```
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=27895
 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.....
13 Optimize the ./R 14 4.xlsx instance by ECCG
14
15
          Master protblem status = 2, is Optimal and MP obj = 469.0
16
    The initial lb = -inf
                                ub = inf
17
18
    The current iteration cnt = 0
19
          The SP model was solved Optimal 2 and SPObj = 469.0
20
          Deterministic Sub problem Status= 2, is Optimal
21
          Master protblem status = 2, is Optimal
22
          1b = 894.0
                                    ub = 894.0
           MPObj = 894.0
23
                               MP delete Hua Obj = 499.0
                                                                        Hua = 395.0
                                                                                             SPObj = 469.0
                                                                                                                   Deter SP Obj = 395.0
24
25
    ub - 1b = 0.0
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: 3.0 sol_a_i: 3.0 sol_g_i: 0.0 d_i: 13.0 sol_taoi: 3.0 sol_deltai: 12.0 sol_deltai: 12.0 sol_deltai: 9.0 sol_taoi: 3.0 sol_taoi: 3.0 sol_taoi: 3.0 sol_g_i: 0.0 total work: 2372796.0 wasted work: 0.
     9537216853029085
29
       i: 1.0 1_i: 6.0 p_i: 6.0 aI_i: 7.0
                                                       sol a i: 7.0 sol g i: 0.0 d i: 15.0 sol taoi: 7.0 sol deltai: 14.0 sol deltai - sol taoi: 7.0 sol taoP: 7.0
                             sol_deltaP - sol_taoP: 3.0 cl_i: 1695202.0 sol_c_i: 1695202.0 sol_gp_i: 0.0 total work: 1845508.0 wasted work: 0.
        sol deltaP: 10.0
    5701096933743988
       i: 2.0 1 i: 5.0 p i: 12.0 aI i: 9.0
                                                           sol a i: 9.0 sol g i: 0.0 d i: 21.0 sol taoi: 9.0 sol deltai: 20.0 sol deltai - sol taoi: 11.0 sol taoP: 9
         sol_deltaP: 11.0 sol_deltaP - sol_taoP: 2.0 cl_i: 2765581.0 sol_e_i: 2765581.0 sol_gp_i: 0.0 total work: 2768262.0 wasted work: 0.
    010169015794025276
       i: 3.0 1_i: 5.0 p_i: 17.0 aI_i: 11.0
                                                        sol_a_i: 11.0 sol_g_i: 0.0 d_i: 26.0 sol_taoi: 11.0 sol_deltai: 25.0 sol_deltai - sol_taoi: 14.0 sol_taoP
31
      11.0 sol deltaP: 14.0 sol deltaP - sol taoP: 3.0 cI i: 3509310.0 sol c i: 3509310.0 sol gp i: 0.0 total work: 3954660.0 wasted work: 1.
    6892096918572013
        i: 4.0 1_i: 5.0 p_i: 22.0 aI_i: 15.0
                                                           sol_a_i: 15.0 sol_g_i: 0.0 d_i: 28.0 sol_taoi: 15.0 sol_deltai: 27.0 sol_deltai - sol_taoi: 12.0 sol_taoP
      15.0 sol_deltaP: 17.0 sol_deltaP - sol_taoP: 2.0 cl_i: 2945796.0 sol_c_i: 2945796.0 sol_gp_i: 0.0 total work: 3031906.0 wasted work: 0.
    3266146773679659
                                                     sol_a_i: 19.0 sol_g_i: 0.0 d_i: 27.0 sol_taoi: 19.0 sol_deltai: 26.0 sol_deltai - sol_taoi: 7.0 sol_taoP:
33
        i: 5.0 l_i: 7.0 p_i: 2.0 al_i: 19.0
     19.0 sol_deltaP: 21.0 sol_deltaP - sol_taoP: 2.0 cI_i: 1674800.0
                                                                                         sol_c_i: 1674800.0 sol_gp_i: 0.0 total work: 1845508.0 wasted work: 0.
    6474943484395624
                                                       sol_a_i: 22.0 sol_g_i: 0.0 d_i: 32.0 sol_taoi: 22.0 sol_deltai: 31.0 sol deltai - sol taoi: 9.0 sol taoP:
        i: 6.0 l_i: 5.0 p_i: 9.0 al_i: 22.0
34
             sol deltaP: 24.0 sol deltaP - sol taoP: 2.0 cI i: 2274101.0 sol c i: 2274101.0 sol gp i: 0.0 total work: 2504618.0 wasted work: 0.
    22.0
    i: 7.0 \ 1_{ \text{ i}}: 5.0 \ p_{ \text{ i}}: 14.0 \ a_{ \text{ i}}: 26.0 \ sol_{ \text{ a}}: 28.0 \ sol_{ \text{ g}}: 28
                                                        sol a i: 28.0 sol g i: 0.4 d i: 49.0 sol taoi: 28.0 sol deltai: 40.0 sol deltai - sol taoi: 12.0 sol taoP
35
        i: 8.0 1 i: 5.0 p i: 2.0 aI i: 29.0
                                                      sol a i: 33.0 sol g i: 0.5 d i: 53.0 sol taoi: 33.0 sol deltai: 40.0 sol deltai - sol taoi: 7.0 sol taoP:
    33.0 sol deltaP: 35.0 sol deltaP - sol taoP: 2.0 cI i: 1586573.0 sol c i: 1845508.0 sol gp i: 0.2455346983052905 total work: 2109152.0
     wasted work: 1.0
        i: 9.0 l_i: 5.0 p_i: 23.0 al_i: 33.0
                                                          sol_a_i: 35.0 sol_g_i: 0.2 d_i: 62.0 sol_taoi: 35.0 sol_deltai: 43.0 sol_deltai - sol_taoi: 8.0 sol_taoP
    : 35.0 sol deltaP: 37.0 sol_deltaP - sol_taoP: 2.0 cl_i: 1846166.0 sol_c_i: 2673426.9 sol_gp_i: 0.7844488211375946 total work: 3163728.0
     wasted work: 1.8597089256724981
                                                           sol_a_i: 40.0 sol_g_i: 0.7142857142857143 d_i: 65.0 sol_taoi: 40.0 sol_deltai: 55.0 sol_deltai -
       sol taoi: 15.0 sol taoP: 40.0 sol deltaP: 43.0 sol deltaP - sol taoP: 3.0 cI i: 3708018.0 sol c i: 4161380.5833333335 sol gp i: 0.
    24565733843111648 total work: 4745592.0 wasted work: 2.2159101540966852
                                                            sol_a_i: 46.0 sol_g_i: 1.0 d_i: 68.0 sol_taoi: 46.0 sol_deltai: 60.0 sol_deltai - sol_taoi: 14.0
        sol_taoP: 46.0 sol_deltaP: 49.0 sol_deltaP - sol_taoP: 3.0 cl_i: 3436595.0 sol_c_i: 3963883.0 sol_gp_i: 1.0 total work: 4218304.0 wasted work
     : 0.9650172201908634
                                                            sol taoi: 4.0 sol taoP: 44.0 sol deltaP: 46.0
                                                                                                                      sol c i: 1977330.0 sol gp i: 0.7402990396140252
                                                                sol deltaP - sol taoP: 2.0 cI i: 1001453.0
    total work: 2504618.0 wasted work: 2.0
                                                           sol a i: 45.67142857142857 sol g i: 0.8523809523809524 d i: 69.0 sol taoi: 46.0 sol deltai: 58.0
       i: 13.0    1_i: 5.0    p_i: 3.0    aI_i: 38.0
    sol_deltai - sol_taoi: 12.0 sol_taoi: 12.0 sol_taoi: 12.0 sol_deltaP: 50.0 sol_deltaP - sol_taoi: 4.0 cl_i: 2952281.0 sol_c_i: 3954660.0 sol_gp_i: 0.
     4752521392483804 total work: 3954660.0 wasted work: 0.0
    Time: 71.000000
43
44
45
46
```