

Automatic Timetable Generator System

Sweety G. Rangari¹, Vrushali K. Kadam², Prof. Poonam A. Manjare³

^{1,2}Student, Computer Science and Engineering, H.V.P.M COET, Amravati, India

³Assistant Professor, Computer Science and Engineering, H.V.P.M COET, Amravati, India

Abstract: *Creating such timetables manually is complex and time-consuming process. The traditional hand operated method of time table is very time consuming and usually ends up with various classes clashing with same teachers having more than one class at a time which is being resolved by Automatic time table scheduling. In this paper we introduces a practical timetabling approach capable of taking care of both hard and soft constraints required specially for preparing time table in colleges with large number of students and limited resources like class-rooms or labs. To overcome all these problems we propose to make an automated system. This paper also presents an evolutionary algorithm (EA) based approach to solving a heavily constrained university timetabling problem which has been used in other projects also. The automated time table scheduling provides easier ways for teachers and student to view their timetable once they are finalized over the application, having individual login id and passwords, and also some staff usually takes the previous year's timetable and modify it but still it is a tedious job to incorporate changes.*

1. Introduction:

A college timetable is a temporal arrangement of a set of lectures and classrooms in which all given constraints are satisfied. Creating such timetables manually is complex and time-consuming process. The manual lecture-timetable scheduling demands considerable time and efforts. Our main challenge is to be able to automatically time table that students belonging to semester can easily register with no timetable clashes for the semester they are studying for. This project introduces a practical timetabling algorithm capable of taking care of both strong and weak constraints effectively, used in an automated timetabling system. So that each teacher and student can view their timetable once they are registered for a given semester.

Literature Review:

The paper by Anirudha Nanda, Manisha P. Pai, and Abhijeet Gole published in IJARCCCE uses two approaches. One in which course registration is

done before generation of timetable and the other in which course registration is done after generation of timetables. The former approach was implemented when there was more number of resources whereas the latter was used when resources were limited and need to be properly utilized.

The paper by Asif Ansari, Prof Sachin Bojewar published in IJRITCC journal explains the various approaches used by the researchers to develop an automatic timetable using Genetic algorithms.

The paper by Mugdha Patil, Prachi Pawar, Naveena Turkar in IJCET journal evolutionary techniques have been used to solve the time table scheduling problem. Methodologies like Genetic Algorithms (GAs), Evolutionary Algorithms (EAs) etc have been used with mixed success. In this paper, we have reviewed the problem of educational time table scheduling and solving it with genetic algorithm. We have further solved the problem with a mimetic hybrid algorithm, genetic artificial immune network (GAIN) and compare the result with that obtained from GA. Results show that GAIN is able to reach the optimal feasible solution faster than that of GA.

2. Working:

In order to deal with the timetabling issue, we are putting forward a system which would mechanically generate timetable for the different courses of the institute. Courses and lectures will be scheduled in accordance with all the possible constraints and the given inputs and thus, a timetable will be generated. The system will allow interaction between the staff and students and at the same time enable them to upload their queries, notes, presentations and e-books. The necessary changes and the additional constraints for the next week timetable will also be considered by this timetable generation system.

The flow chart shows overall working of AUTOMATIC TIME TABLE GENERATOR System. It includes soft and hard constraints, input as student details, teacher details, and subject details. By using this collection of input from user the system will generate optimized time table for

the institution which needs the time to be scheduled.

The Admin module of the system contains Login Page. The Admin have to login first with the valid user-id and password which in turn opens the Home Page which contains the information about AUTOMATIC TIME TABLE GENERATOR System. It also has the various link tabs on the menu bar to navigate to other pages.

The first tab is for Approve. On this page the Admin will automatically receive the information about newly registered students who are not approved. It will be Admin's duty to approve the valid student. The student can login if and only if they are approved by the Admin. The admin can edit the non-approved student's information from here.

Next is the delete. Once the student pass out its information will be of no use so the admin can delete such student from here. The admin can edit if the approved students from here such in case if any student fails.

The next step is Subject. The Admin have to enter all the subjects/practicals according to semester and department along with their abbreviation, total number of lectures required, education mode (lecture/practical/tutorial) and duration. All the data will be saved into the database.

Next step is Teacher Registration. All the staff of the department has to register themselves by entering all the required credentials. After registration the teacher will have their own user-id and password which they will use to view the time table.

After that the Allocate comes in which the Admin allocate the appropriate subjects to the appropriate teacher according to semester and department along with education mode and the section. Here the teachers and subjects get connected.

Then the main page of the system Time Table comes where the admin generates the timetable according to semester. The time table is cleared on clicking the refresh button and is created on clicking the generate button. Here the randomize algorithm works for generating the time table.

Next is the Edit TimeTable where the clashes in the time table can be resolved. The admin views the required time table and clicks on the edit button of the required row where the changes are to be made. After clicking on the edit button the row is converted to text fields and the update and cancel buttons also appears. The changes are saved after clicking on the update button.

Then there is the Contact page for the Admin to view the feedbacks from the users and send reply to them or delete.

If the admin wants to reply to the feedback from the user then admin can click on the reply button and will be navigated to the other page where admin can write the appropriate reply and the mail will be sent to the respective user.

The last is SignOut which will redirect the admin to the admin login page and the session will be ended.

The student module of the system contains the Home Page which contains the information about AUTOMATIC TIME TABLE GENERATOR System. It also has the various link tabs on the menu bar to navigate to other pages.

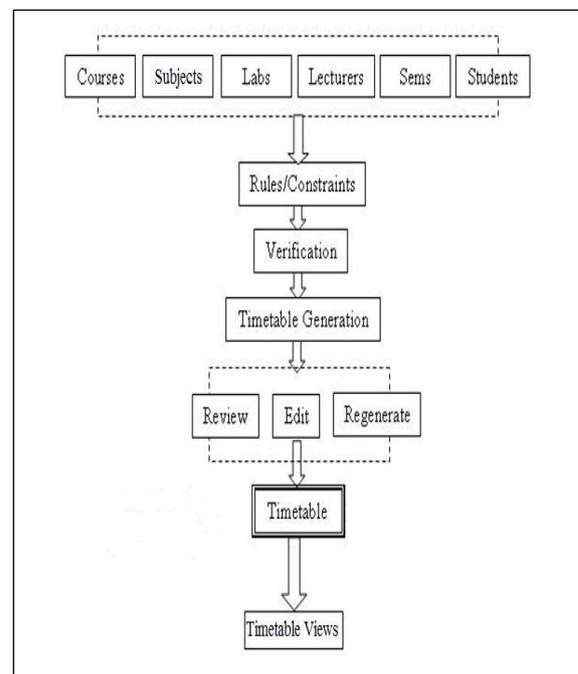


Figure 1: Working of Automated Time Table Generator

Output:

