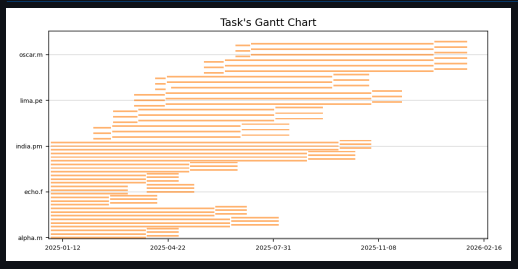
Yumbo. Scheduling, Planning and Resource Allocation

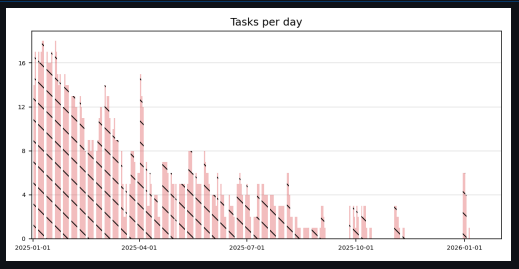
Zbigniew Romanowski, Paweł Koczyk

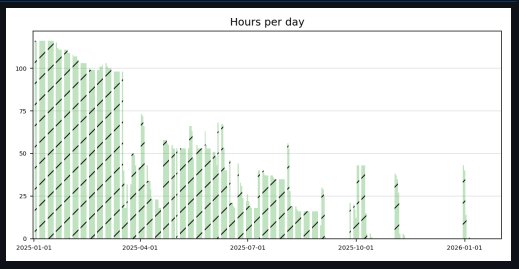
Source code, documentation and sample Excel input files can be found on Yumbo's GitHub repository.

09 January 2025, 08:27:27 AM

Experts overview







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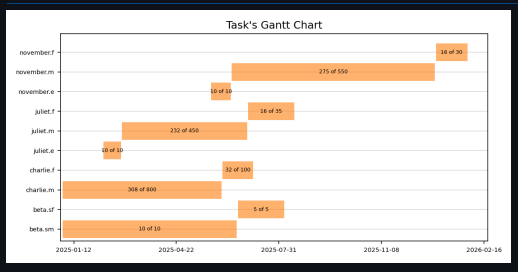

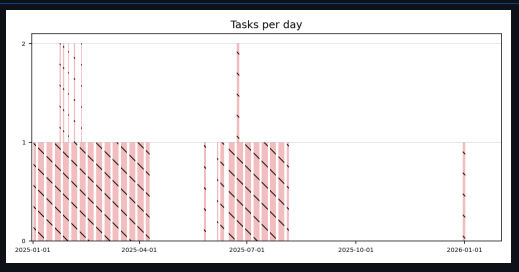

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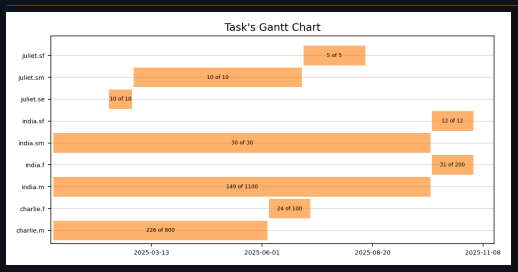

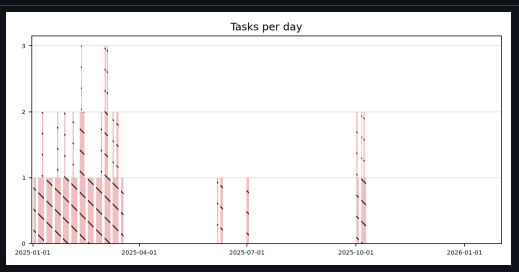

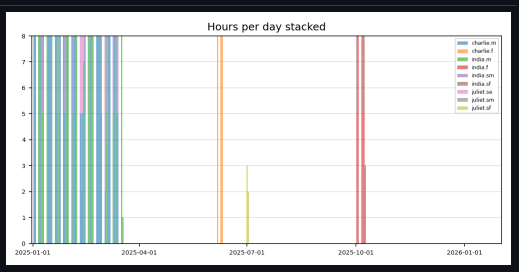

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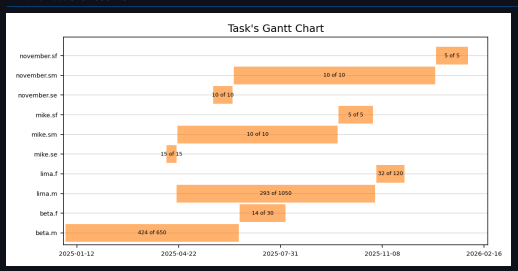

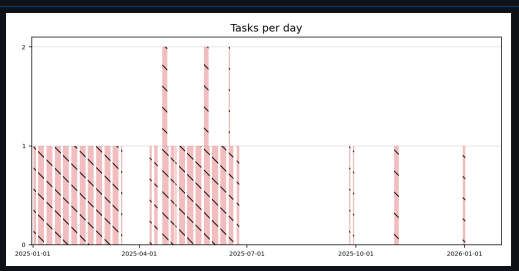

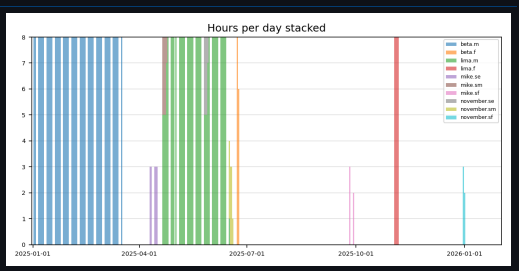

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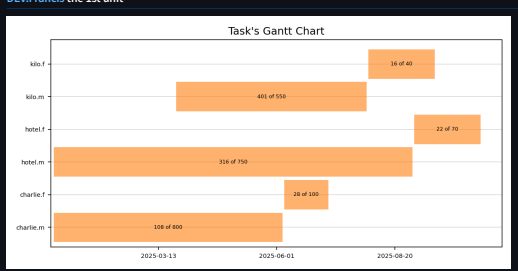

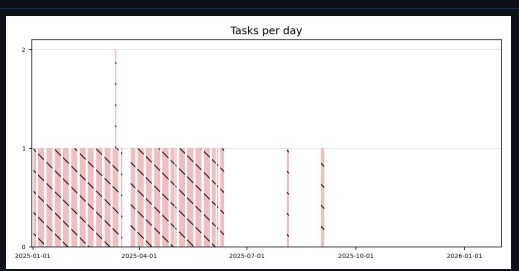

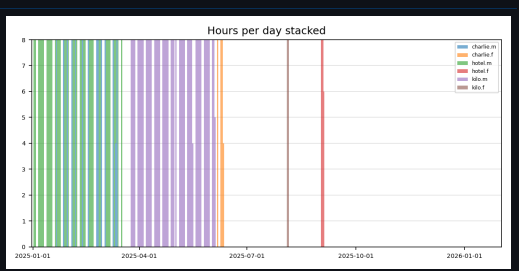

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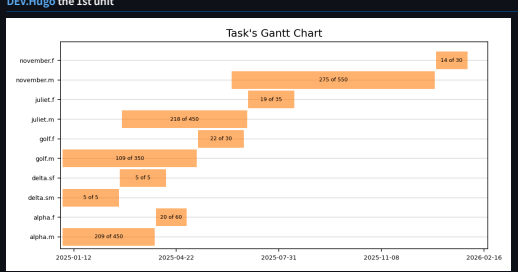

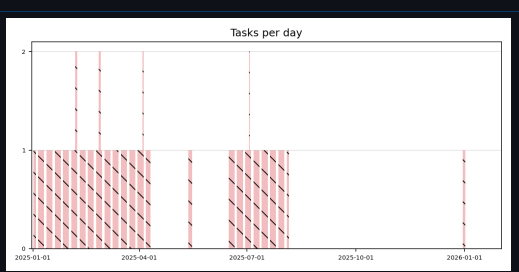

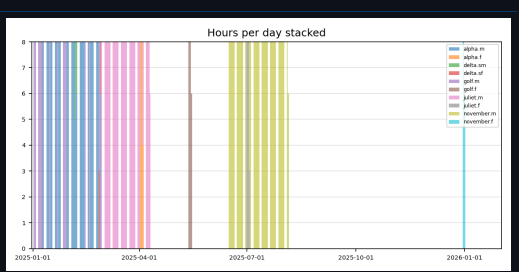

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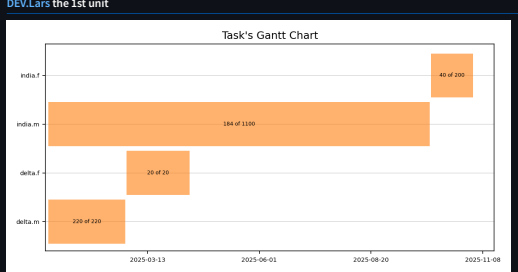

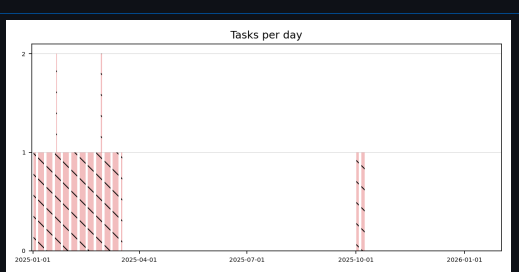

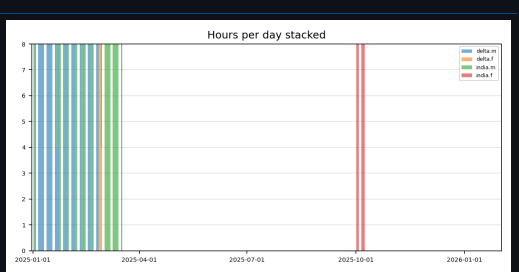

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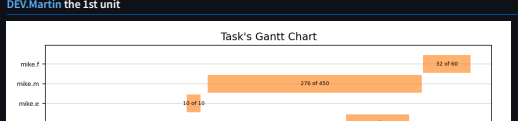

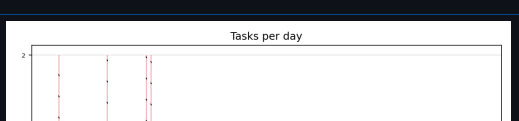

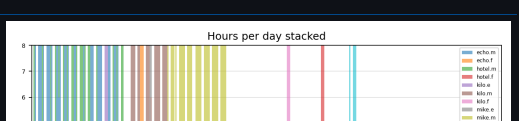

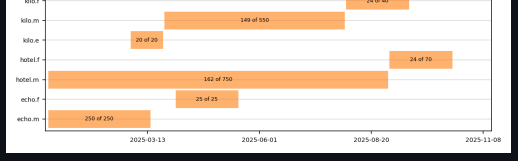

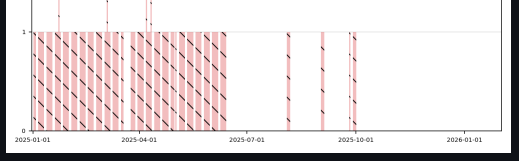

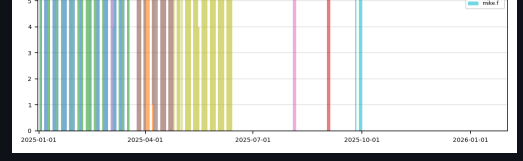

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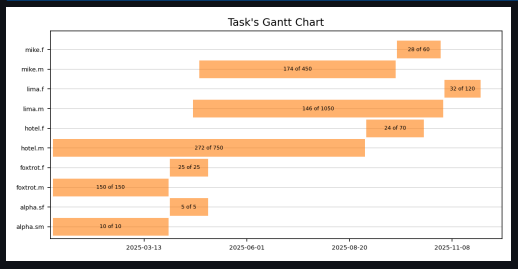

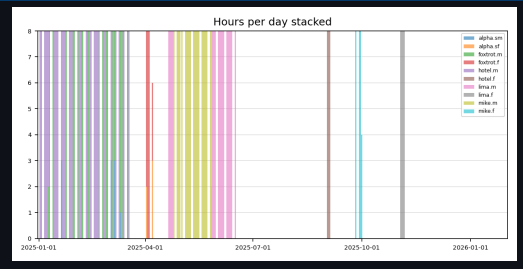

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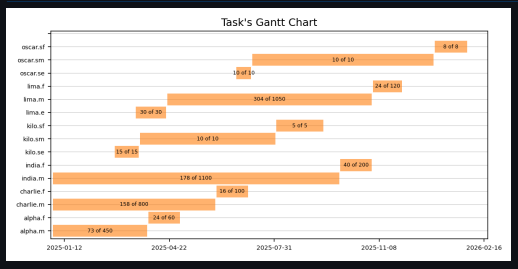

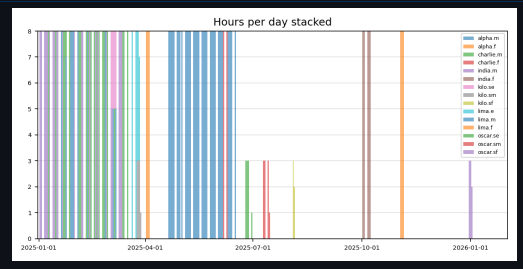

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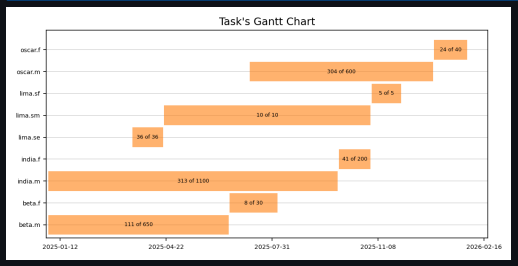

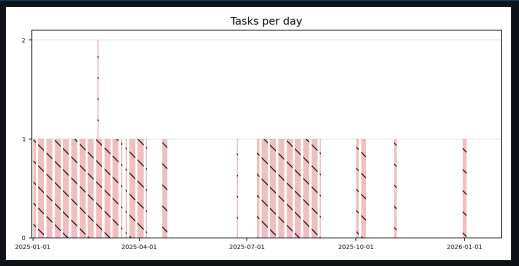

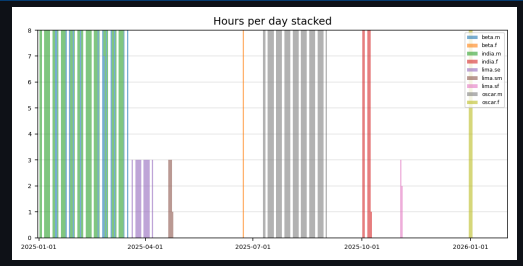

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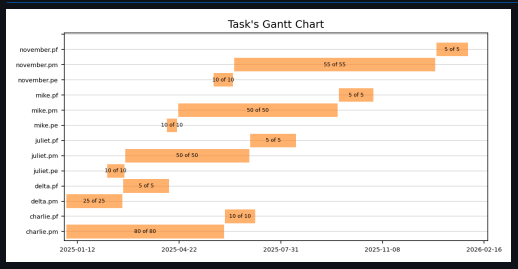

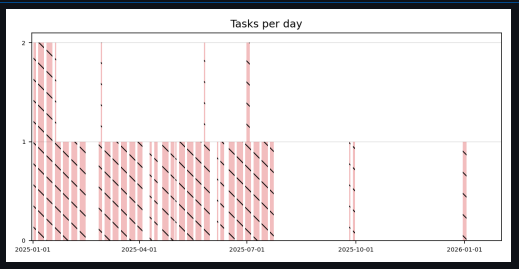

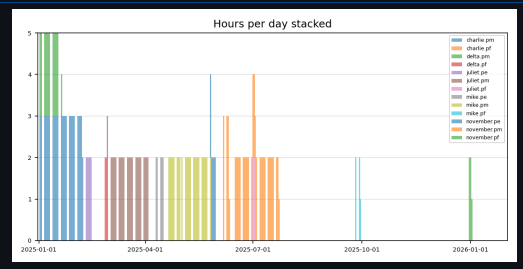

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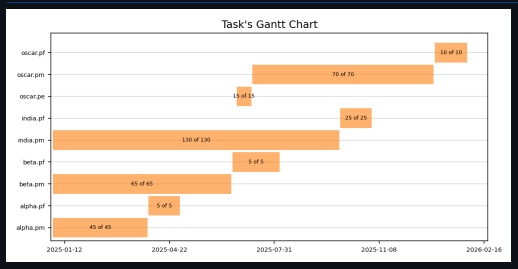

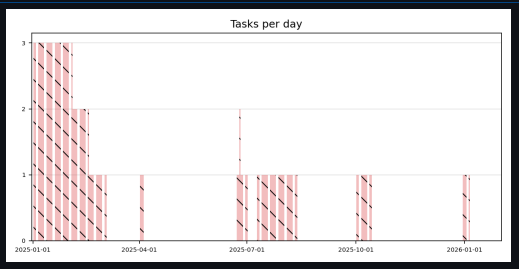

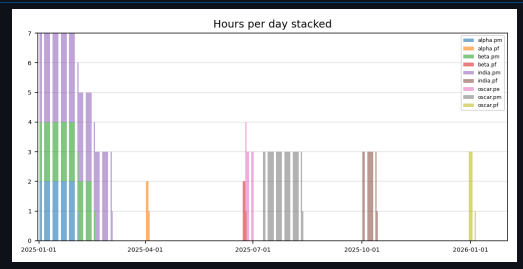

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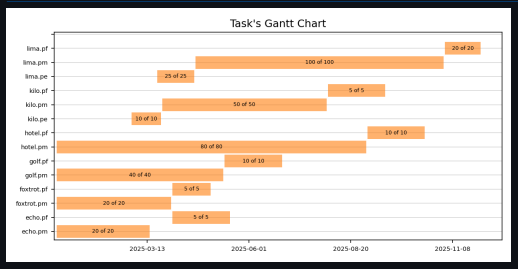

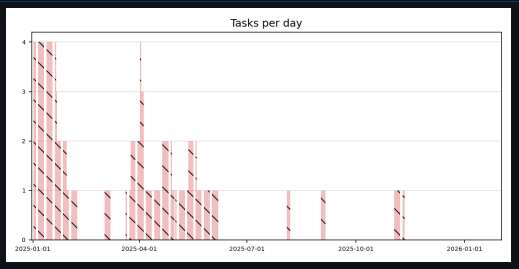

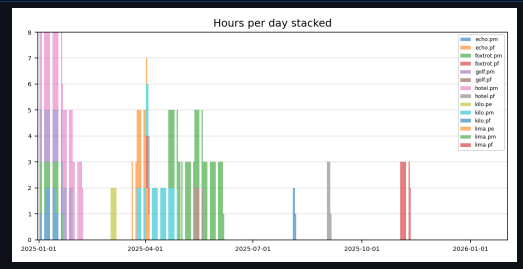

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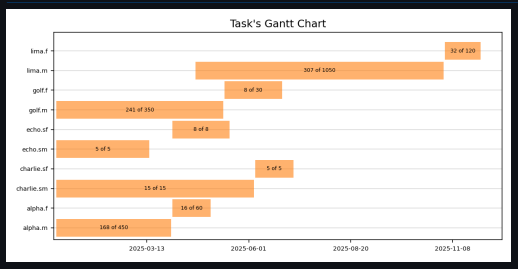

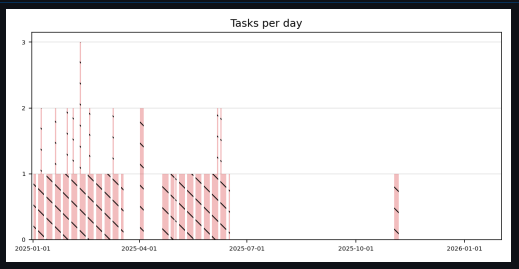

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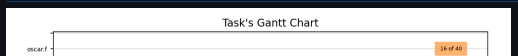

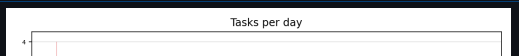

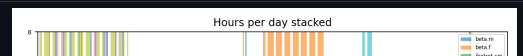

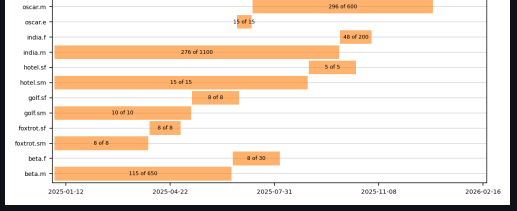

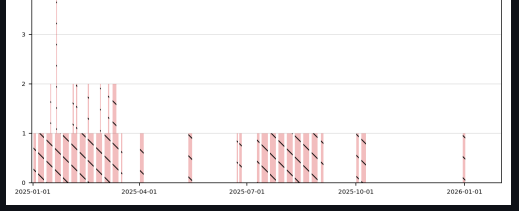

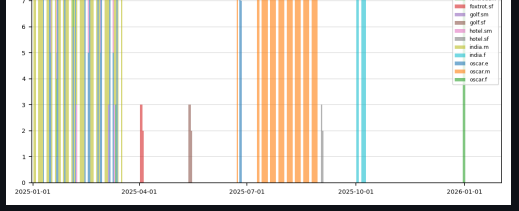

Solver output at 09 January 2025, 08:34:16 AM

```
HiGHS 1.8.1:   tech:outlev = 1
Running HiGHS 1.8.1 (git hash: 4a7f24a): Copyright (c) 2024 HiGHS under MIT licence terms
Coefficient ranges:
  Matrix [1e+00, 8e+00]
  Cost   [1e+00, 1e+00]
  Bound  [1e+00, 8e+00]
  RHS    [1e+00, 1e+03]
Presolving model
191278 rows, 188700 cols, 462903 nonzeros  0s
22839 rows, 104676 cols, 63822 nonzeros  0s
22839 rows, 104457 cols, 63403 nonzeros  0s

Solving MIP model with:
   22834 rows
   104457 cols (9731 binary, 9726 integer, 0 implied int., 0 continuous)
   63403 nonzeros
MIP-Timing:       0.74 - starting analytic centre calculation

Src: B => Branching; C => Central rounding; F => Feasibility pump; H => Heuristic; L => Sub-MIP;
     P => Empty MIP; R => Randomized rounding; S => Solve LP; T => Evaluate node; U => Unbounded;
     z => Trivial zero; l => Trivial lower; u => Trivial upper; p => Trivial point

        Nodes      |    B&B Tree     |            Objective Bounds              | Dynamic Constraints |       Work
Src  Proc. InQueue |  Leaves   Expl. | BestBound       BestSol              Gap |  Cuts   InLp Confl. |  LpIters     Time

         0       0         0   0.00%   27.07268483     inf                  inf        0      0      0         0     0.7s
 R       0       0         0   0.00%   29046.175706    29046.175706      0.00%       0      0      0      3346     0.9s
         1       0         1 100.00%   29046.175706    29046.175706      0.00%       0      0      0      3429     0.9s

Solving report
  Status            Optimal
  Primal bound      29046.1757062
  Dual bound        29046.1757062
  Gap               0% (tolerance: 0.01%)
  P-D integral      0
  Solution status   feasible
                    29046.1757062 (objective)
                    0 (bound viol.)
                    0 (int. viol.)
                    0 (row viol.)
  Timing            0.92 (total)
                    0.00 (presolve)
                    0.00 (solve)
                    0.00 (postsolve)
  Max sub-MIP depth 0
  Nodes             1
  Repair LPs        0 (0 feasible; 0 iterations)
  LP iterations     3429 (total)
                    0 (strong br.)
                    0 (separation)
                    0 (heuristics)
HiGHS 1.8.1: optimal solution; objective 29046.17571
3429 simplex iterations
1 branching nodes
absmipgap=3.63798e-12, relmipgap=0
```