

unknown

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80     cord_individual_obj[indivial_i,:] = [ 0. 6. 44. 50.]
81     cord_individual_obj[indivial_i,:] = [ 1. 6. 8. 14.]
82     cord_individual_obj[indivial_i,:] = [ 2. 4. 24. 28.]
83     cord_individual_obj[indivial_i,:] = [ 3. 6. 8. 14.]
84     cord_individual_obj[indivial_i,:] = [ 4. 4. 50. 54.]
85     cord_individual_obj[indivial_i,:] = [ 5. 6. 20. 26.]
86     cord_individual_obj[indivial_i,:] = [ 6. 5. 12. 17.]
87     cord_individual_obj[indivial_i,:] = [ 7. 4. 8. 12.]
88     cord_individual_obj[indivial_i,:] = [ 8. 6. 36. 42.]
89     cord_individual_obj[indivial_i,:] = [ 9. 5. 52. 57.]
90
91 min(cord_individual_obj[:,3]) = 12.0
92 historl_G_best_iter[iter,3] = 12.0
93 Begin iteration:
94
95 iter = 4
96     cord_individual_obj[indivial_i,:] = [ 0. 4. 20. 24.]
97     cord_individual_obj[indivial_i,:] = [ 1. 4. 30. 34.]
98     cord_individual_obj[indivial_i,:] = [ 2. 4. 60. 64.]
99     cord_individual_obj[indivial_i,:] = [ 3. 5. 36. 41.]
100    cord_individual_obj[indivial_i,:] = [ 4. 4. 24. 28.]
101    cord_individual_obj[indivial_i,:] = [ 5. 4. 12. 16.]
102    cord_individual_obj[indivial_i,:] = [ 6. 4. 32. 36.]
103    cord_individual_obj[indivial_i,:] = [ 7. 4. 20. 24.]
104    cord_individual_obj[indivial_i,:] = [ 8. 4. 44. 48.]
105    cord_individual_obj[indivial_i,:] = [ 9. 4. 8. 12.]
106
107 min(cord_individual_obj[:,3]) = 12.0
108 historl_G_best_iter[iter,3] = 12.0
109 Begin iteration:
110
111 iter = 5
112     cord_individual_obj[indivial_i,:] = [ 0. 3. 68. 71.]
113     cord_individual_obj[indivial_i,:] = [ 1. 6. 8. 14.]
114     cord_individual_obj[indivial_i,:] = [ 2. 4. 8. 12.]
115     cord_individual_obj[indivial_i,:] = [ 3. 5. 36. 41.]
116     cord_individual_obj[indivial_i,:] = [ 4. 6. 46. 52.]
117     cord_individual_obj[indivial_i,:] = [ 5. 5. 44. 49.]
118     cord_individual_obj[indivial_i,:] = [ 6. 5. 12. 17.]
119     cord_individual_obj[indivial_i,:] = [ 7. 4. 20. 24.]
120     cord_individual_obj[indivial_i,:] = [ 8. 4. 8. 12.]
121     cord_individual_obj[indivial_i,:] = [ 9. 6. 24. 30.]
122
123 min(cord_individual_obj[:,3]) = 12.0
124 historl_G_best_iter[iter,3] = 12.0
125 Begin iteration:
126
127 iter = 6
128     cord_individual_obj[indivial_i,:] = [ 0. 4. 8. 12.]
129     cord_individual_obj[indivial_i,:] = [ 1. 4. 12. 16.]
130     cord_individual_obj[indivial_i,:] = [ 2. 4. 54. 58.]
131     cord_individual_obj[indivial_i,:] = [ 3. 5. 16. 21.]
132     cord_individual_obj[indivial_i,:] = [ 4. 6. 46. 52.]
133     cord_individual_obj[indivial_i,:] = [ 5. 4. 36. 40.]
134     cord_individual_obj[indivial_i,:] = [ 6. 6. 24. 30.]
135     cord_individual_obj[indivial_i,:] = [ 7. 4. 28. 32.]
136     cord_individual_obj[indivial_i,:] = [ 8. 4. 44. 48.]
137     cord_individual_obj[indivial_i,:] = [ 9. 5. 54. 59.]
138
139 min(cord_individual_obj[:,3]) = 12.0
140 historl_G_best_iter[iter,3] = 12.0
141 Begin iteration:
142
143 iter = 7
144     cord_individual_obj[indivial_i,:] = [ 0. 4. 12. 16.]
145     cord_individual_obj[indivial_i,:] = [ 1. 4. 32. 36.]
146     cord_individual_obj[indivial_i,:] = [ 2. 4. 16. 20.]
147     cord_individual_obj[indivial_i,:] = [ 3. 5. 78. 83.]
148     cord_individual_obj[indivial_i,:] = [ 4. 6. 46. 52.]
149     cord_individual_obj[indivial_i,:] = [ 5. 5. 48. 53.]
150     cord_individual_obj[indivial_i,:] = [ 6. 5. 26. 31.]
151     cord_individual_obj[indivial_i,:] = [ 7. 4. 34. 38.]
152     cord_individual_obj[indivial_i,:] = [ 8. 4. 8. 12.]
153     cord_individual_obj[indivial_i,:] = [ 9. 4. 8. 12.]
154
155 min(cord_individual_obj[:,3]) = 12.0
156 historl_G_best_iter[iter,3] = 12.0
157 Begin iteration:
158
159 iter = 8
160     cord_individual_obj[indivial_i,:] = [ 0. 5. 8. 13.]
161     cord_individual_obj[indivial_i,:] = [ 1. 4. 8. 12.]
162     cord_individual_obj[indivial_i,:] = [ 2. 4. 30. 34.]
163     cord_individual_obj[indivial_i,:] = [ 3. 4. 8. 12.]

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164 cord_individual_obj[indivial_i,:] = [ 4. 5. 8. 13.]
165 cord_individual_obj[indivial_i,:] = [ 5. 4. 8. 12.]
166 cord_individual_obj[indivial_i,:] = [ 6. 4. 8. 12.]
167 cord_individual_obj[indivial_i,:] = [ 7. 4. 24. 28.]
168 cord_individual_obj[indivial_i,:] = [ 8. 4. 8. 12.]
169 cord_individual_obj[indivial_i,:] = [ 9. 4. 12. 16.]
170
171 min(cord_individual_obj[:,3]) = 12.0
172 historl_G_best_iter[iter,3] = 12.0
173 Begin iteration:
174
175 iter = 9
176 cord_individual_obj[indivial_i,:] = [ 0. 3. 30. 33.]
177 cord_individual_obj[indivial_i,:] = [ 1. 4. 8. 12.]
178 cord_individual_obj[indivial_i,:] = [ 2. 4. 8. 12.]
179 cord_individual_obj[indivial_i,:] = [ 3. 4. 58. 62.]
180 cord_individual_obj[indivial_i,:] = [ 4. 5. 8. 13.]
181 cord_individual_obj[indivial_i,:] = [ 5. 3. 8. 11.]
182 cord_individual_obj[indivial_i,:] = [ 6. 6. 12. 18.]
183 cord_individual_obj[indivial_i,:] = [ 7. 4. 28. 32.]
184 cord_individual_obj[indivial_i,:] = [ 8. 4. 8. 12.]
185 cord_individual_obj[indivial_i,:] = [ 9. 5. 12. 17.]
186
187 min(cord_individual_obj[:,3]) = 11.0
188 historl_G_best_iter[iter,3] = 11.0
189 Begin iteration:
190
191 iter = 10
192 cord_individual_obj[indivial_i,:] = [ 0. 4. 8. 12.]
193 cord_individual_obj[indivial_i,:] = [ 1. 5. 28. 33.]
194 cord_individual_obj[indivial_i,:] = [ 2. 6. 20. 26.]
195 cord_individual_obj[indivial_i,:] = [ 3. 3. 8. 11.]
196 cord_individual_obj[indivial_i,:] = [ 4. 4. 8. 12.]
197 cord_individual_obj[indivial_i,:] = [ 5. 5. 12. 17.]
198 cord_individual_obj[indivial_i,:] = [ 6. 5. 12. 17.]
199 cord_individual_obj[indivial_i,:] = [ 7. 5. 26. 31.]
200 cord_individual_obj[indivial_i,:] = [ 8. 3. 16. 19.]
201 cord_individual_obj[indivial_i,:] = [ 9. 5. 16. 21.]
202
203 min(cord_individual_obj[:,3]) = 11.0
204 historl_G_best_iter[iter,3] = 11.0
205 Begin iteration:
206
207 iter = 11
208 cord_individual_obj[indivial_i,:] = [ 0. 4. 8. 12.]
209 cord_individual_obj[indivial_i,:] = [ 1. 3. 8. 11.]
210 cord_individual_obj[indivial_i,:] = [ 2. 4. 54. 58.]
211 cord_individual_obj[indivial_i,:] = [ 3. 5. 18. 23.]
212 cord_individual_obj[indivial_i,:] = [ 4. 4. 12. 16.]
213 cord_individual_obj[indivial_i,:] = [ 5. 4. 12. 16.]
214 cord_individual_obj[indivial_i,:] = [ 6. 5. 12. 17.]
215 cord_individual_obj[indivial_i,:] = [ 7. 4. 12. 16.]
216 cord_individual_obj[indivial_i,:] = [ 8. 4. 16. 20.]
217 cord_individual_obj[indivial_i,:] = [ 9. 5. 24. 29.]
218
219 min(cord_individual_obj[:,3]) = 11.0
220 historl_G_best_iter[iter,3] = 11.0
221 Begin iteration:
222
223 iter = 12
224 cord_individual_obj[indivial_i,:] = [ 0. 3. 20. 23.]
225 cord_individual_obj[indivial_i,:] = [ 1. 5. 20. 25.]
226 cord_individual_obj[indivial_i,:] = [ 2. 3. 8. 11.]
227 cord_individual_obj[indivial_i,:] = [ 3. 4. 32. 36.]
228 cord_individual_obj[indivial_i,:] = [ 4. 6. 24. 30.]
229 cord_individual_obj[indivial_i,:] = [ 5. 5. 8. 13.]
230 cord_individual_obj[indivial_i,:] = [ 6. 6. 16. 22.]
231 cord_individual_obj[indivial_i,:] = [ 7. 4. 40. 44.]
232 cord_individual_obj[indivial_i,:] = [ 8. 4. 12. 16.]
233 cord_individual_obj[indivial_i,:] = [ 9. 6. 8. 14.]
234
235 min(cord_individual_obj[:,3]) = 11.0
236 historl_G_best_iter[iter,3] = 11.0
237 Begin iteration:
238
239 iter = 13
240 cord_individual_obj[indivial_i,:] = [ 0. 4. 44. 48.]
241 cord_individual_obj[indivial_i,:] = [ 1. 6. 44. 50.]
242 cord_individual_obj[indivial_i,:] = [ 2. 6. 60. 66.]
243 cord_individual_obj[indivial_i,:] = [ 3. 5. 62. 67.]
244 cord_individual_obj[indivial_i,:] = [ 4. 6. 42. 48.]
245 cord_individual_obj[indivial_i,:] = [ 5. 4. 24. 28.]
246 cord_individual_obj[indivial_i,:] = [ 6. 4. 60. 64.]
247 cord_individual_obj[indivial_i,:] = [ 7. 3. 8. 11.]

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248     cord_individual_obj[indivial_i, :] = [ 8. 4. 8. 12.]
249     cord_individual_obj[indivial_i, :] = [ 9. 6. 24. 30.]
250
251 min(cord_individual_obj[:, 3]) = 11.0
252 historl_G_best_iter[iter, 3] = 11.0
253 Begin iteration:
254
255 iter = 14
256     cord_individual_obj[indivial_i, :] = [ 0. 3. 80. 83.]
257     cord_individual_obj[indivial_i, :] = [ 1. 6. 52. 58.]
258     cord_individual_obj[indivial_i, :] = [ 2. 4. 38. 42.]
259     cord_individual_obj[indivial_i, :] = [ 3. 3. 8. 11.]
260     cord_individual_obj[indivial_i, :] = [ 4. 4. 50. 54.]
261     cord_individual_obj[indivial_i, :] = [ 5. 5. 8. 13.]
262     cord_individual_obj[indivial_i, :] = [ 6. 5. 28. 33.]
263     cord_individual_obj[indivial_i, :] = [ 7. 4. 28. 32.]
264     cord_individual_obj[indivial_i, :] = [ 8. 4. 8. 12.]
265     cord_individual_obj[indivial_i, :] = [ 9. 6. 30. 36.]
266
267 min(cord_individual_obj[:, 3]) = 11.0
268 historl_G_best_iter[iter, 3] = 11.0
269 Begin iteration:
270
271 iter = 15
272     cord_individual_obj[indivial_i, :] = [ 0. 3. 8. 11.]
273     cord_individual_obj[indivial_i, :] = [ 1. 5. 8. 13.]
274     cord_individual_obj[indivial_i, :] = [ 2. 6. 20. 26.]
275     cord_individual_obj[indivial_i, :] = [ 3. 5. 8. 13.]
276     cord_individual_obj[indivial_i, :] = [ 4. 4. 16. 20.]
277     cord_individual_obj[indivial_i, :] = [ 5. 4. 24. 28.]
278     cord_individual_obj[indivial_i, :] = [ 6. 5. 32. 37.]
279     cord_individual_obj[indivial_i, :] = [ 7. 4. 8. 12.]
280     cord_individual_obj[indivial_i, :] = [ 8. 3. 24. 27.]
281     cord_individual_obj[indivial_i, :] = [ 9. 5. 24. 29.]
282
283 min(cord_individual_obj[:, 3]) = 11.0
284 historl_G_best_iter[iter, 3] = 11.0
285 Begin iteration:
286
287 iter = 16
288     cord_individual_obj[indivial_i, :] = [ 0. 4. 8. 12.]
289     cord_individual_obj[indivial_i, :] = [ 1. 5. 20. 25.]
290     cord_individual_obj[indivial_i, :] = [ 2. 6. 30. 36.]
291     cord_individual_obj[indivial_i, :] = [ 3. 5. 20. 25.]
292     cord_individual_obj[indivial_i, :] = [ 4. 4. 14. 18.]
293     cord_individual_obj[indivial_i, :] = [ 5. 5. 44. 49.]
294     cord_individual_obj[indivial_i, :] = [ 6. 3. 8. 11.]
295     cord_individual_obj[indivial_i, :] = [ 7. 4. 28. 32.]
296     cord_individual_obj[indivial_i, :] = [ 8. 4. 8. 12.]
297     cord_individual_obj[indivial_i, :] = [ 9. 5. 8. 13.]
298
299 min(cord_individual_obj[:, 3]) = 11.0
300 historl_G_best_iter[iter, 3] = 11.0
301 Begin iteration:
302
303 iter = 17
304     cord_individual_obj[indivial_i, :] = [ 0. 3. 8. 11.]
305     cord_individual_obj[indivial_i, :] = [ 1. 5. 20. 25.]
306     cord_individual_obj[indivial_i, :] = [ 2. 6. 30. 36.]
307     cord_individual_obj[indivial_i, :] = [ 3. 5. 20. 25.]
308     cord_individual_obj[indivial_i, :] = [ 4. 4. 12. 16.]
309     cord_individual_obj[indivial_i, :] = [ 5. 3. 8. 11.]
310     cord_individual_obj[indivial_i, :] = [ 6. 5. 20. 25.]
311     cord_individual_obj[indivial_i, :] = [ 7. 4. 28. 32.]
312     cord_individual_obj[indivial_i, :] = [ 8. 4. 16. 20.]
313     cord_individual_obj[indivial_i, :] = [ 9. 5. 8. 13.]
314
315 min(cord_individual_obj[:, 3]) = 11.0
316 historl_G_best_iter[iter, 3] = 11.0
317 Begin iteration:
318
319 iter = 18
320     cord_individual_obj[indivial_i, :] = [ 0. 5. 12. 17.]
321     cord_individual_obj[indivial_i, :] = [ 1. 4. 20. 24.]
322     cord_individual_obj[indivial_i, :] = [ 2. 3. 8. 11.]
323     cord_individual_obj[indivial_i, :] = [ 3. 4. 36. 40.]
324     cord_individual_obj[indivial_i, :] = [ 4. 4. 12. 16.]
325     cord_individual_obj[indivial_i, :] = [ 5. 4. 12. 16.]
326     cord_individual_obj[indivial_i, :] = [ 6. 4. 44. 48.]
327     cord_individual_obj[indivial_i, :] = [ 7. 4. 12. 16.]
328     cord_individual_obj[indivial_i, :] = [ 8. 3. 50. 53.]
329     cord_individual_obj[indivial_i, :] = [ 9. 4. 20. 24.]
330
331 min(cord_individual_obj[:, 3]) = 11.0

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332 historl_G_best_iter[iter, 3] = 11.0
333 Begin iteration:
334
335 iter = 19
336 cord_individual_obj[indivial_i, :] = [ 0. 3. 44. 47.]
337 cord_individual_obj[indivial_i, :] = [ 1. 5. 52. 57.]
338 cord_individual_obj[indivial_i, :] = [ 2. 6. 44. 50.]
339 cord_individual_obj[indivial_i, :] = [ 3. 4. 12. 16.]
340 cord_individual_obj[indivial_i, :] = [ 4. 6. 44. 50.]
341 cord_individual_obj[indivial_i, :] = [ 5. 3. 12. 15.]
342 cord_individual_obj[indivial_i, :] = [ 6. 6. 28. 34.]
343 cord_individual_obj[indivial_i, :] = [ 7. 4. 44. 48.]
344 cord_individual_obj[indivial_i, :] = [ 8. 3. 8. 11.]
345 cord_individual_obj[indivial_i, :] = [ 9. 4. 80. 84.]
346
347 min(cord_individual_obj[:, 3]) = 11.0
348 historl_G_best_iter[iter, 3] = 11.0
349 Begin iteration:
350
351 iter = 20
352 cord_individual_obj[indivial_i, :] = [ 0. 5. 8. 13.]
353 cord_individual_obj[indivial_i, :] = [ 1. 6. 16. 22.]
354 cord_individual_obj[indivial_i, :] = [ 2. 4. 52. 56.]
355 cord_individual_obj[indivial_i, :] = [ 3. 4. 108. 112.]
356 cord_individual_obj[indivial_i, :] = [ 4. 6. 76. 82.]
357 cord_individual_obj[indivial_i, :] = [ 5. 4. 64. 68.]
358 cord_individual_obj[indivial_i, :] = [ 6. 6. 20. 26.]
359 cord_individual_obj[indivial_i, :] = [ 7. 4. 44. 48.]
360 cord_individual_obj[indivial_i, :] = [ 8. 5. 8. 13.]
361 cord_individual_obj[indivial_i, :] = [ 9. 3. 8. 11.]
362
363 min(cord_individual_obj[:, 3]) = 11.0
364 historl_G_best_iter[iter, 3] = 11.0
365 Begin iteration:
366
367 iter = 21
368 cord_individual_obj[indivial_i, :] = [ 0. 3. 44. 47.]
369 cord_individual_obj[indivial_i, :] = [ 1. 6. 8. 14.]
370 cord_individual_obj[indivial_i, :] = [ 2. 4. 52. 56.]
371 cord_individual_obj[indivial_i, :] = [ 3. 3. 8. 11.]
372 cord_individual_obj[indivial_i, :] = [ 4. 6. 68. 74.]
373 cord_individual_obj[indivial_i, :] = [ 5. 3. 22. 25.]
374 cord_individual_obj[indivial_i, :] = [ 6. 6. 20. 26.]
375 cord_individual_obj[indivial_i, :] = [ 7. 4. 44. 48.]
376 cord_individual_obj[indivial_i, :] = [ 8. 4. 8. 12.]
377 cord_individual_obj[indivial_i, :] = [ 9. 4. 28. 32.]
378
379 min(cord_individual_obj[:, 3]) = 11.0
380 historl_G_best_iter[iter, 3] = 11.0
381 Begin iteration:
382
383 iter = 22
384 cord_individual_obj[indivial_i, :] = [ 0. 5. 12. 17.]
385 cord_individual_obj[indivial_i, :] = [ 1. 4. 28. 32.]
386 cord_individual_obj[indivial_i, :] = [ 2. 6. 24. 30.]
387 cord_individual_obj[indivial_i, :] = [ 3. 4. 36. 40.]
388 cord_individual_obj[indivial_i, :] = [ 4. 3. 8. 11.]
389 cord_individual_obj[indivial_i, :] = [ 5. 4. 16. 20.]
390 cord_individual_obj[indivial_i, :] = [ 6. 4. 12. 16.]
391 cord_individual_obj[indivial_i, :] = [ 7. 4. 24. 28.]
392 cord_individual_obj[indivial_i, :] = [ 8. 3. 8. 11.]
393 cord_individual_obj[indivial_i, :] = [ 9. 4. 8. 12.]
394
395 min(cord_individual_obj[:, 3]) = 11.0
396 historl_G_best_iter[iter, 3] = 11.0
397 Begin iteration:
398
399 iter = 23
400 cord_individual_obj[indivial_i, :] = [ 0. 3. 44. 47.]
401 cord_individual_obj[indivial_i, :] = [ 1. 5. 52. 57.]
402 cord_individual_obj[indivial_i, :] = [ 2. 4. 24. 28.]
403 cord_individual_obj[indivial_i, :] = [ 3. 3. 8. 11.]
404 cord_individual_obj[indivial_i, :] = [ 4. 4. 32. 36.]
405 cord_individual_obj[indivial_i, :] = [ 5. 3. 50. 53.]
406 cord_individual_obj[indivial_i, :] = [ 6. 6. 28. 34.]
407 cord_individual_obj[indivial_i, :] = [ 7. 4. 54. 58.]
408 cord_individual_obj[indivial_i, :] = [ 8. 4. 16. 20.]
409 cord_individual_obj[indivial_i, :] = [ 9. 5. 88. 93.]
410
411 min(cord_individual_obj[:, 3]) = 11.0
412 historl_G_best_iter[iter, 3] = 11.0
413 Begin iteration:
414
415 iter = 24

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416 cord_individual_obj[indivial_i,:] = [ 0.  4. 14. 18.]
417 cord_individual_obj[indivial_i,:] = [ 1.  5.  8. 13.]
418 cord_individual_obj[indivial_i,:] = [ 2.  4. 82. 86.]
419 cord_individual_obj[indivial_i,:] = [ 3.  4. 36. 40.]
420 cord_individual_obj[indivial_i,:] = [ 4.  6. 76. 82.]
421 cord_individual_obj[indivial_i,:] = [ 5.  4. 44. 48.]
422 cord_individual_obj[indivial_i,:] = [ 6.  6. 26. 32.]
423 cord_individual_obj[indivial_i,:] = [ 7.  4. 44. 48.]
424 cord_individual_obj[indivial_i,:] = [ 8.  5.  8. 13.]
425 cord_individual_obj[indivial_i,:] = [ 9.  3.  8. 11.]
426
427 min(cord_individual_obj[:,3]) = 11.0
428 historl_G_best_iter[iter,3] = 11.0
429 Begin iteration:
430
431 iter = 25
432 cord_individual_obj[indivial_i,:] = [ 0.  3. 48. 51.]
433 cord_individual_obj[indivial_i,:] = [ 1.  6. 48. 54.]
434 cord_individual_obj[indivial_i,:] = [ 2.  3.  8. 11.]
435 cord_individual_obj[indivial_i,:] = [ 3.  5. 32. 37.]
436 cord_individual_obj[indivial_i,:] = [ 4.  4. 76. 80.]
437 cord_individual_obj[indivial_i,:] = [ 5.  5. 16. 21.]
438 cord_individual_obj[indivial_i,:] = [ 6.  6. 16. 22.]
439 cord_individual_obj[indivial_i,:] = [ 7.  4. 44. 48.]
440 cord_individual_obj[indivial_i,:] = [ 8.  4.  8. 12.]
441 cord_individual_obj[indivial_i,:] = [ 9.  4. 28. 32.]
442
443 min(cord_individual_obj[:,3]) = 11.0
444 historl_G_best_iter[iter,3] = 11.0
445 Begin iteration:
446
447 iter = 26
448 cord_individual_obj[indivial_i,:] = [ 0.  5. 12. 17.]
449 cord_individual_obj[indivial_i,:] = [ 1.  5. 44. 49.]
450 cord_individual_obj[indivial_i,:] = [ 2.  6. 78. 84.]
451 cord_individual_obj[indivial_i,:] = [ 3.  4.  8. 12.]
452 cord_individual_obj[indivial_i,:] = [ 4.  3.  8. 11.]
453 cord_individual_obj[indivial_i,:] = [ 5.  4. 16. 20.]
454 cord_individual_obj[indivial_i,:] = [ 6.  6. 20. 26.]
455 cord_individual_obj[indivial_i,:] = [ 7.  4. 28. 32.]
456 cord_individual_obj[indivial_i,:] = [ 8.  4. 16. 20.]
457 cord_individual_obj[indivial_i,:] = [ 9.  4. 48. 52.]
458
459 min(cord_individual_obj[:,3]) = 11.0
460 historl_G_best_iter[iter,3] = 11.0
461 Begin iteration:
462
463 iter = 27
464 cord_individual_obj[indivial_i,:] = [ 0.  3. 48. 51.]
465 cord_individual_obj[indivial_i,:] = [ 1.  6. 26. 32.]
466 cord_individual_obj[indivial_i,:] = [ 2.  3.  8. 11.]
467 cord_individual_obj[indivial_i,:] = [ 3.  5. 20. 25.]
468 cord_individual_obj[indivial_i,:] = [ 4.  4. 32. 36.]
469 cord_individual_obj[indivial_i,:] = [ 5.  5. 26. 31.]
470 cord_individual_obj[indivial_i,:] = [ 6.  4. 28. 32.]
471 cord_individual_obj[indivial_i,:] = [ 7.  4. 128. 132.]
472 cord_individual_obj[indivial_i,:] = [ 8.  5.  8. 13.]
473 cord_individual_obj[indivial_i,:] = [ 9.  6.  8. 14.]
474
475 min(cord_individual_obj[:,3]) = 11.0
476 historl_G_best_iter[iter,3] = 11.0
477 Begin iteration:
478
479 iter = 28
480 cord_individual_obj[indivial_i,:] = [ 0.  4. 28. 32.]
481 cord_individual_obj[indivial_i,:] = [ 1.  6. 40. 46.]
482 cord_individual_obj[indivial_i,:] = [ 2.  6. 62. 68.]
483 cord_individual_obj[indivial_i,:] = [ 3.  5. 18. 23.]
484 cord_individual_obj[indivial_i,:] = [ 4.  6. 68. 74.]
485 cord_individual_obj[indivial_i,:] = [ 5.  5. 12. 17.]
486 cord_individual_obj[indivial_i,:] = [ 6.  5. 20. 25.]
487 cord_individual_obj[indivial_i,:] = [ 7.  3.  8. 11.]
488 cord_individual_obj[indivial_i,:] = [ 8.  4. 16. 20.]
489 cord_individual_obj[indivial_i,:] = [ 9.  6. 80. 86.]
490
491 min(cord_individual_obj[:,3]) = 11.0
492 historl_G_best_iter[iter,3] = 11.0
493 Begin iteration:
494
495 iter = 29
496 cord_individual_obj[indivial_i,:] = [ 0.  5. 12. 17.]
497 cord_individual_obj[indivial_i,:] = [ 1.  4. 20. 24.]
498 cord_individual_obj[indivial_i,:] = [ 2.  4. 30. 34.]
499 cord_individual_obj[indivial_i,:] = [ 3.  4. 78. 82.]

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500 cord_individual_obj[indivial_i, :] = [ 4. 4. 12. 16.]
501 cord_individual_obj[indivial_i, :] = [ 5. 4. 8. 12.]
502 cord_individual_obj[indivial_i, :] = [ 6. 4. 12. 16.]
503 cord_individual_obj[indivial_i, :] = [ 7. 4. 28. 32.]
504 cord_individual_obj[indivial_i, :] = [ 8. 5. 8. 13.]
505 cord_individual_obj[indivial_i, :] = [ 9. 3. 8. 11.]
506
507 min(cord_individual_obj[:, 3]) = 11.0
508 historl_G_best_iter[iter, 3] = 11.0
509 Begin iteration:
510
511 iter = 30
512 cord_individual_obj[indivial_i, :] = [ 0. 3. 20. 23.]
513 cord_individual_obj[indivial_i, :] = [ 1. 5. 44. 49.]
514 cord_individual_obj[indivial_i, :] = [ 2. 6. 24. 30.]
515 cord_individual_obj[indivial_i, :] = [ 3. 3. 8. 11.]
516 cord_individual_obj[indivial_i, :] = [ 4. 6. 32. 38.]
517 cord_individual_obj[indivial_i, :] = [ 5. 3. 50. 53.]
518 cord_individual_obj[indivial_i, :] = [ 6. 4. 28. 32.]
519 cord_individual_obj[indivial_i, :] = [ 7. 4. 28. 32.]
520 cord_individual_obj[indivial_i, :] = [ 8. 4. 16. 20.]
521 cord_individual_obj[indivial_i, :] = [ 9. 4. 28. 32.]
522
523 min(cord_individual_obj[:, 3]) = 11.0
524 historl_G_best_iter[iter, 3] = 11.0
525 Begin iteration:
526
527 iter = 31
528 cord_individual_obj[indivial_i, :] = [ 0. 5. 12. 17.]
529 cord_individual_obj[indivial_i, :] = [ 1. 5. 28. 33.]
530 cord_individual_obj[indivial_i, :] = [ 2. 6. 62. 68.]
531 cord_individual_obj[indivial_i, :] = [ 3. 4. 18. 22.]
532 cord_individual_obj[indivial_i, :] = [ 4. 4. 12. 16.]
533 cord_individual_obj[indivial_i, :] = [ 5. 3. 8. 11.]
534 cord_individual_obj[indivial_i, :] = [ 6. 4. 12. 16.]
535 cord_individual_obj[indivial_i, :] = [ 7. 4. 72. 76.]
536 cord_individual_obj[indivial_i, :] = [ 8. 3. 22. 25.]
537 cord_individual_obj[indivial_i, :] = [ 9. 4. 22. 26.]
538
539 min(cord_individual_obj[:, 3]) = 11.0
540 historl_G_best_iter[iter, 3] = 11.0
541 Begin iteration:
542
543 iter = 32
544 cord_individual_obj[indivial_i, :] = [ 0. 5. 12. 17.]
545 cord_individual_obj[indivial_i, :] = [ 1. 3. 20. 23.]
546 cord_individual_obj[indivial_i, :] = [ 2. 4. 74. 78.]
547 cord_individual_obj[indivial_i, :] = [ 3. 4. 78. 82.]
548 cord_individual_obj[indivial_i, :] = [ 4. 4. 12. 16.]
549 cord_individual_obj[indivial_i, :] = [ 5. 4. 12. 16.]
550 cord_individual_obj[indivial_i, :] = [ 6. 4. 26. 30.]
551 cord_individual_obj[indivial_i, :] = [ 7. 3. 8. 11.]
552 cord_individual_obj[indivial_i, :] = [ 8. 5. 16. 21.]
553 cord_individual_obj[indivial_i, :] = [ 9. 4. 20. 24.]
554
555 min(cord_individual_obj[:, 3]) = 11.0
556 historl_G_best_iter[iter, 3] = 11.0
557 Begin iteration:
558
559 iter = 33
560 cord_individual_obj[indivial_i, :] = [ 0. 5. 12. 17.]
561 cord_individual_obj[indivial_i, :] = [ 1. 5. 20. 25.]
562 cord_individual_obj[indivial_i, :] = [ 2. 6. 24. 30.]
563 cord_individual_obj[indivial_i, :] = [ 3. 3. 8. 11.]
564 cord_individual_obj[indivial_i, :] = [ 4. 4. 32. 36.]
565 cord_individual_obj[indivial_i, :] = [ 5. 4. 44. 48.]
566 cord_individual_obj[indivial_i, :] = [ 6. 4. 30. 34.]
567 cord_individual_obj[indivial_i, :] = [ 7. 4. 46. 50.]
568 cord_individual_obj[indivial_i, :] = [ 8. 5. 8. 13.]
569 cord_individual_obj[indivial_i, :] = [ 9. 4. 20. 24.]
570
571 min(cord_individual_obj[:, 3]) = 11.0
572 historl_G_best_iter[iter, 3] = 11.0
573 Begin iteration:
574
575 iter = 34
576 cord_individual_obj[indivial_i, :] = [ 0. 3. 20. 23.]
577 cord_individual_obj[indivial_i, :] = [ 1. 5. 44. 49.]
578 cord_individual_obj[indivial_i, :] = [ 2. 6. 24. 30.]
579 cord_individual_obj[indivial_i, :] = [ 3. 4. 8. 12.]
580 cord_individual_obj[indivial_i, :] = [ 4. 4. 20. 24.]
581 cord_individual_obj[indivial_i, :] = [ 5. 4. 44. 48.]
582 cord_individual_obj[indivial_i, :] = [ 6. 4. 20. 24.]
583 cord_individual_obj[indivial_i, :] = [ 7. 3. 8. 11.]

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584     cord_individual_obj[indivial_i, :] = [ 8. 4. 8. 12.]
585     cord_individual_obj[indivial_i, :] = [ 9. 4. 80. 84.]
586
587     min(cord_individual_obj[:, 3]) = 11.0
588     historl_G_best_iter[iter, 3] = 11.0
589 Begin iteration:
590
591 iter = 35
592     cord_individual_obj[indivial_i, :] = [ 0. 4. 24. 28.]
593     cord_individual_obj[indivial_i, :] = [ 1. 5. 8. 13.]
594     cord_individual_obj[indivial_i, :] = [ 2. 4. 94. 98.]
595     cord_individual_obj[indivial_i, :] = [ 3. 4. 12. 16.]
596     cord_individual_obj[indivial_i, :] = [ 4. 6. 44. 50.]
597     cord_individual_obj[indivial_i, :] = [ 5. 3. 64. 67.]
598     cord_individual_obj[indivial_i, :] = [ 6. 6. 34. 40.]
599     cord_individual_obj[indivial_i, :] = [ 7. 4. 28. 32.]
600     cord_individual_obj[indivial_i, :] = [ 8. 4. 8. 12.]
601     cord_individual_obj[indivial_i, :] = [ 9. 3. 8. 11.]
602
603     min(cord_individual_obj[:, 3]) = 11.0
604     historl_G_best_iter[iter, 3] = 11.0
605 Begin iteration:
606
607 iter = 36
608     cord_individual_obj[indivial_i, :] = [ 0. 3. 36. 39.]
609     cord_individual_obj[indivial_i, :] = [ 1. 5. 44. 49.]
610     cord_individual_obj[indivial_i, :] = [ 2. 3. 8. 11.]
611     cord_individual_obj[indivial_i, :] = [ 3. 4. 18. 22.]
612     cord_individual_obj[indivial_i, :] = [ 4. 6. 68. 74.]
613     cord_individual_obj[indivial_i, :] = [ 5. 4. 8. 12.]
614     cord_individual_obj[indivial_i, :] = [ 6. 6. 26. 32.]
615     cord_individual_obj[indivial_i, :] = [ 7. 4. 68. 72.]
616     cord_individual_obj[indivial_i, :] = [ 8. 4. 8. 12.]
617     cord_individual_obj[indivial_i, :] = [ 9. 4. 20. 24.]
618
619     min(cord_individual_obj[:, 3]) = 11.0
620     historl_G_best_iter[iter, 3] = 11.0
621 Begin iteration:
622
623 iter = 37
624     cord_individual_obj[indivial_i, :] = [ 0. 5. 8. 13.]
625     cord_individual_obj[indivial_i, :] = [ 1. 4. 28. 32.]
626     cord_individual_obj[indivial_i, :] = [ 2. 6. 62. 68.]
627     cord_individual_obj[indivial_i, :] = [ 3. 4. 8. 12.]
628     cord_individual_obj[indivial_i, :] = [ 4. 3. 8. 11.]
629     cord_individual_obj[indivial_i, :] = [ 5. 4. 8. 12.]
630     cord_individual_obj[indivial_i, :] = [ 6. 3. 18. 21.]
631     cord_individual_obj[indivial_i, :] = [ 7. 4. 36. 40.]
632     cord_individual_obj[indivial_i, :] = [ 8. 3. 8. 11.]
633     cord_individual_obj[indivial_i, :] = [ 9. 4. 22. 26.]
634
635     min(cord_individual_obj[:, 3]) = 11.0
636     historl_G_best_iter[iter, 3] = 11.0
637 Begin iteration:
638
639 iter = 38
640     cord_individual_obj[indivial_i, :] = [ 0. 3. 20. 23.]
641     cord_individual_obj[indivial_i, :] = [ 1. 6. 20. 26.]
642     cord_individual_obj[indivial_i, :] = [ 2. 3. 8. 11.]
643     cord_individual_obj[indivial_i, :] = [ 3. 4. 38. 42.]
644     cord_individual_obj[indivial_i, :] = [ 4. 4. 32. 36.]
645     cord_individual_obj[indivial_i, :] = [ 5. 3. 24. 27.]
646     cord_individual_obj[indivial_i, :] = [ 6. 5. 20. 25.]
647     cord_individual_obj[indivial_i, :] = [ 7. 4. 12. 16.]
648     cord_individual_obj[indivial_i, :] = [ 8. 4. 8. 12.]
649     cord_individual_obj[indivial_i, :] = [ 9. 6. 48. 54.]
650
651     min(cord_individual_obj[:, 3]) = 11.0
652     historl_G_best_iter[iter, 3] = 11.0
653 Begin iteration:
654
655 iter = 39
656     cord_individual_obj[indivial_i, :] = [ 0. 5. 12. 17.]
657     cord_individual_obj[indivial_i, :] = [ 1. 5. 20. 25.]
658     cord_individual_obj[indivial_i, :] = [ 2. 6. 24. 30.]
659     cord_individual_obj[indivial_i, :] = [ 3. 4. 70. 74.]
660     cord_individual_obj[indivial_i, :] = [ 4. 4. 12. 16.]
661     cord_individual_obj[indivial_i, :] = [ 5. 4. 44. 48.]
662     cord_individual_obj[indivial_i, :] = [ 6. 4. 12. 16.]
663     cord_individual_obj[indivial_i, :] = [ 7. 4. 44. 48.]
664     cord_individual_obj[indivial_i, :] = [ 8. 3. 8. 11.]
665     cord_individual_obj[indivial_i, :] = [ 9. 3. 8. 11.]
666
667     min(cord_individual_obj[:, 3]) = 11.0

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unknown

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668 historl_G_best_iter[iter, 3] = 11.0
669 Begin iteration:
670
671 iter = 40
672 cord_individual_obj[indivial_i, :] = [ 0. 3. 20. 23.]
673 cord_individual_obj[indivial_i, :] = [ 1. 4. 44. 48.]
674 cord_individual_obj[indivial_i, :] = [ 2. 6. 44. 50.]
675 cord_individual_obj[indivial_i, :] = [ 3. 3. 8. 11.]
676 cord_individual_obj[indivial_i, :] = [ 4. 4. 24. 28.]
677 cord_individual_obj[indivial_i, :] = [ 5. 4. 44. 48.]
678 cord_individual_obj[indivial_i, :] = [ 6. 5. 36. 41.]
679 cord_individual_obj[indivial_i, :] = [ 7. 4. 28. 32.]
680 cord_individual_obj[indivial_i, :] = [ 8. 4. 16. 20.]
681 cord_individual_obj[indivial_i, :] = [ 9. 5. 20. 25.]
682
683 min(cord_individual_obj[:, 3]) = 11.0
684 historl_G_best_iter[iter, 3] = 11.0
685 Iteration calculate over
686
687
688
689
690 All item are in Bin and:
691 Bin area = 1080
692 Real_area = 104.0
693 Proportion_of_area = 0.0962962962962963
694 BEST_CHROM =
695     berth: [12.5 26. 3. 20.5 16.5 8. ]
696     time: [0. 0. 0. 0. 0.]
697     num_QC: [2. 2. 4. 3. 3. 3.]
698 Objective function values and some other indicators:
699 Obj0 = 3.00          Obj1 = 8.00          Obj0 + Obj1 = 11.00
700 Total movement of crane: 8.00
701 Total waiting time in berth position: 0.00
702 Total index of q during berthing: 499.00
703 Specific arrangement for each vessel:
704 V_id: 0      li: 5.0           xi: 12.5           bow of i: 10.0           tail of i: 15.0           gama_i0: 0.0           gama_i1: 1
705 .0          gama_i1 + 1: 2.0   gama_i1 - gama_i0: 1.0           duration_time_i: 2.0           demand_i: 80.0           work
706 load_i: 80.0           work load gap_i: 0
706 V_id: 1      li: 6.0           xi: 26.0           bow of i: 23.0           tail of i: 29.0           gama_i0: 0.0           gama_i1: 2
707 .0          gama_i1 + 1: 3.0   gama_i1 - gama_i0: 2.0           duration_time_i: 3.0           demand_i: 120.0           work
707 load_i: 120.0           work load gap_i: 0
707 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: 3.0
708 .0          gama_i1 + 1: 4.0   gama_i1 - gama_i0: 3.0           duration_time_i: 4.0           demand_i: 260.0           work load_i:
708 260.0           work load gap_i: 0
708 V_id: 3      li: 5.0           xi: 20.5           bow of i: 18.0           tail of i: 23.0           gama_i0: 0.0           gama_i1: 1
709 .0          gama_i1 + 1: 2.0   gama_i1 - gama_i0: 1.0           duration_time_i: 2.0           demand_i: 80.0           work
709 load_i: 80.0           work load gap_i: 0
709 V_id: 4      li: 3.0           xi: 16.5           bow of i: 15.0           tail of i: 18.0           gama_i0: 0.0           gama_i1: 3
710 .0          gama_i1 + 1: 4.0   gama_i1 - gama_i0: 3.0           duration_time_i: 4.0           demand_i: 200.0           work
710 load_i: 200.0           work load gap_i: 0
710 V_id: 5      li: 4.0           xi: 8.0            bow of i: 6.0           tail of i: 10.0           gama_i0: 0.0           gama_i1: 3.0
711 .0          gama_i1 + 1: 4.0   gama_i1 - gama_i0: 3.0           duration_time_i: 4.0           demand_i: 220.0           work load_i:
711 220.0           work load gap_i: 0
711
712 Algorithm finished and the total CPU time: 132 s
712 End
713
```