

unknown

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80 cord_individual_obj[indivial_i,:] = [16. 5. 26. 31.]
81 cord_individual_obj[indivial_i,:] = [17. 6. 47. 53.]
82 cord_individual_obj[indivial_i,:] = [18. 8. 30. 38.]
83 cord_individual_obj[indivial_i,:] = [19. 7. 20. 27.]
84 cord_individual_obj[indivial_i,:] = [20. 6. 36. 42.]
85 cord_individual_obj[indivial_i,:] = [21. 6. 92. 98.]
86 cord_individual_obj[indivial_i,:] = [22. 6. 82. 88.]
87 cord_individual_obj[indivial_i,:] = [23. 5. 104. 109.]
88 cord_individual_obj[indivial_i,:] = [24. 7. 14. 21.]
89
90 min(cord_individual_obj[:,3]) = 21.0
91 historl_G_best_iter[iter, 3] = 21.0
92 Begin iteration:
93
94 iter = 2
95 cord_individual_obj[indivial_i,:] = [ 0. 5. 84. 89.]
96 cord_individual_obj[indivial_i,:] = [ 1. 6. 82. 88.]
97 cord_individual_obj[indivial_i,:] = [ 2. 5. 52. 57.]
98 cord_individual_obj[indivial_i,:] = [ 3. 8. 141. 149.]
99 cord_individual_obj[indivial_i,:] = [ 4. 7. 14. 21.]
100 cord_individual_obj[indivial_i,:] = [ 5. 5. 106. 111.]
101 cord_individual_obj[indivial_i,:] = [ 6. 8. 74. 82.]
102 cord_individual_obj[indivial_i,:] = [ 7. 6. 39. 45.]
103 cord_individual_obj[indivial_i,:] = [ 8. 7. 99. 106.]
104 cord_individual_obj[indivial_i,:] = [ 9. 9. 53. 62.]
105 cord_individual_obj[indivial_i,:] = [10. 5. 41. 46.]
106 cord_individual_obj[indivial_i,:] = [11. 9. 63. 72.]
107 cord_individual_obj[indivial_i,:] = [12. 5. 68. 73.]
108 cord_individual_obj[indivial_i,:] = [13. 5. 48. 53.]
109 cord_individual_obj[indivial_i,:] = [14. 6. 28. 34.]
110 cord_individual_obj[indivial_i,:] = [15. 7. 78. 85.]
111 cord_individual_obj[indivial_i,:] = [16. 6. 17. 23.]
112 cord_individual_obj[indivial_i,:] = [17. 6. 67. 73.]
113 cord_individual_obj[indivial_i,:] = [18. 7. 66. 73.]
114 cord_individual_obj[indivial_i,:] = [19. 6. 14. 20.]
115 cord_individual_obj[indivial_i,:] = [20. 6. 26. 32.]
116 cord_individual_obj[indivial_i,:] = [21. 7. 45. 52.]
117 cord_individual_obj[indivial_i,:] = [22. 7. 34. 41.]
118 cord_individual_obj[indivial_i,:] = [23. 8. 17. 25.]
119 cord_individual_obj[indivial_i,:] = [24. 6. 68. 74.]
120
121 min(cord_individual_obj[:,3]) = 20.0
122 historl_G_best_iter[iter, 3] = 20.0
123 Begin iteration:
124
125 iter = 3
126 cord_individual_obj[indivial_i,:] = [ 0. 7. 64. 71.]
127 cord_individual_obj[indivial_i,:] = [ 1. 8. 69. 77.]
128 cord_individual_obj[indivial_i,:] = [ 2. 5. 71. 76.]
129 cord_individual_obj[indivial_i,:] = [ 3. 6. 14. 20.]
130 cord_individual_obj[indivial_i,:] = [ 4. 6. 42. 48.]
131 cord_individual_obj[indivial_i,:] = [ 5. 5. 60. 65.]
132 cord_individual_obj[indivial_i,:] = [ 6. 8. 81. 89.]
133 cord_individual_obj[indivial_i,:] = [ 7. 4. 78. 82.]
134 cord_individual_obj[indivial_i,:] = [ 8. 7. 49. 56.]
135 cord_individual_obj[indivial_i,:] = [ 9. 5. 72. 77.]
136 cord_individual_obj[indivial_i,:] = [10. 7. 73. 80.]
137 cord_individual_obj[indivial_i,:] = [11. 5. 52. 57.]
138 cord_individual_obj[indivial_i,:] = [12. 7. 48. 55.]
139 cord_individual_obj[indivial_i,:] = [13. 6. 75. 81.]
140 cord_individual_obj[indivial_i,:] = [14. 7. 31. 38.]
141 cord_individual_obj[indivial_i,:] = [15. 5. 43. 48.]
142 cord_individual_obj[indivial_i,:] = [16. 7. 68. 75.]
143 cord_individual_obj[indivial_i,:] = [17. 5. 90. 95.]
144 cord_individual_obj[indivial_i,:] = [18. 6. 44. 50.]
145 cord_individual_obj[indivial_i,:] = [19. 7. 31. 38.]
146 cord_individual_obj[indivial_i,:] = [20. 7. 79. 86.]
147 cord_individual_obj[indivial_i,:] = [21. 5. 32. 37.]
148 cord_individual_obj[indivial_i,:] = [22. 5. 83. 88.]
149 cord_individual_obj[indivial_i,:] = [23. 5. 65. 70.]
150 cord_individual_obj[indivial_i,:] = [24. 7. 113. 120.]
151
152 min(cord_individual_obj[:,3]) = 20.0
153 historl_G_best_iter[iter, 3] = 20.0
154 Begin iteration:
155
156 iter = 4
157 cord_individual_obj[indivial_i,:] = [ 0. 7. 60. 67.]
158 cord_individual_obj[indivial_i,:] = [ 1. 10. 24. 34.]
159 cord_individual_obj[indivial_i,:] = [ 2. 5. 64. 69.]
160 cord_individual_obj[indivial_i,:] = [ 3. 8. 35. 43.]
161 cord_individual_obj[indivial_i,:] = [ 4. 7. 90. 97.]
162 cord_individual_obj[indivial_i,:] = [ 5. 5. 48. 53.]
163 cord_individual_obj[indivial_i,:] = [ 6. 6. 29. 35.]

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164 cord_individual_obj[indivial_i,:] = [ 7. 6. 36. 42.]
165 cord_individual_obj[indivial_i,:] = [ 8. 7. 19. 26.]
166 cord_individual_obj[indivial_i,:] = [ 9. 6. 61. 67.]
167 cord_individual_obj[indivial_i,:] = [10. 5. 54. 59.]
168 cord_individual_obj[indivial_i,:] = [11. 6. 95. 101.]
169 cord_individual_obj[indivial_i,:] = [12. 7. 66. 73.]
170 cord_individual_obj[indivial_i,:] = [13. 5. 93. 98.]
171 cord_individual_obj[indivial_i,:] = [14. 6. 81. 87.]
172 cord_individual_obj[indivial_i,:] = [15. 5. 38. 43.]
173 cord_individual_obj[indivial_i,:] = [16. 7. 72. 79.]
174 cord_individual_obj[indivial_i,:] = [17. 6. 87. 93.]
175 cord_individual_obj[indivial_i,:] = [18. 5. 46. 51.]
176 cord_individual_obj[indivial_i,:] = [19. 6. 46. 52.]
177 cord_individual_obj[indivial_i,:] = [20. 5. 80. 85.]
178 cord_individual_obj[indivial_i,:] = [21. 6. 34. 40.]
179 cord_individual_obj[indivial_i,:] = [22. 7. 44. 51.]
180 cord_individual_obj[indivial_i,:] = [23. 4. 71. 75.]
181 cord_individual_obj[indivial_i,:] = [24. 6. 14. 20.]
182
183 min(cord_individual_obj[:,3]) = 20.0
184 historl_G_best_iter[iter,3] = 20.0
185 Begin iteration:
186
187 iter = 5
188 cord_individual_obj[indivial_i,:] = [ 0. 5. 62. 67.]
189 cord_individual_obj[indivial_i,:] = [ 1. 6. 77. 83.]
190 cord_individual_obj[indivial_i,:] = [ 2. 7. 46. 53.]
191 cord_individual_obj[indivial_i,:] = [ 3. 6. 57. 63.]
192 cord_individual_obj[indivial_i,:] = [ 4. 5. 31. 36.]
193 cord_individual_obj[indivial_i,:] = [ 5. 6. 73. 79.]
194 cord_individual_obj[indivial_i,:] = [ 6. 7. 90. 97.]
195 cord_individual_obj[indivial_i,:] = [ 7. 5. 39. 44.]
196 cord_individual_obj[indivial_i,:] = [ 8. 6. 38. 44.]
197 cord_individual_obj[indivial_i,:] = [ 9. 4. 85. 89.]
198 cord_individual_obj[indivial_i,:] = [10. 7. 89. 96.]
199 cord_individual_obj[indivial_i,:] = [11. 6. 14. 20.]
200 cord_individual_obj[indivial_i,:] = [12. 6. 38. 44.]
201 cord_individual_obj[indivial_i,:] = [13. 5. 36. 41.]
202 cord_individual_obj[indivial_i,:] = [14. 6. 141. 147.]
203 cord_individual_obj[indivial_i,:] = [15. 4. 110. 114.]
204 cord_individual_obj[indivial_i,:] = [16. 5. 56. 61.]
205 cord_individual_obj[indivial_i,:] = [17. 6. 50. 56.]
206 cord_individual_obj[indivial_i,:] = [18. 6. 44. 50.]
207 cord_individual_obj[indivial_i,:] = [19. 7. 98. 105.]
208 cord_individual_obj[indivial_i,:] = [20. 5. 45. 50.]
209 cord_individual_obj[indivial_i,:] = [21. 6. 32. 38.]
210 cord_individual_obj[indivial_i,:] = [22. 4. 112. 116.]
211 cord_individual_obj[indivial_i,:] = [23. 7. 193. 200.]
212 cord_individual_obj[indivial_i,:] = [24. 8. 22. 30.]
213
214 min(cord_individual_obj[:,3]) = 20.0
215 historl_G_best_iter[iter,3] = 20.0
216 Begin iteration:
217
218 iter = 6
219 cord_individual_obj[indivial_i,:] = [ 0. 5. 74. 79.]
220 cord_individual_obj[indivial_i,:] = [ 1. 7. 81. 88.]
221 cord_individual_obj[indivial_i,:] = [ 2. 7. 71. 78.]
222 cord_individual_obj[indivial_i,:] = [ 3. 6. 47. 53.]
223 cord_individual_obj[indivial_i,:] = [ 4. 6. 21. 27.]
224 cord_individual_obj[indivial_i,:] = [ 5. 7. 48. 55.]
225 cord_individual_obj[indivial_i,:] = [ 6. 8. 77. 85.]
226 cord_individual_obj[indivial_i,:] = [ 7. 6. 39. 45.]
227 cord_individual_obj[indivial_i,:] = [ 8. 5. 57. 62.]
228 cord_individual_obj[indivial_i,:] = [ 9. 5. 134. 139.]
229 cord_individual_obj[indivial_i,:] = [10. 6. 46. 52.]
230 cord_individual_obj[indivial_i,:] = [11. 7. 60. 67.]
231 cord_individual_obj[indivial_i,:] = [12. 6. 51. 57.]
232 cord_individual_obj[indivial_i,:] = [13. 6. 25. 31.]
233 cord_individual_obj[indivial_i,:] = [14. 5. 103. 108.]
234 cord_individual_obj[indivial_i,:] = [15. 6. 73. 79.]
235 cord_individual_obj[indivial_i,:] = [16. 6. 94. 100.]
236 cord_individual_obj[indivial_i,:] = [17. 7. 38. 45.]
237 cord_individual_obj[indivial_i,:] = [18. 6. 30. 36.]
238 cord_individual_obj[indivial_i,:] = [19. 5. 59. 64.]
239 cord_individual_obj[indivial_i,:] = [20. 6. 18. 24.]
240 cord_individual_obj[indivial_i,:] = [21. 6. 55. 61.]
241 cord_individual_obj[indivial_i,:] = [22. 5. 95. 100.]
242 cord_individual_obj[indivial_i,:] = [23. 6. 14. 20.]
243 cord_individual_obj[indivial_i,:] = [24. 8. 42. 50.]
244
245 min(cord_individual_obj[:,3]) = 20.0
246 historl_G_best_iter[iter,3] = 20.0
247 Begin iteration:

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248
249 iter = 7
250 cord_individual_obj[indivial_i, :] = [ 0.  7. 46. 53.]
251 cord_individual_obj[indivial_i, :] = [ 1.  8. 80. 88.]
252 cord_individual_obj[indivial_i, :] = [ 2.  6. 79. 85.]
253 cord_individual_obj[indivial_i, :] = [ 3.  4. 86. 90.]
254 cord_individual_obj[indivial_i, :] = [ 4.  6. 48. 54.]
255 cord_individual_obj[indivial_i, :] = [ 5.  4. 77. 81.]
256 cord_individual_obj[indivial_i, :] = [ 6.  5. 81. 86.]
257 cord_individual_obj[indivial_i, :] = [ 7.  9. 69. 78.]
258 cord_individual_obj[indivial_i, :] = [ 8.  5. 40. 45.]
259 cord_individual_obj[indivial_i, :] = [ 9.  6. 14. 20.]
260 cord_individual_obj[indivial_i, :] = [10.  6. 132. 138.]
261 cord_individual_obj[indivial_i, :] = [11.  5. 153. 158.]
262 cord_individual_obj[indivial_i, :] = [12.  6. 44. 50.]
263 cord_individual_obj[indivial_i, :] = [13.  6. 33. 39.]
264 cord_individual_obj[indivial_i, :] = [14.  6. 61. 67.]
265 cord_individual_obj[indivial_i, :] = [15.  6. 60. 66.]
266 cord_individual_obj[indivial_i, :] = [16.  7. 67. 74.]
267 cord_individual_obj[indivial_i, :] = [17.  6. 63. 69.]
268 cord_individual_obj[indivial_i, :] = [18.  7. 74. 81.]
269 cord_individual_obj[indivial_i, :] = [19.  6. 42. 48.]
270 cord_individual_obj[indivial_i, :] = [20.  6. 114. 120.]
271 cord_individual_obj[indivial_i, :] = [21.  6. 31. 37.]
272 cord_individual_obj[indivial_i, :] = [22.  5. 57. 62.]
273 cord_individual_obj[indivial_i, :] = [23.  6. 60. 66.]
274 cord_individual_obj[indivial_i, :] = [24.  7. 89. 96.]
275

276 min(cord_individual_obj[:, 3]) = 20.0
277 historl_G_best_iter[iter, 3] = 20.0
278 Begin iteration:
279
280 iter = 8
281 cord_individual_obj[indivial_i, :] = [ 0.  7. 61. 68.]
282 cord_individual_obj[indivial_i, :] = [ 1.  6. 71. 77.]
283 cord_individual_obj[indivial_i, :] = [ 2.  7. 62. 69.]
284 cord_individual_obj[indivial_i, :] = [ 3.  6. 40. 46.]
285 cord_individual_obj[indivial_i, :] = [ 4.  6. 62. 68.]
286 cord_individual_obj[indivial_i, :] = [ 5.  8. 47. 55.]
287 cord_individual_obj[indivial_i, :] = [ 6.  5. 86. 91.]
288 cord_individual_obj[indivial_i, :] = [ 7.  8. 23. 31.]
289 cord_individual_obj[indivial_i, :] = [ 8.  6. 43. 49.]
290 cord_individual_obj[indivial_i, :] = [ 9.  5. 82. 87.]
291 cord_individual_obj[indivial_i, :] = [10.  6. 115. 121.]
292 cord_individual_obj[indivial_i, :] = [11.  6. 14. 20.]
293 cord_individual_obj[indivial_i, :] = [12.  5. 50. 55.]
294 cord_individual_obj[indivial_i, :] = [13.  7. 44. 51.]
295 cord_individual_obj[indivial_i, :] = [14.  7. 87. 94.]
296 cord_individual_obj[indivial_i, :] = [15.  6. 75. 81.]
297 cord_individual_obj[indivial_i, :] = [16.  7. 71. 78.]
298 cord_individual_obj[indivial_i, :] = [17.  7. 29. 36.]
299 cord_individual_obj[indivial_i, :] = [18.  7. 31. 38.]
300 cord_individual_obj[indivial_i, :] = [19.  6. 50. 56.]
301 cord_individual_obj[indivial_i, :] = [20.  7. 47. 54.]
302 cord_individual_obj[indivial_i, :] = [21.  8. 35. 43.]
303 cord_individual_obj[indivial_i, :] = [22.  7. 38. 45.]
304 cord_individual_obj[indivial_i, :] = [23.  5. 82. 87.]
305 cord_individual_obj[indivial_i, :] = [24.  9. 66. 75.]
306

307 min(cord_individual_obj[:, 3]) = 20.0
308 historl_G_best_iter[iter, 3] = 20.0
309 Begin iteration:
310
311 iter = 9
312 cord_individual_obj[indivial_i, :] = [ 0.  6. 52. 58.]
313 cord_individual_obj[indivial_i, :] = [ 1.  7. 50. 57.]
314 cord_individual_obj[indivial_i, :] = [ 2.  5. 20. 25.]
315 cord_individual_obj[indivial_i, :] = [ 3.  7. 70. 77.]
316 cord_individual_obj[indivial_i, :] = [ 4.  6. 14. 20.]
317 cord_individual_obj[indivial_i, :] = [ 5.  6. 36. 42.]
318 cord_individual_obj[indivial_i, :] = [ 6.  7. 86. 93.]
319 cord_individual_obj[indivial_i, :] = [ 7.  6. 76. 82.]
320 cord_individual_obj[indivial_i, :] = [ 8.  7. 35. 42.]
321 cord_individual_obj[indivial_i, :] = [ 9.  7. 75. 82.]
322 cord_individual_obj[indivial_i, :] = [10.  6. 14. 20.]
323 cord_individual_obj[indivial_i, :] = [11.  5. 73. 78.]
324 cord_individual_obj[indivial_i, :] = [12.  6. 63. 69.]
325 cord_individual_obj[indivial_i, :] = [13.  6. 77. 83.]
326 cord_individual_obj[indivial_i, :] = [14.  7. 120. 127.]
327 cord_individual_obj[indivial_i, :] = [15.  5. 38. 43.]
328 cord_individual_obj[indivial_i, :] = [16.  5. 104. 109.]
329 cord_individual_obj[indivial_i, :] = [17.  7. 32. 39.]
330 cord_individual_obj[indivial_i, :] = [18.  7. 47. 54.]
331 cord_individual_obj[indivial_i, :] = [19.  6. 88. 94.]

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332 cord_individual_obj[indivial_i,:] = [20. 5. 30. 35.]
333 cord_individual_obj[indivial_i,:] = [21. 5. 82. 87.]
334 cord_individual_obj[indivial_i,:] = [22. 6. 22. 28.]
335 cord_individual_obj[indivial_i,:] = [23. 6. 72. 78.]
336 cord_individual_obj[indivial_i,:] = [24. 6. 65. 71.]
337
338 min(cord_individual_obj[:,3]) = 20.0
339 histol_G_best_iter[iter,3] = 20.0
340 Begin iteration:
341
342 iter = 10
343 cord_individual_obj[indivial_i,:] = [ 0. 7. 82. 89.]
344 cord_individual_obj[indivial_i,:] = [ 1. 8. 79. 87.]
345 cord_individual_obj[indivial_i,:] = [ 2. 7. 82. 89.]
346 cord_individual_obj[indivial_i,:] = [ 3. 7. 113. 120.]
347 cord_individual_obj[indivial_i,:] = [ 4. 5. 90. 95.]
348 cord_individual_obj[indivial_i,:] = [ 5. 6. 136. 142.]
349 cord_individual_obj[indivial_i,:] = [ 6. 4. 94. 98.]
350 cord_individual_obj[indivial_i,:] = [ 7. 5. 66. 71.]
351 cord_individual_obj[indivial_i,:] = [ 8. 5. 92. 97.]
352 cord_individual_obj[indivial_i,:] = [ 9. 8. 81. 89.]
353 cord_individual_obj[indivial_i,:] = [10. 6. 130. 136.]
354 cord_individual_obj[indivial_i,:] = [11. 4. 88. 92.]
355 cord_individual_obj[indivial_i,:] = [12. 5. 102. 107.]
356 cord_individual_obj[indivial_i,:] = [13. 8. 67. 75.]
357 cord_individual_obj[indivial_i,:] = [14. 6. 14. 20.]
358 cord_individual_obj[indivial_i,:] = [15. 5. 50. 55.]
359 cord_individual_obj[indivial_i,:] = [16. 6. 124. 130.]
360 cord_individual_obj[indivial_i,:] = [17. 7. 141. 148.]
361 cord_individual_obj[indivial_i,:] = [18. 8. 111. 119.]
362 cord_individual_obj[indivial_i,:] = [19. 7. 34. 41.]
363 cord_individual_obj[indivial_i,:] = [20. 8. 90. 98.]
364 cord_individual_obj[indivial_i,:] = [21. 8. 69. 77.]
365 cord_individual_obj[indivial_i,:] = [22. 7. 23. 30.]
366 cord_individual_obj[indivial_i,:] = [23. 5. 62. 67.]
367 cord_individual_obj[indivial_i,:] = [24. 5. 147. 152.]
368
369 min(cord_individual_obj[:,3]) = 20.0
370 histol_G_best_iter[iter,3] = 20.0
371 Begin iteration:
372
373 iter = 11
374 cord_individual_obj[indivial_i,:] = [ 0. 7. 33. 40.]
375 cord_individual_obj[indivial_i,:] = [ 1. 6. 129. 135.]
376 cord_individual_obj[indivial_i,:] = [ 2. 5. 74. 79.]
377 cord_individual_obj[indivial_i,:] = [ 3. 6. 131. 137.]
378 cord_individual_obj[indivial_i,:] = [ 4. 6. 70. 76.]
379 cord_individual_obj[indivial_i,:] = [ 5. 6. 145. 151.]
380 cord_individual_obj[indivial_i,:] = [ 6. 4. 82. 86.]
381 cord_individual_obj[indivial_i,:] = [ 7. 4. 110. 114.]
382 cord_individual_obj[indivial_i,:] = [ 8. 6. 92. 98.]
383 cord_individual_obj[indivial_i,:] = [ 9. 5. 90. 95.]
384 cord_individual_obj[indivial_i,:] = [10. 5. 85. 90.]
385 cord_individual_obj[indivial_i,:] = [11. 6. 83. 89.]
386 cord_individual_obj[indivial_i,:] = [12. 6. 42. 48.]
387 cord_individual_obj[indivial_i,:] = [13. 7. 65. 72.]
388 cord_individual_obj[indivial_i,:] = [14. 7. 44. 51.]
389 cord_individual_obj[indivial_i,:] = [15. 6. 60. 66.]
390 cord_individual_obj[indivial_i,:] = [16. 5. 131. 136.]
391 cord_individual_obj[indivial_i,:] = [17. 5. 68. 73.]
392 cord_individual_obj[indivial_i,:] = [18. 6. 98. 104.]
393 cord_individual_obj[indivial_i,:] = [19. 9. 59. 68.]
394 cord_individual_obj[indivial_i,:] = [20. 6. 47. 53.]
395 cord_individual_obj[indivial_i,:] = [21. 9. 83. 92.]
396 cord_individual_obj[indivial_i,:] = [22. 5. 67. 72.]
397 cord_individual_obj[indivial_i,:] = [23. 6. 71. 77.]
398 cord_individual_obj[indivial_i,:] = [24. 6. 14. 20.]
399
400 min(cord_individual_obj[:,3]) = 20.0
401 histol_G_best_iter[iter,3] = 20.0
402 Begin iteration:
403
404 iter = 12
405 cord_individual_obj[indivial_i,:] = [ 0. 7. 127. 134.]
406 cord_individual_obj[indivial_i,:] = [ 1. 6. 87. 93.]
407 cord_individual_obj[indivial_i,:] = [ 2. 7. 69. 76.]
408 cord_individual_obj[indivial_i,:] = [ 3. 6. 40. 46.]
409 cord_individual_obj[indivial_i,:] = [ 4. 4. 132. 136.]
410 cord_individual_obj[indivial_i,:] = [ 5. 6. 14. 20.]
411 cord_individual_obj[indivial_i,:] = [ 6. 5. 99. 104.]
412 cord_individual_obj[indivial_i,:] = [ 7. 7. 116. 123.]
413 cord_individual_obj[indivial_i,:] = [ 8. 5. 53. 58.]
414 cord_individual_obj[indivial_i,:] = [ 9. 5. 77. 82.]
415 cord_individual_obj[indivial_i,:] = [10. 7. 109. 116.]

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416 cord_individual_obj[indivial_i,:] = [11. 6. 90. 96.]
417 cord_individual_obj[indivial_i,:] = [12. 5. 54. 59.]
418 cord_individual_obj[indivial_i,:] = [13. 5. 56. 61.]
419 cord_individual_obj[indivial_i,:] = [14. 5. 55. 60.]
420 cord_individual_obj[indivial_i,:] = [15. 4. 76. 80.]
421 cord_individual_obj[indivial_i,:] = [16. 7. 76. 83.]
422 cord_individual_obj[indivial_i,:] = [17. 7. 76. 83.]
423 cord_individual_obj[indivial_i,:] = [18. 8. 76. 84.]
424 cord_individual_obj[indivial_i,:] = [19. 7. 79. 86.]
425 cord_individual_obj[indivial_i,:] = [20. 6. 58. 64.]
426 cord_individual_obj[indivial_i,:] = [21. 6. 57. 63.]
427 cord_individual_obj[indivial_i,:] = [22. 7. 34. 41.]
428 cord_individual_obj[indivial_i,:] = [23. 6. 54. 60.]
429 cord_individual_obj[indivial_i,:] = [24. 6. 38. 44.]
430
431 min(cord_individual_obj[:,3]) = 20.0
432 histol_G_best_iter[iter,3] = 20.0
433 Begin iteration:
434
435 iter = 13
436 cord_individual_obj[indivial_i,:] = [ 0. 7. 38. 45.]
437 cord_individual_obj[indivial_i,:] = [ 1. 8. 60. 68.]
438 cord_individual_obj[indivial_i,:] = [ 2. 9. 81. 90.]
439 cord_individual_obj[indivial_i,:] = [ 3. 7. 78. 85.]
440 cord_individual_obj[indivial_i,:] = [ 4. 6. 14. 20.]
441 cord_individual_obj[indivial_i,:] = [ 5. 9. 160. 169.]
442 cord_individual_obj[indivial_i,:] = [ 6. 6. 25. 31.]
443 cord_individual_obj[indivial_i,:] = [ 7. 5. 95. 100.]
444 cord_individual_obj[indivial_i,:] = [ 8. 6. 30. 36.]
445 cord_individual_obj[indivial_i,:] = [ 9. 5. 106. 111.]
446 cord_individual_obj[indivial_i,:] = [10. 6. 86. 92.]
447 cord_individual_obj[indivial_i,:] = [11. 5. 81. 86.]
448 cord_individual_obj[indivial_i,:] = [12. 6. 34. 40.]
449 cord_individual_obj[indivial_i,:] = [13. 5. 79. 84.]
450 cord_individual_obj[indivial_i,:] = [14. 5. 100. 105.]
451 cord_individual_obj[indivial_i,:] = [15. 6. 93. 99.]
452 cord_individual_obj[indivial_i,:] = [16. 7. 84. 91.]
453 cord_individual_obj[indivial_i,:] = [17. 8. 32. 40.]
454 cord_individual_obj[indivial_i,:] = [18. 6. 87. 93.]
455 cord_individual_obj[indivial_i,:] = [19. 6. 62. 68.]
456 cord_individual_obj[indivial_i,:] = [20. 9. 123. 132.]
457 cord_individual_obj[indivial_i,:] = [21. 7. 100. 107.]
458 cord_individual_obj[indivial_i,:] = [22. 5. 87. 92.]
459 cord_individual_obj[indivial_i,:] = [23. 5. 43. 48.]
460 cord_individual_obj[indivial_i,:] = [24. 7. 92. 99.]
461
462 min(cord_individual_obj[:,3]) = 20.0
463 histol_G_best_iter[iter,3] = 20.0
464 Begin iteration:
465
466 iter = 14
467 cord_individual_obj[indivial_i,:] = [ 0. 8. 51. 59.]
468 cord_individual_obj[indivial_i,:] = [ 1. 6. 55. 61.]
469 cord_individual_obj[indivial_i,:] = [ 2. 6. 33. 39.]
470 cord_individual_obj[indivial_i,:] = [ 3. 6. 52. 58.]
471 cord_individual_obj[indivial_i,:] = [ 4. 5. 90. 95.]
472 cord_individual_obj[indivial_i,:] = [ 5. 6. 14. 20.]
473 cord_individual_obj[indivial_i,:] = [ 6. 7. 110. 117.]
474 cord_individual_obj[indivial_i,:] = [ 7. 7. 33. 40.]
475 cord_individual_obj[indivial_i,:] = [ 8. 8. 64. 72.]
476 cord_individual_obj[indivial_i,:] = [ 9. 6. 52. 58.]
477 cord_individual_obj[indivial_i,:] = [10. 6. 70. 76.]
478 cord_individual_obj[indivial_i,:] = [11. 5. 35. 40.]
479 cord_individual_obj[indivial_i,:] = [12. 7. 54. 61.]
480 cord_individual_obj[indivial_i,:] = [13. 6. 100. 106.]
481 cord_individual_obj[indivial_i,:] = [14. 5. 45. 50.]
482 cord_individual_obj[indivial_i,:] = [15. 7. 79. 86.]
483 cord_individual_obj[indivial_i,:] = [16. 5. 96. 101.]
484 cord_individual_obj[indivial_i,:] = [17. 5. 87. 92.]
485 cord_individual_obj[indivial_i,:] = [18. 7. 93. 100.]
486 cord_individual_obj[indivial_i,:] = [19. 7. 68. 75.]
487 cord_individual_obj[indivial_i,:] = [20. 5. 44. 49.]
488 cord_individual_obj[indivial_i,:] = [21. 7. 85. 92.]
489 cord_individual_obj[indivial_i,:] = [22. 7. 75. 82.]
490 cord_individual_obj[indivial_i,:] = [23. 7. 71. 78.]
491 cord_individual_obj[indivial_i,:] = [24. 9. 116. 125.]
492
493 min(cord_individual_obj[:,3]) = 20.0
494 histol_G_best_iter[iter,3] = 20.0
495 Begin iteration:
496
497 iter = 15
498 cord_individual_obj[indivial_i,:] = [ 0. 7. 37. 44.]
499 cord_individual_obj[indivial_i,:] = [ 1. 6. 54. 60.]

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500 cord_individual_obj[indivial_i,:] = [ 2. 7. 71. 78.]
501 cord_individual_obj[indivial_i,:] = [ 3. 6. 63. 69.]
502 cord_individual_obj[indivial_i,:] = [ 4. 6. 133. 139.]
503 cord_individual_obj[indivial_i,:] = [ 5. 9. 140. 149.]
504 cord_individual_obj[indivial_i,:] = [ 6. 6. 138. 144.]
505 cord_individual_obj[indivial_i,:] = [ 7. 8. 120. 128.]
506 cord_individual_obj[indivial_i,:] = [ 8. 7. 58. 65.]
507 cord_individual_obj[indivial_i,:] = [ 9. 6. 102. 108.]
508 cord_individual_obj[indivial_i,:] = [10. 6. 68. 74.]
509 cord_individual_obj[indivial_i,:] = [11. 6. 74. 80.]
510 cord_individual_obj[indivial_i,:] = [12. 5. 68. 73.]
511 cord_individual_obj[indivial_i,:] = [13. 6. 93. 99.]
512 cord_individual_obj[indivial_i,:] = [14. 8. 104. 112.]
513 cord_individual_obj[indivial_i,:] = [15. 5. 91. 96.]
514 cord_individual_obj[indivial_i,:] = [16. 5. 86. 91.]
515 cord_individual_obj[indivial_i,:] = [17. 7. 52. 59.]
516 cord_individual_obj[indivial_i,:] = [18. 6. 84. 90.]
517 cord_individual_obj[indivial_i,:] = [19. 6. 37. 43.]
518 cord_individual_obj[indivial_i,:] = [20. 6. 56. 62.]
519 cord_individual_obj[indivial_i,:] = [21. 7. 82. 89.]
520 cord_individual_obj[indivial_i,:] = [22. 7. 43. 50.]
521 cord_individual_obj[indivial_i,:] = [23. 6. 86. 92.]
522 cord_individual_obj[indivial_i,:] = [24. 6. 14. 20.]
523
524 min(cord_individual_obj[:, 3]) = 20.0
525 histol_G_best_iter[iter, 3] = 20.0
526 Begin iteration:
527
528 iter = 16
529 cord_individual_obj[indivial_i,:] = [ 0. 8. 20. 28.]
530 cord_individual_obj[indivial_i,:] = [ 1. 8. 48. 56.]
531 cord_individual_obj[indivial_i,:] = [ 2. 7. 26. 33.]
532 cord_individual_obj[indivial_i,:] = [ 3. 5. 24. 29.]
533 cord_individual_obj[indivial_i,:] = [ 4. 6. 88. 94.]
534 cord_individual_obj[indivial_i,:] = [ 5. 6. 14. 20.]
535 cord_individual_obj[indivial_i,:] = [ 6. 5. 121. 126.]
536 cord_individual_obj[indivial_i,:] = [ 7. 9. 70. 79.]
537 cord_individual_obj[indivial_i,:] = [ 8. 5. 86. 91.]
538 cord_individual_obj[indivial_i,:] = [ 9. 5. 74. 79.]
539 cord_individual_obj[indivial_i,:] = [10. 7. 86. 93.]
540 cord_individual_obj[indivial_i,:] = [11. 6. 35. 41.]
541 cord_individual_obj[indivial_i,:] = [12. 5. 53. 58.]
542 cord_individual_obj[indivial_i,:] = [13. 4. 73. 77.]
543 cord_individual_obj[indivial_i,:] = [14. 5. 53. 58.]
544 cord_individual_obj[indivial_i,:] = [15. 6. 61. 67.]
545 cord_individual_obj[indivial_i,:] = [16. 5. 15. 20.]
546 cord_individual_obj[indivial_i,:] = [17. 6. 123. 129.]
547 cord_individual_obj[indivial_i,:] = [18. 5. 85. 90.]
548 cord_individual_obj[indivial_i,:] = [19. 9. 56. 65.]
549 cord_individual_obj[indivial_i,:] = [20. 5. 39. 44.]
550 cord_individual_obj[indivial_i,:] = [21. 6. 32. 38.]
551 cord_individual_obj[indivial_i,:] = [22. 9. 86. 95.]
552 cord_individual_obj[indivial_i,:] = [23. 7. 22. 29.]
553 cord_individual_obj[indivial_i,:] = [24. 7. 167. 174.]
554
555 min(cord_individual_obj[:, 3]) = 20.0
556 histol_G_best_iter[iter, 3] = 20.0
557 Begin iteration:
558
559 iter = 17
560 cord_individual_obj[indivial_i,:] = [ 0. 7. 40. 47.]
561 cord_individual_obj[indivial_i,:] = [ 1. 6. 82. 88.]
562 cord_individual_obj[indivial_i,:] = [ 2. 6. 82. 88.]
563 cord_individual_obj[indivial_i,:] = [ 3. 5. 57. 62.]
564 cord_individual_obj[indivial_i,:] = [ 4. 5. 76. 81.]
565 cord_individual_obj[indivial_i,:] = [ 5. 6. 55. 61.]
566 cord_individual_obj[indivial_i,:] = [ 6. 6. 38. 44.]
567 cord_individual_obj[indivial_i,:] = [ 7. 6. 103. 109.]
568 cord_individual_obj[indivial_i,:] = [ 8. 7. 49. 56.]
569 cord_individual_obj[indivial_i,:] = [ 9. 5. 68. 73.]
570 cord_individual_obj[indivial_i,:] = [10. 5. 131. 136.]
571 cord_individual_obj[indivial_i,:] = [11. 5. 64. 69.]
572 cord_individual_obj[indivial_i,:] = [12. 7. 48. 55.]
573 cord_individual_obj[indivial_i,:] = [13. 6. 91. 97.]
574 cord_individual_obj[indivial_i,:] = [14. 9. 64. 73.]
575 cord_individual_obj[indivial_i,:] = [15. 6. 112. 118.]
576 cord_individual_obj[indivial_i,:] = [16. 8. 85. 93.]
577 cord_individual_obj[indivial_i,:] = [17. 6. 87. 93.]
578 cord_individual_obj[indivial_i,:] = [18. 6. 91. 97.]
579 cord_individual_obj[indivial_i,:] = [19. 8. 46. 54.]
580 cord_individual_obj[indivial_i,:] = [20. 7. 113. 120.]
581 cord_individual_obj[indivial_i,:] = [21. 7. 38. 45.]
582 cord_individual_obj[indivial_i,:] = [22. 5. 113. 118.]
583 cord_individual_obj[indivial_i,:] = [23. 6. 45. 51.]

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unknown

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584     cord_individual_obj[indivial_i, :] = [24. 6. 14. 20.]  
585  
586     min(cord_individual_obj[:, 3]) = 20.0  
587     historl_G_best_iter[iter, 3] = 20.0  
588 Begin iteration:  
589  
590 iter = 18  
591     cord_individual_obj[indivial_i, :] = [ 0. 5. 57. 62.]  
592     cord_individual_obj[indivial_i, :] = [ 1. 5. 71. 76.]  
593     cord_individual_obj[indivial_i, :] = [ 2. 6. 57. 63.]  
594     cord_individual_obj[indivial_i, :] = [ 3. 5. 62. 67.]  
595     cord_individual_obj[indivial_i, :] = [ 4. 5. 124. 129.]  
596     cord_individual_obj[indivial_i, :] = [ 5. 7. 96. 103.]  
597     cord_individual_obj[indivial_i, :] = [ 6. 8. 129. 137.]  
598     cord_individual_obj[indivial_i, :] = [ 7. 5. 111. 116.]  
599     cord_individual_obj[indivial_i, :] = [ 8. 5. 87. 92.]  
600     cord_individual_obj[indivial_i, :] = [ 9. 7. 151. 158.]  
601     cord_individual_obj[indivial_i, :] = [10. 6. 14. 20.]  
602     cord_individual_obj[indivial_i, :] = [11. 6. 55. 61.]  
603     cord_individual_obj[indivial_i, :] = [12. 6. 44. 50.]  
604     cord_individual_obj[indivial_i, :] = [13. 6. 46. 52.]  
605     cord_individual_obj[indivial_i, :] = [14. 6. 87. 93.]  
606     cord_individual_obj[indivial_i, :] = [15. 9. 128. 137.]  
607     cord_individual_obj[indivial_i, :] = [16. 7. 81. 88.]  
608     cord_individual_obj[indivial_i, :] = [17. 6. 58. 64.]  
609     cord_individual_obj[indivial_i, :] = [18. 10. 81. 91.]  
610     cord_individual_obj[indivial_i, :] = [19. 7. 24. 31.]  
611     cord_individual_obj[indivial_i, :] = [20. 6. 46. 52.]  
612     cord_individual_obj[indivial_i, :] = [21. 5. 46. 51.]  
613     cord_individual_obj[indivial_i, :] = [22. 6. 18. 24.]  
614     cord_individual_obj[indivial_i, :] = [23. 5. 24. 29.]  
615     cord_individual_obj[indivial_i, :] = [24. 6. 50. 56.]  
616  
617     min(cord_individual_obj[:, 3]) = 20.0  
618     historl_G_best_iter[iter, 3] = 20.0  
619 Begin iteration:  
620  
621 iter = 19  
622     cord_individual_obj[indivial_i, :] = [ 0. 6. 40. 46.]  
623     cord_individual_obj[indivial_i, :] = [ 1. 7. 68. 75.]  
624     cord_individual_obj[indivial_i, :] = [ 2. 5. 68. 73.]  
625     cord_individual_obj[indivial_i, :] = [ 3. 6. 42. 48.]  
626     cord_individual_obj[indivial_i, :] = [ 4. 5. 62. 67.]  
627     cord_individual_obj[indivial_i, :] = [ 5. 6. 37. 43.]  
628     cord_individual_obj[indivial_i, :] = [ 6. 9. 97. 106.]  
629     cord_individual_obj[indivial_i, :] = [ 7. 7. 113. 120.]  
630     cord_individual_obj[indivial_i, :] = [ 8. 5. 112. 117.]  
631     cord_individual_obj[indivial_i, :] = [ 9. 6. 14. 20.]  
632     cord_individual_obj[indivial_i, :] = [10. 6. 107. 113.]  
633     cord_individual_obj[indivial_i, :] = [11. 6. 70. 76.]  
634     cord_individual_obj[indivial_i, :] = [12. 7. 44. 51.]  
635     cord_individual_obj[indivial_i, :] = [13. 5. 102. 107.]  
636     cord_individual_obj[indivial_i, :] = [14. 6. 17. 23.]  
637     cord_individual_obj[indivial_i, :] = [15. 6. 105. 111.]  
638     cord_individual_obj[indivial_i, :] = [16. 6. 49. 55.]  
639     cord_individual_obj[indivial_i, :] = [17. 5. 114. 119.]  
640     cord_individual_obj[indivial_i, :] = [18. 6. 112. 118.]  
641     cord_individual_obj[indivial_i, :] = [19. 8. 46. 54.]  
642     cord_individual_obj[indivial_i, :] = [20. 6. 59. 65.]  
643     cord_individual_obj[indivial_i, :] = [21. 6. 104. 110.]  
644     cord_individual_obj[indivial_i, :] = [22. 6. 60. 66.]  
645     cord_individual_obj[indivial_i, :] = [23. 6. 80. 86.]  
646     cord_individual_obj[indivial_i, :] = [24. 7. 122. 129.]  
647  
648     min(cord_individual_obj[:, 3]) = 20.0  
649     historl_G_best_iter[iter, 3] = 20.0  
650 Begin iteration:  
651  
652 iter = 20  
653     cord_individual_obj[indivial_i, :] = [ 0. 6. 30. 36.]  
654     cord_individual_obj[indivial_i, :] = [ 1. 6. 34. 40.]  
655     cord_individual_obj[indivial_i, :] = [ 2. 8. 99. 107.]  
656     cord_individual_obj[indivial_i, :] = [ 3. 6. 93. 99.]  
657     cord_individual_obj[indivial_i, :] = [ 4. 5. 122. 127.]  
658     cord_individual_obj[indivial_i, :] = [ 5. 5. 132. 137.]  
659     cord_individual_obj[indivial_i, :] = [ 6. 7. 123. 130.]  
660     cord_individual_obj[indivial_i, :] = [ 7. 6. 57. 63.]  
661     cord_individual_obj[indivial_i, :] = [ 8. 6. 79. 85.]  
662     cord_individual_obj[indivial_i, :] = [ 9. 6. 43. 49.]  
663     cord_individual_obj[indivial_i, :] = [10. 7. 110. 117.]  
664     cord_individual_obj[indivial_i, :] = [11. 5. 22. 27.]  
665     cord_individual_obj[indivial_i, :] = [12. 5. 137. 142.]  
666     cord_individual_obj[indivial_i, :] = [13. 5. 46. 51.]  
667     cord_individual_obj[indivial_i, :] = [14. 5. 144. 149.]
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668 cord_individual_obj[indivial_i, :] = [15. 6. 70. 76.]
669 cord_individual_obj[indivial_i, :] = [16. 7. 29. 36.]
670 cord_individual_obj[indivial_i, :] = [17. 6. 38. 44.]
671 cord_individual_obj[indivial_i, :] = [18. 5. 64. 69.]
672 cord_individual_obj[indivial_i, :] = [19. 4. 64. 68.]
673 cord_individual_obj[indivial_i, :] = [20. 7. 51. 58.]
674 cord_individual_obj[indivial_i, :] = [21. 6. 68. 74.]
675 cord_individual_obj[indivial_i, :] = [22. 5. 66. 71.]
676 cord_individual_obj[indivial_i, :] = [23. 5. 155. 160.]
677 cord_individual_obj[indivial_i, :] = [24. 6. 14. 20.]
678
679 min(cord_individual_obj[:, 3]) = 20.0
680 historl_G_best_iter[iter, 3] = 20.0
681 Iteration calculate over
682
683
684
685
686 All item are in Bin and:
687 Bin area = 1080
688 Real_area = 128.0
689 Proportion_of_area = 0.11851851851851852
690 BEST_CHROM =
691     berth: [22. 23. 7.5 9. 3. 23. 16.5 5.5 2. 2.5 12.5]
692     time: [0. 2. 2. 0. 4. 4. 0. 0. 0. 2. 0.]
693     num_QC: [4. 4. 5. 3. 2. 3. 2. 2. 4. 2. 3.]
694 Objective function values and some other indicators:
695 Obj0 = 6.00          Obj1 = 14.00          Obj0 + Obj1 = 20.00
696 Total movement of crane: 0.00
697 Total waiting time in berth position: 14.00
698 Total index of q during berthing: 658.00
699 Specific arrangement for each vessel:
700
    V_id: 0           li: 6.0           xi: 22.0           bow of i: 19.0           tail of i: 25.0           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
701 load_i: 140.0           work load gap_i: 0
    V_id: 1           li: 8.0           xi: 23.0           bow of i: 19.0           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: 140.0           work
702 load_i: 140.0           work load gap_i: 0
    V_id: 2           li: 5.0           xi: 7.5           bow of i: 5.0           tail of i: 10.0           gama_i0: 2.0           gama_i1: 2.0
    60.0           gama_i1 + 1: 3.0           gama_i1 - gama_i0: 0.0           duration_time_i: 1.0           demand_i: 60.0           work load_i:
703 load_i: 140.0           work load gap_i: 0
    V_id: 3           li: 4.0           xi: 9.0           bow of i: 7.0           tail of i: 11.0           gama_i0: 0.0           gama_i1: 1.0
    100.0           gama_i1 + 1: 2.0           gama_i1 - gama_i0: 1.0           duration_time_i: 2.0           demand_i: 100.0           work load_i:
704 load_i: 140.0           work load gap_i: 0
    V_id: 4           li: 6.0           xi: 3.0           bow of i: 0.0           tail of i: 6.0           gama_i0: 4.0           gama_i1: 6.0
    120.0           gama_i1 + 1: 7.0           gama_i1 - gama_i0: 2.0           duration_time_i: 3.0           demand_i: 120.0           work load_i:
705 load_i: 80.0           work load gap_i: 0
    V_id: 5           li: 8.0           xi: 23.0           bow of i: 19.0           tail of i: 27.0           gama_i0: 4.0           gama_i1: 5
    .0           gama_i1 + 1: 6.0           gama_i1 - gama_i0: 1.0           duration_time_i: 2.0           demand_i: 80.0           work
706 load_i: 160.0           work load gap_i: 0
    V_id: 6           li: 5.0           xi: 16.5           bow of i: 14.0           tail of i: 19.0           gama_i0: 0.0           gama_i1: 3
    .0           gama_i1 + 1: 4.0           gama_i1 - gama_i0: 3.0           duration_time_i: 4.0           demand_i: 160.0           work
707 load_i: 160.0           work load gap_i: 0
    V_id: 7           li: 3.0           xi: 5.5           bow of i: 4.0           tail of i: 7.0           gama_i0: 0.0           gama_i1: 1.0
    60.0           gama_i1 + 1: 2.0           gama_i1 - gama_i0: 1.0           duration_time_i: 2.0           demand_i: 60.0           work load_i:
708 load_i: 160.0           work load gap_i: 0
    V_id: 8           li: 4.0           xi: 2.0           bow of i: 0.0           tail of i: 4.0           gama_i0: 0.0           gama_i1: 1.0
    140.0           gama_i1 + 1: 2.0           gama_i1 - gama_i0: 1.0           duration_time_i: 2.0           demand_i: 140.0           work load_i:
709 load_i: 160.0           work load gap_i: 0
    V_id: 9           li: 5.0           xi: 2.5           bow of i: 0.0           tail of i: 5.0           gama_i0: 2.0           gama_i1: 3.0
    80.0           gama_i1 + 1: 4.0           gama_i1 - gama_i0: 1.0           duration_time_i: 2.0           demand_i: 80.0           work load_i:
710 load_i: 160.0           work load gap_i: 0
    V_id: 10          li: 3.0           xi: 12.5           bow of i: 11.0           tail of i: 14.0           gama_i0: 0.0           gama_i1: 1
    : 2.0           gama_i1 + 1: 3.0           gama_i1 - gama_i0: 2.0           duration_time_i: 3.0           demand_i: 160.0           work
711
712 Algorithm finished and the total CPU time: 282 s
713 End
714

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