

unknown

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80 cord_individual_obj[indivial_i,:] = [16. 5. 23. 28.]
81 cord_individual_obj[indivial_i,:] = [17. 6. 67. 73.]
82 cord_individual_obj[indivial_i,:] = [18. 7. 47. 54.]
83 cord_individual_obj[indivial_i,:] = [19. 6. 82. 88.]
84 cord_individual_obj[indivial_i,:] = [20. 9. 47. 56.]
85 cord_individual_obj[indivial_i,:] = [21. 7. 65. 72.]
86 cord_individual_obj[indivial_i,:] = [22. 8. 89. 97.]
87 cord_individual_obj[indivial_i,:] = [23. 6. 82. 88.]
88 cord_individual_obj[indivial_i,:] = [24. 6. 103. 109.]
89
90 min(cord_individual_obj[:,3]) = 28.0
91 historl_G_best_iter[iter, 3] = 28.0
92 Begin iteration:
93
94 iter = 2
95 cord_individual_obj[indivial_i,:] = [ 0. 6. 32. 38.]
96 cord_individual_obj[indivial_i,:] = [ 1. 6. 45. 51.]
97 cord_individual_obj[indivial_i,:] = [ 2. 5. 23. 28.]
98 cord_individual_obj[indivial_i,:] = [ 3. 7. 54. 61.]
99 cord_individual_obj[indivial_i,:] = [ 4. 6. 90. 96.]
100 cord_individual_obj[indivial_i,:] = [ 5. 5. 78. 83.]
101 cord_individual_obj[indivial_i,:] = [ 6. 7. 47. 54.]
102 cord_individual_obj[indivial_i,:] = [ 7. 8. 71. 79.]
103 cord_individual_obj[indivial_i,:] = [ 8. 5. 47. 52.]
104 cord_individual_obj[indivial_i,:] = [ 9. 7. 94. 101.]
105 cord_individual_obj[indivial_i,:] = [10. 5. 87. 92.]
106 cord_individual_obj[indivial_i,:] = [11. 9. 47. 56.]
107 cord_individual_obj[indivial_i,:] = [12. 7. 89. 96.]
108 cord_individual_obj[indivial_i,:] = [13. 6. 143. 149.]
109 cord_individual_obj[indivial_i,:] = [14. 7. 135. 142.]
110 cord_individual_obj[indivial_i,:] = [15. 7. 102. 109.]
111 cord_individual_obj[indivial_i,:] = [16. 6. 41. 47.]
112 cord_individual_obj[indivial_i,:] = [17. 9. 71. 80.]
113 cord_individual_obj[indivial_i,:] = [18. 6. 65. 71.]
114 cord_individual_obj[indivial_i,:] = [19. 7. 91. 98.]
115 cord_individual_obj[indivial_i,:] = [20. 8. 92. 100.]
116 cord_individual_obj[indivial_i,:] = [21. 6. 106. 112.]
117 cord_individual_obj[indivial_i,:] = [22. 5. 100. 105.]
118 cord_individual_obj[indivial_i,:] = [23. 5. 103. 108.]
119 cord_individual_obj[indivial_i,:] = [24. 8. 63. 71.]
120
121 min(cord_individual_obj[:,3]) = 28.0
122 historl_G_best_iter[iter, 3] = 28.0
123 Begin iteration:
124
125 iter = 3
126 cord_individual_obj[indivial_i,:] = [ 0. 6. 56. 62.]
127 cord_individual_obj[indivial_i,:] = [ 1. 5. 39. 44.]
128 cord_individual_obj[indivial_i,:] = [ 2. 7. 72. 79.]
129 cord_individual_obj[indivial_i,:] = [ 3. 6. 51. 57.]
130 cord_individual_obj[indivial_i,:] = [ 4. 6. 108. 114.]
131 cord_individual_obj[indivial_i,:] = [ 5. 6. 128. 134.]
132 cord_individual_obj[indivial_i,:] = [ 6. 6. 76. 82.]
133 cord_individual_obj[indivial_i,:] = [ 7. 8. 41. 49.]
134 cord_individual_obj[indivial_i,:] = [ 8. 5. 90. 95.]
135 cord_individual_obj[indivial_i,:] = [ 9. 5. 46. 51.]
136 cord_individual_obj[indivial_i,:] = [10. 5. 22. 27.]
137 cord_individual_obj[indivial_i,:] = [11. 7. 47. 54.]
138 cord_individual_obj[indivial_i,:] = [12. 5. 59. 64.]
139 cord_individual_obj[indivial_i,:] = [13. 5. 23. 28.]
140 cord_individual_obj[indivial_i,:] = [14. 7. 128. 135.]
141 cord_individual_obj[indivial_i,:] = [15. 7. 54. 61.]
142 cord_individual_obj[indivial_i,:] = [16. 7. 78. 85.]
143 cord_individual_obj[indivial_i,:] = [17. 6. 67. 73.]
144 cord_individual_obj[indivial_i,:] = [18. 7. 125. 132.]
145 cord_individual_obj[indivial_i,:] = [19. 6. 31. 37.]
146 cord_individual_obj[indivial_i,:] = [20. 6. 35. 41.]
147 cord_individual_obj[indivial_i,:] = [21. 5. 88. 93.]
148 cord_individual_obj[indivial_i,:] = [22. 5. 94. 99.]
149 cord_individual_obj[indivial_i,:] = [23. 6. 20. 26.]
150 cord_individual_obj[indivial_i,:] = [24. 6. 50. 56.]
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. 6. 60. 66.]
158 cord_individual_obj[indivial_i,:] = [ 1. 6. 28. 34.]
159 cord_individual_obj[indivial_i,:] = [ 2. 7. 67. 74.]
160 cord_individual_obj[indivial_i,:] = [ 3. 7. 89. 96.]
161 cord_individual_obj[indivial_i,:] = [ 4. 7. 57. 64.]
162 cord_individual_obj[indivial_i,:] = [ 5. 4. 94. 98.]
163 cord_individual_obj[indivial_i,:] = [ 6. 6. 29. 35.]

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164 cord_individual_obj[indivial_i, :] = [ 7. 7. 63. 70.]
165 cord_individual_obj[indivial_i, :] = [ 8. 5. 69. 74.]
166 cord_individual_obj[indivial_i, :] = [ 9. 6. 79. 85.]
167 cord_individual_obj[indivial_i, :] = [10. 6. 97. 103.]
168 cord_individual_obj[indivial_i, :] = [11. 7. 58. 65.]
169 cord_individual_obj[indivial_i, :] = [12. 6. 64. 70.]
170 cord_individual_obj[indivial_i, :] = [13. 5. 62. 67.]
171 cord_individual_obj[indivial_i, :] = [14. 6. 20. 26.]
172 cord_individual_obj[indivial_i, :] = [15. 8. 57. 65.]
173 cord_individual_obj[indivial_i, :] = [16. 6. 54. 60.]
174 cord_individual_obj[indivial_i, :] = [17. 7. 57. 64.]
175 cord_individual_obj[indivial_i, :] = [18. 6. 80. 86.]
176 cord_individual_obj[indivial_i, :] = [19. 6. 81. 87.]
177 cord_individual_obj[indivial_i, :] = [20. 6. 99. 105.]
178 cord_individual_obj[indivial_i, :] = [21. 5. 64. 69.]
179 cord_individual_obj[indivial_i, :] = [22. 6. 215. 221.]
180 cord_individual_obj[indivial_i, :] = [23. 7. 92. 99.]
181 cord_individual_obj[indivial_i, :] = [24. 6. 55. 61.]
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. 112. 119.]
189 cord_individual_obj[indivial_i, :] = [ 1. 7. 51. 58.]
190 cord_individual_obj[indivial_i, :] = [ 2. 6. 44. 50.]
191 cord_individual_obj[indivial_i, :] = [ 3. 6. 62. 68.]
192 cord_individual_obj[indivial_i, :] = [ 4. 5. 78. 83.]
193 cord_individual_obj[indivial_i, :] = [ 5. 5. 105. 110.]
194 cord_individual_obj[indivial_i, :] = [ 6. 6. 77. 83.]
195 cord_individual_obj[indivial_i, :] = [ 7. 6. 81. 87.]
196 cord_individual_obj[indivial_i, :] = [ 8. 4. 103. 107.]
197 cord_individual_obj[indivial_i, :] = [ 9. 5. 90. 95.]
198 cord_individual_obj[indivial_i, :] = [10. 7. 107. 114.]
199 cord_individual_obj[indivial_i, :] = [11. 6. 43. 49.]
200 cord_individual_obj[indivial_i, :] = [12. 5. 74. 79.]
201 cord_individual_obj[indivial_i, :] = [13. 5. 75. 80.]
202 cord_individual_obj[indivial_i, :] = [14. 8. 98. 106.]
203 cord_individual_obj[indivial_i, :] = [15. 8. 65. 73.]
204 cord_individual_obj[indivial_i, :] = [16. 6. 69. 75.]
205 cord_individual_obj[indivial_i, :] = [17. 6. 79. 85.]
206 cord_individual_obj[indivial_i, :] = [18. 5. 98. 103.]
207 cord_individual_obj[indivial_i, :] = [19. 6. 103. 109.]
208 cord_individual_obj[indivial_i, :] = [20. 6. 37. 43.]
209 cord_individual_obj[indivial_i, :] = [21. 6. 103. 109.]
210 cord_individual_obj[indivial_i, :] = [22. 6. 20. 26.]
211 cord_individual_obj[indivial_i, :] = [23. 5. 84. 89.]
212 cord_individual_obj[indivial_i, :] = [24. 6. 63. 69.]
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. 6. 20. 26.]
220 cord_individual_obj[indivial_i, :] = [ 1. 5. 40. 45.]
221 cord_individual_obj[indivial_i, :] = [ 2. 5. 75. 80.]
222 cord_individual_obj[indivial_i, :] = [ 3. 6. 82. 88.]
223 cord_individual_obj[indivial_i, :] = [ 4. 7. 93. 100.]
224 cord_individual_obj[indivial_i, :] = [ 5. 5. 50. 55.]
225 cord_individual_obj[indivial_i, :] = [ 6. 6. 64. 70.]
226 cord_individual_obj[indivial_i, :] = [ 7. 6. 46. 52.]
227 cord_individual_obj[indivial_i, :] = [ 8. 6. 80. 86.]
228 cord_individual_obj[indivial_i, :] = [ 9. 6. 99. 105.]
229 cord_individual_obj[indivial_i, :] = [10. 6. 109. 115.]
230 cord_individual_obj[indivial_i, :] = [11. 8. 72. 80.]
231 cord_individual_obj[indivial_i, :] = [12. 6. 62. 68.]
232 cord_individual_obj[indivial_i, :] = [13. 5. 55. 60.]
233 cord_individual_obj[indivial_i, :] = [14. 7. 116. 123.]
234 cord_individual_obj[indivial_i, :] = [15. 7. 29. 36.]
235 cord_individual_obj[indivial_i, :] = [16. 5. 127. 132.]
236 cord_individual_obj[indivial_i, :] = [17. 6. 28. 34.]
237 cord_individual_obj[indivial_i, :] = [18. 5. 54. 59.]
238 cord_individual_obj[indivial_i, :] = [19. 8. 85. 93.]
239 cord_individual_obj[indivial_i, :] = [20. 4. 45. 49.]
240 cord_individual_obj[indivial_i, :] = [21. 6. 99. 105.]
241 cord_individual_obj[indivial_i, :] = [22. 6. 85. 91.]
242 cord_individual_obj[indivial_i, :] = [23. 7. 94. 101.]
243 cord_individual_obj[indivial_i, :] = [24. 5. 37. 42.]
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.  6. 37. 43.]
251 cord_individual_obj[indivial_i, :] = [ 1.  7. 38. 45.]
252 cord_individual_obj[indivial_i, :] = [ 2.  8. 46. 54.]
253 cord_individual_obj[indivial_i, :] = [ 3.  8. 116. 124.]
254 cord_individual_obj[indivial_i, :] = [ 4.  6. 77. 83.]
255 cord_individual_obj[indivial_i, :] = [ 5.  7. 18. 25.]
256 cord_individual_obj[indivial_i, :] = [ 6.  6. 74. 80.]
257 cord_individual_obj[indivial_i, :] = [ 7.  6. 67. 73.]
258 cord_individual_obj[indivial_i, :] = [ 8.  6. 43. 49.]
259 cord_individual_obj[indivial_i, :] = [ 9.  8. 98. 106.]
260 cord_individual_obj[indivial_i, :] = [10.  6. 92. 98.]
261 cord_individual_obj[indivial_i, :] = [11.  7. 58. 65.]
262 cord_individual_obj[indivial_i, :] = [12.  5. 45. 50.]
263 cord_individual_obj[indivial_i, :] = [13.  7. 71. 78.]
264 cord_individual_obj[indivial_i, :] = [14.  5. 71. 76.]
265 cord_individual_obj[indivial_i, :] = [15.  5. 146. 151.]
266 cord_individual_obj[indivial_i, :] = [16.  6. 20. 26.]
267 cord_individual_obj[indivial_i, :] = [17.  6. 113. 119.]
268 cord_individual_obj[indivial_i, :] = [18.  7. 182. 189.]
269 cord_individual_obj[indivial_i, :] = [19.  7. 111. 118.]
270 cord_individual_obj[indivial_i, :] = [20.  7. 59. 66.]
271 cord_individual_obj[indivial_i, :] = [21.  7. 101. 108.]
272 cord_individual_obj[indivial_i, :] = [22.  6. 19. 25.]
273 cord_individual_obj[indivial_i, :] = [23.  7. 40. 47.]
274 cord_individual_obj[indivial_i, :] = [24.  5. 135. 140.]
275
276 min(cord_individual_obj[:, 3]) = 25.0
277 historl_G_best_iter[iter, 3] = 25.0
278 Begin iteration:
279
280 iter = 8
281 cord_individual_obj[indivial_i, :] = [ 0.  5. 100. 105.]
282 cord_individual_obj[indivial_i, :] = [ 1.  6. 91. 97.]
283 cord_individual_obj[indivial_i, :] = [ 2.  6. 85. 91.]
284 cord_individual_obj[indivial_i, :] = [ 3.  6. 41. 47.]
285 cord_individual_obj[indivial_i, :] = [ 4.  8. 76. 84.]
286 cord_individual_obj[indivial_i, :] = [ 5.  9. 76. 85.]
287 cord_individual_obj[indivial_i, :] = [ 6.  6. 130. 136.]
288 cord_individual_obj[indivial_i, :] = [ 7.  5. 68. 73.]
289 cord_individual_obj[indivial_i, :] = [ 8.  5. 101. 106.]
290 cord_individual_obj[indivial_i, :] = [ 9.  7. 86. 93.]
291 cord_individual_obj[indivial_i, :] = [10.  5. 16. 21.]
292 cord_individual_obj[indivial_i, :] = [11.  7. 140. 147.]
293 cord_individual_obj[indivial_i, :] = [12.  6. 99. 105.]
294 cord_individual_obj[indivial_i, :] = [13.  6. 50. 56.]
295 cord_individual_obj[indivial_i, :] = [14.  5. 86. 91.]
296 cord_individual_obj[indivial_i, :] = [15.  7. 149. 156.]
297 cord_individual_obj[indivial_i, :] = [16.  4. 101. 105.]
298 cord_individual_obj[indivial_i, :] = [17.  6. 135. 141.]
299 cord_individual_obj[indivial_i, :] = [18.  7. 18. 25.]
300 cord_individual_obj[indivial_i, :] = [19.  7. 71. 78.]
301 cord_individual_obj[indivial_i, :] = [20.  8. 80. 88.]
302 cord_individual_obj[indivial_i, :] = [21.  6. 143. 149.]
303 cord_individual_obj[indivial_i, :] = [22.  5. 37. 42.]
304 cord_individual_obj[indivial_i, :] = [23.  8. 114. 122.]
305 cord_individual_obj[indivial_i, :] = [24.  5. 102. 107.]
306
307 min(cord_individual_obj[:, 3]) = 21.0
308 historl_G_best_iter[iter, 3] = 21.0
309 Begin iteration:
310
311 iter = 9
312 cord_individual_obj[indivial_i, :] = [ 0.  9. 81. 90.]
313 cord_individual_obj[indivial_i, :] = [ 1.  6. 104. 110.]
314 cord_individual_obj[indivial_i, :] = [ 2.  7. 120. 127.]
315 cord_individual_obj[indivial_i, :] = [ 3.  9. 83. 92.]
316 cord_individual_obj[indivial_i, :] = [ 4.  6. 62. 68.]
317 cord_individual_obj[indivial_i, :] = [ 5.  7. 51. 58.]
318 cord_individual_obj[indivial_i, :] = [ 6.  6. 92. 98.]
319 cord_individual_obj[indivial_i, :] = [ 7.  6. 94. 100.]
320 cord_individual_obj[indivial_i, :] = [ 8.  6. 62. 68.]
321 cord_individual_obj[indivial_i, :] = [ 9.  7. 93. 100.]
322 cord_individual_obj[indivial_i, :] = [10.  9. 97. 106.]
323 cord_individual_obj[indivial_i, :] = [11.  6. 44. 50.]
324 cord_individual_obj[indivial_i, :] = [12.  5. 65. 70.]
325 cord_individual_obj[indivial_i, :] = [13.  8. 110. 118.]
326 cord_individual_obj[indivial_i, :] = [14.  7. 50. 57.]
327 cord_individual_obj[indivial_i, :] = [15.  5. 16. 21.]
328 cord_individual_obj[indivial_i, :] = [16.  6. 125. 131.]
329 cord_individual_obj[indivial_i, :] = [17.  5. 129. 134.]
330 cord_individual_obj[indivial_i, :] = [18.  7. 111. 118.]
331 cord_individual_obj[indivial_i, :] = [19.  8. 102. 110.]

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unknown

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332 cord_individual_obj[indivial_i,:] = [20. 8. 64. 72.]  
333 cord_individual_obj[indivial_i,:] = [21. 8. 116. 124.]  
334 cord_individual_obj[indivial_i,:] = [22. 7. 74. 81.]  
335 cord_individual_obj[indivial_i,:] = [23. 5. 104. 109.]  
336 cord_individual_obj[indivial_i,:] = [24. 6. 165. 171.]  
337  
338 min(cord_individual_obj[:,3]) = 21.0  
339 histol_G_best_iter[iter,3] = 21.0  
340 Begin iteration:  
341  
342 iter = 10  
343 cord_individual_obj[indivial_i,:] = [ 0. 8. 50. 58.]  
344 cord_individual_obj[indivial_i,:] = [ 1. 5. 134. 139.]  
345 cord_individual_obj[indivial_i,:] = [ 2. 7. 120. 127.]  
346 cord_individual_obj[indivial_i,:] = [ 3. 10. 63. 73.]  
347 cord_individual_obj[indivial_i,:] = [ 4. 6. 85. 91.]  
348 cord_individual_obj[indivial_i,:] = [ 5. 5. 48. 53.]  
349 cord_individual_obj[indivial_i,:] = [ 6. 6. 120. 126.]  
350 cord_individual_obj[indivial_i,:] = [ 7. 8. 123. 131.]  
351 cord_individual_obj[indivial_i,:] = [ 8. 7. 87. 94.]  
352 cord_individual_obj[indivial_i,:] = [ 9. 8. 121. 129.]  
353 cord_individual_obj[indivial_i,:] = [10. 7. 98. 105.]  
354 cord_individual_obj[indivial_i,:] = [11. 7. 82. 89.]  
355 cord_individual_obj[indivial_i,:] = [12. 6. 66. 72.]  
356 cord_individual_obj[indivial_i,:] = [13. 7. 117. 124.]  
357 cord_individual_obj[indivial_i,:] = [14. 7. 50. 57.]  
358 cord_individual_obj[indivial_i,:] = [15. 7. 88. 95.]  
359 cord_individual_obj[indivial_i,:] = [16. 5. 108. 113.]  
360 cord_individual_obj[indivial_i,:] = [17. 5. 69. 74.]  
361 cord_individual_obj[indivial_i,:] = [18. 7. 81. 88.]  
362 cord_individual_obj[indivial_i,:] = [19. 7. 47. 54.]  
363 cord_individual_obj[indivial_i,:] = [20. 8. 82. 90.]  
364 cord_individual_obj[indivial_i,:] = [21. 8. 53. 61.]  
365 cord_individual_obj[indivial_i,:] = [22. 6. 65. 71.]  
366 cord_individual_obj[indivial_i,:] = [23. 6. 84. 90.]  
367 cord_individual_obj[indivial_i,:] = [24. 5. 16. 21.]  
368  
369 min(cord_individual_obj[:,3]) = 21.0  
370 histol_G_best_iter[iter,3] = 21.0  
371 Begin iteration:  
372  
373 iter = 11  
374 cord_individual_obj[indivial_i,:] = [ 0. 6. 79. 85.]  
375 cord_individual_obj[indivial_i,:] = [ 1. 5. 16. 21.]  
376 cord_individual_obj[indivial_i,:] = [ 2. 6. 53. 59.]  
377 cord_individual_obj[indivial_i,:] = [ 3. 7. 64. 71.]  
378 cord_individual_obj[indivial_i,:] = [ 4. 8. 47. 55.]  
379 cord_individual_obj[indivial_i,:] = [ 5. 5. 55. 60.]  
380 cord_individual_obj[indivial_i,:] = [ 6. 6. 99. 105.]  
381 cord_individual_obj[indivial_i,:] = [ 7. 7. 103. 110.]  
382 cord_individual_obj[indivial_i,:] = [ 8. 8. 94. 102.]  
383 cord_individual_obj[indivial_i,:] = [ 9. 5. 59. 64.]  
384 cord_individual_obj[indivial_i,:] = [10. 7. 51. 58.]  
385 cord_individual_obj[indivial_i,:] = [11. 6. 86. 92.]  
386 cord_individual_obj[indivial_i,:] = [12. 6. 42. 48.]  
387 cord_individual_obj[indivial_i,:] = [13. 9. 149. 158.]  
388 cord_individual_obj[indivial_i,:] = [14. 7. 126. 133.]  
389 cord_individual_obj[indivial_i,:] = [15. 5. 64. 69.]  
390 cord_individual_obj[indivial_i,:] = [16. 5. 41. 46.]  
391 cord_individual_obj[indivial_i,:] = [17. 7. 98. 105.]  
392 cord_individual_obj[indivial_i,:] = [18. 7. 55. 62.]  
393 cord_individual_obj[indivial_i,:] = [19. 6. 29. 35.]  
394 cord_individual_obj[indivial_i,:] = [20. 8. 108. 116.]  
395 cord_individual_obj[indivial_i,:] = [21. 6. 88. 94.]  
396 cord_individual_obj[indivial_i,:] = [22. 5. 93. 98.]  
397 cord_individual_obj[indivial_i,:] = [23. 6. 87. 93.]  
398 cord_individual_obj[indivial_i,:] = [24. 8. 133. 141.]  
399  
400 min(cord_individual_obj[:,3]) = 21.0  
401 histol_G_best_iter[iter,3] = 21.0  
402 Begin iteration:  
403  
404 iter = 12  
405 cord_individual_obj[indivial_i,:] = [ 0. 8. 50. 58.]  
406 cord_individual_obj[indivial_i,:] = [ 1. 5. 112. 117.]  
407 cord_individual_obj[indivial_i,:] = [ 2. 5. 117. 122.]  
408 cord_individual_obj[indivial_i,:] = [ 3. 10. 73. 83.]  
409 cord_individual_obj[indivial_i,:] = [ 4. 8. 54. 62.]  
410 cord_individual_obj[indivial_i,:] = [ 5. 5. 27. 32.]  
411 cord_individual_obj[indivial_i,:] = [ 6. 6. 131. 137.]  
412 cord_individual_obj[indivial_i,:] = [ 7. 6. 68. 74.]  
413 cord_individual_obj[indivial_i,:] = [ 8. 8. 59. 67.]  
414 cord_individual_obj[indivial_i,:] = [ 9. 6. 65. 71.]  
415 cord_individual_obj[indivial_i,:] = [10. 7. 98. 105.]
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416 cord_individual_obj[indivial_i,:] = [11. 6. 49. 55.]
417 cord_individual_obj[indivial_i,:] = [12. 9. 137. 146.]
418 cord_individual_obj[indivial_i,:] = [13. 5. 16. 21.]
419 cord_individual_obj[indivial_i,:] = [14. 9. 126. 135.]
420 cord_individual_obj[indivial_i,:] = [15. 6. 51. 57.]
421 cord_individual_obj[indivial_i,:] = [16. 8. 133. 141.]
422 cord_individual_obj[indivial_i,:] = [17. 6. 99. 105.]
423 cord_individual_obj[indivial_i,:] = [18. 7. 126. 133.]
424 cord_individual_obj[indivial_i,:] = [19. 7. 100. 107.]
425 cord_individual_obj[indivial_i,:] = [20. 6. 34. 40.]
426 cord_individual_obj[indivial_i,:] = [21. 7. 112. 119.]
427 cord_individual_obj[indivial_i,:] = [22. 5. 48. 53.]
428 cord_individual_obj[indivial_i,:] = [23. 6. 104. 110.]
429 cord_individual_obj[indivial_i,:] = [24. 9. 141. 150.]
430
431 min(cord_individual_obj[:,3]) = 21.0
432 histol_G_best_iter[iter,3] = 21.0
433 Begin iteration:
434
435 iter = 13
436 cord_individual_obj[indivial_i,:] = [ 0. 8. 100. 108.]
437 cord_individual_obj[indivial_i,:] = [ 1. 6. 107. 113.]
438 cord_individual_obj[indivial_i,:] = [ 2. 8. 128. 136.]
439 cord_individual_obj[indivial_i,:] = [ 3. 7. 68. 75.]
440 cord_individual_obj[indivial_i,:] = [ 4. 5. 187. 192.]
441 cord_individual_obj[indivial_i,:] = [ 5. 7. 87. 94.]
442 cord_individual_obj[indivial_i,:] = [ 6. 6. 62. 68.]
443 cord_individual_obj[indivial_i,:] = [ 7. 6. 63. 69.]
444 cord_individual_obj[indivial_i,:] = [ 8. 7. 103. 110.]
445 cord_individual_obj[indivial_i,:] = [ 9. 6. 78. 84.]
446 cord_individual_obj[indivial_i,:] = [10. 6. 47. 53.]
447 cord_individual_obj[indivial_i,:] = [11. 7. 102. 109.]
448 cord_individual_obj[indivial_i,:] = [12. 6. 111. 117.]
449 cord_individual_obj[indivial_i,:] = [13. 8. 38. 46.]
450 cord_individual_obj[indivial_i,:] = [14. 6. 67. 73.]
451 cord_individual_obj[indivial_i,:] = [15. 7. 71. 78.]
452 cord_individual_obj[indivial_i,:] = [16. 7. 75. 82.]
453 cord_individual_obj[indivial_i,:] = [17. 7. 149. 156.]
454 cord_individual_obj[indivial_i,:] = [18. 7. 127. 134.]
455 cord_individual_obj[indivial_i,:] = [19. 7. 96. 103.]
456 cord_individual_obj[indivial_i,:] = [20. 9. 65. 74.]
457 cord_individual_obj[indivial_i,:] = [21. 5. 33. 38.]
458 cord_individual_obj[indivial_i,:] = [22. 5. 92. 97.]
459 cord_individual_obj[indivial_i,:] = [23. 7. 36. 43.]
460 cord_individual_obj[indivial_i,:] = [24. 5. 16. 21.]
461
462 min(cord_individual_obj[:,3]) = 21.0
463 histol_G_best_iter[iter,3] = 21.0
464 Begin iteration:
465
466 iter = 14
467 cord_individual_obj[indivial_i,:] = [ 0. 9. 36. 45.]
468 cord_individual_obj[indivial_i,:] = [ 1. 6. 103. 109.]
469 cord_individual_obj[indivial_i,:] = [ 2. 5. 107. 112.]
470 cord_individual_obj[indivial_i,:] = [ 3. 11. 67. 78.]
471 cord_individual_obj[indivial_i,:] = [ 4. 5. 16. 21.]
472 cord_individual_obj[indivial_i,:] = [ 5. 5. 117. 122.]
473 cord_individual_obj[indivial_i,:] = [ 6. 7. 63. 70.]
474 cord_individual_obj[indivial_i,:] = [ 7. 6. 109. 115.]
475 cord_individual_obj[indivial_i,:] = [ 8. 8. 49. 57.]
476 cord_individual_obj[indivial_i,:] = [ 9. 6. 137. 143.]
477 cord_individual_obj[indivial_i,:] = [10. 7. 62. 69.]
478 cord_individual_obj[indivial_i,:] = [11. 7. 101. 108.]
479 cord_individual_obj[indivial_i,:] = [12. 6. 66. 72.]
480 cord_individual_obj[indivial_i,:] = [13. 6. 35. 41.]
481 cord_individual_obj[indivial_i,:] = [14. 8. 154. 162.]
482 cord_individual_obj[indivial_i,:] = [15. 7. 88. 95.]
483 cord_individual_obj[indivial_i,:] = [16. 7. 150. 157.]
484 cord_individual_obj[indivial_i,:] = [17. 5. 69. 74.]
485 cord_individual_obj[indivial_i,:] = [18. 6. 91. 97.]
486 cord_individual_obj[indivial_i,:] = [19. 7. 39. 46.]
487 cord_individual_obj[indivial_i,:] = [20. 6. 35. 41.]
488 cord_individual_obj[indivial_i,:] = [21. 8. 169. 177.]
489 cord_individual_obj[indivial_i,:] = [22. 7. 37. 44.]
490 cord_individual_obj[indivial_i,:] = [23. 6. 69. 75.]
491 cord_individual_obj[indivial_i,:] = [24. 7. 149. 156.]
492
493 min(cord_individual_obj[:,3]) = 21.0
494 histol_G_best_iter[iter,3] = 21.0
495 Begin iteration:
496
497 iter = 15
498 cord_individual_obj[indivial_i,:] = [ 0. 7. 45. 52.]
499 cord_individual_obj[indivial_i,:] = [ 1. 5. 91. 96.]

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500 cord_individual_obj[indivial_i,:] = [ 2. 7. 52. 59.]
501 cord_individual_obj[indivial_i,:] = [ 3. 7. 56. 63.]
502 cord_individual_obj[indivial_i,:] = [ 4. 7. 50. 57.]
503 cord_individual_obj[indivial_i,:] = [ 5. 5. 107. 112.]
504 cord_individual_obj[indivial_i,:] = [ 6. 5. 71. 76.]
505 cord_individual_obj[indivial_i,:] = [ 7. 5. 71. 76.]
506 cord_individual_obj[indivial_i,:] = [ 8. 5. 79. 84.]
507 cord_individual_obj[indivial_i,:] = [ 9. 6. 24. 30.]
508 cord_individual_obj[indivial_i,:] = [ 10. 7. 136. 143.]
509 cord_individual_obj[indivial_i,:] = [ 11. 7. 41. 48.]
510 cord_individual_obj[indivial_i,:] = [ 12. 5. 38. 43.]
511 cord_individual_obj[indivial_i,:] = [ 13. 5. 61. 66.]
512 cord_individual_obj[indivial_i,:] = [ 14. 5. 106. 111.]
513 cord_individual_obj[indivial_i,:] = [ 15. 6. 154. 160.]
514 cord_individual_obj[indivial_i,:] = [ 16. 6. 99. 105.]
515 cord_individual_obj[indivial_i,:] = [ 17. 6. 122. 128.]
516 cord_individual_obj[indivial_i,:] = [ 18. 6. 96. 102.]
517 cord_individual_obj[indivial_i,:] = [ 19. 7. 92. 99.]
518 cord_individual_obj[indivial_i,:] = [ 20. 5. 79. 84.]
519 cord_individual_obj[indivial_i,:] = [ 21. 5. 16. 21.]
520 cord_individual_obj[indivial_i,:] = [ 22. 6. 89. 95.]
521 cord_individual_obj[indivial_i,:] = [ 23. 7. 170. 177.]
522 cord_individual_obj[indivial_i,:] = [ 24. 8. 140. 148.]
523
524 min(cord_individual_obj[:, 3]) = 21.0
525 histol_G_best_iter[iter, 3] = 21.0
526 Begin iteration:
527
528 iter = 16
529 cord_individual_obj[indivial_i,:] = [ 0. 9. 55. 64.]
530 cord_individual_obj[indivial_i,:] = [ 1. 5. 124. 129.]
531 cord_individual_obj[indivial_i,:] = [ 2. 8. 93. 101.]
532 cord_individual_obj[indivial_i,:] = [ 3. 7. 38. 45.]
533 cord_individual_obj[indivial_i,:] = [ 4. 5. 57. 62.]
534 cord_individual_obj[indivial_i,:] = [ 5. 5. 144. 149.]
535 cord_individual_obj[indivial_i,:] = [ 6. 5. 88. 93.]
536 cord_individual_obj[indivial_i,:] = [ 7. 7. 65. 72.]
537 cord_individual_obj[indivial_i,:] = [ 8. 7. 139. 146.]
538 cord_individual_obj[indivial_i,:] = [ 9. 5. 109. 114.]
539 cord_individual_obj[indivial_i,:] = [ 10. 8. 91. 99.]
540 cord_individual_obj[indivial_i,:] = [ 11. 6. 85. 91.]
541 cord_individual_obj[indivial_i,:] = [ 12. 6. 68. 74.]
542 cord_individual_obj[indivial_i,:] = [ 13. 6. 60. 66.]
543 cord_individual_obj[indivial_i,:] = [ 14. 8. 157. 165.]
544 cord_individual_obj[indivial_i,:] = [ 15. 8. 91. 99.]
545 cord_individual_obj[indivial_i,:] = [ 16. 6. 48. 54.]
546 cord_individual_obj[indivial_i,:] = [ 17. 6. 73. 79.]
547 cord_individual_obj[indivial_i,:] = [ 18. 6. 80. 86.]
548 cord_individual_obj[indivial_i,:] = [ 19. 9. 220. 229.]
549 cord_individual_obj[indivial_i,:] = [ 20. 6. 66. 72.]
550 cord_individual_obj[indivial_i,:] = [ 21. 6. 187. 193.]
551 cord_individual_obj[indivial_i,:] = [ 22. 6. 26. 32.]
552 cord_individual_obj[indivial_i,:] = [ 23. 5. 16. 21.]
553 cord_individual_obj[indivial_i,:] = [ 24. 6. 112. 118.]
554
555 min(cord_individual_obj[:, 3]) = 21.0
556 histol_G_best_iter[iter, 3] = 21.0
557 Begin iteration:
558
559 iter = 17
560 cord_individual_obj[indivial_i,:] = [ 0. 10. 53. 63.]
561 cord_individual_obj[indivial_i,:] = [ 1. 5. 71. 76.]
562 cord_individual_obj[indivial_i,:] = [ 2. 9. 121. 130.]
563 cord_individual_obj[indivial_i,:] = [ 3. 9. 81. 90.]
564 cord_individual_obj[indivial_i,:] = [ 4. 7. 110. 117.]
565 cord_individual_obj[indivial_i,:] = [ 5. 6. 46. 52.]
566 cord_individual_obj[indivial_i,:] = [ 6. 8. 129. 137.]
567 cord_individual_obj[indivial_i,:] = [ 7. 6. 68. 74.]
568 cord_individual_obj[indivial_i,:] = [ 8. 7. 137. 144.]
569 cord_individual_obj[indivial_i,:] = [ 9. 7. 69. 76.]
570 cord_individual_obj[indivial_i,:] = [ 10. 7. 100. 107.]
571 cord_individual_obj[indivial_i,:] = [ 11. 7. 46. 53.]
572 cord_individual_obj[indivial_i,:] = [ 12. 5. 65. 70.]
573 cord_individual_obj[indivial_i,:] = [ 13. 8. 104. 112.]
574 cord_individual_obj[indivial_i,:] = [ 14. 9. 148. 157.]
575 cord_individual_obj[indivial_i,:] = [ 15. 7. 96. 103.]
576 cord_individual_obj[indivial_i,:] = [ 16. 7. 144. 151.]
577 cord_individual_obj[indivial_i,:] = [ 17. 5. 65. 70.]
578 cord_individual_obj[indivial_i,:] = [ 18. 5. 92. 97.]
579 cord_individual_obj[indivial_i,:] = [ 19. 5. 16. 21.]
580 cord_individual_obj[indivial_i,:] = [ 20. 6. 34. 40.]
581 cord_individual_obj[indivial_i,:] = [ 21. 7. 49. 56.]
582 cord_individual_obj[indivial_i,:] = [ 22. 5. 65. 70.]
583 cord_individual_obj[indivial_i,:] = [ 23. 6. 110. 116.]

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unknown

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584     cord_individual_obj[indivial_i, :] = [ 24.  7. 183. 190.]
585
586     min(cord_individual_obj[:, 3]) = 21.0
587     historl_G_best_iter[iter, 3] = 21.0
588 Begin iteration:
589
590 iter = 18
591     cord_individual_obj[indivial_i, :] = [ 0.  7. 31. 38.]
592     cord_individual_obj[indivial_i, :] = [ 1.  7. 111. 118.]
593     cord_individual_obj[indivial_i, :] = [ 2.  4. 79. 83.]
594     cord_individual_obj[indivial_i, :] = [ 3.  7. 92. 99.]
595     cord_individual_obj[indivial_i, :] = [ 4.  7. 87. 94.]
596     cord_individual_obj[indivial_i, :] = [ 5.  5. 82. 87.]
597     cord_individual_obj[indivial_i, :] = [ 6.  6. 129. 135.]
598     cord_individual_obj[indivial_i, :] = [ 7.  8. 88. 96.]
599     cord_individual_obj[indivial_i, :] = [ 8.  8. 123. 131.]
600     cord_individual_obj[indivial_i, :] = [ 9.  6. 53. 59.]
601     cord_individual_obj[indivial_i, :] = [10.  7. 51. 58.]
602     cord_individual_obj[indivial_i, :] = [11.  7. 41. 48.]
603     cord_individual_obj[indivial_i, :] = [12.  5. 99. 104.]
604     cord_individual_obj[indivial_i, :] = [13.  7. 50. 57.]
605     cord_individual_obj[indivial_i, :] = [14.  6. 89. 95.]
606     cord_individual_obj[indivial_i, :] = [15.  5. 74. 79.]
607     cord_individual_obj[indivial_i, :] = [16.  8. 123. 131.]
608     cord_individual_obj[indivial_i, :] = [17.  8. 92. 100.]
609     cord_individual_obj[indivial_i, :] = [18.  8. 97. 105.]
610     cord_individual_obj[indivial_i, :] = [19.  7. 17. 24.]
611     cord_individual_obj[indivial_i, :] = [20.  6. 67. 73.]
612     cord_individual_obj[indivial_i, :] = [21.  5. 85. 90.]
613     cord_individual_obj[indivial_i, :] = [22.  8. 115. 123.]
614     cord_individual_obj[indivial_i, :] = [23.  7. 36. 43.]
615     cord_individual_obj[indivial_i, :] = [24.  5. 16. 21.]
616
617     min(cord_individual_obj[:, 3]) = 21.0
618     historl_G_best_iter[iter, 3] = 21.0
619 Begin iteration:
620
621 iter = 19
622     cord_individual_obj[indivial_i, :] = [ 0.  7. 41. 48.]
623     cord_individual_obj[indivial_i, :] = [ 1.  6. 153. 159.]
624     cord_individual_obj[indivial_i, :] = [ 2.  6. 123. 129.]
625     cord_individual_obj[indivial_i, :] = [ 3.  6. 45. 51.]
626     cord_individual_obj[indivial_i, :] = [ 4.  6. 47. 53.]
627     cord_individual_obj[indivial_i, :] = [ 5.  5. 116. 121.]
628     cord_individual_obj[indivial_i, :] = [ 6.  5. 16. 21.]
629     cord_individual_obj[indivial_i, :] = [ 7.  5. 108. 113.]
630     cord_individual_obj[indivial_i, :] = [ 8.  6. 49. 55.]
631     cord_individual_obj[indivial_i, :] = [ 9.  6. 90. 96.]
632     cord_individual_obj[indivial_i, :] = [10.  7. 147. 154.]
633     cord_individual_obj[indivial_i, :] = [11.  8. 67. 75.]
634     cord_individual_obj[indivial_i, :] = [12.  6. 64. 70.]
635     cord_individual_obj[indivial_i, :] = [13.  6. 42. 48.]
636     cord_individual_obj[indivial_i, :] = [14.  7. 99. 106.]
637     cord_individual_obj[indivial_i, :] = [15.  7. 69. 76.]
638     cord_individual_obj[indivial_i, :] = [16.  7. 78. 85.]
639     cord_individual_obj[indivial_i, :] = [17.  6. 92. 98.]
640     cord_individual_obj[indivial_i, :] = [18.  5. 126. 131.]
641     cord_individual_obj[indivial_i, :] = [19.  6. 112. 118.]
642     cord_individual_obj[indivial_i, :] = [20.  5. 35. 40.]
643     cord_individual_obj[indivial_i, :] = [21.  7. 78. 85.]
644     cord_individual_obj[indivial_i, :] = [22.  6. 20. 26.]
645     cord_individual_obj[indivial_i, :] = [23.  8. 82. 90.]
646     cord_individual_obj[indivial_i, :] = [24.  7. 139. 146.]
647
648     min(cord_individual_obj[:, 3]) = 21.0
649     historl_G_best_iter[iter, 3] = 21.0
650 Begin iteration:
651
652 iter = 20
653     cord_individual_obj[indivial_i, :] = [ 0.  8. 67. 75.]
654     cord_individual_obj[indivial_i, :] = [ 1.  5. 16. 21.]
655     cord_individual_obj[indivial_i, :] = [ 2.  6. 50. 56.]
656     cord_individual_obj[indivial_i, :] = [ 3.  5. 102. 107.]
657     cord_individual_obj[indivial_i, :] = [ 4.  7. 22. 29.]
658     cord_individual_obj[indivial_i, :] = [ 5.  7. 68. 75.]
659     cord_individual_obj[indivial_i, :] = [ 6.  7. 91. 98.]
660     cord_individual_obj[indivial_i, :] = [ 7.  6. 44. 50.]
661     cord_individual_obj[indivial_i, :] = [ 8.  5. 60. 65.]
662     cord_individual_obj[indivial_i, :] = [ 9.  5. 85. 90.]
663     cord_individual_obj[indivial_i, :] = [10.  6. 173. 179.]
664     cord_individual_obj[indivial_i, :] = [11.  6. 108. 114.]
665     cord_individual_obj[indivial_i, :] = [12.  6. 99. 105.]
666     cord_individual_obj[indivial_i, :] = [13.  6. 108. 114.]
667     cord_individual_obj[indivial_i, :] = [14.  5. 110. 115.]
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unknown

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668 cord_individual_obj[individual_i,:] = [15. 6. 81. 87.]
669 cord_individual_obj[individual_i,:] = [16. 5. 113. 118.]
670 cord_individual_obj[individual_i,:] = [17. 6. 36. 42.]
671 cord_individual_obj[individual_i,:] = [18. 6. 58. 64.]
672 cord_individual_obj[individual_i,:] = [19. 5. 95. 100.]
673 cord_individual_obj[individual_i,:] = [20. 6. 92. 98.]
674 cord_individual_obj[individual_i,:] = [21. 8. 93. 101.]
675 cord_individual_obj[individual_i,:] = [22. 7. 87. 94.]
676 cord_individual_obj[individual_i,:] = [23. 7. 114. 121.]
677 cord_individual_obj[individual_i,:] = [24. 9. 78. 87.]
678
679 min(cord_individual_obj[:, 3]) = 21.0
680 historl_G_best_iter[iter, 3] = 21.0
681 Iteration calculate over
682
683
684
685
686 All item are in Bin and:
687 Bin area = 1080
688 Real_area = 137.0
689 Proportion_of_area = 0.12685185185185185
690 BEST_CHROM =
691     berth: [ 4. 15.5 1.5 20. 25.5 5.5 14. 18.5 11. 10. 3. ]
692     time: [0. 2. 3. 4. 0. 3. 0. 0. 2. 0. 1.]
693     num_QC: [5. 2. 3. 5. 2. 3. 3. 3. 2. 3. 6.]
694 Objective function values and some other indicators:
695 Obj0 = 5.00          Obj1 = 16.00          Obj0 + Obj1 = 21.00
696 Total movement of crane: 0.00
697 Total waiting time in berth position: 15.00
698 Total index of q during berthing: 690.00
699 Specific arrangement for each vessel:
700    V_id: 0      li: 8.0      xi: 4.0      bow of i: 0.0      tail of i: 8.0      gama_i0: 0.0      gama_i1: 0.0
       gama_il + 1: 1.0      gama_il - gama_i0: 0.0      duration_time_i: 1.0      demand_i: 100.0      work load_i:
100.0      work load gap_i: 0
701    V_id: 1      li: 3.0      xi: 15.5      bow of i: 14.0      tail of i: 17.0      gama_i0: 2.0      gama_i1: 5.
       .0      gama_il + 1: 6.0      gama_il - gama_i0: 3.0      duration_time_i: 4.0      demand_i: 160.0      work
load_i: 160.0      work load gap_i: 0
702    V_id: 2      li: 3.0      xi: 1.5      bow of i: 0.0      tail of i: 3.0      gama_i0: 3.0      gama_i1: 4.
       .0      gama_il + 1: 5.0      gama_il - gama_i0: 1.0      duration_time_i: 2.0      demand_i: 120.0      work
load_i: 120.0      work load gap_i: 0
703    V_id: 3      li: 6.0      xi: 20.0      bow of i: 17.0      tail of i: 23.0      gama_i0: 4.0      gama_i1: 5.
       .0      gama_il + 1: 6.0      gama_il - gama_i0: 1.0      duration_time_i: 2.0      demand_i: 120.0      work
load_i: 120.0      work load gap_i: 0
704    V_id: 4      li: 9.0      xi: 25.5      bow of i: 21.0      tail of i: 30.0      gama_i0: 0.0      gama_i1: 3.
       .0      gama_il + 1: 4.0      gama_il - gama_i0: 3.0      duration_time_i: 4.0      demand_i: 140.0      work
load_i: 140.0      work load gap_i: 0
705    V_id: 5      li: 5.0      xi: 5.5      bow of i: 3.0      tail of i: 8.0      gama_i0: 3.0      gama_i1: 5.
       .0      gama_il + 1: 6.0      gama_il - gama_i0: 2.0      duration_time_i: 3.0      demand_i: 140.0      work
load_i: 140.0      work load gap_i: 0
706    V_id: 6      li: 4.0      xi: 14.0      bow of i: 12.0      tail of i: 16.0      gama_i0: 0.0      gama_i1: 1.
       .0      gama_il + 1: 2.0      gama_il - gama_i0: 1.0      duration_time_i: 2.0      demand_i: 100.0      work
load_i: 100.0      work load gap_i: 0
707    V_id: 7      li: 5.0      xi: 18.5      bow of i: 16.0      tail of i: 21.0      gama_i0: 0.0      gama_i1: 1.
       .0      gama_il + 1: 2.0      gama_il - gama_i0: 1.0      duration_time_i: 2.0      demand_i: 120.0      work
load_i: 120.0      work load gap_i: 0
708    V_id: 8      li: 6.0      xi: 11.0      bow of i: 8.0      tail of i: 14.0      gama_i0: 2.0      gama_i1: 3.
       .0      gama_il + 1: 4.0      gama_il - gama_i0: 1.0      duration_time_i: 2.0      demand_i: 80.0      work
load_i: 80.0      work load gap_i: 0
709    V_id: 9      li: 4.0      xi: 10.0      bow of i: 8.0      tail of i: 12.0      gama_i0: 0.0      gama_i1: 1.
       .0      gama_il + 1: 2.0      gama_il - gama_i0: 1.0      duration_time_i: 2.0      demand_i: 120.0      work
load_i: 120.0      work load gap_i: 0
710    V_id: 10     li: 6.0      xi: 3.0      bow of i: 0.0      tail of i: 6.0      gama_i0: 1.0      gama_i1: 2.0
       .0      gama_il + 1: 3.0      gama_il - gama_i0: 1.0      duration_time_i: 2.0      demand_i: 140.0      work
load_i: 140.0      work load gap_i: 0
711
712 Algorithm finished and the total CPU time: 282 s
713 End
714

```