

unknown

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1 "E:\1_20\3_0000\1_000000\1_000000\1_LW_00002\6_0000\2 python code\01_My_Python_Code\Scripts\python.exe" "D:\Python\Pycharm\setroute\PyCharm Community Edition 2021.2.3\plugins\python-ce\helpers\pydev\pydevconsole.py" --mode=client --port=6201
2
3 import sys; print('Python %s on %s' % (sys.version, sys.platform))
4 sys.path.extend(['E:\1_20\3_0000\1_000000\1_LW_00002\6_0000\2 python code\01_My_Python_Code', 'E:\1_20\3_0000\1_000000\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_20\3_0000\1_000000\1_LW_00002\6_0000\2 python code\01_My_Python_Code/main_BACASP_offical_PSO_2D_Bin_berth_line.py', wdir='E:/1_20\3_0000\1_000000\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_20_8_standerd_test.xlsx optimization process.
14
15 Start
16     Read basic data
17         V = 20
18         T = 36
19         Q = 23
20         L = 30
21     PSO parameter setting:
22         Trail = 31
23         maxIter_num = 20
24         W_inertia = 2.0
25         oder_type_num = 25
26         c1 = 1.5
27         c2 = 1.5
28         r1 = 0.5690275463425859
29         r2 = 0.5690275463425859
30 Begin iteration:
31
32 iter = 0
33     cord_individual_obj[indivial_i, :] = [ 0. 15. 742. 757.]
34     cord_individual_obj[indivial_i, :] = [ 1. 14. 623. 637.]
35     cord_individual_obj[indivial_i, :] = [ 2. 12. 323. 335.]
36     cord_individual_obj[indivial_i, :] = [ 3. 13. 424. 437.]
37     cord_individual_obj[indivial_i, :] = [ 4. 11. 287. 298.]
38     cord_individual_obj[indivial_i, :] = [ 5. 10. 352. 362.]
39     cord_individual_obj[indivial_i, :] = [ 6. 13. 335. 348.]
40     cord_individual_obj[indivial_i, :] = [ 7. 12. 315. 327.]
41     cord_individual_obj[indivial_i, :] = [ 8. 11. 237. 248.]
42     cord_individual_obj[indivial_i, :] = [ 9. 12. 310. 322.]
43     cord_individual_obj[indivial_i, :] = [ 10. 13. 367. 380.]
44     cord_individual_obj[indivial_i, :] = [ 11. 12. 347. 359.]
45     cord_individual_obj[indivial_i, :] = [ 12. 11. 351. 362.]
46     cord_individual_obj[indivial_i, :] = [ 13. 11. 330. 341.]
47     cord_individual_obj[indivial_i, :] = [ 14. 12. 356. 368.]
48     cord_individual_obj[indivial_i, :] = [ 15. 12. 396. 408.]
49     cord_individual_obj[indivial_i, :] = [ 16. 12. 322. 334.]
50     cord_individual_obj[indivial_i, :] = [ 17. 11. 287. 298.]
51     cord_individual_obj[indivial_i, :] = [ 18. 13. 396. 409.]
52     cord_individual_obj[indivial_i, :] = [ 19. 15. 411. 426.]
53     cord_individual_obj[indivial_i, :] = [ 20. 11. 422. 433.]
54     cord_individual_obj[indivial_i, :] = [ 21. 13. 360. 373.]
55     cord_individual_obj[indivial_i, :] = [ 22. 13. 402. 415.]
56     cord_individual_obj[indivial_i, :] = [ 23. 11. 450. 461.]
57     cord_individual_obj[indivial_i, :] = [ 24. 13. 476. 489.]
58
59 min(cord_individual_obj[:, 3]) = 248.0
60 historl_G_best_iter[iter, 3] = 248.0
61 Begin iteration:
62
63 iter = 1
64     cord_individual_obj[indivial_i, :] = [ 0. 11. 237. 248.]
65     cord_individual_obj[indivial_i, :] = [ 1. 13. 509. 522.]
66     cord_individual_obj[indivial_i, :] = [ 2. 10. 190. 200.]
67     cord_individual_obj[indivial_i, :] = [ 3. 15. 343. 358.]
68     cord_individual_obj[indivial_i, :] = [ 4. 12. 387. 399.]
69     cord_individual_obj[indivial_i, :] = [ 5. 13. 297. 310.]
70     cord_individual_obj[indivial_i, :] = [ 6. 13. 344. 357.]
71     cord_individual_obj[indivial_i, :] = [ 7. 13. 416. 429.]
72     cord_individual_obj[indivial_i, :] = [ 8. 13. 386. 399.]
73     cord_individual_obj[indivial_i, :] = [ 9. 13. 438. 451.]
74     cord_individual_obj[indivial_i, :] = [ 10. 10. 324. 334.]
75     cord_individual_obj[indivial_i, :] = [ 11. 11. 377. 388.]
76     cord_individual_obj[indivial_i, :] = [ 12. 12. 411. 423.]
77     cord_individual_obj[indivial_i, :] = [ 13. 12. 235. 247.]
78     cord_individual_obj[indivial_i, :] = [ 14. 12. 413. 425.]
79     cord_individual_obj[indivial_i, :] = [ 15. 14. 401. 415.]

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80 cord_individual_obj[indivial_i,:] = [ 16. 13. 357. 370.]
81 cord_individual_obj[indivial_i,:] = [ 17. 11. 328. 339.]
82 cord_individual_obj[indivial_i,:] = [ 18. 14. 504. 518.]
83 cord_individual_obj[indivial_i,:] = [ 19. 15. 463. 478.]
84 cord_individual_obj[indivial_i,:] = [ 20. 12. 353. 365.]
85 cord_individual_obj[indivial_i,:] = [ 21. 11. 333. 344.]
86 cord_individual_obj[indivial_i,:] = [ 22. 13. 452. 465.]
87 cord_individual_obj[indivial_i,:] = [ 23. 15. 413. 428.]
88 cord_individual_obj[indivial_i,:] = [ 24. 15. 399. 414.]
89
90 min(cord_individual_obj[:,3]) = 200.0
91 historl_G_best_iter[iter, 3] = 200.0
92 Begin iteration:
93
94 iter = 2
95 cord_individual_obj[indivial_i,:] = [ 0. 11. 317. 328.]
96 cord_individual_obj[indivial_i,:] = [ 1. 10. 190. 200.]
97 cord_individual_obj[indivial_i,:] = [ 2. 11. 250. 261.]
98 cord_individual_obj[indivial_i,:] = [ 3. 12. 337. 349.]
99 cord_individual_obj[indivial_i,:] = [ 4. 12. 263. 275.]
100 cord_individual_obj[indivial_i,:] = [ 5. 11. 216. 227.]
101 cord_individual_obj[indivial_i,:] = [ 6. 11. 224. 235.]
102 cord_individual_obj[indivial_i,:] = [ 7. 11. 310. 321.]
103 cord_individual_obj[indivial_i,:] = [ 8. 12. 268. 280.]
104 cord_individual_obj[indivial_i,:] = [ 9. 14. 315. 329.]
105 cord_individual_obj[indivial_i,:] = [ 10. 10. 324. 334.]
106 cord_individual_obj[indivial_i,:] = [ 11. 10. 270. 280.]
107 cord_individual_obj[indivial_i,:] = [ 12. 12. 245. 257.]
108 cord_individual_obj[indivial_i,:] = [ 13. 14. 245. 259.]
109 cord_individual_obj[indivial_i,:] = [ 14. 11. 348. 359.]
110 cord_individual_obj[indivial_i,:] = [ 15. 12. 280. 292.]
111 cord_individual_obj[indivial_i,:] = [ 16. 12. 235. 247.]
112 cord_individual_obj[indivial_i,:] = [ 17. 15. 227. 242.]
113 cord_individual_obj[indivial_i,:] = [ 18. 10. 297. 307.]
114 cord_individual_obj[indivial_i,:] = [ 19. 15. 320. 335.]
115 cord_individual_obj[indivial_i,:] = [ 20. 11. 201. 212.]
116 cord_individual_obj[indivial_i,:] = [ 21. 13. 292. 305.]
117 cord_individual_obj[indivial_i,:] = [ 22. 12. 278. 290.]
118 cord_individual_obj[indivial_i,:] = [ 23. 11. 301. 312.]
119 cord_individual_obj[indivial_i,:] = [ 24. 13. 380. 393.]
120
121 min(cord_individual_obj[:,3]) = 200.0
122 historl_G_best_iter[iter, 3] = 200.0
123 Begin iteration:
124
125 iter = 3
126 cord_individual_obj[indivial_i,:] = [ 0. 13. 224. 237.]
127 cord_individual_obj[indivial_i,:] = [ 1. 13. 251. 264.]
128 cord_individual_obj[indivial_i,:] = [ 2. 13. 264. 277.]
129 cord_individual_obj[indivial_i,:] = [ 3. 13. 253. 266.]
130 cord_individual_obj[indivial_i,:] = [ 4. 11. 252. 263.]
131 cord_individual_obj[indivial_i,:] = [ 5. 11. 235. 246.]
132 cord_individual_obj[indivial_i,:] = [ 6. 10. 253. 263.]
133 cord_individual_obj[indivial_i,:] = [ 7. 13. 296. 309.]
134 cord_individual_obj[indivial_i,:] = [ 8. 13. 225. 238.]
135 cord_individual_obj[indivial_i,:] = [ 9. 11. 273. 284.]
136 cord_individual_obj[indivial_i,:] = [ 10. 15. 328. 343.]
137 cord_individual_obj[indivial_i,:] = [ 11. 13. 297. 310.]
138 cord_individual_obj[indivial_i,:] = [ 12. 12. 232. 244.]
139 cord_individual_obj[indivial_i,:] = [ 13. 10. 227. 237.]
140 cord_individual_obj[indivial_i,:] = [ 14. 10. 290. 300.]
141 cord_individual_obj[indivial_i,:] = [ 15. 11. 200. 211.]
142 cord_individual_obj[indivial_i,:] = [ 16. 10. 216. 226.]
143 cord_individual_obj[indivial_i,:] = [ 17. 12. 224. 236.]
144 cord_individual_obj[indivial_i,:] = [ 18. 12. 263. 275.]
145 cord_individual_obj[indivial_i,:] = [ 19. 12. 306. 318.]
146 cord_individual_obj[indivial_i,:] = [ 20. 11. 310. 321.]
147 cord_individual_obj[indivial_i,:] = [ 21. 11. 199. 210.]
148 cord_individual_obj[indivial_i,:] = [ 22. 10. 282. 292.]
149 cord_individual_obj[indivial_i,:] = [ 23. 13. 266. 279.]
150 cord_individual_obj[indivial_i,:] = [ 24. 10. 190. 200.]
151
152 min(cord_individual_obj[:,3]) = 200.0
153 historl_G_best_iter[iter, 3] = 200.0
154 Begin iteration:
155
156 iter = 4
157 cord_individual_obj[indivial_i,:] = [ 0. 12. 245. 257.]
158 cord_individual_obj[indivial_i,:] = [ 1. 12. 275. 287.]
159 cord_individual_obj[indivial_i,:] = [ 2. 14. 284. 298.]
160 cord_individual_obj[indivial_i,:] = [ 3. 12. 232. 244.]
161 cord_individual_obj[indivial_i,:] = [ 4. 12. 257. 269.]
162 cord_individual_obj[indivial_i,:] = [ 5. 12. 295. 307.]
163 cord_individual_obj[indivial_i,:] = [ 6. 11. 216. 227.]

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164 cord_individual_obj[indivial_i,:] = [ 7. 10. 272. 282.]
165 cord_individual_obj[indivial_i,:] = [ 8. 13. 307. 320.]
166 cord_individual_obj[indivial_i,:] = [ 9. 10. 304. 314.]
167 cord_individual_obj[indivial_i,:] = [ 10. 10. 190. 200.]
168 cord_individual_obj[indivial_i,:] = [ 11. 11. 241. 252.]
169 cord_individual_obj[indivial_i,:] = [ 12. 12. 296. 308.]
170 cord_individual_obj[indivial_i,:] = [ 13. 11. 220. 231.]
171 cord_individual_obj[indivial_i,:] = [ 14. 13. 268. 281.]
172 cord_individual_obj[indivial_i,:] = [ 15. 13. 274. 287.]
173 cord_individual_obj[indivial_i,:] = [ 16. 12. 261. 273.]
174 cord_individual_obj[indivial_i,:] = [ 17. 15. 222. 237.]
175 cord_individual_obj[indivial_i,:] = [ 18. 13. 305. 318.]
176 cord_individual_obj[indivial_i,:] = [ 19. 11. 250. 261.]
177 cord_individual_obj[indivial_i,:] = [ 20. 12. 307. 319.]
178 cord_individual_obj[indivial_i,:] = [ 21. 12. 261. 273.]
179 cord_individual_obj[indivial_i,:] = [ 22. 11. 318. 329.]
180 cord_individual_obj[indivial_i,:] = [ 23. 12. 226. 238.]
181 cord_individual_obj[indivial_i,:] = [ 24. 11. 284. 295.]
182
183 min(cord_individual_obj[:,3]) = 200.0
184 historl_G_best_iter[iter,3] = 200.0
185 Begin iteration:
186
187 iter = 5
188 cord_individual_obj[indivial_i,:] = [ 0. 11. 274. 285.]
189 cord_individual_obj[indivial_i,:] = [ 1. 10. 238. 248.]
190 cord_individual_obj[indivial_i,:] = [ 2. 11. 211. 222.]
191 cord_individual_obj[indivial_i,:] = [ 3. 13. 218. 231.]
192 cord_individual_obj[indivial_i,:] = [ 4. 12. 235. 247.]
193 cord_individual_obj[indivial_i,:] = [ 5. 12. 292. 304.]
194 cord_individual_obj[indivial_i,:] = [ 6. 11. 220. 231.]
195 cord_individual_obj[indivial_i,:] = [ 7. 12. 253. 265.]
196 cord_individual_obj[indivial_i,:] = [ 8. 11. 265. 276.]
197 cord_individual_obj[indivial_i,:] = [ 9. 11. 268. 279.]
198 cord_individual_obj[indivial_i,:] = [ 10. 12. 245. 257.]
199 cord_individual_obj[indivial_i,:] = [ 11. 10. 247. 257.]
200 cord_individual_obj[indivial_i,:] = [ 12. 11. 271. 282.]
201 cord_individual_obj[indivial_i,:] = [ 13. 10. 196. 206.]
202 cord_individual_obj[indivial_i,:] = [ 14. 10. 248. 258.]
203 cord_individual_obj[indivial_i,:] = [ 15. 13. 273. 286.]
204 cord_individual_obj[indivial_i,:] = [ 16. 12. 251. 263.]
205 cord_individual_obj[indivial_i,:] = [ 17. 12. 232. 244.]
206 cord_individual_obj[indivial_i,:] = [ 18. 13. 243. 256.]
207 cord_individual_obj[indivial_i,:] = [ 19. 12. 285. 297.]
208 cord_individual_obj[indivial_i,:] = [ 20. 10. 284. 294.]
209 cord_individual_obj[indivial_i,:] = [ 21. 13. 267. 280.]
210 cord_individual_obj[indivial_i,:] = [ 22. 10. 190. 200.]
211 cord_individual_obj[indivial_i,:] = [ 23. 12. 190. 202.]
212 cord_individual_obj[indivial_i,:] = [ 24. 11. 237. 248.]
213
214 min(cord_individual_obj[:,3]) = 200.0
215 historl_G_best_iter[iter,3] = 200.0
216 Begin iteration:
217
218 iter = 6
219 cord_individual_obj[indivial_i,:] = [ 0. 11. 283. 294.]
220 cord_individual_obj[indivial_i,:] = [ 1. 11. 260. 271.]
221 cord_individual_obj[indivial_i,:] = [ 2. 11. 233. 244.]
222 cord_individual_obj[indivial_i,:] = [ 3. 11. 288. 299.]
223 cord_individual_obj[indivial_i,:] = [ 4. 11. 266. 277.]
224 cord_individual_obj[indivial_i,:] = [ 5. 10. 190. 200.]
225 cord_individual_obj[indivial_i,:] = [ 6. 12. 307. 319.]
226 cord_individual_obj[indivial_i,:] = [ 7. 10. 251. 261.]
227 cord_individual_obj[indivial_i,:] = [ 8. 10. 321. 331.]
228 cord_individual_obj[indivial_i,:] = [ 9. 10. 286. 296.]
229 cord_individual_obj[indivial_i,:] = [ 10. 11. 234. 245.]
230 cord_individual_obj[indivial_i,:] = [ 11. 12. 238. 250.]
231 cord_individual_obj[indivial_i,:] = [ 12. 14. 322. 336.]
232 cord_individual_obj[indivial_i,:] = [ 13. 12. 212. 224.]
233 cord_individual_obj[indivial_i,:] = [ 14. 11. 292. 303.]
234 cord_individual_obj[indivial_i,:] = [ 15. 12. 261. 273.]
235 cord_individual_obj[indivial_i,:] = [ 16. 13. 275. 288.]
236 cord_individual_obj[indivial_i,:] = [ 17. 13. 362. 375.]
237 cord_individual_obj[indivial_i,:] = [ 18. 11. 222. 233.]
238 cord_individual_obj[indivial_i,:] = [ 19. 10. 268. 278.]
239 cord_individual_obj[indivial_i,:] = [ 20. 12. 391. 403.]
240 cord_individual_obj[indivial_i,:] = [ 21. 13. 255. 268.]
241 cord_individual_obj[indivial_i,:] = [ 22. 10. 295. 305.]
242 cord_individual_obj[indivial_i,:] = [ 23. 10. 249. 259.]
243 cord_individual_obj[indivial_i,:] = [ 24. 12. 204. 216.]
244
245 min(cord_individual_obj[:,3]) = 200.0
246 historl_G_best_iter[iter,3] = 200.0
247 Begin iteration:

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248
249 iter = 7
250 cord_individual_obj[indivial_i, :] = [ 0. 10. 167. 177.]
251 cord_individual_obj[indivial_i, :] = [ 1. 13. 275. 288.]
252 cord_individual_obj[indivial_i, :] = [ 2. 11. 225. 236.]
253 cord_individual_obj[indivial_i, :] = [ 3. 13. 256. 269.]
254 cord_individual_obj[indivial_i, :] = [ 4. 11. 315. 326.]
255 cord_individual_obj[indivial_i, :] = [ 5. 12. 252. 264.]
256 cord_individual_obj[indivial_i, :] = [ 6. 10. 200. 210.]
257 cord_individual_obj[indivial_i, :] = [ 7. 13. 273. 286.]
258 cord_individual_obj[indivial_i, :] = [ 8. 14. 274. 288.]
259 cord_individual_obj[indivial_i, :] = [ 9. 11. 207. 218.]
260 cord_individual_obj[indivial_i, :] = [ 10. 11. 315. 326.]
261 cord_individual_obj[indivial_i, :] = [ 11. 12. 288. 300.]
262 cord_individual_obj[indivial_i, :] = [ 12. 11. 192. 203.]
263 cord_individual_obj[indivial_i, :] = [ 13. 9. 192. 201.]
264 cord_individual_obj[indivial_i, :] = [ 14. 12. 220. 232.]
265 cord_individual_obj[indivial_i, :] = [ 15. 13. 317. 330.]
266 cord_individual_obj[indivial_i, :] = [ 16. 12. 314. 326.]
267 cord_individual_obj[indivial_i, :] = [ 17. 12. 200. 212.]
268 cord_individual_obj[indivial_i, :] = [ 18. 12. 212. 224.]
269 cord_individual_obj[indivial_i, :] = [ 19. 11. 278. 289.]
270 cord_individual_obj[indivial_i, :] = [ 20. 10. 190. 200.]
271 cord_individual_obj[indivial_i, :] = [ 21. 12. 264. 276.]
272 cord_individual_obj[indivial_i, :] = [ 22. 11. 240. 251.]
273 cord_individual_obj[indivial_i, :] = [ 23. 12. 248. 260.]
274 cord_individual_obj[indivial_i, :] = [ 24. 14. 303. 317.]
275

276 min(cord_individual_obj[:, 3]) = 177.0
277 historl_G_best_iter[iter, 3] = 177.0
278 Begin iteration:
279
280 iter = 8
281 cord_individual_obj[indivial_i, :] = [ 0. 13. 273. 286.]
282 cord_individual_obj[indivial_i, :] = [ 1. 12. 267. 279.]
283 cord_individual_obj[indivial_i, :] = [ 2. 11. 185. 196.]
284 cord_individual_obj[indivial_i, :] = [ 3. 12. 277. 289.]
285 cord_individual_obj[indivial_i, :] = [ 4. 10. 229. 239.]
286 cord_individual_obj[indivial_i, :] = [ 5. 12. 239. 251.]
287 cord_individual_obj[indivial_i, :] = [ 6. 13. 257. 270.]
288 cord_individual_obj[indivial_i, :] = [ 7. 12. 280. 292.]
289 cord_individual_obj[indivial_i, :] = [ 8. 12. 248. 260.]
290 cord_individual_obj[indivial_i, :] = [ 9. 12. 241. 253.]
291 cord_individual_obj[indivial_i, :] = [ 10. 12. 231. 243.]
292 cord_individual_obj[indivial_i, :] = [ 11. 12. 304. 316.]
293 cord_individual_obj[indivial_i, :] = [ 12. 9. 266. 275.]
294 cord_individual_obj[indivial_i, :] = [ 13. 12. 245. 257.]
295 cord_individual_obj[indivial_i, :] = [ 14. 11. 290. 301.]
296 cord_individual_obj[indivial_i, :] = [ 15. 10. 167. 177.]
297 cord_individual_obj[indivial_i, :] = [ 16. 10. 222. 232.]
298 cord_individual_obj[indivial_i, :] = [ 17. 11. 189. 200.]
299 cord_individual_obj[indivial_i, :] = [ 18. 12. 214. 226.]
300 cord_individual_obj[indivial_i, :] = [ 19. 13. 220. 233.]
301 cord_individual_obj[indivial_i, :] = [ 20. 12. 297. 309.]
302 cord_individual_obj[indivial_i, :] = [ 21. 12. 238. 250.]
303 cord_individual_obj[indivial_i, :] = [ 22. 13. 214. 227.]
304 cord_individual_obj[indivial_i, :] = [ 23. 9. 188. 197.]
305 cord_individual_obj[indivial_i, :] = [ 24. 14. 252. 266.]
306

307 min(cord_individual_obj[:, 3]) = 177.0
308 historl_G_best_iter[iter, 3] = 177.0
309 Begin iteration:
310
311 iter = 9
312 cord_individual_obj[indivial_i, :] = [ 0. 11. 289. 300.]
313 cord_individual_obj[indivial_i, :] = [ 1. 11. 318. 329.]
314 cord_individual_obj[indivial_i, :] = [ 2. 13. 290. 303.]
315 cord_individual_obj[indivial_i, :] = [ 3. 12. 284. 296.]
316 cord_individual_obj[indivial_i, :] = [ 4. 10. 293. 303.]
317 cord_individual_obj[indivial_i, :] = [ 5. 11. 249. 260.]
318 cord_individual_obj[indivial_i, :] = [ 6. 10. 330. 340.]
319 cord_individual_obj[indivial_i, :] = [ 7. 12. 259. 271.]
320 cord_individual_obj[indivial_i, :] = [ 8. 14. 296. 310.]
321 cord_individual_obj[indivial_i, :] = [ 9. 11. 267. 278.]
322 cord_individual_obj[indivial_i, :] = [ 10. 12. 337. 349.]
323 cord_individual_obj[indivial_i, :] = [ 11. 10. 167. 177.]
324 cord_individual_obj[indivial_i, :] = [ 12. 10. 288. 298.]
325 cord_individual_obj[indivial_i, :] = [ 13. 11. 354. 365.]
326 cord_individual_obj[indivial_i, :] = [ 14. 10. 269. 279.]
327 cord_individual_obj[indivial_i, :] = [ 15. 13. 225. 238.]
328 cord_individual_obj[indivial_i, :] = [ 16. 12. 271. 283.]
329 cord_individual_obj[indivial_i, :] = [ 17. 10. 344. 354.]
330 cord_individual_obj[indivial_i, :] = [ 18. 11. 306. 317.]
331 cord_individual_obj[indivial_i, :] = [ 19. 11. 358. 369.]

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332 cord_individual_obj[indivial_i,:] = [ 20. 13. 341. 354.]
333 cord_individual_obj[indivial_i,:] = [ 21. 12. 334. 346.]
334 cord_individual_obj[indivial_i,:] = [ 22. 12. 293. 305.]
335 cord_individual_obj[indivial_i,:] = [ 23. 10. 226. 236.]
336 cord_individual_obj[indivial_i,:] = [ 24. 13. 334. 347.]
337
338 min(cord_individual_obj[:,3]) = 177.0
339 histol_G_best_iter[iter,3] = 177.0
340 Begin iteration:
341
342 iter = 10
343 cord_individual_obj[indivial_i,:] = [ 0. 12. 263. 275.]
344 cord_individual_obj[indivial_i,:] = [ 1. 13. 235. 248.]
345 cord_individual_obj[indivial_i,:] = [ 2. 11. 235. 246.]
346 cord_individual_obj[indivial_i,:] = [ 3. 13. 253. 266.]
347 cord_individual_obj[indivial_i,:] = [ 4. 10. 295. 305.]
348 cord_individual_obj[indivial_i,:] = [ 5. 13. 231. 244.]
349 cord_individual_obj[indivial_i,:] = [ 6. 11. 241. 252.]
350 cord_individual_obj[indivial_i,:] = [ 7. 11. 250. 261.]
351 cord_individual_obj[indivial_i,:] = [ 8. 11. 210. 221.]
352 cord_individual_obj[indivial_i,:] = [ 9. 10. 239. 249.]
353 cord_individual_obj[indivial_i,:] = [ 10. 13. 215. 228.]
354 cord_individual_obj[indivial_i,:] = [ 11. 13. 225. 238.]
355 cord_individual_obj[indivial_i,:] = [ 12. 12. 242. 254.]
356 cord_individual_obj[indivial_i,:] = [ 13. 14. 302. 316.]
357 cord_individual_obj[indivial_i,:] = [ 14. 10. 220. 230.]
358 cord_individual_obj[indivial_i,:] = [ 15. 15. 216. 231.]
359 cord_individual_obj[indivial_i,:] = [ 16. 11. 239. 250.]
360 cord_individual_obj[indivial_i,:] = [ 17. 13. 292. 305.]
361 cord_individual_obj[indivial_i,:] = [ 18. 11. 290. 301.]
362 cord_individual_obj[indivial_i,:] = [ 19. 10. 167. 177.]
363 cord_individual_obj[indivial_i,:] = [ 20. 12. 345. 357.]
364 cord_individual_obj[indivial_i,:] = [ 21. 11. 282. 293.]
365 cord_individual_obj[indivial_i,:] = [ 22. 11. 243. 254.]
366 cord_individual_obj[indivial_i,:] = [ 23. 10. 254. 264.]
367 cord_individual_obj[indivial_i,:] = [ 24. 12. 210. 222.]
368
369 min(cord_individual_obj[:,3]) = 177.0
370 histol_G_best_iter[iter,3] = 177.0
371 Begin iteration:
372
373 iter = 11
374 cord_individual_obj[indivial_i,:] = [ 0. 12. 235. 247.]
375 cord_individual_obj[indivial_i,:] = [ 1. 11. 220. 231.]
376 cord_individual_obj[indivial_i,:] = [ 2. 11. 208. 219.]
377 cord_individual_obj[indivial_i,:] = [ 3. 10. 210. 220.]
378 cord_individual_obj[indivial_i,:] = [ 4. 11. 188. 199.]
379 cord_individual_obj[indivial_i,:] = [ 5. 13. 220. 233.]
380 cord_individual_obj[indivial_i,:] = [ 6. 12. 248. 260.]
381 cord_individual_obj[indivial_i,:] = [ 7. 11. 248. 259.]
382 cord_individual_obj[indivial_i,:] = [ 8. 12. 269. 281.]
383 cord_individual_obj[indivial_i,:] = [ 9. 11. 234. 245.]
384 cord_individual_obj[indivial_i,:] = [ 10. 11. 263. 274.]
385 cord_individual_obj[indivial_i,:] = [ 11. 11. 148. 159.]
386 cord_individual_obj[indivial_i,:] = [ 12. 10. 218. 228.]
387 cord_individual_obj[indivial_i,:] = [ 13. 11. 257. 268.]
388 cord_individual_obj[indivial_i,:] = [ 14. 11. 245. 256.]
389 cord_individual_obj[indivial_i,:] = [ 15. 11. 182. 193.]
390 cord_individual_obj[indivial_i,:] = [ 16. 10. 223. 233.]
391 cord_individual_obj[indivial_i,:] = [ 17. 12. 209. 221.]
392 cord_individual_obj[indivial_i,:] = [ 18. 11. 258. 269.]
393 cord_individual_obj[indivial_i,:] = [ 19. 12. 270. 282.]
394 cord_individual_obj[indivial_i,:] = [ 20. 10. 167. 177.]
395 cord_individual_obj[indivial_i,:] = [ 21. 11. 228. 239.]
396 cord_individual_obj[indivial_i,:] = [ 22. 11. 243. 254.]
397 cord_individual_obj[indivial_i,:] = [ 23. 11. 227. 238.]
398 cord_individual_obj[indivial_i,:] = [ 24. 11. 182. 193.]
399
400 min(cord_individual_obj[:,3]) = 159.0
401 histol_G_best_iter[iter,3] = 159.0
402 Begin iteration:
403
404 iter = 12
405 cord_individual_obj[indivial_i,:] = [ 0. 13. 220. 233.]
406 cord_individual_obj[indivial_i,:] = [ 1. 11. 196. 207.]
407 cord_individual_obj[indivial_i,:] = [ 2. 13. 242. 255.]
408 cord_individual_obj[indivial_i,:] = [ 3. 12. 228. 240.]
409 cord_individual_obj[indivial_i,:] = [ 4. 12. 193. 205.]
410 cord_individual_obj[indivial_i,:] = [ 5. 11. 274. 285.]
411 cord_individual_obj[indivial_i,:] = [ 6. 13. 245. 258.]
412 cord_individual_obj[indivial_i,:] = [ 7. 14. 211. 225.]
413 cord_individual_obj[indivial_i,:] = [ 8. 14. 265. 279.]
414 cord_individual_obj[indivial_i,:] = [ 9. 11. 210. 221.]
415 cord_individual_obj[indivial_i,:] = [ 10. 12. 204. 216.]

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416 cord_individual_obj[indivial_i,:] = [ 11. 13. 231. 244.]
417 cord_individual_obj[indivial_i,:] = [ 12. 13. 234. 247.]
418 cord_individual_obj[indivial_i,:] = [ 13. 11. 202. 213.]
419 cord_individual_obj[indivial_i,:] = [ 14. 12. 220. 232.]
420 cord_individual_obj[indivial_i,:] = [ 15. 11. 238. 249.]
421 cord_individual_obj[indivial_i,:] = [ 16. 11. 297. 308.]
422 cord_individual_obj[indivial_i,:] = [ 17. 11. 206. 217.]
423 cord_individual_obj[indivial_i,:] = [ 18. 12. 227. 239.]
424 cord_individual_obj[indivial_i,:] = [ 19. 11. 148. 159.]
425 cord_individual_obj[indivial_i,:] = [ 20. 11. 228. 239.]
426 cord_individual_obj[indivial_i,:] = [ 21. 11. 220. 231.]
427 cord_individual_obj[indivial_i,:] = [ 22. 11. 305. 316.]
428 cord_individual_obj[indivial_i,:] = [ 23. 13. 221. 234.]
429 cord_individual_obj[indivial_i,:] = [ 24. 11. 234. 245.]
430
431 min(cord_individual_obj[:,3]) = 159.0
432 histol_G_best_iter[iter,3] = 159.0
433 Begin iteration:
434
435 iter = 13
436 cord_individual_obj[indivial_i,:] = [ 0. 11. 179. 190.]
437 cord_individual_obj[indivial_i,:] = [ 1. 12. 175. 187.]
438 cord_individual_obj[indivial_i,:] = [ 2. 11. 179. 190.]
439 cord_individual_obj[indivial_i,:] = [ 3. 12. 226. 238.]
440 cord_individual_obj[indivial_i,:] = [ 4. 11. 221. 232.]
441 cord_individual_obj[indivial_i,:] = [ 5. 12. 137. 149.]
442 cord_individual_obj[indivial_i,:] = [ 6. 11. 215. 226.]
443 cord_individual_obj[indivial_i,:] = [ 7. 12. 200. 212.]
444 cord_individual_obj[indivial_i,:] = [ 8. 13. 191. 204.]
445 cord_individual_obj[indivial_i,:] = [ 9. 11. 189. 200.]
446 cord_individual_obj[indivial_i,:] = [ 10. 11. 216. 227.]
447 cord_individual_obj[indivial_i,:] = [ 11. 10. 176. 186.]
448 cord_individual_obj[indivial_i,:] = [ 12. 12. 186. 198.]
449 cord_individual_obj[indivial_i,:] = [ 13. 11. 149. 160.]
450 cord_individual_obj[indivial_i,:] = [ 14. 13. 181. 194.]
451 cord_individual_obj[indivial_i,:] = [ 15. 11. 175. 186.]
452 cord_individual_obj[indivial_i,:] = [ 16. 10. 255. 265.]
453 cord_individual_obj[indivial_i,:] = [ 17. 12. 175. 187.]
454 cord_individual_obj[indivial_i,:] = [ 18. 12. 232. 244.]
455 cord_individual_obj[indivial_i,:] = [ 19. 13. 175. 188.]
456 cord_individual_obj[indivial_i,:] = [ 20. 11. 259. 270.]
457 cord_individual_obj[indivial_i,:] = [ 21. 11. 241. 252.]
458 cord_individual_obj[indivial_i,:] = [ 22. 11. 148. 159.]
459 cord_individual_obj[indivial_i,:] = [ 23. 11. 204. 215.]
460 cord_individual_obj[indivial_i,:] = [ 24. 13. 189. 202.]
461
462 min(cord_individual_obj[:,3]) = 149.0
463 histol_G_best_iter[iter,3] = 149.0
464 Begin iteration:
465
466 iter = 14
467 cord_individual_obj[indivial_i,:] = [ 0. 14. 256. 270.]
468 cord_individual_obj[indivial_i,:] = [ 1. 12. 251. 263.]
469 cord_individual_obj[indivial_i,:] = [ 2. 12. 174. 186.]
470 cord_individual_obj[indivial_i,:] = [ 3. 11. 172. 183.]
471 cord_individual_obj[indivial_i,:] = [ 4. 12. 208. 220.]
472 cord_individual_obj[indivial_i,:] = [ 5. 12. 163. 175.]
473 cord_individual_obj[indivial_i,:] = [ 6. 10. 146. 156.]
474 cord_individual_obj[indivial_i,:] = [ 7. 12. 182. 194.]
475 cord_individual_obj[indivial_i,:] = [ 8. 11. 190. 201.]
476 cord_individual_obj[indivial_i,:] = [ 9. 13. 202. 215.]
477 cord_individual_obj[indivial_i,:] = [ 10. 11. 187. 198.]
478 cord_individual_obj[indivial_i,:] = [ 11. 11. 235. 246.]
479 cord_individual_obj[indivial_i,:] = [ 12. 14. 182. 196.]
480 cord_individual_obj[indivial_i,:] = [ 13. 11. 160. 171.]
481 cord_individual_obj[indivial_i,:] = [ 14. 12. 253. 265.]
482 cord_individual_obj[indivial_i,:] = [ 15. 11. 190. 201.]
483 cord_individual_obj[indivial_i,:] = [ 16. 12. 194. 206.]
484 cord_individual_obj[indivial_i,:] = [ 17. 11. 160. 171.]
485 cord_individual_obj[indivial_i,:] = [ 18. 13. 166. 179.]
486 cord_individual_obj[indivial_i,:] = [ 19. 12. 166. 178.]
487 cord_individual_obj[indivial_i,:] = [ 20. 12. 137. 149.]
488 cord_individual_obj[indivial_i,:] = [ 21. 10. 167. 177.]
489 cord_individual_obj[indivial_i,:] = [ 22. 11. 225. 236.]
490 cord_individual_obj[indivial_i,:] = [ 23. 10. 174. 184.]
491 cord_individual_obj[indivial_i,:] = [ 24. 12. 189. 201.]
492
493 min(cord_individual_obj[:,3]) = 149.0
494 histol_G_best_iter[iter,3] = 149.0
495 Begin iteration:
496
497 iter = 15
498 cord_individual_obj[indivial_i,:] = [ 0. 12. 137. 149.]
499 cord_individual_obj[indivial_i,:] = [ 1. 12. 208. 220.]

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500 cord_individual_obj[indivial_i,:] = [ 2. 12. 209. 221.]
501 cord_individual_obj[indivial_i,:] = [ 3. 11. 188. 199.]
502 cord_individual_obj[indivial_i,:] = [ 4. 13. 163. 176.]
503 cord_individual_obj[indivial_i,:] = [ 5. 13. 260. 273.]
504 cord_individual_obj[indivial_i,:] = [ 6. 12. 191. 203.]
505 cord_individual_obj[indivial_i,:] = [ 7. 12. 200. 212.]
506 cord_individual_obj[indivial_i,:] = [ 8. 12. 171. 183.]
507 cord_individual_obj[indivial_i,:] = [ 9. 10. 195. 205.]
508 cord_individual_obj[indivial_i,:] = [ 10. 12. 209. 221.]
509 cord_individual_obj[indivial_i,:] = [ 11. 13. 146. 159.]
510 cord_individual_obj[indivial_i,:] = [ 12. 13. 175. 188.]
511 cord_individual_obj[indivial_i,:] = [ 13. 9. 186. 195.]
512 cord_individual_obj[indivial_i,:] = [ 14. 11. 179. 190.]
513 cord_individual_obj[indivial_i,:] = [ 15. 12. 181. 193.]
514 cord_individual_obj[indivial_i,:] = [ 16. 12. 137. 149.]
515 cord_individual_obj[indivial_i,:] = [ 17. 13. 193. 206.]
516 cord_individual_obj[indivial_i,:] = [ 18. 13. 245. 258.]
517 cord_individual_obj[indivial_i,:] = [ 19. 12. 135. 147.]
518 cord_individual_obj[indivial_i,:] = [ 20. 12. 214. 226.]
519 cord_individual_obj[indivial_i,:] = [ 21. 12. 193. 205.]
520 cord_individual_obj[indivial_i,:] = [ 22. 12. 188. 200.]
521 cord_individual_obj[indivial_i,:] = [ 23. 12. 188. 200.]
522 cord_individual_obj[indivial_i,:] = [ 24. 12. 209. 221.]
523
524 min(cord_individual_obj[:, 3]) = 147.0
525 histol_G_best_iter[iter, 3] = 147.0
526 Begin iteration:
527
528 iter = 16
529 cord_individual_obj[indivial_i,:] = [ 0. 11. 144. 155.]
530 cord_individual_obj[indivial_i,:] = [ 1. 12. 170. 182.]
531 cord_individual_obj[indivial_i,:] = [ 2. 12. 162. 174.]
532 cord_individual_obj[indivial_i,:] = [ 3. 11. 200. 211.]
533 cord_individual_obj[indivial_i,:] = [ 4. 13. 215. 228.]
534 cord_individual_obj[indivial_i,:] = [ 5. 12. 135. 147.]
535 cord_individual_obj[indivial_i,:] = [ 6. 12. 154. 166.]
536 cord_individual_obj[indivial_i,:] = [ 7. 9. 207. 216.]
537 cord_individual_obj[indivial_i,:] = [ 8. 11. 171. 182.]
538 cord_individual_obj[indivial_i,:] = [ 9. 13. 166. 179.]
539 cord_individual_obj[indivial_i,:] = [ 10. 10. 211. 221.]
540 cord_individual_obj[indivial_i,:] = [ 11. 13. 241. 254.]
541 cord_individual_obj[indivial_i,:] = [ 12. 11. 217. 228.]
542 cord_individual_obj[indivial_i,:] = [ 13. 12. 136. 148.]
543 cord_individual_obj[indivial_i,:] = [ 14. 11. 178. 189.]
544 cord_individual_obj[indivial_i,:] = [ 15. 11. 179. 190.]
545 cord_individual_obj[indivial_i,:] = [ 16. 10. 121. 131.]
546 cord_individual_obj[indivial_i,:] = [ 17. 12. 157. 169.]
547 cord_individual_obj[indivial_i,:] = [ 18. 12. 208. 220.]
548 cord_individual_obj[indivial_i,:] = [ 19. 11. 148. 159.]
549 cord_individual_obj[indivial_i,:] = [ 20. 14. 215. 229.]
550 cord_individual_obj[indivial_i,:] = [ 21. 11. 206. 217.]
551 cord_individual_obj[indivial_i,:] = [ 22. 11. 157. 168.]
552 cord_individual_obj[indivial_i,:] = [ 23. 13. 153. 166.]
553 cord_individual_obj[indivial_i,:] = [ 24. 12. 171. 183.]
554
555 min(cord_individual_obj[:, 3]) = 131.0
556 histol_G_best_iter[iter, 3] = 131.0
557 Begin iteration:
558
559 iter = 17
560 cord_individual_obj[indivial_i,:] = [ 0. 12. 145. 157.]
561 cord_individual_obj[indivial_i,:] = [ 1. 12. 210. 222.]
562 cord_individual_obj[indivial_i,:] = [ 2. 12. 165. 177.]
563 cord_individual_obj[indivial_i,:] = [ 3. 12. 179. 191.]
564 cord_individual_obj[indivial_i,:] = [ 4. 11. 156. 167.]
565 cord_individual_obj[indivial_i,:] = [ 5. 12. 187. 199.]
566 cord_individual_obj[indivial_i,:] = [ 6. 11. 164. 175.]
567 cord_individual_obj[indivial_i,:] = [ 7. 12. 178. 190.]
568 cord_individual_obj[indivial_i,:] = [ 8. 11. 171. 182.]
569 cord_individual_obj[indivial_i,:] = [ 9. 11. 192. 203.]
570 cord_individual_obj[indivial_i,:] = [ 10. 12. 181. 193.]
571 cord_individual_obj[indivial_i,:] = [ 11. 10. 121. 131.]
572 cord_individual_obj[indivial_i,:] = [ 12. 12. 160. 172.]
573 cord_individual_obj[indivial_i,:] = [ 13. 11. 189. 200.]
574 cord_individual_obj[indivial_i,:] = [ 14. 14. 211. 225.]
575 cord_individual_obj[indivial_i,:] = [ 15. 12. 187. 199.]
576 cord_individual_obj[indivial_i,:] = [ 16. 13. 156. 169.]
577 cord_individual_obj[indivial_i,:] = [ 17. 13. 160. 173.]
578 cord_individual_obj[indivial_i,:] = [ 18. 11. 225. 236.]
579 cord_individual_obj[indivial_i,:] = [ 19. 11. 116. 127.]
580 cord_individual_obj[indivial_i,:] = [ 20. 12. 146. 158.]
581 cord_individual_obj[indivial_i,:] = [ 21. 10. 237. 247.]
582 cord_individual_obj[indivial_i,:] = [ 22. 11. 191. 202.]
583 cord_individual_obj[indivial_i,:] = [ 23. 11. 278. 289.]

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584     cord_individual_obj[indivial_i, :] = [ 24. 12. 149. 161.]
585
586     min(cord_individual_obj[:, 3]) = 127.0
587     historl_G_best_iter[iter, 3] = 127.0
588 Begin iteration:
589
590 iter = 18
591     cord_individual_obj[indivial_i, :] = [ 0. 9. 224. 233.]
592     cord_individual_obj[indivial_i, :] = [ 1. 11. 157. 168.]
593     cord_individual_obj[indivial_i, :] = [ 2. 11. 174. 185.]
594     cord_individual_obj[indivial_i, :] = [ 3. 11. 160. 171.]
595     cord_individual_obj[indivial_i, :] = [ 4. 12. 212. 224.]
596     cord_individual_obj[indivial_i, :] = [ 5. 12. 203. 215.]
597     cord_individual_obj[indivial_i, :] = [ 6. 12. 188. 200.]
598     cord_individual_obj[indivial_i, :] = [ 7. 11. 202. 213.]
599     cord_individual_obj[indivial_i, :] = [ 8. 12. 159. 171.]
600     cord_individual_obj[indivial_i, :] = [ 9. 10. 178. 188.]
601     cord_individual_obj[indivial_i, :] = [ 10. 12. 233. 245.]
602     cord_individual_obj[indivial_i, :] = [ 11. 12. 178. 190.]
603     cord_individual_obj[indivial_i, :] = [ 12. 13. 253. 266.]
604     cord_individual_obj[indivial_i, :] = [ 13. 15. 196. 211.]
605     cord_individual_obj[indivial_i, :] = [ 14. 12. 158. 170.]
606     cord_individual_obj[indivial_i, :] = [ 15. 12. 192. 204.]
607     cord_individual_obj[indivial_i, :] = [ 16. 13. 172. 185.]
608     cord_individual_obj[indivial_i, :] = [ 17. 11. 172. 183.]
609     cord_individual_obj[indivial_i, :] = [ 18. 10. 190. 200.]
610     cord_individual_obj[indivial_i, :] = [ 19. 12. 204. 216.]
611     cord_individual_obj[indivial_i, :] = [ 20. 12. 228. 240.]
612     cord_individual_obj[indivial_i, :] = [ 21. 11. 143. 154.]
613     cord_individual_obj[indivial_i, :] = [ 22. 13. 149. 162.]
614     cord_individual_obj[indivial_i, :] = [ 23. 11. 116. 127.]
615     cord_individual_obj[indivial_i, :] = [ 24. 11. 163. 174.]
616
617     min(cord_individual_obj[:, 3]) = 127.0
618     historl_G_best_iter[iter, 3] = 127.0
619 Begin iteration:
620
621 iter = 19
622     cord_individual_obj[indivial_i, :] = [ 0. 11. 186. 197.]
623     cord_individual_obj[indivial_i, :] = [ 1. 12. 199. 211.]
624     cord_individual_obj[indivial_i, :] = [ 2. 11. 188. 199.]
625     cord_individual_obj[indivial_i, :] = [ 3. 13. 197. 210.]
626     cord_individual_obj[indivial_i, :] = [ 4. 11. 242. 253.]
627     cord_individual_obj[indivial_i, :] = [ 5. 12. 158. 170.]
628     cord_individual_obj[indivial_i, :] = [ 6. 12. 181. 193.]
629     cord_individual_obj[indivial_i, :] = [ 7. 11. 210. 221.]
630     cord_individual_obj[indivial_i, :] = [ 8. 12. 205. 217.]
631     cord_individual_obj[indivial_i, :] = [ 9. 11. 197. 208.]
632     cord_individual_obj[indivial_i, :] = [ 10. 12. 256. 268.]
633     cord_individual_obj[indivial_i, :] = [ 11. 12. 197. 209.]
634     cord_individual_obj[indivial_i, :] = [ 12. 11. 116. 127.]
635     cord_individual_obj[indivial_i, :] = [ 13. 11. 230. 241.]
636     cord_individual_obj[indivial_i, :] = [ 14. 11. 163. 174.]
637     cord_individual_obj[indivial_i, :] = [ 15. 10. 144. 154.]
638     cord_individual_obj[indivial_i, :] = [ 16. 12. 147. 159.]
639     cord_individual_obj[indivial_i, :] = [ 17. 11. 138. 149.]
640     cord_individual_obj[indivial_i, :] = [ 18. 11. 173. 184.]
641     cord_individual_obj[indivial_i, :] = [ 19. 11. 140. 151.]
642     cord_individual_obj[indivial_i, :] = [ 20. 11. 256. 267.]
643     cord_individual_obj[indivial_i, :] = [ 21. 12. 188. 200.]
644     cord_individual_obj[indivial_i, :] = [ 22. 12. 186. 198.]
645     cord_individual_obj[indivial_i, :] = [ 23. 13. 206. 219.]
646     cord_individual_obj[indivial_i, :] = [ 24. 16. 212. 228.]
647
648     min(cord_individual_obj[:, 3]) = 127.0
649     historl_G_best_iter[iter, 3] = 127.0
650 Begin iteration:
651
652 iter = 20
653     cord_individual_obj[indivial_i, :] = [ 0. 11. 196. 207.]
654     cord_individual_obj[indivial_i, :] = [ 1. 12. 216. 228.]
655     cord_individual_obj[indivial_i, :] = [ 2. 10. 160. 170.]
656     cord_individual_obj[indivial_i, :] = [ 3. 13. 153. 166.]
657     cord_individual_obj[indivial_i, :] = [ 4. 11. 162. 173.]
658     cord_individual_obj[indivial_i, :] = [ 5. 12. 159. 171.]
659     cord_individual_obj[indivial_i, :] = [ 6. 12. 180. 192.]
660     cord_individual_obj[indivial_i, :] = [ 7. 11. 262. 273.]
661     cord_individual_obj[indivial_i, :] = [ 8. 11. 176. 187.]
662     cord_individual_obj[indivial_i, :] = [ 9. 11. 141. 152.]
663     cord_individual_obj[indivial_i, :] = [ 10. 11. 116. 127.]
664     cord_individual_obj[indivial_i, :] = [ 11. 10. 211. 221.]
665     cord_individual_obj[indivial_i, :] = [ 12. 13. 203. 216.]
666     cord_individual_obj[indivial_i, :] = [ 13. 10. 188. 198.]
667     cord_individual_obj[indivial_i, :] = [ 14. 11. 175. 186.]

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668 cord_individual_obj[indivial_i,:] = [ 15. 12. 263. 275.]
669 cord_individual_obj[indivial_i,:] = [ 16. 11. 171. 182.]
670 cord_individual_obj[indivial_i,:] = [ 17. 12. 166. 178.]
671 cord_individual_obj[indivial_i,:] = [ 18. 10. 193. 203.]
672 cord_individual_obj[indivial_i,:] = [ 19. 11. 176. 187.]
673 cord_individual_obj[indivial_i,:] = [ 20. 11. 202. 213.]
674 cord_individual_obj[indivial_i,:] = [ 21. 13. 184. 197.]
675 cord_individual_obj[indivial_i,:] = [ 22. 12. 203. 215.]
676 cord_individual_obj[indivial_i,:] = [ 23. 10. 195. 205.]
677 cord_individual_obj[indivial_i,:] = [ 24. 12. 216. 228.]
678
679 min(cord_individual_obj[:,3]) = 127.0
680 historl_G_best_iter[iter,3] = 127.0
681 Iteration calculate over
682
683
684
685
686 All item are in Bin and:
687 Bin area = 1080
688 Real_area = 274.0
689 Proportion_of_area = 0.2537037037037037
690 BEST_CHROM =
691 berth: [25. 23. 17.5 9.5 16. 2.5 24.5 10. 17. 9. 7.5 22.5 4.5 25.5
692 16.5 1.5 7.5 20. 1.5 13.5]
693 time: [10. 8. 8. 7. 5. 6. 3. 3. 5. 1. 4. 3. 0. 0. 3. 0. 0.
694 0. 0.]
695 num_QC: [3. 3. 4. 4. 4. 2. 4. 2. 5. 5. 3. 4. 3. 2. 3. 3. 7. 3. 3. 3.]
696 Objective function values and some other indicators:
697 Obj0 = 11.00 Obj1 = 116.00 Obj0 + Obj1 = 127.00
698 Total movement of crane: 8.00
699 Total waiting time in berth position: 72.00
700 Total index of q during berthing: 1419.00
701 Specific arrangement for each vessel:
702 V_id: 0 li: 8.0 xi: 25.0 bow of i: 21.0 tail of i: 29.0 gama_i0: 10.0 gama_i1: work
703 11.0 load_i: 80.0 gama_i1 + 1: 12.0 work load gap_i: 0 gama_i1 - gama_i0: 1.0 duration_time_i: 2.0 demand_i: 80.0
704 V_id: 1 .0 .0 load_i: 120.0 li: 4.0 gama_i1 + 1: 10.0 work load gap_i: 0 xi: 23.0 bow of i: 21.0 tail of i: 25.0 gama_i0: 8.0 gama_i1: 9 work
705 V_id: 2 .0 .0 load_i: 120.0 li: 7.0 gama_i1 + 1: 10.0 work load gap_i: 0 xi: 17.5 bow of i: 14.0 tail of i: 21.0 gama_i0: 8.0 gama_i1: 9 work
706 V_id: 3 100.0 load_i: 160.0 li: 9.0 gama_i1 + 1: 9.0 work load gap_i: 0 xi: 9.5 bow of i: 5.0 tail of i: 14.0 gama_i0: 7.0 gama_i1: 8.0
707 V_id: 4 .0 .0 load_i: 160.0 li: 8.0 gama_i1 + 1: 7.0 work load gap_i: 0 xi: 16.0 bow of i: 12.0 tail of i: 20.0 gama_i0: 5.0 gama_i1: 6 work
708 V_id: 5 .0 .0 load_i: 160.0 li: 5.0 gama_i1 + 1: 10.0 work load gap_i: 0 xi: 2.5 bow of i: 0.0 tail of i: 5.0 gama_i0: 6.0 gama_i1: 9 work
709 V_id: 6 .0 .0 load_i: 140.0 li: 9.0 gama_i1 + 1: 8.0 work load gap_i: 0 xi: 24.5 bow of i: 20.0 tail of i: 29.0 gama_i0: 6.0 gama_i1: 7 work
710 V_id: 7 .0 .0 load_i: 80.0 li: 8.0 gama_i1 + 1: 5.0 work load gap_i: 0 xi: 10.0 bow of i: 6.0 tail of i: 14.0 gama_i0: 3.0 gama_i1: 4 work
711 V_id: 8 .0 .0 load_i: 100.0 li: 6.0 gama_i1 + 1: 4.0 work load gap_i: 0 xi: 17.0 bow of i: 14.0 tail of i: 20.0 gama_i0: 3.0 gama_i1: 3 work
712 V_id: 9 100.0 load_i: 120.0 li: 6.0 gama_i1 + 1: 6.0 work load gap_i: 0 xi: 9.0 bow of i: 6.0 tail of i: 12.0 gama_i0: 5.0 gama_i1: 5 work
713 V_id: 10 .0 .0 load_i: 120.0 li: 9.0 gama_i1 + 1: 3.0 work load gap_i: 0 xi: 7.5 bow of i: 3.0 tail of i: 12.0 gama_i0: 1.0 gama_i1: 2 work
714 V_id: 11 : 5.0 load_i: 160.0 li: 5.0 gama_i1 + 1: 6.0 work load gap_i: 0 xi: 22.5 bow of i: 20.0 tail of i: 25.0 gama_i0: 4.0 gama_i1: work
715 V_id: 12 140.0 load_i: 140.0 li: 3.0 gama_i1 + 1: 6.0 work load gap_i: 0 xi: 4.5 bow of i: 3.0 tail of i: 6.0 gama_i0: 3.0 gama_i1: 5 work
716 V_id: 13 : 3.0 load_i: 140.0 li: 7.0 gama_i1 + 1: 4.0 work load gap_i: 0 xi: 25.5 bow of i: 22.0 tail of i: 29.0 gama_i0: 0.0 gama_i1: work
717 V_id: 14 : 2.0 load_i: 140.0 li: 3.0 gama_i1 + 1: 3.0 work load gap_i: 0 xi: 16.5 bow of i: 15.0 tail of i: 18.0 gama_i0: 0.0 gama_i1: work
718 V_id: 15 100.0 load_i: 140.0 li: 3.0 gama_i1 + 1: 5.0 work load gap_i: 0 xi: 1.5 bow of i: 0.0 tail of i: 3.0 gama_i0: 3.0 gama_i1: 4 work
719 V_id: 16 .0 .0 load_i: 140.0 li: 9.0 gama_i1 + 1: 1.0 work load gap_i: 0 xi: 7.5 bow of i: 3.0 tail of i: 12.0 gama_i0: 0.0 gama_i1: 0 work

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unknown

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718 load_i: 100.0          work load gap_i: 0
719   V_id: 17           li: 4.0           xi: 20.0           bow of i: 18.0           tail of i: 22.0           gama_i0: 0.0           gama_i1: 100.0
    : 1.0             gama_i1 + 1: 2.0      gama_i1 - gama_i0: 1.0           duration_time_i: 2.0
load_i: 100.0          work load gap_i: 0
720   V_id: 18           li: 3.0           xi: 1.5           bow of i: 0.0           tail of i: 3.0           gama_i0: 0.0           gama_i1: 2.0
    : 1.0             gama_i1 + 1: 3.0      gama_i1 - gama_i0: 2.0           duration_time_i: 3.0
140.0          work load gap_i: 0
721   V_id: 19           li: 3.0           xi: 13.5           bow of i: 12.0           tail of i: 15.0           gama_i0: 0.0           gama_i1: 120.0
    : 1.0             gama_i1 + 1: 2.0      gama_i1 - gama_i0: 1.0           duration_time_i: 2.0
load_i: 120.0          work load gap_i: 0
722
723 Algorithm finished and the total CPU time: 526 s
724 End
725
```