```
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=23471
 3
    import sys; print('Python %s on %s' % (sys.version, sys.platform))
    sys.path.extend(['E:\\1 ] _ _ \\3 | 0 _ _ | \\1 | 0 | 0 | 0 | \\1 | 0 | 0 | 0 | \\1 | 0 | 0 | 0 | \\1 | 0 | 0 | 0 | \\1 | 0 | 0 | 0 | \\1 | 0 | 0 | 0 | \\1 | 0 | 0 | \\1 | 0 | 0 | \\1 | 0 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\1 | 0 | \\\  | 0 | \\1 | 0 | \\\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | \\  | 0 | 
    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 2.xlsx instance by ECCG
14
          Master protblem status = 2, is Optimal and MP obj = 944.0
15
16
    The initial lb = -inf
                               ub = inf
17
18
    The current iteration cnt = 0
          The SP model was solved Optimal 2 and SPObj = 941.0
19
20
    Set parameter TimeLimit to value 1200
          Deterministic Sub problem Status= 2, is Optimal
21
22
          Master protblem status = 2, is Optimal
23
          1b = 1769.0
                                       ub = 1769.0
          MPObj = 1769.0
                                   MP_delete_Hua_Obj = 974.0
24
                                                                         Hua = 795.0
                                                                                            SPObi = 941.0
                                                                                                                  Deter SP Obi = 795.0
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 1_i: 5.0 p_i: -0.0 aI_i: 40.0
                                                         sol_a_i: 40.0 sol_g_i: 0.0 d_i: 46.0 sol_taoi: 40.0 sol_deltai: 48.0 sol_deltai - sol_taoi: 8.0 sol_taoP
       40.0 sol_deltaP: 42.0 sol_deltaP - sol_taoP: 2.0 cl_i: 2020547.0 sol_c_i: 2020547.0 sol_gp_i: 0.0 total work: 2109152.0 wasted work: 0.
    33607819635569175
30
                                                       sol_a_i: 10.0 sol_g_i: 0.0 d_i: 25.0 sol_taoi: 10.0 sol_deltai: 29.0 sol_deltai - sol_taoi: 19.0 sol_taoP
       i: 1.0 1_i: 7.0 p_i: 16.0 aI_i: 10.0
      10.0 sol deltaP: 17.0 sol deltaP - sol taoP: 7.0 cI i: 4978701.0
                                                                                      sol_c_i: 4978701.0 sol_gp_i: 0.0 total work: 5272880.0 wasted work: 1.
    1158190590341521
                                                        sol_a_i: 61.0 sol_g_i: 0.0 d_i: 69.0 sol_taoi: 68.0 sol_deltai: 78.0 sol_deltai - sol_taoi: 10.0 sol_taoP
        i: \ 2.0 \ l\_i: \ 6.0 \ p\_i: \ 28.0 \ aI\_i: \ 61.0
      69.0 sol_deltaP: 71.0 sol_deltaP - sol_taoP: 2.0 cl_i: 2609475.0 sol_c_i: 2609475.0 sol_gp_i: 0.0 total work: 2636440.0 wasted work: 0.
     10227807194550227
      i: 3.0 l_i: 7.0 p_i: -0.0 al_i: 68.0 sol_a_i: 68.0 sol_g_i: 0.0 d_i: 78.0 sol_taoi: 68.0 sol_deltai: 81.0 sol_deltai - sol_taoi: 13.0 sol_68.0 sol_deltaP - sol_taoP: 4.0 cl_i: 3252602.0 sol_c_i: 3252602.0 sol_gp_i: 0.0 total work: 4218304.0 wasted work: 3.
                                                        sol a i: 68.0 sol g i: 0.0 d i: 78.0 sol taoi: 68.0 sol deltai: 81.0 sol deltai - sol taoi: 13.0 sol taoP
32
     662901488370682
                                                      sol a i: 8.0 sol g i: 0.0 d i: 25.0 sol taoi: 8.0 sol deltai: 30.0 sol deltai - sol taoi: 22.0 sol taoP: 8.0
        i: 4.0 1_i: 7.0 p_i: 9.0 aI_i: 8.0
        sol deltaP: 14.0
                            sol_deltaP - sol_taoP: 6.0 cl_i: 5706853.0 sol_c_i: 5706853.0 sol_gp_i: 0.0 total work: 5931990.0 wasted work: 0.
    8539431961281122
        i: 5.0 1_i: 4.0 p_i: 19.0 aI i: 52.0
                                                         sol_a_i: 52.0 sol_g_i: 0.0 d_i: 60.0 sol_taoi: 52.0 sol_deltai: 62.0 sol_deltai - sol_taoi: 10.0 sol_taoP
      52.0 sol_deltaP: 54.0 sol_deltaP - sol_taoP: 2.0 cl_i: 2467067.0 sol_c_i: 2467067.0 sol_gp_i: 0.0 total work: 2636440.0 wasted work: 0.
    6424307020072522
35
       i: 6.0 1 i: 6.0 p i: 28.0 aI i: 55.0
                                                         sol a i: 55.0 sol g i: 0.0 d i: 64.0 sol taoi: 55.0 sol deltai: 67.0 sol deltai - sol taoi: 12.0 sol taoP
      55.0 sol_deltaP: 58.0 sol_deltaP - sol_taoP: 3.0 cI_i: 2907714.0 sol_c_i: 2907714.0 sol_gp_i: 0.0 total work: 3163728.0 wasted work: 0.
    9710594589673954
        i: 7.0 1_i: 7.0 p_i: -0.0 aI_i: 55.0
                                                         sol_a_i: 55.0 sol_g_i: 0.0 d_i: 63.0 sol_taoi: 55.0 sol_deltai: 66.0 sol_deltai - sol_taoi: 11.0 sol_taoP
36
     : 55.0 sol_deltaP: 58.0 sol_deltaP - sol_taoP: 3.0 cl_i: 2846771.0 sol_c_i: 2846771.0 sol_gp_i: 0.0 total work: 2900084.0 wasted work: 0.
    2022158668507533
                                                    sol a i: 14.0 sol g i: 0.0 d i: 23.0 sol taoi: 14.0 sol deltai: 26.0 sol deltai - sol taoi: 12.0 sol taoP:
37
       i: 8.0 1 i: 4.0 p i: 0.0 aI i: 14.0
             sol_deltaP: 20.0 sol_deltaP - sol_taoP: 6.0 cl_i: 3076476.0 sol_c_i: 3076476.0 sol_gp_i: 0.0 total work: 3163728.0 wasted work: 0.
    14.0
    3309462760389009
        i: 9.0 1_i: 6.0 p_i: 28.0 aI i: 20.0
                                                        sol_a_i: 20.0 sol_g_i: 0.0 d_i: 32.0 sol_taoi: 20.0 sol_deltai: 35.0 sol_deltai - sol_taoi: 15.0 sol_taoP
      20.0 sol_deltaP: 23.0 sol_deltaP - sol_taoP: 3.0 cl_i: 3763537.0 sol_c_i: 3763537.0 sol_gp_i: 0.0 total work: 3954660.0 wasted work: 0.
     7249283124212954
                                                          sol a i: 61.0 sol g i: 0.0 d i: 81.0 sol taoi: 61.0 sol deltai: 87.0 sol deltai - sol taoi: 26.0
       i: 10.0 1 i: 5.0 p i: 23.0 aI i: 61.0
    sol_taoP: 61.0 sol_deltaP: 69.0 sol_deltaP - sol_taoP: 8.0 cl_i: 6682708.0 sol_c_i: 6682708.0 sol_gp_i: 0.0 total work: 6986566.0 wasted work
     1.1525314439167968
       i: 11.0 1_i: 5.0 p_i: 4.0 aI_i: 3.0
                                                         sol_a_i: 3.0 sol_g_i: 0.0 d_i: 16.0 sol_taoi: 3.0 sol_deltai: 16.0 sol_deltai - sol_taoi: 13.0 sol_taoP: 3
          sol_deltaP: 7.0 sol_deltaP - sol_taoP: 4.0 cl_i: 3300620.0 sol_c_i: 3427372.0 sol_gp_i: 0.12019238063449196 total work: 4218304.0 wasted
    work: 3.0
41
        i: 12.0
                  1_i: 6.0 p_i: 23.0 aI_i: 5.0
                                                            sol_a_i: 9.0 sol_g_i: 0.5 d_i: 16.0 sol_taoi: 9.0 sol_deltai: 19.0 sol_deltai - sol_taoi: 10.0 sol_taoP
     : 9.0 sol_deltaP: 12.0 sol_deltaP - sol_taoP: 3.0 cl_i: 2561279.0 sol_c_i: 3815869.4 sol_gp_i: 0.679807619365508 total work: 3822838.0
    wasted work: 0.02643185507730156
        sol_a_i: 71.0 sol_g_i: 0.5 d_i: 80.0 sol_taoi: 71.0 sol_deltai: 87.0 sol_deltai - sol_taoi: 16.0
    sol taoP: 71.0
                       sol_deltaP: 77.0 sol_deltaP - sol_taoP: 6.0 cI_i: 4198407.0
                                                                                                 sol_c_i: 4725695.0 sol_gp_i: 1.0 total work: 5009236.0 wasted work
     . 1 075469193306125
                                                           sol_a_i: 35.0 sol_g_i: 0.5714285714285714 d_i: 41.0 sol_taoi: 35.0 sol_deltai: 45.0 sol_deltai -
43
       sol taoi: 10.0 sol taoP: 35.0 sol deltaP: 38.0 sol deltaP - sol taoP: 3.0 cl i: 2558189.0 sol c i: 2636440.0 sol gp i: 0.05936110816100499
    total work: 3163728.0 wasted work: 2.0
       sol_a_i: 65.0 sol_g_i: 1.0 d_i: 78.0 sol_taoi: 65.0 sol_deltai: 83.0 sol_deltai - sol_taoi: 18.0 sol_taoP
      65.0 sol_deltaP: 69.0 sol_deltaP - sol_taoP: 4.0 cI_i: 4501830.0 sol_c_i: 5031731.8 sol_gp_i: 0.25123926582816214 total work: 5141058.0
     wasted work: 0.41467357497231183
       i: 16.0 1 i: 5.0 p i: 23.0 aI i: 20.0
                                                           sol a i: 26.0 sol g i: 1.0 d i: 36.0 sol taoi: 26.0 sol deltai: 47.0 sol deltai - sol taoi: 21.0
    sol_taoP: 26.0 sol_deltaP: 34.0 sol_deltaP - sol_taoP: 8.0 cl_i: 5454578.0 sol_c_i: 6772798.0 sol_gp_i: 1.0 total work: 6854744.0 wasted work
     : 0.31082065209145665
                 1_i: 5.0 p_i: 14.0 aI_i: 49.0
                                                            sol a i: 52.857142857142854 sol g i: 0.42857142857142855 d i: 66.0 sol taoi: 53.0
        i: 17.0
```

40	5 .0 sol_deltai - sol_	taoi: 15.0 sol_taoP: 53.0 total work: 5668346.0	sol_deltaP: 60.0	sol_deltaP - sol_taoP:	7.0 cI_i: 3792467.0	sol_c_i: 5668346.0	sol_gp_i: 0.
1.	8893996260108328 7 Time: 134.000000	total work: 5668346.0	wasted work: 0.0				
48	3						
49	)						
50 51	)						
)	L						