

unknown

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80  cord_individual_obj[indivial_i,:] = [16. 3. 16. 19.]
81  cord_individual_obj[indivial_i,:] = [17. 3. 2. 5.]
82  cord_individual_obj[indivial_i,:] = [18. 3. 35. 38.]
83  cord_individual_obj[indivial_i,:] = [19. 4. 19. 23.]
84  cord_individual_obj[indivial_i,:] = [20. 4. 26. 30.]
85  cord_individual_obj[indivial_i,:] = [21. 4. 4. 8.]
86  cord_individual_obj[indivial_i,:] = [22. 4. 4. 8.]
87  cord_individual_obj[indivial_i,:] = [23. 2. 11. 13.]
88  cord_individual_obj[indivial_i,:] = [24. 3. 4. 7.]
89
90 min(cord_individual_obj[:,3]) = 4.0
91 historl_G_best_iter[iter,3] = 4.0
92 Begin iteration:
93
94 iter = 2
95  cord_individual_obj[indivial_i,:] = [0. 4. 4. 8.]
96  cord_individual_obj[indivial_i,:] = [1. 2. 2. 4.]
97  cord_individual_obj[indivial_i,:] = [2. 3. 4. 7.]
98  cord_individual_obj[indivial_i,:] = [3. 3. 3. 6.]
99  cord_individual_obj[indivial_i,:] = [4. 3. 10. 13.]
100 cord_individual_obj[indivial_i,:] = [5. 5. 6. 11.]
101 cord_individual_obj[indivial_i,:] = [6. 3. 12. 15.]
102 cord_individual_obj[indivial_i,:] = [7. 3. 5. 8.]
103 cord_individual_obj[indivial_i,:] = [8. 4. 26. 30.]
104 cord_individual_obj[indivial_i,:] = [9. 4. 3. 7.]
105 cord_individual_obj[indivial_i,:] = [10. 4. 5. 9.]
106 cord_individual_obj[indivial_i,:] = [11. 3. 36. 39.]
107 cord_individual_obj[indivial_i,:] = [12. 4. 46. 50.]
108 cord_individual_obj[indivial_i,:] = [13. 4. 54. 58.]
109 cord_individual_obj[indivial_i,:] = [14. 4. 22. 26.]
110 cord_individual_obj[indivial_i,:] = [15. 4. 32. 36.]
111 cord_individual_obj[indivial_i,:] = [16. 3. 16. 19.]
112 cord_individual_obj[indivial_i,:] = [17. 6. 14. 20.]
113 cord_individual_obj[indivial_i,:] = [18. 3. 12. 15.]
114 cord_individual_obj[indivial_i,:] = [19. 4. 10. 14.]
115 cord_individual_obj[indivial_i,:] = [20. 5. 14. 19.]
116 cord_individual_obj[indivial_i,:] = [21. 2. 10. 12.]
117 cord_individual_obj[indivial_i,:] = [22. 4. 4. 8.]
118 cord_individual_obj[indivial_i,:] = [23. 4. 11. 15.]
119 cord_individual_obj[indivial_i,:] = [24. 3. 11. 14.]
120
121 min(cord_individual_obj[:,3]) = 4.0
122 historl_G_best_iter[iter,3] = 4.0
123 Begin iteration:
124
125 iter = 3
126  cord_individual_obj[indivial_i,:] = [0. 4. 35. 39.]
127  cord_individual_obj[indivial_i,:] = [1. 3. 57. 60.]
128  cord_individual_obj[indivial_i,:] = [2. 5. 22. 27.]
129  cord_individual_obj[indivial_i,:] = [3. 4. 61. 65.]
130  cord_individual_obj[indivial_i,:] = [4. 3. 20. 23.]
131  cord_individual_obj[indivial_i,:] = [5. 3. 39. 42.]
132  cord_individual_obj[indivial_i,:] = [6. 3. 43. 46.]
133  cord_individual_obj[indivial_i,:] = [7. 4. 13. 17.]
134  cord_individual_obj[indivial_i,:] = [8. 3. 36. 39.]
135  cord_individual_obj[indivial_i,:] = [9. 3. 34. 37.]
136  cord_individual_obj[indivial_i,:] = [10. 2. 10. 12.]
137  cord_individual_obj[indivial_i,:] = [11. 4. 26. 30.]
138  cord_individual_obj[indivial_i,:] = [12. 3. 11. 14.]
139  cord_individual_obj[indivial_i,:] = [13. 2. 2. 4.]
140  cord_individual_obj[indivial_i,:] = [14. 4. 35. 39.]
141  cord_individual_obj[indivial_i,:] = [15. 5. 25. 30.]
142  cord_individual_obj[indivial_i,:] = [16. 3. 51. 54.]
143  cord_individual_obj[indivial_i,:] = [17. 4. 46. 50.]
144  cord_individual_obj[indivial_i,:] = [18. 4. 56. 60.]
145  cord_individual_obj[indivial_i,:] = [19. 4. 51. 55.]
146  cord_individual_obj[indivial_i,:] = [20. 3. 40. 43.]
147  cord_individual_obj[indivial_i,:] = [21. 3. 35. 38.]
148  cord_individual_obj[indivial_i,:] = [22. 3. 22. 25.]
149  cord_individual_obj[indivial_i,:] = [23. 3. 3. 6.]
150  cord_individual_obj[indivial_i,:] = [24. 3. 35. 38.]
151
152 min(cord_individual_obj[:,3]) = 4.0
153 historl_G_best_iter[iter,3] = 4.0
154 Begin iteration:
155
156 iter = 4
157  cord_individual_obj[indivial_i,:] = [0. 4. 25. 29.]
158  cord_individual_obj[indivial_i,:] = [1. 2. 26. 28.]
159  cord_individual_obj[indivial_i,:] = [2. 3. 3. 6.]
160  cord_individual_obj[indivial_i,:] = [3. 2. 2. 4.]
161  cord_individual_obj[indivial_i,:] = [4. 3. 2. 5.]
162  cord_individual_obj[indivial_i,:] = [5. 4. 3. 7.]
163  cord_individual_obj[indivial_i,:] = [6. 3. 3. 6.]

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164 cord_individual_obj[indivial_i, :] = [7. 3. 4. 7.]
165 cord_individual_obj[indivial_i, :] = [8. 4. 26. 30.]
166 cord_individual_obj[indivial_i, :] = [9. 4. 3. 7.]
167 cord_individual_obj[indivial_i, :] = [10. 4. 5. 9.]
168 cord_individual_obj[indivial_i, :] = [11. 3. 58. 61.]
169 cord_individual_obj[indivial_i, :] = [12. 3. 39. 42.]
170 cord_individual_obj[indivial_i, :] = [13. 4. 53. 57.]
171 cord_individual_obj[indivial_i, :] = [14. 3. 20. 23.]
172 cord_individual_obj[indivial_i, :] = [15. 2. 3. 5.]
173 cord_individual_obj[indivial_i, :] = [16. 5. 21. 26.]
174 cord_individual_obj[indivial_i, :] = [17. 5. 5. 10.]
175 cord_individual_obj[indivial_i, :] = [18. 4. 3. 7.]
176 cord_individual_obj[indivial_i, :] = [19. 5. 5. 10.]
177 cord_individual_obj[indivial_i, :] = [20. 4. 26. 30.]
178 cord_individual_obj[indivial_i, :] = [21. 2. 34. 36.]
179 cord_individual_obj[indivial_i, :] = [22. 3. 10. 13.]
180 cord_individual_obj[indivial_i, :] = [23. 4. 3. 7.]
181 cord_individual_obj[indivial_i, :] = [24. 2. 32. 34.]
182
183 min(cord_individual_obj[:, 3]) = 4.0
184 historl_G_best_iter[iter, 3] = 4.0
185 Begin iteration:
186
187 iter = 5
188 cord_individual_obj[indivial_i, :] = [0. 4. 10. 14.]
189 cord_individual_obj[indivial_i, :] = [1. 4. 56. 60.]
190 cord_individual_obj[indivial_i, :] = [2. 4. 25. 29.]
191 cord_individual_obj[indivial_i, :] = [3. 4. 56. 60.]
192 cord_individual_obj[indivial_i, :] = [4. 3. 20. 23.]
193 cord_individual_obj[indivial_i, :] = [5. 5. 11. 16.]
194 cord_individual_obj[indivial_i, :] = [6. 3. 11. 14.]
195 cord_individual_obj[indivial_i, :] = [7. 4. 4. 8.]
196 cord_individual_obj[indivial_i, :] = [8. 4. 26. 30.]
197 cord_individual_obj[indivial_i, :] = [9. 4. 26. 30.]
198 cord_individual_obj[indivial_i, :] = [10. 4. 3. 7.]
199 cord_individual_obj[indivial_i, :] = [11. 2. 2. 4.]
200 cord_individual_obj[indivial_i, :] = [12. 3. 57. 60.]
201 cord_individual_obj[indivial_i, :] = [13. 3. 3. 6.]
202 cord_individual_obj[indivial_i, :] = [14. 4. 21. 25.]
203 cord_individual_obj[indivial_i, :] = [15. 3. 66. 69.]
204 cord_individual_obj[indivial_i, :] = [16. 4. 31. 35.]
205 cord_individual_obj[indivial_i, :] = [17. 4. 25. 29.]
206 cord_individual_obj[indivial_i, :] = [18. 2. 20. 22.]
207 cord_individual_obj[indivial_i, :] = [19. 6. 17. 23.]
208 cord_individual_obj[indivial_i, :] = [20. 5. 22. 27.]
209 cord_individual_obj[indivial_i, :] = [21. 2. 20. 22.]
210 cord_individual_obj[indivial_i, :] = [22. 3. 12. 15.]
211 cord_individual_obj[indivial_i, :] = [23. 6. 6. 12.]
212 cord_individual_obj[indivial_i, :] = [24. 3. 23. 26.]
213
214 min(cord_individual_obj[:, 3]) = 4.0
215 historl_G_best_iter[iter, 3] = 4.0
216 Begin iteration:
217
218 iter = 6
219 cord_individual_obj[indivial_i, :] = [0. 4. 14. 18.]
220 cord_individual_obj[indivial_i, :] = [1. 3. 57. 60.]
221 cord_individual_obj[indivial_i, :] = [2. 2. 3. 5.]
222 cord_individual_obj[indivial_i, :] = [3. 2. 2. 4.]
223 cord_individual_obj[indivial_i, :] = [4. 3. 2. 5.]
224 cord_individual_obj[indivial_i, :] = [5. 4. 3. 7.]
225 cord_individual_obj[indivial_i, :] = [6. 5. 3. 8.]
226 cord_individual_obj[indivial_i, :] = [7. 4. 4. 8.]
227 cord_individual_obj[indivial_i, :] = [8. 4. 2. 6.]
228 cord_individual_obj[indivial_i, :] = [9. 4. 4. 8.]
229 cord_individual_obj[indivial_i, :] = [10. 2. 2. 4.]
230 cord_individual_obj[indivial_i, :] = [11. 3. 58. 61.]
231 cord_individual_obj[indivial_i, :] = [12. 6. 14. 20.]
232 cord_individual_obj[indivial_i, :] = [13. 2. 2. 4.]
233 cord_individual_obj[indivial_i, :] = [14. 3. 18. 21.]
234 cord_individual_obj[indivial_i, :] = [15. 2. 2. 4.]
235 cord_individual_obj[indivial_i, :] = [16. 5. 27. 32.]
236 cord_individual_obj[indivial_i, :] = [17. 5. 3. 8.]
237 cord_individual_obj[indivial_i, :] = [18. 4. 3. 7.]
238 cord_individual_obj[indivial_i, :] = [19. 4. 4. 8.]
239 cord_individual_obj[indivial_i, :] = [20. 3. 57. 60.]
240 cord_individual_obj[indivial_i, :] = [21. 2. 20. 22.]
241 cord_individual_obj[indivial_i, :] = [22. 3. 3. 6.]
242 cord_individual_obj[indivial_i, :] = [23. 4. 4. 8.]
243 cord_individual_obj[indivial_i, :] = [24. 3. 20. 23.]
244
245 min(cord_individual_obj[:, 3]) = 4.0
246 historl_G_best_iter[iter, 3] = 4.0
247 Begin iteration:

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248
249 iter = 7
250 cord_individual_obj[indivial_i, :] = [ 0.  3. 47. 50.]
251 cord_individual_obj[indivial_i, :] = [ 1.  3. 13. 16.]
252 cord_individual_obj[indivial_i, :] = [2. 3. 4. 7.]
253 cord_individual_obj[indivial_i, :] = [3. 2. 2. 4.]
254 cord_individual_obj[indivial_i, :] = [4. 3. 2. 5.]
255 cord_individual_obj[indivial_i, :] = [ 5.  3. 11. 14.]
256 cord_individual_obj[indivial_i, :] = [ 6.  4. 2. 6.]
257 cord_individual_obj[indivial_i, :] = [ 7.  3. 4. 7.]
258 cord_individual_obj[indivial_i, :] = [ 8.  3. 3. 6.]
259 cord_individual_obj[indivial_i, :] = [ 9.  3. 57. 60.]
260 cord_individual_obj[indivial_i, :] = [10. 3. 20. 23.]
261 cord_individual_obj[indivial_i, :] = [11. 2. 2. 4.]
262 cord_individual_obj[indivial_i, :] = [12. 5. 6. 11.]
263 cord_individual_obj[indivial_i, :] = [13. 2. 2. 4.]
264 cord_individual_obj[indivial_i, :] = [14. 4. 21. 25.]
265 cord_individual_obj[indivial_i, :] = [15. 5. 25. 30.]
266 cord_individual_obj[indivial_i, :] = [16. 3. 3. 6.]
267 cord_individual_obj[indivial_i, :] = [17. 3. 3. 6.]
268 cord_individual_obj[indivial_i, :] = [18. 3. 3. 6.]
269 cord_individual_obj[indivial_i, :] = [19. 4. 39. 43.]
270 cord_individual_obj[indivial_i, :] = [20. 4. 3. 7.]
271 cord_individual_obj[indivial_i, :] = [21. 3. 3. 6.]
272 cord_individual_obj[indivial_i, :] = [22. 4. 4. 8.]
273 cord_individual_obj[indivial_i, :] = [23. 3. 3. 6.]
274 cord_individual_obj[indivial_i, :] = [24. 3. 23. 26.]
275

276 min(cord_individual_obj[:, 3]) = 4.0
277 historl_G_best_iter[iter, 3] = 4.0
278 Begin iteration:
279
280 iter = 8
281 cord_individual_obj[indivial_i, :] = [ 0.  2. 14. 16.]
282 cord_individual_obj[indivial_i, :] = [ 1.  2. 26. 28.]
283 cord_individual_obj[indivial_i, :] = [ 2.  3. 16. 19.]
284 cord_individual_obj[indivial_i, :] = [ 3.  4. 14. 18.]
285 cord_individual_obj[indivial_i, :] = [ 4.  2. 14. 16.]
286 cord_individual_obj[indivial_i, :] = [ 5.  3. 31. 34.]
287 cord_individual_obj[indivial_i, :] = [ 6.  2. 36. 38.]
288 cord_individual_obj[indivial_i, :] = [ 7.  2. 2. 4.]
289 cord_individual_obj[indivial_i, :] = [ 8.  2. 2. 4.]
290 cord_individual_obj[indivial_i, :] = [ 9.  2. 2. 4.]
291 cord_individual_obj[indivial_i, :] = [10. 2. 2. 4.]
292 cord_individual_obj[indivial_i, :] = [11. 3. 68. 71.]
293 cord_individual_obj[indivial_i, :] = [12. 4. 14. 18.]
294 cord_individual_obj[indivial_i, :] = [13. 3. 3. 6.]
295 cord_individual_obj[indivial_i, :] = [14. 3. 15. 18.]
296 cord_individual_obj[indivial_i, :] = [15. 4. 2. 6.]
297 cord_individual_obj[indivial_i, :] = [16. 3. 31. 34.]
298 cord_individual_obj[indivial_i, :] = [17. 3. 14. 17.]
299 cord_individual_obj[indivial_i, :] = [18. 5. 3. 8.]
300 cord_individual_obj[indivial_i, :] = [19. 2. 15. 17.]
301 cord_individual_obj[indivial_i, :] = [20. 3. 3. 6.]
302 cord_individual_obj[indivial_i, :] = [21. 3. 57. 60.]
303 cord_individual_obj[indivial_i, :] = [22. 3. 31. 34.]
304 cord_individual_obj[indivial_i, :] = [23. 4. 2. 6.]
305 cord_individual_obj[indivial_i, :] = [24. 4. 31. 35.]
306

307 min(cord_individual_obj[:, 3]) = 4.0
308 historl_G_best_iter[iter, 3] = 4.0
309 Begin iteration:
310
311 iter = 9
312 cord_individual_obj[indivial_i, :] = [ 0.  6. 5. 11.]
313 cord_individual_obj[indivial_i, :] = [1. 3. 4. 7.]
314 cord_individual_obj[indivial_i, :] = [2. 3. 4. 7.]
315 cord_individual_obj[indivial_i, :] = [3. 2. 2. 4.]
316 cord_individual_obj[indivial_i, :] = [4. 3. 3. 6.]
317 cord_individual_obj[indivial_i, :] = [5. 4. 4. 8.]
318 cord_individual_obj[indivial_i, :] = [6. 4. 3. 7.]
319 cord_individual_obj[indivial_i, :] = [7. 3. 3. 6.]
320 cord_individual_obj[indivial_i, :] = [8. 4. 3. 7.]
321 cord_individual_obj[indivial_i, :] = [9. 3. 3. 6.]
322 cord_individual_obj[indivial_i, :] = [10. 3. 3. 6.]
323 cord_individual_obj[indivial_i, :] = [11. 2. 2. 4.]
324 cord_individual_obj[indivial_i, :] = [12. 2. 2. 4.]
325 cord_individual_obj[indivial_i, :] = [13. 3. 3. 6.]
326 cord_individual_obj[indivial_i, :] = [14. 3. 3. 6.]
327 cord_individual_obj[indivial_i, :] = [15. 3. 3. 6.]
328 cord_individual_obj[indivial_i, :] = [16. 5. 4. 9.]
329 cord_individual_obj[indivial_i, :] = [17. 5. 4. 9.]
330 cord_individual_obj[indivial_i, :] = [18. 3. 3. 6.]
331 cord_individual_obj[indivial_i, :] = [19. 3. 3. 6.]

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332 cord_individual_obj[indivial_i,:] = [20. 5. 4. 9.]
333 cord_individual_obj[indivial_i,:] = [21. 3. 3. 6.]
334 cord_individual_obj[indivial_i,:] = [22. 4. 5. 9.]
335 cord_individual_obj[indivial_i,:] = [23. 2. 3. 5.]
336 cord_individual_obj[indivial_i,:] = [24. 4. 4. 8.]
337
338 min(cord_individual_obj[:,3]) = 4.0
339 historl_G_best_iter[iter,3] = 4.0
340 Begin iteration:
341
342 iter = 10
343 cord_individual_obj[indivial_i,:] = [0. 2. 2. 4.]
344 cord_individual_obj[indivial_i,:] = [1. 4. 14. 18.]
345 cord_individual_obj[indivial_i,:] = [2. 5. 4. 9.]
346 cord_individual_obj[indivial_i,:] = [3. 3. 3. 6.]
347 cord_individual_obj[indivial_i,:] = [4. 4. 2. 6.]
348 cord_individual_obj[indivial_i,:] = [5. 3. 4. 7.]
349 cord_individual_obj[indivial_i,:] = [6. 2. 2. 4.]
350 cord_individual_obj[indivial_i,:] = [7. 3. 3. 6.]
351 cord_individual_obj[indivial_i,:] = [8. 3. 11. 14.]
352 cord_individual_obj[indivial_i,:] = [9. 3. 3. 6.]
353 cord_individual_obj[indivial_i,:] = [10. 2. 3. 5.]
354 cord_individual_obj[indivial_i,:] = [11. 4. 3. 7.]
355 cord_individual_obj[indivial_i,:] = [12. 5. 4. 9.]
356 cord_individual_obj[indivial_i,:] = [13. 2. 2. 4.]
357 cord_individual_obj[indivial_i,:] = [14. 3. 12. 15.]
358 cord_individual_obj[indivial_i,:] = [15. 2. 3. 5.]
359 cord_individual_obj[indivial_i,:] = [16. 4. 4. 8.]
360 cord_individual_obj[indivial_i,:] = [17. 3. 3. 6.]
361 cord_individual_obj[indivial_i,:] = [18. 4. 3. 7.]
362 cord_individual_obj[indivial_i,:] = [19. 3. 5. 8.]
363 cord_individual_obj[indivial_i,:] = [20. 3. 4. 7.]
364 cord_individual_obj[indivial_i,:] = [21. 4. 15. 19.]
365 cord_individual_obj[indivial_i,:] = [22. 2. 2. 4.]
366 cord_individual_obj[indivial_i,:] = [23. 4. 3. 7.]
367 cord_individual_obj[indivial_i,:] = [24. 4. 5. 9.]
368
369 min(cord_individual_obj[:,3]) = 4.0
370 historl_G_best_iter[iter,3] = 4.0
371 Begin iteration:
372
373 iter = 11
374 cord_individual_obj[indivial_i,:] = [0. 4. 3. 7.]
375 cord_individual_obj[indivial_i,:] = [1. 3. 3. 6.]
376 cord_individual_obj[indivial_i,:] = [2. 3. 4. 7.]
377 cord_individual_obj[indivial_i,:] = [3. 2. 2. 4.]
378 cord_individual_obj[indivial_i,:] = [4. 2. 3. 5.]
379 cord_individual_obj[indivial_i,:] = [5. 3. 2. 5.]
380 cord_individual_obj[indivial_i,:] = [6. 3. 12. 15.]
381 cord_individual_obj[indivial_i,:] = [7. 3. 4. 7.]
382 cord_individual_obj[indivial_i,:] = [8. 2. 11. 13.]
383 cord_individual_obj[indivial_i,:] = [9. 3. 40. 43.]
384 cord_individual_obj[indivial_i,:] = [10. 2. 2. 4.]
385 cord_individual_obj[indivial_i,:] = [11. 3. 3. 6.]
386 cord_individual_obj[indivial_i,:] = [12. 4. 15. 19.]
387 cord_individual_obj[indivial_i,:] = [13. 2. 2. 4.]
388 cord_individual_obj[indivial_i,:] = [14. 3. 39. 42.]
389 cord_individual_obj[indivial_i,:] = [15. 4. 3. 7.]
390 cord_individual_obj[indivial_i,:] = [16. 5. 4. 9.]
391 cord_individual_obj[indivial_i,:] = [17. 4. 3. 7.]
392 cord_individual_obj[indivial_i,:] = [18. 5. 4. 9.]
393 cord_individual_obj[indivial_i,:] = [19. 4. 15. 19.]
394 cord_individual_obj[indivial_i,:] = [20. 5. 5. 10.]
395 cord_individual_obj[indivial_i,:] = [21. 2. 2. 4.]
396 cord_individual_obj[indivial_i,:] = [22. 3. 3. 6.]
397 cord_individual_obj[indivial_i,:] = [23. 3. 4. 7.]
398 cord_individual_obj[indivial_i,:] = [24. 4. 3. 7.]
399
400 min(cord_individual_obj[:,3]) = 4.0
401 historl_G_best_iter[iter,3] = 4.0
402 Begin iteration:
403
404 iter = 12
405 cord_individual_obj[indivial_i,:] = [0. 3. 3. 6.]
406 cord_individual_obj[indivial_i,:] = [1. 2. 3. 5.]
407 cord_individual_obj[indivial_i,:] = [2. 3. 4. 7.]
408 cord_individual_obj[indivial_i,:] = [3. 3. 4. 7.]
409 cord_individual_obj[indivial_i,:] = [4. 4. 3. 7.]
410 cord_individual_obj[indivial_i,:] = [5. 4. 4. 8.]
411 cord_individual_obj[indivial_i,:] = [6. 4. 3. 7.]
412 cord_individual_obj[indivial_i,:] = [7. 3. 3. 6.]
413 cord_individual_obj[indivial_i,:] = [8. 3. 39. 42.]
414 cord_individual_obj[indivial_i,:] = [9. 2. 2. 4.]
415 cord_individual_obj[indivial_i,:] = [10. 5. 3. 8.]

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```

416 cord_individual_obj[indivial_i,:] = [11. 3. 3. 6.]
417 cord_individual_obj[indivial_i,:] = [12. 3. 2. 5.]
418 cord_individual_obj[indivial_i,:] = [13. 3. 3. 6.]
419 cord_individual_obj[indivial_i,:] = [14. 3. 40. 43.]
420 cord_individual_obj[indivial_i,:] = [15. 3. 3. 6.]
421 cord_individual_obj[indivial_i,:] = [16. 3. 3. 6.]
422 cord_individual_obj[indivial_i,:] = [17. 3. 3. 6.]
423 cord_individual_obj[indivial_i,:] = [18. 3. 13. 16.]
424 cord_individual_obj[indivial_i,:] = [19. 3. 4. 7.]
425 cord_individual_obj[indivial_i,:] = [20. 4. 4. 8.]
426 cord_individual_obj[indivial_i,:] = [21. 3. 3. 6.]
427 cord_individual_obj[indivial_i,:] = [22. 3. 5. 8.]
428 cord_individual_obj[indivial_i,:] = [23. 3. 5. 8.]
429 cord_individual_obj[indivial_i,:] = [24. 3. 3. 6.]
430
431 min(cord_individual_obj[:,3]) = 4.0
432 histol_G_best_iter[iter,3] = 4.0
433 Begin iteration:
434
435 iter = 13
436 cord_individual_obj[indivial_i,:] = [0. 3. 3. 6.]
437 cord_individual_obj[indivial_i,:] = [1. 2. 3. 5.]
438 cord_individual_obj[indivial_i,:] = [2. 3. 3. 6.]
439 cord_individual_obj[indivial_i,:] = [3. 3. 4. 7.]
440 cord_individual_obj[indivial_i,:] = [4. 5. 3. 8.]
441 cord_individual_obj[indivial_i,:] = [5. 3. 3. 6.]
442 cord_individual_obj[indivial_i,:] = [6. 3. 3. 6.]
443 cord_individual_obj[indivial_i,:] = [7. 4. 3. 7.]
444 cord_individual_obj[indivial_i,:] = [8. 2. 2. 4.]
445 cord_individual_obj[indivial_i,:] = [9. 3. 3. 6.]
446 cord_individual_obj[indivial_i,:] = [10. 3. 3. 6.]
447 cord_individual_obj[indivial_i,:] = [11. 3. 3. 6.]
448 cord_individual_obj[indivial_i,:] = [12. 5. 4. 9.]
449 cord_individual_obj[indivial_i,:] = [13. 2. 3. 5.]
450 cord_individual_obj[indivial_i,:] = [14. 2. 2. 4.]
451 cord_individual_obj[indivial_i,:] = [15. 4. 3. 7.]
452 cord_individual_obj[indivial_i,:] = [16. 2. 2. 4.]
453 cord_individual_obj[indivial_i,:] = [17. 2. 3. 5.]
454 cord_individual_obj[indivial_i,:] = [18. 2. 2. 4.]
455 cord_individual_obj[indivial_i,:] = [19. 3. 2. 5.]
456 cord_individual_obj[indivial_i,:] = [20. 3. 4. 7.]
457 cord_individual_obj[indivial_i,:] = [21. 3. 3. 6.]
458 cord_individual_obj[indivial_i,:] = [22. 3. 3. 6.]
459 cord_individual_obj[indivial_i,:] = [23. 4. 4. 8.]
460 cord_individual_obj[indivial_i,:] = [24. 2. 3. 5.]
461
462 min(cord_individual_obj[:,3]) = 4.0
463 histol_G_best_iter[iter,3] = 4.0
464 Begin iteration:
465
466 iter = 14
467 cord_individual_obj[indivial_i,:] = [0. 4. 2. 6.]
468 cord_individual_obj[indivial_i,:] = [1. 3. 16. 19.]
469 cord_individual_obj[indivial_i,:] = [2. 3. 3. 6.]
470 cord_individual_obj[indivial_i,:] = [3. 2. 12. 14.]
471 cord_individual_obj[indivial_i,:] = [4. 3. 4. 7.]
472 cord_individual_obj[indivial_i,:] = [5. 4. 3. 7.]
473 cord_individual_obj[indivial_i,:] = [6. 5. 19. 24.]
474 cord_individual_obj[indivial_i,:] = [7. 3. 13. 16.]
475 cord_individual_obj[indivial_i,:] = [8. 4. 32. 36.]
476 cord_individual_obj[indivial_i,:] = [9. 4. 32. 36.]
477 cord_individual_obj[indivial_i,:] = [10. 2. 3. 5.]
478 cord_individual_obj[indivial_i,:] = [11. 3. 4. 7.]
479 cord_individual_obj[indivial_i,:] = [12. 2. 2. 4.]
480 cord_individual_obj[indivial_i,:] = [13. 4. 5. 9.]
481 cord_individual_obj[indivial_i,:] = [14. 4. 26. 30.]
482 cord_individual_obj[indivial_i,:] = [15. 3. 3. 6.]
483 cord_individual_obj[indivial_i,:] = [16. 5. 27. 32.]
484 cord_individual_obj[indivial_i,:] = [17. 5. 3. 8.]
485 cord_individual_obj[indivial_i,:] = [18. 3. 3. 6.]
486 cord_individual_obj[indivial_i,:] = [19. 3. 4. 7.]
487 cord_individual_obj[indivial_i,:] = [20. 5. 4. 9.]
488 cord_individual_obj[indivial_i,:] = [21. 3. 68. 71.]
489 cord_individual_obj[indivial_i,:] = [22. 5. 3. 8.]
490 cord_individual_obj[indivial_i,:] = [23. 3. 3. 6.]
491 cord_individual_obj[indivial_i,:] = [24. 4. 3. 7.]
492
493 min(cord_individual_obj[:,3]) = 4.0
494 histol_G_best_iter[iter,3] = 4.0
495 Begin iteration:
496
497 iter = 15
498 cord_individual_obj[indivial_i,:] = [0. 2. 10. 12.]
499 cord_individual_obj[indivial_i,:] = [1. 2. 2. 4.]

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500 cord_individual_obj[indivial_i,:] = [2. 2. 2. 4.]
501 cord_individual_obj[indivial_i,:] = [3. 2. 3. 5.]
502 cord_individual_obj[indivial_i,:] = [4. 3. 3. 6.]
503 cord_individual_obj[indivial_i,:] = [5. 3. 3. 6.]
504 cord_individual_obj[indivial_i,:] = [6. 3. 13. 16.]
505 cord_individual_obj[indivial_i,:] = [7. 2. 2. 4.]
506 cord_individual_obj[indivial_i,:] = [8. 5. 4. 9.]
507 cord_individual_obj[indivial_i,:] = [9. 5. 4. 9.]
508 cord_individual_obj[indivial_i,:] = [10. 3. 3. 6.]
509 cord_individual_obj[indivial_i,:] = [11. 3. 74. 77.]
510 cord_individual_obj[indivial_i,:] = [12. 3. 3. 6.]
511 cord_individual_obj[indivial_i,:] = [13. 3. 12. 15.]
512 cord_individual_obj[indivial_i,:] = [14. 6. 14. 20.]
513 cord_individual_obj[indivial_i,:] = [15. 3. 3. 6.]
514 cord_individual_obj[indivial_i,:] = [16. 2. 19. 21.]
515 cord_individual_obj[indivial_i,:] = [17. 4. 4. 8.]
516 cord_individual_obj[indivial_i,:] = [18. 4. 25. 29.]
517 cord_individual_obj[indivial_i,:] = [19. 3. 3. 6.]
518 cord_individual_obj[indivial_i,:] = [20. 4. 40. 44.]
519 cord_individual_obj[indivial_i,:] = [21. 2. 2. 4.]
520 cord_individual_obj[indivial_i,:] = [22. 3. 4. 7.]
521 cord_individual_obj[indivial_i,:] = [23. 3. 3. 6.]
522 cord_individual_obj[indivial_i,:] = [24. 3. 3. 6.]
523
524 min(cord_individual_obj[:, 3]) = 4.0
525 histol_G_best_iter[iter, 3] = 4.0
526 Begin iteration:
527
528 iter = 16
529 cord_individual_obj[indivial_i,:] = [0. 5. 21. 26.]
530 cord_individual_obj[indivial_i,:] = [1. 3. 15. 18.]
531 cord_individual_obj[indivial_i,:] = [2. 2. 10. 12.]
532 cord_individual_obj[indivial_i,:] = [3. 2. 27. 29.]
533 cord_individual_obj[indivial_i,:] = [4. 3. 2. 5.]
534 cord_individual_obj[indivial_i,:] = [5. 3. 4. 7.]
535 cord_individual_obj[indivial_i,:] = [6. 4. 19. 23.]
536 cord_individual_obj[indivial_i,:] = [7. 4. 4. 8.]
537 cord_individual_obj[indivial_i,:] = [8. 5. 22. 27.]
538 cord_individual_obj[indivial_i,:] = [9. 6. 19. 25.]
539 cord_individual_obj[indivial_i,:] = [10. 3. 11. 14.]
540 cord_individual_obj[indivial_i,:] = [11. 2. 2. 4.]
541 cord_individual_obj[indivial_i,:] = [12. 4. 14. 18.]
542 cord_individual_obj[indivial_i,:] = [13. 3. 3. 6.]
543 cord_individual_obj[indivial_i,:] = [14. 6. 14. 20.]
544 cord_individual_obj[indivial_i,:] = [15. 2. 11. 13.]
545 cord_individual_obj[indivial_i,:] = [16. 5. 3. 8.]
546 cord_individual_obj[indivial_i,:] = [17. 6. 5. 11.]
547 cord_individual_obj[indivial_i,:] = [18. 2. 2. 4.]
548 cord_individual_obj[indivial_i,:] = [19. 3. 20. 23.]
549 cord_individual_obj[indivial_i,:] = [20. 5. 22. 27.]
550 cord_individual_obj[indivial_i,:] = [21. 3. 68. 71.]
551 cord_individual_obj[indivial_i,:] = [22. 3. 4. 7.]
552 cord_individual_obj[indivial_i,:] = [23. 4. 15. 19.]
553 cord_individual_obj[indivial_i,:] = [24. 3. 3. 6.]
554
555 min(cord_individual_obj[:, 3]) = 4.0
556 histol_G_best_iter[iter, 3] = 4.0
557 Begin iteration:
558
559 iter = 17
560 cord_individual_obj[indivial_i,:] = [0. 6. 18. 24.]
561 cord_individual_obj[indivial_i,:] = [1. 3. 15. 18.]
562 cord_individual_obj[indivial_i,:] = [2. 3. 67. 70.]
563 cord_individual_obj[indivial_i,:] = [3. 3. 4. 7.]
564 cord_individual_obj[indivial_i,:] = [4. 4. 56. 60.]
565 cord_individual_obj[indivial_i,:] = [5. 5. 16. 21.]
566 cord_individual_obj[indivial_i,:] = [6. 5. 4. 9.]
567 cord_individual_obj[indivial_i,:] = [7. 3. 12. 15.]
568 cord_individual_obj[indivial_i,:] = [8. 4. 26. 30.]
569 cord_individual_obj[indivial_i,:] = [9. 5. 24. 29.]
570 cord_individual_obj[indivial_i,:] = [10. 3. 57. 60.]
571 cord_individual_obj[indivial_i,:] = [11. 3. 48. 51.]
572 cord_individual_obj[indivial_i,:] = [12. 3. 13. 16.]
573 cord_individual_obj[indivial_i,:] = [13. 4. 15. 19.]
574 cord_individual_obj[indivial_i,:] = [14. 3. 10. 13.]
575 cord_individual_obj[indivial_i,:] = [15. 3. 66. 69.]
576 cord_individual_obj[indivial_i,:] = [16. 5. 27. 32.]
577 cord_individual_obj[indivial_i,:] = [17. 4. 3. 7.]
578 cord_individual_obj[indivial_i,:] = [18. 3. 57. 60.]
579 cord_individual_obj[indivial_i,:] = [19. 3. 25. 28.]
580 cord_individual_obj[indivial_i,:] = [20. 5. 22. 27.]
581 cord_individual_obj[indivial_i,:] = [21. 2. 2. 4.]
582 cord_individual_obj[indivial_i,:] = [22. 3. 16. 19.]
583 cord_individual_obj[indivial_i,:] = [23. 3. 3. 6.]

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584     cord_individual_obj[indivial_i, :] = [24. 3. 15. 18.]
585
586     min(cord_individual_obj[:, 3]) = 4.0
587     historl_G_best_iter[iter, 3] = 4.0
588 Begin iteration:
589
590 iter = 18
591     cord_individual_obj[indivial_i, :] = [ 0. 3. 11. 14.]
592     cord_individual_obj[indivial_i, :] = [1. 3. 3. 6.]
593     cord_individual_obj[indivial_i, :] = [2. 2. 2. 4.]
594     cord_individual_obj[indivial_i, :] = [3. 2. 3. 5.]
595     cord_individual_obj[indivial_i, :] = [4. 3. 4. 7.]
596     cord_individual_obj[indivial_i, :] = [ 5. 4. 14. 18.]
597     cord_individual_obj[indivial_i, :] = [ 6. 5. 13. 18.]
598     cord_individual_obj[indivial_i, :] = [ 7. 5. 4. 9.]
599     cord_individual_obj[indivial_i, :] = [ 8. 4. 3. 7.]
600     cord_individual_obj[indivial_i, :] = [ 9. 5. 30. 35.]
601     cord_individual_obj[indivial_i, :] = [10. 5. 24. 29.]
602     cord_individual_obj[indivial_i, :] = [11. 3. 4. 7.]
603     cord_individual_obj[indivial_i, :] = [12. 3. 3. 6.]
604     cord_individual_obj[indivial_i, :] = [13. 2. 2. 4.]
605     cord_individual_obj[indivial_i, :] = [14. 3. 19. 22.]
606     cord_individual_obj[indivial_i, :] = [15. 3. 3. 6.]
607     cord_individual_obj[indivial_i, :] = [16. 3. 68. 71.]
608     cord_individual_obj[indivial_i, :] = [17. 4. 2. 6.]
609     cord_individual_obj[indivial_i, :] = [18. 4. 12. 16.]
610     cord_individual_obj[indivial_i, :] = [19. 3. 64. 67.]
611     cord_individual_obj[indivial_i, :] = [20. 3. 3. 6.]
612     cord_individual_obj[indivial_i, :] = [21. 3. 47. 50.]
613     cord_individual_obj[indivial_i, :] = [22. 3. 20. 23.]
614     cord_individual_obj[indivial_i, :] = [23. 5. 5. 10.]
615     cord_individual_obj[indivial_i, :] = [24. 2. 19. 21.]
616
617     min(cord_individual_obj[:, 3]) = 4.0
618     historl_G_best_iter[iter, 3] = 4.0
619 Begin iteration:
620
621 iter = 19
622     cord_individual_obj[indivial_i, :] = [ 0. 6. 17. 23.]
623     cord_individual_obj[indivial_i, :] = [ 1. 3. 16. 19.]
624     cord_individual_obj[indivial_i, :] = [ 2. 3. 67. 70.]
625     cord_individual_obj[indivial_i, :] = [ 3. 3. 47. 50.]
626     cord_individual_obj[indivial_i, :] = [ 4. 2. 10. 12.]
627     cord_individual_obj[indivial_i, :] = [ 5. 5. 27. 32.]
628     cord_individual_obj[indivial_i, :] = [ 6. 4. 15. 19.]
629     cord_individual_obj[indivial_i, :] = [ 7. 4. 14. 18.]
630     cord_individual_obj[indivial_i, :] = [ 8. 3. 40. 43.]
631     cord_individual_obj[indivial_i, :] = [ 9. 4. 51. 55.]
632     cord_individual_obj[indivial_i, :] = [10. 4. 39. 43.]
633     cord_individual_obj[indivial_i, :] = [11. 3. 47. 50.]
634     cord_individual_obj[indivial_i, :] = [12. 3. 13. 16.]
635     cord_individual_obj[indivial_i, :] = [13. 3. 12. 15.]
636     cord_individual_obj[indivial_i, :] = [14. 4. 32. 36.]
637     cord_individual_obj[indivial_i, :] = [15. 4. 38. 42.]
638     cord_individual_obj[indivial_i, :] = [16. 2. 2. 4.]
639     cord_individual_obj[indivial_i, :] = [17. 4. 32. 36.]
640     cord_individual_obj[indivial_i, :] = [18. 3. 68. 71.]
641     cord_individual_obj[indivial_i, :] = [19. 3. 15. 18.]
642     cord_individual_obj[indivial_i, :] = [20. 5. 27. 32.]
643     cord_individual_obj[indivial_i, :] = [21. 3. 35. 38.]
644     cord_individual_obj[indivial_i, :] = [22. 5. 27. 32.]
645     cord_individual_obj[indivial_i, :] = [23. 3. 16. 19.]
646     cord_individual_obj[indivial_i, :] = [24. 5. 28. 33.]
647
648     min(cord_individual_obj[:, 3]) = 4.0
649     historl_G_best_iter[iter, 3] = 4.0
650 Begin iteration:
651
652 iter = 20
653     cord_individual_obj[indivial_i, :] = [ 0. 4. 15. 19.]
654     cord_individual_obj[indivial_i, :] = [ 1. 3. 47. 50.]
655     cord_individual_obj[indivial_i, :] = [ 2. 3. 84. 87.]
656     cord_individual_obj[indivial_i, :] = [ 3. 3. 16. 19.]
657     cord_individual_obj[indivial_i, :] = [ 4. 4. 5. 9.]
658     cord_individual_obj[indivial_i, :] = [ 5. 4. 16. 20.]
659     cord_individual_obj[indivial_i, :] = [ 6. 4. 16. 20.]
660     cord_individual_obj[indivial_i, :] = [ 7. 3. 51. 54.]
661     cord_individual_obj[indivial_i, :] = [ 8. 4. 25. 29.]
662     cord_individual_obj[indivial_i, :] = [ 9. 5. 25. 30.]
663     cord_individual_obj[indivial_i, :] = [10. 3. 12. 15.]
664     cord_individual_obj[indivial_i, :] = [11. 3. 39. 42.]
665     cord_individual_obj[indivial_i, :] = [12. 3. 16. 19.]
666     cord_individual_obj[indivial_i, :] = [13. 3. 56. 59.]
667     cord_individual_obj[indivial_i, :] = [14. 4. 29. 33.]

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668 cord_individual_obj[indivial_i, :] = [15. 4. 56. 60.]
669 cord_individual_obj[indivial_i, :] = [16. 5. 28. 33.]
670 cord_individual_obj[indivial_i, :] = [17. 4. 3. 7.]
671 cord_individual_obj[indivial_i, :] = [18. 2. 2. 4.]
672 cord_individual_obj[indivial_i, :] = [19. 3. 16. 19.]
673 cord_individual_obj[indivial_i, :] = [20. 4. 32. 36.]
674 cord_individual_obj[indivial_i, :] = [21. 3. 56. 59.]
675 cord_individual_obj[indivial_i, :] = [22. 3. 27. 30.]
676 cord_individual_obj[indivial_i, :] = [23. 4. 69. 73.]
677 cord_individual_obj[indivial_i, :] = [24. 3. 28. 31.]
678
679 min(cord_individual_obj[:, 3]) = 4.0
680 historl_G_best_iter[iter, 3] = 4.0
681 Iteration calculate over
682
683
684
685
686 All item are in Bin and:
687 Bin area = 1080
688 Real_area = 76.0
689 Proportion_of_area = 0.07037037037037037
690 BEST_CHROM =
691     berth: [23. 17.5 4. 22.5 12. 2.5]
692     time: [1. 0. 0. 0. 0. 1.]
693     num_QC: [2. 3. 4. 4. 3. 4.]
694 Objective function values and some other indicators:
695 Obj0 = 2.00          Obj1 = 2.00          Obj0 + Obj1 = 4.00
696 Total movement of crane: 0.00
697 Total waiting time in berth position: 2.00
698 Total index of q during berthing: 306.00
699 Specific arrangement for each vessel:
700
    V_id: 0           li: 8.0           xi: 23.0           bow of i: 19.0           tail of i: 27.0           gama_i0: 1.0           gama_i1: 2
    .0             gama_i1 + 1: 3.0           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: 3.0           xi: 17.5           bow of i: 16.0           tail of i: 19.0           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: 100.0           work
702 load_i: 100.0           work load gap_i: 0
    V_id: 2           li: 8.0           xi: 4.0           bow of i: 0.0           tail of i: 8.0           gama_i0: 0.0           gama_i1: 0.0
    .0             gama_i1 + 1: 1.0           gama_i1 - gama_i0: 0.0           duration_time_i: 1.0           demand_i: 80.0           work load_i:
703 load_i: 80.0           work load gap_i: 0
    V_id: 3           li: 7.0           xi: 22.5           bow of i: 19.0           tail of i: 26.0           gama_i0: 0.0           gama_i1: 0
    .0             gama_i1 + 1: 1.0           gama_i1 - gama_i0: 0.0           duration_time_i: 1.0           demand_i: 80.0           work
704 load_i: 100.0           work load gap_i: 0
    V_id: 4           li: 8.0           xi: 12.0           bow of i: 8.0           tail of i: 16.0           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: 100.0           work
705 load_i: 160.0           work load gap_i: 0
    V_id: 5           li: 5.0           xi: 2.5           bow of i: 0.0           tail of i: 5.0           gama_i0: 1.0           gama_i1: 2.0
    .0             gama_i1 + 1: 3.0           gama_i1 - gama_i0: 1.0           duration_time_i: 2.0           demand_i: 160.0           work load_i:
706
707 Algorithm finished and the total CPU time: 171 s
708 End
709

```