

unknown

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80 cord_individual_obj[indivial_i,:] = [16. 6. 37. 43.]
81 cord_individual_obj[indivial_i,:] = [17. 5. 68. 73.]
82 cord_individual_obj[indivial_i,:] = [18. 6. 129. 135.]
83 cord_individual_obj[indivial_i,:] = [19. 6. 24. 30.]
84 cord_individual_obj[indivial_i,:] = [20. 7. 62. 69.]
85 cord_individual_obj[indivial_i,:] = [21. 6. 74. 80.]
86 cord_individual_obj[indivial_i,:] = [22. 5. 46. 51.]
87 cord_individual_obj[indivial_i,:] = [23. 5. 21. 26.]
88 cord_individual_obj[indivial_i,:] = [24. 7. 109. 116.]
89
90 min(cord_individual_obj[:,3]) = 26.0
91 historl_G_best_iter[iter, 3] = 26.0
92 Begin iteration:
93
94 iter = 2
95 cord_individual_obj[indivial_i,:] = [ 0. 5. 118. 123.]
96 cord_individual_obj[indivial_i,:] = [ 1. 5. 80. 85.]
97 cord_individual_obj[indivial_i,:] = [ 2. 5. 75. 80.]
98 cord_individual_obj[indivial_i,:] = [ 3. 7. 38. 45.]
99 cord_individual_obj[indivial_i,:] = [ 4. 5. 40. 45.]
100 cord_individual_obj[indivial_i,:] = [ 5. 7. 34. 41.]
101 cord_individual_obj[indivial_i,:] = [ 6. 7. 51. 58.]
102 cord_individual_obj[indivial_i,:] = [ 7. 7. 81. 88.]
103 cord_individual_obj[indivial_i,:] = [ 8. 6. 73. 79.]
104 cord_individual_obj[indivial_i,:] = [ 9. 8. 28. 36.]
105 cord_individual_obj[indivial_i,:] = [10. 6. 81. 87.]
106 cord_individual_obj[indivial_i,:] = [11. 6. 107. 113.]
107 cord_individual_obj[indivial_i,:] = [12. 6. 75. 81.]
108 cord_individual_obj[indivial_i,:] = [13. 6. 63. 69.]
109 cord_individual_obj[indivial_i,:] = [14. 7. 75. 82.]
110 cord_individual_obj[indivial_i,:] = [15. 7. 64. 71.]
111 cord_individual_obj[indivial_i,:] = [16. 7. 94. 101.]
112 cord_individual_obj[indivial_i,:] = [17. 6. 57. 63.]
113 cord_individual_obj[indivial_i,:] = [18. 5. 21. 26.]
114 cord_individual_obj[indivial_i,:] = [19. 9. 58. 67.]
115 cord_individual_obj[indivial_i,:] = [20. 6. 89. 95.]
116 cord_individual_obj[indivial_i,:] = [21. 5. 132. 137.]
117 cord_individual_obj[indivial_i,:] = [22. 7. 160. 167.]
118 cord_individual_obj[indivial_i,:] = [23. 5. 82. 87.]
119 cord_individual_obj[indivial_i,:] = [24. 5. 89. 94.]
120
121 min(cord_individual_obj[:,3]) = 26.0
122 historl_G_best_iter[iter, 3] = 26.0
123 Begin iteration:
124
125 iter = 3
126 cord_individual_obj[indivial_i,:] = [ 0. 6. 43. 49.]
127 cord_individual_obj[indivial_i,:] = [ 1. 6. 31. 37.]
128 cord_individual_obj[indivial_i,:] = [ 2. 6. 44. 50.]
129 cord_individual_obj[indivial_i,:] = [ 3. 6. 36. 42.]
130 cord_individual_obj[indivial_i,:] = [ 4. 6. 49. 55.]
131 cord_individual_obj[indivial_i,:] = [ 5. 5. 35. 40.]
132 cord_individual_obj[indivial_i,:] = [ 6. 7. 69. 76.]
133 cord_individual_obj[indivial_i,:] = [ 7. 7. 75. 82.]
134 cord_individual_obj[indivial_i,:] = [ 8. 6. 127. 133.]
135 cord_individual_obj[indivial_i,:] = [ 9. 6. 86. 92.]
136 cord_individual_obj[indivial_i,:] = [10. 6. 30. 36.]
137 cord_individual_obj[indivial_i,:] = [11. 5. 98. 103.]
138 cord_individual_obj[indivial_i,:] = [12. 8. 75. 83.]
139 cord_individual_obj[indivial_i,:] = [13. 6. 63. 69.]
140 cord_individual_obj[indivial_i,:] = [14. 7. 82. 89.]
141 cord_individual_obj[indivial_i,:] = [15. 6. 67. 73.]
142 cord_individual_obj[indivial_i,:] = [16. 6. 33. 39.]
143 cord_individual_obj[indivial_i,:] = [17. 6. 62. 68.]
144 cord_individual_obj[indivial_i,:] = [18. 5. 83. 88.]
145 cord_individual_obj[indivial_i,:] = [19. 9. 76. 85.]
146 cord_individual_obj[indivial_i,:] = [20. 5. 88. 93.]
147 cord_individual_obj[indivial_i,:] = [21. 7. 50. 57.]
148 cord_individual_obj[indivial_i,:] = [22. 5. 21. 26.]
149 cord_individual_obj[indivial_i,:] = [23. 5. 82. 87.]
150 cord_individual_obj[indivial_i,:] = [24. 6. 94. 100.]
151
152 min(cord_individual_obj[:,3]) = 26.0
153 historl_G_best_iter[iter, 3] = 26.0
154 Begin iteration:
155
156 iter = 4
157 cord_individual_obj[indivial_i,:] = [ 0. 7. 45. 52.]
158 cord_individual_obj[indivial_i,:] = [ 1. 5. 31. 36.]
159 cord_individual_obj[indivial_i,:] = [ 2. 4. 106. 110.]
160 cord_individual_obj[indivial_i,:] = [ 3. 8. 37. 45.]
161 cord_individual_obj[indivial_i,:] = [ 4. 6. 53. 59.]
162 cord_individual_obj[indivial_i,:] = [ 5. 6. 40. 46.]
163 cord_individual_obj[indivial_i,:] = [ 6. 6. 69. 75.]

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164 cord_individual_obj[indivial_i, :] = [ 7. 6. 45. 51.]
165 cord_individual_obj[indivial_i, :] = [ 8. 5. 21. 26.]
166 cord_individual_obj[indivial_i, :] = [ 9. 5. 117. 122.]
167 cord_individual_obj[indivial_i, :] = [10. 5. 30. 35.]
168 cord_individual_obj[indivial_i, :] = [11. 6. 44. 50.]
169 cord_individual_obj[indivial_i, :] = [12. 5. 49. 54.]
170 cord_individual_obj[indivial_i, :] = [13. 6. 82. 88.]
171 cord_individual_obj[indivial_i, :] = [14. 5. 35. 40.]
172 cord_individual_obj[indivial_i, :] = [15. 6. 133. 139.]
173 cord_individual_obj[indivial_i, :] = [16. 8. 123. 131.]
174 cord_individual_obj[indivial_i, :] = [17. 5. 39. 44.]
175 cord_individual_obj[indivial_i, :] = [18. 6. 32. 38.]
176 cord_individual_obj[indivial_i, :] = [19. 6. 92. 98.]
177 cord_individual_obj[indivial_i, :] = [20. 5. 36. 41.]
178 cord_individual_obj[indivial_i, :] = [21. 7. 83. 90.]
179 cord_individual_obj[indivial_i, :] = [22. 5. 71. 76.]
180 cord_individual_obj[indivial_i, :] = [23. 7. 62. 69.]
181 cord_individual_obj[indivial_i, :] = [24. 6. 59. 65.]
182
183 min(cord_individual_obj[:, 3]) = 26.0
184 historl_G_best_iter[iter, 3] = 26.0
185 Begin iteration:
186
187 iter = 5
188 cord_individual_obj[indivial_i, :] = [ 0. 7. 45. 52.]
189 cord_individual_obj[indivial_i, :] = [ 1. 6. 52. 58.]
190 cord_individual_obj[indivial_i, :] = [ 2. 5. 45. 50.]
191 cord_individual_obj[indivial_i, :] = [ 3. 6. 33. 39.]
192 cord_individual_obj[indivial_i, :] = [ 4. 5. 59. 64.]
193 cord_individual_obj[indivial_i, :] = [ 5. 6. 37. 43.]
194 cord_individual_obj[indivial_i, :] = [ 6. 6. 57. 63.]
195 cord_individual_obj[indivial_i, :] = [ 7. 5. 61. 66.]
196 cord_individual_obj[indivial_i, :] = [ 8. 6. 98. 104.]
197 cord_individual_obj[indivial_i, :] = [ 9. 6. 60. 66.]
198 cord_individual_obj[indivial_i, :] = [10. 5. 32. 37.]
199 cord_individual_obj[indivial_i, :] = [11. 6. 79. 85.]
200 cord_individual_obj[indivial_i, :] = [12. 6. 86. 92.]
201 cord_individual_obj[indivial_i, :] = [13. 5. 61. 66.]
202 cord_individual_obj[indivial_i, :] = [14. 5. 92. 97.]
203 cord_individual_obj[indivial_i, :] = [15. 5. 21. 26.]
204 cord_individual_obj[indivial_i, :] = [16. 6. 36. 42.]
205 cord_individual_obj[indivial_i, :] = [17. 6. 62. 68.]
206 cord_individual_obj[indivial_i, :] = [18. 6. 46. 52.]
207 cord_individual_obj[indivial_i, :] = [19. 7. 98. 105.]
208 cord_individual_obj[indivial_i, :] = [20. 5. 75. 80.]
209 cord_individual_obj[indivial_i, :] = [21. 7. 33. 40.]
210 cord_individual_obj[indivial_i, :] = [22. 5. 73. 78.]
211 cord_individual_obj[indivial_i, :] = [23. 7. 58. 65.]
212 cord_individual_obj[indivial_i, :] = [24. 7. 39. 46.]
213
214 min(cord_individual_obj[:, 3]) = 26.0
215 historl_G_best_iter[iter, 3] = 26.0
216 Begin iteration:
217
218 iter = 6
219 cord_individual_obj[indivial_i, :] = [ 0. 7. 28. 35.]
220 cord_individual_obj[indivial_i, :] = [ 1. 7. 82. 89.]
221 cord_individual_obj[indivial_i, :] = [ 2. 5. 48. 53.]
222 cord_individual_obj[indivial_i, :] = [ 3. 6. 45. 51.]
223 cord_individual_obj[indivial_i, :] = [ 4. 6. 42. 48.]
224 cord_individual_obj[indivial_i, :] = [ 5. 5. 72. 77.]
225 cord_individual_obj[indivial_i, :] = [ 6. 7. 65. 72.]
226 cord_individual_obj[indivial_i, :] = [ 7. 6. 44. 50.]
227 cord_individual_obj[indivial_i, :] = [ 8. 6. 77. 83.]
228 cord_individual_obj[indivial_i, :] = [ 9. 5. 101. 106.]
229 cord_individual_obj[indivial_i, :] = [10. 6. 38. 44.]
230 cord_individual_obj[indivial_i, :] = [11. 5. 86. 91.]
231 cord_individual_obj[indivial_i, :] = [12. 6. 75. 81.]
232 cord_individual_obj[indivial_i, :] = [13. 6. 55. 61.]
233 cord_individual_obj[indivial_i, :] = [14. 5. 53. 58.]
234 cord_individual_obj[indivial_i, :] = [15. 6. 71. 77.]
235 cord_individual_obj[indivial_i, :] = [16. 8. 110. 118.]
236 cord_individual_obj[indivial_i, :] = [17. 6. 62. 68.]
237 cord_individual_obj[indivial_i, :] = [18. 6. 32. 38.]
238 cord_individual_obj[indivial_i, :] = [19. 5. 21. 26.]
239 cord_individual_obj[indivial_i, :] = [20. 6. 39. 45.]
240 cord_individual_obj[indivial_i, :] = [21. 6. 146. 152.]
241 cord_individual_obj[indivial_i, :] = [22. 5. 108. 113.]
242 cord_individual_obj[indivial_i, :] = [23. 7. 108. 115.]
243 cord_individual_obj[indivial_i, :] = [24. 5. 126. 131.]
244
245 min(cord_individual_obj[:, 3]) = 26.0
246 historl_G_best_iter[iter, 3] = 26.0
247 Begin iteration:

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248
249 iter = 7
250 cord_individual_obj[indivial_i, :] = [ 0. 7. 45. 52.]
251 cord_individual_obj[indivial_i, :] = [ 1. 7. 54. 61.]
252 cord_individual_obj[indivial_i, :] = [ 2. 5. 68. 73.]
253 cord_individual_obj[indivial_i, :] = [ 3. 8. 35. 43.]
254 cord_individual_obj[indivial_i, :] = [ 4. 5. 49. 54.]
255 cord_individual_obj[indivial_i, :] = [ 5. 5. 44. 49.]
256 cord_individual_obj[indivial_i, :] = [ 6. 6. 87. 93.]
257 cord_individual_obj[indivial_i, :] = [ 7. 7. 45. 52.]
258 cord_individual_obj[indivial_i, :] = [ 8. 6. 68. 74.]
259 cord_individual_obj[indivial_i, :] = [ 9. 5. 64. 69.]
260 cord_individual_obj[indivial_i, :] = [ 10. 5. 102. 107.]
261 cord_individual_obj[indivial_i, :] = [11. 6. 41. 47.]
262 cord_individual_obj[indivial_i, :] = [12. 6. 41. 47.]
263 cord_individual_obj[indivial_i, :] = [13. 9. 68. 77.]
264 cord_individual_obj[indivial_i, :] = [14. 5. 35. 40.]
265 cord_individual_obj[indivial_i, :] = [15. 6. 65. 71.]
266 cord_individual_obj[indivial_i, :] = [16. 7. 48. 55.]
267 cord_individual_obj[indivial_i, :] = [17. 7. 64. 71.]
268 cord_individual_obj[indivial_i, :] = [18. 6. 32. 38.]
269 cord_individual_obj[indivial_i, :] = [19. 6. 64. 70.]
270 cord_individual_obj[indivial_i, :] = [20. 5. 36. 41.]
271 cord_individual_obj[indivial_i, :] = [21. 5. 21. 26.]
272 cord_individual_obj[indivial_i, :] = [22. 5. 80. 85.]
273 cord_individual_obj[indivial_i, :] = [23. 5. 62. 67.]
274 cord_individual_obj[indivial_i, :] = [24. 6. 90. 96.]
275

276 min(cord_individual_obj[:, 3]) = 26.0
277 historl_G_best_iter[iter, 3] = 26.0
278 Begin iteration:
279
280 iter = 8
281 cord_individual_obj[indivial_i, :] = [ 0. 7. 48. 55.]
282 cord_individual_obj[indivial_i, :] = [ 1. 6. 52. 58.]
283 cord_individual_obj[indivial_i, :] = [ 2. 5. 51. 56.]
284 cord_individual_obj[indivial_i, :] = [ 3. 7. 117. 124.]
285 cord_individual_obj[indivial_i, :] = [ 4. 6. 53. 59.]
286 cord_individual_obj[indivial_i, :] = [ 5. 6. 40. 46.]
287 cord_individual_obj[indivial_i, :] = [ 6. 7. 58. 65.]
288 cord_individual_obj[indivial_i, :] = [ 7. 6. 43. 49.]
289 cord_individual_obj[indivial_i, :] = [ 8. 6. 97. 103.]
290 cord_individual_obj[indivial_i, :] = [ 9. 7. 78. 85.]
291 cord_individual_obj[indivial_i, :] = [10. 5. 21. 26.]
292 cord_individual_obj[indivial_i, :] = [11. 5. 70. 75.]
293 cord_individual_obj[indivial_i, :] = [12. 5. 80. 85.]
294 cord_individual_obj[indivial_i, :] = [13. 7. 58. 65.]
295 cord_individual_obj[indivial_i, :] = [14. 5. 52. 57.]
296 cord_individual_obj[indivial_i, :] = [15. 6. 94. 100.]
297 cord_individual_obj[indivial_i, :] = [16. 6. 53. 59.]
298 cord_individual_obj[indivial_i, :] = [17. 6. 81. 87.]
299 cord_individual_obj[indivial_i, :] = [18. 5. 63. 68.]
300 cord_individual_obj[indivial_i, :] = [19. 6. 117. 123.]
301 cord_individual_obj[indivial_i, :] = [20. 6. 41. 47.]
302 cord_individual_obj[indivial_i, :] = [21. 6. 47. 53.]
303 cord_individual_obj[indivial_i, :] = [22. 5. 62. 67.]
304 cord_individual_obj[indivial_i, :] = [23. 7. 81. 88.]
305 cord_individual_obj[indivial_i, :] = [24. 6. 57. 63.]
306

307 min(cord_individual_obj[:, 3]) = 26.0
308 historl_G_best_iter[iter, 3] = 26.0
309 Begin iteration:
310
311 iter = 9
312 cord_individual_obj[indivial_i, :] = [ 0. 7. 45. 52.]
313 cord_individual_obj[indivial_i, :] = [ 1. 5. 28. 33.]
314 cord_individual_obj[indivial_i, :] = [ 2. 6. 84. 90.]
315 cord_individual_obj[indivial_i, :] = [ 3. 5. 21. 26.]
316 cord_individual_obj[indivial_i, :] = [ 4. 5. 50. 55.]
317 cord_individual_obj[indivial_i, :] = [ 5. 5. 44. 49.]
318 cord_individual_obj[indivial_i, :] = [ 6. 7. 96. 103.]
319 cord_individual_obj[indivial_i, :] = [ 7. 7. 45. 52.]
320 cord_individual_obj[indivial_i, :] = [ 8. 6. 96. 102.]
321 cord_individual_obj[indivial_i, :] = [ 9. 5. 73. 78.]
322 cord_individual_obj[indivial_i, :] = [10. 6. 30. 36.]
323 cord_individual_obj[indivial_i, :] = [11. 6. 44. 50.]
324 cord_individual_obj[indivial_i, :] = [12. 5. 87. 92.]
325 cord_individual_obj[indivial_i, :] = [13. 7. 78. 85.]
326 cord_individual_obj[indivial_i, :] = [14. 5. 74. 79.]
327 cord_individual_obj[indivial_i, :] = [15. 6. 51. 57.]
328 cord_individual_obj[indivial_i, :] = [16. 6. 94. 100.]
329 cord_individual_obj[indivial_i, :] = [17. 7. 77. 84.]
330 cord_individual_obj[indivial_i, :] = [18. 5. 45. 50.]
331 cord_individual_obj[indivial_i, :] = [19. 7. 112. 119.]

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332 cord_individual_obj[indivial_i,:] = [20. 4. 34. 38.]
333 cord_individual_obj[indivial_i,:] = [21. 7. 48. 55.]
334 cord_individual_obj[indivial_i,:] = [22. 5. 64. 69.]
335 cord_individual_obj[indivial_i,:] = [23. 5. 82. 87.]
336 cord_individual_obj[indivial_i,:] = [24. 5. 54. 59.]
337
338 min(cord_individual_obj[:,3]) = 26.0
339 histol_G_best_iter[iter,3] = 26.0
340 Begin iteration:
341
342 iter = 10
343 cord_individual_obj[indivial_i,:] = [ 0. 7. 31. 38.]
344 cord_individual_obj[indivial_i,:] = [ 1. 8. 35. 43.]
345 cord_individual_obj[indivial_i,:] = [ 2. 5. 23. 28.]
346 cord_individual_obj[indivial_i,:] = [ 3. 7. 83. 90.]
347 cord_individual_obj[indivial_i,:] = [ 4. 9. 51. 60.]
348 cord_individual_obj[indivial_i,:] = [ 5. 6. 97. 103.]
349 cord_individual_obj[indivial_i,:] = [ 6. 6. 32. 38.]
350 cord_individual_obj[indivial_i,:] = [ 7. 8. 48. 56.]
351 cord_individual_obj[indivial_i,:] = [ 8. 7. 67. 74.]
352 cord_individual_obj[indivial_i,:] = [ 9. 6. 58. 64.]
353 cord_individual_obj[indivial_i,:] = [10. 5. 87. 92.]
354 cord_individual_obj[indivial_i,:] = [11. 9. 71. 80.]
355 cord_individual_obj[indivial_i,:] = [12. 6. 118. 124.]
356 cord_individual_obj[indivial_i,:] = [13. 8. 32. 40.]
357 cord_individual_obj[indivial_i,:] = [14. 6. 43. 49.]
358 cord_individual_obj[indivial_i,:] = [15. 7. 88. 95.]
359 cord_individual_obj[indivial_i,:] = [16. 7. 55. 62.]
360 cord_individual_obj[indivial_i,:] = [17. 6. 30. 36.]
361 cord_individual_obj[indivial_i,:] = [18. 5. 32. 37.]
362 cord_individual_obj[indivial_i,:] = [19. 5. 21. 26.]
363 cord_individual_obj[indivial_i,:] = [20. 6. 40. 46.]
364 cord_individual_obj[indivial_i,:] = [21. 6. 26. 32.]
365 cord_individual_obj[indivial_i,:] = [22. 5. 62. 67.]
366 cord_individual_obj[indivial_i,:] = [23. 6. 82. 88.]
367 cord_individual_obj[indivial_i,:] = [24. 6. 117. 123.]
368
369 min(cord_individual_obj[:,3]) = 26.0
370 histol_G_best_iter[iter,3] = 26.0
371 Begin iteration:
372
373 iter = 11
374 cord_individual_obj[indivial_i,:] = [ 0. 7. 52. 59.]
375 cord_individual_obj[indivial_i,:] = [ 1. 8. 39. 47.]
376 cord_individual_obj[indivial_i,:] = [ 2. 7. 51. 58.]
377 cord_individual_obj[indivial_i,:] = [ 3. 7. 104. 111.]
378 cord_individual_obj[indivial_i,:] = [ 4. 6. 59. 65.]
379 cord_individual_obj[indivial_i,:] = [ 5. 6. 93. 99.]
380 cord_individual_obj[indivial_i,:] = [ 6. 6. 74. 80.]
381 cord_individual_obj[indivial_i,:] = [ 7. 7. 64. 71.]
382 cord_individual_obj[indivial_i,:] = [ 8. 7. 75. 82.]
383 cord_individual_obj[indivial_i,:] = [ 9. 6. 64. 70.]
384 cord_individual_obj[indivial_i,:] = [10. 6. 44. 50.]
385 cord_individual_obj[indivial_i,:] = [11. 7. 42. 49.]
386 cord_individual_obj[indivial_i,:] = [12. 5. 21. 26.]
387 cord_individual_obj[indivial_i,:] = [13. 7. 44. 51.]
388 cord_individual_obj[indivial_i,:] = [14. 8. 82. 90.]
389 cord_individual_obj[indivial_i,:] = [15. 6. 63. 69.]
390 cord_individual_obj[indivial_i,:] = [16. 6. 59. 65.]
391 cord_individual_obj[indivial_i,:] = [17. 8. 105. 113.]
392 cord_individual_obj[indivial_i,:] = [18. 5. 79. 84.]
393 cord_individual_obj[indivial_i,:] = [19. 7. 106. 113.]
394 cord_individual_obj[indivial_i,:] = [20. 6. 52. 58.]
395 cord_individual_obj[indivial_i,:] = [21. 8. 106. 114.]
396 cord_individual_obj[indivial_i,:] = [22. 5. 88. 93.]
397 cord_individual_obj[indivial_i,:] = [23. 6. 66. 72.]
398 cord_individual_obj[indivial_i,:] = [24. 5. 31. 36.]
399
400 min(cord_individual_obj[:,3]) = 26.0
401 histol_G_best_iter[iter,3] = 26.0
402 Begin iteration:
403
404 iter = 12
405 cord_individual_obj[indivial_i,:] = [ 0. 7. 46. 53.]
406 cord_individual_obj[indivial_i,:] = [ 1. 5. 31. 36.]
407 cord_individual_obj[indivial_i,:] = [ 2. 7. 66. 73.]
408 cord_individual_obj[indivial_i,:] = [ 3. 7. 38. 45.]
409 cord_individual_obj[indivial_i,:] = [ 4. 5. 50. 55.]
410 cord_individual_obj[indivial_i,:] = [ 5. 5. 44. 49.]
411 cord_individual_obj[indivial_i,:] = [ 6. 7. 96. 103.]
412 cord_individual_obj[indivial_i,:] = [ 7. 7. 45. 52.]
413 cord_individual_obj[indivial_i,:] = [ 8. 6. 90. 96.]
414 cord_individual_obj[indivial_i,:] = [ 9. 6. 60. 66.]
415 cord_individual_obj[indivial_i,:] = [10. 6. 30. 36.]

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416 cord_individual_obj[indivial_i,:] = [11. 6. 44. 50.]
417 cord_individual_obj[indivial_i,:] = [12. 6. 69. 75.]
418 cord_individual_obj[indivial_i,:] = [13. 9. 76. 85.]
419 cord_individual_obj[indivial_i,:] = [14. 5. 37. 42.]
420 cord_individual_obj[indivial_i,:] = [15. 6. 57. 63.]
421 cord_individual_obj[indivial_i,:] = [16. 6. 53. 59.]
422 cord_individual_obj[indivial_i,:] = [17. 7. 44. 51.]
423 cord_individual_obj[indivial_i,:] = [18. 5. 45. 50.]
424 cord_individual_obj[indivial_i,:] = [19. 7. 88. 95.]
425 cord_individual_obj[indivial_i,:] = [20. 4. 44. 48.]
426 cord_individual_obj[indivial_i,:] = [21. 5. 21. 26.]
427 cord_individual_obj[indivial_i,:] = [22. 7. 91. 98.]
428 cord_individual_obj[indivial_i,:] = [23. 5. 63. 68.]
429 cord_individual_obj[indivial_i,:] = [24. 6. 99. 105.]
430
431 min(cord_individual_obj[:,3]) = 26.0
432 histol_G_best_iter[iter,3] = 26.0
433 Begin iteration:
434
435 iter = 13
436 cord_individual_obj[indivial_i,:] = [ 0. 8. 81. 89.]
437 cord_individual_obj[indivial_i,:] = [ 1. 6. 63. 69.]
438 cord_individual_obj[indivial_i,:] = [ 2. 5. 44. 49.]
439 cord_individual_obj[indivial_i,:] = [ 3. 6. 54. 60.]
440 cord_individual_obj[indivial_i,:] = [ 4. 6. 50. 56.]
441 cord_individual_obj[indivial_i,:] = [ 5. 5. 34. 39.]
442 cord_individual_obj[indivial_i,:] = [ 6. 5. 44. 49.]
443 cord_individual_obj[indivial_i,:] = [ 7. 6. 140. 146.]
444 cord_individual_obj[indivial_i,:] = [ 8. 6. 61. 67.]
445 cord_individual_obj[indivial_i,:] = [ 9. 6. 76. 82.]
446 cord_individual_obj[indivial_i,:] = [10. 5. 44. 49.]
447 cord_individual_obj[indivial_i,:] = [11. 6. 105. 111.]
448 cord_individual_obj[indivial_i,:] = [12. 5. 66. 71.]
449 cord_individual_obj[indivial_i,:] = [13. 5. 96. 101.]
450 cord_individual_obj[indivial_i,:] = [14. 7. 74. 81.]
451 cord_individual_obj[indivial_i,:] = [15. 5. 92. 97.]
452 cord_individual_obj[indivial_i,:] = [16. 4. 35. 39.]
453 cord_individual_obj[indivial_i,:] = [17. 5. 40. 45.]
454 cord_individual_obj[indivial_i,:] = [18. 6. 55. 61.]
455 cord_individual_obj[indivial_i,:] = [19. 7. 81. 88.]
456 cord_individual_obj[indivial_i,:] = [20. 5. 82. 87.]
457 cord_individual_obj[indivial_i,:] = [21. 8. 47. 55.]
458 cord_individual_obj[indivial_i,:] = [22. 7. 60. 67.]
459 cord_individual_obj[indivial_i,:] = [23. 5. 39. 44.]
460 cord_individual_obj[indivial_i,:] = [24. 5. 21. 26.]
461
462 min(cord_individual_obj[:,3]) = 26.0
463 histol_G_best_iter[iter,3] = 26.0
464 Begin iteration:
465
466 iter = 14
467 cord_individual_obj[indivial_i,:] = [ 0. 5. 84. 89.]
468 cord_individual_obj[indivial_i,:] = [ 1. 8. 60. 68.]
469 cord_individual_obj[indivial_i,:] = [ 2. 6. 85. 91.]
470 cord_individual_obj[indivial_i,:] = [ 3. 7. 38. 45.]
471 cord_individual_obj[indivial_i,:] = [ 4. 5. 43. 48.]
472 cord_individual_obj[indivial_i,:] = [ 5. 5. 25. 30.]
473 cord_individual_obj[indivial_i,:] = [ 6. 5. 84. 89.]
474 cord_individual_obj[indivial_i,:] = [ 7. 5. 21. 26.]
475 cord_individual_obj[indivial_i,:] = [ 8. 5. 80. 85.]
476 cord_individual_obj[indivial_i,:] = [ 9. 5. 59. 64.]
477 cord_individual_obj[indivial_i,:] = [10. 5. 85. 90.]
478 cord_individual_obj[indivial_i,:] = [11. 6. 65. 71.]
479 cord_individual_obj[indivial_i,:] = [12. 8. 69. 77.]
480 cord_individual_obj[indivial_i,:] = [13. 7. 45. 52.]
481 cord_individual_obj[indivial_i,:] = [14. 7. 35. 42.]
482 cord_individual_obj[indivial_i,:] = [15. 5. 160. 165.]
483 cord_individual_obj[indivial_i,:] = [16. 6. 70. 76.]
484 cord_individual_obj[indivial_i,:] = [17. 5. 19. 24.]
485 cord_individual_obj[indivial_i,:] = [18. 5. 66. 71.]
486 cord_individual_obj[indivial_i,:] = [19. 6. 141. 147.]
487 cord_individual_obj[indivial_i,:] = [20. 7. 94. 101.]
488 cord_individual_obj[indivial_i,:] = [21. 7. 45. 52.]
489 cord_individual_obj[indivial_i,:] = [22. 6. 29. 35.]
490 cord_individual_obj[indivial_i,:] = [23. 5. 42. 47.]
491 cord_individual_obj[indivial_i,:] = [24. 5. 56. 61.]
492
493 min(cord_individual_obj[:,3]) = 24.0
494 histol_G_best_iter[iter,3] = 24.0
495 Begin iteration:
496
497 iter = 15
498 cord_individual_obj[indivial_i,:] = [ 0. 7. 32. 39.]
499 cord_individual_obj[indivial_i,:] = [ 1. 8. 81. 89.]

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500 cord_individual_obj[indivial_i,:] = [ 2. 5. 95. 100.]
501 cord_individual_obj[indivial_i,:] = [ 3. 5. 38. 43.]
502 cord_individual_obj[indivial_i,:] = [ 4. 5. 52. 57.]
503 cord_individual_obj[indivial_i,:] = [ 5. 6. 31. 37.]
504 cord_individual_obj[indivial_i,:] = [ 6. 7. 37. 44.]
505 cord_individual_obj[indivial_i,:] = [ 7. 7. 49. 56.]
506 cord_individual_obj[indivial_i,:] = [ 8. 7. 50. 57.]
507 cord_individual_obj[indivial_i,:] = [ 9. 7. 112. 119.]
508 cord_individual_obj[indivial_i,:] = [10. 5. 51. 56.]
509 cord_individual_obj[indivial_i,:] = [11. 7. 106. 113.]
510 cord_individual_obj[indivial_i,:] = [12. 5. 59. 64.]
511 cord_individual_obj[indivial_i,:] = [13. 6. 66. 72.]
512 cord_individual_obj[indivial_i,:] = [14. 5. 94. 99.]
513 cord_individual_obj[indivial_i,:] = [15. 5. 19. 24.]
514 cord_individual_obj[indivial_i,:] = [16. 6. 99. 105.]
515 cord_individual_obj[indivial_i,:] = [17. 5. 129. 134.]
516 cord_individual_obj[indivial_i,:] = [18. 6. 56. 62.]
517 cord_individual_obj[indivial_i,:] = [19. 6. 29. 35.]
518 cord_individual_obj[indivial_i,:] = [20. 5. 43. 48.]
519 cord_individual_obj[indivial_i,:] = [21. 6. 38. 44.]
520 cord_individual_obj[indivial_i,:] = [22. 5. 65. 70.]
521 cord_individual_obj[indivial_i,:] = [23. 7. 85. 92.]
522 cord_individual_obj[indivial_i,:] = [24. 5. 57. 62.]
523
524 min(cord_individual_obj[:,3]) = 24.0
525 histol_G_best_iter[iter,3] = 24.0
526 Begin iteration:
527
528 iter = 16
529 cord_individual_obj[indivial_i,:] = [ 0. 5. 31. 36.]
530 cord_individual_obj[indivial_i,:] = [ 1. 5. 91. 96.]
531 cord_individual_obj[indivial_i,:] = [ 2. 6. 79. 85.]
532 cord_individual_obj[indivial_i,:] = [ 3. 4. 44. 48.]
533 cord_individual_obj[indivial_i,:] = [ 4. 5. 97. 102.]
534 cord_individual_obj[indivial_i,:] = [ 5. 6. 44. 50.]
535 cord_individual_obj[indivial_i,:] = [ 6. 5. 33. 38.]
536 cord_individual_obj[indivial_i,:] = [ 7. 7. 157. 164.]
537 cord_individual_obj[indivial_i,:] = [ 8. 6. 69. 75.]
538 cord_individual_obj[indivial_i,:] = [ 9. 8. 83. 91.]
539 cord_individual_obj[indivial_i,:] = [10. 5. 72. 77.]
540 cord_individual_obj[indivial_i,:] = [11. 5. 53. 58.]
541 cord_individual_obj[indivial_i,:] = [12. 5. 60. 65.]
542 cord_individual_obj[indivial_i,:] = [13. 6. 29. 35.]
543 cord_individual_obj[indivial_i,:] = [14. 5. 39. 44.]
544 cord_individual_obj[indivial_i,:] = [15. 5. 75. 80.]
545 cord_individual_obj[indivial_i,:] = [16. 5. 70. 75.]
546 cord_individual_obj[indivial_i,:] = [17. 5. 19. 24.]
547 cord_individual_obj[indivial_i,:] = [18. 6. 87. 93.]
548 cord_individual_obj[indivial_i,:] = [19. 6. 24. 30.]
549 cord_individual_obj[indivial_i,:] = [20. 5. 31. 36.]
550 cord_individual_obj[indivial_i,:] = [21. 5. 92. 97.]
551 cord_individual_obj[indivial_i,:] = [22. 6. 26. 32.]
552 cord_individual_obj[indivial_i,:] = [23. 7. 35. 42.]
553 cord_individual_obj[indivial_i,:] = [24. 6. 33. 39.]
554
555 min(cord_individual_obj[:,3]) = 24.0
556 histol_G_best_iter[iter,3] = 24.0
557 Begin iteration:
558
559 iter = 17
560 cord_individual_obj[indivial_i,:] = [ 0. 7. 147. 154.]
561 cord_individual_obj[indivial_i,:] = [ 1. 7. 26. 33.]
562 cord_individual_obj[indivial_i,:] = [ 2. 10. 157. 167.]
563 cord_individual_obj[indivial_i,:] = [ 3. 5. 36. 41.]
564 cord_individual_obj[indivial_i,:] = [ 4. 7. 95. 102.]
565 cord_individual_obj[indivial_i,:] = [ 5. 7. 131. 138.]
566 cord_individual_obj[indivial_i,:] = [ 6. 7. 41. 48.]
567 cord_individual_obj[indivial_i,:] = [ 7. 5. 19. 24.]
568 cord_individual_obj[indivial_i,:] = [ 8. 6. 26. 32.]
569 cord_individual_obj[indivial_i,:] = [ 9. 5. 46. 51.]
570 cord_individual_obj[indivial_i,:] = [10. 8. 109. 117.]
571 cord_individual_obj[indivial_i,:] = [11. 6. 42. 48.]
572 cord_individual_obj[indivial_i,:] = [12. 5. 61. 66.]
573 cord_individual_obj[indivial_i,:] = [13. 6. 51. 57.]
574 cord_individual_obj[indivial_i,:] = [14. 5. 55. 60.]
575 cord_individual_obj[indivial_i,:] = [15. 5. 55. 60.]
576 cord_individual_obj[indivial_i,:] = [16. 7. 92. 99.]
577 cord_individual_obj[indivial_i,:] = [17. 7. 46. 53.]
578 cord_individual_obj[indivial_i,:] = [18. 6. 70. 76.]
579 cord_individual_obj[indivial_i,:] = [19. 6. 24. 30.]
580 cord_individual_obj[indivial_i,:] = [20. 5. 43. 48.]
581 cord_individual_obj[indivial_i,:] = [21. 5. 96. 101.]
582 cord_individual_obj[indivial_i,:] = [22. 6. 82. 88.]
583 cord_individual_obj[indivial_i,:] = [23. 6. 63. 69.]

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unknown

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584     cord_individual_obj[indivial_i, :] = [24. 7. 79. 86.]  
585  
586     min(cord_individual_obj[:, 3]) = 24.0  
587     historl_G_best_iter[iter, 3] = 24.0  
588 Begin iteration:  
589  
590 iter = 18  
591     cord_individual_obj[indivial_i, :] = [ 0. 6. 115. 121.]  
592     cord_individual_obj[indivial_i, :] = [ 1. 6. 52. 58.]  
593     cord_individual_obj[indivial_i, :] = [ 2. 5. 19. 24.]  
594     cord_individual_obj[indivial_i, :] = [ 3. 6. 47. 53.]  
595     cord_individual_obj[indivial_i, :] = [ 4. 8. 49. 57.]  
596     cord_individual_obj[indivial_i, :] = [ 5. 6. 77. 83.]  
597     cord_individual_obj[indivial_i, :] = [ 6. 6. 47. 53.]  
598     cord_individual_obj[indivial_i, :] = [ 7. 6. 81. 87.]  
599     cord_individual_obj[indivial_i, :] = [ 8. 6. 37. 43.]  
600     cord_individual_obj[indivial_i, :] = [ 9. 7. 57. 64.]  
601     cord_individual_obj[indivial_i, :] = [10. 5. 61. 66.]  
602     cord_individual_obj[indivial_i, :] = [11. 6. 53. 59.]  
603     cord_individual_obj[indivial_i, :] = [12. 7. 68. 75.]  
604     cord_individual_obj[indivial_i, :] = [13. 7. 61. 68.]  
605     cord_individual_obj[indivial_i, :] = [14. 5. 94. 99.]  
606     cord_individual_obj[indivial_i, :] = [15. 6. 55. 61.]  
607     cord_individual_obj[indivial_i, :] = [16. 9. 43. 52.]  
608     cord_individual_obj[indivial_i, :] = [17. 5. 34. 39.]  
609     cord_individual_obj[indivial_i, :] = [18. 6. 89. 95.]  
610     cord_individual_obj[indivial_i, :] = [19. 6. 42. 48.]  
611     cord_individual_obj[indivial_i, :] = [20. 5. 32. 37.]  
612     cord_individual_obj[indivial_i, :] = [21. 7. 40. 47.]  
613     cord_individual_obj[indivial_i, :] = [22. 6. 51. 57.]  
614     cord_individual_obj[indivial_i, :] = [23. 5. 67. 72.]  
615     cord_individual_obj[indivial_i, :] = [24. 7. 108. 115.]  
616  
617     min(cord_individual_obj[:, 3]) = 24.0  
618     historl_G_best_iter[iter, 3] = 24.0  
619 Begin iteration:  
620  
621 iter = 19  
622     cord_individual_obj[indivial_i, :] = [ 0. 5. 19. 24.]  
623     cord_individual_obj[indivial_i, :] = [ 1. 6. 70. 76.]  
624     cord_individual_obj[indivial_i, :] = [ 2. 5. 95. 100.]  
625     cord_individual_obj[indivial_i, :] = [ 3. 5. 55. 60.]  
626     cord_individual_obj[indivial_i, :] = [ 4. 7. 95. 102.]  
627     cord_individual_obj[indivial_i, :] = [ 5. 5. 41. 46.]  
628     cord_individual_obj[indivial_i, :] = [ 6. 7. 135. 142.]  
629     cord_individual_obj[indivial_i, :] = [ 7. 5. 81. 86.]  
630     cord_individual_obj[indivial_i, :] = [ 8. 5. 67. 72.]  
631     cord_individual_obj[indivial_i, :] = [ 9. 7. 83. 90.]  
632     cord_individual_obj[indivial_i, :] = [10. 6. 50. 56.]  
633     cord_individual_obj[indivial_i, :] = [11. 6. 54. 60.]  
634     cord_individual_obj[indivial_i, :] = [12. 7. 88. 95.]  
635     cord_individual_obj[indivial_i, :] = [13. 6. 29. 35.]  
636     cord_individual_obj[indivial_i, :] = [14. 6. 43. 49.]  
637     cord_individual_obj[indivial_i, :] = [15. 5. 55. 60.]  
638     cord_individual_obj[indivial_i, :] = [16. 5. 85. 90.]  
639     cord_individual_obj[indivial_i, :] = [17. 5. 102. 107.]  
640     cord_individual_obj[indivial_i, :] = [18. 6. 26. 32.]  
641     cord_individual_obj[indivial_i, :] = [19. 7. 22. 29.]  
642     cord_individual_obj[indivial_i, :] = [20. 6. 50. 56.]  
643     cord_individual_obj[indivial_i, :] = [21. 6. 77. 83.]  
644     cord_individual_obj[indivial_i, :] = [22. 6. 42. 48.]  
645     cord_individual_obj[indivial_i, :] = [23. 5. 62. 67.]  
646     cord_individual_obj[indivial_i, :] = [24. 6. 30. 36.]  
647  
648     min(cord_individual_obj[:, 3]) = 24.0  
649     historl_G_best_iter[iter, 3] = 24.0  
650 Begin iteration:  
651  
652 iter = 20  
653     cord_individual_obj[indivial_i, :] = [ 0. 7. 42. 49.]  
654     cord_individual_obj[indivial_i, :] = [ 1. 7. 62. 69.]  
655     cord_individual_obj[indivial_i, :] = [ 2. 6. 85. 91.]  
656     cord_individual_obj[indivial_i, :] = [ 3. 6. 20. 26.]  
657     cord_individual_obj[indivial_i, :] = [ 4. 5. 111. 116.]  
658     cord_individual_obj[indivial_i, :] = [ 5. 6. 21. 27.]  
659     cord_individual_obj[indivial_i, :] = [ 6. 5. 19. 24.]  
660     cord_individual_obj[indivial_i, :] = [ 7. 7. 94. 101.]  
661     cord_individual_obj[indivial_i, :] = [ 8. 6. 56. 62.]  
662     cord_individual_obj[indivial_i, :] = [ 9. 6. 50. 56.]  
663     cord_individual_obj[indivial_i, :] = [10. 6. 18. 24.]  
664     cord_individual_obj[indivial_i, :] = [11. 5. 72. 77.]  
665     cord_individual_obj[indivial_i, :] = [12. 6. 18. 24.]  
666     cord_individual_obj[indivial_i, :] = [13. 8. 39. 47.]  
667     cord_individual_obj[indivial_i, :] = [14. 6. 38. 44.]
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668 cord_individual_obj[indivial_i,:] = [15. 7. 43. 50.]
669 cord_individual_obj[indivial_i,:] = [16. 6. 73. 79.]
670 cord_individual_obj[indivial_i,:] = [17. 5. 55. 60.]
671 cord_individual_obj[indivial_i,:] = [18. 6. 96. 102.]
672 cord_individual_obj[indivial_i,:] = [19. 8. 25. 33.]
673 cord_individual_obj[indivial_i,:] = [20. 6. 72. 78.]
674 cord_individual_obj[indivial_i,:] = [21. 6. 41. 47.]
675 cord_individual_obj[indivial_i,:] = [22. 5. 120. 125.]
676 cord_individual_obj[indivial_i,:] = [23. 7. 28. 35.]
677 cord_individual_obj[indivial_i,:] = [24. 5. 20. 25.]
678
679 min(cord_individual_obj[:, 3]) = 24.0
680 historl_G_best_iter[iter, 3] = 24.0
681 Iteration calculate over
682
683
684
685
686 All item are in Bin and:
687 Bin area = 1080
688 Real_area = 130.0
689 Proportion_of_area = 0.12037037037037036
690 BEST_CHROM =
691 berth: [16.5 22.5 4.5 1.5 10.5 22.5 9.5 11. 20.5 15. 3.5]
692 time: [0. 0. 0. 0. 1. 2. 4. 4. 2. 3.]
693 num_QC: [2. 4. 3. 3. 4. 2. 5. 2. 5. 2.]
694 Objective function values and some other indicators:
695 Obj0 = 5.00          Obj1 = 19.00          Obj0 + Obj1 = 24.00
696 Total movement of crane: 0.00
697 Total waiting time in berth position: 16.00
698 Total index of q during berthing: 559.00
699 Specific arrangement for each vessel:
700 V_id: 0           li: 3.0           xi: 16.5           bow of i: 15.0           tail of i: 18.0           gama_i0: 0.0           gama_i1: 1
701 .0             gama_i1 + 1: 2.0       gama_i1 - gama_i0: 1.0           duration_time_i: 2.0           demand_i: 60.0           work
702 load_i: 60.0      work load gap_i: 0
703 V_id: 1           li: 9.0           xi: 22.5           bow of i: 18.0           tail of i: 27.0           gama_i0: 0.0           gama_i1: 0
704 .0             gama_i1 + 1: 1.0       gama_i1 - gama_i0: 0.0           duration_time_i: 1.0           demand_i: 60.0           work
705 load_i: 60.0      work load gap_i: 0
706 V_id: 2           li: 3.0           xi: 4.5            bow of i: 3.0           tail of i: 6.0           gama_i0: 0.0           gama_i1: 1.0
707 .0             gama_i1 + 1: 2.0       gama_i1 - gama_i0: 1.0           duration_time_i: 2.0           demand_i: 80.0           work load_i:
708 80.0            work load gap_i: 0
709 V_id: 3           li: 3.0           xi: 1.5            bow of i: 0.0           tail of i: 3.0           gama_i0: 0.0           gama_i1: 2.0
710 .0             gama_i1 + 1: 3.0       gama_i1 - gama_i0: 2.0           duration_time_i: 3.0           demand_i: 160.0           work load_i:
711 160.0            work load gap_i: 0
712 V_id: 4           li: 9.0           xi: 10.5           bow of i: 6.0           tail of i: 15.0           gama_i0: 0.0           gama_i1: 1
713 .0             gama_i1 + 1: 2.0       gama_i1 - gama_i0: 1.0           duration_time_i: 2.0           demand_i: 100.0           work
714 load_i: 100.0     work load gap_i: 0
715 V_id: 5           li: 9.0           xi: 22.5           bow of i: 18.0           tail of i: 27.0           gama_i0: 1.0           gama_i1: 3
716 .0             gama_i1 + 1: 4.0       gama_i1 - gama_i0: 2.0           duration_time_i: 3.0           demand_i: 100.0           work
717 load_i: 100.0     work load gap_i: 0
718 V_id: 6           li: 5.0            xi: 9.5            bow of i: 7.0           tail of i: 12.0           gama_i0: 2.0           gama_i1: 3.0
719 .0             gama_i1 + 1: 4.0       gama_i1 - gama_i0: 1.0           duration_time_i: 2.0           demand_i: 140.0           work load_i:
720 140.0            work load gap_i: 0
721 V_id: 7           li: 8.0            xi: 11.0           bow of i: 7.0           tail of i: 15.0           gama_i0: 4.0           gama_i1: 5
722 .0             gama_i1 + 1: 6.0       gama_i1 - gama_i0: 1.0           duration_time_i: 2.0           demand_i: 80.0           work
723 load_i: 80.0      work load gap_i: 0
724 V_id: 8           li: 5.0            xi: 20.5           bow of i: 18.0           tail of i: 23.0           gama_i0: 4.0           gama_i1: 5
725 .0             gama_i1 + 1: 6.0       gama_i1 - gama_i0: 1.0           duration_time_i: 2.0           demand_i: 120.0           work
726 load_i: 120.0     work load gap_i: 0
727 V_id: 9           li: 6.0            xi: 15.0            bow of i: 12.0           tail of i: 18.0           gama_i0: 2.0           gama_i1: 3
728 .0             gama_i1 + 1: 4.0       gama_i1 - gama_i0: 1.0           duration_time_i: 2.0           demand_i: 140.0           work
729 load_i: 140.0     work load gap_i: 0
730 V_id: 10          li: 7.0            xi: 3.5            bow of i: 0.0           tail of i: 7.0           gama_i0: 3.0           gama_i1: 5
731 .0             gama_i1 + 1: 6.0       gama_i1 - gama_i0: 2.0           duration_time_i: 3.0           demand_i: 120.0           work load_i:
732 120.0            work load gap_i: 0
733
734 Algorithm finished and the total CPU time: 300 s
735 End
736

```