

unknown

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80 cord_individual_obj[indivial_i,:] = [16. 3. 13. 16.]
81 cord_individual_obj[indivial_i,:] = [17. 3. 16. 19.]
82 cord_individual_obj[indivial_i,:] = [18. 3. 19. 22.]
83 cord_individual_obj[indivial_i,:] = [19. 4. 52. 56.]
84 cord_individual_obj[indivial_i,:] = [20. 3. 40. 43.]
85 cord_individual_obj[indivial_i,:] = [21. 3. 4. 7.]
86 cord_individual_obj[indivial_i,:] = [22. 3. 48. 51.]
87 cord_individual_obj[indivial_i,:] = [23. 3. 70. 73.]
88 cord_individual_obj[indivial_i,:] = [24. 3. 94. 97.]
89
90 min(cord_individual_obj[:,3]) = 7.0
91 historl_G_best_iter[iter, 3] = 7.0
92 Begin iteration:
93
94 iter = 2
95 cord_individual_obj[indivial_i,:] = [ 0. 3. 20. 23.]
96 cord_individual_obj[indivial_i,:] = [1. 3. 4. 7.]
97 cord_individual_obj[indivial_i,:] = [ 2. 4. 13. 17.]
98 cord_individual_obj[indivial_i,:] = [ 3. 4. 37. 41.]
99 cord_individual_obj[indivial_i,:] = [4. 4. 5. 9.]
100 cord_individual_obj[indivial_i,:] = [ 5. 3. 10. 13.]
101 cord_individual_obj[indivial_i,:] = [ 6. 5. 19. 24.]
102 cord_individual_obj[indivial_i,:] = [ 7. 4. 21. 25.]
103 cord_individual_obj[indivial_i,:] = [ 8. 3. 21. 24.]
104 cord_individual_obj[indivial_i,:] = [ 9. 3. 44. 47.]
105 cord_individual_obj[indivial_i,:] = [10. 4. 27. 31.]
106 cord_individual_obj[indivial_i,:] = [11. 3. 5. 8.]
107 cord_individual_obj[indivial_i,:] = [12. 3. 45. 48.]
108 cord_individual_obj[indivial_i,:] = [13. 4. 4. 8.]
109 cord_individual_obj[indivial_i,:] = [14. 3. 22. 25.]
110 cord_individual_obj[indivial_i,:] = [15. 5. 10. 15.]
111 cord_individual_obj[indivial_i,:] = [16. 5. 61. 66.]
112 cord_individual_obj[indivial_i,:] = [17. 3. 28. 31.]
113 cord_individual_obj[indivial_i,:] = [18. 2. 15. 17.]
114 cord_individual_obj[indivial_i,:] = [19. 4. 10. 14.]
115 cord_individual_obj[indivial_i,:] = [20. 4. 37. 41.]
116 cord_individual_obj[indivial_i,:] = [21. 3. 5. 8.]
117 cord_individual_obj[indivial_i,:] = [22. 3. 60. 63.]
118 cord_individual_obj[indivial_i,:] = [23. 4. 21. 25.]
119 cord_individual_obj[indivial_i,:] = [24. 3. 4. 7.]
120
121 min(cord_individual_obj[:,3]) = 7.0
122 historl_G_best_iter[iter, 3] = 7.0
123 Begin iteration:
124
125 iter = 3
126 cord_individual_obj[indivial_i,:] = [ 0. 3. 44. 47.]
127 cord_individual_obj[indivial_i,:] = [ 1. 5. 22. 27.]
128 cord_individual_obj[indivial_i,:] = [ 2. 3. 4. 7.]
129 cord_individual_obj[indivial_i,:] = [ 3. 4. 47. 51.]
130 cord_individual_obj[indivial_i,:] = [ 4. 3. 55. 58.]
131 cord_individual_obj[indivial_i,:] = [ 5. 4. 26. 30.]
132 cord_individual_obj[indivial_i,:] = [ 6. 4. 39. 43.]
133 cord_individual_obj[indivial_i,:] = [ 7. 4. 4. 8.]
134 cord_individual_obj[indivial_i,:] = [ 8. 3. 5. 8.]
135 cord_individual_obj[indivial_i,:] = [ 9. 3. 38. 41.]
136 cord_individual_obj[indivial_i,:] = [10. 4. 11. 15.]
137 cord_individual_obj[indivial_i,:] = [11. 3. 58. 61.]
138 cord_individual_obj[indivial_i,:] = [12. 3. 44. 47.]
139 cord_individual_obj[indivial_i,:] = [13. 3. 32. 35.]
140 cord_individual_obj[indivial_i,:] = [14. 3. 40. 43.]
141 cord_individual_obj[indivial_i,:] = [15. 4. 39. 43.]
142 cord_individual_obj[indivial_i,:] = [16. 3. 4. 7.]
143 cord_individual_obj[indivial_i,:] = [17. 3. 52. 55.]
144 cord_individual_obj[indivial_i,:] = [18. 2. 27. 29.]
145 cord_individual_obj[indivial_i,:] = [19. 3. 5. 8.]
146 cord_individual_obj[indivial_i,:] = [20. 3. 68. 71.]
147 cord_individual_obj[indivial_i,:] = [21. 4. 5. 9.]
148 cord_individual_obj[indivial_i,:] = [22. 3. 29. 32.]
149 cord_individual_obj[indivial_i,:] = [23. 4. 51. 55.]
150 cord_individual_obj[indivial_i,:] = [24. 3. 4. 7.]
151
152 min(cord_individual_obj[:,3]) = 7.0
153 historl_G_best_iter[iter, 3] = 7.0
154 Begin iteration:
155
156 iter = 4
157 cord_individual_obj[indivial_i,:] = [0. 3. 4. 7.]
158 cord_individual_obj[indivial_i,:] = [1. 4. 37. 41.]
159 cord_individual_obj[indivial_i,:] = [2. 4. 37. 41.]
160 cord_individual_obj[indivial_i,:] = [3. 4. 36. 40.]
161 cord_individual_obj[indivial_i,:] = [4. 4. 36. 40.]
162 cord_individual_obj[indivial_i,:] = [5. 3. 36. 39.]
163 cord_individual_obj[indivial_i,:] = [6. 4. 16. 20.]

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164 cord_individual_obj[indivial_i,:] = [ 7. 4. 21. 25.]
165 cord_individual_obj[indivial_i,:] = [ 8. 3. 21. 24.]
166 cord_individual_obj[indivial_i,:] = [ 9. 4. 23. 27.]
167 cord_individual_obj[indivial_i,:] = [10. 3. 4. 7.]
168 cord_individual_obj[indivial_i,:] = [11. 3. 12. 15.]
169 cord_individual_obj[indivial_i,:] = [12. 3. 43. 46.]
170 cord_individual_obj[indivial_i,:] = [13. 4. 5. 9.]
171 cord_individual_obj[indivial_i,:] = [14. 3. 36. 39.]
172 cord_individual_obj[indivial_i,:] = [15. 3. 21. 24.]
173 cord_individual_obj[indivial_i,:] = [16. 3. 37. 40.]
174 cord_individual_obj[indivial_i,:] = [17. 3. 36. 39.]
175 cord_individual_obj[indivial_i,:] = [18. 3. 22. 25.]
176 cord_individual_obj[indivial_i,:] = [19. 3. 21. 24.]
177 cord_individual_obj[indivial_i,:] = [20. 3. 4. 7.]
178 cord_individual_obj[indivial_i,:] = [21. 4. 5. 9.]
179 cord_individual_obj[indivial_i,:] = [22. 3. 36. 39.]
180 cord_individual_obj[indivial_i,:] = [23. 3. 11. 14.]
181 cord_individual_obj[indivial_i,:] = [24. 3. 36. 39.]
182
183 min(cord_individual_obj[:,3]) = 7.0
184 historl_G_best_iter[iter,3] = 7.0
185 Begin iteration:
186
187 iter = 5
188 cord_individual_obj[indivial_i,:] = [ 0. 4. 13. 17.]
189 cord_individual_obj[indivial_i,:] = [ 1. 4. 11. 15.]
190 cord_individual_obj[indivial_i,:] = [ 2. 4. 15. 19.]
191 cord_individual_obj[indivial_i,:] = [ 3. 4. 15. 19.]
192 cord_individual_obj[indivial_i,:] = [ 4. 3. 14. 17.]
193 cord_individual_obj[indivial_i,:] = [ 5. 4. 16. 20.]
194 cord_individual_obj[indivial_i,:] = [ 6. 4. 52. 56.]
195 cord_individual_obj[indivial_i,:] = [ 7. 3. 21. 24.]
196 cord_individual_obj[indivial_i,:] = [ 8. 4. 10. 14.]
197 cord_individual_obj[indivial_i,:] = [ 9. 3. 8. 11.]
198 cord_individual_obj[indivial_i,:] = [10. 4. 5. 9.]
199 cord_individual_obj[indivial_i,:] = [11. 4. 13. 17.]
200 cord_individual_obj[indivial_i,:] = [12. 3. 4. 7.]
201 cord_individual_obj[indivial_i,:] = [13. 4. 4. 8.]
202 cord_individual_obj[indivial_i,:] = [14. 3. 44. 47.]
203 cord_individual_obj[indivial_i,:] = [15. 4. 37. 41.]
204 cord_individual_obj[indivial_i,:] = [16. 4. 22. 26.]
205 cord_individual_obj[indivial_i,:] = [17. 3. 68. 71.]
206 cord_individual_obj[indivial_i,:] = [18. 4. 53. 57.]
207 cord_individual_obj[indivial_i,:] = [19. 3. 20. 23.]
208 cord_individual_obj[indivial_i,:] = [20. 5. 48. 53.]
209 cord_individual_obj[indivial_i,:] = [21. 4. 21. 25.]
210 cord_individual_obj[indivial_i,:] = [22. 4. 17. 21.]
211 cord_individual_obj[indivial_i,:] = [23. 4. 65. 69.]
212 cord_individual_obj[indivial_i,:] = [24. 3. 52. 55.]
213
214 min(cord_individual_obj[:,3]) = 7.0
215 historl_G_best_iter[iter,3] = 7.0
216 Begin iteration:
217
218 iter = 6
219 cord_individual_obj[indivial_i,:] = [ 0. 4. 17. 21.]
220 cord_individual_obj[indivial_i,:] = [ 1. 3. 28. 31.]
221 cord_individual_obj[indivial_i,:] = [ 2. 3. 37. 40.]
222 cord_individual_obj[indivial_i,:] = [ 3. 3. 14. 17.]
223 cord_individual_obj[indivial_i,:] = [ 4. 3. 12. 15.]
224 cord_individual_obj[indivial_i,:] = [ 5. 5. 18. 23.]
225 cord_individual_obj[indivial_i,:] = [ 6. 4. 52. 56.]
226 cord_individual_obj[indivial_i,:] = [ 7. 4. 29. 33.]
227 cord_individual_obj[indivial_i,:] = [ 8. 4. 10. 14.]
228 cord_individual_obj[indivial_i,:] = [ 9. 3. 63. 66.]
229 cord_individual_obj[indivial_i,:] = [10. 4. 5. 9.]
230 cord_individual_obj[indivial_i,:] = [11. 4. 27. 31.]
231 cord_individual_obj[indivial_i,:] = [12. 3. 48. 51.]
232 cord_individual_obj[indivial_i,:] = [13. 3. 4. 7.]
233 cord_individual_obj[indivial_i,:] = [14. 3. 44. 47.]
234 cord_individual_obj[indivial_i,:] = [15. 4. 37. 41.]
235 cord_individual_obj[indivial_i,:] = [16. 4. 29. 33.]
236 cord_individual_obj[indivial_i,:] = [17. 3. 4. 7.]
237 cord_individual_obj[indivial_i,:] = [18. 4. 61. 65.]
238 cord_individual_obj[indivial_i,:] = [19. 3. 40. 43.]
239 cord_individual_obj[indivial_i,:] = [20. 4. 46. 50.]
240 cord_individual_obj[indivial_i,:] = [21. 3. 28. 31.]
241 cord_individual_obj[indivial_i,:] = [22. 3. 14. 17.]
242 cord_individual_obj[indivial_i,:] = [23. 4. 65. 69.]
243 cord_individual_obj[indivial_i,:] = [24. 4. 48. 52.]
244
245 min(cord_individual_obj[:,3]) = 7.0
246 historl_G_best_iter[iter,3] = 7.0
247 Begin iteration:

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248
249 iter = 7
250 cord_individual_obj[indivial_i, :] = [0. 3. 4. 7.]
251 cord_individual_obj[indivial_i, :] = [1. 4. 5. 9.]
252 cord_individual_obj[indivial_i, :] = [2. 3. 4. 7.]
253 cord_individual_obj[indivial_i, :] = [3. 5. 22. 27.]
254 cord_individual_obj[indivial_i, :] = [4. 4. 29. 33.]
255 cord_individual_obj[indivial_i, :] = [5. 3. 19. 22.]
256 cord_individual_obj[indivial_i, :] = [6. 4. 35. 39.]
257 cord_individual_obj[indivial_i, :] = [7. 5. 6. 11.]
258 cord_individual_obj[indivial_i, :] = [8. 4. 5. 9.]
259 cord_individual_obj[indivial_i, :] = [9. 3. 5. 8.]
260 cord_individual_obj[indivial_i, :] = [10. 3. 5. 8.]
261 cord_individual_obj[indivial_i, :] = [11. 3. 24. 27.]
262 cord_individual_obj[indivial_i, :] = [12. 3. 45. 48.]
263 cord_individual_obj[indivial_i, :] = [13. 3. 4. 7.]
264 cord_individual_obj[indivial_i, :] = [14. 3. 40. 43.]
265 cord_individual_obj[indivial_i, :] = [15. 4. 52. 56.]
266 cord_individual_obj[indivial_i, :] = [16. 3. 5. 8.]
267 cord_individual_obj[indivial_i, :] = [17. 3. 28. 31.]
268 cord_individual_obj[indivial_i, :] = [18. 3. 5. 8.]
269 cord_individual_obj[indivial_i, :] = [19. 3. 19. 22.]
270 cord_individual_obj[indivial_i, :] = [20. 4. 21. 25.]
271 cord_individual_obj[indivial_i, :] = [21. 4. 4. 8.]
272 cord_individual_obj[indivial_i, :] = [22. 4. 17. 21.]
273 cord_individual_obj[indivial_i, :] = [23. 3. 4. 7.]
274 cord_individual_obj[indivial_i, :] = [24. 3. 21. 24.]
275

276 min(cord_individual_obj[:, 3]) = 7.0
277 historl_G_best_iter[iter, 3] = 7.0
278 Begin iteration:
279
280 iter = 8
281 cord_individual_obj[indivial_i, :] = [0. 4. 37. 41.]
282 cord_individual_obj[indivial_i, :] = [1. 4. 62. 66.]
283 cord_individual_obj[indivial_i, :] = [2. 3. 53. 56.]
284 cord_individual_obj[indivial_i, :] = [3. 6. 71. 77.]
285 cord_individual_obj[indivial_i, :] = [4. 4. 43. 47.]
286 cord_individual_obj[indivial_i, :] = [5. 5. 57. 62.]
287 cord_individual_obj[indivial_i, :] = [6. 4. 24. 28.]
288 cord_individual_obj[indivial_i, :] = [7. 3. 64. 67.]
289 cord_individual_obj[indivial_i, :] = [8. 4. 62. 66.]
290 cord_individual_obj[indivial_i, :] = [9. 4. 52. 56.]
291 cord_individual_obj[indivial_i, :] = [10. 4. 24. 28.]
292 cord_individual_obj[indivial_i, :] = [11. 4. 35. 39.]
293 cord_individual_obj[indivial_i, :] = [12. 4. 58. 62.]
294 cord_individual_obj[indivial_i, :] = [13. 4. 22. 26.]
295 cord_individual_obj[indivial_i, :] = [14. 3. 72. 75.]
296 cord_individual_obj[indivial_i, :] = [15. 3. 4. 7.]
297 cord_individual_obj[indivial_i, :] = [16. 4. 70. 74.]
298 cord_individual_obj[indivial_i, :] = [17. 4. 48. 52.]
299 cord_individual_obj[indivial_i, :] = [18. 3. 50. 53.]
300 cord_individual_obj[indivial_i, :] = [19. 4. 52. 56.]
301 cord_individual_obj[indivial_i, :] = [20. 5. 37. 42.]
302 cord_individual_obj[indivial_i, :] = [21. 4. 41. 45.]
303 cord_individual_obj[indivial_i, :] = [22. 4. 51. 55.]
304 cord_individual_obj[indivial_i, :] = [23. 3. 86. 89.]
305 cord_individual_obj[indivial_i, :] = [24. 4. 65. 69.]
306

307 min(cord_individual_obj[:, 3]) = 7.0
308 historl_G_best_iter[iter, 3] = 7.0
309 Begin iteration:
310
311 iter = 9
312 cord_individual_obj[indivial_i, :] = [0. 3. 124. 127.]
313 cord_individual_obj[indivial_i, :] = [1. 3. 62. 65.]
314 cord_individual_obj[indivial_i, :] = [2. 3. 62. 65.]
315 cord_individual_obj[indivial_i, :] = [3. 4. 61. 65.]
316 cord_individual_obj[indivial_i, :] = [4. 4. 28. 32.]
317 cord_individual_obj[indivial_i, :] = [5. 4. 21. 25.]
318 cord_individual_obj[indivial_i, :] = [6. 4. 52. 56.]
319 cord_individual_obj[indivial_i, :] = [7. 4. 88. 92.]
320 cord_individual_obj[indivial_i, :] = [8. 3. 4. 7.]
321 cord_individual_obj[indivial_i, :] = [9. 4. 45. 49.]
322 cord_individual_obj[indivial_i, :] = [10. 5. 6. 11.]
323 cord_individual_obj[indivial_i, :] = [11. 6. 20. 26.]
324 cord_individual_obj[indivial_i, :] = [12. 3. 80. 83.]
325 cord_individual_obj[indivial_i, :] = [13. 4. 12. 16.]
326 cord_individual_obj[indivial_i, :] = [14. 5. 36. 41.]
327 cord_individual_obj[indivial_i, :] = [15. 3. 76. 79.]
328 cord_individual_obj[indivial_i, :] = [16. 4. 5. 9.]
329 cord_individual_obj[indivial_i, :] = [17. 3. 64. 67.]
330 cord_individual_obj[indivial_i, :] = [18. 3. 63. 66.]
331 cord_individual_obj[indivial_i, :] = [19. 3. 39. 42.]

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332 cord_individual_obj[indivial_i,:] = [20. 4. 37. 41.]
333 cord_individual_obj[indivial_i,:] = [21. 4. 4. 8.]
334 cord_individual_obj[indivial_i,:] = [22. 4. 73. 77.]
335 cord_individual_obj[indivial_i,:] = [23. 3. 4. 7.]
336 cord_individual_obj[indivial_i,:] = [24. 4. 18. 22.]
337
338 min(cord_individual_obj[:,3]) = 7.0
339 historl_G_best_iter[iter,3] = 7.0
340 Begin iteration:
341
342 iter = 10
343 cord_individual_obj[indivial_i,:] = [0. 3. 4. 7.]
344 cord_individual_obj[indivial_i,:] = [1. 3. 16. 19.]
345 cord_individual_obj[indivial_i,:] = [2. 5. 6. 11.]
346 cord_individual_obj[indivial_i,:] = [3. 5. 4. 9.]
347 cord_individual_obj[indivial_i,:] = [4. 5. 14. 19.]
348 cord_individual_obj[indivial_i,:] = [5. 3. 20. 23.]
349 cord_individual_obj[indivial_i,:] = [6. 4. 56. 60.]
350 cord_individual_obj[indivial_i,:] = [7. 3. 34. 37.]
351 cord_individual_obj[indivial_i,:] = [8. 3. 27. 30.]
352 cord_individual_obj[indivial_i,:] = [9. 2. 35. 37.]
353 cord_individual_obj[indivial_i,:] = [10. 4. 11. 15.]
354 cord_individual_obj[indivial_i,:] = [11. 4. 33. 37.]
355 cord_individual_obj[indivial_i,:] = [12. 3. 55. 58.]
356 cord_individual_obj[indivial_i,:] = [13. 3. 34. 37.]
357 cord_individual_obj[indivial_i,:] = [14. 3. 8. 11.]
358 cord_individual_obj[indivial_i,:] = [15. 3. 13. 16.]
359 cord_individual_obj[indivial_i,:] = [16. 4. 35. 39.]
360 cord_individual_obj[indivial_i,:] = [17. 4. 4. 8.]
361 cord_individual_obj[indivial_i,:] = [18. 3. 71. 74.]
362 cord_individual_obj[indivial_i,:] = [19. 3. 20. 23.]
363 cord_individual_obj[indivial_i,:] = [20. 3. 4. 7.]
364 cord_individual_obj[indivial_i,:] = [21. 5. 5. 10.]
365 cord_individual_obj[indivial_i,:] = [22. 3. 28. 31.]
366 cord_individual_obj[indivial_i,:] = [23. 3. 68. 71.]
367 cord_individual_obj[indivial_i,:] = [24. 3. 29. 32.]
368
369 min(cord_individual_obj[:,3]) = 7.0
370 historl_G_best_iter[iter,3] = 7.0
371 Begin iteration:
372
373 iter = 11
374 cord_individual_obj[indivial_i,:] = [0. 4. 5. 9.]
375 cord_individual_obj[indivial_i,:] = [1. 4. 5. 9.]
376 cord_individual_obj[indivial_i,:] = [2. 3. 28. 31.]
377 cord_individual_obj[indivial_i,:] = [3. 4. 17. 21.]
378 cord_individual_obj[indivial_i,:] = [4. 4. 21. 25.]
379 cord_individual_obj[indivial_i,:] = [5. 4. 21. 25.]
380 cord_individual_obj[indivial_i,:] = [6. 4. 56. 60.]
381 cord_individual_obj[indivial_i,:] = [7. 3. 20. 23.]
382 cord_individual_obj[indivial_i,:] = [8. 5. 9. 14.]
383 cord_individual_obj[indivial_i,:] = [9. 2. 63. 65.]
384 cord_individual_obj[indivial_i,:] = [10. 4. 5. 9.]
385 cord_individual_obj[indivial_i,:] = [11. 5. 10. 15.]
386 cord_individual_obj[indivial_i,:] = [12. 3. 15. 18.]
387 cord_individual_obj[indivial_i,:] = [13. 3. 4. 7.]
388 cord_individual_obj[indivial_i,:] = [14. 5. 36. 41.]
389 cord_individual_obj[indivial_i,:] = [15. 3. 27. 30.]
390 cord_individual_obj[indivial_i,:] = [16. 3. 21. 24.]
391 cord_individual_obj[indivial_i,:] = [17. 3. 61. 64.]
392 cord_individual_obj[indivial_i,:] = [18. 3. 4. 7.]
393 cord_individual_obj[indivial_i,:] = [19. 4. 23. 27.]
394 cord_individual_obj[indivial_i,:] = [20. 3. 20. 23.]
395 cord_individual_obj[indivial_i,:] = [21. 4. 5. 9.]
396 cord_individual_obj[indivial_i,:] = [22. 3. 20. 23.]
397 cord_individual_obj[indivial_i,:] = [23. 3. 7. 10.]
398 cord_individual_obj[indivial_i,:] = [24. 3. 35. 38.]
399
400 min(cord_individual_obj[:,3]) = 7.0
401 historl_G_best_iter[iter,3] = 7.0
402 Begin iteration:
403
404 iter = 12
405 cord_individual_obj[indivial_i,:] = [0. 3. 4. 7.]
406 cord_individual_obj[indivial_i,:] = [1. 3. 36. 39.]
407 cord_individual_obj[indivial_i,:] = [2. 4. 6. 10.]
408 cord_individual_obj[indivial_i,:] = [3. 3. 34. 37.]
409 cord_individual_obj[indivial_i,:] = [4. 5. 21. 26.]
410 cord_individual_obj[indivial_i,:] = [5. 4. 20. 24.]
411 cord_individual_obj[indivial_i,:] = [6. 5. 73. 78.]
412 cord_individual_obj[indivial_i,:] = [7. 4. 22. 26.]
413 cord_individual_obj[indivial_i,:] = [8. 3. 34. 37.]
414 cord_individual_obj[indivial_i,:] = [9. 3. 4. 7.]
415 cord_individual_obj[indivial_i,:] = [10. 4. 5. 9.]

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416 cord_individual_obj[indivial_i,:] = [11. 4. 16. 20.]
417 cord_individual_obj[indivial_i,:] = [12. 3. 27. 30.]
418 cord_individual_obj[indivial_i,:] = [13. 3. 4. 7.]
419 cord_individual_obj[indivial_i,:] = [14. 5. 36. 41.]
420 cord_individual_obj[indivial_i,:] = [15. 4. 8. 12.]
421 cord_individual_obj[indivial_i,:] = [16. 3. 52. 55.]
422 cord_individual_obj[indivial_i,:] = [17. 3. 51. 54.]
423 cord_individual_obj[indivial_i,:] = [18. 3. 44. 47.]
424 cord_individual_obj[indivial_i,:] = [19. 3. 4. 7.]
425 cord_individual_obj[indivial_i,:] = [20. 3. 53. 56.]
426 cord_individual_obj[indivial_i,:] = [21. 4. 20. 24.]
427 cord_individual_obj[indivial_i,:] = [22. 3. 20. 23.]
428 cord_individual_obj[indivial_i,:] = [23. 2. 7. 9.]
429 cord_individual_obj[indivial_i,:] = [24. 3. 21. 24.]
430
431 min(cord_individual_obj[:,3]) = 7.0
432 histol_G_best_iter[iter,3] = 7.0
433 Begin iteration:
434
435 iter = 13
436 cord_individual_obj[indivial_i,:] = [ 0. 4. 18. 22.]
437 cord_individual_obj[indivial_i,:] = [1. 4. 5. 9.]
438 cord_individual_obj[indivial_i,:] = [ 2. 4. 11. 15.]
439 cord_individual_obj[indivial_i,:] = [ 3. 4. 9. 13.]
440 cord_individual_obj[indivial_i,:] = [ 4. 6. 10. 16.]
441 cord_individual_obj[indivial_i,:] = [ 5. 4. 21. 25.]
442 cord_individual_obj[indivial_i,:] = [ 6. 3. 4. 7.]
443 cord_individual_obj[indivial_i,:] = [ 7. 4. 22. 26.]
444 cord_individual_obj[indivial_i,:] = [ 8. 5. 9. 14.]
445 cord_individual_obj[indivial_i,:] = [ 9. 3. 29. 32.]
446 cord_individual_obj[indivial_i,:] = [10. 4. 28. 32.]
447 cord_individual_obj[indivial_i,:] = [11. 5. 6. 11.]
448 cord_individual_obj[indivial_i,:] = [12. 3. 27. 30.]
449 cord_individual_obj[indivial_i,:] = [13. 4. 5. 9.]
450 cord_individual_obj[indivial_i,:] = [14. 3. 34. 37.]
451 cord_individual_obj[indivial_i,:] = [15. 5. 10. 15.]
452 cord_individual_obj[indivial_i,:] = [16. 5. 9. 14.]
453 cord_individual_obj[indivial_i,:] = [17. 3. 51. 54.]
454 cord_individual_obj[indivial_i,:] = [18. 3. 45. 48.]
455 cord_individual_obj[indivial_i,:] = [19. 4. 17. 21.]
456 cord_individual_obj[indivial_i,:] = [20. 4. 14. 18.]
457 cord_individual_obj[indivial_i,:] = [21. 4. 8. 12.]
458 cord_individual_obj[indivial_i,:] = [22. 3. 48. 51.]
459 cord_individual_obj[indivial_i,:] = [23. 3. 7. 10.]
460 cord_individual_obj[indivial_i,:] = [24. 3. 20. 23.]
461
462 min(cord_individual_obj[:,3]) = 7.0
463 histol_G_best_iter[iter,3] = 7.0
464 Begin iteration:
465
466 iter = 14
467 cord_individual_obj[indivial_i,:] = [ 0. 4. 6. 10.]
468 cord_individual_obj[indivial_i,:] = [ 1. 3. 16. 19.]
469 cord_individual_obj[indivial_i,:] = [ 2. 3. 4. 7.]
470 cord_individual_obj[indivial_i,:] = [ 3. 4. 43. 47.]
471 cord_individual_obj[indivial_i,:] = [ 4. 4. 5. 9.]
472 cord_individual_obj[indivial_i,:] = [ 5. 3. 28. 31.]
473 cord_individual_obj[indivial_i,:] = [ 6. 4. 76. 80.]
474 cord_individual_obj[indivial_i,:] = [ 7. 4. 4. 8.]
475 cord_individual_obj[indivial_i,:] = [ 8. 4. 5. 9.]
476 cord_individual_obj[indivial_i,:] = [ 9. 4. 44. 48.]
477 cord_individual_obj[indivial_i,:] = [10. 3. 34. 37.]
478 cord_individual_obj[indivial_i,:] = [11. 3. 16. 19.]
479 cord_individual_obj[indivial_i,:] = [12. 3. 8. 11.]
480 cord_individual_obj[indivial_i,:] = [13. 4. 5. 9.]
481 cord_individual_obj[indivial_i,:] = [14. 4. 35. 39.]
482 cord_individual_obj[indivial_i,:] = [15. 4. 52. 56.]
483 cord_individual_obj[indivial_i,:] = [16. 5. 31. 36.]
484 cord_individual_obj[indivial_i,:] = [17. 3. 4. 7.]
485 cord_individual_obj[indivial_i,:] = [18. 3. 22. 25.]
486 cord_individual_obj[indivial_i,:] = [19. 3. 4. 7.]
487 cord_individual_obj[indivial_i,:] = [20. 4. 76. 80.]
488 cord_individual_obj[indivial_i,:] = [21. 5. 5. 10.]
489 cord_individual_obj[indivial_i,:] = [22. 4. 41. 45.]
490 cord_individual_obj[indivial_i,:] = [23. 3. 8. 11.]
491 cord_individual_obj[indivial_i,:] = [24. 3. 26. 29.]
492
493 min(cord_individual_obj[:,3]) = 7.0
494 histol_G_best_iter[iter,3] = 7.0
495 Begin iteration:
496
497 iter = 15
498 cord_individual_obj[indivial_i,:] = [ 0. 3. 28. 31.]
499 cord_individual_obj[indivial_i,:] = [ 1. 4. 6. 10.]

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500 cord_individual_obj[indivial_i,:] = [ 2. 3. 44. 47.]
501 cord_individual_obj[indivial_i,:] = [ 3. 4. 5. 9.]
502 cord_individual_obj[indivial_i,:] = [ 4. 3. 16. 19.]
503 cord_individual_obj[indivial_i,:] = [ 5. 4. 6. 10.]
504 cord_individual_obj[indivial_i,:] = [ 6. 3. 4. 7.]
505 cord_individual_obj[indivial_i,:] = [ 7. 3. 4. 7.]
506 cord_individual_obj[indivial_i,:] = [ 8. 4. 21. 25.]
507 cord_individual_obj[indivial_i,:] = [ 9. 3. 45. 48.]
508 cord_individual_obj[indivial_i,:] = [10. 5. 5. 10.]
509 cord_individual_obj[indivial_i,:] = [11. 5. 7. 12.]
510 cord_individual_obj[indivial_i,:] = [12. 3. 27. 30.]
511 cord_individual_obj[indivial_i,:] = [13. 5. 6. 11.]
512 cord_individual_obj[indivial_i,:] = [14. 3. 64. 67.]
513 cord_individual_obj[indivial_i,:] = [15. 4. 8. 12.]
514 cord_individual_obj[indivial_i,:] = [16. 5. 10. 15.]
515 cord_individual_obj[indivial_i,:] = [17. 4. 16. 20.]
516 cord_individual_obj[indivial_i,:] = [18. 3. 46. 49.]
517 cord_individual_obj[indivial_i,:] = [19. 4. 29. 33.]
518 cord_individual_obj[indivial_i,:] = [20. 3. 79. 82.]
519 cord_individual_obj[indivial_i,:] = [21. 3. 16. 19.]
520 cord_individual_obj[indivial_i,:] = [22. 4. 46. 50.]
521 cord_individual_obj[indivial_i,:] = [23. 3. 8. 11.]
522 cord_individual_obj[indivial_i,:] = [24. 3. 33. 36.]
523
524 min(cord_individual_obj[:, 3]) = 7.0
525 histol_G_best_iter[iter, 3] = 7.0
526 Begin iteration:
527
528 iter = 16
529 cord_individual_obj[indivial_i,:] = [ 0. 3. 4. 7.]
530 cord_individual_obj[indivial_i,:] = [ 1. 4. 9. 13.]
531 cord_individual_obj[indivial_i,:] = [ 2. 3. 44. 47.]
532 cord_individual_obj[indivial_i,:] = [ 3. 3. 65. 68.]
533 cord_individual_obj[indivial_i,:] = [ 4. 4. 21. 25.]
534 cord_individual_obj[indivial_i,:] = [ 5. 3. 19. 22.]
535 cord_individual_obj[indivial_i,:] = [ 6. 4. 35. 39.]
536 cord_individual_obj[indivial_i,:] = [ 7. 3. 9. 12.]
537 cord_individual_obj[indivial_i,:] = [ 8. 4. 21. 25.]
538 cord_individual_obj[indivial_i,:] = [ 9. 3. 21. 24.]
539 cord_individual_obj[indivial_i,:] = [10. 5. 6. 11.]
540 cord_individual_obj[indivial_i,:] = [11. 3. 12. 15.]
541 cord_individual_obj[indivial_i,:] = [12. 4. 29. 33.]
542 cord_individual_obj[indivial_i,:] = [13. 4. 5. 9.]
543 cord_individual_obj[indivial_i,:] = [14. 3. 20. 23.]
544 cord_individual_obj[indivial_i,:] = [15. 3. 64. 67.]
545 cord_individual_obj[indivial_i,:] = [16. 4. 73. 77.]
546 cord_individual_obj[indivial_i,:] = [17. 5. 9. 14.]
547 cord_individual_obj[indivial_i,:] = [18. 3. 47. 50.]
548 cord_individual_obj[indivial_i,:] = [19. 4. 14. 18.]
549 cord_individual_obj[indivial_i,:] = [20. 3. 4. 7.]
550 cord_individual_obj[indivial_i,:] = [21. 3. 4. 7.]
551 cord_individual_obj[indivial_i,:] = [22. 4. 17. 21.]
552 cord_individual_obj[indivial_i,:] = [23. 4. 17. 21.]
553 cord_individual_obj[indivial_i,:] = [24. 3. 20. 23.]
554
555 min(cord_individual_obj[:, 3]) = 7.0
556 histol_G_best_iter[iter, 3] = 7.0
557 Begin iteration:
558
559 iter = 17
560 cord_individual_obj[indivial_i,:] = [ 0. 5. 6. 11.]
561 cord_individual_obj[indivial_i,:] = [ 1. 3. 4. 7.]
562 cord_individual_obj[indivial_i,:] = [ 2. 3. 4. 7.]
563 cord_individual_obj[indivial_i,:] = [ 3. 4. 5. 9.]
564 cord_individual_obj[indivial_i,:] = [ 4. 4. 4. 8.]
565 cord_individual_obj[indivial_i,:] = [ 5. 3. 19. 22.]
566 cord_individual_obj[indivial_i,:] = [ 6. 4. 35. 39.]
567 cord_individual_obj[indivial_i,:] = [ 7. 4. 12. 16.]
568 cord_individual_obj[indivial_i,:] = [ 8. 3. 4. 7.]
569 cord_individual_obj[indivial_i,:] = [ 9. 4. 11. 15.]
570 cord_individual_obj[indivial_i,:] = [10. 4. 5. 9.]
571 cord_individual_obj[indivial_i,:] = [11. 5. 42. 47.]
572 cord_individual_obj[indivial_i,:] = [12. 3. 28. 31.]
573 cord_individual_obj[indivial_i,:] = [13. 4. 5. 9.]
574 cord_individual_obj[indivial_i,:] = [14. 3. 19. 22.]
575 cord_individual_obj[indivial_i,:] = [15. 3. 67. 70.]
576 cord_individual_obj[indivial_i,:] = [16. 3. 4. 7.]
577 cord_individual_obj[indivial_i,:] = [17. 3. 51. 54.]
578 cord_individual_obj[indivial_i,:] = [18. 3. 5. 8.]
579 cord_individual_obj[indivial_i,:] = [19. 4. 20. 24.]
580 cord_individual_obj[indivial_i,:] = [20. 3. 79. 82.]
581 cord_individual_obj[indivial_i,:] = [21. 4. 4. 8.]
582 cord_individual_obj[indivial_i,:] = [22. 3. 26. 29.]
583 cord_individual_obj[indivial_i,:] = [23. 3. 4. 7.]

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unknown

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584     cord_individual_obj[indivial_i, :] = [24. 3. 33. 36.]  
585  
586     min(cord_individual_obj[:, 3]) = 7.0  
587     historl_G_best_iter[iter, 3] = 7.0  
588 Begin iteration:  
589  
590 iter = 18  
591     cord_individual_obj[indivial_i, :] = [0. 4. 5. 9.]  
592     cord_individual_obj[indivial_i, :] = [1. 3. 28. 31.]  
593     cord_individual_obj[indivial_i, :] = [2. 3. 28. 31.]  
594     cord_individual_obj[indivial_i, :] = [3. 3. 28. 31.]  
595     cord_individual_obj[indivial_i, :] = [4. 3. 8. 11.]  
596     cord_individual_obj[indivial_i, :] = [5. 3. 44. 47.]  
597     cord_individual_obj[indivial_i, :] = [6. 5. 46. 51.]  
598     cord_individual_obj[indivial_i, :] = [7. 3. 28. 31.]  
599     cord_individual_obj[indivial_i, :] = [8. 3. 8. 11.]  
600     cord_individual_obj[indivial_i, :] = [9. 4. 8. 12.]  
601     cord_individual_obj[indivial_i, :] = [10. 3. 4. 7.]  
602     cord_individual_obj[indivial_i, :] = [11. 5. 6. 11.]  
603     cord_individual_obj[indivial_i, :] = [12. 3. 29. 32.]  
604     cord_individual_obj[indivial_i, :] = [13. 3. 4. 7.]  
605     cord_individual_obj[indivial_i, :] = [14. 4. 8. 12.]  
606     cord_individual_obj[indivial_i, :] = [15. 3. 8. 11.]  
607     cord_individual_obj[indivial_i, :] = [16. 4. 49. 53.]  
608     cord_individual_obj[indivial_i, :] = [17. 3. 8. 11.]  
609     cord_individual_obj[indivial_i, :] = [18. 3. 30. 33.]  
610     cord_individual_obj[indivial_i, :] = [19. 4. 28. 32.]  
611     cord_individual_obj[indivial_i, :] = [20. 3. 4. 7.]  
612     cord_individual_obj[indivial_i, :] = [21. 5. 6. 11.]  
613     cord_individual_obj[indivial_i, :] = [22. 4. 17. 21.]  
614     cord_individual_obj[indivial_i, :] = [23. 4. 17. 21.]  
615     cord_individual_obj[indivial_i, :] = [24. 5. 18. 23.]  
616  
617     min(cord_individual_obj[:, 3]) = 7.0  
618     historl_G_best_iter[iter, 3] = 7.0  
619 Begin iteration:  
620  
621 iter = 19  
622     cord_individual_obj[indivial_i, :] = [0. 3. 51. 54.]  
623     cord_individual_obj[indivial_i, :] = [1. 4. 9. 13.]  
624     cord_individual_obj[indivial_i, :] = [2. 3. 44. 47.]  
625     cord_individual_obj[indivial_i, :] = [3. 3. 9. 12.]  
626     cord_individual_obj[indivial_i, :] = [4. 5. 9. 14.]  
627     cord_individual_obj[indivial_i, :] = [5. 3. 10. 13.]  
628     cord_individual_obj[indivial_i, :] = [6. 4. 20. 24.]  
629     cord_individual_obj[indivial_i, :] = [7. 4. 4. 8.]  
630     cord_individual_obj[indivial_i, :] = [8. 5. 18. 23.]  
631     cord_individual_obj[indivial_i, :] = [9. 4. 17. 21.]  
632     cord_individual_obj[indivial_i, :] = [10. 3. 4. 7.]  
633     cord_individual_obj[indivial_i, :] = [11. 4. 9. 13.]  
634     cord_individual_obj[indivial_i, :] = [12. 3. 27. 30.]  
635     cord_individual_obj[indivial_i, :] = [13. 3. 28. 31.]  
636     cord_individual_obj[indivial_i, :] = [14. 3. 36. 39.]  
637     cord_individual_obj[indivial_i, :] = [15. 3. 73. 76.]  
638     cord_individual_obj[indivial_i, :] = [16. 3. 4. 7.]  
639     cord_individual_obj[indivial_i, :] = [17. 3. 4. 7.]  
640     cord_individual_obj[indivial_i, :] = [18. 3. 48. 51.]  
641     cord_individual_obj[indivial_i, :] = [19. 4. 16. 20.]  
642     cord_individual_obj[indivial_i, :] = [20. 4. 16. 20.]  
643     cord_individual_obj[indivial_i, :] = [21. 5. 28. 33.]  
644     cord_individual_obj[indivial_i, :] = [22. 5. 9. 14.]  
645     cord_individual_obj[indivial_i, :] = [23. 3. 16. 19.]  
646     cord_individual_obj[indivial_i, :] = [24. 4. 21. 25.]  
647  
648     min(cord_individual_obj[:, 3]) = 7.0  
649     historl_G_best_iter[iter, 3] = 7.0  
650 Begin iteration:  
651  
652 iter = 20  
653     cord_individual_obj[indivial_i, :] = [0. 4. 5. 9.]  
654     cord_individual_obj[indivial_i, :] = [1. 3. 4. 7.]  
655     cord_individual_obj[indivial_i, :] = [2. 4. 5. 9.]  
656     cord_individual_obj[indivial_i, :] = [3. 3. 28. 31.]  
657     cord_individual_obj[indivial_i, :] = [4. 5. 11. 16.]  
658     cord_individual_obj[indivial_i, :] = [5. 3. 20. 23.]  
659     cord_individual_obj[indivial_i, :] = [6. 4. 20. 24.]  
660     cord_individual_obj[indivial_i, :] = [7. 2. 74. 76.]  
661     cord_individual_obj[indivial_i, :] = [8. 3. 8. 11.]  
662     cord_individual_obj[indivial_i, :] = [9. 4. 16. 20.]  
663     cord_individual_obj[indivial_i, :] = [10. 5. 5. 10.]  
664     cord_individual_obj[indivial_i, :] = [11. 5. 5. 10.]  
665     cord_individual_obj[indivial_i, :] = [12. 3. 28. 31.]  
666     cord_individual_obj[indivial_i, :] = [13. 5. 5. 10.]  
667     cord_individual_obj[indivial_i, :] = [14. 3. 27. 30.]
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668 cord_individual_obj[indivial_i,:] = [15. 3. 4. 7.]
669 cord_individual_obj[indivial_i,:] = [16. 6. 31. 37.]
670 cord_individual_obj[indivial_i,:] = [17. 3. 40. 43.]
671 cord_individual_obj[indivial_i,:] = [18. 4. 37. 41.]
672 cord_individual_obj[indivial_i,:] = [19. 5. 29. 34.]
673 cord_individual_obj[indivial_i,:] = [20. 4. 45. 49.]
674 cord_individual_obj[indivial_i,:] = [21. 4. 4. 8.]
675 cord_individual_obj[indivial_i,:] = [22. 4. 17. 21.]
676 cord_individual_obj[indivial_i,:] = [23. 5. 11. 16.]
677 cord_individual_obj[indivial_i,:] = [24. 3. 21. 24.]
678
679 min(cord_individual_obj[:, 3]) = 7.0
680 historl_G_best_iter[iter, 3] = 7.0
681 Iteration calculate over
682
683
684
685
686 All item are in Bin and:
687 Bin area = 1080
688 Real_area = 93.0
689 Proportion_of_area = 0.0861111111111111
690 BEST_CHROM =
691 berth: [ 1.5 4.5 9.5 21. 21.5 15. 4. ]
692 time: [0. 0. 0. 2. 0. 0. 2.]
693 num_QC: [3. 3. 4. 6. 3. 4. 2.]
694 Objective function values and some other indicators:
695 Obj0 = 3.00          Obj1 = 4.00          Obj0 + Obj1 = 7.00
696 Total movement of crane: 0.00
697 Total waiting time in berth position: 4.00
698 Total index of q during berthing: 369.00
699 Specific arrangement for each vessel:
700 V_id: 0           li: 3.0           xi: 1.5           bow of i: 0.0           tail of i: 3.0           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: 120.0           work load_i:
120.0           work load gap_i: 0
701 V_id: 1           li: 3.0           xi: 4.5           bow of i: 3.0           tail of i: 6.0           gama_i0: 0.0           gama_i1: 1.0
    gama_i1 + 1: 2.0           gama_i1 - gama_i0: 1.0           duration_time_i: 2.0           demand_i: 80.0           work load_i:
80.0           work load gap_i: 0
702 V_id: 2           li: 7.0           xi: 9.5           bow of i: 6.0           tail of i: 13.0           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 load_i:
100.0           work load gap_i: 0
703 V_id: 3           li: 8.0           xi: 21.0           bow of i: 17.0           tail of i: 25.0           gama_i0: 2.0           gama_i1: 2
    gama_i1 + 1: 3.0           gama_i1 - gama_i0: 0.0           duration_time_i: 1.0           demand_i: 120.0           work
load_i: 120.0           work load gap_i: 0
704 V_id: 4           li: 9.0           xi: 21.5           bow of i: 17.0           tail of i: 26.0           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: 120.0           work
load_i: 120.0           work load gap_i: 0
705 V_id: 5           li: 4.0           xi: 15.0           bow of i: 13.0           tail of i: 17.0           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: 120.0           work
load_i: 120.0           work load gap_i: 0
706 V_id: 6           li: 8.0           xi: 4.0           bow of i: 0.0           tail of i: 8.0           gama_i0: 2.0           gama_i1: 3.0
    gama_i1 + 1: 4.0           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
707
708 Algorithm finished and the total CPU time: 203 s
709 End
710

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