```
this paper\Scripts\python.exe" "D:\Python\Pycharm\setroute\PyCharm Community Edition 2021.2.3\plugins\python-ce\helpers\pydev\pydevconsole.py" --mode=
    import sys; print('Python %s on %s' % (sys.version, sys.platform))
 3
    4
 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
    >>> runfile('E:/1 = 1 = 1/3 = 0 = 0/1 = 0 = 0 = 0/1 = 0 = 0 = 0/1 = 0 = 0/1 = 0 = 0/1 = 0 = 0/1 = 0 = 0/1 = 0 = 0/1 = 0 = 0/1 = 0 = 0/1 = 0 = 0/1 = 0 = 0/1 = 0 = 0/1 = 0 = 0/1 = 0 = 0/1 = 0 = 0/1 = 0 = 0/1 = 0 = 0/1 = 0 = 0/1 = 0 = 0/1 = 0 = 0/1 = 0 = 0/1 = 0 = 0/1 = 0 = 0/1 = 0 = 0/1 = 0 = 0/1 = 0 = 0/1 = 0 = 0/1 = 0/1 = 0 = 0/1 = 0 = 0/1 = 0 = 0/1 = 0/1 = 0 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/1 = 0/
     Code for this paper')
10 Backend TkAgg is interactive backend. Turning interactive mode on.
    Waiting 5s.....
12
13 Optimize the ./R 15 1.xlsx instance by ECCG for deterministic model
14
15
    Set parameter MIPGap to value 0.01
          Master protblem status = 2, is Optimal and MP obj = 528.0
16
                                ub = inf
17
    The initial lb = -inf
19
    The current iteration cnt = 0
          The SP model was solved Optimal 2 and SPObj = 528.0
20
21
          Deterministic Sub problem Status= 2, is Optimal
          Master protblem status = 2, is Optimal
          1b = 931.0
                                      ub = 931.0
23
           MPObj = 931.0 MP\_delete\_Hua\_Obj = 528.0
24
                                                                        Hua = 403.0
                                                                                             SPObj = 528.0 Deter_SP_Obj = 403.0
25
26 \text{ ub - } 1b = 0.0
27
28 Iteration cycle stopped by termination criterion 1: Because ub - 1b \le eps, the iteration stop, and eps cm = 0
        i: 0.0 1_i: 6.0 p_i: 0.0 al_i: 1.0 sol_a_i: 1.0 sol_g_i: 0.0 d_i: 15.0 sol_taoi: 1.0 sol_deltai: 13.0 sol_deltai - sol_taoi: 12.0 sol_taop: 1.0
29
        sol deltaP: 5.0 sol deltaP - sol taoP: 4.0 cl i: 2917497.0 sol c i: 2917497.0 sol gp i: 0.0 total work: 3163728.0 wasted work: 0.
    9339526027521962
30
       i: 1.0 1_i: 6.0 p_i: 6.0 aI_i: 5.0
                                                        sol_a_i: 5.0 sol_g_i: 0.0 d_i: 11.0 sol_taoi: 5.0 sol_deltai: 9.0 sol_deltai - sol_taoi: 4.0 sol_taoP: 5.0
        sol deltaP: 6.0 sol deltaP - sol taoP: 1.0 cl i: 1036171.0 sol c i: 1036171.0 sol gp i: 0.0 total work: 1186398.0 wasted work: 0.
    5698100468814007
                                                          sol_a_i: 6.0 sol_g_i: 0.0 d_i: 20.0 sol_taoi: 6.0 sol_deltai: 18.0 sol_deltai - sol_taoi: 12.0 sol_taoP: 6
31
       i: 2.0 1_i: 7.0 p_i: 12.0 aI_i: 6.0
     .0 sol_deltaP: 8.0 sol_deltaP - sol_taoP: 2.0 cl_i: 3020678.0 sol_c_i: 3020678.0 sol_gp_i: 0.0 total work: 3163728.0 wasted work: 0.
    5425877319415575
        i: 3.0 1_i: 6.0 p_i: 19.0 aI i: 10.0
                                                        sol_a_i: 10.0 sol_g_i: 0.0 d_i: 16.0 sol_taoi: 10.0 sol_deltai: 14.0 sol_deltai - sol_taoi: 4.0 sol_taoP
32
    : 10.0 sol_deltaP: 11.0 sol_deltaP - sol_taoP: 1.0 cl_i: 1003327.0 sol_c_i: 1003327.0 sol_gp_i: 0.0 total work: 1186398.0 wasted work: 0.
    6943871280969792
                                                      sol a i: 15.0 sol g i: 0.0 d i: 34.0 sol taoi: 15.0 sol deltai: 32.0 sol deltai - sol taoi: 17.0 sol taoP:
33
       i: 4.0 1 i: 5.0 p i: 7.0 aI i: 15.0
    15.0 sol_deltaP: 20.0 sol_deltaP - sol_taoP: 5.0 cI_i: 4430235.0
                                                                                         sol_c_i: 4430235.0 sol_gp_i: 0.0 total work: 4613770.0 wasted work: 0.
    6961470771191455
       i: 5.0 1_i: 6.0 p_i: 1.0 aI_i: 16.0
                                                        sol a i: 16.0 sol g i: 0.0 d i: 25.0 sol taoi: 16.0 sol deltai: 23.0 sol deltai - sol taoi: 7.0 sol taoP:
    16.0 sol_deltaP: 19.0 sol_deltaP - sol_taoP: 3.0 cl_i: 1727656.0 sol_c_i: 1727656.0 sol_gp_i: 0.0 total work: 2109152.0 wasted work: 1.
     4470118796558997
      i: 6.0 1_i: 6.0 p_i: 12.0 aI_i: 24.0
                                                         sol_a_i: 24.0 sol_g_i: 0.0 d_i: 38.0 sol_taoi: 24.0 sol_deltai: 36.0 sol_deltai - sol_taoi: 12.0 sol_taoP
      24.0 sol_deltaP: 27.0 sol_deltaP - sol_taoP: 3.0 cl_i: 3144664.0 sol_c_i: 3144664.0 sol_gp_i: 0.0 total work: 3295550.0 wasted work: 0.
    5723096296521066
        i: 7.0 l_i: 7.0 p_i: 18.0 aI_i: 26.0
                                                           sol_a_i: 26.0 sol_g_i: 0.0 d_i: 34.0 sol_taoi: 26.0 sol_deltai: 32.0 sol_deltai - sol_taoi: 6.0 sol_taoP
       26.0 sol deltaP: 27.0 sol deltaP - sol taoP: 1.0 cl i: 1536740.0 sol c i: 1536740.0 sol gp i: 0.0 total work: 1581864.0 wasted work: 0.
     17115504240566826
        i: 8.0 \ 1\_i: 5.0 \ p\_i: 25.0 \ aI\_i: 28.0 \ sol\_a\_i: 28.0 \ sol\_g\_i: 0.0 \ d\_i: 61.0 \ sol\_taoi: 28.0 \ sol\_deltai: 49.0 \ sol\_deltai - sol\_taoi: 21.0 \ sol\_taoP
37
      28.0 sol_deltaP: 32.0 sol_deltaP - sol_taoP: 4.0 cl_i: 5432806.0 sol_c_i: 5432806.0 sol_gp_i: 0.0 total work: 6063812.0 wasted work: 2.
    3934017083643093
                                                      sol_a_i: 31.0 sol_g_i: 0.0 d_i: 54.0 sol_taoi: 31.0 sol_deltai: 36.0 sol_deltai - sol_taoi: 5.0 sol_taoP:
       i: 9.0 1_i: 7.0 p_i: 0.0 aI_i: 31.0
    31.0 sol deltaP: 33.0 sol deltaP - sol taoP: 2.0 cI i: 1122221.0 sol c i: 1122221.0 sol gp i: 0.0 total work: 1845508.0 wasted work: 2.
       i: 10.0 1_i: 5.0 p_i: 7.0 aI_i: 33.0 sol_a_i: 33.0 sol_g_i: 0.0 d_i: 72.0 sol_taoi: 33.0 sol_deltai: 50.0 sol_deltai - sol_taoi: 17.0 sol taoP
39
      33.0 sol_deltaP: 38.0 sol_deltaP - sol_taoP: 5.0 cl_i: 4319864.0 sol_c_i: 4319864.0 sol_gp_i: 0.0 total work: 5141058.0 wasted work: 3.
     1147835717861967
       i: 11.0 1 i: 6.0 p i: 19.0 aI i: 33.0
                                                            sol_a_i: 33.0 sol_g_i: 0.0 d_i: 65.0 sol_taoi: 33.0 sol_deltai: 49.0 sol_deltai - sol_taoi: 16.0
    sol_taoP: 33.0 sol_deltaP: 36.0 sol_deltaP - sol_taoP: 3.0 cl_i: 3993564.0 sol_c_i: 3993564.0 sol_gp_i: 0.0 total work: 4086482.0 wasted work
    : 0.35243737767595695
                                                           sol_a_i: 38.0 sol_g_i: 0.0 d_i: 63.0 sol_taoi: 38.0 sol_deltai: 47.0 sol_deltai - sol_taoi: 9.0
       sol taoP: 38.0 sol_deltaP: 40.0 sol_deltaP - sol_taoP: 2.0 cl_i: 2342507.0 sol_c_i: 2342507.0 sol_gp_i: 0.0 total work: 2636440.0 wasted work
    : 1.1148859826129174
        i: 13.0 1_i: 7.0 p_i: 0.0 aI_i: 45.0
                                                        sol_a_i: 45.0 sol_g_i: 0.0 d_i: 72.0 sol_taoi: 45.0 sol_deltai: 58.0 sol_deltai - sol_taoi: 13.0 sol_taoP
     : 45.0 sol deltaP: 49.0 sol deltaP - sol taoP: 4.0 cl i: 3386423.0 sol c i: 3386423.0 sol gp i: 0.0 total work: 4218304.0 wasted work: 3.
    1553192941997543
        i: 14.0 1 i: 5.0 p i: 12.0 aI i: 50.0
                                                              sol a i: 50.0 sol g i: 0.0 d i: 82.0 sol taoi: 50.0 sol deltai: 62.0 sol deltai - sol taoi: 12.0
43
    sol_taoP: 50.0 sol_deltaP: 52.0 sol_deltaP - sol_taoP: 2.0 cl_1: 2979427.0 sol_c_i: 2979427.0 sol_gp_i: 0.0 total work: 3031906.0 wasted work
     0.19905251020315273
44 Time: 127.000000
45
46
47
48
```