```
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=31839

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_13_5.xlsx  instance by BDC

        Master protblem status =  2 , is Optimal
        sol_MP_obj =  540.0
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 =  579.9403837934699                 ub =  579.9403837934699
        MPObj =  579.9403837934699      MPObj_Remove_Hua =  574.0       DualSPObj =  5.940383793469879        Hua =  5.940383793469879        Deterministic_SP_SPObj =  457.0

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: 28.0    al_i: 18.0       sol_a_i: 18.0  sol_g_i: 0.0    d_i: 33.0    sol_taoi: 18.0    sol_deltai: 33.0  sol_deltai - sol_taoi: 15.0  sol_taoP: 18.0  sol_deltaP: 21.0    sol_deltaP - sol_taoP: 3.0  cl_i: 3914279.0    sol_c_i: 3914279.0    sol_gp_i: 0.0  total work: 3954660.0    wasted work: 0.15316487384503347
    i: 1.0  l_i: 6.0    p_i: 10.0    al_i: 5.0        sol_a_i: 5.0    sol_g_i: 0.0    d_i: 14.0    sol_taoi: 5.0    sol_deltai: 14.0  sol_deltai - sol_taoi: 9.0    sol_taoP: 5.0    sol_deltaP: 8.0    sol_deltaP - sol_taoP: 3.0  cl_i: 2145887.0    sol_c_i: 2145887.0    sol_gp_i: 0.0  total work: 2504618.0    wasted work: 1.3606643807558678
    i: 2.0  l_i: 7.0    p_i: 0.0    al_i: 53.0       sol_a_i: 53.0  sol_g_i: 0.0    d_i: 69.0    sol_taoi: 53.0    sol_deltai: 69.0  sol_deltai - sol_taoi: 16.0  sol_taoP: 53.0    sol_deltaP: 59.0    sol_deltaP - sol_taoP: 6.0  cl_i: 4050162.0    sol_c_i: 4050162.0    sol_gp_i: 0.0  total work: 4218304.0    wasted work: 0.6377615269074964
    i: 3.0  l_i: 6.0    p_i: 10.0    al_i: 17.0       sol_a_i: 17.0  sol_g_i: 0.0    d_i: 34.0    sol_taoi: 17.0    sol_deltai: 34.0  sol_deltai - sol_taoi: 17.0  sol_taoP: 17.0  sol_deltaP: 21.0    sol_deltaP - sol_taoP: 4.0  cl_i: 4312057.0    sol_c_i: 4312057.0    sol_gp_i: 0.0  total work: 4350126.0    wasted work: 0.1443954726828602
    i: 4.0  l_i: 7.0    p_i: 7.0    al_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: 51.0    sol_deltaP - sol_taoP: 2.0  cl_i: 2288414.0    sol_c_i: 2288414.0    sol_gp_i: 0.0  total work: 3691016.0    wasted work: 5.32006038445783
    i: 5.0  l_i: 4.0    p_i: 6.0    al_i: 26.0       sol_a_i: 26.0  sol_g_i: 0.0    d_i: 37.0    sol_taoi: 31.0    sol_deltai: 42.0  sol_deltai - sol_taoi: 11.0  sol_taoP: 31.0    sol_deltaP: 37.0    sol_deltaP - sol_taoP: 6.0  cl_i: 2849691.0    sol_c_i: 2849691.0    sol_gp_i: 0.0  total work: 2900084.0    wasted work: 0.1911403255905691
    i: 6.0  l_i: 5.0    p_i: 7.0    al_i: 64.0       sol_a_i: 64.0  sol_g_i: 0.0    d_i: 81.0    sol_taoi: 64.0    sol_deltai: 81.0  sol_deltai - sol_taoi: 17.0  sol_taoP: 64.0    sol_deltaP: 71.0    sol_deltaP - sol_taoP: 7.0  cl_i: 4252831.0    sol_c_i: 4252831.0    sol_gp_i: 0.0  total work: 4350126.0    wasted work: 0.3690393105854865
    i: 7.0  l_i: 4.0    p_i: 6.0    al_i: 11.0       sol_a_i: 11.0  sol_g_i: 0.0    d_i: 31.0    sol_taoi: 11.0    sol_deltai: 30.0  sol_deltai - sol_taoi: 19.0  sol_taoP: 11.0    sol_deltaP: 17.0    sol_deltaP - sol_taoP: 6.0  cl_i: 4977301.0    sol_c_i: 6242792.2    sol_gp_i: 0.8  total work: 6327456.0    wasted work: 0.3211292500493082
    i: 8.0  l_i: 6.0    p_i: 0.0    al_i: 13.0       sol_a_i: 19.4  sol_g_i: 0.8    d_i: 24.0    sol_taoi: 20.0    sol_deltai: 30.0  sol_deltai - sol_taoi: 10.0  sol_taoP: 20.0    sol_deltaP: 24.0    sol_deltaP - sol_taoP: 4.0  cl_i: 2608325.0    sol_c_i: 2608325.0    sol_gp_i: 0.0  total work: 3163728.0    wasted work: 2.1066400145650954
    i: 9.0  l_i: 7.0    p_i: 12.0    al_i: 56.0       sol_a_i: 66.0  sol_g_i: 1.0    d_i: 77.0    sol_taoi: 66.0    sol_deltai: 83.0  sol_deltai - sol_taoi: 17.0  sol_taoP: 66.0  sol_deltaP: 72.0    sol_deltaP - sol_taoP: 6.0  cl_i: 4286932.0    sol_c_i: 4919677.6    sol_gp_i: 0.6  total work: 5272880.0    wasted work: 1.339694436437015
    i: 10.0  l_i: 6.0    p_i: 22.0    al_i: 24.0       sol_a_i: 24.0  sol_g_i: 0.0    d_i: 42.0    sol_taoi: 24.0    sol_deltai: 36.0  sol_deltai - sol_taoi: 12.0  sol_taoP: 24.0    sol_deltaP: 27.0    sol_deltaP - sol_taoP: 3.0  cl_i: 2975437.0    sol_c_i: 4820945.0    sol_gp_i: 1.0  total work: 4877414.0    wasted work: 0.2141865545963496
    i: 11.0  l_i: 6.0    p_i: 16.0    al_i: 17.0       sol_a_i: 24.0  sol_g_i: 1.0    d_i: 42.0    sol_taoi: 24.0    sol_deltai: 42.0  sol_deltai - sol_taoi: 18.0  sol_taoP: 24.0    sol_deltaP: 31.0    sol_deltaP - sol_taoP: 7.0  cl_i: 4493397.0    sol_c_i: 4598854.6    sol_gp_i: 0.2  total work: 4613770.0    wasted work: 0.056574016476765535
    i: 12.0  l_i: 5.0    p_i: 16.0    al_i: 9.0        sol_a_i: 13.8  sol_g_i: 0.8    d_i: 21.0    sol_taoi: 14.0    sol_deltai: 22.0  sol_deltai - sol_taoi: 8.0  sol_taoP: 14.0    sol_deltaP: 18.0    sol_deltaP - sol_taoP: 4.0  cl_i: 2031082.0    sol_c_i: 3349302.0    sol_gp_i: 1.0  total work: 3691016.0    wasted work: 1.2961190089666368

Optimal objective =  1031.0

Time: 488.000000
```