

unknown

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80 cord_individual_obj[indivial_i,:] = [16. 7. 73. 80.]
81 cord_individual_obj[indivial_i,:] = [17. 6. 70. 76.]
82 cord_individual_obj[indivial_i,:] = [18. 10. 145. 155.]
83 cord_individual_obj[indivial_i,:] = [19. 8. 148. 156.]
84 cord_individual_obj[indivial_i,:] = [20. 7. 56. 63.]
85 cord_individual_obj[indivial_i,:] = [21. 7. 96. 103.]
86 cord_individual_obj[indivial_i,:] = [22. 7. 47. 54.]
87 cord_individual_obj[indivial_i,:] = [23. 7. 35. 42.]
88 cord_individual_obj[indivial_i,:] = [24. 8. 69. 77.]
89
90 min(cord_individual_obj[:,3]) = 42.0
91 historl_G_best_iter[iter, 3] = 42.0
92 Begin iteration:
93
94 iter = 2
95 cord_individual_obj[indivial_i,:] = [ 0. 7. 88. 95.]
96 cord_individual_obj[indivial_i,:] = [ 1. 9. 91. 100.]
97 cord_individual_obj[indivial_i,:] = [ 2. 7. 104. 111.]
98 cord_individual_obj[indivial_i,:] = [ 3. 6. 79. 85.]
99 cord_individual_obj[indivial_i,:] = [ 4. 6. 56. 62.]
100 cord_individual_obj[indivial_i,:] = [ 5. 7. 76. 83.]
101 cord_individual_obj[indivial_i,:] = [ 6. 7. 46. 53.]
102 cord_individual_obj[indivial_i,:] = [ 7. 6. 159. 165.]
103 cord_individual_obj[indivial_i,:] = [ 8. 7. 82. 89.]
104 cord_individual_obj[indivial_i,:] = [ 9. 8. 54. 62.]
105 cord_individual_obj[indivial_i,:] = [10. 8. 89. 97.]
106 cord_individual_obj[indivial_i,:] = [11. 8. 109. 117.]
107 cord_individual_obj[indivial_i,:] = [12. 7. 86. 93.]
108 cord_individual_obj[indivial_i,:] = [13. 7. 108. 115.]
109 cord_individual_obj[indivial_i,:] = [14. 8. 77. 85.]
110 cord_individual_obj[indivial_i,:] = [15. 8. 54. 62.]
111 cord_individual_obj[indivial_i,:] = [16. 9. 42. 51.]
112 cord_individual_obj[indivial_i,:] = [17. 5. 84. 89.]
113 cord_individual_obj[indivial_i,:] = [18. 6. 59. 65.]
114 cord_individual_obj[indivial_i,:] = [19. 7. 35. 42.]
115 cord_individual_obj[indivial_i,:] = [20. 6. 89. 95.]
116 cord_individual_obj[indivial_i,:] = [21. 6. 74. 80.]
117 cord_individual_obj[indivial_i,:] = [22. 6. 109. 115.]
118 cord_individual_obj[indivial_i,:] = [23. 8. 133. 141.]
119 cord_individual_obj[indivial_i,:] = [24. 8. 118. 126.]
120
121 min(cord_individual_obj[:,3]) = 42.0
122 historl_G_best_iter[iter, 3] = 42.0
123 Begin iteration:
124
125 iter = 3
126 cord_individual_obj[indivial_i,:] = [ 0. 9. 114. 123.]
127 cord_individual_obj[indivial_i,:] = [ 1. 6. 117. 123.]
128 cord_individual_obj[indivial_i,:] = [ 2. 7. 62. 69.]
129 cord_individual_obj[indivial_i,:] = [ 3. 7. 84. 91.]
130 cord_individual_obj[indivial_i,:] = [ 4. 6. 109. 115.]
131 cord_individual_obj[indivial_i,:] = [ 5. 7. 123. 130.]
132 cord_individual_obj[indivial_i,:] = [ 6. 6. 66. 72.]
133 cord_individual_obj[indivial_i,:] = [ 7. 7. 35. 42.]
134 cord_individual_obj[indivial_i,:] = [ 8. 11. 96. 107.]
135 cord_individual_obj[indivial_i,:] = [ 9. 5. 82. 87.]
136 cord_individual_obj[indivial_i,:] = [10. 5. 83. 88.]
137 cord_individual_obj[indivial_i,:] = [11. 7. 90. 97.]
138 cord_individual_obj[indivial_i,:] = [12. 7. 101. 108.]
139 cord_individual_obj[indivial_i,:] = [13. 5. 99. 104.]
140 cord_individual_obj[indivial_i,:] = [14. 8. 70. 78.]
141 cord_individual_obj[indivial_i,:] = [15. 7. 71. 78.]
142 cord_individual_obj[indivial_i,:] = [16. 8. 68. 76.]
143 cord_individual_obj[indivial_i,:] = [17. 7. 123. 130.]
144 cord_individual_obj[indivial_i,:] = [18. 7. 76. 83.]
145 cord_individual_obj[indivial_i,:] = [19. 9. 59. 68.]
146 cord_individual_obj[indivial_i,:] = [20. 8. 85. 93.]
147 cord_individual_obj[indivial_i,:] = [21. 7. 70. 77.]
148 cord_individual_obj[indivial_i,:] = [22. 8. 54. 62.]
149 cord_individual_obj[indivial_i,:] = [23. 6. 106. 112.]
150 cord_individual_obj[indivial_i,:] = [24. 10. 33. 43.]
151
152 min(cord_individual_obj[:,3]) = 42.0
153 historl_G_best_iter[iter, 3] = 42.0
154 Begin iteration:
155
156 iter = 4
157 cord_individual_obj[indivial_i,:] = [ 0. 8. 54. 62.]
158 cord_individual_obj[indivial_i,:] = [ 1. 8. 69. 77.]
159 cord_individual_obj[indivial_i,:] = [ 2. 5. 113. 118.]
160 cord_individual_obj[indivial_i,:] = [ 3. 9. 107. 116.]
161 cord_individual_obj[indivial_i,:] = [ 4. 6. 73. 79.]
162 cord_individual_obj[indivial_i,:] = [ 5. 7. 35. 42.]
163 cord_individual_obj[indivial_i,:] = [ 6. 6. 68. 74.]

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164 cord_individual_obj[indivial_i,:] = [ 7. 7. 71. 78.]
165 cord_individual_obj[indivial_i,:] = [ 8. 8. 64. 72.]
166 cord_individual_obj[indivial_i,:] = [ 9. 5. 84. 89.]
167 cord_individual_obj[indivial_i,:] = [10. 8. 55. 63.]
168 cord_individual_obj[indivial_i,:] = [11. 9. 55. 64.]
169 cord_individual_obj[indivial_i,:] = [12. 8. 89. 97.]
170 cord_individual_obj[indivial_i,:] = [13. 6. 81. 87.]
171 cord_individual_obj[indivial_i,:] = [14. 8. 69. 77.]
172 cord_individual_obj[indivial_i,:] = [15. 9. 53. 62.]
173 cord_individual_obj[indivial_i,:] = [16. 6. 61. 67.]
174 cord_individual_obj[indivial_i,:] = [17. 7. 61. 68.]
175 cord_individual_obj[indivial_i,:] = [18. 7. 61. 68.]
176 cord_individual_obj[indivial_i,:] = [19. 7. 102. 109.]
177 cord_individual_obj[indivial_i,:] = [20. 7. 92. 99.]
178 cord_individual_obj[indivial_i,:] = [21. 9. 77. 86.]
179 cord_individual_obj[indivial_i,:] = [22. 7. 73. 80.]
180 cord_individual_obj[indivial_i,:] = [23. 8. 84. 92.]
181 cord_individual_obj[indivial_i,:] = [24. 7. 145. 152.]
182
183 min(cord_individual_obj[:,3]) = 42.0
184 historl_G_best_iter[iter,3] = 42.0
185 Begin iteration:
186
187 iter = 5
188 cord_individual_obj[indivial_i,:] = [ 0. 7. 41. 48.]
189 cord_individual_obj[indivial_i,:] = [ 1. 7. 87. 94.]
190 cord_individual_obj[indivial_i,:] = [ 2. 6. 86. 92.]
191 cord_individual_obj[indivial_i,:] = [ 3. 6. 112. 118.]
192 cord_individual_obj[indivial_i,:] = [ 4. 7. 76. 83.]
193 cord_individual_obj[indivial_i,:] = [ 5. 7. 107. 114.]
194 cord_individual_obj[indivial_i,:] = [ 6. 6. 57. 63.]
195 cord_individual_obj[indivial_i,:] = [ 7. 9. 56. 65.]
196 cord_individual_obj[indivial_i,:] = [ 8. 8. 89. 97.]
197 cord_individual_obj[indivial_i,:] = [ 9. 6. 115. 121.]
198 cord_individual_obj[indivial_i,:] = [10. 8. 54. 62.]
199 cord_individual_obj[indivial_i,:] = [11. 9. 109. 118.]
200 cord_individual_obj[indivial_i,:] = [12. 6. 78. 84.]
201 cord_individual_obj[indivial_i,:] = [13. 6. 91. 97.]
202 cord_individual_obj[indivial_i,:] = [14. 9. 52. 61.]
203 cord_individual_obj[indivial_i,:] = [15. 8. 74. 82.]
204 cord_individual_obj[indivial_i,:] = [16. 7. 67. 74.]
205 cord_individual_obj[indivial_i,:] = [17. 7. 91. 98.]
206 cord_individual_obj[indivial_i,:] = [18. 6. 141. 147.]
207 cord_individual_obj[indivial_i,:] = [19. 7. 170. 177.]
208 cord_individual_obj[indivial_i,:] = [20. 7. 85. 92.]
209 cord_individual_obj[indivial_i,:] = [21. 7. 102. 109.]
210 cord_individual_obj[indivial_i,:] = [22. 6. 76. 82.]
211 cord_individual_obj[indivial_i,:] = [23. 8. 129. 137.]
212 cord_individual_obj[indivial_i,:] = [24. 7. 35. 42.]
213
214 min(cord_individual_obj[:,3]) = 42.0
215 historl_G_best_iter[iter,3] = 42.0
216 Begin iteration:
217
218 iter = 6
219 cord_individual_obj[indivial_i,:] = [ 0. 7. 95. 102.]
220 cord_individual_obj[indivial_i,:] = [ 1. 7. 75. 82.]
221 cord_individual_obj[indivial_i,:] = [ 2. 8. 106. 114.]
222 cord_individual_obj[indivial_i,:] = [ 3. 7. 89. 96.]
223 cord_individual_obj[indivial_i,:] = [ 4. 6. 104. 110.]
224 cord_individual_obj[indivial_i,:] = [ 5. 8. 144. 152.]
225 cord_individual_obj[indivial_i,:] = [ 6. 6. 46. 52.]
226 cord_individual_obj[indivial_i,:] = [ 7. 7. 57. 64.]
227 cord_individual_obj[indivial_i,:] = [ 8. 8. 90. 98.]
228 cord_individual_obj[indivial_i,:] = [ 9. 6. 95. 101.]
229 cord_individual_obj[indivial_i,:] = [10. 7. 148. 155.]
230 cord_individual_obj[indivial_i,:] = [11. 7. 68. 75.]
231 cord_individual_obj[indivial_i,:] = [12. 6. 81. 87.]
232 cord_individual_obj[indivial_i,:] = [13. 5. 84. 89.]
233 cord_individual_obj[indivial_i,:] = [14. 6. 67. 73.]
234 cord_individual_obj[indivial_i,:] = [15. 11. 62. 73.]
235 cord_individual_obj[indivial_i,:] = [16. 9. 151. 160.]
236 cord_individual_obj[indivial_i,:] = [17. 8. 82. 90.]
237 cord_individual_obj[indivial_i,:] = [18. 10. 72. 82.]
238 cord_individual_obj[indivial_i,:] = [19. 7. 35. 42.]
239 cord_individual_obj[indivial_i,:] = [20. 8. 80. 88.]
240 cord_individual_obj[indivial_i,:] = [21. 7. 102. 109.]
241 cord_individual_obj[indivial_i,:] = [22. 8. 141. 149.]
242 cord_individual_obj[indivial_i,:] = [23. 6. 115. 121.]
243 cord_individual_obj[indivial_i,:] = [24. 7. 117. 124.]
244
245 min(cord_individual_obj[:,3]) = 42.0
246 historl_G_best_iter[iter,3] = 42.0
247 Begin iteration:

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248
249 iter = 7
250 cord_individual_obj[indivial_i, :] = [ 0.  7. 121. 128.]
251 cord_individual_obj[indivial_i, :] = [ 1.  7. 85. 92.]
252 cord_individual_obj[indivial_i, :] = [ 2.  8. 122. 130.]
253 cord_individual_obj[indivial_i, :] = [ 3.  6. 93. 99.]
254 cord_individual_obj[indivial_i, :] = [ 4.  7. 121. 128.]
255 cord_individual_obj[indivial_i, :] = [ 5.  7. 135. 142.]
256 cord_individual_obj[indivial_i, :] = [ 6.  7. 56. 63.]
257 cord_individual_obj[indivial_i, :] = [ 7.  7. 53. 60.]
258 cord_individual_obj[indivial_i, :] = [ 8.  10. 111. 121.]
259 cord_individual_obj[indivial_i, :] = [ 9.  6. 116. 122.]
260 cord_individual_obj[indivial_i, :] = [10.  7. 148. 155.]
261 cord_individual_obj[indivial_i, :] = [11.  7. 64. 71.]
262 cord_individual_obj[indivial_i, :] = [12.  7. 51. 58.]
263 cord_individual_obj[indivial_i, :] = [13.  7. 57. 64.]
264 cord_individual_obj[indivial_i, :] = [14.  6. 141. 147.]
265 cord_individual_obj[indivial_i, :] = [15.  8. 84. 92.]
266 cord_individual_obj[indivial_i, :] = [16.  7. 35. 42.]
267 cord_individual_obj[indivial_i, :] = [17.  6. 89. 95.]
268 cord_individual_obj[indivial_i, :] = [18.  8. 56. 64.]
269 cord_individual_obj[indivial_i, :] = [19.  9. 50. 59.]
270 cord_individual_obj[indivial_i, :] = [20.  7. 89. 96.]
271 cord_individual_obj[indivial_i, :] = [21.  7. 85. 92.]
272 cord_individual_obj[indivial_i, :] = [22.  8. 141. 149.]
273 cord_individual_obj[indivial_i, :] = [23.  7. 122. 129.]
274 cord_individual_obj[indivial_i, :] = [24. 10. 144. 154.]
275

276 min(cord_individual_obj[:, 3]) = 42.0
277 historl_G_best_iter[iter, 3] = 42.0
278 Begin iteration:
279
280 iter = 8
281 cord_individual_obj[indivial_i, :] = [ 0.  9. 81. 90.]
282 cord_individual_obj[indivial_i, :] = [ 1.  8. 91. 99.]
283 cord_individual_obj[indivial_i, :] = [ 2.  6. 73. 79.]
284 cord_individual_obj[indivial_i, :] = [ 3.  7. 87. 94.]
285 cord_individual_obj[indivial_i, :] = [ 4.  5. 56. 61.]
286 cord_individual_obj[indivial_i, :] = [ 5.  9. 88. 97.]
287 cord_individual_obj[indivial_i, :] = [ 6.  7. 108. 115.]
288 cord_individual_obj[indivial_i, :] = [ 7.  9. 75. 84.]
289 cord_individual_obj[indivial_i, :] = [ 8.  8. 84. 92.]
290 cord_individual_obj[indivial_i, :] = [ 9.  6. 90. 96.]
291 cord_individual_obj[indivial_i, :] = [10.  7. 35. 42.]
292 cord_individual_obj[indivial_i, :] = [11.  8. 52. 60.]
293 cord_individual_obj[indivial_i, :] = [12.  8. 59. 67.]
294 cord_individual_obj[indivial_i, :] = [13.  6. 85. 91.]
295 cord_individual_obj[indivial_i, :] = [14.  6. 46. 52.]
296 cord_individual_obj[indivial_i, :] = [15. 11. 96. 107.]
297 cord_individual_obj[indivial_i, :] = [16.  8. 76. 84.]
298 cord_individual_obj[indivial_i, :] = [17.  7. 93. 100.]
299 cord_individual_obj[indivial_i, :] = [18.  7. 69. 76.]
300 cord_individual_obj[indivial_i, :] = [19.  8. 46. 54.]
301 cord_individual_obj[indivial_i, :] = [20.  7. 82. 89.]
302 cord_individual_obj[indivial_i, :] = [21.  7. 51. 58.]
303 cord_individual_obj[indivial_i, :] = [22.  6. 34. 40.]
304 cord_individual_obj[indivial_i, :] = [23.  6. 64. 70.]
305 cord_individual_obj[indivial_i, :] = [24.  9. 55. 64.]
306

307 min(cord_individual_obj[:, 3]) = 40.0
308 historl_G_best_iter[iter, 3] = 40.0
309 Begin iteration:
310
311 iter = 9
312 cord_individual_obj[indivial_i, :] = [ 0.  7. 83. 90.]
313 cord_individual_obj[indivial_i, :] = [ 1.  9. 55. 64.]
314 cord_individual_obj[indivial_i, :] = [ 2.  5. 109. 114.]
315 cord_individual_obj[indivial_i, :] = [ 3.  7. 139. 146.]
316 cord_individual_obj[indivial_i, :] = [ 4.  6. 115. 121.]
317 cord_individual_obj[indivial_i, :] = [ 5.  7. 93. 100.]
318 cord_individual_obj[indivial_i, :] = [ 6.  6. 34. 40.]
319 cord_individual_obj[indivial_i, :] = [ 7.  7. 68. 75.]
320 cord_individual_obj[indivial_i, :] = [ 8.  5. 92. 97.]
321 cord_individual_obj[indivial_i, :] = [ 9.  7. 114. 121.]
322 cord_individual_obj[indivial_i, :] = [10.  6. 104. 110.]
323 cord_individual_obj[indivial_i, :] = [11.  8. 74. 82.]
324 cord_individual_obj[indivial_i, :] = [12.  8. 64. 72.]
325 cord_individual_obj[indivial_i, :] = [13.  7. 67. 74.]
326 cord_individual_obj[indivial_i, :] = [14.  9. 76. 85.]
327 cord_individual_obj[indivial_i, :] = [15.  7. 73. 80.]
328 cord_individual_obj[indivial_i, :] = [16.  8. 108. 116.]
329 cord_individual_obj[indivial_i, :] = [17.  7. 82. 89.]
330 cord_individual_obj[indivial_i, :] = [18.  8. 62. 70.]
331 cord_individual_obj[indivial_i, :] = [19.  6. 73. 79.]

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unknown

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332 cord_individual_obj[indivial_i,:] = [20. 7. 72. 79.]
333 cord_individual_obj[indivial_i,:] = [21. 6. 78. 84.]
334 cord_individual_obj[indivial_i,:] = [22. 8. 49. 57.]
335 cord_individual_obj[indivial_i,:] = [23. 8. 108. 116.]
336 cord_individual_obj[indivial_i,:] = [24. 8. 40. 48.]
337
338 min(cord_individual_obj[:,3]) = 40.0
339 histol_G_best_iter[iter,3] = 40.0
340 Begin iteration:
341
342 iter = 10
343 cord_individual_obj[indivial_i,:] = [ 0. 8. 80. 88.]
344 cord_individual_obj[indivial_i,:] = [ 1. 8. 44. 52.]
345 cord_individual_obj[indivial_i,:] = [ 2. 7. 98. 105.]
346 cord_individual_obj[indivial_i,:] = [ 3. 6. 34. 40.]
347 cord_individual_obj[indivial_i,:] = [ 4. 10. 68. 78.]
348 cord_individual_obj[indivial_i,:] = [ 5. 7. 88. 95.]
349 cord_individual_obj[indivial_i,:] = [ 6. 10. 95. 105.]
350 cord_individual_obj[indivial_i,:] = [ 7. 7. 117. 124.]
351 cord_individual_obj[indivial_i,:] = [ 8. 9. 75. 84.]
352 cord_individual_obj[indivial_i,:] = [ 9. 8. 66. 74.]
353 cord_individual_obj[indivial_i,:] = [10. 7. 100. 107.]
354 cord_individual_obj[indivial_i,:] = [11. 8. 55. 63.]
355 cord_individual_obj[indivial_i,:] = [12. 7. 104. 111.]
356 cord_individual_obj[indivial_i,:] = [13. 7. 70. 77.]
357 cord_individual_obj[indivial_i,:] = [14. 9. 71. 80.]
358 cord_individual_obj[indivial_i,:] = [15. 7. 66. 73.]
359 cord_individual_obj[indivial_i,:] = [16. 8. 72. 80.]
360 cord_individual_obj[indivial_i,:] = [17. 7. 79. 86.]
361 cord_individual_obj[indivial_i,:] = [18. 7. 118. 125.]
362 cord_individual_obj[indivial_i,:] = [19. 9. 70. 79.]
363 cord_individual_obj[indivial_i,:] = [20. 7. 83. 90.]
364 cord_individual_obj[indivial_i,:] = [21. 8. 68. 76.]
365 cord_individual_obj[indivial_i,:] = [22. 8. 58. 66.]
366 cord_individual_obj[indivial_i,:] = [23. 9. 79. 88.]
367 cord_individual_obj[indivial_i,:] = [24. 8. 35. 43.]
368
369 min(cord_individual_obj[:,3]) = 40.0
370 histol_G_best_iter[iter,3] = 40.0
371 Begin iteration:
372
373 iter = 11
374 cord_individual_obj[indivial_i,:] = [ 0. 6. 99. 105.]
375 cord_individual_obj[indivial_i,:] = [ 1. 7. 99. 106.]
376 cord_individual_obj[indivial_i,:] = [ 2. 9. 69. 78.]
377 cord_individual_obj[indivial_i,:] = [ 3. 8. 83. 91.]
378 cord_individual_obj[indivial_i,:] = [ 4. 7. 62. 69.]
379 cord_individual_obj[indivial_i,:] = [ 5. 9. 88. 97.]
380 cord_individual_obj[indivial_i,:] = [ 6. 8. 74. 82.]
381 cord_individual_obj[indivial_i,:] = [ 7. 6. 110. 116.]
382 cord_individual_obj[indivial_i,:] = [ 8. 8. 57. 65.]
383 cord_individual_obj[indivial_i,:] = [ 9. 8. 100. 108.]
384 cord_individual_obj[indivial_i,:] = [10. 8. 111. 119.]
385 cord_individual_obj[indivial_i,:] = [11. 8. 62. 70.]
386 cord_individual_obj[indivial_i,:] = [12. 8. 62. 70.]
387 cord_individual_obj[indivial_i,:] = [13. 6. 101. 107.]
388 cord_individual_obj[indivial_i,:] = [14. 7. 85. 92.]
389 cord_individual_obj[indivial_i,:] = [15. 7. 70. 77.]
390 cord_individual_obj[indivial_i,:] = [16. 7. 57. 64.]
391 cord_individual_obj[indivial_i,:] = [17. 9. 75. 84.]
392 cord_individual_obj[indivial_i,:] = [18. 6. 34. 40.]
393 cord_individual_obj[indivial_i,:] = [19. 8. 46. 54.]
394 cord_individual_obj[indivial_i,:] = [20. 8. 48. 56.]
395 cord_individual_obj[indivial_i,:] = [21. 8. 80. 88.]
396 cord_individual_obj[indivial_i,:] = [22. 7. 125. 132.]
397 cord_individual_obj[indivial_i,:] = [23. 7. 103. 110.]
398 cord_individual_obj[indivial_i,:] = [24. 7. 37. 44.]
399
400 min(cord_individual_obj[:,3]) = 40.0
401 histol_G_best_iter[iter,3] = 40.0
402 Begin iteration:
403
404 iter = 12
405 cord_individual_obj[indivial_i,:] = [ 0. 8. 80. 88.]
406 cord_individual_obj[indivial_i,:] = [ 1. 9. 71. 80.]
407 cord_individual_obj[indivial_i,:] = [ 2. 9. 115. 124.]
408 cord_individual_obj[indivial_i,:] = [ 3. 8. 87. 95.]
409 cord_individual_obj[indivial_i,:] = [ 4. 7. 116. 123.]
410 cord_individual_obj[indivial_i,:] = [ 5. 9. 50. 59.]
411 cord_individual_obj[indivial_i,:] = [ 6. 9. 92. 101.]
412 cord_individual_obj[indivial_i,:] = [ 7. 7. 53. 60.]
413 cord_individual_obj[indivial_i,:] = [ 8. 6. 63. 69.]
414 cord_individual_obj[indivial_i,:] = [ 9. 8. 78. 86.]
415 cord_individual_obj[indivial_i,:] = [10. 6. 96. 102.]
```

```

416 cord_individual_obj[indivial_i,:] = [11. 9. 59. 68.]
417 cord_individual_obj[indivial_i,:] = [12. 8. 55. 63.]
418 cord_individual_obj[indivial_i,:] = [13. 7. 75. 82.]
419 cord_individual_obj[indivial_i,:] = [14. 10. 53. 63.]
420 cord_individual_obj[indivial_i,:] = [15. 8. 87. 95.]
421 cord_individual_obj[indivial_i,:] = [16. 8. 94. 102.]
422 cord_individual_obj[indivial_i,:] = [17. 7. 104. 111.]
423 cord_individual_obj[indivial_i,:] = [18. 9. 63. 72.]
424 cord_individual_obj[indivial_i,:] = [19. 7. 62. 69.]
425 cord_individual_obj[indivial_i,:] = [20. 7. 63. 70.]
426 cord_individual_obj[indivial_i,:] = [21. 7. 89. 96.]
427 cord_individual_obj[indivial_i,:] = [22. 6. 34. 40.]
428 cord_individual_obj[indivial_i,:] = [23. 8. 133. 141.]
429 cord_individual_obj[indivial_i,:] = [24. 9. 135. 144.]
430
431 min(cord_individual_obj[:,3]) = 40.0
432 histol_G_best_iter[iter,3] = 40.0
433 Begin iteration:
434
435 iter = 13
436 cord_individual_obj[indivial_i,:] = [0. 9. 55. 64.]
437 cord_individual_obj[indivial_i,:] = [1. 10. 47. 57.]
438 cord_individual_obj[indivial_i,:] = [2. 9. 120. 129.]
439 cord_individual_obj[indivial_i,:] = [3. 8. 59. 67.]
440 cord_individual_obj[indivial_i,:] = [4. 8. 50. 58.]
441 cord_individual_obj[indivial_i,:] = [5. 9. 82. 91.]
442 cord_individual_obj[indivial_i,:] = [6. 8. 76. 84.]
443 cord_individual_obj[indivial_i,:] = [7. 7. 86. 93.]
444 cord_individual_obj[indivial_i,:] = [8. 10. 60. 70.]
445 cord_individual_obj[indivial_i,:] = [9. 8. 82. 90.]
446 cord_individual_obj[indivial_i,:] = [10. 9. 66. 75.]
447 cord_individual_obj[indivial_i,:] = [11. 9. 63. 72.]
448 cord_individual_obj[indivial_i,:] = [12. 7. 124. 131.]
449 cord_individual_obj[indivial_i,:] = [13. 7. 71. 78.]
450 cord_individual_obj[indivial_i,:] = [14. 9. 66. 75.]
451 cord_individual_obj[indivial_i,:] = [15. 7. 94. 101.]
452 cord_individual_obj[indivial_i,:] = [16. 8. 85. 93.]
453 cord_individual_obj[indivial_i,:] = [17. 8. 76. 84.]
454 cord_individual_obj[indivial_i,:] = [18. 8. 75. 83.]
455 cord_individual_obj[indivial_i,:] = [19. 7. 75. 82.]
456 cord_individual_obj[indivial_i,:] = [20. 7. 68. 75.]
457 cord_individual_obj[indivial_i,:] = [21. 8. 65. 73.]
458 cord_individual_obj[indivial_i,:] = [22. 7. 49. 56.]
459 cord_individual_obj[indivial_i,:] = [23. 7. 168. 175.]
460 cord_individual_obj[indivial_i,:] = [24. 6. 34. 40.]
461
462 min(cord_individual_obj[:,3]) = 40.0
463 histol_G_best_iter[iter,3] = 40.0
464 Begin iteration:
465
466 iter = 14
467 cord_individual_obj[indivial_i,:] = [0. 8. 94. 102.]
468 cord_individual_obj[indivial_i,:] = [1. 8. 83. 91.]
469 cord_individual_obj[indivial_i,:] = [2. 8. 134. 142.]
470 cord_individual_obj[indivial_i,:] = [3. 8. 102. 110.]
471 cord_individual_obj[indivial_i,:] = [4. 8. 117. 125.]
472 cord_individual_obj[indivial_i,:] = [5. 10. 88. 98.]
473 cord_individual_obj[indivial_i,:] = [6. 8. 64. 72.]
474 cord_individual_obj[indivial_i,:] = [7. 7. 65. 72.]
475 cord_individual_obj[indivial_i,:] = [8. 6. 57. 63.]
476 cord_individual_obj[indivial_i,:] = [9. 8. 79. 87.]
477 cord_individual_obj[indivial_i,:] = [10. 7. 54. 61.]
478 cord_individual_obj[indivial_i,:] = [11. 7. 92. 99.]
479 cord_individual_obj[indivial_i,:] = [12. 7. 93. 100.]
480 cord_individual_obj[indivial_i,:] = [13. 7. 56. 63.]
481 cord_individual_obj[indivial_i,:] = [14. 9. 59. 68.]
482 cord_individual_obj[indivial_i,:] = [15. 8. 51. 59.]
483 cord_individual_obj[indivial_i,:] = [16. 8. 92. 100.]
484 cord_individual_obj[indivial_i,:] = [17. 9. 46. 55.]
485 cord_individual_obj[indivial_i,:] = [18. 8. 68. 76.]
486 cord_individual_obj[indivial_i,:] = [19. 10. 82. 92.]
487 cord_individual_obj[indivial_i,:] = [20. 7. 64. 71.]
488 cord_individual_obj[indivial_i,:] = [21. 7. 97. 104.]
489 cord_individual_obj[indivial_i,:] = [22. 8. 42. 50.]
490 cord_individual_obj[indivial_i,:] = [23. 6. 34. 40.]
491 cord_individual_obj[indivial_i,:] = [24. 10. 135. 145.]
492
493 min(cord_individual_obj[:,3]) = 40.0
494 histol_G_best_iter[iter,3] = 40.0
495 Begin iteration:
496
497 iter = 15
498 cord_individual_obj[indivial_i,:] = [0. 8. 83. 91.]
499 cord_individual_obj[indivial_i,:] = [1. 8. 46. 54.]

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500 cord_individual_obj[indivial_i,:] = [ 2. 7. 89. 96.]
501 cord_individual_obj[indivial_i,:] = [ 3. 8. 96. 104.]
502 cord_individual_obj[indivial_i,:] = [ 4. 7. 67. 74.]
503 cord_individual_obj[indivial_i,:] = [ 5. 8. 42. 50.]
504 cord_individual_obj[indivial_i,:] = [ 6. 7. 28. 35.]
505 cord_individual_obj[indivial_i,:] = [ 7. 7. 35. 42.]
506 cord_individual_obj[indivial_i,:] = [ 8. 9. 62. 71.]
507 cord_individual_obj[indivial_i,:] = [ 9. 7. 89. 96.]
508 cord_individual_obj[indivial_i,:] = [10. 8. 91. 99.]
509 cord_individual_obj[indivial_i,:] = [11. 7. 63. 70.]
510 cord_individual_obj[indivial_i,:] = [12. 8. 129. 137.]
511 cord_individual_obj[indivial_i,:] = [13. 8. 45. 53.]
512 cord_individual_obj[indivial_i,:] = [14. 8. 79. 87.]
513 cord_individual_obj[indivial_i,:] = [15. 8. 91. 99.]
514 cord_individual_obj[indivial_i,:] = [16. 8. 92. 100.]
515 cord_individual_obj[indivial_i,:] = [17. 7. 88. 95.]
516 cord_individual_obj[indivial_i,:] = [18. 8. 51. 59.]
517 cord_individual_obj[indivial_i,:] = [19. 6. 87. 93.]
518 cord_individual_obj[indivial_i,:] = [20. 7. 59. 66.]
519 cord_individual_obj[indivial_i,:] = [21. 7. 117. 124.]
520 cord_individual_obj[indivial_i,:] = [22. 8. 71. 79.]
521 cord_individual_obj[indivial_i,:] = [23. 8. 133. 141.]
522 cord_individual_obj[indivial_i,:] = [24. 6. 34. 40.]
523
524 min(cord_individual_obj[:,3]) = 35.0
525 histol_G_best_iter[iter,3] = 35.0
526 Begin iteration:
527
528 iter = 16
529 cord_individual_obj[indivial_i,:] = [ 0. 6. 97. 103.]
530 cord_individual_obj[indivial_i,:] = [ 1. 6. 80. 86.]
531 cord_individual_obj[indivial_i,:] = [ 2. 9. 126. 135.]
532 cord_individual_obj[indivial_i,:] = [ 3. 7. 65. 72.]
533 cord_individual_obj[indivial_i,:] = [ 4. 9. 81. 90.]
534 cord_individual_obj[indivial_i,:] = [ 5. 10. 40. 50.]
535 cord_individual_obj[indivial_i,:] = [ 6. 8. 44. 52.]
536 cord_individual_obj[indivial_i,:] = [ 7. 8. 54. 62.]
537 cord_individual_obj[indivial_i,:] = [ 8. 8. 55. 63.]
538 cord_individual_obj[indivial_i,:] = [ 9. 9. 45. 54.]
539 cord_individual_obj[indivial_i,:] = [10. 7. 71. 78.]
540 cord_individual_obj[indivial_i,:] = [11. 7. 40. 47.]
541 cord_individual_obj[indivial_i,:] = [12. 8. 52. 60.]
542 cord_individual_obj[indivial_i,:] = [13. 8. 79. 87.]
543 cord_individual_obj[indivial_i,:] = [14. 9. 36. 45.]
544 cord_individual_obj[indivial_i,:] = [15. 8. 107. 115.]
545 cord_individual_obj[indivial_i,:] = [16. 7. 44. 51.]
546 cord_individual_obj[indivial_i,:] = [17. 8. 40. 48.]
547 cord_individual_obj[indivial_i,:] = [18. 10. 43. 53.]
548 cord_individual_obj[indivial_i,:] = [19. 9. 71. 80.]
549 cord_individual_obj[indivial_i,:] = [20. 8. 65. 73.]
550 cord_individual_obj[indivial_i,:] = [21. 9. 89. 98.]
551 cord_individual_obj[indivial_i,:] = [22. 6. 64. 70.]
552 cord_individual_obj[indivial_i,:] = [23. 7. 28. 35.]
553 cord_individual_obj[indivial_i,:] = [24. 7. 114. 121.]
554
555 min(cord_individual_obj[:,3]) = 35.0
556 histol_G_best_iter[iter,3] = 35.0
557 Begin iteration:
558
559 iter = 17
560 cord_individual_obj[indivial_i,:] = [ 0. 7. 78. 85.]
561 cord_individual_obj[indivial_i,:] = [ 1. 9. 136. 145.]
562 cord_individual_obj[indivial_i,:] = [ 2. 7. 28. 35.]
563 cord_individual_obj[indivial_i,:] = [ 3. 7. 100. 107.]
564 cord_individual_obj[indivial_i,:] = [ 4. 6. 84. 90.]
565 cord_individual_obj[indivial_i,:] = [ 5. 8. 64. 72.]
566 cord_individual_obj[indivial_i,:] = [ 6. 8. 123. 131.]
567 cord_individual_obj[indivial_i,:] = [ 7. 8. 80. 88.]
568 cord_individual_obj[indivial_i,:] = [ 8. 8. 45. 53.]
569 cord_individual_obj[indivial_i,:] = [ 9. 8. 63. 71.]
570 cord_individual_obj[indivial_i,:] = [10. 7. 69. 76.]
571 cord_individual_obj[indivial_i,:] = [11. 7. 62. 69.]
572 cord_individual_obj[indivial_i,:] = [12. 8. 50. 58.]
573 cord_individual_obj[indivial_i,:] = [13. 9. 64. 73.]
574 cord_individual_obj[indivial_i,:] = [14. 10. 63. 73.]
575 cord_individual_obj[indivial_i,:] = [15. 9. 67. 76.]
576 cord_individual_obj[indivial_i,:] = [16. 9. 89. 98.]
577 cord_individual_obj[indivial_i,:] = [17. 7. 42. 49.]
578 cord_individual_obj[indivial_i,:] = [18. 8. 65. 73.]
579 cord_individual_obj[indivial_i,:] = [19. 7. 47. 54.]
580 cord_individual_obj[indivial_i,:] = [20. 10. 79. 89.]
581 cord_individual_obj[indivial_i,:] = [21. 8. 76. 84.]
582 cord_individual_obj[indivial_i,:] = [22. 8. 44. 52.]
583 cord_individual_obj[indivial_i,:] = [23. 7. 27. 34.]

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unknown

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584     cord_individual_obj[indivial_i, :] = [24. 6. 81. 87.]  
585  
586     min(cord_individual_obj[:, 3]) = 34.0  
587     historl_G_best_iter[iter, 3] = 34.0  
588 Begin iteration:  
589  
590 iter = 18  
591     cord_individual_obj[indivial_i, :] = [ 0. 8. 97. 105.]  
592     cord_individual_obj[indivial_i, :] = [ 1. 7. 27. 34.]  
593     cord_individual_obj[indivial_i, :] = [ 2. 8. 80. 88.]  
594     cord_individual_obj[indivial_i, :] = [ 3. 6. 78. 84.]  
595     cord_individual_obj[indivial_i, :] = [ 4. 7. 77. 84.]  
596     cord_individual_obj[indivial_i, :] = [ 5. 8. 72. 80.]  
597     cord_individual_obj[indivial_i, :] = [ 6. 7. 69. 76.]  
598     cord_individual_obj[indivial_i, :] = [ 7. 10. 77. 87.]  
599     cord_individual_obj[indivial_i, :] = [ 8. 8. 43. 51.]  
600     cord_individual_obj[indivial_i, :] = [ 9. 9. 48. 57.]  
601     cord_individual_obj[indivial_i, :] = [10. 7. 88. 95.]  
602     cord_individual_obj[indivial_i, :] = [11. 8. 48. 56.]  
603     cord_individual_obj[indivial_i, :] = [12. 8. 55. 63.]  
604     cord_individual_obj[indivial_i, :] = [13. 6. 54. 60.]  
605     cord_individual_obj[indivial_i, :] = [14. 8. 89. 97.]  
606     cord_individual_obj[indivial_i, :] = [15. 8. 76. 84.]  
607     cord_individual_obj[indivial_i, :] = [16. 8. 72. 80.]  
608     cord_individual_obj[indivial_i, :] = [17. 8. 92. 100.]  
609     cord_individual_obj[indivial_i, :] = [18. 9. 47. 56.]  
610     cord_individual_obj[indivial_i, :] = [19. 9. 96. 105.]  
611     cord_individual_obj[indivial_i, :] = [20. 8. 71. 79.]  
612     cord_individual_obj[indivial_i, :] = [21. 7. 72. 79.]  
613     cord_individual_obj[indivial_i, :] = [22. 8. 103. 111.]  
614     cord_individual_obj[indivial_i, :] = [23. 9. 105. 114.]  
615     cord_individual_obj[indivial_i, :] = [24. 8. 65. 73.]  
616  
617     min(cord_individual_obj[:, 3]) = 34.0  
618     historl_G_best_iter[iter, 3] = 34.0  
619 Begin iteration:  
620  
621 iter = 19  
622     cord_individual_obj[indivial_i, :] = [ 0. 9. 67. 76.]  
623     cord_individual_obj[indivial_i, :] = [ 1. 8. 73. 81.]  
624     cord_individual_obj[indivial_i, :] = [ 2. 6. 54. 60.]  
625     cord_individual_obj[indivial_i, :] = [ 3. 6. 85. 91.]  
626     cord_individual_obj[indivial_i, :] = [ 4. 9. 58. 67.]  
627     cord_individual_obj[indivial_i, :] = [ 5. 8. 76. 84.]  
628     cord_individual_obj[indivial_i, :] = [ 6. 7. 78. 85.]  
629     cord_individual_obj[indivial_i, :] = [ 7. 8. 44. 52.]  
630     cord_individual_obj[indivial_i, :] = [ 8. 9. 77. 86.]  
631     cord_individual_obj[indivial_i, :] = [ 9. 8. 80. 88.]  
632     cord_individual_obj[indivial_i, :] = [10. 7. 88. 95.]  
633     cord_individual_obj[indivial_i, :] = [11. 10. 64. 74.]  
634     cord_individual_obj[indivial_i, :] = [12. 9. 56. 65.]  
635     cord_individual_obj[indivial_i, :] = [13. 7. 59. 66.]  
636     cord_individual_obj[indivial_i, :] = [14. 10. 67. 77.]  
637     cord_individual_obj[indivial_i, :] = [15. 9. 73. 82.]  
638     cord_individual_obj[indivial_i, :] = [16. 7. 73. 80.]  
639     cord_individual_obj[indivial_i, :] = [17. 8. 52. 60.]  
640     cord_individual_obj[indivial_i, :] = [18. 10. 62. 72.]  
641     cord_individual_obj[indivial_i, :] = [19. 11. 79. 90.]  
642     cord_individual_obj[indivial_i, :] = [20. 6. 64. 70.]  
643     cord_individual_obj[indivial_i, :] = [21. 10. 80. 90.]  
644     cord_individual_obj[indivial_i, :] = [22. 6. 68. 74.]  
645     cord_individual_obj[indivial_i, :] = [23. 7. 27. 34.]  
646     cord_individual_obj[indivial_i, :] = [24. 8. 90. 98.]  
647  
648     min(cord_individual_obj[:, 3]) = 34.0  
649     historl_G_best_iter[iter, 3] = 34.0  
650 Begin iteration:  
651  
652 iter = 20  
653     cord_individual_obj[indivial_i, :] = [ 0. 8. 77. 85.]  
654     cord_individual_obj[indivial_i, :] = [ 1. 8. 78. 86.]  
655     cord_individual_obj[indivial_i, :] = [ 2. 8. 79. 87.]  
656     cord_individual_obj[indivial_i, :] = [ 3. 7. 44. 51.]  
657     cord_individual_obj[indivial_i, :] = [ 4. 7. 60. 67.]  
658     cord_individual_obj[indivial_i, :] = [ 5. 9. 81. 90.]  
659     cord_individual_obj[indivial_i, :] = [ 6. 7. 51. 58.]  
660     cord_individual_obj[indivial_i, :] = [ 7. 8. 92. 100.]  
661     cord_individual_obj[indivial_i, :] = [ 8. 10. 110. 120.]  
662     cord_individual_obj[indivial_i, :] = [ 9. 5. 107. 112.]  
663     cord_individual_obj[indivial_i, :] = [10. 7. 90. 97.]  
664     cord_individual_obj[indivial_i, :] = [11. 8. 59. 67.]  
665     cord_individual_obj[indivial_i, :] = [12. 6. 82. 88.]  
666     cord_individual_obj[indivial_i, :] = [13. 6. 94. 100.]  
667     cord_individual_obj[indivial_i, :] = [14. 8. 71. 79.]
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668 cord_individual_obj[indivial_i,:] = [15. 7. 74. 81.]
669 cord_individual_obj[indivial_i,:] = [16. 8. 78. 86.]
670 cord_individual_obj[indivial_i,:] = [17. 8. 77. 85.]
671 cord_individual_obj[indivial_i,:] = [18. 7. 99. 106.]
672 cord_individual_obj[indivial_i,:] = [19. 6. 102. 108.]
673 cord_individual_obj[indivial_i,:] = [20. 8. 91. 99.]
674 cord_individual_obj[indivial_i,:] = [21. 7. 133. 140.]
675 cord_individual_obj[indivial_i,:] = [22. 6. 119. 125.]
676 cord_individual_obj[indivial_i,:] = [23. 7. 102. 109.]
677 cord_individual_obj[indivial_i,:] = [24. 7. 27. 34.]
678
679 min(cord_individual_obj[:,3]) = 34.0
680 historl_G_best_iter[iter,3] = 34.0
681 Iteration calculate over
682
683
684
685
686 All item are in Bin and:
687 Bin area = 1080
688 Real_area = 144.0
689 Proportion_of_area = 0.1333333333333333
690 BEST_CHROM =
691 berth: [ 3.5 2.5 20.5 8.5 14.5 3. 14.5 14. 23. 23. 22. 23. ]
692 time: [0. 4. 1. 0. 2. 2. 3. 0. 4. 5. 0. 2. ]
693 num_QC: [4. 4. 5. 2. 3. 4. 3. 5. 5. 3. 3. 4. ]
694 Objective function values and some other indicators:
695 Obj0 = 7.00 Obj1 = 27.00 Obj0 + Obj1 = 34.00
696 Total movement of crane: 0.00
697 Total waiting time in berth position: 23.00
698 Total index of q during berthing: 744.00
699 Specific arrangement for each vessel:
700 V_id: 0 li: 7.0 xi: 3.5 bow of i: 0.0 tail of i: 7.0 gama_i0: 0.0 gama_i1: 1.0
701 140.0 work load gap_i: 0 gama_i1 + 1: 2.0 gama_i1 - gama_i0: 1.0 duration_time_i: 2.0 demand_i: 140.0 work load_i:
702 V_id: 1 li: 5.0 xi: 2.5 bow of i: 0.0 tail of i: 5.0 gama_i0: 4.0 gama_i1: 5.0
703 120.0 work load gap_i: 0 gama_i1 + 1: 6.0 gama_i1 - gama_i0: 1.0 duration_time_i: 2.0 demand_i: 120.0 work load_i:
704 V_id: 2 li: 5.0 xi: 20.5 bow of i: 18.0 tail of i: 23.0 gama_i0: 1.0 gama_i1: 1
705 .0 load_i: 80.0 work load gap_i: 0 gama_i1 + 1: 2.0 gama_i1 - gama_i0: 0.0 duration_time_i: 1.0 demand_i: 80.0 work
706 V_id: 3 li: 3.0 xi: 8.5 bow of i: 7.0 tail of i: 10.0 gama_i0: 0.0 gama_i1: 3.0
707 140.0 work load gap_i: 0 gama_i1 + 1: 4.0 gama_i1 - gama_i0: 3.0 duration_time_i: 4.0 demand_i: 140.0 work load_i:
708 V_id: 4 li: 9.0 xi: 14.5 bow of i: 10.0 tail of i: 19.0 gama_i0: 2.0 gama_i1: 2
709 .0 load_i: 60.0 work load gap_i: 0 gama_i1 + 1: 3.0 gama_i1 - gama_i0: 0.0 duration_time_i: 1.0 demand_i: 60.0 work
710 V_id: 5 li: 6.0 xi: 3.0 bow of i: 0.0 tail of i: 6.0 gama_i0: 2.0 gama_i1: 3.0
711 140.0 work load gap_i: 0 gama_i1 + 1: 4.0 gama_i1 - gama_i0: 1.0 duration_time_i: 2.0 demand_i: 140.0 work load_i:
712 V_id: 6 li: 9.0 xi: 14.5 bow of i: 10.0 tail of i: 19.0 gama_i0: 3.0 gama_i1: 4
713 .0 load_i: 100.0 work load gap_i: 0 gama_i1 + 1: 5.0 gama_i1 - gama_i0: 1.0 duration_time_i: 2.0 demand_i: 100.0 work
714 V_id: 7 li: 8.0 xi: 14.0 bow of i: 10.0 tail of i: 18.0 gama_i0: 0.0 gama_i1: 0
715 .0 load_i: 100.0 work load gap_i: 0 gama_i1 + 1: 1.0 gama_i1 - gama_i0: 0.0 duration_time_i: 1.0 demand_i: 100.0 work
716 V_id: 8 li: 8.0 xi: 23.0 bow of i: 19.0 tail of i: 27.0 gama_i0: 4.0 gama_i1: 4
717 .0 load_i: 80.0 work load gap_i: 0 gama_i1 + 1: 5.0 gama_i1 - gama_i0: 0.0 duration_time_i: 1.0 demand_i: 80.0 work
718 V_id: 9 li: 8.0 xi: 23.0 bow of i: 19.0 tail of i: 27.0 gama_i0: 5.0 gama_i1: 7
719 .0 load_i: 140.0 work load gap_i: 0 gama_i1 + 1: 8.0 gama_i1 - gama_i0: 2.0 duration_time_i: 3.0 demand_i: 140.0 work
720 V_id: 10 li: 8.0 xi: 22.0 bow of i: 18.0 tail of i: 26.0 gama_i0: 0.0 gama_i1: 1
721 : 0.0 load_i: 60.0 work load gap_i: 0 gama_i1 + 1: 1.0 gama_i1 - gama_i0: 0.0 duration_time_i: 1.0 demand_i: 60.0 work
722 V_id: 11 li: 8.0 xi: 23.0 bow of i: 19.0 tail of i: 27.0 gama_i0: 2.0 gama_i1: 2
723 : 3.0 load_i: 160.0 work load gap_i: 0 gama_i1 + 1: 4.0 gama_i1 - gama_i0: 1.0 duration_time_i: 2.0 demand_i: 160.0 work
724
725 Algorithm finished and the total CPU time: 349 s
726 End
727

```