

EASY TIMETABLE

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Abstract

Most of the colleges have 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 ways that their timings do not overlap and the time table schedule makes best use of all faculty subject demands. We use genetic algorithm for this purpose. In our Timetable Generation algorithm we propose to utilize a timetable object. This object comprises of Classroom objects and the timetable for them likewise a fitness score for the timetable. Fitness score relates to the quantity of crashes the timetable has regarding alternate calendars for different classes. Classroom-object comprises of week objects. Week objects comprise of Days, Days also comprises of Timeslots. Timeslot has an address in which a subject, student gathering and going to the address and educator showing that the subject is related. Also further on discussing the imperatives, we have utilized composite configuration design, which make it well extendable to include or uproot as numerous obligations. In every obligation class the condition as determined in the inquiry is now checked between two timetable objects. On the off chance that condition is fulfilled i. e. there is a crash is available then the score is augmented by one.

Introduction

Timetables are an important part of an educational institution. The daily schedule of teaching courses or subjects for different classes is known as a timetable. Currently timetable is generated manually. Generating timetable is a hazardous job. It is very difficult, time consuming and confusing. Easy timetable is a Python based software for generating timetable automatically. The traditional manual method of producing timetable can be made easy by using Easy timetable

software. It will help manage all the periods automatically and also will be helpful for students to get timetable in their phone by using application. This will also manage timetable when any teacher is absent. This software also helps the faculty for marking attendance of the students.

By using this software faculties can apply for leave by providing leave required date and reason for leave. When the Head of The Department accepts the leave request, then the timetable will automatically schedule according to that. It is a comprehensive timetable management solution for College which help to overcome the challenges in manually setting the timetable.

Problem Definition

This project is aimed at simplifying the process of timetable generation in an educational institution mainly Colleges. Nowadays, timetable generation is done mainly by manually , by a faculty ,taking course ,subjects under the course, number of periods and faculties under consideration. The faculty should need to check whether each subject is getting the provided number of periods in the syllabus . This approach is time-consuming, confusing and difficult. Another problem of a teacher is taking attendance of the students. The teacher need to write down the absentees and calculate the attendance percentage of each student at the end of the semester for internals. But, with this developed software, timetable can be generated automatically and attendance can also be marked.

Project Overview

Here we are introducing a web and android based application for automatic timetable generation and attendance marking. In the application, users are students. Staff will add the students and provide username and password for the student. In the software the admin will be the Head of The Department. Admin adds the staff and provide them username and password. Admin can sent notifications, accept or reject the leave request of the staff, add and manage subject and create timetable. Staff can add students, view timetable, add attendance, request for leave, view notification and view student details. Students can add complaints, view timetable, view attendance and view notification. When a leave request of a staff is accepted by the admin the timetable will change automatically arrange according to that change. The student can view the changed timetable.

Methodology

The methodology implemented here is the Build and Fix model. In the **build and fix model** (also referred to as an **ad hoc model**), the software is developed without any specification or design. An initial product is built, which is then repeatedly modified until it (software) satisfies the user. That is, the software is developed and delivered to the user. The user checks whether the desired functions 'are present. If not, then the software is changed according to the needs by adding, modifying or deleting functions. This process goes on until the user feels that the software can be used productively. However, the lack of design requirements and repeated modifications result in loss of acceptability of software. Thus, software engineers are strongly discouraged from using this development approach.

This model includes the following two phases.

- Build: In this phase, the software code is developed and passed on to the next phase.
- Fix: In this phase, the code developed in the build phase is made error free. Also, in addition to the corrections to the code, the code is modified according to the user's requirements.

Purpose

The timetable plays a vital role in scheduling a department's syllabus. It is time consuming to create a timetable manually. This project provides an effective solution for creating timetable fast and organized. It helps the HOD to create timetable easily without any clash by fixing all the static or complimentary hours unchanged. Here we provide six options, to create the timetable of each six semesters. The HOD can choose which semester and with a click the timetable is get generated. And this timetable will automatically change when a staff takes a leave. The staffs and students will get notified automatically after the timetable changes.

Scope

Providing a automatic time table generator will help to generate time table automatically. Proposed system of our project will help to generate it automatically also helps to save time. It avoids the complexity of setting and managing Timetable manually.

Existing System

The existing system of timetable generation and attendance marking can vary depending on the organization or educational institution in question. However, in general, the following are some common approaches:

Timetable Generation: In educational institutions, timetables are often generated using a software system specifically designed for this purpose. These systems take into account various factors, such as the availability of teachers and classrooms, the number of students in each class, and the subjects being taught. The timetable is usually created by the school or college administration, and it is shared with the teachers and students.

Attendance Marking: Attendance can be marked manually, where teachers take attendance in class and record it in a register or on a paper sheet. In recent years, many educational institutions have switched to electronic attendance systems, where students scan their ID cards or use biometric systems to mark their attendance. These systems can also generate reports for teachers and administrators to track attendance.

Some educational institutions also use hybrid systems where attendance is marked manually but recorded electronically. In this case, teachers mark attendance on a paper sheet, which is later entered into an electronic system.

Overall, the system of timetable generation and attendance marking can vary based on the organization's needs, resources, and technology available to them.

Proposed System

To generate a timetable and mark attendance, you can develop a software application that automates the process. Here is a proposed system that can generate timetables and mark attendance.

1-Database Creation: The first step is to create a database that contains information about the courses, professors, and students. The database should include details such as course codes, course names, class timings, professor names, and student names.

2.Timetable Generation: The next step is to develop an algorithm that can generate a timetable based on the information in the database. The algorithm should consider the availability of professors and classrooms to schedule classes at suitable times. It should also ensure that there are no clashes between classes.

3.Timetable Display: Once the timetable is generated, it should be displayed to the students and professors. This can be done through a web portal or mobile application where students and professors can log in and view their respective schedules.

4.Attendance Marking: To mark attendance, you can use an RFID-based attendance system. Each student can be given an RFID tag that can be scanned when they enter the classroom. The system will automatically mark the attendance of the student and update the database. The attendance records can be viewed by the professors and students through the web portal or mobile application.

5.Attendance Reports: The attendance records can also be used to generate reports for the professors and the administration. The reports can provide insights into the attendance patterns of the students, and identify any trends or issues that need to be addressed.

Overall, this system will automate the process of timetable generation and attendance marking, reducing the workload of the professors and the administration. It will also ensure that the attendance records are accurate and up-to-date.

Advantages of proposed system

1.The advantages of a timetable generation and attendance marking project include:

2.Improved organization and time management: With a timetable generation system, it becomes easier for administrators to create schedules that are optimized for maximum efficiency. This helps to ensure that classes are conducted on time and students can easily plan their schedules around their classes. Additionally, attendance marking can help ensure that students attend classes regularly, which can lead to better academic performance.

3.Reduction of errors and workload: By automating the process of timetable generation and attendance marking, the chances of errors and inconsistencies are greatly reduced. This not only saves time but also reduces the workload for teachers and administrators, allowing them to focus on other important tasks.

4.Better communication: The use of an online system for timetable generation and attendance marking allows for better communication between teachers, students, and administrators. For example, students can easily view their class schedules and receive notifications of any changes, while teachers can quickly mark attendance and communicate with students and parents.

5.Increased accountability: With an attendance marking system in place, students are held accountable for their attendance, which can help motivate them to attend classes regularly. Additionally, the system can help identify students who are consistently absent or tardy, allowing teachers and administrators to intervene and provide support.

6.Data collection and analysis: A timetable generation and attendance marking system can provide valuable data on attendance patterns and student performance, which can be used to inform decision-making and improve educational outcomes. For example, administrators can use attendance data to identify areas of concern and develop targeted interventions to improve student attendance and engagement.

Environmental Details

The environmental details of timetable generation and attendance marking can have a significant impact on the environment. Here are some key factors to consider:

Paper usage: Timetable generation and attendance marking often involve the use of paper, which can have a significant impact on the environment, particularly if the process is paper-based. To reduce the environmental impact, schools and institutions can move towards digital processes that minimize paper usage.

Energy usage: Generating timetables and marking attendance often requires the use of electronic devices such as computers and printers, which consume energy. To minimize the environmental impact, institutions can use energy-efficient devices, turn off electronics when not in use, and consider using renewable energy sources such as solar or wind power.

Transportation: Attendance marking and timetable generation may require teachers or staff to travel to different locations, increasing carbon emissions from transportation. Institutions can reduce transportation-related emissions by encouraging carpooling or using public transportation where feasible.

Waste generation: The process of generating timetables and marking attendance can result in the generation of waste materials such as paper, ink cartridges, and electronic devices. Institutions can minimize waste generation by implementing recycling and composting programs, and by properly disposing of hazardous waste materials.

By taking these environmental factors into account, schools and institutions can minimize the environmental impact of the timetable generation and attendance marking processes.

Hardware Specification

- Processor : Core 2 Duo at 2.0GHz
- RAM : 1GB DDR2 RAM [Minimum]
- Monitor : Any Colour
- Keyboard : Standard Keyboard (120 keys)
- Mouse : Any
- Hard disk : 500GB [Minimum]
- Storage : 20 MB
- Network speed: 1 MBPS
- Android device

Software Specification

IDE:-Android Studio, PyCharm

Frame work:-Django

Coding language:-python

Operating system :-windows 11

Webserver:-

Database:-MySQL

System Design

The main users of the system are:

- Sole Admin
- Staff
- Students

Sole Admin

This module will have the provision to do the following after the login process:

- Can create timetable.
- Add and manage staff, course, subject.
- Allocate subject to staff.
- Send general notification.
- View complaint and send reply.
- View students.

Staff

They are added by the admin. After login, they can do the following :

- Add and manage student, attendance.
- View timetable, notification, leave status, attendance percentage, student details.
- Notify leave.

Student

This module will have the provision to do the following after the login process:

- View timetable, notification, attendance.
- Send complaint and view reply.

Conclusion

In general, the process of timetable generation and attendance marking are both important aspects of academic administration.

Timetable generation involves creating schedules for courses, exams, and other academic activities, and ensuring that they don't overlap with each other. It requires careful planning and coordination with various departments and faculty members to ensure that the timetable is feasible and efficient.

Attendance marking, on the other hand, involves keeping track of the attendance of students in various classes and ensuring that they are meeting the required attendance criteria. This process helps to ensure that students are actively participating in their education and can identify students who may need additional support or intervention.

In conclusion, both timetable generation and attendance marking are crucial aspects of academic administration that play a significant role in ensuring the smooth running of educational institutions. Efficient and accurate timetable generation and attendance marking can help to create a positive and productive learning environment for students, faculty, and staff.

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