Pulle D.M.P - 190478E

Control Satisfaction Problem

A constraint satisfaction problem is defined by a collection of variables (x_1, x_2,.., x_n), a domain D_i with all possible values for each variable (x_i), and a set of assumptions about the relationships between the variables' values. If a problem is a control satisfaction problem then that problem needs to have three main properties.

- Variables: may store a variety of different values but it should only ever store one value at a time.
- Domain: values that variables can hold
- Constraints: conditions that must satisfy while assign value for variables from the domain

Timetabling Assignment problem also has above mentioned three properties.

- Variables – subjects
- Domain – possible time ('M1' , 'M2' , …) and room ('R1' , 'R2' , …) pairs for a subject
- Constraints
  - A given subjects can be assigned only to one of the possible time slots given for that subject.
  - Two compulsory subjects cannot be in the same time slot (optional subjects may).
  - Two subjects cannot be assigned to the same room if they are assigned to the same time slot.

So this problem also a Constraint Satisfaction Problem. Here we can define the initial state as empty list (initially any class has not assigned to a time slot), successor function as backtrack search function and the goal test will be the final answer which contains time slots (got from each subject domain) for every subject and each time slot satisfies all constraints.