



Automatic Timetable Generator System

AUTHOR: Mrs. N. REVATHI, MCA., M.Phil.

ASSISTANT PROFESSOR

DEPARTMENT OF COMMERCE WITH COMPUTER APPLICATIONS

Dr.N.G.P. ARTS AND SCIENCE COLLEGE, COIMBATORE-48

AUTHOR: Mrs.V. JAYASHREE, MCA., M.Phil. (Ph.D.)

ASSISTANT PROFESSOR

DEPARTMENT OF COMMERCE WITH COMPUTER APPLICATIONS

Dr.N.G.P. ARTS AND SCIENCE COLLEGE, COIMBATORE-48

CO-AUTHOR: Mr.G. THARUN,

DEPARTMENT OF COMMERCE WITH COMPUTER APPLICATIONS

Dr.N.G.P. ARTS AND SCIENCE COLLEGE, COIMBATORE-48.

ABSTRACT

The project is aimed at developing a Time Table Generator for Colleges. Timetable generation is a very well-known problem that is faced in every educational institution. The problem occurs when there are clashes among the preferences given by the staff. Colleges are supposed to make timetables for each semester which used to be a very tedious and painstaking job. Students are eligible to view their timetables once they are finalized for a given semester. When the timetables for a particular semester and class period are finalized, staff members are also permitted to inspect them. The objective of the Time Table Allotment was to develop an application that enables allotment subject to staff as well as classes for students. The administrator used the following languages like CSS, Python Flask, HTML, and MYSQL.

OVERVIEW OF THE PROJECT

The project provides a Timetable without any kind of clashes. There are three types of users in this system depending on the usage of the system. The user can either view the timetable or edit the timetable(admin).

1. Admin: An admin has all the rights to modify the details of the other two entities as well as to generate the new timetable. An admin will add, update, and delete the student, subject, classroom no lab, etc. The created schedule can be viewed by the administrator either by faculty or by section.

2. Student: A student can view the timetable and get the updates quickly by receiving the message from the admin side system. It becomes easier for the student to follow the timetable in this manner as minimum confusion and an efficient timetable is generated.

3. Faculty: A faculty can view the timetable section-wise and get updates quickly by receiving the message from the admin side system. It becomes easier for the faculty to follow the timetable in this manner as minimum confusion and an efficient timetable is generated.

DESCRIPTION OF THE PROJECT:

AUTOMATIC TIME TABLE GENERATOR includes soft and hard constraints, input as student details, teacher details, and subject details. Using this collection of input from the system will generate an optimized timetable Firstly the system contains a Login Page. The User has to log in first with the valid user-id and password which in turn opens the Home Page which contains the information about the AUTOMATIC TIME TABLE GENERATOR System. It also has the various link tabs on the menu bar to navigate to other pages but it will work if and only if the user is logged in to the system. Once the user gets logged in he/she will get the approval to use the next page which is to add subjects where the subject name, semester, Timings, and other such required details input will be given by the user. As the details related to subjects and semester is filled in by the user it will get reflected and saved into the database. Once the system gets the subject detail it will take the user to the next page where the user needs to add the faculty information i.e. the faculty name, which faculty will be taking which subject, and whether it will be a theory session or practical, etc. These details will also be saved into our dataset. Now the system has all the information related to subjects, teachers, semesters, Labs, Theory, timings, etc. So now it will ask the user from the given semester details for which semester the user wants to generate a timetable i.e. ODD Semester / EVEN Semester.

MODULE DESCRIPTION

1. The entire state of the framework, including the outlining of the timetable technique, should be considered. At first, we should know how to design the timetable generator. Examine the nuances such as workforce and subjects in the data set.
2. Then allot timeslots and assign them to the various workforce. Then create various modules like generate, registration, login, and dashboard.
3. When creating the schedule for the first time, include personnel id and various details. All associated with places for a specific employee should be displayed as invalid.

SOFTWARE REQUIREMENTS:

HTML-HTML is the core of fronted-end development. It is the skeleton of the makeup of the website.

I have used HTML in this project to design the interface of our output timetable. This allows us to create an aesthetically pleasing and user-friendly design. Additionally, we have also employed HTML to create input forms for our project. This allows us to incorporate necessary data and information that can be used to produce the output timetable. With HTML the design and functionality of our project are maximized.

CSS-CSS helps to create some additional styling rules to the previously created HTML structure.

With the help of CSS. I was able to make our landing page more attractive and welcoming. We made use of different styling properties to enhance the look and feel of the page. We change the font size, font style, font type, and color of the text.

PYTHON-It allows us to dynamically modify the content of the app or website. It is one of the most important front-end technologies.

This allows us to establish a successful connection between front element and backend elements. Establishing this connection will allow for necessary data to be shared between the two systems. The first step is to identify the back-end system with which the front-end element will be connected.

HARDWARE REQUIREMENTS:

1. RAM: The system wants a minimum of 8 GB of RAM to run all the options. It wants a minimum 1.3 GHz processor to run smoothly. Rest is all up to the user's usage and can take care of hardware. For security opposing anti-virus is suggested.
2. Disk Space: Approximately 500 GB is required for Instant Messaging Server software. Processor: Minimum 1.3 gigahertz (GHz) x86- or x64-bit dual-core processor with SSE2instruction set and recommended 3.3 gigahertz (GHz) or faster 64-bit dual-core processor with SSE2 instruction set.
3. Memory: Minimum 2 GB RAM and recommended 4 GB RAM or more.
4. CPU: An intel core i5 processor is required for the application to run smoothly without any interpretation in between.

SYSTEM ANALYSIS

This part describes the device design, input, output, and processing necessities of the proposed gadget and the hierarchical plan of the proposed system. It additionally describes/defines exceptional factors that make up the system, how they are linked together, what the device does, and how it operates.

EXISTING SYSTEM

In the existing system, each task is carried out manually and processing is also a tedious job. In the previous system, colleges maintained timetable details manually in pen and paper, which was time-consuming and costly. The organization is not able to achieve its needs in time and also the results may not be accurate. The system should be designed to be more efficient than the manual system. It should invoke all base tasks that are carried out manually, such as the forms of transactions and reports which is an added advantage. The system should be a completely computer-based application.

Disadvantages

Done manually

Increases paperwork

High chances of errors

PROPOSED SYSTEM

The proposed machine "Automatic Timetable Generator" is designed to be more environmentally friendly than the proper guide system. It solves all base tasks that are now carried out manually. The closing gadget has to be in a position to generate timetables in a whole computerized way which will store a lot of time and effort of an institute administration. Ease of use for the consumer of the machine so that he/she can make an automatic timetable. It focuses on the optimization of sources i.e. teachers, labs optional topics, etc. This machine affords a facility for everyone to view the timetable and it generates more than one beneficial view from the created timetable.

This article describes the design and implementation of the device using a PHP and Flask Web Server/API, a Python client, and a MySQL Relational Database Management System (RDBMS).and exterior connections to offerings such as If This Then That (IFTTT) are mentioned in detail. Some pattern functions and a prototype implementation with the Sensorial Shield are introduced properly to exhibit modern skills as well as the possibilities for future work.

Advantages

Easier slot assigning.

Less time consumption.

No slot clashes.

Always consider the other department slots first.

Various possible slot combinations can be acquired.

User friendly.

CONCLUSION:

Managing faculty members and assigning lectures to them in person is a difficult process. So, our proposed system will help to beat this disadvantage. This system is user-friendly and provides a faster and better generation of timetables, which in turn saves time and manpower. The project reduces time consumption and the pain of making the timetable manually. The future enhancements that can be developed from the project may include Leave Management, Exam Schedule Generation, Exam Room Scheduling, and Time Constraint Problems. This enhancement can be achieved by making further modifications keeping the approach and techniques used for this project

BIBLIOGRAPHY

BOOK REFERENCE:

1. Raghu Ramakrishnan and Johannes Gehrke. (2015). "Database Management Systems" CBS Publication
2. Ramez Elmasri and Shamkant B. Navathe. (2012) "Fundamentals of Database Systems" Samsel Publication.
3. Sebastian Raschka and Vahid Mirjalili. (2014) "Python Machine Learning". Kalayani Publishers

WEBSITE REFERENCE:

4. [www. GitHub.com](https://www.github.com)
5. [www. ResearchGate.com](https://www.researchgate.com)

JOURNAL REFERENCE:

6. Burke, E. K., & Curtois, T. (2013). A survey of automated timetabling. European Journal of Operational Research.
7. Adithya R Pai, Ashwitha S, Raksha Shetty, Geethalaxmi, "Automated college timetable generator", International Journal of Scientific & Engineering Research,