

unknown

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80 cord_individual_obj[indivial_i, :] = [16. 4. 31. 35.]
81 cord_individual_obj[indivial_i, :] = [17. 7. 48. 55.]
82 cord_individual_obj[indivial_i, :] = [18. 6. 22. 28.]
83 cord_individual_obj[indivial_i, :] = [19. 5. 53. 58.]
84 cord_individual_obj[indivial_i, :] = [20. 5. 92. 97.]
85 cord_individual_obj[indivial_i, :] = [21. 6. 41. 47.]
86 cord_individual_obj[indivial_i, :] = [22. 4. 141. 145.]
87 cord_individual_obj[indivial_i, :] = [23. 5. 50. 55.]
88 cord_individual_obj[indivial_i, :] = [24. 5. 34. 39.]
89
90 min(cord_individual_obj[:, 3]) = 16.0
91 historl_G_best_iter[iter, 3] = 16.0
92 Begin iteration:
93
94 iter = 2
95 cord_individual_obj[indivial_i, :] = [ 0. 3. 56. 59.]
96 cord_individual_obj[indivial_i, :] = [ 1. 5. 67. 72.]
97 cord_individual_obj[indivial_i, :] = [ 2. 4. 137. 141.]
98 cord_individual_obj[indivial_i, :] = [ 3. 4. 59. 63.]
99 cord_individual_obj[indivial_i, :] = [ 4. 6. 51. 57.]
100 cord_individual_obj[indivial_i, :] = [ 5. 5. 78. 83.]
101 cord_individual_obj[indivial_i, :] = [ 6. 5. 83. 88.]
102 cord_individual_obj[indivial_i, :] = [ 7. 4. 53. 57.]
103 cord_individual_obj[indivial_i, :] = [ 8. 6. 53. 59.]
104 cord_individual_obj[indivial_i, :] = [ 9. 6. 100. 106.]
105 cord_individual_obj[indivial_i, :] = [10. 5. 35. 40.]
106 cord_individual_obj[indivial_i, :] = [11. 5. 42. 47.]
107 cord_individual_obj[indivial_i, :] = [12. 5. 30. 35.]
108 cord_individual_obj[indivial_i, :] = [13. 5. 75. 80.]
109 cord_individual_obj[indivial_i, :] = [14. 6. 27. 33.]
110 cord_individual_obj[indivial_i, :] = [15. 5. 42. 47.]
111 cord_individual_obj[indivial_i, :] = [16. 5. 36. 41.]
112 cord_individual_obj[indivial_i, :] = [17. 4. 11. 15.]
113 cord_individual_obj[indivial_i, :] = [18. 5. 21. 26.]
114 cord_individual_obj[indivial_i, :] = [19. 6. 66. 72.]
115 cord_individual_obj[indivial_i, :] = [20. 5. 113. 118.]
116 cord_individual_obj[indivial_i, :] = [21. 5. 63. 68.]
117 cord_individual_obj[indivial_i, :] = [22. 4. 12. 16.]
118 cord_individual_obj[indivial_i, :] = [23. 4. 10. 14.]
119 cord_individual_obj[indivial_i, :] = [24. 4. 37. 41.]
120
121 min(cord_individual_obj[:, 3]) = 14.0
122 historl_G_best_iter[iter, 3] = 14.0
123 Begin iteration:
124
125 iter = 3
126 cord_individual_obj[indivial_i, :] = [ 0. 3. 88. 91.]
127 cord_individual_obj[indivial_i, :] = [ 1. 6. 49. 55.]
128 cord_individual_obj[indivial_i, :] = [ 2. 4. 10. 14.]
129 cord_individual_obj[indivial_i, :] = [ 3. 4. 85. 89.]
130 cord_individual_obj[indivial_i, :] = [ 4. 5. 33. 38.]
131 cord_individual_obj[indivial_i, :] = [ 5. 6. 72. 78.]
132 cord_individual_obj[indivial_i, :] = [ 6. 7. 68. 75.]
133 cord_individual_obj[indivial_i, :] = [ 7. 4. 68. 72.]
134 cord_individual_obj[indivial_i, :] = [ 8. 4. 51. 55.]
135 cord_individual_obj[indivial_i, :] = [ 9. 4. 55. 59.]
136 cord_individual_obj[indivial_i, :] = [10. 4. 75. 79.]
137 cord_individual_obj[indivial_i, :] = [11. 5. 59. 64.]
138 cord_individual_obj[indivial_i, :] = [12. 5. 51. 56.]
139 cord_individual_obj[indivial_i, :] = [13. 6. 47. 53.]
140 cord_individual_obj[indivial_i, :] = [14. 6. 62. 68.]
141 cord_individual_obj[indivial_i, :] = [15. 7. 18. 25.]
142 cord_individual_obj[indivial_i, :] = [16. 5. 31. 36.]
143 cord_individual_obj[indivial_i, :] = [17. 5. 65. 70.]
144 cord_individual_obj[indivial_i, :] = [18. 4. 59. 63.]
145 cord_individual_obj[indivial_i, :] = [19. 4. 24. 28.]
146 cord_individual_obj[indivial_i, :] = [20. 6. 77. 83.]
147 cord_individual_obj[indivial_i, :] = [21. 6. 13. 19.]
148 cord_individual_obj[indivial_i, :] = [22. 6. 94. 100.]
149 cord_individual_obj[indivial_i, :] = [23. 6. 30. 36.]
150 cord_individual_obj[indivial_i, :] = [24. 5. 32. 37.]
151
152 min(cord_individual_obj[:, 3]) = 14.0
153 historl_G_best_iter[iter, 3] = 14.0
154 Begin iteration:
155
156 iter = 4
157 cord_individual_obj[indivial_i, :] = [ 0. 5. 58. 63.]
158 cord_individual_obj[indivial_i, :] = [ 1. 6. 51. 57.]
159 cord_individual_obj[indivial_i, :] = [ 2. 6. 32. 38.]
160 cord_individual_obj[indivial_i, :] = [ 3. 4. 60. 64.]
161 cord_individual_obj[indivial_i, :] = [ 4. 5. 40. 45.]
162 cord_individual_obj[indivial_i, :] = [ 5. 5. 13. 18.]
163 cord_individual_obj[indivial_i, :] = [ 6. 4. 80. 84.]

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164 cord_individual_obj[indivial_i,:] = [ 7. 4. 49. 53.]
165 cord_individual_obj[indivial_i,:] = [ 8. 4. 113. 117.]
166 cord_individual_obj[indivial_i,:] = [ 9. 5. 23. 28.]
167 cord_individual_obj[indivial_i,:] = [10. 7. 37. 44.]
168 cord_individual_obj[indivial_i,:] = [11. 5. 108. 113.]
169 cord_individual_obj[indivial_i,:] = [12. 6. 42. 48.]
170 cord_individual_obj[indivial_i,:] = [13. 5. 123. 128.]
171 cord_individual_obj[indivial_i,:] = [14. 4. 56. 60.]
172 cord_individual_obj[indivial_i,:] = [15. 6. 13. 19.]
173 cord_individual_obj[indivial_i,:] = [16. 5. 100. 105.]
174 cord_individual_obj[indivial_i,:] = [17. 6. 28. 34.]
175 cord_individual_obj[indivial_i,:] = [18. 5. 50. 55.]
176 cord_individual_obj[indivial_i,:] = [19. 6. 9. 15.]
177 cord_individual_obj[indivial_i,:] = [20. 5. 80. 85.]
178 cord_individual_obj[indivial_i,:] = [21. 5. 18. 23.]
179 cord_individual_obj[indivial_i,:] = [22. 4. 10. 14.]
180 cord_individual_obj[indivial_i,:] = [23. 5. 52. 57.]
181 cord_individual_obj[indivial_i,:] = [24. 5. 21. 26.]
182
183 min(cord_individual_obj[:,3]) = 14.0
184 historl_G_best_iter[iter,3] = 14.0
185 Begin iteration:
186
187 iter = 5
188 cord_individual_obj[indivial_i,:] = [ 0. 5. 30. 35.]
189 cord_individual_obj[indivial_i,:] = [ 1. 5. 68. 73.]
190 cord_individual_obj[indivial_i,:] = [ 2. 5. 30. 35.]
191 cord_individual_obj[indivial_i,:] = [ 3. 6. 25. 31.]
192 cord_individual_obj[indivial_i,:] = [ 4. 5. 12. 17.]
193 cord_individual_obj[indivial_i,:] = [ 5. 4. 11. 15.]
194 cord_individual_obj[indivial_i,:] = [ 6. 5. 31. 36.]
195 cord_individual_obj[indivial_i,:] = [ 7. 4. 74. 78.]
196 cord_individual_obj[indivial_i,:] = [ 8. 5. 24. 29.]
197 cord_individual_obj[indivial_i,:] = [ 9. 4. 82. 86.]
198 cord_individual_obj[indivial_i,:] = [10. 5. 10. 15.]
199 cord_individual_obj[indivial_i,:] = [11. 6. 32. 38.]
200 cord_individual_obj[indivial_i,:] = [12. 4. 47. 51.]
201 cord_individual_obj[indivial_i,:] = [13. 4. 10. 14.]
202 cord_individual_obj[indivial_i,:] = [14. 5. 10. 15.]
203 cord_individual_obj[indivial_i,:] = [15. 4. 75. 79.]
204 cord_individual_obj[indivial_i,:] = [16. 4. 86. 90.]
205 cord_individual_obj[indivial_i,:] = [17. 6. 16. 22.]
206 cord_individual_obj[indivial_i,:] = [18. 6. 12. 18.]
207 cord_individual_obj[indivial_i,:] = [19. 6. 67. 73.]
208 cord_individual_obj[indivial_i,:] = [20. 5. 12. 17.]
209 cord_individual_obj[indivial_i,:] = [21. 5. 9. 14.]
210 cord_individual_obj[indivial_i,:] = [22. 6. 28. 34.]
211 cord_individual_obj[indivial_i,:] = [23. 6. 48. 54.]
212 cord_individual_obj[indivial_i,:] = [24. 6. 80. 86.]
213
214 min(cord_individual_obj[:,3]) = 14.0
215 historl_G_best_iter[iter,3] = 14.0
216 Begin iteration:
217
218 iter = 6
219 cord_individual_obj[indivial_i,:] = [ 0. 5. 87. 92.]
220 cord_individual_obj[indivial_i,:] = [ 1. 6. 48. 54.]
221 cord_individual_obj[indivial_i,:] = [ 2. 7. 50. 57.]
222 cord_individual_obj[indivial_i,:] = [ 3. 6. 33. 39.]
223 cord_individual_obj[indivial_i,:] = [ 4. 5. 40. 45.]
224 cord_individual_obj[indivial_i,:] = [ 5. 5. 89. 94.]
225 cord_individual_obj[indivial_i,:] = [ 6. 5. 18. 23.]
226 cord_individual_obj[indivial_i,:] = [ 7. 4. 97. 101.]
227 cord_individual_obj[indivial_i,:] = [ 8. 4. 41. 45.]
228 cord_individual_obj[indivial_i,:] = [ 9. 5. 57. 62.]
229 cord_individual_obj[indivial_i,:] = [10. 4. 67. 71.]
230 cord_individual_obj[indivial_i,:] = [11. 4. 101. 105.]
231 cord_individual_obj[indivial_i,:] = [12. 5. 40. 45.]
232 cord_individual_obj[indivial_i,:] = [13. 6. 29. 35.]
233 cord_individual_obj[indivial_i,:] = [14. 5. 77. 82.]
234 cord_individual_obj[indivial_i,:] = [15. 6. 18. 24.]
235 cord_individual_obj[indivial_i,:] = [16. 4. 10. 14.]
236 cord_individual_obj[indivial_i,:] = [17. 6. 53. 59.]
237 cord_individual_obj[indivial_i,:] = [18. 4. 68. 72.]
238 cord_individual_obj[indivial_i,:] = [19. 4. 82. 86.]
239 cord_individual_obj[indivial_i,:] = [20. 4. 31. 35.]
240 cord_individual_obj[indivial_i,:] = [21. 5. 65. 70.]
241 cord_individual_obj[indivial_i,:] = [22. 5. 54. 59.]
242 cord_individual_obj[indivial_i,:] = [23. 3. 54. 57.]
243 cord_individual_obj[indivial_i,:] = [24. 3. 45. 48.]
244
245 min(cord_individual_obj[:,3]) = 14.0
246 historl_G_best_iter[iter,3] = 14.0
247 Begin iteration:

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248
249 iter = 7
250 cord_individual_obj[indivial_i, :] = [ 0.  7. 44. 51.]
251 cord_individual_obj[indivial_i, :] = [ 1.  4. 36. 40.]
252 cord_individual_obj[indivial_i, :] = [ 2.  4. 91. 95.]
253 cord_individual_obj[indivial_i, :] = [ 3.  5. 101. 106.]
254 cord_individual_obj[indivial_i, :] = [ 4.  4. 51. 55.]
255 cord_individual_obj[indivial_i, :] = [ 5.  4. 42. 46.]
256 cord_individual_obj[indivial_i, :] = [ 6.  4. 136. 140.]
257 cord_individual_obj[indivial_i, :] = [ 7.  6. 71. 77.]
258 cord_individual_obj[indivial_i, :] = [ 8.  6. 54. 60.]
259 cord_individual_obj[indivial_i, :] = [ 9.  7. 45. 52.]
260 cord_individual_obj[indivial_i, :] = [10.  5. 15. 20.]
261 cord_individual_obj[indivial_i, :] = [11.  4. 10. 14.]
262 cord_individual_obj[indivial_i, :] = [12.  5. 49. 54.]
263 cord_individual_obj[indivial_i, :] = [13.  5. 101. 106.]
264 cord_individual_obj[indivial_i, :] = [14.  5. 45. 50.]
265 cord_individual_obj[indivial_i, :] = [15.  4. 17. 21.]
266 cord_individual_obj[indivial_i, :] = [16.  5. 60. 65.]
267 cord_individual_obj[indivial_i, :] = [17.  6. 14. 20.]
268 cord_individual_obj[indivial_i, :] = [18.  6. 31. 37.]
269 cord_individual_obj[indivial_i, :] = [19.  5. 10. 15.]
270 cord_individual_obj[indivial_i, :] = [20.  5. 86. 91.]
271 cord_individual_obj[indivial_i, :] = [21.  6. 51. 57.]
272 cord_individual_obj[indivial_i, :] = [22.  6. 51. 57.]
273 cord_individual_obj[indivial_i, :] = [23.  6. 37. 43.]
274 cord_individual_obj[indivial_i, :] = [24.  5. 51. 56.]
275

276 min(cord_individual_obj[:, 3]) = 14.0
277 historl_G_best_iter[iter, 3] = 14.0
278 Begin iteration:
279
280 iter = 8
281 cord_individual_obj[indivial_i, :] = [ 0.  6. 31. 37.]
282 cord_individual_obj[indivial_i, :] = [ 1.  5. 68. 73.]
283 cord_individual_obj[indivial_i, :] = [ 2.  5. 20. 25.]
284 cord_individual_obj[indivial_i, :] = [ 3.  6. 25. 31.]
285 cord_individual_obj[indivial_i, :] = [ 4.  4. 10. 14.]
286 cord_individual_obj[indivial_i, :] = [ 5.  5. 50. 55.]
287 cord_individual_obj[indivial_i, :] = [ 6.  4. 10. 14.]
288 cord_individual_obj[indivial_i, :] = [ 7.  4. 44. 48.]
289 cord_individual_obj[indivial_i, :] = [ 8.  6. 40. 46.]
290 cord_individual_obj[indivial_i, :] = [ 9.  4. 66. 70.]
291 cord_individual_obj[indivial_i, :] = [10.  5. 10. 15.]
292 cord_individual_obj[indivial_i, :] = [11.  4. 87. 91.]
293 cord_individual_obj[indivial_i, :] = [12.  3. 55. 58.]
294 cord_individual_obj[indivial_i, :] = [13.  6. 46. 52.]
295 cord_individual_obj[indivial_i, :] = [14.  5. 10. 15.]
296 cord_individual_obj[indivial_i, :] = [15.  5. 81. 86.]
297 cord_individual_obj[indivial_i, :] = [16.  3. 94. 97.]
298 cord_individual_obj[indivial_i, :] = [17.  7. 14. 21.]
299 cord_individual_obj[indivial_i, :] = [18.  6. 11. 17.]
300 cord_individual_obj[indivial_i, :] = [19.  4. 68. 72.]
301 cord_individual_obj[indivial_i, :] = [20.  5. 13. 18.]
302 cord_individual_obj[indivial_i, :] = [21.  4. 47. 51.]
303 cord_individual_obj[indivial_i, :] = [22.  5. 29. 34.]
304 cord_individual_obj[indivial_i, :] = [23.  5. 30. 35.]
305 cord_individual_obj[indivial_i, :] = [24.  6. 80. 86.]
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. 87. 91.]
313 cord_individual_obj[indivial_i, :] = [ 1.  3. 39. 42.]
314 cord_individual_obj[indivial_i, :] = [ 2.  6. 78. 84.]
315 cord_individual_obj[indivial_i, :] = [ 3.  4. 43. 47.]
316 cord_individual_obj[indivial_i, :] = [ 4.  4. 61. 65.]
317 cord_individual_obj[indivial_i, :] = [ 5.  5. 65. 70.]
318 cord_individual_obj[indivial_i, :] = [ 6.  6. 78. 84.]
319 cord_individual_obj[indivial_i, :] = [ 7.  4. 58. 62.]
320 cord_individual_obj[indivial_i, :] = [ 8.  4. 81. 85.]
321 cord_individual_obj[indivial_i, :] = [ 9.  4. 32. 36.]
322 cord_individual_obj[indivial_i, :] = [10.  6. 39. 45.]
323 cord_individual_obj[indivial_i, :] = [11.  4. 88. 92.]
324 cord_individual_obj[indivial_i, :] = [12.  5. 82. 87.]
325 cord_individual_obj[indivial_i, :] = [13.  5. 59. 64.]
326 cord_individual_obj[indivial_i, :] = [14.  4. 83. 87.]
327 cord_individual_obj[indivial_i, :] = [15.  4. 96. 100.]
328 cord_individual_obj[indivial_i, :] = [16.  4. 10. 14.]
329 cord_individual_obj[indivial_i, :] = [17.  6. 43. 49.]
330 cord_individual_obj[indivial_i, :] = [18.  3. 60. 63.]
331 cord_individual_obj[indivial_i, :] = [19.  5. 58. 63.]

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332 cord_individual_obj[indivial_i,:] = [20. 5. 59. 64.]
333 cord_individual_obj[indivial_i,:] = [21. 4. 96. 100.]
334 cord_individual_obj[indivial_i,:] = [22. 4. 66. 70.]
335 cord_individual_obj[indivial_i,:] = [23. 5. 40. 45.]
336 cord_individual_obj[indivial_i,:] = [24. 4. 49. 53.]
337
338 min(cord_individual_obj[:,3]) = 14.0
339 histol_G_best_iter[iter,3] = 14.0
340 Begin iteration:
341
342 iter = 10
343 cord_individual_obj[indivial_i,:] = [ 0. 3. 93. 96.]
344 cord_individual_obj[indivial_i,:] = [ 1. 4. 103. 107.]
345 cord_individual_obj[indivial_i,:] = [ 2. 6. 22. 28.]
346 cord_individual_obj[indivial_i,:] = [ 3. 5. 41. 46.]
347 cord_individual_obj[indivial_i,:] = [ 4. 5. 61. 66.]
348 cord_individual_obj[indivial_i,:] = [ 5. 4. 64. 68.]
349 cord_individual_obj[indivial_i,:] = [ 6. 6. 78. 84.]
350 cord_individual_obj[indivial_i,:] = [ 7. 3. 32. 35.]
351 cord_individual_obj[indivial_i,:] = [ 8. 5. 11. 16.]
352 cord_individual_obj[indivial_i,:] = [ 9. 5. 26. 31.]
353 cord_individual_obj[indivial_i,:] = [10. 3. 80. 83.]
354 cord_individual_obj[indivial_i,:] = [11. 5. 78. 83.]
355 cord_individual_obj[indivial_i,:] = [12. 5. 107. 112.]
356 cord_individual_obj[indivial_i,:] = [13. 5. 59. 64.]
357 cord_individual_obj[indivial_i,:] = [14. 4. 41. 45.]
358 cord_individual_obj[indivial_i,:] = [15. 4. 10. 14.]
359 cord_individual_obj[indivial_i,:] = [16. 4. 83. 87.]
360 cord_individual_obj[indivial_i,:] = [17. 6. 43. 49.]
361 cord_individual_obj[indivial_i,:] = [18. 4. 51. 55.]
362 cord_individual_obj[indivial_i,:] = [19. 6. 33. 39.]
363 cord_individual_obj[indivial_i,:] = [20. 5. 13. 18.]
364 cord_individual_obj[indivial_i,:] = [21. 4. 114. 118.]
365 cord_individual_obj[indivial_i,:] = [22. 4. 66. 70.]
366 cord_individual_obj[indivial_i,:] = [23. 5. 109. 114.]
367 cord_individual_obj[indivial_i,:] = [24. 4. 51. 55.]
368
369 min(cord_individual_obj[:,3]) = 14.0
370 histol_G_best_iter[iter,3] = 14.0
371 Begin iteration:
372
373 iter = 11
374 cord_individual_obj[indivial_i,:] = [ 0. 5. 25. 30.]
375 cord_individual_obj[indivial_i,:] = [ 1. 3. 50. 53.]
376 cord_individual_obj[indivial_i,:] = [ 2. 5. 41. 46.]
377 cord_individual_obj[indivial_i,:] = [ 3. 4. 40. 44.]
378 cord_individual_obj[indivial_i,:] = [ 4. 5. 66. 71.]
379 cord_individual_obj[indivial_i,:] = [ 5. 4. 63. 67.]
380 cord_individual_obj[indivial_i,:] = [ 6. 5. 78. 83.]
381 cord_individual_obj[indivial_i,:] = [ 7. 4. 64. 68.]
382 cord_individual_obj[indivial_i,:] = [ 8. 4. 69. 73.]
383 cord_individual_obj[indivial_i,:] = [ 9. 4. 24. 28.]
384 cord_individual_obj[indivial_i,:] = [10. 3. 61. 64.]
385 cord_individual_obj[indivial_i,:] = [11. 5. 78. 83.]
386 cord_individual_obj[indivial_i,:] = [12. 5. 96. 101.]
387 cord_individual_obj[indivial_i,:] = [13. 5. 44. 49.]
388 cord_individual_obj[indivial_i,:] = [14. 4. 41. 45.]
389 cord_individual_obj[indivial_i,:] = [15. 4. 126. 130.]
390 cord_individual_obj[indivial_i,:] = [16. 3. 70. 73.]
391 cord_individual_obj[indivial_i,:] = [17. 6. 43. 49.]
392 cord_individual_obj[indivial_i,:] = [18. 3. 30. 33.]
393 cord_individual_obj[indivial_i,:] = [19. 4. 66. 70.]
394 cord_individual_obj[indivial_i,:] = [20. 5. 85. 90.]
395 cord_individual_obj[indivial_i,:] = [21. 4. 10. 14.]
396 cord_individual_obj[indivial_i,:] = [22. 4. 66. 70.]
397 cord_individual_obj[indivial_i,:] = [23. 4. 73. 77.]
398 cord_individual_obj[indivial_i,:] = [24. 4. 75. 79.]
399
400 min(cord_individual_obj[:,3]) = 14.0
401 histol_G_best_iter[iter,3] = 14.0
402 Begin iteration:
403
404 iter = 12
405 cord_individual_obj[indivial_i,:] = [ 0. 3. 101. 104.]
406 cord_individual_obj[indivial_i,:] = [ 1. 5. 79. 84.]
407 cord_individual_obj[indivial_i,:] = [ 2. 5. 51. 56.]
408 cord_individual_obj[indivial_i,:] = [ 3. 5. 35. 40.]
409 cord_individual_obj[indivial_i,:] = [ 4. 4. 61. 65.]
410 cord_individual_obj[indivial_i,:] = [ 5. 4. 52. 56.]
411 cord_individual_obj[indivial_i,:] = [ 6. 6. 78. 84.]
412 cord_individual_obj[indivial_i,:] = [ 7. 5. 80. 85.]
413 cord_individual_obj[indivial_i,:] = [ 8. 5. 37. 42.]
414 cord_individual_obj[indivial_i,:] = [ 9. 6. 40. 46.]
415 cord_individual_obj[indivial_i,:] = [10. 4. 58. 62.]

```

```

416 cord_individual_obj[indivial_i,:] = [11. 5. 67. 72.]
417 cord_individual_obj[indivial_i,:] = [12. 5. 99. 104.]
418 cord_individual_obj[indivial_i,:] = [13. 6. 22. 28.]
419 cord_individual_obj[indivial_i,:] = [14. 4. 40. 44.]
420 cord_individual_obj[indivial_i,:] = [15. 4. 10. 14.]
421 cord_individual_obj[indivial_i,:] = [16. 4. 39. 43.]
422 cord_individual_obj[indivial_i,:] = [17. 6. 43. 49.]
423 cord_individual_obj[indivial_i,:] = [18. 3. 44. 47.]
424 cord_individual_obj[indivial_i,:] = [19. 5. 57. 62.]
425 cord_individual_obj[indivial_i,:] = [20. 6. 82. 88.]
426 cord_individual_obj[indivial_i,:] = [21. 4. 87. 91.]
427 cord_individual_obj[indivial_i,:] = [22. 4. 74. 78.]
428 cord_individual_obj[indivial_i,:] = [23. 5. 99. 104.]
429 cord_individual_obj[indivial_i,:] = [24. 4. 51. 55.]
430
431 min(cord_individual_obj[:,3]) = 14.0
432 histol_G_best_iter[iter,3] = 14.0
433 Begin iteration:
434
435 iter = 13
436 cord_individual_obj[indivial_i,:] = [0. 4. 10. 14.]
437 cord_individual_obj[indivial_i,:] = [1. 3. 50. 53.]
438 cord_individual_obj[indivial_i,:] = [2. 5. 45. 50.]
439 cord_individual_obj[indivial_i,:] = [3. 4. 79. 83.]
440 cord_individual_obj[indivial_i,:] = [4. 6. 36. 42.]
441 cord_individual_obj[indivial_i,:] = [5. 4. 92. 96.]
442 cord_individual_obj[indivial_i,:] = [6. 6. 78. 84.]
443 cord_individual_obj[indivial_i,:] = [7. 5. 70. 75.]
444 cord_individual_obj[indivial_i,:] = [8. 4. 50. 54.]
445 cord_individual_obj[indivial_i,:] = [9. 5. 26. 31.]
446 cord_individual_obj[indivial_i,:] = [10. 5. 53. 58.]
447 cord_individual_obj[indivial_i,:] = [11. 4. 74. 78.]
448 cord_individual_obj[indivial_i,:] = [12. 5. 134. 139.]
449 cord_individual_obj[indivial_i,:] = [13. 5. 42. 47.]
450 cord_individual_obj[indivial_i,:] = [14. 5. 40. 45.]
451 cord_individual_obj[indivial_i,:] = [15. 4. 96. 100.]
452 cord_individual_obj[indivial_i,:] = [16. 3. 68. 71.]
453 cord_individual_obj[indivial_i,:] = [17. 6. 27. 33.]
454 cord_individual_obj[indivial_i,:] = [18. 3. 118. 121.]
455 cord_individual_obj[indivial_i,:] = [19. 4. 43. 47.]
456 cord_individual_obj[indivial_i,:] = [20. 5. 77. 82.]
457 cord_individual_obj[indivial_i,:] = [21. 4. 96. 100.]
458 cord_individual_obj[indivial_i,:] = [22. 4. 66. 70.]
459 cord_individual_obj[indivial_i,:] = [23. 4. 78. 82.]
460 cord_individual_obj[indivial_i,:] = [24. 4. 39. 43.]
461
462 min(cord_individual_obj[:,3]) = 14.0
463 histol_G_best_iter[iter,3] = 14.0
464 Begin iteration:
465
466 iter = 14
467 cord_individual_obj[indivial_i,:] = [0. 3. 93. 96.]
468 cord_individual_obj[indivial_i,:] = [1. 5. 61. 66.]
469 cord_individual_obj[indivial_i,:] = [2. 4. 56. 60.]
470 cord_individual_obj[indivial_i,:] = [3. 5. 44. 49.]
471 cord_individual_obj[indivial_i,:] = [4. 5. 22. 27.]
472 cord_individual_obj[indivial_i,:] = [5. 5. 18. 23.]
473 cord_individual_obj[indivial_i,:] = [6. 6. 91. 97.]
474 cord_individual_obj[indivial_i,:] = [7. 5. 57. 62.]
475 cord_individual_obj[indivial_i,:] = [8. 4. 116. 120.]
476 cord_individual_obj[indivial_i,:] = [9. 5. 66. 71.]
477 cord_individual_obj[indivial_i,:] = [10. 4. 80. 84.]
478 cord_individual_obj[indivial_i,:] = [11. 3. 100. 103.]
479 cord_individual_obj[indivial_i,:] = [12. 4. 10. 14.]
480 cord_individual_obj[indivial_i,:] = [13. 5. 90. 95.]
481 cord_individual_obj[indivial_i,:] = [14. 4. 51. 55.]
482 cord_individual_obj[indivial_i,:] = [15. 5. 38. 43.]
483 cord_individual_obj[indivial_i,:] = [16. 5. 46. 51.]
484 cord_individual_obj[indivial_i,:] = [17. 6. 67. 73.]
485 cord_individual_obj[indivial_i,:] = [18. 4. 17. 21.]
486 cord_individual_obj[indivial_i,:] = [19. 6. 61. 67.]
487 cord_individual_obj[indivial_i,:] = [20. 5. 105. 110.]
488 cord_individual_obj[indivial_i,:] = [21. 5. 43. 48.]
489 cord_individual_obj[indivial_i,:] = [22. 4. 66. 70.]
490 cord_individual_obj[indivial_i,:] = [23. 4. 32. 36.]
491 cord_individual_obj[indivial_i,:] = [24. 5. 41. 46.]
492
493 min(cord_individual_obj[:,3]) = 14.0
494 histol_G_best_iter[iter,3] = 14.0
495 Begin iteration:
496
497 iter = 15
498 cord_individual_obj[indivial_i,:] = [0. 4. 71. 75.]
499 cord_individual_obj[indivial_i,:] = [1. 4. 39. 43.]

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500 cord_individual_obj[indivial_i,:] = [ 2. 5. 36. 41.]
501 cord_individual_obj[indivial_i,:] = [ 3. 4. 36. 40.]
502 cord_individual_obj[indivial_i,:] = [ 4. 5. 38. 43.]
503 cord_individual_obj[indivial_i,:] = [ 5. 5. 34. 39.]
504 cord_individual_obj[indivial_i,:] = [ 6. 5. 39. 44.]
505 cord_individual_obj[indivial_i,:] = [ 7. 3. 32. 35.]
506 cord_individual_obj[indivial_i,:] = [ 8. 4. 10. 14.]
507 cord_individual_obj[indivial_i,:] = [ 9. 6. 23. 29.]
508 cord_individual_obj[indivial_i,:] = [10. 4. 16. 20.]
509 cord_individual_obj[indivial_i,:] = [11. 4. 57. 61.]
510 cord_individual_obj[indivial_i,:] = [12. 5. 107. 112.]
511 cord_individual_obj[indivial_i,:] = [13. 4. 71. 75.]
512 cord_individual_obj[indivial_i,:] = [14. 6. 22. 28.]
513 cord_individual_obj[indivial_i,:] = [15. 5. 9. 14.]
514 cord_individual_obj[indivial_i,:] = [16. 5. 62. 67.]
515 cord_individual_obj[indivial_i,:] = [17. 4. 29. 33.]
516 cord_individual_obj[indivial_i,:] = [18. 6. 84. 90.]
517 cord_individual_obj[indivial_i,:] = [19. 6. 98. 104.]
518 cord_individual_obj[indivial_i,:] = [20. 4. 94. 98.]
519 cord_individual_obj[indivial_i,:] = [21. 5. 127. 132.]
520 cord_individual_obj[indivial_i,:] = [22. 5. 49. 54.]
521 cord_individual_obj[indivial_i,:] = [23. 4. 37. 41.]
522 cord_individual_obj[indivial_i,:] = [24. 4. 36. 40.]
523
524 min(cord_individual_obj[:,3]) = 14.0
525 histol_G_best_iter[iter, 3] = 14.0
526 Begin iteration:
527
528 iter = 16
529 cord_individual_obj[indivial_i,:] = [ 0. 4. 81. 85.]
530 cord_individual_obj[indivial_i,:] = [ 1. 4. 84. 88.]
531 cord_individual_obj[indivial_i,:] = [ 2. 4. 95. 99.]
532 cord_individual_obj[indivial_i,:] = [ 3. 4. 39. 43.]
533 cord_individual_obj[indivial_i,:] = [ 4. 4. 61. 65.]
534 cord_individual_obj[indivial_i,:] = [ 5. 4. 79. 83.]
535 cord_individual_obj[indivial_i,:] = [ 6. 5. 86. 91.]
536 cord_individual_obj[indivial_i,:] = [ 7. 4. 23. 27.]
537 cord_individual_obj[indivial_i,:] = [ 8. 4. 109. 113.]
538 cord_individual_obj[indivial_i,:] = [ 9. 5. 40. 45.]
539 cord_individual_obj[indivial_i,:] = [10. 4. 81. 85.]
540 cord_individual_obj[indivial_i,:] = [11. 4. 75. 79.]
541 cord_individual_obj[indivial_i,:] = [12. 4. 103. 107.]
542 cord_individual_obj[indivial_i,:] = [13. 7. 56. 63.]
543 cord_individual_obj[indivial_i,:] = [14. 6. 46. 52.]
544 cord_individual_obj[indivial_i,:] = [15. 4. 89. 93.]
545 cord_individual_obj[indivial_i,:] = [16. 3. 68. 71.]
546 cord_individual_obj[indivial_i,:] = [17. 6. 42. 48.]
547 cord_individual_obj[indivial_i,:] = [18. 4. 51. 55.]
548 cord_individual_obj[indivial_i,:] = [19. 4. 65. 69.]
549 cord_individual_obj[indivial_i,:] = [20. 5. 13. 18.]
550 cord_individual_obj[indivial_i,:] = [21. 4. 10. 14.]
551 cord_individual_obj[indivial_i,:] = [22. 4. 67. 71.]
552 cord_individual_obj[indivial_i,:] = [23. 5. 73. 78.]
553 cord_individual_obj[indivial_i,:] = [24. 4. 49. 53.]
554
555 min(cord_individual_obj[:,3]) = 14.0
556 histol_G_best_iter[iter, 3] = 14.0
557 Begin iteration:
558
559 iter = 17
560 cord_individual_obj[indivial_i,:] = [ 0. 4. 37. 41.]
561 cord_individual_obj[indivial_i,:] = [ 1. 4. 38. 42.]
562 cord_individual_obj[indivial_i,:] = [ 2. 5. 59. 64.]
563 cord_individual_obj[indivial_i,:] = [ 3. 5. 63. 68.]
564 cord_individual_obj[indivial_i,:] = [ 4. 5. 23. 28.]
565 cord_individual_obj[indivial_i,:] = [ 5. 5. 15. 20.]
566 cord_individual_obj[indivial_i,:] = [ 6. 4. 43. 47.]
567 cord_individual_obj[indivial_i,:] = [ 7. 5. 24. 29.]
568 cord_individual_obj[indivial_i,:] = [ 8. 4. 10. 14.]
569 cord_individual_obj[indivial_i,:] = [ 9. 5. 83. 88.]
570 cord_individual_obj[indivial_i,:] = [10. 5. 82. 87.]
571 cord_individual_obj[indivial_i,:] = [11. 3. 66. 69.]
572 cord_individual_obj[indivial_i,:] = [12. 5. 44. 49.]
573 cord_individual_obj[indivial_i,:] = [13. 4. 76. 80.]
574 cord_individual_obj[indivial_i,:] = [14. 6. 65. 71.]
575 cord_individual_obj[indivial_i,:] = [15. 4. 23. 27.]
576 cord_individual_obj[indivial_i,:] = [16. 4. 64. 68.]
577 cord_individual_obj[indivial_i,:] = [17. 6. 79. 85.]
578 cord_individual_obj[indivial_i,:] = [18. 5. 12. 17.]
579 cord_individual_obj[indivial_i,:] = [19. 4. 57. 61.]
580 cord_individual_obj[indivial_i,:] = [20. 5. 51. 56.]
581 cord_individual_obj[indivial_i,:] = [21. 3. 94. 97.]
582 cord_individual_obj[indivial_i,:] = [22. 5. 80. 85.]
583 cord_individual_obj[indivial_i,:] = [23. 4. 114. 118.]

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unknown

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584     cord_individual_obj[indivial_i, :] = [24. 5. 34. 39.]  
585  
586     min(cord_individual_obj[:, 3]) = 14.0  
587     historl_G_best_iter[iter, 3] = 14.0  
588 Begin iteration:  
589 iter = 18  
591     cord_individual_obj[indivial_i, :] = [ 0. 4. 62. 66.]  
592     cord_individual_obj[indivial_i, :] = [ 1. 5. 25. 30.]  
593     cord_individual_obj[indivial_i, :] = [ 2. 3. 20. 23.]  
594     cord_individual_obj[indivial_i, :] = [ 3. 5. 58. 63.]  
595     cord_individual_obj[indivial_i, :] = [ 4. 4. 40. 44.]  
596     cord_individual_obj[indivial_i, :] = [ 5. 5. 18. 23.]  
597     cord_individual_obj[indivial_i, :] = [ 6. 6. 72. 78.]  
598     cord_individual_obj[indivial_i, :] = [ 7. 4. 61. 65.]  
599     cord_individual_obj[indivial_i, :] = [ 8. 4. 109. 113.]  
600     cord_individual_obj[indivial_i, :] = [ 9. 5. 65. 70.]  
601     cord_individual_obj[indivial_i, :] = [10. 4. 49. 53.]  
602     cord_individual_obj[indivial_i, :] = [11. 4. 98. 102.]  
603     cord_individual_obj[indivial_i, :] = [12. 6. 97. 103.]  
604     cord_individual_obj[indivial_i, :] = [13. 5. 43. 48.]  
605     cord_individual_obj[indivial_i, :] = [14. 6. 43. 49.]  
606     cord_individual_obj[indivial_i, :] = [15. 6. 95. 101.]  
607     cord_individual_obj[indivial_i, :] = [16. 5. 91. 96.]  
608     cord_individual_obj[indivial_i, :] = [17. 6. 64. 70.]  
609     cord_individual_obj[indivial_i, :] = [18. 5. 14. 19.]  
610     cord_individual_obj[indivial_i, :] = [19. 5. 26. 31.]  
611     cord_individual_obj[indivial_i, :] = [20. 5. 56. 61.]  
612     cord_individual_obj[indivial_i, :] = [21. 5. 80. 85.]  
613     cord_individual_obj[indivial_i, :] = [22. 5. 30. 35.]  
614     cord_individual_obj[indivial_i, :] = [23. 4. 10. 14.]  
615     cord_individual_obj[indivial_i, :] = [24. 4. 41. 45.]  
616  
617     min(cord_individual_obj[:, 3]) = 14.0  
618     historl_G_best_iter[iter, 3] = 14.0  
619 Begin iteration:  
620  
621 iter = 19  
622     cord_individual_obj[indivial_i, :] = [ 0. 6. 69. 75.]  
623     cord_individual_obj[indivial_i, :] = [ 1. 4. 13. 17.]  
624     cord_individual_obj[indivial_i, :] = [ 2. 5. 46. 51.]  
625     cord_individual_obj[indivial_i, :] = [ 3. 5. 47. 52.]  
626     cord_individual_obj[indivial_i, :] = [ 4. 6. 13. 19.]  
627     cord_individual_obj[indivial_i, :] = [ 5. 4. 44. 48.]  
628     cord_individual_obj[indivial_i, :] = [ 6. 5. 113. 118.]  
629     cord_individual_obj[indivial_i, :] = [ 7. 5. 79. 84.]  
630     cord_individual_obj[indivial_i, :] = [ 8. 4. 10. 14.]  
631     cord_individual_obj[indivial_i, :] = [ 9. 4. 79. 83.]  
632     cord_individual_obj[indivial_i, :] = [10. 5. 22. 27.]  
633     cord_individual_obj[indivial_i, :] = [11. 5. 74. 79.]  
634     cord_individual_obj[indivial_i, :] = [12. 6. 14. 20.]  
635     cord_individual_obj[indivial_i, :] = [13. 5. 84. 89.]  
636     cord_individual_obj[indivial_i, :] = [14. 4. 52. 56.]  
637     cord_individual_obj[indivial_i, :] = [15. 4. 106. 110.]  
638     cord_individual_obj[indivial_i, :] = [16. 6. 96. 102.]  
639     cord_individual_obj[indivial_i, :] = [17. 4. 19. 23.]  
640     cord_individual_obj[indivial_i, :] = [18. 7. 64. 71.]  
641     cord_individual_obj[indivial_i, :] = [19. 6. 194. 200.]  
642     cord_individual_obj[indivial_i, :] = [20. 4. 51. 55.]  
643     cord_individual_obj[indivial_i, :] = [21. 4. 91. 95.]  
644     cord_individual_obj[indivial_i, :] = [22. 4. 75. 79.]  
645     cord_individual_obj[indivial_i, :] = [23. 4. 35. 39.]  
646     cord_individual_obj[indivial_i, :] = [24. 4. 35. 39.]  
647  
648     min(cord_individual_obj[:, 3]) = 14.0  
649     historl_G_best_iter[iter, 3] = 14.0  
650 Begin iteration:  
651  
652 iter = 20  
653     cord_individual_obj[indivial_i, :] = [ 0. 4. 152. 156.]  
654     cord_individual_obj[indivial_i, :] = [ 1. 4. 66. 70.]  
655     cord_individual_obj[indivial_i, :] = [ 2. 6. 38. 44.]  
656     cord_individual_obj[indivial_i, :] = [ 3. 4. 64. 68.]  
657     cord_individual_obj[indivial_i, :] = [ 4. 4. 29. 33.]  
658     cord_individual_obj[indivial_i, :] = [ 5. 5. 42. 47.]  
659     cord_individual_obj[indivial_i, :] = [ 6. 5. 92. 97.]  
660     cord_individual_obj[indivial_i, :] = [ 7. 4. 95. 99.]  
661     cord_individual_obj[indivial_i, :] = [ 8. 5. 37. 42.]  
662     cord_individual_obj[indivial_i, :] = [ 9. 5. 39. 44.]  
663     cord_individual_obj[indivial_i, :] = [10. 5. 27. 32.]  
664     cord_individual_obj[indivial_i, :] = [11. 5. 12. 17.]  
665     cord_individual_obj[indivial_i, :] = [12. 6. 51. 57.]  
666     cord_individual_obj[indivial_i, :] = [13. 5. 41. 46.]  
667     cord_individual_obj[indivial_i, :] = [14. 4. 80. 84.]
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668 cord_individual_obj[indivial_i,:] = [15. 6. 63. 69.]
669 cord_individual_obj[indivial_i,:] = [16. 5. 99. 104.]
670 cord_individual_obj[indivial_i,:] = [17. 6. 58. 64.]
671 cord_individual_obj[indivial_i,:] = [18. 4. 67. 71.]
672 cord_individual_obj[indivial_i,:] = [19. 4. 10. 14.]
673 cord_individual_obj[indivial_i,:] = [20. 5. 74. 79.]
674 cord_individual_obj[indivial_i,:] = [21. 4. 66. 70.]
675 cord_individual_obj[indivial_i,:] = [22. 4. 66. 70.]
676 cord_individual_obj[indivial_i,:] = [23. 4. 92. 96.]
677 cord_individual_obj[indivial_i,:] = [24. 5. 67. 72.]
678
679 min(cord_individual_obj[:, 3]) = 14.0
680 historl_G_best_iter[iter, 3] = 14.0
681 Iteration calculate over
682
683
684
685
686 All item are in Bin and:
687 Bin area = 1080
688 Real_area = 114.0
689 Proportion_of_area = 0.10555555555555556
690 BEST_CHROM =
691 berth: [ 7. 15.5 2. 2.5 22.5 17.5 8. 11.5 24. ]
692 time: [2. 0. 2. 0. 0. 3. 0. 2. 1.]
693 num_QC: [2. 2. 4. 3. 3. 5. 5. 3. 3.]
694 Objective function values and some other indicators:
695 Obj0 = 4.00 Obj1 = 10.00 Obj0 + Obj1 = 14.00
696 Total movement of crane: 0.00
697 Total waiting time in berth position: 10.00
698 Total index of q during berthing: 472.00
699 Specific arrangement for each vessel:
700 V_id: 0 li: 6.0 xi: 7.0 bow of i: 4.0 tail of i: 10.0 gama_i0: 2.0 gama_i1: 4.0
701 .0 work load gap_i: 0 gama_i1 + 1: 5.0 gama_i1 - gama_i0: 2.0 duration_time_i: 3.0 demand_i: 100.0 work load_i:
702 V_id: 1 li: 9.0 xi: 15.5 bow of i: 11.0 tail of i: 20.0 gama_i0: 0.0 gama_i1: 1
703 .0 work load gap_i: 0 gama_i1 + 1: 2.0 gama_i1 - gama_i0: 1.0 duration_time_i: 2.0 demand_i: 80.0 work
704 V_id: 2 li: 4.0 xi: 2.0 bow of i: 0.0 tail of i: 4.0 gama_i0: 2.0 gama_i1: 3.0
705 .0 work load gap_i: 0 gama_i1 + 1: 4.0 gama_i1 - gama_i0: 1.0 duration_time_i: 2.0 demand_i: 140.0 work load_i:
706 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: 1.0
707 .0 work load gap_i: 0 gama_i1 + 1: 2.0 gama_i1 - gama_i0: 1.0 duration_time_i: 2.0 demand_i: 120.0 work load_i:
708 V_id: 4 li: 5.0 xi: 22.5 bow of i: 20.0 tail of i: 25.0 gama_i0: 0.0 gama_i1: 0
709 .0 work load gap_i: 0 gama_i1 + 1: 1.0 gama_i1 - gama_i0: 0.0 duration_time_i: 1.0 demand_i: 60.0 work
710 V_id: 5 li: 9.0 xi: 17.5 bow of i: 13.0 tail of i: 22.0 gama_i0: 3.0 gama_i1: 4
711 .0 work load gap_i: 0 gama_i1 + 1: 5.0 gama_i1 - gama_i0: 1.0 duration_time_i: 2.0 demand_i: 120.0 work
712 V_id: 6 li: 6.0 xi: 8.0 bow of i: 5.0 tail of i: 11.0 gama_i0: 0.0 gama_i1: 1.0
713 .0 work load gap_i: 0 gama_i1 + 1: 2.0 gama_i1 - gama_i0: 1.0 duration_time_i: 2.0 demand_i: 140.0 work load_i:
714 V_id: 7 li: 3.0 xi: 11.5 bow of i: 10.0 tail of i: 13.0 gama_i0: 2.0 gama_i1: 3
715 .0 work load gap_i: 0 gama_i1 + 1: 4.0 gama_i1 - gama_i0: 1.0 duration_time_i: 2.0 demand_i: 120.0 work
716 V_id: 8 li: 8.0 xi: 24.0 bow of i: 20.0 tail of i: 28.0 gama_i0: 1.0 gama_i1: 2
717 .0 work load gap_i: 0 gama_i1 + 1: 3.0 gama_i1 - gama_i0: 1.0 duration_time_i: 2.0 demand_i: 120.0 work
718
719 Algorithm finished and the total CPU time: 258 s
720 End
721
722

```