

Lab Session n. 1: report

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1 Introduction

In this report I will provide the results I achieved modeling through three different solvers. I will use normal text to represent a partial solution, **bold** text to represent optimal solutions and **bold and underlined** text to represent optimal and proved solutions.

I tried different **search.strategies** and I kept the best ones: the strategies used are annotated in the **.mzn** models.

Lastly, I want to point out that the **Gecode** solver in testcase **wlp-100.dzn** in both assignments 3 and 4, ran out of memory (8 GB of RAM and 10 GB of SWAP): I hardly believe that the solver has memory leak issues and I honestly think that the problem relies in my model; nevertheless it could be interesting investigating more.

2 Technical aspects

The machine used has:

CPU: Intel i5-8250U @ 3.40 GHz

RAM: 8 GB

Operating System: Linux Fedora 33

Tests were done with 3 minutes runtime (option **--time-limit 180000**).

3 Assignment 3

Instance	Gecode 6.3.0	Chuffed 0.10.4	Coin-BC 2.10.5
wlp-1	<u>1931</u>	<u>1931</u>	<u>1931</u>
wlp-2	<u>1891</u>	<u>1891</u>	<u>1891</u>
wlp-3	4426	4358	4358
wlp-4	6503	4308	4246
wlp-5	5190	3827	3502
wlp-6	10930	8465	4108
wlp-7	6849	5280	4276
wlp-8	12467	6633	4888
wlp-9	11951	12653	7959
wlp-10	12517	12371	8893
wlp-12	13900	10999	4890
wlp-15	26951	25412	14881
wlp-20	31073	27733	9727
wlp-30	45778	47793	11964
wlp-50	71237	72126	15164
wlp-100	====ERROR====	126018	20848

4 Assignment 4

Instance	Gecode 6.3.0	Chuffed 0.10.4	Coin-BC 2.10.5
wlp-1	<u>1931</u>	<u>1931</u>	<u>1931</u>
wlp-2	<u>1891</u>	<u>1891</u>	<u>1891</u>
wlp-3	4553	4553	4553
wlp-4	4366	4366	4366
wlp-5	3530	3530	3530
wlp-6	4108	4108	4108
wlp-7	4429	4429	4429
wlp-8	4961	4961	4961
wlp-9	8905	8656	8145
wlp-10	10443	9699	9070
wlp-12	6815	5512	5379
wlp-15	21766	19381	15116
wlp-20	21949	19507	10202
wlp-30	37648	40383	12257
wlp-50	57959	==UNKNOWN==	16517
wlp-100	====ERROR====	==UNKNOWN==	23223

5 Assignment 5

For assignment 5 I wrote two models: results of this table were measured from Assignment5.mzn.

Assignment5_Fast_CoinBC.mzn is a faster model for Coin-BC solver (10x faster on wlp-100.dzn).

Instance	Gecode 6.3.0	Chuffed 0.10.4	Coin-BC 2.10.5
wlp-1	<u>1931</u>	<u>1931</u>	<u>1931</u>
wlp-2	<u>1891</u>	<u>1891</u>	<u>1891</u>
wlp-3	<u>4553</u>	<u>4553</u>	<u>4553</u>
wlp-4	<u>4366</u>	<u>4366</u>	<u>4366</u>
wlp-5	<u>3530</u>	<u>3530</u>	<u>3530</u>
wlp-6	<u>4108</u>	<u>4108</u>	<u>4108</u>
wlp-7	<u>4429</u>	<u>4429</u>	<u>4429</u>
wlp-8	<u>4961</u>	<u>4961</u>	<u>4961</u>
wlp-9	8272	<u>8145</u>	<u>8145</u>
wlp-10	9149	<u>9070</u>	<u>9070</u>
wlp-12	5485	<u>5379</u>	<u>5379</u>
wlp-15	15544	<u>15116</u>	<u>15116</u>
wlp-20	10402	<u>10202</u>	<u>10202</u>
wlp-30	13343	13280	<u>12257</u>
wlp-50	17543	17239	<u>15457</u>
wlp-100	24295	24295	<u>21302</u>