

unknown

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80 cord_individual_obj[indivial_i,:] = [16. 2. 49. 51.]
81 cord_individual_obj[indivial_i,:] = [17. 4. 3. 7.]
82 cord_individual_obj[indivial_i,:] = [18. 3. 3. 6.]
83 cord_individual_obj[indivial_i,:] = [19. 4. 27. 31.]
84 cord_individual_obj[indivial_i,:] = [20. 2. 42. 44.]
85 cord_individual_obj[indivial_i,:] = [21. 2. 3. 5.]
86 cord_individual_obj[indivial_i,:] = [22. 4. 44. 48.]
87 cord_individual_obj[indivial_i,:] = [23. 4. 16. 20.]
88 cord_individual_obj[indivial_i,:] = [24. 2. 14. 16.]
89
90 min(cord_individual_obj[:,3]) = 5.0
91 historl_G_best_iter[iter,3] = 5.0
92 Begin iteration:
93
94 iter = 2
95 cord_individual_obj[indivial_i,:] = [ 0. 4. 14. 18.]
96 cord_individual_obj[indivial_i,:] = [ 1. 4. 14. 18.]
97 cord_individual_obj[indivial_i,:] = [ 2. 4. 5. 9.]
98 cord_individual_obj[indivial_i,:] = [ 3. 4. 5. 9.]
99 cord_individual_obj[indivial_i,:] = [ 4. 4. 17. 21.]
100 cord_individual_obj[indivial_i,:] = [ 5. 4. 29. 33.]
101 cord_individual_obj[indivial_i,:] = [ 6. 2. 16. 18.]
102 cord_individual_obj[indivial_i,:] = [ 7. 3. 3. 6.]
103 cord_individual_obj[indivial_i,:] = [ 8. 6. 4. 10.]
104 cord_individual_obj[indivial_i,:] = [ 9. 4. 5. 9.]
105 cord_individual_obj[indivial_i,:] = [10. 2. 3. 5.]
106 cord_individual_obj[indivial_i,:] = [11. 3. 13. 16.]
107 cord_individual_obj[indivial_i,:] = [12. 3. 3. 6.]
108 cord_individual_obj[indivial_i,:] = [13. 3. 25. 28.]
109 cord_individual_obj[indivial_i,:] = [14. 3. 35. 38.]
110 cord_individual_obj[indivial_i,:] = [15. 2. 3. 5.]
111 cord_individual_obj[indivial_i,:] = [16. 3. 20. 23.]
112 cord_individual_obj[indivial_i,:] = [17. 2. 3. 5.]
113 cord_individual_obj[indivial_i,:] = [18. 3. 14. 17.]
114 cord_individual_obj[indivial_i,:] = [19. 3. 3. 6.]
115 cord_individual_obj[indivial_i,:] = [20. 2. 2. 4.]
116 cord_individual_obj[indivial_i,:] = [21. 4. 21. 25.]
117 cord_individual_obj[indivial_i,:] = [22. 3. 13. 16.]
118 cord_individual_obj[indivial_i,:] = [23. 3. 13. 16.]
119 cord_individual_obj[indivial_i,:] = [24. 4. 3. 7.]
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. 3. 4. 7.]
127 cord_individual_obj[indivial_i,:] = [1. 3. 14. 17.]
128 cord_individual_obj[indivial_i,:] = [2. 4. 18. 22.]
129 cord_individual_obj[indivial_i,:] = [3. 3. 5. 8.]
130 cord_individual_obj[indivial_i,:] = [4. 2. 33. 35.]
131 cord_individual_obj[indivial_i,:] = [5. 3. 4. 7.]
132 cord_individual_obj[indivial_i,:] = [6. 3. 11. 14.]
133 cord_individual_obj[indivial_i,:] = [7. 2. 27. 29.]
134 cord_individual_obj[indivial_i,:] = [8. 3. 3. 6.]
135 cord_individual_obj[indivial_i,:] = [9. 3. 9. 12.]
136 cord_individual_obj[indivial_i,:] = [10. 3. 21. 24.]
137 cord_individual_obj[indivial_i,:] = [11. 3. 45. 48.]
138 cord_individual_obj[indivial_i,:] = [12. 4. 19. 23.]
139 cord_individual_obj[indivial_i,:] = [13. 3. 19. 22.]
140 cord_individual_obj[indivial_i,:] = [14. 2. 2. 4.]
141 cord_individual_obj[indivial_i,:] = [15. 5. 7. 12.]
142 cord_individual_obj[indivial_i,:] = [16. 3. 3. 6.]
143 cord_individual_obj[indivial_i,:] = [17. 4. 6. 10.]
144 cord_individual_obj[indivial_i,:] = [18. 2. 14. 16.]
145 cord_individual_obj[indivial_i,:] = [19. 3. 27. 30.]
146 cord_individual_obj[indivial_i,:] = [20. 3. 34. 37.]
147 cord_individual_obj[indivial_i,:] = [21. 3. 43. 46.]
148 cord_individual_obj[indivial_i,:] = [22. 4. 11. 15.]
149 cord_individual_obj[indivial_i,:] = [23. 4. 11. 15.]
150 cord_individual_obj[indivial_i,:] = [24. 3. 50. 53.]
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. 3. 4. 7.]
158 cord_individual_obj[indivial_i,:] = [1. 3. 14. 17.]
159 cord_individual_obj[indivial_i,:] = [2. 5. 21. 26.]
160 cord_individual_obj[indivial_i,:] = [3. 4. 6. 10.]
161 cord_individual_obj[indivial_i,:] = [4. 4. 10. 14.]
162 cord_individual_obj[indivial_i,:] = [5. 3. 8. 11.]
163 cord_individual_obj[indivial_i,:] = [6. 2. 15. 17.]

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164 cord_individual_obj[indivial_i, :] = [ 7. 3. 43. 46.]
165 cord_individual_obj[indivial_i, :] = [ 8. 2. 2. 4.]
166 cord_individual_obj[indivial_i, :] = [ 9. 4. 17. 21.]
167 cord_individual_obj[indivial_i, :] = [10. 4. 4. 8.]
168 cord_individual_obj[indivial_i, :] = [11. 2. 18. 20.]
169 cord_individual_obj[indivial_i, :] = [12. 3. 13. 16.]
170 cord_individual_obj[indivial_i, :] = [13. 3. 70. 73.]
171 cord_individual_obj[indivial_i, :] = [14. 3. 34. 37.]
172 cord_individual_obj[indivial_i, :] = [15. 3. 33. 36.]
173 cord_individual_obj[indivial_i, :] = [16. 2. 9. 11.]
174 cord_individual_obj[indivial_i, :] = [17. 3. 4. 7.]
175 cord_individual_obj[indivial_i, :] = [18. 3. 13. 16.]
176 cord_individual_obj[indivial_i, :] = [19. 2. 18. 20.]
177 cord_individual_obj[indivial_i, :] = [20. 3. 34. 37.]
178 cord_individual_obj[indivial_i, :] = [21. 3. 10. 13.]
179 cord_individual_obj[indivial_i, :] = [22. 2. 18. 20.]
180 cord_individual_obj[indivial_i, :] = [23. 4. 5. 9.]
181 cord_individual_obj[indivial_i, :] = [24. 2. 2. 4.]
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. 5. 9.]
189 cord_individual_obj[indivial_i, :] = [1. 3. 3. 6.]
190 cord_individual_obj[indivial_i, :] = [2. 3. 3. 6.]
191 cord_individual_obj[indivial_i, :] = [3. 3. 35. 38.]
192 cord_individual_obj[indivial_i, :] = [4. 4. 10. 14.]
193 cord_individual_obj[indivial_i, :] = [5. 4. 5. 9.]
194 cord_individual_obj[indivial_i, :] = [6. 5. 4. 9.]
195 cord_individual_obj[indivial_i, :] = [7. 3. 4. 7.]
196 cord_individual_obj[indivial_i, :] = [8. 3. 13. 16.]
197 cord_individual_obj[indivial_i, :] = [9. 2. 2. 4.]
198 cord_individual_obj[indivial_i, :] = [10. 4. 15. 19.]
199 cord_individual_obj[indivial_i, :] = [11. 4. 21. 25.]
200 cord_individual_obj[indivial_i, :] = [12. 4. 14. 18.]
201 cord_individual_obj[indivial_i, :] = [13. 2. 2. 4.]
202 cord_individual_obj[indivial_i, :] = [14. 4. 5. 9.]
203 cord_individual_obj[indivial_i, :] = [15. 3. 3. 6.]
204 cord_individual_obj[indivial_i, :] = [16. 3. 13. 16.]
205 cord_individual_obj[indivial_i, :] = [17. 4. 14. 18.]
206 cord_individual_obj[indivial_i, :] = [18. 2. 2. 4.]
207 cord_individual_obj[indivial_i, :] = [19. 2. 3. 5.]
208 cord_individual_obj[indivial_i, :] = [20. 2. 8. 10.]
209 cord_individual_obj[indivial_i, :] = [21. 4. 4. 8.]
210 cord_individual_obj[indivial_i, :] = [22. 4. 5. 9.]
211 cord_individual_obj[indivial_i, :] = [23. 4. 15. 19.]
212 cord_individual_obj[indivial_i, :] = [24. 3. 15. 18.]
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. 20. 24.]
220 cord_individual_obj[indivial_i, :] = [ 1. 3. 3. 6.]
221 cord_individual_obj[indivial_i, :] = [ 2. 4. 6. 10.]
222 cord_individual_obj[indivial_i, :] = [ 3. 2. 2. 4.]
223 cord_individual_obj[indivial_i, :] = [ 4. 4. 3. 7.]
224 cord_individual_obj[indivial_i, :] = [ 5. 4. 2. 6.]
225 cord_individual_obj[indivial_i, :] = [ 6. 2. 3. 5.]
226 cord_individual_obj[indivial_i, :] = [ 7. 3. 16. 19.]
227 cord_individual_obj[indivial_i, :] = [ 8. 4. 2. 6.]
228 cord_individual_obj[indivial_i, :] = [ 9. 4. 3. 7.]
229 cord_individual_obj[indivial_i, :] = [10. 5. 11. 16.]
230 cord_individual_obj[indivial_i, :] = [11. 2. 18. 20.]
231 cord_individual_obj[indivial_i, :] = [12. 3. 3. 6.]
232 cord_individual_obj[indivial_i, :] = [13. 2. 18. 20.]
233 cord_individual_obj[indivial_i, :] = [14. 4. 10. 14.]
234 cord_individual_obj[indivial_i, :] = [15. 2. 18. 20.]
235 cord_individual_obj[indivial_i, :] = [16. 3. 4. 7.]
236 cord_individual_obj[indivial_i, :] = [17. 3. 2. 5.]
237 cord_individual_obj[indivial_i, :] = [18. 2. 2. 4.]
238 cord_individual_obj[indivial_i, :] = [19. 3. 3. 6.]
239 cord_individual_obj[indivial_i, :] = [20. 2. 39. 41.]
240 cord_individual_obj[indivial_i, :] = [21. 4. 20. 24.]
241 cord_individual_obj[indivial_i, :] = [22. 3. 4. 7.]
242 cord_individual_obj[indivial_i, :] = [23. 4. 5. 9.]
243 cord_individual_obj[indivial_i, :] = [24. 3. 7. 10.]
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. 5. 5. 10.]
251 cord_individual_obj[indivial_i, :] = [1. 3. 3. 6.]
252 cord_individual_obj[indivial_i, :] = [2. 3. 2. 5.]
253 cord_individual_obj[indivial_i, :] = [ 3. 4. 6. 10.]
254 cord_individual_obj[indivial_i, :] = [ 4. 3. 32. 35.]
255 cord_individual_obj[indivial_i, :] = [5. 3. 3. 6.]
256 cord_individual_obj[indivial_i, :] = [6. 3. 3. 6.]
257 cord_individual_obj[indivial_i, :] = [7. 3. 3. 6.]
258 cord_individual_obj[indivial_i, :] = [8. 2. 2. 4.]
259 cord_individual_obj[indivial_i, :] = [9. 4. 4. 8.]
260 cord_individual_obj[indivial_i, :] = [10. 4. 3. 7.]
261 cord_individual_obj[indivial_i, :] = [11. 2. 19. 21.]
262 cord_individual_obj[indivial_i, :] = [12. 2. 2. 4.]
263 cord_individual_obj[indivial_i, :] = [13. 3. 3. 6.]
264 cord_individual_obj[indivial_i, :] = [14. 4. 3. 7.]
265 cord_individual_obj[indivial_i, :] = [15. 2. 2. 4.]
266 cord_individual_obj[indivial_i, :] = [16. 4. 4. 8.]
267 cord_individual_obj[indivial_i, :] = [17. 4. 3. 7.]
268 cord_individual_obj[indivial_i, :] = [18. 2. 2. 4.]
269 cord_individual_obj[indivial_i, :] = [19. 2. 32. 34.]
270 cord_individual_obj[indivial_i, :] = [20. 2. 2. 4.]
271 cord_individual_obj[indivial_i, :] = [21. 4. 2. 6.]
272 cord_individual_obj[indivial_i, :] = [22. 3. 33. 36.]
273 cord_individual_obj[indivial_i, :] = [23. 3. 3. 6.]
274 cord_individual_obj[indivial_i, :] = [24. 2. 2. 4.]
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. 4. 4. 8.]
282 cord_individual_obj[indivial_i, :] = [1. 4. 5. 9.]
283 cord_individual_obj[indivial_i, :] = [ 2. 3. 19. 22.]
284 cord_individual_obj[indivial_i, :] = [ 3. 3. 40. 43.]
285 cord_individual_obj[indivial_i, :] = [ 4. 3. 19. 22.]
286 cord_individual_obj[indivial_i, :] = [ 5. 5. 4. 9.]
287 cord_individual_obj[indivial_i, :] = [ 6. 2. 13. 15.]
288 cord_individual_obj[indivial_i, :] = [ 7. 3. 15. 18.]
289 cord_individual_obj[indivial_i, :] = [ 8. 3. 13. 16.]
290 cord_individual_obj[indivial_i, :] = [ 9. 4. 16. 20.]
291 cord_individual_obj[indivial_i, :] = [10. 5. 4. 9.]
292 cord_individual_obj[indivial_i, :] = [11. 3. 2. 5.]
293 cord_individual_obj[indivial_i, :] = [12. 4. 4. 8.]
294 cord_individual_obj[indivial_i, :] = [13. 3. 63. 66.]
295 cord_individual_obj[indivial_i, :] = [14. 4. 5. 9.]
296 cord_individual_obj[indivial_i, :] = [15. 3. 53. 56.]
297 cord_individual_obj[indivial_i, :] = [16. 3. 9. 12.]
298 cord_individual_obj[indivial_i, :] = [17. 5. 3. 8.]
299 cord_individual_obj[indivial_i, :] = [18. 3. 3. 6.]
300 cord_individual_obj[indivial_i, :] = [19. 3. 19. 22.]
301 cord_individual_obj[indivial_i, :] = [20. 2. 38. 40.]
302 cord_individual_obj[indivial_i, :] = [21. 3. 51. 54.]
303 cord_individual_obj[indivial_i, :] = [22. 2. 2. 4.]
304 cord_individual_obj[indivial_i, :] = [23. 4. 5. 9.]
305 cord_individual_obj[indivial_i, :] = [24. 3. 27. 30.]
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. 4. 4. 8.]
313 cord_individual_obj[indivial_i, :] = [1. 4. 5. 9.]
314 cord_individual_obj[indivial_i, :] = [ 2. 3. 19. 22.]
315 cord_individual_obj[indivial_i, :] = [ 3. 4. 5. 9.]
316 cord_individual_obj[indivial_i, :] = [ 4. 4. 18. 22.]
317 cord_individual_obj[indivial_i, :] = [ 5. 4. 6. 10.]
318 cord_individual_obj[indivial_i, :] = [ 6. 2. 40. 42.]
319 cord_individual_obj[indivial_i, :] = [ 7. 3. 16. 19.]
320 cord_individual_obj[indivial_i, :] = [ 8. 4. 2. 6.]
321 cord_individual_obj[indivial_i, :] = [ 9. 4. 16. 20.]
322 cord_individual_obj[indivial_i, :] = [10. 4. 19. 23.]
323 cord_individual_obj[indivial_i, :] = [11. 2. 8. 10.]
324 cord_individual_obj[indivial_i, :] = [12. 3. 3. 6.]
325 cord_individual_obj[indivial_i, :] = [13. 2. 2. 4.]
326 cord_individual_obj[indivial_i, :] = [14. 3. 4. 7.]
327 cord_individual_obj[indivial_i, :] = [15. 3. 20. 23.]
328 cord_individual_obj[indivial_i, :] = [16. 4. 28. 32.]
329 cord_individual_obj[indivial_i, :] = [17. 5. 3. 8.]
330 cord_individual_obj[indivial_i, :] = [18. 3. 3. 6.]
331 cord_individual_obj[indivial_i, :] = [19. 3. 19. 22.]

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unknown

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332     cord_individual_obj[indivial_i, :] = [20. 2. 18. 20.]  
333     cord_individual_obj[indivial_i, :] = [21. 4. 5. 9.]  
334     cord_individual_obj[indivial_i, :] = [22. 5. 21. 26.]  
335     cord_individual_obj[indivial_i, :] = [23. 4. 5. 9.]  
336     cord_individual_obj[indivial_i, :] = [24. 3. 15. 18.]  
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. 4. 5. 9.]  
344     cord_individual_obj[indivial_i, :] = [1. 3. 3. 6.]  
345     cord_individual_obj[indivial_i, :] = [2. 5. 3. 8.]  
346     cord_individual_obj[indivial_i, :] = [3. 3. 11. 14.]  
347     cord_individual_obj[indivial_i, :] = [4. 3. 32. 35.]  
348     cord_individual_obj[indivial_i, :] = [5. 5. 5. 10.]  
349     cord_individual_obj[indivial_i, :] = [6. 2. 2. 4.]  
350     cord_individual_obj[indivial_i, :] = [7. 3. 28. 31.]  
351     cord_individual_obj[indivial_i, :] = [8. 2. 2. 4.]  
352     cord_individual_obj[indivial_i, :] = [9. 4. 16. 20.]  
353     cord_individual_obj[indivial_i, :] = [10. 4. 4. 8.]  
354     cord_individual_obj[indivial_i, :] = [11. 3. 3. 6.]  
355     cord_individual_obj[indivial_i, :] = [12. 3. 3. 6.]  
356     cord_individual_obj[indivial_i, :] = [13. 2. 32. 34.]  
357     cord_individual_obj[indivial_i, :] = [14. 3. 50. 53.]  
358     cord_individual_obj[indivial_i, :] = [15. 2. 2. 4.]  
359     cord_individual_obj[indivial_i, :] = [16. 3. 33. 36.]  
360     cord_individual_obj[indivial_i, :] = [17. 4. 3. 7.]  
361     cord_individual_obj[indivial_i, :] = [18. 2. 2. 4.]  
362     cord_individual_obj[indivial_i, :] = [19. 2. 32. 34.]  
363     cord_individual_obj[indivial_i, :] = [20. 2. 50. 52.]  
364     cord_individual_obj[indivial_i, :] = [21. 5. 3. 8.]  
365     cord_individual_obj[indivial_i, :] = [22. 4. 35. 39.]  
366     cord_individual_obj[indivial_i, :] = [23. 4. 5. 9.]  
367     cord_individual_obj[indivial_i, :] = [24. 3. 3. 6.]  
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. 3. 10. 13.]  
375     cord_individual_obj[indivial_i, :] = [1. 4. 5. 9.]  
376     cord_individual_obj[indivial_i, :] = [2. 3. 19. 22.]  
377     cord_individual_obj[indivial_i, :] = [3. 2. 46. 48.]  
378     cord_individual_obj[indivial_i, :] = [4. 4. 6. 10.]  
379     cord_individual_obj[indivial_i, :] = [5. 6. 5. 11.]  
380     cord_individual_obj[indivial_i, :] = [6. 2. 3. 5.]  
381     cord_individual_obj[indivial_i, :] = [7. 3. 43. 46.]  
382     cord_individual_obj[indivial_i, :] = [8. 3. 13. 16.]  
383     cord_individual_obj[indivial_i, :] = [9. 4. 16. 20.]  
384     cord_individual_obj[indivial_i, :] = [10. 3. 5. 8.]  
385     cord_individual_obj[indivial_i, :] = [11. 4. 34. 38.]  
386     cord_individual_obj[indivial_i, :] = [12. 4. 4. 8.]  
387     cord_individual_obj[indivial_i, :] = [13. 2. 2. 4.]  
388     cord_individual_obj[indivial_i, :] = [14. 2. 2. 4.]  
389     cord_individual_obj[indivial_i, :] = [15. 3. 55. 58.]  
390     cord_individual_obj[indivial_i, :] = [16. 3. 10. 13.]  
391     cord_individual_obj[indivial_i, :] = [17. 5. 3. 8.]  
392     cord_individual_obj[indivial_i, :] = [18. 2. 2. 4.]  
393     cord_individual_obj[indivial_i, :] = [19. 3. 19. 22.]  
394     cord_individual_obj[indivial_i, :] = [20. 2. 19. 21.]  
395     cord_individual_obj[indivial_i, :] = [21. 4. 51. 55.]  
396     cord_individual_obj[indivial_i, :] = [22. 5. 21. 26.]  
397     cord_individual_obj[indivial_i, :] = [23. 4. 5. 9.]  
398     cord_individual_obj[indivial_i, :] = [24. 2. 6. 8.]  
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. 2. 8. 10.]  
406     cord_individual_obj[indivial_i, :] = [1. 3. 3. 6.]  
407     cord_individual_obj[indivial_i, :] = [2. 4. 4. 8.]  
408     cord_individual_obj[indivial_i, :] = [3. 2. 28. 30.]  
409     cord_individual_obj[indivial_i, :] = [4. 5. 11. 16.]  
410     cord_individual_obj[indivial_i, :] = [5. 4. 5. 9.]  
411     cord_individual_obj[indivial_i, :] = [6. 2. 9. 11.]  
412     cord_individual_obj[indivial_i, :] = [7. 5. 15. 20.]  
413     cord_individual_obj[indivial_i, :] = [8. 3. 52. 55.]  
414     cord_individual_obj[indivial_i, :] = [9. 3. 55. 58.]  
415     cord_individual_obj[indivial_i, :] = [10. 3. 2. 5.]
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416 cord_individual_obj[indivial_i,:] = [11. 3. 18. 21.]
417 cord_individual_obj[indivial_i,:] = [12. 2. 3. 5.]
418 cord_individual_obj[indivial_i,:] = [13. 3. 36. 39.]
419 cord_individual_obj[indivial_i,:] = [14. 3. 19. 22.]
420 cord_individual_obj[indivial_i,:] = [15. 2. 2. 4.]
421 cord_individual_obj[indivial_i,:] = [16. 4. 43. 47.]
422 cord_individual_obj[indivial_i,:] = [17. 5. 4. 9.]
423 cord_individual_obj[indivial_i,:] = [18. 2. 18. 20.]
424 cord_individual_obj[indivial_i,:] = [19. 3. 10. 13.]
425 cord_individual_obj[indivial_i,:] = [20. 2. 62. 64.]
426 cord_individual_obj[indivial_i,:] = [21. 3. 5. 8.]
427 cord_individual_obj[indivial_i,:] = [22. 4. 21. 25.]
428 cord_individual_obj[indivial_i,:] = [23. 4. 4. 8.]
429 cord_individual_obj[indivial_i,:] = [24. 3. 43. 46.]
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. 2. 8. 10.]
437 cord_individual_obj[indivial_i,:] = [ 1. 2. 32. 34.]
438 cord_individual_obj[indivial_i,:] = [ 2. 3. 4. 7.]
439 cord_individual_obj[indivial_i,:] = [ 3. 4. 18. 22.]
440 cord_individual_obj[indivial_i,:] = [ 4. 4. 9. 13.]
441 cord_individual_obj[indivial_i,:] = [ 5. 4. 4. 8.]
442 cord_individual_obj[indivial_i,:] = [ 6. 2. 8. 10.]
443 cord_individual_obj[indivial_i,:] = [ 7. 3. 15. 18.]
444 cord_individual_obj[indivial_i,:] = [ 8. 3. 32. 35.]
445 cord_individual_obj[indivial_i,:] = [ 9. 4. 100. 104.]
446 cord_individual_obj[indivial_i,:] = [10. 3. 2. 5.]
447 cord_individual_obj[indivial_i,:] = [11. 3. 2. 5.]
448 cord_individual_obj[indivial_i,:] = [12. 3. 8. 11.]
449 cord_individual_obj[indivial_i,:] = [13. 3. 60. 63.]
450 cord_individual_obj[indivial_i,:] = [14. 3. 10. 13.]
451 cord_individual_obj[indivial_i,:] = [15. 3. 63. 66.]
452 cord_individual_obj[indivial_i,:] = [16. 3. 50. 53.]
453 cord_individual_obj[indivial_i,:] = [17. 4. 3. 7.]
454 cord_individual_obj[indivial_i,:] = [18. 2. 50. 52.]
455 cord_individual_obj[indivial_i,:] = [19. 4. 11. 15.]
456 cord_individual_obj[indivial_i,:] = [20. 2. 2. 4.]
457 cord_individual_obj[indivial_i,:] = [21. 3. 3. 6.]
458 cord_individual_obj[indivial_i,:] = [22. 4. 47. 51.]
459 cord_individual_obj[indivial_i,:] = [23. 4. 21. 25.]
460 cord_individual_obj[indivial_i,:] = [24. 3. 43. 46.]
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. 2. 18. 20.]
468 cord_individual_obj[indivial_i,:] = [ 1. 2. 32. 34.]
469 cord_individual_obj[indivial_i,:] = [ 2. 4. 16. 20.]
470 cord_individual_obj[indivial_i,:] = [ 3. 2. 42. 44.]
471 cord_individual_obj[indivial_i,:] = [ 4. 3. 43. 46.]
472 cord_individual_obj[indivial_i,:] = [ 5. 3. 9. 12.]
473 cord_individual_obj[indivial_i,:] = [ 6. 5. 24. 29.]
474 cord_individual_obj[indivial_i,:] = [ 7. 2. 42. 44.]
475 cord_individual_obj[indivial_i,:] = [ 8. 4. 3. 7.]
476 cord_individual_obj[indivial_i,:] = [ 9. 2. 2. 4.]
477 cord_individual_obj[indivial_i,:] = [10. 2. 2. 4.]
478 cord_individual_obj[indivial_i,:] = [11. 4. 9. 13.]
479 cord_individual_obj[indivial_i,:] = [12. 2. 8. 10.]
480 cord_individual_obj[indivial_i,:] = [13. 3. 36. 39.]
481 cord_individual_obj[indivial_i,:] = [14. 3. 19. 22.]
482 cord_individual_obj[indivial_i,:] = [15. 3. 63. 66.]
483 cord_individual_obj[indivial_i,:] = [16. 3. 43. 46.]
484 cord_individual_obj[indivial_i,:] = [17. 4. 21. 25.]
485 cord_individual_obj[indivial_i,:] = [18. 2. 62. 64.]
486 cord_individual_obj[indivial_i,:] = [19. 3. 19. 22.]
487 cord_individual_obj[indivial_i,:] = [20. 2. 62. 64.]
488 cord_individual_obj[indivial_i,:] = [21. 3. 19. 22.]
489 cord_individual_obj[indivial_i,:] = [22. 2. 42. 44.]
490 cord_individual_obj[indivial_i,:] = [23. 2. 18. 20.]
491 cord_individual_obj[indivial_i,:] = [24. 3. 63. 66.]
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. 18. 20.]
499 cord_individual_obj[indivial_i,:] = [ 1. 4. 50. 54.]

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500 cord_individual_obj[indivial_i, :] = [ 2. 3. 18. 21.]
501 cord_individual_obj[indivial_i, :] = [ 3. 3. 2. 5.]
502 cord_individual_obj[indivial_i, :] = [ 4. 4. 28. 32.]
503 cord_individual_obj[indivial_i, :] = [ 5. 4. 21. 25.]
504 cord_individual_obj[indivial_i, :] = [ 6. 3. 4. 7.]
505 cord_individual_obj[indivial_i, :] = [ 7. 4. 50. 54.]
506 cord_individual_obj[indivial_i, :] = [ 8. 3. 51. 54.]
507 cord_individual_obj[indivial_i, :] = [ 9. 3. 28. 31.]
508 cord_individual_obj[indivial_i, :] = [10. 2. 2. 4.]
509 cord_individual_obj[indivial_i, :] = [11. 3. 8. 11.]
510 cord_individual_obj[indivial_i, :] = [12. 2. 2. 4.]
511 cord_individual_obj[indivial_i, :] = [13. 3. 8. 11.]
512 cord_individual_obj[indivial_i, :] = [14. 2. 2. 4.]
513 cord_individual_obj[indivial_i, :] = [15. 2. 2. 4.]
514 cord_individual_obj[indivial_i, :] = [16. 3. 66. 69.]
515 cord_individual_obj[indivial_i, :] = [17. 2. 8. 10.]
516 cord_individual_obj[indivial_i, :] = [18. 2. 50. 52.]
517 cord_individual_obj[indivial_i, :] = [19. 3. 43. 46.]
518 cord_individual_obj[indivial_i, :] = [20. 2. 62. 64.]
519 cord_individual_obj[indivial_i, :] = [21. 3. 2. 5.]
520 cord_individual_obj[indivial_i, :] = [22. 2. 42. 44.]
521 cord_individual_obj[indivial_i, :] = [23. 2. 8. 10.]
522 cord_individual_obj[indivial_i, :] = [24. 3. 64. 67.]
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. 4. 19. 23.]
530 cord_individual_obj[indivial_i, :] = [ 1. 3. 32. 35.]
531 cord_individual_obj[indivial_i, :] = [ 2. 3. 9. 12.]
532 cord_individual_obj[indivial_i, :] = [ 3. 4. 35. 39.]
533 cord_individual_obj[indivial_i, :] = [ 4. 3. 10. 13.]
534 cord_individual_obj[indivial_i, :] = [ 5. 5. 24. 29.]
535 cord_individual_obj[indivial_i, :] = [ 6. 3. 9. 12.]
536 cord_individual_obj[indivial_i, :] = [ 7. 4. 15. 19.]
537 cord_individual_obj[indivial_i, :] = [ 8. 4. 35. 39.]
538 cord_individual_obj[indivial_i, :] = [ 9. 3. 5. 8.]
539 cord_individual_obj[indivial_i, :] = [10. 3. 2. 5.]
540 cord_individual_obj[indivial_i, :] = [11. 3. 9. 12.]
541 cord_individual_obj[indivial_i, :] = [12. 2. 8. 10.]
542 cord_individual_obj[indivial_i, :] = [13. 2. 8. 10.]
543 cord_individual_obj[indivial_i, :] = [14. 3. 10. 13.]
544 cord_individual_obj[indivial_i, :] = [15. 3. 42. 45.]
545 cord_individual_obj[indivial_i, :] = [16. 2. 2. 4.]
546 cord_individual_obj[indivial_i, :] = [17. 4. 33. 37.]
547 cord_individual_obj[indivial_i, :] = [18. 2. 2. 4.]
548 cord_individual_obj[indivial_i, :] = [19. 4. 34. 38.]
549 cord_individual_obj[indivial_i, :] = [20. 3. 9. 12.]
550 cord_individual_obj[indivial_i, :] = [21. 4. 4. 8.]
551 cord_individual_obj[indivial_i, :] = [22. 4. 10. 14.]
552 cord_individual_obj[indivial_i, :] = [23. 4. 10. 14.]
553 cord_individual_obj[indivial_i, :] = [24. 2. 15. 17.]
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. 3. 33. 36.]
561 cord_individual_obj[indivial_i, :] = [ 1. 3. 3. 6.]
562 cord_individual_obj[indivial_i, :] = [ 2. 4. 44. 48.]
563 cord_individual_obj[indivial_i, :] = [ 3. 2. 19. 21.]
564 cord_individual_obj[indivial_i, :] = [ 4. 4. 8. 12.]
565 cord_individual_obj[indivial_i, :] = [ 5. 5. 10. 15.]
566 cord_individual_obj[indivial_i, :] = [ 6. 3. 9. 12.]
567 cord_individual_obj[indivial_i, :] = [ 7. 2. 27. 29.]
568 cord_individual_obj[indivial_i, :] = [ 8. 4. 6. 10.]
569 cord_individual_obj[indivial_i, :] = [ 9. 3. 43. 46.]
570 cord_individual_obj[indivial_i, :] = [10. 4. 2. 6.]
571 cord_individual_obj[indivial_i, :] = [11. 3. 19. 22.]
572 cord_individual_obj[indivial_i, :] = [12. 3. 19. 22.]
573 cord_individual_obj[indivial_i, :] = [13. 3. 8. 11.]
574 cord_individual_obj[indivial_i, :] = [14. 3. 2. 5.]
575 cord_individual_obj[indivial_i, :] = [15. 2. 2. 4.]
576 cord_individual_obj[indivial_i, :] = [16. 4. 27. 31.]
577 cord_individual_obj[indivial_i, :] = [17. 4. 4. 8.]
578 cord_individual_obj[indivial_i, :] = [18. 3. 51. 54.]
579 cord_individual_obj[indivial_i, :] = [19. 3. 4. 7.]
580 cord_individual_obj[indivial_i, :] = [20. 3. 10. 13.]
581 cord_individual_obj[indivial_i, :] = [21. 4. 40. 44.]
582 cord_individual_obj[indivial_i, :] = [22. 3. 28. 31.]
583 cord_individual_obj[indivial_i, :] = [23. 3. 8. 11.]

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unknown

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584     cord_individual_obj[indivial_i, :] = [24. 3. 43. 46.]  
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. 3. 6.]  
592     cord_individual_obj[indivial_i, :] = [1. 2. 18. 20.]  
593     cord_individual_obj[indivial_i, :] = [2. 3. 28. 31.]  
594     cord_individual_obj[indivial_i, :] = [3. 5. 4. 9.]  
595     cord_individual_obj[indivial_i, :] = [4. 4. 26. 30.]  
596     cord_individual_obj[indivial_i, :] = [5. 4. 10. 14.]  
597     cord_individual_obj[indivial_i, :] = [6. 3. 64. 67.]  
598     cord_individual_obj[indivial_i, :] = [7. 3. 27. 30.]  
599     cord_individual_obj[indivial_i, :] = [8. 3. 33. 36.]  
600     cord_individual_obj[indivial_i, :] = [9. 4. 33. 37.]  
601     cord_individual_obj[indivial_i, :] = [10. 3. 2. 5.]  
602     cord_individual_obj[indivial_i, :] = [11. 3. 26. 29.]  
603     cord_individual_obj[indivial_i, :] = [12. 3. 2. 5.]  
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. 43. 46.]  
607     cord_individual_obj[indivial_i, :] = [16. 3. 43. 46.]  
608     cord_individual_obj[indivial_i, :] = [17. 3. 2. 5.]  
609     cord_individual_obj[indivial_i, :] = [18. 2. 2. 4.]  
610     cord_individual_obj[indivial_i, :] = [19. 3. 27. 30.]  
611     cord_individual_obj[indivial_i, :] = [20. 3. 43. 46.]  
612     cord_individual_obj[indivial_i, :] = [21. 4. 18. 22.]  
613     cord_individual_obj[indivial_i, :] = [22. 3. 2. 5.]  
614     cord_individual_obj[indivial_i, :] = [23. 3. 4. 7.]  
615     cord_individual_obj[indivial_i, :] = [24. 2. 2. 4.]  
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. 3. 8. 11.]  
623     cord_individual_obj[indivial_i, :] = [1. 2. 18. 20.]  
624     cord_individual_obj[indivial_i, :] = [2. 5. 10. 15.]  
625     cord_individual_obj[indivial_i, :] = [3. 4. 28. 32.]  
626     cord_individual_obj[indivial_i, :] = [4. 4. 28. 32.]  
627     cord_individual_obj[indivial_i, :] = [5. 5. 11. 16.]  
628     cord_individual_obj[indivial_i, :] = [6. 2. 2. 4.]  
629     cord_individual_obj[indivial_i, :] = [7. 2. 27. 29.]  
630     cord_individual_obj[indivial_i, :] = [8. 4. 33. 37.]  
631     cord_individual_obj[indivial_i, :] = [9. 4. 28. 32.]  
632     cord_individual_obj[indivial_i, :] = [10. 3. 2. 5.]  
633     cord_individual_obj[indivial_i, :] = [11. 4. 44. 48.]  
634     cord_individual_obj[indivial_i, :] = [12. 3. 8. 11.]  
635     cord_individual_obj[indivial_i, :] = [13. 2. 8. 10.]  
636     cord_individual_obj[indivial_i, :] = [14. 3. 9. 12.]  
637     cord_individual_obj[indivial_i, :] = [15. 3. 43. 46.]  
638     cord_individual_obj[indivial_i, :] = [16. 4. 27. 31.]  
639     cord_individual_obj[indivial_i, :] = [17. 4. 4. 8.]  
640     cord_individual_obj[indivial_i, :] = [18. 2. 32. 34.]  
641     cord_individual_obj[indivial_i, :] = [19. 4. 3. 7.]  
642     cord_individual_obj[indivial_i, :] = [20. 3. 43. 46.]  
643     cord_individual_obj[indivial_i, :] = [21. 4. 19. 23.]  
644     cord_individual_obj[indivial_i, :] = [22. 4. 27. 31.]  
645     cord_individual_obj[indivial_i, :] = [23. 3. 2. 5.]  
646     cord_individual_obj[indivial_i, :] = [24. 3. 44. 47.]  
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. 2. 8. 10.]  
654     cord_individual_obj[indivial_i, :] = [1. 2. 32. 34.]  
655     cord_individual_obj[indivial_i, :] = [2. 5. 19. 24.]  
656     cord_individual_obj[indivial_i, :] = [3. 4. 33. 37.]  
657     cord_individual_obj[indivial_i, :] = [4. 4. 28. 32.]  
658     cord_individual_obj[indivial_i, :] = [5. 5. 11. 16.]  
659     cord_individual_obj[indivial_i, :] = [6. 3. 39. 42.]  
660     cord_individual_obj[indivial_i, :] = [7. 2. 26. 28.]  
661     cord_individual_obj[indivial_i, :] = [8. 5. 3. 8.]  
662     cord_individual_obj[indivial_i, :] = [9. 3. 32. 35.]  
663     cord_individual_obj[indivial_i, :] = [10. 3. 2. 5.]  
664     cord_individual_obj[indivial_i, :] = [11. 2. 2. 4.]  
665     cord_individual_obj[indivial_i, :] = [12. 3. 8. 11.]  
666     cord_individual_obj[indivial_i, :] = [13. 2. 2. 4.]  
667     cord_individual_obj[indivial_i, :] = [14. 3. 9. 12.]
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668 cord_individual_obj[indivial_i, :] = [15. 3. 43. 46.]
669 cord_individual_obj[indivial_i, :] = [16. 2. 42. 44.]
670 cord_individual_obj[indivial_i, :] = [17. 4. 4. 8.]
671 cord_individual_obj[indivial_i, :] = [18. 2. 38. 40.]
672 cord_individual_obj[indivial_i, :] = [19. 3. 27. 30.]
673 cord_individual_obj[indivial_i, :] = [20. 3. 43. 46.]
674 cord_individual_obj[indivial_i, :] = [21. 4. 2. 6.]
675 cord_individual_obj[indivial_i, :] = [22. 3. 27. 30.]
676 cord_individual_obj[indivial_i, :] = [23. 2. 19. 21.]
677 cord_individual_obj[indivial_i, :] = [24. 3. 43. 46.]
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 = 67.0
689 Proportion_of_area = 0.062037037037037036
690 BEST_CHROM =
691     berth: [ 4. 18.5 12. 16.5 11. 25. ]
692     time: [0. 0. 0. 1. 1. 0.]
693     num_QC: [2. 5. 3. 4. 4. 2.]
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: 328.00
699 Specific arrangement for each vessel:
700
    V_id: 0      li: 8.0      xi: 4.0      bow of i: 0.0      tail of i: 8.0      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: 100.0      work load_i:
701
    100.0      work load gap_i: 0
    V_id: 1      li: 5.0      xi: 18.5      bow of i: 16.0      tail of i: 21.0      gama_i0: 0.0      gama_i1: 0
    .           gama_i1 + 1: 1.0      .           gama_i1 - gama_i0: 0.0      .           duration_time_i: 1.0      demand_i: 60.0      work
    load_i: 60.0      work load gap_i: 0
702
    V_id: 2      li: 8.0      xi: 12.0      bow of i: 8.0      tail of i: 16.0      gama_i0: 0.0      gama_i1: 0
    .           gama_i1 + 1: 1.0      .           gama_i1 - gama_i0: 0.0      .           duration_time_i: 1.0      demand_i: 60.0      work
    load_i: 60.0      work load gap_i: 0
703
    V_id: 3      li: 5.0      xi: 16.5      bow of i: 14.0      tail of i: 19.0      gama_i0: 1.0      gama_i1: 2
    .           gama_i1 + 1: 3.0      .           gama_i1 - gama_i0: 1.0      .           duration_time_i: 2.0      demand_i: 140.0      work
    load_i: 140.0      work load gap_i: 0
704
    V_id: 4      li: 6.0      xi: 11.0      bow of i: 8.0      tail of i: 14.0      gama_i0: 1.0      gama_i1: 2
    .           gama_i1 + 1: 3.0      .           gama_i1 - gama_i0: 1.0      .           duration_time_i: 2.0      demand_i: 120.0      work
    load_i: 120.0      work load gap_i: 0
705
    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: 1
    .           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
706
707 Algorithm finished and the total CPU time: 168 s
708 End
709

```