Assignment 1: Lecture room scheduling

Team assignment: The assignment can have atmost 2 members.

Objective: The aim is to schedule the IIT Goa lecture rooms so that there is no clash between lectures.

Input: The information about the IIT Goa lecture rooms will be given as input to your program. The input file will be of the following format.

> Room Types: {small, big, chemistry, physics, electrical, mechanical, cs}
>
> Classrooms: {(room name, room type),…}
> Eg: {(T1, small), (LH1, big), (physics lab, physics),…}
>
> Courses: {(course name, room name, course time, faculty list, batch year), …. }
> Eg: {(cs201, T1, {1.5,1.5}, {Amal, Clint}, 2), (cs25, LH1, {1,1,1}, {Sharad}, 3),…}
>
> Institute time: {8.30 - 12.30, 14.00 - 17.00}

Program (Python recommended): It should encode the input into a propositional formula such that there is a schedule if and only if the formula is satisfiable. This formula should then be passed to a SAT Solver (like Z3) such that, the solver will return a valid satisfying assignment (if the formula was satisfiable). This output can then be used by your program.

Output: Print a schedule with the information on when and where a lecture will be held. The best format is to print like a calendar.

Deliverables: 1) A write up on your formula. This should include what are the propositions and how you constructed the formula.
2) The program source code

Submission deadline: **30th September midnight**

Assumption on time: Lectures are of 1hr, 1.5hrs, 2hrs or 3hrs time slots.

Bonus marks: Faculties can mark which time and days of the week he/she would prefer (would not prefer) his lectures. Similarly, a batch can mark when the batch does/does not want lectures.