```
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=33663

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_CCG.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_12_3.xlsx  instance by CCG

        Master protblem status =  2 , is Optimal and MP obj =  650.0
The initial lb =  -inf        ub =  inf

The current iteration cnt =  0
        The SP model was solved Optimal 2 and SPObj =  650.0
        Master protblem status =  2 , is Optimal
        Deterministic Sub problem Status=  2 , is Optimal
        lb =  1203.0                    ub =  1203.0
         MPObj =  1203.0        MP_delete_Hua_Obj =  676.0        Hua =  527.0        SPObj =  650.0        Deter_SP_Obj =  527.0

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: 4.0  p_i: 18.0  aI_i: 20.0  sol_a_i: 20.0  sol_g_i: 0.0  d_i: 40.0  sol_taoi: 20.0  sol_deltai: 40.0  sol_deltai - sol_taoi: 20.0  sol_taoP: 20.0  sol_deltaP: 24.0  sol_deltaP - sol_taoP: 4.0  cI_i: 5130207.0  sol_c_i: 5130207.0  sol_gp_i: 0.0  total work: 5141058.0  wasted work: 0.04115777336104747
    i: 1.0  l_i: 7.0  p_i: 27.0  aI_i: 18.0  sol_a_i: 18.0  sol_g_i: 0.0  d_i: 35.0  sol_taoi: 18.0  sol_deltai: 35.0  sol_deltai - sol_taoi: 17.0  sol_taoP: 18.0  sol_deltaP: 22.0  sol_deltaP - sol_taoP: 4.0  cI_i: 4417900.0  sol_c_i: 4417900.0  sol_gp_i: 0.0  total work: 4481948.0  wasted work: 0.2429336529562592
    i: 2.0  l_i: 4.0  p_i: 10.0  aI_i: 63.0  sol_a_i: 63.0  sol_g_i: 0.0  d_i: 83.0  sol_taoi: 63.0  sol_deltai: 84.0  sol_deltai - sol_taoi: 21.0  sol_taoP: 63.0  sol_deltaP: 69.0  sol_deltaP - sol_taoP: 6.0  cI_i: 5501150.0  sol_c_i: 5501150.0  sol_gp_i: 0.0  total work: 5536524.0  wasted work: 0.13417335497868338
    i: 3.0  l_i: 7.0  p_i: 19.0  aI_i: 54.0  sol_a_i: 54.0  sol_g_i: 0.0  d_i: 78.0  sol_taoi: 54.0  sol_deltai: 78.0  sol_deltai - sol_taoi: 24.0  sol_taoP: 54.0  sol_deltaP: 57.0  sol_deltaP - sol_taoP: 3.0  cI_i: 6074377.0  sol_c_i: 6074377.0  sol_gp_i: 0.0  total work: 6327456.0  wasted work: 0.9599270228034774
    i: 4.0  l_i: 6.0  p_i: 8.0  aI_i: 40.0  sol_a_i: 40.0  sol_g_i: 0.0  d_i: 49.0  sol_taoi: 40.0  sol_deltai: 49.0  sol_deltai - sol_taoi: 9.0  sol_taoP: 40.0  sol_deltaP: 43.0  sol_deltaP - sol_taoP: 3.0  cI_i: 2354017.0  sol_c_i: 2354017.0  sol_gp_i: 0.0  total work: 2768262.0  wasted work: 1.571228626481164
    i: 5.0  l_i: 7.0  p_i: 0.0  aI_i: 61.0  sol_a_i: 61.0  sol_g_i: 0.0  d_i: 83.0  sol_taoi: 61.0  sol_deltai: 83.0  sol_deltai - sol_taoi: 22.0  sol_taoP: 61.0  sol_deltaP: 67.0  sol_deltaP - sol_taoP: 6.0  cI_i: 5725327.0  sol_c_i: 5725327.0  sol_gp_i: 0.0  total work: 5800168.0  wasted work: 0.2838714326895359
    i: 6.0  l_i: 6.0  p_i: 0.0  aI_i: 21.0  sol_a_i: 24.333333333333332  sol_g_i: 0.6666666666666666  d_i: 34.0  sol_taoi: 25.0  sol_deltai: 34.0  sol_deltai - sol_taoi: 9.0  sol_taoP: 25.0  sol_deltaP: 28.0  sol_deltaP - sol_taoP: 3.0  cI_i: 2264664.0  sol_c_i: 2372796.0  sol_gp_i: 0.06835733033939706  total work: 2636440.0  wasted work: 1.0
    i: 7.0  l_i: 5.0  p_i: 22.0  aI_i: 28.0  sol_a_i: 32.0  sol_g_i: 0.5  d_i: 39.0  sol_taoi: 32.0  sol_deltai: 41.0  sol_deltai - sol_taoi: 9.0  sol_taoP: 32.0  sol_deltaP: 34.0  sol_deltaP - sol_taoP: 2.0  cI_i: 2354218.0  sol_c_i: 3125790.8  sol_gp_i: 0.731642669660603  total work: 3163728.0  wasted work: 0.14389555612871974
    i: 8.0  l_i: 5.0  p_i: 14.0  aI_i: 53.0  sol_a_i: 59.0  sol_g_i: 0.6  d_i: 70.0  sol_taoi: 59.0  sol_deltai: 76.0  sol_deltai - sol_taoi: 17.0  sol_taoP: 59.0  sol_deltaP: 65.0  sol_deltaP - sol_taoP: 6.0  cI_i: 4419180.0  sol_c_i: 5473756.0  sol_gp_i: 1.0  total work: 5536524.0  wasted work: 0.23807862117097298
    i: 9.0  l_i: 7.0  p_i: 7.0  aI_i: 21.0  sol_a_i: 21.0  sol_g_i: 0.0  d_i: 40.0  sol_taoi: 21.0  sol_deltai: 39.0  sol_deltai - sol_taoi: 18.0  sol_taoP: 21.0  sol_deltaP: 27.0  sol_deltaP - sol_taoP: 6.0  cI_i: 4635974.0  sol_c_i: 5668346.0  sol_gp_i: 0.559397195785659  total work: 5800168.0  wasted work: 0.5
    i: 10.0  l_i: 4.0  p_i: 14.0  aI_i: 25.0  sol_a_i: 32.0  sol_g_i: 1.0  d_i: 48.0  sol_taoi: 32.0  sol_deltai: 54.0  sol_deltai - sol_taoi: 22.0  sol_taoP: 32.0  sol_deltaP: 37.0  sol_deltaP - sol_taoP: 5.0  cI_i: 5710686.0  sol_c_i: 6035818.971428571  sol_gp_i: 0.6166136370040114  total work: 6195634.0  wasted work: 0.606177377719306
    i: 11.0  l_i: 7.0  p_i: 27.0  aI_i: 43.0  sol_a_i: 48.0  sol_g_i: 0.8333333333333334  d_i: 60.0  sol_taoi: 48.0  sol_deltai: 63.0  sol_deltai - sol_taoi: 15.0  sol_taoP: 48.0  sol_deltaP: 54.0  sol_deltaP - sol_taoP: 6.0  cI_i: 3923037.0  sol_c_i: 4745592.0  sol_gp_i: 0.623989167210329  total work: 5536524.0  wasted work: 3.0
Time: 5687.000000
```