```
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=30294
   3
         import sys; print('Python %s on %s' % (sys.version, sys.platform))
         6
        PyDev console: starting.
        Python 3.9.7 (tags/v3.9.7:1016ef3, Aug 30 2021, 20:19:38) [MSC v.1929 64 bit (AMD64)] on win32
  8
        python_code/9 Code for this paper')
10 Backend TkAgg is interactive backend. Turning interactive mode on.
         Waiting 5s.....
12
        Optimize the ./R 9 1.xlsx instance by ECCG
13
14
15
                    Master protblem status = 2, is Optimal and MP obj = 402.0
        The initial lb = -inf
                                                               ub = inf
16
17
         The current iteration cnt = 0
19
                    The SP model was solved Optimal 2 and SPObj = 402.0
                    Deterministic Sub problem Status= 2, is Optimal
20
21
                    Master protblem status = 2, is Optimal
                    1b = 699.0
                                                                          ub = 699.0
                     MPObj = 699.0 MP\_delete\_Hua\_Obj = 421.0
23
                                                                                                                                             Hua = 278.0
                                                                                                                                                                                 SPObi = 402.0
                                                                                                                                                                                                                          Deter SP Obj = 278.0
24
25
        ub - 1b = 0.0
26
27 Iteration cycle stopped by termination criterion 1: Because ub - lb \le eps, the iteration stop, and cnt = 0
               i: 0.0 l_i: 6.0 p_i: 0.0 al_i: 20.0 sol_a_i: 20.0 sol_g_i: 0.0 d_i: 45.0 sol_taoi: 20.0 sol_deltai: 45.0 sol_deltai: 45.0 sol_deltai: 45.0 sol_taoi: 25.0 so
28
         4195543991139567
                                                                                                          sol_a_i: 4.0 sol_g_i: 0.0 d_i: 12.0 sol_taoi: 4.0 sol_deltai: 12.0 sol_deltai - sol_taoi: 8.0 sol_taoP: 4.0
29
               i: 1.0 1_i: 5.0 p_i: 0.0 aI_i: 4.0
                sol deltaP: 7.0 sol deltaP - sol taoP: 3.0 cl i: 2048798.0
                                                                                                                                                           sol c i: 2048798.0 sol gp i: 0.0 total work: 2109152.0 wasted work: 0.
         22892233466340975
             i: 2.0 l_i: 7.0 p_i: 20.0 al_i: 20.0 sol_a_i: 20.0 sol_g_i: 0.0 d_i: 50.0 sol_taoi: 20.0 sol_deltai: 50.0 sol_deltai: 50.0 sol_deltai: 50.0 sol_deltai: 50.0 sol_deltai: 50.0 sol_deltai: 30.0 sol_col_i: 7761436.0 sol_col_i: 7761436.0 sol_gol_i: 0.0 total work: 7777498.0 wasted work: 0.
                                                                                                                 sol_a_i: 20.0 sol_g_i: 0.0 d_i: 50.0 sol_taoi: 20.0 sol_deltai: 50.0 sol_deltai - sol_taoi: 30.0 sol_taoP
         06092306291817754
           i: 3.0 l_i: 7.0 p_i: 13.0 al_i: 29.0 sol_a_i: 29.0 sol_g_i: 0.0 d_i: 61.0 sol_taoi: 29.0 sol_deltai: 61.0 sol_deltai: 61.0 sol_deltai: 32.0 sol_deltai: 32.0 sol_deltai: 35.0 sol_deltai: 35.0 sol_deltai: 61.0 so
31
                                                                                                              sol a i: 29.0 sol g i: 0.0 d i: 61.0 sol taoi: 29.0 sol deltai: 61.0 sol deltai - sol taoi: 32.0 sol taoP
          104117673832896
         i: 4.0 l_i: 6.0 p_i: 0.0 al_i: 73.0 sol_a_i: 73.0 sol_g_i: 0.0 d_i: 82.0 sol_taoi: 73.0 sol_deltai: 82.0 sol
                                                                                                        sol a i: 73.0 sol g i: 0.0 d i: 82.0 sol taoi: 73.0 sol deltai: 82.0 sol deltai - sol taoi: 9.0 sol taoP:
         9642396565065012
               i: 5.0 l_i: 7.0 p_i: 6.0 al_i: 18.0 sol_a_i: 20.0 sol_g_i: 0.4 d_i: 58.0 sol_taoi: 20.0 sol_deltai: 49.0 sol_deltai - sol_taoi: 29.0 sol_taoi: 0.0 sol_deltaP - sol_taoP: 12.0 cl_i: 7457742.0 sol_c_i: 7457742.0 sol_gp_i: 0.0 total work: 7513854.0 wasted work: 0.
33
                                                                                                        sol_a_i: 20.0 sol_g_i: 0.4 d_i: 58.0 sol_taoi: 20.0 sol_deltai: 49.0 sol_deltai - sol_taoi: 29.0 sol_taoP:
         21283245588748465
                                                                                                                  sol_a_i: 3.0 sol_g_i: 0.25 d_i: 41.0 sol_taoi: 3.0 sol_deltai: 31.0 sol_deltai - sol_taoi: 28.0 sol_taoP: 3
              i: 6.0 1_i: 7.0 p_i: 27.0 aI_i: 1.0
          .0 sol_deltaP: 9.0 sol_deltaP - sol_taoP: 6.0 cl_i: 7269633.0 sol_c_i: 7270745.0 sol_gp_i: 0.4 total work: 7513854.0 wasted work: 0.
         9221108767883964
         i: 7.0 1_i: 7.0 p_i: 27.0 aI_i: 39.0 sol_a_i: 48.0 sol_g_i: 0.9 d_i: 75.0 sol_taoi: 48.0 sol_deltai: 70.0 sol_deltai - sol_taoi: 22.0 sol_taoi: 22.0 sol_deltaP: 53.0 sol_deltaP - sol_taoP: 5.0 cI_i: 5588920.0 sol_c_i: 5654529.0 sol_gp_i: 1.0 total work: 6063812.0 wasted work: 1.
                                                                                                               sol_a_i: 48.0 sol_g_i: 0.9 d_i: 75.0 sol_taoi: 48.0 sol_deltai: 70.0 sol_deltai - sol_taoi: 22.0 sol_taoP
35
          5524077923260153
                                                                                                                  sol a i: 7.95 sol g i: 0.85 d i: 29.0 sol taoi: 8.0 sol deltai: 21.0 sol deltai - sol taoi: 13.0 sol taoP: 8
36
              i: 8.0 1 i: 6.0 p i: 13.0 aI i: 2.0
                  sol_deltaP: 13.0 sol_deltaP - sol_taoP: 5.0 cl_i: 3338904.0 sol_c_i: 3369880.0 sol_gp_i: 1.0 total work: 3427372.0 wasted work: 0.
          21806678703099636
        Time: 51.000000
38
39
40
41
```