,:] = [ 1. 6. 30. 36.]
531 cord_individual_obj[indivial_i,:] = [ 2. 5. 11. 16.]
532 cord_individual_obj[indivial_i,:] = [ 3. 6. 18. 24.]
533 cord_individual_obj[indivial_i,:] = [ 4. 5. 28. 33.]
534 cord_individual_obj[indivial_i,:] = [ 5. 4. 41. 45.]
535 cord_individual_obj[indivial_i,:] = [ 6. 4. 35. 39.]
536 cord_individual_obj[indivial_i,:] = [ 7. 5. 28. 33.]
537 cord_individual_obj[indivial_i,:] = [ 8. 5. 56. 61.]
538 cord_individual_obj[indivial_i,:] = [ 9. 6. 50. 56.]
539 cord_individual_obj[indivial_i,:] = [10. 6. 62. 68.]
540 cord_individual_obj[indivial_i,:] = [11. 3. 66. 69.]
541 cord_individual_obj[indivial_i,:] = [12. 5. 14. 19.]
542 cord_individual_obj[indivial_i,:] = [13. 5. 86. 91.]
543 cord_individual_obj[indivial_i,:] = [14. 7. 15. 22.]
544 cord_individual_obj[indivial_i,:] = [15. 6. 17. 23.]
545 cord_individual_obj[indivial_i,:] = [16. 4. 34. 38.]
546 cord_individual_obj[indivial_i,:] = [17. 6. 17. 23.]
547 cord_individual_obj[indivial_i,:] = [18. 4. 72. 76.]
548 cord_individual_obj[indivial_i,:] = [19. 6. 92. 98.]
549 cord_individual_obj[indivial_i,:] = [20. 6. 10. 16.]
550 cord_individual_obj[indivial_i,:] = [21. 4. 56. 60.]
551 cord_individual_obj[indivial_i,:] = [22. 5. 26. 31.]
552 cord_individual_obj[indivial_i,:] = [23. 5. 67. 72.]
553 cord_individual_obj[indivial_i,:] = [24. 4. 22. 26.]
554
555 min(cord_individual_obj[:,3]) = 11.0
556 histol_G_best_iter[iter,3] = 11.0
557 Begin iteration:
558
559 iter = 17
560 cord_individual_obj[indivial_i,:] = [ 0. 3. 37. 40.]
561 cord_individual_obj[indivial_i,:] = [ 1. 6. 26. 32.]
562 cord_individual_obj[indivial_i,:] = [ 2. 4. 42. 46.]
563 cord_individual_obj[indivial_i,:] = [ 3. 8. 69. 77.]
564 cord_individual_obj[indivial_i,:] = [ 4. 4. 23. 27.]
565 cord_individual_obj[indivial_i,:] = [ 5. 3. 25. 28.]
566 cord_individual_obj[indivial_i,:] = [ 6. 5. 25. 30.]
567 cord_individual_obj[indivial_i,:] = [ 7. 4. 32. 36.]
568 cord_individual_obj[indivial_i,:] = [ 8. 5. 10. 15.]
569 cord_individual_obj[indivial_i,:] = [ 9. 4. 14. 18.]
570 cord_individual_obj[indivial_i,:] = [10. 5. 13. 18.]
571 cord_individual_obj[indivial_i,:] = [11. 5. 31. 36.]
572 cord_individual_obj[indivial_i,:] = [12. 4. 26. 30.]
573 cord_individual_obj[indivial_i,:] = [13. 4. 82. 86.]
574 cord_individual_obj[indivial_i,:] = [14. 4. 13. 17.]
575 cord_individual_obj[indivial_i,:] = [15. 4. 48. 52.]
576 cord_individual_obj[indivial_i,:] = [16. 3. 56. 59.]
577 cord_individual_obj[indivial_i,:] = [17. 4. 10. 14.]
578 cord_individual_obj[indivial_i,:] = [18. 3. 39. 42.]
579 cord_individual_obj[indivial_i,:] = [19. 3. 8. 11.]
580 cord_individual_obj[indivial_i,:] = [20. 5. 27. 32.]
581 cord_individual_obj[indivial_i,:] = [21. 4. 54. 58.]
582 cord_individual_obj[indivial_i,:] = [22. 4. 60. 64.]
583 cord_individual_obj[indivial_i,:] = [23. 4. 47. 51.]

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unknown

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584     cord_individual_obj[indivial_i, :] = [24. 6. 58. 64.]  
585  
586     min(cord_individual_obj[:, 3]) = 11.0  
587     historl_G_best_iter[iter, 3] = 11.0  
588 Begin iteration:  
589  
590 iter = 18  
591     cord_individual_obj[indivial_i, :] = [ 0. 3. 98. 101.]  
592     cord_individual_obj[indivial_i, :] = [ 1. 5. 38. 43.]  
593     cord_individual_obj[indivial_i, :] = [ 2. 6. 47. 53.]  
594     cord_individual_obj[indivial_i, :] = [ 3. 7. 69. 76.]  
595     cord_individual_obj[indivial_i, :] = [ 4. 4. 32. 36.]  
596     cord_individual_obj[indivial_i, :] = [ 5. 4. 59. 63.]  
597     cord_individual_obj[indivial_i, :] = [ 6. 6. 57. 63.]  
598     cord_individual_obj[indivial_i, :] = [ 7. 4. 41. 45.]  
599     cord_individual_obj[indivial_i, :] = [ 8. 6. 43. 49.]  
600     cord_individual_obj[indivial_i, :] = [ 9. 5. 52. 57.]  
601     cord_individual_obj[indivial_i, :] = [10. 5. 24. 29.]  
602     cord_individual_obj[indivial_i, :] = [11. 5. 55. 60.]  
603     cord_individual_obj[indivial_i, :] = [12. 4. 27. 31.]  
604     cord_individual_obj[indivial_i, :] = [13. 3. 8. 11.]  
605     cord_individual_obj[indivial_i, :] = [14. 7. 15. 22.]  
606     cord_individual_obj[indivial_i, :] = [15. 6. 47. 53.]  
607     cord_individual_obj[indivial_i, :] = [16. 4. 105. 109.]  
608     cord_individual_obj[indivial_i, :] = [17. 5. 30. 35.]  
609     cord_individual_obj[indivial_i, :] = [18. 4. 40. 44.]  
610     cord_individual_obj[indivial_i, :] = [19. 6. 16. 22.]  
611     cord_individual_obj[indivial_i, :] = [20. 6. 64. 70.]  
612     cord_individual_obj[indivial_i, :] = [21. 5. 48. 53.]  
613     cord_individual_obj[indivial_i, :] = [22. 5. 85. 90.]  
614     cord_individual_obj[indivial_i, :] = [23. 4. 59. 63.]  
615     cord_individual_obj[indivial_i, :] = [24. 4. 70. 74.]  
616  
617     min(cord_individual_obj[:, 3]) = 11.0  
618     historl_G_best_iter[iter, 3] = 11.0  
619 Begin iteration:  
620  
621 iter = 19  
622     cord_individual_obj[indivial_i, :] = [ 0. 4. 37. 41.]  
623     cord_individual_obj[indivial_i, :] = [ 1. 6. 26. 32.]  
624     cord_individual_obj[indivial_i, :] = [ 2. 6. 73. 79.]  
625     cord_individual_obj[indivial_i, :] = [ 3. 6. 66. 72.]  
626     cord_individual_obj[indivial_i, :] = [ 4. 4. 44. 48.]  
627     cord_individual_obj[indivial_i, :] = [ 5. 3. 79. 82.]  
628     cord_individual_obj[indivial_i, :] = [ 6. 6. 14. 20.]  
629     cord_individual_obj[indivial_i, :] = [ 7. 5. 13. 18.]  
630     cord_individual_obj[indivial_i, :] = [ 8. 4. 29. 33.]  
631     cord_individual_obj[indivial_i, :] = [ 9. 4. 47. 51.]  
632     cord_individual_obj[indivial_i, :] = [10. 4. 19. 23.]  
633     cord_individual_obj[indivial_i, :] = [11. 4. 34. 38.]  
634     cord_individual_obj[indivial_i, :] = [12. 4. 56. 60.]  
635     cord_individual_obj[indivial_i, :] = [13. 4. 84. 88.]  
636     cord_individual_obj[indivial_i, :] = [14. 6. 35. 41.]  
637     cord_individual_obj[indivial_i, :] = [15. 6. 49. 55.]  
638     cord_individual_obj[indivial_i, :] = [16. 3. 8. 11.]  
639     cord_individual_obj[indivial_i, :] = [17. 5. 9. 14.]  
640     cord_individual_obj[indivial_i, :] = [18. 5. 69. 74.]  
641     cord_individual_obj[indivial_i, :] = [19. 5. 32. 37.]  
642     cord_individual_obj[indivial_i, :] = [20. 5. 24. 29.]  
643     cord_individual_obj[indivial_i, :] = [21. 7. 53. 60.]  
644     cord_individual_obj[indivial_i, :] = [22. 5. 40. 45.]  
645     cord_individual_obj[indivial_i, :] = [23. 4. 49. 53.]  
646     cord_individual_obj[indivial_i, :] = [24. 4. 31. 35.]  
647  
648     min(cord_individual_obj[:, 3]) = 11.0  
649     historl_G_best_iter[iter, 3] = 11.0  
650 Begin iteration:  
651  
652 iter = 20  
653     cord_individual_obj[indivial_i, :] = [ 0. 3. 22. 25.]  
654     cord_individual_obj[indivial_i, :] = [ 1. 5. 18. 23.]  
655     cord_individual_obj[indivial_i, :] = [ 2. 5. 50. 55.]  
656     cord_individual_obj[indivial_i, :] = [ 3. 4. 84. 88.]  
657     cord_individual_obj[indivial_i, :] = [ 4. 5. 27. 32.]  
658     cord_individual_obj[indivial_i, :] = [ 5. 3. 7. 10.]  
659     cord_individual_obj[indivial_i, :] = [ 6. 3. 59. 62.]  
660     cord_individual_obj[indivial_i, :] = [ 7. 5. 28. 33.]  
661     cord_individual_obj[indivial_i, :] = [ 8. 5. 31. 36.]  
662     cord_individual_obj[indivial_i, :] = [ 9. 4. 54. 58.]  
663     cord_individual_obj[indivial_i, :] = [10. 6. 59. 65.]  
664     cord_individual_obj[indivial_i, :] = [11. 4. 66. 70.]  
665     cord_individual_obj[indivial_i, :] = [12. 5. 53. 58.]  
666     cord_individual_obj[indivial_i, :] = [13. 3. 8. 11.]  
667     cord_individual_obj[indivial_i, :] = [14. 7. 23. 30.]
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668 cord_individual_obj[indivial_i,:] = [15. 6. 17. 23.]
669 cord_individual_obj[indivial_i,:] = [16. 3. 89. 92.]
670 cord_individual_obj[indivial_i,:] = [17. 5. 44. 49.]
671 cord_individual_obj[indivial_i,:] = [18. 3. 47. 50.]
672 cord_individual_obj[indivial_i,:] = [19. 6. 94. 100.]
673 cord_individual_obj[indivial_i,:] = [20. 3. 73. 76.]
674 cord_individual_obj[indivial_i,:] = [21. 6. 52. 58.]
675 cord_individual_obj[indivial_i,:] = [22. 5. 69. 74.]
676 cord_individual_obj[indivial_i,:] = [23. 5. 50. 55.]
677 cord_individual_obj[indivial_i,:] = [24. 4. 56. 60.]
678
679 min(cord_individual_obj[:, 3]) = 10.0
680 historl_G_best_iter[iter, 3] = 10.0
681 Iteration calculate over
682
683
684
685
686 All item are in Bin and:
687 Bin area = 1080
688 Real_area = 99.0
689 Proportion_of_area = 0.09166666666666666
690 BEST_CHROM =
691 berth: [ 2.5 23. 12.5 7.5 25. 18. 7.5 7.5 17. ]
692 time: [0. 2. 0. 0. 0. 3. 1. 1.]
693 num_QC: [2. 4. 4. 3. 2. 5. 4. 5. 4.]
694 Objective function values and some other indicators:
695 Obj0 = 3.00          Obj1 = 7.00          Obj0 + Obj1 = 10.00
696 Total movement of crane: 0.00
697 Total waiting time in berth position: 7.00
698 Total index of q during berthing: 469.00
699 Specific arrangement for each vessel:
700 V_id: 0           li: 5.0           xi: 2.5           bow of i: 0.0           tail of i: 5.0           gama_i0: 0.0           gama_i1: 3.0
    .           .           .           .           .           .           .           .           .           .           .           .           .
701 V_id: 1           li: 8.0           xi: 23.0           bow of i: 19.0           tail of i: 27.0           gama_i0: 2.0           gama_i1: 3
    .           .           .           .           .           .           .           .           .           .           .           .
702 V_id: 2           li: 5.0           xi: 12.5           bow of i: 10.0           tail of i: 15.0           gama_i0: 0.0           gama_i1: 1
    .           .           .           .           .           .           .           .           .           .           .           .
703 V_id: 3           li: 5.0           xi: 7.5           bow of i: 5.0           tail of i: 10.0           gama_i0: 0.0           gama_i1: 0
    .           .           .           .           .           .           .           .           .           .           .           .
704 V_id: 4           li: 8.0           xi: 25.0           bow of i: 21.0           tail of i: 29.0           gama_i0: 0.0           gama_i1: 1
    .           .           .           .           .           .           .           .           .           .           .           .
705 V_id: 5           li: 6.0           xi: 18.0           bow of i: 15.0           tail of i: 21.0           gama_i0: 0.0           gama_i1: 0
    .           .           .           .           .           .           .           .           .           .           .           .
706 V_id: 6           li: 5.0           xi: 7.5           bow of i: 5.0           tail of i: 10.0           gama_i0: 3.0           gama_i1: 3
    .           .           .           .           .           .           .           .           .           .           .           .
707 V_id: 7           li: 5.0           xi: 7.5           bow of i: 5.0           tail of i: 10.0           gama_i0: 1.0           gama_i1: 2
    .           .           .           .           .           .           .           .           .           .           .           .
708 V_id: 8           li: 4.0           xi: 17.0           bow of i: 15.0           tail of i: 19.0           gama_i0: 1.0           gama_i1: 1
    .           .           .           .           .           .           .           .           .           .           .           .
709
710 Algorithm finished and the total CPU time: 260 s
711 End
712

```