

unknown

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80 cord_individual_obj[indivial_i,:] = [16. 5. 18. 23.]
81 cord_individual_obj[indivial_i,:] = [17. 6. 34. 40.]
82 cord_individual_obj[indivial_i,:] = [18. 4. 30. 34.]
83 cord_individual_obj[indivial_i,:] = [19. 6. 8. 14.]
84 cord_individual_obj[indivial_i,:] = [20. 4. 30. 34.]
85 cord_individual_obj[indivial_i,:] = [21. 4. 126. 130.]
86 cord_individual_obj[indivial_i,:] = [22. 6. 8. 14.]
87 cord_individual_obj[indivial_i,:] = [23. 3. 160. 163.]
88 cord_individual_obj[indivial_i,:] = [24. 4. 30. 34.]
89
90 min(cord_individual_obj[:,3]) = 14.0
91 historl_G_best_iter[iter,3] = 14.0
92 Begin iteration:
93
94 iter = 2
95 cord_individual_obj[indivial_i,:] = [ 0. 6. 24. 30.]
96 cord_individual_obj[indivial_i,:] = [ 1. 3. 86. 89.]
97 cord_individual_obj[indivial_i,:] = [ 2. 4. 68. 72.]
98 cord_individual_obj[indivial_i,:] = [ 3. 4. 50. 54.]
99 cord_individual_obj[indivial_i,:] = [ 4. 6. 8. 14.]
100 cord_individual_obj[indivial_i,:] = [ 5. 4. 18. 22.]
101 cord_individual_obj[indivial_i,:] = [ 6. 6. 44. 50.]
102 cord_individual_obj[indivial_i,:] = [ 7. 5. 24. 29.]
103 cord_individual_obj[indivial_i,:] = [ 8. 4. 44. 48.]
104 cord_individual_obj[indivial_i,:] = [ 9. 5. 48. 53.]
105 cord_individual_obj[indivial_i,:] = [10. 4. 12. 16.]
106 cord_individual_obj[indivial_i,:] = [11. 4. 30. 34.]
107 cord_individual_obj[indivial_i,:] = [12. 6. 44. 50.]
108 cord_individual_obj[indivial_i,:] = [13. 5. 34. 39.]
109 cord_individual_obj[indivial_i,:] = [14. 5. 30. 35.]
110 cord_individual_obj[indivial_i,:] = [15. 6. 16. 22.]
111 cord_individual_obj[indivial_i,:] = [16. 5. 36. 41.]
112 cord_individual_obj[indivial_i,:] = [17. 6. 28. 34.]
113 cord_individual_obj[indivial_i,:] = [18. 4. 30. 34.]
114 cord_individual_obj[indivial_i,:] = [19. 6. 8. 14.]
115 cord_individual_obj[indivial_i,:] = [20. 5. 38. 43.]
116 cord_individual_obj[indivial_i,:] = [21. 6. 16. 22.]
117 cord_individual_obj[indivial_i,:] = [22. 6. 8. 14.]
118 cord_individual_obj[indivial_i,:] = [23. 6. 8. 14.]
119 cord_individual_obj[indivial_i,:] = [24. 4. 30. 34.]
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. 6. 24. 30.]
127 cord_individual_obj[indivial_i,:] = [ 1. 6. 8. 14.]
128 cord_individual_obj[indivial_i,:] = [ 2. 4. 146. 150.]
129 cord_individual_obj[indivial_i,:] = [ 3. 4. 18. 22.]
130 cord_individual_obj[indivial_i,:] = [ 4. 6. 16. 22.]
131 cord_individual_obj[indivial_i,:] = [ 5. 4. 46. 50.]
132 cord_individual_obj[indivial_i,:] = [ 6. 6. 12. 18.]
133 cord_individual_obj[indivial_i,:] = [ 7. 4. 18. 22.]
134 cord_individual_obj[indivial_i,:] = [ 8. 4. 46. 50.]
135 cord_individual_obj[indivial_i,:] = [ 9. 5. 62. 67.]
136 cord_individual_obj[indivial_i,:] = [10. 4. 106. 110.]
137 cord_individual_obj[indivial_i,:] = [11. 5. 22. 27.]
138 cord_individual_obj[indivial_i,:] = [12. 5. 58. 63.]
139 cord_individual_obj[indivial_i,:] = [13. 4. 130. 134.]
140 cord_individual_obj[indivial_i,:] = [14. 4. 38. 42.]
141 cord_individual_obj[indivial_i,:] = [15. 4. 208. 212.]
142 cord_individual_obj[indivial_i,:] = [16. 3. 56. 59.]
143 cord_individual_obj[indivial_i,:] = [17. 6. 44. 50.]
144 cord_individual_obj[indivial_i,:] = [18. 5. 18. 23.]
145 cord_individual_obj[indivial_i,:] = [19. 6. 14. 20.]
146 cord_individual_obj[indivial_i,:] = [20. 5. 100. 105.]
147 cord_individual_obj[indivial_i,:] = [21. 6. 8. 14.]
148 cord_individual_obj[indivial_i,:] = [22. 6. 32. 38.]
149 cord_individual_obj[indivial_i,:] = [23. 3. 148. 151.]
150 cord_individual_obj[indivial_i,:] = [24. 4. 42. 46.]
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. 6. 12. 18.]
158 cord_individual_obj[indivial_i,:] = [ 1. 4. 62. 66.]
159 cord_individual_obj[indivial_i,:] = [ 2. 5. 80. 85.]
160 cord_individual_obj[indivial_i,:] = [ 3. 4. 18. 22.]
161 cord_individual_obj[indivial_i,:] = [ 4. 6. 26. 32.]
162 cord_individual_obj[indivial_i,:] = [ 5. 4. 40. 44.]
163 cord_individual_obj[indivial_i,:] = [ 6. 6. 120. 126.]

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164 cord_individual_obj[indivial_i,:] = [ 7. 3. 104. 107.]
165 cord_individual_obj[indivial_i,:] = [ 8. 4. 46. 50.]
166 cord_individual_obj[indivial_i,:] = [ 9. 3. 100. 103.]
167 cord_individual_obj[indivial_i,:] = [10. 4. 18. 22.]
168 cord_individual_obj[indivial_i,:] = [11. 4. 98. 102.]
169 cord_individual_obj[indivial_i,:] = [12. 5. 98. 103.]
170 cord_individual_obj[indivial_i,:] = [13. 5. 110. 115.]
171 cord_individual_obj[indivial_i,:] = [14. 5. 12. 17.]
172 cord_individual_obj[indivial_i,:] = [15. 6. 8. 14.]
173 cord_individual_obj[indivial_i,:] = [16. 5. 52. 57.]
174 cord_individual_obj[indivial_i,:] = [17. 6. 12. 18.]
175 cord_individual_obj[indivial_i,:] = [18. 4. 52. 56.]
176 cord_individual_obj[indivial_i,:] = [19. 6. 96. 102.]
177 cord_individual_obj[indivial_i,:] = [20. 5. 68. 73.]
178 cord_individual_obj[indivial_i,:] = [21. 6. 114. 120.]
179 cord_individual_obj[indivial_i,:] = [22. 6. 8. 14.]
180 cord_individual_obj[indivial_i,:] = [23. 3. 44. 47.]
181 cord_individual_obj[indivial_i,:] = [24. 5. 22. 27.]
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. 6. 24. 30.]
189 cord_individual_obj[indivial_i,:] = [ 1. 4. 40. 44.]
190 cord_individual_obj[indivial_i,:] = [ 2. 5. 94. 99.]
191 cord_individual_obj[indivial_i,:] = [ 3. 4. 18. 22.]
192 cord_individual_obj[indivial_i,:] = [ 4. 6. 16. 22.]
193 cord_individual_obj[indivial_i,:] = [ 5. 4. 44. 48.]
194 cord_individual_obj[indivial_i,:] = [ 6. 6. 8. 14.]
195 cord_individual_obj[indivial_i,:] = [ 7. 4. 18. 22.]
196 cord_individual_obj[indivial_i,:] = [ 8. 6. 18. 24.]
197 cord_individual_obj[indivial_i,:] = [ 9. 4. 82. 86.]
198 cord_individual_obj[indivial_i,:] = [10. 4. 70. 74.]
199 cord_individual_obj[indivial_i,:] = [11. 4. 68. 72.]
200 cord_individual_obj[indivial_i,:] = [12. 5. 58. 63.]
201 cord_individual_obj[indivial_i,:] = [13. 4. 18. 22.]
202 cord_individual_obj[indivial_i,:] = [14. 5. 30. 35.]
203 cord_individual_obj[indivial_i,:] = [15. 6. 28. 34.]
204 cord_individual_obj[indivial_i,:] = [16. 4. 46. 50.]
205 cord_individual_obj[indivial_i,:] = [17. 6. 44. 50.]
206 cord_individual_obj[indivial_i,:] = [18. 4. 18. 22.]
207 cord_individual_obj[indivial_i,:] = [19. 6. 26. 32.]
208 cord_individual_obj[indivial_i,:] = [20. 4. 120. 124.]
209 cord_individual_obj[indivial_i,:] = [21. 3. 104. 107.]
210 cord_individual_obj[indivial_i,:] = [22. 6. 32. 38.]
211 cord_individual_obj[indivial_i,:] = [23. 4. 86. 90.]
212 cord_individual_obj[indivial_i,:] = [24. 6. 24. 30.]
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. 6. 24. 30.]
220 cord_individual_obj[indivial_i,:] = [ 1. 5. 56. 61.]
221 cord_individual_obj[indivial_i,:] = [ 2. 4. 56. 60.]
222 cord_individual_obj[indivial_i,:] = [ 3. 4. 18. 22.]
223 cord_individual_obj[indivial_i,:] = [ 4. 6. 16. 22.]
224 cord_individual_obj[indivial_i,:] = [ 5. 4. 40. 44.]
225 cord_individual_obj[indivial_i,:] = [ 6. 6. 48. 54.]
226 cord_individual_obj[indivial_i,:] = [ 7. 4. 18. 22.]
227 cord_individual_obj[indivial_i,:] = [ 8. 6. 54. 60.]
228 cord_individual_obj[indivial_i,:] = [ 9. 4. 76. 80.]
229 cord_individual_obj[indivial_i,:] = [10. 4. 8. 12.]
230 cord_individual_obj[indivial_i,:] = [11. 5. 40. 45.]
231 cord_individual_obj[indivial_i,:] = [12. 5. 52. 57.]
232 cord_individual_obj[indivial_i,:] = [13. 6. 8. 14.]
233 cord_individual_obj[indivial_i,:] = [14. 5. 30. 35.]
234 cord_individual_obj[indivial_i,:] = [15. 4. 156. 160.]
235 cord_individual_obj[indivial_i,:] = [16. 3. 56. 59.]
236 cord_individual_obj[indivial_i,:] = [17. 6. 86. 92.]
237 cord_individual_obj[indivial_i,:] = [18. 4. 18. 22.]
238 cord_individual_obj[indivial_i,:] = [19. 6. 56. 62.]
239 cord_individual_obj[indivial_i,:] = [20. 6. 8. 14.]
240 cord_individual_obj[indivial_i,:] = [21. 6. 12. 18.]
241 cord_individual_obj[indivial_i,:] = [22. 6. 8. 14.]
242 cord_individual_obj[indivial_i,:] = [23. 4. 120. 124.]
243 cord_individual_obj[indivial_i,:] = [24. 6. 24. 30.]
244
245 min(cord_individual_obj[:,3]) = 12.0
246 historl_G_best_iter[iter,3] = 12.0
247 Begin iteration:

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248
249 iter = 7
250 cord_individual_obj[indivial_i, :] = [ 0. 6. 12. 18.]
251 cord_individual_obj[indivial_i, :] = [ 1. 5. 112. 117.]
252 cord_individual_obj[indivial_i, :] = [ 2. 5. 114. 119.]
253 cord_individual_obj[indivial_i, :] = [ 3. 3. 62. 65.]
254 cord_individual_obj[indivial_i, :] = [ 4. 6. 30. 36.]
255 cord_individual_obj[indivial_i, :] = [ 5. 3. 20. 23.]
256 cord_individual_obj[indivial_i, :] = [ 6. 6. 154. 160.]
257 cord_individual_obj[indivial_i, :] = [ 7. 3. 84. 87.]
258 cord_individual_obj[indivial_i, :] = [ 8. 4. 154. 158.]
259 cord_individual_obj[indivial_i, :] = [ 9. 5. 88. 93.]
260 cord_individual_obj[indivial_i, :] = [10. 3. 18. 21.]
261 cord_individual_obj[indivial_i, :] = [11. 3. 128. 131.]
262 cord_individual_obj[indivial_i, :] = [12. 5. 72. 77.]
263 cord_individual_obj[indivial_i, :] = [13. 5. 56. 61.]
264 cord_individual_obj[indivial_i, :] = [14. 5. 28. 33.]
265 cord_individual_obj[indivial_i, :] = [15. 4. 8. 12.]
266 cord_individual_obj[indivial_i, :] = [16. 5. 60. 65.]
267 cord_individual_obj[indivial_i, :] = [17. 6. 38. 44.]
268 cord_individual_obj[indivial_i, :] = [18. 5. 32. 37.]
269 cord_individual_obj[indivial_i, :] = [19. 6. 52. 58.]
270 cord_individual_obj[indivial_i, :] = [20. 4. 18. 22.]
271 cord_individual_obj[indivial_i, :] = [21. 5. 102. 107.]
272 cord_individual_obj[indivial_i, :] = [22. 6. 36. 42.]
273 cord_individual_obj[indivial_i, :] = [23. 3. 36. 39.]
274 cord_individual_obj[indivial_i, :] = [24. 4. 144. 148.]
275

276 min(cord_individual_obj[:, 3]) = 12.0
277 historl_G_best_iter[iter, 3] = 12.0
278 Begin iteration:
279
280 iter = 8
281 cord_individual_obj[indivial_i, :] = [ 0. 6. 28. 34.]
282 cord_individual_obj[indivial_i, :] = [ 1. 5. 28. 33.]
283 cord_individual_obj[indivial_i, :] = [ 2. 5. 44. 49.]
284 cord_individual_obj[indivial_i, :] = [ 3. 3. 58. 61.]
285 cord_individual_obj[indivial_i, :] = [ 4. 4. 12. 16.]
286 cord_individual_obj[indivial_i, :] = [ 5. 3. 64. 67.]
287 cord_individual_obj[indivial_i, :] = [ 6. 4. 8. 12.]
288 cord_individual_obj[indivial_i, :] = [ 7. 4. 12. 16.]
289 cord_individual_obj[indivial_i, :] = [ 8. 4. 38. 42.]
290 cord_individual_obj[indivial_i, :] = [ 9. 3. 48. 51.]
291 cord_individual_obj[indivial_i, :] = [10. 3. 36. 39.]
292 cord_individual_obj[indivial_i, :] = [11. 5. 36. 41.]
293 cord_individual_obj[indivial_i, :] = [12. 6. 60. 66.]
294 cord_individual_obj[indivial_i, :] = [13. 4. 50. 54.]
295 cord_individual_obj[indivial_i, :] = [14. 4. 28. 32.]
296 cord_individual_obj[indivial_i, :] = [15. 6. 34. 40.]
297 cord_individual_obj[indivial_i, :] = [16. 3. 8. 11.]
298 cord_individual_obj[indivial_i, :] = [17. 4. 28. 32.]
299 cord_individual_obj[indivial_i, :] = [18. 5. 72. 77.]
300 cord_individual_obj[indivial_i, :] = [19. 6. 68. 74.]
301 cord_individual_obj[indivial_i, :] = [20. 6. 116. 122.]
302 cord_individual_obj[indivial_i, :] = [21. 6. 66. 72.]
303 cord_individual_obj[indivial_i, :] = [22. 6. 36. 42.]
304 cord_individual_obj[indivial_i, :] = [23. 6. 80. 86.]
305 cord_individual_obj[indivial_i, :] = [24. 4. 106. 110.]
306

307 min(cord_individual_obj[:, 3]) = 11.0
308 historl_G_best_iter[iter, 3] = 11.0
309 Begin iteration:
310
311 iter = 9
312 cord_individual_obj[indivial_i, :] = [ 0. 3. 28. 31.]
313 cord_individual_obj[indivial_i, :] = [ 1. 4. 40. 44.]
314 cord_individual_obj[indivial_i, :] = [ 2. 5. 34. 39.]
315 cord_individual_obj[indivial_i, :] = [ 3. 3. 54. 57.]
316 cord_individual_obj[indivial_i, :] = [ 4. 4. 12. 16.]
317 cord_individual_obj[indivial_i, :] = [ 5. 4. 24. 28.]
318 cord_individual_obj[indivial_i, :] = [ 6. 5. 24. 29.]
319 cord_individual_obj[indivial_i, :] = [ 7. 3. 8. 11.]
320 cord_individual_obj[indivial_i, :] = [ 8. 4. 8. 12.]
321 cord_individual_obj[indivial_i, :] = [ 9. 4. 28. 32.]
322 cord_individual_obj[indivial_i, :] = [10. 4. 24. 28.]
323 cord_individual_obj[indivial_i, :] = [11. 3. 16. 19.]
324 cord_individual_obj[indivial_i, :] = [12. 4. 48. 52.]
325 cord_individual_obj[indivial_i, :] = [13. 4. 24. 28.]
326 cord_individual_obj[indivial_i, :] = [14. 4. 74. 78.]
327 cord_individual_obj[indivial_i, :] = [15. 4. 52. 56.]
328 cord_individual_obj[indivial_i, :] = [16. 3. 8. 11.]
329 cord_individual_obj[indivial_i, :] = [17. 4. 38. 42.]
330 cord_individual_obj[indivial_i, :] = [18. 5. 136. 141.]
331 cord_individual_obj[indivial_i, :] = [19. 4. 8. 12.]

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332 cord_individual_obj[indivial_i,:] = [20. 3. 8. 11.]
333 cord_individual_obj[indivial_i,:] = [21. 3. 18. 21.]
334 cord_individual_obj[indivial_i,:] = [22. 5. 18. 23.]
335 cord_individual_obj[indivial_i,:] = [23. 5. 74. 79.]
336 cord_individual_obj[indivial_i,:] = [24. 5. 44. 49.]
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. 5. 12. 17.]
344 cord_individual_obj[indivial_i,:] = [ 1. 4. 20. 24.]
345 cord_individual_obj[indivial_i,:] = [ 2. 3. 60. 63.]
346 cord_individual_obj[indivial_i,:] = [ 3. 3. 8. 11.]
347 cord_individual_obj[indivial_i,:] = [ 4. 5. 44. 49.]
348 cord_individual_obj[indivial_i,:] = [ 5. 6. 44. 50.]
349 cord_individual_obj[indivial_i,:] = [ 6. 5. 26. 31.]
350 cord_individual_obj[indivial_i,:] = [ 7. 4. 12. 16.]
351 cord_individual_obj[indivial_i,:] = [ 8. 4. 12. 16.]
352 cord_individual_obj[indivial_i,:] = [ 9. 5. 12. 17.]
353 cord_individual_obj[indivial_i,:] = [10. 4. 48. 52.]
354 cord_individual_obj[indivial_i,:] = [11. 3. 54. 57.]
355 cord_individual_obj[indivial_i,:] = [12. 3. 54. 57.]
356 cord_individual_obj[indivial_i,:] = [13. 5. 48. 53.]
357 cord_individual_obj[indivial_i,:] = [14. 5. 40. 45.]
358 cord_individual_obj[indivial_i,:] = [15. 4. 26. 30.]
359 cord_individual_obj[indivial_i,:] = [16. 5. 8. 13.]
360 cord_individual_obj[indivial_i,:] = [17. 5. 74. 79.]
361 cord_individual_obj[indivial_i,:] = [18. 3. 8. 11.]
362 cord_individual_obj[indivial_i,:] = [19. 5. 12. 17.]
363 cord_individual_obj[indivial_i,:] = [20. 5. 100. 105.]
364 cord_individual_obj[indivial_i,:] = [21. 3. 30. 33.]
365 cord_individual_obj[indivial_i,:] = [22. 4. 40. 44.]
366 cord_individual_obj[indivial_i,:] = [23. 4. 36. 40.]
367 cord_individual_obj[indivial_i,:] = [24. 3. 66. 69.]
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. 58. 61.]
375 cord_individual_obj[indivial_i,:] = [ 1. 4. 78. 82.]
376 cord_individual_obj[indivial_i,:] = [ 2. 5. 114. 119.]
377 cord_individual_obj[indivial_i,:] = [ 3. 4. 98. 102.]
378 cord_individual_obj[indivial_i,:] = [ 4. 4. 74. 78.]
379 cord_individual_obj[indivial_i,:] = [ 5. 5. 36. 41.]
380 cord_individual_obj[indivial_i,:] = [ 6. 3. 54. 57.]
381 cord_individual_obj[indivial_i,:] = [ 7. 4. 82. 86.]
382 cord_individual_obj[indivial_i,:] = [ 8. 3. 124. 127.]
383 cord_individual_obj[indivial_i,:] = [ 9. 4. 24. 28.]
384 cord_individual_obj[indivial_i,:] = [10. 4. 94. 98.]
385 cord_individual_obj[indivial_i,:] = [11. 3. 106. 109.]
386 cord_individual_obj[indivial_i,:] = [12. 4. 52. 56.]
387 cord_individual_obj[indivial_i,:] = [13. 5. 118. 123.]
388 cord_individual_obj[indivial_i,:] = [14. 3. 72. 75.]
389 cord_individual_obj[indivial_i,:] = [15. 5. 94. 99.]
390 cord_individual_obj[indivial_i,:] = [16. 3. 18. 21.]
391 cord_individual_obj[indivial_i,:] = [17. 4. 32. 36.]
392 cord_individual_obj[indivial_i,:] = [18. 6. 122. 128.]
393 cord_individual_obj[indivial_i,:] = [19. 4. 62. 66.]
394 cord_individual_obj[indivial_i,:] = [20. 3. 8. 11.]
395 cord_individual_obj[indivial_i,:] = [21. 3. 48. 51.]
396 cord_individual_obj[indivial_i,:] = [22. 5. 74. 79.]
397 cord_individual_obj[indivial_i,:] = [23. 5. 8. 13.]
398 cord_individual_obj[indivial_i,:] = [24. 4. 38. 42.]
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. 12. 15.]
406 cord_individual_obj[indivial_i,:] = [ 1. 4. 42. 46.]
407 cord_individual_obj[indivial_i,:] = [ 2. 5. 130. 135.]
408 cord_individual_obj[indivial_i,:] = [ 3. 3. 54. 57.]
409 cord_individual_obj[indivial_i,:] = [ 4. 3. 92. 95.]
410 cord_individual_obj[indivial_i,:] = [ 5. 3. 68. 71.]
411 cord_individual_obj[indivial_i,:] = [ 6. 4. 106. 110.]
412 cord_individual_obj[indivial_i,:] = [ 7. 4. 148. 152.]
413 cord_individual_obj[indivial_i,:] = [ 8. 4. 12. 16.]
414 cord_individual_obj[indivial_i,:] = [ 9. 5. 24. 29.]
415 cord_individual_obj[indivial_i,:] = [10. 3. 78. 81.]

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416 cord_individual_obj[indivial_i,:] = [ 11. 3. 160. 163.]
417 cord_individual_obj[indivial_i,:] = [12. 4. 56. 60.]
418 cord_individual_obj[indivial_i,:] = [13. 4. 54. 58.]
419 cord_individual_obj[indivial_i,:] = [14. 5. 20. 25.]
420 cord_individual_obj[indivial_i,:] = [15. 4. 44. 48.]
421 cord_individual_obj[indivial_i,:] = [16. 5. 16. 21.]
422 cord_individual_obj[indivial_i,:] = [17. 5. 44. 49.]
423 cord_individual_obj[indivial_i,:] = [18. 3. 8. 11.]
424 cord_individual_obj[indivial_i,:] = [19. 4. 18. 22.]
425 cord_individual_obj[indivial_i,:] = [20. 3. 98. 101.]
426 cord_individual_obj[indivial_i,:] = [21. 3. 40. 43.]
427 cord_individual_obj[indivial_i,:] = [22. 5. 80. 85.]
428 cord_individual_obj[indivial_i,:] = [23. 4. 18. 22.]
429 cord_individual_obj[indivial_i,:] = [24. 3. 60. 63.]
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. 32. 35.]
437 cord_individual_obj[indivial_i,:] = [ 1. 5. 48. 53.]
438 cord_individual_obj[indivial_i,:] = [ 2. 3. 122. 125.]
439 cord_individual_obj[indivial_i,:] = [ 3. 3. 82. 85.]
440 cord_individual_obj[indivial_i,:] = [ 4. 4. 54. 58.]
441 cord_individual_obj[indivial_i,:] = [ 5. 4. 96. 100.]
442 cord_individual_obj[indivial_i,:] = [ 6. 3. 36. 39.]
443 cord_individual_obj[indivial_i,:] = [ 7. 3. 48. 51.]
444 cord_individual_obj[indivial_i,:] = [ 8. 3. 152. 155.]
445 cord_individual_obj[indivial_i,:] = [ 9. 5. 64. 69.]
446 cord_individual_obj[indivial_i,:] = [10. 4. 68. 72.]
447 cord_individual_obj[indivial_i,:] = [11. 3. 8. 11.]
448 cord_individual_obj[indivial_i,:] = [12. 6. 52. 58.]
449 cord_individual_obj[indivial_i,:] = [13. 4. 84. 88.]
450 cord_individual_obj[indivial_i,:] = [14. 4. 38. 42.]
451 cord_individual_obj[indivial_i,:] = [15. 3. 80. 83.]
452 cord_individual_obj[indivial_i,:] = [16. 5. 8. 13.]
453 cord_individual_obj[indivial_i,:] = [17. 3. 84. 87.]
454 cord_individual_obj[indivial_i,:] = [18. 4. 130. 134.]
455 cord_individual_obj[indivial_i,:] = [19. 3. 54. 57.]
456 cord_individual_obj[indivial_i,:] = [20. 5. 76. 81.]
457 cord_individual_obj[indivial_i,:] = [21. 4. 44. 48.]
458 cord_individual_obj[indivial_i,:] = [22. 4. 126. 130.]
459 cord_individual_obj[indivial_i,:] = [23. 6. 8. 14.]
460 cord_individual_obj[indivial_i,:] = [24. 5. 84. 89.]
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. 54. 57.]
468 cord_individual_obj[indivial_i,:] = [ 1. 4. 18. 22.]
469 cord_individual_obj[indivial_i,:] = [ 2. 3. 130. 133.]
470 cord_individual_obj[indivial_i,:] = [ 3. 5. 208. 213.]
471 cord_individual_obj[indivial_i,:] = [ 4. 4. 144. 148.]
472 cord_individual_obj[indivial_i,:] = [ 5. 4. 32. 36.]
473 cord_individual_obj[indivial_i,:] = [ 6. 3. 54. 57.]
474 cord_individual_obj[indivial_i,:] = [ 7. 4. 54. 58.]
475 cord_individual_obj[indivial_i,:] = [ 8. 3. 8. 11.]
476 cord_individual_obj[indivial_i,:] = [ 9. 5. 18. 23.]
477 cord_individual_obj[indivial_i,:] = [10. 3. 48. 51.]
478 cord_individual_obj[indivial_i,:] = [11. 3. 44. 47.]
479 cord_individual_obj[indivial_i,:] = [12. 4. 94. 98.]
480 cord_individual_obj[indivial_i,:] = [13. 5. 166. 171.]
481 cord_individual_obj[indivial_i,:] = [14. 5. 34. 39.]
482 cord_individual_obj[indivial_i,:] = [15. 4. 66. 70.]
483 cord_individual_obj[indivial_i,:] = [16. 5. 32. 37.]
484 cord_individual_obj[indivial_i,:] = [17. 4. 98. 102.]
485 cord_individual_obj[indivial_i,:] = [18. 4. 116. 120.]
486 cord_individual_obj[indivial_i,:] = [19. 4. 44. 48.]
487 cord_individual_obj[indivial_i,:] = [20. 5. 30. 35.]
488 cord_individual_obj[indivial_i,:] = [21. 3. 60. 63.]
489 cord_individual_obj[indivial_i,:] = [22. 4. 98. 102.]
490 cord_individual_obj[indivial_i,:] = [23. 3. 104. 107.]
491 cord_individual_obj[indivial_i,:] = [24. 4. 32. 36.]
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. 5. 32. 37.]
499 cord_individual_obj[indivial_i,:] = [ 1. 3. 32. 35.]

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500 cord_individual_obj[indivial_i,:] = [ 2. 3. 72. 75.]
501 cord_individual_obj[indivial_i,:] = [ 3. 3. 8. 11.]
502 cord_individual_obj[indivial_i,:] = [ 4. 5. 92. 97.]
503 cord_individual_obj[indivial_i,:] = [ 5. 5. 32. 37.]
504 cord_individual_obj[indivial_i,:] = [ 6. 5. 36. 41.]
505 cord_individual_obj[indivial_i,:] = [ 7. 4. 8. 12.]
506 cord_individual_obj[indivial_i,:] = [ 8. 4. 24. 28.]
507 cord_individual_obj[indivial_i,:] = [ 9. 4. 12. 16.]
508 cord_individual_obj[indivial_i,:] = [10. 3. 32. 35.]
509 cord_individual_obj[indivial_i,:] = [11. 3. 20. 23.]
510 cord_individual_obj[indivial_i,:] = [12. 4. 86. 90.]
511 cord_individual_obj[indivial_i,:] = [13. 4. 84. 88.]
512 cord_individual_obj[indivial_i,:] = [14. 4. 100. 104.]
513 cord_individual_obj[indivial_i,:] = [15. 4. 36. 40.]
514 cord_individual_obj[indivial_i,:] = [16. 3. 32. 35.]
515 cord_individual_obj[indivial_i,:] = [17. 3. 20. 23.]
516 cord_individual_obj[indivial_i,:] = [18. 4. 132. 136.]
517 cord_individual_obj[indivial_i,:] = [19. 4. 52. 56.]
518 cord_individual_obj[indivial_i,:] = [20. 4. 12. 16.]
519 cord_individual_obj[indivial_i,:] = [21. 3. 60. 63.]
520 cord_individual_obj[indivial_i,:] = [22. 4. 68. 72.]
521 cord_individual_obj[indivial_i,:] = [23. 4. 126. 130.]
522 cord_individual_obj[indivial_i,:] = [24. 3. 84. 87.]
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. 32. 35.]
530 cord_individual_obj[indivial_i,:] = [ 1. 4. 8. 12.]
531 cord_individual_obj[indivial_i,:] = [ 2. 3. 62. 65.]
532 cord_individual_obj[indivial_i,:] = [ 3. 3. 76. 79.]
533 cord_individual_obj[indivial_i,:] = [ 4. 5. 142. 147.]
534 cord_individual_obj[indivial_i,:] = [ 5. 6. 8. 14.]
535 cord_individual_obj[indivial_i,:] = [ 6. 5. 64. 69.]
536 cord_individual_obj[indivial_i,:] = [ 7. 4. 54. 58.]
537 cord_individual_obj[indivial_i,:] = [ 8. 4. 84. 88.]
538 cord_individual_obj[indivial_i,:] = [ 9. 6. 18. 24.]
539 cord_individual_obj[indivial_i,:] = [10. 5. 18. 23.]
540 cord_individual_obj[indivial_i,:] = [11. 4. 18. 22.]
541 cord_individual_obj[indivial_i,:] = [12. 4. 70. 74.]
542 cord_individual_obj[indivial_i,:] = [13. 5. 66. 71.]
543 cord_individual_obj[indivial_i,:] = [14. 6. 96. 102.]
544 cord_individual_obj[indivial_i,:] = [15. 4. 42. 46.]
545 cord_individual_obj[indivial_i,:] = [16. 3. 18. 21.]
546 cord_individual_obj[indivial_i,:] = [17. 5. 82. 87.]
547 cord_individual_obj[indivial_i,:] = [18. 3. 8. 11.]
548 cord_individual_obj[indivial_i,:] = [19. 5. 58. 63.]
549 cord_individual_obj[indivial_i,:] = [20. 3. 186. 189.]
550 cord_individual_obj[indivial_i,:] = [21. 3. 74. 77.]
551 cord_individual_obj[indivial_i,:] = [22. 4. 68. 72.]
552 cord_individual_obj[indivial_i,:] = [23. 3. 104. 107.]
553 cord_individual_obj[indivial_i,:] = [24. 3. 102. 105.]
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. 5. 80. 85.]
561 cord_individual_obj[indivial_i,:] = [ 1. 3. 54. 57.]
562 cord_individual_obj[indivial_i,:] = [ 2. 3. 118. 121.]
563 cord_individual_obj[indivial_i,:] = [ 3. 3. 72. 75.]
564 cord_individual_obj[indivial_i,:] = [ 4. 3. 110. 113.]
565 cord_individual_obj[indivial_i,:] = [ 5. 5. 54. 59.]
566 cord_individual_obj[indivial_i,:] = [ 6. 3. 54. 57.]
567 cord_individual_obj[indivial_i,:] = [ 7. 4. 18. 22.]
568 cord_individual_obj[indivial_i,:] = [ 8. 5. 24. 29.]
569 cord_individual_obj[indivial_i,:] = [ 9. 5. 62. 67.]
570 cord_individual_obj[indivial_i,:] = [10. 4. 82. 86.]
571 cord_individual_obj[indivial_i,:] = [11. 3. 158. 161.]
572 cord_individual_obj[indivial_i,:] = [12. 4. 90. 94.]
573 cord_individual_obj[indivial_i,:] = [13. 5. 166. 171.]
574 cord_individual_obj[indivial_i,:] = [14. 5. 46. 51.]
575 cord_individual_obj[indivial_i,:] = [15. 4. 66. 70.]
576 cord_individual_obj[indivial_i,:] = [16. 5. 18. 23.]
577 cord_individual_obj[indivial_i,:] = [17. 5. 64. 69.]
578 cord_individual_obj[indivial_i,:] = [18. 4. 44. 48.]
579 cord_individual_obj[indivial_i,:] = [19. 4. 106. 110.]
580 cord_individual_obj[indivial_i,:] = [20. 3. 8. 11.]
581 cord_individual_obj[indivial_i,:] = [21. 3. 24. 27.]
582 cord_individual_obj[indivial_i,:] = [22. 4. 122. 126.]
583 cord_individual_obj[indivial_i,:] = [23. 3. 122. 125.]

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584     cord_individual_obj[indivial_i, :] = [ 24.  4. 98. 102.]
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. 48. 51.]
592     cord_individual_obj[indivial_i, :] = [ 1.  4. 54. 58.]
593     cord_individual_obj[indivial_i, :] = [ 2.  6. 70. 76.]
594     cord_individual_obj[indivial_i, :] = [ 3.  4. 90. 94.]
595     cord_individual_obj[indivial_i, :] = [ 4.  3. 80. 83.]
596     cord_individual_obj[indivial_i, :] = [ 5.  3. 130. 133.]
597     cord_individual_obj[indivial_i, :] = [ 6.  3. 48. 51.]
598     cord_individual_obj[indivial_i, :] = [ 7.  4. 54. 58.]
599     cord_individual_obj[indivial_i, :] = [ 8.  4. 12. 16.]
600     cord_individual_obj[indivial_i, :] = [ 9.  5. 36. 41.]
601     cord_individual_obj[indivial_i, :] = [10.  3. 62. 65.]
602     cord_individual_obj[indivial_i, :] = [11.  4. 78. 82.]
603     cord_individual_obj[indivial_i, :] = [12.  4. 52. 56.]
604     cord_individual_obj[indivial_i, :] = [13.  3. 8. 11.]
605     cord_individual_obj[indivial_i, :] = [14.  4. 30. 34.]
606     cord_individual_obj[indivial_i, :] = [15.  4. 66. 70.]
607     cord_individual_obj[indivial_i, :] = [16.  3. 18. 21.]
608     cord_individual_obj[indivial_i, :] = [17.  4. 44. 48.]
609     cord_individual_obj[indivial_i, :] = [18.  4. 130. 134.]
610     cord_individual_obj[indivial_i, :] = [19.  3. 138. 141.]
611     cord_individual_obj[indivial_i, :] = [20.  3. 62. 65.]
612     cord_individual_obj[indivial_i, :] = [21.  3. 62. 65.]
613     cord_individual_obj[indivial_i, :] = [22.  4. 124. 128.]
614     cord_individual_obj[indivial_i, :] = [23.  5. 38. 43.]
615     cord_individual_obj[indivial_i, :] = [24.  3. 146. 149.]
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.  5. 84. 89.]
623     cord_individual_obj[indivial_i, :] = [ 1.  3. 92. 95.]
624     cord_individual_obj[indivial_i, :] = [ 2.  5. 68. 73.]
625     cord_individual_obj[indivial_i, :] = [ 3.  3. 26. 29.]
626     cord_individual_obj[indivial_i, :] = [ 4.  3. 112. 115.]
627     cord_individual_obj[indivial_i, :] = [ 5.  5. 68. 73.]
628     cord_individual_obj[indivial_i, :] = [ 6.  5. 64. 69.]
629     cord_individual_obj[indivial_i, :] = [ 7.  3. 80. 83.]
630     cord_individual_obj[indivial_i, :] = [ 8.  5. 24. 29.]
631     cord_individual_obj[indivial_i, :] = [ 9.  3. 18. 21.]
632     cord_individual_obj[indivial_i, :] = [10.  4. 128. 132.]
633     cord_individual_obj[indivial_i, :] = [11.  3. 84. 87.]
634     cord_individual_obj[indivial_i, :] = [12.  4. 28. 32.]
635     cord_individual_obj[indivial_i, :] = [13.  5. 126. 131.]
636     cord_individual_obj[indivial_i, :] = [14.  5. 28. 33.]
637     cord_individual_obj[indivial_i, :] = [15.  5. 86. 91.]
638     cord_individual_obj[indivial_i, :] = [16.  5. 8. 13.]
639     cord_individual_obj[indivial_i, :] = [17.  3. 102. 105.]
640     cord_individual_obj[indivial_i, :] = [18.  5. 94. 99.]
641     cord_individual_obj[indivial_i, :] = [19.  5. 32. 37.]
642     cord_individual_obj[indivial_i, :] = [20.  5. 84. 89.]
643     cord_individual_obj[indivial_i, :] = [21.  3. 68. 71.]
644     cord_individual_obj[indivial_i, :] = [22.  5. 98. 103.]
645     cord_individual_obj[indivial_i, :] = [23.  4. 54. 58.]
646     cord_individual_obj[indivial_i, :] = [24.  3. 8. 11.]
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. 80. 83.]
654     cord_individual_obj[indivial_i, :] = [ 1.  4. 92. 96.]
655     cord_individual_obj[indivial_i, :] = [ 2.  3. 94. 97.]
656     cord_individual_obj[indivial_i, :] = [ 3.  5. 18. 23.]
657     cord_individual_obj[indivial_i, :] = [ 4.  5. 114. 119.]
658     cord_individual_obj[indivial_i, :] = [ 5.  5. 18. 23.]
659     cord_individual_obj[indivial_i, :] = [ 6.  5. 36. 41.]
660     cord_individual_obj[indivial_i, :] = [ 7.  6. 8. 14.]
661     cord_individual_obj[indivial_i, :] = [ 8.  4. 36. 40.]
662     cord_individual_obj[indivial_i, :] = [ 9.  5. 44. 49.]
663     cord_individual_obj[indivial_i, :] = [10.  3. 8. 11.]
664     cord_individual_obj[indivial_i, :] = [11.  4. 18. 22.]
665     cord_individual_obj[indivial_i, :] = [12.  3. 86. 89.]
666     cord_individual_obj[indivial_i, :] = [13.  5. 82. 87.]
667     cord_individual_obj[indivial_i, :] = [14.  4. 72. 76.]

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668 cord_individual_obj[indivial_i, :] = [15. 5. 84. 89.]
669 cord_individual_obj[indivial_i, :] = [16. 4. 8. 12.]
670 cord_individual_obj[indivial_i, :] = [17. 4. 146. 150.]
671 cord_individual_obj[indivial_i, :] = [18. 4. 8. 12.]
672 cord_individual_obj[indivial_i, :] = [19. 5. 84. 89.]
673 cord_individual_obj[indivial_i, :] = [20. 4. 150. 154.]
674 cord_individual_obj[indivial_i, :] = [21. 3. 50. 53.]
675 cord_individual_obj[indivial_i, :] = [22. 4. 106. 110.]
676 cord_individual_obj[indivial_i, :] = [23. 3. 168. 171.]
677 cord_individual_obj[indivial_i, :] = [24. 4. 62. 66.]
678
679 min(cord_individual_obj[:, 3]) = 11.0
680 historl_G_best_iter[iter, 3] = 11.0
681 Iteration calculate over
682
683
684
685
686 All item are in Bin and:
687 Bin area = 1080
688 Real_area = 81.0
689 Proportion_of_area = 0.075
690 BEST_CHROM =
691     berth: [15.5 26. 3. 20.5 11.5 8. ]
692     time: [0. 0. 0. 0. 0.]
693     num_QC: [2. 2. 6. 3. 3. 4.]
694 Objective function values and some other indicators:
695 Obj0 = 3.00          Obj1 = 8.00          Obj0 + Obj1 = 11.00
696 Total movement of crane: 8.00
697 Total waiting time in berth position: 0.00
698 Total index of q during berthing: 478.00
699 Specific arrangement for each vessel:
700
    V_id: 0           li: 5.0           xi: 15.5           bow of i: 13.0           tail of i: 18.0           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: 6.0           xi: 26.0           bow of i: 23.0           tail of i: 29.0           gama_i0: 0.0           gama_i1: 2
    .0             gama_i1 + 1: 3.0           gama_i1 - gama_i0: 2.0           duration_time_i: 3.0           demand_i: 120.0           work
    load_i: 120.0           work load gap_i: 0
702 V_id: 2           li: 6.0           xi: 3.0           bow of i: 0.0           tail of i: 6.0           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: 260.0           work load_i:
    260.0           work load gap_i: 0
703 V_id: 3           li: 5.0           xi: 20.5           bow of i: 18.0           tail of i: 23.0           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
    load_i: 80.0           work load gap_i: 0
704 V_id: 4           li: 3.0           xi: 11.5           bow of i: 10.0           tail of i: 13.0           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: 200.0           work
    load_i: 200.0           work load gap_i: 0
705 V_id: 5           li: 4.0           xi: 8.0           bow of i: 6.0           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: 220.0           work load_i:
    220.0           work load gap_i: 0
706
707 Algorithm finished and the total CPU time: 166 s
708 End
709

```