```
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=7672
 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
13 Optimize the ./R 7 1.xlsx instance by ECCG
14
15
   Set parameter MIPGap to value 0.01
        Master protblem status = 2, is Optimal and MP obj = 240.0
16
   Set parameter Threads to value 1
17
   The initial 1b = -\inf
                         ub = inf
19
20 The current iteration cnt = 0
21
        The SP model was solved Optimal 2 and SPObj = 240.0
        Deterministic Sub problem Status= 2, is Optimal
        Master protblem status = 2, is Optimal
23
24
        1b = 412.0
                             ub = 412.0
25
        MPObj = 412.0 MP\_delete\_Hua\_Obj = 255.0
                                                        Hua = 157.0
                                                                       SPObj = 240.0
                                                                                        Deter SP Obj = 157.0
26
27 ub - 1b = 0.0
28
29 Iteration cycle stopped by termination criterion 1: Because ub - 1b \le eps, the iteration stop, and eps cm = 0
      i: 0.0 l_i: 7.0 p_i: 7.0 al_i: 5.0 sol_a_i: 5.0 sol_g_i: 0.0 d_i: 31.0 sol_taoi: 5.0 sol_deltai: 29.0 sol_deltai - sol_taoi: 24.0 sol_taoi: 5.0
30
      sol deltaP: 12.0
                      sol_deltaP - sol_taoP: 7.0 cl_i: 6150034.0 sol_c_i: 6150034.0 sol_gp_i: 0.0 total work: 6195634.0 wasted work: 0.
    17296050735082155
31
     i: 1.0 1_i: 6.0 p_i: 14.0 aI_i: 13.0
                                             sol a i: 13.0 sol g i: 0.0 d i: 21.0 sol taoi: 13.0 sol deltai: 19.0 sol deltai - sol taoi: 6.0 sol taoP
    13.0 sol_deltaP: 15.0 sol_deltaP - sol_taoP: 2.0 cl_i: 1431098.0 sol_c_i: 1431098.0 sol_gp_i: 0.0 total work: 2240974.0 wasted work: 3.
   071854470422236
     i: 2.0 1_i: 7.0 p_i: 0.0 aI_i: 18.0
                                         sol_a_i: 18.0 sol_g_i: 0.0 d_i: 45.0 sol_taoi: 18.0 sol_deltai: 43.0 sol_deltai - sol_taoi: 25.0 sol_taoP:
          sol deltaP: 25.0 sol deltaP - sol taoP: 7.0 cI i: 6471276.0 sol c i: 6471276.0 sol gp i: 0.0 total work: 7382032.0 wasted work: 3.
   4544916630001063
      i: 3.0 1_i: 7.0 p_i: 27.0 aI_i: 21.0
                                             sol_a_i: 21.0 sol_g_i: 0.0 d_i: 37.0 sol_taoi: 21.0 sol_deltai: 35.0 sol_deltai - sol_taoi: 14.0 sol_taoP
     21.0 sol_deltaP: 24.0 sol_deltaP - sol_taoP: 3.0 cl_i: 3658013.0 sol_c_i: 3658013.0 sol_gp_i: 0.0 total work: 3954660.0 wasted work: 1.
    1251801671951571
      i: 4.0 1_i: 7.0 p_i: 20.0 aI_i: 4.0
                                             sol_a_i: 4.0 sol_g_i: 0.0 d_i: 54.0 sol_taoi: 4.0 sol_deltai: 36.0 sol_deltai - sol_taoi: 32.0 sol_taoP: 4
34
        sol_deltaP: 10.0 sol_deltaP - sol_taoP: 6.0 cI_i: 8295964.0 sol_c_i: 9350540.0 sol_gp_i: 0.8 total work: 9491184.0 wasted work: 0.
   5334617893826523
     i: 5.0 <u>l</u>:: 6.0 <u>p</u> i: 14.0 <u>al_i</u>: 19.0 <u>sol_a_i</u>: 25.4 <u>sol_g_i</u>: 0.8 <u>d_i</u>: 48.0 <u>sol_taoi</u>: 26.0 <u>sol_deltai</u>: 35.0 <u>sol_deltai</u> - sol_taoi: 9.0 <u>sol_deltai</u> - sol_taoi: 9.0 <u>sol_deltai</u> - sol_taoi: 9.0 <u>sol_deltai</u> - sol_taoi: 2220586.0 <u>sol_deltai</u> : 2220586.0 <u>sol_g_i</u>: 2220586.0 <u>sol_g_i</u>: 0.0 total work: 3163728.0 <u>wasted work</u>: 3.
                                             sol a i: 25.4 sol g i: 0.8 d i: 48.0 sol taoi: 26.0 sol deltai: 35.0 sol deltai - sol taoi: 9.0 sol taoP
      i: 6.0 1 i: 7.0 p i: 21.0 aI i: 28.0 sol a i: 38.0 sol g i: 1.0 d i: 71.0 sol taoi: 38.0 sol deltai: 58.0 sol deltai - sol taoi: 20.0 sol tao
36
     38.0 sol_deltaP: 43.0 sol_deltaP - sol_taoP: 5.0 cI_i: 5118839.0 sol_c_i: 7755279.0 sol_gp_i: 1.0 total work: 7909320.0 wasted work: 0.
    5842765244041207
   Time: 25.000000
38
39
40
41
```