```
"E:\1 □□□□\3 □□□□□\1 □□□□□□\1 □□□□□□□\1_□□□□□□_□□□□\1_LW _□□□□\4 □□□□\3 python_code\1 exzample\2 □□□□□□\9 Code for 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=54065

import sys; print('Python %s on %s' % (sys.version, sys.platform))
sys.path.extend(['E:\\1 □□□□\\3 □□□□□□\\1 □□□□□□□\\1 □□□□□□□□□\\1_□□□□□□_□□□□\\1_LW _□□□□\\4 □□□□\\3 python_code\\9 Code for this paper', 'E:/1 □□□□/3 □□□□□/1 □□□□□□/1 □□□□□□□/1_□□□□□□_□□□□/1_LW _□□□□/4 □□□□/3 python_code/9 Code for this paper'])

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
>>> runfile('E:/1 □□□□/3 □□□□□/1 □□□□□□□/1 □□□□□□□□□/1_□□□□□□_□□□□/1_LW _□□□□/4 □□□□/3 python_code/9 Code for this paper/main_ECCG_deterministic.py', wdir='E:/1 □□□□/3 □□□□□/1 □□□□□□□/1 □□□□□□□□□/1_□□□□□□_□□□□/1_LW _□□□□/4 □□□□/3 python_code/9 Code for this paper')
Backend TkAgg is interactive backend. Turning interactive mode on.
Waiting 5s.....

Optimize the  ./R_14_1.xlsx  instance by ECCG for deterministic model

Set parameter MIPGap to value 0.01
      Master protblem status =  2 , is Optimal and MP obj =  549.0
The initial lb =  -inf       ub =  inf

The current iteration cnt =  0
      The SP model was solved Optimal 2 and SPObj =  549.0
      Deterministic Sub problem Status=  2 , is Optimal
      Master protblem status =  2 , is Optimal
      lb =  1002.0                  ub =  1002.0
       MPObj =  1002.0       MP_delete_Hua_Obj =  549.0       Hua =  453.0       SPObj =  549.0       Deter_SP_Obj =  453.0

ub - lb =  0.0

Iteration cycle stopped by termination criterion 1: Because ub - lb <= eps, the iteration stop, and cnt =  0
    i:  0.0  l_i:  7.0   p_i:  7.0   aI_i:  55.0       sol_a_i:  55.0  sol_g_i:  0.0   d_i:  70.0    sol_taoi:  55.0    sol_deltai:  61.0  sol_deltai - sol_taoi:  6.0    sol_taoP:  55.0    sol_deltaP:  56.0    sol_deltaP - sol_taoP:  1.0  cl_i:  1505643.0    sol_c_i:  1505643.0    sol_gp_i:  0.0  total work:  1581864.0    wasted work:  0.2891057638330476
    i:  1.0  l_i:  5.0   p_i:  7.0   aI_i:  2.0        sol_a_i:  2.0   sol_g_i:  0.0   d_i:  23.0    sol_taoi:  2.0   sol_deltai:  14.0  sol_deltai - sol_taoi:  12.0  sol_taoP:  2.0    sol_deltaP:  5.0   sol_deltaP - sol_taoP:  3.0  cl_i:  2973618.0    sol_c_i:  2973618.0    sol_gp_i:  0.0  total work:  3559194.0    wasted work:  2.2210860099224714
    i:  2.0  l_i:  6.0   p_i:  12.0    aI_i:  8.0        sol_a_i:  8.0   sol_g_i:  0.0   d_i:  29.0    sol_taoi:  8.0   sol_deltai:  20.0  sol_deltai - sol_taoi:  12.0  sol_taoP:  8.0    sol_deltaP:  10.0    sol_deltaP - sol_taoP:  2.0  cl_i:  2936429.0    sol_c_i:  2936429.0    sol_gp_i:  0.0  total work:  3031906.0    wasted work:  0.36214364825294715
    i:  3.0  l_i:  7.0   p_i:  0.0   aI_i:  11.0       sol_a_i:  11.0  sol_g_i:  0.0   d_i:  33.0    sol_taoi:  11.0    sol_deltai:  24.0  sol_deltai - sol_taoi:  13.0  sol_taoP:  11.0    sol_deltaP:  15.0    sol_deltaP - sol_taoP:  4.0  cl_i:  3182410.0    sol_c_i:  3182410.0    sol_gp_i:  0.0  total work:  3427372.0    wasted work:  0.9291392938963148
    i:  4.0  l_i:  6.0   p_i:  22.0    aI_i:  17.0       sol_a_i:  17.0  sol_g_i:  0.0   d_i:  35.0    sol_taoi:  17.0    sol_deltai:  26.0  sol_deltai - sol_taoi:  9.0    sol_taoP:  17.0  sol_deltaP:  19.0    sol_deltaP - sol_taoP:  2.0  cl_i:  2209546.0    sol_c_i:  2209546.0    sol_gp_i:  0.0  total work:  2372796.0    wasted work:  0.6192062023031057
    i:  5.0  l_i:  6.0   p_i:  16.0    aI_i:  23.0       sol_a_i:  23.0  sol_g_i:  0.0   d_i:  42.0    sol_taoi:  23.0    sol_deltai:  33.0  sol_deltai - sol_taoi:  10.0  sol_taoP:  23.0  sol_deltaP:  25.0    sol_deltaP - sol_taoP:  2.0  cl_i:  2535577.0    sol_c_i:  2535577.0    sol_gp_i:  0.0  total work:  2900084.0    wasted work:  1.382572711686972
    i:  6.0  l_i:  6.0   p_i:  5.0   aI_i:  27.0       sol_a_i:  27.0  sol_g_i:  0.0   d_i:  44.0    sol_taoi:  27.0    sol_deltai:  35.0  sol_deltai - sol_taoi:  8.0    sol_taoP:  27.0    sol_deltaP:  29.0    sol_deltaP - sol_taoP:  2.0  cl_i:  1982104.0    sol_c_i:  1982104.0    sol_gp_i:  0.0  total work:  2109152.0    wasted work:  0.4818922486383153
    i:  7.0  l_i:  5.0   p_i:  11.0    aI_i:  29.0       sol_a_i:  29.0  sol_g_i:  0.0   d_i:  58.0    sol_taoi:  29.0    sol_deltai:  39.0  sol_deltai - sol_taoi:  10.0  sol_taoP:  29.0  sol_deltaP:  31.0    sol_deltaP - sol_taoP:  2.0  cl_i:  2581574.0    sol_c_i:  2581574.0    sol_gp_i:  0.0  total work:  2900084.0    wasted work:  1.208106385883995
    i:  8.0  l_i:  5.0   p_i:  0.0   aI_i:  30.0       sol_a_i:  30.0  sol_g_i:  0.0   d_i:  69.0    sol_taoi:  30.0    sol_deltai:  44.0  sol_deltai - sol_taoi:  14.0  sol_taoP:  30.0    sol_deltaP:  34.0    sol_deltaP - sol_taoP:  4.0  cl_i:  3539325.0    sol_c_i:  3539325.0    sol_gp_i:  0.0  total work:  3691016.0    wasted work:  0.5753629894858218
    i:  9.0  l_i:  5.0   p_i:  5.0   aI_i:  37.0       sol_a_i:  37.0  sol_g_i:  0.0   d_i:  75.0    sol_taoi:  37.0    sol_deltai:  46.0  sol_deltai - sol_taoi:  9.0    sol_taoP:  37.0    sol_deltaP:  40.0    sol_deltaP - sol_taoP:  3.0  cl_i:  2316876.0    sol_c_i:  2316876.0    sol_gp_i:  0.0  total work:  3163728.0    wasted work:  3.2121042011196916
    i:  10.0   l_i:  7.0   p_i:  17.0    aI_i:  38.0       sol_a_i:  38.0  sol_g_i:  0.0   d_i:  65.0    sol_taoi:  38.0    sol_deltai:  42.0  sol_deltai - sol_taoi:  4.0    sol_taoP:  38.0    sol_deltaP:  39.0    sol_deltaP - sol_taoP:  1.0  cl_i:  1000784.0    sol_c_i:  1000784.0    sol_gp_i:  0.0  total work:  1318220.0    wasted work:  1.2040327107766533
    i:  11.0   l_i:  5.0   p_i:  10.0    aI_i:  46.0       sol_a_i:  46.0  sol_g_i:  0.0   d_i:  77.0    sol_taoi:  46.0    sol_deltai:  54.0  sol_deltai - sol_taoi:  8.0    sol_taoP:  46.0    sol_deltaP:  48.0    sol_deltaP - sol_taoP:  2.0  cl_i:  1874122.0    sol_c_i:  1874122.0    sol_gp_i:  0.0  total work:  2109152.0    wasted work:  0.8914672816373594
    i:  12.0   l_i:  7.0   p_i:  0.0   aI_i:  49.0       sol_a_i:  49.0  sol_g_i:  0.0   d_i:  76.0    sol_taoi:  49.0    sol_deltai:  55.0  sol_deltai - sol_taoi:  6.0    sol_taoP:  49.0  sol_deltaP:  51.0    sol_deltaP - sol_taoP:  2.0  cl_i:  1383135.0    sol_c_i:  1383135.0    sol_gp_i:  0.0  total work:  1581864.0    wasted work:  0.7537778216079258
    i:  13.0   l_i:  6.0   p_i:  15.0    aI_i:  50.0       sol_a_i:  50.0  sol_g_i:  0.0   d_i:  83.0    sol_taoi:  50.0    sol_deltai:  56.0  sol_deltai - sol_taoi:  6.0    sol_taoP:  50.0    sol_deltaP:  51.0    sol_deltaP - sol_taoP:  1.0  cl_i:  1355107.0    sol_c_i:  1355107.0    sol_gp_i:  0.0  total work:  1581864.0    wasted work:  0.860087845731365
Time: 92.000000
```