

Stochastic Distributed Operating Room Scheduling Data

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This document contains the description for data files used in Section 7.3 of the paper [1]. We first describe the data format, then present the bounds on the optimal objective values for the instances used in algorithmic performance comparison.

1 Online Data Explanation

- File: “Data” + instanceNo + “.txt” (where the instanceNo is of the form $|\mathcal{P}|-|\mathcal{H}|-|\mathcal{D}|-|\mathcal{R}_h|$)
 - First line: $|\mathcal{D}|$
 - Next line: $|\mathcal{H}|$
 - Next line: $|\mathcal{P}|$
 - Next line: $|\mathcal{R}_h|$ (the same for all $h \in \mathcal{H}$)
 - Next line: Γ
 - Next line (array of arrays, $|\mathcal{H}|\times|\mathcal{D}|$ dimensional): B_{hd}
 - Next line (array, $|\mathcal{P}|$ dimensional): α_p
 - Next line (array of arrays, $|\mathcal{H}|\times|\mathcal{D}|$ dimensional): F_{hd}
 - Next line (array of arrays, $|\mathcal{H}|\times|\mathcal{D}|$ dimensional): G_{hd}

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- Next line (array, $|\mathcal{P}|$ dimensional): ρ_p
- Next line (array of arrays, $|\mathcal{S}| \times |\mathcal{P}|$ dimensional where $|\mathcal{S}|=100$): T_p^s

Note: This simulated dataset is generated from the distributions that we specify in Table A.1 of the Online Supplement for the paper [1].

2 Bounds on Optimal Objective Values

We provide the bounds on the optimal objective values of the instances in Table 3 of the paper [1]:

instance (p-h-d-r)	Upper bound				Lower bound			
	MIP	2-BDD	2-LBBD	3-LBBD	MIP	2-BDD	2-LBBD	3-LBBD
10-2-3-3	-117624	-117624	-117670	-117670	-121791	-118942	-120374	-118846
25-2-3-3	-248226	-252010	-253491	-249238	-270446	-271294	-270995	-271257
10-3-5-3	-117227	-117671	-117595	-117671	-122988	-120685	-120976	-118848
25-3-5-3	-237579	-247676	-247807	-248107	-303302	-285972	-288467	-271396
50-3-5-3	-348987	-433702	-391874	-380486	-575416	-497868	-505676	-563132
75-3-5-3	-543465	-701741	-678157	-623547	-935073	-810305	-815450	-914787
10-2-3-5	-117246	-119551	-118935	-118935	-123717	-120747	-121361	-120123
25-2-3-5	-251989	-253335	-255321	-	-272813	-273208	-273697	-
50-2-3-5	-356952	-435996	-452404	-	-576825	-500404	-500430	-
75-2-3-5	-611189	-696665	-694526	-	-4.59E+07	-816907	-815859	-
10-3-5-5	-118885	-119537	-117611	-119588	-124154	-123104	-122992	-120784
25-3-5-5	-246072	-251945	-251931	-	-310220	-288198	-291088	-
50-3-5-5	-359391	-449867	-448060	-	-573054	-531333	-540158	-
75-3-5-5	-613869	-676269	-726670	-	-942196	-829453	-845029	-

References

- [1] C. Guo, M. Bodur, D. M. Aleman, and D. R. Urbach. Logic-based Benders decomposition and binary decision diagram based approaches for stochastic distributed operating room scheduling. *arXiv preprint arXiv:1907.13265*, 2019.