```
1   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=18739
2
3   import sys; print('Python %s on %s' % (sys.version, sys.platform))
4   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'])
5
6   PyDev console: starting.
7
8   Python 3.9.7 (tags/v3.9.7:1016ef3, Aug 30 2021, 20:19:38) [MSC v.1929 64 bit (AMD64)] on win32
9   >>> 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')
10  Backend TkAgg is interactive backend. Turning interactive mode on.
11  Waiting 5s......
12
13  Optimize the  ./R_12_4.xlsx  instance by BDC
14
15      Master protblem status =  2 , is Optimal
16      sol_MP_obj =  466.0
17  The initial lb =  -inf      ub =  inf
18
19  The current iteration cnt =  0
20      Dual problem status =  2 , is Optimal
21      Add optimal cut
22      Master protblem status =  2 , is Optimal
23      Deterministic Sub problem Status=  2 , is Optimal
24      lb =  496.2447326206011            ub =  496.2447326206011
25      MPObj =  496.2447326206011     MPObj_Remove_Hua =  490.0     DualSPObj =  6.2447326206011216     Hua =  6.24473262060112
    Deterministic_SP_SPObj =  352.0
26
27  ub - lb =  0.0
28
29  Iteration cycle stopped by termination criterion 1: Because ub - lb <= eps, the iteration stop, and cnt =  0
30      i: 0.0  l_i: 6.0   p_i: 8.0  al_i: 1.0      sol_a_i: 1.0  sol_g_i: 0.0   d_i: 33.0  sol_taoi: 1.0  sol_deltai: 30.0 sol_deltai - sol_taoi: 29.0  sol_taoP: 1.0
    sol_deltaP: 6.0  sol_deltaP - sol_taoP: 5.0  cl_i: 7519252.0    sol_c_i: 7519252.0   sol_gp_i: 0.0  total work: 7645676.0   wasted work: 0.
    47952542064298825
31      i: 1.0  l_i: 6.0   p_i: 0.0  al_i: 5.0      sol_a_i: 5.0  sol_g_i: 0.0   d_i: 10.0  sol_taoi: 5.0  sol_deltai: 10.0 sol_deltai - sol_taoi: 5.0   sol_taoP: 5.0
    sol_deltaP: 7.0  sol_deltaP - sol_taoP: 2.0  cl_i: 1180139.0    sol_c_i: 1180139.0   sol_gp_i: 0.0  total work: 1318220.0   wasted work: 0.
    5237403468313332
32      i: 2.0  l_i: 6.0   p_i: 22.0  al_i: 8.0      sol_a_i: 8.0  sol_g_i: 0.0   d_i: 13.0  sol_taoi: 8.0  sol_deltai: 13.0 sol_deltai - sol_taoi: 5.0   sol_taoP: 8
    .0   sol_deltaP: 9.0  sol_deltaP - sol_taoP: 1.0  cl_i: 1067541.0    sol_c_i: 1067541.0   sol_gp_i: 0.0  total work: 1318220.0   wasted work: 0.
    9508238382060658
33      i: 3.0  l_i: 5.0   p_i: 14.0  al_i: 10.0      sol_a_i: 10.0  sol_g_i: 0.0   d_i: 16.0  sol_taoi: 10.0   sol_deltai: 17.0 sol_deltai - sol_taoi: 7.0   sol_taoP
    : 10.0  sol_deltaP: 12.0   sol_deltaP - sol_taoP: 2.0  cl_i: 1774663.0    sol_c_i: 1774663.0   sol_gp_i: 0.0  total work: 1845508.0   wasted work: 0.
    2687146303348455
34      i: 4.0  l_i: 5.0   p_i: 0.0  al_i: 17.0      sol_a_i: 17.0  sol_g_i: 0.0   d_i: 42.0  sol_taoi: 17.0   sol_deltai: 43.0 sol_deltai - sol_taoi: 26.0  sol_taoP:
    17.0   sol_deltaP: 24.0   sol_deltaP - sol_taoP: 7.0  cl_i: 6675547.0    sol_c_i: 6675547.0   sol_gp_i: 0.0  total work: 6854744.0   wasted work: 0.
    679693070959324
35      i: 5.0  l_i: 6.0   p_i: 14.0  al_i: 24.0      sol_a_i: 24.0  sol_g_i: 0.0   d_i: 45.0  sol_taoi: 24.0   sol_deltai: 42.0 sol_deltai - sol_taoi: 18.0  sol_taoP
    : 24.0  sol_deltaP: 27.0   sol_deltaP - sol_taoP: 3.0  cl_i: 4610200.0    sol_c_i: 4610200.0   sol_gp_i: 0.0  total work: 4745592.0   wasted work: 0.
    5135409870886498
36      i: 6.0  l_i: 7.0   p_i: 20.0  al_i: 24.0      sol_a_i: 28.0  sol_g_i: 0.8   d_i: 31.0  sol_taoi: 28.0   sol_deltai: 33.0 sol_deltai - sol_taoi: 5.0   sol_taoP
    : 28.0  sol_deltaP: 30.0   sol_deltaP - sol_taoP: 2.0  cl_i: 1202972.0    sol_c_i: 2468463.2   sol_gp_i: 0.8  total work: 2636440.0   wasted work: 0.
    6371349243677072
37      i: 7.0  l_i: 7.0   p_i: 27.0  al_i: 26.0      sol_a_i: 29.2  sol_g_i: 0.4   d_i: 45.0  sol_taoi: 30.0   sol_deltai: 49.0 sol_deltai - sol_taoi: 19.0  sol_taoP
    : 30.0  sol_deltaP: 34.0   sol_deltaP - sol_taoP: 4.0  cl_i: 4967771.0    sol_c_i: 4967771.0   sol_gp_i: 0.0  total work: 5272880.0   wasted work: 1.
    1572764788881977
38      i: 8.0  l_i: 5.0   p_i: 5.0  al_i: 31.0      sol_a_i: 31.0  sol_g_i: 0.0   d_i: 45.0  sol_taoi: 31.0   sol_deltai: 36.0 sol_deltai - sol_taoi: 5.0   sol_taoP:
    31.0   sol_deltaP: 33.0   sol_deltaP - sol_taoP: 2.0  cl_i: 1090030.0    sol_c_i: 1722775.6   sol_gp_i: 0.6  total work: 1845508.0   wasted work: 0.
    46552320553473586
39      i: 9.0  l_i: 7.0   p_i: 16.0  al_i: 42.0      sol_a_i: 49.0  sol_g_i: 1.0   d_i: 70.0  sol_taoi: 49.0   sol_deltai: 73.0 sol_deltai - sol_taoi: 24.0  sol_taoP
    : 49.0  sol_deltaP: 55.0   sol_deltaP - sol_taoP: 6.0  cl_i: 6115664.0    sol_c_i: 7961172.0   sol_gp_i: 1.0  total work: 8172964.0   wasted work: 0.
    8033256967729211
40      i: 10.0   l_i: 6.0   p_i: 0.0  al_i: 43.0      sol_a_i: 45.8  sol_g_i: 0.4   d_i: 80.0  sol_taoi: 46.0   sol_deltai: 79.0 sol_deltai - sol_taoi: 33.0  sol_taoP
    : 46.0  sol_deltaP: 55.0   sol_deltaP - sol_taoP: 9.0  cl_i: 8590984.0    sol_c_i: 8696441.6   sol_gp_i: 0.2  total work: 8700252.0   wasted work: 0.
    014452822745825327
41      i: 11.0   l_i: 6.0   p_i: 6.0  al_i: 50.0      sol_a_i: 56.0  sol_g_i: 1.0   d_i: 66.0  sol_taoi: 56.0   sol_deltai: 65.0 sol_deltai - sol_taoi: 9.0   sol_taoP
    : 56.0  sol_deltaP: 60.0   sol_deltaP - sol_taoP: 4.0  cl_i: 2266201.0    sol_c_i: 3584421.0   sol_gp_i: 1.0  total work: 3691016.0   wasted work: 0.
    4043141509004567
42
43  Optimal objective =  842.0
44
45  Time: 150.000000
46
47
48
49
```