

unknown

```

1 "E:\1_20\3_00000\1_00000\1_0000000\1_0000000_0000\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=52820
2
3 import sys; print('Python %s on %s' % (sys.version, sys.platform))
4 sys.path.extend(['E:\1_20\3_00000\1_00000\1_0000000\1_0000000_0000\1_LW_00002\6_0000\2 python code\01_My_Python_Code', 'E:/1_20\3_00000\1_00000\1_0000000\1_0000000_0000\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_00000\1_00000\1_0000000\1_0000000_0000\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_00000\1_0000000\1_0000000_0000\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_9_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 = 0.03796131946743253
29         r2 = 0.03796131946743253
30 Begin iteration:
31
32 iter = 0
33     cord_individual_obj[individual_i, :] = [ 0. 10. 540. 550.]
34     cord_individual_obj[individual_i, :] = [ 1. 12. 356. 368.]
35     cord_individual_obj[individual_i, :] = [ 2. 11. 424. 435.]
36     cord_individual_obj[individual_i, :] = [ 3. 11. 362. 373.]
37     cord_individual_obj[individual_i, :] = [ 4. 10. 393. 403.]
38     cord_individual_obj[individual_i, :] = [ 5. 10. 410. 420.]
39     cord_individual_obj[individual_i, :] = [ 6. 12. 385. 397.]
40     cord_individual_obj[individual_i, :] = [ 7. 14. 470. 484.]
41     cord_individual_obj[individual_i, :] = [ 8. 10. 400. 410.]
42     cord_individual_obj[individual_i, :] = [ 9. 12. 343. 355.]
43     cord_individual_obj[individual_i, :] = [ 10. 13. 367. 380.]
44     cord_individual_obj[individual_i, :] = [ 11. 12. 324. 336.]
45     cord_individual_obj[individual_i, :] = [ 12. 12. 339. 351.]
46     cord_individual_obj[individual_i, :] = [ 13. 13. 344. 357.]
47     cord_individual_obj[individual_i, :] = [ 14. 13. 256. 269.]
48     cord_individual_obj[individual_i, :] = [ 15. 10. 421. 431.]
49     cord_individual_obj[individual_i, :] = [ 16. 9. 366. 375.]
50     cord_individual_obj[individual_i, :] = [ 17. 10. 392. 402.]
51     cord_individual_obj[individual_i, :] = [ 18. 10. 414. 424.]
52     cord_individual_obj[individual_i, :] = [ 19. 10. 280. 290.]
53     cord_individual_obj[individual_i, :] = [ 20. 12. 300. 312.]
54     cord_individual_obj[individual_i, :] = [ 21. 10. 383. 393.]
55     cord_individual_obj[individual_i, :] = [ 22. 12. 365. 377.]
56     cord_individual_obj[individual_i, :] = [ 23. 12. 444. 456.]
57     cord_individual_obj[individual_i, :] = [ 24. 11. 425. 436.]
58
59 min(cord_individual_obj[:, 3]) = 269.0
60 historl_G_best_iter[iter, 3] = 269.0
61 Begin iteration:
62
63 iter = 1
64     cord_individual_obj[individual_i, :] = [ 0. 13. 256. 269.]
65     cord_individual_obj[individual_i, :] = [ 1. 12. 345. 357.]
66     cord_individual_obj[individual_i, :] = [ 2. 12. 321. 333.]
67     cord_individual_obj[individual_i, :] = [ 3. 12. 267. 279.]
68     cord_individual_obj[individual_i, :] = [ 4. 10. 397. 407.]
69     cord_individual_obj[individual_i, :] = [ 5. 12. 421. 433.]
70     cord_individual_obj[individual_i, :] = [ 6. 11. 353. 364.]
71     cord_individual_obj[individual_i, :] = [ 7. 12. 367. 379.]
72     cord_individual_obj[individual_i, :] = [ 8. 10. 398. 408.]
73     cord_individual_obj[individual_i, :] = [ 9. 11. 274. 285.]
74     cord_individual_obj[individual_i, :] = [ 10. 10. 347. 357.]
75     cord_individual_obj[individual_i, :] = [ 11. 11. 346. 357.]
76     cord_individual_obj[individual_i, :] = [ 12. 9. 413. 422.]
77     cord_individual_obj[individual_i, :] = [ 13. 12. 333. 345.]
78     cord_individual_obj[individual_i, :] = [ 14. 10. 310. 320.]
79     cord_individual_obj[individual_i, :] = [ 15. 10. 421. 431.]

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80 cord_individual_obj[indivial_i,:] = [ 16. 12. 373. 385.]
81 cord_individual_obj[indivial_i,:] = [ 17. 11. 350. 361.]
82 cord_individual_obj[indivial_i,:] = [ 18. 10. 319. 329.]
83 cord_individual_obj[indivial_i,:] = [ 19. 10. 276. 286.]
84 cord_individual_obj[indivial_i,:] = [ 20. 12. 261. 273.]
85 cord_individual_obj[indivial_i,:] = [ 21. 11. 413. 424.]
86 cord_individual_obj[indivial_i,:] = [ 22. 12. 348. 360.]
87 cord_individual_obj[indivial_i,:] = [ 23. 12. 285. 297.]
88 cord_individual_obj[indivial_i,:] = [ 24. 10. 367. 377.]
89
90 min(cord_individual_obj[:,3]) = 269.0
91 historl_G_best_iter[iter, 3] = 269.0
92 Begin iteration:
93
94 iter = 2
95 cord_individual_obj[indivial_i,:] = [ 0. 10. 342. 352.]
96 cord_individual_obj[indivial_i,:] = [ 1. 12. 263. 275.]
97 cord_individual_obj[indivial_i,:] = [ 2. 12. 409. 421.]
98 cord_individual_obj[indivial_i,:] = [ 3. 11. 381. 392.]
99 cord_individual_obj[indivial_i,:] = [ 4. 10. 352. 362.]
100 cord_individual_obj[indivial_i,:] = [ 5. 13. 256. 269.]
101 cord_individual_obj[indivial_i,:] = [ 6. 9. 349. 358.]
102 cord_individual_obj[indivial_i,:] = [ 7. 12. 386. 398.]
103 cord_individual_obj[indivial_i,:] = [ 8. 9. 325. 334.]
104 cord_individual_obj[indivial_i,:] = [ 9. 10. 224. 234.]
105 cord_individual_obj[indivial_i,:] = [ 10. 11. 397. 408.]
106 cord_individual_obj[indivial_i,:] = [ 11. 10. 260. 270.]
107 cord_individual_obj[indivial_i,:] = [ 12. 13. 343. 356.]
108 cord_individual_obj[indivial_i,:] = [ 13. 11. 307. 318.]
109 cord_individual_obj[indivial_i,:] = [ 14. 11. 255. 266.]
110 cord_individual_obj[indivial_i,:] = [ 15. 11. 383. 394.]
111 cord_individual_obj[indivial_i,:] = [ 16. 10. 333. 343.]
112 cord_individual_obj[indivial_i,:] = [ 17. 9. 333. 342.]
113 cord_individual_obj[indivial_i,:] = [ 18. 14. 446. 460.]
114 cord_individual_obj[indivial_i,:] = [ 19. 11. 360. 371.]
115 cord_individual_obj[indivial_i,:] = [ 20. 12. 262. 274.]
116 cord_individual_obj[indivial_i,:] = [ 21. 12. 308. 320.]
117 cord_individual_obj[indivial_i,:] = [ 22. 10. 349. 359.]
118 cord_individual_obj[indivial_i,:] = [ 23. 13. 362. 375.]
119 cord_individual_obj[indivial_i,:] = [ 24. 10. 379. 389.]
120
121 min(cord_individual_obj[:,3]) = 234.0
122 historl_G_best_iter[iter, 3] = 234.0
123 Begin iteration:
124
125 iter = 3
126 cord_individual_obj[indivial_i,:] = [ 0. 13. 260. 273.]
127 cord_individual_obj[indivial_i,:] = [ 1. 9. 255. 264.]
128 cord_individual_obj[indivial_i,:] = [ 2. 12. 380. 392.]
129 cord_individual_obj[indivial_i,:] = [ 3. 12. 300. 312.]
130 cord_individual_obj[indivial_i,:] = [ 4. 12. 420. 432.]
131 cord_individual_obj[indivial_i,:] = [ 5. 11. 378. 389.]
132 cord_individual_obj[indivial_i,:] = [ 6. 10. 343. 353.]
133 cord_individual_obj[indivial_i,:] = [ 7. 10. 207. 217.]
134 cord_individual_obj[indivial_i,:] = [ 8. 10. 356. 366.]
135 cord_individual_obj[indivial_i,:] = [ 9. 11. 265. 276.]
136 cord_individual_obj[indivial_i,:] = [ 10. 13. 301. 314.]
137 cord_individual_obj[indivial_i,:] = [ 11. 12. 267. 279.]
138 cord_individual_obj[indivial_i,:] = [ 12. 12. 421. 433.]
139 cord_individual_obj[indivial_i,:] = [ 13. 12. 212. 224.]
140 cord_individual_obj[indivial_i,:] = [ 14. 10. 248. 258.]
141 cord_individual_obj[indivial_i,:] = [ 15. 11. 291. 302.]
142 cord_individual_obj[indivial_i,:] = [ 16. 11. 303. 314.]
143 cord_individual_obj[indivial_i,:] = [ 17. 11. 300. 311.]
144 cord_individual_obj[indivial_i,:] = [ 18. 10. 224. 234.]
145 cord_individual_obj[indivial_i,:] = [ 19. 11. 255. 266.]
146 cord_individual_obj[indivial_i,:] = [ 20. 12. 309. 321.]
147 cord_individual_obj[indivial_i,:] = [ 21. 10. 275. 285.]
148 cord_individual_obj[indivial_i,:] = [ 22. 12. 414. 426.]
149 cord_individual_obj[indivial_i,:] = [ 23. 11. 315. 326.]
150 cord_individual_obj[indivial_i,:] = [ 24. 10. 331. 341.]
151
152 min(cord_individual_obj[:,3]) = 217.0
153 historl_G_best_iter[iter, 3] = 217.0
154 Begin iteration:
155
156 iter = 4
157 cord_individual_obj[indivial_i,:] = [ 0. 11. 337. 348.]
158 cord_individual_obj[indivial_i,:] = [ 1. 12. 288. 300.]
159 cord_individual_obj[indivial_i,:] = [ 2. 11. 308. 319.]
160 cord_individual_obj[indivial_i,:] = [ 3. 12. 306. 318.]
161 cord_individual_obj[indivial_i,:] = [ 4. 11. 351. 362.]
162 cord_individual_obj[indivial_i,:] = [ 5. 12. 283. 295.]
163 cord_individual_obj[indivial_i,:] = [ 6. 10. 362. 372.]

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164 cord_individual_obj[indivial_i,:] = [ 7. 12. 378. 390.]
165 cord_individual_obj[indivial_i,:] = [ 8. 10. 272. 282.]
166 cord_individual_obj[indivial_i,:] = [ 9. 11. 236. 247.]
167 cord_individual_obj[indivial_i,:] = [ 10. 13. 431. 444.]
168 cord_individual_obj[indivial_i,:] = [ 11. 10. 268. 278.]
169 cord_individual_obj[indivial_i,:] = [ 12. 10. 207. 217.]
170 cord_individual_obj[indivial_i,:] = [ 13. 12. 265. 277.]
171 cord_individual_obj[indivial_i,:] = [ 14. 10. 249. 259.]
172 cord_individual_obj[indivial_i,:] = [ 15. 10. 382. 392.]
173 cord_individual_obj[indivial_i,:] = [ 16. 13. 379. 392.]
174 cord_individual_obj[indivial_i,:] = [ 17. 11. 327. 338.]
175 cord_individual_obj[indivial_i,:] = [ 18. 11. 289. 300.]
176 cord_individual_obj[indivial_i,:] = [ 19. 10. 309. 319.]
177 cord_individual_obj[indivial_i,:] = [ 20. 11. 401. 412.]
178 cord_individual_obj[indivial_i,:] = [ 21. 11. 330. 341.]
179 cord_individual_obj[indivial_i,:] = [ 22. 12. 447. 459.]
180 cord_individual_obj[indivial_i,:] = [ 23. 10. 312. 322.]
181 cord_individual_obj[indivial_i,:] = [ 24. 9. 377. 386.]
182
183 min(cord_individual_obj[:,3]) = 217.0
184 historl_G_best_iter[iter, 3] = 217.0
185 Begin iteration:
186
187 iter = 5
188 cord_individual_obj[indivial_i,:] = [ 0. 10. 222. 232.]
189 cord_individual_obj[indivial_i,:] = [ 1. 9. 186. 195.]
190 cord_individual_obj[indivial_i,:] = [ 2. 11. 338. 349.]
191 cord_individual_obj[indivial_i,:] = [ 3. 9. 236. 245.]
192 cord_individual_obj[indivial_i,:] = [ 4. 12. 309. 321.]
193 cord_individual_obj[indivial_i,:] = [ 5. 13. 294. 307.]
194 cord_individual_obj[indivial_i,:] = [ 6. 11. 402. 413.]
195 cord_individual_obj[indivial_i,:] = [ 7. 12. 271. 283.]
196 cord_individual_obj[indivial_i,:] = [ 8. 13. 374. 387.]
197 cord_individual_obj[indivial_i,:] = [ 9. 10. 332. 342.]
198 cord_individual_obj[indivial_i,:] = [ 10. 11. 328. 339.]
199 cord_individual_obj[indivial_i,:] = [ 11. 12. 225. 237.]
200 cord_individual_obj[indivial_i,:] = [ 12. 11. 297. 308.]
201 cord_individual_obj[indivial_i,:] = [ 13. 10. 258. 268.]
202 cord_individual_obj[indivial_i,:] = [ 14. 11. 271. 282.]
203 cord_individual_obj[indivial_i,:] = [ 15. 12. 269. 281.]
204 cord_individual_obj[indivial_i,:] = [ 16. 13. 326. 339.]
205 cord_individual_obj[indivial_i,:] = [ 17. 12. 284. 296.]
206 cord_individual_obj[indivial_i,:] = [ 18. 11. 295. 306.]
207 cord_individual_obj[indivial_i,:] = [ 19. 10. 316. 326.]
208 cord_individual_obj[indivial_i,:] = [ 20. 13. 269. 282.]
209 cord_individual_obj[indivial_i,:] = [ 21. 11. 221. 232.]
210 cord_individual_obj[indivial_i,:] = [ 22. 10. 207. 217.]
211 cord_individual_obj[indivial_i,:] = [ 23. 12. 326. 338.]
212 cord_individual_obj[indivial_i,:] = [ 24. 10. 306. 316.]
213
214 min(cord_individual_obj[:,3]) = 195.0
215 historl_G_best_iter[iter, 3] = 195.0
216 Begin iteration:
217
218 iter = 6
219 cord_individual_obj[indivial_i,:] = [ 0. 11. 364. 375.]
220 cord_individual_obj[indivial_i,:] = [ 1. 11. 310. 321.]
221 cord_individual_obj[indivial_i,:] = [ 2. 13. 369. 382.]
222 cord_individual_obj[indivial_i,:] = [ 3. 11. 280. 291.]
223 cord_individual_obj[indivial_i,:] = [ 4. 12. 366. 378.]
224 cord_individual_obj[indivial_i,:] = [ 5. 13. 280. 293.]
225 cord_individual_obj[indivial_i,:] = [ 6. 9. 186. 195.]
226 cord_individual_obj[indivial_i,:] = [ 7. 12. 323. 335.]
227 cord_individual_obj[indivial_i,:] = [ 8. 12. 330. 342.]
228 cord_individual_obj[indivial_i,:] = [ 9. 11. 295. 306.]
229 cord_individual_obj[indivial_i,:] = [ 10. 10. 270. 280.]
230 cord_individual_obj[indivial_i,:] = [ 11. 11. 285. 296.]
231 cord_individual_obj[indivial_i,:] = [ 12. 12. 274. 286.]
232 cord_individual_obj[indivial_i,:] = [ 13. 11. 293. 304.]
233 cord_individual_obj[indivial_i,:] = [ 14. 12. 256. 268.]
234 cord_individual_obj[indivial_i,:] = [ 15. 10. 351. 361.]
235 cord_individual_obj[indivial_i,:] = [ 16. 12. 277. 289.]
236 cord_individual_obj[indivial_i,:] = [ 17. 11. 255. 266.]
237 cord_individual_obj[indivial_i,:] = [ 18. 12. 259. 271.]
238 cord_individual_obj[indivial_i,:] = [ 19. 13. 252. 265.]
239 cord_individual_obj[indivial_i,:] = [ 20. 10. 289. 299.]
240 cord_individual_obj[indivial_i,:] = [ 21. 14. 270. 284.]
241 cord_individual_obj[indivial_i,:] = [ 22. 9. 298. 307.]
242 cord_individual_obj[indivial_i,:] = [ 23. 11. 293. 304.]
243 cord_individual_obj[indivial_i,:] = [ 24. 10. 326. 336.]
244
245 min(cord_individual_obj[:,3]) = 195.0
246 historl_G_best_iter[iter, 3] = 195.0
247 Begin iteration:

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248
249 iter = 7
250 cord_individual_obj[indivial_i, :] = [ 0. 11. 256. 267.]
251 cord_individual_obj[indivial_i, :] = [ 1. 14. 301. 315.]
252 cord_individual_obj[indivial_i, :] = [ 2. 9. 186. 195.]
253 cord_individual_obj[indivial_i, :] = [ 3. 13. 295. 308.]
254 cord_individual_obj[indivial_i, :] = [ 4. 11. 346. 357.]
255 cord_individual_obj[indivial_i, :] = [ 5. 11. 254. 265.]
256 cord_individual_obj[indivial_i, :] = [ 6. 13. 328. 341.]
257 cord_individual_obj[indivial_i, :] = [ 7. 12. 306. 318.]
258 cord_individual_obj[indivial_i, :] = [ 8. 12. 264. 276.]
259 cord_individual_obj[indivial_i, :] = [ 9. 11. 355. 366.]
260 cord_individual_obj[indivial_i, :] = [ 10. 11. 230. 241.]
261 cord_individual_obj[indivial_i, :] = [ 11. 12. 269. 281.]
262 cord_individual_obj[indivial_i, :] = [ 12. 11. 291. 302.]
263 cord_individual_obj[indivial_i, :] = [ 13. 14. 318. 332.]
264 cord_individual_obj[indivial_i, :] = [ 14. 12. 296. 308.]
265 cord_individual_obj[indivial_i, :] = [ 15. 10. 279. 289.]
266 cord_individual_obj[indivial_i, :] = [ 16. 12. 259. 271.]
267 cord_individual_obj[indivial_i, :] = [ 17. 14. 249. 263.]
268 cord_individual_obj[indivial_i, :] = [ 18. 14. 284. 298.]
269 cord_individual_obj[indivial_i, :] = [ 19. 13. 267. 280.]
270 cord_individual_obj[indivial_i, :] = [ 20. 12. 334. 346.]
271 cord_individual_obj[indivial_i, :] = [ 21. 15. 299. 314.]
272 cord_individual_obj[indivial_i, :] = [ 22. 10. 315. 325.]
273 cord_individual_obj[indivial_i, :] = [ 23. 12. 255. 267.]
274 cord_individual_obj[indivial_i, :] = [ 24. 10. 247. 257.]
275

276 min(cord_individual_obj[:, 3]) = 195.0
277 historl_G_best_iter[iter, 3] = 195.0
278 Begin iteration:
279
280 iter = 8
281 cord_individual_obj[indivial_i, :] = [ 0. 10. 267. 277.]
282 cord_individual_obj[indivial_i, :] = [ 1. 12. 273. 285.]
283 cord_individual_obj[indivial_i, :] = [ 2. 12. 296. 308.]
284 cord_individual_obj[indivial_i, :] = [ 3. 13. 354. 367.]
285 cord_individual_obj[indivial_i, :] = [ 4. 12. 331. 343.]
286 cord_individual_obj[indivial_i, :] = [ 5. 11. 250. 261.]
287 cord_individual_obj[indivial_i, :] = [ 6. 10. 251. 261.]
288 cord_individual_obj[indivial_i, :] = [ 7. 12. 357. 369.]
289 cord_individual_obj[indivial_i, :] = [ 8. 11. 307. 318.]
290 cord_individual_obj[indivial_i, :] = [ 9. 9. 186. 195.]
291 cord_individual_obj[indivial_i, :] = [ 10. 10. 254. 264.]
292 cord_individual_obj[indivial_i, :] = [ 11. 13. 286. 299.]
293 cord_individual_obj[indivial_i, :] = [ 12. 10. 298. 308.]
294 cord_individual_obj[indivial_i, :] = [ 13. 13. 260. 273.]
295 cord_individual_obj[indivial_i, :] = [ 14. 9. 268. 277.]
296 cord_individual_obj[indivial_i, :] = [ 15. 9. 290. 299.]
297 cord_individual_obj[indivial_i, :] = [ 16. 12. 305. 317.]
298 cord_individual_obj[indivial_i, :] = [ 17. 13. 303. 316.]
299 cord_individual_obj[indivial_i, :] = [ 18. 10. 242. 252.]
300 cord_individual_obj[indivial_i, :] = [ 19. 12. 244. 256.]
301 cord_individual_obj[indivial_i, :] = [ 20. 12. 284. 296.]
302 cord_individual_obj[indivial_i, :] = [ 21. 13. 288. 301.]
303 cord_individual_obj[indivial_i, :] = [ 22. 11. 216. 227.]
304 cord_individual_obj[indivial_i, :] = [ 23. 11. 264. 275.]
305 cord_individual_obj[indivial_i, :] = [ 24. 11. 302. 313.]
306

307 min(cord_individual_obj[:, 3]) = 195.0
308 historl_G_best_iter[iter, 3] = 195.0
309 Begin iteration:
310
311 iter = 9
312 cord_individual_obj[indivial_i, :] = [ 0. 10. 298. 308.]
313 cord_individual_obj[indivial_i, :] = [ 1. 13. 229. 242.]
314 cord_individual_obj[indivial_i, :] = [ 2. 13. 262. 275.]
315 cord_individual_obj[indivial_i, :] = [ 3. 12. 300. 312.]
316 cord_individual_obj[indivial_i, :] = [ 4. 12. 316. 328.]
317 cord_individual_obj[indivial_i, :] = [ 5. 10. 256. 266.]
318 cord_individual_obj[indivial_i, :] = [ 6. 12. 264. 276.]
319 cord_individual_obj[indivial_i, :] = [ 7. 9. 186. 195.]
320 cord_individual_obj[indivial_i, :] = [ 8. 10. 295. 305.]
321 cord_individual_obj[indivial_i, :] = [ 9. 12. 309. 321.]
322 cord_individual_obj[indivial_i, :] = [ 10. 14. 319. 333.]
323 cord_individual_obj[indivial_i, :] = [ 11. 12. 279. 291.]
324 cord_individual_obj[indivial_i, :] = [ 12. 15. 275. 290.]
325 cord_individual_obj[indivial_i, :] = [ 13. 13. 261. 274.]
326 cord_individual_obj[indivial_i, :] = [ 14. 11. 286. 297.]
327 cord_individual_obj[indivial_i, :] = [ 15. 11. 306. 317.]
328 cord_individual_obj[indivial_i, :] = [ 16. 15. 306. 321.]
329 cord_individual_obj[indivial_i, :] = [ 17. 11. 293. 304.]
330 cord_individual_obj[indivial_i, :] = [ 18. 13. 322. 335.]
331 cord_individual_obj[indivial_i, :] = [ 19. 12. 256. 268.]

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```

332 cord_individual_obj[indivial_i, :] = [ 20. 11. 284. 295.]
333 cord_individual_obj[indivial_i, :] = [ 21. 13. 291. 304.]
334 cord_individual_obj[indivial_i, :] = [ 22. 10. 358. 368.]
335 cord_individual_obj[indivial_i, :] = [ 23. 11. 237. 248.]
336 cord_individual_obj[indivial_i, :] = [ 24. 10. 267. 277.]
337
338 min(cord_individual_obj[:, 3]) = 195.0
339 histol_G_best_iter[iter, 3] = 195.0
340 Begin iteration:
341
342 iter = 10
343 cord_individual_obj[indivial_i, :] = [ 0. 12. 256. 268.]
344 cord_individual_obj[indivial_i, :] = [ 1. 11. 280. 291.]
345 cord_individual_obj[indivial_i, :] = [ 2. 12. 232. 244.]
346 cord_individual_obj[indivial_i, :] = [ 3. 9. 198. 207.]
347 cord_individual_obj[indivial_i, :] = [ 4. 14. 306. 320.]
348 cord_individual_obj[indivial_i, :] = [ 5. 12. 256. 268.]
349 cord_individual_obj[indivial_i, :] = [ 6. 12. 321. 333.]
350 cord_individual_obj[indivial_i, :] = [ 7. 15. 312. 327.]
351 cord_individual_obj[indivial_i, :] = [ 8. 10. 212. 222.]
352 cord_individual_obj[indivial_i, :] = [ 9. 10. 253. 263.]
353 cord_individual_obj[indivial_i, :] = [ 10. 11. 288. 299.]
354 cord_individual_obj[indivial_i, :] = [ 11. 12. 239. 251.]
355 cord_individual_obj[indivial_i, :] = [ 12. 11. 237. 248.]
356 cord_individual_obj[indivial_i, :] = [ 13. 11. 276. 287.]
357 cord_individual_obj[indivial_i, :] = [ 14. 11. 226. 237.]
358 cord_individual_obj[indivial_i, :] = [ 15. 11. 246. 257.]
359 cord_individual_obj[indivial_i, :] = [ 16. 12. 245. 257.]
360 cord_individual_obj[indivial_i, :] = [ 17. 10. 255. 265.]
361 cord_individual_obj[indivial_i, :] = [ 18. 13. 234. 247.]
362 cord_individual_obj[indivial_i, :] = [ 19. 11. 244. 255.]
363 cord_individual_obj[indivial_i, :] = [ 20. 11. 210. 221.]
364 cord_individual_obj[indivial_i, :] = [ 21. 13. 185. 198.]
365 cord_individual_obj[indivial_i, :] = [ 22. 9. 186. 195.]
366 cord_individual_obj[indivial_i, :] = [ 23. 9. 205. 214.]
367 cord_individual_obj[indivial_i, :] = [ 24. 10. 255. 265.]
368
369 min(cord_individual_obj[:, 3]) = 195.0
370 histol_G_best_iter[iter, 3] = 195.0
371 Begin iteration:
372
373 iter = 11
374 cord_individual_obj[indivial_i, :] = [ 0. 9. 326. 335.]
375 cord_individual_obj[indivial_i, :] = [ 1. 11. 289. 300.]
376 cord_individual_obj[indivial_i, :] = [ 2. 12. 367. 379.]
377 cord_individual_obj[indivial_i, :] = [ 3. 13. 317. 330.]
378 cord_individual_obj[indivial_i, :] = [ 4. 11. 254. 265.]
379 cord_individual_obj[indivial_i, :] = [ 5. 9. 240. 249.]
380 cord_individual_obj[indivial_i, :] = [ 6. 9. 186. 195.]
381 cord_individual_obj[indivial_i, :] = [ 7. 11. 379. 390.]
382 cord_individual_obj[indivial_i, :] = [ 8. 9. 198. 207.]
383 cord_individual_obj[indivial_i, :] = [ 9. 13. 335. 348.]
384 cord_individual_obj[indivial_i, :] = [ 10. 12. 253. 265.]
385 cord_individual_obj[indivial_i, :] = [ 11. 11. 200. 211.]
386 cord_individual_obj[indivial_i, :] = [ 12. 10. 269. 279.]
387 cord_individual_obj[indivial_i, :] = [ 13. 13. 280. 293.]
388 cord_individual_obj[indivial_i, :] = [ 14. 10. 289. 299.]
389 cord_individual_obj[indivial_i, :] = [ 15. 9. 226. 235.]
390 cord_individual_obj[indivial_i, :] = [ 16. 13. 307. 320.]
391 cord_individual_obj[indivial_i, :] = [ 17. 12. 256. 268.]
392 cord_individual_obj[indivial_i, :] = [ 18. 10. 216. 226.]
393 cord_individual_obj[indivial_i, :] = [ 19. 11. 231. 242.]
394 cord_individual_obj[indivial_i, :] = [ 20. 13. 302. 315.]
395 cord_individual_obj[indivial_i, :] = [ 21. 11. 321. 332.]
396 cord_individual_obj[indivial_i, :] = [ 22. 11. 301. 312.]
397 cord_individual_obj[indivial_i, :] = [ 23. 12. 287. 299.]
398 cord_individual_obj[indivial_i, :] = [ 24. 11. 256. 267.]
399
400 min(cord_individual_obj[:, 3]) = 195.0
401 histol_G_best_iter[iter, 3] = 195.0
402 Begin iteration:
403
404 iter = 12
405 cord_individual_obj[indivial_i, :] = [ 0. 11. 270. 281.]
406 cord_individual_obj[indivial_i, :] = [ 1. 10. 234. 244.]
407 cord_individual_obj[indivial_i, :] = [ 2. 12. 282. 294.]
408 cord_individual_obj[indivial_i, :] = [ 3. 12. 274. 286.]
409 cord_individual_obj[indivial_i, :] = [ 4. 13. 245. 258.]
410 cord_individual_obj[indivial_i, :] = [ 5. 11. 252. 263.]
411 cord_individual_obj[indivial_i, :] = [ 6. 10. 257. 267.]
412 cord_individual_obj[indivial_i, :] = [ 7. 9. 186. 195.]
413 cord_individual_obj[indivial_i, :] = [ 8. 12. 225. 237.]
414 cord_individual_obj[indivial_i, :] = [ 9. 12. 311. 323.]
415 cord_individual_obj[indivial_i, :] = [ 10. 11. 260. 271.]

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416 cord_individual_obj[indivial_i,:] = [ 11. 12. 289. 301.]
417 cord_individual_obj[indivial_i,:] = [ 12. 10. 247. 257.]
418 cord_individual_obj[indivial_i,:] = [ 13. 12. 261. 273.]
419 cord_individual_obj[indivial_i,:] = [ 14. 10. 178. 188.]
420 cord_individual_obj[indivial_i,:] = [ 15. 11. 239. 250.]
421 cord_individual_obj[indivial_i,:] = [ 16. 10. 219. 229.]
422 cord_individual_obj[indivial_i,:] = [ 17. 13. 230. 243.]
423 cord_individual_obj[indivial_i,:] = [ 18. 13. 314. 327.]
424 cord_individual_obj[indivial_i,:] = [ 19. 10. 227. 237.]
425 cord_individual_obj[indivial_i,:] = [ 20. 11. 251. 262.]
426 cord_individual_obj[indivial_i,:] = [ 21. 14. 282. 296.]
427 cord_individual_obj[indivial_i,:] = [ 22. 12. 263. 275.]
428 cord_individual_obj[indivial_i,:] = [ 23. 11. 260. 271.]
429 cord_individual_obj[indivial_i,:] = [ 24. 11. 329. 340.]
430
431 min(cord_individual_obj[:,3]) = 188.0
432 histol_G_best_iter[iter,3] = 188.0
433 Begin iteration:
434
435 iter = 13
436 cord_individual_obj[indivial_i,:] = [ 0. 11. 291. 302.]
437 cord_individual_obj[indivial_i,:] = [ 1. 10. 281. 291.]
438 cord_individual_obj[indivial_i,:] = [ 2. 10. 283. 293.]
439 cord_individual_obj[indivial_i,:] = [ 3. 12. 271. 283.]
440 cord_individual_obj[indivial_i,:] = [ 4. 12. 267. 279.]
441 cord_individual_obj[indivial_i,:] = [ 5. 11. 259. 270.]
442 cord_individual_obj[indivial_i,:] = [ 6. 10. 334. 344.]
443 cord_individual_obj[indivial_i,:] = [ 7. 13. 216. 229.]
444 cord_individual_obj[indivial_i,:] = [ 8. 10. 220. 230.]
445 cord_individual_obj[indivial_i,:] = [ 9. 11. 365. 376.]
446 cord_individual_obj[indivial_i,:] = [ 10. 13. 271. 284.]
447 cord_individual_obj[indivial_i,:] = [ 11. 11. 227. 238.]
448 cord_individual_obj[indivial_i,:] = [ 12. 14. 276. 290.]
449 cord_individual_obj[indivial_i,:] = [ 13. 11. 336. 347.]
450 cord_individual_obj[indivial_i,:] = [ 14. 10. 246. 256.]
451 cord_individual_obj[indivial_i,:] = [ 15. 10. 262. 272.]
452 cord_individual_obj[indivial_i,:] = [ 16. 11. 296. 307.]
453 cord_individual_obj[indivial_i,:] = [ 17. 11. 315. 326.]
454 cord_individual_obj[indivial_i,:] = [ 18. 10. 314. 324.]
455 cord_individual_obj[indivial_i,:] = [ 19. 13. 312. 325.]
456 cord_individual_obj[indivial_i,:] = [ 20. 11. 321. 332.]
457 cord_individual_obj[indivial_i,:] = [ 21. 10. 258. 268.]
458 cord_individual_obj[indivial_i,:] = [ 22. 12. 281. 293.]
459 cord_individual_obj[indivial_i,:] = [ 23. 10. 243. 253.]
460 cord_individual_obj[indivial_i,:] = [ 24. 10. 178. 188.]
461
462 min(cord_individual_obj[:,3]) = 188.0
463 histol_G_best_iter[iter,3] = 188.0
464 Begin iteration:
465
466 iter = 14
467 cord_individual_obj[indivial_i,:] = [ 0. 11. 248. 259.]
468 cord_individual_obj[indivial_i,:] = [ 1. 10. 207. 217.]
469 cord_individual_obj[indivial_i,:] = [ 2. 12. 256. 268.]
470 cord_individual_obj[indivial_i,:] = [ 3. 11. 243. 254.]
471 cord_individual_obj[indivial_i,:] = [ 4. 12. 241. 253.]
472 cord_individual_obj[indivial_i,:] = [ 5. 10. 295. 305.]
473 cord_individual_obj[indivial_i,:] = [ 6. 9. 220. 229.]
474 cord_individual_obj[indivial_i,:] = [ 7. 15. 307. 322.]
475 cord_individual_obj[indivial_i,:] = [ 8. 11. 206. 217.]
476 cord_individual_obj[indivial_i,:] = [ 9. 10. 178. 188.]
477 cord_individual_obj[indivial_i,:] = [ 10. 10. 287. 297.]
478 cord_individual_obj[indivial_i,:] = [ 11. 11. 237. 248.]
479 cord_individual_obj[indivial_i,:] = [ 12. 9. 304. 313.]
480 cord_individual_obj[indivial_i,:] = [ 13. 9. 221. 230.]
481 cord_individual_obj[indivial_i,:] = [ 14. 10. 187. 197.]
482 cord_individual_obj[indivial_i,:] = [ 15. 10. 271. 281.]
483 cord_individual_obj[indivial_i,:] = [ 16. 10. 234. 244.]
484 cord_individual_obj[indivial_i,:] = [ 17. 11. 243. 254.]
485 cord_individual_obj[indivial_i,:] = [ 18. 12. 234. 246.]
486 cord_individual_obj[indivial_i,:] = [ 19. 12. 247. 259.]
487 cord_individual_obj[indivial_i,:] = [ 20. 10. 296. 306.]
488 cord_individual_obj[indivial_i,:] = [ 21. 12. 238. 250.]
489 cord_individual_obj[indivial_i,:] = [ 22. 9. 280. 289.]
490 cord_individual_obj[indivial_i,:] = [ 23. 11. 262. 273.]
491 cord_individual_obj[indivial_i,:] = [ 24. 10. 258. 268.]
492
493 min(cord_individual_obj[:,3]) = 188.0
494 histol_G_best_iter[iter,3] = 188.0
495 Begin iteration:
496
497 iter = 15
498 cord_individual_obj[indivial_i,:] = [ 0. 11. 188. 199.]
499 cord_individual_obj[indivial_i,:] = [ 1. 12. 242. 254.]

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500 cord_individual_obj[indivial_i, :] = [ 2. 10. 169. 179.]
501 cord_individual_obj[indivial_i, :] = [ 3. 11. 231. 242.]
502 cord_individual_obj[indivial_i, :] = [ 4. 14. 218. 232.]
503 cord_individual_obj[indivial_i, :] = [ 5. 12. 225. 237.]
504 cord_individual_obj[indivial_i, :] = [ 6. 10. 266. 276.]
505 cord_individual_obj[indivial_i, :] = [ 7. 10. 178. 188.]
506 cord_individual_obj[indivial_i, :] = [ 8. 12. 267. 279.]
507 cord_individual_obj[indivial_i, :] = [ 9. 10. 272. 282.]
508 cord_individual_obj[indivial_i, :] = [ 10. 12. 277. 289.]
509 cord_individual_obj[indivial_i, :] = [ 11. 13. 258. 271.]
510 cord_individual_obj[indivial_i, :] = [ 12. 11. 224. 235.]
511 cord_individual_obj[indivial_i, :] = [ 13. 11. 255. 266.]
512 cord_individual_obj[indivial_i, :] = [ 14. 13. 237. 250.]
513 cord_individual_obj[indivial_i, :] = [ 15. 11. 207. 218.]
514 cord_individual_obj[indivial_i, :] = [ 16. 10. 196. 206.]
515 cord_individual_obj[indivial_i, :] = [ 17. 10. 247. 257.]
516 cord_individual_obj[indivial_i, :] = [ 18. 11. 202. 213.]
517 cord_individual_obj[indivial_i, :] = [ 19. 10. 242. 252.]
518 cord_individual_obj[indivial_i, :] = [ 20. 11. 213. 224.]
519 cord_individual_obj[indivial_i, :] = [ 21. 12. 250. 262.]
520 cord_individual_obj[indivial_i, :] = [ 22. 12. 227. 239.]
521 cord_individual_obj[indivial_i, :] = [ 23. 11. 227. 238.]
522 cord_individual_obj[indivial_i, :] = [ 24. 11. 285. 296.]
523
524 min(cord_individual_obj[:, 3]) = 179.0
525 histol_G_best_iter[iter, 3] = 179.0
526 Begin iteration:
527
528 iter = 16
529 cord_individual_obj[indivial_i, :] = [ 0. 11. 202. 213.]
530 cord_individual_obj[indivial_i, :] = [ 1. 11. 199. 210.]
531 cord_individual_obj[indivial_i, :] = [ 2. 10. 242. 252.]
532 cord_individual_obj[indivial_i, :] = [ 3. 11. 219. 230.]
533 cord_individual_obj[indivial_i, :] = [ 4. 12. 250. 262.]
534 cord_individual_obj[indivial_i, :] = [ 5. 13. 283. 296.]
535 cord_individual_obj[indivial_i, :] = [ 6. 12. 185. 197.]
536 cord_individual_obj[indivial_i, :] = [ 7. 14. 261. 275.]
537 cord_individual_obj[indivial_i, :] = [ 8. 10. 212. 222.]
538 cord_individual_obj[indivial_i, :] = [ 9. 12. 263. 275.]
539 cord_individual_obj[indivial_i, :] = [ 10. 11. 296. 307.]
540 cord_individual_obj[indivial_i, :] = [ 11. 12. 191. 203.]
541 cord_individual_obj[indivial_i, :] = [ 12. 12. 257. 269.]
542 cord_individual_obj[indivial_i, :] = [ 13. 12. 214. 226.]
543 cord_individual_obj[indivial_i, :] = [ 14. 9. 198. 207.]
544 cord_individual_obj[indivial_i, :] = [ 15. 9. 220. 229.]
545 cord_individual_obj[indivial_i, :] = [ 16. 10. 225. 235.]
546 cord_individual_obj[indivial_i, :] = [ 17. 13. 245. 258.]
547 cord_individual_obj[indivial_i, :] = [ 18. 10. 190. 200.]
548 cord_individual_obj[indivial_i, :] = [ 19. 12. 198. 210.]
549 cord_individual_obj[indivial_i, :] = [ 20. 14. 243. 257.]
550 cord_individual_obj[indivial_i, :] = [ 21. 13. 263. 276.]
551 cord_individual_obj[indivial_i, :] = [ 22. 13. 250. 263.]
552 cord_individual_obj[indivial_i, :] = [ 23. 13. 252. 265.]
553 cord_individual_obj[indivial_i, :] = [ 24. 10. 169. 179.]
554
555 min(cord_individual_obj[:, 3]) = 179.0
556 histol_G_best_iter[iter, 3] = 179.0
557 Begin iteration:
558
559 iter = 17
560 cord_individual_obj[indivial_i, :] = [ 0. 11. 230. 241.]
561 cord_individual_obj[indivial_i, :] = [ 1. 10. 235. 245.]
562 cord_individual_obj[indivial_i, :] = [ 2. 10. 220. 230.]
563 cord_individual_obj[indivial_i, :] = [ 3. 10. 229. 239.]
564 cord_individual_obj[indivial_i, :] = [ 4. 12. 186. 198.]
565 cord_individual_obj[indivial_i, :] = [ 5. 11. 186. 197.]
566 cord_individual_obj[indivial_i, :] = [ 6. 13. 189. 202.]
567 cord_individual_obj[indivial_i, :] = [ 7. 9. 199. 208.]
568 cord_individual_obj[indivial_i, :] = [ 8. 12. 248. 260.]
569 cord_individual_obj[indivial_i, :] = [ 9. 12. 251. 263.]
570 cord_individual_obj[indivial_i, :] = [ 10. 10. 169. 179.]
571 cord_individual_obj[indivial_i, :] = [ 11. 11. 216. 227.]
572 cord_individual_obj[indivial_i, :] = [ 12. 11. 244. 255.]
573 cord_individual_obj[indivial_i, :] = [ 13. 12. 256. 268.]
574 cord_individual_obj[indivial_i, :] = [ 14. 11. 189. 200.]
575 cord_individual_obj[indivial_i, :] = [ 15. 11. 234. 245.]
576 cord_individual_obj[indivial_i, :] = [ 16. 11. 223. 234.]
577 cord_individual_obj[indivial_i, :] = [ 17. 12. 219. 231.]
578 cord_individual_obj[indivial_i, :] = [ 18. 13. 194. 207.]
579 cord_individual_obj[indivial_i, :] = [ 19. 13. 247. 260.]
580 cord_individual_obj[indivial_i, :] = [ 20. 12. 302. 314.]
581 cord_individual_obj[indivial_i, :] = [ 21. 14. 222. 236.]
582 cord_individual_obj[indivial_i, :] = [ 22. 10. 177. 187.]
583 cord_individual_obj[indivial_i, :] = [ 23. 10. 173. 183.]

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584     cord_individual_obj[indivial_i, :] = [ 24. 11. 195. 206.]
585
586     min(cord_individual_obj[:, 3]) = 179.0
587     historl_G_best_iter[iter, 3] = 179.0
588 Begin iteration:
589
590 iter = 18
591     cord_individual_obj[indivial_i, :] = [ 0. 10. 260. 270.]
592     cord_individual_obj[indivial_i, :] = [ 1. 9. 214. 223.]
593     cord_individual_obj[indivial_i, :] = [ 2. 11. 235. 246.]
594     cord_individual_obj[indivial_i, :] = [ 3. 11. 187. 198.]
595     cord_individual_obj[indivial_i, :] = [ 4. 11. 198. 209.]
596     cord_individual_obj[indivial_i, :] = [ 5. 10. 175. 185.]
597     cord_individual_obj[indivial_i, :] = [ 6. 11. 183. 194.]
598     cord_individual_obj[indivial_i, :] = [ 7. 11. 218. 229.]
599     cord_individual_obj[indivial_i, :] = [ 8. 12. 284. 296.]
600     cord_individual_obj[indivial_i, :] = [ 9. 14. 301. 315.]
601     cord_individual_obj[indivial_i, :] = [ 10. 13. 234. 247.]
602     cord_individual_obj[indivial_i, :] = [ 11. 12. 215. 227.]
603     cord_individual_obj[indivial_i, :] = [ 12. 11. 220. 231.]
604     cord_individual_obj[indivial_i, :] = [ 13. 12. 246. 258.]
605     cord_individual_obj[indivial_i, :] = [ 14. 12. 243. 255.]
606     cord_individual_obj[indivial_i, :] = [ 15. 11. 208. 219.]
607     cord_individual_obj[indivial_i, :] = [ 16. 11. 200. 211.]
608     cord_individual_obj[indivial_i, :] = [ 17. 11. 237. 248.]
609     cord_individual_obj[indivial_i, :] = [ 18. 13. 237. 250.]
610     cord_individual_obj[indivial_i, :] = [ 19. 11. 177. 188.]
611     cord_individual_obj[indivial_i, :] = [ 20. 10. 169. 179.]
612     cord_individual_obj[indivial_i, :] = [ 21. 13. 228. 241.]
613     cord_individual_obj[indivial_i, :] = [ 22. 11. 220. 231.]
614     cord_individual_obj[indivial_i, :] = [ 23. 10. 188. 198.]
615     cord_individual_obj[indivial_i, :] = [ 24. 11. 178. 189.]
616
617     min(cord_individual_obj[:, 3]) = 179.0
618     historl_G_best_iter[iter, 3] = 179.0
619 Begin iteration:
620
621 iter = 19
622     cord_individual_obj[indivial_i, :] = [ 0. 9. 235. 244.]
623     cord_individual_obj[indivial_i, :] = [ 1. 10. 224. 234.]
624     cord_individual_obj[indivial_i, :] = [ 2. 12. 249. 261.]
625     cord_individual_obj[indivial_i, :] = [ 3. 12. 240. 252.]
626     cord_individual_obj[indivial_i, :] = [ 4. 13. 232. 245.]
627     cord_individual_obj[indivial_i, :] = [ 5. 12. 283. 295.]
628     cord_individual_obj[indivial_i, :] = [ 6. 10. 160. 170.]
629     cord_individual_obj[indivial_i, :] = [ 7. 12. 274. 286.]
630     cord_individual_obj[indivial_i, :] = [ 8. 10. 230. 240.]
631     cord_individual_obj[indivial_i, :] = [ 9. 10. 169. 179.]
632     cord_individual_obj[indivial_i, :] = [ 10. 12. 304. 316.]
633     cord_individual_obj[indivial_i, :] = [ 11. 12. 222. 234.]
634     cord_individual_obj[indivial_i, :] = [ 12. 12. 266. 278.]
635     cord_individual_obj[indivial_i, :] = [ 13. 12. 196. 208.]
636     cord_individual_obj[indivial_i, :] = [ 14. 12. 215. 227.]
637     cord_individual_obj[indivial_i, :] = [ 15. 11. 258. 269.]
638     cord_individual_obj[indivial_i, :] = [ 16. 13. 201. 214.]
639     cord_individual_obj[indivial_i, :] = [ 17. 13. 239. 252.]
640     cord_individual_obj[indivial_i, :] = [ 18. 10. 208. 218.]
641     cord_individual_obj[indivial_i, :] = [ 19. 12. 223. 235.]
642     cord_individual_obj[indivial_i, :] = [ 20. 11. 193. 204.]
643     cord_individual_obj[indivial_i, :] = [ 21. 10. 215. 225.]
644     cord_individual_obj[indivial_i, :] = [ 22. 13. 230. 243.]
645     cord_individual_obj[indivial_i, :] = [ 23. 12. 232. 244.]
646     cord_individual_obj[indivial_i, :] = [ 24. 11. 243. 254.]
647
648     min(cord_individual_obj[:, 3]) = 170.0
649     historl_G_best_iter[iter, 3] = 170.0
650 Begin iteration:
651
652 iter = 20
653     cord_individual_obj[indivial_i, :] = [ 0. 12. 195. 207.]
654     cord_individual_obj[indivial_i, :] = [ 1. 11. 204. 215.]
655     cord_individual_obj[indivial_i, :] = [ 2. 12. 226. 238.]
656     cord_individual_obj[indivial_i, :] = [ 3. 11. 189. 200.]
657     cord_individual_obj[indivial_i, :] = [ 4. 11. 234. 245.]
658     cord_individual_obj[indivial_i, :] = [ 5. 12. 193. 205.]
659     cord_individual_obj[indivial_i, :] = [ 6. 11. 215. 226.]
660     cord_individual_obj[indivial_i, :] = [ 7. 13. 307. 320.]
661     cord_individual_obj[indivial_i, :] = [ 8. 14. 229. 243.]
662     cord_individual_obj[indivial_i, :] = [ 9. 11. 213. 224.]
663     cord_individual_obj[indivial_i, :] = [ 10. 10. 160. 170.]
664     cord_individual_obj[indivial_i, :] = [ 11. 11. 164. 175.]
665     cord_individual_obj[indivial_i, :] = [ 12. 11. 148. 159.]
666     cord_individual_obj[indivial_i, :] = [ 13. 13. 275. 288.]
667     cord_individual_obj[indivial_i, :] = [ 14. 12. 182. 194.]

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668 cord_individual_obj[indivial_i,:] = [ 15. 13. 213. 226.]
669 cord_individual_obj[indivial_i,:] = [ 16. 12. 186. 198.]
670 cord_individual_obj[indivial_i,:] = [ 17. 15. 167. 182.]
671 cord_individual_obj[indivial_i,:] = [ 18. 11. 206. 217.]
672 cord_individual_obj[indivial_i,:] = [ 19. 11. 204. 215.]
673 cord_individual_obj[indivial_i,:] = [ 20. 14. 161. 175.]
674 cord_individual_obj[indivial_i,:] = [ 21. 15. 236. 251.]
675 cord_individual_obj[indivial_i,:] = [ 22. 11. 208. 219.]
676 cord_individual_obj[indivial_i,:] = [ 23. 10. 199. 209.]
677 cord_individual_obj[indivial_i,:] = [ 24. 11. 162. 173.]
678
679 min(cord_individual_obj[:, 3]) = 159.0
680 historl_G_best_iter[iter, 3] = 159.0
681 Iteration calculate over
682
683
684
685
686 All item are in Bin and:
687 Bin area = 1080
688 Real_area = 251.0
689 Proportion_of_area = 0.2324074074074074
690 BEST_CHROM =
691 berth: [24.5 9. 12.5 3.5 2. 8.5 9.5 4.5 16.5 16. 23. 17. 9.5 2.5
692 2.5 26. 18. 24. 10.5 3.5]
693 time: [8. 8. 9. 9. 6. 6. 2. 4. 2. 4. 4. 8. 1. 2. 1. 2. 0. 0. 0. 0.]
694 num_QC: [2. 2. 3. 2. 1. 4. 3. 3. 4. 2. 2. 3. 3. 5. 3. 4. 3. 3. 4. 6.]
695 Objective function values and some other indicators:
696 Obj0 = 11.00          Obj1 = 148.00          Obj0 + Obj1 = 159.00
697 Total movement of crane: 24.00
698 Total waiting time in berth position: 76.00
699 Total index of q during berthing: 1036.00
700 Specific arrangement for each vessel:
701 V_id: 0      li: 7.0      xi: 24.5      bow of i: 21.0      tail of i: 28.0      gama_i0: 8.0      gama_i1: 9
702 .0           gama_i1 + 1: 10.0      gama_i1 - gama_i0: 1.0      duration_time_i: 2.0      demand_i: 80.0      work
703 load_i: 80.0      work load gap_i: 0
704 V_id: 1      li: 4.0      xi: 9.0      bow of i: 7.0      tail of i: 11.0      gama_i0: 8.0      gama_i1: 11.
705 .0           gama_i1 + 1: 12.0      gama_i1 - gama_i0: 3.0      duration_time_i: 4.0      demand_i: 160.0      work
706 load_i: 160.0      work load gap_i: 0
707 V_id: 2      li: 3.0      xi: 12.5      bow of i: 11.0      tail of i: 14.0      gama_i0: 9.0      gama_i1: 10.
708 .0           gama_i1 + 1: 11.0      gama_i1 - gama_i0: 1.0      duration_time_i: 2.0      demand_i: 120.0      work
709 load_i: 120.0      work load gap_i: 0
710 V_id: 3      li: 7.0      xi: 3.5      bow of i: 0.0      tail of i: 7.0      gama_i0: 9.0      gama_i1: 10.0
711 .0           gama_i1 + 1: 11.0      gama_i1 - gama_i0: 1.0      duration_time_i: 2.0      demand_i: 60.0      work
712 load_i: 60.0      work load gap_i: 0
713 V_id: 4      li: 4.0      xi: 2.0      bow of i: 0.0      tail of i: 4.0      gama_i0: 6.0      gama_i1: 8.0
714 .0           gama_i1 + 1: 9.0      gama_i1 - gama_i0: 2.0      duration_time_i: 3.0      demand_i: 60.0      work load_i:
715 load_i: 60.0      work load gap_i: 0
716 V_id: 5      li: 9.0      xi: 8.5      bow of i: 4.0      tail of i: 13.0      gama_i0: 6.0      gama_i1: 7.0
717 .0           gama_i1 + 1: 8.0      gama_i1 - gama_i0: 1.0      duration_time_i: 2.0      demand_i: 140.0      work load_i:
718 load_i: 140.0      work load gap_i: 0
719 V_id: 6      li: 9.0      xi: 9.5      bow of i: 5.0      tail of i: 14.0      gama_i0: 2.0      gama_i1: 3.0
720 .0           gama_i1 + 1: 4.0      gama_i1 - gama_i0: 1.0      duration_time_i: 2.0      demand_i: 100.0      work load_i:
721 load_i: 100.0      work load gap_i: 0
722 V_id: 7      li: 9.0      xi: 4.5      bow of i: 0.0      tail of i: 9.0      gama_i0: 4.0      gama_i1: 5.0
723 .0           gama_i1 + 1: 6.0      gama_i1 - gama_i0: 1.0      duration_time_i: 2.0      demand_i: 100.0      work load_i:
724 load_i: 100.0      work load gap_i: 0
725 V_id: 8      li: 5.0      xi: 16.5      bow of i: 14.0      tail of i: 19.0      gama_i0: 2.0      gama_i1: 3
726 .0           gama_i1 + 1: 4.0      gama_i1 - gama_i0: 1.0      duration_time_i: 2.0      demand_i: 160.0      work
727 load_i: 160.0      work load gap_i: 0
728 V_id: 9      li: 6.0      xi: 16.0      bow of i: 13.0      tail of i: 19.0      gama_i0: 4.0      gama_i1: 6
729 .0           gama_i1 + 1: 7.0      gama_i1 - gama_i0: 2.0      duration_time_i: 3.0      demand_i: 100.0      work
730 load_i: 100.0      work load gap_i: 0
731 V_id: 10     li: 8.0      xi: 23.0      bow of i: 19.0      tail of i: 27.0      gama_i0: 4.0      gama_i1: 1
732 .0           gama_i1 + 1: 8.0      gama_i1 - gama_i0: 3.0      duration_time_i: 4.0      demand_i: 160.0      work
733 load_i: 160.0      work load gap_i: 0
734 V_id: 11     li: 8.0      xi: 17.0      bow of i: 13.0      tail of i: 21.0      gama_i0: 8.0      gama_i1: 1
735 .0           gama_i1 + 1: 9.0      gama_i1 - gama_i0: 0.0      duration_time_i: 1.0      demand_i: 60.0      work
736 load_i: 60.0      work load gap_i: 0
737 V_id: 12     li: 9.0      xi: 9.5      bow of i: 5.0      tail of i: 14.0      gama_i0: 1.0      gama_i1: 1
738 .0           gama_i1 + 1: 2.0      gama_i1 - gama_i0: 0.0      duration_time_i: 1.0      demand_i: 60.0      work
739 load_i: 60.0      work load gap_i: 0
740 V_id: 13     li: 5.0      xi: 2.5      bow of i: 0.0      tail of i: 5.0      gama_i0: 2.0      gama_i1: 3
741 .0           gama_i1 + 1: 4.0      gama_i1 - gama_i0: 1.0      duration_time_i: 2.0      demand_i: 140.0      work load_i:
742 load_i: 140.0      work load gap_i: 0
743 V_id: 14     li: 5.0      xi: 2.5      bow of i: 0.0      tail of i: 5.0      gama_i0: 1.0      gama_i1: 1
744 .0           gama_i1 + 1: 2.0      gama_i1 - gama_i0: 0.0      duration_time_i: 1.0      demand_i: 60.0      work load_i:
745 load_i: 60.0      work load gap_i: 0
746 V_id: 15     li: 8.0      xi: 26.0      bow of i: 22.0      tail of i: 30.0      gama_i0: 2.0      gama_i1: 1
747 .0           gama_i1 + 1: 4.0      gama_i1 - gama_i0: 1.0      duration_time_i: 2.0      demand_i: 100.0      work
748 load_i: 100.0      work load gap_i: 0
749 V_id: 16     li: 8.0      xi: 18.0      bow of i: 14.0      tail of i: 22.0      gama_i0: 0.0      gama_i1: 1
750 .0           gama_i1 + 1: 2.0      gama_i1 - gama_i0: 1.0      duration_time_i: 2.0      demand_i: 80.0      work
751 load_i: 80.0      work load gap_i: 0

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unknown

718	V_id: 17 : 1.0 load_i: 120.0	li: 4.0 gama_i1 + 1: 2.0 work load gap_i: 0	xi: 24.0 gama_i1 - gama_i0: 1.0	bow of i: 22.0 gama_i1 - gama_i0: 1.0	tail of i: 26.0 duration_time_i: 2.0	gama_i0: 0.0 demand_i: 120.0	gama_i1 work
719	V_id: 18 : 0.0 load_i: 80.0	li: 7.0 gama_i1 + 1: 1.0 work load gap_i: 0	xi: 10.5 gama_i1 - gama_i0: 0.0	bow of i: 7.0 gama_i1 - gama_i0: 0.0	tail of i: 14.0 duration_time_i: 1.0	gama_i0: 0.0 demand_i: 80.0	gama_i1 work
720	V_id: 19 60.0	li: 7.0 gama_i1 + 1: 1.0 work load gap_i: 0	xi: 3.5 gama_i1 - gama_i0: 0.0	bow of i: 0.0 gama_i1 - gama_i0: 0.0	tail of i: 7.0 duration_time_i: 1.0	gama_i0: 0.0 demand_i: 60.0	gama_i1: 0.0 work load_i:

721

722 Algorithm finished and the total CPU time: 521 s

723 End

724