

unknown

```

80 cord_individual_obj[indivial_i,:] = [ 16. 10. 109. 119.]
81 cord_individual_obj[indivial_i,:] = [17. 8. 64. 72.]
82 cord_individual_obj[indivial_i,:] = [ 18. 8. 111. 119.]
83 cord_individual_obj[indivial_i,:] = [19. 10. 89. 99.]
84 cord_individual_obj[indivial_i,:] = [ 20. 10. 123. 133.]
85 cord_individual_obj[indivial_i,:] = [ 21. 9. 123. 132.]
86 cord_individual_obj[indivial_i,:] = [ 22. 8. 97. 105.]
87 cord_individual_obj[indivial_i,:] = [23. 8. 74. 82.]
88 cord_individual_obj[indivial_i,:] = [ 24. 10. 150. 160.]
89
90 min(cord_individual_obj[:,3]) = 72.0
91 historl_G_best_iter[iter, 3] = 72.0
92 Begin iteration:
93
94 iter = 2
95 cord_individual_obj[indivial_i,:] = [ 0. 9. 146. 155.]
96 cord_individual_obj[indivial_i,:] = [ 1. 9. 88. 97.]
97 cord_individual_obj[indivial_i,:] = [ 2. 9. 93. 102.]
98 cord_individual_obj[indivial_i,:] = [ 3. 8. 149. 157.]
99 cord_individual_obj[indivial_i,:] = [ 4. 8. 142. 150.]
100 cord_individual_obj[indivial_i,:] = [ 5. 10. 63. 73.]
101 cord_individual_obj[indivial_i,:] = [ 6. 10. 130. 140.]
102 cord_individual_obj[indivial_i,:] = [ 7. 10. 109. 119.]
103 cord_individual_obj[indivial_i,:] = [ 8. 8. 64. 72.]
104 cord_individual_obj[indivial_i,:] = [ 9. 10. 79. 89.]
105 cord_individual_obj[indivial_i,:] = [ 10. 9. 116. 125.]
106 cord_individual_obj[indivial_i,:] = [ 11. 9. 100. 109.]
107 cord_individual_obj[indivial_i,:] = [ 12. 9. 123. 132.]
108 cord_individual_obj[indivial_i,:] = [13. 10. 68. 78.]
109 cord_individual_obj[indivial_i,:] = [ 14. 7. 98. 105.]
110 cord_individual_obj[indivial_i,:] = [ 15. 9. 92. 101.]
111 cord_individual_obj[indivial_i,:] = [16. 7. 89. 96.]
112 cord_individual_obj[indivial_i,:] = [17. 8. 88. 96.]
113 cord_individual_obj[indivial_i,:] = [ 18. 8. 99. 107.]
114 cord_individual_obj[indivial_i,:] = [19. 8. 85. 93.]
115 cord_individual_obj[indivial_i,:] = [ 20. 9. 103. 112.]
116 cord_individual_obj[indivial_i,:] = [21. 9. 82. 91.]
117 cord_individual_obj[indivial_i,:] = [ 22. 10. 113. 123.]
118 cord_individual_obj[indivial_i,:] = [23. 7. 83. 90.]
119 cord_individual_obj[indivial_i,:] = [ 24. 10. 116. 126.]
120
121 min(cord_individual_obj[:,3]) = 72.0
122 historl_G_best_iter[iter, 3] = 72.0
123 Begin iteration:
124
125 iter = 3
126 cord_individual_obj[indivial_i,:] = [ 0. 10. 115. 125.]
127 cord_individual_obj[indivial_i,:] = [ 1. 10. 105. 115.]
128 cord_individual_obj[indivial_i,:] = [ 2. 12. 112. 124.]
129 cord_individual_obj[indivial_i,:] = [ 3. 8. 64. 72.]
130 cord_individual_obj[indivial_i,:] = [ 4. 10. 117. 127.]
131 cord_individual_obj[indivial_i,:] = [ 5. 9. 106. 115.]
132 cord_individual_obj[indivial_i,:] = [ 6. 9. 175. 184.]
133 cord_individual_obj[indivial_i,:] = [ 7. 11. 175. 186.]
134 cord_individual_obj[indivial_i,:] = [ 8. 9. 87. 96.]
135 cord_individual_obj[indivial_i,:] = [ 9. 9. 101. 110.]
136 cord_individual_obj[indivial_i,:] = [10. 8. 202. 210.]
137 cord_individual_obj[indivial_i,:] = [11. 8. 143. 151.]
138 cord_individual_obj[indivial_i,:] = [12. 10. 118. 128.]
139 cord_individual_obj[indivial_i,:] = [13. 9. 102. 111.]
140 cord_individual_obj[indivial_i,:] = [14. 12. 111. 123.]
141 cord_individual_obj[indivial_i,:] = [15. 9. 181. 190.]
142 cord_individual_obj[indivial_i,:] = [16. 9. 63. 72.]
143 cord_individual_obj[indivial_i,:] = [17. 10. 82. 92.]
144 cord_individual_obj[indivial_i,:] = [18. 10. 78. 88.]
145 cord_individual_obj[indivial_i,:] = [19. 10. 160. 170.]
146 cord_individual_obj[indivial_i,:] = [20. 10. 124. 134.]
147 cord_individual_obj[indivial_i,:] = [21. 10. 150. 160.]
148 cord_individual_obj[indivial_i,:] = [22. 7. 179. 186.]
149 cord_individual_obj[indivial_i,:] = [23. 10. 114. 124.]
150 cord_individual_obj[indivial_i,:] = [24. 9. 87. 96.]
151
152 min(cord_individual_obj[:,3]) = 72.0
153 historl_G_best_iter[iter, 3] = 72.0
154 Begin iteration:
155
156 iter = 4
157 cord_individual_obj[indivial_i,:] = [ 0. 9. 199. 208.]
158 cord_individual_obj[indivial_i,:] = [ 1. 11. 148. 159.]
159 cord_individual_obj[indivial_i,:] = [ 2. 10. 94. 104.]
160 cord_individual_obj[indivial_i,:] = [ 3. 9. 133. 142.]
161 cord_individual_obj[indivial_i,:] = [ 4. 8. 111. 119.]
162 cord_individual_obj[indivial_i,:] = [ 5. 9. 170. 179.]
163 cord_individual_obj[indivial_i,:] = [ 6. 11. 109. 120.]

```

```

164 cord_individual_obj[indivial_i, :] = [ 7. 12. 110. 122.]
165 cord_individual_obj[indivial_i, :] = [ 8. 8. 112. 120.]
166 cord_individual_obj[indivial_i, :] = [ 9. 10. 64. 74.]
167 cord_individual_obj[indivial_i, :] = [10. 8. 64. 72.]
168 cord_individual_obj[indivial_i, :] = [11. 9. 149. 158.]
169 cord_individual_obj[indivial_i, :] = [12. 10. 78. 88.]
170 cord_individual_obj[indivial_i, :] = [13. 9. 140. 149.]
171 cord_individual_obj[indivial_i, :] = [14. 12. 169. 181.]
172 cord_individual_obj[indivial_i, :] = [15. 11. 147. 158.]
173 cord_individual_obj[indivial_i, :] = [16. 9. 104. 113.]
174 cord_individual_obj[indivial_i, :] = [17. 8. 139. 147.]
175 cord_individual_obj[indivial_i, :] = [18. 9. 138. 147.]
176 cord_individual_obj[indivial_i, :] = [19. 11. 170. 181.]
177 cord_individual_obj[indivial_i, :] = [20. 9. 85. 94.]
178 cord_individual_obj[indivial_i, :] = [21. 10. 144. 154.]
179 cord_individual_obj[indivial_i, :] = [22. 8. 102. 110.]
180 cord_individual_obj[indivial_i, :] = [23. 8. 111. 119.]
181 cord_individual_obj[indivial_i, :] = [24. 8. 118. 126.]
182
183 min(cord_individual_obj[:, 3]) = 72.0
184 historl_G_best_iter[iter, 3] = 72.0
185 Begin iteration:
186
187 iter = 5
188 cord_individual_obj[indivial_i, :] = [ 0. 8. 64. 72.]
189 cord_individual_obj[indivial_i, :] = [ 1. 11. 162. 173.]
190 cord_individual_obj[indivial_i, :] = [ 2. 12. 67. 79.]
191 cord_individual_obj[indivial_i, :] = [ 3. 10. 136. 146.]
192 cord_individual_obj[indivial_i, :] = [ 4. 10. 130. 140.]
193 cord_individual_obj[indivial_i, :] = [ 5. 9. 120. 129.]
194 cord_individual_obj[indivial_i, :] = [ 6. 9. 134. 143.]
195 cord_individual_obj[indivial_i, :] = [ 7. 10. 112. 122.]
196 cord_individual_obj[indivial_i, :] = [ 8. 11. 67. 78.]
197 cord_individual_obj[indivial_i, :] = [ 9. 10. 136. 146.]
198 cord_individual_obj[indivial_i, :] = [10. 9. 112. 121.]
199 cord_individual_obj[indivial_i, :] = [11. 10. 78. 88.]
200 cord_individual_obj[indivial_i, :] = [12. 9. 128. 137.]
201 cord_individual_obj[indivial_i, :] = [13. 10. 123. 133.]
202 cord_individual_obj[indivial_i, :] = [14. 11. 92. 103.]
203 cord_individual_obj[indivial_i, :] = [15. 10. 66. 76.]
204 cord_individual_obj[indivial_i, :] = [16. 10. 137. 147.]
205 cord_individual_obj[indivial_i, :] = [17. 10. 108. 118.]
206 cord_individual_obj[indivial_i, :] = [18. 9. 89. 98.]
207 cord_individual_obj[indivial_i, :] = [19. 9. 118. 127.]
208 cord_individual_obj[indivial_i, :] = [20. 9. 133. 142.]
209 cord_individual_obj[indivial_i, :] = [21. 8. 77. 85.]
210 cord_individual_obj[indivial_i, :] = [22. 8. 81. 89.]
211 cord_individual_obj[indivial_i, :] = [23. 10. 111. 121.]
212 cord_individual_obj[indivial_i, :] = [24. 10. 82. 92.]
213
214 min(cord_individual_obj[:, 3]) = 72.0
215 historl_G_best_iter[iter, 3] = 72.0
216 Begin iteration:
217
218 iter = 6
219 cord_individual_obj[indivial_i, :] = [ 0. 8. 97. 105.]
220 cord_individual_obj[indivial_i, :] = [ 1. 8. 64. 72.]
221 cord_individual_obj[indivial_i, :] = [ 2. 11. 118. 129.]
222 cord_individual_obj[indivial_i, :] = [ 3. 10. 73. 83.]
223 cord_individual_obj[indivial_i, :] = [ 4. 10. 80. 90.]
224 cord_individual_obj[indivial_i, :] = [ 5. 10. 122. 132.]
225 cord_individual_obj[indivial_i, :] = [ 6. 12. 125. 137.]
226 cord_individual_obj[indivial_i, :] = [ 7. 11. 99. 110.]
227 cord_individual_obj[indivial_i, :] = [ 8. 8. 136. 144.]
228 cord_individual_obj[indivial_i, :] = [ 9. 10. 85. 95.]
229 cord_individual_obj[indivial_i, :] = [10. 9. 143. 152.]
230 cord_individual_obj[indivial_i, :] = [11. 11. 121. 132.]
231 cord_individual_obj[indivial_i, :] = [12. 9. 104. 113.]
232 cord_individual_obj[indivial_i, :] = [13. 9. 146. 155.]
233 cord_individual_obj[indivial_i, :] = [14. 10. 131. 141.]
234 cord_individual_obj[indivial_i, :] = [15. 9. 103. 112.]
235 cord_individual_obj[indivial_i, :] = [16. 8. 85. 93.]
236 cord_individual_obj[indivial_i, :] = [17. 8. 108. 116.]
237 cord_individual_obj[indivial_i, :] = [18. 8. 143. 151.]
238 cord_individual_obj[indivial_i, :] = [19. 10. 87. 97.]
239 cord_individual_obj[indivial_i, :] = [20. 10. 62. 72.]
240 cord_individual_obj[indivial_i, :] = [21. 9. 187. 196.]
241 cord_individual_obj[indivial_i, :] = [22. 8. 101. 109.]
242 cord_individual_obj[indivial_i, :] = [23. 9. 116. 125.]
243 cord_individual_obj[indivial_i, :] = [24. 10. 167. 177.]
244
245 min(cord_individual_obj[:, 3]) = 72.0
246 historl_G_best_iter[iter, 3] = 72.0
247 Begin iteration:

```

```

248
249 iter = 7
250 cord_individual_obj[indivial_i, :] = [ 0. 9. 98. 107.]
251 cord_individual_obj[indivial_i, :] = [ 1. 10. 138. 148.]
252 cord_individual_obj[indivial_i, :] = [ 2. 9. 77. 86.]
253 cord_individual_obj[indivial_i, :] = [ 3. 9. 119. 128.]
254 cord_individual_obj[indivial_i, :] = [ 4. 10. 94. 104.]
255 cord_individual_obj[indivial_i, :] = [ 5. 9. 136. 145.]
256 cord_individual_obj[indivial_i, :] = [ 6. 9. 84. 93.]
257 cord_individual_obj[indivial_i, :] = [ 7. 10. 105. 115.]
258 cord_individual_obj[indivial_i, :] = [ 8. 8. 74. 82.]
259 cord_individual_obj[indivial_i, :] = [ 9. 9. 113. 122.]
260 cord_individual_obj[indivial_i, :] = [ 10. 11. 117. 128.]
261 cord_individual_obj[indivial_i, :] = [ 11. 9. 111. 120.]
262 cord_individual_obj[indivial_i, :] = [ 12. 10. 116. 126.]
263 cord_individual_obj[indivial_i, :] = [ 13. 10. 173. 183.]
264 cord_individual_obj[indivial_i, :] = [ 14. 8. 127. 135.]
265 cord_individual_obj[indivial_i, :] = [ 15. 8. 109. 117.]
266 cord_individual_obj[indivial_i, :] = [ 16. 8. 90. 98.]
267 cord_individual_obj[indivial_i, :] = [ 17. 7. 159. 166.]
268 cord_individual_obj[indivial_i, :] = [ 18. 9. 117. 126.]
269 cord_individual_obj[indivial_i, :] = [ 19. 8. 118. 126.]
270 cord_individual_obj[indivial_i, :] = [ 20. 9. 89. 98.]
271 cord_individual_obj[indivial_i, :] = [ 21. 8. 64. 72.]
272 cord_individual_obj[indivial_i, :] = [ 22. 7. 82. 89.]
273 cord_individual_obj[indivial_i, :] = [ 23. 9. 126. 135.]
274 cord_individual_obj[indivial_i, :] = [ 24. 9. 103. 112.]
275

276 min(cord_individual_obj[:, 3]) = 72.0
277 historl_G_best_iter[iter, 3] = 72.0
278 Begin iteration:
279
280 iter = 8
281 cord_individual_obj[indivial_i, :] = [ 0. 10. 125. 135.]
282 cord_individual_obj[indivial_i, :] = [ 1. 11. 97. 108.]
283 cord_individual_obj[indivial_i, :] = [ 2. 11. 104. 115.]
284 cord_individual_obj[indivial_i, :] = [ 3. 11. 121. 132.]
285 cord_individual_obj[indivial_i, :] = [ 4. 11. 125. 136.]
286 cord_individual_obj[indivial_i, :] = [ 5. 10. 213. 223.]
287 cord_individual_obj[indivial_i, :] = [ 6. 10. 163. 173.]
288 cord_individual_obj[indivial_i, :] = [ 7. 11. 85. 96.]
289 cord_individual_obj[indivial_i, :] = [ 8. 8. 85. 93.]
290 cord_individual_obj[indivial_i, :] = [ 9. 9. 109. 118.]
291 cord_individual_obj[indivial_i, :] = [ 10. 10. 72. 82.]
292 cord_individual_obj[indivial_i, :] = [ 11. 8. 114. 122.]
293 cord_individual_obj[indivial_i, :] = [ 12. 10. 87. 97.]
294 cord_individual_obj[indivial_i, :] = [ 13. 8. 64. 72.]
295 cord_individual_obj[indivial_i, :] = [ 14. 10. 113. 123.]
296 cord_individual_obj[indivial_i, :] = [ 15. 11. 156. 167.]
297 cord_individual_obj[indivial_i, :] = [ 16. 9. 98. 107.]
298 cord_individual_obj[indivial_i, :] = [ 17. 9. 92. 101.]
299 cord_individual_obj[indivial_i, :] = [ 18. 7. 138. 145.]
300 cord_individual_obj[indivial_i, :] = [ 19. 10. 148. 158.]
301 cord_individual_obj[indivial_i, :] = [ 20. 9. 72. 81.]
302 cord_individual_obj[indivial_i, :] = [ 21. 10. 87. 97.]
303 cord_individual_obj[indivial_i, :] = [ 22. 8. 75. 83.]
304 cord_individual_obj[indivial_i, :] = [ 23. 9. 119. 128.]
305 cord_individual_obj[indivial_i, :] = [ 24. 10. 106. 116.]
306

307 min(cord_individual_obj[:, 3]) = 72.0
308 historl_G_best_iter[iter, 3] = 72.0
309 Begin iteration:
310
311 iter = 9
312 cord_individual_obj[indivial_i, :] = [ 0. 11. 148. 159.]
313 cord_individual_obj[indivial_i, :] = [ 1. 10. 120. 130.]
314 cord_individual_obj[indivial_i, :] = [ 2. 9. 51. 60.]
315 cord_individual_obj[indivial_i, :] = [ 3. 9. 104. 113.]
316 cord_individual_obj[indivial_i, :] = [ 4. 9. 114. 123.]
317 cord_individual_obj[indivial_i, :] = [ 5. 8. 64. 72.]
318 cord_individual_obj[indivial_i, :] = [ 6. 10. 187. 197.]
319 cord_individual_obj[indivial_i, :] = [ 7. 10. 109. 119.]
320 cord_individual_obj[indivial_i, :] = [ 8. 9. 143. 152.]
321 cord_individual_obj[indivial_i, :] = [ 9. 9. 154. 163.]
322 cord_individual_obj[indivial_i, :] = [ 10. 9. 143. 152.]
323 cord_individual_obj[indivial_i, :] = [ 11. 9. 123. 132.]
324 cord_individual_obj[indivial_i, :] = [ 12. 10. 107. 117.]
325 cord_individual_obj[indivial_i, :] = [ 13. 9. 131. 140.]
326 cord_individual_obj[indivial_i, :] = [ 14. 10. 124. 134.]
327 cord_individual_obj[indivial_i, :] = [ 15. 9. 99. 108.]
328 cord_individual_obj[indivial_i, :] = [ 16. 9. 104. 113.]
329 cord_individual_obj[indivial_i, :] = [ 17. 9. 87. 96.]
330 cord_individual_obj[indivial_i, :] = [ 18. 10. 94. 104.]
331 cord_individual_obj[indivial_i, :] = [ 19. 10. 81. 91.]

```

unknown

```
332     cord_individual_obj[indivial_i,:] = [20. 10. 83. 93.]  
333     cord_individual_obj[indivial_i,:] = [21. 11. 98. 109.]  
334     cord_individual_obj[indivial_i,:] = [22. 8. 147. 155.]  
335     cord_individual_obj[indivial_i,:] = [23. 10. 115. 125.]  
336     cord_individual_obj[indivial_i,:] = [24. 11. 92. 103.]  
337  
338 min(cord_individual_obj[:,3]) = 60.0  
339 historl_G_best_iter[iter,3] = 60.0  
340 Begin iteration:  
341  
342 iter = 10  
343     cord_individual_obj[indivial_i,:] = [ 0. 9. 96. 105.]  
344     cord_individual_obj[indivial_i,:] = [ 1. 9. 94. 103.]  
345     cord_individual_obj[indivial_i,:] = [ 2. 11. 67. 78.]  
346     cord_individual_obj[indivial_i,:] = [ 3. 8. 99. 107.]  
347     cord_individual_obj[indivial_i,:] = [ 4. 11. 137. 148.]  
348     cord_individual_obj[indivial_i,:] = [ 5. 8. 103. 111.]  
349     cord_individual_obj[indivial_i,:] = [ 6. 9. 51. 60.]  
350     cord_individual_obj[indivial_i,:] = [ 7. 9. 97. 106.]  
351     cord_individual_obj[indivial_i,:] = [ 8. 8. 115. 123.]  
352     cord_individual_obj[indivial_i,:] = [ 9. 8. 98. 106.]  
353     cord_individual_obj[indivial_i,:] = [10. 9. 155. 164.]  
354     cord_individual_obj[indivial_i,:] = [11. 9. 67. 76.]  
355     cord_individual_obj[indivial_i,:] = [12. 8. 152. 160.]  
356     cord_individual_obj[indivial_i,:] = [13. 9. 134. 143.]  
357     cord_individual_obj[indivial_i,:] = [14. 8. 102. 110.]  
358     cord_individual_obj[indivial_i,:] = [15. 8. 74. 82.]  
359     cord_individual_obj[indivial_i,:] = [16. 8. 96. 104.]  
360     cord_individual_obj[indivial_i,:] = [17. 9. 126. 135.]  
361     cord_individual_obj[indivial_i,:] = [18. 9. 109. 118.]  
362     cord_individual_obj[indivial_i,:] = [19. 9. 108. 117.]  
363     cord_individual_obj[indivial_i,:] = [20. 8. 113. 121.]  
364     cord_individual_obj[indivial_i,:] = [21. 9. 93. 102.]  
365     cord_individual_obj[indivial_i,:] = [22. 11. 97. 108.]  
366     cord_individual_obj[indivial_i,:] = [23. 8. 132. 140.]  
367     cord_individual_obj[indivial_i,:] = [24. 9. 96. 105.]  
368  
369 min(cord_individual_obj[:,3]) = 60.0  
370 historl_G_best_iter[iter,3] = 60.0  
371 Begin iteration:  
372  
373 iter = 11  
374     cord_individual_obj[indivial_i,:] = [ 0. 10. 73. 83.]  
375     cord_individual_obj[indivial_i,:] = [ 1. 9. 112. 121.]  
376     cord_individual_obj[indivial_i,:] = [ 2. 10. 89. 99.]  
377     cord_individual_obj[indivial_i,:] = [ 3. 10. 103. 113.]  
378     cord_individual_obj[indivial_i,:] = [ 4. 11. 112. 123.]  
379     cord_individual_obj[indivial_i,:] = [ 5. 9. 97. 106.]  
380     cord_individual_obj[indivial_i,:] = [ 6. 10. 72. 82.]  
381     cord_individual_obj[indivial_i,:] = [ 7. 10. 99. 109.]  
382     cord_individual_obj[indivial_i,:] = [ 8. 9. 130. 139.]  
383     cord_individual_obj[indivial_i,:] = [ 9. 12. 87. 99.]  
384     cord_individual_obj[indivial_i,:] = [10. 9. 51. 60.]  
385     cord_individual_obj[indivial_i,:] = [11. 11. 80. 91.]  
386     cord_individual_obj[indivial_i,:] = [12. 12. 127. 139.]  
387     cord_individual_obj[indivial_i,:] = [13. 11. 96. 107.]  
388     cord_individual_obj[indivial_i,:] = [14. 12. 84. 96.]  
389     cord_individual_obj[indivial_i,:] = [15. 11. 115. 126.]  
390     cord_individual_obj[indivial_i,:] = [16. 10. 64. 74.]  
391     cord_individual_obj[indivial_i,:] = [17. 11. 100. 111.]  
392     cord_individual_obj[indivial_i,:] = [18. 7. 124. 131.]  
393     cord_individual_obj[indivial_i,:] = [19. 11. 136. 147.]  
394     cord_individual_obj[indivial_i,:] = [20. 9. 101. 110.]  
395     cord_individual_obj[indivial_i,:] = [21. 11. 86. 97.]  
396     cord_individual_obj[indivial_i,:] = [22. 7. 228. 235.]  
397     cord_individual_obj[indivial_i,:] = [23. 11. 75. 86.]  
398     cord_individual_obj[indivial_i,:] = [24. 10. 59. 69.]  
399  
400 min(cord_individual_obj[:,3]) = 60.0  
401 historl_G_best_iter[iter,3] = 60.0  
402 Begin iteration:  
403  
404 iter = 12  
405     cord_individual_obj[indivial_i,:] = [ 0. 9. 70. 79.]  
406     cord_individual_obj[indivial_i,:] = [ 1. 10. 173. 183.]  
407     cord_individual_obj[indivial_i,:] = [ 2. 10. 80. 90.]  
408     cord_individual_obj[indivial_i,:] = [ 3. 11. 63. 74.]  
409     cord_individual_obj[indivial_i,:] = [ 4. 12. 111. 123.]  
410     cord_individual_obj[indivial_i,:] = [ 5. 12. 101. 113.]  
411     cord_individual_obj[indivial_i,:] = [ 6. 9. 132. 141.]  
412     cord_individual_obj[indivial_i,:] = [ 7. 8. 152. 160.]  
413     cord_individual_obj[indivial_i,:] = [ 8. 11. 161. 172.]  
414     cord_individual_obj[indivial_i,:] = [ 9. 10. 131. 141.]  
415     cord_individual_obj[indivial_i,:] = [10. 9. 92. 101.]
```

```

416 cord_individual_obj[indivial_i,:] = [ 11. 10. 103. 113.]
417 cord_individual_obj[indivial_i,:] = [12. 9. 78. 87.]
418 cord_individual_obj[indivial_i,:] = [ 13. 11. 139. 150.]
419 cord_individual_obj[indivial_i,:] = [ 14. 10. 117. 127.]
420 cord_individual_obj[indivial_i,:] = [15. 8. 78. 86.]
421 cord_individual_obj[indivial_i,:] = [16. 9. 90. 99.]
422 cord_individual_obj[indivial_i,:] = [ 17. 10. 114. 124.]
423 cord_individual_obj[indivial_i,:] = [ 18. 7. 99. 106.]
424 cord_individual_obj[indivial_i,:] = [ 19. 10. 144. 154.]
425 cord_individual_obj[indivial_i,:] = [ 20. 10. 113. 123.]
426 cord_individual_obj[indivial_i,:] = [ 21. 10. 138. 148.]
427 cord_individual_obj[indivial_i,:] = [22. 9. 51. 60.]
428 cord_individual_obj[indivial_i,:] = [ 23. 11. 109. 120.]
429 cord_individual_obj[indivial_i,:] = [ 24. 9. 95. 104.]
430
431 min(cord_individual_obj[:,3]) = 60.0
432 histol_G_best_iter[iter,3] = 60.0
433 Begin iteration:
434
435 iter = 13
436 cord_individual_obj[indivial_i,:] = [ 0. 9. 117. 126.]
437 cord_individual_obj[indivial_i,:] = [ 1. 9. 51. 60.]
438 cord_individual_obj[indivial_i,:] = [ 2. 11. 123. 134.]
439 cord_individual_obj[indivial_i,:] = [ 3. 10. 126. 136.]
440 cord_individual_obj[indivial_i,:] = [ 4. 9. 91. 100.]
441 cord_individual_obj[indivial_i,:] = [ 5. 10. 65. 75.]
442 cord_individual_obj[indivial_i,:] = [ 6. 11. 119. 130.]
443 cord_individual_obj[indivial_i,:] = [ 7. 9. 88. 97.]
444 cord_individual_obj[indivial_i,:] = [ 8. 8. 120. 128.]
445 cord_individual_obj[indivial_i,:] = [ 9. 10. 123. 133.]
446 cord_individual_obj[indivial_i,:] = [10. 9. 85. 94.]
447 cord_individual_obj[indivial_i,:] = [11. 8. 94. 102.]
448 cord_individual_obj[indivial_i,:] = [12. 10. 137. 147.]
449 cord_individual_obj[indivial_i,:] = [13. 11. 93. 104.]
450 cord_individual_obj[indivial_i,:] = [14. 12. 106. 118.]
451 cord_individual_obj[indivial_i,:] = [15. 11. 133. 144.]
452 cord_individual_obj[indivial_i,:] = [16. 9. 147. 156.]
453 cord_individual_obj[indivial_i,:] = [17. 11. 161. 172.]
454 cord_individual_obj[indivial_i,:] = [18. 9. 108. 117.]
455 cord_individual_obj[indivial_i,:] = [19. 10. 168. 178.]
456 cord_individual_obj[indivial_i,:] = [20. 10. 104. 114.]
457 cord_individual_obj[indivial_i,:] = [21. 10. 115. 125.]
458 cord_individual_obj[indivial_i,:] = [22. 11. 132. 143.]
459 cord_individual_obj[indivial_i,:] = [23. 9. 110. 119.]
460 cord_individual_obj[indivial_i,:] = [24. 12. 92. 104.]
461
462 min(cord_individual_obj[:,3]) = 60.0
463 histol_G_best_iter[iter,3] = 60.0
464 Begin iteration:
465
466 iter = 14
467 cord_individual_obj[indivial_i,:] = [ 0. 10. 110. 120.]
468 cord_individual_obj[indivial_i,:] = [ 1. 10. 133. 143.]
469 cord_individual_obj[indivial_i,:] = [ 2. 11. 75. 86.]
470 cord_individual_obj[indivial_i,:] = [ 3. 11. 102. 113.]
471 cord_individual_obj[indivial_i,:] = [ 4. 10. 74. 84.]
472 cord_individual_obj[indivial_i,:] = [ 5. 11. 55. 66.]
473 cord_individual_obj[indivial_i,:] = [ 6. 9. 105. 114.]
474 cord_individual_obj[indivial_i,:] = [ 7. 10. 100. 110.]
475 cord_individual_obj[indivial_i,:] = [ 8. 10. 100. 110.]
476 cord_individual_obj[indivial_i,:] = [ 9. 12. 76. 88.]
477 cord_individual_obj[indivial_i,:] = [10. 9. 92. 101.]
478 cord_individual_obj[indivial_i,:] = [11. 9. 158. 167.]
479 cord_individual_obj[indivial_i,:] = [12. 11. 99. 110.]
480 cord_individual_obj[indivial_i,:] = [13. 11. 143. 154.]
481 cord_individual_obj[indivial_i,:] = [14. 11. 102. 113.]
482 cord_individual_obj[indivial_i,:] = [15. 10. 108. 118.]
483 cord_individual_obj[indivial_i,:] = [16. 10. 72. 82.]
484 cord_individual_obj[indivial_i,:] = [17. 8. 101. 109.]
485 cord_individual_obj[indivial_i,:] = [18. 8. 88. 96.]
486 cord_individual_obj[indivial_i,:] = [19. 9. 51. 60.]
487 cord_individual_obj[indivial_i,:] = [20. 9. 73. 82.]
488 cord_individual_obj[indivial_i,:] = [21. 9. 129. 138.]
489 cord_individual_obj[indivial_i,:] = [22. 11. 88. 99.]
490 cord_individual_obj[indivial_i,:] = [23. 10. 84. 94.]
491 cord_individual_obj[indivial_i,:] = [24. 9. 66. 75.]
492
493 min(cord_individual_obj[:,3]) = 60.0
494 histol_G_best_iter[iter,3] = 60.0
495 Begin iteration:
496
497 iter = 15
498 cord_individual_obj[indivial_i,:] = [ 0. 10. 87. 97.]
499 cord_individual_obj[indivial_i,:] = [ 1. 10. 110. 120.]

```

```

500 cord_individual_obj[indivial_i,:] = [ 2. 9. 88. 97.]
501 cord_individual_obj[indivial_i,:] = [ 3. 11. 87. 98.]
502 cord_individual_obj[indivial_i,:] = [ 4. 9. 76. 85.]
503 cord_individual_obj[indivial_i,:] = [ 5. 11. 96. 107.]
504 cord_individual_obj[indivial_i,:] = [ 6. 11. 124. 135.]
505 cord_individual_obj[indivial_i,:] = [ 7. 9. 70. 79.]
506 cord_individual_obj[indivial_i,:] = [ 8. 10. 83. 93.]
507 cord_individual_obj[indivial_i,:] = [ 9. 9. 77. 86.]
508 cord_individual_obj[indivial_i,:] = [10. 9. 73. 82.]
509 cord_individual_obj[indivial_i,:] = [11. 9. 51. 60.]
510 cord_individual_obj[indivial_i,:] = [12. 9. 99. 108.]
511 cord_individual_obj[indivial_i,:] = [13. 10. 112. 122.]
512 cord_individual_obj[indivial_i,:] = [14. 10. 72. 82.]
513 cord_individual_obj[indivial_i,:] = [15. 8. 92. 100.]
514 cord_individual_obj[indivial_i,:] = [16. 9. 116. 125.]
515 cord_individual_obj[indivial_i,:] = [17. 11. 82. 93.]
516 cord_individual_obj[indivial_i,:] = [18. 8. 115. 123.]
517 cord_individual_obj[indivial_i,:] = [19. 9. 98. 107.]
518 cord_individual_obj[indivial_i,:] = [20. 10. 107. 117.]
519 cord_individual_obj[indivial_i,:] = [21. 9. 59. 68.]
520 cord_individual_obj[indivial_i,:] = [22. 10. 115. 125.]
521 cord_individual_obj[indivial_i,:] = [23. 10. 85. 95.]
522 cord_individual_obj[indivial_i,:] = [24. 8. 95. 103.]
523
524 min(cord_individual_obj[:, 3]) = 60.0
525 histol_G_best_iter[iter, 3] = 60.0
526 Begin iteration:
527
528 iter = 16
529 cord_individual_obj[indivial_i,:] = [ 0. 10. 85. 95.]
530 cord_individual_obj[indivial_i,:] = [ 1. 10. 77. 87.]
531 cord_individual_obj[indivial_i,:] = [ 2. 8. 125. 133.]
532 cord_individual_obj[indivial_i,:] = [ 3. 12. 102. 114.]
533 cord_individual_obj[indivial_i,:] = [ 4. 10. 111. 121.]
534 cord_individual_obj[indivial_i,:] = [ 5. 11. 75. 86.]
535 cord_individual_obj[indivial_i,:] = [ 6. 9. 51. 60.]
536 cord_individual_obj[indivial_i,:] = [ 7. 10. 77. 87.]
537 cord_individual_obj[indivial_i,:] = [ 8. 10. 108. 118.]
538 cord_individual_obj[indivial_i,:] = [ 9. 10. 70. 80.]
539 cord_individual_obj[indivial_i,:] = [10. 9. 78. 87.]
540 cord_individual_obj[indivial_i,:] = [11. 10. 87. 97.]
541 cord_individual_obj[indivial_i,:] = [12. 10. 89. 99.]
542 cord_individual_obj[indivial_i,:] = [13. 10. 99. 109.]
543 cord_individual_obj[indivial_i,:] = [14. 11. 130. 141.]
544 cord_individual_obj[indivial_i,:] = [15. 10. 124. 134.]
545 cord_individual_obj[indivial_i,:] = [16. 9. 82. 91.]
546 cord_individual_obj[indivial_i,:] = [17. 10. 77. 87.]
547 cord_individual_obj[indivial_i,:] = [18. 9. 87. 96.]
548 cord_individual_obj[indivial_i,:] = [19. 11. 103. 114.]
549 cord_individual_obj[indivial_i,:] = [20. 9. 112. 121.]
550 cord_individual_obj[indivial_i,:] = [21. 9. 123. 132.]
551 cord_individual_obj[indivial_i,:] = [22. 8. 130. 138.]
552 cord_individual_obj[indivial_i,:] = [23. 9. 81. 90.]
553 cord_individual_obj[indivial_i,:] = [24. 11. 76. 87.]
554
555 min(cord_individual_obj[:, 3]) = 60.0
556 histol_G_best_iter[iter, 3] = 60.0
557 Begin iteration:
558
559 iter = 17
560 cord_individual_obj[indivial_i,:] = [ 0. 10. 116. 126.]
561 cord_individual_obj[indivial_i,:] = [ 1. 9. 101. 110.]
562 cord_individual_obj[indivial_i,:] = [ 2. 12. 83. 95.]
563 cord_individual_obj[indivial_i,:] = [ 3. 11. 98. 109.]
564 cord_individual_obj[indivial_i,:] = [ 4. 10. 106. 116.]
565 cord_individual_obj[indivial_i,:] = [ 5. 11. 155. 166.]
566 cord_individual_obj[indivial_i,:] = [ 6. 11. 75. 86.]
567 cord_individual_obj[indivial_i,:] = [ 7. 10. 78. 88.]
568 cord_individual_obj[indivial_i,:] = [ 8. 10. 139. 149.]
569 cord_individual_obj[indivial_i,:] = [ 9. 10. 99. 109.]
570 cord_individual_obj[indivial_i,:] = [10. 10. 109. 119.]
571 cord_individual_obj[indivial_i,:] = [11. 8. 124. 132.]
572 cord_individual_obj[indivial_i,:] = [12. 11. 116. 127.]
573 cord_individual_obj[indivial_i,:] = [13. 10. 152. 162.]
574 cord_individual_obj[indivial_i,:] = [14. 9. 51. 60.]
575 cord_individual_obj[indivial_i,:] = [15. 10. 115. 125.]
576 cord_individual_obj[indivial_i,:] = [16. 9. 104. 113.]
577 cord_individual_obj[indivial_i,:] = [17. 11. 93. 104.]
578 cord_individual_obj[indivial_i,:] = [18. 7. 79. 86.]
579 cord_individual_obj[indivial_i,:] = [19. 10. 68. 78.]
580 cord_individual_obj[indivial_i,:] = [20. 11. 144. 155.]
581 cord_individual_obj[indivial_i,:] = [21. 8. 108. 116.]
582 cord_individual_obj[indivial_i,:] = [22. 11. 87. 98.]
583 cord_individual_obj[indivial_i,:] = [23. 11. 108. 119.]

```

```

584     cord_individual_obj[indivial_i, :] = [ 24. 10. 134. 144.]
585
586     min(cord_individual_obj[:, 3]) = 60.0
587     historl_G_best_iter[iter, 3] = 60.0
588 Begin iteration:
589
590 iter = 18
591     cord_individual_obj[indivial_i, :] = [ 0. 9. 125. 134.]
592     cord_individual_obj[indivial_i, :] = [ 1. 11. 120. 131.]
593     cord_individual_obj[indivial_i, :] = [ 2. 11. 82. 93.]
594     cord_individual_obj[indivial_i, :] = [ 3. 12. 114. 126.]
595     cord_individual_obj[indivial_i, :] = [ 4. 10. 78. 88.]
596     cord_individual_obj[indivial_i, :] = [ 5. 9. 51. 60.]
597     cord_individual_obj[indivial_i, :] = [ 6. 13. 106. 119.]
598     cord_individual_obj[indivial_i, :] = [ 7. 9. 158. 167.]
599     cord_individual_obj[indivial_i, :] = [ 8. 8. 138. 146.]
600     cord_individual_obj[indivial_i, :] = [ 9. 9. 87. 96.]
601     cord_individual_obj[indivial_i, :] = [10. 10. 80. 90.]
602     cord_individual_obj[indivial_i, :] = [11. 9. 174. 183.]
603     cord_individual_obj[indivial_i, :] = [12. 13. 104. 117.]
604     cord_individual_obj[indivial_i, :] = [13. 13. 118. 131.]
605     cord_individual_obj[indivial_i, :] = [14. 11. 79. 90.]
606     cord_individual_obj[indivial_i, :] = [15. 10. 75. 85.]
607     cord_individual_obj[indivial_i, :] = [16. 11. 129. 140.]
608     cord_individual_obj[indivial_i, :] = [17. 9. 111. 120.]
609     cord_individual_obj[indivial_i, :] = [18. 8. 97. 105.]
610     cord_individual_obj[indivial_i, :] = [19. 12. 183. 195.]
611     cord_individual_obj[indivial_i, :] = [20. 10. 93. 103.]
612     cord_individual_obj[indivial_i, :] = [21. 8. 87. 95.]
613     cord_individual_obj[indivial_i, :] = [22. 12. 102. 114.]
614     cord_individual_obj[indivial_i, :] = [23. 11. 98. 109.]
615     cord_individual_obj[indivial_i, :] = [24. 10. 71. 81.]
616
617     min(cord_individual_obj[:, 3]) = 60.0
618     historl_G_best_iter[iter, 3] = 60.0
619 Begin iteration:
620
621 iter = 19
622     cord_individual_obj[indivial_i, :] = [ 0. 10. 102. 112.]
623     cord_individual_obj[indivial_i, :] = [ 1. 9. 90. 99.]
624     cord_individual_obj[indivial_i, :] = [ 2. 11. 73. 84.]
625     cord_individual_obj[indivial_i, :] = [ 3. 10. 101. 111.]
626     cord_individual_obj[indivial_i, :] = [ 4. 11. 65. 76.]
627     cord_individual_obj[indivial_i, :] = [ 5. 10. 88. 98.]
628     cord_individual_obj[indivial_i, :] = [ 6. 10. 72. 82.]
629     cord_individual_obj[indivial_i, :] = [ 7. 10. 102. 112.]
630     cord_individual_obj[indivial_i, :] = [ 8. 9. 154. 163.]
631     cord_individual_obj[indivial_i, :] = [ 9. 9. 78. 87.]
632     cord_individual_obj[indivial_i, :] = [10. 9. 92. 101.]
633     cord_individual_obj[indivial_i, :] = [11. 10. 101. 111.]
634     cord_individual_obj[indivial_i, :] = [12. 10. 76. 86.]
635     cord_individual_obj[indivial_i, :] = [13. 11. 92. 103.]
636     cord_individual_obj[indivial_i, :] = [14. 12. 109. 121.]
637     cord_individual_obj[indivial_i, :] = [15. 8. 85. 93.]
638     cord_individual_obj[indivial_i, :] = [16. 10. 83. 93.]
639     cord_individual_obj[indivial_i, :] = [17. 10. 79. 89.]
640     cord_individual_obj[indivial_i, :] = [18. 8. 112. 120.]
641     cord_individual_obj[indivial_i, :] = [19. 9. 51. 60.]
642     cord_individual_obj[indivial_i, :] = [20. 10. 113. 123.]
643     cord_individual_obj[indivial_i, :] = [21. 11. 90. 101.]
644     cord_individual_obj[indivial_i, :] = [22. 9. 124. 133.]
645     cord_individual_obj[indivial_i, :] = [23. 10. 68. 78.]
646     cord_individual_obj[indivial_i, :] = [24. 11. 80. 91.]
647
648     min(cord_individual_obj[:, 3]) = 60.0
649     historl_G_best_iter[iter, 3] = 60.0
650 Begin iteration:
651
652 iter = 20
653     cord_individual_obj[indivial_i, :] = [ 0. 10. 103. 113.]
654     cord_individual_obj[indivial_i, :] = [ 1. 11. 98. 109.]
655     cord_individual_obj[indivial_i, :] = [ 2. 9. 61. 70.]
656     cord_individual_obj[indivial_i, :] = [ 3. 10. 106. 116.]
657     cord_individual_obj[indivial_i, :] = [ 4. 11. 96. 107.]
658     cord_individual_obj[indivial_i, :] = [ 5. 9. 104. 113.]
659     cord_individual_obj[indivial_i, :] = [ 6. 9. 95. 104.]
660     cord_individual_obj[indivial_i, :] = [ 7. 11. 122. 133.]
661     cord_individual_obj[indivial_i, :] = [ 8. 9. 51. 60.]
662     cord_individual_obj[indivial_i, :] = [ 9. 9. 66. 75.]
663     cord_individual_obj[indivial_i, :] = [10. 9. 93. 102.]
664     cord_individual_obj[indivial_i, :] = [11. 8. 157. 165.]
665     cord_individual_obj[indivial_i, :] = [12. 11. 94. 105.]
666     cord_individual_obj[indivial_i, :] = [13. 10. 90. 100.]
667     cord_individual_obj[indivial_i, :] = [14. 11. 55. 66.]

```

```

668 cord_individual_obj[indivial_i,:] = [ 15. 9. 127. 136.]
669 cord_individual_obj[indivial_i,:] = [ 16. 11. 123. 134.]
670 cord_individual_obj[indivial_i,:] = [ 17. 10. 125. 135.]
671 cord_individual_obj[indivial_i,:] = [18. 8. 87. 95.]
672 cord_individual_obj[indivial_i,:] = [ 19. 9. 103. 112.]
673 cord_individual_obj[indivial_i,:] = [ 20. 9. 98. 107.]
674 cord_individual_obj[indivial_i,:] = [21. 8. 79. 87.]
675 cord_individual_obj[indivial_i,:] = [ 22. 10. 141. 151.]
676 cord_individual_obj[indivial_i,:] = [ 23. 10. 97. 107.]
677 cord_individual_obj[indivial_i,:] = [ 24. 10. 182. 192.]
678
679 min(cord_individual_obj[:, 3]) = 60.0
680 historl_G_best_iter[iter, 3] = 60.0
681 Iteration calculate over
682
683
684
685
686 All item are in Bin and:
687 Bin area = 1080
688 Real_area = 223.0
689 Proportion_of_area = 0.2064814814814815
690 BEST_CHROM =
691 berth: [ 2.5 6.5 4. 10. 14. 2.5 11. 4. 16.5 15.5 9.5 23. 17.5 24.
692 3.5 24.5]
693 time: [4. 4. 7. 2. 4. 6. 0. 0. 2. 6. 4. 7. 0. 0. 2. 3.]
694 num_QC: [2. 1. 3. 3. 2. 5. 3. 5. 3. 3. 3. 3. 2. 5. 2.]
695 Objective function values and some other indicators:
696 Obj0 = 9.00 Obj1 = 51.00 Obj0 + Obj1 = 60.00
697 Total movement of crane: 0.00
698 Total waiting time in berth position: 51.00
699 Total index of q during berthing: 862.00
700 Specific arrangement for each vessel:
701 V_id: 0 li: 5.0 xi: 2.5 bow of i: 0.0 tail of i: 5.0 gama_i0: 4.0 gama_i1: 5.0
60.0 work load gap_i: 0 gama_i1 + 1: 6.0 gama_i1 - gama_i0: 1.0 duration_time_i: 2.0 demand_i: 60.0 work load_i:
702 V_id: 1 li: 3.0 xi: 6.5 bow of i: 5.0 tail of i: 8.0 gama_i0: 4.0 gama_i1: 6.0
60.0 work load gap_i: 0 gama_i1 + 1: 7.0 gama_i1 - gama_i0: 2.0 duration_time_i: 3.0 demand_i: 60.0 work load_i:
703 V_id: 2 li: 8.0 xi: 4.0 bow of i: 0.0 tail of i: 8.0 gama_i0: 7.0 gama_i1: 9.0
load_i: 140.0 work load gap_i: 0 gama_i1 + 1: 10.0 gama_i1 - gama_i0: 2.0 duration_time_i: 3.0 demand_i: 140.0 work
704 V_id: 3 li: 6.0 xi: 10.0 bow of i: 7.0 tail of i: 13.0 gama_i0: 2.0 gama_i1: 3
load_i: 80.0 work load gap_i: 0 gama_i1 + 1: 4.0 gama_i1 - gama_i0: 1.0 duration_time_i: 2.0 demand_i: 80.0 work
705 V_id: 4 li: 6.0 xi: 14.0 bow of i: 11.0 tail of i: 17.0 gama_i0: 4.0 gama_i1: 5
load_i: 60.0 work load gap_i: 0 gama_i1 + 1: 6.0 gama_i1 - gama_i0: 1.0 duration_time_i: 2.0 demand_i: 60.0 work
706 V_id: 5 li: 5.0 xi: 2.5 bow of i: 0.0 tail of i: 5.0 gama_i0: 6.0 gama_i1: 6.0
100.0 work load gap_i: 0 gama_i1 + 1: 7.0 gama_i1 - gama_i0: 0.0 duration_time_i: 1.0 demand_i: 100.0 work load_i:
707 V_id: 6 li: 6.0 xi: 11.0 bow of i: 8.0 tail of i: 14.0 gama_i0: 0.0 gama_i1: 1
load_i: 120.0 work load gap_i: 0 gama_i1 + 1: 2.0 gama_i1 - gama_i0: 1.0 duration_time_i: 2.0 demand_i: 120.0 work
708 V_id: 7 li: 8.0 xi: 4.0 bow of i: 0.0 tail of i: 8.0 gama_i0: 0.0 gama_i1: 1.0
160.0 work load gap_i: 0 gama_i1 + 1: 2.0 gama_i1 - gama_i0: 1.0 duration_time_i: 2.0 demand_i: 160.0 work load_i:
709 V_id: 8 li: 7.0 xi: 16.5 bow of i: 13.0 tail of i: 20.0 gama_i0: 2.0 gama_i1: 2
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: 9 li: 9.0 xi: 15.5 bow of i: 11.0 tail of i: 20.0 gama_i0: 6.0 gama_i1: 8
load_i: 140.0 work load gap_i: 0 gama_i1 + 1: 9.0 gama_i1 - gama_i0: 2.0 duration_time_i: 3.0 demand_i: 140.0 work
711 V_id: 10 li: 3.0 xi: 9.5 bow of i: 8.0 tail of i: 11.0 gama_i0: 4.0 gama_i1: 6
load_i: 160.0 work load gap_i: 0 gama_i1 + 1: 7.0 gama_i1 - gama_i0: 2.0 duration_time_i: 3.0 demand_i: 160.0 work
712 V_id: 11 li: 6.0 xi: 23.0 bow of i: 20.0 tail of i: 26.0 gama_i0: 7.0 gama_i1: 1
load_i: 90.0 work load gap_i: 0 gama_i1 + 1: 10.0 gama_i1 - gama_i0: 2.0 duration_time_i: 3.0 demand_i: 140.0 work
713 V_id: 12 li: 7.0 xi: 17.5 bow of i: 14.0 tail of i: 21.0 gama_i0: 0.0 gama_i1: 1
load_i: 100.0 work load gap_i: 0 gama_i1 + 1: 2.0 gama_i1 - gama_i0: 1.0 duration_time_i: 2.0 demand_i: 100.0 work
714 V_id: 13 li: 6.0 xi: 24.0 bow of i: 21.0 tail of i: 27.0 gama_i0: 0.0 gama_i1: 1
load_i: 100.0 work load gap_i: 0 gama_i1 + 1: 3.0 gama_i1 - gama_i0: 2.0 duration_time_i: 3.0 demand_i: 100.0 work
715 V_id: 14 li: 7.0 xi: 3.5 bow of i: 0.0 tail of i: 7.0 gama_i0: 2.0 gama_i1: 3.0
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:
716 V_id: 15 li: 9.0 xi: 24.5 bow of i: 20.0 tail of i: 29.0 gama_i0: 3.0 gama_i1: 1
load_i: 60.0 work load gap_i: 0 gama_i1 + 1: 7.0 gama_i1 - gama_i0: 3.0 duration_time_i: 4.0 demand_i: 160.0 work
717
718 Algorithm finished and the total CPU time: 481 s
719 End

```