```
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=27812
3
  import sys; print('Python %s on %s' % (sys.version, sys.platform))
   sys.path.extend(['E:\\1\ ]==-\\3\ python\_code\) Code for this
   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.....
  Optimize the ./R 14 3.xlsx instance by ECCG
13
14
15
       Master protblem status = 2, is Optimal and MP obj = 464.0
16
   The initial lb = -inf
                       ub = inf
17
18
   The current iteration cnt = 0
19
       The SP model was solved Optimal 2 and SPObj = 464.0
20
       Deterministic Sub problem Status= 2, is Optimal
21
       Master protblem status = 2, is Optimal
22
       1b = 872.0
                          ub = 872.0
        MPObj = 872.0
23
                      MP delete Hua Obj = 492.0
                                                    Hua = 380.0
                                                                   SPObj = 464.0
                                                                                   Deter SP Obj = 380.0
24
   ub - 1b = 0.0
25
26
27 Iteration cycle stopped by termination criterion 1: Because ub - lb \leq eps, the iteration stop, and cnt = 0
     i: 0.0 1_i: 5.0 p_i: -0.0 aI_i: 2.0 sol_a_i: 2.0 sol_g_i: 0.0 d_i: 19.0 sol_taoi: 2.0 sol_deltai: 14.0 sol_deltai - sol_taoi: 12.0 sol_taoP: 2
       sol_deltaP: 5.0 sol_deltaP - sol_taoP: 3.0 cl_i: 2974547.0 sol_c i: 2974547.0 sol_gp_i: 0.0 total work: 3163728.0 wasted work: 0.
   7175623188845565
29
     i: 1.0 l_i: 6.0 p_i: 15.0 aI_i: 5.0
                                          sol_a_i: 5.0 sol_g_i: 0.0 d_i: 13.0 sol_taoi: 5.0 sol_deltai: 11.0 sol_deltai - sol_taoi: 6.0 sol_taoP: 5
       sol_deltaP: 7.0 sol_deltaP - sol_taoP: 2.0 cl_i: 1577595.0 sol_c_i: 1577595.0 sol_gp_i: 0.0 total work: 1581864.0 wasted work: 0.
   01619228960264599
     i: 2.0 1_i: 5.0 p_i: 10.0 aI_i: 6.0
                                          sol_a_i: 6.0 sol_g_i: 0.0 d_i: 22.0 sol_taoi: 6.0 sol_deltai: 17.0 sol_deltai - sol_taoi: 11.0 sol_taoP: 6
       sol_deltaP: 8.0 sol_deltaP - sol_taoP: 2.0 cl_i: 2769643.0 sol_e_i: 2769643.0 sol_gp_i: 0.0 total work: 2900084.0 wasted work: 0.
   49476187586290604
     i: 3.0 1_i: 5.0 p_i: 21.0 aI_i: 8.0
                                          sol_a_i: 8.0 sol_g_i: 0.0 d_i: 26.0 sol_taoi: 8.0 sol_deltai: 21.0 sol_deltai - sol_taoi: 13.0 sol_taoP: 8
31
       sol deltaP: 11.0 sol deltaP - sol taoP: 3.0 cI i: 3322849.0 sol c i: 3322849.0 sol gp i: 0.0 total work: 4350126.0 wasted work: 3.
   8964550681980246
32
     i: 4.0 1_i: 5.0 p_i: 5.0 aI_i: 9.0
                                        sol_a_i: 9.0 sol_g_i: 0.0 d_i: 31.0 sol_taoi: 9.0 sol_deltai: 26.0 sol_deltai - sol_taoi: 17.0 sol_taoP: 9.0
                     sol_deltaP - sol_taoP: 5.0_cl_i: 4260173.0 sol_c_i: 4260173.0 sol_gp_i: 0.0_total work: 4481948.0 wasted work: 0.
     sol_deltaP: 14.0
   8411911517045713
                                         sol_a_i: 15.0 sol_g_i: 0.0 d_i: 34.0 sol_taoi: 15.0 sol_deltai: 29.0 sol_deltai - sol_taoi: 14.0 sol_taoP
33
     i: 5.0 l_i: 5.0 p_i: 15.0 al_i: 15.0
    15.0 sol_deltaP: 19.0 sol_deltaP - sol_taoP: 4.0 cl_i: 3561592.0 sol_c_i: 3561592.0 sol_gp_i: 0.0 total work: 3954660.0 wasted work: 1.
   4909044013897528
    i: 6.0 l_i: 5.0 p_i: 10.0 al_i: 20.0 sol_a_i: 20.0 sol_g_i: 0.0 d_i: 37.0 sol_taoi: 20.0 sol_deltai: 32.0 sol_deltai - sol_taoi: 12.0 sol_deltai - 22.0 sol_deltai - sol_taoi: 12.0 sol_deltai - 22.0 sol_deltai - sol_taoi: 2942946.0 sol_c_i: 2942946.0 sol_gp_i: 0.0 total work: 3031906.0 wasted work: 0.
                                          sol a i: 20.0 sol g i: 0.0 d i: 37.0 sol taoi: 20.0 sol deltai: 32.0 sol deltai - sol taoi: 12.0 sol taoP
34
   33742470907739225
   35
   5373673084411807 total work: 3822838.0 wasted work: 0.0
                                          sol a i: 28.0 sol g i: 0.37500000000000019 d i: 55.0 sol taoi: 28.0 sol deltai: 33.0 sol deltai -
     i: 8.0 1 i: 6.0 p i: 25.0 aI i: 25.0
   sol taoi: 5.0 sol taoP: 28.0 sol deltaP: 29.0 sol deltaP sol taoP: 1.0 cl i: 1132760.0 sol c i: 1450042.0 sol gp i: 0.3008621474412465
   total work: 1581864.0 wasted work: 0.5
     i: 9.0 1_i: 5.0 p_i: 3.0 aI_i: 33.0
                                        sol_a_i: 33.0 sol_g_i: 0.0 d_i: 77.0 sol_taoi: 33.0 sol_deltai: 47.0 sol_deltai - sol_taoi: 14.0 sol_taoP:
         sol deltaP: 38.0 sol_deltaP - sol_taoP: 5.0 cl_i: 3660030.0 sol_c_i: 4674290.133333334 sol_gp_i: 0.9617705441175728 total work:
   4745592.0 wasted work: 0.27044752266945665
             1_i: 5.0 p_i: 9.0 aI_i: 35.0
                                          sol_a_i: 42.0 sol_g_i: 1.0 d_i: 69.0 sol_taoi: 42.0 sol_deltai: 53.0 sol_deltai - sol_taoi: 11.0 sol_taoP
   : 42.0 sol deltaP: 44.0 sol deltaP - sol taoP: 2.0 cl i: 2645247.0 sol c i: 2900084.0 sol gp i: 0.1380850150744402 total work: 3031906.0
   wasted work: 0.5
                                            sol_a_i: 46.0 sol_g_i: 1.0 d_i: 71.0 sol_taoi: 46.0 sol_deltai: 57.0 sol_deltai - sol_taoi: 11.0
     sol_taoP: 46.0 sol_deltaP: 49.0 sol_deltaP - sol_taoP: 3.0 cl_i: 2663169.0 sol_c_i: 3190457.0 sol_gp_i: 1.0 total work: 3427372.0 wasted work
   : 0.8986170745399099
     i: 12.0 l_i: 5.0 p_i: 19.0 al_i: 45.0
                                            sol_a_i: 50.0 sol_g_i: 0.8333333333333334 d_i: 74.0 sol_taoi: 50.0 sol_deltai: 58.0 sol_deltai -
   sol taoi: 8.0 sol taoP: 50.0 sol deltaP: 53.0 sol deltaP - sol taoP: 3.0 cl i: 1997374.0 sol c i: 2636440.0 sol gp i: 0.4847946473274567
   total work: 3163728.0 wasted work: 2.0
     sol_a_i: 52.6 sol_g_i: 0.4 d_i: 82.0 sol_taoi: 53.0 sol_deltai: 60.0 sol_deltai - sol_taoi: 7.0
   sol_taoP: 53.0 sol_deltaP: 56.0 sol_deltaP - sol_taoP: 3.0 cl_i: 1600015.0 sol_c_i: 2817249.5142857144 sol_gp_i: 0.5771203375981031 total
   work: 2900084.0
                    wasted work: 0.3141906727036672
  Time: 83.000000
43
44
45
46
```