```
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=32992
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_CCG.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_11_5.xlsx  instance by CCG
14
15     Master protblem status =  2 , is Optimal and MP obj =  440.0
16 The initial lb =  -inf      ub =  inf
17
18 The current iteration cnt =  0
19     The SP model was solved Optimal 2 and SPObj =  440.0
20     Master protblem status =  2 , is Optimal
21     Deterministic Sub problem Status=  2 , is Optimal
22     lb =  796.0               ub =  796.0
23      MPObj =  796.0     MP_delete_Hua_Obj =  463.0      Hua =  333.0      SPObj =  440.0      Deter_SP_Obj =  333.0
24
25 ub - lb =  0.0
26
27 Iteration cycle stopped by termination criterion 1: Because ub - lb <= eps, the iteration stop, and cnt =  0
28    i: 0.0  l_i: 5.0   p_i: 9.0  al_i: 5.0        sol_a_i: 5.0   sol_g_i: 0.0   d_i: 15.0   sol_taoi: 5.0  sol_deltai: 12.0 sol_deltai - sol_taoi: 7.0    sol_taoP: 5.0
   sol_deltaP: 7.0  sol_deltaP - sol_taoP: 2.0  cl_i: 1685347.0    sol_c_i: 1685347.0    sol_gp_i: 0.0  total work: 1845508.0   wasted work: 0.
   6074896451275205
29    i: 1.0  l_i: 5.0   p_i: 14.0   al_i: 2.0        sol_a_i: 2.0   sol_g_i: 0.0   d_i: 15.0   sol_taoi: 2.0   sol_deltai: 15.0 sol_deltai - sol_taoi: 13.0  sol_taoP: 2
   .0   sol_deltaP: 5.0  sol_deltaP - sol_taoP: 3.0  cl_i: 3325804.0    sol_c_i: 3325804.0    sol_gp_i: 0.0  total work: 3427372.0   wasted work: 0.
   3852467721624615
30    i: 2.0  l_i: 6.0   p_i: 8.0  al_i: 14.0       sol_a_i: 14.0  sol_g_i: 0.0   d_i: 36.0   sol_taoi: 14.0   sol_deltai: 37.0  sol_deltai - sol_taoi: 23.0  sol_taoP:
   14.0   sol_deltaP: 18.0    sol_deltaP - sol_taoP: 4.0   cl_i: 6030336.0    sol_c_i: 6030336.0    sol_gp_i: 0.0  total work: 6063812.0   wasted work: 0.
   12697425315956365
31    i: 3.0  l_i: 5.0   p_i: 3.0  al_i: 14.0       sol_a_i: 14.0  sol_g_i: 0.0   d_i: 25.0   sol_taoi: 14.0    sol_deltai: 21.0  sol_deltai - sol_taoi: 7.0    sol_taoP:
   14.0   sol_deltaP: 16.0    sol_deltaP - sol_taoP: 2.0   cl_i: 1637737.0    sol_c_i: 1637737.0    sol_gp_i: 0.0  total work: 1845508.0   wasted work: 0.
   7880740695786743
32    i: 4.0  l_i: 5.0   p_i: 14.0   al_i: 20.0       sol_a_i: 20.0  sol_g_i: 0.0   d_i: 44.0   sol_taoi: 20.0    sol_deltai: 41.0  sol_deltai - sol_taoi: 21.0  sol_taoP
   : 20.0  sol_deltaP: 25.0    sol_deltaP - sol_taoP: 5.0  cl_i: 5351141.0    sol_c_i: 5351141.0    sol_gp_i: 0.0  total work: 5536524.0   wasted work: 0.
   7031565292591525
33    i: 5.0  l_i: 7.0   p_i: 19.0   al_i: 24.0       sol_a_i: 24.0  sol_g_i: 0.0   d_i: 30.0   sol_taoi: 24.0    sol_deltai: 29.0  sol_deltai - sol_taoi: 5.0    sol_taoP
   : 24.0  sol_deltaP: 25.0    sol_deltaP - sol_taoP: 1.0  cl_i: 1201427.0    sol_c_i: 1201427.0    sol_gp_i: 0.0  total work: 1318220.0   wasted work: 0.
   4429950994522917
34    i: 6.0  l_i: 6.0   p_i: 26.0   al_i: 29.0       sol_a_i: 29.0  sol_g_i: 0.0   d_i: 48.0   sol_taoi: 29.0    sol_deltai: 47.0  sol_deltai - sol_taoi: 18.0  sol_taoP
   : 29.0  sol_deltaP: 33.0    sol_deltaP - sol_taoP: 4.0  cl_i: 4500077.0    sol_c_i: 5272880.0    sol_gp_i: 0.48853946989121694 total work: 5272880.0
   wasted work: 0.0
35    i: 7.0  l_i: 5.0   p_i: 9.0  al_i: 34.0       sol_a_i: 41.0  sol_g_i: 0.8750000000000029 d_i: 63.0   sol_taoi: 41.0    sol_deltai: 70.0 sol_deltai - sol_taoi:
   29.0    sol_taoP: 41.0   sol_deltaP: 47.0    sol_deltaP - sol_taoP: 6.0  cl_i: 7630244.0    sol_c_i: 8230920.714285715    sol_gp_i: 0.5695907305739125
   total work: 8304786.0    wasted work: 0.28017055466570623
36    i: 8.0  l_i: 5.0   p_i: 19.0   al_i: 34.0       sol_a_i: 36.0  sol_g_i: 0.2   d_i: 43.0   sol_taoi: 36.0    sol_deltai: 43.0  sol_deltai - sol_taoi: 7.0    sol_taoP
   : 36.0  sol_deltaP: 38.0    sol_deltaP - sol_taoP: 2.0  cl_i: 1705681.0    sol_c_i: 2372796.0    sol_gp_i: 0.6325907284064876    total work: 2636440.0
   wasted work: 1.0
37    i: 9.0  l_i: 5.0   p_i: 14.0   al_i: 47.0       sol_a_i: 53.47499999999992   sol_g_i: 0.9249999999999885 d_i: 66.0   sol_taoi: 54.0    sol_deltai: 74.0
   sol_deltai - sol_taoi: 20.0  sol_taoP: 54.0    sol_deltaP: 58.0    sol_deltaP - sol_taoP: 4.0  cl_i: 5229391.0    sol_c_i: 5800168.0    sol_gp_i: 0.
   3092790711283831    total work: 5800168.0   wasted work: 0.0
38    i: 10.0   l_i: 6.0   p_i: 19.0   al_i: 50.0       sol_a_i: 57.0  sol_g_i: 1.0   d_i: 68.0   sol_taoi: 57.0    sol_deltai: 74.0  sol_deltai - sol_taoi: 17.0
   sol_taoP: 57.0   sol_deltaP: 61.0    sol_deltaP - sol_taoP: 4.0  cl_i: 4322611.0    sol_c_i: 4849899.0    sol_gp_i: 1.0  total work: 4877414.0    wasted work
   : 0.10436421841574244
39 Time: 149.000000
40
41
42
43
```