

unknown

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80 cord_individual_obj[indivial_i,:] = [16. 5. 70. 75.]
81 cord_individual_obj[indivial_i,:] = [17. 5. 23. 28.]
82 cord_individual_obj[indivial_i,:] = [18. 5. 30. 35.]
83 cord_individual_obj[indivial_i,:] = [19. 5. 25. 30.]
84 cord_individual_obj[indivial_i,:] = [20. 4. 71. 75.]
85 cord_individual_obj[indivial_i,:] = [21. 4. 48. 52.]
86 cord_individual_obj[indivial_i,:] = [22. 4. 39. 43.]
87 cord_individual_obj[indivial_i,:] = [23. 7. 52. 59.]
88 cord_individual_obj[indivial_i,:] = [24. 6. 20. 26.]
89
90 min(cord_individual_obj[:,3]) = 13.0
91 historl_G_best_iter[iter,3] = 13.0
92 Begin iteration:
93
94 iter = 2
95 cord_individual_obj[indivial_i,:] = [ 0. 4. 9. 13.]
96 cord_individual_obj[indivial_i,:] = [ 1. 4. 69. 73.]
97 cord_individual_obj[indivial_i,:] = [ 2. 6. 31. 37.]
98 cord_individual_obj[indivial_i,:] = [ 3. 4. 56. 60.]
99 cord_individual_obj[indivial_i,:] = [ 4. 4. 40. 44.]
100 cord_individual_obj[indivial_i,:] = [ 5. 5. 38. 43.]
101 cord_individual_obj[indivial_i,:] = [ 6. 4. 51. 55.]
102 cord_individual_obj[indivial_i,:] = [ 7. 5. 79. 84.]
103 cord_individual_obj[indivial_i,:] = [ 8. 4. 67. 71.]
104 cord_individual_obj[indivial_i,:] = [ 9. 4. 63. 67.]
105 cord_individual_obj[indivial_i,:] = [10. 6. 33. 39.]
106 cord_individual_obj[indivial_i,:] = [11. 4. 7. 11.]
107 cord_individual_obj[indivial_i,:] = [12. 7. 53. 60.]
108 cord_individual_obj[indivial_i,:] = [13. 5. 10. 15.]
109 cord_individual_obj[indivial_i,:] = [14. 4. 10. 14.]
110 cord_individual_obj[indivial_i,:] = [15. 4. 87. 91.]
111 cord_individual_obj[indivial_i,:] = [16. 5. 28. 33.]
112 cord_individual_obj[indivial_i,:] = [17. 5. 16. 21.]
113 cord_individual_obj[indivial_i,:] = [18. 5. 61. 66.]
114 cord_individual_obj[indivial_i,:] = [19. 4. 20. 24.]
115 cord_individual_obj[indivial_i,:] = [20. 4. 73. 77.]
116 cord_individual_obj[indivial_i,:] = [21. 4. 57. 61.]
117 cord_individual_obj[indivial_i,:] = [22. 5. 58. 63.]
118 cord_individual_obj[indivial_i,:] = [23. 6. 34. 40.]
119 cord_individual_obj[indivial_i,:] = [24. 3. 7. 10.]
120
121 min(cord_individual_obj[:,3]) = 10.0
122 historl_G_best_iter[iter,3] = 10.0
123 Begin iteration:
124
125 iter = 3
126 cord_individual_obj[indivial_i,:] = [ 0. 5. 123. 128.]
127 cord_individual_obj[indivial_i,:] = [ 1. 4. 40. 44.]
128 cord_individual_obj[indivial_i,:] = [ 2. 4. 26. 30.]
129 cord_individual_obj[indivial_i,:] = [ 3. 3. 104. 107.]
130 cord_individual_obj[indivial_i,:] = [ 4. 5. 23. 28.]
131 cord_individual_obj[indivial_i,:] = [ 5. 4. 47. 51.]
132 cord_individual_obj[indivial_i,:] = [ 6. 5. 18. 23.]
133 cord_individual_obj[indivial_i,:] = [ 7. 5. 59. 64.]
134 cord_individual_obj[indivial_i,:] = [ 8. 4. 33. 37.]
135 cord_individual_obj[indivial_i,:] = [ 9. 3. 18. 21.]
136 cord_individual_obj[indivial_i,:] = [10. 5. 20. 25.]
137 cord_individual_obj[indivial_i,:] = [11. 5. 72. 77.]
138 cord_individual_obj[indivial_i,:] = [12. 5. 54. 59.]
139 cord_individual_obj[indivial_i,:] = [13. 4. 134. 138.]
140 cord_individual_obj[indivial_i,:] = [14. 5. 20. 25.]
141 cord_individual_obj[indivial_i,:] = [15. 3. 7. 10.]
142 cord_individual_obj[indivial_i,:] = [16. 5. 34. 39.]
143 cord_individual_obj[indivial_i,:] = [17. 5. 100. 105.]
144 cord_individual_obj[indivial_i,:] = [18. 4. 33. 37.]
145 cord_individual_obj[indivial_i,:] = [19. 5. 36. 41.]
146 cord_individual_obj[indivial_i,:] = [20. 5. 35. 40.]
147 cord_individual_obj[indivial_i,:] = [21. 5. 53. 58.]
148 cord_individual_obj[indivial_i,:] = [22. 4. 58. 62.]
149 cord_individual_obj[indivial_i,:] = [23. 4. 126. 130.]
150 cord_individual_obj[indivial_i,:] = [24. 4. 18. 22.]
151
152 min(cord_individual_obj[:,3]) = 10.0
153 historl_G_best_iter[iter,3] = 10.0
154 Begin iteration:
155
156 iter = 4
157 cord_individual_obj[indivial_i,:] = [ 0. 4. 47. 51.]
158 cord_individual_obj[indivial_i,:] = [ 1. 4. 48. 52.]
159 cord_individual_obj[indivial_i,:] = [ 2. 4. 35. 39.]
160 cord_individual_obj[indivial_i,:] = [ 3. 4. 43. 47.]
161 cord_individual_obj[indivial_i,:] = [ 4. 3. 53. 56.]
162 cord_individual_obj[indivial_i,:] = [ 5. 5. 59. 64.]
163 cord_individual_obj[indivial_i,:] = [ 6. 6. 82. 88.]

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164 cord_individual_obj[indivial_i,:] = [ 7. 4. 88. 92.]
165 cord_individual_obj[indivial_i,:] = [ 8. 4. 65. 69.]
166 cord_individual_obj[indivial_i,:] = [ 9. 5. 104. 109.]
167 cord_individual_obj[indivial_i,:] = [10. 5. 68. 73.]
168 cord_individual_obj[indivial_i,:] = [11. 6. 54. 60.]
169 cord_individual_obj[indivial_i,:] = [12. 3. 38. 41.]
170 cord_individual_obj[indivial_i,:] = [13. 3. 7. 10.]
171 cord_individual_obj[indivial_i,:] = [14. 5. 62. 67.]
172 cord_individual_obj[indivial_i,:] = [15. 4. 30. 34.]
173 cord_individual_obj[indivial_i,:] = [16. 5. 150. 155.]
174 cord_individual_obj[indivial_i,:] = [17. 4. 45. 49.]
175 cord_individual_obj[indivial_i,:] = [18. 4. 50. 54.]
176 cord_individual_obj[indivial_i,:] = [19. 5. 81. 86.]
177 cord_individual_obj[indivial_i,:] = [20. 5. 109. 114.]
178 cord_individual_obj[indivial_i,:] = [21. 7. 42. 49.]
179 cord_individual_obj[indivial_i,:] = [22. 4. 7. 11.]
180 cord_individual_obj[indivial_i,:] = [23. 5. 20. 25.]
181 cord_individual_obj[indivial_i,:] = [24. 6. 70. 76.]
182
183 min(cord_individual_obj[:,3]) = 10.0
184 historl_G_best_iter[iter,3] = 10.0
185 Begin iteration:
186
187 iter = 5
188 cord_individual_obj[indivial_i,:] = [ 0. 4. 58. 62.]
189 cord_individual_obj[indivial_i,:] = [ 1. 5. 65. 70.]
190 cord_individual_obj[indivial_i,:] = [ 2. 4. 53. 57.]
191 cord_individual_obj[indivial_i,:] = [ 3. 4. 49. 53.]
192 cord_individual_obj[indivial_i,:] = [ 4. 5. 65. 70.]
193 cord_individual_obj[indivial_i,:] = [ 5. 3. 91. 94.]
194 cord_individual_obj[indivial_i,:] = [ 6. 5. 29. 34.]
195 cord_individual_obj[indivial_i,:] = [ 7. 5. 53. 58.]
196 cord_individual_obj[indivial_i,:] = [ 8. 5. 52. 57.]
197 cord_individual_obj[indivial_i,:] = [ 9. 4. 91. 95.]
198 cord_individual_obj[indivial_i,:] = [10. 5. 40. 45.]
199 cord_individual_obj[indivial_i,:] = [11. 5. 110. 115.]
200 cord_individual_obj[indivial_i,:] = [12. 5. 26. 31.]
201 cord_individual_obj[indivial_i,:] = [13. 5. 46. 51.]
202 cord_individual_obj[indivial_i,:] = [14. 4. 29. 33.]
203 cord_individual_obj[indivial_i,:] = [15. 5. 59. 64.]
204 cord_individual_obj[indivial_i,:] = [16. 3. 7. 10.]
205 cord_individual_obj[indivial_i,:] = [17. 5. 72. 77.]
206 cord_individual_obj[indivial_i,:] = [18. 4. 39. 43.]
207 cord_individual_obj[indivial_i,:] = [19. 4. 33. 37.]
208 cord_individual_obj[indivial_i,:] = [20. 5. 27. 32.]
209 cord_individual_obj[indivial_i,:] = [21. 5. 27. 32.]
210 cord_individual_obj[indivial_i,:] = [22. 4. 50. 54.]
211 cord_individual_obj[indivial_i,:] = [23. 3. 104. 107.]
212 cord_individual_obj[indivial_i,:] = [24. 4. 45. 49.]
213
214 min(cord_individual_obj[:,3]) = 10.0
215 historl_G_best_iter[iter,3] = 10.0
216 Begin iteration:
217
218 iter = 6
219 cord_individual_obj[indivial_i,:] = [ 0. 7. 61. 68.]
220 cord_individual_obj[indivial_i,:] = [ 1. 4. 58. 62.]
221 cord_individual_obj[indivial_i,:] = [ 2. 5. 57. 62.]
222 cord_individual_obj[indivial_i,:] = [ 3. 4. 83. 87.]
223 cord_individual_obj[indivial_i,:] = [ 4. 5. 23. 28.]
224 cord_individual_obj[indivial_i,:] = [ 5. 4. 46. 50.]
225 cord_individual_obj[indivial_i,:] = [ 6. 5. 22. 27.]
226 cord_individual_obj[indivial_i,:] = [ 7. 4. 48. 52.]
227 cord_individual_obj[indivial_i,:] = [ 8. 5. 65. 70.]
228 cord_individual_obj[indivial_i,:] = [ 9. 4. 39. 43.]
229 cord_individual_obj[indivial_i,:] = [10. 3. 19. 22.]
230 cord_individual_obj[indivial_i,:] = [11. 3. 7. 10.]
231 cord_individual_obj[indivial_i,:] = [12. 5. 106. 111.]
232 cord_individual_obj[indivial_i,:] = [13. 4. 46. 50.]
233 cord_individual_obj[indivial_i,:] = [14. 4. 28. 32.]
234 cord_individual_obj[indivial_i,:] = [15. 4. 88. 92.]
235 cord_individual_obj[indivial_i,:] = [16. 3. 26. 29.]
236 cord_individual_obj[indivial_i,:] = [17. 5. 20. 25.]
237 cord_individual_obj[indivial_i,:] = [18. 4. 39. 43.]
238 cord_individual_obj[indivial_i,:] = [19. 4. 33. 37.]
239 cord_individual_obj[indivial_i,:] = [20. 4. 32. 36.]
240 cord_individual_obj[indivial_i,:] = [21. 5. 35. 40.]
241 cord_individual_obj[indivial_i,:] = [22. 5. 42. 47.]
242 cord_individual_obj[indivial_i,:] = [23. 5. 48. 53.]
243 cord_individual_obj[indivial_i,:] = [24. 5. 18. 23.]
244
245 min(cord_individual_obj[:,3]) = 10.0
246 historl_G_best_iter[iter,3] = 10.0
247 Begin iteration:

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248
249 iter = 7
250 cord_individual_obj[indivial_i, :] = [ 0.  7. 51. 58.]
251 cord_individual_obj[indivial_i, :] = [ 1.  4. 26. 30.]
252 cord_individual_obj[indivial_i, :] = [ 2.  4. 76. 80.]
253 cord_individual_obj[indivial_i, :] = [ 3.  3. 103. 106.]
254 cord_individual_obj[indivial_i, :] = [ 4.  5. 23. 28.]
255 cord_individual_obj[indivial_i, :] = [ 5.  4. 26. 30.]
256 cord_individual_obj[indivial_i, :] = [ 6.  5. 19. 24.]
257 cord_individual_obj[indivial_i, :] = [ 7.  5. 60. 65.]
258 cord_individual_obj[indivial_i, :] = [ 8.  4. 62. 66.]
259 cord_individual_obj[indivial_i, :] = [ 9.  4. 79. 83.]
260 cord_individual_obj[indivial_i, :] = [10.  5. 29. 34.]
261 cord_individual_obj[indivial_i, :] = [11.  4. 69. 73.]
262 cord_individual_obj[indivial_i, :] = [12.  3. 7. 10.]
263 cord_individual_obj[indivial_i, :] = [13.  5. 46. 51.]
264 cord_individual_obj[indivial_i, :] = [14.  4. 28. 32.]
265 cord_individual_obj[indivial_i, :] = [15.  4. 77. 81.]
266 cord_individual_obj[indivial_i, :] = [16.  4. 58. 62.]
267 cord_individual_obj[indivial_i, :] = [17.  5. 33. 38.]
268 cord_individual_obj[indivial_i, :] = [18.  4. 44. 48.]
269 cord_individual_obj[indivial_i, :] = [19.  4. 87. 91.]
270 cord_individual_obj[indivial_i, :] = [20.  5. 27. 32.]
271 cord_individual_obj[indivial_i, :] = [21.  5. 27. 32.]
272 cord_individual_obj[indivial_i, :] = [22.  5. 37. 42.]
273 cord_individual_obj[indivial_i, :] = [23.  5. 60. 65.]
274 cord_individual_obj[indivial_i, :] = [24.  4. 32. 36.]
275

276 min(cord_individual_obj[:, 3]) = 10.0
277 historl_G_best_iter[iter, 3] = 10.0
278 Begin iteration:
279
280 iter = 8
281 cord_individual_obj[indivial_i, :] = [ 0.  4. 100. 104.]
282 cord_individual_obj[indivial_i, :] = [ 1.  6. 12. 18.]
283 cord_individual_obj[indivial_i, :] = [ 2.  6. 65. 71.]
284 cord_individual_obj[indivial_i, :] = [ 3.  3. 7. 10.]
285 cord_individual_obj[indivial_i, :] = [ 4.  5. 57. 62.]
286 cord_individual_obj[indivial_i, :] = [ 5.  4. 15. 19.]
287 cord_individual_obj[indivial_i, :] = [ 6.  4. 38. 42.]
288 cord_individual_obj[indivial_i, :] = [ 7.  6. 119. 125.]
289 cord_individual_obj[indivial_i, :] = [ 8.  3. 41. 44.]
290 cord_individual_obj[indivial_i, :] = [ 9.  5. 84. 89.]
291 cord_individual_obj[indivial_i, :] = [10.  5. 61. 66.]
292 cord_individual_obj[indivial_i, :] = [11.  4. 81. 85.]
293 cord_individual_obj[indivial_i, :] = [12.  5. 45. 50.]
294 cord_individual_obj[indivial_i, :] = [13.  4. 27. 31.]
295 cord_individual_obj[indivial_i, :] = [14.  5. 63. 68.]
296 cord_individual_obj[indivial_i, :] = [15.  5. 50. 55.]
297 cord_individual_obj[indivial_i, :] = [16.  5. 40. 45.]
298 cord_individual_obj[indivial_i, :] = [17.  4. 45. 49.]
299 cord_individual_obj[indivial_i, :] = [18.  5. 66. 71.]
300 cord_individual_obj[indivial_i, :] = [19.  4. 41. 45.]
301 cord_individual_obj[indivial_i, :] = [20.  6. 101. 107.]
302 cord_individual_obj[indivial_i, :] = [21.  5. 28. 33.]
303 cord_individual_obj[indivial_i, :] = [22.  6. 30. 36.]
304 cord_individual_obj[indivial_i, :] = [23.  4. 89. 93.]
305 cord_individual_obj[indivial_i, :] = [24.  3. 70. 73.]
306

307 min(cord_individual_obj[:, 3]) = 10.0
308 historl_G_best_iter[iter, 3] = 10.0
309 Begin iteration:
310
311 iter = 9
312 cord_individual_obj[indivial_i, :] = [ 0.  4. 49. 53.]
313 cord_individual_obj[indivial_i, :] = [ 1.  4. 57. 61.]
314 cord_individual_obj[indivial_i, :] = [ 2.  4. 40. 44.]
315 cord_individual_obj[indivial_i, :] = [ 3.  3. 103. 106.]
316 cord_individual_obj[indivial_i, :] = [ 4.  5. 65. 70.]
317 cord_individual_obj[indivial_i, :] = [ 5.  3. 57. 60.]
318 cord_individual_obj[indivial_i, :] = [ 6.  5. 60. 65.]
319 cord_individual_obj[indivial_i, :] = [ 7.  3. 7. 10.]
320 cord_individual_obj[indivial_i, :] = [ 8.  4. 40. 44.]
321 cord_individual_obj[indivial_i, :] = [ 9.  4. 91. 95.]
322 cord_individual_obj[indivial_i, :] = [10.  3. 18. 21.]
323 cord_individual_obj[indivial_i, :] = [11.  4. 32. 36.]
324 cord_individual_obj[indivial_i, :] = [12.  4. 43. 47.]
325 cord_individual_obj[indivial_i, :] = [13.  5. 53. 58.]
326 cord_individual_obj[indivial_i, :] = [14.  4. 28. 32.]
327 cord_individual_obj[indivial_i, :] = [15.  4. 26. 30.]
328 cord_individual_obj[indivial_i, :] = [16.  5. 43. 48.]
329 cord_individual_obj[indivial_i, :] = [17.  4. 39. 43.]
330 cord_individual_obj[indivial_i, :] = [18.  4. 41. 45.]
331 cord_individual_obj[indivial_i, :] = [19.  4. 57. 61.]

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332 cord_individual_obj[indivial_i,:] = [20. 4. 17. 21.]
333 cord_individual_obj[indivial_i,:] = [21. 4. 27. 31.]
334 cord_individual_obj[indivial_i,:] = [22. 5. 44. 49.]
335 cord_individual_obj[indivial_i,:] = [23. 5. 62. 67.]
336 cord_individual_obj[indivial_i,:] = [24. 4. 26. 30.]
337
338 min(cord_individual_obj[:,3]) = 10.0
339 histol_G_best_iter[iter,3] = 10.0
340 Begin iteration:
341
342 iter = 10
343 cord_individual_obj[indivial_i,:] = [ 0. 7. 51. 58.]
344 cord_individual_obj[indivial_i,:] = [ 1. 4. 46. 50.]
345 cord_individual_obj[indivial_i,:] = [ 2. 5. 26. 31.]
346 cord_individual_obj[indivial_i,:] = [ 3. 3. 7. 10.]
347 cord_individual_obj[indivial_i,:] = [ 4. 4. 15. 19.]
348 cord_individual_obj[indivial_i,:] = [ 5. 5. 37. 42.]
349 cord_individual_obj[indivial_i,:] = [ 6. 5. 19. 24.]
350 cord_individual_obj[indivial_i,:] = [ 7. 5. 54. 59.]
351 cord_individual_obj[indivial_i,:] = [ 8. 4. 79. 83.]
352 cord_individual_obj[indivial_i,:] = [ 9. 4. 8. 12.]
353 cord_individual_obj[indivial_i,:] = [10. 3. 19. 22.]
354 cord_individual_obj[indivial_i,:] = [11. 5. 51. 56.]
355 cord_individual_obj[indivial_i,:] = [12. 4. 45. 49.]
356 cord_individual_obj[indivial_i,:] = [13. 4. 46. 50.]
357 cord_individual_obj[indivial_i,:] = [14. 5. 29. 34.]
358 cord_individual_obj[indivial_i,:] = [15. 4. 77. 81.]
359 cord_individual_obj[indivial_i,:] = [16. 4. 48. 52.]
360 cord_individual_obj[indivial_i,:] = [17. 6. 81. 87.]
361 cord_individual_obj[indivial_i,:] = [18. 4. 28. 32.]
362 cord_individual_obj[indivial_i,:] = [19. 4. 59. 63.]
363 cord_individual_obj[indivial_i,:] = [20. 4. 27. 31.]
364 cord_individual_obj[indivial_i,:] = [21. 5. 26. 31.]
365 cord_individual_obj[indivial_i,:] = [22. 4. 40. 44.]
366 cord_individual_obj[indivial_i,:] = [23. 5. 64. 69.]
367 cord_individual_obj[indivial_i,:] = [24. 6. 21. 27.]
368
369 min(cord_individual_obj[:,3]) = 10.0
370 histol_G_best_iter[iter,3] = 10.0
371 Begin iteration:
372
373 iter = 11
374 cord_individual_obj[indivial_i,:] = [ 0. 6. 126. 132.]
375 cord_individual_obj[indivial_i,:] = [ 1. 5. 26. 31.]
376 cord_individual_obj[indivial_i,:] = [ 2. 5. 27. 32.]
377 cord_individual_obj[indivial_i,:] = [ 3. 3. 103. 106.]
378 cord_individual_obj[indivial_i,:] = [ 4. 4. 65. 69.]
379 cord_individual_obj[indivial_i,:] = [ 5. 5. 46. 51.]
380 cord_individual_obj[indivial_i,:] = [ 6. 5. 13. 18.]
381 cord_individual_obj[indivial_i,:] = [ 7. 5. 59. 64.]
382 cord_individual_obj[indivial_i,:] = [ 8. 5. 26. 31.]
383 cord_individual_obj[indivial_i,:] = [ 9. 4. 56. 60.]
384 cord_individual_obj[indivial_i,:] = [10. 3. 19. 22.]
385 cord_individual_obj[indivial_i,:] = [11. 6. 45. 51.]
386 cord_individual_obj[indivial_i,:] = [12. 6. 44. 50.]
387 cord_individual_obj[indivial_i,:] = [13. 5. 46. 51.]
388 cord_individual_obj[indivial_i,:] = [14. 5. 28. 33.]
389 cord_individual_obj[indivial_i,:] = [15. 4. 86. 90.]
390 cord_individual_obj[indivial_i,:] = [16. 5. 50. 55.]
391 cord_individual_obj[indivial_i,:] = [17. 3. 7. 10.]
392 cord_individual_obj[indivial_i,:] = [18. 4. 25. 29.]
393 cord_individual_obj[indivial_i,:] = [19. 4. 39. 43.]
394 cord_individual_obj[indivial_i,:] = [20. 4. 48. 52.]
395 cord_individual_obj[indivial_i,:] = [21. 5. 66. 71.]
396 cord_individual_obj[indivial_i,:] = [22. 5. 45. 50.]
397 cord_individual_obj[indivial_i,:] = [23. 5. 65. 70.]
398 cord_individual_obj[indivial_i,:] = [24. 5. 18. 23.]
399
400 min(cord_individual_obj[:,3]) = 10.0
401 histol_G_best_iter[iter,3] = 10.0
402 Begin iteration:
403
404 iter = 12
405 cord_individual_obj[indivial_i,:] = [ 0. 3. 7. 10.]
406 cord_individual_obj[indivial_i,:] = [ 1. 3. 96. 99.]
407 cord_individual_obj[indivial_i,:] = [ 2. 5. 27. 32.]
408 cord_individual_obj[indivial_i,:] = [ 3. 3. 16. 19.]
409 cord_individual_obj[indivial_i,:] = [ 4. 4. 26. 30.]
410 cord_individual_obj[indivial_i,:] = [ 5. 4. 57. 61.]
411 cord_individual_obj[indivial_i,:] = [ 6. 4. 92. 96.]
412 cord_individual_obj[indivial_i,:] = [ 7. 5. 69. 74.]
413 cord_individual_obj[indivial_i,:] = [ 8. 4. 55. 59.]
414 cord_individual_obj[indivial_i,:] = [ 9. 5. 71. 76.]
415 cord_individual_obj[indivial_i,:] = [10. 5. 60. 65.]

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416 cord_individual_obj[indivial_i,:] = [11. 5. 54. 59.]
417 cord_individual_obj[indivial_i,:] = [12. 3. 20. 23.]
418 cord_individual_obj[indivial_i,:] = [13. 5. 46. 51.]
419 cord_individual_obj[indivial_i,:] = [14. 4. 55. 59.]
420 cord_individual_obj[indivial_i,:] = [15. 5. 122. 127.]
421 cord_individual_obj[indivial_i,:] = [16. 4. 56. 60.]
422 cord_individual_obj[indivial_i,:] = [17. 5. 41. 46.]
423 cord_individual_obj[indivial_i,:] = [18. 3. 32. 35.]
424 cord_individual_obj[indivial_i,:] = [19. 4. 58. 62.]
425 cord_individual_obj[indivial_i,:] = [20. 3. 43. 46.]
426 cord_individual_obj[indivial_i,:] = [21. 5. 71. 76.]
427 cord_individual_obj[indivial_i,:] = [22. 5. 53. 58.]
428 cord_individual_obj[indivial_i,:] = [23. 4. 94. 98.]
429 cord_individual_obj[indivial_i,:] = [24. 5. 60. 65.]
430
431 min(cord_individual_obj[:,3]) = 10.0
432 histol_G_best_iter[iter,3] = 10.0
433 Begin iteration:
434
435 iter = 13
436 cord_individual_obj[indivial_i,:] = [ 0. 7. 51. 58.]
437 cord_individual_obj[indivial_i,:] = [ 1. 5. 58. 63.]
438 cord_individual_obj[indivial_i,:] = [ 2. 5. 57. 62.]
439 cord_individual_obj[indivial_i,:] = [ 3. 4. 83. 87.]
440 cord_individual_obj[indivial_i,:] = [ 4. 4. 65. 69.]
441 cord_individual_obj[indivial_i,:] = [ 5. 5. 33. 38.]
442 cord_individual_obj[indivial_i,:] = [ 6. 6. 22. 28.]
443 cord_individual_obj[indivial_i,:] = [ 7. 4. 19. 23.]
444 cord_individual_obj[indivial_i,:] = [ 8. 4. 97. 101.]
445 cord_individual_obj[indivial_i,:] = [ 9. 6. 80. 86.]
446 cord_individual_obj[indivial_i,:] = [10. 4. 19. 23.]
447 cord_individual_obj[indivial_i,:] = [11. 5. 81. 86.]
448 cord_individual_obj[indivial_i,:] = [12. 6. 44. 50.]
449 cord_individual_obj[indivial_i,:] = [13. 4. 46. 50.]
450 cord_individual_obj[indivial_i,:] = [14. 5. 29. 34.]
451 cord_individual_obj[indivial_i,:] = [15. 3. 7. 10.]
452 cord_individual_obj[indivial_i,:] = [16. 5. 37. 42.]
453 cord_individual_obj[indivial_i,:] = [17. 5. 41. 46.]
454 cord_individual_obj[indivial_i,:] = [18. 5. 60. 65.]
455 cord_individual_obj[indivial_i,:] = [19. 3. 63. 66.]
456 cord_individual_obj[indivial_i,:] = [20. 3. 25. 28.]
457 cord_individual_obj[indivial_i,:] = [21. 4. 40. 44.]
458 cord_individual_obj[indivial_i,:] = [22. 5. 55. 60.]
459 cord_individual_obj[indivial_i,:] = [23. 5. 64. 69.]
460 cord_individual_obj[indivial_i,:] = [24. 5. 18. 23.]
461
462 min(cord_individual_obj[:,3]) = 10.0
463 histol_G_best_iter[iter,3] = 10.0
464 Begin iteration:
465
466 iter = 14
467 cord_individual_obj[indivial_i,:] = [ 0. 4. 58. 62.]
468 cord_individual_obj[indivial_i,:] = [ 1. 4. 67. 71.]
469 cord_individual_obj[indivial_i,:] = [ 2. 4. 91. 95.]
470 cord_individual_obj[indivial_i,:] = [ 3. 4. 34. 38.]
471 cord_individual_obj[indivial_i,:] = [ 4. 4. 19. 23.]
472 cord_individual_obj[indivial_i,:] = [ 5. 6. 51. 57.]
473 cord_individual_obj[indivial_i,:] = [ 6. 6. 19. 25.]
474 cord_individual_obj[indivial_i,:] = [ 7. 5. 60. 65.]
475 cord_individual_obj[indivial_i,:] = [ 8. 3. 7. 10.]
476 cord_individual_obj[indivial_i,:] = [ 9. 4. 17. 21.]
477 cord_individual_obj[indivial_i,:] = [10. 4. 20. 24.]
478 cord_individual_obj[indivial_i,:] = [11. 4. 82. 86.]
479 cord_individual_obj[indivial_i,:] = [12. 5. 48. 53.]
480 cord_individual_obj[indivial_i,:] = [13. 4. 53. 57.]
481 cord_individual_obj[indivial_i,:] = [14. 5. 20. 25.]
482 cord_individual_obj[indivial_i,:] = [15. 5. 22. 27.]
483 cord_individual_obj[indivial_i,:] = [16. 4. 21. 25.]
484 cord_individual_obj[indivial_i,:] = [17. 5. 49. 54.]
485 cord_individual_obj[indivial_i,:] = [18. 4. 22. 26.]
486 cord_individual_obj[indivial_i,:] = [19. 4. 33. 37.]
487 cord_individual_obj[indivial_i,:] = [20. 4. 33. 37.]
488 cord_individual_obj[indivial_i,:] = [21. 5. 85. 90.]
489 cord_individual_obj[indivial_i,:] = [22. 5. 42. 47.]
490 cord_individual_obj[indivial_i,:] = [23. 4. 47. 51.]
491 cord_individual_obj[indivial_i,:] = [24. 4. 41. 45.]
492
493 min(cord_individual_obj[:,3]) = 10.0
494 histol_G_best_iter[iter,3] = 10.0
495 Begin iteration:
496
497 iter = 15
498 cord_individual_obj[indivial_i,:] = [ 0. 5. 22. 27.]
499 cord_individual_obj[indivial_i,:] = [ 1. 4. 83. 87.]

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500 cord_individual_obj[indivial_i, :] = [ 2. 3. 7. 10.]
501 cord_individual_obj[indivial_i, :] = [ 3. 5. 50. 55.]
502 cord_individual_obj[indivial_i, :] = [ 4. 4. 34. 38.]
503 cord_individual_obj[indivial_i, :] = [ 5. 3. 77. 80.]
504 cord_individual_obj[indivial_i, :] = [ 6. 6. 18. 24.]
505 cord_individual_obj[indivial_i, :] = [ 7. 5. 60. 65.]
506 cord_individual_obj[indivial_i, :] = [ 8. 4. 62. 66.]
507 cord_individual_obj[indivial_i, :] = [ 9. 5. 54. 59.]
508 cord_individual_obj[indivial_i, :] = [ 10. 5. 112. 117.]
509 cord_individual_obj[indivial_i, :] = [ 11. 4. 27. 31.]
510 cord_individual_obj[indivial_i, :] = [ 12. 5. 39. 44.]
511 cord_individual_obj[indivial_i, :] = [ 13. 5. 95. 100.]
512 cord_individual_obj[indivial_i, :] = [ 14. 5. 18. 23.]
513 cord_individual_obj[indivial_i, :] = [ 15. 6. 59. 65.]
514 cord_individual_obj[indivial_i, :] = [ 16. 4. 56. 60.]
515 cord_individual_obj[indivial_i, :] = [ 17. 4. 54. 58.]
516 cord_individual_obj[indivial_i, :] = [ 18. 4. 28. 32.]
517 cord_individual_obj[indivial_i, :] = [ 19. 4. 33. 37.]
518 cord_individual_obj[indivial_i, :] = [ 20. 3. 26. 29.]
519 cord_individual_obj[indivial_i, :] = [ 21. 4. 21. 25.]
520 cord_individual_obj[indivial_i, :] = [ 22. 4. 27. 31.]
521 cord_individual_obj[indivial_i, :] = [ 23. 4. 100. 104.]
522 cord_individual_obj[indivial_i, :] = [ 24. 4. 17. 21.]
523
524 min(cord_individual_obj[:, 3]) = 10.0
525 histol_G_best_iter[iter, 3] = 10.0
526 Begin iteration:
527
528 iter = 16
529 cord_individual_obj[indivial_i, :] = [ 0. 5. 129. 134.]
530 cord_individual_obj[indivial_i, :] = [ 1. 5. 41. 46.]
531 cord_individual_obj[indivial_i, :] = [ 2. 4. 76. 80.]
532 cord_individual_obj[indivial_i, :] = [ 3. 3. 39. 42.]
533 cord_individual_obj[indivial_i, :] = [ 4. 4. 15. 19.]
534 cord_individual_obj[indivial_i, :] = [ 5. 3. 57. 60.]
535 cord_individual_obj[indivial_i, :] = [ 6. 5. 33. 38.]
536 cord_individual_obj[indivial_i, :] = [ 7. 5. 161. 166.]
537 cord_individual_obj[indivial_i, :] = [ 8. 4. 28. 32.]
538 cord_individual_obj[indivial_i, :] = [ 9. 5. 66. 71.]
539 cord_individual_obj[indivial_i, :] = [ 10. 3. 7. 10.]
540 cord_individual_obj[indivial_i, :] = [ 11. 5. 81. 86.]
541 cord_individual_obj[indivial_i, :] = [ 12. 4. 73. 77.]
542 cord_individual_obj[indivial_i, :] = [ 13. 5. 76. 81.]
543 cord_individual_obj[indivial_i, :] = [ 14. 5. 31. 36.]
544 cord_individual_obj[indivial_i, :] = [ 15. 4. 107. 111.]
545 cord_individual_obj[indivial_i, :] = [ 16. 3. 61. 64.]
546 cord_individual_obj[indivial_i, :] = [ 17. 6. 23. 29.]
547 cord_individual_obj[indivial_i, :] = [ 18. 5. 42. 47.]
548 cord_individual_obj[indivial_i, :] = [ 19. 4. 47. 51.]
549 cord_individual_obj[indivial_i, :] = [ 20. 4. 23. 27.]
550 cord_individual_obj[indivial_i, :] = [ 21. 4. 34. 38.]
551 cord_individual_obj[indivial_i, :] = [ 22. 5. 102. 107.]
552 cord_individual_obj[indivial_i, :] = [ 23. 5. 64. 69.]
553 cord_individual_obj[indivial_i, :] = [ 24. 5. 17. 22.]
554
555 min(cord_individual_obj[:, 3]) = 10.0
556 histol_G_best_iter[iter, 3] = 10.0
557 Begin iteration:
558
559 iter = 17
560 cord_individual_obj[indivial_i, :] = [ 0. 4. 58. 62.]
561 cord_individual_obj[indivial_i, :] = [ 1. 5. 59. 64.]
562 cord_individual_obj[indivial_i, :] = [ 2. 4. 52. 56.]
563 cord_individual_obj[indivial_i, :] = [ 3. 5. 59. 64.]
564 cord_individual_obj[indivial_i, :] = [ 4. 5. 23. 28.]
565 cord_individual_obj[indivial_i, :] = [ 5. 4. 60. 64.]
566 cord_individual_obj[indivial_i, :] = [ 6. 6. 21. 27.]
567 cord_individual_obj[indivial_i, :] = [ 7. 3. 7. 10.]
568 cord_individual_obj[indivial_i, :] = [ 8. 5. 53. 58.]
569 cord_individual_obj[indivial_i, :] = [ 9. 5. 59. 64.]
570 cord_individual_obj[indivial_i, :] = [ 10. 4. 19. 23.]
571 cord_individual_obj[indivial_i, :] = [ 11. 4. 70. 74.]
572 cord_individual_obj[indivial_i, :] = [ 12. 4. 43. 47.]
573 cord_individual_obj[indivial_i, :] = [ 13. 4. 49. 53.]
574 cord_individual_obj[indivial_i, :] = [ 14. 3. 28. 31.]
575 cord_individual_obj[indivial_i, :] = [ 15. 5. 50. 55.]
576 cord_individual_obj[indivial_i, :] = [ 16. 4. 20. 24.]
577 cord_individual_obj[indivial_i, :] = [ 17. 6. 23. 29.]
578 cord_individual_obj[indivial_i, :] = [ 18. 4. 40. 44.]
579 cord_individual_obj[indivial_i, :] = [ 19. 5. 60. 65.]
580 cord_individual_obj[indivial_i, :] = [ 20. 4. 49. 53.]
581 cord_individual_obj[indivial_i, :] = [ 21. 4. 27. 31.]
582 cord_individual_obj[indivial_i, :] = [ 22. 4. 33. 37.]
583 cord_individual_obj[indivial_i, :] = [ 23. 3. 46. 49.]

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unknown

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584     cord_individual_obj[indivial_i, :] = [24. 4. 40. 44.]  
585  
586     min(cord_individual_obj[:, 3]) = 10.0  
587     historl_G_best_iter[iter, 3] = 10.0  
588 Begin iteration:  
589  
590 iter = 18  
591     cord_individual_obj[indivial_i, :] = [ 0. 7. 61. 68.]  
592     cord_individual_obj[indivial_i, :] = [ 1. 4. 62. 66.]  
593     cord_individual_obj[indivial_i, :] = [ 2. 5. 57. 62.]  
594     cord_individual_obj[indivial_i, :] = [ 3. 4. 83. 87.]  
595     cord_individual_obj[indivial_i, :] = [ 4. 3. 15. 18.]  
596     cord_individual_obj[indivial_i, :] = [ 5. 5. 37. 42.]  
597     cord_individual_obj[indivial_i, :] = [ 6. 6. 22. 28.]  
598     cord_individual_obj[indivial_i, :] = [ 7. 5. 49. 54.]  
599     cord_individual_obj[indivial_i, :] = [ 8. 4. 24. 28.]  
600     cord_individual_obj[indivial_i, :] = [ 9. 3. 69. 72.]  
601     cord_individual_obj[indivial_i, :] = [10. 4. 19. 23.]  
602     cord_individual_obj[indivial_i, :] = [11. 3. 7. 10.]  
603     cord_individual_obj[indivial_i, :] = [12. 4. 57. 61.]  
604     cord_individual_obj[indivial_i, :] = [13. 4. 46. 50.]  
605     cord_individual_obj[indivial_i, :] = [14. 4. 28. 32.]  
606     cord_individual_obj[indivial_i, :] = [15. 5. 19. 24.]  
607     cord_individual_obj[indivial_i, :] = [16. 4. 29. 33.]  
608     cord_individual_obj[indivial_i, :] = [17. 4. 26. 30.]  
609     cord_individual_obj[indivial_i, :] = [18. 4. 25. 29.]  
610     cord_individual_obj[indivial_i, :] = [19. 4. 34. 38.]  
611     cord_individual_obj[indivial_i, :] = [20. 3. 25. 28.]  
612     cord_individual_obj[indivial_i, :] = [21. 5. 26. 31.]  
613     cord_individual_obj[indivial_i, :] = [22. 4. 40. 44.]  
614     cord_individual_obj[indivial_i, :] = [23. 4. 46. 50.]  
615     cord_individual_obj[indivial_i, :] = [24. 5. 18. 23.]  
616  
617     min(cord_individual_obj[:, 3]) = 10.0  
618     historl_G_best_iter[iter, 3] = 10.0  
619 Begin iteration:  
620  
621 iter = 19  
622     cord_individual_obj[indivial_i, :] = [ 0. 7. 51. 58.]  
623     cord_individual_obj[indivial_i, :] = [ 1. 5. 36. 41.]  
624     cord_individual_obj[indivial_i, :] = [ 2. 4. 76. 80.]  
625     cord_individual_obj[indivial_i, :] = [ 3. 3. 7. 10.]  
626     cord_individual_obj[indivial_i, :] = [ 4. 5. 23. 28.]  
627     cord_individual_obj[indivial_i, :] = [ 5. 3. 57. 60.]  
628     cord_individual_obj[indivial_i, :] = [ 6. 5. 21. 26.]  
629     cord_individual_obj[indivial_i, :] = [ 7. 5. 60. 65.]  
630     cord_individual_obj[indivial_i, :] = [ 8. 4. 76. 80.]  
631     cord_individual_obj[indivial_i, :] = [ 9. 4. 41. 45.]  
632     cord_individual_obj[indivial_i, :] = [10. 4. 19. 23.]  
633     cord_individual_obj[indivial_i, :] = [11. 5. 70. 75.]  
634     cord_individual_obj[indivial_i, :] = [12. 6. 44. 50.]  
635     cord_individual_obj[indivial_i, :] = [13. 4. 45. 49.]  
636     cord_individual_obj[indivial_i, :] = [14. 6. 31. 37.]  
637     cord_individual_obj[indivial_i, :] = [15. 4. 39. 43.]  
638     cord_individual_obj[indivial_i, :] = [16. 4. 27. 31.]  
639     cord_individual_obj[indivial_i, :] = [17. 7. 51. 58.]  
640     cord_individual_obj[indivial_i, :] = [18. 4. 49. 53.]  
641     cord_individual_obj[indivial_i, :] = [19. 4. 33. 37.]  
642     cord_individual_obj[indivial_i, :] = [20. 4. 33. 37.]  
643     cord_individual_obj[indivial_i, :] = [21. 4. 25. 29.]  
644     cord_individual_obj[indivial_i, :] = [22. 5. 42. 47.]  
645     cord_individual_obj[indivial_i, :] = [23. 5. 48. 53.]  
646     cord_individual_obj[indivial_i, :] = [24. 4. 33. 37.]  
647  
648     min(cord_individual_obj[:, 3]) = 10.0  
649     historl_G_best_iter[iter, 3] = 10.0  
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. 59. 64.]  
655     cord_individual_obj[indivial_i, :] = [ 2. 3. 7. 10.]  
656     cord_individual_obj[indivial_i, :] = [ 3. 3. 103. 106.]  
657     cord_individual_obj[indivial_i, :] = [ 4. 4. 82. 86.]  
658     cord_individual_obj[indivial_i, :] = [ 5. 4. 53. 57.]  
659     cord_individual_obj[indivial_i, :] = [ 6. 5. 19. 24.]  
660     cord_individual_obj[indivial_i, :] = [ 7. 5. 60. 65.]  
661     cord_individual_obj[indivial_i, :] = [ 8. 4. 57. 61.]  
662     cord_individual_obj[indivial_i, :] = [ 9. 5. 59. 64.]  
663     cord_individual_obj[indivial_i, :] = [10. 4. 123. 127.]  
664     cord_individual_obj[indivial_i, :] = [11. 4. 44. 48.]  
665     cord_individual_obj[indivial_i, :] = [12. 6. 96. 102.]  
666     cord_individual_obj[indivial_i, :] = [13. 4. 50. 54.]  
667     cord_individual_obj[indivial_i, :] = [14. 5. 30. 35.]
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668 cord_individual_obj[indivial_i,:] = [15. 4. 86. 90.]
669 cord_individual_obj[indivial_i,:] = [16. 5. 60. 65.]
670 cord_individual_obj[indivial_i,:] = [17. 5. 48. 53.]
671 cord_individual_obj[indivial_i,:] = [18. 4. 40. 44.]
672 cord_individual_obj[indivial_i,:] = [19. 3. 63. 66.]
673 cord_individual_obj[indivial_i,:] = [20. 4. 17. 21.]
674 cord_individual_obj[indivial_i,:] = [21. 6. 31. 37.]
675 cord_individual_obj[indivial_i,:] = [22. 5. 37. 42.]
676 cord_individual_obj[indivial_i,:] = [23. 4. 62. 66.]
677 cord_individual_obj[indivial_i,:] = [24. 4. 18. 22.]
678
679 min(cord_individual_obj[:, 3]) = 10.0
680 historl_G_best_iter[iter, 3] = 10.0
681 Iteration calculate over
682
683
684
685
686 All item are in Bin and:
687 Bin area = 1080
688 Real_area = 101.0
689 Proportion_of_area = 0.09351851851851851
690 BEST_CHROM =
691     berth: [23. 9. 12. 1.5 4.5 4.5 24. 14.5 17.5]
692     time: [0. 2. 0. 1. 1. 0. 1. 2. 0.]
693     num_QC: [3. 2. 4. 2. 3. 7. 3. 3. 5.]
694 Objective function values and some other indicators:
695 Obj0 = 3.00          Obj1 = 7.00          Obj0 + Obj1 = 10.00
696 Total movement of crane: 0.00
697 Total waiting time in berth position: 7.00
698 Total index of q during berthing: 470.00
699 Specific arrangement for each vessel:
700
    V_id: 0           li: 6.0           xi: 23.0           bow of i: 20.0           tail of i: 26.0           gama_i0: 0.0           gama_i1: 0
    .0                 gama_i1 + 1: 1.0      gama_i1 - gama_i0: 0.0       duration_time_i: 1.0      demand_i: 60.0       work
    load_i: 60.0       work load gap_i: 0
701
    V_id: 1           li: 6.0           xi: 9.0            bow of i: 6.0           tail of i: 12.0           gama_i0: 2.0           gama_i1: 3.0
    .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
702
    V_id: 2           li: 6.0           xi: 12.0           bow of i: 9.0           tail of i: 15.0           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: 3.0           xi: 1.5            bow of i: 0.0           tail of i: 3.0           gama_i0: 1.0           gama_i1: 3.0
    .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
704
    V_id: 4           li: 3.0           xi: 4.5            bow of i: 3.0           tail of i: 6.0           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: 120.0      work load_i:
    120.0              work load gap_i: 0
705
    V_id: 5           li: 9.0           xi: 4.5            bow of i: 0.0           tail of i: 9.0           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: 140.0      work load_i:
    140.0              work load gap_i: 0
706
    V_id: 6           li: 8.0           xi: 24.0           bow of i: 20.0           tail of i: 28.0           gama_i0: 1.0           gama_i1: 2
    .0                 gama_i1 + 1: 3.0      gama_i1 - gama_i0: 1.0       duration_time_i: 2.0      demand_i: 100.0      work
    load_i: 100.0      work load gap_i: 0
707
    V_id: 7           li: 5.0           xi: 14.5           bow of i: 12.0           tail of i: 17.0           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: 120.0      work
    load_i: 120.0      work load gap_i: 0
708
    V_id: 8           li: 5.0           xi: 17.5           bow of i: 15.0           tail of i: 20.0           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
709
710 Algorithm finished and the total CPU time: 265 s
711 End
712

```