```
D:\Python\Python\setroute\python.exe "D:\Python\Pycharm\setroute\PyCharm Community Edition 2021.2.3\plugins\python-ce\helpers\pydev\pydevconsole.py" --
       mode=client --port=21129
 3
      import sys; print('Python %s on %s' % (sys.version, sys.platform))
      sys.path.extend(['E:\\1 ] _ _ \\3 | 0 _ _ | \\1 | 0 | 0 | 0 | \\1 | 0 | 0 | 0 | \\1 | 0 | 0 | 0 | \\1 | 0 | 0 | 0 | \\1 | 0 | 0 | 0 | \\1 | 0 | 0 | 0 | \\1 | 0 | 0 | \\1 | 0 | 0 | \\1 | 0 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\\  | 0 | \\1 | 0 | \\\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | 
       6
      PyDev console: starting.
 8 Python 3.9.7 (tags/v3.9.7:1016ef3, Aug 30 2021, 20:19:38) [MSC v.1929 64 bit (AMD64)] on win32
      python code/9 Code for this paper')
10 Backend TkAgg is interactive backend. Turning interactive mode on.
11
       Waiting 5s.....
13 Optimize the ./R 18 5.xlsx instance by ECCG
14
15
               Master protblem status = 2, is Optimal and MP obj = 835.0
16
      The initial lb = -inf
                                              ub = inf
17
18
      The current iteration cnt = 0
               The SP model was solved Optimal 2 and SPObj = 835.0
19
20
      Set parameter TimeLimit to value 1200
               Deterministic Sub problem Status= 2, is Optimal
21
22
               Master protblem status = 2, is Optimal
23
               1b = 1537.0
                                                           ub = 1537.0
                                                   MP_delete_Hua_Obj = 867.0
24
                MPObj = 1537.0
                                                                                                              Hua = 670.0
                                                                                                                                          SPObi = 835.0 Deter SPObi = 670.0
25
26
      ub - 1b = 0.0
27
28 Iteration cycle stopped by termination criterion 1: Because ub - 1b \le e^2 eps, the iteration stop, and e^2 cm = 0
                                                                                sol_a_i: 48.0 sol_g_i: 0.0 d_i: 59.0 sol_taoi: 48.0 sol_deltai: 62.0 sol_deltai - sol_taoi: 14.0 sol_taoP:
29
            i: 0.0 1_i: 4.0 p_i: 5.0 aI_i: 48.0
                   sol_deltaP: 55.0 sol_deltaP - sol_taoP: 7.0 cI_i: 3676266.0 sol_c_i: 3676266.0 sol_gp_i: 0.0 total work: 3691016.0 wasted work: 0.
       05594665533825917
           i: 1.0 \ 1\_i: 5.0 \ p\_i: 9.0 \ aI\_i: 33.0 \ sol\_a\_i: 33.0 \ sol\_g\_i: 0.0 \ d\_i: 43.0 \ sol\_taoi: 33.0 \ sol\_deltai: 46.0 \ sol\_deltai: 46.0 \ sol\_deltai: 13.0 \ sol\_taoi: 13.
30
                  sol deltaP: 36.0 sol deltaP - sol taoP: 3.0 cI i: 3220010.0
                                                                                                                                 sol_c_i: 3220010.0 sol_gp_i: 0.0 total work: 3427372.0 wasted work: 0.
       786522735203532
           i: 2.0 l_i: 5.0 p_i: 10.0 al_i: 2.0
                                                                                     sol_a_i: 2.0 sol_g_i: 0.0 d_i: 16.0 sol_taoi: 2.0 sol_deltai: 20.0 sol_deltai - sol_taoi: 18.0 sol_taoP: 2
31
        .0 sol_deltaP: 7.0 sol_deltaP - sol_taoP: 5.0 cl_i: 4544344.0 sol_c_i: 4544344.0 sol_gp_i: 0.0 total work: 4613770.0 wasted work: 0.
         i: 3.0 1_i: 5.0 p_i: 15.0 aI_i: 55.0 sol_a_i: 55.0 sol_g_i: 0.0 d_i: 68.0 sol_taoi: 55.0 sol_deltai: 72.0 sol_deltai - sol_taoi: 17.0 sol_taoi: 55.0 sol_deltaP - sol_taoP: 4.0 cI_i: 4352300.0 sol_c_i: 4352300.0 sol_gp_i: 0.0 total work: 4613770.0 wasted work: 0.
32
                                                                                  sol a i: 55.0 sol g i: 0.0 d i: 68.0 sol taoi: 55.0 sol deltai: 72.0 sol deltai - sol taoi: 17.0 sol taoP
       9917540319521779
         i: 4.0\ 1_{\text{i}}: 5.0\ p_{\text{i}}: 15.0\ aI_{\text{i}}: 31.0\ sol_a_{\text{i}}: 31.0\ sol_g_{\text{i}}: 0.0\ d_{\text{i}}: 39.0\ sol_{\text{taoi}}: 31.0\ sol_{\text{deltai}}: 42.0\ sol_{\text{deltai}}: 42.0
                                                                                    sol a i: 31.0 sol g i: 0.0 d i: 39.0 sol taoi: 31.0 sol deltai: 42.0 sol deltai - sol taoi: 11.0 sol taoP
       31680978895783707
            i: 5.0 1_i: 5.0 p_i: 10.0 aI_i: 57.0
                                                                                    sol_a_i: 57.0 sol_g_i: 0.0 d_i: 69.0 sol_taoi: 57.0 sol_deltai: 73.0 sol_deltai - sol_taoi: 16.0 sol_taoP
         58.0 sol_deltaP: 63.0 sol_deltaP - sol_taoP: 5.0 cl_i: 4160344.0 sol_c_i: 4160344.0 sol_gp_i: 0.0 total work: 4218304.0 wasted work: 0.
       21984190802749162
            i: 6.0 1_i: 6.0 p_i: 20.0 aI_i: 49.0
                                                                                     sol a i: 49.0 sol g i: 0.0 d i: 65.0 sol taoi: 49.0 sol deltai: 70.0 sol deltai - sol taoi: 21.0 sol taoP
        49.0 sol_deltaP: 52.0 sol_deltaP - sol_taoP: 3.0 cl_i: 5510827.0 sol_c_i: 5510827.0 sol_gp_i: 0.0 total work: 5536524.0 wasted work: 0.
       09746855608320311
           i: 7.0 1_i: 5.0 p_i: 5.0 aI_i: 57.0
                                                                              sol_a_i: 57.0 sol_g_i: 0.0 d_i: 72.0 sol_taoi: 63.0 sol_deltai: 82.0 sol_deltai - sol_taoi: 19.0 sol_taoP:
36
                   sol deltaP: 70.0 sol_deltaP - sol_taoP: 7.0 cl_i: 4918991.0 sol_c_i: 4918991.0 sol_gp_i: 0.0 total work: 5272880.0 wasted work: 1.
       3422987058305897
                                                                                    sol_a_i: 24.0 sol_g_i: 0.0 d_i: 38.0 sol_taoi: 24.0 sol_deltai: 42.0 sol_deltai - sol_taoi: 18.0 sol_taoP
37
           i: 8.0 1 i: 5.0 p i: 20.0 aI i: 24.0
                                                                                                                                 sol_c_i: 4689476.0 sol_gp_i: 0.0 total work: 5272880.0 wasted work: 2.
         24.0 sol_deltaP: 28.0 sol_deltaP - sol_taoP: 4.0 cI_i: 4689476.0
       2128476278618137
            i: 9.0 1_i: 5.0 p_i: 15.0 aI i: 19.0
                                                                                     sol a i: 19.0 sol g i: 0.0 d i: 25.0 sol taoi: 19.0 sol deltai: 27.0 sol deltai - sol taoi: 8.0 sol taoP
38
         19.0 sol_deltaP: 21.0 sol_deltaP - sol_taoP: 2.0 cl_i: 2049802.0 sol_e_i: 2049802.0 sol_gp_i: 0.0 total work: 2240974.0 wasted work: 0.
       7251141691068259
                                                                                     sol a i: 14.0 sol g i: 0.0 d i: 31.0 sol taoi: 14.0 sol deltai: 36.0 sol deltai - sol taoi: 22.0 sol taoP
39
          i: 10.0 1 i: 4.0 p i: 0.0 aI i: 14.0
         14.0 sol_deltaP: 20.0 sol_deltaP - sol_taoP: 6.0 cl_i: 5630440.0 sol_c_i: 5630440.0 sol_gp_i: 0.0 total work: 5800168.0 wasted work: 0.
       6437772147289527
            sol_a_i: 16.0 sol_g_i: 0.0 d_i: 33.0 sol_taoi: 16.0 sol_deltai: 38.0 sol_deltai - sol_taoi: 22.0 sol_taoP
       : 19.0 sol deltaP: 28.0 sol deltaP - sol taoP: 9.0 cl i: 5685943.0 sol c i: 6063812.0 sol gp i: 0.35831367298326533 total work: 6063812.0
       wasted work: 0.0
      41
            wasted work: 0.1779065709820819
                                                                                        sol_a_i: 20.0 sol_g_i: 1.0 d_i: 25.0 sol_taoi: 20.0 sol_deltai: 37.0 sol_deltai - sol_taoi: 17.0
            sol_taoP: 20.0 sol_deltaP: 24.0 sol_deltaP - sol_taoP: 4.0 cl_i: 4259705.0 sol_c_i: 4786993.0 sol_gp_i: 1.0 total work: 5404702.0 wasted work
       : 2.3429662727010667
       i: 14.0 l_i: 4.0 p_i: 29.0 al_i: 7.0 sol_a i: 11.0 sol_g i: 0.5714285714285714 d_i: 22.0 sol_taoi: 11.0 sol_deltai: 23.0 sol_deltai sol_taoi: 12.0 sol_taoP: 11.0 sol_deltaP: 16.0 sol_deltaP - sol_taoP: 5.0 cl_i: 3009945.0 sol_c_i: 3848909.75 sol_gp_i: 0.6364375824976105
43
       total work: 3954660.0 wasted work: 0.4011100195718469
           sol_a_i: 28.0 sol_g_i: 0.7142857142857143 d_i: 34.0 sol_taoi: 28.0 sol_deltai: 42.0 sol_deltai
       sol_taoi: 14.0 sol_taoP: 28.0 sol_deltaP: 34.0 sol_deltaP - sol_taoP: 6.0 cI_i: 3554496.0
                                                                                                                                                                           sol_c_i: 5009236.0 sol_gp_i: 0.6897274354811792
       total work: 5141058.0 wasted work: 0.5
            10.0 sol taoP: 4.0 sol_deltaP: 8.0 sol_deltaP - sol_taoP: 4.0 cl_i: 2501602.0 sol_c_i: 3691016.0 sol_gp_i: 0.902287933728816 total work:
       3691016.0 wasted work: 0.0
                           1_i: 5.0 p_i: 0.0 aI_i: 43.0
                                                                                      sol a i: 46.803571428571374 sol g i: 0.42261904761904123 d i: 64.0 sol taoi: 47.0 sol deltai: 69.0
            i: 17.0
```

46	sol_deltai - sol_taoi: 22.0 sol_taoP: 47.0 41323337530912896 total work: 6591100.0	sol_deltaP: 60.0	sol_deltaP	- sol_taoP: 13.0	cI_i: 5719528.0	sol_c_i: 6591100.0	sol_gp_i: 0.
47	41323337530912896 total work: 6591100.0 Time: 218.000000	wasted work: 0.0					
48							
49 50							
50 51							
1							