```
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=34349

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_BDC.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_10_4.xlsx  instance by BDC

      Master protblem status =  2 , is Optimal
      sol_MP_obj =  412.0
The initial lb =  -inf       ub =  inf

The current iteration cnt =  0
      Dual problem status =  2 , is Optimal
      Add optimal cut
      Master protblem status =  2 , is Optimal
      Deterministic Sub problem Status=  2 , is Optimal
      lb =  442.37059990603194                ub =  442.37059990603194
      MPObj =  442.370599906032       MPObj_Remove_Hua =  437.0       DualSPObj =  5.370599906031966       Hua =  5.370599906031966       Deterministic_SP_SPObj =  319.0

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:  17.0   aI_i:  21.0      sol_a_i:  21.0  sol_g_i:  0.0   d_i:  36.0   sol_taoi:  21.0   sol_deltai:  36.0  sol_deltai - sol_taoi:  15.0  sol_taoP:  21.0  sol_deltaP:  23.0   sol_deltaP - sol_taoP:  2.0  cI_i:  3826582.0   sol_c_i:  3826582.0   sol_gp_i:  0.0  total work:  4218304.0   wasted work:  1.4857990320280379
    i:  1.0  l_i:  7.0   p_i:  17.0   aI_i:  39.0      sol_a_i:  39.0  sol_g_i:  0.0   d_i:  49.0   sol_taoi:  39.0   sol_deltai:  49.0  sol_deltai - sol_taoi:  10.0  sol_taoP:  39.0  sol_deltaP:  41.0   sol_deltaP - sol_taoP:  2.0  cI_i:  2443825.0   sol_c_i:  2443825.0   sol_gp_i:  0.0  total work:  2636440.0   wasted work:  0.7305874588460196
    i:  2.0  l_i:  4.0   p_i:  14.0   aI_i:  10.0      sol_a_i:  10.0  sol_g_i:  0.0   d_i:  19.0   sol_taoi:  10.0   sol_deltai:  19.0  sol_deltai - sol_taoi:  9.0   sol_taoP:  10.0  sol_deltaP:  13.0   sol_deltaP - sol_taoP:  3.0  cI_i:  2253819.0   sol_c_i:  2253819.0   sol_gp_i:  0.0  total work:  2372796.0   wasted work:  0.45127899743593636
    i:  3.0  l_i:  6.0   p_i:  23.0   aI_i:  10.0      sol_a_i:  10.0  sol_g_i:  0.0   d_i:  36.0   sol_taoi:  10.0   sol_deltai:  36.0  sol_deltai - sol_taoi:  26.0  sol_taoP:  10.0  sol_deltaP:  14.0   sol_deltaP - sol_taoP:  4.0  cI_i:  6632614.0   sol_c_i:  6632614.0   sol_gp_i:  0.0  total work:  6854744.0   wasted work:  0.8425376644262718
    i:  4.0  l_i:  7.0   p_i:  7.0   aI_i:  8.0       sol_a_i:  8.0   sol_g_i:  0.0   d_i:  18.0   sol_taoi:  8.0   sol_deltai:  18.0  sol_deltai - sol_taoi:  10.0  sol_taoP:  8.0   sol_deltaP:  10.0   sol_deltaP - sol_taoP:  2.0  cI_i:  2539421.0   sol_c_i:  2539421.0   sol_gp_i:  0.0  total work:  2636440.0   wasted work:  0.36799244435678413
    i:  5.0  l_i:  7.0   p_i:  0.0   aI_i:  4.0       sol_a_i:  5.0   sol_g_i:  0.2   d_i:  23.0   sol_taoi:  5.0   sol_deltai:  19.0  sol_deltai - sol_taoi:  14.0  sol_taoP:  5.0   sol_deltaP:  10.0   sol_deltaP - sol_taoP:  5.0  cI_i:  3672683.0   sol_c_i:  4938174.2   sol_gp_i:  0.8  total work:  5009236.0   wasted work:  0.2695369513434776
    i:  6.0  l_i:  7.0   p_i:  10.0   aI_i:  27.0      sol_a_i:  35.0  sol_g_i:  1.0   d_i:  51.0   sol_taoi:  35.0   sol_deltai:  57.0  sol_deltai - sol_taoi:  22.0  sol_taoP:  35.0  sol_deltaP:  38.0   sol_deltaP - sol_taoP:  3.0  cI_i:  5785684.0   sol_c_i:  6207514.4   sol_gp_i:  0.4  total work:  6327456.0   wasted work:  0.45493771904537794
    i:  7.0  l_i:  6.0   p_i:  4.0   aI_i:  23.0      sol_a_i:  29.0  sol_g_i:  0.6   d_i:  48.0   sol_taoi:  29.0   sol_deltai:  53.0  sol_deltai - sol_taoi:  24.0  sol_taoP:  29.0   sol_deltaP:  36.0   sol_deltaP - sol_taoP:  7.0  cI_i:  6213808.0   sol_c_i:  6424723.2   sol_gp_i:  0.2  total work:  6591100.0   wasted work:  0.6310661346360995
    i:  8.0  l_i:  6.0   p_i:  4.0   aI_i:  58.0      sol_a_i:  62.2  sol_g_i:  0.6   d_i:  73.0   sol_taoi:  63.0   sol_deltai:  74.0  sol_deltai - sol_taoi:  11.0  sol_taoP:  63.0   sol_deltaP:  69.0   sol_deltaP - sol_taoP:  6.0  cI_i:  2682121.0   sol_c_i:  4527629.0   sol_gp_i:  1.0  total work:  4745592.0   wasted work:  0.8267322601690158
    i:  9.0  l_i:  4.0   p_i:  0.0   aI_i:  46.0      sol_a_i:  50.2  sol_g_i:  0.6   d_i:  77.0   sol_taoi:  51.0   sol_deltai:  76.0  sol_deltai - sol_taoi:  25.0  sol_taoP:  51.0   sol_deltaP:  65.0   sol_deltaP - sol_taoP:  14.0   cI_i:  6550770.0   sol_c_i:  6867142.8   sol_gp_i:  0.6  total work:  7118388.0   wasted work:  0.9529714311723392

Optimal objective =  756.0

Time: 244.000000
```