```
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=50347
 3
   import sys; print('Python %s on %s' % (sys.version, sys.platform))
   6
   PyDev console: starting.
 8 Python 3.9.7 (tags/v3.9.7:1016ef3, Aug 30 2021, 20:19:38) [MSC v.1929 64 bit (AMD64)] on win32
   main RO CCG.py', wdir='E:/1 0000/3 00000/1 000000/1 0000000/1 000000/1 LW 00001/4 0000/3 python_code/9 Code for
10 Backend TkAgg is interactive backend. Turning interactive mode on.
   Waiting 5s.....
   Optimize the ./R 14 4.xlsx instance by CCG
13
14
15
        Master protblem status = 2, is Optimal and MP obj = 469.0
16
   The initial lb = -inf
                        ub = inf
17
18
   The current iteration cnt = 0
19
        The SP model was solved Optimal 2 and SPObj = 469.0
20
        Master protblem status = 2, is Optimal
21
        Deterministic Sub problem Status= 2, is Optimal
22
        1b = 888.0
                             ub = 888.0
        MPObj = 888.0
                         MP delete Hua Obj = 498.0
                                                        Hua = 390.0
                                                                       SPObj = 469.0
                                                                                         Deter SP Obj = 390.0
24
   ub - 1b = 0.0
25
26
27 Iteration cycle stopped by termination criterion 1: Because ub - lb \leq eps, the iteration stop, and cnt = 0
      i: 0.0 1_i: 5.0 p_i: 20.0 aI_i: 3.0 sol_a_i: 3.0 sol_g_i: 0.0 d_i: 13.0 sol_taoi: 3.0 sol_deltai: 12.0 sol_deltai - sol_taoi: 9.0 sol_taoP: 3
        sol_deltaP: 5.0 sol_deltaP - sol_taoP: 2.0 cl_i: 2121353.0 sol_c_i: 2121353.0 sol_gp_i: 0.0 total work: 2372796.0 wasted work: 0.
    9537216853029085
29
      i: 1.0 1 i: 6.0 p i: 9.0 aI i: 7.0
                                          sol_a_i: 7.0 sol_g_i: 0.0 d_i: 15.0 sol_taoi: 7.0 sol_deltai: 14.0 sol_deltai - sol_taoi: 7.0 sol_taoP: 7.0
      sol_deltaP: 9.0 sol_deltaP - sol_taoP: 2.0 cl_i: 1695202.0 sol_c i: 1695202.0 sol_gp_i: 0.0 total work: 1713686.0 wasted work: 0.
   0701096933743988
     i: 2.0 1 i: 5.0 p i: 25.0 aI i: 9.0
                                             sol a i: 9.0 sol g i: 0.0 d i: 21.0 sol taoi: 9.0 sol deltai: 20.0 sol deltai - sol taoi: 11.0 sol taoP: 9
       sol_deltaP: 11.0 sol_deltaP - sol_taoP: 2.0 cl_i: 2765581.0 sol_c_i: 2765581.0 sol_gp_i: 0.0 total work: 2900084.0 wasted work: 0.
   5101690157940253
      i: 3.0 1_i: 5.0 p_i: 15.0 aI_i: 11.0
31
                                             sol_a_i: 11.0 sol_g_i: 0.0 d_i: 26.0 sol_taoi: 11.0 sol_deltai: 25.0 sol_deltai - sol_taoi: 14.0 sol_taoP
     11.0 sol deltaP: 14.0 sol deltaP - sol taoP: 3.0 cI i: 3509310.0 sol c i: 3509310.0 sol gp i: 0.0 total work: 3559194.0 wasted work: 0.
    18920969185720138
      i: 4.0 1_i: 5.0 p_i: 20.0 aI_i: 15.0
                                             sol_a_i: 15.0 sol_g_i: 0.0 d_i: 28.0 sol_taoi: 15.0 sol_deltai: 27.0 sol_deltai - sol_taoi: 12.0 sol_taoP
     15.0 sol_deltaP: 17.0 sol_deltaP - sol_taoP: 2.0 cl_i: 2945796.0 sol_c_i: 2945796.0 sol_gp_i: 0.0 total work: 3031906.0 wasted work: 0.
   3266146773679659
33
                                         sol_a_i: 19.0 sol_g_i: 0.0 d_i: 27.0 sol_taoi: 19.0 sol_deltai: 26.0 sol_deltai - sol_taoi: 7.0 sol_taoP:
      i: 5.0 l_i: 7.0 p_i: 7.0 al_i: 19.0
          sol_deltaP: 21.0 sol_deltaP - sol_taoP: 2.0 cI_i: 1674800.0 sol_c_i: 1674800.0 sol_gp_i: 0.0 total work: 1845508.0 wasted work: 0.
   6474943484395624
                                             sol_a_i: 22.0 sol_g_i: 0.0 d_i: 32.0 sol_taoi: 22.0 sol_deltai: 31.0 sol deltai - sol taoi: 9.0 sol taoP
      i: 6.0 1_i: 5.0 p_i: 29.0 aI_i: 22.0
34
     22.0 sol deltaP: 24.0 sol deltaP - sol taoP: 2.0 cl i: 2274101.0 sol c i: 2274101.0 sol gp i: 0.0 total work: 2636440.0 wasted work: 1.
   i: 7.0 l_i: 5.0 p_i: 23.0 al_i: 26.0 sol_a_i: 30.0 sol_g_i: 0.8 d_i: 49.0 sol_taoi: 30.0 sol_deltai: 42.0 sol_deltai - sol_taoi: 12.0 sol_taoi: 30.0 sol_deltaP - sol_taoi: 20.0 cl_i: 3017973.0 sol_c_i: 3163728.0 sol_gp_i: 0.09214129659692616 total work: 3163728.0
                                           sol a i: 30.0 sol g i: 0.8 d i: 49.0 sol taoi: 30.0 sol deltai: 42.0 sol deltai - sol taoi: 12.0 sol taoP
35
                                             sol a i: 31.0 sol g i: 0.25 d i: 53.0 sol taoi: 31.0 sol deltai: 38.0 sol deltai - sol taoi: 7.0 sol taoP
      i: 8.0 1 i: 5.0 p i: 18.0 aI i: 29.0
    : 31.0 sol deltaP: 33.0 sol deltaP - sol taoP: 2.0 cl i: 1586573.0 sol c i: 2333063.8 sol gp i: 0.7078587034030739 total work: 2372796.0
    wasted work: 0.1507039796088672
     i: 9.0 l_i: 5.0 p_i: 12.0 al_i: 33.0 sol_a_i: 36.0 sol_g_i: 0.3 d_i: 62.0 sol_taoi: 36.0 sol_deltai: 44.0 sol_deltai - sol_taoi: 8.0 sol_deltaP: 38.0 sol_deltaP - sol_taoP: 2.0 el_i: 1846166.0 sol_e_i: 2900742.0 sol_gp_i: 1.0 total work: 3031906.0 wasted work: 0.
                                           sol_a_i: 36.0 sol_g_i: 0.3 d_i: 62.0 sol_taoi: 36.0 sol_deltai: 44.0 sol_deltai - sol_taoi: 8.0 sol_taoP
   4975042102228763
                                               sol_a_i: 39.0 sol_g_i: 0.5714285714285714 d_i: 65.0 sol_taoi: 39.0 sol_deltai: 54.0 sol_deltai -
      sol taoi: 15.0 sol taoP: 39.0 sol deltaP: 42.0 sol deltaP - sol taoP: 3.0 cI i: 3708018.0 sol c i: 3954660.0 sol gp i: 0.13364450330207184
   total work: 4218304.0 wasted work: 1.0
      i: \ 11.0 \quad \  \  \, l\_i: \ 5.0 \quad \  \  \, p\_i: \ 23.0 \quad \  \  \, aI\_i: \ 39.0
                                               sol_a_i: 46.0 sol_g_i: 1.0 d_i: 68.0 sol_taoi: 46.0 sol_deltai: 60.0 sol_deltai - sol_taoi: 14.0
   sol_taoP: 46.0 sol_deltaP: 49.0 sol_deltaP - sol_taoP: 3.0 cl_i: 3436595.0 sol_c_i: 3937942.707142857 sol_gp_i: 0.9508043178355225 total
    work: 4218304.0 wasted work: 1.0634085845198187
      sol_taoi: 4.0 sol_taoP: 44.0 sol_deltaP: 46.0 sol_deltaP - sol_taoP: 2.0 cI_i: 1001453.0
                                                                                          sol c i: 1845508.0 sol gp i: 0.640299039614025 total
   work: 1845508.0 wasted work: 0.0
      i: 13.0    1_i: 5.0    p_i: 9.0    aI_i: 38.0
                                           sol a i: 44.707142857142856 sol g i: 0.7452380952380953 d i: 69.0 sol taoi: 45.0 sol deltai: 57.0
   sol_deltai - sol_taoi: 12.0 sol_taoi: 12.0 sol_taoi: 45.0 sol_deltap: 49.0 sol_deltap - sol_taoi: 4.0 cl_i: 2952281.0 sol_c_i: 3954660.0 sol_gp_i: 0.
    4752521392483804 total work: 4086482.0 wasted work: 0.5
   Time: 138.000000
43
44
45
46
```