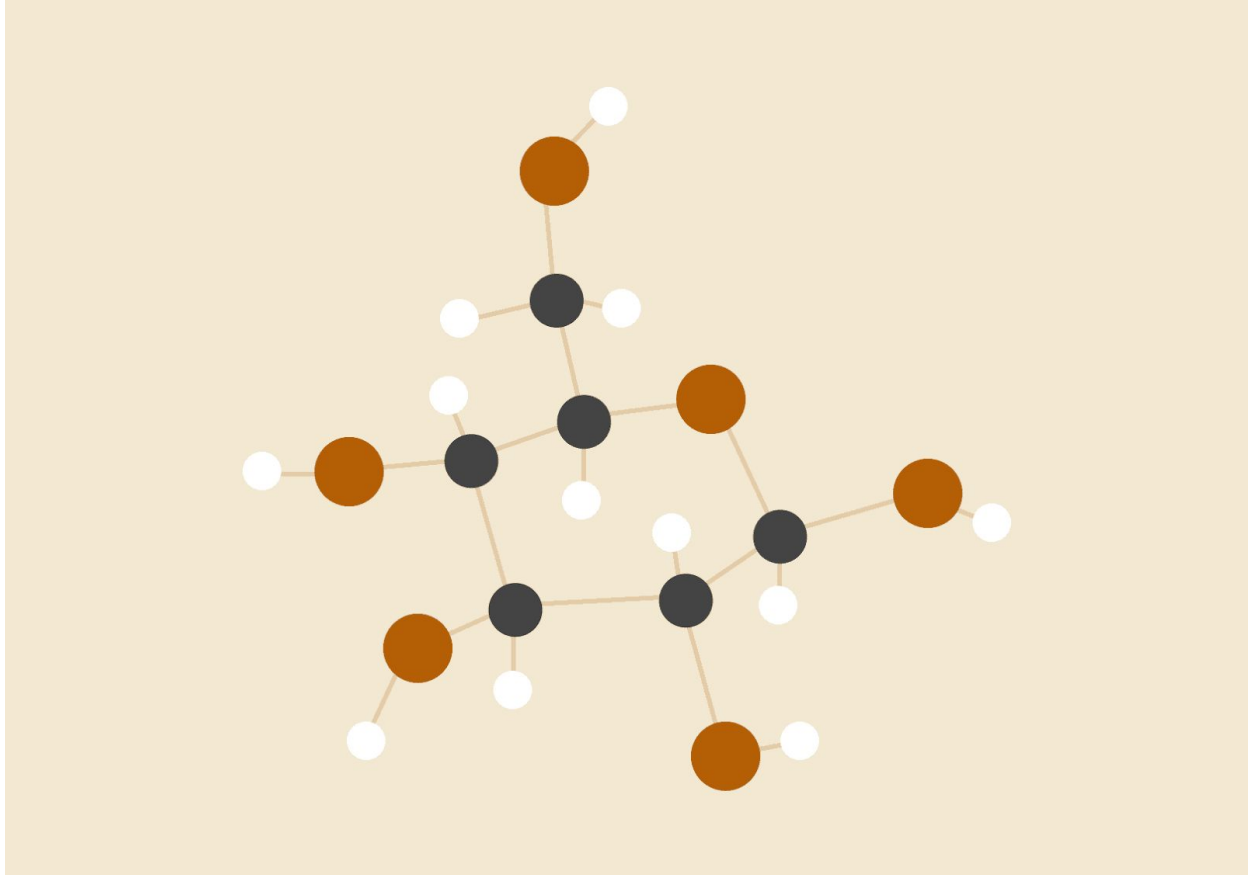


AI Assignment 6



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Problem Statement

To create a scheduler for exams like Mid Semester and End Semester exam, which will be responsible for showing time and date for each course, seating arrangement of corresponding students, and allocating invigilation to profs, research scholars.

Inputs

Data of Invigilators contain the names of professors and teaching assistant.

Data of students containing details like roll no., dept., name and the courses in with each student is enrolled

Data and time of for taking examination,

Available rooms and their capacity

Output

Output is a schedule (table) of seating arrangement in the venues, courses and their time slots.

Assignment of invigilators for the each time slots.

Atomic Variables and c=their constraints :-

- Course exam, day and Student
 - A student should have at least 1 hour free in between his/her two consecutive exams, whether main or additional.
 - maximum 2 exams in a day for a student
- venue, time slot and Invigilator.
 - Consecutive Invigilation duties should have gap of 1hr or more
 - Assigned one venue only at same time, venue should have particular number of invigilators
 - No more than 2 invigilation duties in a day for each person
- Venue, capacity of venue and number of students
 - Venue should not have students more than its capacity

- Venue, time slot and Student
 - student writing exam of same course shouldn't sit adjacent to each other
 - Students sitting consecutively in column should have different courses
 - Less than equal to 3 students should sit on same bench

Why this is AI problem and not ML problem:

This problem requires thinking and reasoning to create the required schedule. We don't have an input array, instead we have information, machine needs to acquire knowledge from the information and use its intelligence to form a time table.

We need our machine to understand the given data and apply its knowledge to form the schedule, unlike ML, in which performance is increased with experience and machine learns from provided data. We want our machine to make decisions without much data previously given and have decision making capability which agree with the constraints too.

There can be multiple correct answer, that is there can be multiple schedules matching the constraints and all are correct.

Modelling as Machine Learning Problem:

This can be Modelled as a Machine learning problem if we have well defined datasets of student and invigilators, beginning and commencement dates of examination along with available venues and their capacities and, the span of days in which exams are to be held.

We will also need sample answers for each case. The number of students and invigilators able to be present and number clashes can be measure to check accuracy.

Paradigm and Architectures :

We can check if solution is correct without actually solving it there it is NP complete problem, using a heuristic approach is beneficial. Or We can apply HMM and viterbi algorithm and maximum likelihood estimator for best possible outcome.