

unknown

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80 cord_individual_obj[indivial_i,:] = [16. 4. 47. 51.]
81 cord_individual_obj[indivial_i,:] = [17. 2. 35. 37.]
82 cord_individual_obj[indivial_i,:] = [18. 4. 32. 36.]
83 cord_individual_obj[indivial_i,:] = [19. 4. 18. 22.]
84 cord_individual_obj[indivial_i,:] = [20. 3. 18. 21.]
85 cord_individual_obj[indivial_i,:] = [21. 5. 9. 14.]
86 cord_individual_obj[indivial_i,:] = [22. 5. 28. 33.]
87 cord_individual_obj[indivial_i,:] = [23. 5. 39. 44.]
88 cord_individual_obj[indivial_i,:] = [24. 4. 36. 40.]
89
90 min(cord_individual_obj[:,3]) = 6.0
91 historl_G_best_iter[iter,3] = 6.0
92 Begin iteration:
93
94 iter = 2
95 cord_individual_obj[indivial_i,:] = [ 0. 3. 32. 35.]
96 cord_individual_obj[indivial_i,:] = [ 1. 3. 30. 33.]
97 cord_individual_obj[indivial_i,:] = [ 2. 4. 8. 12.]
98 cord_individual_obj[indivial_i,:] = [ 3. 3. 50. 53.]
99 cord_individual_obj[indivial_i,:] = [ 4. 3. 36. 39.]
100 cord_individual_obj[indivial_i,:] = [ 5. 3. 8. 11.]
101 cord_individual_obj[indivial_i,:] = [ 6. 4. 9. 13.]
102 cord_individual_obj[indivial_i,:] = [ 7. 4. 19. 23.]
103 cord_individual_obj[indivial_i,:] = [ 8. 5. 18. 23.]
104 cord_individual_obj[indivial_i,:] = [ 9. 3. 8. 11.]
105 cord_individual_obj[indivial_i,:] = [10. 3. 34. 37.]
106 cord_individual_obj[indivial_i,:] = [11. 3. 8. 11.]
107 cord_individual_obj[indivial_i,:] = [12. 3. 3. 6.]
108 cord_individual_obj[indivial_i,:] = [13. 3. 18. 21.]
109 cord_individual_obj[indivial_i,:] = [14. 3. 24. 27.]
110 cord_individual_obj[indivial_i,:] = [15. 3. 56. 59.]
111 cord_individual_obj[indivial_i,:] = [16. 3. 52. 55.]
112 cord_individual_obj[indivial_i,:] = [17. 4. 73. 77.]
113 cord_individual_obj[indivial_i,:] = [18. 3. 62. 65.]
114 cord_individual_obj[indivial_i,:] = [19. 4. 28. 32.]
115 cord_individual_obj[indivial_i,:] = [20. 3. 18. 21.]
116 cord_individual_obj[indivial_i,:] = [21. 3. 40. 43.]
117 cord_individual_obj[indivial_i,:] = [22. 4. 2. 6.]
118 cord_individual_obj[indivial_i,:] = [23. 3. 62. 65.]
119 cord_individual_obj[indivial_i,:] = [24. 2. 43. 45.]
120
121 min(cord_individual_obj[:,3]) = 6.0
122 historl_G_best_iter[iter,3] = 6.0
123 Begin iteration:
124
125 iter = 3
126 cord_individual_obj[indivial_i,:] = [ 0. 3. 36. 39.]
127 cord_individual_obj[indivial_i,:] = [ 1. 3. 78. 81.]
128 cord_individual_obj[indivial_i,:] = [ 2. 3. 43. 46.]
129 cord_individual_obj[indivial_i,:] = [ 3. 3. 62. 65.]
130 cord_individual_obj[indivial_i,:] = [ 4. 3. 13. 16.]
131 cord_individual_obj[indivial_i,:] = [ 5. 4. 108. 112.]
132 cord_individual_obj[indivial_i,:] = [ 6. 4. 80. 84.]
133 cord_individual_obj[indivial_i,:] = [ 7. 4. 51. 55.]
134 cord_individual_obj[indivial_i,:] = [ 8. 3. 18. 21.]
135 cord_individual_obj[indivial_i,:] = [ 9. 2. 22. 24.]
136 cord_individual_obj[indivial_i,:] = [10. 4. 17. 21.]
137 cord_individual_obj[indivial_i,:] = [11. 3. 2. 5.]
138 cord_individual_obj[indivial_i,:] = [12. 4. 2. 6.]
139 cord_individual_obj[indivial_i,:] = [13. 3. 52. 55.]
140 cord_individual_obj[indivial_i,:] = [14. 3. 4. 7.]
141 cord_individual_obj[indivial_i,:] = [15. 3. 13. 16.]
142 cord_individual_obj[indivial_i,:] = [16. 4. 17. 21.]
143 cord_individual_obj[indivial_i,:] = [17. 3. 3. 6.]
144 cord_individual_obj[indivial_i,:] = [18. 3. 56. 59.]
145 cord_individual_obj[indivial_i,:] = [19. 3. 52. 55.]
146 cord_individual_obj[indivial_i,:] = [20. 4. 50. 54.]
147 cord_individual_obj[indivial_i,:] = [21. 2. 8. 10.]
148 cord_individual_obj[indivial_i,:] = [22. 5. 4. 9.]
149 cord_individual_obj[indivial_i,:] = [23. 4. 51. 55.]
150 cord_individual_obj[indivial_i,:] = [24. 3. 20. 23.]
151
152 min(cord_individual_obj[:,3]) = 5.0
153 historl_G_best_iter[iter,3] = 5.0
154 Begin iteration:
155
156 iter = 4
157 cord_individual_obj[indivial_i,:] = [0. 4. 1. 5.]
158 cord_individual_obj[indivial_i,:] = [ 1. 3. 32. 35.]
159 cord_individual_obj[indivial_i,:] = [ 2. 3. 8. 11.]
160 cord_individual_obj[indivial_i,:] = [ 3. 2. 22. 24.]
161 cord_individual_obj[indivial_i,:] = [ 4. 3. 23. 26.]
162 cord_individual_obj[indivial_i,:] = [ 5. 3. 2. 5.]
163 cord_individual_obj[indivial_i,:] = [ 6. 4. 8. 12.]

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164 cord_individual_obj[indivial_i, :] = [ 7. 5. 8. 13.]
165 cord_individual_obj[indivial_i, :] = [ 8. 6. 19. 25.]
166 cord_individual_obj[indivial_i, :] = [ 9. 3. 9. 12.]
167 cord_individual_obj[indivial_i, :] = [10. 5. 18. 23.]
168 cord_individual_obj[indivial_i, :] = [11. 2. 51. 53.]
169 cord_individual_obj[indivial_i, :] = [12. 3. 2. 5.]
170 cord_individual_obj[indivial_i, :] = [13. 2. 31. 33.]
171 cord_individual_obj[indivial_i, :] = [14. 3. 61. 64.]
172 cord_individual_obj[indivial_i, :] = [15. 3. 39. 42.]
173 cord_individual_obj[indivial_i, :] = [16. 2. 22. 24.]
174 cord_individual_obj[indivial_i, :] = [17. 3. 40. 43.]
175 cord_individual_obj[indivial_i, :] = [18. 3. 80. 83.]
176 cord_individual_obj[indivial_i, :] = [19. 5. 18. 23.]
177 cord_individual_obj[indivial_i, :] = [20. 5. 18. 23.]
178 cord_individual_obj[indivial_i, :] = [21. 2. 51. 53.]
179 cord_individual_obj[indivial_i, :] = [22. 3. 52. 55.]
180 cord_individual_obj[indivial_i, :] = [23. 3. 48. 51.]
181 cord_individual_obj[indivial_i, :] = [24. 3. 38. 41.]
182
183 min(cord_individual_obj[:, 3]) = 5.0
184 historl_G_best_iter[iter, 3] = 5.0
185 Begin iteration:
186
187 iter = 5
188 cord_individual_obj[indivial_i, :] = [0. 5. 3. 8.]
189 cord_individual_obj[indivial_i, :] = [1. 4. 2. 6.]
190 cord_individual_obj[indivial_i, :] = [2. 2. 2. 4.]
191 cord_individual_obj[indivial_i, :] = [3. 4. 2. 6.]
192 cord_individual_obj[indivial_i, :] = [4. 4. 51. 55.]
193 cord_individual_obj[indivial_i, :] = [5. 3. 18. 21.]
194 cord_individual_obj[indivial_i, :] = [6. 5. 18. 23.]
195 cord_individual_obj[indivial_i, :] = [7. 3. 2. 5.]
196 cord_individual_obj[indivial_i, :] = [8. 2. 7. 9.]
197 cord_individual_obj[indivial_i, :] = [9. 3. 18. 21.]
198 cord_individual_obj[indivial_i, :] = [10. 5. 32. 37.]
199 cord_individual_obj[indivial_i, :] = [11. 5. 3. 8.]
200 cord_individual_obj[indivial_i, :] = [12. 4. 8. 12.]
201 cord_individual_obj[indivial_i, :] = [13. 2. 7. 9.]
202 cord_individual_obj[indivial_i, :] = [14. 5. 18. 23.]
203 cord_individual_obj[indivial_i, :] = [15. 5. 2. 7.]
204 cord_individual_obj[indivial_i, :] = [16. 3. 8. 11.]
205 cord_individual_obj[indivial_i, :] = [17. 4. 18. 22.]
206 cord_individual_obj[indivial_i, :] = [18. 4. 1. 5.]
207 cord_individual_obj[indivial_i, :] = [19. 4. 2. 6.]
208 cord_individual_obj[indivial_i, :] = [20. 3. 2. 5.]
209 cord_individual_obj[indivial_i, :] = [21. 4. 1. 5.]
210 cord_individual_obj[indivial_i, :] = [22. 3. 2. 5.]
211 cord_individual_obj[indivial_i, :] = [23. 4. 24. 28.]
212 cord_individual_obj[indivial_i, :] = [24. 2. 8. 10.]
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. 3. 7. 10.]
220 cord_individual_obj[indivial_i, :] = [ 1. 5. 2. 7.]
221 cord_individual_obj[indivial_i, :] = [ 2. 3. 52. 55.]
222 cord_individual_obj[indivial_i, :] = [ 3. 5. 9. 14.]
223 cord_individual_obj[indivial_i, :] = [ 4. 2. 2. 4.]
224 cord_individual_obj[indivial_i, :] = [ 5. 3. 2. 5.]
225 cord_individual_obj[indivial_i, :] = [ 6. 2. 7. 9.]
226 cord_individual_obj[indivial_i, :] = [ 7. 3. 2. 5.]
227 cord_individual_obj[indivial_i, :] = [ 8. 4. 73. 77.]
228 cord_individual_obj[indivial_i, :] = [ 9. 2. 8. 10.]
229 cord_individual_obj[indivial_i, :] = [10. 4. 8. 12.]
230 cord_individual_obj[indivial_i, :] = [11. 3. 2. 5.]
231 cord_individual_obj[indivial_i, :] = [12. 4. 76. 80.]
232 cord_individual_obj[indivial_i, :] = [13. 2. 1. 3.]
233 cord_individual_obj[indivial_i, :] = [14. 3. 57. 60.]
234 cord_individual_obj[indivial_i, :] = [15. 3. 2. 5.]
235 cord_individual_obj[indivial_i, :] = [16. 4. 31. 35.]
236 cord_individual_obj[indivial_i, :] = [17. 4. 31. 35.]
237 cord_individual_obj[indivial_i, :] = [18. 3. 31. 34.]
238 cord_individual_obj[indivial_i, :] = [19. 4. 73. 77.]
239 cord_individual_obj[indivial_i, :] = [20. 4. 31. 35.]
240 cord_individual_obj[indivial_i, :] = [21. 3. 99. 102.]
241 cord_individual_obj[indivial_i, :] = [22. 3. 2. 5.]
242 cord_individual_obj[indivial_i, :] = [23. 3. 2. 5.]
243 cord_individual_obj[indivial_i, :] = [24. 3. 3. 6.]
244
245 min(cord_individual_obj[:, 3]) = 3.0
246 historl_G_best_iter[iter, 3] = 3.0
247 Begin iteration:

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248
249 iter = 7
250 cord_individual_obj[indivial_i, :] = [ 0. 3. 18. 21.]
251 cord_individual_obj[indivial_i, :] = [1. 3. 2. 5.]
252 cord_individual_obj[indivial_i, :] = [ 2. 3. 31. 34.]
253 cord_individual_obj[indivial_i, :] = [ 3. 3. 67. 70.]
254 cord_individual_obj[indivial_i, :] = [ 4. 3. 28. 31.]
255 cord_individual_obj[indivial_i, :] = [ 5. 3. 18. 21.]
256 cord_individual_obj[indivial_i, :] = [ 6. 4. 73. 77.]
257 cord_individual_obj[indivial_i, :] = [ 7. 3. 2. 5.]
258 cord_individual_obj[indivial_i, :] = [ 8. 3. 23. 26.]
259 cord_individual_obj[indivial_i, :] = [ 9. 3. 8. 11.]
260 cord_individual_obj[indivial_i, :] = [10. 3. 18. 21.]
261 cord_individual_obj[indivial_i, :] = [11. 3. 23. 26.]
262 cord_individual_obj[indivial_i, :] = [12. 3. 23. 26.]
263 cord_individual_obj[indivial_i, :] = [13. 3. 32. 35.]
264 cord_individual_obj[indivial_i, :] = [14. 3. 24. 27.]
265 cord_individual_obj[indivial_i, :] = [15. 2. 1. 3.]
266 cord_individual_obj[indivial_i, :] = [16. 2. 52. 54.]
267 cord_individual_obj[indivial_i, :] = [17. 2. 31. 33.]
268 cord_individual_obj[indivial_i, :] = [18. 3. 59. 62.]
269 cord_individual_obj[indivial_i, :] = [19. 3. 2. 5.]
270 cord_individual_obj[indivial_i, :] = [20. 4. 76. 80.]
271 cord_individual_obj[indivial_i, :] = [21. 2. 1. 3.]
272 cord_individual_obj[indivial_i, :] = [22. 4. 3. 7.]
273 cord_individual_obj[indivial_i, :] = [23. 4. 30. 34.]
274 cord_individual_obj[indivial_i, :] = [24. 3. 44. 47.]
275

276 min(cord_individual_obj[:, 3]) = 3.0
277 historl_G_best_iter[iter, 3] = 3.0
278 Begin iteration:
279
280 iter = 8
281 cord_individual_obj[indivial_i, :] = [ 0. 2. 31. 33.]
282 cord_individual_obj[indivial_i, :] = [1. 2. 1. 3.]
283 cord_individual_obj[indivial_i, :] = [ 2. 3. 7. 10.]
284 cord_individual_obj[indivial_i, :] = [ 3. 3. 43. 46.]
285 cord_individual_obj[indivial_i, :] = [ 4. 3. 32. 35.]
286 cord_individual_obj[indivial_i, :] = [ 5. 3. 24. 27.]
287 cord_individual_obj[indivial_i, :] = [ 6. 3. 32. 35.]
288 cord_individual_obj[indivial_i, :] = [ 7. 3. 2. 5.]
289 cord_individual_obj[indivial_i, :] = [ 8. 3. 7. 10.]
290 cord_individual_obj[indivial_i, :] = [ 9. 3. 32. 35.]
291 cord_individual_obj[indivial_i, :] = [10. 3. 32. 35.]
292 cord_individual_obj[indivial_i, :] = [11. 3. 2. 5.]
293 cord_individual_obj[indivial_i, :] = [12. 4. 8. 12.]
294 cord_individual_obj[indivial_i, :] = [13. 2. 1. 3.]
295 cord_individual_obj[indivial_i, :] = [14. 3. 32. 35.]
296 cord_individual_obj[indivial_i, :] = [15. 3. 2. 5.]
297 cord_individual_obj[indivial_i, :] = [16. 3. 2. 5.]
298 cord_individual_obj[indivial_i, :] = [17. 3. 50. 53.]
299 cord_individual_obj[indivial_i, :] = [18. 3. 31. 34.]
300 cord_individual_obj[indivial_i, :] = [19. 4. 2. 6.]
301 cord_individual_obj[indivial_i, :] = [20. 2. 1. 3.]
302 cord_individual_obj[indivial_i, :] = [21. 3. 1. 4.]
303 cord_individual_obj[indivial_i, :] = [22. 3. 2. 5.]
304 cord_individual_obj[indivial_i, :] = [23. 3. 2. 5.]
305 cord_individual_obj[indivial_i, :] = [24. 2. 24. 26.]
306

307 min(cord_individual_obj[:, 3]) = 3.0
308 historl_G_best_iter[iter, 3] = 3.0
309 Begin iteration:
310
311 iter = 9
312 cord_individual_obj[indivial_i, :] = [ 0. 3. 18. 21.]
313 cord_individual_obj[indivial_i, :] = [1. 3. 2. 5.]
314 cord_individual_obj[indivial_i, :] = [ 2. 2. 31. 33.]
315 cord_individual_obj[indivial_i, :] = [ 3. 4. 58. 62.]
316 cord_individual_obj[indivial_i, :] = [ 4. 3. 28. 31.]
317 cord_individual_obj[indivial_i, :] = [ 5. 3. 31. 34.]
318 cord_individual_obj[indivial_i, :] = [ 6. 3. 76. 79.]
319 cord_individual_obj[indivial_i, :] = [ 7. 4. 33. 37.]
320 cord_individual_obj[indivial_i, :] = [ 8. 2. 35. 37.]
321 cord_individual_obj[indivial_i, :] = [ 9. 3. 8. 11.]
322 cord_individual_obj[indivial_i, :] = [10. 3. 18. 21.]
323 cord_individual_obj[indivial_i, :] = [11. 3. 23. 26.]
324 cord_individual_obj[indivial_i, :] = [12. 4. 18. 22.]
325 cord_individual_obj[indivial_i, :] = [13. 3. 32. 35.]
326 cord_individual_obj[indivial_i, :] = [14. 3. 2. 5.]
327 cord_individual_obj[indivial_i, :] = [15. 2. 1. 3.]
328 cord_individual_obj[indivial_i, :] = [16. 3. 52. 55.]
329 cord_individual_obj[indivial_i, :] = [17. 2. 1. 3.]
330 cord_individual_obj[indivial_i, :] = [18. 3. 59. 62.]
331 cord_individual_obj[indivial_i, :] = [19. 3. 2. 5.]

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unknown

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332     cord_individual_obj[indivial_i,:] = [20. 3. 62. 65.]
333     cord_individual_obj[indivial_i,:] = [21. 2. 1. 3.]
334     cord_individual_obj[indivial_i,:] = [22. 4. 3. 7.]
335     cord_individual_obj[indivial_i,:] = [23. 4. 48. 52.]
336     cord_individual_obj[indivial_i,:] = [24. 4. 68. 72.]
337
338 min(cord_individual_obj[:,3]) = 3.0
339 historl_G_best_iter[iter,3] = 3.0
340 Begin iteration:
341
342 iter = 10
343     cord_individual_obj[indivial_i,:] = [ 0. 2. 32. 34.]
344     cord_individual_obj[indivial_i,:] = [1. 2. 1. 3.]
345     cord_individual_obj[indivial_i,:] = [ 2. 3. 35. 38.]
346     cord_individual_obj[indivial_i,:] = [ 3. 3. 67. 70.]
347     cord_individual_obj[indivial_i,:] = [ 4. 2. 51. 53.]
348     cord_individual_obj[indivial_i,:] = [ 5. 2. 17. 19.]
349     cord_individual_obj[indivial_i,:] = [ 6. 2. 1. 3.]
350     cord_individual_obj[indivial_i,:] = [ 7. 3. 2. 5.]
351     cord_individual_obj[indivial_i,:] = [ 8. 3. 7. 10.]
352     cord_individual_obj[indivial_i,:] = [ 9. 3. 18. 21.]
353     cord_individual_obj[indivial_i,:] = [10. 3. 32. 35.]
354     cord_individual_obj[indivial_i,:] = [11. 3. 7. 10.]
355     cord_individual_obj[indivial_i,:] = [12. 4. 8. 12.]
356     cord_individual_obj[indivial_i,:] = [13. 2. 7. 9.]
357     cord_individual_obj[indivial_i,:] = [14. 3. 2. 5.]
358     cord_individual_obj[indivial_i,:] = [15. 4. 33. 37.]
359     cord_individual_obj[indivial_i,:] = [16. 3. 52. 55.]
360     cord_individual_obj[indivial_i,:] = [17. 3. 18. 21.]
361     cord_individual_obj[indivial_i,:] = [18. 3. 31. 34.]
362     cord_individual_obj[indivial_i,:] = [19. 4. 2. 6.]
363     cord_individual_obj[indivial_i,:] = [20. 4. 48. 52.]
364     cord_individual_obj[indivial_i,:] = [21. 2. 1. 3.]
365     cord_individual_obj[indivial_i,:] = [22. 4. 2. 6.]
366     cord_individual_obj[indivial_i,:] = [23. 5. 9. 14.]
367     cord_individual_obj[indivial_i,:] = [24. 4. 68. 72.]
368
369 min(cord_individual_obj[:,3]) = 3.0
370 historl_G_best_iter[iter,3] = 3.0
371 Begin iteration:
372
373 iter = 11
374     cord_individual_obj[indivial_i,:] = [ 0. 2. 17. 19.]
375     cord_individual_obj[indivial_i,:] = [1. 3. 2. 5.]
376     cord_individual_obj[indivial_i,:] = [ 2. 4. 8. 12.]
377     cord_individual_obj[indivial_i,:] = [ 3. 3. 43. 46.]
378     cord_individual_obj[indivial_i,:] = [ 4. 2. 51. 53.]
379     cord_individual_obj[indivial_i,:] = [ 5. 3. 24. 27.]
380     cord_individual_obj[indivial_i,:] = [ 6. 3. 32. 35.]
381     cord_individual_obj[indivial_i,:] = [ 7. 3. 2. 5.]
382     cord_individual_obj[indivial_i,:] = [ 8. 3. 7. 10.]
383     cord_individual_obj[indivial_i,:] = [ 9. 3. 18. 21.]
384     cord_individual_obj[indivial_i,:] = [10. 3. 32. 35.]
385     cord_individual_obj[indivial_i,:] = [11. 2. 1. 3.]
386     cord_individual_obj[indivial_i,:] = [12. 4. 8. 12.]
387     cord_individual_obj[indivial_i,:] = [13. 2. 1. 3.]
388     cord_individual_obj[indivial_i,:] = [14. 3. 2. 5.]
389     cord_individual_obj[indivial_i,:] = [15. 3. 2. 5.]
390     cord_individual_obj[indivial_i,:] = [16. 3. 32. 35.]
391     cord_individual_obj[indivial_i,:] = [17. 3. 32. 35.]
392     cord_individual_obj[indivial_i,:] = [18. 3. 31. 34.]
393     cord_individual_obj[indivial_i,:] = [19. 4. 2. 6.]
394     cord_individual_obj[indivial_i,:] = [20. 4. 3. 7.]
395     cord_individual_obj[indivial_i,:] = [21. 2. 23. 25.]
396     cord_individual_obj[indivial_i,:] = [22. 3. 2. 5.]
397     cord_individual_obj[indivial_i,:] = [23. 4. 3. 7.]
398     cord_individual_obj[indivial_i,:] = [24. 2. 1. 3.]
399
400 min(cord_individual_obj[:,3]) = 3.0
401 historl_G_best_iter[iter,3] = 3.0
402 Begin iteration:
403
404 iter = 12
405     cord_individual_obj[indivial_i,:] = [ 0. 3. 17. 20.]
406     cord_individual_obj[indivial_i,:] = [1. 2. 1. 3.]
407     cord_individual_obj[indivial_i,:] = [ 2. 4. 1. 5.]
408     cord_individual_obj[indivial_i,:] = [ 3. 3. 23. 26.]
409     cord_individual_obj[indivial_i,:] = [ 4. 2. 1. 3.]
410     cord_individual_obj[indivial_i,:] = [ 5. 4. 8. 12.]
411     cord_individual_obj[indivial_i,:] = [ 6. 3. 2. 5.]
412     cord_individual_obj[indivial_i,:] = [ 7. 4. 2. 6.]
413     cord_individual_obj[indivial_i,:] = [ 8. 4. 7. 11.]
414     cord_individual_obj[indivial_i,:] = [ 9. 4. 18. 22.]
415     cord_individual_obj[indivial_i,:] = [10. 3. 32. 35.]
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416 cord_individual_obj[indivial_i,:] = [11. 5. 3. 8.]
417 cord_individual_obj[indivial_i,:] = [12. 4. 2. 6.]
418 cord_individual_obj[indivial_i,:] = [13. 3. 7. 10.]
419 cord_individual_obj[indivial_i,:] = [14. 3. 1. 4.]
420 cord_individual_obj[indivial_i,:] = [15. 4. 19. 23.]
421 cord_individual_obj[indivial_i,:] = [16. 3. 36. 39.]
422 cord_individual_obj[indivial_i,:] = [17. 3. 31. 34.]
423 cord_individual_obj[indivial_i,:] = [18. 3. 17. 20.]
424 cord_individual_obj[indivial_i,:] = [19. 4. 1. 5.]
425 cord_individual_obj[indivial_i,:] = [20. 5. 9. 14.]
426 cord_individual_obj[indivial_i,:] = [21. 3. 23. 26.]
427 cord_individual_obj[indivial_i,:] = [22. 5. 2. 7.]
428 cord_individual_obj[indivial_i,:] = [23. 5. 3. 8.]
429 cord_individual_obj[indivial_i,:] = [24. 2. 24. 26.]
430
431 min(cord_individual_obj[:,3]) = 3.0
432 histol_G_best_iter[iter,3] = 3.0
433 Begin iteration:
434
435 iter = 13
436 cord_individual_obj[indivial_i,:] = [ 0. 3. 17. 20.]
437 cord_individual_obj[indivial_i,:] = [1. 2. 1. 3.]
438 cord_individual_obj[indivial_i,:] = [ 2. 3. 32. 35.]
439 cord_individual_obj[indivial_i,:] = [ 3. 3. 43. 46.]
440 cord_individual_obj[indivial_i,:] = [ 4. 2. 51. 53.]
441 cord_individual_obj[indivial_i,:] = [ 5. 2. 7. 9.]
442 cord_individual_obj[indivial_i,:] = [ 6. 3. 32. 35.]
443 cord_individual_obj[indivial_i,:] = [ 7. 4. 2. 6.]
444 cord_individual_obj[indivial_i,:] = [ 8. 2. 1. 3.]
445 cord_individual_obj[indivial_i,:] = [ 9. 4. 8. 12.]
446 cord_individual_obj[indivial_i,:] = [10. 3. 32. 35.]
447 cord_individual_obj[indivial_i,:] = [11. 4. 2. 6.]
448 cord_individual_obj[indivial_i,:] = [12. 4. 2. 6.]
449 cord_individual_obj[indivial_i,:] = [13. 4. 8. 12.]
450 cord_individual_obj[indivial_i,:] = [14. 4. 3. 7.]
451 cord_individual_obj[indivial_i,:] = [15. 2. 1. 3.]
452 cord_individual_obj[indivial_i,:] = [16. 2. 1. 3.]
453 cord_individual_obj[indivial_i,:] = [17. 2. 44. 46.]
454 cord_individual_obj[indivial_i,:] = [18. 3. 41. 44.]
455 cord_individual_obj[indivial_i,:] = [19. 2. 2. 4.]
456 cord_individual_obj[indivial_i,:] = [20. 4. 24. 28.]
457 cord_individual_obj[indivial_i,:] = [21. 3. 1. 4.]
458 cord_individual_obj[indivial_i,:] = [22. 6. 3. 9.]
459 cord_individual_obj[indivial_i,:] = [23. 5. 3. 8.]
460 cord_individual_obj[indivial_i,:] = [24. 3. 44. 47.]
461
462 min(cord_individual_obj[:,3]) = 3.0
463 histol_G_best_iter[iter,3] = 3.0
464 Begin iteration:
465
466 iter = 14
467 cord_individual_obj[indivial_i,:] = [ 0. 2. 31. 33.]
468 cord_individual_obj[indivial_i,:] = [1. 2. 1. 3.]
469 cord_individual_obj[indivial_i,:] = [ 2. 2. 35. 37.]
470 cord_individual_obj[indivial_i,:] = [ 3. 3. 67. 70.]
471 cord_individual_obj[indivial_i,:] = [ 4. 2. 1. 3.]
472 cord_individual_obj[indivial_i,:] = [ 5. 3. 24. 27.]
473 cord_individual_obj[indivial_i,:] = [ 6. 3. 2. 5.]
474 cord_individual_obj[indivial_i,:] = [ 7. 3. 2. 5.]
475 cord_individual_obj[indivial_i,:] = [ 8. 2. 7. 9.]
476 cord_individual_obj[indivial_i,:] = [ 9. 3. 18. 21.]
477 cord_individual_obj[indivial_i,:] = [10. 3. 32. 35.]
478 cord_individual_obj[indivial_i,:] = [11. 3. 2. 5.]
479 cord_individual_obj[indivial_i,:] = [12. 3. 43. 46.]
480 cord_individual_obj[indivial_i,:] = [13. 2. 1. 3.]
481 cord_individual_obj[indivial_i,:] = [14. 2. 1. 3.]
482 cord_individual_obj[indivial_i,:] = [15. 3. 2. 5.]
483 cord_individual_obj[indivial_i,:] = [16. 4. 84. 88.]
484 cord_individual_obj[indivial_i,:] = [17. 2. 71. 73.]
485 cord_individual_obj[indivial_i,:] = [18. 3. 59. 62.]
486 cord_individual_obj[indivial_i,:] = [19. 4. 2. 6.]
487 cord_individual_obj[indivial_i,:] = [20. 4. 3. 7.]
488 cord_individual_obj[indivial_i,:] = [21. 2. 43. 45.]
489 cord_individual_obj[indivial_i,:] = [22. 4. 3. 7.]
490 cord_individual_obj[indivial_i,:] = [23. 3. 2. 5.]
491 cord_individual_obj[indivial_i,:] = [24. 3. 44. 47.]
492
493 min(cord_individual_obj[:,3]) = 3.0
494 histol_G_best_iter[iter,3] = 3.0
495 Begin iteration:
496
497 iter = 15
498 cord_individual_obj[indivial_i,:] = [ 0. 3. 32. 35.]
499 cord_individual_obj[indivial_i,:] = [1. 2. 1. 3.]

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500 cord_individual_obj[indivial_i,:] = [ 2. 5. 8. 13.]
501 cord_individual_obj[indivial_i,:] = [ 3. 4. 84. 88.]
502 cord_individual_obj[indivial_i,:] = [ 4. 2. 51. 53.]
503 cord_individual_obj[indivial_i,:] = [ 5. 4. 18. 22.]
504 cord_individual_obj[indivial_i,:] = [ 6. 3. 51. 54.]
505 cord_individual_obj[indivial_i,:] = [ 7. 3. 2. 5.]
506 cord_individual_obj[indivial_i,:] = [ 8. 4. 1. 5.]
507 cord_individual_obj[indivial_i,:] = [ 9. 2. 21. 23.]
508 cord_individual_obj[indivial_i,:] = [10. 3. 18. 21.]
509 cord_individual_obj[indivial_i,:] = [11. 3. 7. 10.]
510 cord_individual_obj[indivial_i,:] = [12. 4. 8. 12.]
511 cord_individual_obj[indivial_i,:] = [13. 3. 32. 35.]
512 cord_individual_obj[indivial_i,:] = [14. 4. 3. 7.]
513 cord_individual_obj[indivial_i,:] = [15. 2. 1. 3.]
514 cord_individual_obj[indivial_i,:] = [16. 2. 1. 3.]
515 cord_individual_obj[indivial_i,:] = [17. 2. 37. 39.]
516 cord_individual_obj[indivial_i,:] = [18. 4. 46. 50.]
517 cord_individual_obj[indivial_i,:] = [19. 4. 3. 7.]
518 cord_individual_obj[indivial_i,:] = [20. 2. 36. 38.]
519 cord_individual_obj[indivial_i,:] = [21. 3. 7. 10.]
520 cord_individual_obj[indivial_i,:] = [22. 4. 23. 27.]
521 cord_individual_obj[indivial_i,:] = [23. 4. 30. 34.]
522 cord_individual_obj[indivial_i,:] = [24. 4. 68. 72.]
523
524 min(cord_individual_obj[:, 3]) = 3.0
525 histol_G_best_iter[iter, 3] = 3.0
526 Begin iteration:
527
528 iter = 16
529 cord_individual_obj[indivial_i,:] = [ 0. 3. 31. 34.]
530 cord_individual_obj[indivial_i,:] = [ 1. 3. 2. 5.]
531 cord_individual_obj[indivial_i,:] = [ 2. 6. 3. 9.]
532 cord_individual_obj[indivial_i,:] = [ 3. 2. 1. 3.]
533 cord_individual_obj[indivial_i,:] = [ 4. 2. 6. 8.]
534 cord_individual_obj[indivial_i,:] = [ 5. 3. 17. 20.]
535 cord_individual_obj[indivial_i,:] = [ 6. 3. 52. 55.]
536 cord_individual_obj[indivial_i,:] = [ 7. 4. 33. 37.]
537 cord_individual_obj[indivial_i,:] = [ 8. 2. 43. 45.]
538 cord_individual_obj[indivial_i,:] = [ 9. 3. 8. 11.]
539 cord_individual_obj[indivial_i,:] = [10. 3. 18. 21.]
540 cord_individual_obj[indivial_i,:] = [11. 5. 3. 8.]
541 cord_individual_obj[indivial_i,:] = [12. 4. 2. 6.]
542 cord_individual_obj[indivial_i,:] = [13. 3. 18. 21.]
543 cord_individual_obj[indivial_i,:] = [14. 4. 3. 7.]
544 cord_individual_obj[indivial_i,:] = [15. 2. 1. 3.]
545 cord_individual_obj[indivial_i,:] = [16. 3. 58. 61.]
546 cord_individual_obj[indivial_i,:] = [17. 3. 30. 33.]
547 cord_individual_obj[indivial_i,:] = [18. 4. 68. 72.]
548 cord_individual_obj[indivial_i,:] = [19. 6. 3. 9.]
549 cord_individual_obj[indivial_i,:] = [20. 3. 36. 39.]
550 cord_individual_obj[indivial_i,:] = [21. 4. 2. 6.]
551 cord_individual_obj[indivial_i,:] = [22. 4. 2. 6.]
552 cord_individual_obj[indivial_i,:] = [23. 3. 7. 10.]
553 cord_individual_obj[indivial_i,:] = [24. 3. 44. 47.]
554
555 min(cord_individual_obj[:, 3]) = 3.0
556 histol_G_best_iter[iter, 3] = 3.0
557 Begin iteration:
558
559 iter = 17
560 cord_individual_obj[indivial_i,:] = [ 0. 3. 31. 34.]
561 cord_individual_obj[indivial_i,:] = [ 1. 2. 1. 3.]
562 cord_individual_obj[indivial_i,:] = [ 2. 3. 2. 5.]
563 cord_individual_obj[indivial_i,:] = [ 3. 3. 67. 70.]
564 cord_individual_obj[indivial_i,:] = [ 4. 2. 22. 24.]
565 cord_individual_obj[indivial_i,:] = [ 5. 2. 32. 34.]
566 cord_individual_obj[indivial_i,:] = [ 6. 3. 1. 4.]
567 cord_individual_obj[indivial_i,:] = [ 7. 3. 2. 5.]
568 cord_individual_obj[indivial_i,:] = [ 8. 4. 23. 27.]
569 cord_individual_obj[indivial_i,:] = [ 9. 4. 40. 44.]
570 cord_individual_obj[indivial_i,:] = [10. 4. 52. 56.]
571 cord_individual_obj[indivial_i,:] = [11. 4. 2. 6.]
572 cord_individual_obj[indivial_i,:] = [12. 5. 3. 8.]
573 cord_individual_obj[indivial_i,:] = [13. 2. 7. 9.]
574 cord_individual_obj[indivial_i,:] = [14. 4. 3. 7.]
575 cord_individual_obj[indivial_i,:] = [15. 3. 2. 5.]
576 cord_individual_obj[indivial_i,:] = [16. 4. 76. 80.]
577 cord_individual_obj[indivial_i,:] = [17. 3. 46. 49.]
578 cord_individual_obj[indivial_i,:] = [18. 2. 1. 3.]
579 cord_individual_obj[indivial_i,:] = [19. 4. 51. 55.]
580 cord_individual_obj[indivial_i,:] = [20. 4. 36. 40.]
581 cord_individual_obj[indivial_i,:] = [21. 4. 1. 5.]
582 cord_individual_obj[indivial_i,:] = [22. 6. 3. 9.]
583 cord_individual_obj[indivial_i,:] = [23. 5. 3. 8.]

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unknown

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584     cord_individual_obj[indivial_i, :] = [24. 4. 68. 72.]  
585  
586     min(cord_individual_obj[:, 3]) = 3.0  
587     historl_G_best_iter[iter, 3] = 3.0  
588 Begin iteration:  
589  
590 iter = 18  
591     cord_individual_obj[indivial_i, :] = [ 0. 3. 31. 34.]  
592     cord_individual_obj[indivial_i, :] = [1. 2. 1. 3.]  
593     cord_individual_obj[indivial_i, :] = [ 2. 3. 31. 34.]  
594     cord_individual_obj[indivial_i, :] = [ 3. 3. 67. 70.]  
595     cord_individual_obj[indivial_i, :] = [ 4. 5. 41. 46.]  
596     cord_individual_obj[indivial_i, :] = [ 5. 2. 17. 19.]  
597     cord_individual_obj[indivial_i, :] = [ 6. 2. 51. 53.]  
598     cord_individual_obj[indivial_i, :] = [ 7. 4. 33. 37.]  
599     cord_individual_obj[indivial_i, :] = [ 8. 2. 7. 9.]  
600     cord_individual_obj[indivial_i, :] = [ 9. 4. 8. 12.]  
601     cord_individual_obj[indivial_i, :] = [10. 2. 51. 53.]  
602     cord_individual_obj[indivial_i, :] = [11. 4. 24. 28.]  
603     cord_individual_obj[indivial_i, :] = [12. 4. 44. 48.]  
604     cord_individual_obj[indivial_i, :] = [13. 3. 18. 21.]  
605     cord_individual_obj[indivial_i, :] = [14. 4. 51. 55.]  
606     cord_individual_obj[indivial_i, :] = [15. 2. 1. 3.]  
607     cord_individual_obj[indivial_i, :] = [16. 2. 1. 3.]  
608     cord_individual_obj[indivial_i, :] = [17. 3. 60. 63.]  
609     cord_individual_obj[indivial_i, :] = [18. 3. 59. 62.]  
610     cord_individual_obj[indivial_i, :] = [19. 4. 19. 23.]  
611     cord_individual_obj[indivial_i, :] = [20. 4. 36. 40.]  
612     cord_individual_obj[indivial_i, :] = [21. 4. 7. 11.]  
613     cord_individual_obj[indivial_i, :] = [22. 3. 50. 53.]  
614     cord_individual_obj[indivial_i, :] = [23. 5. 3. 8.]  
615     cord_individual_obj[indivial_i, :] = [24. 2. 44. 46.]  
616  
617     min(cord_individual_obj[:, 3]) = 3.0  
618     historl_G_best_iter[iter, 3] = 3.0  
619 Begin iteration:  
620  
621 iter = 19  
622     cord_individual_obj[indivial_i, :] = [ 0. 2. 51. 53.]  
623     cord_individual_obj[indivial_i, :] = [1. 3. 2. 5.]  
624     cord_individual_obj[indivial_i, :] = [ 2. 2. 1. 3.]  
625     cord_individual_obj[indivial_i, :] = [ 3. 2. 1. 3.]  
626     cord_individual_obj[indivial_i, :] = [ 4. 4. 33. 37.]  
627     cord_individual_obj[indivial_i, :] = [ 5. 3. 24. 27.]  
628     cord_individual_obj[indivial_i, :] = [ 6. 2. 7. 9.]  
629     cord_individual_obj[indivial_i, :] = [ 7. 3. 2. 5.]  
630     cord_individual_obj[indivial_i, :] = [ 8. 2. 1. 3.]  
631     cord_individual_obj[indivial_i, :] = [ 9. 2. 1. 3.]  
632     cord_individual_obj[indivial_i, :] = [10. 4. 33. 37.]  
633     cord_individual_obj[indivial_i, :] = [11. 3. 2. 5.]  
634     cord_individual_obj[indivial_i, :] = [12. 3. 23. 26.]  
635     cord_individual_obj[indivial_i, :] = [13. 2. 1. 3.]  
636     cord_individual_obj[indivial_i, :] = [14. 4. 51. 55.]  
637     cord_individual_obj[indivial_i, :] = [15. 2. 1. 3.]  
638     cord_individual_obj[indivial_i, :] = [16. 3. 58. 61.]  
639     cord_individual_obj[indivial_i, :] = [17. 2. 49. 51.]  
640     cord_individual_obj[indivial_i, :] = [18. 3. 59. 62.]  
641     cord_individual_obj[indivial_i, :] = [19. 3. 2. 5.]  
642     cord_individual_obj[indivial_i, :] = [20. 2. 47. 49.]  
643     cord_individual_obj[indivial_i, :] = [21. 2. 7. 9.]  
644     cord_individual_obj[indivial_i, :] = [22. 4. 3. 7.]  
645     cord_individual_obj[indivial_i, :] = [23. 4. 9. 13.]  
646     cord_individual_obj[indivial_i, :] = [24. 3. 67. 70.]  
647  
648     min(cord_individual_obj[:, 3]) = 3.0  
649     historl_G_best_iter[iter, 3] = 3.0  
650 Begin iteration:  
651  
652 iter = 20  
653     cord_individual_obj[indivial_i, :] = [ 0. 3. 59. 62.]  
654     cord_individual_obj[indivial_i, :] = [1. 3. 2. 5.]  
655     cord_individual_obj[indivial_i, :] = [ 2. 5. 9. 14.]  
656     cord_individual_obj[indivial_i, :] = [ 3. 3. 67. 70.]  
657     cord_individual_obj[indivial_i, :] = [ 4. 4. 7. 11.]  
658     cord_individual_obj[indivial_i, :] = [ 5. 4. 8. 12.]  
659     cord_individual_obj[indivial_i, :] = [ 6. 4. 51. 55.]  
660     cord_individual_obj[indivial_i, :] = [ 7. 3. 2. 5.]  
661     cord_individual_obj[indivial_i, :] = [ 8. 4. 1. 5.]  
662     cord_individual_obj[indivial_i, :] = [ 9. 3. 8. 11.]  
663     cord_individual_obj[indivial_i, :] = [10. 3. 32. 35.]  
664     cord_individual_obj[indivial_i, :] = [11. 4. 8. 12.]  
665     cord_individual_obj[indivial_i, :] = [12. 4. 2. 6.]  
666     cord_individual_obj[indivial_i, :] = [13. 3. 7. 10.]  
667     cord_individual_obj[indivial_i, :] = [14. 4. 3. 7.]
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668 cord_individual_obj[indivial_i, :] = [15. 3. 2. 5.]
669 cord_individual_obj[indivial_i, :] = [16. 4. 76. 80.]
670 cord_individual_obj[indivial_i, :] = [17. 3. 44. 47.]
671 cord_individual_obj[indivial_i, :] = [18. 3. 53. 56.]
672 cord_individual_obj[indivial_i, :] = [19. 4. 2. 6.]
673 cord_individual_obj[indivial_i, :] = [20. 3. 48. 51.]
674 cord_individual_obj[indivial_i, :] = [21. 3. 2. 5.]
675 cord_individual_obj[indivial_i, :] = [22. 6. 23. 29.]
676 cord_individual_obj[indivial_i, :] = [23. 3. 81. 84.]
677 cord_individual_obj[indivial_i, :] = [24. 2. 1. 3.]
678
679 min(cord_individual_obj[:, 3]) = 3.0
680 historl_G_best_iter[iter, 3] = 3.0
681 Iteration calculate over
682
683
684
685
686 All item are in Bin and:
687 Bin area = 1080
688 Real_area = 75.0
689 Proportion_of_area = 0.06944444444444445
690 BEST_CHROM =
691     berth: [ 3. 7.5 13. 19. 13.5 25. ]
692     time: [0. 0. 0. 0. 1. 0.]
693     num_QC: [4. 2. 7. 3. 5. 2.]
694 Objective function values and some other indicators:
695 Obj0 = 2.00          Obj1 = 1.00          Obj0 + Obj1 = 3.00
696 Total movement of crane: 0.00
697 Total waiting time in berth position: 1.00
698 Total index of q during berthing: 345.00
699 Specific arrangement for each vessel:
700 V_id: 0      li: 6.0      xi: 3.0      bow of i: 0.0      tail of i: 6.0      gama_i0: 0.0      gama_i1: 1.0
701           gama_i1 + 1: 2.0      gama_i1 - gama_i0: 1.0      duration_time_i: 2.0      demand_i: 160.0      work load_i:
702 160.0      work load gap_i: 0
703 V_id: 1      li: 3.0      xi: 7.5      bow of i: 6.0      tail of i: 9.0      gama_i0: 0.0      gama_i1: 2.0
704           gama_i1 + 1: 3.0      gama_i1 - gama_i0: 2.0      duration_time_i: 3.0      demand_i: 100.0      work load_i:
705 100.0      work load gap_i: 0
706 V_id: 2      li: 8.0      xi: 13.0      bow of i: 9.0      tail of i: 17.0      gama_i0: 0.0      gama_i1: 0
707           gama_i1 + 1: 1.0      gama_i1 - gama_i0: 0.0      duration_time_i: 1.0      demand_i: 100.0      work
708 .0      load_i: 100.0      work load gap_i: 0
709 V_id: 3      li: 4.0      xi: 19.0      bow of i: 17.0      tail of i: 21.0      gama_i0: 0.0      gama_i1: 0
710           gama_i1 + 1: 1.0      gama_i1 - gama_i0: 0.0      duration_time_i: 1.0      demand_i: 60.0      work
711 .0      load_i: 60.0      work load gap_i: 0
712 V_id: 4      li: 9.0      xi: 13.5      bow of i: 9.0      tail of i: 18.0      gama_i0: 1.0      gama_i1: 2
713           gama_i1 + 1: 3.0      gama_i1 - gama_i0: 1.0      duration_time_i: 2.0      demand_i: 160.0      work
714 .0      load_i: 160.0      work load gap_i: 0
715 V_id: 5      li: 8.0      xi: 25.0      bow of i: 21.0      tail of i: 29.0      gama_i0: 0.0      gama_i1: 2
716           gama_i1 + 1: 3.0      gama_i1 - gama_i0: 2.0      duration_time_i: 3.0      demand_i: 100.0      work
717 .0      load_i: 100.0      work load gap_i: 0
718
719 Algorithm finished and the total CPU time: 167 s
720 End
721

```