

unknown

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80 cord_individual_obj[indivial_i,:] = [16. 4. 22. 26.]
81 cord_individual_obj[indivial_i,:] = [17. 4. 25. 29.]
82 cord_individual_obj[indivial_i,:] = [18. 4. 50. 54.]
83 cord_individual_obj[indivial_i,:] = [19. 4. 47. 51.]
84 cord_individual_obj[indivial_i,:] = [20. 3. 85. 88.]
85 cord_individual_obj[indivial_i,:] = [21. 4. 50. 54.]
86 cord_individual_obj[indivial_i,:] = [22. 4. 73. 77.]
87 cord_individual_obj[indivial_i,:] = [23. 5. 55. 60.]
88 cord_individual_obj[indivial_i,:] = [24. 5. 15. 20.]
89
90 min(cord_individual_obj[:,3]) = 18.0
91 historl_G_best_iter[iter, 3] = 18.0
92 Begin iteration:
93
94 iter = 2
95 cord_individual_obj[indivial_i,:] = [ 0. 4. 10. 14.]
96 cord_individual_obj[indivial_i,:] = [ 1. 4. 65. 69.]
97 cord_individual_obj[indivial_i,:] = [ 2. 4. 89. 93.]
98 cord_individual_obj[indivial_i,:] = [ 3. 5. 13. 18.]
99 cord_individual_obj[indivial_i,:] = [ 4. 4. 9. 13.]
100 cord_individual_obj[indivial_i,:] = [ 5. 6. 91. 97.]
101 cord_individual_obj[indivial_i,:] = [ 6. 4. 17. 21.]
102 cord_individual_obj[indivial_i,:] = [ 7. 5. 66. 71.]
103 cord_individual_obj[indivial_i,:] = [ 8. 5. 18. 23.]
104 cord_individual_obj[indivial_i,:] = [ 9. 6. 33. 39.]
105 cord_individual_obj[indivial_i,:] = [10. 3. 37. 40.]
106 cord_individual_obj[indivial_i,:] = [11. 5. 23. 28.]
107 cord_individual_obj[indivial_i,:] = [12. 5. 9. 14.]
108 cord_individual_obj[indivial_i,:] = [13. 6. 33. 39.]
109 cord_individual_obj[indivial_i,:] = [14. 4. 57. 61.]
110 cord_individual_obj[indivial_i,:] = [15. 5. 26. 31.]
111 cord_individual_obj[indivial_i,:] = [16. 6. 12. 18.]
112 cord_individual_obj[indivial_i,:] = [17. 5. 17. 22.]
113 cord_individual_obj[indivial_i,:] = [18. 5. 41. 46.]
114 cord_individual_obj[indivial_i,:] = [19. 5. 51. 56.]
115 cord_individual_obj[indivial_i,:] = [20. 4. 42. 46.]
116 cord_individual_obj[indivial_i,:] = [21. 4. 12. 16.]
117 cord_individual_obj[indivial_i,:] = [22. 4. 60. 64.]
118 cord_individual_obj[indivial_i,:] = [23. 3. 56. 59.]
119 cord_individual_obj[indivial_i,:] = [24. 6. 38. 44.]
120
121 min(cord_individual_obj[:,3]) = 13.0
122 historl_G_best_iter[iter, 3] = 13.0
123 Begin iteration:
124
125 iter = 3
126 cord_individual_obj[indivial_i,:] = [ 0. 4. 41. 45.]
127 cord_individual_obj[indivial_i,:] = [ 1. 6. 9. 15.]
128 cord_individual_obj[indivial_i,:] = [ 2. 5. 9. 14.]
129 cord_individual_obj[indivial_i,:] = [ 3. 6. 39. 45.]
130 cord_individual_obj[indivial_i,:] = [ 4. 7. 13. 20.]
131 cord_individual_obj[indivial_i,:] = [ 5. 4. 9. 13.]
132 cord_individual_obj[indivial_i,:] = [ 6. 5. 8. 13.]
133 cord_individual_obj[indivial_i,:] = [ 7. 4. 42. 46.]
134 cord_individual_obj[indivial_i,:] = [ 8. 5. 41. 46.]
135 cord_individual_obj[indivial_i,:] = [ 9. 5. 83. 88.]
136 cord_individual_obj[indivial_i,:] = [10. 5. 14. 19.]
137 cord_individual_obj[indivial_i,:] = [11. 5. 100. 105.]
138 cord_individual_obj[indivial_i,:] = [12. 5. 44. 49.]
139 cord_individual_obj[indivial_i,:] = [13. 5. 82. 87.]
140 cord_individual_obj[indivial_i,:] = [14. 4. 23. 27.]
141 cord_individual_obj[indivial_i,:] = [15. 5. 38. 43.]
142 cord_individual_obj[indivial_i,:] = [16. 5. 19. 24.]
143 cord_individual_obj[indivial_i,:] = [17. 6. 38. 44.]
144 cord_individual_obj[indivial_i,:] = [18. 8. 22. 30.]
145 cord_individual_obj[indivial_i,:] = [19. 6. 26. 32.]
146 cord_individual_obj[indivial_i,:] = [20. 6. 50. 56.]
147 cord_individual_obj[indivial_i,:] = [21. 6. 26. 32.]
148 cord_individual_obj[indivial_i,:] = [22. 5. 31. 36.]
149 cord_individual_obj[indivial_i,:] = [23. 5. 14. 19.]
150 cord_individual_obj[indivial_i,:] = [24. 3. 71. 74.]
151
152 min(cord_individual_obj[:,3]) = 13.0
153 historl_G_best_iter[iter, 3] = 13.0
154 Begin iteration:
155
156 iter = 4
157 cord_individual_obj[indivial_i,:] = [ 0. 5. 57. 62.]
158 cord_individual_obj[indivial_i,:] = [ 1. 4. 8. 12.]
159 cord_individual_obj[indivial_i,:] = [ 2. 4. 57. 61.]
160 cord_individual_obj[indivial_i,:] = [ 3. 5. 37. 42.]
161 cord_individual_obj[indivial_i,:] = [ 4. 7. 13. 20.]
162 cord_individual_obj[indivial_i,:] = [ 5. 4. 7. 11.]
163 cord_individual_obj[indivial_i,:] = [ 6. 4. 30. 34.]

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164 cord_individual_obj[indivial_i,:] = [ 7. 5. 18. 23.]
165 cord_individual_obj[indivial_i,:] = [ 8. 4. 78. 82.]
166 cord_individual_obj[indivial_i,:] = [ 9. 5. 69. 74.]
167 cord_individual_obj[indivial_i,:] = [10. 4. 49. 53.]
168 cord_individual_obj[indivial_i,:] = [11. 4. 9. 13.]
169 cord_individual_obj[indivial_i,:] = [12. 5. 32. 37.]
170 cord_individual_obj[indivial_i,:] = [13. 5. 25. 30.]
171 cord_individual_obj[indivial_i,:] = [14. 4. 58. 62.]
172 cord_individual_obj[indivial_i,:] = [15. 5. 34. 39.]
173 cord_individual_obj[indivial_i,:] = [16. 4. 47. 51.]
174 cord_individual_obj[indivial_i,:] = [17. 6. 55. 61.]
175 cord_individual_obj[indivial_i,:] = [18. 6. 39. 45.]
176 cord_individual_obj[indivial_i,:] = [19. 3. 47. 50.]
177 cord_individual_obj[indivial_i,:] = [20. 6. 30. 36.]
178 cord_individual_obj[indivial_i,:] = [21. 5. 26. 31.]
179 cord_individual_obj[indivial_i,:] = [22. 4. 19. 23.]
180 cord_individual_obj[indivial_i,:] = [23. 6. 16. 22.]
181 cord_individual_obj[indivial_i,:] = [24. 4. 48. 52.]
182
183 min(cord_individual_obj[:,3]) = 11.0
184 historl_G_best_iter[iter,3] = 11.0
185 Begin iteration:
186
187 iter = 5
188 cord_individual_obj[indivial_i,:] = [ 0. 4. 38. 42.]
189 cord_individual_obj[indivial_i,:] = [ 1. 5. 17. 22.]
190 cord_individual_obj[indivial_i,:] = [ 2. 5. 15. 20.]
191 cord_individual_obj[indivial_i,:] = [ 3. 5. 17. 22.]
192 cord_individual_obj[indivial_i,:] = [ 4. 6. 52. 58.]
193 cord_individual_obj[indivial_i,:] = [ 5. 5. 44. 49.]
194 cord_individual_obj[indivial_i,:] = [ 6. 5. 17. 22.]
195 cord_individual_obj[indivial_i,:] = [ 7. 6. 66. 72.]
196 cord_individual_obj[indivial_i,:] = [ 8. 4. 7. 11.]
197 cord_individual_obj[indivial_i,:] = [ 9. 5. 42. 47.]
198 cord_individual_obj[indivial_i,:] = [10. 4. 43. 47.]
199 cord_individual_obj[indivial_i,:] = [11. 4. 7. 11.]
200 cord_individual_obj[indivial_i,:] = [12. 5. 17. 22.]
201 cord_individual_obj[indivial_i,:] = [13. 7. 35. 42.]
202 cord_individual_obj[indivial_i,:] = [14. 4. 32. 36.]
203 cord_individual_obj[indivial_i,:] = [15. 4. 47. 51.]
204 cord_individual_obj[indivial_i,:] = [16. 6. 32. 38.]
205 cord_individual_obj[indivial_i,:] = [17. 5. 33. 38.]
206 cord_individual_obj[indivial_i,:] = [18. 5. 64. 69.]
207 cord_individual_obj[indivial_i,:] = [19. 5. 38. 43.]
208 cord_individual_obj[indivial_i,:] = [20. 4. 43. 47.]
209 cord_individual_obj[indivial_i,:] = [21. 4. 77. 81.]
210 cord_individual_obj[indivial_i,:] = [22. 5. 47. 52.]
211 cord_individual_obj[indivial_i,:] = [23. 5. 35. 40.]
212 cord_individual_obj[indivial_i,:] = [24. 5. 32. 37.]
213
214 min(cord_individual_obj[:,3]) = 11.0
215 historl_G_best_iter[iter,3] = 11.0
216 Begin iteration:
217
218 iter = 6
219 cord_individual_obj[indivial_i,:] = [ 0. 5. 33. 38.]
220 cord_individual_obj[indivial_i,:] = [ 1. 4. 31. 35.]
221 cord_individual_obj[indivial_i,:] = [ 2. 4. 32. 36.]
222 cord_individual_obj[indivial_i,:] = [ 3. 4. 31. 35.]
223 cord_individual_obj[indivial_i,:] = [ 4. 5. 42. 47.]
224 cord_individual_obj[indivial_i,:] = [ 5. 4. 17. 21.]
225 cord_individual_obj[indivial_i,:] = [ 6. 5. 37. 42.]
226 cord_individual_obj[indivial_i,:] = [ 7. 6. 53. 59.]
227 cord_individual_obj[indivial_i,:] = [ 8. 6. 39. 45.]
228 cord_individual_obj[indivial_i,:] = [ 9. 5. 27. 32.]
229 cord_individual_obj[indivial_i,:] = [10. 5. 34. 39.]
230 cord_individual_obj[indivial_i,:] = [11. 4. 37. 41.]
231 cord_individual_obj[indivial_i,:] = [12. 6. 17. 23.]
232 cord_individual_obj[indivial_i,:] = [13. 5. 48. 53.]
233 cord_individual_obj[indivial_i,:] = [14. 5. 45. 50.]
234 cord_individual_obj[indivial_i,:] = [15. 4. 48. 52.]
235 cord_individual_obj[indivial_i,:] = [16. 6. 45. 51.]
236 cord_individual_obj[indivial_i,:] = [17. 5. 35. 40.]
237 cord_individual_obj[indivial_i,:] = [18. 7. 35. 42.]
238 cord_individual_obj[indivial_i,:] = [19. 5. 30. 35.]
239 cord_individual_obj[indivial_i,:] = [20. 5. 26. 31.]
240 cord_individual_obj[indivial_i,:] = [21. 4. 7. 11.]
241 cord_individual_obj[indivial_i,:] = [22. 5. 44. 49.]
242 cord_individual_obj[indivial_i,:] = [23. 5. 31. 36.]
243 cord_individual_obj[indivial_i,:] = [24. 5. 31. 36.]
244
245 min(cord_individual_obj[:,3]) = 11.0
246 historl_G_best_iter[iter,3] = 11.0
247 Begin iteration:

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248
249 iter = 7
250 cord_individual_obj[indivial_i, :] = [ 0.  4. 70. 74.]
251 cord_individual_obj[indivial_i, :] = [ 1.  4. 41. 45.]
252 cord_individual_obj[indivial_i, :] = [ 2.  3. 89. 92.]
253 cord_individual_obj[indivial_i, :] = [ 3.  6. 33. 39.]
254 cord_individual_obj[indivial_i, :] = [ 4.  6. 38. 44.]
255 cord_individual_obj[indivial_i, :] = [ 5.  7. 17. 24.]
256 cord_individual_obj[indivial_i, :] = [ 6.  4. 31. 35.]
257 cord_individual_obj[indivial_i, :] = [ 7.  4. 7. 11.]
258 cord_individual_obj[indivial_i, :] = [ 8.  6. 56. 62.]
259 cord_individual_obj[indivial_i, :] = [ 9.  7. 73. 80.]
260 cord_individual_obj[indivial_i, :] = [10.  6. 79. 85.]
261 cord_individual_obj[indivial_i, :] = [11.  5. 17. 22.]
262 cord_individual_obj[indivial_i, :] = [12.  5. 28. 33.]
263 cord_individual_obj[indivial_i, :] = [13.  5. 16. 21.]
264 cord_individual_obj[indivial_i, :] = [14.  6. 17. 23.]
265 cord_individual_obj[indivial_i, :] = [15.  5. 36. 41.]
266 cord_individual_obj[indivial_i, :] = [16.  5. 54. 59.]
267 cord_individual_obj[indivial_i, :] = [17.  5. 32. 37.]
268 cord_individual_obj[indivial_i, :] = [18.  4. 44. 48.]
269 cord_individual_obj[indivial_i, :] = [19.  4. 77. 81.]
270 cord_individual_obj[indivial_i, :] = [20.  6. 39. 45.]
271 cord_individual_obj[indivial_i, :] = [21.  5. 52. 57.]
272 cord_individual_obj[indivial_i, :] = [22.  7. 19. 26.]
273 cord_individual_obj[indivial_i, :] = [23.  6. 45. 51.]
274 cord_individual_obj[indivial_i, :] = [24.  6. 34. 40.]
275

276 min(cord_individual_obj[:, 3]) = 11.0
277 historl_G_best_iter[iter, 3] = 11.0
278 Begin iteration:
279
280 iter = 8
281 cord_individual_obj[indivial_i, :] = [ 0.  5. 66. 71.]
282 cord_individual_obj[indivial_i, :] = [ 1.  4. 20. 24.]
283 cord_individual_obj[indivial_i, :] = [ 2.  4. 7. 11.]
284 cord_individual_obj[indivial_i, :] = [ 3.  5. 17. 22.]
285 cord_individual_obj[indivial_i, :] = [ 4.  7. 26. 33.]
286 cord_individual_obj[indivial_i, :] = [ 5.  6. 28. 34.]
287 cord_individual_obj[indivial_i, :] = [ 6.  5. 17. 22.]
288 cord_individual_obj[indivial_i, :] = [ 7.  6. 26. 32.]
289 cord_individual_obj[indivial_i, :] = [ 8.  6. 34. 40.]
290 cord_individual_obj[indivial_i, :] = [ 9.  4. 97. 101.]
291 cord_individual_obj[indivial_i, :] = [10.  4. 43. 47.]
292 cord_individual_obj[indivial_i, :] = [11.  5. 9. 14.]
293 cord_individual_obj[indivial_i, :] = [12.  6. 20. 26.]
294 cord_individual_obj[indivial_i, :] = [13.  5. 37. 42.]
295 cord_individual_obj[indivial_i, :] = [14.  5. 38. 43.]
296 cord_individual_obj[indivial_i, :] = [15.  5. 31. 36.]
297 cord_individual_obj[indivial_i, :] = [16.  5. 31. 36.]
298 cord_individual_obj[indivial_i, :] = [17.  5. 54. 59.]
299 cord_individual_obj[indivial_i, :] = [18.  5. 48. 53.]
300 cord_individual_obj[indivial_i, :] = [19.  6. 15. 21.]
301 cord_individual_obj[indivial_i, :] = [20.  5. 40. 45.]
302 cord_individual_obj[indivial_i, :] = [21.  4. 64. 68.]
303 cord_individual_obj[indivial_i, :] = [22.  5. 67. 72.]
304 cord_individual_obj[indivial_i, :] = [23.  5. 43. 48.]
305 cord_individual_obj[indivial_i, :] = [24.  5. 31. 36.]
306

307 min(cord_individual_obj[:, 3]) = 11.0
308 historl_G_best_iter[iter, 3] = 11.0
309 Begin iteration:
310
311 iter = 9
312 cord_individual_obj[indivial_i, :] = [ 0.  4. 31. 35.]
313 cord_individual_obj[indivial_i, :] = [ 1.  5. 20. 25.]
314 cord_individual_obj[indivial_i, :] = [ 2.  5. 15. 20.]
315 cord_individual_obj[indivial_i, :] = [ 3.  5. 66. 71.]
316 cord_individual_obj[indivial_i, :] = [ 4.  5. 101. 106.]
317 cord_individual_obj[indivial_i, :] = [ 5.  5. 68. 73.]
318 cord_individual_obj[indivial_i, :] = [ 6.  7. 23. 30.]
319 cord_individual_obj[indivial_i, :] = [ 7.  5. 18. 23.]
320 cord_individual_obj[indivial_i, :] = [ 8.  5. 13. 18.]
321 cord_individual_obj[indivial_i, :] = [ 9.  4. 7. 11.]
322 cord_individual_obj[indivial_i, :] = [10.  4. 43. 47.]
323 cord_individual_obj[indivial_i, :] = [11.  5. 9. 14.]
324 cord_individual_obj[indivial_i, :] = [12.  6. 10. 16.]
325 cord_individual_obj[indivial_i, :] = [13.  7. 26. 33.]
326 cord_individual_obj[indivial_i, :] = [14.  5. 9. 14.]
327 cord_individual_obj[indivial_i, :] = [15.  5. 70. 75.]
328 cord_individual_obj[indivial_i, :] = [16.  7. 37. 44.]
329 cord_individual_obj[indivial_i, :] = [17.  6. 13. 19.]
330 cord_individual_obj[indivial_i, :] = [18.  6. 28. 34.]
331 cord_individual_obj[indivial_i, :] = [19.  4. 72. 76.]

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332 cord_individual_obj[indivial_i,:] = [20. 6. 45. 51.]
333 cord_individual_obj[indivial_i,:] = [21. 5. 81. 86.]
334 cord_individual_obj[indivial_i,:] = [22. 6. 35. 41.]
335 cord_individual_obj[indivial_i,:] = [23. 7. 44. 51.]
336 cord_individual_obj[indivial_i,:] = [24. 4. 26. 30.]
337
338 min(cord_individual_obj[:,3]) = 11.0
339 histol_G_best_iter[iter,3] = 11.0
340 Begin iteration:
341
342 iter = 10
343 cord_individual_obj[indivial_i,:] = [ 0. 5. 60. 65.]
344 cord_individual_obj[indivial_i,:] = [ 1. 5. 9. 14.]
345 cord_individual_obj[indivial_i,:] = [ 2. 3. 55. 58.]
346 cord_individual_obj[indivial_i,:] = [ 3. 4. 52. 56.]
347 cord_individual_obj[indivial_i,:] = [ 4. 4. 7. 11.]
348 cord_individual_obj[indivial_i,:] = [ 5. 5. 35. 40.]
349 cord_individual_obj[indivial_i,:] = [ 6. 4. 21. 25.]
350 cord_individual_obj[indivial_i,:] = [ 7. 6. 35. 41.]
351 cord_individual_obj[indivial_i,:] = [ 8. 6. 34. 40.]
352 cord_individual_obj[indivial_i,:] = [ 9. 6. 28. 34.]
353 cord_individual_obj[indivial_i,:] = [10. 5. 45. 50.]
354 cord_individual_obj[indivial_i,:] = [11. 4. 8. 12.]
355 cord_individual_obj[indivial_i,:] = [12. 6. 29. 35.]
356 cord_individual_obj[indivial_i,:] = [13. 5. 21. 26.]
357 cord_individual_obj[indivial_i,:] = [14. 6. 66. 72.]
358 cord_individual_obj[indivial_i,:] = [15. 5. 29. 34.]
359 cord_individual_obj[indivial_i,:] = [16. 6. 27. 33.]
360 cord_individual_obj[indivial_i,:] = [17. 4. 36. 40.]
361 cord_individual_obj[indivial_i,:] = [18. 4. 29. 33.]
362 cord_individual_obj[indivial_i,:] = [19. 7. 48. 55.]
363 cord_individual_obj[indivial_i,:] = [20. 6. 50. 56.]
364 cord_individual_obj[indivial_i,:] = [21. 4. 47. 51.]
365 cord_individual_obj[indivial_i,:] = [22. 5. 43. 48.]
366 cord_individual_obj[indivial_i,:] = [23. 7. 109. 116.]
367 cord_individual_obj[indivial_i,:] = [24. 5. 32. 37.]
368
369 min(cord_individual_obj[:,3]) = 11.0
370 histol_G_best_iter[iter,3] = 11.0
371 Begin iteration:
372
373 iter = 11
374 cord_individual_obj[indivial_i,:] = [ 0. 6. 28. 34.]
375 cord_individual_obj[indivial_i,:] = [ 1. 5. 10. 15.]
376 cord_individual_obj[indivial_i,:] = [ 2. 5. 31. 36.]
377 cord_individual_obj[indivial_i,:] = [ 3. 6. 44. 50.]
378 cord_individual_obj[indivial_i,:] = [ 4. 6. 36. 42.]
379 cord_individual_obj[indivial_i,:] = [ 5. 6. 34. 40.]
380 cord_individual_obj[indivial_i,:] = [ 6. 4. 83. 87.]
381 cord_individual_obj[indivial_i,:] = [ 7. 5. 9. 14.]
382 cord_individual_obj[indivial_i,:] = [ 8. 4. 39. 43.]
383 cord_individual_obj[indivial_i,:] = [ 9. 7. 20. 27.]
384 cord_individual_obj[indivial_i,:] = [10. 6. 58. 64.]
385 cord_individual_obj[indivial_i,:] = [11. 5. 23. 28.]
386 cord_individual_obj[indivial_i,:] = [12. 5. 16. 21.]
387 cord_individual_obj[indivial_i,:] = [13. 6. 35. 41.]
388 cord_individual_obj[indivial_i,:] = [14. 5. 81. 86.]
389 cord_individual_obj[indivial_i,:] = [15. 4. 86. 90.]
390 cord_individual_obj[indivial_i,:] = [16. 4. 56. 60.]
391 cord_individual_obj[indivial_i,:] = [17. 4. 18. 22.]
392 cord_individual_obj[indivial_i,:] = [18. 6. 33. 39.]
393 cord_individual_obj[indivial_i,:] = [19. 5. 34. 39.]
394 cord_individual_obj[indivial_i,:] = [20. 5. 61. 66.]
395 cord_individual_obj[indivial_i,:] = [21. 5. 52. 57.]
396 cord_individual_obj[indivial_i,:] = [22. 4. 40. 44.]
397 cord_individual_obj[indivial_i,:] = [23. 4. 7. 11.]
398 cord_individual_obj[indivial_i,:] = [24. 5. 31. 36.]
399
400 min(cord_individual_obj[:,3]) = 11.0
401 histol_G_best_iter[iter,3] = 11.0
402 Begin iteration:
403
404 iter = 12
405 cord_individual_obj[indivial_i,:] = [ 0. 4. 9. 13.]
406 cord_individual_obj[indivial_i,:] = [ 1. 4. 8. 12.]
407 cord_individual_obj[indivial_i,:] = [ 2. 4. 20. 24.]
408 cord_individual_obj[indivial_i,:] = [ 3. 5. 101. 106.]
409 cord_individual_obj[indivial_i,:] = [ 4. 5. 29. 34.]
410 cord_individual_obj[indivial_i,:] = [ 5. 6. 17. 23.]
411 cord_individual_obj[indivial_i,:] = [ 6. 7. 56. 63.]
412 cord_individual_obj[indivial_i,:] = [ 7. 7. 22. 29.]
413 cord_individual_obj[indivial_i,:] = [ 8. 6. 31. 37.]
414 cord_individual_obj[indivial_i,:] = [ 9. 6. 35. 41.]
415 cord_individual_obj[indivial_i,:] = [10. 6. 59. 65.]

```

```

416 cord_individual_obj[indivial_i,:] = [11. 4. 48. 52.]
417 cord_individual_obj[indivial_i,:] = [12. 6. 62. 68.]
418 cord_individual_obj[indivial_i,:] = [13. 6. 35. 41.]
419 cord_individual_obj[indivial_i,:] = [14. 5. 60. 65.]
420 cord_individual_obj[indivial_i,:] = [15. 4. 7. 11.]
421 cord_individual_obj[indivial_i,:] = [16. 6. 31. 37.]
422 cord_individual_obj[indivial_i,:] = [17. 5. 34. 39.]
423 cord_individual_obj[indivial_i,:] = [18. 5. 37. 42.]
424 cord_individual_obj[indivial_i,:] = [19. 6. 15. 21.]
425 cord_individual_obj[indivial_i,:] = [20. 6. 52. 58.]
426 cord_individual_obj[indivial_i,:] = [21. 4. 47. 51.]
427 cord_individual_obj[indivial_i,:] = [22. 4. 90. 94.]
428 cord_individual_obj[indivial_i,:] = [23. 5. 35. 40.]
429 cord_individual_obj[indivial_i,:] = [24. 5. 32. 37.]
430
431 min(cord_individual_obj[:,3]) = 11.0
432 histol_G_best_iter[iter,3] = 11.0
433 Begin iteration:
434
435 iter = 13
436 cord_individual_obj[indivial_i,:] = [ 0. 4. 59. 63.]
437 cord_individual_obj[indivial_i,:] = [ 1. 4. 7. 11.]
438 cord_individual_obj[indivial_i,:] = [ 2. 4. 69. 73.]
439 cord_individual_obj[indivial_i,:] = [ 3. 4. 7. 11.]
440 cord_individual_obj[indivial_i,:] = [ 4. 5. 21. 26.]
441 cord_individual_obj[indivial_i,:] = [ 5. 6. 51. 57.]
442 cord_individual_obj[indivial_i,:] = [ 6. 5. 62. 67.]
443 cord_individual_obj[indivial_i,:] = [ 7. 5. 46. 51.]
444 cord_individual_obj[indivial_i,:] = [ 8. 5. 25. 30.]
445 cord_individual_obj[indivial_i,:] = [ 9. 4. 23. 27.]
446 cord_individual_obj[indivial_i,:] = [10. 4. 57. 61.]
447 cord_individual_obj[indivial_i,:] = [11. 6. 46. 52.]
448 cord_individual_obj[indivial_i,:] = [12. 8. 14. 22.]
449 cord_individual_obj[indivial_i,:] = [13. 7. 28. 35.]
450 cord_individual_obj[indivial_i,:] = [14. 4. 9. 13.]
451 cord_individual_obj[indivial_i,:] = [15. 4. 51. 55.]
452 cord_individual_obj[indivial_i,:] = [16. 5. 79. 84.]
453 cord_individual_obj[indivial_i,:] = [17. 6. 24. 30.]
454 cord_individual_obj[indivial_i,:] = [18. 7. 54. 61.]
455 cord_individual_obj[indivial_i,:] = [19. 4. 34. 38.]
456 cord_individual_obj[indivial_i,:] = [20. 4. 114. 118.]
457 cord_individual_obj[indivial_i,:] = [21. 6. 14. 20.]
458 cord_individual_obj[indivial_i,:] = [22. 4. 80. 84.]
459 cord_individual_obj[indivial_i,:] = [23. 6. 47. 53.]
460 cord_individual_obj[indivial_i,:] = [24. 5. 31. 36.]
461
462 min(cord_individual_obj[:,3]) = 11.0
463 histol_G_best_iter[iter,3] = 11.0
464 Begin iteration:
465
466 iter = 14
467 cord_individual_obj[indivial_i,:] = [ 0. 5. 59. 64.]
468 cord_individual_obj[indivial_i,:] = [ 1. 5. 6. 11.]
469 cord_individual_obj[indivial_i,:] = [ 2. 6. 42. 48.]
470 cord_individual_obj[indivial_i,:] = [ 3. 4. 24. 28.]
471 cord_individual_obj[indivial_i,:] = [ 4. 6. 8. 14.]
472 cord_individual_obj[indivial_i,:] = [ 5. 6. 23. 29.]
473 cord_individual_obj[indivial_i,:] = [ 6. 5. 70. 75.]
474 cord_individual_obj[indivial_i,:] = [ 7. 7. 20. 27.]
475 cord_individual_obj[indivial_i,:] = [ 8. 4. 57. 61.]
476 cord_individual_obj[indivial_i,:] = [ 9. 5. 36. 41.]
477 cord_individual_obj[indivial_i,:] = [10. 5. 55. 60.]
478 cord_individual_obj[indivial_i,:] = [11. 6. 11. 17.]
479 cord_individual_obj[indivial_i,:] = [12. 5. 51. 56.]
480 cord_individual_obj[indivial_i,:] = [13. 6. 11. 17.]
481 cord_individual_obj[indivial_i,:] = [14. 4. 11. 15.]
482 cord_individual_obj[indivial_i,:] = [15. 4. 11. 15.]
483 cord_individual_obj[indivial_i,:] = [16. 6. 42. 48.]
484 cord_individual_obj[indivial_i,:] = [17. 6. 37. 43.]
485 cord_individual_obj[indivial_i,:] = [18. 5. 44. 49.]
486 cord_individual_obj[indivial_i,:] = [19. 5. 83. 88.]
487 cord_individual_obj[indivial_i,:] = [20. 4. 7. 11.]
488 cord_individual_obj[indivial_i,:] = [21. 3. 22. 25.]
489 cord_individual_obj[indivial_i,:] = [22. 3. 51. 54.]
490 cord_individual_obj[indivial_i,:] = [23. 4. 36. 40.]
491 cord_individual_obj[indivial_i,:] = [24. 4. 74. 78.]
492
493 min(cord_individual_obj[:,3]) = 11.0
494 histol_G_best_iter[iter,3] = 11.0
495 Begin iteration:
496
497 iter = 15
498 cord_individual_obj[indivial_i,:] = [ 0. 6. 10. 16.]
499 cord_individual_obj[indivial_i,:] = [ 1. 3. 7. 10.]

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500 cord_individual_obj[indivial_i,:] = [ 2. 4. 8. 12.]
501 cord_individual_obj[indivial_i,:] = [ 3. 6. 28. 34.]
502 cord_individual_obj[indivial_i,:] = [ 4. 6. 18. 24.]
503 cord_individual_obj[indivial_i,:] = [ 5. 6. 26. 32.]
504 cord_individual_obj[indivial_i,:] = [ 6. 4. 25. 29.]
505 cord_individual_obj[indivial_i,:] = [ 7. 4. 7. 11.]
506 cord_individual_obj[indivial_i,:] = [ 8. 5. 18. 23.]
507 cord_individual_obj[indivial_i,:] = [ 9. 5. 40. 45.]
508 cord_individual_obj[indivial_i,:] = [10. 6. 17. 23.]
509 cord_individual_obj[indivial_i,:] = [11. 4. 12. 16.]
510 cord_individual_obj[indivial_i,:] = [12. 6. 10. 16.]
511 cord_individual_obj[indivial_i,:] = [13. 5. 8. 13.]
512 cord_individual_obj[indivial_i,:] = [14. 5. 10. 15.]
513 cord_individual_obj[indivial_i,:] = [15. 4. 14. 18.]
514 cord_individual_obj[indivial_i,:] = [16. 4. 8. 12.]
515 cord_individual_obj[indivial_i,:] = [17. 3. 6. 9.]
516 cord_individual_obj[indivial_i,:] = [18. 7. 21. 28.]
517 cord_individual_obj[indivial_i,:] = [19. 5. 6. 11.]
518 cord_individual_obj[indivial_i,:] = [20. 4. 72. 76.]
519 cord_individual_obj[indivial_i,:] = [21. 3. 63. 66.]
520 cord_individual_obj[indivial_i,:] = [22. 6. 26. 32.]
521 cord_individual_obj[indivial_i,:] = [23. 4. 31. 35.]
522 cord_individual_obj[indivial_i,:] = [24. 6. 8. 14.]
523
524 min(cord_individual_obj[:, 3]) = 9.0
525 histort_G_best_iter[iter, 3] = 9.0
526 Begin iteration:
527
528 iter = 16
529 cord_individual_obj[indivial_i,:] = [ 0. 5. 21. 26.]
530 cord_individual_obj[indivial_i,:] = [ 1. 5. 7. 12.]
531 cord_individual_obj[indivial_i,:] = [ 2. 5. 9. 14.]
532 cord_individual_obj[indivial_i,:] = [ 3. 6. 30. 36.]
533 cord_individual_obj[indivial_i,:] = [ 4. 5. 41. 46.]
534 cord_individual_obj[indivial_i,:] = [ 5. 4. 6. 10.]
535 cord_individual_obj[indivial_i,:] = [ 6. 3. 68. 71.]
536 cord_individual_obj[indivial_i,:] = [ 7. 5. 39. 44.]
537 cord_individual_obj[indivial_i,:] = [ 8. 4. 60. 64.]
538 cord_individual_obj[indivial_i,:] = [ 9. 8. 68. 76.]
539 cord_individual_obj[indivial_i,:] = [10. 4. 24. 28.]
540 cord_individual_obj[indivial_i,:] = [11. 3. 40. 43.]
541 cord_individual_obj[indivial_i,:] = [12. 4. 22. 26.]
542 cord_individual_obj[indivial_i,:] = [13. 5. 9. 14.]
543 cord_individual_obj[indivial_i,:] = [14. 4. 17. 21.]
544 cord_individual_obj[indivial_i,:] = [15. 3. 22. 25.]
545 cord_individual_obj[indivial_i,:] = [16. 4. 66. 70.]
546 cord_individual_obj[indivial_i,:] = [17. 4. 14. 18.]
547 cord_individual_obj[indivial_i,:] = [18. 5. 21. 26.]
548 cord_individual_obj[indivial_i,:] = [19. 5. 23. 28.]
549 cord_individual_obj[indivial_i,:] = [20. 3. 6. 9.]
550 cord_individual_obj[indivial_i,:] = [21. 5. 19. 24.]
551 cord_individual_obj[indivial_i,:] = [22. 5. 25. 30.]
552 cord_individual_obj[indivial_i,:] = [23. 5. 14. 19.]
553 cord_individual_obj[indivial_i,:] = [24. 5. 63. 68.]
554
555 min(cord_individual_obj[:, 3]) = 9.0
556 histort_G_best_iter[iter, 3] = 9.0
557 Begin iteration:
558
559 iter = 17
560 cord_individual_obj[indivial_i,:] = [ 0. 4. 69. 73.]
561 cord_individual_obj[indivial_i,:] = [ 1. 5. 7. 12.]
562 cord_individual_obj[indivial_i,:] = [ 2. 3. 40. 43.]
563 cord_individual_obj[indivial_i,:] = [ 3. 6. 80. 86.]
564 cord_individual_obj[indivial_i,:] = [ 4. 6. 58. 64.]
565 cord_individual_obj[indivial_i,:] = [ 5. 3. 8. 11.]
566 cord_individual_obj[indivial_i,:] = [ 6. 4. 23. 27.]
567 cord_individual_obj[indivial_i,:] = [ 7. 4. 79. 83.]
568 cord_individual_obj[indivial_i,:] = [ 8. 3. 60. 63.]
569 cord_individual_obj[indivial_i,:] = [ 9. 3. 6. 9.]
570 cord_individual_obj[indivial_i,:] = [10. 4. 66. 70.]
571 cord_individual_obj[indivial_i,:] = [11. 7. 23. 30.]
572 cord_individual_obj[indivial_i,:] = [12. 6. 38. 44.]
573 cord_individual_obj[indivial_i,:] = [13. 4. 43. 47.]
574 cord_individual_obj[indivial_i,:] = [14. 4. 11. 15.]
575 cord_individual_obj[indivial_i,:] = [15. 7. 45. 52.]
576 cord_individual_obj[indivial_i,:] = [16. 6. 24. 30.]
577 cord_individual_obj[indivial_i,:] = [17. 6. 15. 21.]
578 cord_individual_obj[indivial_i,:] = [18. 6. 20. 26.]
579 cord_individual_obj[indivial_i,:] = [19. 4. 47. 51.]
580 cord_individual_obj[indivial_i,:] = [20. 5. 9. 14.]
581 cord_individual_obj[indivial_i,:] = [21. 5. 26. 31.]
582 cord_individual_obj[indivial_i,:] = [22. 5. 31. 36.]
583 cord_individual_obj[indivial_i,:] = [23. 8. 14. 22.]

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unknown

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584     cord_individual_obj[indivial_i, :] = [24. 5. 49. 54.]  
585  
586     min(cord_individual_obj[:, 3]) = 9.0  
587     historl_G_best_iter[iter, 3] = 9.0  
588 Begin iteration:  
589 iter = 18  
591     cord_individual_obj[indivial_i, :] = [ 0. 4. 25. 29.]  
592     cord_individual_obj[indivial_i, :] = [ 1. 4. 47. 51.]  
593     cord_individual_obj[indivial_i, :] = [ 2. 5. 14. 19.]  
594     cord_individual_obj[indivial_i, :] = [3. 3. 6. 9.]  
595     cord_individual_obj[indivial_i, :] = [ 4. 5. 112. 117.]  
596     cord_individual_obj[indivial_i, :] = [ 5. 5. 9. 14.]  
597     cord_individual_obj[indivial_i, :] = [ 6. 4. 25. 29.]  
598     cord_individual_obj[indivial_i, :] = [ 7. 8. 50. 58.]  
599     cord_individual_obj[indivial_i, :] = [ 8. 4. 70. 74.]  
600     cord_individual_obj[indivial_i, :] = [ 9. 6. 13. 19.]  
601     cord_individual_obj[indivial_i, :] = [10. 4. 39. 43.]  
602     cord_individual_obj[indivial_i, :] = [11. 4. 33. 37.]  
603     cord_individual_obj[indivial_i, :] = [12. 4. 39. 43.]  
604     cord_individual_obj[indivial_i, :] = [13. 4. 22. 26.]  
605     cord_individual_obj[indivial_i, :] = [14. 5. 29. 34.]  
606     cord_individual_obj[indivial_i, :] = [15. 4. 28. 32.]  
607     cord_individual_obj[indivial_i, :] = [16. 4. 68. 72.]  
608     cord_individual_obj[indivial_i, :] = [17. 4. 70. 74.]  
609     cord_individual_obj[indivial_i, :] = [18. 4. 52. 56.]  
610     cord_individual_obj[indivial_i, :] = [19. 3. 14. 17.]  
611     cord_individual_obj[indivial_i, :] = [20. 6. 10. 16.]  
612     cord_individual_obj[indivial_i, :] = [21. 4. 28. 32.]  
613     cord_individual_obj[indivial_i, :] = [22. 6. 37. 43.]  
614     cord_individual_obj[indivial_i, :] = [23. 4. 15. 19.]  
615     cord_individual_obj[indivial_i, :] = [24. 4. 64. 68.]  
616  
617     min(cord_individual_obj[:, 3]) = 9.0  
618     historl_G_best_iter[iter, 3] = 9.0  
619 Begin iteration:  
620  
621 iter = 19  
622     cord_individual_obj[indivial_i, :] = [ 0. 5. 53. 58.]  
623     cord_individual_obj[indivial_i, :] = [ 1. 4. 7. 11.]  
624     cord_individual_obj[indivial_i, :] = [ 2. 5. 8. 13.]  
625     cord_individual_obj[indivial_i, :] = [ 3. 6. 30. 36.]  
626     cord_individual_obj[indivial_i, :] = [4. 3. 6. 9.]  
627     cord_individual_obj[indivial_i, :] = [ 5. 3. 8. 11.]  
628     cord_individual_obj[indivial_i, :] = [ 6. 3. 52. 55.]  
629     cord_individual_obj[indivial_i, :] = [ 7. 6. 11. 17.]  
630     cord_individual_obj[indivial_i, :] = [ 8. 4. 9. 13.]  
631     cord_individual_obj[indivial_i, :] = [ 9. 6. 13. 19.]  
632     cord_individual_obj[indivial_i, :] = [10. 4. 73. 77.]  
633     cord_individual_obj[indivial_i, :] = [11. 5. 59. 64.]  
634     cord_individual_obj[indivial_i, :] = [12. 4. 36. 40.]  
635     cord_individual_obj[indivial_i, :] = [13. 8. 13. 21.]  
636     cord_individual_obj[indivial_i, :] = [14. 5. 59. 64.]  
637     cord_individual_obj[indivial_i, :] = [15. 4. 30. 34.]  
638     cord_individual_obj[indivial_i, :] = [16. 4. 52. 56.]  
639     cord_individual_obj[indivial_i, :] = [17. 4. 25. 29.]  
640     cord_individual_obj[indivial_i, :] = [18. 5. 10. 15.]  
641     cord_individual_obj[indivial_i, :] = [19. 4. 8. 12.]  
642     cord_individual_obj[indivial_i, :] = [20. 4. 12. 16.]  
643     cord_individual_obj[indivial_i, :] = [21. 4. 31. 35.]  
644     cord_individual_obj[indivial_i, :] = [22. 4. 58. 62.]  
645     cord_individual_obj[indivial_i, :] = [23. 5. 19. 24.]  
646     cord_individual_obj[indivial_i, :] = [24. 4. 64. 68.]  
647  
648     min(cord_individual_obj[:, 3]) = 9.0  
649     historl_G_best_iter[iter, 3] = 9.0  
650 Begin iteration:  
651  
652 iter = 20  
653     cord_individual_obj[indivial_i, :] = [ 0. 4. 49. 53.]  
654     cord_individual_obj[indivial_i, :] = [ 1. 5. 7. 12.]  
655     cord_individual_obj[indivial_i, :] = [ 2. 3. 72. 75.]  
656     cord_individual_obj[indivial_i, :] = [ 3. 5. 14. 19.]  
657     cord_individual_obj[indivial_i, :] = [ 4. 5. 47. 52.]  
658     cord_individual_obj[indivial_i, :] = [ 5. 5. 8. 13.]  
659     cord_individual_obj[indivial_i, :] = [ 6. 5. 51. 56.]  
660     cord_individual_obj[indivial_i, :] = [ 7. 5. 19. 24.]  
661     cord_individual_obj[indivial_i, :] = [ 8. 3. 59. 62.]  
662     cord_individual_obj[indivial_i, :] = [ 9. 5. 8. 13.]  
663     cord_individual_obj[indivial_i, :] = [10. 3. 6. 9.]  
664     cord_individual_obj[indivial_i, :] = [11. 6. 9. 15.]  
665     cord_individual_obj[indivial_i, :] = [12. 4. 77. 81.]  
666     cord_individual_obj[indivial_i, :] = [13. 7. 44. 51.]  
667     cord_individual_obj[indivial_i, :] = [14. 4. 10. 14.]
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668 cord_individual_obj[indivial_i,:] = [15. 5. 28. 33.]
669 cord_individual_obj[indivial_i,:] = [16. 6. 39. 45.]
670 cord_individual_obj[indivial_i,:] = [17. 4. 12. 16.]
671 cord_individual_obj[indivial_i,:] = [18. 5. 32. 37.]
672 cord_individual_obj[indivial_i,:] = [19. 3. 67. 70.]
673 cord_individual_obj[indivial_i,:] = [20. 3. 25. 28.]
674 cord_individual_obj[indivial_i,:] = [21. 7. 26. 33.]
675 cord_individual_obj[indivial_i,:] = [22. 5. 38. 43.]
676 cord_individual_obj[indivial_i,:] = [23. 6. 14. 20.]
677 cord_individual_obj[indivial_i,:] = [24. 5. 61. 66.]
678
679 min(cord_individual_obj[:,3]) = 9.0
680 historl_G_best_iter[iter,3] = 9.0
681 Iteration calculate over
682
683
684
685
686 All item are in Bin and:
687 Bin area = 1080
688 Real_area = 105.0
689 Proportion_of_area = 0.09722222222222222
690 BEST_CHROM =
691     berth: [22.5 4.5 12.5 10. 3. 16. 18. 23.5]
692     time: [0. 1. 1. 0. 0. 2. 2.]
693     num_QC: [4. 4. 2. 6. 3. 3. 4. 3.]
694 Objective function values and some other indicators:
695 Obj0 = 3.00          Obj1 = 6.00          Obj0 + Obj1 = 9.00
696 Total movement of crane: 0.00
697 Total waiting time in berth position: 6.00
698 Total index of q during berthing: 562.00
699 Specific arrangement for each vessel:
700
    V_id: 0           li: 9.0           xi: 22.5           bow of i: 18.0           tail of i: 27.0           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: 160.0           work
    load_i: 160.0           work load gap_i: 0
701
    V_id: 1           li: 9.0           xi: 4.5            bow of i: 0.0           tail of i: 9.0           gama_i0: 1.0           gama_i1: 2.0
    .0             gama_i1 + 1: 3.0       gama_i1 - gama_i0: 1.0           duration_time_i: 2.0           demand_i: 100.0           work load_i:
    100.0           work load gap_i: 0
702
    V_id: 2           li: 7.0           xi: 12.5           bow of i: 9.0           tail of i: 16.0           gama_i0: 1.0           gama_i1: 3
    .0             gama_i1 + 1: 4.0       gama_i1 - gama_i0: 2.0           duration_time_i: 3.0           demand_i: 120.0           work
    load_i: 120.0           work load gap_i: 0
703
    V_id: 3           li: 8.0            xi: 10.0           bow of i: 6.0           tail of i: 14.0           gama_i0: 0.0           gama_i1: 0
    .0             gama_i1 + 1: 1.0       gama_i1 - gama_i0: 0.0           duration_time_i: 1.0           demand_i: 120.0           work
    load_i: 120.0           work load gap_i: 0
704
    V_id: 4           li: 6.0            xi: 3.0            bow of i: 0.0           tail of i: 6.0           gama_i0: 0.0           gama_i1: 0
    .0             gama_i1 + 1: 1.0       gama_i1 - gama_i0: 0.0           duration_time_i: 1.0           demand_i: 60.0           work load_i:
    60.0           work load gap_i: 0
705
    V_id: 5           li: 4.0            xi: 16.0           bow of i: 14.0           tail of i: 18.0           gama_i0: 0.0           gama_i1: 0
    .0             gama_i1 + 1: 1.0       gama_i1 - gama_i0: 0.0           duration_time_i: 1.0           demand_i: 60.0           work
    load_i: 60.0           work load gap_i: 0
706
    V_id: 6           li: 4.0            xi: 18.0           bow of i: 16.0           tail of i: 20.0           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: 160.0           work
    load_i: 160.0           work load gap_i: 0
707
    V_id: 7           li: 7.0            xi: 23.5           bow of i: 20.0           tail of i: 27.0           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: 100.0           work
    load_i: 100.0           work load gap_i: 0
708
709 Algorithm finished and the total CPU time: 222 s
710 End
711

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