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=57640

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_BDC.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_15_2.xlsx instance by BDC

14

15   Master protblem status = 2 , is Optimal

16   sol_MP_obj = 711.0

17 The initial lb = -inf   ub = inf

18

19 The current iteration cnt = 0

20   Optimization was stopped with status 9

21   Dual problem status = 9

22   Add optimal cut

23   Master protblem status = 2 , is Optimal

24   Deterministic Sub problem Status= 2 , is Optimal

25   lb = 752.7184980507398   ub = 752.7184980507398

26   MPObj = 752.7184980507398   MPObj_Remove_Hua = 744.0   DualSPObj = 8.718498050739779   Hua = 8.71849805073978 Deterministic_SP_SPObj = 593.0

27

28 ub - lb = 0.0

29

30 Iteration cycle stopped by termination criterion 1: Because ub - lb <= eps, the iteration stop, and cnt = 0

31 i: 0.0   l_i: 5.0   p_i: 18.0   al_i: 7.0   sol_a_i: 7.0   sol_g_i: 0.0   d_i: 27.0   sol_taoi: 7.0   sol_deltai: 27.0   sol_deltai - sol_taoi: 20.0   sol_taoP: 7.0   sol_deltaP: 14.0   sol_deltaP - sol_taoP: 7.0   cl_i: 5155933.0   sol_c_i: 5155933.0   sol_gp_i: 0.0   total work: 5668346.0   wasted work: 1.943579220463959

32 i: 1.0   l_i: 7.0   p_i: 0.0   al_i: 9.0   sol_a_i: 9.0   sol_g_i: 0.0   d_i: 26.0   sol_taoi: 9.0   sol_deltai: 26.0   sol_deltai - sol_taoi: 17.0   sol_taoP: 9.0   sol_deltaP: 15.0   sol_deltaP - sol_taoP: 6.0   cl_i: 4446863.0   sol_c_i: 4446863.0   sol_gp_i: 0.0   total work: 4481948.0   wasted work: 0.13307717983341172

33 i: 2.0   l_i: 7.0   p_i: 0.0   al_i: 36.0   sol_a_i: 36.0   sol_g_i: 0.0   d_i: 51.0   sol_taoi: 36.0   sol_deltai: 51.0   sol_deltai - sol_taoi: 15.0   sol_taoP: 36.0   sol_deltaP: 44.0   sol_deltaP - sol_taoP: 8.0   cl_i: 3705326.0   sol_c_i: 3705326.0   sol_gp_i: 0.0   total work: 3954660.0   wasted work: 0.945722261837933

34 i: 3.0   l_i: 7.0   p_i: 11.0   al_i: 23.0   sol_a_i: 23.0   sol_g_i: 0.0   d_i: 32.0   sol_taoi: 23.0   sol_deltai: 32.0   sol_deltai - sol_taoi: 9.0   sol_taoP: 23.0   sol_deltaP: 25.0   sol_deltaP - sol_taoP: 2.0   cl_i: 2241580.0   sol_c_i: 2241580.0   sol_gp_i: 0.0   total work: 2504618.0   wasted work: 0.9977014458891535

35 i: 4.0   l_i: 4.0   p_i: 0.0   al_i: 57.0   sol_a_i: 57.0   sol_g_i: 0.0   d_i: 79.0   sol_taoi: 57.0   sol_deltai: 79.0   sol_deltai - sol_taoi: 22.0   sol_taoP: 57.0   sol_deltaP: 66.0   sol_deltaP - sol_taoP: 9.0   cl_i: 5621271.0   sol_c_i: 5621271.0   sol_gp_i: 0.0   total work: 5800168.0   wasted work: 0.6785551728846475

36 i: 5.0   l_i: 6.0   p_i: 11.0   al_i: 10.0   sol_a_i: 10.0   sol_g_i: 0.0   d_i: 21.0   sol_taoi: 10.0   sol_deltai: 21.0   sol_deltai - sol_taoi: 11.0   sol_taoP: 10.0   sol_deltaP: 13.0   sol_deltaP - sol_taoP: 3.0   cl_i: 2745429.0   sol_c_i: 2745429.0   sol_gp_i: 0.0   total work: 2768262.0   wasted work: 0.0866054224636252

37 i: 6.0   l_i: 5.0   p_i: 24.0   al_i: 33.0   sol_a_i: 33.0   sol_g_i: 0.0   d_i: 49.0   sol_taoi: 33.0   sol_deltai: 49.0   sol_deltai - sol_taoi: 16.0   sol_taoP: 33.0   sol_deltaP: 39.0   sol_deltaP - sol_taoP: 6.0   cl_i: 4038170.0   sol_c_i: 4038170.0   sol_gp_i: 0.0   total work: 4086482.0   wasted work: 0.18324710594589674

38 i: 7.0   l_i: 6.0   p_i: 9.0   al_i: 55.0   sol_a_i: 55.0   sol_g_i: 0.0   d_i: 73.0   sol_taoi: 55.0   sol_deltai: 73.0   sol_deltai - sol_taoi: 18.0   sol_taoP: 55.0   sol_deltaP: 58.0   sol_deltaP - sol_taoP: 3.0   cl_i: 4620122.0   sol_c_i: 4620122.0   sol_gp_i: 0.0   total work: 5009236.0   wasted work: 1.4759069047655171

39 i: 8.0   l_i: 5.0   p_i: 4.0   al_i: 58.0   sol_a_i: 62.0   sol_g_i: 0.8   d_i: 74.0   sol_taoi: 62.0   sol_deltai: 75.0   sol_deltai - sol_taoi: 13.0   sol_taoP: 62.0   sol_deltaP: 71.0   sol_deltaP - sol_taoP: 9.0   cl_i: 3243346.0   sol_c_i: 4508837.2   sol_gp_i: 0.8   total work: 4745592.0   wasted work: 0.8980094369680319

40 i: 9.0   l_i: 4.0   p_i: 15.0   al_i: 62.0   sol_a_i: 62.0   sol_g_i: 0.0   d_i: 83.0   sol_taoi: 62.0   sol_deltai: 85.0   sol_deltai - sol_taoi: 23.0   sol_taoP: 62.0   sol_deltaP: 67.0   sol_deltaP - sol_taoP: 5.0   cl_i: 5908218.0   sol_c_i: 5908218.0   sol_gp_i: 0.0   total work: 6063812.0   wasted work: 0.5901670434373625

41 i: 10.0   l_i: 7.0   p_i: 17.0   al_i: 24.0   sol_a_i: 34.0   sol_g_i: 1.0   d_i: 45.0   sol_taoi: 34.0   sol_deltai: 45.0   sol_deltai - sol_taoi: 11.0   sol_taoP: 34.0   sol_deltaP: 37.0   sol_deltaP - sol_taoP: 3.0   cl_i: 2782021.0   sol_c_i: 2992936.2   sol_gp_i: 0.2   total work: 3031906.0   wasted work: 0.14781220130175468

42 i: 11.0   l_i: 6.0   p_i: 7.0   al_i: 34.0   sol_a_i: 38.2   sol_g_i: 0.6   d_i: 43.0   sol_taoi: 41.0   sol_deltai: 49.0   sol_deltai - sol_taoi: 8.0   sol_taoP: 41.0   sol_deltaP: 44.0   sol_deltaP - sol_taoP: 3.0   cl_i: 1958731.0   sol_c_i: 3804239.0   sol_gp_i: 1.0   total work: 3954660.0   wasted work: 0.5705458876363582

43 i: 12.0   l_i: 4.0   p_i: 7.0   al_i: 12.0   sol_a_i: 16.2   sol_g_i: 0.6   d_i: 42.0   sol_taoi: 17.0   sol_deltai: 40.0   sol_deltai - sol_taoi: 23.0   sol_taoP: 17.0   sol_deltaP: 25.0   sol_deltaP - sol_taoP: 8.0   cl_i: 5829348.0   sol_c_i: 5829348.0   sol_gp_i: 0.0   total work: 6063812.0   wasted work: 0.8893204472698032

44 i: 13.0   l_i: 5.0   p_i: 29.0   al_i: 26.0   sol_a_i: 29.6   sol_g_i: 0.6   d_i: 45.0   sol_taoi: 30.0   sol_deltai: 49.0   sol_deltai - sol_taoi: 19.0   sol_taoP: 30.0   sol_deltaP: 35.0   sol_deltaP - sol_taoP: 5.0   cl_i: 4889883.0   sol_c_i: 6208103.0   sol_gp_i: 1.0   total work: 6591100.0   wasted work: 1.4527051630228642

45 i: 14.0   l_i: 4.0   p_i: 13.0   al_i: 29.0   sol_a_i: 32.6   sol_g_i: 0.4   d_i: 44.0   sol_taoi: 33.0   sol_deltai: 43.0   sol_deltai - sol_taoi: 10.0   sol_taoP: 33.0   sol_deltaP: 40.0   sol_deltaP - sol_taoP: 7.0   cl_i: 2547089.0   sol_c_i: 4656241.0   sol_gp_i: 1.0   total work: 4745592.0   wasted work: 0.3389077695680539

46

47 Optimal objective = 1337.0

48

49 Time: 1279.000000

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53