

unknown

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80 cord_individual_obj[indivial_i, :] = [16. 4. 12. 16.]
81 cord_individual_obj[indivial_i, :] = [17. 3. 46. 49.]
82 cord_individual_obj[indivial_i, :] = [18. 6. 52. 58.]
83 cord_individual_obj[indivial_i, :] = [19. 4. 30. 34.]
84 cord_individual_obj[indivial_i, :] = [20. 4. 54. 58.]
85 cord_individual_obj[indivial_i, :] = [21. 6. 40. 46.]
86 cord_individual_obj[indivial_i, :] = [22. 3. 78. 81.]
87 cord_individual_obj[indivial_i, :] = [23. 3. 60. 63.]
88 cord_individual_obj[indivial_i, :] = [24. 4. 34. 38.]
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. 122. 125.]
96 cord_individual_obj[indivial_i, :] = [ 1. 6. 12. 18.]
97 cord_individual_obj[indivial_i, :] = [ 2. 4. 12. 16.]
98 cord_individual_obj[indivial_i, :] = [ 3. 3. 132. 135.]
99 cord_individual_obj[indivial_i, :] = [ 4. 6. 32. 38.]
100 cord_individual_obj[indivial_i, :] = [ 5. 3. 60. 63.]
101 cord_individual_obj[indivial_i, :] = [ 6. 4. 4. 8.]
102 cord_individual_obj[indivial_i, :] = [ 7. 6. 20. 26.]
103 cord_individual_obj[indivial_i, :] = [ 8. 6. 12. 18.]
104 cord_individual_obj[indivial_i, :] = [ 9. 6. 48. 54.]
105 cord_individual_obj[indivial_i, :] = [10. 4. 12. 16.]
106 cord_individual_obj[indivial_i, :] = [11. 6. 32. 38.]
107 cord_individual_obj[indivial_i, :] = [12. 4. 18. 22.]
108 cord_individual_obj[indivial_i, :] = [13. 6. 60. 66.]
109 cord_individual_obj[indivial_i, :] = [14. 4. 84. 88.]
110 cord_individual_obj[indivial_i, :] = [15. 4. 52. 56.]
111 cord_individual_obj[indivial_i, :] = [16. 4. 62. 66.]
112 cord_individual_obj[indivial_i, :] = [17. 6. 56. 62.]
113 cord_individual_obj[indivial_i, :] = [18. 6. 32. 38.]
114 cord_individual_obj[indivial_i, :] = [19. 6. 32. 38.]
115 cord_individual_obj[indivial_i, :] = [20. 4. 54. 58.]
116 cord_individual_obj[indivial_i, :] = [21. 6. 20. 26.]
117 cord_individual_obj[indivial_i, :] = [22. 3. 126. 129.]
118 cord_individual_obj[indivial_i, :] = [23. 3. 36. 39.]
119 cord_individual_obj[indivial_i, :] = [24. 6. 16. 22.]
120
121 min(cord_individual_obj[:, 3]) = 8.0
122 historl_G_best_iter[iter, 3] = 8.0
123 Begin iteration:
124
125 iter = 3
126 cord_individual_obj[indivial_i, :] = [ 0. 4. 140. 144.]
127 cord_individual_obj[indivial_i, :] = [ 1. 4. 4. 8.]
128 cord_individual_obj[indivial_i, :] = [ 2. 6. 32. 38.]
129 cord_individual_obj[indivial_i, :] = [ 3. 4. 4. 8.]
130 cord_individual_obj[indivial_i, :] = [ 4. 4. 128. 132.]
131 cord_individual_obj[indivial_i, :] = [ 5. 4. 64. 68.]
132 cord_individual_obj[indivial_i, :] = [ 6. 4. 102. 106.]
133 cord_individual_obj[indivial_i, :] = [ 7. 6. 28. 34.]
134 cord_individual_obj[indivial_i, :] = [ 8. 6. 60. 66.]
135 cord_individual_obj[indivial_i, :] = [ 9. 3. 12. 15.]
136 cord_individual_obj[indivial_i, :] = [10. 3. 12. 15.]
137 cord_individual_obj[indivial_i, :] = [11. 4. 44. 48.]
138 cord_individual_obj[indivial_i, :] = [12. 4. 24. 28.]
139 cord_individual_obj[indivial_i, :] = [13. 6. 120. 126.]
140 cord_individual_obj[indivial_i, :] = [14. 4. 64. 68.]
141 cord_individual_obj[indivial_i, :] = [15. 4. 30. 34.]
142 cord_individual_obj[indivial_i, :] = [16. 6. 24. 30.]
143 cord_individual_obj[indivial_i, :] = [17. 6. 74. 80.]
144 cord_individual_obj[indivial_i, :] = [18. 6. 60. 66.]
145 cord_individual_obj[indivial_i, :] = [19. 4. 42. 46.]
146 cord_individual_obj[indivial_i, :] = [20. 4. 116. 120.]
147 cord_individual_obj[indivial_i, :] = [21. 3. 70. 73.]
148 cord_individual_obj[indivial_i, :] = [22. 3. 86. 89.]
149 cord_individual_obj[indivial_i, :] = [23. 6. 52. 58.]
150 cord_individual_obj[indivial_i, :] = [24. 6. 16. 22.]
151
152 min(cord_individual_obj[:, 3]) = 8.0
153 historl_G_best_iter[iter, 3] = 8.0
154 Begin iteration:
155
156 iter = 4
157 cord_individual_obj[indivial_i, :] = [0. 4. 4. 8.]
158 cord_individual_obj[indivial_i, :] = [ 1. 6. 12. 18.]
159 cord_individual_obj[indivial_i, :] = [ 2. 6. 52. 58.]
160 cord_individual_obj[indivial_i, :] = [ 3. 4. 42. 46.]
161 cord_individual_obj[indivial_i, :] = [ 4. 6. 20. 26.]
162 cord_individual_obj[indivial_i, :] = [ 5. 3. 96. 99.]
163 cord_individual_obj[indivial_i, :] = [ 6. 4. 4. 8.]

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164 cord_individual_obj[indivial_i,:] = [ 7. 6. 20. 26.]
165 cord_individual_obj[indivial_i,:] = [ 8. 6. 24. 30.]
166 cord_individual_obj[indivial_i,:] = [ 9. 6. 12. 18.]
167 cord_individual_obj[indivial_i,:] = [10. 3. 40. 43.]
168 cord_individual_obj[indivial_i,:] = [11. 6. 32. 38.]
169 cord_individual_obj[indivial_i,:] = [12. 4. 4. 8.]
170 cord_individual_obj[indivial_i,:] = [13. 6. 60. 66.]
171 cord_individual_obj[indivial_i,:] = [14. 4. 42. 46.]
172 cord_individual_obj[indivial_i,:] = [15. 4. 126. 130.]
173 cord_individual_obj[indivial_i,:] = [16. 6. 4. 10.]
174 cord_individual_obj[indivial_i,:] = [17. 4. 36. 40.]
175 cord_individual_obj[indivial_i,:] = [18. 6. 16. 22.]
176 cord_individual_obj[indivial_i,:] = [19. 6. 104. 110.]
177 cord_individual_obj[indivial_i,:] = [20. 4. 32. 36.]
178 cord_individual_obj[indivial_i,:] = [21. 6. 100. 106.]
179 cord_individual_obj[indivial_i,:] = [22. 3. 44. 47.]
180 cord_individual_obj[indivial_i,:] = [23. 4. 88. 92.]
181 cord_individual_obj[indivial_i,:] = [24. 6. 76. 82.]
182
183 min(cord_individual_obj[:,3]) = 8.0
184 historl_G_best_iter[iter,3] = 8.0
185 Begin iteration:
186
187 iter = 5
188 cord_individual_obj[indivial_i,:] = [ 0. 4. 88. 92.]
189 cord_individual_obj[indivial_i,:] = [ 1. 4. 54. 58.]
190 cord_individual_obj[indivial_i,:] = [ 2. 6. 30. 36.]
191 cord_individual_obj[indivial_i,:] = [ 3. 4. 64. 68.]
192 cord_individual_obj[indivial_i,:] = [ 4. 6. 80. 86.]
193 cord_individual_obj[indivial_i,:] = [ 5. 3. 12. 15.]
194 cord_individual_obj[indivial_i,:] = [ 6. 4. 12. 16.]
195 cord_individual_obj[indivial_i,:] = [ 7. 4. 148. 152.]
196 cord_individual_obj[indivial_i,:] = [ 8. 6. 72. 78.]
197 cord_individual_obj[indivial_i,:] = [ 9. 6. 4. 10.]
198 cord_individual_obj[indivial_i,:] = [10. 4. 12. 16.]
199 cord_individual_obj[indivial_i,:] = [11. 6. 40. 46.]
200 cord_individual_obj[indivial_i,:] = [12. 4. 146. 150.]
201 cord_individual_obj[indivial_i,:] = [13. 3. 156. 159.]
202 cord_individual_obj[indivial_i,:] = [14. 4. 42. 46.]
203 cord_individual_obj[indivial_i,:] = [15. 4. 4. 8.]
204 cord_individual_obj[indivial_i,:] = [16. 4. 42. 46.]
205 cord_individual_obj[indivial_i,:] = [17. 3. 40. 43.]
206 cord_individual_obj[indivial_i,:] = [18. 6. 24. 30.]
207 cord_individual_obj[indivial_i,:] = [19. 3. 156. 159.]
208 cord_individual_obj[indivial_i,:] = [20. 4. 64. 68.]
209 cord_individual_obj[indivial_i,:] = [21. 6. 100. 106.]
210 cord_individual_obj[indivial_i,:] = [22. 3. 160. 163.]
211 cord_individual_obj[indivial_i,:] = [23. 6. 16. 22.]
212 cord_individual_obj[indivial_i,:] = [24. 6. 82. 88.]
213
214 min(cord_individual_obj[:,3]) = 8.0
215 historl_G_best_iter[iter,3] = 8.0
216 Begin iteration:
217
218 iter = 6
219 cord_individual_obj[indivial_i,:] = [ 0. 4. 64. 68.]
220 cord_individual_obj[indivial_i,:] = [ 1. 6. 56. 62.]
221 cord_individual_obj[indivial_i,:] = [ 2. 4. 4. 8.]
222 cord_individual_obj[indivial_i,:] = [ 3. 4. 4. 8.]
223 cord_individual_obj[indivial_i,:] = [ 4. 6. 20. 26.]
224 cord_individual_obj[indivial_i,:] = [ 5. 4. 66. 70.]
225 cord_individual_obj[indivial_i,:] = [ 6. 4. 4. 8.]
226 cord_individual_obj[indivial_i,:] = [ 7. 6. 64. 70.]
227 cord_individual_obj[indivial_i,:] = [ 8. 4. 24. 28.]
228 cord_individual_obj[indivial_i,:] = [ 9. 6. 56. 62.]
229 cord_individual_obj[indivial_i,:] = [10. 3. 12. 15.]
230 cord_individual_obj[indivial_i,:] = [11. 4. 24. 28.]
231 cord_individual_obj[indivial_i,:] = [12. 4. 4. 8.]
232 cord_individual_obj[indivial_i,:] = [13. 3. 68. 71.]
233 cord_individual_obj[indivial_i,:] = [14. 4. 36. 40.]
234 cord_individual_obj[indivial_i,:] = [15. 4. 64. 68.]
235 cord_individual_obj[indivial_i,:] = [16. 6. 12. 18.]
236 cord_individual_obj[indivial_i,:] = [17. 4. 18. 22.]
237 cord_individual_obj[indivial_i,:] = [18. 4. 24. 28.]
238 cord_individual_obj[indivial_i,:] = [19. 6. 4. 10.]
239 cord_individual_obj[indivial_i,:] = [20. 4. 4. 8.]
240 cord_individual_obj[indivial_i,:] = [21. 6. 4. 10.]
241 cord_individual_obj[indivial_i,:] = [22. 4. 4. 8.]
242 cord_individual_obj[indivial_i,:] = [23. 3. 36. 39.]
243 cord_individual_obj[indivial_i,:] = [24. 4. 36. 40.]
244
245 min(cord_individual_obj[:,3]) = 8.0
246 historl_G_best_iter[iter,3] = 8.0
247 Begin iteration:

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248
249 iter = 7
250 cord_individual_obj[indivial_i, :] = [ 0. 3. 60. 63.]
251 cord_individual_obj[indivial_i, :] = [ 1. 4. 102. 106.]
252 cord_individual_obj[indivial_i, :] = [ 2. 6. 30. 36.]
253 cord_individual_obj[indivial_i, :] = [ 3. 4. 12. 16.]
254 cord_individual_obj[indivial_i, :] = [ 4. 6. 12. 18.]
255 cord_individual_obj[indivial_i, :] = [ 5. 3. 70. 73.]
256 cord_individual_obj[indivial_i, :] = [ 6. 4. 12. 16.]
257 cord_individual_obj[indivial_i, :] = [ 7. 4. 12. 16.]
258 cord_individual_obj[indivial_i, :] = [ 8. 6. 12. 18.]
259 cord_individual_obj[indivial_i, :] = [ 9. 6. 84. 90.]
260 cord_individual_obj[indivial_i, :] = [10. 3. 24. 27.]
261 cord_individual_obj[indivial_i, :] = [11. 6. 30. 36.]
262 cord_individual_obj[indivial_i, :] = [12. 4. 32. 36.]
263 cord_individual_obj[indivial_i, :] = [13. 4. 4. 8.]
264 cord_individual_obj[indivial_i, :] = [14. 4. 4. 8.]
265 cord_individual_obj[indivial_i, :] = [15. 4. 102. 106.]
266 cord_individual_obj[indivial_i, :] = [16. 6. 46. 52.]
267 cord_individual_obj[indivial_i, :] = [17. 3. 12. 15.]
268 cord_individual_obj[indivial_i, :] = [18. 4. 24. 28.]
269 cord_individual_obj[indivial_i, :] = [19. 6. 24. 30.]
270 cord_individual_obj[indivial_i, :] = [20. 4. 40. 44.]
271 cord_individual_obj[indivial_i, :] = [21. 4. 24. 28.]
272 cord_individual_obj[indivial_i, :] = [22. 3. 66. 69.]
273 cord_individual_obj[indivial_i, :] = [23. 3. 66. 69.]
274 cord_individual_obj[indivial_i, :] = [24. 6. 40. 46.]
275

276 min(cord_individual_obj[:, 3]) = 8.0
277 historl_G_best_iter[iter, 3] = 8.0
278 Begin iteration:
279
280 iter = 8
281 cord_individual_obj[indivial_i, :] = [ 0. 3. 40. 43.]
282 cord_individual_obj[indivial_i, :] = [1. 4. 4. 8.]
283 cord_individual_obj[indivial_i, :] = [ 2. 6. 24. 30.]
284 cord_individual_obj[indivial_i, :] = [ 3. 4. 36. 40.]
285 cord_individual_obj[indivial_i, :] = [ 4. 6. 12. 18.]
286 cord_individual_obj[indivial_i, :] = [ 5. 4. 4. 8.]
287 cord_individual_obj[indivial_i, :] = [ 6. 4. 40. 44.]
288 cord_individual_obj[indivial_i, :] = [ 7. 6. 4. 10.]
289 cord_individual_obj[indivial_i, :] = [ 8. 4. 24. 28.]
290 cord_individual_obj[indivial_i, :] = [ 9. 6. 56. 62.]
291 cord_individual_obj[indivial_i, :] = [10. 3. 102. 105.]
292 cord_individual_obj[indivial_i, :] = [11. 6. 24. 30.]
293 cord_individual_obj[indivial_i, :] = [12. 4. 146. 150.]
294 cord_individual_obj[indivial_i, :] = [13. 6. 112. 118.]
295 cord_individual_obj[indivial_i, :] = [14. 4. 4. 8.]
296 cord_individual_obj[indivial_i, :] = [15. 4. 40. 44.]
297 cord_individual_obj[indivial_i, :] = [16. 4. 4. 8.]
298 cord_individual_obj[indivial_i, :] = [17. 4. 12. 16.]
299 cord_individual_obj[indivial_i, :] = [18. 4. 12. 16.]
300 cord_individual_obj[indivial_i, :] = [19. 6. 12. 18.]
301 cord_individual_obj[indivial_i, :] = [20. 4. 20. 24.]
302 cord_individual_obj[indivial_i, :] = [21. 6. 12. 18.]
303 cord_individual_obj[indivial_i, :] = [22. 4. 40. 44.]
304 cord_individual_obj[indivial_i, :] = [23. 4. 40. 44.]
305 cord_individual_obj[indivial_i, :] = [24. 4. 60. 64.]
306

307 min(cord_individual_obj[:, 3]) = 8.0
308 historl_G_best_iter[iter, 3] = 8.0
309 Begin iteration:
310
311 iter = 9
312 cord_individual_obj[indivial_i, :] = [ 0. 4. 74. 78.]
313 cord_individual_obj[indivial_i, :] = [ 1. 3. 58. 61.]
314 cord_individual_obj[indivial_i, :] = [ 2. 4. 24. 28.]
315 cord_individual_obj[indivial_i, :] = [ 3. 4. 68. 72.]
316 cord_individual_obj[indivial_i, :] = [ 4. 6. 32. 38.]
317 cord_individual_obj[indivial_i, :] = [ 5. 3. 68. 71.]
318 cord_individual_obj[indivial_i, :] = [ 6. 4. 42. 46.]
319 cord_individual_obj[indivial_i, :] = [ 7. 4. 72. 76.]
320 cord_individual_obj[indivial_i, :] = [ 8. 6. 4. 10.]
321 cord_individual_obj[indivial_i, :] = [ 9. 4. 32. 36.]
322 cord_individual_obj[indivial_i, :] = [10. 4. 78. 82.]
323 cord_individual_obj[indivial_i, :] = [11. 4. 52. 56.]
324 cord_individual_obj[indivial_i, :] = [12. 4. 4. 8.]
325 cord_individual_obj[indivial_i, :] = [13. 6. 66. 72.]
326 cord_individual_obj[indivial_i, :] = [14. 4. 84. 88.]
327 cord_individual_obj[indivial_i, :] = [15. 4. 36. 40.]
328 cord_individual_obj[indivial_i, :] = [16. 6. 12. 18.]
329 cord_individual_obj[indivial_i, :] = [17. 3. 48. 51.]
330 cord_individual_obj[indivial_i, :] = [18. 4. 68. 72.]
331 cord_individual_obj[indivial_i, :] = [19. 4. 62. 66.]

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332 cord_individual_obj[indivial_i,:] = [20. 4. 32. 36.]
333 cord_individual_obj[indivial_i,:] = [21. 3. 78. 81.]
334 cord_individual_obj[indivial_i,:] = [22. 3. 84. 87.]
335 cord_individual_obj[indivial_i,:] = [23. 3. 80. 83.]
336 cord_individual_obj[indivial_i,:] = [24. 6. 66. 72.]
337
338 min(cord_individual_obj[:,3]) = 8.0
339 histol_G_best_iter[iter,3] = 8.0
340 Begin iteration:
341
342 iter = 10
343 cord_individual_obj[indivial_i,:] = [ 0. 3. 70. 73.]
344 cord_individual_obj[indivial_i,:] = [ 1. 6. 96. 102.]
345 cord_individual_obj[indivial_i,:] = [ 2. 6. 30. 36.]
346 cord_individual_obj[indivial_i,:] = [ 3. 4. 36. 40.]
347 cord_individual_obj[indivial_i,:] = [ 4. 6. 12. 18.]
348 cord_individual_obj[indivial_i,:] = [ 5. 3. 92. 95.]
349 cord_individual_obj[indivial_i,:] = [ 6. 4. 12. 16.]
350 cord_individual_obj[indivial_i,:] = [ 7. 6. 44. 50.]
351 cord_individual_obj[indivial_i,:] = [ 8. 6. 40. 46.]
352 cord_individual_obj[indivial_i,:] = [ 9. 6. 132. 138.]
353 cord_individual_obj[indivial_i,:] = [10. 3. 4. 7.]
354 cord_individual_obj[indivial_i,:] = [11. 6. 12. 18.]
355 cord_individual_obj[indivial_i,:] = [12. 4. 4. 8.]
356 cord_individual_obj[indivial_i,:] = [13. 6. 40. 46.]
357 cord_individual_obj[indivial_i,:] = [14. 4. 4. 8.]
358 cord_individual_obj[indivial_i,:] = [15. 4. 40. 44.]
359 cord_individual_obj[indivial_i,:] = [16. 6. 12. 18.]
360 cord_individual_obj[indivial_i,:] = [17. 4. 12. 16.]
361 cord_individual_obj[indivial_i,:] = [18. 4. 12. 16.]
362 cord_individual_obj[indivial_i,:] = [19. 6. 54. 60.]
363 cord_individual_obj[indivial_i,:] = [20. 4. 44. 48.]
364 cord_individual_obj[indivial_i,:] = [21. 6. 12. 18.]
365 cord_individual_obj[indivial_i,:] = [22. 3. 20. 23.]
366 cord_individual_obj[indivial_i,:] = [23. 4. 12. 16.]
367 cord_individual_obj[indivial_i,:] = [24. 6. 66. 72.]
368
369 min(cord_individual_obj[:,3]) = 7.0
370 histol_G_best_iter[iter,3] = 7.0
371 Begin iteration:
372
373 iter = 11
374 cord_individual_obj[indivial_i,:] = [ 0. 6. 20. 26.]
375 cord_individual_obj[indivial_i,:] = [ 1. 6. 4. 10.]
376 cord_individual_obj[indivial_i,:] = [ 2. 4. 68. 72.]
377 cord_individual_obj[indivial_i,:] = [ 3. 3. 68. 71.]
378 cord_individual_obj[indivial_i,:] = [ 4. 4. 36. 40.]
379 cord_individual_obj[indivial_i,:] = [ 5. 3. 80. 83.]
380 cord_individual_obj[indivial_i,:] = [ 6. 4. 28. 32.]
381 cord_individual_obj[indivial_i,:] = [ 7. 4. 66. 70.]
382 cord_individual_obj[indivial_i,:] = [ 8. 4. 100. 104.]
383 cord_individual_obj[indivial_i,:] = [ 9. 3. 4. 7.]
384 cord_individual_obj[indivial_i,:] = [10. 6. 12. 18.]
385 cord_individual_obj[indivial_i,:] = [11. 4. 90. 94.]
386 cord_individual_obj[indivial_i,:] = [12. 4. 28. 32.]
387 cord_individual_obj[indivial_i,:] = [13. 4. 110. 114.]
388 cord_individual_obj[indivial_i,:] = [14. 4. 60. 64.]
389 cord_individual_obj[indivial_i,:] = [15. 4. 60. 64.]
390 cord_individual_obj[indivial_i,:] = [16. 6. 76. 82.]
391 cord_individual_obj[indivial_i,:] = [17. 6. 20. 26.]
392 cord_individual_obj[indivial_i,:] = [18. 3. 60. 63.]
393 cord_individual_obj[indivial_i,:] = [19. 4. 90. 94.]
394 cord_individual_obj[indivial_i,:] = [20. 3. 68. 71.]
395 cord_individual_obj[indivial_i,:] = [21. 4. 42. 46.]
396 cord_individual_obj[indivial_i,:] = [22. 4. 58. 62.]
397 cord_individual_obj[indivial_i,:] = [23. 6. 40. 46.]
398 cord_individual_obj[indivial_i,:] = [24. 4. 68. 72.]
399
400 min(cord_individual_obj[:,3]) = 7.0
401 histol_G_best_iter[iter,3] = 7.0
402 Begin iteration:
403
404 iter = 12
405 cord_individual_obj[indivial_i,:] = [ 0. 3. 60. 63.]
406 cord_individual_obj[indivial_i,:] = [ 1. 6. 106. 112.]
407 cord_individual_obj[indivial_i,:] = [ 2. 3. 80. 83.]
408 cord_individual_obj[indivial_i,:] = [ 3. 3. 12. 15.]
409 cord_individual_obj[indivial_i,:] = [ 4. 4. 36. 40.]
410 cord_individual_obj[indivial_i,:] = [ 5. 3. 68. 71.]
411 cord_individual_obj[indivial_i,:] = [ 6. 3. 28. 31.]
412 cord_individual_obj[indivial_i,:] = [ 7. 4. 76. 80.]
413 cord_individual_obj[indivial_i,:] = [ 8. 4. 132. 136.]
414 cord_individual_obj[indivial_i,:] = [ 9. 4. 4. 8.]
415 cord_individual_obj[indivial_i,:] = [10. 6. 46. 52.]

```

```

416 cord_individual_obj[indivial_i,:] = [ 11. 3. 112. 115.]
417 cord_individual_obj[indivial_i,:] = [12. 3. 78. 81.]
418 cord_individual_obj[indivial_i,:] = [13. 3. 4. 7.]
419 cord_individual_obj[indivial_i,:] = [14. 3. 60. 63.]
420 cord_individual_obj[indivial_i,:] = [15. 3. 60. 63.]
421 cord_individual_obj[indivial_i,:] = [ 16. 6. 100. 106.]
422 cord_individual_obj[indivial_i,:] = [17. 4. 42. 46.]
423 cord_individual_obj[indivial_i,:] = [18. 3. 60. 63.]
424 cord_individual_obj[indivial_i,:] = [19. 4. 42. 46.]
425 cord_individual_obj[indivial_i,:] = [20. 3. 68. 71.]
426 cord_individual_obj[indivial_i,:] = [21. 4. 18. 22.]
427 cord_individual_obj[indivial_i,:] = [22. 3. 80. 83.]
428 cord_individual_obj[indivial_i,:] = [23. 6. 40. 46.]
429 cord_individual_obj[indivial_i,:] = [24. 4. 42. 46.]
430
431 min(cord_individual_obj[:,3]) = 7.0
432 histol_G_best_iter[iter,3] = 7.0
433 Begin iteration:
434
435 iter = 13
436 cord_individual_obj[indivial_i,:] = [ 0. 3. 40. 43.]
437 cord_individual_obj[indivial_i,:] = [ 1. 4. 24. 28.]
438 cord_individual_obj[indivial_i,:] = [ 2. 4. 38. 42.]
439 cord_individual_obj[indivial_i,:] = [ 3. 3. 124. 127.]
440 cord_individual_obj[indivial_i,:] = [ 4. 6. 20. 26.]
441 cord_individual_obj[indivial_i,:] = [ 5. 6. 80. 86.]
442 cord_individual_obj[indivial_i,:] = [ 6. 4. 148. 152.]
443 cord_individual_obj[indivial_i,:] = [ 7. 6. 56. 62.]
444 cord_individual_obj[indivial_i,:] = [ 8. 3. 4. 7.]
445 cord_individual_obj[indivial_i,:] = [ 9. 6. 124. 130.]
446 cord_individual_obj[indivial_i,:] = [10. 4. 12. 16.]
447 cord_individual_obj[indivial_i,:] = [11. 4. 40. 44.]
448 cord_individual_obj[indivial_i,:] = [12. 3. 68. 71.]
449 cord_individual_obj[indivial_i,:] = [13. 4. 90. 94.]
450 cord_individual_obj[indivial_i,:] = [14. 4. 60. 64.]
451 cord_individual_obj[indivial_i,:] = [15. 3. 24. 27.]
452 cord_individual_obj[indivial_i,:] = [16. 3. 148. 151.]
453 cord_individual_obj[indivial_i,:] = [17. 6. 24. 30.]
454 cord_individual_obj[indivial_i,:] = [18. 3. 24. 27.]
455 cord_individual_obj[indivial_i,:] = [19. 6. 32. 38.]
456 cord_individual_obj[indivial_i,:] = [20. 3. 24. 27.]
457 cord_individual_obj[indivial_i,:] = [21. 6. 48. 54.]
458 cord_individual_obj[indivial_i,:] = [22. 3. 86. 89.]
459 cord_individual_obj[indivial_i,:] = [23. 4. 12. 16.]
460 cord_individual_obj[indivial_i,:] = [24. 4. 54. 58.]
461
462 min(cord_individual_obj[:,3]) = 7.0
463 histol_G_best_iter[iter,3] = 7.0
464 Begin iteration:
465
466 iter = 14
467 cord_individual_obj[indivial_i,:] = [ 0. 3. 80. 83.]
468 cord_individual_obj[indivial_i,:] = [ 1. 3. 80. 83.]
469 cord_individual_obj[indivial_i,:] = [ 2. 6. 12. 18.]
470 cord_individual_obj[indivial_i,:] = [ 3. 3. 96. 99.]
471 cord_individual_obj[indivial_i,:] = [ 4. 6. 76. 82.]
472 cord_individual_obj[indivial_i,:] = [ 5. 4. 44. 48.]
473 cord_individual_obj[indivial_i,:] = [ 6. 3. 4. 7.]
474 cord_individual_obj[indivial_i,:] = [ 7. 6. 28. 34.]
475 cord_individual_obj[indivial_i,:] = [ 8. 4. 72. 76.]
476 cord_individual_obj[indivial_i,:] = [ 9. 3. 72. 75.]
477 cord_individual_obj[indivial_i,:] = [10. 3. 4. 7.]
478 cord_individual_obj[indivial_i,:] = [11. 6. 40. 46.]
479 cord_individual_obj[indivial_i,:] = [12. 3. 4. 7.]
480 cord_individual_obj[indivial_i,:] = [13. 6. 44. 50.]
481 cord_individual_obj[indivial_i,:] = [14. 3. 4. 7.]
482 cord_individual_obj[indivial_i,:] = [15. 3. 80. 83.]
483 cord_individual_obj[indivial_i,:] = [16. 6. 32. 38.]
484 cord_individual_obj[indivial_i,:] = [17. 6. 58. 64.]
485 cord_individual_obj[indivial_i,:] = [18. 3. 80. 83.]
486 cord_individual_obj[indivial_i,:] = [19. 4. 12. 16.]
487 cord_individual_obj[indivial_i,:] = [20. 3. 112. 115.]
488 cord_individual_obj[indivial_i,:] = [21. 3. 62. 65.]
489 cord_individual_obj[indivial_i,:] = [22. 3. 56. 59.]
490 cord_individual_obj[indivial_i,:] = [23. 4. 74. 78.]
491 cord_individual_obj[indivial_i,:] = [24. 4. 30. 34.]
492
493 min(cord_individual_obj[:,3]) = 7.0
494 histol_G_best_iter[iter,3] = 7.0
495 Begin iteration:
496
497 iter = 15
498 cord_individual_obj[indivial_i,:] = [ 0. 6. 20. 26.]
499 cord_individual_obj[indivial_i,:] = [ 1. 6. 40. 46.]

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500 cord_individual_obj[indivial_i,:] = [ 2. 4. 42. 46.]
501 cord_individual_obj[indivial_i,:] = [ 3. 3. 114. 117.]
502 cord_individual_obj[indivial_i,:] = [ 4. 6. 20. 26.]
503 cord_individual_obj[indivial_i,:] = [ 5. 3. 68. 71.]
504 cord_individual_obj[indivial_i,:] = [ 6. 4. 104. 108.]
505 cord_individual_obj[indivial_i,:] = [ 7. 6. 28. 34.]
506 cord_individual_obj[indivial_i,:] = [ 8. 4. 4. 8.]
507 cord_individual_obj[indivial_i,:] = [ 9. 4. 4. 8.]
508 cord_individual_obj[indivial_i,:] = [10. 4. 72. 76.]
509 cord_individual_obj[indivial_i,:] = [11. 4. 54. 58.]
510 cord_individual_obj[indivial_i,:] = [12. 3. 12. 15.]
511 cord_individual_obj[indivial_i,:] = [13. 6. 20. 26.]
512 cord_individual_obj[indivial_i,:] = [14. 4. 60. 64.]
513 cord_individual_obj[indivial_i,:] = [15. 3. 80. 83.]
514 cord_individual_obj[indivial_i,:] = [16. 6. 40. 46.]
515 cord_individual_obj[indivial_i,:] = [17. 6. 28. 34.]
516 cord_individual_obj[indivial_i,:] = [18. 3. 56. 59.]
517 cord_individual_obj[indivial_i,:] = [19. 6. 32. 38.]
518 cord_individual_obj[indivial_i,:] = [20. 3. 4. 7.]
519 cord_individual_obj[indivial_i,:] = [21. 4. 62. 66.]
520 cord_individual_obj[indivial_i,:] = [22. 3. 76. 79.]
521 cord_individual_obj[indivial_i,:] = [23. 4. 44. 48.]
522 cord_individual_obj[indivial_i,:] = [24. 4. 42. 46.]
523
524 min(cord_individual_obj[:, 3]) = 7.0
525 histol_G_best_iter[iter, 3] = 7.0
526 Begin iteration:
527
528 iter = 16
529 cord_individual_obj[indivial_i,:] = [ 0. 4. 40. 44.]
530 cord_individual_obj[indivial_i,:] = [ 1. 4. 64. 68.]
531 cord_individual_obj[indivial_i,:] = [ 2. 6. 12. 18.]
532 cord_individual_obj[indivial_i,:] = [ 3. 3. 4. 7.]
533 cord_individual_obj[indivial_i,:] = [ 4. 4. 80. 84.]
534 cord_individual_obj[indivial_i,:] = [ 5. 4. 24. 28.]
535 cord_individual_obj[indivial_i,:] = [ 6. 3. 128. 131.]
536 cord_individual_obj[indivial_i,:] = [ 7. 3. 60. 63.]
537 cord_individual_obj[indivial_i,:] = [ 8. 6. 34. 40.]
538 cord_individual_obj[indivial_i,:] = [ 9. 6. 88. 94.]
539 cord_individual_obj[indivial_i,:] = [10. 3. 24. 27.]
540 cord_individual_obj[indivial_i,:] = [11. 6. 40. 46.]
541 cord_individual_obj[indivial_i,:] = [12. 3. 24. 27.]
542 cord_individual_obj[indivial_i,:] = [13. 4. 116. 120.]
543 cord_individual_obj[indivial_i,:] = [14. 3. 60. 63.]
544 cord_individual_obj[indivial_i,:] = [15. 3. 24. 27.]
545 cord_individual_obj[indivial_i,:] = [16. 4. 54. 58.]
546 cord_individual_obj[indivial_i,:] = [17. 4. 12. 16.]
547 cord_individual_obj[indivial_i,:] = [18. 3. 40. 43.]
548 cord_individual_obj[indivial_i,:] = [19. 4. 42. 46.]
549 cord_individual_obj[indivial_i,:] = [20. 3. 68. 71.]
550 cord_individual_obj[indivial_i,:] = [21. 6. 40. 46.]
551 cord_individual_obj[indivial_i,:] = [22. 4. 64. 68.]
552 cord_individual_obj[indivial_i,:] = [23. 4. 12. 16.]
553 cord_individual_obj[indivial_i,:] = [24. 4. 42. 46.]
554
555 min(cord_individual_obj[:, 3]) = 7.0
556 histol_G_best_iter[iter, 3] = 7.0
557 Begin iteration:
558
559 iter = 17
560 cord_individual_obj[indivial_i,:] = [ 0. 3. 80. 83.]
561 cord_individual_obj[indivial_i,:] = [ 1. 6. 72. 78.]
562 cord_individual_obj[indivial_i,:] = [ 2. 3. 60. 63.]
563 cord_individual_obj[indivial_i,:] = [ 3. 3. 28. 31.]
564 cord_individual_obj[indivial_i,:] = [ 4. 4. 36. 40.]
565 cord_individual_obj[indivial_i,:] = [ 5. 3. 128. 131.]
566 cord_individual_obj[indivial_i,:] = [ 6. 3. 4. 7.]
567 cord_individual_obj[indivial_i,:] = [ 7. 4. 52. 56.]
568 cord_individual_obj[indivial_i,:] = [ 8. 3. 64. 67.]
569 cord_individual_obj[indivial_i,:] = [ 9. 4. 12. 16.]
570 cord_individual_obj[indivial_i,:] = [10. 3. 96. 99.]
571 cord_individual_obj[indivial_i,:] = [11. 3. 68. 71.]
572 cord_individual_obj[indivial_i,:] = [12. 3. 104. 107.]
573 cord_individual_obj[indivial_i,:] = [13. 4. 110. 114.]
574 cord_individual_obj[indivial_i,:] = [14. 4. 60. 64.]
575 cord_individual_obj[indivial_i,:] = [15. 3. 68. 71.]
576 cord_individual_obj[indivial_i,:] = [16. 6. 20. 26.]
577 cord_individual_obj[indivial_i,:] = [17. 6. 4. 10.]
578 cord_individual_obj[indivial_i,:] = [18. 3. 60. 63.]
579 cord_individual_obj[indivial_i,:] = [19. 4. 42. 46.]
580 cord_individual_obj[indivial_i,:] = [20. 3. 68. 71.]
581 cord_individual_obj[indivial_i,:] = [21. 3. 12. 15.]
582 cord_individual_obj[indivial_i,:] = [22. 4. 66. 70.]
583 cord_individual_obj[indivial_i,:] = [23. 6. 28. 34.]

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unknown

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584     cord_individual_obj[indivial_i, :] = [24. 3. 60. 63.]  
585  
586     min(cord_individual_obj[:, 3]) = 7.0  
587     historl_G_best_iter[iter, 3] = 7.0  
588 Begin iteration:  
589  
590 iter = 18  
591     cord_individual_obj[indivial_i, :] = [ 0. 6. 56. 62.]  
592     cord_individual_obj[indivial_i, :] = [ 1. 6. 56. 62.]  
593     cord_individual_obj[indivial_i, :] = [ 2. 4. 114. 118.]  
594     cord_individual_obj[indivial_i, :] = [ 3. 3. 28. 31.]  
595     cord_individual_obj[indivial_i, :] = [ 4. 4. 36. 40.]  
596     cord_individual_obj[indivial_i, :] = [ 5. 3. 4. 7.]  
597     cord_individual_obj[indivial_i, :] = [ 6. 4. 104. 108.]  
598     cord_individual_obj[indivial_i, :] = [ 7. 4. 128. 132.]  
599     cord_individual_obj[indivial_i, :] = [ 8. 4. 110. 114.]  
600     cord_individual_obj[indivial_i, :] = [ 9. 4. 24. 28.]  
601     cord_individual_obj[indivial_i, :] = [10. 6. 24. 30.]  
602     cord_individual_obj[indivial_i, :] = [11. 4. 66. 70.]  
603     cord_individual_obj[indivial_i, :] = [12. 3. 72. 75.]  
604     cord_individual_obj[indivial_i, :] = [13. 4. 118. 122.]  
605     cord_individual_obj[indivial_i, :] = [14. 4. 60. 64.]  
606     cord_individual_obj[indivial_i, :] = [15. 3. 158. 161.]  
607     cord_individual_obj[indivial_i, :] = [16. 6. 20. 26.]  
608     cord_individual_obj[indivial_i, :] = [17. 6. 12. 18.]  
609     cord_individual_obj[indivial_i, :] = [18. 3. 60. 63.]  
610     cord_individual_obj[indivial_i, :] = [19. 4. 42. 46.]  
611     cord_individual_obj[indivial_i, :] = [20. 3. 68. 71.]  
612     cord_individual_obj[indivial_i, :] = [21. 4. 42. 46.]  
613     cord_individual_obj[indivial_i, :] = [22. 4. 54. 58.]  
614     cord_individual_obj[indivial_i, :] = [23. 6. 40. 46.]  
615     cord_individual_obj[indivial_i, :] = [24. 4. 54. 58.]  
616  
617     min(cord_individual_obj[:, 3]) = 7.0  
618     historl_G_best_iter[iter, 3] = 7.0  
619 Begin iteration:  
620  
621 iter = 19  
622     cord_individual_obj[indivial_i, :] = [ 0. 4. 66. 70.]  
623     cord_individual_obj[indivial_i, :] = [ 1. 6. 92. 98.]  
624     cord_individual_obj[indivial_i, :] = [ 2. 4. 68. 72.]  
625     cord_individual_obj[indivial_i, :] = [ 3. 3. 28. 31.]  
626     cord_individual_obj[indivial_i, :] = [ 4. 4. 36. 40.]  
627     cord_individual_obj[indivial_i, :] = [ 5. 3. 140. 143.]  
628     cord_individual_obj[indivial_i, :] = [ 6. 4. 104. 108.]  
629     cord_individual_obj[indivial_i, :] = [ 7. 4. 84. 88.]  
630     cord_individual_obj[indivial_i, :] = [ 8. 4. 32. 36.]  
631     cord_individual_obj[indivial_i, :] = [ 9. 4. 12. 16.]  
632     cord_individual_obj[indivial_i, :] = [10. 4. 32. 36.]  
633     cord_individual_obj[indivial_i, :] = [11. 4. 52. 56.]  
634     cord_individual_obj[indivial_i, :] = [12. 3. 12. 15.]  
635     cord_individual_obj[indivial_i, :] = [13. 4. 36. 40.]  
636     cord_individual_obj[indivial_i, :] = [14. 4. 60. 64.]  
637     cord_individual_obj[indivial_i, :] = [15. 3. 4. 7.]  
638     cord_individual_obj[indivial_i, :] = [16. 4. 148. 152.]  
639     cord_individual_obj[indivial_i, :] = [17. 6. 12. 18.]  
640     cord_individual_obj[indivial_i, :] = [18. 3. 60. 63.]  
641     cord_individual_obj[indivial_i, :] = [19. 4. 54. 58.]  
642     cord_individual_obj[indivial_i, :] = [20. 3. 68. 71.]  
643     cord_individual_obj[indivial_i, :] = [21. 4. 42. 46.]  
644     cord_individual_obj[indivial_i, :] = [22. 3. 80. 83.]  
645     cord_individual_obj[indivial_i, :] = [23. 6. 82. 88.]  
646     cord_individual_obj[indivial_i, :] = [24. 4. 54. 58.]  
647  
648     min(cord_individual_obj[:, 3]) = 7.0  
649     historl_G_best_iter[iter, 3] = 7.0  
650 Begin iteration:  
651  
652 iter = 20  
653     cord_individual_obj[indivial_i, :] = [ 0. 3. 68. 71.]  
654     cord_individual_obj[indivial_i, :] = [ 1. 4. 4. 8.]  
655     cord_individual_obj[indivial_i, :] = [ 2. 4. 68. 72.]  
656     cord_individual_obj[indivial_i, :] = [ 3. 3. 68. 71.]  
657     cord_individual_obj[indivial_i, :] = [ 4. 4. 36. 40.]  
658     cord_individual_obj[indivial_i, :] = [ 5. 3. 158. 161.]  
659     cord_individual_obj[indivial_i, :] = [ 6. 4. 80. 84.]  
660     cord_individual_obj[indivial_i, :] = [ 7. 4. 66. 70.]  
661     cord_individual_obj[indivial_i, :] = [ 8. 4. 110. 114.]  
662     cord_individual_obj[indivial_i, :] = [ 9. 4. 154. 158.]  
663     cord_individual_obj[indivial_i, :] = [10. 6. 12. 18.]  
664     cord_individual_obj[indivial_i, :] = [11. 4. 4. 8.]  
665     cord_individual_obj[indivial_i, :] = [12. 3. 104. 107.]  
666     cord_individual_obj[indivial_i, :] = [13. 4. 36. 40.]  
667     cord_individual_obj[indivial_i, :] = [14. 4. 60. 64.]
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668 cord_individual_obj[indivial_i, :] = [15. 3. 68. 71.]
669 cord_individual_obj[indivial_i, :] = [16. 3. 4. 7.]
670 cord_individual_obj[indivial_i, :] = [17. 6. 12. 18.]
671 cord_individual_obj[indivial_i, :] = [18. 3. 56. 59.]
672 cord_individual_obj[indivial_i, :] = [19. 6. 32. 38.]
673 cord_individual_obj[indivial_i, :] = [20. 3. 12. 15.]
674 cord_individual_obj[indivial_i, :] = [21. 4. 42. 46.]
675 cord_individual_obj[indivial_i, :] = [22. 6. 52. 58.]
676 cord_individual_obj[indivial_i, :] = [23. 4. 52. 56.]
677 cord_individual_obj[indivial_i, :] = [24. 4. 54. 58.]
678
679 min(cord_individual_obj[:, 3]) = 7.0
680 historl_G_best_iter[iter, 3] = 7.0
681 Iteration calculate over
682
683
684
685
686 All item are in Bin and:
687 Bin area = 1080
688 Real_area = 86.0
689 Proportion_of_area = 0.07962962962962963
690 BEST_CHROM =
691     berth: [19. 26. 2. 13. 7.]
692     time: [0. 0. 0. 0.]
693     num_QC: [2. 2. 4. 2. 3.]
694 Objective function values and some other indicators:
695 Obj0 = 3.00          Obj1 = 4.00          Obj0 + Obj1 = 7.00
696 Total movement of crane: 4.00
697 Total waiting time in berth position: 0.00
698 Total index of q during berthing: 365.00
699 Specific arrangement for each vessel:
700
    V_id: 0           li: 6.0           xi: 19.0           bow of i: 16.0           tail of i: 22.0           gama_i0: 0.0           gama_i1: 1
    .0           gama_i1 + 1: 2.0           gama_i1 - gama_i0: 1.0           duration_time_i: 2.0           demand_i: 80.0           work
701 load_i: 80.0           work load gap_i: 0
    V_id: 1           li: 8.0           xi: 26.0           bow of i: 22.0           tail of i: 30.0           gama_i0: 0.0           gama_i1: 3
    .0           gama_i1 + 1: 4.0           gama_i1 - gama_i0: 3.0           duration_time_i: 4.0           demand_i: 140.0           work
    load_i: 140.0           work load gap_i: 0
    V_id: 2           li: 4.0           xi: 2.0           bow of i: 0.0           tail of i: 4.0           gama_i0: 0.0           gama_i1: 3.0
    .0           gama_i1 + 1: 4.0           gama_i1 - gama_i0: 3.0           duration_time_i: 4.0           demand_i: 280.0           work load_i:
    280.0           work load gap_i: 0
    V_id: 3           li: 6.0           xi: 13.0           bow of i: 10.0           tail of i: 16.0           gama_i0: 0.0           gama_i1: 3
    .0           gama_i1 + 1: 4.0           gama_i1 - gama_i0: 3.0           duration_time_i: 4.0           demand_i: 160.0           work
    load_i: 160.0           work load gap_i: 0
    V_id: 4           li: 6.0           xi: 7.0           bow of i: 4.0           tail of i: 10.0           gama_i0: 0.0           gama_i1: 2.0
    .0           gama_i1 + 1: 3.0           gama_i1 - gama_i0: 2.0           duration_time_i: 3.0           demand_i: 180.0           work load_i:
    180.0           work load gap_i: 0
705
706 Algorithm finished and the total CPU time: 135 s
707 End
708

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