***A Study on Automatic Timetable Generator***

Even though the organizing work of the majority of colleges has been mechanized, the preparation of the course schedule is still commonly done by hand due to its inherent difficulties. The physical preparation of the class schedule requires a lot of time and effort. Manual scheduling of course schedules is a problem of execution of limitations in which we find a result that satisfies the given set of constraints. This problem could be solved using a variety of methods obtained from operation study like tabu search, simulated annealing, genetic algorithms etc. In this paper, the timetable problem is formulated as a constraint fulfillment problem and a realistic timetable algorithm that is able to take care of both hard and soft constraints is proposed. The main advantage of constraint programming is declaratively a clear statement of constraints that act as part of the program. This makes it easier to adapt the program, which is important in case of timetable problems. Constraints are handled by a constraint propagation system that reduces the domain of variables associated with backtracking search.

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***Automated Time Table Generation Using Multiple***

***Context Reasoning for University Modules***

This article discusses the scheduling problem (TTP), which covers a very wide range of real-world problems that are constantly encountered in educational institutions, and we describe how evolutionary algorithms (EAs) can be used to effectively deal with arbitrary cases of automated scheduling problems. It presents an algorithm combining constraint satisfaction and local research methods to solve a real university scheduling problem involving multiple contexts. The algorithm guides the construction of feasible schedules while local research tries to resolve constraint violations that may still occur. The project uses the mutation scheme. The process of mutation is done with an intelligent and adaptive approach. The mutation operator randomly selects a chromosome from the new population and chooses a random gene from the chromosome for the mutation. The gene value of the chosen gene of the selected chromosome will be changed randomly, but selectively, based on the gene data, whether it is a lecture or tutorial. The intelligent adaptive mutation scheme has been employed for speeding up the convergence.

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***Timetable Generation System***

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In this paper, mainly a time table generating algorithm is proposed. The algorithm generates a time table that does not have any clashing slots and produces a HTML based time table semester sheet as output. This algorithm takes on various parameters such as list of teachers, list of courses, different time slots and other needed parameters along with various constraints on slots availability, availability of labs, teachers, etc. These inputs are taken by web based forms and are stored in XML based knowledge base. This system is a website and provides an easily accessable interface to students, faculty and admins. It's main objective is to make generation of timetables easy and less time consuming.

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***Automated Timetable Generator using Particle Swarm Optimization***

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In this paper, it is proposed to generate a timetable that can abide by the hard and soft constraints. Hard constraints are constraints that cannot be violated since it is physically not possible for example, two courses cannot be conducted at the same time in the same class, a teacher cannot have two lectures at the same time slot, and other such conditions that can not be violated. Soft constraints are more like the students'and teachers' preferences, for example, a teacher would prefer to have classes at a particular time slot, a Student would rather not have free classes in between other classes but instead have them at the start of end of the day, and others. This is achieved by using the Particle Swarm Optimization algorithm. In this we consider a particle with some position and velocity and we calculate a fitness value. The the fitness value is compared to its previous fitness value and to that of other particles and a personal best and global is obtained. Whenever another new best is achieved the personal best and global best scores are updated. This is done in many iterations.

The model inputs the teacher preferences for labs and classes of that subject. Then it formulates linear mathematical model for scheduling of the course. Then it assigns load to the teacher according to designation (sticking to the Hard constraints and teacher's preferences). It supports the preferences according to their weight (how much importance it carries). It sets the values in variables and functions and performs Particle Swarm Optimization algorithm. After all this is done, a subject is allocated to the teacher and objective function is calculated. Thus a very satisfying timetable is obtained.

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***AUTOMATIC TIME TABLE GENERATION USING***

***GENETIC ALGORITHM***

Although most of the administrative tasks of the university have been computerized, due to the difficulties encountered, the schedule is still done manually. Manual programming requires a lot of time and effort. A schedule consists of assigning a certain resource to objects placed in time and space so that they fulfill a set of ideal objectives. The subject of the university course schedule requires us to find spaces and classrooms to respect the limitations imposed on courses, teachers, classrooms, etc. This problem is a combinatorial optimization problem, in which the computation time increases exponentially with the increase in the number of variables. Stochastic research are designed for inherent random noise problems or deterministic problems solved by injected chance. In structural optimization, these are problems with uncertainties of design variables or those where adding a random perturbation to deterministic design variables is the method for performing the search. Research favors design with better performance. Randomly disturbed designs are checked against constraints, and only those who pass the check will enter the performance evaluation phase. Stochastic research can be applied to a model or population of them using for example SA or GA, respectively. GAs are popular stochastic search algorithms based on Darwin's idea of theory of evolution. Rather than operating on a single design and its disturbance, as in SA, GA operates on a population of designs. The designs are then analyzed and ranked according to their objective functional performance (fitness). The generation of a new conception population includes a random selection of two conceptions (parents) and a random exchange of part of their properties (reproduction). Sometimes a conception is also disturbed at random (mutation). This process is repeated until an entirely new population (children) is formed. The GA framework is effective on many practical issues of university department size, so we seem to be able to demonstrate the expectation that it can also work well on other issues of similar size and nature.

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