```
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=35060

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_12_4.xlsx  instance by CCG

      Master protblem status =  2 , is Optimal and MP obj =  466.0
The initial lb =  -inf       ub =  inf

The current iteration cnt =  0
      The SP model was solved Optimal 2 and SPObj =  466.0
      Master protblem status =  2 , is Optimal
      Deterministic Sub problem Status=  2 , is Optimal
      lb =  837.0                  ub =  837.0
       MPObj =  837.0     MP_delete_Hua_Obj =  491.0       Hua =  346.0       SPObj =  466.0       Deter_SP_Obj =  346.0

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:  6.0  p_i:  24.0  aI_i:  1.0  sol_a_i:  1.0  sol_g_i:  0.0  d_i:  33.0  sol_taoi:  1.0  sol_deltai:  30.0  sol_deltai - sol_taoi:  29.0  sol_taoP:  1.0  sol_deltaP:  7.0  sol_deltaP - sol_taoP:  6.0  cI_i:  7519252.0  sol_c_i:  7519252.0  sol_gp_i:  0.0  total work:  7645676.0  wasted work:  0.47952542064298825
    i:  1.0  l_i:  6.0  p_i:  6.0  aI_i:  5.0  sol_a_i:  5.0  sol_g_i:  0.0  d_i:  10.0  sol_taoi:  5.0  sol_deltai:  10.0  sol_deltai - sol_taoi:  5.0  sol_taoP:  5.0  sol_deltaP:  6.0  sol_deltaP - sol_taoP:  1.0  cI_i:  1180139.0  sol_c_i:  1180139.0  sol_gp_i:  0.0  total work:  1186398.0  wasted work:  0.02374034683133316
    i:  2.0  l_i:  6.0  p_i:  18.0  aI_i:  8.0  sol_a_i:  8.0  sol_g_i:  0.0  d_i:  13.0  sol_taoi:  8.0  sol_deltai:  13.0  sol_deltai - sol_taoi:  5.0  sol_taoP:  8.0  sol_deltaP:  9.0  sol_deltaP - sol_taoP:  1.0  cI_i:  1067541.0  sol_c_i:  1067541.0  sol_gp_i:  0.0  total work:  1318220.0  wasted work:  0.9508238382060658
    i:  3.0  l_i:  5.0  p_i:  12.0  aI_i:  10.0  sol_a_i:  10.0  sol_g_i:  0.0  d_i:  16.0  sol_taoi:  10.0  sol_deltai:  17.0  sol_deltai - sol_taoi:  7.0  sol_taoP:  10.0  sol_deltaP:  12.0  sol_deltaP - sol_taoP:  2.0  cI_i:  1774663.0  sol_c_i:  1774663.0  sol_gp_i:  0.0  total work:  1845508.0  wasted work:  0.2687146303348455
    i:  4.0  l_i:  5.0  p_i:  19.0  aI_i:  17.0  sol_a_i:  17.0  sol_g_i:  0.0  d_i:  42.0  sol_taoi:  17.0  sol_deltai:  43.0  sol_deltai - sol_taoi:  26.0  sol_taoP:  17.0  sol_deltaP:  22.0  sol_deltaP - sol_taoP:  5.0  cI_i:  6675547.0  sol_c_i:  6675547.0  sol_gp_i:  0.0  total work:  6722922.0  wasted work:  0.17969307095932394
    i:  5.0  l_i:  6.0  p_i:  13.0  aI_i:  24.0  sol_a_i:  24.0  sol_g_i:  0.0  d_i:  45.0  sol_taoi:  24.0  sol_deltai:  42.0  sol_deltai - sol_taoi:  18.0  sol_taoP:  24.0  sol_deltaP:  27.0  sol_deltaP - sol_taoP:  3.0  cI_i:  4610200.0  sol_c_i:  4610200.0  sol_gp_i:  0.0  total work:  4745592.0  wasted work:  0.5135409870886498
    i:  6.0  l_i:  7.0  p_i:  6.0  aI_i:  24.0  sol_a_i:  26.875  sol_g_i:  0.575  d_i:  31.0  sol_taoi:  27.0  sol_deltai:  32.0  sol_deltai - sol_taoi:  5.0  sol_taoP:  27.0  sol_deltaP:  28.0  sol_deltaP - sol_taoP:  1.0  cI_i:  1202972.0  sol_c_i:  1202972.0  sol_gp_i:  0.0  total work:  1318220.0  wasted work:  0.43713492436770796
    i:  7.0  l_i:  7.0  p_i:  27.0  aI_i:  26.0  sol_a_i:  31.0  sol_g_i:  0.625  d_i:  45.0  sol_taoi:  31.0  sol_deltai:  50.0  sol_deltai - sol_taoi:  19.0  sol_taoP:  31.0  sol_deltaP:  36.0  sol_deltaP - sol_taoP:  5.0  cI_i:  4967771.0  sol_c_i:  5419143.000000002  sol_gp_i:  0.42801277480238653  total work:  5668346.0  wasted work:  0.9452253796786505
    i:  8.0  l_i:  5.0  p_i:  7.0  aI_i:  31.0  sol_a_i:  32.38095238095238  sol_g_i:  0.1380952380952381  d_i:  45.0  sol_taoi:  33.0  sol_deltai:  38.0  sol_deltai - sol_taoi:  5.0  sol_taoP:  33.0  sol_deltaP:  35.0  sol_deltaP - sol_taoP:  2.0  cI_i:  1090030.0  sol_c_i:  2144606.0  sol_gp_i:  1.0  total work:  2240974.0  wasted work:  0.3655232055347362
    i:  9.0  l_i:  7.0  p_i:  7.0  aI_i:  42.0  sol_a_i:  45.0  sol_g_i:  0.42857142857142855  d_i:  70.0  sol_taoi:  45.0  sol_deltai:  69.0  sol_deltai - sol_taoi:  24.0  sol_taoP:  45.0  sol_deltaP:  50.0  sol_deltaP - sol_taoP:  5.0  cI_i:  6115664.0  sol_c_i:  7250210.0  sol_gp_i:  0.614760813824703  total work:  7382032.0  wasted work:  0.5
    i:  10.0  l_i:  6.0  p_i:  14.0  aI_i:  43.0  sol_a_i:  50.0  sol_g_i:  1.0  d_i:  80.0  sol_taoi:  50.0  sol_deltai:  83.0  sol_deltai - sol_taoi:  33.0  sol_taoP:  50.0  sol_deltaP:  56.0  sol_deltaP - sol_taoP:  6.0  cI_i:  8590984.0  sol_c_i:  9095718.0  sol_gp_i:  0.9572264113729112  total work:  9095718.0  wasted work:  0.0
    i:  11.0  l_i:  6.0  p_i:  28.0  aI_i:  50.0  sol_a_i:  55.0  sol_g_i:  0.8333333333333334  d_i:  66.0  sol_taoi:  55.0  sol_deltai:  64.0  sol_deltai - sol_taoi:  9.0  sol_taoP:  55.0  sol_deltaP:  58.0  sol_deltaP - sol_taoP:  3.0  cI_i:  2266201.0  sol_c_i:  3057133.0  sol_gp_i:  0.6  total work:  3163728.0  wasted work:  0.4043141509004567
Time: 134.000000
```