

Master TimeTable Generator

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Abstract :

Many colleges use manual process of preparing academic timetables with large number of constraints and this is very time consuming. This usually ends up with various courses clashing, this may be either at same room or with same teachers having more than one course at a time. These are just due to common human errors which are very difficult to prevent and also a very hectic and cumbersome activity. To overcome all these problems we propose this application of Master Time Table Generator. There are many departments in a college/institute and each department has its own time table with sharing some common resources like rooms, infrastructure and faculty also , the master time table will generate the copy of time table integrating all time tables of various departments considering the needs of the said departments. It will be implemented with the information required such as Faculty Name, Faculty Load, Preference of the Time slot, Required hours for the faculty. The proposed application is intended to be used in any institutes irrespective of their discipline and number of departments.

Introduction:

Most colleges have a number of different courses and each course has a number of subjects. Now there are limited faculties, each faculty teaching more than one subjects. So now the time table needed to schedule the faculty at provided time slots in such a way that their timings do not overlap and the time table schedule makes best use of all faculty subject demands. Timetable generator automatically schedules timetable for students and faculty which reduces the manual work. Once the inputs like faculty with their respective subjects are given it will generate the period slots for the given semester.

Objectives:

The main objectives of our project will be:-

1. The final system should be able to generate time table in completely automated way which will save lot of time and effort of an institute.
2. User defined constraints handling.
3. Ease of use of user of system so that he/she can make automated time table.
4. Focus on optimisation of resources.
5. Generate multiple useful views from the timetable.
6. Managing all the information about semester course, faculty, and classrooms.
7. Building the application to reduce the manual handwork load.

Literature Review:-

A time table is an organised list, usually set out in tabular form, providing information about the series of arranged events in a particular, the time at which it is planned this events will take place. They are applicable to any institute where the activities have been carried out by various individuals in a specified time frame. From the time institutes became organised environments, time tables have been the framework for all institutes activities. As a result institute has devoted time, energy and human capital to the implementation of nearly optimisation time tables which must be to satisfy all required constraints as specified by faculties. The lecture timetabling problem is a typical scheduling problem that appears to be a tedious job in every academic institute twice a year. The problem involves the scheduling of classes, Students, Teachers and rooms at fixed number of timeslots, Subject to a certain number of constraints. An effective time table is crucial for the satisfaction of educational requirements and efficient utilisation of human resources which make an optimisation problem.

Problem Defination

Since in olden days , for all educational institutions, the timetables were set manually. In this Master timetable generator also the time-table is generated automatically, but by using the application. This system automatically detects the collision occurred during the time-table generation. The class time-table module mainly focuses on year, semester, branch and section. By selecting the above fields, it will display the appropriate class time-tables. The faculty time-tables

focuses on faculty and faculty name. By selecting the above fields it will display the timetable with the faculty, respective loads and the preferred time slots.

SCOPE :

The Scope of system includes Generation of TimeTable, Access the available TimeTable(s), Delete an Existing Timetable. Add Faculty details of a department.

Add Semester wise subject details. Add time scheduling and periodic allocation process

A Time-Table management system involves everything that is required for the efficient working of a Institute. Managing timetables, routing, Planning and allotting Load of the Faculties. Creating timetables are one of the biggest headaches for Faculties. It can be confusing and time-consuming when done manually. Timetable management software is the best solution in such situations. TimeTable Generation System generates timetable for each class and teacher, in keeping with the availability calendar of teachers, availability and capacity of physical resources (such as classrooms, laboratories, computer room) and rules applicable at different classes, semesters, teachers and subject level. Best of all, this timetable generation system tremendously improves resource utilization and optimization.

We will generate timetable for each and every department. Integration of all the departments timetable will be master time table.

Technology Stack:

Various algorithms will be used for implementing this applications.

- Genetic Algorithms
- Evolutionary Algorithms

Different languages will be used :

- C, JAVA, PYTHON, HTML, CSS, PHP

Different databases will be created for this :

- MySQL
- MongoDB

The different tools used will be Anaconda or pycharm.

Benefits for environment :

The major benefit of this project is to store information at one place. Instead of tedious paper work, faculty who is creating the timetable can create the timetable using our application so it will help to save paper.

Benefits For Society :

It is a complicated task to handle many Faculty's and allocate subjects for them at a time physically. So our proposed system will help to overcome this disadvantage. Thus we can produce a timetable for any number of courses and multiple semesters. Separate timetables for the individual class, faculty and labs are generated automatically by this system. The project reduces time consumption and the pain in framing the timetable manually. The project is developed in such a way that, no slot clashes occur, providing features to tailor the timetable as of wish. It will save time and efforts. It will help to reduce errors. After Successful Completion of the project, The Master TimeTable can be used in many different Institutes.

Applications:

1. No more Paperwork : It Saves the paper as Time-Table is generated automatically.
2. No more Confusion: With timetable software, it is possible for you to automatically generate timetables effectively, sticking by the requirements. Timetable management software generates timetables considering the limitations such as Load of the Faculties, classes, Rooms, Labs.
3. It is Error-Free: When you manually prepare a timetable, you tend to make errors. You may end up with allotting two Faculties for a single class at a time or you may miss the allotment of certain periods. Timetable management software helps you to avoid such errors.
4. Efficient Resource Allocation: With the help of a time table management software, you can assign Faculties and classrooms, and improve the task of resource allocation in other staff in the best possible manner.
5. Automatic Timetable Generation: If you are using timetable management software, you no longer have to spend hours figuring out the timetable for each class. You just need to enter your criteria and within no time, you will get your timetable generated without any hassle.
6. Transparency: The Master TimeTable is the one which will not create any partial conflicts.

