International Journal of Psychosocial Rehabilitation, Vol. 24, Issue 04, 2020
ISSN: 1475-7192

An Effective Time Table Generation System with Reminder Alerts for Cloud Environment

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Abstract--- *Timetable generation is done based on all the possible constraints in the college environments, including the availability of classrooms, staff members, labs availability and all other infrastructural needs. The main focus is given to the case in which the same faculty is handling different subject for various classes. The HOD (Admin) through his login provides the resource availability as inputs and has the authority for generating timetable. The staff members using their login can view only their schedule. Timetable generation is done using the heuristic algorithm. The system will be shared through the cloud server. This system is developed on ASP.Net environment and MySQL.*

Keywords--- *Heuristic Algorithm, Cloud Server.*

I. INTRODUCTION

Time table generation is a highly time consuming and a tedious work when its done manually. Moreover, the efficiency will be less in manual work. In this system, Both H.O.D, who is considered as Admin and the other staff members in have their separate registrations pages. The H.O.D inside his portal has been provided with the provisions for adding staff members, class availability, class rooms and other infrastructure details. Based on the information provided by him, the timetable will be automatically generated using Heuristic algorithm, which is explained later in this paper. The staff members using their own ID and Password can login .But, they only have the permissions to view their weekly schedule. The timetable generation System will be shared using cloud server for ease of work. Moreover, the cloud is the rapidly emerging field. Once when the timetable is modified or updated by the Admin, the new timetable will be intimated to the staff members through the mailing details provided by them at the time of registration. A brief study of the related research to the proposed system is presented in section II. The proposed system in presented in section III. The detailed experimental results and discussions are given in section IV. Section V is concludes the research work.

II. RELATED WORKS

A lot of research has been developed for internals evaluation. Some of the recent works are discussed below.

"An Algorithm to Automatically Generate Schedule for School Lectures Using Heuristic Approach (Anirudha Nanda, Manisha P. Pai and Abhijeet Gole) [1] proposed a solution.This solution works from the teachers point of view. Its primary aim is to solve the issues of clashes such as the availability of faculties, availability of class rooms and slots. The scheduling solution presented in this paper is an adaptive one, with a primary aim to solve the issue of clashes of lectures and subjects, pertaining to teachers. These constraints are of two types Hard and Soft constraints. Hard constraints include those constraints that cannot be violated while a timetable is being computed. A solution is

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DOI: 10.37200/IJPR/V24I4/PR201583
Received: 17 Jan 2020 | Revised: 19 Feb 2020 | Accepted: 28 Feb 2020

acceptable only when no hard constraint is violated. Due to complexity of the problem, most of the work done concentrates on heuristic algorithms which try to find good approximate solutions. Some of these include Genetic Algorithms (GA), Tabu Search, Simulated Annealing and recently used Scatter Search.

Design of process of forming of time-tables"-Roman Pasichnik, Aleksandr Vovkodav.)[2] Provides a solution in which Curricula of lessons is focused.Increase of the productivity of process of studies. Actuality of design of process of forming of timetables is described. The existent systems and algorithms are analysed that used for forming of curricula of lessons, oriented to the increase of the productivity of process of studies. Genetic algorithm is considered. On a next step from chromosomes form initial population. For creation of new generation with the best indexes from the aggregate of chromosomes it is necessary to choose the best for subsequent reproduction. To get new population, chromosomes are selected in pairs cross between itself by homogeneous crossovers: chromosomes break up to pieces

Time Table Scheduling using Genetic Algorithm employing Guided Mutation"(Vinayak Sapru, Kaushik Reddy, Sivaaselvan) [3] presented his view. valuesThe main task involved in this category of scheduling problem is the assignment of each lecture for a particular student group to a specific room during a given time slot, while keeping in mind all restrictions time, availability of faculty, and miscellaneous resources.. This paper discusses a Genetic Algorithm based university time table scheduling algorithm satisfying constraints that avoid clash of faculty, class room slots, etc. The paper exploits the rank based selection scheme to ensure that the time table schedule generated is the feasible global optima as opposed to the stagnant solution setup associated with roulette selection scheme. The proposed guided mutation operator helps in convergence as a result of the increased constraint satisfaction rates and hence better fitness

Train Timetable Problem on a Single-Line Railway With Fuzzy Passenger Demand (Lixing Yang, Keping Li, Ziyou Gao)[4] focuses on train scheduling. The most popular technique to make train schedules is to use mathematical programming, although it may take a long time to get an approximately optimal schedule. As for the passenger train timetable problem, the number of passengers getting on/off the train at each station is actually uncertain during different periods. There-fore, it is more suitable to treat it as an uncertain variable than a fixed quantity. Mathematical model is treated as a goal-programming model in which the expected value of total passengers' time with a penalty function, and the total de-lay time should not exceed some predetermined targets.

University Course Timetable System Design and Implementation Based on Mathematical Model (Mei Rui, Guan Jinyu) [5] given an optimum idea. The course timetable system designs teachers, students, classrooms, curricula and several other factors, because that between the curriculum and the students there is mutual constraint relation, also exists a certain corresponding relation, so in the course timetable system only teachers, curriculum and classroom three factors need to be comprehensively considered.

III. PROPOSED WORK

In the project we are focusing on the generation of time table considering all the possible constrains including the infrastructure, which will be uploaded in the cloud. Heuristic approach is used for the generation of timetable. It is enhanced with the reminder system which gives an alert for all the faculties about their day to day schedule. The

DOI: 10.37200/IJPR/V24I4/PR201583
Received: 17 Jan 2020 | Revised: 19 Feb 2020 | Accepted: 28 Feb 2020

system architecture defines the structure of the proposed system which comprises different components, their external visible properties and the relationship among them are shown below.

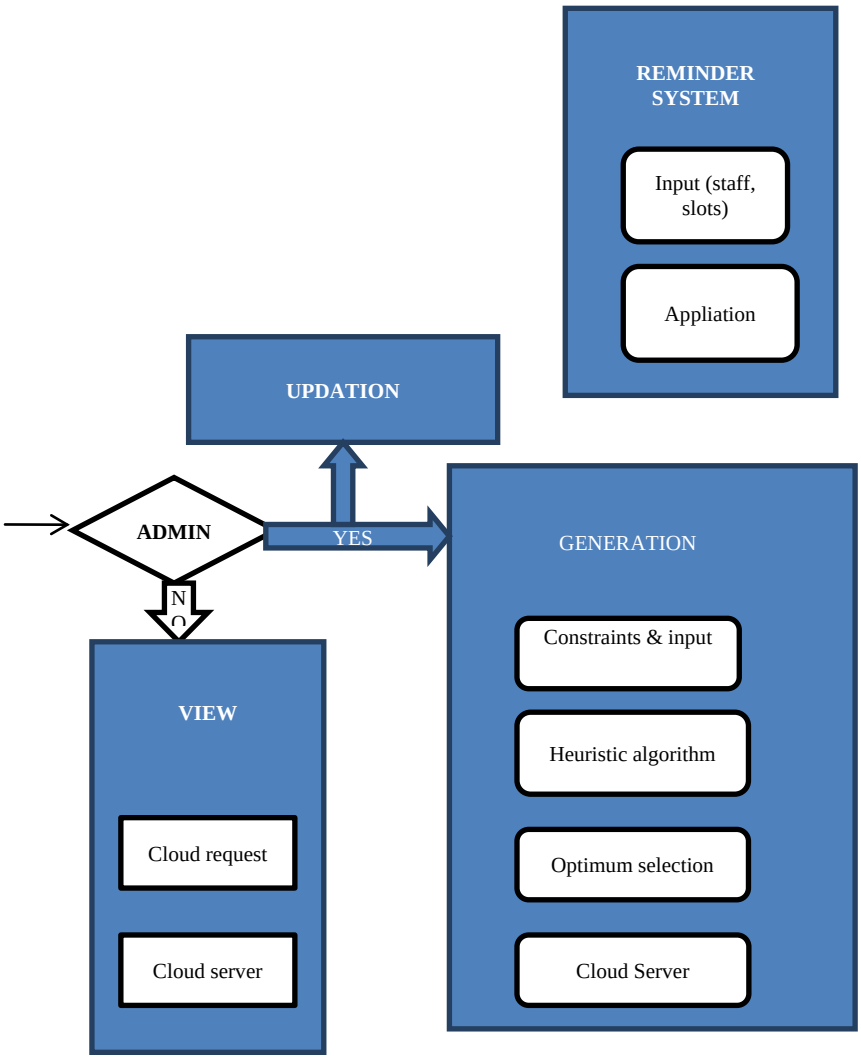

Figure 1.1: Architecture of the proposed system.

A) TIME TABLE GENERATION

In this module, separate registrations are created for both Admin and Other users(Staff members),in which the details of them are scanned and stored in database using MySQL. Using the password and id provided in the registration, the users can login. The admin has a separate login. On entering the admin portal, provisions are provided for adding staff, classes, labs, classrooms, slots, year and semester. Based on the details provided, Timetable will be generated using Heuristic algorithm. The teachers are having only the permission to view their schedule.

B) UPDATION

In this module, when the constraints are to be varied, the Admin (HO.D) can modify the timetable according to the requirements. He can edit the staffs, classes, labs and all others. Based on the edited conditions, a new timetable

DOI: 10.37200/IJPR/V24I4/PR201583
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will be generated. Once when the alterations are made, the new schedule will be intimated to the staffs through their mailing details.

C) REMINDER SYSTEM

This is an enhancement in the existing works. Here, based on the generated time table, every registered faculty is intimated with their daily work everyday. This can be done using message services to remind the staffs about their day to day work.

D) CLOUD DATA TRANSFER

Once when the entire system is tested and is ready to use, the system will be hosted in the cloud server. Since, it is the rapidly emerging field of interest now days. It is also tested whether the application can be effectively downloaded and used.

IV. EXPECTED RESULTS AND DISCUSSIONS

An optimum timetable is generated using the constraints provided by the admin. Once when the conditions needs to be changed the user has provisions to change them and the new timetable should be generated. It should be intimated to all the registered users. The application is hosted and deployed in the cloud server.

V. CONCLUSION

The application is designed using Asp.Net and MySQL and it fully meets all the infrastructure constraints and all other needs. The authentication is also provided by the username, password conditions. The procedure is less time consuming but may provide approximate results due to certain constraints. We have also denoted that there is still room for development in the system.

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DOI: 10.37200/IJPR/V24I4/PR201583
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