Schedule for Examination Session

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Overview

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Problem Constraints

Input Data Format

Solution

Graphical User Interface

Generated Schedule Result

Conclusion And Future Work

Motivation

Schedule for examination session

Need for a semi-automatic solution

Simple user interface

Problem Constraints

Implemented Hard Constraints

- Exams scheduled per year and specialization
- Exams scheduled between start and end day
- Exams scheduled between hours 8:00 and 18:00
- ► Each exam scheduled in exactly one time slot where the duration of the exam is less than or equal to the duration of the time slot
- Professors should have at most one exam in any given time slot
- Students should have at most one exam in any given day

Input Data Format

CSV file with Subject, Section, Teacher, Year

Subject	Section	Teacher	Year
IA	IR	V. Negru	3
P1	IA	C. Bonchis	1
ED	IR	L.Tanasie	3
P3	IE	A. Spataru	2

Table: Input Data Sample

Solution

Python programming language

Constraint modelling

Z3 SMT Solver

Graphical User Interface

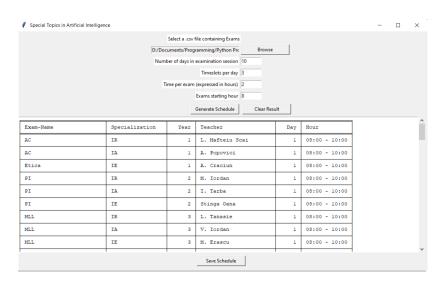


Figure: Graphical User Interface

Generated Schedule Result

Exam-Name	Specialization	Year	Teacher	Day	Hour
AC	IR	1	L. Mafteiu Scai	1	08:00 - 10:00
AC	IA	1	A. Popovici	1	08:00 - 10:00
Etica	IE	1	A. Craciun	1	08:00 - 10:00
PI	IR	2	M. Iordan	1	08:00 - 10:00
PI	IA	2	I. Tarba	1	08:00 - 10:00
PI	IE	2	Stinga Oana	1	08:00 - 10:00
MLL	IR	3	L. Tanasie	1	08:00 - 10:00
MLL	IA	3	V. Iordan	1	08:00 - 10:00
MLL	IE	3	M. Erascu	1	08:00 - 10:00
ASDI	IR	1	D. Zaharie	2	08:00 - 10:00
LC	IA	1	A. Fortis	2	08:00 - 10:00
AC	IE	1	C. Cira	2	08:00 - 10:00
MF	IR	2	M. Erascu	2	10:00 - 12:00

Figure: Generated Schedule

Conclusion And Future Work

A functional application able to generate an examination schedule, while taking into considerations several hard constraints was created

Future work:

- Refactor code to improve time for processing and schedule generation
- ▶ Implement a more intuitive and better looking GUI
- ▶ Satisfy the hard constraint of having days set between exams
- Satisfy soft constraints of professor time preference and add solution to GUI