```
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=34463
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_10_4.xlsx  instance by CCG
14
15     Master protblem status = 2 , is Optimal and MP obj = 412.0
16 The initial lb = -inf      ub = inf
17
18 The current iteration cnt = 0
19     The SP model was solved Optimal 2 and SPObj = 412.0
20     Master protblem status = 2 , is Optimal
21     Deterministic Sub problem Status= 2 , is Optimal
22     lb = 739.0              ub = 739.0
23      MPObj = 739.0    MP_delete_Hua_Obj = 436.0      Hua = 303.0      SPObj = 412.0      Deter_SP_Obj = 303.0
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: 6.0  p_i: 27.0  al_i: 21.0     sol_a_i: 21.0 sol_g_i: 0.0  d_i: 36.0  sol_taoi: 21.0   sol_deltai: 36.0  sol_deltai - sol_taoi: 15.0 sol_taoP
   : 21.0 sol_deltaP: 24.0    sol_deltaP - sol_taoP: 3.0  cl_i: 3826582.0    sol_c_i: 3826582.0  sol_gp_i: 0.0 total work: 3954660.0   wasted work: 0.
   4857990320280378
29    i: 1.0  l_i: 7.0  p_i: 27.0  al_i: 39.0     sol_a_i: 39.0 sol_g_i: 0.0  d_i: 49.0  sol_taoi: 39.0   sol_deltai: 49.0  sol_deltai - sol_taoi: 10.0  sol_taoP
   : 39.0 sol_deltaP: 41.0    sol_deltaP - sol_taoP: 2.0  cl_i: 2443825.0    sol_c_i: 2443825.0  sol_gp_i: 0.0 total work: 2636440.0   wasted work: 0.
   7305874588460196
30    i: 2.0  l_i: 4.0  p_i: 30.0  al_i: 10.0     sol_a_i: 10.0 sol_g_i: 0.0  d_i: 19.0  sol_taoi: 10.0   sol_deltai: 19.0  sol_deltai - sol_taoi: 9.0   sol_taoP
   : 10.0 sol_deltaP: 12.0    sol_deltaP - sol_taoP: 2.0  cl_i: 2253819.0    sol_c_i: 2253819.0  sol_gp_i: 0.0 total work: 2636440.0   wasted work: 1.
   4512789974359364
31    i: 3.0  l_i: 6.0  p_i: 8.0  al_i: 10.0     sol_a_i: 10.0 sol_g_i: 0.0  d_i: 36.0  sol_taoi: 10.0   sol_deltai: 36.0  sol_deltai - sol_taoi: 26.0  sol_taoP:
   10.0   sol_deltaP: 15.0    sol_deltaP - sol_taoP: 5.0  cl_i: 6632614.0    sol_c_i: 6632614.0  sol_gp_i: 0.0 total work: 6722922.0   wasted work: 0.
   3425376644262718
32    i: 4.0  l_i: 7.0  p_i: 14.0  al_i: 8.0     sol_a_i: 8.0  sol_g_i: 0.0  d_i: 18.0  sol_taoi: 8.0  sol_deltai: 18.0  sol_deltai - sol_taoi: 10.0  sol_taoP: 8
   .0    sol_deltaP: 10.0    sol_deltaP - sol_taoP: 2.0  cl_i: 2539421.0    sol_c_i: 2539421.0  sol_gp_i: 0.0 total work: 3031906.0   wasted work: 1.
   8679924443567841
33    i: 5.0  l_i: 7.0  p_i: 22.0  al_i: 4.0     sol_a_i: 5.0  sol_g_i: 0.2  d_i: 23.0  sol_taoi: 5.0  sol_deltai: 19.0  sol_deltai - sol_taoi: 14.0  sol_taoP: 5
   .0    sol_deltaP: 7.0  sol_deltaP - sol_taoP: 2.0  cl_i: 3672683.0    sol_c_i: 3989055.8  sol_gp_i: 0.2 total work: 4218304.0   wasted work: 0.
   8695369513434791
34    i: 6.0  l_i: 7.0  p_i: 14.0  al_i: 27.0     sol_a_i: 35.0 sol_g_i: 1.0  d_i: 51.0  sol_taoi: 35.0   sol_deltai: 57.0 sol_deltai - sol_taoi: 22.0  sol_taoP
   : 35.0 sol_deltaP: 38.0    sol_deltaP - sol_taoP: 3.0  cl_i: 5785684.0    sol_c_i: 6840260.0  sol_gp_i: 1.0 total work: 6854744.0   wasted work: 0.
   05493771904537938
35    i: 7.0  l_i: 6.0  p_i: 21.0  al_i: 23.0     sol_a_i: 28.142857142857142 sol_g_i: 0.5142857142857142  d_i: 48.0  sol_taoi: 29.0   sol_deltai: 53.0
   sol_deltai - sol_taoi: 24.0  sol_taoP: 29.0  sol_deltaP: 33.0    sol_deltaP - sol_taoP: 4.0  cl_i: 6213808.0    sol_c_i: 6782264.8  sol_gp_i: 0.
   5390382485472837   total work: 7250210.0   wasted work: 1.7749131404469671
36    i: 8.0  l_i: 6.0  p_i: 8.0  al_i: 58.0     sol_a_i: 62.0 sol_g_i: 0.5714285714285714  d_i: 73.0  sol_taoi: 62.0   sol_deltai: 73.0 sol_deltai - sol_taoi:
   11.0   sol_taoP: 62.0  sol_deltaP: 64.0    sol_deltaP - sol_taoP: 2.0  cl_i: 2682121.0    sol_c_i: 3163727.9999999995 sol_gp_i: 0.2609617514527164
   total work: 3163728.0    wasted work: 1.766250274262791e-15
37    i: 9.0  l_i: 4.0  p_i: 27.0  al_i: 46.0     sol_a_i: 51.0 sol_g_i: 0.7142857142857143  d_i: 77.0  sol_taoi: 51.0   sol_deltai: 76.0 sol_deltai -
   sol_taoi: 25.0 sol_taoP: 51.0  sol_deltaP: 59.0    sol_deltaP - sol_taoP: 8.0  cl_i: 6550770.0    sol_c_i: 7078058.0  sol_gp_i: 1.0 total work: 7250210.0
   wasted work: 0.6529714311723385
38 Time: 94.000000
39
40
41
42
```