

Yumbo. Scheduling, Planning and Resource Allocation

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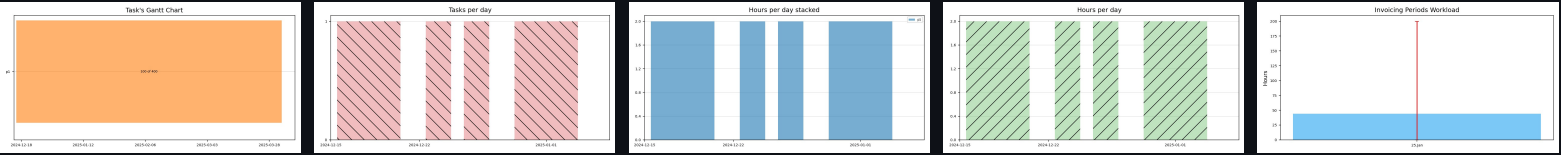
Source code, documentation and sample Excel input files can be found on [Yumbo's](#) GitHub repository.

29 January 2025, 18:53:36 PM

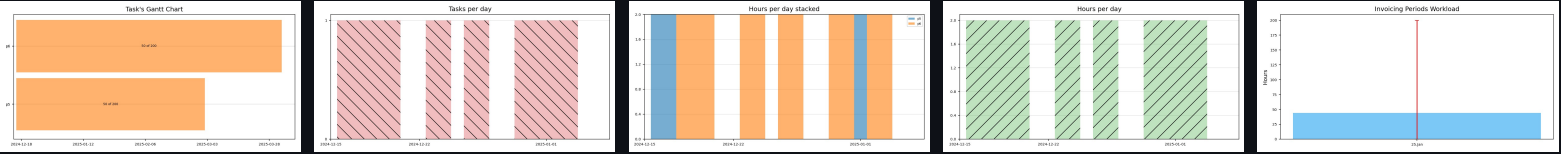
Experts overview



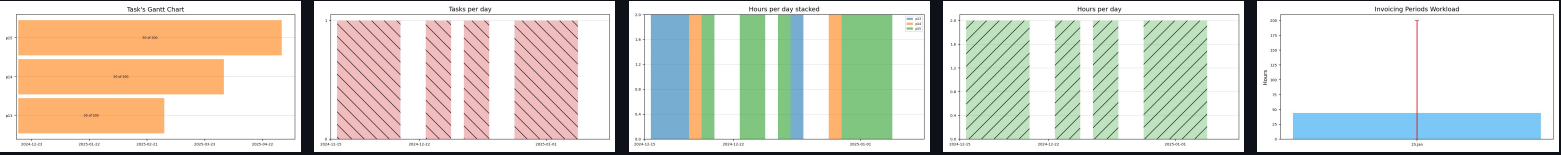
Alojzy 1 task, no bounds



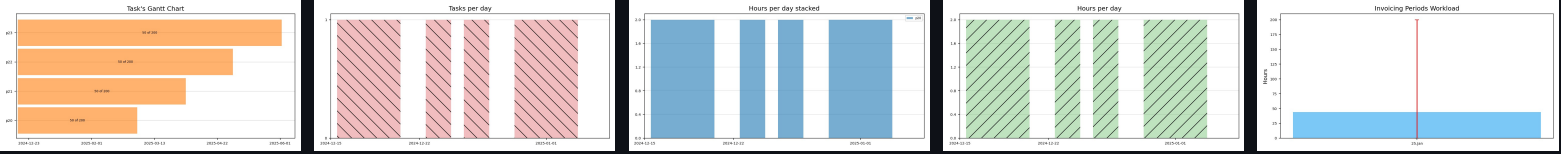
Eugeniusz 2 tasks, no bounds



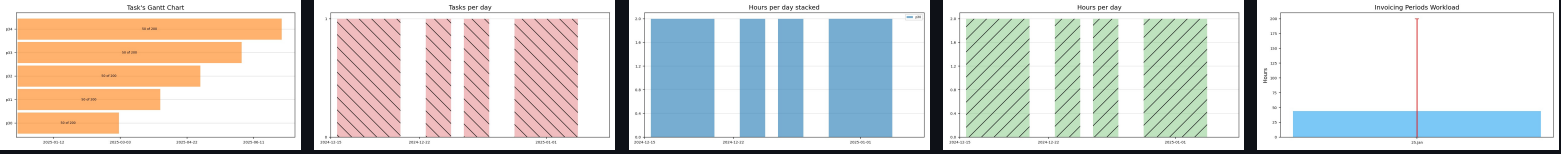
Ignacy 3 tasks, no bounds



Pafnucy 4 tasks, no bounds



Romuald 5 tasks, no bounds



Solver output at 29 January 2025, 18:53:36 PM

```
max_context = 2
tva cells: 0 at level 0
           26 at levels above 0
tva_hcl = 7, tva_len = 128
rewrites: m = 0, o = 26
0 variables, 0 constraints, 0 objectives
max_context = 3
tva cells: 0 at level 0
           42 at levels above 0
tva_hcl = 8, tva_len = 256
rewrites: m = 20, o = 41
29925 variables, 41145 constraints, 1 objectives
84224 nonzeros

Presolve eliminates 27901 constraints and 17050 variables.
"option presolve 10;" used, but "option presolve 2;" would suffice.
Adjusted problem:
12875 variables:
    6400 binary variables
    6400 integer variables
    75 linear variables
13244 constraints, all linear; 34703 nonzeros
    15 equality constraints
    13229 inequality constraints
```

```
linear objective; 75 nonzeros.

presolve results:
  variables omitted: 17050
  constraints omitted: 27901
  ranges relaxed: 13156
  bounds improved: 17050
  nba cycles: 1
  bound row scans: 13245
  row scan updates: 0
SCIP 9.0.1: tech:outlev-native = 5
LP Solver <Soplex 7.0.1>: barrier convergence tolerance cannot be set -- tolerance of SCIP and LP solver may differ
LP Solver <Soplex 7.0.1>: fastmip setting not available -- SCIP parameter has no effect
LP Solver <Soplex 7.0.1>: number of threads settings not available -- SCIP parameter has no effect
transformed problem has 12875 variables (6400 bin, 6400 int, 0 impl, 75 cont) and 13244 constraints
13244 constraints of type <linear>

original problem has 34703 active (0.0203517%) nonzeros and 34703 (0.0203517%) check nonzeros

presolving:
(round 1, fast) 5195 del vars, 10315 del conss, 0 add conss, 0 chg bounds, 0 chg sides, 0 chg coeffs, 0 upgd conss, 0 impls, 0 clqs
(round 2, fast) 10315 del vars, 10315 del conss, 0 add conss, 0 chg bounds, 0 chg sides, 0 chg coeffs, 0 upgd conss, 0 impls, 0 clqs
(round 3, exhaustive) 10315 del vars, 10315 del conss, 0 add conss, 0 chg bounds, 0 chg sides, 0 chg coeffs, 1400 upgd conss, 0 impls, 0 clqs
(round 4, exhaustive) 10315 del vars, 10315 del conss, 0 add conss, 0 chg bounds, 0 chg sides, 0 chg coeffs, 2680 upgd conss, 1400 impls, 0 clqs
(0.1s) probing: 51/1280 (4.0%) - 0 fixings, 0 aggregations, 0 implications, 0 bound changes
(0.1s) probing aborted: 50/50 successive totally useless probings
(0.1s) symmetry computation started: requiring (bin +, int +, cont +), (fixed: bin -, int -, cont -)
(0.1s) no symmetry present (symcode time: 0.00)
cons components found 5 undirected components at node 1, depth 0 (0)
clique table cleanup detected 0 bound changes

presolved problem has 5207 active (0.161549%) nonzeros and 5207 (0.161549%) check nonzeros

presolving (5 rounds: 5 fast, 3 medium, 3 exhaustive):
11191 deleted vars, 11330 deleted constraints, 0 added constraints, 0 tightened bounds, 0 added holes, 0 changed sides, 0 changed coefficients
2796 implications, 0 cliques
presolved problem has 1684 variables (842 bin, 842 int, 0 impl, 0 cont) and 1914 constraints
1727 constraints of type <varbound>
187 constraints of type <linear>
Presolving Time: 0.07
```

time	node	left	LP iter	LP it/n	mem/keur	mdpt	vars	cons	rows	cuts	sepa	confs	strbr	dualbound	primalbound	gap	compl.
p 0.1s	1	0	0	-	vbounds	0	1684	1914	1914	0	0	0	0	1.816962e+04	4.726481e+04	160.13%	unknown
0.1s	1	0	1101	-	60M	0	1684	1914	1914	0	0	0	0	4.726481e+04	4.726481e+04	0.00%	unknown

```
SCIP Status      : problem is solved [optimal solution found]
Solving Time (sec) : 0.11
Solving Nodes    : 1
Primal Bound      : +4.72648053913779e+04 (1 solutions)
Dual Bound        : +4.72648053913779e+04
Gap               : 0.00 %
WARNING: No dual information available when presolving was performed.
max_context = 3
tva cells: 0 at level 0
25 at levels above 0
tva_hcl = 7, tva_len = 128
rewrites: m = 20, o = 41
max_context = 3
tva cells: 0 at level 0
25 at levels above 0
tva_hcl = 7, tva_len = 128
rewrites: m = 20, o = 41
SCIP 9.0.1: optimal solution; objective 47264.80539
1101 simplex iterations
1 branching nodes
max_context = 3
tva cells: 0 at level 0
25 at levels above 0
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rewrites: m = 20, o = 41
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tva cells: 0 at level 0
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```

Statistics on chart creation

Chart title	Chart short name	Number of calls	Total time [s]	Average time [s]	Total nbytes	Average nbytes
Hours per day	himg	5	0.179	0.036	35040	7008
Tasks per day	timg	5	0.177	0.035	27310	5462
Invoicing Periods Workload	wimg	5	0.149	0.030	22240	4448
Hours per day stacked	simg	5	0.143	0.029	22718	4544
Task's Gantt Chart	gimg	5	0.138	0.028	20368	4074
Task's Gantt Chart (Summary)	gimgsum	1	0.040	0.040	3286	3286
Hours per day (Summary)	himgsum	1	0.038	0.038	6912	6912
Tasks per day (Summary)	timgsum	1	0.036	0.036	6064	6064
Plot task with its constrains	blimg	0	0.000	0.000	0	0

Statistics on AMPL solution

Total elapsed time: 0.000 [s]