```
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=15750

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_DM.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_6_3.xlsx  instance

Set parameter TimeLimit to value 1200

Set parameter PoolSolutions to value 3
Set parameter PoolGap to value 0.05
Set parameter PoolSearchMode to value 2
Gurobi Optimizer version 11.0.0 build v11.0.0rc2 (win64 - Windows 10.0 (19045.2))

CPU model: 11th Gen Intel(R) Core(TM) i7-11370H @ 3.30GHz, instruction set [SSE2|AVX|AVX2|AVX512]
Thread count: 4 physical cores, 8 logical processors, using up to 8 threads

Optimize a model with 100206 rows, 47910 columns and 292506 nonzeros
Model fingerprint: 0x2c3050b5
Variable types: 0 continuous, 47910 integer (40308 binary)
Coefficient statistics:
  Matrix range     [1e+00, 5e+05]
  Objective range  [1e+00, 1e+00]
  Bounds range     [1e+00, 1e+00]
  RHS range        [1e+00, 6e+06]
Presolve removed 90367 rows and 2385 columns
Presolve time: 0.06s
Presolved: 9839 rows, 45525 columns, 27660 nonzeros
Variable types: 0 continuous, 45525 integer (37929 binary)

Root relaxation: objective 2.808623e+02, 1467 iterations, 0.05 seconds (0.09 work units)

    Nodes    |    Current Node    |     Objective Bounds      |     Work
 Expl Unexpl |  Obj  Depth IntInf | Incumbent    BestBd   Gap | It/Node Time

     0     0  280.86231    0 1188          -  280.86231      -     -    0s
H    0     0                720.0000000  280.86231  61.0%     -    0s
H    0     0                616.0000000  280.86231  54.4%     -    0s
H    0     0                463.0000000  280.86231  39.3%     -    1s
     0     0  297.77041    0 1187  463.00000  297.77041  35.7%     -    1s
     0     0  300.30790    0 1183  463.00000  300.30790  35.1%     -    3s
     0     0  304.95905    0 1005  463.00000  304.95905  34.1%     -    3s
     0     0  325.86473    0 1151  463.00000  325.86473  29.6%     -    4s
     0     0  325.86473    0 1149  463.00000  325.86473  29.6%     -    4s
     0     0  325.86473    0 1146  463.00000  325.86473  29.6%     -    4s
     0     0  326.56123    0 1089  463.00000  326.56123  29.5%     -    4s
     0     0  326.56123    0  921  463.00000  326.56123  29.5%     -    4s
     0     2  326.56123    0  920  463.00000  326.56123  29.5%     -    6s
  1343  1261  446.00000   80  873  463.00000  446.00000  3.67%  10.9   11s

Cutting planes:
  Learned: 94
  Gomory: 21
  Lift-and-project: 2
  Cover: 7
  Implied bound: 12
  Projected implied bound: 2
  Clique: 1
  MIR: 163
  StrongCG: 237
  Flow cover: 245
  Zero half: 16
  RLT: 29
  Relax-and-lift: 251

Explored 1365 nodes (30176 simplex iterations) in 13.39 seconds (16.78 work units)
Thread count was 8 (of 8 available processors)

Solution count 3: 463 463 463
No other solutions better than 463

Optimal solution found (tolerance 1.00e-04)
Best objective 4.630000000000e+02, best bound 4.630000000000e+02, gap 0.0000%
```

Output optimal solution and the Optimal Obj: 463.0

Obj = 463.0

Solutions:
    The total pi = 86.0
    The total duration time in berth stage = 88.0
    The total duration time in quay crane scheduling stage = 19.0
    The total departure time in berth stage= 266.0
    The total departure time in quay crane scheduling stage = 197.0
    The total wasted crane work hour according QC0= 11.254320219690188
    The last depature time in quay crane scheduling stage = 56.0

The specific solution are as follows:
    Vessel i: 0: li: 5, pi: 17-22, ai-di: 15-25, taoi-deltai: 15-25, periodi: 10, taoPi_SP-deltaPi_SP: 15-17, periodPi: 2, c_i: 2543904, dowork: 2900084, fa_i: 4
    Vessel i: 1: li: 4, pi: 10-14, ai-di: 48-73, taoi-deltai: 48-73, periodi: 25, taoPi_SP-deltaPi_SP: 48-56, periodPi: 8, c_i: 6461785, dowork: 6722922, fa_i: 2
    Vessel i: 2: li: 6, pi: 16-22, ai-di: 39-48, taoi-deltai: 39-48, periodi: 9, taoPi_SP-deltaPi_SP: 39-41, periodPi: 2, c_i: 2338421, dowork: 3427372, fa_i: 5
    Vessel i: 3: li: 7, pi: 22-29, ai-di: 20-40, taoi-deltai: 20-40, periodi: 20, taoPi_SP-deltaPi_SP: 20-23, periodPi: 3, c_i: 5238656, dowork: 6327456, fa_i: 6
    Vessel i: 4: li: 7, pi: 7-14, ai-di: 7-25, taoi-deltai: 7-21, periodi: 14, taoPi_SP-deltaPi_SP: 7-9, periodPi: 2, c_i: 3613355, dowork: 3691016, fa_i: 5
    Vessel i: 5: li: 6, pi: 14-20, ai-di: 49-61, taoi-deltai: 49-59, periodi: 10, taoPi_SP-deltaPi_SP: 49-51, periodPi: 2, c_i: 2410213, dowork: 2504618, fa_i: 4
TimeSolveModel: 20.000000

TimeAll: 24.000000