```
"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=38589

import sys; print('Python %s on %s' % (sys.version, sys.platform))
sys.path.extend(['E:\\1 □□□□\\3 □□□□□□\\1 □□□□□□□\\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_8_1.xlsx  instance by BDC

        Master protblem status =  2 , is Optimal
        sol_MP_obj =  287.0
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 =  305.15887830300295                ub =  305.15887830300295
        MPObj =  305.15887830300295        MPObj_Remove_Hua =  301.0        DualSPObj =  4.158878303002937        Hua =  4.158878303002936        Deterministic_SP_SPObj =  211.0

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:  13.0  al_i:  1.0  sol_a_i:  1.0  sol_g_i:  0.0  d_i:  12.0  sol_taoi:  1.0  sol_deltai:  12.0  sol_deltai - sol_taoi:  11.0  sol_taoP:  1.0  sol_deltaP:  5.0  sol_deltaP - sol_taoP:  4.0  cl_i:  2838079.0  sol_c_i:  2838079.0  sol_gp_i:  0.0  total work:  2900084.0  wasted work:  0.2351845670677125
    i:  1.0  l_i:  7.0  p_i:  6.0  al_i:  3.0  sol_a_i:  3.0  sol_g_i:  0.0  d_i:  24.0  sol_taoi:  3.0  sol_deltai:  23.0  sol_deltai - sol_taoi:  20.0  sol_taoP:  3.0  sol_deltaP:  8.0  sol_deltaP - sol_taoP:  5.0  cl_i:  5225121.0  sol_c_i:  5225121.0  sol_gp_i:  0.0  total work:  5272880.0  wasted work:  0.1811495804949098
    i:  2.0  l_i:  6.0  p_i:  18.0  al_i:  13.0  sol_a_i:  13.0  sol_g_i:  0.0  d_i:  40.0  sol_taoi:  13.0  sol_deltai:  37.0  sol_deltai - sol_taoi:  24.0  sol_taoP:  13.0  sol_deltaP:  18.0  sol_deltaP - sol_taoP:  5.0  cl_i:  6204790.0  sol_c_i:  6204790.0  sol_gp_i:  0.0  total work:  6459278.0  wasted work:  0.9652713507608746
    i:  3.0  l_i:  5.0  p_i:  24.0  al_i:  14.0  sol_a_i:  14.0  sol_g_i:  0.0  d_i:  24.0  sol_taoi:  14.0  sol_deltai:  26.0  sol_deltai - sol_taoi:  12.0  sol_taoP:  14.0  sol_deltaP:  17.0  sol_deltaP - sol_taoP:  3.0  cl_i:  2990355.0  sol_c_i:  2990355.0  sol_gp_i:  0.0  total work:  3559194.0  wasted work:  2.1576026763362717
    i:  4.0  l_i:  6.0  p_i:  0.0  al_i:  18.0  sol_a_i:  18.0  sol_g_i:  0.0  d_i:  34.0  sol_taoi:  18.0  sol_deltai:  37.0  sol_deltai - sol_taoi:  19.0  sol_taoP:  18.0  sol_deltaP:  28.0  sol_deltaP - sol_taoP:  10.0  cl_i:  4876117.0  sol_c_i:  4876117.0  sol_gp_i:  0.0  total work:  5009236.0  wasted work:  0.5049195126761845
    i:  5.0  l_i:  7.0  p_i:  11.0  al_i:  24.0  sol_a_i:  28.0  sol_g_i:  0.8  d_i:  50.0  sol_taoi:  28.0  sol_deltai:  55.0  sol_deltai - sol_taoi:  27.0  sol_taoP:  28.0  sol_deltaP:  35.0  sol_deltaP - sol_taoP:  7.0  cl_i:  6856681.0  sol_c_i:  8122172.2  sol_gp_i:  0.8  total work:  8700252.0  wasted work:  2.1926529714311718
    i:  6.0  l_i:  5.0  p_i:  6.0  al_i:  25.0  sol_a_i:  25.0  sol_g_i:  0.0  d_i:  43.0  sol_taoi:  25.0  sol_deltai:  39.0  sol_deltai - sol_taoi:  14.0  sol_taoP:  25.0  sol_deltaP:  33.0  sol_deltaP - sol_taoP:  8.0  cl_i:  3585255.0  sol_c_i:  3912573.494708167  sol_gp_i:  0.3103792374453498  total work:  3954660.0  wasted work:  0.159633844471458
    i:  7.0  l_i:  6.0  p_i:  0.0  al_i:  48.0  sol_a_i:  58.0  sol_g_i:  1.0  d_i:  62.0  sol_taoi:  58.0  sol_deltai:  72.0  sol_deltai - sol_taoi:  14.0  sol_taoP:  58.0  sol_deltaP:  67.0  sol_deltaP - sol_taoP:  9.0  cl_i:  3514769.0  sol_c_i:  4242026.50529183  sol_gp_i:  0.6896207625546475  total work:  4481948.0  wasted work:  0.9100206896730826

Optimal objective =  512.0

Time: 70.000000
```