

unknown

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80 cord_individual_obj[indivial_i, :] = [16. 6. 84. 90.]
81 cord_individual_obj[indivial_i, :] = [17. 9. 66. 75.]
82 cord_individual_obj[indivial_i, :] = [18. 9. 129. 138.]
83 cord_individual_obj[indivial_i, :] = [19. 7. 86. 93.]
84 cord_individual_obj[indivial_i, :] = [20. 8. 110. 118.]
85 cord_individual_obj[indivial_i, :] = [21. 7. 170. 177.]
86 cord_individual_obj[indivial_i, :] = [22. 7. 88. 95.]
87 cord_individual_obj[indivial_i, :] = [23. 8. 81. 89.]
88 cord_individual_obj[indivial_i, :] = [24. 8. 37. 45.]
89
90 min(cord_individual_obj[:, 3]) = 45.0
91 historl_G_best_iter[iter, 3] = 45.0
92 Begin iteration:
93
94 iter = 2
95 cord_individual_obj[indivial_i, :] = [ 0. 7. 51. 58.]
96 cord_individual_obj[indivial_i, :] = [ 1. 7. 101. 108.]
97 cord_individual_obj[indivial_i, :] = [ 2. 7. 51. 58.]
98 cord_individual_obj[indivial_i, :] = [ 3. 8. 45. 53.]
99 cord_individual_obj[indivial_i, :] = [ 4. 7. 66. 73.]
100 cord_individual_obj[indivial_i, :] = [ 5. 8. 85. 93.]
101 cord_individual_obj[indivial_i, :] = [ 6. 8. 47. 55.]
102 cord_individual_obj[indivial_i, :] = [ 7. 7. 78. 85.]
103 cord_individual_obj[indivial_i, :] = [ 8. 9. 77. 86.]
104 cord_individual_obj[indivial_i, :] = [ 9. 8. 85. 93.]
105 cord_individual_obj[indivial_i, :] = [10. 8. 70. 78.]
106 cord_individual_obj[indivial_i, :] = [11. 10. 81. 91.]
107 cord_individual_obj[indivial_i, :] = [12. 6. 57. 63.]
108 cord_individual_obj[indivial_i, :] = [13. 11. 86. 97.]
109 cord_individual_obj[indivial_i, :] = [14. 7. 38. 45.]
110 cord_individual_obj[indivial_i, :] = [15. 7. 63. 70.]
111 cord_individual_obj[indivial_i, :] = [16. 7. 72. 79.]
112 cord_individual_obj[indivial_i, :] = [17. 8. 75. 83.]
113 cord_individual_obj[indivial_i, :] = [18. 8. 79. 87.]
114 cord_individual_obj[indivial_i, :] = [19. 6. 53. 59.]
115 cord_individual_obj[indivial_i, :] = [20. 9. 68. 77.]
116 cord_individual_obj[indivial_i, :] = [21. 8. 37. 45.]
117 cord_individual_obj[indivial_i, :] = [22. 9. 61. 70.]
118 cord_individual_obj[indivial_i, :] = [23. 7. 49. 56.]
119 cord_individual_obj[indivial_i, :] = [24. 7. 57. 64.]
120
121 min(cord_individual_obj[:, 3]) = 45.0
122 historl_G_best_iter[iter, 3] = 45.0
123 Begin iteration:
124
125 iter = 3
126 cord_individual_obj[indivial_i, :] = [ 0. 9. 55. 64.]
127 cord_individual_obj[indivial_i, :] = [ 1. 7. 38. 45.]
128 cord_individual_obj[indivial_i, :] = [ 2. 8. 52. 60.]
129 cord_individual_obj[indivial_i, :] = [ 3. 8. 92. 100.]
130 cord_individual_obj[indivial_i, :] = [ 4. 8. 47. 55.]
131 cord_individual_obj[indivial_i, :] = [ 5. 8. 58. 66.]
132 cord_individual_obj[indivial_i, :] = [ 6. 9. 46. 55.]
133 cord_individual_obj[indivial_i, :] = [ 7. 8. 56. 64.]
134 cord_individual_obj[indivial_i, :] = [ 8. 8. 66. 74.]
135 cord_individual_obj[indivial_i, :] = [ 9. 8. 63. 71.]
136 cord_individual_obj[indivial_i, :] = [10. 8. 47. 55.]
137 cord_individual_obj[indivial_i, :] = [11. 7. 67. 74.]
138 cord_individual_obj[indivial_i, :] = [12. 7. 43. 50.]
139 cord_individual_obj[indivial_i, :] = [13. 7. 55. 62.]
140 cord_individual_obj[indivial_i, :] = [14. 9. 54. 63.]
141 cord_individual_obj[indivial_i, :] = [15. 9. 68. 77.]
142 cord_individual_obj[indivial_i, :] = [16. 9. 47. 56.]
143 cord_individual_obj[indivial_i, :] = [17. 7. 54. 61.]
144 cord_individual_obj[indivial_i, :] = [18. 8. 56. 64.]
145 cord_individual_obj[indivial_i, :] = [19. 6. 71. 77.]
146 cord_individual_obj[indivial_i, :] = [20. 8. 46. 54.]
147 cord_individual_obj[indivial_i, :] = [21. 7. 42. 49.]
148 cord_individual_obj[indivial_i, :] = [22. 7. 54. 61.]
149 cord_individual_obj[indivial_i, :] = [23. 7. 64. 71.]
150 cord_individual_obj[indivial_i, :] = [24. 7. 64. 71.]
151
152 min(cord_individual_obj[:, 3]) = 45.0
153 historl_G_best_iter[iter, 3] = 45.0
154 Begin iteration:
155
156 iter = 4
157 cord_individual_obj[indivial_i, :] = [ 0. 8. 75. 83.]
158 cord_individual_obj[indivial_i, :] = [ 1. 9. 48. 57.]
159 cord_individual_obj[indivial_i, :] = [ 2. 7. 62. 69.]
160 cord_individual_obj[indivial_i, :] = [ 3. 7. 38. 45.]
161 cord_individual_obj[indivial_i, :] = [ 4. 8. 44. 52.]
162 cord_individual_obj[indivial_i, :] = [ 5. 7. 59. 66.]
163 cord_individual_obj[indivial_i, :] = [ 6. 7. 70. 77.]

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164 cord_individual_obj[indivial_i,:] = [ 7. 7. 130. 137.]
165 cord_individual_obj[indivial_i,:] = [ 8. 9. 63. 72.]
166 cord_individual_obj[indivial_i,:] = [ 9. 8. 40. 48.]
167 cord_individual_obj[indivial_i,:] = [10. 7. 53. 60.]
168 cord_individual_obj[indivial_i,:] = [11. 7. 118. 125.]
169 cord_individual_obj[indivial_i,:] = [12. 8. 99. 107.]
170 cord_individual_obj[indivial_i,:] = [13. 8. 84. 92.]
171 cord_individual_obj[indivial_i,:] = [14. 9. 61. 70.]
172 cord_individual_obj[indivial_i,:] = [15. 9. 65. 74.]
173 cord_individual_obj[indivial_i,:] = [16. 9. 47. 56.]
174 cord_individual_obj[indivial_i,:] = [17. 7. 52. 59.]
175 cord_individual_obj[indivial_i,:] = [18. 9. 49. 58.]
176 cord_individual_obj[indivial_i,:] = [19. 8. 157. 165.]
177 cord_individual_obj[indivial_i,:] = [20. 8. 84. 92.]
178 cord_individual_obj[indivial_i,:] = [21. 9. 48. 57.]
179 cord_individual_obj[indivial_i,:] = [22. 9. 58. 67.]
180 cord_individual_obj[indivial_i,:] = [23. 7. 54. 61.]
181 cord_individual_obj[indivial_i,:] = [24. 9. 47. 56.]
182
183 min(cord_individual_obj[:,3]) = 45.0
184 historl_G_best_iter[iter,3] = 45.0
185 Begin iteration:
186
187 iter = 5
188 cord_individual_obj[indivial_i,:] = [ 0. 7. 102. 109.]
189 cord_individual_obj[indivial_i,:] = [ 1. 7. 46. 53.]
190 cord_individual_obj[indivial_i,:] = [ 2. 7. 102. 109.]
191 cord_individual_obj[indivial_i,:] = [ 3. 10. 98. 108.]
192 cord_individual_obj[indivial_i,:] = [ 4. 6. 50. 56.]
193 cord_individual_obj[indivial_i,:] = [ 5. 6. 131. 137.]
194 cord_individual_obj[indivial_i,:] = [ 6. 8. 56. 64.]
195 cord_individual_obj[indivial_i,:] = [ 7. 6. 55. 61.]
196 cord_individual_obj[indivial_i,:] = [ 8. 7. 47. 54.]
197 cord_individual_obj[indivial_i,:] = [ 9. 7. 70. 77.]
198 cord_individual_obj[indivial_i,:] = [10. 9. 46. 55.]
199 cord_individual_obj[indivial_i,:] = [11. 6. 80. 86.]
200 cord_individual_obj[indivial_i,:] = [12. 9. 57. 66.]
201 cord_individual_obj[indivial_i,:] = [13. 6. 77. 83.]
202 cord_individual_obj[indivial_i,:] = [14. 7. 130. 137.]
203 cord_individual_obj[indivial_i,:] = [15. 7. 60. 67.]
204 cord_individual_obj[indivial_i,:] = [16. 8. 68. 76.]
205 cord_individual_obj[indivial_i,:] = [17. 8. 84. 92.]
206 cord_individual_obj[indivial_i,:] = [18. 8. 68. 76.]
207 cord_individual_obj[indivial_i,:] = [19. 7. 38. 45.]
208 cord_individual_obj[indivial_i,:] = [20. 7. 89. 96.]
209 cord_individual_obj[indivial_i,:] = [21. 8. 66. 74.]
210 cord_individual_obj[indivial_i,:] = [22. 9. 80. 89.]
211 cord_individual_obj[indivial_i,:] = [23. 7. 45. 52.]
212 cord_individual_obj[indivial_i,:] = [24. 8. 45. 53.]
213
214 min(cord_individual_obj[:,3]) = 45.0
215 historl_G_best_iter[iter,3] = 45.0
216 Begin iteration:
217
218 iter = 6
219 cord_individual_obj[indivial_i,:] = [ 0. 8. 55. 63.]
220 cord_individual_obj[indivial_i,:] = [ 1. 7. 59. 66.]
221 cord_individual_obj[indivial_i,:] = [ 2. 7. 62. 69.]
222 cord_individual_obj[indivial_i,:] = [ 3. 9. 84. 93.]
223 cord_individual_obj[indivial_i,:] = [ 4. 8. 56. 64.]
224 cord_individual_obj[indivial_i,:] = [ 5. 7. 38. 45.]
225 cord_individual_obj[indivial_i,:] = [ 6. 10. 50. 60.]
226 cord_individual_obj[indivial_i,:] = [ 7. 7. 58. 65.]
227 cord_individual_obj[indivial_i,:] = [ 8. 8. 44. 52.]
228 cord_individual_obj[indivial_i,:] = [ 9. 8. 49. 57.]
229 cord_individual_obj[indivial_i,:] = [10. 8. 51. 59.]
230 cord_individual_obj[indivial_i,:] = [11. 7. 104. 111.]
231 cord_individual_obj[indivial_i,:] = [12. 8. 61. 69.]
232 cord_individual_obj[indivial_i,:] = [13. 9. 76. 85.]
233 cord_individual_obj[indivial_i,:] = [14. 9. 50. 59.]
234 cord_individual_obj[indivial_i,:] = [15. 10. 46. 56.]
235 cord_individual_obj[indivial_i,:] = [16. 9. 47. 56.]
236 cord_individual_obj[indivial_i,:] = [17. 7. 45. 52.]
237 cord_individual_obj[indivial_i,:] = [18. 8. 58. 66.]
238 cord_individual_obj[indivial_i,:] = [19. 6. 71. 77.]
239 cord_individual_obj[indivial_i,:] = [20. 8. 47. 55.]
240 cord_individual_obj[indivial_i,:] = [21. 8. 48. 56.]
241 cord_individual_obj[indivial_i,:] = [22. 6. 54. 60.]
242 cord_individual_obj[indivial_i,:] = [23. 7. 58. 65.]
243 cord_individual_obj[indivial_i,:] = [24. 8. 51. 59.]
244
245 min(cord_individual_obj[:,3]) = 45.0
246 historl_G_best_iter[iter,3] = 45.0
247 Begin iteration:

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248
249 iter = 7
250 cord_individual_obj[indivial_i, :] = [ 0.  7. 73. 80.]
251 cord_individual_obj[indivial_i, :] = [ 1.  9. 72. 81.]
252 cord_individual_obj[indivial_i, :] = [ 2.  9. 50. 59.]
253 cord_individual_obj[indivial_i, :] = [ 3.  8. 92. 100.]
254 cord_individual_obj[indivial_i, :] = [ 4.  8. 54. 62.]
255 cord_individual_obj[indivial_i, :] = [ 5.  8. 53. 61.]
256 cord_individual_obj[indivial_i, :] = [ 6.  8. 42. 50.]
257 cord_individual_obj[indivial_i, :] = [ 7.  7. 92. 99.]
258 cord_individual_obj[indivial_i, :] = [ 8.  9. 50. 59.]
259 cord_individual_obj[indivial_i, :] = [ 9. 10. 76. 86.]
260 cord_individual_obj[indivial_i, :] = [10. 7. 49. 56.]
261 cord_individual_obj[indivial_i, :] = [11. 7. 38. 45.]
262 cord_individual_obj[indivial_i, :] = [12. 8. 78. 86.]
263 cord_individual_obj[indivial_i, :] = [13. 7. 56. 63.]
264 cord_individual_obj[indivial_i, :] = [14. 9. 70. 79.]
265 cord_individual_obj[indivial_i, :] = [15. 10. 79. 89.]
266 cord_individual_obj[indivial_i, :] = [16. 9. 47. 56.]
267 cord_individual_obj[indivial_i, :] = [17. 9. 42. 51.]
268 cord_individual_obj[indivial_i, :] = [18. 8. 56. 64.]
269 cord_individual_obj[indivial_i, :] = [19. 6. 71. 77.]
270 cord_individual_obj[indivial_i, :] = [20. 8. 46. 54.]
271 cord_individual_obj[indivial_i, :] = [21. 6. 53. 59.]
272 cord_individual_obj[indivial_i, :] = [22. 7. 78. 85.]
273 cord_individual_obj[indivial_i, :] = [23. 8. 65. 73.]
274 cord_individual_obj[indivial_i, :] = [24. 8. 51. 59.]
275

276 min(cord_individual_obj[:, 3]) = 45.0
277 historl_G_best_iter[iter, 3] = 45.0
278 Begin iteration:
279
280 iter = 8
281 cord_individual_obj[indivial_i, :] = [ 0.  9. 99. 108.]
282 cord_individual_obj[indivial_i, :] = [ 1.  7. 118. 125.]
283 cord_individual_obj[indivial_i, :] = [ 2.  8. 59. 67.]
284 cord_individual_obj[indivial_i, :] = [ 3.  7. 38. 45.]
285 cord_individual_obj[indivial_i, :] = [ 4.  9. 59. 68.]
286 cord_individual_obj[indivial_i, :] = [ 5.  7. 60. 67.]
287 cord_individual_obj[indivial_i, :] = [ 6.  7. 81. 88.]
288 cord_individual_obj[indivial_i, :] = [ 7.  8. 61. 69.]
289 cord_individual_obj[indivial_i, :] = [ 8.  6. 103. 109.]
290 cord_individual_obj[indivial_i, :] = [ 9.  8. 60. 68.]
291 cord_individual_obj[indivial_i, :] = [10. 7. 82. 89.]
292 cord_individual_obj[indivial_i, :] = [11. 8. 118. 126.]
293 cord_individual_obj[indivial_i, :] = [12. 6. 100. 106.]
294 cord_individual_obj[indivial_i, :] = [13. 8. 101. 109.]
295 cord_individual_obj[indivial_i, :] = [14. 9. 100. 109.]
296 cord_individual_obj[indivial_i, :] = [15. 7. 69. 76.]
297 cord_individual_obj[indivial_i, :] = [16. 8. 72. 80.]
298 cord_individual_obj[indivial_i, :] = [17. 9. 88. 97.]
299 cord_individual_obj[indivial_i, :] = [18. 9. 108. 117.]
300 cord_individual_obj[indivial_i, :] = [19. 8. 74. 82.]
301 cord_individual_obj[indivial_i, :] = [20. 9. 165. 174.]
302 cord_individual_obj[indivial_i, :] = [21. 8. 41. 49.]
303 cord_individual_obj[indivial_i, :] = [22. 7. 49. 56.]
304 cord_individual_obj[indivial_i, :] = [23. 8. 81. 89.]
305 cord_individual_obj[indivial_i, :] = [24. 9. 78. 87.]
306

307 min(cord_individual_obj[:, 3]) = 45.0
308 historl_G_best_iter[iter, 3] = 45.0
309 Begin iteration:
310
311 iter = 9
312 cord_individual_obj[indivial_i, :] = [ 0.  8. 84. 92.]
313 cord_individual_obj[indivial_i, :] = [ 1.  9. 52. 61.]
314 cord_individual_obj[indivial_i, :] = [ 2.  8. 76. 84.]
315 cord_individual_obj[indivial_i, :] = [ 3. 10. 86. 96.]
316 cord_individual_obj[indivial_i, :] = [ 4.  7. 102. 109.]
317 cord_individual_obj[indivial_i, :] = [ 5. 10. 82. 92.]
318 cord_individual_obj[indivial_i, :] = [ 6.  9. 77. 86.]
319 cord_individual_obj[indivial_i, :] = [ 7.  7. 58. 65.]
320 cord_individual_obj[indivial_i, :] = [ 8.  8. 113. 121.]
321 cord_individual_obj[indivial_i, :] = [ 9.  9. 66. 75.]
322 cord_individual_obj[indivial_i, :] = [10. 7. 71. 78.]
323 cord_individual_obj[indivial_i, :] = [11. 9. 77. 86.]
324 cord_individual_obj[indivial_i, :] = [12. 7. 65. 72.]
325 cord_individual_obj[indivial_i, :] = [13. 7. 85. 92.]
326 cord_individual_obj[indivial_i, :] = [14. 9. 77. 86.]
327 cord_individual_obj[indivial_i, :] = [15. 8. 111. 119.]
328 cord_individual_obj[indivial_i, :] = [16. 9. 119. 128.]
329 cord_individual_obj[indivial_i, :] = [17. 7. 127. 134.]
330 cord_individual_obj[indivial_i, :] = [18. 8. 72. 80.]
331 cord_individual_obj[indivial_i, :] = [19. 8. 56. 64.]

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332     cord_individual_obj[indivial_i, :] = [20. 7. 38. 45.]
333     cord_individual_obj[indivial_i, :] = [21. 6. 93. 99.]
334     cord_individual_obj[indivial_i, :] = [22. 8. 116. 124.]
335     cord_individual_obj[indivial_i, :] = [23. 7. 136. 143.]
336     cord_individual_obj[indivial_i, :] = [24. 8. 45. 53.]
337
338 min(cord_individual_obj[:, 3]) = 45.0
339 historl_G_best_iter[iter, 3] = 45.0
340 Begin iteration:
341
342 iter = 10
343     cord_individual_obj[indivial_i, :] = [0. 7. 65. 72.]
344     cord_individual_obj[indivial_i, :] = [1. 8. 92. 100.]
345     cord_individual_obj[indivial_i, :] = [2. 9. 37. 46.]
346     cord_individual_obj[indivial_i, :] = [3. 7. 67. 74.]
347     cord_individual_obj[indivial_i, :] = [4. 10. 140. 150.]
348     cord_individual_obj[indivial_i, :] = [5. 8. 43. 51.]
349     cord_individual_obj[indivial_i, :] = [6. 9. 86. 95.]
350     cord_individual_obj[indivial_i, :] = [7. 8. 73. 81.]
351     cord_individual_obj[indivial_i, :] = [8. 5. 52. 57.]
352     cord_individual_obj[indivial_i, :] = [9. 7. 85. 92.]
353     cord_individual_obj[indivial_i, :] = [10. 8. 53. 61.]
354     cord_individual_obj[indivial_i, :] = [11. 9. 75. 84.]
355     cord_individual_obj[indivial_i, :] = [12. 7. 84. 91.]
356     cord_individual_obj[indivial_i, :] = [13. 8. 65. 73.]
357     cord_individual_obj[indivial_i, :] = [14. 9. 75. 84.]
358     cord_individual_obj[indivial_i, :] = [15. 8. 58. 66.]
359     cord_individual_obj[indivial_i, :] = [16. 6. 102. 108.]
360     cord_individual_obj[indivial_i, :] = [17. 8. 37. 45.]
361     cord_individual_obj[indivial_i, :] = [18. 9. 97. 106.]
362     cord_individual_obj[indivial_i, :] = [19. 8. 51. 59.]
363     cord_individual_obj[indivial_i, :] = [20. 7. 52. 59.]
364     cord_individual_obj[indivial_i, :] = [21. 9. 37. 46.]
365     cord_individual_obj[indivial_i, :] = [22. 7. 109. 116.]
366     cord_individual_obj[indivial_i, :] = [23. 7. 38. 45.]
367     cord_individual_obj[indivial_i, :] = [24. 9. 120. 129.]
368
369 min(cord_individual_obj[:, 3]) = 45.0
370 historl_G_best_iter[iter, 3] = 45.0
371 Begin iteration:
372
373 iter = 11
374     cord_individual_obj[indivial_i, :] = [0. 8. 99. 107.]
375     cord_individual_obj[indivial_i, :] = [1. 7. 76. 83.]
376     cord_individual_obj[indivial_i, :] = [2. 9. 49. 58.]
377     cord_individual_obj[indivial_i, :] = [3. 7. 66. 73.]
378     cord_individual_obj[indivial_i, :] = [4. 8. 37. 45.]
379     cord_individual_obj[indivial_i, :] = [5. 7. 134. 141.]
380     cord_individual_obj[indivial_i, :] = [6. 8. 84. 92.]
381     cord_individual_obj[indivial_i, :] = [7. 9. 95. 104.]
382     cord_individual_obj[indivial_i, :] = [8. 7. 84. 91.]
383     cord_individual_obj[indivial_i, :] = [9. 8. 55. 63.]
384     cord_individual_obj[indivial_i, :] = [10. 7. 148. 155.]
385     cord_individual_obj[indivial_i, :] = [11. 8. 76. 84.]
386     cord_individual_obj[indivial_i, :] = [12. 8. 148. 156.]
387     cord_individual_obj[indivial_i, :] = [13. 8. 72. 80.]
388     cord_individual_obj[indivial_i, :] = [14. 8. 151. 159.]
389     cord_individual_obj[indivial_i, :] = [15. 9. 54. 63.]
390     cord_individual_obj[indivial_i, :] = [16. 6. 88. 94.]
391     cord_individual_obj[indivial_i, :] = [17. 7. 100. 107.]
392     cord_individual_obj[indivial_i, :] = [18. 7. 111. 118.]
393     cord_individual_obj[indivial_i, :] = [19. 8. 85. 93.]
394     cord_individual_obj[indivial_i, :] = [20. 7. 77. 84.]
395     cord_individual_obj[indivial_i, :] = [21. 10. 56. 66.]
396     cord_individual_obj[indivial_i, :] = [22. 9. 94. 103.]
397     cord_individual_obj[indivial_i, :] = [23. 6. 47. 53.]
398     cord_individual_obj[indivial_i, :] = [24. 9. 77. 86.]
399
400 min(cord_individual_obj[:, 3]) = 45.0
401 historl_G_best_iter[iter, 3] = 45.0
402 Begin iteration:
403
404 iter = 12
405     cord_individual_obj[indivial_i, :] = [0. 8. 77. 85.]
406     cord_individual_obj[indivial_i, :] = [1. 7. 94. 101.]
407     cord_individual_obj[indivial_i, :] = [2. 8. 36. 44.]
408     cord_individual_obj[indivial_i, :] = [3. 7. 54. 61.]
409     cord_individual_obj[indivial_i, :] = [4. 8. 76. 84.]
410     cord_individual_obj[indivial_i, :] = [5. 6. 118. 124.]
411     cord_individual_obj[indivial_i, :] = [6. 6. 142. 148.]
412     cord_individual_obj[indivial_i, :] = [7. 8. 69. 77.]
413     cord_individual_obj[indivial_i, :] = [8. 9. 118. 127.]
414     cord_individual_obj[indivial_i, :] = [9. 10. 57. 67.]
415     cord_individual_obj[indivial_i, :] = [10. 7. 86. 93.]

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416 cord_individual_obj[indivial_i,:] = [ 11.  8. 98. 106.]
417 cord_individual_obj[indivial_i,:] = [12.  7. 54. 61.]
418 cord_individual_obj[indivial_i,:] = [13.  9. 82. 91.]
419 cord_individual_obj[indivial_i,:] = [14.  8. 37. 45.]
420 cord_individual_obj[indivial_i,:] = [ 15.  7. 97. 104.]
421 cord_individual_obj[indivial_i,:] = [16.  8. 75. 83.]
422 cord_individual_obj[indivial_i,:] = [17.  8. 91. 99.]
423 cord_individual_obj[indivial_i,:] = [18.  9. 39. 48.]
424 cord_individual_obj[indivial_i,:] = [19.  9. 62. 71.]
425 cord_individual_obj[indivial_i,:] = [20.  8. 34. 42.]
426 cord_individual_obj[indivial_i,:] = [ 21.  8. 101. 109.]
427 cord_individual_obj[indivial_i,:] = [22.  9. 48. 57.]
428 cord_individual_obj[indivial_i,:] = [23.  7. 39. 46.]
429 cord_individual_obj[indivial_i,:] = [ 24.  8. 102. 110.]
430
431 min(cord_individual_obj[:,3]) = 42.0
432 histol_G_best_iter[iter,3] = 42.0
433 Begin iteration:
434
435 iter = 13
436 cord_individual_obj[indivial_i,:] = [ 0.  8. 110. 118.]
437 cord_individual_obj[indivial_i,:] = [ 1.  8. 105. 113.]
438 cord_individual_obj[indivial_i,:] = [ 2.  9. 59. 68.]
439 cord_individual_obj[indivial_i,:] = [ 3.  6. 81. 87.]
440 cord_individual_obj[indivial_i,:] = [ 4.  9. 84. 93.]
441 cord_individual_obj[indivial_i,:] = [ 5.  7. 38. 45.]
442 cord_individual_obj[indivial_i,:] = [ 6.  8. 34. 42.]
443 cord_individual_obj[indivial_i,:] = [ 7.  8. 51. 59.]
444 cord_individual_obj[indivial_i,:] = [ 8.  8. 72. 80.]
445 cord_individual_obj[indivial_i,:] = [ 9.  7. 95. 102.]
446 cord_individual_obj[indivial_i,:] = [10.  7. 49. 56.]
447 cord_individual_obj[indivial_i,:] = [11.  7. 40. 47.]
448 cord_individual_obj[indivial_i,:] = [12.  7. 58. 65.]
449 cord_individual_obj[indivial_i,:] = [13.  6. 59. 65.]
450 cord_individual_obj[indivial_i,:] = [14.  9. 70. 79.]
451 cord_individual_obj[indivial_i,:] = [15.  7. 80. 87.]
452 cord_individual_obj[indivial_i,:] = [16.  8. 77. 85.]
453 cord_individual_obj[indivial_i,:] = [17.  6. 53. 59.]
454 cord_individual_obj[indivial_i,:] = [18.  9. 60. 69.]
455 cord_individual_obj[indivial_i,:] = [19.  8. 36. 44.]
456 cord_individual_obj[indivial_i,:] = [20.  6. 76. 82.]
457 cord_individual_obj[indivial_i,:] = [21.  9. 95. 104.]
458 cord_individual_obj[indivial_i,:] = [22.  8. 91. 99.]
459 cord_individual_obj[indivial_i,:] = [23.  7. 75. 82.]
460 cord_individual_obj[indivial_i,:] = [24.  8. 85. 93.]
461
462 min(cord_individual_obj[:,3]) = 42.0
463 histol_G_best_iter[iter,3] = 42.0
464 Begin iteration:
465
466 iter = 14
467 cord_individual_obj[indivial_i,:] = [ 0.  8. 34. 42.]
468 cord_individual_obj[indivial_i,:] = [ 1.  7. 107. 114.]
469 cord_individual_obj[indivial_i,:] = [ 2.  9. 39. 48.]
470 cord_individual_obj[indivial_i,:] = [ 3.  8. 83. 91.]
471 cord_individual_obj[indivial_i,:] = [ 4.  8. 90. 98.]
472 cord_individual_obj[indivial_i,:] = [ 5.  7. 43. 50.]
473 cord_individual_obj[indivial_i,:] = [ 6.  6. 135. 141.]
474 cord_individual_obj[indivial_i,:] = [ 7.  9. 95. 104.]
475 cord_individual_obj[indivial_i,:] = [ 8.  9. 62. 71.]
476 cord_individual_obj[indivial_i,:] = [ 9.  7. 99. 106.]
477 cord_individual_obj[indivial_i,:] = [10.  6. 115. 121.]
478 cord_individual_obj[indivial_i,:] = [11.  8. 71. 79.]
479 cord_individual_obj[indivial_i,:] = [12.  6. 158. 164.]
480 cord_individual_obj[indivial_i,:] = [13.  8. 105. 113.]
481 cord_individual_obj[indivial_i,:] = [14.  7. 61. 68.]
482 cord_individual_obj[indivial_i,:] = [15.  9. 87. 96.]
483 cord_individual_obj[indivial_i,:] = [16.  7. 76. 83.]
484 cord_individual_obj[indivial_i,:] = [17.  6. 29. 35.]
485 cord_individual_obj[indivial_i,:] = [18.  7. 64. 71.]
486 cord_individual_obj[indivial_i,:] = [19.  7. 96. 103.]
487 cord_individual_obj[indivial_i,:] = [20.  6. 68. 74.]
488 cord_individual_obj[indivial_i,:] = [21.  7. 87. 94.]
489 cord_individual_obj[indivial_i,:] = [22.  6. 106. 112.]
490 cord_individual_obj[indivial_i,:] = [23.  9. 146. 155.]
491 cord_individual_obj[indivial_i,:] = [24.  7. 118. 125.]
492
493 min(cord_individual_obj[:,3]) = 35.0
494 histol_G_best_iter[iter,3] = 35.0
495 Begin iteration:
496
497 iter = 15
498 cord_individual_obj[indivial_i,:] = [ 0.  7. 45. 52.]
499 cord_individual_obj[indivial_i,:] = [ 1.  8. 53. 61.]

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500 cord_individual_obj[indivial_i,:] = [ 2. 7. 61. 68.]
501 cord_individual_obj[indivial_i,:] = [ 3. 8. 44. 52.]
502 cord_individual_obj[indivial_i,:] = [ 4. 8. 67. 75.]
503 cord_individual_obj[indivial_i,:] = [ 5. 9. 102. 111.]
504 cord_individual_obj[indivial_i,:] = [ 6. 6. 127. 133.]
505 cord_individual_obj[indivial_i,:] = [ 7. 8. 111. 119.]
506 cord_individual_obj[indivial_i,:] = [ 8. 7. 119. 126.]
507 cord_individual_obj[indivial_i,:] = [ 9. 7. 37. 44.]
508 cord_individual_obj[indivial_i,:] = [10. 8. 87. 95.]
509 cord_individual_obj[indivial_i,:] = [11. 8. 39. 47.]
510 cord_individual_obj[indivial_i,:] = [12. 6. 29. 35.]
511 cord_individual_obj[indivial_i,:] = [13. 8. 27. 35.]
512 cord_individual_obj[indivial_i,:] = [14. 9. 49. 58.]
513 cord_individual_obj[indivial_i,:] = [15. 7. 76. 83.]
514 cord_individual_obj[indivial_i,:] = [16. 9. 53. 62.]
515 cord_individual_obj[indivial_i,:] = [17. 10. 41. 51.]
516 cord_individual_obj[indivial_i,:] = [18. 7. 59. 66.]
517 cord_individual_obj[indivial_i,:] = [19. 10. 65. 75.]
518 cord_individual_obj[indivial_i,:] = [20. 7. 88. 95.]
519 cord_individual_obj[indivial_i,:] = [21. 8. 64. 72.]
520 cord_individual_obj[indivial_i,:] = [22. 8. 85. 93.]
521 cord_individual_obj[indivial_i,:] = [23. 7. 48. 55.]
522 cord_individual_obj[indivial_i,:] = [24. 7. 35. 42.]
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. 9. 110. 119.]
530 cord_individual_obj[indivial_i,:] = [ 1. 9. 71. 80.]
531 cord_individual_obj[indivial_i,:] = [ 2. 8. 62. 70.]
532 cord_individual_obj[indivial_i,:] = [ 3. 7. 143. 150.]
533 cord_individual_obj[indivial_i,:] = [ 4. 7. 104. 111.]
534 cord_individual_obj[indivial_i,:] = [ 5. 7. 130. 137.]
535 cord_individual_obj[indivial_i,:] = [ 6. 6. 29. 35.]
536 cord_individual_obj[indivial_i,:] = [ 7. 7. 90. 97.]
537 cord_individual_obj[indivial_i,:] = [ 8. 7. 47. 54.]
538 cord_individual_obj[indivial_i,:] = [ 9. 7. 107. 114.]
539 cord_individual_obj[indivial_i,:] = [10. 7. 51. 58.]
540 cord_individual_obj[indivial_i,:] = [11. 8. 74. 82.]
541 cord_individual_obj[indivial_i,:] = [12. 6. 38. 44.]
542 cord_individual_obj[indivial_i,:] = [13. 8. 36. 44.]
543 cord_individual_obj[indivial_i,:] = [14. 10. 104. 114.]
544 cord_individual_obj[indivial_i,:] = [15. 8. 104. 112.]
545 cord_individual_obj[indivial_i,:] = [16. 6. 104. 110.]
546 cord_individual_obj[indivial_i,:] = [17. 6. 45. 51.]
547 cord_individual_obj[indivial_i,:] = [18. 7. 74. 81.]
548 cord_individual_obj[indivial_i,:] = [19. 8. 59. 67.]
549 cord_individual_obj[indivial_i,:] = [20. 7. 68. 75.]
550 cord_individual_obj[indivial_i,:] = [21. 6. 117. 123.]
551 cord_individual_obj[indivial_i,:] = [22. 8. 110. 118.]
552 cord_individual_obj[indivial_i,:] = [23. 8. 62. 70.]
553 cord_individual_obj[indivial_i,:] = [24. 8. 61. 69.]
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. 6. 136. 142.]
561 cord_individual_obj[indivial_i,:] = [ 1. 8. 36. 44.]
562 cord_individual_obj[indivial_i,:] = [ 2. 7. 69. 76.]
563 cord_individual_obj[indivial_i,:] = [ 3. 6. 29. 35.]
564 cord_individual_obj[indivial_i,:] = [ 4. 8. 62. 70.]
565 cord_individual_obj[indivial_i,:] = [ 5. 6. 158. 164.]
566 cord_individual_obj[indivial_i,:] = [ 6. 9. 61. 70.]
567 cord_individual_obj[indivial_i,:] = [ 7. 7. 106. 113.]
568 cord_individual_obj[indivial_i,:] = [ 8. 8. 52. 60.]
569 cord_individual_obj[indivial_i,:] = [ 9. 9. 162. 171.]
570 cord_individual_obj[indivial_i,:] = [10. 7. 69. 76.]
571 cord_individual_obj[indivial_i,:] = [11. 7. 83. 90.]
572 cord_individual_obj[indivial_i,:] = [12. 10. 114. 124.]
573 cord_individual_obj[indivial_i,:] = [13. 7. 78. 85.]
574 cord_individual_obj[indivial_i,:] = [14. 6. 135. 141.]
575 cord_individual_obj[indivial_i,:] = [15. 7. 66. 73.]
576 cord_individual_obj[indivial_i,:] = [16. 7. 100. 107.]
577 cord_individual_obj[indivial_i,:] = [17. 8. 89. 97.]
578 cord_individual_obj[indivial_i,:] = [18. 10. 103. 113.]
579 cord_individual_obj[indivial_i,:] = [19. 6. 45. 51.]
580 cord_individual_obj[indivial_i,:] = [20. 5. 120. 125.]
581 cord_individual_obj[indivial_i,:] = [21. 7. 99. 106.]
582 cord_individual_obj[indivial_i,:] = [22. 6. 85. 91.]
583 cord_individual_obj[indivial_i,:] = [23. 7. 69. 76.]

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unknown

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584     cord_individual_obj[indivial_i, :] = [24. 9. 77. 86.]  
585  
586     min(cord_individual_obj[:, 3]) = 35.0  
587     historl_G_best_iter[iter, 3] = 35.0  
588 Begin iteration:  
589  
590 iter = 18  
591     cord_individual_obj[indivial_i, :] = [ 0. 9. 144. 153.]  
592     cord_individual_obj[indivial_i, :] = [ 1. 8. 86. 94.]  
593     cord_individual_obj[indivial_i, :] = [ 2. 7. 119. 126.]  
594     cord_individual_obj[indivial_i, :] = [ 3. 8. 93. 101.]  
595     cord_individual_obj[indivial_i, :] = [ 4. 7. 54. 61.]  
596     cord_individual_obj[indivial_i, :] = [ 5. 7. 61. 68.]  
597     cord_individual_obj[indivial_i, :] = [ 6. 10. 33. 43.]  
598     cord_individual_obj[indivial_i, :] = [ 7. 9. 55. 64.]  
599     cord_individual_obj[indivial_i, :] = [ 8. 8. 128. 136.]  
600     cord_individual_obj[indivial_i, :] = [ 9. 6. 29. 35.]  
601     cord_individual_obj[indivial_i, :] = [10. 8. 80. 88.]  
602     cord_individual_obj[indivial_i, :] = [11. 8. 124. 132.]  
603     cord_individual_obj[indivial_i, :] = [12. 6. 59. 65.]  
604     cord_individual_obj[indivial_i, :] = [13. 8. 87. 95.]  
605     cord_individual_obj[indivial_i, :] = [14. 7. 83. 90.]  
606     cord_individual_obj[indivial_i, :] = [15. 8. 72. 80.]  
607     cord_individual_obj[indivial_i, :] = [16. 8. 93. 101.]  
608     cord_individual_obj[indivial_i, :] = [17. 9. 60. 69.]  
609     cord_individual_obj[indivial_i, :] = [18. 9. 64. 73.]  
610     cord_individual_obj[indivial_i, :] = [19. 7. 59. 66.]  
611     cord_individual_obj[indivial_i, :] = [20. 7. 46. 53.]  
612     cord_individual_obj[indivial_i, :] = [21. 7. 56. 63.]  
613     cord_individual_obj[indivial_i, :] = [22. 8. 89. 97.]  
614     cord_individual_obj[indivial_i, :] = [23. 8. 159. 167.]  
615     cord_individual_obj[indivial_i, :] = [24. 7. 57. 64.]  
616  
617     min(cord_individual_obj[:, 3]) = 35.0  
618     historl_G_best_iter[iter, 3] = 35.0  
619 Begin iteration:  
620  
621 iter = 19  
622     cord_individual_obj[indivial_i, :] = [ 0. 8. 42. 50.]  
623     cord_individual_obj[indivial_i, :] = [ 1. 7. 138. 145.]  
624     cord_individual_obj[indivial_i, :] = [ 2. 8. 36. 44.]  
625     cord_individual_obj[indivial_i, :] = [ 3. 6. 49. 55.]  
626     cord_individual_obj[indivial_i, :] = [ 4. 6. 120. 126.]  
627     cord_individual_obj[indivial_i, :] = [ 5. 8. 138. 146.]  
628     cord_individual_obj[indivial_i, :] = [ 6. 9. 54. 63.]  
629     cord_individual_obj[indivial_i, :] = [ 7. 7. 46. 53.]  
630     cord_individual_obj[indivial_i, :] = [ 8. 7. 159. 166.]  
631     cord_individual_obj[indivial_i, :] = [ 9. 7. 109. 116.]  
632     cord_individual_obj[indivial_i, :] = [10. 8. 94. 102.]  
633     cord_individual_obj[indivial_i, :] = [11. 9. 71. 80.]  
634     cord_individual_obj[indivial_i, :] = [12. 8. 107. 115.]  
635     cord_individual_obj[indivial_i, :] = [13. 7. 36. 43.]  
636     cord_individual_obj[indivial_i, :] = [14. 7. 115. 122.]  
637     cord_individual_obj[indivial_i, :] = [15. 7. 121. 128.]  
638     cord_individual_obj[indivial_i, :] = [16. 10. 101. 111.]  
639     cord_individual_obj[indivial_i, :] = [17. 8. 99. 107.]  
640     cord_individual_obj[indivial_i, :] = [18. 9. 85. 94.]  
641     cord_individual_obj[indivial_i, :] = [19. 6. 63. 69.]  
642     cord_individual_obj[indivial_i, :] = [20. 8. 165. 173.]  
643     cord_individual_obj[indivial_i, :] = [21. 7. 87. 94.]  
644     cord_individual_obj[indivial_i, :] = [22. 9. 120. 129.]  
645     cord_individual_obj[indivial_i, :] = [23. 6. 29. 35.]  
646     cord_individual_obj[indivial_i, :] = [24. 7. 61. 68.]  
647  
648     min(cord_individual_obj[:, 3]) = 35.0  
649     historl_G_best_iter[iter, 3] = 35.0  
650 Begin iteration:  
651  
652 iter = 20  
653     cord_individual_obj[indivial_i, :] = [ 0. 7. 38. 45.]  
654     cord_individual_obj[indivial_i, :] = [ 1. 8. 71. 79.]  
655     cord_individual_obj[indivial_i, :] = [ 2. 7. 120. 127.]  
656     cord_individual_obj[indivial_i, :] = [ 3. 9. 61. 70.]  
657     cord_individual_obj[indivial_i, :] = [ 4. 8. 32. 40.]  
658     cord_individual_obj[indivial_i, :] = [ 5. 7. 42. 49.]  
659     cord_individual_obj[indivial_i, :] = [ 6. 10. 47. 57.]  
660     cord_individual_obj[indivial_i, :] = [ 7. 7. 70. 77.]  
661     cord_individual_obj[indivial_i, :] = [ 8. 7. 76. 83.]  
662     cord_individual_obj[indivial_i, :] = [ 9. 8. 59. 67.]  
663     cord_individual_obj[indivial_i, :] = [10. 9. 76. 85.]  
664     cord_individual_obj[indivial_i, :] = [11. 7. 58. 65.]  
665     cord_individual_obj[indivial_i, :] = [12. 7. 52. 59.]  
666     cord_individual_obj[indivial_i, :] = [13. 6. 35. 41.]  
667     cord_individual_obj[indivial_i, :] = [14. 9. 47. 56.]
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668 cord_individual_obj[indivial_i,:] = [15. 8. 51. 59.]
669 cord_individual_obj[indivial_i,:] = [16. 7. 29. 36.]
670 cord_individual_obj[indivial_i,:] = [17. 7. 46. 53.]
671 cord_individual_obj[indivial_i,:] = [18. 7. 79. 86.]
672 cord_individual_obj[indivial_i,:] = [19. 7. 109. 116.]
673 cord_individual_obj[indivial_i,:] = [20. 6. 29. 35.]
674 cord_individual_obj[indivial_i,:] = [21. 8. 96. 104.]
675 cord_individual_obj[indivial_i,:] = [22. 8. 84. 92.]
676 cord_individual_obj[indivial_i,:] = [23. 7. 73. 80.]
677 cord_individual_obj[indivial_i,:] = [24. 6. 54. 60.]
678
679 min(cord_individual_obj[:,3]) = 35.0
680 historl_G_best_iter[iter,3] = 35.0
681 Iteration calculate over
682
683
684
685
686 All item are in Bin and:
687 Bin area = 1080
688 Real_area = 157.0
689 Proportion_of_area = 0.14537037037037037
690 BEST_CHROM =
691     berth: [24. 2. 10.5 4. 24.5 15.5 23.5 7. 24.5 9.5 17.5 3. ]
692     time: [0. 4. 3. 0. 1. 0. 2. 5. 4. 0. 2. 2.]
693     num_QC: [3. 3. 4. 6. 3. 4. 2. 4. 2. 3. 5. 3.]
694 Objective function values and some other indicators:
695 Obj0 = 6.00          Obj1 = 29.00          Obj0 + Obj1 = 35.00
696 Total movement of crane: 0.00
697 Total waiting time in berth position: 23.00
698 Total index of q during berthing: 679.00
699 Specific arrangement for each vessel:
700
    V_id: 0           li: 8.0           xi: 24.0           bow of i: 20.0           tail of i: 28.0           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: 60.0       work load gap_i: 0
701
    V_id: 1           li: 4.0           xi: 2.0           bow of i: 0.0           tail of i: 4.0           gama_i0: 4.0           gama_i1: 6.0
    .0             gama_i1 + 1: 7.0       gama_i1 - gama_i0: 2.0       duration_time_i: 3.0       demand_i: 160.0       work load_i:
    160.0       work load gap_i: 0
702
    V_id: 2           li: 9.0           xi: 10.5           bow of i: 6.0           tail of i: 15.0           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: 120.0       work
    load_i: 120.0      work load gap_i: 0
703
    V_id: 3           li: 8.0           xi: 4.0           bow of i: 0.0           tail of i: 8.0           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: 140.0       work load_i:
    140.0       work load gap_i: 0
704
    V_id: 4           li: 9.0           xi: 24.5           bow of i: 20.0           tail of i: 29.0           gama_i0: 1.0           gama_i1: 1
    .0             gama_i1 + 1: 2.0       gama_i1 - gama_i0: 0.0       duration_time_i: 1.0       demand_i: 60.0       work
    load_i: 60.0       work load gap_i: 0
705
    V_id: 5           li: 9.0           xi: 15.5           bow of i: 11.0           tail of i: 20.0           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: 140.0       work
    load_i: 140.0      work load gap_i: 0
706
    V_id: 6           li: 7.0           xi: 23.5           bow of i: 20.0           tail of i: 27.0           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: 60.0       work
    load_i: 60.0       work load gap_i: 0
707
    V_id: 7           li: 6.0           xi: 7.0           bow of i: 4.0           tail of i: 10.0           gama_i0: 5.0           gama_i1: 6
    .0             gama_i1 + 1: 7.0       gama_i1 - gama_i0: 1.0       duration_time_i: 2.0       demand_i: 160.0       work load_i:
    160.0       work load gap_i: 0
708
    V_id: 8           li: 9.0           xi: 24.5           bow of i: 20.0           tail of i: 29.0           gama_i0: 4.0           gama_i1: 6
    .0             gama_i1 + 1: 7.0       gama_i1 - gama_i0: 2.0       duration_time_i: 3.0       demand_i: 120.0       work
    load_i: 120.0      work load gap_i: 0
709
    V_id: 9           li: 3.0           xi: 9.5           bow of i: 8.0           tail of i: 11.0           gama_i0: 0.0           gama_i1: 2.0
    .0             gama_i1 + 1: 3.0       gama_i1 - gama_i0: 2.0       duration_time_i: 3.0       demand_i: 160.0       work load_i:
    160.0       work load gap_i: 0
710
    V_id: 10          li: 5.0           xi: 17.5           bow of i: 15.0           tail of i: 20.0           gama_i0: 2.0           gama_i1: 1
    : 3.0            gama_i1 + 1: 4.0       gama_i1 - gama_i0: 1.0       duration_time_i: 2.0       demand_i: 120.0       work
    load_i: 120.0      work load gap_i: 0
711
    V_id: 11          li: 6.0           xi: 3.0           bow of i: 0.0           tail of i: 6.0           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: 80.0       work load_i:
    80.0       work load gap_i: 0
712
713 Algorithm finished and the total CPU time: 315 s
714 End
715

```