```
"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=56796

import sys; print('Python %s on %s' % (sys.version, sys.platform))
sys.path.extend(['E:\\1 □□□□\\3 □□□□□□\\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_RO_BDC.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_9_1.xlsx  instance by BDC

        Master protblem status =  2 , is Optimal
        sol_MP_obj =  402.0
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 =  427.97479631885886                ub =  427.97479552216566
        MPObj =  427.97479631885886        MPObj_Remove_Hua =  422.0        DualSPObj =  5.974795522165638        Hua =  5.974796318858877        Deterministic_SP_SPObj =  274.0

ub - lb =  -7.966932003000693e-07

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:  -0.0    aI_i:  20.0        sol_a_i:  20.0  sol_g_i:  0.0    d_i:  45.0    sol_taoi:  20.0    sol_deltai:  45.0  sol_deltai - sol_taoi:  25.0  sol_taoP:  20.0  sol_deltaP:  27.0    sol_deltaP - sol_taoP:  7.0  cI_i:  6480487.0    sol_c_i:  6480487.0    sol_gp_i:  0.0  total work:  6591100.0    wasted work:  0.4195543991139567
    i:  1.0  l_i:  5.0    p_i:  12.0    aI_i:  4.0        sol_a_i:  4.0    sol_g_i:  0.0    d_i:  12.0    sol_taoi:  4.0    sol_deltai:  12.0  sol_deltai - sol_taoi:  8.0    sol_taoP:  4.0    sol_deltaP:  6.0    sol_deltaP - sol_taoP:  2.0  cI_i:  2048798.0    sol_c_i:  2048798.0    sol_gp_i:  0.0  total work:  2636440.0    wasted work:  2.2289223346634097
    i:  2.0  l_i:  7.0    p_i:  13.0    aI_i:  20.0        sol_a_i:  20.0  sol_g_i:  0.0    d_i:  50.0    sol_taoi:  20.0    sol_deltai:  50.0  sol_deltai - sol_taoi:  30.0  sol_taoP:  20.0  sol_deltaP:  30.0    sol_deltaP - sol_taoP:  10.0    cI_i:  7761436.0    sol_c_i:  7761436.0    sol_gp_i:  0.0  total work:  7909320.0    wasted work:  0.5609230629181775
    i:  3.0  l_i:  7.0    p_i:  6.0  aI_i:  29.0        sol_a_i:  29.0  sol_g_i:  0.0    d_i:  61.0    sol_taoi:  29.0    sol_deltai:  61.0  sol_deltai - sol_taoi:  32.0  sol_taoP:  29.0    sol_deltaP:  36.0    sol_deltaP - sol_taoP:  7.0  cI_i:  8409158.0    sol_c_i:  8409158.0    sol_gp_i:  0.0  total work:  8436608.0    wasted work:  0.10411767383289587
    i:  4.0  l_i:  6.0    p_i:  0.0  aI_i:  73.0        sol_a_i:  73.0  sol_g_i:  0.0    d_i:  82.0    sol_taoi:  73.0    sol_deltai:  82.0  sol_deltai - sol_taoi:  9.0    sol_taoP:  73.0    sol_deltaP:  76.0    sol_deltaP - sol_taoP:  3.0  cI_i:  2118580.0    sol_c_i:  2118580.0    sol_gp_i:  0.0  total work:  2372796.0    wasted work:  0.9642396565065012
    i:  5.0  l_i:  7.0    p_i:  27.0    aI_i:  18.0        sol_a_i:  19.0  sol_g_i:  0.2    d_i:  58.0    sol_taoi:  19.0    sol_deltai:  48.0  sol_deltai - sol_taoi:  29.0  sol_taoP:  19.0  sol_deltaP:  25.0    sol_deltaP - sol_taoP:  6.0  cI_i:  7457742.0    sol_c_i:  7463696.0    sol_gp_i:  0.4  total work:  7513854.0    wasted work:  0.1902489720987392
    i:  6.0  l_i:  7.0    p_i:  20.0    aI_i:  1.0        sol_a_i:  9.0    sol_g_i:  1.0    d_i:  41.0    sol_taoi:  9.0    sol_deltai:  37.0  sol_deltai - sol_taoi:  28.0  sol_taoP:  9.0    sol_deltaP:  14.0    sol_deltaP - sol_taoP:  5.0  cI_i:  7269633.0    sol_c_i:  7269633.0    sol_gp_i:  0.0  total work:  7645676.0    wasted work:  1.4263286856518638
    i:  7.0  l_i:  7.0    p_i:  20.0    aI_i:  39.0        sol_a_i:  45.0  sol_g_i:  0.6    d_i:  75.0    sol_taoi:  45.0    sol_deltai:  67.0  sol_deltai - sol_taoi:  22.0  sol_taoP:  45.0  sol_deltaP:  49.0    sol_deltaP - sol_taoP:  4.0  cI_i:  5588920.0    sol_c_i:  5654529.0    sol_gp_i:  1.0  total work:  6327456.0    wasted work:  2.5524077923260156
    i:  8.0  l_i:  6.0    p_i:  6.0  aI_i:  2.0        sol_a_i:  6.2    sol_g_i:  0.6    d_i:  29.0    sol_taoi:  7.0    sol_deltai:  20.0  sol_deltai - sol_taoi:  13.0  sol_taoP:  7.0    sol_deltaP:  11.0    sol_deltaP - sol_taoP:  4.0  cI_i:  3338904.0    sol_c_i:  3369880.0    sol_gp_i:  1.0  total work:  3427372.0    wasted work:  0.21806678703099636

Optimal objective =  696.0

Time: 69.000000
```