

unknown

```

1 "E:\我的云盘\3 项目\我的项目\1 项目\BACAP\1_LW_00002\6 0000\2 python code\01_My_Python_Code\Scripts\python.exe" "D:\Python\Pycharm\setrouted\PyCharm Community Edition 2021.2.3\plugins\python-ce\helpers\pydev\pydevconsole.py" --mode=client --port=19651
2
3 import sys; print('Python %s on %s' % (sys.version, sys.platform))
4 sys.path.append(['E:\我的云盘\3 项目\我的项目\1 项目\BACAP\1_LW_00002\6 0000\2 python code\01_My_Python_Code', 'E:/1 项目/3 项目/1 项目/1 项目/1_LW_00002/6 0000/2 python code/01_My_Python_Code'])
5
6 PyDev console: starting.
7
8 Python 3.9.7 (tags/v3.9.7:1016ef3, Aug 30 2021, 20:19:38) [MSC v.1929 64 bit (AMD64)] on win32
9 >>> runfile('E:/1 项目/3 项目/1 项目/1 项目/1_LW_00002/6 0000/2 python code/01_My_Python_Code/main_BACAP_offical_PSO_2D_Bin_berth_line.py', wdir='E:/1 项目/3 项目/1 项目/1 项目/1_LW_00002/6 0000/2 python code/01_My_Python_Code')
10 Backend TkAgg is interactive backend. Turning interactive mode on.
11 Waiting 1s.....
12
13 This is the R_6_1_standerd_test.xlsx optimization process.
14
15 Start
16   Read basic data
17     V = 6
18     T = 36
19     Q = 23
20     L = 30
21 PSO parameter setting:
22   maxIter_num = 30
23   W_inertia = 1.5
24   oder_type_num = 25
25   c1 = 1.0
26   c2 = 2.0
27   r1 = 0.8385889694118298
28   r2 = 0.8385889694118298
29 Begin iteration:
30
31 iter = 0
32   cord_individual_obj[individual_i, :] = [ 0.  4.  50.  54.]
33   cord_individual_obj[individual_i, :] = [ 1.  5.  38.  43.]
34   cord_individual_obj[individual_i, :] = [ 2.  5.  18.  23.]
35   cord_individual_obj[individual_i, :] = [ 3.  4.  58.  62.]
36   cord_individual_obj[individual_i, :] = [ 4.  4.  38.  42.]
37   cord_individual_obj[individual_i, :] = [ 5.  5.  74.  79.]
38   cord_individual_obj[individual_i, :] = [ 6.  5.  60.  65.]
39   cord_individual_obj[individual_i, :] = [ 7.  4.  60.  64.]
40   cord_individual_obj[individual_i, :] = [ 8.  4.  76.  80.]
41   cord_individual_obj[individual_i, :] = [ 9.  5.  18.  23.]
42   cord_individual_obj[individual_i, :] = [10.  4.  34.  38.]
43   cord_individual_obj[individual_i, :] = [11.  4.  8.  12.]
44   cord_individual_obj[individual_i, :] = [12.  4.  60.  64.]
45   cord_individual_obj[individual_i, :] = [13.  5.  28.  33.]
46   cord_individual_obj[individual_i, :] = [14.  5.  22.  27.]
47   cord_individual_obj[individual_i, :] = [15.  4.  36.  40.]
48   cord_individual_obj[individual_i, :] = [16.  5.  18.  23.]
49   cord_individual_obj[individual_i, :] = [17.  4.  34.  38.]
50   cord_individual_obj[individual_i, :] = [18.  6.  44.  50.]
51   cord_individual_obj[individual_i, :] = [19.  4.  24.  28.]
52   cord_individual_obj[individual_i, :] = [20.  6.  18.  24.]
53   cord_individual_obj[individual_i, :] = [21.  5.  26.  31.]
54   cord_individual_obj[individual_i, :] = [22.  6.  8.  14.]
55   cord_individual_obj[individual_i, :] = [23.  5.  48.  53.]
56   cord_individual_obj[individual_i, :] = [24.  5.  8.  13.]
57
58 min(cord_individual_obj[:, 3]) = 12.0
59 histor1_G_best_iter[iter, 3] = 12.0
60 Begin iteration:
61
62 iter = 1
63   cord_individual_obj[individual_i, :] = [ 0.  4.  18.  22.]
64   cord_individual_obj[individual_i, :] = [ 1.  5.  32.  37.]
65   cord_individual_obj[individual_i, :] = [ 2.  4.  54.  58.]
66   cord_individual_obj[individual_i, :] = [ 3.  5.  32.  37.]
67   cord_individual_obj[individual_i, :] = [ 4.  5.  18.  23.]
68   cord_individual_obj[individual_i, :] = [ 5.  4.  18.  22.]
69   cord_individual_obj[individual_i, :] = [ 6.  5.  38.  43.]
70   cord_individual_obj[individual_i, :] = [ 7.  4.  18.  22.]
71   cord_individual_obj[individual_i, :] = [ 8.  4.  8.  12.]
72   cord_individual_obj[individual_i, :] = [ 9.  6.  24.  30.]
73   cord_individual_obj[individual_i, :] = [10.  6.  8.  14.]
74   cord_individual_obj[individual_i, :] = [11.  4.  44.  48.]
75   cord_individual_obj[individual_i, :] = [12.  5.  90.  95.]
76   cord_individual_obj[individual_i, :] = [13.  4.  24.  28.]
77   cord_individual_obj[individual_i, :] = [14.  6.  8.  14.]
78   cord_individual_obj[individual_i, :] = [15.  4.  32.  36.]
79   cord_individual_obj[individual_i, :] = [16.  4.  24.  28.]

```

```

80  cord_individual_obj[indivial_i,:] = [17. 6. 18. 24.]
81  cord_individual_obj[indivial_i,:] = [18. 4. 144. 148.]
82  cord_individual_obj[indivial_i,:] = [19. 6. 12. 18.]
83  cord_individual_obj[indivial_i,:] = [20. 5. 26. 31.]
84  cord_individual_obj[indivial_i,:] = [21. 5. 58. 63.]
85  cord_individual_obj[indivial_i,:] = [22. 6. 8. 14.]
86  cord_individual_obj[indivial_i,:] = [23. 4. 32. 36.]
87  cord_individual_obj[indivial_i,:] = [24. 6. 8. 14.]
88
89 min(cord_individual_obj[:,3]) = 12.0
90 historl_G_best_iter[iter,3] = 12.0
91 Begin iteration:
92
93 iter = 2
94  cord_individual_obj[indivial_i,:] = [ 0. 6. 40. 46.]
95  cord_individual_obj[indivial_i,:] = [ 1. 4. 8. 12.]
96  cord_individual_obj[indivial_i,:] = [ 2. 4. 130. 134.]
97  cord_individual_obj[indivial_i,:] = [ 3. 5. 16. 21.]
98  cord_individual_obj[indivial_i,:] = [ 4. 5. 8. 13.]
99  cord_individual_obj[indivial_i,:] = [ 5. 6. 8. 14.]
100 cord_individual_obj[indivial_i,:] = [ 6. 5. 32. 37.]
101 cord_individual_obj[indivial_i,:] = [ 7. 4. 36. 40.]
102 cord_individual_obj[indivial_i,:] = [ 8. 4. 106. 110.]
103 cord_individual_obj[indivial_i,:] = [ 9. 4. 46. 50.]
104 cord_individual_obj[indivial_i,:] = [10. 6. 16. 22.]
105 cord_individual_obj[indivial_i,:] = [11. 4. 32. 36.]
106 cord_individual_obj[indivial_i,:] = [12. 4. 26. 30.]
107 cord_individual_obj[indivial_i,:] = [13. 6. 14. 20.]
108 cord_individual_obj[indivial_i,:] = [14. 4. 30. 34.]
109 cord_individual_obj[indivial_i,:] = [15. 4. 32. 36.]
110 cord_individual_obj[indivial_i,:] = [16. 6. 8. 14.]
111 cord_individual_obj[indivial_i,:] = [17. 6. 8. 14.]
112 cord_individual_obj[indivial_i,:] = [18. 4. 8. 12.]
113 cord_individual_obj[indivial_i,:] = [19. 6. 56. 62.]
114 cord_individual_obj[indivial_i,:] = [20. 6. 8. 14.]
115 cord_individual_obj[indivial_i,:] = [21. 5. 80. 85.]
116 cord_individual_obj[indivial_i,:] = [22. 5. 54. 59.]
117 cord_individual_obj[indivial_i,:] = [23. 4. 26. 30.]
118 cord_individual_obj[indivial_i,:] = [24. 6. 8. 14.]
119
120 min(cord_individual_obj[:,3]) = 12.0
121 historl_G_best_iter[iter,3] = 12.0
122 Begin iteration:
123
124 iter = 3
125  cord_individual_obj[indivial_i,:] = [ 0. 6. 60. 66.]
126  cord_individual_obj[indivial_i,:] = [ 1. 5. 52. 57.]
127  cord_individual_obj[indivial_i,:] = [ 2. 4. 8. 12.]
128  cord_individual_obj[indivial_i,:] = [ 3. 5. 60. 65.]
129  cord_individual_obj[indivial_i,:] = [ 4. 5. 30. 35.]
130  cord_individual_obj[indivial_i,:] = [ 5. 4. 18. 22.]
131  cord_individual_obj[indivial_i,:] = [ 6. 5. 38. 43.]
132  cord_individual_obj[indivial_i,:] = [ 7. 4. 18. 22.]
133  cord_individual_obj[indivial_i,:] = [ 8. 4. 98. 102.]
134  cord_individual_obj[indivial_i,:] = [ 9. 6. 24. 30.]
135  cord_individual_obj[indivial_i,:] = [10. 6. 8. 14.]
136  cord_individual_obj[indivial_i,:] = [11. 4. 36. 40.]
137  cord_individual_obj[indivial_i,:] = [12. 5. 48. 53.]
138  cord_individual_obj[indivial_i,:] = [13. 6. 14. 20.]
139  cord_individual_obj[indivial_i,:] = [14. 6. 8. 14.]
140  cord_individual_obj[indivial_i,:] = [15. 4. 32. 36.]
141  cord_individual_obj[indivial_i,:] = [16. 6. 8. 14.]
142  cord_individual_obj[indivial_i,:] = [17. 6. 8. 14.]
143  cord_individual_obj[indivial_i,:] = [18. 4. 108. 112.]
144  cord_individual_obj[indivial_i,:] = [19. 6. 12. 18.]
145  cord_individual_obj[indivial_i,:] = [20. 6. 8. 14.]
146  cord_individual_obj[indivial_i,:] = [21. 4. 82. 86.]
147  cord_individual_obj[indivial_i,:] = [22. 6. 8. 14.]
148  cord_individual_obj[indivial_i,:] = [23. 4. 78. 82.]
149  cord_individual_obj[indivial_i,:] = [24. 6. 8. 14.]
150
151 min(cord_individual_obj[:,3]) = 12.0
152 historl_G_best_iter[iter,3] = 12.0
153 Begin iteration:
154
155 iter = 4
156  cord_individual_obj[indivial_i,:] = [ 0. 6. 60. 66.]
157  cord_individual_obj[indivial_i,:] = [ 1. 5. 32. 37.]
158  cord_individual_obj[indivial_i,:] = [ 2. 4. 108. 112.]
159  cord_individual_obj[indivial_i,:] = [ 3. 5. 24. 29.]
160  cord_individual_obj[indivial_i,:] = [ 4. 4. 18. 22.]
161  cord_individual_obj[indivial_i,:] = [ 5. 4. 18. 22.]
162  cord_individual_obj[indivial_i,:] = [ 6. 5. 78. 83.]
163  cord_individual_obj[indivial_i,:] = [ 7. 4. 18. 22.]

```

```

164 cord_individual_obj[indivial_i,:] = [ 8. 4. 26. 30.]
165 cord_individual_obj[indivial_i,:] = [ 9. 6. 30. 36.]
166 cord_individual_obj[indivial_i,:] = [10. 4. 16. 20.]
167 cord_individual_obj[indivial_i,:] = [11. 4. 32. 36.]
168 cord_individual_obj[indivial_i,:] = [12. 5. 8. 13.]
169 cord_individual_obj[indivial_i,:] = [13. 6. 38. 44.]
170 cord_individual_obj[indivial_i,:] = [14. 6. 8. 14.]
171 cord_individual_obj[indivial_i,:] = [15. 4. 32. 36.]
172 cord_individual_obj[indivial_i,:] = [16. 6. 12. 18.]
173 cord_individual_obj[indivial_i,:] = [17. 6. 8. 14.]
174 cord_individual_obj[indivial_i,:] = [18. 4. 8. 12.]
175 cord_individual_obj[indivial_i,:] = [19. 4. 44. 48.]
176 cord_individual_obj[indivial_i,:] = [20. 6. 18. 24.]
177 cord_individual_obj[indivial_i,:] = [21. 5. 54. 59.]
178 cord_individual_obj[indivial_i,:] = [22. 5. 32. 37.]
179 cord_individual_obj[indivial_i,:] = [23. 4. 82. 86.]
180 cord_individual_obj[indivial_i,:] = [24. 4. 18. 22.]
181
182 min(cord_individual_obj[:,3]) = 12.0
183 historl_G_best_iter[iter,3] = 12.0
184 Begin iteration:
185
186 iter = 5
187 cord_individual_obj[indivial_i,:] = [ 0. 4. 8. 12.]
188 cord_individual_obj[indivial_i,:] = [ 1. 5. 52. 57.]
189 cord_individual_obj[indivial_i,:] = [ 2. 4. 8. 12.]
190 cord_individual_obj[indivial_i,:] = [ 3. 4. 32. 36.]
191 cord_individual_obj[indivial_i,:] = [ 4. 5. 32. 37.]
192 cord_individual_obj[indivial_i,:] = [ 5. 4. 32. 36.]
193 cord_individual_obj[indivial_i,:] = [ 6. 4. 38. 42.]
194 cord_individual_obj[indivial_i,:] = [ 7. 4. 56. 60.]
195 cord_individual_obj[indivial_i,:] = [ 8. 4. 32. 36.]
196 cord_individual_obj[indivial_i,:] = [ 9. 4. 50. 54.]
197 cord_individual_obj[indivial_i,:] = [10. 4. 32. 36.]
198 cord_individual_obj[indivial_i,:] = [11. 4. 36. 40.]
199 cord_individual_obj[indivial_i,:] = [12. 5. 8. 13.]
200 cord_individual_obj[indivial_i,:] = [13. 4. 26. 30.]
201 cord_individual_obj[indivial_i,:] = [14. 4. 44. 48.]
202 cord_individual_obj[indivial_i,:] = [15. 4. 32. 36.]
203 cord_individual_obj[indivial_i,:] = [16. 4. 36. 40.]
204 cord_individual_obj[indivial_i,:] = [17. 4. 12. 16.]
205 cord_individual_obj[indivial_i,:] = [18. 4. 108. 112.]
206 cord_individual_obj[indivial_i,:] = [19. 6. 8. 14.]
207 cord_individual_obj[indivial_i,:] = [20. 5. 44. 49.]
208 cord_individual_obj[indivial_i,:] = [21. 5. 44. 49.]
209 cord_individual_obj[indivial_i,:] = [22. 6. 8. 14.]
210 cord_individual_obj[indivial_i,:] = [23. 4. 32. 36.]
211 cord_individual_obj[indivial_i,:] = [24. 5. 42. 47.]
212
213 min(cord_individual_obj[:,3]) = 12.0
214 historl_G_best_iter[iter,3] = 12.0
215 Begin iteration:
216
217 iter = 6
218 cord_individual_obj[indivial_i,:] = [ 0. 4. 38. 42.]
219 cord_individual_obj[indivial_i,:] = [ 1. 5. 20. 25.]
220 cord_individual_obj[indivial_i,:] = [ 2. 4. 32. 36.]
221 cord_individual_obj[indivial_i,:] = [ 3. 5. 20. 25.]
222 cord_individual_obj[indivial_i,:] = [ 4. 5. 12. 17.]
223 cord_individual_obj[indivial_i,:] = [ 5. 4. 38. 42.]
224 cord_individual_obj[indivial_i,:] = [ 6. 5. 20. 25.]
225 cord_individual_obj[indivial_i,:] = [ 7. 4. 48. 52.]
226 cord_individual_obj[indivial_i,:] = [ 8. 4. 78. 82.]
227 cord_individual_obj[indivial_i,:] = [ 9. 6. 48. 54.]
228 cord_individual_obj[indivial_i,:] = [10. 6. 48. 54.]
229 cord_individual_obj[indivial_i,:] = [11. 4. 44. 48.]
230 cord_individual_obj[indivial_i,:] = [12. 5. 20. 25.]
231 cord_individual_obj[indivial_i,:] = [13. 6. 24. 30.]
232 cord_individual_obj[indivial_i,:] = [14. 6. 12. 18.]
233 cord_individual_obj[indivial_i,:] = [15. 4. 36. 40.]
234 cord_individual_obj[indivial_i,:] = [16. 4. 48. 52.]
235 cord_individual_obj[indivial_i,:] = [17. 6. 12. 18.]
236 cord_individual_obj[indivial_i,:] = [18. 4. 8. 12.]
237 cord_individual_obj[indivial_i,:] = [19. 4. 30. 34.]
238 cord_individual_obj[indivial_i,:] = [20. 4. 12. 16.]
239 cord_individual_obj[indivial_i,:] = [21. 5. 84. 89.]
240 cord_individual_obj[indivial_i,:] = [22. 5. 30. 35.]
241 cord_individual_obj[indivial_i,:] = [23. 4. 72. 76.]
242 cord_individual_obj[indivial_i,:] = [24. 5. 12. 17.]
243
244 min(cord_individual_obj[:,3]) = 12.0
245 historl_G_best_iter[iter,3] = 12.0
246 Begin iteration:
247

```

```

248 iter = 7
249 cord_individual_obj[indivial_i, :] = [ 0.  4. 44. 48.]
250 cord_individual_obj[indivial_i, :] = [ 1.  5. 44. 49.]
251 cord_individual_obj[indivial_i, :] = [ 2.  4. 20. 24.]
252 cord_individual_obj[indivial_i, :] = [ 3.  4. 20. 24.]
253 cord_individual_obj[indivial_i, :] = [ 4.  5. 40. 45.]
254 cord_individual_obj[indivial_i, :] = [ 5.  4. 44. 48.]
255 cord_individual_obj[indivial_i, :] = [ 6.  4. 20. 24.]
256 cord_individual_obj[indivial_i, :] = [ 7.  4. 28. 32.]
257 cord_individual_obj[indivial_i, :] = [ 8.  4. 46. 50.]
258 cord_individual_obj[indivial_i, :] = [ 9.  4. 36. 40.]
259 cord_individual_obj[indivial_i, :] = [10. 4. 36. 40.]
260 cord_individual_obj[indivial_i, :] = [11. 4. 36. 40.]
261 cord_individual_obj[indivial_i, :] = [12. 4. 20. 24.]
262 cord_individual_obj[indivial_i, :] = [13. 4. 46. 50.]
263 cord_individual_obj[indivial_i, :] = [14. 4. 20. 24.]
264 cord_individual_obj[indivial_i, :] = [15. 4. 44. 48.]
265 cord_individual_obj[indivial_i, :] = [16. 4. 36. 40.]
266 cord_individual_obj[indivial_i, :] = [17. 4. 26. 30.]
267 cord_individual_obj[indivial_i, :] = [18. 4. 134. 138.]
268 cord_individual_obj[indivial_i, :] = [19. 4. 30. 34.]
269 cord_individual_obj[indivial_i, :] = [20. 5. 36. 41.]
270 cord_individual_obj[indivial_i, :] = [21. 4. 8. 12.]
271 cord_individual_obj[indivial_i, :] = [22. 4. 30. 34.]
272 cord_individual_obj[indivial_i, :] = [23. 4. 46. 50.]
273 cord_individual_obj[indivial_i, :] = [24. 5. 30. 35.]
274
275 min(cord_individual_obj[:, 3]) = 12.0
276 historl_G_best_iter[iter, 3] = 12.0
277 Begin iteration:
278
279 iter = 8
280 cord_individual_obj[indivial_i, :] = [ 0.  6. 38. 44.]
281 cord_individual_obj[indivial_i, :] = [ 1.  4. 36. 40.]
282 cord_individual_obj[indivial_i, :] = [ 2.  4. 58. 62.]
283 cord_individual_obj[indivial_i, :] = [ 3.  5. 68. 73.]
284 cord_individual_obj[indivial_i, :] = [ 4.  4. 12. 16.]
285 cord_individual_obj[indivial_i, :] = [ 5.  4. 42. 46.]
286 cord_individual_obj[indivial_i, :] = [ 6.  5. 62. 67.]
287 cord_individual_obj[indivial_i, :] = [ 7.  4. 84. 88.]
288 cord_individual_obj[indivial_i, :] = [ 8.  4. 68. 72.]
289 cord_individual_obj[indivial_i, :] = [ 9.  6. 28. 34.]
290 cord_individual_obj[indivial_i, :] = [10. 6. 48. 54.]
291 cord_individual_obj[indivial_i, :] = [11. 4. 44. 48.]
292 cord_individual_obj[indivial_i, :] = [12. 5. 20. 25.]
293 cord_individual_obj[indivial_i, :] = [13. 6. 36. 42.]
294 cord_individual_obj[indivial_i, :] = [14. 6. 14. 20.]
295 cord_individual_obj[indivial_i, :] = [15. 4. 36. 40.]
296 cord_individual_obj[indivial_i, :] = [16. 6. 12. 18.]
297 cord_individual_obj[indivial_i, :] = [17. 6. 20. 26.]
298 cord_individual_obj[indivial_i, :] = [18. 4. 8. 12.]
299 cord_individual_obj[indivial_i, :] = [19. 6. 8. 14.]
300 cord_individual_obj[indivial_i, :] = [20. 5. 18. 23.]
301 cord_individual_obj[indivial_i, :] = [21. 5. 86. 91.]
302 cord_individual_obj[indivial_i, :] = [22. 6. 24. 30.]
303 cord_individual_obj[indivial_i, :] = [23. 4. 64. 68.]
304 cord_individual_obj[indivial_i, :] = [24. 6. 12. 18.]
305
306 min(cord_individual_obj[:, 3]) = 12.0
307 historl_G_best_iter[iter, 3] = 12.0
308 Begin iteration:
309
310 iter = 9
311 cord_individual_obj[indivial_i, :] = [ 0.  6. 24. 30.]
312 cord_individual_obj[indivial_i, :] = [ 1.  5. 20. 25.]
313 cord_individual_obj[indivial_i, :] = [ 2.  4. 32. 36.]
314 cord_individual_obj[indivial_i, :] = [ 3.  5. 46. 51.]
315 cord_individual_obj[indivial_i, :] = [ 4.  4. 12. 16.]
316 cord_individual_obj[indivial_i, :] = [ 5.  4. 42. 46.]
317 cord_individual_obj[indivial_i, :] = [ 6.  5. 44. 49.]
318 cord_individual_obj[indivial_i, :] = [ 7.  4. 100. 104.]
319 cord_individual_obj[indivial_i, :] = [ 8.  4. 100. 104.]
320 cord_individual_obj[indivial_i, :] = [ 9.  6. 28. 34.]
321 cord_individual_obj[indivial_i, :] = [10. 6. 48. 54.]
322 cord_individual_obj[indivial_i, :] = [11. 4. 44. 48.]
323 cord_individual_obj[indivial_i, :] = [12. 5. 20. 25.]
324 cord_individual_obj[indivial_i, :] = [13. 6. 24. 30.]
325 cord_individual_obj[indivial_i, :] = [14. 6. 8. 14.]
326 cord_individual_obj[indivial_i, :] = [15. 4. 36. 40.]
327 cord_individual_obj[indivial_i, :] = [16. 6. 8. 14.]
328 cord_individual_obj[indivial_i, :] = [17. 6. 38. 44.]
329 cord_individual_obj[indivial_i, :] = [18. 4. 46. 50.]
330 cord_individual_obj[indivial_i, :] = [19. 6. 24. 30.]
331 cord_individual_obj[indivial_i, :] = [20. 4. 12. 16.]

```

```

332     cord_individual_obj[indivial_i, :] = [21. 4. 8. 12.]
333     cord_individual_obj[indivial_i, :] = [22. 6. 24. 30.]
334     cord_individual_obj[indivial_i, :] = [23. 4. 80. 84.]
335     cord_individual_obj[indivial_i, :] = [24. 6. 8. 14.]
336
337     min(cord_individual_obj[:, 3]) = 12.0
338     historl_G_best_iter[iter, 3] = 12.0
339 Begin iteration:
340
341 iter = 10
342     cord_individual_obj[indivial_i, :] = [ 0. 4. 38. 42.]
343     cord_individual_obj[indivial_i, :] = [ 1. 5. 20. 25.]
344     cord_individual_obj[indivial_i, :] = [ 2. 4. 58. 62.]
345     cord_individual_obj[indivial_i, :] = [ 3. 5. 46. 51.]
346     cord_individual_obj[indivial_i, :] = [ 4. 4. 12. 16.]
347     cord_individual_obj[indivial_i, :] = [ 5. 4. 42. 46.]
348     cord_individual_obj[indivial_i, :] = [ 6. 5. 62. 67.]
349     cord_individual_obj[indivial_i, :] = [ 7. 4. 8. 12.]
350     cord_individual_obj[indivial_i, :] = [ 8. 4. 100. 104.]
351     cord_individual_obj[indivial_i, :] = [ 9. 6. 56. 62.]
352     cord_individual_obj[indivial_i, :] = [10. 6. 48. 54.]
353     cord_individual_obj[indivial_i, :] = [11. 4. 44. 48.]
354     cord_individual_obj[indivial_i, :] = [12. 5. 20. 25.]
355     cord_individual_obj[indivial_i, :] = [13. 6. 24. 30.]
356     cord_individual_obj[indivial_i, :] = [14. 6. 8. 14.]
357     cord_individual_obj[indivial_i, :] = [15. 4. 36. 40.]
358     cord_individual_obj[indivial_i, :] = [16. 4. 24. 28.]
359     cord_individual_obj[indivial_i, :] = [17. 6. 56. 62.]
360     cord_individual_obj[indivial_i, :] = [18. 4. 46. 50.]
361     cord_individual_obj[indivial_i, :] = [19. 6. 24. 30.]
362     cord_individual_obj[indivial_i, :] = [20. 5. 12. 17.]
363     cord_individual_obj[indivial_i, :] = [21. 5. 86. 91.]
364     cord_individual_obj[indivial_i, :] = [22. 6. 24. 30.]
365     cord_individual_obj[indivial_i, :] = [23. 4. 80. 84.]
366     cord_individual_obj[indivial_i, :] = [24. 6. 8. 14.]
367
368     min(cord_individual_obj[:, 3]) = 12.0
369     historl_G_best_iter[iter, 3] = 12.0
370 Begin iteration:
371
372 iter = 11
373     cord_individual_obj[indivial_i, :] = [ 0. 6. 44. 50.]
374     cord_individual_obj[indivial_i, :] = [ 1. 5. 38. 43.]
375     cord_individual_obj[indivial_i, :] = [ 2. 4. 68. 72.]
376     cord_individual_obj[indivial_i, :] = [ 3. 4. 44. 48.]
377     cord_individual_obj[indivial_i, :] = [ 4. 4. 18. 22.]
378     cord_individual_obj[indivial_i, :] = [ 5. 6. 8. 14.]
379     cord_individual_obj[indivial_i, :] = [ 6. 4. 38. 42.]
380     cord_individual_obj[indivial_i, :] = [ 7. 4. 66. 70.]
381     cord_individual_obj[indivial_i, :] = [ 8. 4. 8. 12.]
382     cord_individual_obj[indivial_i, :] = [ 9. 6. 20. 26.]
383     cord_individual_obj[indivial_i, :] = [10. 6. 80. 86.]
384     cord_individual_obj[indivial_i, :] = [11. 4. 32. 36.]
385     cord_individual_obj[indivial_i, :] = [12. 5. 24. 29.]
386     cord_individual_obj[indivial_i, :] = [13. 6. 24. 30.]
387     cord_individual_obj[indivial_i, :] = [14. 6. 86. 92.]
388     cord_individual_obj[indivial_i, :] = [15. 4. 8. 12.]
389     cord_individual_obj[indivial_i, :] = [16. 6. 8. 14.]
390     cord_individual_obj[indivial_i, :] = [17. 4. 52. 56.]
391     cord_individual_obj[indivial_i, :] = [18. 5. 128. 133.]
392     cord_individual_obj[indivial_i, :] = [19. 4. 68. 72.]
393     cord_individual_obj[indivial_i, :] = [20. 6. 8. 14.]
394     cord_individual_obj[indivial_i, :] = [21. 4. 80. 84.]
395     cord_individual_obj[indivial_i, :] = [22. 6. 24. 30.]
396     cord_individual_obj[indivial_i, :] = [23. 4. 20. 24.]
397     cord_individual_obj[indivial_i, :] = [24. 5. 34. 39.]
398
399     min(cord_individual_obj[:, 3]) = 12.0
400     historl_G_best_iter[iter, 3] = 12.0
401 Begin iteration:
402
403 iter = 12
404     cord_individual_obj[indivial_i, :] = [ 0. 4. 30. 34.]
405     cord_individual_obj[indivial_i, :] = [ 1. 5. 44. 49.]
406     cord_individual_obj[indivial_i, :] = [ 2. 4. 36. 40.]
407     cord_individual_obj[indivial_i, :] = [ 3. 5. 68. 73.]
408     cord_individual_obj[indivial_i, :] = [ 4. 5. 12. 17.]
409     cord_individual_obj[indivial_i, :] = [ 5. 4. 44. 48.]
410     cord_individual_obj[indivial_i, :] = [ 6. 5. 20. 25.]
411     cord_individual_obj[indivial_i, :] = [ 7. 4. 28. 32.]
412     cord_individual_obj[indivial_i, :] = [ 8. 4. 100. 104.]
413     cord_individual_obj[indivial_i, :] = [ 9. 4. 30. 34.]
414     cord_individual_obj[indivial_i, :] = [10. 4. 28. 32.]
415     cord_individual_obj[indivial_i, :] = [11. 4. 40. 44.]

```

```

416 cord_individual_obj[indivial_i,:] = [12. 5. 72. 77.]
417 cord_individual_obj[indivial_i,:] = [13. 4. 36. 40.]
418 cord_individual_obj[indivial_i,:] = [14. 4. 24. 28.]
419 cord_individual_obj[indivial_i,:] = [15. 4. 20. 24.]
420 cord_individual_obj[indivial_i,:] = [16. 4. 30. 34.]
421 cord_individual_obj[indivial_i,:] = [17. 6. 12. 18.]
422 cord_individual_obj[indivial_i,:] = [18. 4. 8. 12.]
423 cord_individual_obj[indivial_i,:] = [19. 6. 24. 30.]
424 cord_individual_obj[indivial_i,:] = [20. 3. 36. 39.]
425 cord_individual_obj[indivial_i,:] = [21. 5. 40. 45.]
426 cord_individual_obj[indivial_i,:] = [22. 4. 30. 34.]
427 cord_individual_obj[indivial_i,:] = [23. 4. 40. 44.]
428 cord_individual_obj[indivial_i,:] = [24. 6. 12. 18.]
429
430 min(cord_individual_obj[:,3]) = 12.0
431 historl_G_best_iter[iter,3] = 12.0
432 Begin iteration:
433
434 iter = 13
435 cord_individual_obj[indivial_i,:] = [ 0. 6. 40. 46.]
436 cord_individual_obj[indivial_i,:] = [ 1. 5. 36. 41.]
437 cord_individual_obj[indivial_i,:] = [ 2. 4. 54. 58.]
438 cord_individual_obj[indivial_i,:] = [ 3. 5. 24. 29.]
439 cord_individual_obj[indivial_i,:] = [ 4. 4. 18. 22.]
440 cord_individual_obj[indivial_i,:] = [ 5. 4. 34. 38.]
441 cord_individual_obj[indivial_i,:] = [ 6. 5. 44. 49.]
442 cord_individual_obj[indivial_i,:] = [ 7. 5. 52. 57.]
443 cord_individual_obj[indivial_i,:] = [ 8. 4. 8. 12.]
444 cord_individual_obj[indivial_i,:] = [ 9. 6. 66. 72.]
445 cord_individual_obj[indivial_i,:] = [10. 4. 54. 58.]
446 cord_individual_obj[indivial_i,:] = [11. 4. 44. 48.]
447 cord_individual_obj[indivial_i,:] = [12. 5. 8. 13.]
448 cord_individual_obj[indivial_i,:] = [13. 6. 12. 18.]
449 cord_individual_obj[indivial_i,:] = [14. 3. 92. 95.]
450 cord_individual_obj[indivial_i,:] = [15. 5. 32. 37.]
451 cord_individual_obj[indivial_i,:] = [16. 6. 24. 30.]
452 cord_individual_obj[indivial_i,:] = [17. 4. 62. 66.]
453 cord_individual_obj[indivial_i,:] = [18. 4. 88. 92.]
454 cord_individual_obj[indivial_i,:] = [19. 6. 12. 18.]
455 cord_individual_obj[indivial_i,:] = [20. 5. 24. 29.]
456 cord_individual_obj[indivial_i,:] = [21. 4. 94. 98.]
457 cord_individual_obj[indivial_i,:] = [22. 5. 62. 67.]
458 cord_individual_obj[indivial_i,:] = [23. 4. 38. 42.]
459 cord_individual_obj[indivial_i,:] = [24. 5. 18. 23.]
460
461 min(cord_individual_obj[:,3]) = 12.0
462 historl_G_best_iter[iter,3] = 12.0
463 Begin iteration:
464
465 iter = 14
466 cord_individual_obj[indivial_i,:] = [ 0. 4. 38. 42.]
467 cord_individual_obj[indivial_i,:] = [ 1. 5. 20. 25.]
468 cord_individual_obj[indivial_i,:] = [ 2. 4. 58. 62.]
469 cord_individual_obj[indivial_i,:] = [ 3. 5. 20. 25.]
470 cord_individual_obj[indivial_i,:] = [ 4. 5. 12. 17.]
471 cord_individual_obj[indivial_i,:] = [ 5. 4. 42. 46.]
472 cord_individual_obj[indivial_i,:] = [ 6. 5. 52. 57.]
473 cord_individual_obj[indivial_i,:] = [ 7. 4. 100. 104.]
474 cord_individual_obj[indivial_i,:] = [ 8. 4. 100. 104.]
475 cord_individual_obj[indivial_i,:] = [ 9. 6. 28. 34.]
476 cord_individual_obj[indivial_i,:] = [10. 6. 28. 34.]
477 cord_individual_obj[indivial_i,:] = [11. 4. 44. 48.]
478 cord_individual_obj[indivial_i,:] = [12. 5. 20. 25.]
479 cord_individual_obj[indivial_i,:] = [13. 6. 24. 30.]
480 cord_individual_obj[indivial_i,:] = [14. 6. 8. 14.]
481 cord_individual_obj[indivial_i,:] = [15. 4. 36. 40.]
482 cord_individual_obj[indivial_i,:] = [16. 4. 24. 28.]
483 cord_individual_obj[indivial_i,:] = [17. 6. 56. 62.]
484 cord_individual_obj[indivial_i,:] = [18. 4. 134. 138.]
485 cord_individual_obj[indivial_i,:] = [19. 6. 24. 30.]
486 cord_individual_obj[indivial_i,:] = [20. 4. 12. 16.]
487 cord_individual_obj[indivial_i,:] = [21. 4. 8. 12.]
488 cord_individual_obj[indivial_i,:] = [22. 6. 24. 30.]
489 cord_individual_obj[indivial_i,:] = [23. 4. 80. 84.]
490 cord_individual_obj[indivial_i,:] = [24. 6. 8. 14.]
491
492 min(cord_individual_obj[:,3]) = 12.0
493 historl_G_best_iter[iter,3] = 12.0
494 Begin iteration:
495
496 iter = 15
497 cord_individual_obj[indivial_i,:] = [ 0. 4. 38. 42.]
498 cord_individual_obj[indivial_i,:] = [ 1. 5. 44. 49.]
499 cord_individual_obj[indivial_i,:] = [ 2. 4. 36. 40.]

```

```

500 cord_individual_obj[indivial_i,:] = [ 3. 4. 46. 50.]
501 cord_individual_obj[indivial_i,:] = [ 4. 5. 20. 25.]
502 cord_individual_obj[indivial_i,:] = [ 5. 4. 24. 28.]
503 cord_individual_obj[indivial_i,:] = [ 6. 5. 64. 69.]
504 cord_individual_obj[indivial_i,:] = [ 7. 4. 56. 60.]
505 cord_individual_obj[indivial_i,:] = [ 8. 4. 78. 82.]
506 cord_individual_obj[indivial_i,:] = [ 9. 5. 28. 33.]
507 cord_individual_obj[indivial_i,:] = [10. 4. 48. 52.]
508 cord_individual_obj[indivial_i,:] = [11. 4. 44. 48.]
509 cord_individual_obj[indivial_i,:] = [12. 5. 20. 25.]
510 cord_individual_obj[indivial_i,:] = [13. 4. 30. 34.]
511 cord_individual_obj[indivial_i,:] = [14. 4. 18. 22.]
512 cord_individual_obj[indivial_i,:] = [15. 4. 36. 40.]
513 cord_individual_obj[indivial_i,:] = [16. 4. 30. 34.]
514 cord_individual_obj[indivial_i,:] = [17. 4. 62. 66.]
515 cord_individual_obj[indivial_i,:] = [18. 4. 8. 12.]
516 cord_individual_obj[indivial_i,:] = [19. 4. 30. 34.]
517 cord_individual_obj[indivial_i,:] = [20. 5. 28. 33.]
518 cord_individual_obj[indivial_i,:] = [21. 5. 86. 91.]
519 cord_individual_obj[indivial_i,:] = [22. 6. 24. 30.]
520 cord_individual_obj[indivial_i,:] = [23. 4. 46. 50.]
521 cord_individual_obj[indivial_i,:] = [24. 4. 12. 16.]
522
523 min(cord_individual_obj[:, 3]) = 12.0
524 histort_G_best_iter[iter, 3] = 12.0
525 Begin iteration:
526
527 iter = 16
528 cord_individual_obj[indivial_i,:] = [ 0. 4. 52. 56.]
529 cord_individual_obj[indivial_i,:] = [ 1. 5. 20. 25.]
530 cord_individual_obj[indivial_i,:] = [ 2. 4. 36. 40.]
531 cord_individual_obj[indivial_i,:] = [ 3. 5. 16. 21.]
532 cord_individual_obj[indivial_i,:] = [ 4. 5. 32. 37.]
533 cord_individual_obj[indivial_i,:] = [ 5. 4. 72. 76.]
534 cord_individual_obj[indivial_i,:] = [ 6. 4. 64. 68.]
535 cord_individual_obj[indivial_i,:] = [ 7. 4. 48. 52.]
536 cord_individual_obj[indivial_i,:] = [ 8. 4. 46. 50.]
537 cord_individual_obj[indivial_i,:] = [ 9. 4. 28. 32.]
538 cord_individual_obj[indivial_i,:] = [10. 4. 36. 40.]
539 cord_individual_obj[indivial_i,:] = [11. 4. 40. 44.]
540 cord_individual_obj[indivial_i,:] = [12. 4. 20. 24.]
541 cord_individual_obj[indivial_i,:] = [13. 4. 30. 34.]
542 cord_individual_obj[indivial_i,:] = [14. 4. 12. 16.]
543 cord_individual_obj[indivial_i,:] = [15. 4. 44. 48.]
544 cord_individual_obj[indivial_i,:] = [16. 4. 36. 40.]
545 cord_individual_obj[indivial_i,:] = [17. 4. 18. 22.]
546 cord_individual_obj[indivial_i,:] = [18. 4. 88. 92.]
547 cord_individual_obj[indivial_i,:] = [19. 4. 30. 34.]
548 cord_individual_obj[indivial_i,:] = [20. 5. 18. 23.]
549 cord_individual_obj[indivial_i,:] = [21. 4. 8. 12.]
550 cord_individual_obj[indivial_i,:] = [22. 5. 32. 37.]
551 cord_individual_obj[indivial_i,:] = [23. 4. 80. 84.]
552 cord_individual_obj[indivial_i,:] = [24. 4. 30. 34.]
553
554 min(cord_individual_obj[:, 3]) = 12.0
555 histort_G_best_iter[iter, 3] = 12.0
556 Begin iteration:
557
558 iter = 17
559 cord_individual_obj[indivial_i,:] = [ 0. 4. 38. 42.]
560 cord_individual_obj[indivial_i,:] = [ 1. 5. 20. 25.]
561 cord_individual_obj[indivial_i,:] = [ 2. 4. 58. 62.]
562 cord_individual_obj[indivial_i,:] = [ 3. 5. 68. 73.]
563 cord_individual_obj[indivial_i,:] = [ 4. 5. 20. 25.]
564 cord_individual_obj[indivial_i,:] = [ 5. 4. 42. 46.]
565 cord_individual_obj[indivial_i,:] = [ 6. 5. 56. 61.]
566 cord_individual_obj[indivial_i,:] = [ 7. 4. 36. 40.]
567 cord_individual_obj[indivial_i,:] = [ 8. 4. 86. 90.]
568 cord_individual_obj[indivial_i,:] = [ 9. 6. 36. 42.]
569 cord_individual_obj[indivial_i,:] = [10. 6. 48. 54.]
570 cord_individual_obj[indivial_i,:] = [11. 4. 44. 48.]
571 cord_individual_obj[indivial_i,:] = [12. 5. 48. 53.]
572 cord_individual_obj[indivial_i,:] = [13. 6. 24. 30.]
573 cord_individual_obj[indivial_i,:] = [14. 6. 24. 30.]
574 cord_individual_obj[indivial_i,:] = [15. 4. 36. 40.]
575 cord_individual_obj[indivial_i,:] = [16. 4. 24. 28.]
576 cord_individual_obj[indivial_i,:] = [17. 4. 62. 66.]
577 cord_individual_obj[indivial_i,:] = [18. 4. 8. 12.]
578 cord_individual_obj[indivial_i,:] = [19. 6. 24. 30.]
579 cord_individual_obj[indivial_i,:] = [20. 5. 12. 17.]
580 cord_individual_obj[indivial_i,:] = [21. 5. 86. 91.]
581 cord_individual_obj[indivial_i,:] = [22. 6. 24. 30.]
582 cord_individual_obj[indivial_i,:] = [23. 4. 46. 50.]
583 cord_individual_obj[indivial_i,:] = [24. 6. 8. 14.]

```

```

584
585 min(cord_individual_obj[:, 3]) = 12.0
586 historl_G_best_iter[iter, 3] = 12.0
587 Begin iteration:
588
589 iter = 18
590 cord_individual_obj[indivial_i, :] = [ 0.  4. 30. 34.]
591 cord_individual_obj[indivial_i, :] = [ 1.  5. 44. 49.]
592 cord_individual_obj[indivial_i, :] = [ 2.  4. 36. 40.]
593 cord_individual_obj[indivial_i, :] = [ 3.  4. 78. 82.]
594 cord_individual_obj[indivial_i, :] = [ 4.  5. 28. 33.]
595 cord_individual_obj[indivial_i, :] = [ 5.  4. 44. 48.]
596 cord_individual_obj[indivial_i, :] = [ 6.  4. 72. 76.]
597 cord_individual_obj[indivial_i, :] = [ 7.  4. 92. 96.]
598 cord_individual_obj[indivial_i, :] = [ 8.  4. 46. 50.]
599 cord_individual_obj[indivial_i, :] = [ 9.  4. 36. 40.]
600 cord_individual_obj[indivial_i, :] = [10. 4. 36. 40.]
601 cord_individual_obj[indivial_i, :] = [11. 4. 36. 40.]
602 cord_individual_obj[indivial_i, :] = [12. 5. 40. 45.]
603 cord_individual_obj[indivial_i, :] = [13. 4. 30. 34.]
604 cord_individual_obj[indivial_i, :] = [14. 4. 58. 62.]
605 cord_individual_obj[indivial_i, :] = [15. 4. 44. 48.]
606 cord_individual_obj[indivial_i, :] = [16. 4. 30. 34.]
607 cord_individual_obj[indivial_i, :] = [17. 4. 58. 62.]
608 cord_individual_obj[indivial_i, :] = [18. 4. 88. 92.]
609 cord_individual_obj[indivial_i, :] = [19. 4. 30. 34.]
610 cord_individual_obj[indivial_i, :] = [20. 5. 28. 33.]
611 cord_individual_obj[indivial_i, :] = [21. 4. 8. 12.]
612 cord_individual_obj[indivial_i, :] = [22. 4. 30. 34.]
613 cord_individual_obj[indivial_i, :] = [23. 4. 80. 84.]
614 cord_individual_obj[indivial_i, :] = [24. 4. 30. 34.]
615
616 min(cord_individual_obj[:, 3]) = 12.0
617 historl_G_best_iter[iter, 3] = 12.0
618 Begin iteration:
619
620 iter = 19
621 cord_individual_obj[indivial_i, :] = [ 0.  6. 24. 30.]
622 cord_individual_obj[indivial_i, :] = [ 1.  5. 20. 25.]
623 cord_individual_obj[indivial_i, :] = [ 2.  4. 86. 90.]
624 cord_individual_obj[indivial_i, :] = [ 3.  5. 20. 25.]
625 cord_individual_obj[indivial_i, :] = [ 4.  5. 12. 17.]
626 cord_individual_obj[indivial_i, :] = [ 5.  4. 42. 46.]
627 cord_individual_obj[indivial_i, :] = [ 6.  5. 62. 67.]
628 cord_individual_obj[indivial_i, :] = [ 7.  4. 8. 12.]
629 cord_individual_obj[indivial_i, :] = [ 8.  4. 100. 104.]
630 cord_individual_obj[indivial_i, :] = [ 9.  6. 56. 62.]
631 cord_individual_obj[indivial_i, :] = [10. 6. 48. 54.]
632 cord_individual_obj[indivial_i, :] = [11. 4. 44. 48.]
633 cord_individual_obj[indivial_i, :] = [12. 5. 48. 53.]
634 cord_individual_obj[indivial_i, :] = [13. 6. 36. 42.]
635 cord_individual_obj[indivial_i, :] = [14. 6. 16. 22.]
636 cord_individual_obj[indivial_i, :] = [15. 4. 36. 40.]
637 cord_individual_obj[indivial_i, :] = [16. 6. 8. 14.]
638 cord_individual_obj[indivial_i, :] = [17. 6. 38. 44.]
639 cord_individual_obj[indivial_i, :] = [18. 4. 96. 100.]
640 cord_individual_obj[indivial_i, :] = [19. 6. 24. 30.]
641 cord_individual_obj[indivial_i, :] = [20. 5. 18. 23.]
642 cord_individual_obj[indivial_i, :] = [21. 5. 86. 91.]
643 cord_individual_obj[indivial_i, :] = [22. 6. 24. 30.]
644 cord_individual_obj[indivial_i, :] = [23. 4. 80. 84.]
645 cord_individual_obj[indivial_i, :] = [24. 6. 8. 14.]
646
647 min(cord_individual_obj[:, 3]) = 12.0
648 historl_G_best_iter[iter, 3] = 12.0
649 Begin iteration:
650
651 iter = 20
652 cord_individual_obj[indivial_i, :] = [ 0.  4. 46. 50.]
653 cord_individual_obj[indivial_i, :] = [ 1.  5. 44. 49.]
654 cord_individual_obj[indivial_i, :] = [ 2.  4. 64. 68.]
655 cord_individual_obj[indivial_i, :] = [ 3.  4. 20. 24.]
656 cord_individual_obj[indivial_i, :] = [ 4.  5. 28. 33.]
657 cord_individual_obj[indivial_i, :] = [ 5.  4. 44. 48.]
658 cord_individual_obj[indivial_i, :] = [ 6.  4. 72. 76.]
659 cord_individual_obj[indivial_i, :] = [ 7.  4. 48. 52.]
660 cord_individual_obj[indivial_i, :] = [ 8.  4. 8. 12.]
661 cord_individual_obj[indivial_i, :] = [ 9.  4. 40. 44.]
662 cord_individual_obj[indivial_i, :] = [10. 4. 36. 40.]
663 cord_individual_obj[indivial_i, :] = [11. 4. 36. 40.]
664 cord_individual_obj[indivial_i, :] = [12. 5. 68. 73.]
665 cord_individual_obj[indivial_i, :] = [13. 4. 50. 54.]
666 cord_individual_obj[indivial_i, :] = [14. 4. 56. 60.]
667 cord_individual_obj[indivial_i, :] = [15. 4. 44. 48.]

```

```

668 cord_individual_obj[indivial_i,:] = [16. 4. 36. 40.]
669 cord_individual_obj[indivial_i,:] = [17. 4. 40. 44.]
670 cord_individual_obj[indivial_i,:] = [18. 4. 18. 22.]
671 cord_individual_obj[indivial_i,:] = [19. 4. 44. 48.]
672 cord_individual_obj[indivial_i,:] = [20. 5. 44. 49.]
673 cord_individual_obj[indivial_i,:] = [21. 5. 44. 49.]
674 cord_individual_obj[indivial_i,:] = [22. 4. 30. 34.]
675 cord_individual_obj[indivial_i,:] = [23. 4. 46. 50.]
676 cord_individual_obj[indivial_i,:] = [24. 5. 44. 49.]
677
678 min(cord_individual_obj[:,3]) = 12.0
679 historl_G_best_iter[iter, 3] = 12.0
680 Begin iteration:
681
682 iter = 21
683 cord_individual_obj[indivial_i,:] = [ 0. 4. 62. 66.]
684 cord_individual_obj[indivial_i,:] = [ 1. 5. 20. 25.]
685 cord_individual_obj[indivial_i,:] = [ 2. 4. 62. 66.]
686 cord_individual_obj[indivial_i,:] = [ 3. 5. 20. 25.]
687 cord_individual_obj[indivial_i,:] = [ 4. 5. 18. 23.]
688 cord_individual_obj[indivial_i,:] = [ 5. 4. 58. 62.]
689 cord_individual_obj[indivial_i,:] = [ 6. 4. 8. 12.]
690 cord_individual_obj[indivial_i,:] = [ 7. 4. 28. 32.]
691 cord_individual_obj[indivial_i,:] = [ 8. 4. 100. 104.]
692 cord_individual_obj[indivial_i,:] = [ 9. 6. 28. 34.]
693 cord_individual_obj[indivial_i,:] = [10. 4. 48. 52.]
694 cord_individual_obj[indivial_i,:] = [11. 4. 36. 40.]
695 cord_individual_obj[indivial_i,:] = [12. 4. 20. 24.]
696 cord_individual_obj[indivial_i,:] = [13. 6. 24. 30.]
697 cord_individual_obj[indivial_i,:] = [14. 4. 24. 28.]
698 cord_individual_obj[indivial_i,:] = [15. 4. 20. 24.]
699 cord_individual_obj[indivial_i,:] = [16. 4. 36. 40.]
700 cord_individual_obj[indivial_i,:] = [17. 6. 80. 86.]
701 cord_individual_obj[indivial_i,:] = [18. 4. 46. 50.]
702 cord_individual_obj[indivial_i,:] = [19. 6. 38. 44.]
703 cord_individual_obj[indivial_i,:] = [20. 5. 12. 17.]
704 cord_individual_obj[indivial_i,:] = [21. 4. 106. 110.]
705 cord_individual_obj[indivial_i,:] = [22. 5. 32. 37.]
706 cord_individual_obj[indivial_i,:] = [23. 4. 80. 84.]
707 cord_individual_obj[indivial_i,:] = [24. 6. 12. 18.]
708
709 min(cord_individual_obj[:,3]) = 12.0
710 historl_G_best_iter[iter, 3] = 12.0
711 Begin iteration:
712
713 iter = 22
714 cord_individual_obj[indivial_i,:] = [ 0. 6. 24. 30.]
715 cord_individual_obj[indivial_i,:] = [ 1. 4. 36. 40.]
716 cord_individual_obj[indivial_i,:] = [ 2. 4. 8. 12.]
717 cord_individual_obj[indivial_i,:] = [ 3. 5. 68. 73.]
718 cord_individual_obj[indivial_i,:] = [ 4. 5. 12. 17.]
719 cord_individual_obj[indivial_i,:] = [ 5. 4. 56. 60.]
720 cord_individual_obj[indivial_i,:] = [ 6. 5. 44. 49.]
721 cord_individual_obj[indivial_i,:] = [ 7. 4. 38. 42.]
722 cord_individual_obj[indivial_i,:] = [ 8. 5. 116. 121.]
723 cord_individual_obj[indivial_i,:] = [ 9. 5. 40. 45.]
724 cord_individual_obj[indivial_i,:] = [10. 4. 8. 12.]
725 cord_individual_obj[indivial_i,:] = [11. 4. 48. 52.]
726 cord_individual_obj[indivial_i,:] = [12. 5. 64. 69.]
727 cord_individual_obj[indivial_i,:] = [13. 4. 40. 44.]
728 cord_individual_obj[indivial_i,:] = [14. 3. 84. 87.]
729 cord_individual_obj[indivial_i,:] = [15. 4. 36. 40.]
730 cord_individual_obj[indivial_i,:] = [16. 6. 12. 18.]
731 cord_individual_obj[indivial_i,:] = [17. 4. 38. 42.]
732 cord_individual_obj[indivial_i,:] = [18. 4. 124. 128.]
733 cord_individual_obj[indivial_i,:] = [19. 4. 26. 30.]
734 cord_individual_obj[indivial_i,:] = [20. 6. 8. 14.]
735 cord_individual_obj[indivial_i,:] = [21. 4. 8. 12.]
736 cord_individual_obj[indivial_i,:] = [22. 5. 50. 55.]
737 cord_individual_obj[indivial_i,:] = [23. 4. 48. 52.]
738 cord_individual_obj[indivial_i,:] = [24. 5. 64. 69.]
739
740 min(cord_individual_obj[:,3]) = 12.0
741 historl_G_best_iter[iter, 3] = 12.0
742 Begin iteration:
743
744 iter = 23
745 cord_individual_obj[indivial_i,:] = [ 0. 4. 36. 40.]
746 cord_individual_obj[indivial_i,:] = [ 1. 5. 72. 77.]
747 cord_individual_obj[indivial_i,:] = [ 2. 4. 18. 22.]
748 cord_individual_obj[indivial_i,:] = [ 3. 5. 24. 29.]
749 cord_individual_obj[indivial_i,:] = [ 4. 5. 24. 29.]
750 cord_individual_obj[indivial_i,:] = [ 5. 4. 12. 16.]
751 cord_individual_obj[indivial_i,:] = [ 6. 5. 62. 67.]

```

```

752 cord_individual_obj[indivial_i,:] = [ 7. 4. 30. 34.]
753 cord_individual_obj[indivial_i,:] = [ 8. 4. 90. 94.]
754 cord_individual_obj[indivial_i,:] = [ 9. 5. 20. 25.]
755 cord_individual_obj[indivial_i,:] = [10. 4. 8. 12.]
756 cord_individual_obj[indivial_i,:] = [11. 4. 28. 32.]
757 cord_individual_obj[indivial_i,:] = [12. 5. 34. 39.]
758 cord_individual_obj[indivial_i,:] = [13. 4. 12. 16.]
759 cord_individual_obj[indivial_i,:] = [14. 4. 80. 84.]
760 cord_individual_obj[indivial_i,:] = [15. 4. 12. 16.]
761 cord_individual_obj[indivial_i,:] = [16. 4. 24. 28.]
762 cord_individual_obj[indivial_i,:] = [17. 4. 20. 24.]
763 cord_individual_obj[indivial_i,:] = [18. 4. 8. 12.]
764 cord_individual_obj[indivial_i,:] = [19. 4. 20. 24.]
765 cord_individual_obj[indivial_i,:] = [20. 4. 134. 138.]
766 cord_individual_obj[indivial_i,:] = [21. 5. 38. 43.]
767 cord_individual_obj[indivial_i,:] = [22. 5. 32. 37.]
768 cord_individual_obj[indivial_i,:] = [23. 4. 38. 42.]
769 cord_individual_obj[indivial_i,:] = [24. 5. 30. 35.]
770
771 min(cord_individual_obj[:,3]) = 12.0
772 historl_G_best_iter[iter,3] = 12.0
773 Begin iteration:
774
775 iter = 24
776 cord_individual_obj[indivial_i,:] = [ 0. 6. 12. 18.]
777 cord_individual_obj[indivial_i,:] = [ 1. 4. 8. 12.]
778 cord_individual_obj[indivial_i,:] = [ 2. 4. 8. 12.]
779 cord_individual_obj[indivial_i,:] = [ 3. 5. 8. 13.]
780 cord_individual_obj[indivial_i,:] = [ 4. 4. 12. 16.]
781 cord_individual_obj[indivial_i,:] = [ 5. 4. 8. 12.]
782 cord_individual_obj[indivial_i,:] = [ 6. 5. 8. 13.]
783 cord_individual_obj[indivial_i,:] = [ 7. 4. 18. 22.]
784 cord_individual_obj[indivial_i,:] = [ 8. 4. 54. 58.]
785 cord_individual_obj[indivial_i,:] = [ 9. 5. 12. 17.]
786 cord_individual_obj[indivial_i,:] = [10. 6. 8. 14.]
787 cord_individual_obj[indivial_i,:] = [11. 4. 44. 48.]
788 cord_individual_obj[indivial_i,:] = [12. 5. 26. 31.]
789 cord_individual_obj[indivial_i,:] = [13. 4. 64. 68.]
790 cord_individual_obj[indivial_i,:] = [14. 3. 54. 57.]
791 cord_individual_obj[indivial_i,:] = [15. 4. 8. 12.]
792 cord_individual_obj[indivial_i,:] = [16. 6. 16. 22.]
793 cord_individual_obj[indivial_i,:] = [17. 6. 8. 14.]
794 cord_individual_obj[indivial_i,:] = [18. 4. 84. 88.]
795 cord_individual_obj[indivial_i,:] = [19. 4. 36. 40.]
796 cord_individual_obj[indivial_i,:] = [20. 4. 8. 12.]
797 cord_individual_obj[indivial_i,:] = [21. 4. 8. 12.]
798 cord_individual_obj[indivial_i,:] = [22. 5. 26. 31.]
799 cord_individual_obj[indivial_i,:] = [23. 4. 78. 82.]
800 cord_individual_obj[indivial_i,:] = [24. 5. 54. 59.]
801
802 min(cord_individual_obj[:,3]) = 12.0
803 historl_G_best_iter[iter,3] = 12.0
804 Begin iteration:
805
806 iter = 25
807 cord_individual_obj[indivial_i,:] = [ 0. 4. 32. 36.]
808 cord_individual_obj[indivial_i,:] = [ 1. 5. 62. 67.]
809 cord_individual_obj[indivial_i,:] = [ 2. 4. 18. 22.]
810 cord_individual_obj[indivial_i,:] = [ 3. 4. 8. 12.]
811 cord_individual_obj[indivial_i,:] = [ 4. 4. 24. 28.]
812 cord_individual_obj[indivial_i,:] = [ 5. 4. 12. 16.]
813 cord_individual_obj[indivial_i,:] = [ 6. 4. 40. 44.]
814 cord_individual_obj[indivial_i,:] = [ 7. 4. 24. 28.]
815 cord_individual_obj[indivial_i,:] = [ 8. 4. 36. 40.]
816 cord_individual_obj[indivial_i,:] = [ 9. 4. 12. 16.]
817 cord_individual_obj[indivial_i,:] = [10. 4. 12. 16.]
818 cord_individual_obj[indivial_i,:] = [11. 4. 44. 48.]
819 cord_individual_obj[indivial_i,:] = [12. 4. 52. 56.]
820 cord_individual_obj[indivial_i,:] = [13. 6. 40. 46.]
821 cord_individual_obj[indivial_i,:] = [14. 4. 34. 38.]
822 cord_individual_obj[indivial_i,:] = [15. 4. 16. 20.]
823 cord_individual_obj[indivial_i,:] = [16. 4. 16. 20.]
824 cord_individual_obj[indivial_i,:] = [17. 4. 24. 28.]
825 cord_individual_obj[indivial_i,:] = [18. 4. 8. 12.]
826 cord_individual_obj[indivial_i,:] = [19. 6. 24. 30.]
827 cord_individual_obj[indivial_i,:] = [20. 3. 44. 47.]
828 cord_individual_obj[indivial_i,:] = [21. 5. 16. 21.]
829 cord_individual_obj[indivial_i,:] = [22. 6. 122. 128.]
830 cord_individual_obj[indivial_i,:] = [23. 4. 46. 50.]
831 cord_individual_obj[indivial_i,:] = [24. 6. 12. 18.]
832
833 min(cord_individual_obj[:,3]) = 12.0
834 historl_G_best_iter[iter,3] = 12.0
835 Begin iteration:

```

```

836
837 iter = 26
838 cord_individual_obj[indivial_i, :] = [ 0. 4. 18. 22.]
839 cord_individual_obj[indivial_i, :] = [ 1. 4. 70. 74.]
840 cord_individual_obj[indivial_i, :] = [ 2. 4. 54. 58.]
841 cord_individual_obj[indivial_i, :] = [ 3. 5. 44. 49.]
842 cord_individual_obj[indivial_i, :] = [ 4. 4. 18. 22.]
843 cord_individual_obj[indivial_i, :] = [ 5. 4. 18. 22.]
844 cord_individual_obj[indivial_i, :] = [ 6. 5. 52. 57.]
845 cord_individual_obj[indivial_i, :] = [ 7. 4. 38. 42.]
846 cord_individual_obj[indivial_i, :] = [ 8. 4. 126. 130.]
847 cord_individual_obj[indivial_i, :] = [ 9. 5. 26. 31.]
848 cord_individual_obj[indivial_i, :] = [10. 6. 8. 14.]
849 cord_individual_obj[indivial_i, :] = [11. 4. 32. 36.]
850 cord_individual_obj[indivial_i, :] = [12. 5. 8. 13.]
851 cord_individual_obj[indivial_i, :] = [13. 6. 8. 14.]
852 cord_individual_obj[indivial_i, :] = [14. 6. 18. 24.]
853 cord_individual_obj[indivial_i, :] = [15. 4. 32. 36.]
854 cord_individual_obj[indivial_i, :] = [16. 4. 26. 30.]
855 cord_individual_obj[indivial_i, :] = [17. 6. 66. 72.]
856 cord_individual_obj[indivial_i, :] = [18. 4. 94. 98.]
857 cord_individual_obj[indivial_i, :] = [19. 6. 12. 18.]
858 cord_individual_obj[indivial_i, :] = [20. 5. 26. 31.]
859 cord_individual_obj[indivial_i, :] = [21. 5. 70. 75.]
860 cord_individual_obj[indivial_i, :] = [22. 4. 8. 12.]
861 cord_individual_obj[indivial_i, :] = [23. 4. 70. 74.]
862 cord_individual_obj[indivial_i, :] = [24. 6. 12. 18.]
863
864 min(cord_individual_obj[:, 3]) = 12.0
865 historl_G_best_iter[iter, 3] = 12.0
866 Begin iteration:
867
868 iter = 27
869 cord_individual_obj[indivial_i, :] = [ 0. 6. 8. 14.]
870 cord_individual_obj[indivial_i, :] = [ 1. 5. 44. 49.]
871 cord_individual_obj[indivial_i, :] = [ 2. 4. 122. 126.]
872 cord_individual_obj[indivial_i, :] = [ 3. 5. 36. 41.]
873 cord_individual_obj[indivial_i, :] = [ 4. 5. 52. 57.]
874 cord_individual_obj[indivial_i, :] = [ 5. 6. 16. 22.]
875 cord_individual_obj[indivial_i, :] = [ 6. 5. 12. 17.]
876 cord_individual_obj[indivial_i, :] = [ 7. 5. 36. 41.]
877 cord_individual_obj[indivial_i, :] = [ 8. 4. 8. 12.]
878 cord_individual_obj[indivial_i, :] = [ 9. 5. 20. 25.]
879 cord_individual_obj[indivial_i, :] = [10. 4. 8. 12.]
880 cord_individual_obj[indivial_i, :] = [11. 4. 18. 22.]
881 cord_individual_obj[indivial_i, :] = [12. 4. 26. 30.]
882 cord_individual_obj[indivial_i, :] = [13. 4. 34. 38.]
883 cord_individual_obj[indivial_i, :] = [14. 6. 14. 20.]
884 cord_individual_obj[indivial_i, :] = [15. 4. 8. 12.]
885 cord_individual_obj[indivial_i, :] = [16. 6. 12. 18.]
886 cord_individual_obj[indivial_i, :] = [17. 4. 52. 56.]
887 cord_individual_obj[indivial_i, :] = [18. 5. 128. 133.]
888 cord_individual_obj[indivial_i, :] = [19. 4. 64. 68.]
889 cord_individual_obj[indivial_i, :] = [20. 6. 24. 30.]
890 cord_individual_obj[indivial_i, :] = [21. 4. 116. 120.]
891 cord_individual_obj[indivial_i, :] = [22. 6. 8. 14.]
892 cord_individual_obj[indivial_i, :] = [23. 4. 56. 60.]
893 cord_individual_obj[indivial_i, :] = [24. 6. 12. 18.]
894
895 min(cord_individual_obj[:, 3]) = 12.0
896 historl_G_best_iter[iter, 3] = 12.0
897 Begin iteration:
898
899 iter = 28
900 cord_individual_obj[indivial_i, :] = [ 0. 4. 26. 30.]
901 cord_individual_obj[indivial_i, :] = [ 1. 5. 44. 49.]
902 cord_individual_obj[indivial_i, :] = [ 2. 4. 38. 42.]
903 cord_individual_obj[indivial_i, :] = [ 3. 4. 44. 48.]
904 cord_individual_obj[indivial_i, :] = [ 4. 5. 32. 37.]
905 cord_individual_obj[indivial_i, :] = [ 5. 4. 32. 36.]
906 cord_individual_obj[indivial_i, :] = [ 6. 5. 52. 57.]
907 cord_individual_obj[indivial_i, :] = [ 7. 4. 32. 36.]
908 cord_individual_obj[indivial_i, :] = [ 8. 4. 74. 78.]
909 cord_individual_obj[indivial_i, :] = [ 9. 6. 12. 18.]
910 cord_individual_obj[indivial_i, :] = [10. 6. 8. 14.]
911 cord_individual_obj[indivial_i, :] = [11. 4. 44. 48.]
912 cord_individual_obj[indivial_i, :] = [12. 5. 8. 13.]
913 cord_individual_obj[indivial_i, :] = [13. 6. 8. 14.]
914 cord_individual_obj[indivial_i, :] = [14. 4. 18. 22.]
915 cord_individual_obj[indivial_i, :] = [15. 4. 32. 36.]
916 cord_individual_obj[indivial_i, :] = [16. 4. 26. 30.]
917 cord_individual_obj[indivial_i, :] = [17. 6. 26. 32.]
918 cord_individual_obj[indivial_i, :] = [18. 4. 8. 12.]
919 cord_individual_obj[indivial_i, :] = [19. 6. 12. 18.]

```

```

920 cord_individual_obj[individual_i, :] = [20. 3. 32. 35.]
921 cord_individual_obj[individual_i, :] = [21. 5. 32. 37.]
922 cord_individual_obj[individual_i, :] = [22. 4. 38. 42.]
923 cord_individual_obj[individual_i, :] = [23. 4. 38. 42.]
924 cord_individual_obj[individual_i, :] = [24. 4. 26. 30.]
925
926 min(cord_individual_obj[:, 3]) = 12.0
927 historl_G_best_iter[iter, 3] = 12.0
928 Begin iteration:
929
930 iter = 29
931 cord_individual_obj[individual_i, :] = [ 0. 4. 44. 48.]
932 cord_individual_obj[individual_i, :] = [ 1. 5. 72. 77.]
933 cord_individual_obj[individual_i, :] = [ 2. 4. 54. 58.]
934 cord_individual_obj[individual_i, :] = [ 3. 5. 44. 49.]
935 cord_individual_obj[individual_i, :] = [ 4. 5. 26. 31.]
936 cord_individual_obj[individual_i, :] = [ 5. 4. 26. 30.]
937 cord_individual_obj[individual_i, :] = [ 6. 4. 44. 48.]
938 cord_individual_obj[individual_i, :] = [ 7. 4. 44. 48.]
939 cord_individual_obj[individual_i, :] = [ 8. 4. 8. 12.]
940 cord_individual_obj[individual_i, :] = [ 9. 4. 44. 48.]
941 cord_individual_obj[individual_i, :] = [10. 4. 32. 36.]
942 cord_individual_obj[individual_i, :] = [11. 4. 32. 36.]
943 cord_individual_obj[individual_i, :] = [12. 4. 38. 42.]
944 cord_individual_obj[individual_i, :] = [13. 4. 44. 48.]
945 cord_individual_obj[individual_i, :] = [14. 4. 18. 22.]
946 cord_individual_obj[individual_i, :] = [15. 4. 8. 12.]
947 cord_individual_obj[individual_i, :] = [16. 4. 44. 48.]
948 cord_individual_obj[individual_i, :] = [17. 4. 44. 48.]
949 cord_individual_obj[individual_i, :] = [18. 4. 62. 66.]
950 cord_individual_obj[individual_i, :] = [19. 4. 44. 48.]
951 cord_individual_obj[individual_i, :] = [20. 5. 26. 31.]
952 cord_individual_obj[individual_i, :] = [21. 4. 70. 74.]
953 cord_individual_obj[individual_i, :] = [22. 5. 26. 31.]
954 cord_individual_obj[individual_i, :] = [23. 4. 44. 48.]
955 cord_individual_obj[individual_i, :] = [24. 4. 26. 30.]
956
957 min(cord_individual_obj[:, 3]) = 12.0
958 historl_G_best_iter[iter, 3] = 12.0
959 Begin iteration:
960
961 iter = 30
962 cord_individual_obj[individual_i, :] = [ 0. 4. 24. 28.]
963 cord_individual_obj[individual_i, :] = [ 1. 4. 8. 12.]
964 cord_individual_obj[individual_i, :] = [ 2. 4. 112. 116.]
965 cord_individual_obj[individual_i, :] = [ 3. 5. 48. 53.]
966 cord_individual_obj[individual_i, :] = [ 4. 4. 26. 30.]
967 cord_individual_obj[individual_i, :] = [ 5. 4. 32. 36.]
968 cord_individual_obj[individual_i, :] = [ 6. 5. 26. 31.]
969 cord_individual_obj[individual_i, :] = [ 7. 4. 52. 56.]
970 cord_individual_obj[individual_i, :] = [ 8. 4. 54. 58.]
971 cord_individual_obj[individual_i, :] = [ 9. 6. 32. 38.]
972 cord_individual_obj[individual_i, :] = [10. 6. 8. 14.]
973 cord_individual_obj[individual_i, :] = [11. 4. 32. 36.]
974 cord_individual_obj[individual_i, :] = [12. 5. 8. 13.]
975 cord_individual_obj[individual_i, :] = [13. 6. 14. 20.]
976 cord_individual_obj[individual_i, :] = [14. 3. 104. 107.]
977 cord_individual_obj[individual_i, :] = [15. 4. 12. 16.]
978 cord_individual_obj[individual_i, :] = [16. 4. 26. 30.]
979 cord_individual_obj[individual_i, :] = [17. 6. 66. 72.]
980 cord_individual_obj[individual_i, :] = [18. 4. 80. 84.]
981 cord_individual_obj[individual_i, :] = [19. 6. 28. 34.]
982 cord_individual_obj[individual_i, :] = [20. 6. 44. 50.]
983 cord_individual_obj[individual_i, :] = [21. 5. 24. 29.]
984 cord_individual_obj[individual_i, :] = [22. 5. 58. 63.]
985 cord_individual_obj[individual_i, :] = [23. 4. 50. 54.]
986 cord_individual_obj[individual_i, :] = [24. 6. 12. 18.]
987
988 min(cord_individual_obj[:, 3]) = 12.0
989 historl_G_best_iter[iter, 3] = 12.0
990 Iteration calculate over
991
992
993
994
995 All item are in Bin and:
996 Bin area = 1080
997 Real_area = 111.0
998 Proportion_of_area = 0.102777777777777777
999 BEST_CHROM =
1000     berth: [15.5 26. 3. 20.5 7.5 11. ]
1001     time: [0. 0. 0. 0. 0. ]
1002     num_QC: [2. 2. 4. 2. 2. 3.]
1003 Objective function values and some other indicators:
```

unknown

1004	Obj0 = 4.00	Obj1 = 8.00	Obj0 + Obj1 = 12.00				
1005	Total movement of crane: 8.00						
1006	Total waiting time in berth position: 0.00						
1007	Total index of q during berthing: 449.00						
1008	Specific arrangement for each vessel:						
1009	V_id: 0 1.0 load_i: 80.0	li: 5.0 gama_i1 + 1: 2.0 work load gap_i: 0	xi: 15.5 gama_i1 - gama_i0: 1.0	bow of i: 13.0	tail of i: 18.0 duration_time_i: 2.0	gama_i0: 0.0 demand_i: 80.0	gama_i1: work
1010	V_id: 1 2.0 load_i: 120.0	li: 6.0 gama_i1 + 1: 3.0 work load gap_i: 0	xi: 26.0 gama_i1 - gama_i0: 2.0	bow of i: 23.0	tail of i: 29.0 duration_time_i: 3.0	gama_i0: 0.0 demand_i: 120.0	gama_i1: work
1011	V_id: 2 : 260.0	li: 6.0 gama_i1 + 1: 4.0 work load gap_i: 0	xi: 3.0 gama_i1 - gama_i0: 3.0	bow of i: 0.0	tail of i: 6.0 duration_time_i: 4.0	gama_i0: 0.0 demand_i: 260.0	gama_i1: 3.0 work load_i
1012	V_id: 3 1.0 load_i: 80.0	li: 5.0 gama_i1 + 1: 2.0 work load gap_i: 0	xi: 20.5 gama_i1 - gama_i0: 1.0	bow of i: 18.0	tail of i: 23.0 duration_time_i: 2.0	gama_i0: 0.0 demand_i: 80.0	gama_i1: work
1013	V_id: 4 : 200.0	li: 3.0 gama_i1 + 1: 5.0 work load gap_i: 0	xi: 7.5 gama_i1 - gama_i0: 4.0	bow of i: 6.0	tail of i: 9.0 duration_time_i: 5.0	gama_i0: 0.0 demand_i: 200.0	gama_i1: 4.0 work load_i
1014	V_id: 5 3.0 load_i: 220.0	li: 4.0 gama_i1 + 1: 4.0 work load gap_i: 0	xi: 11.0 gama_i1 - gama_i0: 3.0	bow of i: 9.0	tail of i: 13.0 duration_time_i: 4.0	gama_i0: 0.0 demand_i: 220.0	gama_i1: work
1015							
1016	Algorithm finished and the total CPU time: 278 s						
1017	End						
1018							