

unknown

```

80 cord_individual_obj[indivial_i,:] = [16. 2. 0. 2.]
81 cord_individual_obj[indivial_i,:] = [17. 2. 0. 2.]
82 cord_individual_obj[indivial_i,:] = [18. 2. 0. 2.]
83 cord_individual_obj[indivial_i,:] = [19. 2. 0. 2.]
84 cord_individual_obj[indivial_i,:] = [20. 2. 0. 2.]
85 cord_individual_obj[indivial_i,:] = [21. 1. 0. 1.]
86 cord_individual_obj[indivial_i,:] = [22. 1. 0. 1.]
87 cord_individual_obj[indivial_i,:] = [23. 1. 0. 1.]
88 cord_individual_obj[indivial_i,:] = [24. 2. 0. 2.]
89
90 min(cord_individual_obj[:,3]) = 1.0
91 historl_G_best_iter[iter,3] = 1.0
92 Begin iteration:
93
94 iter = 2
95 cord_individual_obj[indivial_i,:] = [0. 2. 0. 2.]
96 cord_individual_obj[indivial_i,:] = [1. 1. 0. 1.]
97 cord_individual_obj[indivial_i,:] = [2. 2. 0. 2.]
98 cord_individual_obj[indivial_i,:] = [3. 1. 0. 1.]
99 cord_individual_obj[indivial_i,:] = [4. 2. 0. 2.]
100 cord_individual_obj[indivial_i,:] = [5. 2. 0. 2.]
101 cord_individual_obj[indivial_i,:] = [6. 1. 0. 1.]
102 cord_individual_obj[indivial_i,:] = [7. 1. 0. 1.]
103 cord_individual_obj[indivial_i,:] = [8. 1. 0. 1.]
104 cord_individual_obj[indivial_i,:] = [9. 2. 0. 2.]
105 cord_individual_obj[indivial_i,:] = [10. 2. 0. 2.]
106 cord_individual_obj[indivial_i,:] = [11. 1. 0. 1.]
107 cord_individual_obj[indivial_i,:] = [12. 2. 0. 2.]
108 cord_individual_obj[indivial_i,:] = [13. 2. 0. 2.]
109 cord_individual_obj[indivial_i,:] = [14. 2. 0. 2.]
110 cord_individual_obj[indivial_i,:] = [15. 2. 0. 2.]
111 cord_individual_obj[indivial_i,:] = [16. 2. 0. 2.]
112 cord_individual_obj[indivial_i,:] = [17. 2. 0. 2.]
113 cord_individual_obj[indivial_i,:] = [18. 1. 0. 1.]
114 cord_individual_obj[indivial_i,:] = [19. 1. 0. 1.]
115 cord_individual_obj[indivial_i,:] = [20. 2. 0. 2.]
116 cord_individual_obj[indivial_i,:] = [21. 1. 0. 1.]
117 cord_individual_obj[indivial_i,:] = [22. 1. 0. 1.]
118 cord_individual_obj[indivial_i,:] = [23. 1. 0. 1.]
119 cord_individual_obj[indivial_i,:] = [24. 2. 0. 2.]
120
121 min(cord_individual_obj[:,3]) = 1.0
122 historl_G_best_iter[iter,3] = 1.0
123 Begin iteration:
124
125 iter = 3
126 cord_individual_obj[indivial_i,:] = [0. 1. 0. 1.]
127 cord_individual_obj[indivial_i,:] = [1. 2. 0. 2.]
128 cord_individual_obj[indivial_i,:] = [2. 1. 0. 1.]
129 cord_individual_obj[indivial_i,:] = [3. 1. 0. 1.]
130 cord_individual_obj[indivial_i,:] = [4. 1. 0. 1.]
131 cord_individual_obj[indivial_i,:] = [5. 2. 0. 2.]
132 cord_individual_obj[indivial_i,:] = [6. 1. 0. 1.]
133 cord_individual_obj[indivial_i,:] = [7. 1. 0. 1.]
134 cord_individual_obj[indivial_i,:] = [8. 2. 0. 2.]
135 cord_individual_obj[indivial_i,:] = [9. 2. 0. 2.]
136 cord_individual_obj[indivial_i,:] = [10. 2. 0. 2.]
137 cord_individual_obj[indivial_i,:] = [11. 1. 0. 1.]
138 cord_individual_obj[indivial_i,:] = [12. 1. 0. 1.]
139 cord_individual_obj[indivial_i,:] = [13. 2. 0. 2.]
140 cord_individual_obj[indivial_i,:] = [14. 1. 0. 1.]
141 cord_individual_obj[indivial_i,:] = [15. 1. 0. 1.]
142 cord_individual_obj[indivial_i,:] = [16. 1. 0. 1.]
143 cord_individual_obj[indivial_i,:] = [17. 2. 0. 2.]
144 cord_individual_obj[indivial_i,:] = [18. 1. 0. 1.]
145 cord_individual_obj[indivial_i,:] = [19. 2. 0. 2.]
146 cord_individual_obj[indivial_i,:] = [20. 1. 0. 1.]
147 cord_individual_obj[indivial_i,:] = [21. 2. 0. 2.]
148 cord_individual_obj[indivial_i,:] = [22. 1. 0. 1.]
149 cord_individual_obj[indivial_i,:] = [23. 2. 0. 2.]
150 cord_individual_obj[indivial_i,:] = [24. 2. 0. 2.]
151
152 min(cord_individual_obj[:,3]) = 1.0
153 historl_G_best_iter[iter,3] = 1.0
154 Begin iteration:
155
156 iter = 4
157 cord_individual_obj[indivial_i,:] = [0. 2. 0. 2.]
158 cord_individual_obj[indivial_i,:] = [1. 1. 0. 1.]
159 cord_individual_obj[indivial_i,:] = [2. 1. 0. 1.]
160 cord_individual_obj[indivial_i,:] = [3. 1. 0. 1.]
161 cord_individual_obj[indivial_i,:] = [4. 2. 0. 2.]
162 cord_individual_obj[indivial_i,:] = [5. 2. 0. 2.]
163 cord_individual_obj[indivial_i,:] = [6. 1. 0. 1.]

```

```

164 cord_individual_obj[indivial_i, :] = [7. 1. 0. 1.]
165 cord_individual_obj[indivial_i, :] = [8. 2. 0. 2.]
166 cord_individual_obj[indivial_i, :] = [9. 1. 0. 1.]
167 cord_individual_obj[indivial_i, :] = [10. 2. 0. 2.]
168 cord_individual_obj[indivial_i, :] = [11. 1. 0. 1.]
169 cord_individual_obj[indivial_i, :] = [12. 1. 0. 1.]
170 cord_individual_obj[indivial_i, :] = [13. 1. 0. 1.]
171 cord_individual_obj[indivial_i, :] = [14. 1. 0. 1.]
172 cord_individual_obj[indivial_i, :] = [15. 2. 0. 2.]
173 cord_individual_obj[indivial_i, :] = [16. 1. 0. 1.]
174 cord_individual_obj[indivial_i, :] = [17. 2. 0. 2.]
175 cord_individual_obj[indivial_i, :] = [18. 1. 0. 1.]
176 cord_individual_obj[indivial_i, :] = [19. 2. 0. 2.]
177 cord_individual_obj[indivial_i, :] = [20. 1. 0. 1.]
178 cord_individual_obj[indivial_i, :] = [21. 2. 0. 2.]
179 cord_individual_obj[indivial_i, :] = [22. 2. 0. 2.]
180 cord_individual_obj[indivial_i, :] = [23. 2. 0. 2.]
181 cord_individual_obj[indivial_i, :] = [24. 1. 0. 1.]
182
183 min(cord_individual_obj[:, 3]) = 1.0
184 historl_G_best_iter[iter, 3] = 1.0
185 Begin iteration:
186
187 iter = 5
188 cord_individual_obj[indivial_i, :] = [0. 1. 0. 1.]
189 cord_individual_obj[indivial_i, :] = [1. 1. 0. 1.]
190 cord_individual_obj[indivial_i, :] = [2. 1. 0. 1.]
191 cord_individual_obj[indivial_i, :] = [3. 1. 0. 1.]
192 cord_individual_obj[indivial_i, :] = [4. 2. 0. 2.]
193 cord_individual_obj[indivial_i, :] = [5. 2. 0. 2.]
194 cord_individual_obj[indivial_i, :] = [6. 1. 0. 1.]
195 cord_individual_obj[indivial_i, :] = [7. 1. 0. 1.]
196 cord_individual_obj[indivial_i, :] = [8. 1. 0. 1.]
197 cord_individual_obj[indivial_i, :] = [9. 1. 0. 1.]
198 cord_individual_obj[indivial_i, :] = [10. 2. 0. 2.]
199 cord_individual_obj[indivial_i, :] = [11. 1. 0. 1.]
200 cord_individual_obj[indivial_i, :] = [12. 1. 0. 1.]
201 cord_individual_obj[indivial_i, :] = [13. 2. 0. 2.]
202 cord_individual_obj[indivial_i, :] = [14. 2. 0. 2.]
203 cord_individual_obj[indivial_i, :] = [15. 2. 0. 2.]
204 cord_individual_obj[indivial_i, :] = [16. 2. 0. 2.]
205 cord_individual_obj[indivial_i, :] = [17. 2. 0. 2.]
206 cord_individual_obj[indivial_i, :] = [18. 1. 0. 1.]
207 cord_individual_obj[indivial_i, :] = [19. 2. 0. 2.]
208 cord_individual_obj[indivial_i, :] = [20. 1. 0. 1.]
209 cord_individual_obj[indivial_i, :] = [21. 1. 0. 1.]
210 cord_individual_obj[indivial_i, :] = [22. 2. 0. 2.]
211 cord_individual_obj[indivial_i, :] = [23. 2. 0. 2.]
212 cord_individual_obj[indivial_i, :] = [24. 2. 0. 2.]
213
214 min(cord_individual_obj[:, 3]) = 1.0
215 historl_G_best_iter[iter, 3] = 1.0
216 Begin iteration:
217
218 iter = 6
219 cord_individual_obj[indivial_i, :] = [0. 2. 0. 2.]
220 cord_individual_obj[indivial_i, :] = [1. 2. 0. 2.]
221 cord_individual_obj[indivial_i, :] = [2. 1. 0. 1.]
222 cord_individual_obj[indivial_i, :] = [3. 1. 0. 1.]
223 cord_individual_obj[indivial_i, :] = [4. 1. 0. 1.]
224 cord_individual_obj[indivial_i, :] = [5. 2. 0. 2.]
225 cord_individual_obj[indivial_i, :] = [6. 1. 0. 1.]
226 cord_individual_obj[indivial_i, :] = [7. 1. 0. 1.]
227 cord_individual_obj[indivial_i, :] = [8. 2. 0. 2.]
228 cord_individual_obj[indivial_i, :] = [9. 1. 0. 1.]
229 cord_individual_obj[indivial_i, :] = [10. 2. 0. 2.]
230 cord_individual_obj[indivial_i, :] = [11. 2. 0. 2.]
231 cord_individual_obj[indivial_i, :] = [12. 2. 0. 2.]
232 cord_individual_obj[indivial_i, :] = [13. 2. 0. 2.]
233 cord_individual_obj[indivial_i, :] = [14. 2. 0. 2.]
234 cord_individual_obj[indivial_i, :] = [15. 1. 0. 1.]
235 cord_individual_obj[indivial_i, :] = [16. 2. 0. 2.]
236 cord_individual_obj[indivial_i, :] = [17. 2. 0. 2.]
237 cord_individual_obj[indivial_i, :] = [18. 1. 0. 1.]
238 cord_individual_obj[indivial_i, :] = [19. 1. 0. 1.]
239 cord_individual_obj[indivial_i, :] = [20. 1. 0. 1.]
240 cord_individual_obj[indivial_i, :] = [21. 2. 0. 2.]
241 cord_individual_obj[indivial_i, :] = [22. 1. 0. 1.]
242 cord_individual_obj[indivial_i, :] = [23. 1. 0. 1.]
243 cord_individual_obj[indivial_i, :] = [24. 1. 0. 1.]
244
245 min(cord_individual_obj[:, 3]) = 1.0
246 historl_G_best_iter[iter, 3] = 1.0
247 Begin iteration:

```

```

248
249 iter = 7
250 cord_individual_obj[indivial_i, :] = [0. 1. 0. 1.]
251 cord_individual_obj[indivial_i, :] = [1. 2. 0. 2.]
252 cord_individual_obj[indivial_i, :] = [2. 1. 0. 1.]
253 cord_individual_obj[indivial_i, :] = [3. 2. 0. 2.]
254 cord_individual_obj[indivial_i, :] = [4. 2. 0. 2.]
255 cord_individual_obj[indivial_i, :] = [5. 2. 0. 2.]
256 cord_individual_obj[indivial_i, :] = [6. 2. 0. 2.]
257 cord_individual_obj[indivial_i, :] = [7. 2. 0. 2.]
258 cord_individual_obj[indivial_i, :] = [8. 2. 0. 2.]
259 cord_individual_obj[indivial_i, :] = [9. 1. 0. 1.]
260 cord_individual_obj[indivial_i, :] = [10. 2. 0. 2.]
261 cord_individual_obj[indivial_i, :] = [11. 1. 0. 1.]
262 cord_individual_obj[indivial_i, :] = [12. 2. 0. 2.]
263 cord_individual_obj[indivial_i, :] = [13. 2. 0. 2.]
264 cord_individual_obj[indivial_i, :] = [14. 1. 0. 1.]
265 cord_individual_obj[indivial_i, :] = [15. 2. 0. 2.]
266 cord_individual_obj[indivial_i, :] = [16. 1. 0. 1.]
267 cord_individual_obj[indivial_i, :] = [17. 2. 0. 2.]
268 cord_individual_obj[indivial_i, :] = [18. 2. 0. 2.]
269 cord_individual_obj[indivial_i, :] = [19. 1. 0. 1.]
270 cord_individual_obj[indivial_i, :] = [20. 1. 0. 1.]
271 cord_individual_obj[indivial_i, :] = [21. 1. 0. 1.]
272 cord_individual_obj[indivial_i, :] = [22. 2. 0. 2.]
273 cord_individual_obj[indivial_i, :] = [23. 1. 0. 1.]
274 cord_individual_obj[indivial_i, :] = [24. 2. 0. 2.]
275
276 min(cord_individual_obj[:, 3]) = 1.0
277 historl_G_best_iter[iter, 3] = 1.0
278 Begin iteration:
279
280 iter = 8
281 cord_individual_obj[indivial_i, :] = [0. 2. 0. 2.]
282 cord_individual_obj[indivial_i, :] = [1. 1. 0. 1.]
283 cord_individual_obj[indivial_i, :] = [2. 2. 0. 2.]
284 cord_individual_obj[indivial_i, :] = [3. 2. 0. 2.]
285 cord_individual_obj[indivial_i, :] = [4. 1. 0. 1.]
286 cord_individual_obj[indivial_i, :] = [5. 2. 0. 2.]
287 cord_individual_obj[indivial_i, :] = [6. 2. 0. 2.]
288 cord_individual_obj[indivial_i, :] = [7. 2. 0. 2.]
289 cord_individual_obj[indivial_i, :] = [8. 2. 0. 2.]
290 cord_individual_obj[indivial_i, :] = [9. 2. 0. 2.]
291 cord_individual_obj[indivial_i, :] = [10. 2. 0. 2.]
292 cord_individual_obj[indivial_i, :] = [11. 1. 0. 1.]
293 cord_individual_obj[indivial_i, :] = [12. 2. 0. 2.]
294 cord_individual_obj[indivial_i, :] = [13. 1. 0. 1.]
295 cord_individual_obj[indivial_i, :] = [14. 1. 0. 1.]
296 cord_individual_obj[indivial_i, :] = [15. 2. 0. 2.]
297 cord_individual_obj[indivial_i, :] = [16. 2. 0. 2.]
298 cord_individual_obj[indivial_i, :] = [17. 2. 0. 2.]
299 cord_individual_obj[indivial_i, :] = [18. 1. 0. 1.]
300 cord_individual_obj[indivial_i, :] = [19. 1. 0. 1.]
301 cord_individual_obj[indivial_i, :] = [20. 1. 0. 1.]
302 cord_individual_obj[indivial_i, :] = [21. 1. 0. 1.]
303 cord_individual_obj[indivial_i, :] = [22. 2. 0. 2.]
304 cord_individual_obj[indivial_i, :] = [23. 2. 0. 2.]
305 cord_individual_obj[indivial_i, :] = [24. 1. 0. 1.]
306
307 min(cord_individual_obj[:, 3]) = 1.0
308 historl_G_best_iter[iter, 3] = 1.0
309 Begin iteration:
310
311 iter = 9
312 cord_individual_obj[indivial_i, :] = [0. 1. 0. 1.]
313 cord_individual_obj[indivial_i, :] = [1. 2. 0. 2.]
314 cord_individual_obj[indivial_i, :] = [2. 1. 0. 1.]
315 cord_individual_obj[indivial_i, :] = [3. 2. 0. 2.]
316 cord_individual_obj[indivial_i, :] = [4. 1. 0. 1.]
317 cord_individual_obj[indivial_i, :] = [5. 1. 0. 1.]
318 cord_individual_obj[indivial_i, :] = [6. 1. 0. 1.]
319 cord_individual_obj[indivial_i, :] = [7. 1. 0. 1.]
320 cord_individual_obj[indivial_i, :] = [8. 2. 0. 2.]
321 cord_individual_obj[indivial_i, :] = [9. 1. 0. 1.]
322 cord_individual_obj[indivial_i, :] = [10. 2. 0. 2.]
323 cord_individual_obj[indivial_i, :] = [11. 1. 0. 1.]
324 cord_individual_obj[indivial_i, :] = [12. 1. 0. 1.]
325 cord_individual_obj[indivial_i, :] = [13. 2. 0. 2.]
326 cord_individual_obj[indivial_i, :] = [14. 1. 0. 1.]
327 cord_individual_obj[indivial_i, :] = [15. 2. 0. 2.]
328 cord_individual_obj[indivial_i, :] = [16. 1. 0. 1.]
329 cord_individual_obj[indivial_i, :] = [17. 2. 0. 2.]
330 cord_individual_obj[indivial_i, :] = [18. 1. 0. 1.]
331 cord_individual_obj[indivial_i, :] = [19. 1. 0. 1.]

```

unknown

```
332 cord_individual_obj[indivial_i, :] = [20. 1. 0. 1.]  
333 cord_individual_obj[indivial_i, :] = [21. 1. 0. 1.]  
334 cord_individual_obj[indivial_i, :] = [22. 2. 0. 2.]  
335 cord_individual_obj[indivial_i, :] = [23. 2. 0. 2.]  
336 cord_individual_obj[indivial_i, :] = [24. 2. 0. 2.]  
337  
338 min(cord_individual_obj[:, 3]) = 1.0  
339 histol_G_best_iter[iter, 3] = 1.0  
340 Begin iteration:  
341  
342 iter = 10  
343 cord_individual_obj[indivial_i, :] = [0. 2. 0. 2.]  
344 cord_individual_obj[indivial_i, :] = [1. 1. 0. 1.]  
345 cord_individual_obj[indivial_i, :] = [2. 1. 0. 1.]  
346 cord_individual_obj[indivial_i, :] = [3. 1. 0. 1.]  
347 cord_individual_obj[indivial_i, :] = [4. 2. 0. 2.]  
348 cord_individual_obj[indivial_i, :] = [5. 2. 0. 2.]  
349 cord_individual_obj[indivial_i, :] = [6. 2. 0. 2.]  
350 cord_individual_obj[indivial_i, :] = [7. 1. 0. 1.]  
351 cord_individual_obj[indivial_i, :] = [8. 1. 0. 1.]  
352 cord_individual_obj[indivial_i, :] = [9. 2. 0. 2.]  
353 cord_individual_obj[indivial_i, :] = [10. 2. 0. 2.]  
354 cord_individual_obj[indivial_i, :] = [11. 2. 0. 2.]  
355 cord_individual_obj[indivial_i, :] = [12. 2. 0. 2.]  
356 cord_individual_obj[indivial_i, :] = [13. 2. 0. 2.]  
357 cord_individual_obj[indivial_i, :] = [14. 2. 0. 2.]  
358 cord_individual_obj[indivial_i, :] = [15. 1. 0. 1.]  
359 cord_individual_obj[indivial_i, :] = [16. 2. 0. 2.]  
360 cord_individual_obj[indivial_i, :] = [17. 2. 0. 2.]  
361 cord_individual_obj[indivial_i, :] = [18. 2. 0. 2.]  
362 cord_individual_obj[indivial_i, :] = [19. 1. 0. 1.]  
363 cord_individual_obj[indivial_i, :] = [20. 1. 0. 1.]  
364 cord_individual_obj[indivial_i, :] = [21. 1. 0. 1.]  
365 cord_individual_obj[indivial_i, :] = [22. 2. 0. 2.]  
366 cord_individual_obj[indivial_i, :] = [23. 2. 0. 2.]  
367 cord_individual_obj[indivial_i, :] = [24. 2. 0. 2.]  
368  
369 min(cord_individual_obj[:, 3]) = 1.0  
370 histol_G_best_iter[iter, 3] = 1.0  
371 Begin iteration:  
372  
373 iter = 11  
374 cord_individual_obj[indivial_i, :] = [0. 1. 0. 1.]  
375 cord_individual_obj[indivial_i, :] = [1. 2. 0. 2.]  
376 cord_individual_obj[indivial_i, :] = [2. 2. 0. 2.]  
377 cord_individual_obj[indivial_i, :] = [3. 1. 0. 1.]  
378 cord_individual_obj[indivial_i, :] = [4. 1. 0. 1.]  
379 cord_individual_obj[indivial_i, :] = [5. 2. 0. 2.]  
380 cord_individual_obj[indivial_i, :] = [6. 2. 0. 2.]  
381 cord_individual_obj[indivial_i, :] = [7. 2. 0. 2.]  
382 cord_individual_obj[indivial_i, :] = [8. 2. 0. 2.]  
383 cord_individual_obj[indivial_i, :] = [9. 2. 0. 2.]  
384 cord_individual_obj[indivial_i, :] = [10. 2. 0. 2.]  
385 cord_individual_obj[indivial_i, :] = [11. 1. 0. 1.]  
386 cord_individual_obj[indivial_i, :] = [12. 1. 0. 1.]  
387 cord_individual_obj[indivial_i, :] = [13. 2. 0. 2.]  
388 cord_individual_obj[indivial_i, :] = [14. 1. 0. 1.]  
389 cord_individual_obj[indivial_i, :] = [15. 2. 0. 2.]  
390 cord_individual_obj[indivial_i, :] = [16. 1. 0. 1.]  
391 cord_individual_obj[indivial_i, :] = [17. 2. 0. 2.]  
392 cord_individual_obj[indivial_i, :] = [18. 2. 0. 2.]  
393 cord_individual_obj[indivial_i, :] = [19. 1. 0. 1.]  
394 cord_individual_obj[indivial_i, :] = [20. 1. 0. 1.]  
395 cord_individual_obj[indivial_i, :] = [21. 1. 0. 1.]  
396 cord_individual_obj[indivial_i, :] = [22. 2. 0. 2.]  
397 cord_individual_obj[indivial_i, :] = [23. 2. 0. 2.]  
398 cord_individual_obj[indivial_i, :] = [24. 1. 0. 1.]  
399  
400 min(cord_individual_obj[:, 3]) = 1.0  
401 histol_G_best_iter[iter, 3] = 1.0  
402 Begin iteration:  
403  
404 iter = 12  
405 cord_individual_obj[indivial_i, :] = [0. 2. 0. 2.]  
406 cord_individual_obj[indivial_i, :] = [1. 1. 0. 1.]  
407 cord_individual_obj[indivial_i, :] = [2. 1. 0. 1.]  
408 cord_individual_obj[indivial_i, :] = [3. 2. 0. 2.]  
409 cord_individual_obj[indivial_i, :] = [4. 1. 0. 1.]  
410 cord_individual_obj[indivial_i, :] = [5. 2. 0. 2.]  
411 cord_individual_obj[indivial_i, :] = [6. 2. 0. 2.]  
412 cord_individual_obj[indivial_i, :] = [7. 2. 0. 2.]  
413 cord_individual_obj[indivial_i, :] = [8. 2. 0. 2.]  
414 cord_individual_obj[indivial_i, :] = [9. 2. 0. 2.]  
415 cord_individual_obj[indivial_i, :] = [10. 2. 0. 2.]
```

```

416 cord_individual_obj[indivial_i,:] = [11. 1. 0. 1.]
417 cord_individual_obj[indivial_i,:] = [12. 1. 0. 1.]
418 cord_individual_obj[indivial_i,:] = [13. 2. 0. 2.]
419 cord_individual_obj[indivial_i,:] = [14. 1. 0. 1.]
420 cord_individual_obj[indivial_i,:] = [15. 2. 0. 2.]
421 cord_individual_obj[indivial_i,:] = [16. 2. 0. 2.]
422 cord_individual_obj[indivial_i,:] = [17. 2. 0. 2.]
423 cord_individual_obj[indivial_i,:] = [18. 2. 0. 2.]
424 cord_individual_obj[indivial_i,:] = [19. 1. 0. 1.]
425 cord_individual_obj[indivial_i,:] = [20. 1. 0. 1.]
426 cord_individual_obj[indivial_i,:] = [21. 2. 0. 2.]
427 cord_individual_obj[indivial_i,:] = [22. 1. 0. 1.]
428 cord_individual_obj[indivial_i,:] = [23. 1. 0. 1.]
429 cord_individual_obj[indivial_i,:] = [24. 2. 0. 2.]
430
431 min(cord_individual_obj[:,3]) = 1.0
432 histol_G_best_iter[iter,3] = 1.0
433 Begin iteration:
434
435 iter = 13
436 cord_individual_obj[indivial_i,:] = [0. 1. 0. 1.]
437 cord_individual_obj[indivial_i,:] = [1. 2. 0. 2.]
438 cord_individual_obj[indivial_i,:] = [2. 1. 0. 1.]
439 cord_individual_obj[indivial_i,:] = [3. 2. 0. 2.]
440 cord_individual_obj[indivial_i,:] = [4. 2. 0. 2.]
441 cord_individual_obj[indivial_i,:] = [5. 2. 0. 2.]
442 cord_individual_obj[indivial_i,:] = [6. 2. 0. 2.]
443 cord_individual_obj[indivial_i,:] = [7. 2. 0. 2.]
444 cord_individual_obj[indivial_i,:] = [8. 2. 0. 2.]
445 cord_individual_obj[indivial_i,:] = [9. 1. 0. 1.]
446 cord_individual_obj[indivial_i,:] = [10. 2. 0. 2.]
447 cord_individual_obj[indivial_i,:] = [11. 2. 0. 2.]
448 cord_individual_obj[indivial_i,:] = [12. 2. 0. 2.]
449 cord_individual_obj[indivial_i,:] = [13. 1. 0. 1.]
450 cord_individual_obj[indivial_i,:] = [14. 1. 0. 1.]
451 cord_individual_obj[indivial_i,:] = [15. 2. 0. 2.]
452 cord_individual_obj[indivial_i,:] = [16. 2. 0. 2.]
453 cord_individual_obj[indivial_i,:] = [17. 2. 0. 2.]
454 cord_individual_obj[indivial_i,:] = [18. 1. 0. 1.]
455 cord_individual_obj[indivial_i,:] = [19. 1. 0. 1.]
456 cord_individual_obj[indivial_i,:] = [20. 1. 0. 1.]
457 cord_individual_obj[indivial_i,:] = [21. 2. 0. 2.]
458 cord_individual_obj[indivial_i,:] = [22. 2. 0. 2.]
459 cord_individual_obj[indivial_i,:] = [23. 1. 0. 1.]
460 cord_individual_obj[indivial_i,:] = [24. 2. 0. 2.]
461
462 min(cord_individual_obj[:,3]) = 1.0
463 histol_G_best_iter[iter,3] = 1.0
464 Begin iteration:
465
466 iter = 14
467 cord_individual_obj[indivial_i,:] = [0. 2. 0. 2.]
468 cord_individual_obj[indivial_i,:] = [1. 1. 0. 1.]
469 cord_individual_obj[indivial_i,:] = [2. 1. 0. 1.]
470 cord_individual_obj[indivial_i,:] = [3. 2. 0. 2.]
471 cord_individual_obj[indivial_i,:] = [4. 2. 0. 2.]
472 cord_individual_obj[indivial_i,:] = [5. 2. 0. 2.]
473 cord_individual_obj[indivial_i,:] = [6. 2. 0. 2.]
474 cord_individual_obj[indivial_i,:] = [7. 2. 0. 2.]
475 cord_individual_obj[indivial_i,:] = [8. 2. 0. 2.]
476 cord_individual_obj[indivial_i,:] = [9. 2. 0. 2.]
477 cord_individual_obj[indivial_i,:] = [10. 2. 0. 2.]
478 cord_individual_obj[indivial_i,:] = [11. 1. 0. 1.]
479 cord_individual_obj[indivial_i,:] = [12. 1. 0. 1.]
480 cord_individual_obj[indivial_i,:] = [13. 2. 0. 2.]
481 cord_individual_obj[indivial_i,:] = [14. 1. 0. 1.]
482 cord_individual_obj[indivial_i,:] = [15. 2. 0. 2.]
483 cord_individual_obj[indivial_i,:] = [16. 2. 0. 2.]
484 cord_individual_obj[indivial_i,:] = [17. 2. 0. 2.]
485 cord_individual_obj[indivial_i,:] = [18. 2. 0. 2.]
486 cord_individual_obj[indivial_i,:] = [19. 1. 0. 1.]
487 cord_individual_obj[indivial_i,:] = [20. 1. 0. 1.]
488 cord_individual_obj[indivial_i,:] = [21. 1. 0. 1.]
489 cord_individual_obj[indivial_i,:] = [22. 2. 0. 2.]
490 cord_individual_obj[indivial_i,:] = [23. 2. 0. 2.]
491 cord_individual_obj[indivial_i,:] = [24. 2. 0. 2.]
492
493 min(cord_individual_obj[:,3]) = 1.0
494 histol_G_best_iter[iter,3] = 1.0
495 Begin iteration:
496
497 iter = 15
498 cord_individual_obj[indivial_i,:] = [0. 1. 0. 1.]
499 cord_individual_obj[indivial_i,:] = [1. 2. 0. 2.]

```

```

500 cord_individual_obj[indivial_i,:] = [2, 1, 0, 1]
501 cord_individual_obj[indivial_i,:] = [3, 1, 0, 1]
502 cord_individual_obj[indivial_i,:] = [4, 2, 0, 2]
503 cord_individual_obj[indivial_i,:] = [5, 2, 0, 2]
504 cord_individual_obj[indivial_i,:] = [6, 1, 0, 1]
505 cord_individual_obj[indivial_i,:] = [7, 1, 0, 1]
506 cord_individual_obj[indivial_i,:] = [8, 1, 0, 1]
507 cord_individual_obj[indivial_i,:] = [9, 1, 0, 1]
508 cord_individual_obj[indivial_i,:] = [10, 2, 0, 2]
509 cord_individual_obj[indivial_i,:] = [11, 2, 0, 2]
510 cord_individual_obj[indivial_i,:] = [12, 1, 0, 1]
511 cord_individual_obj[indivial_i,:] = [13, 2, 0, 2]
512 cord_individual_obj[indivial_i,:] = [14, 1, 0, 1]
513 cord_individual_obj[indivial_i,:] = [15, 2, 0, 2]
514 cord_individual_obj[indivial_i,:] = [16, 1, 0, 1]
515 cord_individual_obj[indivial_i,:] = [17, 2, 0, 2]
516 cord_individual_obj[indivial_i,:] = [18, 1, 0, 1]
517 cord_individual_obj[indivial_i,:] = [19, 2, 0, 2]
518 cord_individual_obj[indivial_i,:] = [20, 1, 0, 1]
519 cord_individual_obj[indivial_i,:] = [21, 1, 0, 1]
520 cord_individual_obj[indivial_i,:] = [22, 2, 0, 2]
521 cord_individual_obj[indivial_i,:] = [23, 1, 0, 1]
522 cord_individual_obj[indivial_i,:] = [24, 1, 0, 1]
523
524 min(cord_individual_obj[:, 3]) = 1.0
525 histol_G_best_iter[iter, 3] = 1.0
526 Begin iteration:
527
528 iter = 16
529 cord_individual_obj[indivial_i,:] = [0, 2, 0, 2]
530 cord_individual_obj[indivial_i,:] = [1, 1, 0, 1]
531 cord_individual_obj[indivial_i,:] = [2, 1, 0, 1]
532 cord_individual_obj[indivial_i,:] = [3, 1, 0, 1]
533 cord_individual_obj[indivial_i,:] = [4, 2, 0, 2]
534 cord_individual_obj[indivial_i,:] = [5, 1, 0, 1]
535 cord_individual_obj[indivial_i,:] = [6, 1, 0, 1]
536 cord_individual_obj[indivial_i,:] = [7, 2, 0, 2]
537 cord_individual_obj[indivial_i,:] = [8, 2, 0, 2]
538 cord_individual_obj[indivial_i,:] = [9, 2, 0, 2]
539 cord_individual_obj[indivial_i,:] = [10, 1, 0, 1]
540 cord_individual_obj[indivial_i,:] = [11, 1, 0, 1]
541 cord_individual_obj[indivial_i,:] = [12, 1, 0, 1]
542 cord_individual_obj[indivial_i,:] = [13, 2, 0, 2]
543 cord_individual_obj[indivial_i,:] = [14, 2, 0, 2]
544 cord_individual_obj[indivial_i,:] = [15, 1, 0, 1]
545 cord_individual_obj[indivial_i,:] = [16, 2, 0, 2]
546 cord_individual_obj[indivial_i,:] = [17, 1, 0, 1]
547 cord_individual_obj[indivial_i,:] = [18, 1, 0, 1]
548 cord_individual_obj[indivial_i,:] = [19, 2, 0, 2]
549 cord_individual_obj[indivial_i,:] = [20, 1, 0, 1]
550 cord_individual_obj[indivial_i,:] = [21, 2, 0, 2]
551 cord_individual_obj[indivial_i,:] = [22, 1, 0, 1]
552 cord_individual_obj[indivial_i,:] = [23, 1, 0, 1]
553 cord_individual_obj[indivial_i,:] = [24, 1, 0, 1]
554
555 min(cord_individual_obj[:, 3]) = 1.0
556 histol_G_best_iter[iter, 3] = 1.0
557 Begin iteration:
558
559 iter = 17
560 cord_individual_obj[indivial_i,:] = [0, 1, 0, 1]
561 cord_individual_obj[indivial_i,:] = [1, 2, 0, 2]
562 cord_individual_obj[indivial_i,:] = [2, 1, 0, 1]
563 cord_individual_obj[indivial_i,:] = [3, 2, 0, 2]
564 cord_individual_obj[indivial_i,:] = [4, 1, 0, 1]
565 cord_individual_obj[indivial_i,:] = [5, 2, 0, 2]
566 cord_individual_obj[indivial_i,:] = [6, 2, 0, 2]
567 cord_individual_obj[indivial_i,:] = [7, 2, 0, 2]
568 cord_individual_obj[indivial_i,:] = [8, 2, 0, 2]
569 cord_individual_obj[indivial_i,:] = [9, 2, 0, 2]
570 cord_individual_obj[indivial_i,:] = [10, 2, 0, 2]
571 cord_individual_obj[indivial_i,:] = [11, 2, 0, 2]
572 cord_individual_obj[indivial_i,:] = [12, 1, 0, 1]
573 cord_individual_obj[indivial_i,:] = [13, 2, 0, 2]
574 cord_individual_obj[indivial_i,:] = [14, 2, 0, 2]
575 cord_individual_obj[indivial_i,:] = [15, 2, 0, 2]
576 cord_individual_obj[indivial_i,:] = [16, 2, 0, 2]
577 cord_individual_obj[indivial_i,:] = [17, 2, 0, 2]
578 cord_individual_obj[indivial_i,:] = [18, 2, 0, 2]
579 cord_individual_obj[indivial_i,:] = [19, 2, 0, 2]
580 cord_individual_obj[indivial_i,:] = [20, 1, 0, 1]
581 cord_individual_obj[indivial_i,:] = [21, 2, 0, 2]
582 cord_individual_obj[indivial_i,:] = [22, 1, 0, 1]
583 cord_individual_obj[indivial_i,:] = [23, 1, 0, 1]

```

unknown

```
584     cord_individual_obj[indivial_i, :] = [24. 2. 0. 2.]  
585  
586     min(cord_individual_obj[:, 3]) = 1.0  
587     historl_G_best_iter[iter, 3] = 1.0  
588 Begin iteration:  
589  
590 iter = 18  
591     cord_individual_obj[indivial_i, :] = [0. 2. 0. 2.]  
592     cord_individual_obj[indivial_i, :] = [1. 1. 0. 1.]  
593     cord_individual_obj[indivial_i, :] = [2. 1. 0. 1.]  
594     cord_individual_obj[indivial_i, :] = [3. 2. 0. 2.]  
595     cord_individual_obj[indivial_i, :] = [4. 1. 0. 1.]  
596     cord_individual_obj[indivial_i, :] = [5. 2. 0. 2.]  
597     cord_individual_obj[indivial_i, :] = [6. 2. 0. 2.]  
598     cord_individual_obj[indivial_i, :] = [7. 2. 0. 2.]  
599     cord_individual_obj[indivial_i, :] = [8. 2. 0. 2.]  
600     cord_individual_obj[indivial_i, :] = [9. 1. 0. 1.]  
601     cord_individual_obj[indivial_i, :] = [10. 2. 0. 2.]  
602     cord_individual_obj[indivial_i, :] = [11. 2. 0. 2.]  
603     cord_individual_obj[indivial_i, :] = [12. 1. 0. 1.]  
604     cord_individual_obj[indivial_i, :] = [13. 1. 0. 1.]  
605     cord_individual_obj[indivial_i, :] = [14. 1. 0. 1.]  
606     cord_individual_obj[indivial_i, :] = [15. 2. 0. 2.]  
607     cord_individual_obj[indivial_i, :] = [16. 2. 0. 2.]  
608     cord_individual_obj[indivial_i, :] = [17. 2. 0. 2.]  
609     cord_individual_obj[indivial_i, :] = [18. 1. 0. 1.]  
610     cord_individual_obj[indivial_i, :] = [19. 1. 0. 1.]  
611     cord_individual_obj[indivial_i, :] = [20. 1. 0. 1.]  
612     cord_individual_obj[indivial_i, :] = [21. 1. 0. 1.]  
613     cord_individual_obj[indivial_i, :] = [22. 1. 0. 1.]  
614     cord_individual_obj[indivial_i, :] = [23. 2. 0. 2.]  
615     cord_individual_obj[indivial_i, :] = [24. 2. 0. 2.]  
616  
617     min(cord_individual_obj[:, 3]) = 1.0  
618     historl_G_best_iter[iter, 3] = 1.0  
619 Begin iteration:  
620  
621 iter = 19  
622     cord_individual_obj[indivial_i, :] = [0. 1. 0. 1.]  
623     cord_individual_obj[indivial_i, :] = [1. 2. 0. 2.]  
624     cord_individual_obj[indivial_i, :] = [2. 1. 0. 1.]  
625     cord_individual_obj[indivial_i, :] = [3. 2. 0. 2.]  
626     cord_individual_obj[indivial_i, :] = [4. 1. 0. 1.]  
627     cord_individual_obj[indivial_i, :] = [5. 1. 0. 1.]  
628     cord_individual_obj[indivial_i, :] = [6. 1. 0. 1.]  
629     cord_individual_obj[indivial_i, :] = [7. 1. 0. 1.]  
630     cord_individual_obj[indivial_i, :] = [8. 2. 0. 2.]  
631     cord_individual_obj[indivial_i, :] = [9. 1. 0. 1.]  
632     cord_individual_obj[indivial_i, :] = [10. 2. 0. 2.]  
633     cord_individual_obj[indivial_i, :] = [11. 1. 0. 1.]  
634     cord_individual_obj[indivial_i, :] = [12. 1. 0. 1.]  
635     cord_individual_obj[indivial_i, :] = [13. 2. 0. 2.]  
636     cord_individual_obj[indivial_i, :] = [14. 1. 0. 1.]  
637     cord_individual_obj[indivial_i, :] = [15. 2. 0. 2.]  
638     cord_individual_obj[indivial_i, :] = [16. 1. 0. 1.]  
639     cord_individual_obj[indivial_i, :] = [17. 2. 0. 2.]  
640     cord_individual_obj[indivial_i, :] = [18. 1. 0. 1.]  
641     cord_individual_obj[indivial_i, :] = [19. 1. 0. 1.]  
642     cord_individual_obj[indivial_i, :] = [20. 1. 0. 1.]  
643     cord_individual_obj[indivial_i, :] = [21. 1. 0. 1.]  
644     cord_individual_obj[indivial_i, :] = [22. 1. 0. 1.]  
645     cord_individual_obj[indivial_i, :] = [23. 1. 0. 1.]  
646     cord_individual_obj[indivial_i, :] = [24. 1. 0. 1.]  
647  
648     min(cord_individual_obj[:, 3]) = 1.0  
649     historl_G_best_iter[iter, 3] = 1.0  
650 Begin iteration:  
651  
652 iter = 20  
653     cord_individual_obj[indivial_i, :] = [0. 2. 0. 2.]  
654     cord_individual_obj[indivial_i, :] = [1. 1. 0. 1.]  
655     cord_individual_obj[indivial_i, :] = [2. 2. 0. 2.]  
656     cord_individual_obj[indivial_i, :] = [3. 1. 0. 1.]  
657     cord_individual_obj[indivial_i, :] = [4. 2. 0. 2.]  
658     cord_individual_obj[indivial_i, :] = [5. 2. 0. 2.]  
659     cord_individual_obj[indivial_i, :] = [6. 2. 0. 2.]  
660     cord_individual_obj[indivial_i, :] = [7. 1. 0. 1.]  
661     cord_individual_obj[indivial_i, :] = [8. 2. 0. 2.]  
662     cord_individual_obj[indivial_i, :] = [9. 2. 0. 2.]  
663     cord_individual_obj[indivial_i, :] = [10. 2. 0. 2.]  
664     cord_individual_obj[indivial_i, :] = [11. 1. 0. 1.]  
665     cord_individual_obj[indivial_i, :] = [12. 1. 0. 1.]  
666     cord_individual_obj[indivial_i, :] = [13. 1. 0. 1.]  
667     cord_individual_obj[indivial_i, :] = [14. 1. 0. 1.]
```

```

668 cord_individual_obj[indivial_i, :] = [15. 1. 0. 1.]
669 cord_individual_obj[indivial_i, :] = [16. 2. 0. 2.]
670 cord_individual_obj[indivial_i, :] = [17. 2. 0. 2.]
671 cord_individual_obj[indivial_i, :] = [18. 2. 0. 2.]
672 cord_individual_obj[indivial_i, :] = [19. 1. 0. 1.]
673 cord_individual_obj[indivial_i, :] = [20. 1. 0. 1.]
674 cord_individual_obj[indivial_i, :] = [21. 2. 0. 2.]
675 cord_individual_obj[indivial_i, :] = [22. 1. 0. 1.]
676 cord_individual_obj[indivial_i, :] = [23. 2. 0. 2.]
677 cord_individual_obj[indivial_i, :] = [24. 2. 0. 2.]
678
679 min(cord_individual_obj[:, 3]) = 1.0
680 historl_G_best_iter[iter, 3] = 1.0
681 Iteration calculate over
682
683
684
685
686 All item are in Bin and:
687 Bin area = 1080
688 Real_area = 35.0
689 Proportion_of_area = 0.032407407407407406
690 BEST_CHROM =
691     berth: [14.5 9.5 3. ]
692     time: [0. 0. 0.]
693     num_QC: [3. 3. 2.]
694 Objective function values and some other indicators:
695 Obj0 = 1.00          Obj1 = 0.00          Obj0 + Obj1 = 1.00
696 Total movement of crane: 0.00
697 Total waiting time in berth position: 0.00
698 Total index of q during berthing: 127.00
699 Specific arrangement for each vessel:
700
701
702
703
704 Algorithm finished and the total CPU time: 87 s
705 End
706

```

gama\_i0: 0.0      gama\_i1: 1.0  
 demand\_i: 120.0    work load\_i:

V_id: .0	li: 3.0	xi: 14.5	bow of i: 13.0	tail of i: 16.0	gama_i0: 0.0	gama_i1: 1.0
load_i: 120.0	gama_i1 + 1: 2.0	gama_i1 - gama_i0: 1.0		duration_time_i: 2.0	demand_i: 120.0	work
	work load gap_i: 0					

V_id: 1	li: 7.0	xi: 9.5	bow of i: 6.0	tail of i: 13.0	gama_i0: 0.0	gama_i1: 1.0
120.0	gama_i1 + 1: 2.0	gama_i1 - gama_i0: 1.0		duration_time_i: 2.0	demand_i: 120.0	work load_i:
	work load gap_i: 0					

V_id: 2	li: 6.0	xi: 3.0	bow of i: 0.0	tail of i: 6.0	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:
	work load gap_i: 0					