

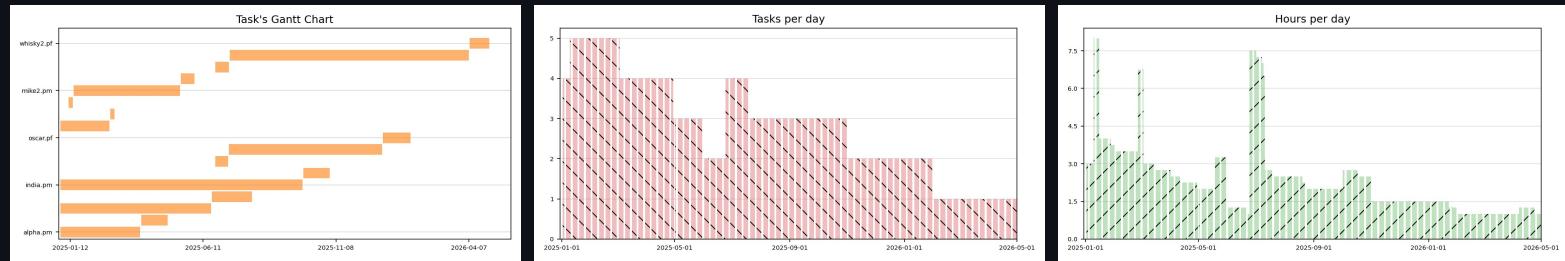
# Yumbo. Scheduling, Planning and Resource Allocation

Zbigniew Romanowski, Paweł Koczyk

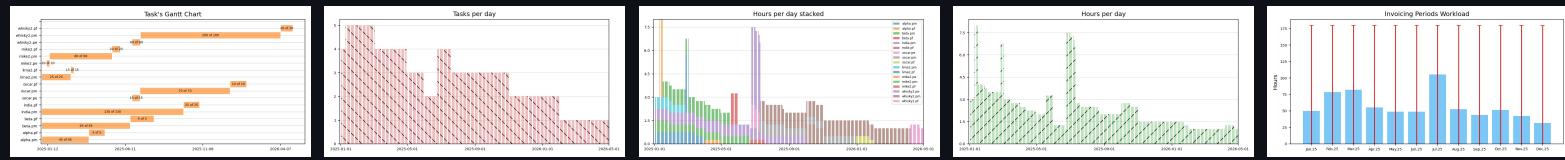
Source code, documentation and sample Excel input files can be found on [Yumbo's GitHub repository](#).

28 January 2025, 13:51:06 PM

## Experts overview



## PM.Daniel the 2nd unit



	Weekdays	alpha.pm	alpha(pf)	beta.pm	beta(pf)	india.pm	india(pf)	oscar.pe	oscar.pm	oscar(pf)	lima2.pm	lima2(pf)	mike2.pe	mike2(pm)	mike2(pf)	whisky2.pe	whisky2(pm)	whisky2(pf)
2025-01-01	Wednesday																	
2025-01-02	Thursday	0.75			0.75		0.75											
2025-01-03	Friday	0.75			0.75		0.75											
2025-01-04	Saturday																	
2025-01-05	Sunday																	
2025-01-06	Monday	0.75			0.75		0.75											
2025-01-07	Tuesday	0.75			0.75		0.75											
2025-01-08	Wednesday	0.75			0.75		0.75											
2025-01-09	Thursday	0.75			0.75		0.75											
2025-01-10	Friday	0.75			0.75		0.75						0.75		5.00			
2025-01-11	Saturday																	
2025-01-12	Sunday																	
2025-01-13	Monday	0.75			0.75		0.75						0.75		5.00			
2025-01-14	Tuesday	0.75			0.75		0.75						0.75		5.00			
2025-01-15	Wednesday	0.75			0.75		0.75						0.75		5.00			
2025-01-16	Thursday	0.75			0.75		0.75						0.75		1.00			
2025-01-17	Friday	0.75			0.75		0.75						0.75		1.00			
2025-01-18	Saturday																	
2025-01-19	Sunday																	
2025-01-20	Monday	0.75			0.75		0.75						0.75		1.00			
2025-01-21	Tuesday	0.75			0.75		0.75						0.75		1.00			
2025-01-22	Wednesday	0.75			0.75		0.75						0.75		1.00			
2025-01-23	Thursday	0.75			0.75		0.75						0.75		1.00			
2025-01-24	Friday	0.75			0.75		0.75						0.75		1.00			
2025-01-25	Saturday																	
2025-01-26	Sunday																	
2025-01-27	Monday	0.75			0.75		0.75						0.75		1.00			
2025-01-28	Tuesday	0.75			0.50		0.75						0.75		1.00			
2025-01-29	Wednesday	0.75			0.50		0.75						0.75		1.00			
2025-01-30	Thursday	0.75			0.50		0.75						0.75		1.00			
2025-01-31	Friday	0.75			0.50		0.75						0.75		1.00			
2025-02-01	Saturday																	
2025-02-02	Sunday																	
2025-02-03	Monday	0.75			0.50		0.75						0.50		1.00			
2025-02-04	Tuesday	0.75			0.50		0.75						0.50		1.00			
2025-02-05	Wednesday	0.75			0.50		0.75						0.50		1.00			
2025-02-06	Thursday	0.75			0.50		0.75						0.50		1.00			
2025-02-07	Friday	0.75			0.50		0.75						0.50		1.00			
2025-02-08	Saturday																	
2025-02-09	Sunday																	
2025-02-10	Monday	0.75			0.50		0.75						0.50		1.00			
2025-02-11	Tuesday	0.75			0.50		0.75						0.50		1.00			

	Weekdays	alpha.p.m	alpha.pf	beta.p.m	beta.pf	india.p.m	india.pf	oscar.pe	oscar.p.m	oscar.pf	lima2.p.m	lima2.pf	mike2.p.e	mike2.p.m	mike2.pf	whisky2.p.e	whisky2.p.m	whisky2.pf
2025-02-12	Wednesday	0.75		0.50		0.75					0.50			1.00				
2025-02-13	Thursday	0.75		0.50		0.75					0.50			1.00				
2025-02-14	Friday	0.75		0.50		0.75					0.50			1.00				
2025-02-15	Saturday																	
2025-02-16	Sunday																	
2025-02-17	Monday	0.75		0.50		0.75					0.50			1.00				
2025-02-18	Tuesday	0.75		0.50		0.75					0.50			1.00				
2025-02-19	Wednesday	0.75		0.50		0.75					0.50			1.00				
2025-02-20	Thursday	0.75		0.50		0.75					0.50			1.00				
2025-02-21	Friday	0.75		0.50		0.75					0.50			1.00				
2025-02-22	Saturday																	
2025-02-23	Sunday																	
2025-02-24	Monday	0.75		0.50		0.75					0.50			1.00				
2025-02-25	Tuesday	0.75		0.50		0.75					0.50			1.00				
2025-02-26	Wednesday	0.75		0.50		0.75						3.75			1.00			
2025-02-27	Thursday	0.75		0.50		0.75						3.75			1.00			
2025-02-28	Friday	0.75		0.50		0.75						3.75			1.00			
2025-03-01	Saturday																	
2025-03-02	Sunday																	
2025-03-03	Monday	0.75		0.50		0.75						3.75			1.00			
2025-03-04	Tuesday	0.75		0.50		0.75									1.00			
2025-03-05	Wednesday	0.75		0.50		0.75									1.00			
2025-03-06	Thursday	0.75		0.50		0.75									1.00			
2025-03-07	Friday	0.75		0.50		0.75									1.00			
2025-03-08	Saturday																	
2025-03-09	Sunday																	
2025-03-10	Monday	0.75		0.50		0.75									1.00			
2025-03-11	Tuesday	0.75		0.50		0.75									1.00			
2025-03-12	Wednesday	0.75		0.50		0.75									1.00			
2025-03-13	Thursday	0.75		0.50		0.75									1.00			
2025-03-14	Friday	0.75		0.50		0.75									1.00			
2025-03-15	Saturday																	
2025-03-16	Sunday																	
2025-03-17	Monday	0.50		0.50		0.75									1.00			
2025-03-18	Tuesday	0.50		0.50		0.75									1.00			
2025-03-19	Wednesday	0.50		0.50		0.75									1.00			
2025-03-20	Thursday	0.50		0.50		0.75									1.00			
2025-03-21	Friday	0.50		0.50		0.75									1.00			
2025-03-22	Saturday																	
2025-03-23	Sunday																	
2025-03-24	Monday	0.50		0.50		0.75									1.00			
2025-03-25	Tuesday	0.50		0.50		0.75									1.00			
2025-03-26	Wednesday	0.50		0.50		0.75									1.00			
2025-03-27	Thursday	0.50		0.50		0.75									1.00			
2025-03-28	Friday	0.50		0.50		0.75									1.00			
2025-03-29	Saturday																	
2025-03-30	Sunday																	
2025-03-31	Monday	0.50		0.50		0.75									1.00			
2025-04-01	Tuesday	0.50		0.50		0.75									1.00			
2025-04-02	Wednesday		0.25	0.50		0.75									1.00			
2025-04-03	Thursday		0.25	0.50		0.75									1.00			
2025-04-04	Friday		0.25	0.50		0.75									1.00			
2025-04-05	Saturday																	
2025-04-06	Sunday																	
2025-04-07	Monday		0.25	0.50		0.75									1.00			
2025-04-08	Tuesday		0.25	0.50		0.75									1.00			
2025-04-09	Wednesday		0.25	0.50		0.75									1.00			
2025-04-10	Thursday		0.25	0.50		0.75									1.00			
2025-04-11	Friday		0.25	0.50		0.75									1.00			
2025-04-12	Saturday																	
2025-04-13	Sunday																	
2025-04-14	Monday		0.25	0.50		0.75									0.75			
2025-04-15	Tuesday		0.25	0.50		0.75									0.75			
2025-04-16	Wednesday		0.25	0.50		0.75									0.75			
2025-04-17	Thursday		0.25	0.50		0.75									0.75			





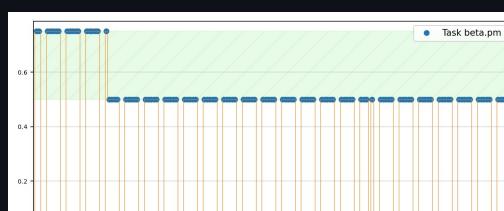
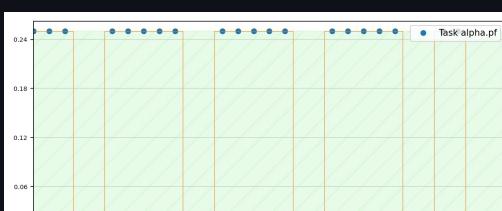
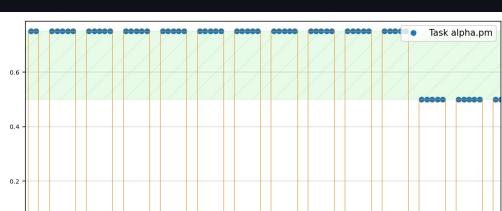






	Weekdays	alpha.p.m	alpha.pf	beta.p.m	beta.pf	india.p.m	india.pf	oscar.pe	oscar.p.m	oscar.pf	lima2.p.m	lima2.pf	mike2.p.e	mike2.p.m	mike2.pf	whisky2.p.e	whisky2.p.m	whisky2.pf
2026-03-09	Monday																	1.00
2026-03-10	Tuesday																	1.00
2026-03-11	Wednesday																	1.00
2026-03-12	Thursday																	1.00
2026-03-13	Friday																	1.00
2026-03-14	Saturday																	
2026-03-15	Sunday																	
2026-03-16	Monday																	1.00
2026-03-17	Tuesday																	1.00
2026-03-18	Wednesday																	1.00
2026-03-19	Thursday																	1.00
2026-03-20	Friday																	1.00
2026-03-21	Saturday																	
2026-03-22	Sunday																	
2026-03-23	Monday																	1.00
2026-03-24	Tuesday																	1.00
2026-03-25	Wednesday																	1.00
2026-03-26	Thursday																	1.00
2026-03-27	Friday																	1.00
2026-03-28	Saturday																	
2026-03-29	Sunday																	
2026-03-30	Monday																	1.00
2026-03-31	Tuesday																	1.00
2026-04-01	Wednesday																	1.00
2026-04-02	Thursday																	1.00
2026-04-03	Friday																	1.00
2026-04-04	Saturday																	
2026-04-05	Sunday																	
2026-04-06	Monday																	1.00
2026-04-07	Tuesday																	1.00
2026-04-08	Wednesday																	1.25
2026-04-09	Thursday																	1.25
2026-04-10	Friday																	1.25
2026-04-11	Saturday																	
2026-04-12	Sunday																	
2026-04-13	Monday																	1.25
2026-04-14	Tuesday																	1.25
2026-04-15	Wednesday																	1.25
2026-04-16	Thursday																	1.25
2026-04-17	Friday																	1.25
2026-04-18	Saturday																	
2026-04-19	Sunday																	
2026-04-20	Monday																	1.25
2026-04-21	Tuesday																	1.25
2026-04-22	Wednesday																	1.25
2026-04-23	Thursday																	1.25
2026-04-24	Friday																	1.00
2026-04-25	Saturday																	
2026-04-26	Sunday																	
2026-04-27	Monday																	1.00
2026-04-28	Tuesday																	1.00
2026-04-29	Wednesday																	1.00
2026-04-30	Thursday																	1.00

Show schedule as Streamlit table





## Solver output at 28 January 2025, 13:50:27 PM

```

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, 3e+01]
  Cost [1e+00, 1e+00]
  Bound [1e+00, 4e+02]
  RHS [2e+01, 8e+02]
Presolving model
121 rows, 1002 cols, 1164 nonzeros  0s
13 rows, 948 cols, 948 nonzeros  0s

Solving MIP model with:
 13 rows
 948 cols (54 binary, 894 integer, 0 implied int., 0 continuous)
 948 nonzeros
MIP-Timing:  0.0051 - 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%  10506.657159 inf   inf   0   0   0   0   0.0s
T      0     0       0  0.00%  10506.657159 11864.110632 11.44%  0   0   0   13  0.0s
      1     0       1 100.00% 11864.110632 11864.110632 0.00%   0   0   0   13  0.0s

Solving report
  Status      Optimal
Primal bound  11864.1106322
Dual bound   11864.1106322
  Gap        0% (tolerance: 0.01%)
P-D integral 2.53695526471e-06
Solution status feasible
               11864.1106322 (objective)
               0 (bound viol.)
               0 (int. viol.)
               0 (row viol.)
Timing       0.01 (total)
               0.00 (presolve)
               0.00 (solve)
               0.00 (postsolve)
Max sub-MIP depth 0
Nodes        1
Repair LPs    0 (0 feasible; 0 iterations)

```

