

unknown

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80 cord_individual_obj[indivial_i,:] = [16. 4. 5. 9.]
81 cord_individual_obj[indivial_i,:] = [17. 4. 21. 25.]
82 cord_individual_obj[indivial_i,:] = [18. 4. 9. 13.]
83 cord_individual_obj[indivial_i,:] = [19. 6. 14. 20.]
84 cord_individual_obj[indivial_i,:] = [20. 3. 10. 13.]
85 cord_individual_obj[indivial_i,:] = [21. 3. 5. 8.]
86 cord_individual_obj[indivial_i,:] = [22. 5. 15. 20.]
87 cord_individual_obj[indivial_i,:] = [23. 4. 14. 18.]
88 cord_individual_obj[indivial_i,:] = [24. 3. 19. 22.]
89
90 min(cord_individual_obj[:,3]) = 8.0
91 historl_G_best_iter[iter,3] = 8.0
92 Begin iteration:
93
94 iter = 2
95 cord_individual_obj[indivial_i,:] = [ 0. 3. 28. 31.]
96 cord_individual_obj[indivial_i,:] = [1. 4. 5. 9.]
97 cord_individual_obj[indivial_i,:] = [2. 4. 5. 9.]
98 cord_individual_obj[indivial_i,:] = [ 3. 3. 110. 113.]
99 cord_individual_obj[indivial_i,:] = [ 4. 5. 25. 30.]
100 cord_individual_obj[indivial_i,:] = [ 5. 5. 12. 17.]
101 cord_individual_obj[indivial_i,:] = [ 6. 4. 9. 13.]
102 cord_individual_obj[indivial_i,:] = [ 7. 4. 5. 9.]
103 cord_individual_obj[indivial_i,:] = [ 8. 4. 5. 9.]
104 cord_individual_obj[indivial_i,:] = [ 9. 2. 78. 80.]
105 cord_individual_obj[indivial_i,:] = [10. 3. 6. 9.]
106 cord_individual_obj[indivial_i,:] = [11. 4. 21. 25.]
107 cord_individual_obj[indivial_i,:] = [12. 3. 5. 8.]
108 cord_individual_obj[indivial_i,:] = [13. 4. 16. 20.]
109 cord_individual_obj[indivial_i,:] = [14. 4. 5. 9.]
110 cord_individual_obj[indivial_i,:] = [15. 5. 40. 45.]
111 cord_individual_obj[indivial_i,:] = [16. 4. 5. 9.]
112 cord_individual_obj[indivial_i,:] = [17. 5. 13. 18.]
113 cord_individual_obj[indivial_i,:] = [18. 5. 27. 32.]
114 cord_individual_obj[indivial_i,:] = [19. 4. 37. 41.]
115 cord_individual_obj[indivial_i,:] = [20. 4. 4. 8.]
116 cord_individual_obj[indivial_i,:] = [21. 3. 3. 6.]
117 cord_individual_obj[indivial_i,:] = [22. 4. 16. 20.]
118 cord_individual_obj[indivial_i,:] = [23. 4. 11. 15.]
119 cord_individual_obj[indivial_i,:] = [24. 3. 4. 7.]
120
121 min(cord_individual_obj[:,3]) = 6.0
122 historl_G_best_iter[iter,3] = 6.0
123 Begin iteration:
124
125 iter = 3
126 cord_individual_obj[indivial_i,:] = [ 0. 3. 71. 74.]
127 cord_individual_obj[indivial_i,:] = [ 1. 3. 33. 36.]
128 cord_individual_obj[indivial_i,:] = [ 2. 3. 17. 20.]
129 cord_individual_obj[indivial_i,:] = [ 3. 3. 3. 6.]
130 cord_individual_obj[indivial_i,:] = [ 4. 5. 6. 11.]
131 cord_individual_obj[indivial_i,:] = [ 5. 4. 90. 94.]
132 cord_individual_obj[indivial_i,:] = [ 6. 4. 10. 14.]
133 cord_individual_obj[indivial_i,:] = [ 7. 4. 25. 29.]
134 cord_individual_obj[indivial_i,:] = [ 8. 3. 39. 42.]
135 cord_individual_obj[indivial_i,:] = [ 9. 3. 67. 70.]
136 cord_individual_obj[indivial_i,:] = [10. 5. 14. 19.]
137 cord_individual_obj[indivial_i,:] = [11. 4. 13. 17.]
138 cord_individual_obj[indivial_i,:] = [12. 3. 52. 55.]
139 cord_individual_obj[indivial_i,:] = [13. 4. 22. 26.]
140 cord_individual_obj[indivial_i,:] = [14. 5. 22. 27.]
141 cord_individual_obj[indivial_i,:] = [15. 4. 32. 36.]
142 cord_individual_obj[indivial_i,:] = [16. 3. 20. 23.]
143 cord_individual_obj[indivial_i,:] = [17. 6. 13. 19.]
144 cord_individual_obj[indivial_i,:] = [18. 3. 42. 45.]
145 cord_individual_obj[indivial_i,:] = [19. 3. 8. 11.]
146 cord_individual_obj[indivial_i,:] = [20. 4. 6. 10.]
147 cord_individual_obj[indivial_i,:] = [21. 3. 50. 53.]
148 cord_individual_obj[indivial_i,:] = [22. 4. 36. 40.]
149 cord_individual_obj[indivial_i,:] = [23. 3. 38. 41.]
150 cord_individual_obj[indivial_i,:] = [24. 5. 10. 15.]
151
152 min(cord_individual_obj[:,3]) = 6.0
153 historl_G_best_iter[iter,3] = 6.0
154 Begin iteration:
155
156 iter = 4
157 cord_individual_obj[indivial_i,:] = [ 0. 3. 53. 56.]
158 cord_individual_obj[indivial_i,:] = [ 1. 4. 22. 26.]
159 cord_individual_obj[indivial_i,:] = [ 2. 3. 20. 23.]
160 cord_individual_obj[indivial_i,:] = [ 3. 3. 52. 55.]
161 cord_individual_obj[indivial_i,:] = [ 4. 5. 39. 44.]
162 cord_individual_obj[indivial_i,:] = [ 5. 3. 3. 6.]
163 cord_individual_obj[indivial_i,:] = [ 6. 4. 36. 40.]

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164 cord_individual_obj[indivial_i,:] = [ 7. 5. 5. 10.]
165 cord_individual_obj[indivial_i,:] = [ 8. 3. 37. 40.]
166 cord_individual_obj[indivial_i,:] = [ 9. 3. 89. 92.]
167 cord_individual_obj[indivial_i,:] = [10. 6. 12. 18.]
168 cord_individual_obj[indivial_i,:] = [11. 4. 22. 26.]
169 cord_individual_obj[indivial_i,:] = [12. 3. 23. 26.]
170 cord_individual_obj[indivial_i,:] = [13. 4. 20. 24.]
171 cord_individual_obj[indivial_i,:] = [14. 4. 19. 23.]
172 cord_individual_obj[indivial_i,:] = [15. 4. 13. 17.]
173 cord_individual_obj[indivial_i,:] = [16. 3. 27. 30.]
174 cord_individual_obj[indivial_i,:] = [17. 5. 7. 12.]
175 cord_individual_obj[indivial_i,:] = [18. 5. 16. 21.]
176 cord_individual_obj[indivial_i,:] = [19. 4. 37. 41.]
177 cord_individual_obj[indivial_i,:] = [20. 4. 15. 19.]
178 cord_individual_obj[indivial_i,:] = [21. 6. 21. 27.]
179 cord_individual_obj[indivial_i,:] = [22. 3. 51. 54.]
180 cord_individual_obj[indivial_i,:] = [23. 4. 37. 41.]
181 cord_individual_obj[indivial_i,:] = [24. 5. 4. 9.]
182
183 min(cord_individual_obj[:,3]) = 6.0
184 historl_G_best_iter[iter,3] = 6.0
185 Begin iteration:
186
187 iter = 5
188 cord_individual_obj[indivial_i,:] = [ 0. 4. 30. 34.]
189 cord_individual_obj[indivial_i,:] = [ 1. 4. 13. 17.]
190 cord_individual_obj[indivial_i,:] = [ 2. 4. 21. 25.]
191 cord_individual_obj[indivial_i,:] = [ 3. 4. 32. 36.]
192 cord_individual_obj[indivial_i,:] = [ 4. 3. 5. 8.]
193 cord_individual_obj[indivial_i,:] = [ 5. 5. 20. 25.]
194 cord_individual_obj[indivial_i,:] = [ 6. 4. 19. 23.]
195 cord_individual_obj[indivial_i,:] = [ 7. 3. 5. 8.]
196 cord_individual_obj[indivial_i,:] = [ 8. 4. 70. 74.]
197 cord_individual_obj[indivial_i,:] = [ 9. 3. 3. 6.]
198 cord_individual_obj[indivial_i,:] = [10. 5. 13. 18.]
199 cord_individual_obj[indivial_i,:] = [11. 3. 29. 32.]
200 cord_individual_obj[indivial_i,:] = [12. 5. 22. 27.]
201 cord_individual_obj[indivial_i,:] = [13. 3. 10. 13.]
202 cord_individual_obj[indivial_i,:] = [14. 4. 5. 9.]
203 cord_individual_obj[indivial_i,:] = [15. 3. 21. 24.]
204 cord_individual_obj[indivial_i,:] = [16. 3. 29. 32.]
205 cord_individual_obj[indivial_i,:] = [17. 4. 13. 17.]
206 cord_individual_obj[indivial_i,:] = [18. 4. 4. 8.]
207 cord_individual_obj[indivial_i,:] = [19. 4. 12. 16.]
208 cord_individual_obj[indivial_i,:] = [20. 5. 6. 11.]
209 cord_individual_obj[indivial_i,:] = [21. 3. 6. 9.]
210 cord_individual_obj[indivial_i,:] = [22. 5. 5. 10.]
211 cord_individual_obj[indivial_i,:] = [23. 4. 5. 9.]
212 cord_individual_obj[indivial_i,:] = [24. 4. 3. 7.]
213
214 min(cord_individual_obj[:,3]) = 6.0
215 historl_G_best_iter[iter,3] = 6.0
216 Begin iteration:
217
218 iter = 6
219 cord_individual_obj[indivial_i,:] = [ 0. 4. 10. 14.]
220 cord_individual_obj[indivial_i,:] = [ 1. 4. 28. 32.]
221 cord_individual_obj[indivial_i,:] = [ 2. 5. 11. 16.]
222 cord_individual_obj[indivial_i,:] = [ 3. 4. 6. 10.]
223 cord_individual_obj[indivial_i,:] = [ 4. 5. 6. 11.]
224 cord_individual_obj[indivial_i,:] = [ 5. 5. 20. 25.]
225 cord_individual_obj[indivial_i,:] = [ 6. 5. 11. 16.]
226 cord_individual_obj[indivial_i,:] = [ 7. 4. 6. 10.]
227 cord_individual_obj[indivial_i,:] = [ 8. 3. 3. 6.]
228 cord_individual_obj[indivial_i,:] = [ 9. 4. 39. 43.]
229 cord_individual_obj[indivial_i,:] = [10. 5. 6. 11.]
230 cord_individual_obj[indivial_i,:] = [11. 3. 42. 45.]
231 cord_individual_obj[indivial_i,:] = [12. 4. 37. 41.]
232 cord_individual_obj[indivial_i,:] = [13. 4. 41. 45.]
233 cord_individual_obj[indivial_i,:] = [14. 5. 4. 9.]
234 cord_individual_obj[indivial_i,:] = [15. 4. 6. 10.]
235 cord_individual_obj[indivial_i,:] = [16. 4. 5. 9.]
236 cord_individual_obj[indivial_i,:] = [17. 4. 17. 21.]
237 cord_individual_obj[indivial_i,:] = [18. 4. 11. 15.]
238 cord_individual_obj[indivial_i,:] = [19. 4. 28. 32.]
239 cord_individual_obj[indivial_i,:] = [20. 4. 20. 24.]
240 cord_individual_obj[indivial_i,:] = [21. 4. 30. 34.]
241 cord_individual_obj[indivial_i,:] = [22. 4. 17. 21.]
242 cord_individual_obj[indivial_i,:] = [23. 4. 5. 9.]
243 cord_individual_obj[indivial_i,:] = [24. 4. 6. 10.]
244
245 min(cord_individual_obj[:,3]) = 6.0
246 historl_G_best_iter[iter,3] = 6.0
247 Begin iteration:

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248
249 iter = 7
250 cord_individual_obj[indivial_i, :] = [ 0. 4. 10. 14.]
251 cord_individual_obj[indivial_i, :] = [ 1. 3. 13. 16.]
252 cord_individual_obj[indivial_i, :] = [ 2. 4. 19. 23.]
253 cord_individual_obj[indivial_i, :] = [ 3. 5. 22. 27.]
254 cord_individual_obj[indivial_i, :] = [ 4. 4. 6. 10.]
255 cord_individual_obj[indivial_i, :] = [ 5. 3. 11. 14.]
256 cord_individual_obj[indivial_i, :] = [ 6. 5. 10. 15.]
257 cord_individual_obj[indivial_i, :] = [ 7. 4. 22. 26.]
258 cord_individual_obj[indivial_i, :] = [ 8. 3. 59. 62.]
259 cord_individual_obj[indivial_i, :] = [ 9. 3. 37. 40.]
260 cord_individual_obj[indivial_i, :] = [10. 4. 5. 9.]
261 cord_individual_obj[indivial_i, :] = [11. 3. 3. 6.]
262 cord_individual_obj[indivial_i, :] = [12. 3. 25. 28.]
263 cord_individual_obj[indivial_i, :] = [13. 4. 24. 28.]
264 cord_individual_obj[indivial_i, :] = [14. 6. 21. 27.]
265 cord_individual_obj[indivial_i, :] = [15. 4. 21. 25.]
266 cord_individual_obj[indivial_i, :] = [16. 3. 5. 8.]
267 cord_individual_obj[indivial_i, :] = [17. 4. 29. 33.]
268 cord_individual_obj[indivial_i, :] = [18. 4. 11. 15.]
269 cord_individual_obj[indivial_i, :] = [19. 4. 13. 17.]
270 cord_individual_obj[indivial_i, :] = [20. 4. 13. 17.]
271 cord_individual_obj[indivial_i, :] = [21. 5. 14. 19.]
272 cord_individual_obj[indivial_i, :] = [22. 4. 6. 10.]
273 cord_individual_obj[indivial_i, :] = [23. 5. 5. 10.]
274 cord_individual_obj[indivial_i, :] = [24. 4. 11. 15.]
275

276 min(cord_individual_obj[:, 3]) = 6.0
277 historl_G_best_iter[iter, 3] = 6.0
278 Begin iteration:
279
280 iter = 8
281 cord_individual_obj[indivial_i, :] = [0. 3. 3. 6.]
282 cord_individual_obj[indivial_i, :] = [1. 5. 39. 44.]
283 cord_individual_obj[indivial_i, :] = [2. 3. 12. 15.]
284 cord_individual_obj[indivial_i, :] = [3. 3. 82. 85.]
285 cord_individual_obj[indivial_i, :] = [4. 4. 40. 44.]
286 cord_individual_obj[indivial_i, :] = [5. 3. 3. 6.]
287 cord_individual_obj[indivial_i, :] = [6. 5. 12. 17.]
288 cord_individual_obj[indivial_i, :] = [7. 5. 4. 9.]
289 cord_individual_obj[indivial_i, :] = [8. 3. 3. 6.]
290 cord_individual_obj[indivial_i, :] = [9. 4. 69. 73.]
291 cord_individual_obj[indivial_i, :] = [10. 4. 21. 25.]
292 cord_individual_obj[indivial_i, :] = [11. 4. 43. 47.]
293 cord_individual_obj[indivial_i, :] = [12. 2. 52. 54.]
294 cord_individual_obj[indivial_i, :] = [13. 4. 58. 62.]
295 cord_individual_obj[indivial_i, :] = [14. 3. 35. 38.]
296 cord_individual_obj[indivial_i, :] = [15. 4. 29. 33.]
297 cord_individual_obj[indivial_i, :] = [16. 2. 31. 33.]
298 cord_individual_obj[indivial_i, :] = [17. 5. 13. 18.]
299 cord_individual_obj[indivial_i, :] = [18. 4. 11. 15.]
300 cord_individual_obj[indivial_i, :] = [19. 5. 6. 11.]
301 cord_individual_obj[indivial_i, :] = [20. 5. 11. 16.]
302 cord_individual_obj[indivial_i, :] = [21. 4. 9. 13.]
303 cord_individual_obj[indivial_i, :] = [22. 5. 20. 25.]
304 cord_individual_obj[indivial_i, :] = [23. 2. 59. 61.]
305 cord_individual_obj[indivial_i, :] = [24. 5. 4. 9.]
306

307 min(cord_individual_obj[:, 3]) = 6.0
308 historl_G_best_iter[iter, 3] = 6.0
309 Begin iteration:
310
311 iter = 9
312 cord_individual_obj[indivial_i, :] = [ 0. 4. 18. 22.]
313 cord_individual_obj[indivial_i, :] = [ 1. 3. 12. 15.]
314 cord_individual_obj[indivial_i, :] = [ 2. 4. 10. 14.]
315 cord_individual_obj[indivial_i, :] = [ 3. 3. 3. 6.]
316 cord_individual_obj[indivial_i, :] = [ 4. 4. 17. 21.]
317 cord_individual_obj[indivial_i, :] = [ 5. 4. 37. 41.]
318 cord_individual_obj[indivial_i, :] = [ 6. 5. 26. 31.]
319 cord_individual_obj[indivial_i, :] = [ 7. 4. 39. 43.]
320 cord_individual_obj[indivial_i, :] = [ 8. 3. 34. 37.]
321 cord_individual_obj[indivial_i, :] = [ 9. 3. 18. 21.]
322 cord_individual_obj[indivial_i, :] = [10. 4. 45. 49.]
323 cord_individual_obj[indivial_i, :] = [11. 3. 23. 26.]
324 cord_individual_obj[indivial_i, :] = [12. 4. 37. 41.]
325 cord_individual_obj[indivial_i, :] = [13. 5. 32. 37.]
326 cord_individual_obj[indivial_i, :] = [14. 3. 30. 33.]
327 cord_individual_obj[indivial_i, :] = [15. 3. 34. 37.]
328 cord_individual_obj[indivial_i, :] = [16. 3. 69. 72.]
329 cord_individual_obj[indivial_i, :] = [17. 5. 29. 34.]
330 cord_individual_obj[indivial_i, :] = [18. 4. 30. 34.]
331 cord_individual_obj[indivial_i, :] = [19. 3. 34. 37.]

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332 cord_individual_obj[indivial_i,:] = [20. 4. 22. 26.]
333 cord_individual_obj[indivial_i,:] = [21. 2. 52. 54.]
334 cord_individual_obj[indivial_i,:] = [22. 4. 52. 56.]
335 cord_individual_obj[indivial_i,:] = [23. 2. 33. 35.]
336 cord_individual_obj[indivial_i,:] = [24. 5. 23. 28.]
337
338 min(cord_individual_obj[:,3]) = 6.0
339 histol_G_best_iter[iter,3] = 6.0
340 Begin iteration:
341
342 iter = 10
343 cord_individual_obj[indivial_i,:] = [ 0. 4. 24. 28.]
344 cord_individual_obj[indivial_i,:] = [ 1. 3. 56. 59.]
345 cord_individual_obj[indivial_i,:] = [ 2. 3. 3. 6.]
346 cord_individual_obj[indivial_i,:] = [ 3. 4. 59. 63.]
347 cord_individual_obj[indivial_i,:] = [ 4. 4. 20. 24.]
348 cord_individual_obj[indivial_i,:] = [ 5. 4. 25. 29.]
349 cord_individual_obj[indivial_i,:] = [ 6. 5. 37. 42.]
350 cord_individual_obj[indivial_i,:] = [ 7. 3. 52. 55.]
351 cord_individual_obj[indivial_i,:] = [ 8. 4. 20. 24.]
352 cord_individual_obj[indivial_i,:] = [ 9. 2. 42. 44.]
353 cord_individual_obj[indivial_i,:] = [10. 4. 19. 23.]
354 cord_individual_obj[indivial_i,:] = [11. 4. 12. 16.]
355 cord_individual_obj[indivial_i,:] = [12. 4. 24. 28.]
356 cord_individual_obj[indivial_i,:] = [13. 4. 41. 45.]
357 cord_individual_obj[indivial_i,:] = [14. 3. 28. 31.]
358 cord_individual_obj[indivial_i,:] = [15. 4. 39. 43.]
359 cord_individual_obj[indivial_i,:] = [16. 3. 3. 6.]
360 cord_individual_obj[indivial_i,:] = [17. 4. 40. 44.]
361 cord_individual_obj[indivial_i,:] = [18. 4. 20. 24.]
362 cord_individual_obj[indivial_i,:] = [19. 3. 26. 29.]
363 cord_individual_obj[indivial_i,:] = [20. 3. 3. 6.]
364 cord_individual_obj[indivial_i,:] = [21. 3. 25. 28.]
365 cord_individual_obj[indivial_i,:] = [22. 5. 90. 95.]
366 cord_individual_obj[indivial_i,:] = [23. 3. 32. 35.]
367 cord_individual_obj[indivial_i,:] = [24. 3. 3. 6.]
368
369 min(cord_individual_obj[:,3]) = 6.0
370 histol_G_best_iter[iter,3] = 6.0
371 Begin iteration:
372
373 iter = 11
374 cord_individual_obj[indivial_i,:] = [ 0. 3. 39. 42.]
375 cord_individual_obj[indivial_i,:] = [ 1. 3. 45. 48.]
376 cord_individual_obj[indivial_i,:] = [ 2. 3. 9. 12.]
377 cord_individual_obj[indivial_i,:] = [ 3. 3. 25. 28.]
378 cord_individual_obj[indivial_i,:] = [ 4. 3. 21. 24.]
379 cord_individual_obj[indivial_i,:] = [ 5. 3. 33. 36.]
380 cord_individual_obj[indivial_i,:] = [ 6. 3. 33. 36.]
381 cord_individual_obj[indivial_i,:] = [ 7. 3. 21. 24.]
382 cord_individual_obj[indivial_i,:] = [ 8. 4. 14. 18.]
383 cord_individual_obj[indivial_i,:] = [ 9. 4. 15. 19.]
384 cord_individual_obj[indivial_i,:] = [10. 3. 33. 36.]
385 cord_individual_obj[indivial_i,:] = [11. 3. 29. 32.]
386 cord_individual_obj[indivial_i,:] = [12. 3. 31. 34.]
387 cord_individual_obj[indivial_i,:] = [13. 3. 25. 28.]
388 cord_individual_obj[indivial_i,:] = [14. 3. 18. 21.]
389 cord_individual_obj[indivial_i,:] = [15. 3. 32. 35.]
390 cord_individual_obj[indivial_i,:] = [16. 3. 31. 34.]
391 cord_individual_obj[indivial_i,:] = [17. 3. 21. 24.]
392 cord_individual_obj[indivial_i,:] = [18. 3. 25. 28.]
393 cord_individual_obj[indivial_i,:] = [19. 2. 64. 66.]
394 cord_individual_obj[indivial_i,:] = [20. 2. 48. 50.]
395 cord_individual_obj[indivial_i,:] = [21. 3. 33. 36.]
396 cord_individual_obj[indivial_i,:] = [22. 3. 3. 6.]
397 cord_individual_obj[indivial_i,:] = [23. 3. 24. 27.]
398 cord_individual_obj[indivial_i,:] = [24. 3. 21. 24.]
399
400 min(cord_individual_obj[:,3]) = 6.0
401 histol_G_best_iter[iter,3] = 6.0
402 Begin iteration:
403
404 iter = 12
405 cord_individual_obj[indivial_i,:] = [ 0. 2. 29. 31.]
406 cord_individual_obj[indivial_i,:] = [ 1. 3. 33. 36.]
407 cord_individual_obj[indivial_i,:] = [ 2. 5. 40. 45.]
408 cord_individual_obj[indivial_i,:] = [ 3. 3. 23. 26.]
409 cord_individual_obj[indivial_i,:] = [ 4. 4. 12. 16.]
410 cord_individual_obj[indivial_i,:] = [ 5. 3. 30. 33.]
411 cord_individual_obj[indivial_i,:] = [ 6. 3. 45. 48.]
412 cord_individual_obj[indivial_i,:] = [ 7. 3. 21. 24.]
413 cord_individual_obj[indivial_i,:] = [ 8. 3. 25. 28.]
414 cord_individual_obj[indivial_i,:] = [ 9. 3. 53. 56.]
415 cord_individual_obj[indivial_i,:] = [10. 3. 33. 36.]

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416 cord_individual_obj[indivial_i,:] = [11. 3. 21. 24.]
417 cord_individual_obj[indivial_i,:] = [12. 3. 21. 24.]
418 cord_individual_obj[indivial_i,:] = [13. 3. 19. 22.]
419 cord_individual_obj[indivial_i,:] = [14. 3. 33. 36.]
420 cord_individual_obj[indivial_i,:] = [15. 3. 25. 28.]
421 cord_individual_obj[indivial_i,:] = [16. 3. 51. 54.]
422 cord_individual_obj[indivial_i,:] = [17. 3. 21. 24.]
423 cord_individual_obj[indivial_i,:] = [18. 4. 11. 15.]
424 cord_individual_obj[indivial_i,:] = [19. 3. 3. 6.]
425 cord_individual_obj[indivial_i,:] = [20. 4. 22. 26.]
426 cord_individual_obj[indivial_i,:] = [21. 4. 26. 30.]
427 cord_individual_obj[indivial_i,:] = [22. 4. 38. 42.]
428 cord_individual_obj[indivial_i,:] = [23. 3. 23. 26.]
429 cord_individual_obj[indivial_i,:] = [24. 5. 16. 21.]
430
431 min(cord_individual_obj[:,3]) = 6.0
432 histol_G_best_iter[iter,3] = 6.0
433 Begin iteration:
434
435 iter = 13
436 cord_individual_obj[indivial_i,:] = [0. 3. 4. 7.]
437 cord_individual_obj[indivial_i,:] = [1. 3. 21. 24.]
438 cord_individual_obj[indivial_i,:] = [2. 3. 51. 54.]
439 cord_individual_obj[indivial_i,:] = [3. 3. 6. 9.]
440 cord_individual_obj[indivial_i,:] = [4. 5. 20. 25.]
441 cord_individual_obj[indivial_i,:] = [5. 4. 11. 15.]
442 cord_individual_obj[indivial_i,:] = [6. 3. 16. 19.]
443 cord_individual_obj[indivial_i,:] = [7. 3. 45. 48.]
444 cord_individual_obj[indivial_i,:] = [8. 4. 5. 9.]
445 cord_individual_obj[indivial_i,:] = [9. 3. 3. 6.]
446 cord_individual_obj[indivial_i,:] = [10. 3. 39. 42.]
447 cord_individual_obj[indivial_i,:] = [11. 3. 33. 36.]
448 cord_individual_obj[indivial_i,:] = [12. 4. 40. 44.]
449 cord_individual_obj[indivial_i,:] = [13. 4. 11. 15.]
450 cord_individual_obj[indivial_i,:] = [14. 2. 41. 43.]
451 cord_individual_obj[indivial_i,:] = [15. 3. 25. 28.]
452 cord_individual_obj[indivial_i,:] = [16. 2. 61. 63.]
453 cord_individual_obj[indivial_i,:] = [17. 4. 57. 61.]
454 cord_individual_obj[indivial_i,:] = [18. 4. 3. 7.]
455 cord_individual_obj[indivial_i,:] = [19. 3. 21. 24.]
456 cord_individual_obj[indivial_i,:] = [20. 3. 19. 22.]
457 cord_individual_obj[indivial_i,:] = [21. 3. 9. 12.]
458 cord_individual_obj[indivial_i,:] = [22. 4. 52. 56.]
459 cord_individual_obj[indivial_i,:] = [23. 2. 31. 33.]
460 cord_individual_obj[indivial_i,:] = [24. 4. 5. 9.]
461
462 min(cord_individual_obj[:,3]) = 6.0
463 histol_G_best_iter[iter,3] = 6.0
464 Begin iteration:
465
466 iter = 14
467 cord_individual_obj[indivial_i,:] = [0. 3. 53. 56.]
468 cord_individual_obj[indivial_i,:] = [1. 3. 33. 36.]
469 cord_individual_obj[indivial_i,:] = [2. 4. 35. 39.]
470 cord_individual_obj[indivial_i,:] = [3. 4. 10. 14.]
471 cord_individual_obj[indivial_i,:] = [4. 4. 26. 30.]
472 cord_individual_obj[indivial_i,:] = [5. 3. 21. 24.]
473 cord_individual_obj[indivial_i,:] = [6. 3. 21. 24.]
474 cord_individual_obj[indivial_i,:] = [7. 3. 40. 43.]
475 cord_individual_obj[indivial_i,:] = [8. 3. 27. 30.]
476 cord_individual_obj[indivial_i,:] = [9. 3. 17. 20.]
477 cord_individual_obj[indivial_i,:] = [10. 3. 21. 24.]
478 cord_individual_obj[indivial_i,:] = [11. 3. 21. 24.]
479 cord_individual_obj[indivial_i,:] = [12. 3. 21. 24.]
480 cord_individual_obj[indivial_i,:] = [13. 3. 33. 36.]
481 cord_individual_obj[indivial_i,:] = [14. 4. 40. 44.]
482 cord_individual_obj[indivial_i,:] = [15. 4. 39. 43.]
483 cord_individual_obj[indivial_i,:] = [16. 3. 3. 6.]
484 cord_individual_obj[indivial_i,:] = [17. 3. 51. 54.]
485 cord_individual_obj[indivial_i,:] = [18. 3. 20. 23.]
486 cord_individual_obj[indivial_i,:] = [19. 3. 21. 24.]
487 cord_individual_obj[indivial_i,:] = [20. 3. 6. 9.]
488 cord_individual_obj[indivial_i,:] = [21. 3. 21. 24.]
489 cord_individual_obj[indivial_i,:] = [22. 3. 23. 26.]
490 cord_individual_obj[indivial_i,:] = [23. 3. 21. 24.]
491 cord_individual_obj[indivial_i,:] = [24. 3. 21. 24.]
492
493 min(cord_individual_obj[:,3]) = 6.0
494 histol_G_best_iter[iter,3] = 6.0
495 Begin iteration:
496
497 iter = 15
498 cord_individual_obj[indivial_i,:] = [0. 3. 3. 6.]
499 cord_individual_obj[indivial_i,:] = [1. 3. 45. 48.]

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500 cord_individual_obj[indivial_i, :] = [ 2. 3. 21. 24.]
501 cord_individual_obj[indivial_i, :] = [ 3. 4. 4. 8.]
502 cord_individual_obj[indivial_i, :] = [ 4. 4. 20. 24.]
503 cord_individual_obj[indivial_i, :] = [ 5. 4. 25. 29.]
504 cord_individual_obj[indivial_i, :] = [ 6. 3. 21. 24.]
505 cord_individual_obj[indivial_i, :] = [ 7. 3. 29. 32.]
506 cord_individual_obj[indivial_i, :] = [ 8. 3. 33. 36.]
507 cord_individual_obj[indivial_i, :] = [ 9. 4. 15. 19.]
508 cord_individual_obj[indivial_i, :] = [10. 3. 33. 36.]
509 cord_individual_obj[indivial_i, :] = [11. 3. 35. 38.]
510 cord_individual_obj[indivial_i, :] = [12. 3. 33. 36.]
511 cord_individual_obj[indivial_i, :] = [13. 4. 11. 15.]
512 cord_individual_obj[indivial_i, :] = [14. 3. 53. 56.]
513 cord_individual_obj[indivial_i, :] = [15. 3. 19. 22.]
514 cord_individual_obj[indivial_i, :] = [16. 3. 51. 54.]
515 cord_individual_obj[indivial_i, :] = [17. 4. 11. 15.]
516 cord_individual_obj[indivial_i, :] = [18. 5. 14. 19.]
517 cord_individual_obj[indivial_i, :] = [19. 3. 21. 24.]
518 cord_individual_obj[indivial_i, :] = [20. 3. 18. 21.]
519 cord_individual_obj[indivial_i, :] = [21. 3. 25. 28.]
520 cord_individual_obj[indivial_i, :] = [22. 4. 35. 39.]
521 cord_individual_obj[indivial_i, :] = [23. 3. 58. 61.]
522 cord_individual_obj[indivial_i, :] = [24. 5. 16. 21.]
523
524 min(cord_individual_obj[:, 3]) = 6.0
525 histol_G_best_iter[iter, 3] = 6.0
526 Begin iteration:
527
528 iter = 16
529 cord_individual_obj[indivial_i, :] = [ 0. 3. 53. 56.]
530 cord_individual_obj[indivial_i, :] = [ 1. 3. 21. 24.]
531 cord_individual_obj[indivial_i, :] = [ 2. 4. 33. 37.]
532 cord_individual_obj[indivial_i, :] = [ 3. 3. 21. 24.]
533 cord_individual_obj[indivial_i, :] = [ 4. 4. 19. 23.]
534 cord_individual_obj[indivial_i, :] = [ 5. 3. 6. 9.]
535 cord_individual_obj[indivial_i, :] = [ 6. 4. 54. 58.]
536 cord_individual_obj[indivial_i, :] = [ 7. 3. 21. 24.]
537 cord_individual_obj[indivial_i, :] = [ 8. 4. 14. 18.]
538 cord_individual_obj[indivial_i, :] = [ 9. 3. 17. 20.]
539 cord_individual_obj[indivial_i, :] = [10. 4. 34. 38.]
540 cord_individual_obj[indivial_i, :] = [11. 3. 33. 36.]
541 cord_individual_obj[indivial_i, :] = [12. 3. 31. 34.]
542 cord_individual_obj[indivial_i, :] = [13. 4. 22. 26.]
543 cord_individual_obj[indivial_i, :] = [14. 2. 52. 54.]
544 cord_individual_obj[indivial_i, :] = [15. 3. 25. 28.]
545 cord_individual_obj[indivial_i, :] = [16. 2. 51. 53.]
546 cord_individual_obj[indivial_i, :] = [17. 3. 21. 24.]
547 cord_individual_obj[indivial_i, :] = [18. 4. 11. 15.]
548 cord_individual_obj[indivial_i, :] = [19. 3. 21. 24.]
549 cord_individual_obj[indivial_i, :] = [20. 4. 15. 19.]
550 cord_individual_obj[indivial_i, :] = [21. 3. 21. 24.]
551 cord_individual_obj[indivial_i, :] = [22. 3. 27. 30.]
552 cord_individual_obj[indivial_i, :] = [23. 3. 3. 6.]
553 cord_individual_obj[indivial_i, :] = [24. 3. 21. 24.]
554
555 min(cord_individual_obj[:, 3]) = 6.0
556 histol_G_best_iter[iter, 3] = 6.0
557 Begin iteration:
558
559 iter = 17
560 cord_individual_obj[indivial_i, :] = [ 0. 2. 15. 17.]
561 cord_individual_obj[indivial_i, :] = [ 1. 3. 34. 37.]
562 cord_individual_obj[indivial_i, :] = [ 2. 3. 57. 60.]
563 cord_individual_obj[indivial_i, :] = [ 3. 3. 52. 55.]
564 cord_individual_obj[indivial_i, :] = [ 4. 3. 83. 86.]
565 cord_individual_obj[indivial_i, :] = [ 5. 4. 5. 9.]
566 cord_individual_obj[indivial_i, :] = [ 6. 3. 3. 6.]
567 cord_individual_obj[indivial_i, :] = [ 7. 3. 56. 59.]
568 cord_individual_obj[indivial_i, :] = [ 8. 3. 5. 8.]
569 cord_individual_obj[indivial_i, :] = [ 9. 3. 20. 23.]
570 cord_individual_obj[indivial_i, :] = [10. 3. 9. 12.]
571 cord_individual_obj[indivial_i, :] = [11. 4. 20. 24.]
572 cord_individual_obj[indivial_i, :] = [12. 3. 48. 51.]
573 cord_individual_obj[indivial_i, :] = [13. 5. 6. 11.]
574 cord_individual_obj[indivial_i, :] = [14. 3. 38. 41.]
575 cord_individual_obj[indivial_i, :] = [15. 3. 39. 42.]
576 cord_individual_obj[indivial_i, :] = [16. 3. 28. 31.]
577 cord_individual_obj[indivial_i, :] = [17. 3. 36. 39.]
578 cord_individual_obj[indivial_i, :] = [18. 3. 67. 70.]
579 cord_individual_obj[indivial_i, :] = [19. 4. 50. 54.]
580 cord_individual_obj[indivial_i, :] = [20. 4. 5. 9.]
581 cord_individual_obj[indivial_i, :] = [21. 3. 3. 6.]
582 cord_individual_obj[indivial_i, :] = [22. 4. 40. 44.]
583 cord_individual_obj[indivial_i, :] = [23. 3. 45. 48.]

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unknown

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584     cord_individual_obj[indivial_i, :] = [24. 3. 20. 23.]  
585  
586     min(cord_individual_obj[:, 3]) = 6.0  
587     historl_G_best_iter[iter, 3] = 6.0  
588 Begin iteration:  
589  
590 iter = 18  
591     cord_individual_obj[indivial_i, :] = [ 0. 3. 53. 56.]  
592     cord_individual_obj[indivial_i, :] = [ 1. 3. 21. 24.]  
593     cord_individual_obj[indivial_i, :] = [ 2. 3. 33. 36.]  
594     cord_individual_obj[indivial_i, :] = [ 3. 3. 91. 94.]  
595     cord_individual_obj[indivial_i, :] = [4. 3. 3. 6.]  
596     cord_individual_obj[indivial_i, :] = [ 5. 3. 21. 24.]  
597     cord_individual_obj[indivial_i, :] = [ 6. 3. 21. 24.]  
598     cord_individual_obj[indivial_i, :] = [ 7. 3. 19. 22.]  
599     cord_individual_obj[indivial_i, :] = [ 8. 4. 13. 17.]  
600     cord_individual_obj[indivial_i, :] = [ 9. 3. 5. 8.]  
601     cord_individual_obj[indivial_i, :] = [10. 3. 33. 36.]  
602     cord_individual_obj[indivial_i, :] = [11. 3. 33. 36.]  
603     cord_individual_obj[indivial_i, :] = [12. 3. 63. 66.]  
604     cord_individual_obj[indivial_i, :] = [13. 4. 22. 26.]  
605     cord_individual_obj[indivial_i, :] = [14. 2. 33. 35.]  
606     cord_individual_obj[indivial_i, :] = [15. 3. 25. 28.]  
607     cord_individual_obj[indivial_i, :] = [16. 2. 19. 21.]  
608     cord_individual_obj[indivial_i, :] = [17. 3. 21. 24.]  
609     cord_individual_obj[indivial_i, :] = [18. 5. 5. 10.]  
610     cord_individual_obj[indivial_i, :] = [19. 3. 35. 38.]  
611     cord_individual_obj[indivial_i, :] = [20. 3. 19. 22.]  
612     cord_individual_obj[indivial_i, :] = [21. 3. 21. 24.]  
613     cord_individual_obj[indivial_i, :] = [22. 4. 36. 40.]  
614     cord_individual_obj[indivial_i, :] = [23. 3. 45. 48.]  
615     cord_individual_obj[indivial_i, :] = [24. 4. 5. 9.]  
616  
617     min(cord_individual_obj[:, 3]) = 6.0  
618     historl_G_best_iter[iter, 3] = 6.0  
619 Begin iteration:  
620  
621 iter = 19  
622     cord_individual_obj[indivial_i, :] = [ 0. 3. 53. 56.]  
623     cord_individual_obj[indivial_i, :] = [ 1. 3. 21. 24.]  
624     cord_individual_obj[indivial_i, :] = [ 2. 3. 10. 13.]  
625     cord_individual_obj[indivial_i, :] = [ 3. 3. 3. 6.]  
626     cord_individual_obj[indivial_i, :] = [ 4. 3. 19. 22.]  
627     cord_individual_obj[indivial_i, :] = [ 5. 3. 21. 24.]  
628     cord_individual_obj[indivial_i, :] = [ 6. 3. 35. 38.]  
629     cord_individual_obj[indivial_i, :] = [ 7. 3. 29. 32.]  
630     cord_individual_obj[indivial_i, :] = [ 8. 3. 45. 48.]  
631     cord_individual_obj[indivial_i, :] = [ 9. 3. 15. 18.]  
632     cord_individual_obj[indivial_i, :] = [10. 3. 33. 36.]  
633     cord_individual_obj[indivial_i, :] = [11. 3. 25. 28.]  
634     cord_individual_obj[indivial_i, :] = [12. 3. 45. 48.]  
635     cord_individual_obj[indivial_i, :] = [13. 4. 22. 26.]  
636     cord_individual_obj[indivial_i, :] = [14. 3. 34. 37.]  
637     cord_individual_obj[indivial_i, :] = [15. 3. 25. 28.]  
638     cord_individual_obj[indivial_i, :] = [16. 2. 51. 53.]  
639     cord_individual_obj[indivial_i, :] = [17. 3. 21. 24.]  
640     cord_individual_obj[indivial_i, :] = [18. 4. 5. 9.]  
641     cord_individual_obj[indivial_i, :] = [19. 3. 21. 24.]  
642     cord_individual_obj[indivial_i, :] = [20. 3. 21. 24.]  
643     cord_individual_obj[indivial_i, :] = [21. 3. 21. 24.]  
644     cord_individual_obj[indivial_i, :] = [22. 4. 27. 31.]  
645     cord_individual_obj[indivial_i, :] = [23. 3. 45. 48.]  
646     cord_individual_obj[indivial_i, :] = [24. 3. 10. 13.]  
647  
648     min(cord_individual_obj[:, 3]) = 6.0  
649     historl_G_best_iter[iter, 3] = 6.0  
650 Begin iteration:  
651  
652 iter = 20  
653     cord_individual_obj[indivial_i, :] = [0. 3. 3. 6.]  
654     cord_individual_obj[indivial_i, :] = [ 1. 3. 10. 13.]  
655     cord_individual_obj[indivial_i, :] = [ 2. 4. 23. 27.]  
656     cord_individual_obj[indivial_i, :] = [ 3. 2. 17. 19.]  
657     cord_individual_obj[indivial_i, :] = [ 4. 5. 15. 20.]  
658     cord_individual_obj[indivial_i, :] = [ 5. 5. 5. 10.]  
659     cord_individual_obj[indivial_i, :] = [ 6. 4. 31. 35.]  
660     cord_individual_obj[indivial_i, :] = [ 7. 4. 16. 20.]  
661     cord_individual_obj[indivial_i, :] = [ 8. 3. 9. 12.]  
662     cord_individual_obj[indivial_i, :] = [ 9. 2. 59. 61.]  
663     cord_individual_obj[indivial_i, :] = [10. 3. 10. 13.]  
664     cord_individual_obj[indivial_i, :] = [11. 5. 6. 11.]  
665     cord_individual_obj[indivial_i, :] = [12. 4. 41. 45.]  
666     cord_individual_obj[indivial_i, :] = [13. 5. 37. 42.]  
667     cord_individual_obj[indivial_i, :] = [14. 3. 15. 18.]
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668 cord_individual_obj[indivial_i,:] = [15. 4. 30. 34.]
669 cord_individual_obj[indivial_i,:] = [16. 4. 30. 34.]
670 cord_individual_obj[indivial_i,:] = [17. 4. 36. 40.]
671 cord_individual_obj[indivial_i,:] = [18. 3. 67. 70.]
672 cord_individual_obj[indivial_i,:] = [19. 4. 51. 55.]
673 cord_individual_obj[indivial_i,:] = [20. 3. 3. 6.]
674 cord_individual_obj[indivial_i,:] = [21. 3. 19. 22.]
675 cord_individual_obj[indivial_i,:] = [22. 4. 45. 49.]
676 cord_individual_obj[indivial_i,:] = [23. 2. 43. 45.]
677 cord_individual_obj[indivial_i,:] = [24. 3. 4. 7.]
678
679 min(cord_individual_obj[:, 3]) = 6.0
680 historl_G_best_iter[iter, 3] = 6.0
681 Iteration calculate over
682
683
684
685
686 All item are in Bin and:
687 Bin area = 1080
688 Real_area = 74.0
689 Proportion_of_area = 0.06851851851851852
690 BEST_CHROM =
691     berth: [22. 22. 2. 14. 6. 10. 17.5 4.]
692     time: [0. 2. 0. 0. 0. 0. 1.]
693     num_QC: [2. 2. 4. 3. 4. 4. 3. 5.]
694 Objective function values and some other indicators:
695 Obj0 = 3.00          Obj1 = 3.00          Obj0 + Obj1 = 6.00
696 Total movement of crane: 0.00
697 Total waiting time in berth position: 3.00
698 Total index of q during berthing: 435.00
699 Specific arrangement for each vessel:
700
    V_id: 0           li: 6.0           xi: 22.0           bow of i: 19.0           tail of i: 25.0           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
701
    load_i: 80.0      work load gap_i: 0
    V_id: 1           li: 6.0           xi: 22.0           bow of i: 19.0           tail of i: 25.0           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
702
    V_id: 2           li: 4.0           xi: 2.0            bow of i: 0.0           tail of i: 4.0           gama_i0: 0.0           gama_i1: 0.0
    .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
703
    V_id: 3           li: 4.0           xi: 14.0           bow of i: 12.0           tail of i: 16.0           gama_i0: 0.0           gama_i1: 2
    .0             gama_i1 + 1: 3.0       gama_i1 - gama_i0: 2.0           duration_time_i: 3.0           demand_i: 160.0           work
    load_i: 160.0     work load gap_i: 0
704
    V_id: 4           li: 4.0           xi: 6.0            bow of i: 4.0           tail of i: 8.0           gama_i0: 0.0           gama_i1: 0.0
    .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: 10.0           bow of i: 8.0           tail of i: 12.0           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
706
    V_id: 6           li: 3.0           xi: 17.5           bow of i: 16.0           tail of i: 19.0           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
707
    V_id: 7           li: 8.0           xi: 4.0            bow of i: 0.0           tail of i: 8.0           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
708
709 Algorithm finished and the total CPU time: 228 s
710 End
711

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