

```

1 "E:\1 \0000\3 \0000\1 \0000\1 \0000\1 \0000\1 \0000\1_LW_\0000\4 \0000\3 python_code\1 exzample\2 \0000\9 Code for
  this paper\Scripts\python.exe" "D:\Python\Pycharm\setroute\PyCharm Community Edition 2021.2.3\plugins\python-ce\helpers\pydev\pydevconsole.py" --mode=
  client --port=8953
2
3 import sys; print('Python %s on %s' % (sys.version, sys.platform))
4 sys.path.extend(['E:\1 \0000\3 \0000\1 \0000\1 \0000\1 \0000\1_LW_\0000\4 \0000\3 python_code\9 Code for this
  paper', 'E:/1 \0000/3 \0000/1 \0000/1 \0000\1 \0000\1_LW_\0000/4 \0000/3 python_code/9 Code for this paper'])
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 \0000/3 \0000\1 \0000\1 \0000\1 \0000\1_LW_\0000/4 \0000/3 python_code/9 Code for this paper/
  main_RO_TWS.py', wdir='E:/1 \0000/3 \0000\1 \0000\1 \0000\1 \0000\1_LW_\0000/4 \0000/3 python_code/9 Code for
  this paper')
10 Backend TkAgg is interactive backend. Turning interactive mode on.
11 Waiting 5s.....
12 Set parameter MIPGap to value 1e-10
13 Gurobi Optimizer version 10.0.2 build v10.0.2rc0 (win64)
14
15 CPU model: 11th Gen Intel(R) Core(TM) i7-11370H @ 3.30GHz, instruction set [SSE2|AVX|AVX2|AVX512]
16 Thread count: 4 physical cores, 8 logical processors, using up to 8 threads
17
18 Optimize a model with 583306 rows, 52642 columns and 1624240 nonzeros
19 Model fingerprint: 0x09edb1e3
20 Variable types: 1 continuous, 52641 integer (52605 binary)
21 Coefficient statistics:
22   Matrix range    [1e+00, 1e+10]
23   Objective range [1e+00, 2e+01]
24   Bounds range   [1e+00, 1e+00]
25   RHS range      [1e+00, 2e+10]
26 Warning: Model contains large matrix coefficients
27 Warning: Model contains large rhs
28   Consider reformulating model or setting NumericFocus parameter
29   to avoid numerical issues.
30 Presolve removed 399361 rows and 28618 columns (presolve time = 5s) ...
31 Presolve removed 519996 rows and 37419 columns
32 Presolve time: 7.09s
33 Presolved: 63310 rows, 15223 columns, 224391 nonzeros
34 Variable types: 0 continuous, 15223 integer (15203 binary)
35
36 Deterministic concurrent LP optimizer: primal and dual simplex (primal and dual model)
37 Showing first log only...
38
39 Root relaxation presolved: 15223 rows, 78533 columns, 239614 nonzeros
40
41
42 Root simplex log...
43
44 Iteration   Objective    Primal Inf.   Dual Inf.    Time
45      0  1.0170000e+03  0.000000e+00  1.056750e+03   8s
46 Concurrent spin time: 0.00s
47
48 Solved with dual simplex (primal model)
49
50 Root relaxation: objective 1.017000e+03, 2112 iterations, 0.30 seconds (0.28 work units)
51
52   Nodes | Current Node | Objective Bounds | Work
53 Expl Unexpl | Obj Depth IntInf | Incumbent BestBd Gap | It/Node Time
54
55   0   0 1017.00000  0 18   -1017.00000  -  - 8s
56   0   0 1017.00000  0 218  -1017.00000  -  - 8s
57   0   0 1017.00000  0 212  -1017.00000  -  - 8s
58   0   0 1017.00000  0 257  -1017.00000  -  - 9s
59   0   0 1017.00000  0 254  -1017.00000  -  - 9s
60   0   0 1017.00000  0 18   -1017.00000  -  - 11s
61   0   0 1017.00000  0 403  -1017.00000  -  - 11s
62   0   0 1017.00000  0 366  -1017.00000  -  - 11s
63 H  0   0          3217.000000 1017.00000 68.4%  - 12s
64   0   0 1017.00000  0 400 3217.00000 1017.00000 68.4%  - 12s
65   0   0 1017.00000  0 134 3217.00000 1017.00000 68.4%  - 21s
66 H  0   0          2637.000000 1017.00000 61.4%  - 21s
67 H  0   0          2257.000000 1017.00000 54.9%  - 22s
68 H  0   0          1017.000000 1017.00000 0.00%  - 22s
69
70 Cutting planes:
71 Gomory: 14
72 Cover: 242
73 Implied bound: 583
74 Clique: 292
75 MIR: 25
76 StrongCG: 8
77 GUB cover: 13
78 Zero half: 6
79 RLT: 8

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80 Relax-and-lift: 4
81 BQP: 4
82
83 Explored 1 nodes (19221 simplex iterations) in 23.21 seconds (45.71 work units)
84 Thread count was 8 (of 8 available processors)
85
86 Solution count 4: 1017 2257 2637 3217
87
88 Optimal solution found (tolerance 1.00e-10)
89 Best objective 1.017000000000e+03, best bound 1.017000000000e+03, gap 0.0000%
90 Set parameter MIPGap to value 1e-08
91 Gurobi Optimizer version 10.0.2 build v10.0.2rc0 (win64)
92
93 CPU model: 11th Gen Intel(R) Core(TM) i7-11370H @ 3.30GHz, instruction set [SSE2|AVX|AVX2|AVX512]
94 Thread count: 4 physical cores, 8 logical processors, using up to 8 threads
95
96 Optimize a model with 536240 rows, 14427 columns and 1098647 nonzeros
97 Model fingerprint: 0x19d19955
98 Variable types: 36 continuous, 14391 integer (8316 binary)
99 Coefficient statistics:
100 Matrix range [1e-01, 1e+10]
101 Objective range [6e-05, 5e+01]
102 Bounds range [1e+00, 1e+00]
103 RHS range [8e-01, 1e+10]
104 Warning: Model contains large matrix coefficients
105 Warning: Model contains large rhs
106 Consider reformulating model or setting NumericFocus parameter
107 to avoid numerical issues.
108 Presolve removed 532988 rows and 13262 columns
109 Presolve time: 0.36s
110 Presolved: 3252 rows, 1165 columns, 8595 nonzeros
111 Variable types: 8 continuous, 1157 integer (659 binary)
112 Found heuristic solution: objective 4309.8302838
113
114 Root relaxation: objective 5.597130e+03, 934 iterations, 0.02 seconds (0.01 work units)
115
116 Nodes | Current Node | Objective Bounds | Work
117 Expl Unexpl | Obj Depth IntInf | Incumbent BestBd Gap | It/Node Time
118
119 0 0 5597.13028 0 18 4309.83028 5597.13028 29.9% - 0s
120 H 0 0 5594.4966462 5597.13028 0.05% - 0s
121 * 0 0 5596.8302838 5596.83028 0.00% - 0s
122
123 Cutting planes:
124 Learned: 4
125 MIR: 2
126 Flow cover: 2
127 Zero half: 1
128 RLT: 3
129 Relax-and-lift: 1
130
131 Explored 1 nodes (1271 simplex iterations) in 0.51 seconds (0.81 work units)
132 Thread count was 8 (of 8 available processors)
133
134 Solution count 3: 5596.83 5594.5 4309.83
135
136 Optimal solution found (tolerance 1.00e-08)
137 Best objective 5.596830283766e+03, best bound 5.596830283766e+03, gap 0.0000%
138 SP is solved
139 SP's optimal solution is' 5596
140
141 Itr = 0
142 Collect_LB = [1017.0]
143 Collect_UB = [12210.660567532985]
144 Collect_Hua = [0.0]
145 Collect_SPObjVal = [5596.830283766492]
146 Collect_MPObjValNHua = [1017.0]
147
148
149 Set parameter MIPGap to value 1e-10
150 Gurobi Optimizer version 10.0.2 build v10.0.2rc0 (win64)
151
152 CPU model: 11th Gen Intel(R) Core(TM) i7-11370H @ 3.30GHz, instruction set [SSE2|AVX|AVX2|AVX512]
153 Thread count: 4 physical cores, 8 logical processors, using up to 8 threads
154
155 Optimize a model with 590287 rows, 283978 columns and 1631257 nonzeros
156 Model fingerprint: 0x78917eff
157 Variable types: 1 continuous, 283977 integer (283941 binary)
158 Coefficient statistics:
159 Matrix range [1e+00, 1e+10]
160 Objective range [1e+00, 2e+01]
161 Bounds range [1e+00, 1e+00]
162 RHS range [1e+00, 2e+10]
163 Warning: Model contains large matrix coefficients

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164 Warning: Model contains large rhs
165     Consider reformulating model or setting NumericFocus parameter
166     to avoid numerical issues.
167 Presolve removed 461688 rows and 268157 columns (presolve time = 5s) ...
168 Presolve removed 552238 rows and 276983 columns
169 Presolve time: 6.48s
170 Presolved: 38049 rows, 6995 columns, 100890 nonzeros
171 Variable types: 0 continuous, 6995 integer (6976 binary)
172 Root relaxation presolved: 6995 rows, 45044 columns, 107885 nonzeros
173
174
175 Root simplex log...
176
177 Iteration   Objective      Primal Inf.   Dual Inf.    Time
178      0    handle free variables              7s
179    5945    7.0313303e+03  0.000000e+00  0.000000e+00   7s
180    5945    7.0313303e+03  0.000000e+00  0.000000e+00   7s
181
182 Root relaxation: objective 7.031330e+03, 5945 iterations, 0.53 seconds (0.96 work units)
183
184 Nodes | Current Node | Objective Bounds | Work
185 Expl Unexpl | Obj Depth IntInf | Incumbent BestBd Gap | It/Node Time
186
187  0  0 7031.33028  0 24      - 7031.33028  - - 7s
188  0  0 7031.33028  0 232     - 7031.33028  - - 8s
189  0  0 7031.33028  0 220     - 7031.33028  - - 8s
190 H  0  0              8511.3302838 7031.33028 17.4% - 8s
191 H  0  0              8471.3302838 7031.33028 17.0% - 8s
192  0  0 7031.33028  0 165 8471.33028 7031.33028 17.0% - 8s
193  0  0 7031.33028  0 69 8471.33028 7031.33028 17.0% - 10s
194  0  0 7031.33028  0 57 8471.33028 7031.33028 17.0% - 10s
195  0  0 7031.33028  0 108 8471.33028 7031.33028 17.0% - 10s
196  0  0 7031.33028  0 180 8471.33028 7031.33028 17.0% - 12s
197  0  0 7031.33028  0 140 8471.33028 7031.33028 17.0% - 12s
198  0  0 7031.33028  0 291 8471.33028 7031.33028 17.0% - 13s
199  0  0 7031.33028  0 142 8471.33028 7031.33028 17.0% - 13s
200  0  0 7031.33028  0 66 8471.33028 7031.33028 17.0% - 13s
201  0  0 7031.33028  0 35 8471.33028 7031.33028 17.0% - 14s
202  0  0 7031.33028  0 240 8471.33028 7031.33028 17.0% - 15s
203  0  0 7031.33028  0 231 8471.33028 7031.33028 17.0% - 15s
204  0  0 7031.33028  0 249 8471.33028 7031.33028 17.0% - 15s
205  0  0 7031.33028  0 222 8471.33028 7031.33028 17.0% - 15s
206  0  0 7031.33028  0 22 8471.33028 7031.33028 17.0% - 17s
207  0  0 7031.33028  0 118 8471.33028 7031.33028 17.0% - 17s
208  0  0 7031.33028  0 35 8471.33028 7031.33028 17.0% - 17s
209  0  0 7031.33028  0 118 8471.33028 7031.33028 17.0% - 19s
210  0  0 7031.33028  0 353 8471.33028 7031.33028 17.0% - 19s
211  0  0 7031.33028  0 322 8471.33028 7031.33028 17.0% - 19s
212  0  0 7031.33028  0 81 8471.33028 7031.33028 17.0% - 20s
213  0  0 7031.33028  0 81 8471.33028 7031.33028 17.0% - 20s
214  0  2 7031.33028  0 77 8471.33028 7031.33028 17.0% - 21s
215  51 47 7031.33028 11 137 8471.33028 7031.33028 17.0% 884 25s
216  178 174 7911.33028 39 249 8471.33028 7031.33028 17.0% 729 30s
217 H 248 237              7511.3302838 7031.33028 6.39% 680 33s
218  352 293 7031.33028 51 248 7511.33028 7031.33028 6.39% 575 35s
219 H 732 614              7071.3302838 7031.33028 0.57% 336 38s
220  999 219 cutoff 158    7071.33028 7031.33028 0.57% 256 40s
221 * 1510 323          74 7031.3302838 7031.33028 0.00% 212 42s
222
223 Cutting planes:
224   Learned: 14
225   Gomory: 7
226   Lift-and-project: 1
227   Cover: 502
228   Implied bound: 2063
229   Clique: 101
230   MIR: 151
231   StrongCG: 98
232   GUB cover: 57
233   Zero half: 16
234   RLT: 13
235   Relax-and-lift: 34
236   BQP: 8
237
238 Explored 1592 nodes (402587 simplex iterations) in 42.37 seconds (65.75 work units)
239 Thread count was 8 (of 8 available processors)
240
241 Solution count 5: 7031.33 7071.33 7511.33 ... 8511.33
242
243 Optimal solution found (tolerance 1.00e-10)
244 Best objective 7.031330283766e+03, best bound 7.031330283766e+03, gap 0.0000%
245 Set parameter MIPGap to value 1e-08
246 Gurobi Optimizer version 10.0.2 build v10.0.2rc0 (win64)
247

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248 CPU model: 11th Gen Intel(R) Core(TM) i7-11370H @ 3.30GHz, instruction set [SSE2|AVX|AVX2|AVX512]
249 Thread count: 4 physical cores, 8 logical processors, using up to 8 threads
250
251 Optimize a model with 536240 rows, 14427 columns and 1098647 nonzeros
252 Model fingerprint: 0xcb2397bd
253 Variable types: 36 continuous, 14391 integer (8316 binary)
254 Coefficient statistics:
255   Matrix range   [1e-01, 1e+10]
256   Objective range [6e-05, 5e+01]
257   Bounds range   [1e+00, 1e+00]
258   RHS range     [8e-01, 1e+10]
259 Warning: Model contains large matrix coefficients
260 Warning: Model contains large rhs
261   Consider reformulating model or setting NumericFocus parameter
262   to avoid numerical issues.
263 Presolve removed 530969 rows and 12624 columns
264 Presolve time: 0.46s
265 Presolved: 5271 rows, 1803 columns, 14076 nonzeros
266 Variable types: 8 continuous, 1795 integer (1042 binary)
267 Found heuristic solution: objective 4233.8302838
268 Found heuristic solution: objective 4253.8302838
269
270 Root relaxation: objective 6.087130e+03, 1616 iterations, 0.01 seconds (0.02 work units)
271
272   Nodes | Current Node | Objective Bounds | Work
273 Expl Unexpl | Obj Depth IntInf | Incumbent BestBd Gap | It/Node Time
274
275   0   0 6087.13028   0 17 4253.83028 6087.13028 43.1% - 0s
276 H   0   0           6086.8302838 6087.13028 0.00% - 0s
277
278 Cutting planes:
279   Learned: 2
280   Gomory: 1
281   Cover: 10
282   Implied bound: 14
283   MIR: 2
284
285 Explored 1 nodes (2201 simplex iterations) in 0.67 seconds (0.85 work units)
286 Thread count was 8 (of 8 available processors)
287
288 Solution count 3: 6086.83 4253.83 4233.83
289
290 Optimal solution found (tolerance 1.00e-08)
291 Best objective 6.086830283766e+03, best bound 6.086830283766e+03, gap 0.0000%
292 SP is solved
293 SP's optimal solution is'□6086
294
295 Itr = 1
296 Collect_LB = [1017.0, 7031.330283766492]
297 Collect_UB = [12210.660567532985, 7521.330283766492]
298 Collect_Hua = [0.0, 5596.830283766492]
299 Collect_SPObjVal = [5596.830283766492, 6086.830283766492]
300 Collect_MPObjValNHua = [1017.0, 1434.5]
301
302
303 Set parameter MIPGap to value 1e-10
304 Gurobi Optimizer version 10.0.2 build v10.0.2rc0 (win64)
305
306 CPU model: 11th Gen Intel(R) Core(TM) i7-11370H @ 3.30GHz, instruction set [SSE2|AVX|AVX2|AVX512]
307 Thread count: 4 physical cores, 8 logical processors, using up to 8 threads
308
309 Optimize a model with 590287 rows, 283978 columns and 1631257 nonzeros
310 Model fingerprint: 0xae1b40a6
311 Variable types: 1 continuous, 283977 integer (283941 binary)
312 Coefficient statistics:
313   Matrix range   [1e+00, 1e+10]
314   Objective range [1e+00, 2e+01]
315   Bounds range   [1e+00, 1e+00]
316   RHS range     [1e+00, 2e+10]
317 Warning: Model contains large matrix coefficients
318 Warning: Model contains large rhs
319   Consider reformulating model or setting NumericFocus parameter
320   to avoid numerical issues.
321 Presolve removed 461688 rows and 268157 columns (presolve time = 5s) ...
322 Presolve removed 552238 rows and 276983 columns
323 Presolve time: 7.68s
324 Presolved: 38049 rows, 6995 columns, 100890 nonzeros
325 Variable types: 0 continuous, 6995 integer (6976 binary)
326 Root relaxation presolved: 6995 rows, 45044 columns, 107885 nonzeros
327
328
329 Root simplex log...
330
331 Iteration   Objective       Primal Inf.   Dual Inf.    Time

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332      0      handle free variables      8s
333  5945  7.5213303e+03  0.000000e+00  0.000000e+00  9s
334  5945  7.5213303e+03  0.000000e+00  0.000000e+00  9s
335
336 Root relaxation: objective 7.521330e+03, 5945 iterations, 0.73 seconds (0.96 work units)
337
338      Nodes | Current Node | Objective Bounds | Work
339 Expl Unexpl | Obj Depth IntInf | Incumbent BestBd Gap | It/Node Time
340
341  0  0 7521.33028  0  24      - 7521.33028      -      - 9s
342  0  0 7521.33028  0 232      - 7521.33028      -      - 11s
343  0  0 7521.33028  0 220      - 7521.33028      -      - 11s
344 H  0  0      9001.3302838 7521.33028 16.4%      - 11s
345 H  0  0      8961.3302838 7521.33028 16.1%      - 11s
346  0  0 7521.33028  0 165 8961.33028 7521.33028 16.1%      - 11s
347  0  0 7521.33028  0  69 8961.33028 7521.33028 16.1%      - 13s
348  0  0 7521.33028  0  57 8961.33028 7521.33028 16.1%      - 13s
349  0  0 7521.33028  0 108 8961.33028 7521.33028 16.1%      - 13s
350  0  0 7521.33028  0 180 8961.33028 7521.33028 16.1%      - 15s
351  0  0 7521.33028  0 140 8961.33028 7521.33028 16.1%      - 15s
352  0  0 7521.33028  0 291 8961.33028 7521.33028 16.1%      - 16s
353  0  0 7521.33028  0 142 8961.33028 7521.33028 16.1%      - 16s
354  0  0 7521.33028  0  66 8961.33028 7521.33028 16.1%      - 16s
355  0  0 7521.33028  0  35 8961.33028 7521.33028 16.1%      - 17s
356  0  0 7521.33028  0 240 8961.33028 7521.33028 16.1%      - 18s
357  0  0 7521.33028  0 231 8961.33028 7521.33028 16.1%      - 18s
358  0  0 7521.33028  0 249 8961.33028 7521.33028 16.1%      - 18s
359  0  0 7521.33028  0 222 8961.33028 7521.33028 16.1%      - 18s
360  0  0 7521.33028  0  22 8961.33028 7521.33028 16.1%      - 21s
361  0  0 7521.33028  0 118 8961.33028 7521.33028 16.1%      - 21s
362  0  0 7521.33028  0  35 8961.33028 7521.33028 16.1%      - 21s
363  0  0 7521.33028  0 118 8961.33028 7521.33028 16.1%      - 22s
364  0  0 7521.33028  0 353 8961.33028 7521.33028 16.1%      - 23s
365  0  0 7521.33028  0 322 8961.33028 7521.33028 16.1%      - 23s
366  0  0 7521.33028  0  81 8961.33028 7521.33028 16.1%      - 24s
367  0  0 7521.33028  0  81 8961.33028 7521.33028 16.1%      - 24s
368  0  2 7521.33028  0  77 8961.33028 7521.33028 16.1%      - 25s
369  69  71 7521.33028 15 155 8961.33028 7521.33028 16.1% 751 30s
370 178 174 8401.33028 39 249 8961.33028 7521.33028 16.1% 729 35s
371 H 248 237      8001.3302838 7521.33028 6.00% 680 37s
372 516 557 7521.33028 65 193 8001.33028 7521.33028 6.00% 441 42s
373 * 713 557      115 7561.3302838 7521.33028 0.53% 336 42s
374 * 1210 284      53 7521.3302838 7521.33028 0.00% 214 44s
375
376 Cutting planes:
377   Learned: 8
378   Gomory: 6
379   Lift-and-project: 1
380   Cover: 276
381   Implied bound: 2017
382   Clique: 66
383   MIR: 125
384   StrongCG: 75
385   GUB cover: 47
386   Zero half: 9
387   RLT: 10
388   Relax-and-lift: 20
389   BQP: 7
390
391 Explored 1444 nodes (345605 simplex iterations) in 44.29 seconds (61.60 work units)
392 Thread count was 8 (of 8 available processors)
393
394 Solution count 5: 7521.33 7561.33 8001.33 ... 9001.33
395
396 Optimal solution found (tolerance 1.00e-10)
397 Best objective 7.521330283766e+03, best bound 7.521330283766e+03, gap 0.0000%
398 Set parameter MIPGap to value 1e-08
399 Gurobi Optimizer version 10.0.2 build v10.0.2rc0 (win64)
400
401 CPU model: 11th Gen Intel(R) Core(TM) i7-11370H @ 3.30GHz, instruction set [SSE2|AVX|AVX2|AVX512]
402 Thread count: 4 physical cores, 8 logical processors, using up to 8 threads
403
404 Optimize a model with 536240 rows, 14427 columns and 1098647 nonzeros
405 Model fingerprint: 0x0f35d080
406 Variable types: 36 continuous, 14391 integer (8316 binary)
407 Coefficient statistics:
408   Matrix range      [1e-01, 1e+10]
409   Objective range   [6e-05, 5e+01]
410   Bounds range      [1e+00, 1e+00]
411   RHS range         [8e-01, 1e+10]
412 Warning: Model contains large matrix coefficients
413 Warning: Model contains large rhs
414   Consider reformulating model or setting NumericFocus parameter
415   to avoid numerical issues.

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416 Presolve removed 531063 rows and 12653 columns
417 Presolve time: 0.39s
418 Presolved: 5177 rows, 1774 columns, 13825 nonzeros
419 Variable types: 8 continuous, 1766 integer (1027 binary)
420 Found heuristic solution: objective 4233.8302838
421
422 Root relaxation: objective 6.087130e+03, 1458 iterations, 0.02 seconds (0.02 work units)
423
424   Nodes | Current Node | Objective Bounds | Work
425 Expl Unexpl | Obj Depth IntInf | Incumbent BestBd Gap | It/Node Time
426
427   0   0 6087.13028   0 17 4233.83028 6087.13028 43.8%   -   0s
428 H   0   0         6086.8302838 6087.13028 0.00%   -   0s
429
430 Cutting planes:
431   Learned: 2
432   Cover: 10
433   Implied bound: 14
434   MIR: 2
435
436 Explored 1 nodes (1976 simplex iterations) in 0.56 seconds (0.82 work units)
437 Thread count was 8 (of 8 available processors)
438
439 Solution count 2: 6086.83 4233.83
440
441 Optimal solution found (tolerance 1.00e-08)
442 Best objective 6.086830283766e+03, best bound 6.086830283766e+03, gap 0.00000%
443 SP is solved
444 SP's optimal solution is'□6086
445
446 Itr = 2
447 Collect_LB = [1017.0, 7031.330283766492, 7521.330283766492]
448 Collect_UB = [12210.660567532985, 7521.330283766492, 7521.330283766492]
449 Collect_Hua = [0.0, 5596.830283766492, 6086.830283766492]
450 Collect_SPObjVal = [5596.830283766492, 6086.830283766492, 6086.830283766492]
451 Collect_MPObjValNHua = [1017.0, 1434.5, 1434.5]
452
453
454 Reach the termination conditions, stop iteration
455 Values adopted from the Itr' th iteration, and Itr = {2}, judgeCount = {2}
456
457 ~~~~~judge = 2, SPObj_SPF = 6086.830283766492
458 Vessel i: 0:   pi: 0-6,   ai-di: 7-27,   gi_SP-gpi_SP: 0.000000-0.000000,   ai_SP-di: 7-27,   taoi-deltai: 7-29,   taoPi_SP-deltaPi_SP: 7-29,   betaNi: 22
,   bi: 22
459 Vessel i: 1:   pi: 12-18,   ai-di: 9-18,   gi_SP-gpi_SP: 0.000000-0.000000,   ai_SP-di: 9-18,   taoi-deltai: 9-18,   taoPi_SP-deltaPi_SP: 9-18,   betaNi: 9
,   bi: 9
460 Vessel i: 2:   pi: 6-12,   ai-di: 11-40,   gi_SP-gpi_SP: 0.000000-0.000000,   ai_SP-di: 11-40,   taoi-deltai: 11-42,   taoPi_SP-deltaPi_SP: 11-42,   betaNi
: 31,   bi: 31
461 Vessel i: 3:   pi: 18-24,   ai-di: 17-31,   gi_SP-gpi_SP: 0.000000-0.000000,   ai_SP-di: 17-31,   taoi-deltai: 17-27,   taoPi_SP-deltaPi_SP: 17-27,
betaNi: 10,   bi: 10
462 Vessel i: 4:   pi: 28-34,   ai-di: 18-23,   gi_SP-gpi_SP: 0.000000-0.000000,   ai_SP-di: 18-23,   taoi-deltai: 18-23,   taoPi_SP-deltaPi_SP: 18-23,
betaNi: 5,   bi: 5
463 Vessel i: 5:   pi: 27-34,   ai-di: 26-30,   gi_SP-gpi_SP: 0.025000-1.000000,   ai_SP-di: 26-30,   taoi-deltai: 27-32,   taoPi_SP-deltaPi_SP: 27-32,
betaNi: 5,   bi: 5
464 Vessel i: 6:   pi: 16-22,   ai-di: 33-42,   gi_SP-gpi_SP: 0.375000-0.200000,   ai_SP-di: 36-42,   taoi-deltai: 36-45,   taoPi_SP-deltaPi_SP: 36-45,
betaNi: 9,   bi: 9
465 Vessel i: 7:   pi: 14-20,   ai-di: 37-68,   gi_SP-gpi_SP: 1.000000-0.600000,   ai_SP-di: 47-68,   taoi-deltai: 47-77,   taoPi_SP-deltaPi_SP: 47-77,
betaNi: 30,   bi: 30
466 Vessel i: 8:   pi: 22-28,   ai-di: 46-64,   gi_SP-gpi_SP: 1.000000-0.600000,   ai_SP-di: 53-64,   taoi-deltai: 53-74,   taoPi_SP-deltaPi_SP: 53-74,
betaNi: 21,   bi: 21
467
468 round LB = [1017, 7031, 7521]
469 round UB = [12211, 7521, 7521]
470 round Hua = [0, 5597, 6087]
471 round SPObjVal = [5597, 6087, 6087]
472 round MPObjValNHua = [1017, 1434, 1434]
473
474 OptimalObj = 7521.330283766492
475 Time: 186.000000
476
477
478
479

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