```
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=28576
 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 15 4.xlsx instance by ECCG
14
15
            Master protblem status = 2, is Optimal and MP obj = 814.0
16
     The initial lb = -inf
                                      ub = inf
17
18
     The current iteration cnt = 0
19
             The SP model was solved Optimal 2 and SPObj = 804.0
20
            Deterministic Sub problem Status= 2, is Optimal
21
            Master protblem status = 2, is Optimal
22
            1b = 1498.0
                                                ub = 1498.0
             MPObj = 1498.0
                                          MP delete Hua Obj = 844.0
23
                                                                                          Hua = 654.0
                                                                                                                  SPObj = 804.0
                                                                                                                                            Deter SP Obj = 654.0
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
         5359841301148518
         i: 1.0 1_i: 4.0 p_i: -0.0 aI i: 22.0
29
                                                                     sol a i: 22.0 sol g i: 0.0 d i: 36.0 sol taoi: 22.0 sol deltai: 36.0 sol deltai - sol taoi: 14.0 sol taoP
        22.0 sol_deltaP: 26.0 sol_deltaP - sol_taoP: 4.0 cl_i: 3681036.0
                                                                                                          sol_c_i: 3681036.0 sol_gp_i: 0.0 total work: 3691016.0 wasted work: 0.
     03785407595090349
                                                                  sol a i: 65.0 sol g i: 0.0 d i: 83.0 sol taoi: 72.0 sol deltai: 94.0 sol deltai - sol taoi: 22.0 sol taoP:
         i: 2.0 1_i: 7.0 p_i: 0.0 aI_i: 65.0
     72.0 sol_deltaP: 78.0 sol_deltaP - sol_taoP: 6.0 cl_i: 5705555.0 sol_c_i: 5705555.0 sol_gp_i: 0.0 total work: 6327456.0 wasted work: 2.
     358866501797879
        i: 3.0 1_i: 6.0 p_i: 28.0 aI_i: 42.0
31
                                                                     sol_a_i: 42.0 sol_g_i: 0.0 d_i: 62.0 sol_taoi: 42.0 sol_deltai: 62.0 sol_deltai - sol_taoi: 20.0 sol_taoP
        42.0 sol deltaP: 48.0 sol deltaP - sol taoP: 6.0 cl i: 5211519.0 sol c i: 5211519.0 sol gp i: 0.0 total work: 5404702.0 wasted work: 0.
      7327418792007404
         i: 4.0 1_i: 7.0 p_i: 8.0 aI_i: 25.0
                                                                   sol_a_i: 25.0 sol_g_i: 0.0 d_i: 45.0 sol_taoi: 25.0 sol_deltai: 45.0 sol_deltai - sol_taoi: 20.0 sol_taoP:
     25.0 sol deltaP: 20.0 sol deltaP - sol taoP: 4.0 cl i: 5182534.0 sol c i: 5182534.0 sol gp i: 0.0 total work: 5404702.0 wasted work: 0.
     8426817981823975
                                                                      sol_a_i: 8.0 sol_g_i: 0.0 d_i: 30.0 sol_taoi: 8.0 sol_deltai: 30.0 sol_deltai - sol_taoi: 22.0 sol_taoP: 8
33
         i: 5.0 1_i: 6.0 p_i: 15.0 aI_i: 8.0
             sol_deltaP: 18.0 sol_deltaP - sol_taoP: 10.0 cl_i: 5701160.0 sol_c_i: 5701160.0 sol_gp_i: 0.0 total work: 5800168.0 wasted work: 0.
     3755367085918891
        i: 6.0 l_i: 4.0 p_i: -0.0 al_i: 48.0 sol_a_i: 48.0 sol_a_i: 0.0 d_i: 71.0 sol_taoi: 48.0 sol_deltai: 71.0 so
                                                                     sol_a_i: 48.0 sol_g_i: 0.0 d_i: 71.0 sol_taoi: 48.0 sol_deltai: 71.0 sol_deltai - sol_taoi: 23.0 sol_taoP
34
      45386581905903417
         i: 7.0 l_i: 5.0 p_i: 8.0 al_i: 48.0 sol_a_i: 48.0 sol_g_i: 0.0 d_i: 57.0 sol_taoi: 48.0 sol_deltai: 57.0 sol
                                                               sol a i: 48.0 sol g i: 0.0 d i: 57.0 sol taoi: 48.0 sol deltai: 57.0 sol deltai - sol taoi: 9.0 sol taoP:
35
      18676700399022925
                                                                     sol a i: 13.0 sol g i: 0.0 d i: 33.0 sol taoi: 13.0 sol deltai: 31.0 sol deltai - sol taoi: 18.0 sol taoP
         i: 8.0 1 i: 7.0 p i: 27.0 aI i: 13.0
       13.0 sol deltaP: 17.0 sol deltaP - sol taoP: 4.0 cl i: 4681868.0 sol c i: 5272880.0 sol gp i: 0.3736174538392681 total work: 5272880.0
      wasted work: 0.0
         i: 9.0 1_i: 5.0 p_i: 15.0 aI i: 29.0
                                                                     sol_a_i: 33.0 sol_g_i: 0.5 d_i: 49.0 sol_taoi: 33.0 sol_deltai: 46.0 sol_deltai - sol_taoi: 13.0 sol_taoP
       33.0 sol_deltaP: 36.0 sol_deltaP - sol_taoP: 3.0 cl_i: 3341254.0 sol_c_i: 3790906.8000000003 sol_gp_i: 0.426382546160732 total work: 4218304.
     0 wasted work: 1.6211148366736954
         sol_a_i: 57.0 sol_g_i: 0.0 d_i: 83.0 sol_taoi: 57.0 sol_deltai: 75.0 sol_deltai - sol_taoi: 18.0
     sol taoP: 57.0 sol deltaP: 62.0 sol deltaP - sol taoP: 5.0 cl i: 4537928.0 sol c i: 5592504.0 sol gp i: 1.0 total work: 5800168.0 wasted work
     : 0.787668219265373
                                                                      sol_a_i: 5.0 sol_g_i: 0.7142857142857143 d_i: 24.0 sol_taoi: 5.0 sol_deltai: 25.0 sol_deltai - sol_taoi:
         20.0 sol_taoP: 5.0 sol_deltaP: 16.0 sol_deltaP - sol_taoP: 11.0 cI_i: 5205411.0 sol_c_i: 5536524.0 sol_gp_i: 0.1794156405715933 total work
      : 5536524.0 wasted work: 0.0
         sol_a_i: 22.0 sol_g_i: 0.8571428571428571 d_i: 40.0 sol_taoi: 22.0 sol_deltai: 45.0 sol_deltai -
      sol taoi: 23.0 sol taoP: 22.0 sol deltaP: 30.0 sol deltaP - sol taoP: 8.0 cI i: 5945203.0 sol c i: 6472491.0 sol gp i: 1.0 total work: 6591100.0
         wasted work: 0.44988317579766657
         sol_a_i: 56.0 sol_g_i: 1.0 d_i: 74.0 sol_taoi: 56.0 sol_deltai: 76.0 sol_deltai - sol_taoi: 20.0
     sol_taoP: 56.0 sol_deltaP: 64.0 sol_deltaP - sol_taoP: 8.0 cl_i: 5085271.0 sol_c_i: 5533838.839285715 sol_gp_i: 0.3402829871233285 total
      work: 5536524.0 wasted work: 0.010184797356607577
         i: 14.0 l i: 5.0 p i: 23.0 al i: 40.0 sol a i: 48.357142857142854 sol g i: 0.9285714285714285 d i: 74.0 sol taoi: 49.0 sol deltai: 76.0
         sol deltai - sol taoi: 27.0 sol taoP: 49.0 sol deltaP: 58.0 sol deltaP - sol taoP: 9.0 cl i: 6869927.0 sol c i: 8304786.0 sol gp i: 0.
     680301372305078 total work: 8304786.0 wasted work: 0.0
    Time: 603.000000
44
45
46
```

47