```
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=29344
 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
    python code/9 Code for this paper')
10 Backend TkAgg is interactive backend. Turning interactive mode on.
11
    Waiting 5s.....
13 Optimize the ./R 18 1.xlsx instance by ECCG
14
          Master protblem status = 2, is Optimal and MP obj = 994.0
15
16
    The initial lb = -inf
                                ub = inf
17
18
    The current iteration cnt = 0
          The SP model was solved Optimal 2 and SPObj = 988.0
19
20
    Set parameter TimeLimit to value 1200
          Deterministic Sub problem Status= \,2, is Optimal
21
22
          Master protblem status = 2, is Optimal
                                        ub = 1854.0
                                   MP_delete_Hua_Obj = 1019.0 Hua = 835.0
24
           MPObj = 1854.0
                                                                                              SPObi = 988.0
                                                                                                                     Deter SP Obi = 835.0
25
26
    ub - 1b = 0.0
27
28 Iteration cycle stopped by termination criterion 1: Because ub - lb \leq eps, the iteration stop, and cnt = 0
29
        i: 0.0 l_i: 6.0 p_i: 4.0 al_i: 6.0
                                                      sol_a_i: 6.0 sol_g_i: 0.0 d_i: 19.0 sol_taoi: 6.0 sol_deltai: 21.0 sol_deltai - sol_taoi: 15.0 sol_taoP: 6.0
                             sol_deltaP - sol_taoP: 4.0 cl_i: 3936269.0 sol_c_i: 3936269.0 sol_gp_i: 0.0 total work: 3954660.0 wasted work: 0.
        sol deltaP: 10.0
    06975694497124911
30
                                                        sol_a_i: 25.0 sol_g_i: 0.0 d_i: 41.0 sol_taoi: 25.0 sol_deltai: 44.0 sol_deltai - sol_taoi: 19.0 sol_taoP
        i: 1.0 1_i: 4.0 p_i: 10.0 aI_i: 25.0
      25.0 sol_deltaP: 30.0 sol_deltaP - sol_taoP: 5.0 cI_i: 4808679.0
                                                                                        sol_c_i: 4808679.0 sol_gp_i: 0.0 total work: 5009236.0 wasted work: 0.
    7607114138762877
        i: 2.0 1_i: 5.0 p_i: 19.0 aI_i: 56.0
                                                          sol_a_i: 56.0 sol_g_i: 0.0 d_i: 77.0 sol_taoi: 63.0 sol_deltai: 88.0 sol_deltai - sol_taoi: 25.0 sol_taoP
      65.0 sol_deltaP: 70.0 sol_deltaP - sol_taoP: 5.0 cl_i: 6567617.0 sol_c_i: 6567617.0 sol_gp_i: 0.0 total work: 7777498.0 wasted work: 4.
     589070868292091
        i: 3.0 1_i: 4.0 p_i: -0.0 aI_i: 44.0
                                                         sol a i: 44.0 sol g i: 0.0 d i: 66.0 sol taoi: 44.0 sol deltai: 70.0 sol deltai - sol taoi: 26.0 sol taoP
32
      44.0 sol_deltaP: 53.0 sol_deltaP - sol_taoP: 9.0 cl_i: 6649403.0 sol_c_i: 6649403.0 sol_gp_i: 0.0 total work: 6854744.0 wasted work: 0.
     778857095173795
                                                          sol a i: 60.0 sol g i: 0.0 d i: 61.0 sol taoi: 60.0 sol deltai: 62.0 sol deltai - sol taoi: 2.0 sol taoP
        i: 4.0 1_i: 6.0 p_i: 19.0 al_i: 60.0
      60.0 sol_deltaP: 61.0 sol_deltaP - sol_taoP: 1.0 cl_i: 339223.0 sol_c_i: 339223.0 sol_gp_i: 0.0 total work: 395466.0
                                                                                                                                                         wasted work: 0.
    21332933804676002
        i: 5.0 1_i: 4.0 p_i: 14.0 aI_i: 42.0
                                                          sol_a_i: 42.0 sol_g_i: 0.0 d_i: 54.0 sol_taoi: 42.0 sol_deltai: 56.0 sol_deltai - sol_taoi: 14.0 sol_taoP
      42.0 sol_deltaP: 47.0 sol_deltaP - sol_taoP: 5.0 cl_i: 3511961.0 sol_c_i: 3511961.0 sol_gp_i: 0.0 total work: 3954660.0 wasted work: 1.
    6791544658706437
        i: 6.0 1 i: 5.0 p i: 14.0 aI i: 16.0
                                                          sol a i: 16.0 sol g i: 0.0 d i: 35.0 sol taoi: 16.0 sol deltai: 38.0 sol deltai - sol taoi: 22.0 sol taoP
     : 16.0 sol_deltaP: 21.0 sol_deltaP - sol_taoP: 5.0 cl_i: 5705651.0 sol_c_i: 5705651.0 sol_gp_i: 0.0 total work: 6591100.0 wasted work: 3.
    3585023744139826
        i: 7.0 1_i: 5.0 p_i: 9.0 aI_i: 56.0
                                                        sol_a_i: 56.0 sol_g_i: 0.0 d_i: 58.0 sol_taoi: 56.0 sol_deltai: 59.0 sol_deltai - sol_taoi: 3.0 sol_taoP:
36
             sol_deltaP: 57.0 sol_deltaP - sol_taoP: 1.0 cl_i: 557774.0 sol_c_i: 557774.0 sol_gp_i: 0.0 total work: 659110.0
    3843667976513784
37
       i: 8.0 1 i: 5.0 p i: 4.0 aI i: 56.0
                                                      sol a i: 56.0 sol g i: 0.0 d i: 77.0 sol taoi: 56.0 sol deltai: 81.0 sol deltai - sol taoi: 25.0 sol taoP:
             sol_deltaP: 65.0 sol_deltaP - sol_taoP: 9.0 cI_i: 6352406.0 sol_c_i: 6352406.0 sol_gp_i: 0.0 total work: 6854744.0 wasted work: 1.
     9053648101227412
        i: 9.0 1_i: 5.0 p_i: 18.0 aI i: 40.0
                                                        sol a i: 40.0 sol g i: 0.0 d i: 52.0 sol taoi: 40.0 sol deltai: 54.0 sol deltai - sol taoi: 14.0 sol taoP
38
      40.0 sol_deltaP: 42.0 sol_deltaP - sol_taoP: 2.0 cl_i: 3432575.0 sol_c_i: 3432575.0 sol_gp_i: 0.0 total work: 3691016.0 wasted work: 0.
     980265054391528
                                                             sol a i: 50.0 sol g i: 0.0 d i: 70.0 sol taoi: 50.0 sol deltai: 73.0 sol deltai - sol taoi: 23.0
       i: 10.0 1 i: 4.0 p i: 25.0 aI i: 50.0
    sol_taoP: 50.0 sol_deltaP: 55.0 sol_deltaP - sol_taoP: 5.0 cl_i: 5803649.0 sol_c_i: 5803649.0 sol_gp_i: 0.0 total work: 6591100.0 wasted work
     2.986796589340171
                                                             sol_a_i: 31.982142857142815 sol_g_i: 0.7964285714285633 d_i: 42.0 sol_taoi: 32.0 sol_deltai: 46.0
        sol deltai - sol taoi: 14.0 sol taoP: 32.0 sol deltaP: 37.0 sol deltaP - sol taoP: 5.0 cI i: 3570542.0 sol c i: 3822838.0 sol gp i: 0.
    23923927720714297 total work: 4086482.0 wasted work: 1.0
41
        sol_a_i: 56.0 sol_g_i: 0.375000000000000066 d_i: 65.0 sol_taoi: 56.0 sol_deltai: 69.0 sol_deltai -
    sol_taoi: 13.0 sol_taoP: 56.0 sol_deltaP: 60.0 sol_deltaP - sol_taoP: 4.0 cl_i: 3418286.0 sol_c_i: 4388713.325 sol_gp_i: 0.5258320879671071
    total work: 4481948.0 wasted work: 0.35363852391861683
        sol_a_i: 59.0 sol_g_i: 0.0 d_i: 65.0 sol_taoi: 59.0 sol_deltai: 64.0 sol_deltai - sol_taoi: 5.0
     sol taoP: 59.0 sol deltaP: 61.0
                                              sol_deltaP - sol_taoP: 2.0 cl_i: 1067915.0 sol_c_i: 1581864.0 sol_gp_i: 0.9747026293031512 total work:
     1581864.0 wasted work: 0.0
                                                          sol\_a\_i: \ 33.0 \quad sol\_g\_i: \ 0.5714285714285714 \quad d\_i: \ 39.0 \quad sol\_taoi: \ 33.0 \quad sol\_deltai: \ 40.0 \quad sol\_delt
43
        sol taoi: 7.0 sol taoP: 33.0 sol deltaP: 36.0 sol deltaP - sol taoP: 3.0 cl i: 1739820.0 sol c i: 2109152.0 sol gp i: 0.2801747811442703
    total work: 2109152.0 wasted work: 0.0
       sol_a_i: 62.0 sol_g_i: 0.8571428571428571 d_i: 62.0 sol_taoi: 62.0 sol_deltai: 70.0 sol_deltai -
     sol_taoi: 8.0 sol_taoP: 62.0 sol_deltaP: 64.0 sol_deltaP - sol_taoP: 2.0 cl_i: 2100599.0 sol_c_i: 3163728.0 sol_gp_i: 0.5040551842636282
    total work: 3163728.0 wasted work: 0.0
       i: 16.0    1_i: 5.0    p_i: 23.0    aI_i: 21.0
                                                             sol a i: 27.0 sol g i: 1.0 d i: 38.0 sol taoi: 27.0 sol deltai: 44.0 sol deltai - sol taoi: 17.0
    sol_taoP: 27.0 sol_deltaP: 31.0 sol_deltaP - sol_taoP: 4.0 cl_i: 4470957.0 sol_c_i: 5789177.0 sol_gp_i: 1.0 total work: 5800168.0 wasted work
     : 0.04168879246256316
        i: 17.0 \quad l_i: 4.0 \quad p_i: -0.0 \quad aI_i: 26.0
                                                             sol_a_i: 29.6 sol_g_i: 0.4 d_i: 42.0 sol_taoi: 30.0 sol_deltai: 40.0 sol_deltai - sol_taoi: 10.0
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46	sol_taoP: 30.0 sol_deltaP: 35.0	sol_deltaP - sol_taoP: 5.0 cl_i: 2423424.0	sol_c_i: 3427372.0	sol_gp_i: 0.4759960401147001	total work:
47	3427372.0 wasted work: 0.0 Time: 157 000000	sol_deltaP - sol_taoP: 5.0 cl_i: 2423424.0			
48 49	Time. 137.000000				
49					
50 51					