College Scheduling

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Abstract

MAI-CPP assgnment.

In this assignment we consider the task of **building a weekly schedule to the lectures of a university**. Given a set of lectures, the goal is to assign to each one a time slot subject to a number of constraints.

1 Introduction

Let's assume that we have a set of c **courses** (e.g. CPP, IML, ...). Since there are many students that want to take these courses and the capacity of the rooms is bounded, there are g **groups** of each (e.g. CPP1, CPP2,..., are the different groups of CPP). To keep things simple, we assume that all the courses consist of **2 lectures per week**, each lecture lasts 1 hour, one of the lectures is **theory** (T) and the other is a **lab** (L). Thus, CPP2L represents the lab lecture of group 2 of CPP. The university has nt and nl lecture room for theory and lab lectures, respectively. For each course i, there are t_i lecturers available. All lectures must be scheduled from Monday to Friday, from 9am to noon.

Constraints:

- For every course and group, its two lectures have to be scheduled on different days and the lab has to be scheduled after the theory
- At every time slot, there must be enough lecture rooms and lecturers available for the scheduled lectures.
- In order to allow students to attend to all the courses, and assuming that enrollment is based on groups, for every group there cannot be any overlapping among its lectures (e.g. no overlapping of any lecture of group 1, 3,...,g)

2 Assignment

You have to write a MiniZinc model for this problem. The format of .dzn files has to be as in the following example:

```
c = 5; %number of courses
g = 2; %number of groups per course
nt = 5; %number of theory rooms
nl = 5; %number of laboratory rooms
```

```
d = 5; % number of days
ini = 9; %first available hour
end = 12; %last available hour

NT =[2| i in 1..c]; %number of teachers per course
```