

unknown

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80 cord_individual_obj[indivial_i,:] = [16. 7. 28. 35.]
81 cord_individual_obj[indivial_i,:] = [17. 7. 40. 47.]
82 cord_individual_obj[indivial_i,:] = [18. 6. 98. 104.]
83 cord_individual_obj[indivial_i,:] = [19. 5. 17. 22.]
84 cord_individual_obj[indivial_i,:] = [20. 5. 42. 47.]
85 cord_individual_obj[indivial_i,:] = [21. 6. 109. 115.]
86 cord_individual_obj[indivial_i,:] = [22. 5. 12. 17.]
87 cord_individual_obj[indivial_i,:] = [23. 4. 49. 53.]
88 cord_individual_obj[indivial_i,:] = [24. 6. 34. 40.]
89
90 min(cord_individual_obj[:,3]) = 17.0
91 historl_G_best_iter[iter,3] = 17.0
92 Begin iteration:
93
94 iter = 2
95 cord_individual_obj[indivial_i,:] = [ 0. 6. 49. 55.]
96 cord_individual_obj[indivial_i,:] = [ 1. 5. 92. 97.]
97 cord_individual_obj[indivial_i,:] = [ 2. 5. 56. 61.]
98 cord_individual_obj[indivial_i,:] = [ 3. 6. 81. 87.]
99 cord_individual_obj[indivial_i,:] = [ 4. 7. 52. 59.]
100 cord_individual_obj[indivial_i,:] = [ 5. 6. 22. 28.]
101 cord_individual_obj[indivial_i,:] = [ 6. 4. 13. 17.]
102 cord_individual_obj[indivial_i,:] = [ 7. 7. 56. 63.]
103 cord_individual_obj[indivial_i,:] = [ 8. 7. 56. 63.]
104 cord_individual_obj[indivial_i,:] = [ 9. 7. 97. 104.]
105 cord_individual_obj[indivial_i,:] = [10. 4. 70. 74.]
106 cord_individual_obj[indivial_i,:] = [11. 5. 105. 110.]
107 cord_individual_obj[indivial_i,:] = [12. 4. 107. 111.]
108 cord_individual_obj[indivial_i,:] = [13. 5. 36. 41.]
109 cord_individual_obj[indivial_i,:] = [14. 5. 58. 63.]
110 cord_individual_obj[indivial_i,:] = [15. 6. 41. 47.]
111 cord_individual_obj[indivial_i,:] = [16. 6. 63. 69.]
112 cord_individual_obj[indivial_i,:] = [17. 6. 54. 60.]
113 cord_individual_obj[indivial_i,:] = [18. 4. 89. 93.]
114 cord_individual_obj[indivial_i,:] = [19. 5. 21. 26.]
115 cord_individual_obj[indivial_i,:] = [20. 5. 34. 39.]
116 cord_individual_obj[indivial_i,:] = [21. 6. 57. 63.]
117 cord_individual_obj[indivial_i,:] = [22. 5. 86. 91.]
118 cord_individual_obj[indivial_i,:] = [23. 6. 104. 110.]
119 cord_individual_obj[indivial_i,:] = [24. 5. 70. 75.]
120
121 min(cord_individual_obj[:,3]) = 17.0
122 historl_G_best_iter[iter,3] = 17.0
123 Begin iteration:
124
125 iter = 3
126 cord_individual_obj[indivial_i,:] = [ 0. 7. 69. 76.]
127 cord_individual_obj[indivial_i,:] = [ 1. 6. 95. 101.]
128 cord_individual_obj[indivial_i,:] = [ 2. 5. 27. 32.]
129 cord_individual_obj[indivial_i,:] = [ 3. 4. 69. 73.]
130 cord_individual_obj[indivial_i,:] = [ 4. 6. 99. 105.]
131 cord_individual_obj[indivial_i,:] = [ 5. 4. 34. 38.]
132 cord_individual_obj[indivial_i,:] = [ 6. 4. 16. 20.]
133 cord_individual_obj[indivial_i,:] = [ 7. 5. 91. 96.]
134 cord_individual_obj[indivial_i,:] = [ 8. 4. 85. 89.]
135 cord_individual_obj[indivial_i,:] = [ 9. 7. 79. 86.]
136 cord_individual_obj[indivial_i,:] = [10. 4. 68. 72.]
137 cord_individual_obj[indivial_i,:] = [11. 6. 16. 22.]
138 cord_individual_obj[indivial_i,:] = [12. 4. 13. 17.]
139 cord_individual_obj[indivial_i,:] = [13. 7. 48. 55.]
140 cord_individual_obj[indivial_i,:] = [14. 7. 66. 73.]
141 cord_individual_obj[indivial_i,:] = [15. 4. 59. 63.]
142 cord_individual_obj[indivial_i,:] = [16. 8. 70. 78.]
143 cord_individual_obj[indivial_i,:] = [17. 6. 51. 57.]
144 cord_individual_obj[indivial_i,:] = [18. 6. 64. 70.]
145 cord_individual_obj[indivial_i,:] = [19. 4. 73. 77.]
146 cord_individual_obj[indivial_i,:] = [20. 7. 68. 75.]
147 cord_individual_obj[indivial_i,:] = [21. 6. 105. 111.]
148 cord_individual_obj[indivial_i,:] = [22. 4. 83. 87.]
149 cord_individual_obj[indivial_i,:] = [23. 7. 78. 85.]
150 cord_individual_obj[indivial_i,:] = [24. 5. 66. 71.]
151
152 min(cord_individual_obj[:,3]) = 17.0
153 historl_G_best_iter[iter,3] = 17.0
154 Begin iteration:
155
156 iter = 4
157 cord_individual_obj[indivial_i,:] = [ 0. 6. 34. 40.]
158 cord_individual_obj[indivial_i,:] = [ 1. 6. 53. 59.]
159 cord_individual_obj[indivial_i,:] = [ 2. 4. 74. 78.]
160 cord_individual_obj[indivial_i,:] = [ 3. 4. 27. 31.]
161 cord_individual_obj[indivial_i,:] = [ 4. 6. 18. 24.]
162 cord_individual_obj[indivial_i,:] = [ 5. 4. 73. 77.]
163 cord_individual_obj[indivial_i,:] = [ 6. 4. 16. 20.]

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164 cord_individual_obj[indivial_i,:] = [ 7. 6. 16. 22.]
165 cord_individual_obj[indivial_i,:] = [ 8. 5. 82. 87.]
166 cord_individual_obj[indivial_i,:] = [ 9. 5. 22. 27.]
167 cord_individual_obj[indivial_i,:] = [10. 5. 82. 87.]
168 cord_individual_obj[indivial_i,:] = [11. 5. 49. 54.]
169 cord_individual_obj[indivial_i,:] = [12. 4. 86. 90.]
170 cord_individual_obj[indivial_i,:] = [13. 5. 110. 115.]
171 cord_individual_obj[indivial_i,:] = [14. 7. 115. 122.]
172 cord_individual_obj[indivial_i,:] = [15. 5. 19. 24.]
173 cord_individual_obj[indivial_i,:] = [16. 6. 43. 49.]
174 cord_individual_obj[indivial_i,:] = [17. 6. 31. 37.]
175 cord_individual_obj[indivial_i,:] = [18. 4. 77. 81.]
176 cord_individual_obj[indivial_i,:] = [19. 5. 58. 63.]
177 cord_individual_obj[indivial_i,:] = [20. 6. 88. 94.]
178 cord_individual_obj[indivial_i,:] = [21. 4. 13. 17.]
179 cord_individual_obj[indivial_i,:] = [22. 4. 60. 64.]
180 cord_individual_obj[indivial_i,:] = [23. 6. 94. 100.]
181 cord_individual_obj[indivial_i,:] = [24. 4. 107. 111.]
182
183 min(cord_individual_obj[:,3]) = 17.0
184 historl_G_best_iter[iter,3] = 17.0
185 Begin iteration:
186
187 iter = 5
188 cord_individual_obj[indivial_i,:] = [ 0. 4. 116. 120.]
189 cord_individual_obj[indivial_i,:] = [ 1. 5. 38. 43.]
190 cord_individual_obj[indivial_i,:] = [ 2. 5. 71. 76.]
191 cord_individual_obj[indivial_i,:] = [ 3. 5. 53. 58.]
192 cord_individual_obj[indivial_i,:] = [ 4. 5. 60. 65.]
193 cord_individual_obj[indivial_i,:] = [ 5. 6. 49. 55.]
194 cord_individual_obj[indivial_i,:] = [ 6. 4. 122. 126.]
195 cord_individual_obj[indivial_i,:] = [ 7. 5. 62. 67.]
196 cord_individual_obj[indivial_i,:] = [ 8. 5. 89. 94.]
197 cord_individual_obj[indivial_i,:] = [ 9. 5. 42. 47.]
198 cord_individual_obj[indivial_i,:] = [10. 5. 28. 33.]
199 cord_individual_obj[indivial_i,:] = [11. 6. 54. 60.]
200 cord_individual_obj[indivial_i,:] = [12. 5. 34. 39.]
201 cord_individual_obj[indivial_i,:] = [13. 5. 83. 88.]
202 cord_individual_obj[indivial_i,:] = [14. 4. 13. 17.]
203 cord_individual_obj[indivial_i,:] = [15. 7. 22. 29.]
204 cord_individual_obj[indivial_i,:] = [16. 6. 58. 64.]
205 cord_individual_obj[indivial_i,:] = [17. 7. 69. 76.]
206 cord_individual_obj[indivial_i,:] = [18. 6. 60. 66.]
207 cord_individual_obj[indivial_i,:] = [19. 5. 98. 103.]
208 cord_individual_obj[indivial_i,:] = [20. 6. 41. 47.]
209 cord_individual_obj[indivial_i,:] = [21. 5. 67. 72.]
210 cord_individual_obj[indivial_i,:] = [22. 6. 59. 65.]
211 cord_individual_obj[indivial_i,:] = [23. 6. 42. 48.]
212 cord_individual_obj[indivial_i,:] = [24. 5. 73. 78.]
213
214 min(cord_individual_obj[:,3]) = 17.0
215 historl_G_best_iter[iter,3] = 17.0
216 Begin iteration:
217
218 iter = 6
219 cord_individual_obj[indivial_i,:] = [ 0. 4. 89. 93.]
220 cord_individual_obj[indivial_i,:] = [ 1. 5. 55. 60.]
221 cord_individual_obj[indivial_i,:] = [ 2. 5. 83. 88.]
222 cord_individual_obj[indivial_i,:] = [ 3. 4. 22. 26.]
223 cord_individual_obj[indivial_i,:] = [ 4. 6. 18. 24.]
224 cord_individual_obj[indivial_i,:] = [ 5. 5. 74. 79.]
225 cord_individual_obj[indivial_i,:] = [ 6. 4. 13. 17.]
226 cord_individual_obj[indivial_i,:] = [ 7. 5. 18. 23.]
227 cord_individual_obj[indivial_i,:] = [ 8. 5. 120. 125.]
228 cord_individual_obj[indivial_i,:] = [ 9. 5. 59. 64.]
229 cord_individual_obj[indivial_i,:] = [10. 5. 78. 83.]
230 cord_individual_obj[indivial_i,:] = [11. 6. 70. 76.]
231 cord_individual_obj[indivial_i,:] = [12. 4. 86. 90.]
232 cord_individual_obj[indivial_i,:] = [13. 5. 110. 115.]
233 cord_individual_obj[indivial_i,:] = [14. 7. 107. 114.]
234 cord_individual_obj[indivial_i,:] = [15. 6. 28. 34.]
235 cord_individual_obj[indivial_i,:] = [16. 5. 30. 35.]
236 cord_individual_obj[indivial_i,:] = [17. 6. 77. 83.]
237 cord_individual_obj[indivial_i,:] = [18. 5. 77. 82.]
238 cord_individual_obj[indivial_i,:] = [19. 5. 57. 62.]
239 cord_individual_obj[indivial_i,:] = [20. 5. 70. 75.]
240 cord_individual_obj[indivial_i,:] = [21. 4. 93. 97.]
241 cord_individual_obj[indivial_i,:] = [22. 5. 43. 48.]
242 cord_individual_obj[indivial_i,:] = [23. 5. 82. 87.]
243 cord_individual_obj[indivial_i,:] = [24. 5. 53. 58.]
244
245 min(cord_individual_obj[:,3]) = 17.0
246 historl_G_best_iter[iter,3] = 17.0
247 Begin iteration:

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248
249 iter = 7
250 cord_individual_obj[indivial_i, :] = [ 0.  4. 47. 51.]
251 cord_individual_obj[indivial_i, :] = [ 1.  5. 39. 44.]
252 cord_individual_obj[indivial_i, :] = [ 2.  4. 103. 107.]
253 cord_individual_obj[indivial_i, :] = [ 3.  5. 70. 75.]
254 cord_individual_obj[indivial_i, :] = [ 4.  5. 22. 27.]
255 cord_individual_obj[indivial_i, :] = [ 5.  4. 97. 101.]
256 cord_individual_obj[indivial_i, :] = [ 6.  4. 25. 29.]
257 cord_individual_obj[indivial_i, :] = [ 7.  5. 16. 21.]
258 cord_individual_obj[indivial_i, :] = [ 8.  4. 13. 17.]
259 cord_individual_obj[indivial_i, :] = [ 9.  5. 116. 121.]
260 cord_individual_obj[indivial_i, :] = [10. 5. 83. 88.]
261 cord_individual_obj[indivial_i, :] = [11. 5. 47. 52.]
262 cord_individual_obj[indivial_i, :] = [12. 4. 50. 54.]
263 cord_individual_obj[indivial_i, :] = [13. 5. 18. 23.]
264 cord_individual_obj[indivial_i, :] = [14. 7. 37. 44.]
265 cord_individual_obj[indivial_i, :] = [15. 5. 19. 24.]
266 cord_individual_obj[indivial_i, :] = [16. 6. 79. 85.]
267 cord_individual_obj[indivial_i, :] = [17. 5. 47. 52.]
268 cord_individual_obj[indivial_i, :] = [18. 4. 35. 39.]
269 cord_individual_obj[indivial_i, :] = [19. 5. 23. 28.]
270 cord_individual_obj[indivial_i, :] = [20. 6. 89. 95.]
271 cord_individual_obj[indivial_i, :] = [21. 5. 74. 79.]
272 cord_individual_obj[indivial_i, :] = [22. 5. 62. 67.]
273 cord_individual_obj[indivial_i, :] = [23. 6. 98. 104.]
274 cord_individual_obj[indivial_i, :] = [24. 4. 16. 20.]
275

276 min(cord_individual_obj[:, 3]) = 17.0
277 historl_G_best_iter[iter, 3] = 17.0
278 Begin iteration:
279
280 iter = 8
281 cord_individual_obj[indivial_i, :] = [ 0.  4. 114. 118.]
282 cord_individual_obj[indivial_i, :] = [ 1.  6. 50. 56.]
283 cord_individual_obj[indivial_i, :] = [ 2.  5. 59. 64.]
284 cord_individual_obj[indivial_i, :] = [ 3.  5. 87. 92.]
285 cord_individual_obj[indivial_i, :] = [ 4.  6. 18. 24.]
286 cord_individual_obj[indivial_i, :] = [ 5.  5. 99. 104.]
287 cord_individual_obj[indivial_i, :] = [ 6.  5. 91. 96.]
288 cord_individual_obj[indivial_i, :] = [ 7.  5. 26. 31.]
289 cord_individual_obj[indivial_i, :] = [ 8.  5. 95. 100.]
290 cord_individual_obj[indivial_i, :] = [ 9.  4. 13. 17.]
291 cord_individual_obj[indivial_i, :] = [10. 7. 69. 76.]
292 cord_individual_obj[indivial_i, :] = [11. 7. 60. 67.]
293 cord_individual_obj[indivial_i, :] = [12. 4. 83. 87.]
294 cord_individual_obj[indivial_i, :] = [13. 5. 17. 22.]
295 cord_individual_obj[indivial_i, :] = [14. 5. 73. 78.]
296 cord_individual_obj[indivial_i, :] = [15. 5. 27. 32.]
297 cord_individual_obj[indivial_i, :] = [16. 6. 59. 65.]
298 cord_individual_obj[indivial_i, :] = [17. 6. 77. 83.]
299 cord_individual_obj[indivial_i, :] = [18. 5. 45. 50.]
300 cord_individual_obj[indivial_i, :] = [19. 5. 81. 86.]
301 cord_individual_obj[indivial_i, :] = [20. 4. 69. 73.]
302 cord_individual_obj[indivial_i, :] = [21. 4. 89. 93.]
303 cord_individual_obj[indivial_i, :] = [22. 4. 29. 33.]
304 cord_individual_obj[indivial_i, :] = [23. 5. 61. 66.]
305 cord_individual_obj[indivial_i, :] = [24. 4. 26. 30.]
306

307 min(cord_individual_obj[:, 3]) = 17.0
308 historl_G_best_iter[iter, 3] = 17.0
309 Begin iteration:
310
311 iter = 9
312 cord_individual_obj[indivial_i, :] = [ 0.  4. 13. 17.]
313 cord_individual_obj[indivial_i, :] = [ 1.  6. 76. 82.]
314 cord_individual_obj[indivial_i, :] = [ 2.  4. 101. 105.]
315 cord_individual_obj[indivial_i, :] = [ 3.  4. 113. 117.]
316 cord_individual_obj[indivial_i, :] = [ 4.  7. 84. 91.]
317 cord_individual_obj[indivial_i, :] = [ 5.  5. 75. 80.]
318 cord_individual_obj[indivial_i, :] = [ 6.  4. 48. 52.]
319 cord_individual_obj[indivial_i, :] = [ 7.  4. 48. 52.]
320 cord_individual_obj[indivial_i, :] = [ 8.  6. 90. 96.]
321 cord_individual_obj[indivial_i, :] = [ 9.  5. 61. 66.]
322 cord_individual_obj[indivial_i, :] = [10. 5. 78. 83.]
323 cord_individual_obj[indivial_i, :] = [11. 5. 67. 72.]
324 cord_individual_obj[indivial_i, :] = [12. 4. 118. 122.]
325 cord_individual_obj[indivial_i, :] = [13. 5. 16. 21.]
326 cord_individual_obj[indivial_i, :] = [14. 6. 31. 37.]
327 cord_individual_obj[indivial_i, :] = [15. 5. 36. 41.]
328 cord_individual_obj[indivial_i, :] = [16. 4. 24. 28.]
329 cord_individual_obj[indivial_i, :] = [17. 7. 69. 76.]
330 cord_individual_obj[indivial_i, :] = [18. 4. 28. 32.]
331 cord_individual_obj[indivial_i, :] = [19. 5. 98. 103.]

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332 cord_individual_obj[indivial_i, :] = [20. 4. 26. 30.]
333 cord_individual_obj[indivial_i, :] = [21. 5. 105. 110.]
334 cord_individual_obj[indivial_i, :] = [22. 4. 59. 63.]
335 cord_individual_obj[indivial_i, :] = [23. 5. 73. 78.]
336 cord_individual_obj[indivial_i, :] = [24. 5. 46. 51.]
337
338 min(cord_individual_obj[:, 3]) = 17.0
339 histol_G_best_iter[iter, 3] = 17.0
340 Begin iteration:
341
342 iter = 10
343 cord_individual_obj[indivial_i, :] = [ 0. 4. 89. 93.]
344 cord_individual_obj[indivial_i, :] = [ 1. 5. 26. 31.]
345 cord_individual_obj[indivial_i, :] = [ 2. 5. 45. 50.]
346 cord_individual_obj[indivial_i, :] = [ 3. 4. 94. 98.]
347 cord_individual_obj[indivial_i, :] = [ 4. 6. 15. 21.]
348 cord_individual_obj[indivial_i, :] = [ 5. 3. 77. 80.]
349 cord_individual_obj[indivial_i, :] = [ 6. 4. 73. 77.]
350 cord_individual_obj[indivial_i, :] = [ 7. 5. 93. 98.]
351 cord_individual_obj[indivial_i, :] = [ 8. 5. 29. 34.]
352 cord_individual_obj[indivial_i, :] = [ 9. 7. 26. 33.]
353 cord_individual_obj[indivial_i, :] = [10. 4. 55. 59.]
354 cord_individual_obj[indivial_i, :] = [11. 6. 42. 48.]
355 cord_individual_obj[indivial_i, :] = [12. 4. 13. 17.]
356 cord_individual_obj[indivial_i, :] = [13. 6. 74. 80.]
357 cord_individual_obj[indivial_i, :] = [14. 6. 92. 98.]
358 cord_individual_obj[indivial_i, :] = [15. 7. 54. 61.]
359 cord_individual_obj[indivial_i, :] = [16. 6. 107. 113.]
360 cord_individual_obj[indivial_i, :] = [17. 5. 13. 18.]
361 cord_individual_obj[indivial_i, :] = [18. 5. 62. 67.]
362 cord_individual_obj[indivial_i, :] = [19. 5. 16. 21.]
363 cord_individual_obj[indivial_i, :] = [20. 6. 18. 24.]
364 cord_individual_obj[indivial_i, :] = [21. 4. 54. 58.]
365 cord_individual_obj[indivial_i, :] = [22. 4. 102. 106.]
366 cord_individual_obj[indivial_i, :] = [23. 7. 38. 45.]
367 cord_individual_obj[indivial_i, :] = [24. 5. 24. 29.]
368
369 min(cord_individual_obj[:, 3]) = 17.0
370 histol_G_best_iter[iter, 3] = 17.0
371 Begin iteration:
372
373 iter = 11
374 cord_individual_obj[indivial_i, :] = [ 0. 6. 54. 60.]
375 cord_individual_obj[indivial_i, :] = [ 1. 6. 56. 62.]
376 cord_individual_obj[indivial_i, :] = [ 2. 5. 61. 66.]
377 cord_individual_obj[indivial_i, :] = [ 3. 4. 69. 73.]
378 cord_individual_obj[indivial_i, :] = [ 4. 5. 67. 72.]
379 cord_individual_obj[indivial_i, :] = [ 5. 6. 33. 39.]
380 cord_individual_obj[indivial_i, :] = [ 6. 4. 51. 55.]
381 cord_individual_obj[indivial_i, :] = [ 7. 5. 45. 50.]
382 cord_individual_obj[indivial_i, :] = [ 8. 5. 77. 82.]
383 cord_individual_obj[indivial_i, :] = [ 9. 4. 83. 87.]
384 cord_individual_obj[indivial_i, :] = [10. 3. 39. 42.]
385 cord_individual_obj[indivial_i, :] = [11. 6. 77. 83.]
386 cord_individual_obj[indivial_i, :] = [12. 4. 86. 90.]
387 cord_individual_obj[indivial_i, :] = [13. 6. 95. 101.]
388 cord_individual_obj[indivial_i, :] = [14. 7. 99. 106.]
389 cord_individual_obj[indivial_i, :] = [15. 8. 52. 60.]
390 cord_individual_obj[indivial_i, :] = [16. 4. 13. 17.]
391 cord_individual_obj[indivial_i, :] = [17. 5. 35. 40.]
392 cord_individual_obj[indivial_i, :] = [18. 4. 35. 39.]
393 cord_individual_obj[indivial_i, :] = [19. 5. 69. 74.]
394 cord_individual_obj[indivial_i, :] = [20. 7. 23. 30.]
395 cord_individual_obj[indivial_i, :] = [21. 4. 130. 134.]
396 cord_individual_obj[indivial_i, :] = [22. 5. 48. 53.]
397 cord_individual_obj[indivial_i, :] = [23. 5. 182. 187.]
398 cord_individual_obj[indivial_i, :] = [24. 5. 48. 53.]
399
400 min(cord_individual_obj[:, 3]) = 17.0
401 histol_G_best_iter[iter, 3] = 17.0
402 Begin iteration:
403
404 iter = 12
405 cord_individual_obj[indivial_i, :] = [ 0. 5. 87. 92.]
406 cord_individual_obj[indivial_i, :] = [ 1. 5. 63. 68.]
407 cord_individual_obj[indivial_i, :] = [ 2. 5. 70. 75.]
408 cord_individual_obj[indivial_i, :] = [ 3. 6. 91. 97.]
409 cord_individual_obj[indivial_i, :] = [ 4. 6. 69. 75.]
410 cord_individual_obj[indivial_i, :] = [ 5. 6. 57. 63.]
411 cord_individual_obj[indivial_i, :] = [ 6. 7. 35. 42.]
412 cord_individual_obj[indivial_i, :] = [ 7. 6. 24. 30.]
413 cord_individual_obj[indivial_i, :] = [ 8. 6. 90. 96.]
414 cord_individual_obj[indivial_i, :] = [ 9. 5. 90. 95.]
415 cord_individual_obj[indivial_i, :] = [10. 5. 108. 113.]

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416 cord_individual_obj[indivial_i,:] = [11. 6. 67. 73.]
417 cord_individual_obj[indivial_i,:] = [12. 5. 86. 91.]
418 cord_individual_obj[indivial_i,:] = [13. 5. 26. 31.]
419 cord_individual_obj[indivial_i,:] = [14. 6. 72. 78.]
420 cord_individual_obj[indivial_i,:] = [15. 6. 21. 27.]
421 cord_individual_obj[indivial_i,:] = [16. 7. 50. 57.]
422 cord_individual_obj[indivial_i,:] = [17. 6. 35. 41.]
423 cord_individual_obj[indivial_i,:] = [18. 5. 86. 91.]
424 cord_individual_obj[indivial_i,:] = [19. 5. 86. 91.]
425 cord_individual_obj[indivial_i,:] = [20. 7. 24. 31.]
426 cord_individual_obj[indivial_i,:] = [21. 6. 53. 59.]
427 cord_individual_obj[indivial_i,:] = [22. 4. 95. 99.]
428 cord_individual_obj[indivial_i,:] = [23. 4. 13. 17.]
429 cord_individual_obj[indivial_i,:] = [24. 5. 58. 63.]
430
431 min(cord_individual_obj[:,3]) = 17.0
432 histol_G_best_iter[iter,3] = 17.0
433 Begin iteration:
434
435 iter = 13
436 cord_individual_obj[indivial_i,:] = [ 0. 6. 23. 29.]
437 cord_individual_obj[indivial_i,:] = [ 1. 5. 67. 72.]
438 cord_individual_obj[indivial_i,:] = [ 2. 5. 80. 85.]
439 cord_individual_obj[indivial_i,:] = [ 3. 4. 70. 74.]
440 cord_individual_obj[indivial_i,:] = [ 4. 5. 18. 23.]
441 cord_individual_obj[indivial_i,:] = [ 5. 5. 75. 80.]
442 cord_individual_obj[indivial_i,:] = [ 6. 5. 25. 30.]
443 cord_individual_obj[indivial_i,:] = [ 7. 6. 16. 22.]
444 cord_individual_obj[indivial_i,:] = [ 8. 4. 81. 85.]
445 cord_individual_obj[indivial_i,:] = [ 9. 6. 89. 95.]
446 cord_individual_obj[indivial_i,:] = [10. 4. 13. 17.]
447 cord_individual_obj[indivial_i,:] = [11. 6. 70. 76.]
448 cord_individual_obj[indivial_i,:] = [12. 4. 85. 89.]
449 cord_individual_obj[indivial_i,:] = [13. 5. 29. 34.]
450 cord_individual_obj[indivial_i,:] = [14. 7. 40. 47.]
451 cord_individual_obj[indivial_i,:] = [15. 5. 21. 26.]
452 cord_individual_obj[indivial_i,:] = [16. 6. 28. 34.]
453 cord_individual_obj[indivial_i,:] = [17. 6. 77. 83.]
454 cord_individual_obj[indivial_i,:] = [18. 5. 62. 67.]
455 cord_individual_obj[indivial_i,:] = [19. 5. 52. 57.]
456 cord_individual_obj[indivial_i,:] = [20. 4. 85. 89.]
457 cord_individual_obj[indivial_i,:] = [21. 4. 88. 92.]
458 cord_individual_obj[indivial_i,:] = [22. 4. 61. 65.]
459 cord_individual_obj[indivial_i,:] = [23. 6. 94. 100.]
460 cord_individual_obj[indivial_i,:] = [24. 6. 103. 109.]
461
462 min(cord_individual_obj[:,3]) = 17.0
463 histol_G_best_iter[iter,3] = 17.0
464 Begin iteration:
465
466 iter = 14
467 cord_individual_obj[indivial_i,:] = [ 0. 6. 168. 174.]
468 cord_individual_obj[indivial_i,:] = [ 1. 4. 33. 37.]
469 cord_individual_obj[indivial_i,:] = [ 2. 5. 57. 62.]
470 cord_individual_obj[indivial_i,:] = [ 3. 5. 60. 65.]
471 cord_individual_obj[indivial_i,:] = [ 4. 5. 45. 50.]
472 cord_individual_obj[indivial_i,:] = [ 5. 4. 111. 115.]
473 cord_individual_obj[indivial_i,:] = [ 6. 7. 45. 52.]
474 cord_individual_obj[indivial_i,:] = [ 7. 5. 106. 111.]
475 cord_individual_obj[indivial_i,:] = [ 8. 5. 46. 51.]
476 cord_individual_obj[indivial_i,:] = [ 9. 4. 27. 31.]
477 cord_individual_obj[indivial_i,:] = [10. 5. 82. 87.]
478 cord_individual_obj[indivial_i,:] = [11. 6. 92. 98.]
479 cord_individual_obj[indivial_i,:] = [12. 4. 131. 135.]
480 cord_individual_obj[indivial_i,:] = [13. 4. 52. 56.]
481 cord_individual_obj[indivial_i,:] = [14. 7. 41. 48.]
482 cord_individual_obj[indivial_i,:] = [15. 4. 45. 49.]
483 cord_individual_obj[indivial_i,:] = [16. 5. 27. 32.]
484 cord_individual_obj[indivial_i,:] = [17. 6. 16. 22.]
485 cord_individual_obj[indivial_i,:] = [18. 4. 26. 30.]
486 cord_individual_obj[indivial_i,:] = [19. 5. 36. 41.]
487 cord_individual_obj[indivial_i,:] = [20. 5. 36. 41.]
488 cord_individual_obj[indivial_i,:] = [21. 5. 13. 18.]
489 cord_individual_obj[indivial_i,:] = [22. 6. 91. 97.]
490 cord_individual_obj[indivial_i,:] = [23. 5. 77. 82.]
491 cord_individual_obj[indivial_i,:] = [24. 4. 13. 17.]
492
493 min(cord_individual_obj[:,3]) = 17.0
494 histol_G_best_iter[iter,3] = 17.0
495 Begin iteration:
496
497 iter = 15
498 cord_individual_obj[indivial_i,:] = [ 0. 4. 13. 17.]
499 cord_individual_obj[indivial_i,:] = [ 1. 5. 56. 61.]

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500 cord_individual_obj[indivial_i,:] = [ 2. 5. 53. 58.]
501 cord_individual_obj[indivial_i,:] = [ 3. 4. 44. 48.]
502 cord_individual_obj[indivial_i,:] = [ 4. 5. 19. 24.]
503 cord_individual_obj[indivial_i,:] = [ 5. 5. 54. 59.]
504 cord_individual_obj[indivial_i,:] = [ 6. 4. 66. 70.]
505 cord_individual_obj[indivial_i,:] = [ 7. 4. 19. 23.]
506 cord_individual_obj[indivial_i,:] = [ 8. 5. 81. 86.]
507 cord_individual_obj[indivial_i,:] = [ 9. 5. 85. 90.]
508 cord_individual_obj[indivial_i,:] = [10. 7. 69. 76.]
509 cord_individual_obj[indivial_i,:] = [11. 7. 42. 49.]
510 cord_individual_obj[indivial_i,:] = [12. 5. 66. 71.]
511 cord_individual_obj[indivial_i,:] = [13. 5. 45. 50.]
512 cord_individual_obj[indivial_i,:] = [14. 6. 81. 87.]
513 cord_individual_obj[indivial_i,:] = [15. 5. 21. 26.]
514 cord_individual_obj[indivial_i,:] = [16. 4. 19. 23.]
515 cord_individual_obj[indivial_i,:] = [17. 5. 48. 53.]
516 cord_individual_obj[indivial_i,:] = [18. 5. 35. 40.]
517 cord_individual_obj[indivial_i,:] = [19. 5. 70. 75.]
518 cord_individual_obj[indivial_i,:] = [20. 6. 89. 95.]
519 cord_individual_obj[indivial_i,:] = [21. 5. 63. 68.]
520 cord_individual_obj[indivial_i,:] = [22. 4. 27. 31.]
521 cord_individual_obj[indivial_i,:] = [23. 7. 92. 99.]
522 cord_individual_obj[indivial_i,:] = [24. 5. 88. 93.]
523
524 min(cord_individual_obj[:,3]) = 17.0
525 histol_G_best_iter[iter,3] = 17.0
526 Begin iteration:
527
528 iter = 16
529 cord_individual_obj[indivial_i,:] = [ 0. 5. 15. 20.]
530 cord_individual_obj[indivial_i,:] = [ 1. 5. 86. 91.]
531 cord_individual_obj[indivial_i,:] = [ 2. 4. 82. 86.]
532 cord_individual_obj[indivial_i,:] = [ 3. 4. 101. 105.]
533 cord_individual_obj[indivial_i,:] = [ 4. 6. 35. 41.]
534 cord_individual_obj[indivial_i,:] = [ 5. 6. 69. 75.]
535 cord_individual_obj[indivial_i,:] = [ 6. 4. 61. 65.]
536 cord_individual_obj[indivial_i,:] = [ 7. 6. 42. 48.]
537 cord_individual_obj[indivial_i,:] = [ 8. 4. 63. 67.]
538 cord_individual_obj[indivial_i,:] = [ 9. 5. 50. 55.]
539 cord_individual_obj[indivial_i,:] = [10. 5. 88. 93.]
540 cord_individual_obj[indivial_i,:] = [11. 6. 70. 76.]
541 cord_individual_obj[indivial_i,:] = [12. 4. 90. 94.]
542 cord_individual_obj[indivial_i,:] = [13. 5. 16. 21.]
543 cord_individual_obj[indivial_i,:] = [14. 8. 78. 86.]
544 cord_individual_obj[indivial_i,:] = [15. 5. 58. 63.]
545 cord_individual_obj[indivial_i,:] = [16. 7. 75. 82.]
546 cord_individual_obj[indivial_i,:] = [17. 6. 104. 110.]
547 cord_individual_obj[indivial_i,:] = [18. 4. 81. 85.]
548 cord_individual_obj[indivial_i,:] = [19. 5. 118. 123.]
549 cord_individual_obj[indivial_i,:] = [20. 7. 34. 41.]
550 cord_individual_obj[indivial_i,:] = [21. 5. 67. 72.]
551 cord_individual_obj[indivial_i,:] = [22. 5. 58. 63.]
552 cord_individual_obj[indivial_i,:] = [23. 4. 13. 17.]
553 cord_individual_obj[indivial_i,:] = [24. 5. 30. 35.]
554
555 min(cord_individual_obj[:,3]) = 17.0
556 histol_G_best_iter[iter,3] = 17.0
557 Begin iteration:
558
559 iter = 17
560 cord_individual_obj[indivial_i,:] = [ 0. 7. 141. 148.]
561 cord_individual_obj[indivial_i,:] = [ 1. 4. 59. 63.]
562 cord_individual_obj[indivial_i,:] = [ 2. 4. 58. 62.]
563 cord_individual_obj[indivial_i,:] = [ 3. 4. 137. 141.]
564 cord_individual_obj[indivial_i,:] = [ 4. 5. 61. 66.]
565 cord_individual_obj[indivial_i,:] = [ 5. 6. 68. 74.]
566 cord_individual_obj[indivial_i,:] = [ 6. 5. 24. 29.]
567 cord_individual_obj[indivial_i,:] = [ 7. 5. 19. 24.]
568 cord_individual_obj[indivial_i,:] = [ 8. 5. 63. 68.]
569 cord_individual_obj[indivial_i,:] = [ 9. 6. 78. 84.]
570 cord_individual_obj[indivial_i,:] = [10. 5. 16. 21.]
571 cord_individual_obj[indivial_i,:] = [11. 5. 66. 71.]
572 cord_individual_obj[indivial_i,:] = [12. 4. 83. 87.]
573 cord_individual_obj[indivial_i,:] = [13. 7. 26. 33.]
574 cord_individual_obj[indivial_i,:] = [14. 8. 121. 129.]
575 cord_individual_obj[indivial_i,:] = [15. 6. 43. 49.]
576 cord_individual_obj[indivial_i,:] = [16. 6. 83. 89.]
577 cord_individual_obj[indivial_i,:] = [17. 5. 140. 145.]
578 cord_individual_obj[indivial_i,:] = [18. 5. 63. 68.]
579 cord_individual_obj[indivial_i,:] = [19. 4. 13. 17.]
580 cord_individual_obj[indivial_i,:] = [20. 5. 85. 90.]
581 cord_individual_obj[indivial_i,:] = [21. 5. 45. 50.]
582 cord_individual_obj[indivial_i,:] = [22. 4. 72. 76.]
583 cord_individual_obj[indivial_i,:] = [23. 6. 79. 85.]

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unknown

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584     cord_individual_obj[indivial_i, :] = [24. 5. 31. 36.]  
585  
586     min(cord_individual_obj[:, 3]) = 17.0  
587     historl_G_best_iter[iter, 3] = 17.0  
588 Begin iteration:  
589  
590 iter = 18  
591     cord_individual_obj[indivial_i, :] = [ 0. 4. 13. 17.]  
592     cord_individual_obj[indivial_i, :] = [ 1. 5. 51. 56.]  
593     cord_individual_obj[indivial_i, :] = [ 2. 5. 84. 89.]  
594     cord_individual_obj[indivial_i, :] = [ 3. 5. 79. 84.]  
595     cord_individual_obj[indivial_i, :] = [ 4. 6. 102. 108.]  
596     cord_individual_obj[indivial_i, :] = [ 5. 4. 97. 101.]  
597     cord_individual_obj[indivial_i, :] = [ 6. 5. 71. 76.]  
598     cord_individual_obj[indivial_i, :] = [ 7. 6. 44. 50.]  
599     cord_individual_obj[indivial_i, :] = [ 8. 6. 101. 107.]  
600     cord_individual_obj[indivial_i, :] = [ 9. 7. 64. 71.]  
601     cord_individual_obj[indivial_i, :] = [10. 4. 26. 30.]  
602     cord_individual_obj[indivial_i, :] = [11. 6. 39. 45.]  
603     cord_individual_obj[indivial_i, :] = [12. 4. 81. 85.]  
604     cord_individual_obj[indivial_i, :] = [13. 6. 63. 69.]  
605     cord_individual_obj[indivial_i, :] = [14. 5. 62. 67.]  
606     cord_individual_obj[indivial_i, :] = [15. 6. 18. 24.]  
607     cord_individual_obj[indivial_i, :] = [16. 6. 65. 71.]  
608     cord_individual_obj[indivial_i, :] = [17. 7. 36. 43.]  
609     cord_individual_obj[indivial_i, :] = [18. 5. 28. 33.]  
610     cord_individual_obj[indivial_i, :] = [19. 5. 80. 85.]  
611     cord_individual_obj[indivial_i, :] = [20. 5. 44. 49.]  
612     cord_individual_obj[indivial_i, :] = [21. 4. 63. 67.]  
613     cord_individual_obj[indivial_i, :] = [22. 6. 59. 65.]  
614     cord_individual_obj[indivial_i, :] = [23. 8. 72. 80.]  
615     cord_individual_obj[indivial_i, :] = [24. 4. 26. 30.]  
616  
617     min(cord_individual_obj[:, 3]) = 17.0  
618     historl_G_best_iter[iter, 3] = 17.0  
619 Begin iteration:  
620  
621 iter = 19  
622     cord_individual_obj[indivial_i, :] = [ 0. 5. 49. 54.]  
623     cord_individual_obj[indivial_i, :] = [ 1. 5. 50. 55.]  
624     cord_individual_obj[indivial_i, :] = [ 2. 4. 58. 62.]  
625     cord_individual_obj[indivial_i, :] = [ 3. 6. 44. 50.]  
626     cord_individual_obj[indivial_i, :] = [ 4. 4. 13. 17.]  
627     cord_individual_obj[indivial_i, :] = [ 5. 6. 69. 75.]  
628     cord_individual_obj[indivial_i, :] = [ 6. 5. 17. 22.]  
629     cord_individual_obj[indivial_i, :] = [ 7. 6. 18. 24.]  
630     cord_individual_obj[indivial_i, :] = [ 8. 4. 88. 92.]  
631     cord_individual_obj[indivial_i, :] = [ 9. 5. 61. 66.]  
632     cord_individual_obj[indivial_i, :] = [10. 4. 33. 37.]  
633     cord_individual_obj[indivial_i, :] = [11. 5. 77. 82.]  
634     cord_individual_obj[indivial_i, :] = [12. 4. 145. 149.]  
635     cord_individual_obj[indivial_i, :] = [13. 7. 24. 31.]  
636     cord_individual_obj[indivial_i, :] = [14. 6. 31. 37.]  
637     cord_individual_obj[indivial_i, :] = [15. 6. 85. 91.]  
638     cord_individual_obj[indivial_i, :] = [16. 8. 91. 99.]  
639     cord_individual_obj[indivial_i, :] = [17. 5. 53. 58.]  
640     cord_individual_obj[indivial_i, :] = [18. 4. 34. 38.]  
641     cord_individual_obj[indivial_i, :] = [19. 6. 26. 32.]  
642     cord_individual_obj[indivial_i, :] = [20. 6. 143. 149.]  
643     cord_individual_obj[indivial_i, :] = [21. 4. 59. 63.]  
644     cord_individual_obj[indivial_i, :] = [22. 6. 66. 72.]  
645     cord_individual_obj[indivial_i, :] = [23. 6. 94. 100.]  
646     cord_individual_obj[indivial_i, :] = [24. 7. 71. 78.]  
647  
648     min(cord_individual_obj[:, 3]) = 17.0  
649     historl_G_best_iter[iter, 3] = 17.0  
650 Begin iteration:  
651  
652 iter = 20  
653     cord_individual_obj[indivial_i, :] = [ 0. 5. 91. 96.]  
654     cord_individual_obj[indivial_i, :] = [ 1. 5. 67. 72.]  
655     cord_individual_obj[indivial_i, :] = [ 2. 5. 89. 94.]  
656     cord_individual_obj[indivial_i, :] = [ 3. 5. 63. 68.]  
657     cord_individual_obj[indivial_i, :] = [ 4. 5. 18. 23.]  
658     cord_individual_obj[indivial_i, :] = [ 5. 4. 76. 80.]  
659     cord_individual_obj[indivial_i, :] = [ 6. 4. 16. 20.]  
660     cord_individual_obj[indivial_i, :] = [ 7. 6. 18. 24.]  
661     cord_individual_obj[indivial_i, :] = [ 8. 5. 95. 100.]  
662     cord_individual_obj[indivial_i, :] = [ 9. 6. 95. 101.]  
663     cord_individual_obj[indivial_i, :] = [10. 5. 77. 82.]  
664     cord_individual_obj[indivial_i, :] = [11. 6. 70. 76.]  
665     cord_individual_obj[indivial_i, :] = [12. 4. 13. 17.]  
666     cord_individual_obj[indivial_i, :] = [13. 6. 18. 24.]  
667     cord_individual_obj[indivial_i, :] = [14. 5. 52. 57.]
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668 cord_individual_obj[indivial_i, :] = [15. 5. 23. 28.]
669 cord_individual_obj[indivial_i, :] = [16. 8. 26. 34.]
670 cord_individual_obj[indivial_i, :] = [17. 5. 46. 51.]
671 cord_individual_obj[indivial_i, :] = [18. 5. 84. 89.]
672 cord_individual_obj[indivial_i, :] = [19. 5. 59. 64.]
673 cord_individual_obj[indivial_i, :] = [20. 5. 70. 75.]
674 cord_individual_obj[indivial_i, :] = [21. 4. 66. 70.]
675 cord_individual_obj[indivial_i, :] = [22. 5. 62. 67.]
676 cord_individual_obj[indivial_i, :] = [23. 6. 94. 100.]
677 cord_individual_obj[indivial_i, :] = [24. 4. 76. 80.]
678
679 min(cord_individual_obj[:, 3]) = 17.0
680 historl_G_best_iter[iter, 3] = 17.0
681 Iteration calculate over
682
683
684
685
686 All item are in Bin and:
687 Bin area = 1080
688 Real_area = 109.0
689 Proportion_of_area = 0.10092592592592593
690 BEST_CHROM =
691 berth: [ 1.5 17. 23.5 25. 17.5 8. 4.5 4. 4.5 12. ]
692 time: [0. 0. 0. 3. 3. 0. 4. 3. 0. 0.]
693 num_QC: [3. 5. 3. 2. 6. 2. 3. 4. 2. 2.]
694 Objective function values and some other indicators:
695 Obj0 = 4.00          Obj1 = 13.00          Obj0 + Obj1 = 17.00
696 Total movement of crane: 0.00
697 Total waiting time in berth position: 13.00
698 Total index of q during berthing: 594.00
699 Specific arrangement for each vessel:
700
    V_id: 0           li: 3.0           xi: 1.5           bow of i: 0.0           tail of i: 3.0           gama_i0: 0.0           gama_i1: 2.0
    .0                 gama_i1 + 1: 3.0       gama_i1 - gama_i0: 2.0       duration_time_i: 3.0       demand_i: 160.0       work load_i:
701
    V_id: 1           li: 6.0           xi: 17.0           bow of i: 14.0           tail of i: 20.0           gama_i0: 0.0           gama_i1: 1
    .0                 gama_i1 + 1: 2.0       gama_i1 - gama_i0: 1.0       duration_time_i: 2.0       demand_i: 160.0       work
    load_i: 160.0     work load gap_i: 0
702
    V_id: 2           li: 7.0           xi: 23.5           bow of i: 20.0           tail of i: 27.0           gama_i0: 0.0           gama_i1: 2
    .0                 gama_i1 + 1: 3.0       gama_i1 - gama_i0: 2.0       duration_time_i: 3.0       demand_i: 140.0       work
    load_i: 140.0     work load gap_i: 0
703
    V_id: 3           li: 8.0           xi: 25.0           bow of i: 21.0           tail of i: 29.0           gama_i0: 3.0           gama_i1: 4
    .0                 gama_i1 + 1: 5.0       gama_i1 - gama_i0: 1.0       duration_time_i: 2.0       demand_i: 80.0       work
    load_i: 80.0      work load gap_i: 0
704
    V_id: 4           li: 7.0           xi: 17.5           bow of i: 14.0           tail of i: 21.0           gama_i0: 3.0           gama_i1: 3
    .0                 gama_i1 + 1: 4.0       gama_i1 - gama_i0: 0.0       duration_time_i: 1.0       demand_i: 100.0       work
    load_i: 100.0     work load gap_i: 0
705
    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: 2.0
    .0                 gama_i1 + 1: 3.0       gama_i1 - gama_i0: 2.0       duration_time_i: 3.0       demand_i: 120.0       work load_i:
    120.0             work load gap_i: 0
706
    V_id: 6           li: 9.0           xi: 4.5            bow of i: 0.0           tail of i: 9.0           gama_i0: 4.0           gama_i1: 4.0
    .0                 gama_i1 + 1: 5.0       gama_i1 - gama_i0: 0.0       duration_time_i: 1.0       demand_i: 60.0       work load_i:
    60.0             work load gap_i: 0
707
    V_id: 7           li: 8.0           xi: 4.0            bow of i: 0.0           tail of i: 8.0           gama_i0: 3.0           gama_i1: 3.0
    .0                 gama_i1 + 1: 4.0       gama_i1 - gama_i0: 0.0       duration_time_i: 1.0       demand_i: 60.0       work load_i:
    60.0             work load gap_i: 0
708
    V_id: 8           li: 3.0           xi: 4.5            bow of i: 3.0           tail of i: 6.0           gama_i0: 0.0           gama_i1: 2.0
    .0                 gama_i1 + 1: 3.0       gama_i1 - gama_i0: 2.0       duration_time_i: 3.0       demand_i: 120.0       work load_i:
    120.0             work load gap_i: 0
709
    V_id: 9           li: 4.0           xi: 12.0           bow of i: 10.0           tail of i: 14.0           gama_i0: 0.0           gama_i1: 3
    .0                 gama_i1 + 1: 4.0       gama_i1 - gama_i0: 3.0       duration_time_i: 4.0       demand_i: 160.0       work
    load_i: 160.0     work load gap_i: 0
710
711 Algorithm finished and the total CPU time: 261 s
712 End
713

```