```
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=14657

import sys; print('Python %s on %s' % (sys.version, sys.platform))
sys.path.extend(['E:\\1 □□□□\\3 □□□□□\\1 □□□□□□□\\1 □□□□□□□□□\\1_□□□□□□_□□□□\\1_LW _□□□□1\\4 □□□□\\3 python_code\\9 Code for this paper', 'E:/1 □□□□/3 □□□□□/1 □□□□□□/1 □□□□□□□□/1_□□□□□□_□□□□/1_LW _□□□□1/4 □□□□/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 _□□□□1/4 □□□□/3 python_code/9 Code for this paper/main_RO_CCG.py', wdir='E:/1 □□□□/3 □□□□□/1 □□□□□□/1 □□□□□□□□/1_□□□□□□□_□□□□/1_LW _□□□□1/4 □□□□/3 python_code/9 Code for this paper')
Backend TkAgg is interactive backend. Turning interactive mode on.
Waiting 5s.....

Optimize the  ./R_16_1.xlsx  instance by CCG

        Master protblem status =  2 , is Optimal and MP obj =  915.0
The initial lb =  -inf        ub =  inf

The current iteration cnt =  0
        The SP model was solved Optimal 2 and SPObj =  910.0
        Deterministic Sub problem Status=  2 , is Optimal
        lb =  1699.0                    ub =  1699.0
         MPObj =  1699.0        MP_delete_Hua_Obj =  943.0        Hua =  756.0        SPObj =  910.0        Deter_SP_Obj =  756.0

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:  16.0  aI_i:  1.0  sol_a_i:  1.0  sol_g_i:  0.0  d_i:  28.0  sol_taoi:  1.0  sol_deltai:  28.0  sol_deltai - sol_taoi:  27.0  sol_taoP:  1.0  sol_deltaP:  9.0  sol_deltaP - sol_taoP:  8.0  cI_i:  6937615.0  sol_c_i:  6937615.0  sol_gp_i:  0.0  total work:  7382032.0  wasted work:  1.6856708288449576
    i:  1.0  l_i:  4.0  p_i:  23.0  aI_i:  27.0  sol_a_i:  27.0  sol_g_i:  0.0  d_i:  42.0  sol_taoi:  27.0  sol_deltai:  42.0  sol_deltai - sol_taoi:  15.0  sol_taoP:  27.0  sol_deltaP:  32.0  sol_deltaP - sol_taoP:  5.0  cI_i:  3708800.0  sol_c_i:  3708800.0  sol_gp_i:  0.0  total work:  3822838.0  wasted work:  0.4325454021331796
    i:  2.0  l_i:  5.0  p_i:  29.0  aI_i:  13.0  sol_a_i:  13.0  sol_g_i:  0.0  d_i:  22.0  sol_taoi:  13.0  sol_deltai:  22.0  sol_deltai - sol_taoi:  9.0  sol_taoP:  13.0  sol_deltaP:  15.0  sol_deltaP - sol_taoP:  2.0  cI_i:  2263831.0  sol_c_i:  2263831.0  sol_gp_i:  0.0  total work:  2636440.0  wasted work:  1.4133035456904006
    i:  3.0  l_i:  6.0  p_i:  0.0  aI_i:  58.0  sol_a_i:  58.0  sol_g_i:  0.0  d_i:  69.0  sol_taoi:  58.0  sol_deltai:  69.0  sol_deltai - sol_taoi:  11.0  sol_taoP:  58.0  sol_deltaP:  64.0  sol_deltaP - sol_taoP:  6.0  cI_i:  2796726.0  sol_c_i:  2796726.0  sol_gp_i:  0.0  total work:  2900084.0  wasted work:  0.39203623067469767
    i:  4.0  l_i:  7.0  p_i:  0.0  aI_i:  41.0  sol_a_i:  41.0  sol_g_i:  0.0  d_i:  56.0  sol_taoi:  41.0  sol_deltai:  56.0  sol_deltai - sol_taoi:  15.0  sol_taoP:  41.0  sol_deltaP:  45.0  sol_deltaP - sol_taoP:  4.0  cI_i:  3873618.0  sol_c_i:  3873618.0  sol_gp_i:  0.0  total work:  4218304.0  wasted work:  1.3073917858930983
    i:  5.0  l_i:  7.0  p_i:  7.0  aI_i:  49.0  sol_a_i:  49.0  sol_g_i:  0.0  d_i:  58.0  sol_taoi:  49.0  sol_deltai:  58.0  sol_deltai - sol_taoi:  9.0  sol_taoP:  49.0  sol_deltaP:  54.0  sol_deltaP - sol_taoP:  5.0  cI_i:  2367917.0  sol_c_i:  2367917.0  sol_gp_i:  0.0  total work:  2372796.0  wasted work:  0.018506015687821457
    i:  6.0  l_i:  5.0  p_i:  18.0  aI_i:  55.0  sol_a_i:  55.0  sol_g_i:  0.0  d_i:  72.0  sol_taoi:  55.0  sol_deltai:  72.0  sol_deltai - sol_taoi:  17.0  sol_taoP:  55.0  sol_deltaP:  58.0  sol_deltaP - sol_taoP:  3.0  cI_i:  4410361.0  sol_c_i:  4410361.0  sol_gp_i:  0.0  total work:  4745592.0  wasted work:  1.2715290315728787
    i:  7.0  l_i:  7.0  p_i:  27.0  aI_i:  24.0  sol_a_i:  24.0  sol_g_i:  0.0  d_i:  46.0  sol_taoi:  24.0  sol_deltai:  46.0  sol_deltai - sol_taoi:  22.0  sol_taoP:  24.0  sol_deltaP:  31.0  sol_deltaP - sol_taoP:  7.0  cI_i:  5629341.0  sol_c_i:  5629341.0  sol_gp_i:  0.0  total work:  5668346.0  wasted work:  0.14794571467585077
    i:  8.0  l_i:  4.0  p_i:  30.0  aI_i:  59.0  sol_a_i:  59.0  sol_g_i:  0.0  d_i:  75.0  sol_taoi:  59.0  sol_deltai:  75.0  sol_deltai - sol_taoi:  16.0  sol_taoP:  59.0  sol_deltaP:  63.0  sol_deltaP - sol_taoP:  4.0  cI_i:  4065792.0  sol_c_i:  4065792.0  sol_gp_i:  0.0  total work:  5272880.0  wasted work:  4.578477037216853
    i:  9.0  l_i:  6.0  p_i:  12.0  aI_i:  28.0  sol_a_i:  32.0  sol_g_i:  0.8  d_i:  39.0  sol_taoi:  32.0  sol_deltai:  42.0  sol_deltai - sol_taoi:  10.0  sol_taoP:  32.0  sol_deltaP:  35.0  sol_deltaP - sol_taoP:  3.0  cI_i:  2602059.0  sol_c_i:  2602059.0  sol_gp_i:  0.0  total work:  2636440.0  wasted work:  0.1304069123515043
    i:  10.0  l_i:  7.0  p_i:  5.0  aI_i:  21.0  sol_a_i:  22.0  sol_g_i:  0.125  d_i:  33.0  sol_taoi:  22.0  sol_deltai:  32.0  sol_deltai - sol_taoi:  10.0  sol_taoP:  22.0  sol_deltaP:  25.0  sol_deltaP - sol_taoP:  3.0  cI_i:  2596063.0  sol_c_i:  3439723.800000001  sol_gp_i:  0.8000000000000012  total work:  3559194.0  wasted work:  0.45314970187069986
    i:  11.0  l_i:  6.0  p_i:  23.0  aI_i:  65.0  sol_a_i:  69.75  sol_g_i:  0.47499999999999987  d_i:  78.0  sol_taoi:  70.0  sol_deltai:  82.0  sol_deltai - sol_taoi:  12.0  sol_taoP:  70.0  sol_deltaP:  73.0  sol_deltaP - sol_taoP:  3.0  cI_i:  3003110.0  sol_c_i:  4057686.0  sol_gp_i:  1.0  total work:  4218304.0  wasted work:  0.609223043194611
    i:  12.0  l_i:  7.0  p_i:  23.0  aI_i:  41.0  sol_a_i:  48.0  sol_g_i:  1.0  d_i:  61.0  sol_taoi:  48.0  sol_deltai:  68.0  sol_deltai - sol_taoi:  20.0  sol_taoP:  48.0  sol_deltaP:  52.0  sol_deltaP - sol_taoP:  4.0  cI_i:  5118817.0  sol_c_i:  5511585.599999993  sol_gp_i:  0.21282411130159984  total work:  5668346.0  wasted work:  0.5945911911517308
    i:  13.0  l_i:  7.0  p_i:  7.0  aI_i:  59.0  sol_a_i:  63.0  sol_g_i:  0.5714285714285714  d_i:  83.0  sol_taoi:  63.0  sol_deltai:  90.0  sol_deltai - sol_taoi:  27.0  sol_taoP:  63.0  sol_deltaP:  69.0  sol_deltaP - sol_taoP:  6.0  cI_i:  6861506.0  sol_c_i:  7382032.0  sol_gp_i:  0.9871758886983955  total work:  7513854.0  wasted work:  0.5
    i:  14.0  l_i:  7.0  p_i:  0.0  aI_i:  59.0  sol_a_i:  62.50476190476191  sol_g_i:  0.5841269841269842  d_i:  79.0  sol_taoi:  70.0  sol_deltai:  90.0  sol_deltai - sol_taoi:  20.0  sol_taoP:  70.0  sol_deltaP:  76.0  sol_deltaP - sol_taoP:  6.0  cI_i:  5115184.0  sol_c_i:  5115184.0  sol_gp_i:  0.0  total work:  5272880.0  wasted work:  0.5981399159472622
    i:  15.0  l_i:  4.0  p_i:  14.0  aI_i:  42.0  sol_a_i:  46.0  sol_g_i:  0.44444444444444375  d_i:  76.0  sol_taoi:  46.0  sol_deltai:  71.0  sol_deltai - sol_taoi:  25.0  sol_taoP:  46.0  sol_deltaP:  55.0  sol_deltaP - sol_taoP:  9.0  cI_i:  6356645.0  sol_c_i:  8465796.999999996  sol_gp_i:  0.9999999999999982  total work:  8568430.0  wasted work:  0.38928631032757705
Time: 1676.000000
```