

unknown

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80 cord_individual_obj[indivial_i,:] = [16. 6. 70. 76.]
81 cord_individual_obj[indivial_i,:] = [17. 5. 60. 65.]
82 cord_individual_obj[indivial_i,:] = [18. 6. 38. 44.]
83 cord_individual_obj[indivial_i,:] = [19. 5. 72. 77.]
84 cord_individual_obj[indivial_i,:] = [20. 6. 63. 69.]
85 cord_individual_obj[indivial_i,:] = [21. 5. 60. 65.]
86 cord_individual_obj[indivial_i,:] = [22. 8. 24. 32.]
87 cord_individual_obj[indivial_i,:] = [23. 5. 55. 60.]
88 cord_individual_obj[indivial_i,:] = [24. 5. 124. 129.]
89
90 min(cord_individual_obj[:,3]) = 23.0
91 historl_G_best_iter[iter,3] = 23.0
92 Begin iteration:
93
94 iter = 2
95 cord_individual_obj[indivial_i,:] = [ 0. 6. 42. 48.]
96 cord_individual_obj[indivial_i,:] = [ 1. 4. 19. 23.]
97 cord_individual_obj[indivial_i,:] = [ 2. 6. 76. 82.]
98 cord_individual_obj[indivial_i,:] = [ 3. 4. 100. 104.]
99 cord_individual_obj[indivial_i,:] = [ 4. 5. 29. 34.]
100 cord_individual_obj[indivial_i,:] = [ 5. 4. 126. 130.]
101 cord_individual_obj[indivial_i,:] = [ 6. 6. 23. 29.]
102 cord_individual_obj[indivial_i,:] = [ 7. 5. 60. 65.]
103 cord_individual_obj[indivial_i,:] = [ 8. 6. 86. 92.]
104 cord_individual_obj[indivial_i,:] = [ 9. 5. 13. 18.]
105 cord_individual_obj[indivial_i,:] = [10. 5. 69. 74.]
106 cord_individual_obj[indivial_i,:] = [11. 8. 76. 84.]
107 cord_individual_obj[indivial_i,:] = [12. 5. 18. 23.]
108 cord_individual_obj[indivial_i,:] = [13. 6. 100. 106.]
109 cord_individual_obj[indivial_i,:] = [14. 6. 17. 23.]
110 cord_individual_obj[indivial_i,:] = [15. 5. 39. 44.]
111 cord_individual_obj[indivial_i,:] = [16. 6. 32. 38.]
112 cord_individual_obj[indivial_i,:] = [17. 6. 79. 85.]
113 cord_individual_obj[indivial_i,:] = [18. 7. 39. 46.]
114 cord_individual_obj[indivial_i,:] = [19. 5. 130. 135.]
115 cord_individual_obj[indivial_i,:] = [20. 6. 27. 33.]
116 cord_individual_obj[indivial_i,:] = [21. 6. 100. 106.]
117 cord_individual_obj[indivial_i,:] = [22. 6. 23. 29.]
118 cord_individual_obj[indivial_i,:] = [23. 6. 22. 28.]
119 cord_individual_obj[indivial_i,:] = [24. 5. 29. 34.]
120
121 min(cord_individual_obj[:,3]) = 18.0
122 historl_G_best_iter[iter,3] = 18.0
123 Begin iteration:
124
125 iter = 3
126 cord_individual_obj[indivial_i,:] = [ 0. 7. 20. 27.]
127 cord_individual_obj[indivial_i,:] = [ 1. 6. 122. 128.]
128 cord_individual_obj[indivial_i,:] = [ 2. 6. 17. 23.]
129 cord_individual_obj[indivial_i,:] = [ 3. 7. 41. 48.]
130 cord_individual_obj[indivial_i,:] = [ 4. 7. 39. 46.]
131 cord_individual_obj[indivial_i,:] = [ 5. 6. 140. 146.]
132 cord_individual_obj[indivial_i,:] = [ 6. 6. 51. 57.]
133 cord_individual_obj[indivial_i,:] = [ 7. 7. 84. 91.]
134 cord_individual_obj[indivial_i,:] = [ 8. 6. 35. 41.]
135 cord_individual_obj[indivial_i,:] = [ 9. 6. 25. 31.]
136 cord_individual_obj[indivial_i,:] = [10. 6. 46. 52.]
137 cord_individual_obj[indivial_i,:] = [11. 7. 50. 57.]
138 cord_individual_obj[indivial_i,:] = [12. 3. 94. 97.]
139 cord_individual_obj[indivial_i,:] = [13. 5. 101. 106.]
140 cord_individual_obj[indivial_i,:] = [14. 5. 59. 64.]
141 cord_individual_obj[indivial_i,:] = [15. 6. 65. 71.]
142 cord_individual_obj[indivial_i,:] = [16. 5. 32. 37.]
143 cord_individual_obj[indivial_i,:] = [17. 6. 104. 110.]
144 cord_individual_obj[indivial_i,:] = [18. 7. 67. 74.]
145 cord_individual_obj[indivial_i,:] = [19. 5. 13. 18.]
146 cord_individual_obj[indivial_i,:] = [20. 7. 143. 150.]
147 cord_individual_obj[indivial_i,:] = [21. 5. 86. 91.]
148 cord_individual_obj[indivial_i,:] = [22. 8. 101. 109.]
149 cord_individual_obj[indivial_i,:] = [23. 6. 23. 29.]
150 cord_individual_obj[indivial_i,:] = [24. 9. 36. 45.]
151
152 min(cord_individual_obj[:,3]) = 18.0
153 historl_G_best_iter[iter,3] = 18.0
154 Begin iteration:
155
156 iter = 4
157 cord_individual_obj[indivial_i,:] = [ 0. 5. 15. 20.]
158 cord_individual_obj[indivial_i,:] = [ 1. 5. 46. 51.]
159 cord_individual_obj[indivial_i,:] = [ 2. 7. 102. 109.]
160 cord_individual_obj[indivial_i,:] = [ 3. 6. 65. 71.]
161 cord_individual_obj[indivial_i,:] = [ 4. 7. 71. 78.]
162 cord_individual_obj[indivial_i,:] = [ 5. 7. 127. 134.]
163 cord_individual_obj[indivial_i,:] = [ 6. 8. 34. 42.]

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164 cord_individual_obj[indivial_i,:] = [ 7. 5. 65. 70.]
165 cord_individual_obj[indivial_i,:] = [ 8. 7. 87. 94.]
166 cord_individual_obj[indivial_i,:] = [ 9. 4. 143. 147.]
167 cord_individual_obj[indivial_i,:] = [10. 7. 73. 80.]
168 cord_individual_obj[indivial_i,:] = [11. 5. 53. 58.]
169 cord_individual_obj[indivial_i,:] = [12. 6. 19. 25.]
170 cord_individual_obj[indivial_i,:] = [13. 7. 85. 92.]
171 cord_individual_obj[indivial_i,:] = [14. 5. 120. 125.]
172 cord_individual_obj[indivial_i,:] = [15. 4. 76. 80.]
173 cord_individual_obj[indivial_i,:] = [16. 5. 28. 33.]
174 cord_individual_obj[indivial_i,:] = [17. 6. 20. 26.]
175 cord_individual_obj[indivial_i,:] = [18. 5. 52. 57.]
176 cord_individual_obj[indivial_i,:] = [19. 5. 112. 117.]
177 cord_individual_obj[indivial_i,:] = [20. 5. 13. 18.]
178 cord_individual_obj[indivial_i,:] = [21. 6. 51. 57.]
179 cord_individual_obj[indivial_i,:] = [22. 7. 49. 56.]
180 cord_individual_obj[indivial_i,:] = [23. 7. 72. 79.]
181 cord_individual_obj[indivial_i,:] = [24. 6. 84. 90.]
182
183 min(cord_individual_obj[:,3]) = 18.0
184 historl_G_best_iter[iter,3] = 18.0
185 Begin iteration:
186
187 iter = 5
188 cord_individual_obj[indivial_i,:] = [ 0. 8. 28. 36.]
189 cord_individual_obj[indivial_i,:] = [ 1. 5. 57. 62.]
190 cord_individual_obj[indivial_i,:] = [ 2. 4. 52. 56.]
191 cord_individual_obj[indivial_i,:] = [ 3. 4. 69. 73.]
192 cord_individual_obj[indivial_i,:] = [ 4. 5. 17. 22.]
193 cord_individual_obj[indivial_i,:] = [ 5. 4. 80. 84.]
194 cord_individual_obj[indivial_i,:] = [ 6. 5. 88. 93.]
195 cord_individual_obj[indivial_i,:] = [ 7. 6. 78. 84.]
196 cord_individual_obj[indivial_i,:] = [ 8. 5. 128. 133.]
197 cord_individual_obj[indivial_i,:] = [ 9. 5. 13. 18.]
198 cord_individual_obj[indivial_i,:] = [10. 7. 43. 50.]
199 cord_individual_obj[indivial_i,:] = [11. 7. 37. 44.]
200 cord_individual_obj[indivial_i,:] = [12. 4. 45. 49.]
201 cord_individual_obj[indivial_i,:] = [13. 5. 66. 71.]
202 cord_individual_obj[indivial_i,:] = [14. 5. 31. 36.]
203 cord_individual_obj[indivial_i,:] = [15. 5. 108. 113.]
204 cord_individual_obj[indivial_i,:] = [16. 7. 14. 21.]
205 cord_individual_obj[indivial_i,:] = [17. 4. 132. 136.]
206 cord_individual_obj[indivial_i,:] = [18. 7. 30. 37.]
207 cord_individual_obj[indivial_i,:] = [19. 6. 51. 57.]
208 cord_individual_obj[indivial_i,:] = [20. 7. 19. 26.]
209 cord_individual_obj[indivial_i,:] = [21. 5. 95. 100.]
210 cord_individual_obj[indivial_i,:] = [22. 7. 15. 22.]
211 cord_individual_obj[indivial_i,:] = [23. 6. 131. 137.]
212 cord_individual_obj[indivial_i,:] = [24. 5. 92. 97.]
213
214 min(cord_individual_obj[:,3]) = 18.0
215 historl_G_best_iter[iter,3] = 18.0
216 Begin iteration:
217
218 iter = 6
219 cord_individual_obj[indivial_i,:] = [ 0. 6. 45. 51.]
220 cord_individual_obj[indivial_i,:] = [ 1. 7. 42. 49.]
221 cord_individual_obj[indivial_i,:] = [ 2. 5. 18. 23.]
222 cord_individual_obj[indivial_i,:] = [ 3. 5. 64. 69.]
223 cord_individual_obj[indivial_i,:] = [ 4. 5. 27. 32.]
224 cord_individual_obj[indivial_i,:] = [ 5. 6. 70. 76.]
225 cord_individual_obj[indivial_i,:] = [ 6. 6. 56. 62.]
226 cord_individual_obj[indivial_i,:] = [ 7. 5. 24. 29.]
227 cord_individual_obj[indivial_i,:] = [ 8. 6. 64. 70.]
228 cord_individual_obj[indivial_i,:] = [ 9. 6. 43. 49.]
229 cord_individual_obj[indivial_i,:] = [10. 6. 105. 111.]
230 cord_individual_obj[indivial_i,:] = [11. 7. 23. 30.]
231 cord_individual_obj[indivial_i,:] = [12. 5. 79. 84.]
232 cord_individual_obj[indivial_i,:] = [13. 6. 21. 27.]
233 cord_individual_obj[indivial_i,:] = [14. 6. 52. 58.]
234 cord_individual_obj[indivial_i,:] = [15. 4. 27. 31.]
235 cord_individual_obj[indivial_i,:] = [16. 6. 35. 41.]
236 cord_individual_obj[indivial_i,:] = [17. 4. 104. 108.]
237 cord_individual_obj[indivial_i,:] = [18. 6. 24. 30.]
238 cord_individual_obj[indivial_i,:] = [19. 5. 61. 66.]
239 cord_individual_obj[indivial_i,:] = [20. 6. 16. 22.]
240 cord_individual_obj[indivial_i,:] = [21. 6. 24. 30.]
241 cord_individual_obj[indivial_i,:] = [22. 5. 71. 76.]
242 cord_individual_obj[indivial_i,:] = [23. 5. 13. 18.]
243 cord_individual_obj[indivial_i,:] = [24. 6. 25. 31.]
244
245 min(cord_individual_obj[:,3]) = 18.0
246 historl_G_best_iter[iter,3] = 18.0
247 Begin iteration:

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248
249 iter = 7
250 cord_individual_obj[indivial_i, :] = [ 0. 6. 23. 29.]
251 cord_individual_obj[indivial_i, :] = [ 1. 7. 52. 59.]
252 cord_individual_obj[indivial_i, :] = [ 2. 5. 25. 30.]
253 cord_individual_obj[indivial_i, :] = [ 3. 5. 58. 63.]
254 cord_individual_obj[indivial_i, :] = [ 4. 5. 32. 37.]
255 cord_individual_obj[indivial_i, :] = [ 5. 7. 60. 67.]
256 cord_individual_obj[indivial_i, :] = [ 6. 7. 33. 40.]
257 cord_individual_obj[indivial_i, :] = [ 7. 7. 48. 55.]
258 cord_individual_obj[indivial_i, :] = [ 8. 7. 24. 31.]
259 cord_individual_obj[indivial_i, :] = [ 9. 6. 43. 49.]
260 cord_individual_obj[indivial_i, :] = [10. 5. 13. 18.]
261 cord_individual_obj[indivial_i, :] = [11. 6. 60. 66.]
262 cord_individual_obj[indivial_i, :] = [12. 6. 30. 36.]
263 cord_individual_obj[indivial_i, :] = [13. 6. 21. 27.]
264 cord_individual_obj[indivial_i, :] = [14. 5. 44. 49.]
265 cord_individual_obj[indivial_i, :] = [15. 6. 24. 30.]
266 cord_individual_obj[indivial_i, :] = [16. 6. 35. 41.]
267 cord_individual_obj[indivial_i, :] = [17. 6. 17. 23.]
268 cord_individual_obj[indivial_i, :] = [18. 5. 161. 166.]
269 cord_individual_obj[indivial_i, :] = [19. 5. 31. 36.]
270 cord_individual_obj[indivial_i, :] = [20. 7. 28. 35.]
271 cord_individual_obj[indivial_i, :] = [21. 5. 49. 54.]
272 cord_individual_obj[indivial_i, :] = [22. 6. 85. 91.]
273 cord_individual_obj[indivial_i, :] = [23. 5. 88. 93.]
274 cord_individual_obj[indivial_i, :] = [24. 5. 56. 61.]
275

276 min(cord_individual_obj[:, 3]) = 18.0
277 historl_G_best_iter[iter, 3] = 18.0
278 Begin iteration:
279
280 iter = 8
281 cord_individual_obj[indivial_i, :] = [ 0. 5. 46. 51.]
282 cord_individual_obj[indivial_i, :] = [ 1. 6. 38. 44.]
283 cord_individual_obj[indivial_i, :] = [ 2. 5. 25. 30.]
284 cord_individual_obj[indivial_i, :] = [ 3. 5. 82. 87.]
285 cord_individual_obj[indivial_i, :] = [ 4. 6. 106. 112.]
286 cord_individual_obj[indivial_i, :] = [ 5. 6. 45. 51.]
287 cord_individual_obj[indivial_i, :] = [ 6. 8. 37. 45.]
288 cord_individual_obj[indivial_i, :] = [ 7. 5. 25. 30.]
289 cord_individual_obj[indivial_i, :] = [ 8. 6. 24. 30.]
290 cord_individual_obj[indivial_i, :] = [ 9. 6. 54. 60.]
291 cord_individual_obj[indivial_i, :] = [10. 6. 64. 70.]
292 cord_individual_obj[indivial_i, :] = [11. 6. 121. 127.]
293 cord_individual_obj[indivial_i, :] = [12. 5. 61. 66.]
294 cord_individual_obj[indivial_i, :] = [13. 7. 20. 27.]
295 cord_individual_obj[indivial_i, :] = [14. 6. 18. 24.]
296 cord_individual_obj[indivial_i, :] = [15. 4. 75. 79.]
297 cord_individual_obj[indivial_i, :] = [16. 7. 19. 26.]
298 cord_individual_obj[indivial_i, :] = [17. 5. 16. 21.]
299 cord_individual_obj[indivial_i, :] = [18. 5. 13. 18.]
300 cord_individual_obj[indivial_i, :] = [19. 5. 32. 37.]
301 cord_individual_obj[indivial_i, :] = [20. 6. 65. 71.]
302 cord_individual_obj[indivial_i, :] = [21. 5. 28. 33.]
303 cord_individual_obj[indivial_i, :] = [22. 6. 39. 45.]
304 cord_individual_obj[indivial_i, :] = [23. 5. 38. 43.]
305 cord_individual_obj[indivial_i, :] = [24. 5. 33. 38.]
306

307 min(cord_individual_obj[:, 3]) = 18.0
308 historl_G_best_iter[iter, 3] = 18.0
309 Begin iteration:
310
311 iter = 9
312 cord_individual_obj[indivial_i, :] = [ 0. 6. 68. 74.]
313 cord_individual_obj[indivial_i, :] = [ 1. 4. 124. 128.]
314 cord_individual_obj[indivial_i, :] = [ 2. 4. 142. 146.]
315 cord_individual_obj[indivial_i, :] = [ 3. 5. 95. 100.]
316 cord_individual_obj[indivial_i, :] = [ 4. 6. 26. 32.]
317 cord_individual_obj[indivial_i, :] = [ 5. 5. 65. 70.]
318 cord_individual_obj[indivial_i, :] = [ 6. 5. 90. 95.]
319 cord_individual_obj[indivial_i, :] = [ 7. 4. 84. 88.]
320 cord_individual_obj[indivial_i, :] = [ 8. 8. 38. 46.]
321 cord_individual_obj[indivial_i, :] = [ 9. 6. 105. 111.]
322 cord_individual_obj[indivial_i, :] = [10. 7. 36. 43.]
323 cord_individual_obj[indivial_i, :] = [11. 5. 13. 18.]
324 cord_individual_obj[indivial_i, :] = [12. 5. 91. 96.]
325 cord_individual_obj[indivial_i, :] = [13. 6. 42. 48.]
326 cord_individual_obj[indivial_i, :] = [14. 5. 53. 58.]
327 cord_individual_obj[indivial_i, :] = [15. 5. 14. 19.]
328 cord_individual_obj[indivial_i, :] = [16. 7. 24. 31.]
329 cord_individual_obj[indivial_i, :] = [17. 6. 16. 22.]
330 cord_individual_obj[indivial_i, :] = [18. 6. 24. 30.]
331 cord_individual_obj[indivial_i, :] = [19. 6. 91. 97.]

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unknown

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332 cord_individual_obj[indivial_i,:] = [20. 8. 21. 29.]  
333 cord_individual_obj[indivial_i,:] = [21. 4. 89. 93.]  
334 cord_individual_obj[indivial_i,:] = [22. 6. 51. 57.]  
335 cord_individual_obj[indivial_i,:] = [23. 5. 56. 61.]  
336 cord_individual_obj[indivial_i,:] = [24. 7. 15. 22.]  
337  
338 min(cord_individual_obj[:,3]) = 18.0  
339 histol_G_best_iter[iter,3] = 18.0  
340 Begin iteration:  
341  
342 iter = 10  
343 cord_individual_obj[indivial_i,:] = [ 0. 5. 43. 48.]  
344 cord_individual_obj[indivial_i,:] = [ 1. 6. 36. 42.]  
345 cord_individual_obj[indivial_i,:] = [ 2. 5. 13. 18.]  
346 cord_individual_obj[indivial_i,:] = [ 3. 5. 50. 55.]  
347 cord_individual_obj[indivial_i,:] = [ 4. 6. 19. 25.]  
348 cord_individual_obj[indivial_i,:] = [ 5. 5. 117. 122.]  
349 cord_individual_obj[indivial_i,:] = [ 6. 4. 92. 96.]  
350 cord_individual_obj[indivial_i,:] = [ 7. 5. 26. 31.]  
351 cord_individual_obj[indivial_i,:] = [ 8. 6. 33. 39.]  
352 cord_individual_obj[indivial_i,:] = [ 9. 8. 111. 119.]  
353 cord_individual_obj[indivial_i,:] = [10. 6. 31. 37.]  
354 cord_individual_obj[indivial_i,:] = [11. 7. 25. 32.]  
355 cord_individual_obj[indivial_i,:] = [12. 6. 25. 31.]  
356 cord_individual_obj[indivial_i,:] = [13. 7. 79. 86.]  
357 cord_individual_obj[indivial_i,:] = [14. 5. 70. 75.]  
358 cord_individual_obj[indivial_i,:] = [15. 7. 74. 81.]  
359 cord_individual_obj[indivial_i,:] = [16. 4. 44. 48.]  
360 cord_individual_obj[indivial_i,:] = [17. 4. 61. 65.]  
361 cord_individual_obj[indivial_i,:] = [18. 5. 152. 157.]  
362 cord_individual_obj[indivial_i,:] = [19. 5. 64. 69.]  
363 cord_individual_obj[indivial_i,:] = [20. 6. 75. 81.]  
364 cord_individual_obj[indivial_i,:] = [21. 4. 36. 40.]  
365 cord_individual_obj[indivial_i,:] = [22. 7. 17. 24.]  
366 cord_individual_obj[indivial_i,:] = [23. 5. 18. 23.]  
367 cord_individual_obj[indivial_i,:] = [24. 7. 76. 83.]  
368  
369 min(cord_individual_obj[:,3]) = 18.0  
370 histol_G_best_iter[iter,3] = 18.0  
371 Begin iteration:  
372  
373 iter = 11  
374 cord_individual_obj[indivial_i,:] = [ 0. 6. 26. 32.]  
375 cord_individual_obj[indivial_i,:] = [ 1. 5. 42. 47.]  
376 cord_individual_obj[indivial_i,:] = [ 2. 6. 57. 63.]  
377 cord_individual_obj[indivial_i,:] = [ 3. 5. 80. 85.]  
378 cord_individual_obj[indivial_i,:] = [ 4. 5. 84. 89.]  
379 cord_individual_obj[indivial_i,:] = [ 5. 5. 100. 105.]  
380 cord_individual_obj[indivial_i,:] = [ 6. 6. 24. 30.]  
381 cord_individual_obj[indivial_i,:] = [ 7. 6. 44. 50.]  
382 cord_individual_obj[indivial_i,:] = [ 8. 5. 37. 42.]  
383 cord_individual_obj[indivial_i,:] = [ 9. 6. 24. 30.]  
384 cord_individual_obj[indivial_i,:] = [10. 7. 48. 55.]  
385 cord_individual_obj[indivial_i,:] = [11. 6. 37. 43.]  
386 cord_individual_obj[indivial_i,:] = [12. 5. 67. 72.]  
387 cord_individual_obj[indivial_i,:] = [13. 6. 69. 75.]  
388 cord_individual_obj[indivial_i,:] = [14. 4. 34. 38.]  
389 cord_individual_obj[indivial_i,:] = [15. 5. 24. 29.]  
390 cord_individual_obj[indivial_i,:] = [16. 5. 92. 97.]  
391 cord_individual_obj[indivial_i,:] = [17. 5. 33. 38.]  
392 cord_individual_obj[indivial_i,:] = [18. 5. 13. 18.]  
393 cord_individual_obj[indivial_i,:] = [19. 5. 20. 25.]  
394 cord_individual_obj[indivial_i,:] = [20. 6. 55. 61.]  
395 cord_individual_obj[indivial_i,:] = [21. 4. 35. 39.]  
396 cord_individual_obj[indivial_i,:] = [22. 5. 156. 161.]  
397 cord_individual_obj[indivial_i,:] = [23. 5. 53. 58.]  
398 cord_individual_obj[indivial_i,:] = [24. 6. 45. 51.]  
399  
400 min(cord_individual_obj[:,3]) = 18.0  
401 histol_G_best_iter[iter,3] = 18.0  
402 Begin iteration:  
403  
404 iter = 12  
405 cord_individual_obj[indivial_i,:] = [ 0. 6. 108. 114.]  
406 cord_individual_obj[indivial_i,:] = [ 1. 5. 30. 35.]  
407 cord_individual_obj[indivial_i,:] = [ 2. 4. 123. 127.]  
408 cord_individual_obj[indivial_i,:] = [ 3. 5. 58. 63.]  
409 cord_individual_obj[indivial_i,:] = [ 4. 7. 50. 57.]  
410 cord_individual_obj[indivial_i,:] = [ 5. 6. 14. 20.]  
411 cord_individual_obj[indivial_i,:] = [ 6. 6. 36. 42.]  
412 cord_individual_obj[indivial_i,:] = [ 7. 5. 36. 41.]  
413 cord_individual_obj[indivial_i,:] = [ 8. 5. 22. 27.]  
414 cord_individual_obj[indivial_i,:] = [ 9. 6. 125. 131.]  
415 cord_individual_obj[indivial_i,:] = [10. 5. 58. 63.]
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416 cord_individual_obj[indivial_i,:] = [11. 5. 14. 19.]
417 cord_individual_obj[indivial_i,:] = [12. 6. 67. 73.]
418 cord_individual_obj[indivial_i,:] = [13. 8. 27. 35.]
419 cord_individual_obj[indivial_i,:] = [14. 5. 106. 111.]
420 cord_individual_obj[indivial_i,:] = [15. 5. 78. 83.]
421 cord_individual_obj[indivial_i,:] = [16. 6. 36. 42.]
422 cord_individual_obj[indivial_i,:] = [17. 5. 37. 42.]
423 cord_individual_obj[indivial_i,:] = [18. 6. 24. 30.]
424 cord_individual_obj[indivial_i,:] = [19. 4. 48. 52.]
425 cord_individual_obj[indivial_i,:] = [20. 5. 96. 101.]
426 cord_individual_obj[indivial_i,:] = [21. 7. 24. 31.]
427 cord_individual_obj[indivial_i,:] = [22. 5. 13. 18.]
428 cord_individual_obj[indivial_i,:] = [23. 5. 138. 143.]
429 cord_individual_obj[indivial_i,:] = [24. 5. 28. 33.]
430
431 min(cord_individual_obj[:,3]) = 18.0
432 histol_G_best_iter[iter,3] = 18.0
433 Begin iteration:
434
435 iter = 13
436 cord_individual_obj[indivial_i,:] = [ 0. 6. 56. 62.]
437 cord_individual_obj[indivial_i,:] = [ 1. 5. 115. 120.]
438 cord_individual_obj[indivial_i,:] = [ 2. 5. 53. 58.]
439 cord_individual_obj[indivial_i,:] = [ 3. 5. 47. 52.]
440 cord_individual_obj[indivial_i,:] = [ 4. 6. 25. 31.]
441 cord_individual_obj[indivial_i,:] = [ 5. 6. 82. 88.]
442 cord_individual_obj[indivial_i,:] = [ 6. 4. 94. 98.]
443 cord_individual_obj[indivial_i,:] = [ 7. 5. 84. 89.]
444 cord_individual_obj[indivial_i,:] = [ 8. 5. 37. 42.]
445 cord_individual_obj[indivial_i,:] = [ 9. 6. 96. 102.]
446 cord_individual_obj[indivial_i,:] = [10. 7. 102. 109.]
447 cord_individual_obj[indivial_i,:] = [11. 6. 83. 89.]
448 cord_individual_obj[indivial_i,:] = [12. 4. 29. 33.]
449 cord_individual_obj[indivial_i,:] = [13. 7. 20. 27.]
450 cord_individual_obj[indivial_i,:] = [14. 5. 77. 82.]
451 cord_individual_obj[indivial_i,:] = [15. 6. 24. 30.]
452 cord_individual_obj[indivial_i,:] = [16. 6. 50. 56.]
453 cord_individual_obj[indivial_i,:] = [17. 4. 90. 94.]
454 cord_individual_obj[indivial_i,:] = [18. 5. 84. 89.]
455 cord_individual_obj[indivial_i,:] = [19. 7. 15. 22.]
456 cord_individual_obj[indivial_i,:] = [20. 4. 78. 82.]
457 cord_individual_obj[indivial_i,:] = [21. 5. 66. 71.]
458 cord_individual_obj[indivial_i,:] = [22. 5. 38. 43.]
459 cord_individual_obj[indivial_i,:] = [23. 5. 13. 18.]
460 cord_individual_obj[indivial_i,:] = [24. 6. 62. 68.]
461
462 min(cord_individual_obj[:,3]) = 18.0
463 histol_G_best_iter[iter,3] = 18.0
464 Begin iteration:
465
466 iter = 14
467 cord_individual_obj[indivial_i,:] = [ 0. 8. 49. 57.]
468 cord_individual_obj[indivial_i,:] = [ 1. 5. 13. 18.]
469 cord_individual_obj[indivial_i,:] = [ 2. 6. 105. 111.]
470 cord_individual_obj[indivial_i,:] = [ 3. 5. 43. 48.]
471 cord_individual_obj[indivial_i,:] = [ 4. 5. 51. 56.]
472 cord_individual_obj[indivial_i,:] = [ 5. 3. 58. 61.]
473 cord_individual_obj[indivial_i,:] = [ 6. 6. 35. 41.]
474 cord_individual_obj[indivial_i,:] = [ 7. 6. 14. 20.]
475 cord_individual_obj[indivial_i,:] = [ 8. 4. 14. 18.]
476 cord_individual_obj[indivial_i,:] = [ 9. 4. 87. 91.]
477 cord_individual_obj[indivial_i,:] = [10. 7. 35. 42.]
478 cord_individual_obj[indivial_i,:] = [11. 8. 72. 80.]
479 cord_individual_obj[indivial_i,:] = [12. 7. 129. 136.]
480 cord_individual_obj[indivial_i,:] = [13. 7. 21. 28.]
481 cord_individual_obj[indivial_i,:] = [14. 6. 33. 39.]
482 cord_individual_obj[indivial_i,:] = [15. 5. 43. 48.]
483 cord_individual_obj[indivial_i,:] = [16. 7. 23. 30.]
484 cord_individual_obj[indivial_i,:] = [17. 5. 125. 130.]
485 cord_individual_obj[indivial_i,:] = [18. 7. 71. 78.]
486 cord_individual_obj[indivial_i,:] = [19. 4. 62. 66.]
487 cord_individual_obj[indivial_i,:] = [20. 7. 45. 52.]
488 cord_individual_obj[indivial_i,:] = [21. 6. 28. 34.]
489 cord_individual_obj[indivial_i,:] = [22. 9. 61. 70.]
490 cord_individual_obj[indivial_i,:] = [23. 5. 82. 87.]
491 cord_individual_obj[indivial_i,:] = [24. 5. 41. 46.]
492
493 min(cord_individual_obj[:,3]) = 18.0
494 histol_G_best_iter[iter,3] = 18.0
495 Begin iteration:
496
497 iter = 15
498 cord_individual_obj[indivial_i,:] = [ 0. 7. 78. 85.]
499 cord_individual_obj[indivial_i,:] = [ 1. 6. 34. 40.]

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500 cord_individual_obj[indivial_i,:] = [ 2. 5. 106. 111.]
501 cord_individual_obj[indivial_i,:] = [ 3. 7. 99. 106.]
502 cord_individual_obj[indivial_i,:] = [ 4. 5. 81. 86.]
503 cord_individual_obj[indivial_i,:] = [ 5. 7. 50. 57.]
504 cord_individual_obj[indivial_i,:] = [ 6. 8. 46. 54.]
505 cord_individual_obj[indivial_i,:] = [ 7. 5. 33. 38.]
506 cord_individual_obj[indivial_i,:] = [ 8. 6. 25. 31.]
507 cord_individual_obj[indivial_i,:] = [ 9. 7. 24. 31.]
508 cord_individual_obj[indivial_i,:] = [10. 7. 37. 44.]
509 cord_individual_obj[indivial_i,:] = [11. 6. 29. 35.]
510 cord_individual_obj[indivial_i,:] = [12. 5. 13. 18.]
511 cord_individual_obj[indivial_i,:] = [13. 7. 28. 35.]
512 cord_individual_obj[indivial_i,:] = [14. 5. 73. 78.]
513 cord_individual_obj[indivial_i,:] = [15. 5. 22. 27.]
514 cord_individual_obj[indivial_i,:] = [16. 7. 25. 32.]
515 cord_individual_obj[indivial_i,:] = [17. 6. 52. 58.]
516 cord_individual_obj[indivial_i,:] = [18. 7. 82. 89.]
517 cord_individual_obj[indivial_i,:] = [19. 6. 52. 58.]
518 cord_individual_obj[indivial_i,:] = [20. 8. 52. 60.]
519 cord_individual_obj[indivial_i,:] = [21. 6. 37. 43.]
520 cord_individual_obj[indivial_i,:] = [22. 7. 41. 48.]
521 cord_individual_obj[indivial_i,:] = [23. 5. 38. 43.]
522 cord_individual_obj[indivial_i,:] = [24. 7. 47. 54.]
523
524 min(cord_individual_obj[:,3]) = 18.0
525 histol_G_best_iter[iter,3] = 18.0
526 Begin iteration:
527
528 iter = 16
529 cord_individual_obj[indivial_i,:] = [ 0. 8. 26. 34.]
530 cord_individual_obj[indivial_i,:] = [ 1. 6. 67. 73.]
531 cord_individual_obj[indivial_i,:] = [ 2. 5. 13. 18.]
532 cord_individual_obj[indivial_i,:] = [ 3. 6. 66. 72.]
533 cord_individual_obj[indivial_i,:] = [ 4. 6. 67. 73.]
534 cord_individual_obj[indivial_i,:] = [ 5. 5. 135. 140.]
535 cord_individual_obj[indivial_i,:] = [ 6. 6. 15. 21.]
536 cord_individual_obj[indivial_i,:] = [ 7. 7. 70. 77.]
537 cord_individual_obj[indivial_i,:] = [ 8. 5. 86. 91.]
538 cord_individual_obj[indivial_i,:] = [ 9. 5. 96. 101.]
539 cord_individual_obj[indivial_i,:] = [10. 5. 71. 76.]
540 cord_individual_obj[indivial_i,:] = [11. 6. 18. 24.]
541 cord_individual_obj[indivial_i,:] = [12. 6. 44. 50.]
542 cord_individual_obj[indivial_i,:] = [13. 7. 42. 49.]
543 cord_individual_obj[indivial_i,:] = [14. 5. 89. 94.]
544 cord_individual_obj[indivial_i,:] = [15. 5. 88. 93.]
545 cord_individual_obj[indivial_i,:] = [16. 6. 75. 81.]
546 cord_individual_obj[indivial_i,:] = [17. 4. 81. 85.]
547 cord_individual_obj[indivial_i,:] = [18. 5. 71. 76.]
548 cord_individual_obj[indivial_i,:] = [19. 6. 139. 145.]
549 cord_individual_obj[indivial_i,:] = [20. 5. 40. 45.]
550 cord_individual_obj[indivial_i,:] = [21. 5. 36. 41.]
551 cord_individual_obj[indivial_i,:] = [22. 5. 128. 133.]
552 cord_individual_obj[indivial_i,:] = [23. 5. 88. 93.]
553 cord_individual_obj[indivial_i,:] = [24. 5. 30. 35.]
554
555 min(cord_individual_obj[:,3]) = 18.0
556 histol_G_best_iter[iter,3] = 18.0
557 Begin iteration:
558
559 iter = 17
560 cord_individual_obj[indivial_i,:] = [ 0. 5. 18. 23.]
561 cord_individual_obj[indivial_i,:] = [ 1. 7. 68. 75.]
562 cord_individual_obj[indivial_i,:] = [ 2. 6. 57. 63.]
563 cord_individual_obj[indivial_i,:] = [ 3. 7. 34. 41.]
564 cord_individual_obj[indivial_i,:] = [ 4. 5. 55. 60.]
565 cord_individual_obj[indivial_i,:] = [ 5. 6. 84. 90.]
566 cord_individual_obj[indivial_i,:] = [ 6. 7. 41. 48.]
567 cord_individual_obj[indivial_i,:] = [ 7. 5. 17. 22.]
568 cord_individual_obj[indivial_i,:] = [ 8. 7. 84. 91.]
569 cord_individual_obj[indivial_i,:] = [ 9. 5. 88. 93.]
570 cord_individual_obj[indivial_i,:] = [10. 6. 106. 112.]
571 cord_individual_obj[indivial_i,:] = [11. 7. 24. 31.]
572 cord_individual_obj[indivial_i,:] = [12. 5. 39. 44.]
573 cord_individual_obj[indivial_i,:] = [13. 6. 50. 56.]
574 cord_individual_obj[indivial_i,:] = [14. 8. 76. 84.]
575 cord_individual_obj[indivial_i,:] = [15. 5. 64. 69.]
576 cord_individual_obj[indivial_i,:] = [16. 7. 56. 63.]
577 cord_individual_obj[indivial_i,:] = [17. 7. 149. 156.]
578 cord_individual_obj[indivial_i,:] = [18. 9. 98. 107.]
579 cord_individual_obj[indivial_i,:] = [19. 5. 13. 18.]
580 cord_individual_obj[indivial_i,:] = [20. 6. 50. 56.]
581 cord_individual_obj[indivial_i,:] = [21. 4. 49. 53.]
582 cord_individual_obj[indivial_i,:] = [22. 6. 50. 56.]
583 cord_individual_obj[indivial_i,:] = [23. 4. 88. 92.]

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unknown

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584     cord_individual_obj[indivial_i, :] = [24. 6. 40. 46.]  
585  
586     min(cord_individual_obj[:, 3]) = 18.0  
587     historl_G_best_iter[iter, 3] = 18.0  
588 Begin iteration:  
589  
590 iter = 18  
591     cord_individual_obj[indivial_i, :] = [ 0. 6. 35. 41.]  
592     cord_individual_obj[indivial_i, :] = [ 1. 6. 35. 41.]  
593     cord_individual_obj[indivial_i, :] = [ 2. 5. 92. 97.]  
594     cord_individual_obj[indivial_i, :] = [ 3. 5. 58. 63.]  
595     cord_individual_obj[indivial_i, :] = [ 4. 6. 118. 124.]  
596     cord_individual_obj[indivial_i, :] = [ 5. 6. 35. 41.]  
597     cord_individual_obj[indivial_i, :] = [ 6. 7. 52. 59.]  
598     cord_individual_obj[indivial_i, :] = [ 7. 6. 28. 34.]  
599     cord_individual_obj[indivial_i, :] = [ 8. 6. 56. 62.]  
600     cord_individual_obj[indivial_i, :] = [ 9. 6. 43. 49.]  
601     cord_individual_obj[indivial_i, :] = [10. 6. 88. 94.]  
602     cord_individual_obj[indivial_i, :] = [11. 6. 21. 27.]  
603     cord_individual_obj[indivial_i, :] = [12. 6. 46. 52.]  
604     cord_individual_obj[indivial_i, :] = [13. 8. 49. 57.]  
605     cord_individual_obj[indivial_i, :] = [14. 6. 51. 57.]  
606     cord_individual_obj[indivial_i, :] = [15. 6. 19. 25.]  
607     cord_individual_obj[indivial_i, :] = [16. 5. 70. 75.]  
608     cord_individual_obj[indivial_i, :] = [17. 5. 13. 18.]  
609     cord_individual_obj[indivial_i, :] = [18. 6. 24. 30.]  
610     cord_individual_obj[indivial_i, :] = [19. 5. 26. 31.]  
611     cord_individual_obj[indivial_i, :] = [20. 7. 72. 79.]  
612     cord_individual_obj[indivial_i, :] = [21. 6. 23. 29.]  
613     cord_individual_obj[indivial_i, :] = [22. 4. 36. 40.]  
614     cord_individual_obj[indivial_i, :] = [23. 7. 64. 71.]  
615     cord_individual_obj[indivial_i, :] = [24. 5. 49. 54.]  
616  
617     min(cord_individual_obj[:, 3]) = 18.0  
618     historl_G_best_iter[iter, 3] = 18.0  
619 Begin iteration:  
620  
621 iter = 19  
622     cord_individual_obj[indivial_i, :] = [ 0. 6. 63. 69.]  
623     cord_individual_obj[indivial_i, :] = [ 1. 4. 91. 95.]  
624     cord_individual_obj[indivial_i, :] = [ 2. 5. 81. 86.]  
625     cord_individual_obj[indivial_i, :] = [ 3. 5. 66. 71.]  
626     cord_individual_obj[indivial_i, :] = [ 4. 5. 13. 18.]  
627     cord_individual_obj[indivial_i, :] = [ 5. 6. 18. 24.]  
628     cord_individual_obj[indivial_i, :] = [ 6. 7. 57. 64.]  
629     cord_individual_obj[indivial_i, :] = [ 7. 5. 38. 43.]  
630     cord_individual_obj[indivial_i, :] = [ 8. 5. 16. 21.]  
631     cord_individual_obj[indivial_i, :] = [ 9. 7. 151. 158.]  
632     cord_individual_obj[indivial_i, :] = [10. 5. 50. 55.]  
633     cord_individual_obj[indivial_i, :] = [11. 6. 122. 128.]  
634     cord_individual_obj[indivial_i, :] = [12. 4. 13. 17.]  
635     cord_individual_obj[indivial_i, :] = [13. 7. 33. 40.]  
636     cord_individual_obj[indivial_i, :] = [14. 7. 40. 47.]  
637     cord_individual_obj[indivial_i, :] = [15. 5. 64. 69.]  
638     cord_individual_obj[indivial_i, :] = [16. 6. 25. 31.]  
639     cord_individual_obj[indivial_i, :] = [17. 5. 33. 38.]  
640     cord_individual_obj[indivial_i, :] = [18. 6. 38. 44.]  
641     cord_individual_obj[indivial_i, :] = [19. 8. 54. 62.]  
642     cord_individual_obj[indivial_i, :] = [20. 7. 104. 111.]  
643     cord_individual_obj[indivial_i, :] = [21. 5. 37. 42.]  
644     cord_individual_obj[indivial_i, :] = [22. 6. 49. 55.]  
645     cord_individual_obj[indivial_i, :] = [23. 5. 94. 99.]  
646     cord_individual_obj[indivial_i, :] = [24. 8. 37. 45.]  
647  
648     min(cord_individual_obj[:, 3]) = 17.0  
649     historl_G_best_iter[iter, 3] = 17.0  
650 Begin iteration:  
651  
652 iter = 20  
653     cord_individual_obj[indivial_i, :] = [ 0. 7. 32. 39.]  
654     cord_individual_obj[indivial_i, :] = [ 1. 6. 16. 22.]  
655     cord_individual_obj[indivial_i, :] = [ 2. 6. 21. 27.]  
656     cord_individual_obj[indivial_i, :] = [ 3. 6. 46. 52.]  
657     cord_individual_obj[indivial_i, :] = [ 4. 6. 22. 28.]  
658     cord_individual_obj[indivial_i, :] = [ 5. 5. 34. 39.]  
659     cord_individual_obj[indivial_i, :] = [ 6. 7. 17. 24.]  
660     cord_individual_obj[indivial_i, :] = [ 7. 5. 54. 59.]  
661     cord_individual_obj[indivial_i, :] = [ 8. 6. 42. 48.]  
662     cord_individual_obj[indivial_i, :] = [ 9. 4. 13. 17.]  
663     cord_individual_obj[indivial_i, :] = [10. 7. 80. 87.]  
664     cord_individual_obj[indivial_i, :] = [11. 8. 22. 30.]  
665     cord_individual_obj[indivial_i, :] = [12. 5. 81. 86.]  
666     cord_individual_obj[indivial_i, :] = [13. 5. 77. 82.]  
667     cord_individual_obj[indivial_i, :] = [14. 5. 51. 56.]
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668 cord_individual_obj[indivial_i, :] = [ 15. 5. 105. 110.]
669 cord_individual_obj[indivial_i, :] = [16. 6. 44. 50.]
670 cord_individual_obj[indivial_i, :] = [17. 6. 29. 35.]
671 cord_individual_obj[indivial_i, :] = [18. 7. 17. 24.]
672 cord_individual_obj[indivial_i, :] = [19. 5. 60. 65.]
673 cord_individual_obj[indivial_i, :] = [20. 6. 15. 21.]
674 cord_individual_obj[indivial_i, :] = [21. 5. 15. 20.]
675 cord_individual_obj[indivial_i, :] = [22. 6. 26. 32.]
676 cord_individual_obj[indivial_i, :] = [23. 4. 47. 51.]
677 cord_individual_obj[indivial_i, :] = [24. 6. 66. 72.]
678
679 min(cord_individual_obj[:, 3]) = 17.0
680 historl_G_best_iter[iter, 3] = 17.0
681 Iteration calculate over
682
683
684
685
686 All item are in Bin and:
687 Bin area = 1080
688 Real_area = 151.0
689 Proportion_of_area = 0.1398148148148148
690 BEST_CHROM =
691     berth: [22.5 10.5 11. 9.5 2. 23. 15.5 17. 3. 5.5]
692     time: [3. 4. 0. 2. 0. 0. 2. 0. 2. 0.]
693     num_QC: [4. 4. 5. 4. 4. 2. 4. 3. 3. 3.]
694 Objective function values and some other indicators:
695 Obj0 = 4.00          Obj1 = 13.00          Obj0 + Obj1 = 17.00
696 Total movement of crane: 0.00
697 Total waiting time in berth position: 13.00
698 Total index of q during berthing: 579.00
699 Specific arrangement for each vessel:
700
    V_id: 0           li: 9.0           xi: 22.5           bow of i: 18.0           tail of i: 27.0           gama_i0: 3.0           gama_i1: 4
    .0           gama_i1 + 1: 5.0           gama_i1 - gama_i0: 1.0           duration_time_i: 2.0           demand_i: 140.0           work
701 load_i: 140.0
    V_id: 1           li: 9.0           xi: 10.5           bow of i: 6.0           tail of i: 15.0           gama_i0: 4.0           gama_i1: 4
    .0           gama_i1 + 1: 5.0           gama_i1 - gama_i0: 0.0           duration_time_i: 1.0           demand_i: 60.0           work
702 load_i: 60.0
    V_id: 2           li: 8.0           xi: 11.0           bow of i: 7.0           tail of i: 15.0           gama_i0: 0.0           gama_i1: 1
    .0           gama_i1 + 1: 2.0           gama_i1 - gama_i0: 1.0           duration_time_i: 2.0           demand_i: 160.0           work
703 load_i: 160.0
    V_id: 3           li: 7.0           xi: 9.5           bow of i: 6.0           tail of i: 13.0           gama_i0: 2.0           gama_i1: 2.0
    .0           gama_i1 + 1: 3.0           gama_i1 - gama_i0: 0.0           duration_time_i: 1.0           demand_i: 80.0           work load_i:
704 80.0
    V_id: 4           li: 4.0           xi: 2.0           bow of i: 0.0           tail of i: 4.0           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: 120.0           work load_i:
705 120.0
    V_id: 5           li: 8.0           xi: 23.0           bow of i: 19.0           tail of i: 27.0           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: 120.0           work
706 load_i: 120.0
    V_id: 6           li: 5.0           xi: 15.5           bow of i: 13.0           tail of i: 18.0           gama_i0: 2.0           gama_i1: 3
    .0           gama_i1 + 1: 4.0           gama_i1 - gama_i0: 1.0           duration_time_i: 2.0           demand_i: 160.0           work
707 load_i: 160.0
    V_id: 7           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: 80.0           work
708 load_i: 80.0
    V_id: 8           li: 6.0           xi: 3.0           bow of i: 0.0           tail of i: 6.0           gama_i0: 2.0           gama_i1: 4
    .0           gama_i1 + 1: 5.0           gama_i1 - gama_i0: 2.0           duration_time_i: 3.0           demand_i: 140.0           work load_i:
709 140.0
    V_id: 9           li: 3.0           xi: 5.5           bow of i: 4.0           tail of i: 7.0           gama_i0: 0.0           gama_i1: 0
    .0           gama_i1 + 1: 1.0           gama_i1 - gama_i0: 0.0           duration_time_i: 1.0           demand_i: 60.0           work load_i:
710 60.0
    V_id: 10           li: 0.0           xi: 0.0           bow of i: 0.0           tail of i: 0.0           gama_i0: 0.0           gama_i1: 0
    .0           gama_i1 + 1: 0.0           gama_i1 - gama_i0: 0.0           duration_time_i: 0.0           demand_i: 0.0           work load_i:
711 Algorithm finished and the total CPU time: 262 s
712 End
713

```