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 1 C:\Users\yusuf\anaconda3\python.exe "C:\Users\yusuf\Desktop\
   Computational Logistics\main\src\ga_7shops\
   tdvrp_genetic_algorithm_7shops.py"
 2 100%|████████| 12/12 [00:00<00:00, 194.07it/s]
 3 Generating random population with size:   100
 4 Generating random population with size:   100
 5 Generating random population with size:   100
 6 Generating random population with size:   100
 7 Generating random population with size:   100
 8 Generating random population with size:   100
 9 Generating random population with size:   100
10 Generating random population with size:   100
11 Generating random population with size:   100
12 Generating random population with size:   100
13 Generating random population with size:   100
14 Generating random population with size:   100
15 100%|████████| 12/12 [00:00<00:00, 12035.31it/s]
16 Thread: 1 and Current Average: 556.8410885370467
17 ------------------------------------------
18 Thread: 2 and Current Average: 415.4093368669089
19 ------------------------------------------
20 Thread: 3 and Current Average: 362.2790839721727
21 ------------------------------------------
22 Thread: 4 and Current Average: 379.78968608054134
23 ------------------------------------------
24 Thread: 5 and Current Average: 396.6874073479086
25 ------------------------------------------
26 Thread: 6 and Current Average: 517.673458384946
27 ------------------------------------------
28 Thread: 7 and Current Average: 511.2690484823802
29 ------------------------------------------
30 Thread: 8 and Current Average: 467.6415475702303
31 ------------------------------------------
32 Thread: 9 and Current Average: 407.6895871645987
33 ------------------------------------------
34 Thread: 10 and Current Average: 427.1951454270912
35 ------------------------------------------
36 Thread: 11 and Current Average: 501.8726449020733
37 ------------------------------------------
38 Thread: 12 and Current Average: 499.7934653355886
39 ------------------------------------------
40 100%|████████| 12/12 [00:00<00:00, 12043.95it/s]
41 ******************************************
42 ******************************************
43 ******************************************
44 Number of Iterations Done:   1
45 ******************************************
46 ******************************************
47 ******************************************
48 Thread: 1 and Current Average: 387.5039370813304
49 ------------------------------------------
50 Thread: 2 and Current Average: 450.67586969075495
51 ------------------------------------------
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 52 Thread: 3 and Current Average: 308.526159259614
 53 ----------------------------------------
 54 Thread: 4 and Current Average: 434.19623577581166
 55 ----------------------------------------
 56 Thread: 5 and Current Average: 339.16876622652404
 57 ----------------------------------------
 58 Thread: 6 and Current Average: 510.595489064869
 59 ----------------------------------------
 60 Thread: 7 and Current Average: 417.27445592741884
 61 ----------------------------------------
 62 Thread: 8 and Current Average: 520.2056535713251
 63 ----------------------------------------
 64 Thread: 9 and Current Average: 498.63844055941155
 65 ----------------------------------------
 66 Thread: 10 and Current Average: 426.5073442176295
 67 ----------------------------------------
 68 Thread: 11 and Current Average: 487.6751600704342
 69 ----------------------------------------
 70 Thread: 12 and Current Average: 425.94933864578906
 71 ----------------------------------------
 72 ********************************************
 73 ********************************************
 74 ********************************************
 75 Number of Iterations Done:  2
 76 ********************************************
 77 ********************************************
 78 ********************************************
 79 100%|██████████| 12/12 [00:00<00:00, 11645.45it/s]
 80 Thread: 1 and Current Average: 428.30888137296745
 81 ----------------------------------------
 82 Thread: 2 and Current Average: 429.9326987572037
 83 ----------------------------------------
 84 Thread: 3 and Current Average: 354.49969729215957
 85 ----------------------------------------
 86 Thread: 4 and Current Average: 490.5335946625154
 87 ----------------------------------------
 88 Thread: 5 and Current Average: 481.7306489462184
 89 ----------------------------------------
 90 Thread: 6 and Current Average: 527.132185837828
 91 ----------------------------------------
 92 Thread: 7 and Current Average: 441.69949792674544
 93 ----------------------------------------
 94 Thread: 8 and Current Average: 373.2729363395632
 95 ----------------------------------------
 96 Thread: 9 and Current Average: 522.6395088424608
 97 ----------------------------------------
 98 Thread: 10 and Current Average: 487.87682732047773
 99 ----------------------------------------
100 Thread: 11 and Current Average: 497.93749011239896
101 ----------------------------------------
102 Thread: 12 and Current Average: 472.6372184882796
103 ----------------------------------------
104 ********************************************
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105 ***********************************************
106 ***********************************************
107 Number of Iterations Done:   3
108 ***********************************************
109 ***********************************************
110 ***********************************************
111 100%|          | 12/12 [00:00<00:00, 12098.95it/s]
112 Thread: 1 and Current Average: 498.31203806073194
113 -----------------------------------------
114 Thread: 2 and Current Average: 369.65059194088943
115 -----------------------------------------
116 Thread: 3 and Current Average: 322.1429652615173
117 -----------------------------------------
118 Thread: 4 and Current Average: 516.9213833424498
119 -----------------------------------------
120 Thread: 5 and Current Average: 386.72452628521756
121 -----------------------------------------
122 Thread: 6 and Current Average: 510.0035227205519
123 -----------------------------------------
124 Thread: 7 and Current Average: 391.80358966737356
125 -----------------------------------------
126 Thread: 8 and Current Average: 399.96267642866763
127 -----------------------------------------
128 Thread: 9 and Current Average: 474.5615621519138
129 -----------------------------------------
130 Thread: 10 and Current Average: 374.33703060359346
131 -----------------------------------------
132 Thread: 11 and Current Average: 514.2347615044563
133 -----------------------------------------
134 Thread: 12 and Current Average: 493.88586501289694
135 -----------------------------------------
136 ***********************************************
137 ***********************************************
138 ***********************************************
139 Number of Iterations Done:   4
140 ***********************************************
141 ***********************************************
142 ***********************************************
143 100%|          | 12/12 [00:00<?, ?it/s]
144 Thread: 1 and Current Average: 484.102237566139
145 -----------------------------------------
146 Thread: 2 and Current Average: 447.1461106538214
147 -----------------------------------------
148 Thread: 3 and Current Average: 437.30230448527436
149 -----------------------------------------
150 Thread: 4 and Current Average: 382.6422530184137
151 -----------------------------------------
152 Thread: 5 and Current Average: 395.4760773774314
153 -----------------------------------------
154 Thread: 6 and Current Average: 490.59906439906171
155 -----------------------------------------
156 Thread: 7 and Current Average: 353.5391524356131
157 -----------------------------------------
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158 Thread: 8 and Current Average: 379.7283788468983
159 ----------------------------------------
160 Thread: 9 and Current Average: 500.0948109595191
161 ----------------------------------------
162 Thread: 10 and Current Average: 458.4139171324488
163 ----------------------------------------
164 Thread: 11 and Current Average: 549.7290546294702
165 ----------------------------------------
166 Thread: 12 and Current Average: 493.2576794216124
167 ----------------------------------------
168 ********************************************
169 ********************************************
170 ********************************************
171 Number of Iterations Done:  5
172 ********************************************
173 ********************************************
174 ********************************************
175 100%|        | 12/12 [00:00<00:00, 12026.68it/s]
176 Thread: 1 and Current Average: 559.3049019822532
177 ----------------------------------------
178 Thread: 2 and Current Average: 364.86670837308134
179 ----------------------------------------
180 Thread: 3 and Current Average: 485.56581493942184
181 ----------------------------------------
182 Thread: 4 and Current Average: 480.04363090689515
183 ----------------------------------------
184 Thread: 5 and Current Average: 420.169390452818
185 ----------------------------------------
186 Thread: 6 and Current Average: 579.2671194168836
187 ----------------------------------------
188 Thread: 7 and Current Average: 437.18545598369656
189 ----------------------------------------
190 Thread: 8 and Current Average: 430.6570592134334
191 ----------------------------------------
192 Thread: 9 and Current Average: 473.68054109334673
193 ----------------------------------------
194 Thread: 10 and Current Average: 358.1861252639897
195 ----------------------------------------
196 Thread: 11 and Current Average: 494.03818636886444
197 ----------------------------------------
198 Thread: 12 and Current Average: 489.56178408337416
199 ----------------------------------------
200 100%|        | 12/12 [00:00<00:00, 12061.26it/s]
201 ********************************************
202 ********************************************
203 ********************************************
204 Number of Iterations Done:  6
205 ********************************************
206 ********************************************
207 ********************************************
208 Thread: 1 and Current Average: 390.11571167097696
209 ----------------------------------------
210 Thread: 2 and Current Average: 351.4931369422145
```

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211  ----------------------------------------
212  Thread: 3 and Current Average: 469.2326243879639
213  ----------------------------------------
214  Thread: 4 and Current Average: 347.84372228973405
215  ----------------------------------------
216  Thread: 5 and Current Average: 495.7365811864606
217  ----------------------------------------
218  Thread: 6 and Current Average: 541.2421233809806
219  ----------------------------------------
220  Thread: 7 and Current Average: 492.8884290216582
221  ----------------------------------------
222  Thread: 8 and Current Average: 370.17799534106324
223  ----------------------------------------
224  Thread: 9 and Current Average: 545.4642144696363
225  ----------------------------------------
226  Thread: 10 and Current Average: 469.83901110132655
227  ----------------------------------------
228  Thread: 11 and Current Average: 523.4081448533183
229  ----------------------------------------
230  Thread: 12 and Current Average: 487.5643407524014
231  ----------------------------------------
232  ********************************************
233  ********************************************
234  ********************************************
235  Number of Iterations Done:  7
236  ********************************************
237  ********************************************
238  ********************************************
239  100%|███████████| 12/12 [00:00<00:00, 12015.19it/s]
240  Thread: 1 and Current Average: 491.9916938136443
241  ----------------------------------------
242  Thread: 2 and Current Average: 478.64899975026076
243  ----------------------------------------
244  Thread: 3 and Current Average: 470.6632442206598
245  ----------------------------------------
246  Thread: 4 and Current Average: 339.78326769078893
247  ----------------------------------------
248  Thread: 5 and Current Average: 387.51463495360264
249  ----------------------------------------
250  Thread: 6 and Current Average: 522.1927571547174
251  ----------------------------------------
252  Thread: 7 and Current Average: 453.95914892502253
253  ----------------------------------------
254  Thread: 8 and Current Average: 392.43097886548225
255  ----------------------------------------
256  Thread: 9 and Current Average: 373.84170019910994
257  ----------------------------------------
258  Thread: 10 and Current Average: 539.6741446666349
259  ----------------------------------------
260  Thread: 11 and Current Average: 533.6750746419514
261  ----------------------------------------
262  Thread: 12 and Current Average: 502.1014571489488
263  ----------------------------------------
```

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264 ********************************************
265 ********************************************
266 ********************************************
267 Number of Iterations Done:   8
268 ********************************************
269 ********************************************
270 ********************************************
271 100%|███████████| 12/12 [00:00<00:00, 12113.51it/s]
272 Thread: 1 and Current Average: 502.6940431173389
273 ----------------------------------------
274 Thread: 2 and Current Average: 409.8718308532512
275 ----------------------------------------
276 Thread: 3 and Current Average: 533.9343911121299
277 ----------------------------------------
278 Thread: 4 and Current Average: 452.53304630667816
279 ----------------------------------------
280 Thread: 5 and Current Average: 486.25895956904407
281 ----------------------------------------
282 Thread: 6 and Current Average: 497.97228195384355
283 ----------------------------------------
284 Thread: 7 and Current Average: 469.1276844421324
285 ----------------------------------------
286 Thread: 8 and Current Average: 444.33454153347554
287 ----------------------------------------
288 Thread: 9 and Current Average: 324.3968224786426
289 ----------------------------------------
290 Thread: 10 and Current Average: 350.2999892120961
291 ----------------------------------------
292 Thread: 11 and Current Average: 427.3140405773475
293 ----------------------------------------
294 Thread: 12 and Current Average: 495.2647468092789
295 ----------------------------------------
296 100%|███████████| 12/12 [00:00<00:00, 12061.26it/s]
297 ********************************************
298 ********************************************
299 ********************************************
300 Number of Iterations Done:   9
301 ********************************************
302 ********************************************
303 ********************************************
304 Thread: 1 and Current Average: 540.6868342810877
305 ----------------------------------------
306 Thread: 2 and Current Average: 434.99623882989374
307 ----------------------------------------
308 Thread: 3 and Current Average: 429.5906084034779
309 ----------------------------------------
310 Thread: 4 and Current Average: 381.22217249223894
311 ----------------------------------------
312 Thread: 5 and Current Average: 341.45756746241653
313 ----------------------------------------
314 Thread: 6 and Current Average: 337.1986070896303
315 ----------------------------------------
316 Thread: 7 and Current Average: 396.2126221663113
```

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317  ----------------------------------------
318  Thread: 8 and Current Average: 456.38718101456124
319  ----------------------------------------
320  Thread: 9 and Current Average: 386.9148133037209
321  ----------------------------------------
322  Thread: 10 and Current Average: 296.7738147669144
323  ----------------------------------------
324  Thread: 11 and Current Average: 381.7891539885924
325  ----------------------------------------
326  Thread: 12 and Current Average: 516.2515965295606
327  ----------------------------------------
328  ********************************************
329  ********************************************
330  ********************************************
331  Number of Iterations Done:  10
332  ********************************************
333  ********************************************
334  ********************************************
335  BEST RESULT BELOW:
336  [268.19169930818504, [0, 2, 3, 0, 1, 6, 4, 5, 7, 0]]
337  Time: 0:00:12.195745
338  1
339
340  Process finished with exit code 0
341
```