

unknown

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80 cord_individual_obj[indivial_i,:] = [16. 2. 66. 68.]
81 cord_individual_obj[indivial_i,:] = [17. 5. 18. 23.]
82 cord_individual_obj[indivial_i,:] = [18. 5. 28. 33.]
83 cord_individual_obj[indivial_i,:] = [19. 5. 28. 33.]
84 cord_individual_obj[indivial_i,:] = [20. 3. 50. 53.]
85 cord_individual_obj[indivial_i,:] = [21. 3. 28. 31.]
86 cord_individual_obj[indivial_i,:] = [22. 3. 24. 27.]
87 cord_individual_obj[indivial_i,:] = [23. 3. 12. 15.]
88 cord_individual_obj[indivial_i,:] = [24. 2. 28. 30.]
89
90 min(cord_individual_obj[:,3]) = 2.0
91 historl_G_best_iter[iter,3] = 2.0
92 Begin iteration:
93
94 iter = 2
95 cord_individual_obj[indivial_i,:] = [0. 5. 4. 9.]
96 cord_individual_obj[indivial_i,:] = [1. 5. 12. 17.]
97 cord_individual_obj[indivial_i,:] = [2. 3. 12. 15.]
98 cord_individual_obj[indivial_i,:] = [3. 3. 80. 83.]
99 cord_individual_obj[indivial_i,:] = [4. 5. 12. 17.]
100 cord_individual_obj[indivial_i,:] = [5. 3. 24. 27.]
101 cord_individual_obj[indivial_i,:] = [6. 5. 8. 13.]
102 cord_individual_obj[indivial_i,:] = [7. 3. 18. 21.]
103 cord_individual_obj[indivial_i,:] = [8. 5. 8. 13.]
104 cord_individual_obj[indivial_i,:] = [9. 5. 18. 23.]
105 cord_individual_obj[indivial_i,:] = [10. 5. 8. 13.]
106 cord_individual_obj[indivial_i,:] = [11. 5. 8. 13.]
107 cord_individual_obj[indivial_i,:] = [12. 2. 0. 2.]
108 cord_individual_obj[indivial_i,:] = [13. 2. 18. 20.]
109 cord_individual_obj[indivial_i,:] = [14. 5. 28. 33.]
110 cord_individual_obj[indivial_i,:] = [15. 5. 10. 15.]
111 cord_individual_obj[indivial_i,:] = [16. 2. 0. 2.]
112 cord_individual_obj[indivial_i,:] = [17. 5. 8. 13.]
113 cord_individual_obj[indivial_i,:] = [18. 3. 12. 15.]
114 cord_individual_obj[indivial_i,:] = [19. 5. 58. 63.]
115 cord_individual_obj[indivial_i,:] = [20. 2. 0. 2.]
116 cord_individual_obj[indivial_i,:] = [21. 2. 86. 88.]
117 cord_individual_obj[indivial_i,:] = [22. 3. 24. 27.]
118 cord_individual_obj[indivial_i,:] = [23. 2. 36. 38.]
119 cord_individual_obj[indivial_i,:] = [24. 3. 18. 21.]
120
121 min(cord_individual_obj[:,3]) = 2.0
122 historl_G_best_iter[iter,3] = 2.0
123 Begin iteration:
124
125 iter = 3
126 cord_individual_obj[indivial_i,:] = [0. 5. 44. 49.]
127 cord_individual_obj[indivial_i,:] = [1. 5. 8. 13.]
128 cord_individual_obj[indivial_i,:] = [2. 3. 0. 3.]
129 cord_individual_obj[indivial_i,:] = [3. 3. 24. 27.]
130 cord_individual_obj[indivial_i,:] = [4. 5. 8. 13.]
131 cord_individual_obj[indivial_i,:] = [5. 5. 0. 5.]
132 cord_individual_obj[indivial_i,:] = [6. 5. 0. 5.]
133 cord_individual_obj[indivial_i,:] = [7. 3. 0. 3.]
134 cord_individual_obj[indivial_i,:] = [8. 5. 16. 21.]
135 cord_individual_obj[indivial_i,:] = [9. 5. 0. 5.]
136 cord_individual_obj[indivial_i,:] = [10. 3. 44. 47.]
137 cord_individual_obj[indivial_i,:] = [11. 3. 18. 21.]
138 cord_individual_obj[indivial_i,:] = [12. 5. 8. 13.]
139 cord_individual_obj[indivial_i,:] = [13. 5. 8. 13.]
140 cord_individual_obj[indivial_i,:] = [14. 5. 14. 19.]
141 cord_individual_obj[indivial_i,:] = [15. 3. 24. 27.]
142 cord_individual_obj[indivial_i,:] = [16. 2. 50. 52.]
143 cord_individual_obj[indivial_i,:] = [17. 5. 16. 21.]
144 cord_individual_obj[indivial_i,:] = [18. 3. 50. 53.]
145 cord_individual_obj[indivial_i,:] = [19. 3. 18. 21.]
146 cord_individual_obj[indivial_i,:] = [20. 2. 0. 2.]
147 cord_individual_obj[indivial_i,:] = [21. 2. 0. 2.]
148 cord_individual_obj[indivial_i,:] = [22. 2. 0. 2.]
149 cord_individual_obj[indivial_i,:] = [23. 5. 32. 37.]
150 cord_individual_obj[indivial_i,:] = [24. 2. 32. 34.]
151
152 min(cord_individual_obj[:,3]) = 2.0
153 historl_G_best_iter[iter,3] = 2.0
154 Begin iteration:
155
156 iter = 4
157 cord_individual_obj[indivial_i,:] = [0. 3. 24. 27.]
158 cord_individual_obj[indivial_i,:] = [1. 2. 28. 30.]
159 cord_individual_obj[indivial_i,:] = [2. 2. 98. 100.]
160 cord_individual_obj[indivial_i,:] = [3. 5. 14. 19.]
161 cord_individual_obj[indivial_i,:] = [4. 5. 28. 33.]
162 cord_individual_obj[indivial_i,:] = [5. 5. 8. 13.]
163 cord_individual_obj[indivial_i,:] = [6. 3. 18. 21.]

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164 cord_individual_obj[indivial_i, :] = [ 7. 2. 10. 12.]
165 cord_individual_obj[indivial_i, :] = [ 8. 3. 54. 57.]
166 cord_individual_obj[indivial_i, :] = [ 9. 2. 18. 20.]
167 cord_individual_obj[indivial_i, :] = [10. 5. 8. 13.]
168 cord_individual_obj[indivial_i, :] = [11. 5. 8. 13.]
169 cord_individual_obj[indivial_i, :] = [12. 5. 0. 5.]
170 cord_individual_obj[indivial_i, :] = [13. 5. 32. 37.]
171 cord_individual_obj[indivial_i, :] = [14. 2. 64. 66.]
172 cord_individual_obj[indivial_i, :] = [15. 5. 10. 15.]
173 cord_individual_obj[indivial_i, :] = [16. 5. 0. 5.]
174 cord_individual_obj[indivial_i, :] = [17. 5. 8. 13.]
175 cord_individual_obj[indivial_i, :] = [18. 2. 0. 2.]
176 cord_individual_obj[indivial_i, :] = [19. 3. 18. 21.]
177 cord_individual_obj[indivial_i, :] = [20. 3. 20. 23.]
178 cord_individual_obj[indivial_i, :] = [21. 2. 70. 72.]
179 cord_individual_obj[indivial_i, :] = [22. 5. 10. 15.]
180 cord_individual_obj[indivial_i, :] = [23. 2. 34. 36.]
181 cord_individual_obj[indivial_i, :] = [24. 3. 30. 33.]
182
183 min(cord_individual_obj[:, 3]) = 2.0
184 historl_G_best_iter[iter, 3] = 2.0
185 Begin iteration:
186
187 iter = 5
188 cord_individual_obj[indivial_i, :] = [ 0. 3. 24. 27.]
189 cord_individual_obj[indivial_i, :] = [ 1. 5. 18. 23.]
190 cord_individual_obj[indivial_i, :] = [ 2. 2. 0. 2.]
191 cord_individual_obj[indivial_i, :] = [ 3. 5. 18. 23.]
192 cord_individual_obj[indivial_i, :] = [ 4. 5. 18. 23.]
193 cord_individual_obj[indivial_i, :] = [ 5. 3. 0. 3.]
194 cord_individual_obj[indivial_i, :] = [ 6. 3. 10. 13.]
195 cord_individual_obj[indivial_i, :] = [ 7. 5. 0. 5.]
196 cord_individual_obj[indivial_i, :] = [ 8. 3. 24. 27.]
197 cord_individual_obj[indivial_i, :] = [ 9. 5. 0. 5.]
198 cord_individual_obj[indivial_i, :] = [10. 3. 24. 27.]
199 cord_individual_obj[indivial_i, :] = [11. 5. 8. 13.]
200 cord_individual_obj[indivial_i, :] = [12. 3. 0. 3.]
201 cord_individual_obj[indivial_i, :] = [13. 5. 18. 23.]
202 cord_individual_obj[indivial_i, :] = [14. 5. 8. 13.]
203 cord_individual_obj[indivial_i, :] = [15. 5. 8. 13.]
204 cord_individual_obj[indivial_i, :] = [16. 2. 50. 52.]
205 cord_individual_obj[indivial_i, :] = [17. 5. 8. 13.]
206 cord_individual_obj[indivial_i, :] = [18. 3. 50. 53.]
207 cord_individual_obj[indivial_i, :] = [19. 5. 0. 5.]
208 cord_individual_obj[indivial_i, :] = [20. 5. 0. 5.]
209 cord_individual_obj[indivial_i, :] = [21. 5. 8. 13.]
210 cord_individual_obj[indivial_i, :] = [22. 3. 10. 13.]
211 cord_individual_obj[indivial_i, :] = [23. 3. 0. 3.]
212 cord_individual_obj[indivial_i, :] = [24. 3. 44. 47.]
213
214 min(cord_individual_obj[:, 3]) = 2.0
215 historl_G_best_iter[iter, 3] = 2.0
216 Begin iteration:
217
218 iter = 6
219 cord_individual_obj[indivial_i, :] = [ 0. 3. 18. 21.]
220 cord_individual_obj[indivial_i, :] = [ 1. 5. 8. 13.]
221 cord_individual_obj[indivial_i, :] = [ 2. 5. 50. 55.]
222 cord_individual_obj[indivial_i, :] = [ 3. 3. 18. 21.]
223 cord_individual_obj[indivial_i, :] = [ 4. 5. 8. 13.]
224 cord_individual_obj[indivial_i, :] = [ 5. 5. 0. 5.]
225 cord_individual_obj[indivial_i, :] = [ 6. 5. 10. 15.]
226 cord_individual_obj[indivial_i, :] = [ 7. 3. 10. 13.]
227 cord_individual_obj[indivial_i, :] = [ 8. 5. 14. 19.]
228 cord_individual_obj[indivial_i, :] = [ 9. 3. 18. 21.]
229 cord_individual_obj[indivial_i, :] = [10. 3. 24. 27.]
230 cord_individual_obj[indivial_i, :] = [11. 3. 0. 3.]
231 cord_individual_obj[indivial_i, :] = [12. 3. 0. 3.]
232 cord_individual_obj[indivial_i, :] = [13. 5. 8. 13.]
233 cord_individual_obj[indivial_i, :] = [14. 3. 30. 33.]
234 cord_individual_obj[indivial_i, :] = [15. 5. 10. 15.]
235 cord_individual_obj[indivial_i, :] = [16. 2. 50. 52.]
236 cord_individual_obj[indivial_i, :] = [17. 5. 8. 13.]
237 cord_individual_obj[indivial_i, :] = [18. 2. 0. 2.]
238 cord_individual_obj[indivial_i, :] = [19. 3. 0. 3.]
239 cord_individual_obj[indivial_i, :] = [20. 5. 0. 5.]
240 cord_individual_obj[indivial_i, :] = [21. 2. 86. 88.]
241 cord_individual_obj[indivial_i, :] = [22. 5. 10. 15.]
242 cord_individual_obj[indivial_i, :] = [23. 5. 32. 37.]
243 cord_individual_obj[indivial_i, :] = [24. 3. 76. 79.]
244
245 min(cord_individual_obj[:, 3]) = 2.0
246 historl_G_best_iter[iter, 3] = 2.0
247 Begin iteration:

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248
249 iter = 7
250 cord_individual_obj[indivial_i, :] = [ 0.  3. 24. 27.]
251 cord_individual_obj[indivial_i, :] = [ 1.  5. 18. 23.]
252 cord_individual_obj[indivial_i, :] = [ 2.  5. 12. 17.]
253 cord_individual_obj[indivial_i, :] = [ 3.  3. 44. 47.]
254 cord_individual_obj[indivial_i, :] = [ 4.  5.  8. 13.]
255 cord_individual_obj[indivial_i, :] = [ 5.  5.  0. 5.]
256 cord_individual_obj[indivial_i, :] = [ 6.  5. 10. 15.]
257 cord_individual_obj[indivial_i, :] = [ 7.  3.  0. 3.]
258 cord_individual_obj[indivial_i, :] = [ 8.  5.  8. 13.]
259 cord_individual_obj[indivial_i, :] = [ 9.  3. 18. 21.]
260 cord_individual_obj[indivial_i, :] = [10.  3. 24. 27.]
261 cord_individual_obj[indivial_i, :] = [11.  3. 24. 27.]
262 cord_individual_obj[indivial_i, :] = [12.  3.  0. 3.]
263 cord_individual_obj[indivial_i, :] = [13.  5.  8. 13.]
264 cord_individual_obj[indivial_i, :] = [14.  3. 86. 89.]
265 cord_individual_obj[indivial_i, :] = [15.  3. 24. 27.]
266 cord_individual_obj[indivial_i, :] = [16.  5.  8. 13.]
267 cord_individual_obj[indivial_i, :] = [17.  5.  8. 13.]
268 cord_individual_obj[indivial_i, :] = [18.  3. 50. 53.]
269 cord_individual_obj[indivial_i, :] = [19.  5.  0. 5.]
270 cord_individual_obj[indivial_i, :] = [20.  5.  0. 5.]
271 cord_individual_obj[indivial_i, :] = [21.  2.  0. 2.]
272 cord_individual_obj[indivial_i, :] = [22.  5. 10. 15.]
273 cord_individual_obj[indivial_i, :] = [23.  5.  0. 5.]
274 cord_individual_obj[indivial_i, :] = [24.  3. 30. 33.]
275

276 min(cord_individual_obj[:, 3]) = 2.0
277 historl_G_best_iter[iter, 3] = 2.0
278 Begin iteration:
279
280 iter = 8
281 cord_individual_obj[indivial_i, :] = [ 0.  2. 50. 52.]
282 cord_individual_obj[indivial_i, :] = [1.  3.  0. 3.]
283 cord_individual_obj[indivial_i, :] = [2.  3.  0. 3.]
284 cord_individual_obj[indivial_i, :] = [3.  5.  0. 5.]
285 cord_individual_obj[indivial_i, :] = [4.  3. 50. 53.]
286 cord_individual_obj[indivial_i, :] = [5.  5.  0. 5.]
287 cord_individual_obj[indivial_i, :] = [6.  2.  0. 2.]
288 cord_individual_obj[indivial_i, :] = [7.  5.  0. 5.]
289 cord_individual_obj[indivial_i, :] = [8.  2. 50. 52.]
290 cord_individual_obj[indivial_i, :] = [9.  3.  0. 3.]
291 cord_individual_obj[indivial_i, :] = [10.  2. 82. 84.]
292 cord_individual_obj[indivial_i, :] = [11.  3. 18. 21.]
293 cord_individual_obj[indivial_i, :] = [12.  2.  0. 2.]
294 cord_individual_obj[indivial_i, :] = [13.  3. 50. 53.]
295 cord_individual_obj[indivial_i, :] = [14.  2.  0. 2.]
296 cord_individual_obj[indivial_i, :] = [15.  3.  0. 3.]
297 cord_individual_obj[indivial_i, :] = [16.  2. 32. 34.]
298 cord_individual_obj[indivial_i, :] = [17.  2. 50. 52.]
299 cord_individual_obj[indivial_i, :] = [18.  3. 50. 53.]
300 cord_individual_obj[indivial_i, :] = [19.  5. 18. 23.]
301 cord_individual_obj[indivial_i, :] = [20.  5.  0. 5.]
302 cord_individual_obj[indivial_i, :] = [21.  2. 60. 62.]
303 cord_individual_obj[indivial_i, :] = [22.  5.  0. 5.]
304 cord_individual_obj[indivial_i, :] = [23.  2. 20. 22.]
305 cord_individual_obj[indivial_i, :] = [24.  5.  0. 5.]
306

307 min(cord_individual_obj[:, 3]) = 2.0
308 historl_G_best_iter[iter, 3] = 2.0
309 Begin iteration:
310
311 iter = 9
312 cord_individual_obj[indivial_i, :] = [ 0.  5. 28. 33.]
313 cord_individual_obj[indivial_i, :] = [ 1.  5.  8. 13.]
314 cord_individual_obj[indivial_i, :] = [ 2.  2. 32. 34.]
315 cord_individual_obj[indivial_i, :] = [ 3.  3.  0. 3.]
316 cord_individual_obj[indivial_i, :] = [ 4.  5.  8. 13.]
317 cord_individual_obj[indivial_i, :] = [ 5.  5.  0. 5.]
318 cord_individual_obj[indivial_i, :] = [ 6.  5.  0. 5.]
319 cord_individual_obj[indivial_i, :] = [ 7.  3. 10. 13.]
320 cord_individual_obj[indivial_i, :] = [ 8.  5. 16. 21.]
321 cord_individual_obj[indivial_i, :] = [ 9.  5.  0. 5.]
322 cord_individual_obj[indivial_i, :] = [10.  2.  0. 2.]
323 cord_individual_obj[indivial_i, :] = [11.  5.  0. 5.]
324 cord_individual_obj[indivial_i, :] = [12.  3.  0. 3.]
325 cord_individual_obj[indivial_i, :] = [13.  5.  8. 13.]
326 cord_individual_obj[indivial_i, :] = [14.  5. 18. 23.]
327 cord_individual_obj[indivial_i, :] = [15.  5.  0. 5.]
328 cord_individual_obj[indivial_i, :] = [16.  2. 50. 52.]
329 cord_individual_obj[indivial_i, :] = [17.  5.  8. 13.]
330 cord_individual_obj[indivial_i, :] = [18.  2. 32. 34.]
331 cord_individual_obj[indivial_i, :] = [19.  3.  0. 3.]

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unknown

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332 cord_individual_obj[indivial_i,:] = [20. 2. 0. 2.]
333 cord_individual_obj[indivial_i,:] = [21. 2. 32. 34.]
334 cord_individual_obj[indivial_i,:] = [22. 2. 0. 2.]
335 cord_individual_obj[indivial_i,:] = [23. 5. 0. 5.]
336 cord_individual_obj[indivial_i,:] = [24. 5. 0. 5.]
337
338 min(cord_individual_obj[:,3]) = 2.0
339 historl_G_best_iter[iter,3] = 2.0
340 Begin iteration:
341
342 iter = 10
343 cord_individual_obj[indivial_i,:] = [ 0. 2. 24. 26.]
344 cord_individual_obj[indivial_i,:] = [1. 2. 0. 2.]
345 cord_individual_obj[indivial_i,:] = [ 2. 3. 28. 31.]
346 cord_individual_obj[indivial_i,:] = [ 3. 5. 8. 13.]
347 cord_individual_obj[indivial_i,:] = [ 4. 3. 36. 39.]
348 cord_individual_obj[indivial_i,:] = [ 5. 3. 32. 35.]
349 cord_individual_obj[indivial_i,:] = [ 6. 3. 10. 13.]
350 cord_individual_obj[indivial_i,:] = [ 7. 5. 0. 5.]
351 cord_individual_obj[indivial_i,:] = [ 8. 3. 30. 33.]
352 cord_individual_obj[indivial_i,:] = [ 9. 3. 18. 21.]
353 cord_individual_obj[indivial_i,:] = [10. 3. 44. 47.]
354 cord_individual_obj[indivial_i,:] = [11. 3. 0. 3.]
355 cord_individual_obj[indivial_i,:] = [12. 5. 60. 65.]
356 cord_individual_obj[indivial_i,:] = [13. 3. 0. 3.]
357 cord_individual_obj[indivial_i,:] = [14. 5. 24. 29.]
358 cord_individual_obj[indivial_i,:] = [15. 5. 10. 15.]
359 cord_individual_obj[indivial_i,:] = [16. 2. 0. 2.]
360 cord_individual_obj[indivial_i,:] = [17. 2. 36. 38.]
361 cord_individual_obj[indivial_i,:] = [18. 3. 4. 7.]
362 cord_individual_obj[indivial_i,:] = [19. 5. 0. 5.]
363 cord_individual_obj[indivial_i,:] = [20. 5. 0. 5.]
364 cord_individual_obj[indivial_i,:] = [21. 2. 50. 52.]
365 cord_individual_obj[indivial_i,:] = [22. 3. 10. 13.]
366 cord_individual_obj[indivial_i,:] = [23. 2. 50. 52.]
367 cord_individual_obj[indivial_i,:] = [24. 2. 56. 58.]
368
369 min(cord_individual_obj[:,3]) = 2.0
370 historl_G_best_iter[iter,3] = 2.0
371 Begin iteration:
372
373 iter = 11
374 cord_individual_obj[indivial_i,:] = [ 0. 3. 12. 15.]
375 cord_individual_obj[indivial_i,:] = [ 1. 5. 18. 23.]
376 cord_individual_obj[indivial_i,:] = [ 2. 2. 4. 6.]
377 cord_individual_obj[indivial_i,:] = [ 3. 5. 0. 5.]
378 cord_individual_obj[indivial_i,:] = [ 4. 5. 64. 69.]
379 cord_individual_obj[indivial_i,:] = [ 5. 5. 0. 5.]
380 cord_individual_obj[indivial_i,:] = [ 6. 2. 10. 12.]
381 cord_individual_obj[indivial_i,:] = [ 7. 5. 10. 15.]
382 cord_individual_obj[indivial_i,:] = [ 8. 5. 54. 59.]
383 cord_individual_obj[indivial_i,:] = [ 9. 5. 34. 39.]
384 cord_individual_obj[indivial_i,:] = [10. 5. 8. 13.]
385 cord_individual_obj[indivial_i,:] = [11. 5. 24. 29.]
386 cord_individual_obj[indivial_i,:] = [12. 2. 0. 2.]
387 cord_individual_obj[indivial_i,:] = [13. 5. 8. 13.]
388 cord_individual_obj[indivial_i,:] = [14. 2. 104. 106.]
389 cord_individual_obj[indivial_i,:] = [15. 5. 10. 15.]
390 cord_individual_obj[indivial_i,:] = [16. 2. 50. 52.]
391 cord_individual_obj[indivial_i,:] = [17. 5. 8. 13.]
392 cord_individual_obj[indivial_i,:] = [18. 5. 12. 17.]
393 cord_individual_obj[indivial_i,:] = [19. 5. 8. 13.]
394 cord_individual_obj[indivial_i,:] = [20. 5. 10. 15.]
395 cord_individual_obj[indivial_i,:] = [21. 5. 18. 23.]
396 cord_individual_obj[indivial_i,:] = [22. 5. 10. 15.]
397 cord_individual_obj[indivial_i,:] = [23. 5. 0. 5.]
398 cord_individual_obj[indivial_i,:] = [24. 3. 0. 3.]
399
400 min(cord_individual_obj[:,3]) = 2.0
401 historl_G_best_iter[iter,3] = 2.0
402 Begin iteration:
403
404 iter = 12
405 cord_individual_obj[indivial_i,:] = [ 0. 5. 36. 41.]
406 cord_individual_obj[indivial_i,:] = [ 1. 2. 28. 30.]
407 cord_individual_obj[indivial_i,:] = [ 2. 3. 24. 27.]
408 cord_individual_obj[indivial_i,:] = [ 3. 5. 8. 13.]
409 cord_individual_obj[indivial_i,:] = [ 4. 3. 22. 25.]
410 cord_individual_obj[indivial_i,:] = [ 5. 5. 8. 13.]
411 cord_individual_obj[indivial_i,:] = [ 6. 5. 10. 15.]
412 cord_individual_obj[indivial_i,:] = [ 7. 5. 0. 5.]
413 cord_individual_obj[indivial_i,:] = [ 8. 5. 18. 23.]
414 cord_individual_obj[indivial_i,:] = [ 9. 5. 18. 23.]
415 cord_individual_obj[indivial_i,:] = [10. 3. 18. 21.]
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416 cord_individual_obj[indivial_i,:] = [11. 5. 8. 13.]
417 cord_individual_obj[indivial_i,:] = [12. 2. 94. 96.]
418 cord_individual_obj[indivial_i,:] = [13. 5. 34. 39.]
419 cord_individual_obj[indivial_i,:] = [14. 2. 0. 2.]
420 cord_individual_obj[indivial_i,:] = [15. 5. 36. 41.]
421 cord_individual_obj[indivial_i,:] = [16. 5. 8. 13.]
422 cord_individual_obj[indivial_i,:] = [17. 5. 8. 13.]
423 cord_individual_obj[indivial_i,:] = [18. 2. 12. 14.]
424 cord_individual_obj[indivial_i,:] = [19. 2. 50. 52.]
425 cord_individual_obj[indivial_i,:] = [20. 2. 68. 70.]
426 cord_individual_obj[indivial_i,:] = [21. 3. 18. 21.]
427 cord_individual_obj[indivial_i,:] = [22. 2. 10. 12.]
428 cord_individual_obj[indivial_i,:] = [23. 5. 36. 41.]
429 cord_individual_obj[indivial_i,:] = [24. 3. 24. 27.]
430
431 min(cord_individual_obj[:,3]) = 2.0
432 histol_G_best_iter[iter,3] = 2.0
433 Begin iteration:
434
435 iter = 13
436 cord_individual_obj[indivial_i,:] = [ 0. 5. 24. 29.]
437 cord_individual_obj[indivial_i,:] = [ 1. 5. 8. 13.]
438 cord_individual_obj[indivial_i,:] = [ 2. 5. 54. 59.]
439 cord_individual_obj[indivial_i,:] = [ 3. 3. 60. 63.]
440 cord_individual_obj[indivial_i,:] = [ 4. 5. 8. 13.]
441 cord_individual_obj[indivial_i,:] = [ 5. 5. 8. 13.]
442 cord_individual_obj[indivial_i,:] = [ 6. 5. 10. 15.]
443 cord_individual_obj[indivial_i,:] = [ 7. 3. 18. 21.]
444 cord_individual_obj[indivial_i,:] = [ 8. 5. 8. 13.]
445 cord_individual_obj[indivial_i,:] = [ 9. 5. 18. 23.]
446 cord_individual_obj[indivial_i,:] = [10. 3. 24. 27.]
447 cord_individual_obj[indivial_i,:] = [11. 5. 8. 13.]
448 cord_individual_obj[indivial_i,:] = [12. 2. 0. 2.]
449 cord_individual_obj[indivial_i,:] = [13. 3. 24. 27.]
450 cord_individual_obj[indivial_i,:] = [14. 5. 16. 21.]
451 cord_individual_obj[indivial_i,:] = [15. 5. 18. 23.]
452 cord_individual_obj[indivial_i,:] = [16. 2. 86. 88.]
453 cord_individual_obj[indivial_i,:] = [17. 5. 8. 13.]
454 cord_individual_obj[indivial_i,:] = [18. 3. 86. 89.]
455 cord_individual_obj[indivial_i,:] = [19. 5. 8. 13.]
456 cord_individual_obj[indivial_i,:] = [20. 3. 68. 71.]
457 cord_individual_obj[indivial_i,:] = [21. 2. 74. 76.]
458 cord_individual_obj[indivial_i,:] = [22. 3. 18. 21.]
459 cord_individual_obj[indivial_i,:] = [23. 5. 16. 21.]
460 cord_individual_obj[indivial_i,:] = [24. 5. 18. 23.]
461
462 min(cord_individual_obj[:,3]) = 2.0
463 histol_G_best_iter[iter,3] = 2.0
464 Begin iteration:
465
466 iter = 14
467 cord_individual_obj[indivial_i,:] = [ 0. 5. 8. 13.]
468 cord_individual_obj[indivial_i,:] = [ 1. 5. 50. 55.]
469 cord_individual_obj[indivial_i,:] = [ 2. 2. 92. 94.]
470 cord_individual_obj[indivial_i,:] = [ 3. 5. 8. 13.]
471 cord_individual_obj[indivial_i,:] = [ 4. 5. 8. 13.]
472 cord_individual_obj[indivial_i,:] = [ 5. 5. 8. 13.]
473 cord_individual_obj[indivial_i,:] = [ 6. 5. 10. 15.]
474 cord_individual_obj[indivial_i,:] = [ 7. 3. 8. 11.]
475 cord_individual_obj[indivial_i,:] = [ 8. 5. 8. 13.]
476 cord_individual_obj[indivial_i,:] = [ 9. 3. 24. 27.]
477 cord_individual_obj[indivial_i,:] = [10. 3. 24. 27.]
478 cord_individual_obj[indivial_i,:] = [11. 3. 18. 21.]
479 cord_individual_obj[indivial_i,:] = [12. 2. 94. 96.]
480 cord_individual_obj[indivial_i,:] = [13. 5. 8. 13.]
481 cord_individual_obj[indivial_i,:] = [14. 3. 30. 33.]
482 cord_individual_obj[indivial_i,:] = [15. 3. 24. 27.]
483 cord_individual_obj[indivial_i,:] = [16. 5. 8. 13.]
484 cord_individual_obj[indivial_i,:] = [17. 5. 8. 13.]
485 cord_individual_obj[indivial_i,:] = [18. 2. 0. 2.]
486 cord_individual_obj[indivial_i,:] = [19. 2. 50. 52.]
487 cord_individual_obj[indivial_i,:] = [20. 5. 48. 53.]
488 cord_individual_obj[indivial_i,:] = [21. 5. 8. 13.]
489 cord_individual_obj[indivial_i,:] = [22. 5. 8. 13.]
490 cord_individual_obj[indivial_i,:] = [23. 5. 36. 41.]
491 cord_individual_obj[indivial_i,:] = [24. 3. 48. 51.]
492
493 min(cord_individual_obj[:,3]) = 2.0
494 histol_G_best_iter[iter,3] = 2.0
495 Begin iteration:
496
497 iter = 15
498 cord_individual_obj[indivial_i,:] = [ 0. 2. 56. 58.]
499 cord_individual_obj[indivial_i,:] = [ 1. 5. 18. 23.]

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500 cord_individual_obj[indivial_i, :] = [ 2. 5. 58. 63.]
501 cord_individual_obj[indivial_i, :] = [ 3. 5. 58. 63.]
502 cord_individual_obj[indivial_i, :] = [ 4. 3. 44. 47.]
503 cord_individual_obj[indivial_i, :] = [ 5. 5. 18. 23.]
504 cord_individual_obj[indivial_i, :] = [ 6. 5. 36. 41.]
505 cord_individual_obj[indivial_i, :] = [ 7. 5. 58. 63.]
506 cord_individual_obj[indivial_i, :] = [ 8. 2. 62. 64.]
507 cord_individual_obj[indivial_i, :] = [ 9. 5. 36. 41.]
508 cord_individual_obj[indivial_i, :] = [10. 2. 76. 78.]
509 cord_individual_obj[indivial_i, :] = [11. 3. 44. 47.]
510 cord_individual_obj[indivial_i, :] = [12. 2. 0. 2.]
511 cord_individual_obj[indivial_i, :] = [13. 5. 36. 41.]
512 cord_individual_obj[indivial_i, :] = [14. 5. 16. 21.]
513 cord_individual_obj[indivial_i, :] = [15. 3. 74. 77.]
514 cord_individual_obj[indivial_i, :] = [16. 3. 34. 37.]
515 cord_individual_obj[indivial_i, :] = [17. 2. 62. 64.]
516 cord_individual_obj[indivial_i, :] = [18. 3. 68. 71.]
517 cord_individual_obj[indivial_i, :] = [19. 5. 36. 41.]
518 cord_individual_obj[indivial_i, :] = [20. 2. 56. 58.]
519 cord_individual_obj[indivial_i, :] = [21. 2. 118. 120.]
520 cord_individual_obj[indivial_i, :] = [22. 3. 34. 37.]
521 cord_individual_obj[indivial_i, :] = [23. 2. 56. 58.]
522 cord_individual_obj[indivial_i, :] = [24. 2. 56. 58.]
523
524 min(cord_individual_obj[:, 3]) = 2.0
525 histol_G_best_iter[iter, 3] = 2.0
526 Begin iteration:
527
528 iter = 16
529 cord_individual_obj[indivial_i, :] = [ 0. 3. 18. 21.]
530 cord_individual_obj[indivial_i, :] = [1. 2. 0. 2.]
531 cord_individual_obj[indivial_i, :] = [2. 2. 4. 6.]
532 cord_individual_obj[indivial_i, :] = [3. 5. 0. 5.]
533 cord_individual_obj[indivial_i, :] = [4. 5. 0. 5.]
534 cord_individual_obj[indivial_i, :] = [5. 3. 0. 3.]
535 cord_individual_obj[indivial_i, :] = [6. 5. 0. 5.]
536 cord_individual_obj[indivial_i, :] = [7. 5. 0. 5.]
537 cord_individual_obj[indivial_i, :] = [8. 5. 12. 17.]
538 cord_individual_obj[indivial_i, :] = [9. 3. 0. 3.]
539 cord_individual_obj[indivial_i, :] = [10. 3. 44. 47.]
540 cord_individual_obj[indivial_i, :] = [11. 3. 0. 3.]
541 cord_individual_obj[indivial_i, :] = [12. 2. 94. 96.]
542 cord_individual_obj[indivial_i, :] = [13. 5. 8. 13.]
543 cord_individual_obj[indivial_i, :] = [14. 3. 56. 59.]
544 cord_individual_obj[indivial_i, :] = [15. 3. 0. 3.]
545 cord_individual_obj[indivial_i, :] = [16. 2. 32. 34.]
546 cord_individual_obj[indivial_i, :] = [17. 5. 8. 13.]
547 cord_individual_obj[indivial_i, :] = [18. 5. 28. 33.]
548 cord_individual_obj[indivial_i, :] = [19. 5. 0. 5.]
549 cord_individual_obj[indivial_i, :] = [20. 3. 0. 3.]
550 cord_individual_obj[indivial_i, :] = [21. 2. 0. 2.]
551 cord_individual_obj[indivial_i, :] = [22. 3. 0. 3.]
552 cord_individual_obj[indivial_i, :] = [23. 5. 0. 5.]
553 cord_individual_obj[indivial_i, :] = [24. 3. 18. 21.]
554
555 min(cord_individual_obj[:, 3]) = 2.0
556 histol_G_best_iter[iter, 3] = 2.0
557 Begin iteration:
558
559 iter = 17
560 cord_individual_obj[indivial_i, :] = [ 0. 5. 8. 13.]
561 cord_individual_obj[indivial_i, :] = [ 1. 5. 8. 13.]
562 cord_individual_obj[indivial_i, :] = [ 2. 5. 12. 17.]
563 cord_individual_obj[indivial_i, :] = [ 3. 3. 40. 43.]
564 cord_individual_obj[indivial_i, :] = [ 4. 2. 56. 58.]
565 cord_individual_obj[indivial_i, :] = [ 5. 5. 8. 13.]
566 cord_individual_obj[indivial_i, :] = [ 6. 5. 32. 37.]
567 cord_individual_obj[indivial_i, :] = [ 7. 5. 8. 13.]
568 cord_individual_obj[indivial_i, :] = [ 8. 5. 48. 53.]
569 cord_individual_obj[indivial_i, :] = [ 9. 5. 8. 13.]
570 cord_individual_obj[indivial_i, :] = [10. 5. 30. 35.]
571 cord_individual_obj[indivial_i, :] = [11. 5. 8. 13.]
572 cord_individual_obj[indivial_i, :] = [12. 2. 0. 2.]
573 cord_individual_obj[indivial_i, :] = [13. 5. 30. 35.]
574 cord_individual_obj[indivial_i, :] = [14. 5. 14. 19.]
575 cord_individual_obj[indivial_i, :] = [15. 5. 18. 23.]
576 cord_individual_obj[indivial_i, :] = [16. 2. 36. 38.]
577 cord_individual_obj[indivial_i, :] = [17. 5. 8. 13.]
578 cord_individual_obj[indivial_i, :] = [18. 5. 4. 9.]
579 cord_individual_obj[indivial_i, :] = [19. 2. 16. 18.]
580 cord_individual_obj[indivial_i, :] = [20. 5. 44. 49.]
581 cord_individual_obj[indivial_i, :] = [21. 2. 96. 98.]
582 cord_individual_obj[indivial_i, :] = [22. 5. 28. 33.]
583 cord_individual_obj[indivial_i, :] = [23. 5. 36. 41.]

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unknown

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584     cord_individual_obj[indivial_i, :] = [24. 5. 16. 21.]  
585  
586     min(cord_individual_obj[:, 3]) = 2.0  
587     historl_G_best_iter[iter, 3] = 2.0  
588 Begin iteration:  
589  
590 iter = 18  
591     cord_individual_obj[indivial_i, :] = [ 0. 5. 32. 37.]  
592     cord_individual_obj[indivial_i, :] = [ 1. 3. 18. 21.]  
593     cord_individual_obj[indivial_i, :] = [ 2. 3. 76. 79.]  
594     cord_individual_obj[indivial_i, :] = [ 3. 5. 8. 13.]  
595     cord_individual_obj[indivial_i, :] = [ 4. 5. 8. 13.]  
596     cord_individual_obj[indivial_i, :] = [ 5. 3. 12. 15.]  
597     cord_individual_obj[indivial_i, :] = [ 6. 5. 10. 15.]  
598     cord_individual_obj[indivial_i, :] = [ 7. 3. 0. 3.]  
599     cord_individual_obj[indivial_i, :] = [ 8. 5. 14. 19.]  
600     cord_individual_obj[indivial_i, :] = [ 9. 5. 18. 23.]  
601     cord_individual_obj[indivial_i, :] = [10. 5. 8. 13.]  
602     cord_individual_obj[indivial_i, :] = [11. 5. 0. 5.]  
603     cord_individual_obj[indivial_i, :] = [12. 3. 74. 77.]  
604     cord_individual_obj[indivial_i, :] = [13. 5. 24. 29.]  
605     cord_individual_obj[indivial_i, :] = [14. 2. 34. 36.]  
606     cord_individual_obj[indivial_i, :] = [15. 5. 4. 9.]  
607     cord_individual_obj[indivial_i, :] = [16. 2. 36. 38.]  
608     cord_individual_obj[indivial_i, :] = [17. 5. 8. 13.]  
609     cord_individual_obj[indivial_i, :] = [18. 2. 32. 34.]  
610     cord_individual_obj[indivial_i, :] = [19. 5. 8. 13.]  
611     cord_individual_obj[indivial_i, :] = [20. 5. 0. 5.]  
612     cord_individual_obj[indivial_i, :] = [21. 2. 0. 2.]  
613     cord_individual_obj[indivial_i, :] = [22. 5. 20. 25.]  
614     cord_individual_obj[indivial_i, :] = [23. 2. 0. 2.]  
615     cord_individual_obj[indivial_i, :] = [24. 5. 8. 13.]  
616  
617     min(cord_individual_obj[:, 3]) = 2.0  
618     historl_G_best_iter[iter, 3] = 2.0  
619 Begin iteration:  
620  
621 iter = 19  
622     cord_individual_obj[indivial_i, :] = [ 0. 2. 76. 78.]  
623     cord_individual_obj[indivial_i, :] = [ 1. 5. 42. 47.]  
624     cord_individual_obj[indivial_i, :] = [ 2. 2. 0. 2.]  
625     cord_individual_obj[indivial_i, :] = [ 3. 2. 84. 86.]  
626     cord_individual_obj[indivial_i, :] = [ 4. 5. 24. 29.]  
627     cord_individual_obj[indivial_i, :] = [ 5. 5. 0. 5.]  
628     cord_individual_obj[indivial_i, :] = [ 6. 5. 8. 13.]  
629     cord_individual_obj[indivial_i, :] = [ 7. 5. 8. 13.]  
630     cord_individual_obj[indivial_i, :] = [ 8. 3. 18. 21.]  
631     cord_individual_obj[indivial_i, :] = [ 9. 5. 8. 13.]  
632     cord_individual_obj[indivial_i, :] = [10. 5. 48. 53.]  
633     cord_individual_obj[indivial_i, :] = [11. 3. 58. 61.]  
634     cord_individual_obj[indivial_i, :] = [12. 5. 0. 5.]  
635     cord_individual_obj[indivial_i, :] = [13. 2. 64. 66.]  
636     cord_individual_obj[indivial_i, :] = [14. 5. 8. 13.]  
637     cord_individual_obj[indivial_i, :] = [15. 3. 24. 27.]  
638     cord_individual_obj[indivial_i, :] = [16. 2. 34. 36.]  
639     cord_individual_obj[indivial_i, :] = [17. 2. 36. 38.]  
640     cord_individual_obj[indivial_i, :] = [18. 3. 24. 27.]  
641     cord_individual_obj[indivial_i, :] = [19. 3. 50. 53.]  
642     cord_individual_obj[indivial_i, :] = [20. 5. 8. 13.]  
643     cord_individual_obj[indivial_i, :] = [21. 2. 104. 106.]  
644     cord_individual_obj[indivial_i, :] = [22. 2. 10. 12.]  
645     cord_individual_obj[indivial_i, :] = [23. 5. 44. 49.]  
646     cord_individual_obj[indivial_i, :] = [24. 5. 16. 21.]  
647  
648     min(cord_individual_obj[:, 3]) = 2.0  
649     historl_G_best_iter[iter, 3] = 2.0  
650 Begin iteration:  
651  
652 iter = 20  
653     cord_individual_obj[indivial_i, :] = [ 0. 3. 24. 27.]  
654     cord_individual_obj[indivial_i, :] = [ 1. 5. 8. 13.]  
655     cord_individual_obj[indivial_i, :] = [ 2. 5. 36. 41.]  
656     cord_individual_obj[indivial_i, :] = [ 3. 5. 8. 13.]  
657     cord_individual_obj[indivial_i, :] = [ 4. 3. 18. 21.]  
658     cord_individual_obj[indivial_i, :] = [ 5. 3. 44. 47.]  
659     cord_individual_obj[indivial_i, :] = [ 6. 5. 10. 15.]  
660     cord_individual_obj[indivial_i, :] = [ 7. 5. 8. 13.]  
661     cord_individual_obj[indivial_i, :] = [ 8. 5. 8. 13.]  
662     cord_individual_obj[indivial_i, :] = [ 9. 5. 22. 27.]  
663     cord_individual_obj[indivial_i, :] = [10. 5. 18. 23.]  
664     cord_individual_obj[indivial_i, :] = [11. 5. 18. 23.]  
665     cord_individual_obj[indivial_i, :] = [12. 5. 58. 63.]  
666     cord_individual_obj[indivial_i, :] = [13. 5. 18. 23.]  
667     cord_individual_obj[indivial_i, :] = [14. 5. 14. 19.]
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668 cord_individual_obj[indivial_i, :] = [15. 5. 24. 29.]
669 cord_individual_obj[indivial_i, :] = [16. 3. 34. 37.]
670 cord_individual_obj[indivial_i, :] = [17. 5. 16. 21.]
671 cord_individual_obj[indivial_i, :] = [18. 5. 54. 59.]
672 cord_individual_obj[indivial_i, :] = [19. 5. 8. 13.]
673 cord_individual_obj[indivial_i, :] = [20. 5. 0. 5.]
674 cord_individual_obj[indivial_i, :] = [21. 2. 0. 2.]
675 cord_individual_obj[indivial_i, :] = [22. 3. 18. 21.]
676 cord_individual_obj[indivial_i, :] = [23. 5. 32. 37.]
677 cord_individual_obj[indivial_i, :] = [24. 5. 28. 33.]
678
679 min(cord_individual_obj[:, 3]) = 2.0
680 historl_G_best_iter[iter, 3] = 2.0
681 Iteration calculate over
682
683
684
685
686 All item are in Bin and:
687 Bin area = 1080
688 Real_area = 85.0
689 Proportion_of_area = 0.0787037037037037
690 BEST_CHROM =
691     berth: [23.5 2.5 7.5 12.5 17. ]
692     time: [0. 0. 0. 0. 0.]
693     num_QC: [3. 2. 4. 4. 2.]
694 Objective function values and some other indicators:
695 Obj0 = 2.00          Obj1 = 0.00          Obj0 + Obj1 = 2.00
696 Total movement of crane: 0.00
697 Total waiting time in berth position: 0.00
698 Total index of q during berthing: 349.00
699 Specific arrangement for each vessel:
700
    V_id: 0           li: 9.0           xi: 23.5           bow of i: 19.0           tail of i: 28.0           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
701
    V_id: 1           li: 5.0           xi: 2.5           bow of i: 0.0           tail of i: 5.0           gama_i0: 0.0           gama_i1: 1.0
    .0                 gama_i1 + 1: 2.0       gama_i1 - gama_i0: 1.0           duration_time_i: 2.0           demand_i: 60.0           work load_i:
    60.0               work load gap_i: 0
702
    V_id: 2           li: 5.0           xi: 7.5           bow of i: 5.0           tail of i: 10.0           gama_i0: 0.0           gama_i1: 2.0
    .0                 gama_i1 + 1: 3.0       gama_i1 - gama_i0: 2.0           duration_time_i: 3.0           demand_i: 240.0           work load_i:
    240.0              work load gap_i: 0
703
    V_id: 3           li: 5.0           xi: 12.5           bow of i: 10.0           tail of i: 15.0           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: 220.0           work
    load_i: 220.0      work load gap_i: 0
704
    V_id: 4           li: 4.0           xi: 17.0           bow of i: 15.0           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: 60.0           work
    load_i: 60.0       work load gap_i: 0
705
706 Algorithm finished and the total CPU time: 138 s
707 End
708

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