```
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=54585

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_14_5.xlsx  instance by BDC

        Master protblem status =  2 , is Optimal
        sol_MP_obj =  773.0
The initial lb =  -inf        ub =  inf

The current iteration cnt =  0
    Optimization was stopped with status 9
        Dual problem status =  9
        Add optimal cut
        Master protblem status =  2 , is Optimal
        Deterministic Sub problem Status=  2 , is Optimal
        lb =  812.5986247098841                ub =  812.5986247098841
        MPObj =  812.5986247098841      MPObj_Remove_Hua =  805.0       DualSPObj =  7.598624709884174        Hua =  7.598624709884176      Deterministic_SP_SPObj =  666.0

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: 5.0   p_i: 9.0  aI_i: 63.0       sol_a_i: 63.0  sol_g_i: 0.0    d_i: 83.0    sol_taoi: 63.0    sol_deltai: 85.0  sol_deltai - sol_taoi: 22.0   sol_taoP: 63.0    sol_deltaP: 72.0    sol_deltaP - sol_taoP: 9.0  cI_i: 5685627.0     sol_c_i: 5685627.0    sol_gp_i: 0.0  total work: 6063812.0    wasted work: 1.4344532779050538
    i: 1.0  l_i: 4.0   p_i: 20.0    aI_i: 48.0       sol_a_i: 48.0  sol_g_i: 0.0    d_i: 60.0    sol_taoi: 48.0    sol_deltai: 60.0  sol_deltai - sol_taoi: 12.0   sol_taoP: 48.0    sol_deltaP: 52.0    sol_deltaP - sol_taoP: 4.0  cI_i: 2966385.0     sol_c_i: 2966385.0    sol_gp_i: 0.0  total work: 3295550.0    wasted work: 1.2485207325029206
    i: 2.0  l_i: 7.0   p_i: 6.0  aI_i: 34.0       sol_a_i: 34.0  sol_g_i: 0.0    d_i: 58.0    sol_taoi: 34.0    sol_deltai: 58.0  sol_deltai - sol_taoi: 24.0   sol_taoP: 34.0    sol_deltaP: 42.0    sol_deltaP - sol_taoP: 8.0  cI_i: 6130067.0     sol_c_i: 6130067.0    sol_gp_i: 0.0  total work: 6195634.0    wasted work: 0.24869521020770433
    i: 3.0  l_i: 4.0   p_i: 0.0  aI_i: 24.0       sol_a_i: 24.0  sol_g_i: 0.0    d_i: 34.0    sol_taoi: 24.0    sol_deltai: 34.0  sol_deltai - sol_taoi: 10.0   sol_taoP: 24.0    sol_deltaP: 27.0    sol_deltaP - sol_taoP: 3.0  cI_i: 2526126.0     sol_c_i: 2526126.0    sol_gp_i: 0.0  total work: 2636440.0    wasted work: 0.4184202940328625
    i: 4.0  l_i: 6.0   p_i: 26.0    aI_i: 24.0       sol_a_i: 24.0  sol_g_i: 0.0    d_i: 37.0    sol_taoi: 24.0    sol_deltai: 37.0  sol_deltai - sol_taoi: 13.0   sol_taoP: 24.0    sol_deltaP: 29.0    sol_deltaP - sol_taoP: 5.0  cI_i: 3226521.0     sol_c_i: 3226521.0    sol_gp_i: 0.0  total work: 3295550.0    wasted work: 0.26182655398947063
    i: 5.0  l_i: 5.0   p_i: 4.0  aI_i: 12.0       sol_a_i: 12.0  sol_g_i: 0.0    d_i: 24.0    sol_taoi: 12.0    sol_deltai: 24.0  sol_deltai - sol_taoi: 12.0   sol_taoP: 12.0    sol_deltaP: 15.0    sol_deltaP - sol_taoP: 3.0  cI_i: 3071421.0     sol_c_i: 3071421.0    sol_gp_i: 0.0  total work: 3163728.0    wasted work: 0.350119858599719924
    i: 6.0  l_i: 7.0   p_i: 27.0    aI_i: 59.0       sol_a_i: 59.0  sol_g_i: 0.0    d_i: 68.0    sol_taoi: 59.0    sol_deltai: 68.0  sol_deltai - sol_taoi: 9.0    sol_taoP: 59.0    sol_deltaP: 61.0    sol_deltaP - sol_taoP: 2.0  cI_i: 2270212.0     sol_c_i: 2270212.0    sol_gp_i: 0.0  total work: 2636440.0    wasted work: 1.3891004536420324
    i: 7.0  l_i: 4.0   p_i: 5.0  aI_i: 64.0       sol_a_i: 65.0  sol_g_i: 0.2    d_i: 78.0    sol_taoi: 65.0    sol_deltai: 76.0  sol_deltai - sol_taoi: 11.0   sol_taoP: 65.0    sol_deltaP: 74.0    sol_deltaP - sol_taoP: 9.0  cI_i: 2842416.0     sol_c_i: 4107907.2    sol_gp_i: 0.8  total work: 4218304.0    wasted work: 0.4187343539014725
    i: 8.0  l_i: 7.0   p_i: 20.0    aI_i: 55.0       sol_a_i: 63.0  sol_g_i: 1.0    d_i: 77.0    sol_taoi: 63.0    sol_deltai: 78.0  sol_deltai - sol_taoi: 15.0   sol_taoP: 63.0    sol_deltaP: 66.0    sol_deltaP - sol_taoP: 3.0  cI_i: 3884867.0     sol_c_i: 3884867.0    sol_gp_i: 0.0  total work: 3954660.0    wasted work: 0.26472440108631334
    i: 9.0  l_i: 6.0   p_i: 20.0    aI_i: 17.0       sol_a_i: 23.0  sol_g_i: 0.6    d_i: 41.0    sol_taoi: 23.0    sol_deltai: 42.0  sol_deltai - sol_taoi: 19.0   sol_taoP: 23.0    sol_deltaP: 27.0    sol_deltaP - sol_taoP: 4.0  cI_i: 4769143.0     sol_c_i: 4980058.2    sol_gp_i: 0.2  total work: 5009236.0    wasted work: 0.11067120814431511
    i: 10.0   l_i: 6.0   p_i: 14.0    aI_i: 48.0       sol_a_i: 52.2  sol_g_i: 0.6    d_i: 72.0    sol_taoi: 53.0    sol_deltai: 72.0  sol_deltai - sol_taoi: 19.0   sol_taoP: 53.0    sol_deltaP: 58.0    sol_deltaP - sol_taoP: 5.0  cI_i: 4803133.0     sol_c_i: 6648641.0    sol_gp_i: 1.0  total work: 6986566.0    wasted work: 1.2817473562834731
    i: 11.0   l_i: 6.0   p_i: 0.0  aI_i: 34.0       sol_a_i: 38.2  sol_g_i: 0.6    d_i: 49.0    sol_taoi: 39.0    sol_deltai: 48.0  sol_deltai - sol_taoi: 9.0    sol_taoP: 39.0    sol_deltaP: 42.0    sol_deltaP - sol_taoP: 3.0  cI_i: 2293605.0     sol_c_i: 2293605.0    sol_gp_i: 0.0  total work: 2372796.0    wasted work: 0.30037095477234454
    i: 12.0   l_i: 5.0   p_i: 0.0  aI_i: 61.0       sol_a_i: 64.6  sol_g_i: 0.6    d_i: 74.0    sol_taoi: 65.0    sol_deltai: 75.0  sol_deltai - sol_taoi: 10.0   sol_taoP: 65.0    sol_deltaP: 69.0    sol_deltaP - sol_taoP: 4.0  cI_i: 2467068.0     sol_c_i: 3785288.0    sol_gp_i: 1.0  total work: 3954660.0    wasted work: 0.64242690901367
    i: 13.0   l_i: 7.0   p_i: 13.0    aI_i: 19.0       sol_a_i: 22.6  sol_g_i: 0.4    d_i: 49.0    sol_taoi: 23.0    sol_deltai: 48.0  sol_deltai - sol_taoi: 25.0   sol_taoP: 23.0    sol_deltaP: 32.0    sol_deltaP - sol_taoP: 9.0  cI_i: 6576381.0     sol_c_i: 8685533.0    sol_gp_i: 1.0  total work: 8832074.0    wasted work: 0.5558290725372093

Optimal objective =  1471.0

Time: 1456.000000
```