AUTOMATED TIMETABLE GENERATOR USING MACHINE LEARNING

Prashanta Kumar*1, Shreedhar Sanakar*2, Praveen kumar P*3, Syed Muhammad Usman*4, Vani K A*5

*1,2,3,4Research Scholar, Department of Information Science and Engineering, Dayananda Sagar College Of Engineering, Kumarswamy Layout, Bangalore, India.

*5Assistant professor, Department of Information Science and Engineering, Dayananda Sagar College Of Engineering, Kumarswamy Layout, Bangalore, India.

ABSTRACT

Professional colleges have exclusive streams of courses and every has its personal shape of syllabus which includes numerous topics . In those colleges, college are teaching one-of-a-kind subjects in distinct semesters and additionally inside identical semester school are dealing with two extraordinary topics. The important mission is that the time table required to agenda in line with the college furnished time slots in which timetables are organized in this type of way that faculty timings do not overlap. The time desk does now not overlap with their different schedules and these timetables effectively used by faculty In this paintings, we develop the software of time desk which may be robotically producing time desk in accordance faculty to be had time slots This system affords blessings to the college need no longer worry for time clashes; a human does no longer need to carry out permutation and combination and they are able to concentrate on other sports rather than wasting time through generating Time-Table. This gadget offers efficient time table generated in keeping with expert university requirement.

I.   INTRODUCTION

Automatic Timetable Generator is a Python-based software program used to generate timetable automatically. Currently, a timetable is managed manually. It will help to manage all of the durations automatically and also will be beneficial for college to get a timetable . It may also manipulate timetable while an instructor is absent, overdue coming or early going. The maximum and minimum workload for a Faculty for an afternoon, week and month could be exact for the efficient generation of timetables. By the usage of this software program, users can practice for leave through imparting go away required date, cause and also with alternative college. When choosing a college as a substitute it allows us to view the timetable of that college for ensuring that the faculty is free at that precise period. The alternative can approve or reject the request. The HOD also can view the requested ship by means of college and also can view replacement response. The important can approve/reject the request. It is a comprehensive timetable control solution for Colleges that help to overcome the challenges in manually setting the timetable. By the use of this software program it will likely be very easy for school to get a timetable

II.   METHODOLOGY

Artificial intelligence is a computer science field that is being used mostly on problems that include precision or optimization. The research falls under optimization problem and evaluation of performance in an extensive verification is not a feasible solution. It is important to select an appropriate research design and methodology to get the viability of the research. The chose strategy for gathering and examining information for testing the framework is quantitative. The information to be gathered are sets of school setup (for example subjects, teachers and rooms). These datasets will be profiled subsequent to being utilized in the framework. The profiling results will decide the exhibition of the framework by performing man-made consciousness frameworks based assessment.

Iterative improvement as a technique for making the product fits for ceaselessly changing condition for computerized reasoning turn of events. This empowers the designer to gain proficiency with each cycle and apply it to future occasion. This approach is good for the research as the framework relieson tweaking and overseeing limitations. Every cycle is an improvement to the framework which will rehash until the framework conveys its normal outcome.
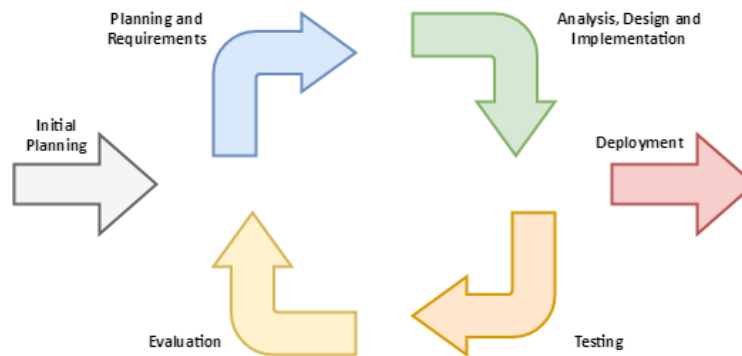
Figure-1: Iterative Development Methodology

Initial planning has been done by designing system architecture, data schematic, and models. Upon entering an iteration, the feature to be done is decided and planned. There are two types of iterations used; adding a feature or a model and tweaking values. Each iteration's goal is then implemented and then manually tested

The selected evaluation methodology for the research is a combination of Monte Carlo methods and surrogate modelling. It is an experimental methodology as evaluation for evolutionary computation based scheduling systems are yet to be done. The Monte Carlo strategies are a class of computational calculations that utilizations rehashed arbitrary inspecting to get numerical results. It is often utilized under the advancement and likelihood issue sets. It works by tweaking the underlying worth and attempting top reduce an answer from it. The surrogate modelling is often used in science and engineering field where the outcome cannot be easily measured directly so a model is used instead. An example of this is finding the optimal design for a car's aerodynamics. Computing the design's performance with real life like simulations is expensive so instead, an emulator model is used. This generally works by creating an approximation of models which mimics the behavior of real model as closely as possible without the need for a more expensive evaluation.

III.   PROBLEM STATEMENT

The main difficulty that we are faceing during timetabling can be represented the constraint satisfaction problem with a loose of parameters and many different constraints .and the   constraints can be replicated in the format which they can be managed by the scheduling algorithm in an organized manner.   The Timetable generation included a difficult process of assigning each subject to Faculty manually and we schedule the Timetable as in a way so that There should be no clashes occur for Faculty. But this process will take a great use of time and also uses of too many   paperwork which is cost-ineffective manual .and It is done by using the Automated Timetable generator which has the involvement of decision tree algorithm and Linear Regression . This Algorithm involves the process of Chromosome Representation to Create the Timetable. The admin will enter each of the Fields as a counts of subjects, class-rooms labs, enter, students. The admin Roll is to assign each of the subject to their respective Faculty and assign them classrooms and also the students whom they Should teach. After scheduling the Admin will going to verification check so that no Fields are missed out. the Admin encounters any Clash or the mistake that had been gone unnoticed by the admin earlier, the admin has the option to regenerate or edit option and After successful reviews of the Timetable is uploaded on the college website for the staffs and students to view.

IV.   MODELING AND ANALYSIS

The most creative and challenging phase in life cycle is system design. The word system design describes a final system and the process by which it is developed. This term refers to the technical specifications that will be applied in the implementation. the importance of system design can be stated as "Quality". The design of the system provides us with representation of that can be accessed for quality. Design is the only way where we can accurately translate user requirement into a complete software product or system.

Without design we risk in building an unstable software system this system might fail if we make small changes are mode. It may be difficult for testing process, or could be one who's quality cannot be tested. So this software design is very important phase in the development of software applications.
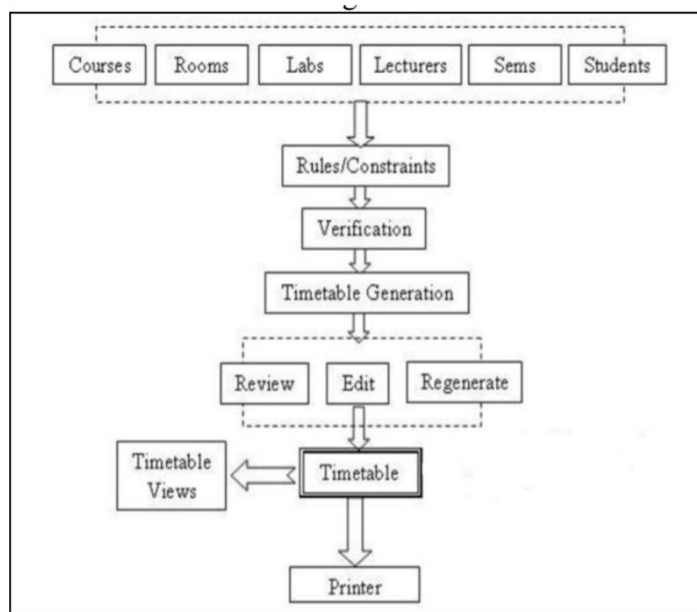
V.   SYSTEM ARCHITECTURE

Fig-2

The meaning of the structure and activity and more perspectives on a framework is known as framework design. A conventional portrayal and version of a framework sorted out in a way with the goal that it underpins thinking about the working and practices of the framework is called engineering portrayal. Framework engineering includes framework segments that cooperate and actualize the by and large framework. The below figure shows a general block diagram describing the activities performed by this project

VI.   RESULTS And DISCUSSION

End System is built as the Application and using Machine Learning technology.

The Timetable Generator System allows users to generate time table for newly occurring changes in less time, with less effort and with more efficiency users to work on and view time tables in different platforms and view different information simultaneously create Academic Schedule, Examination Schedule, Class Schedule, Professor Schedules individually.
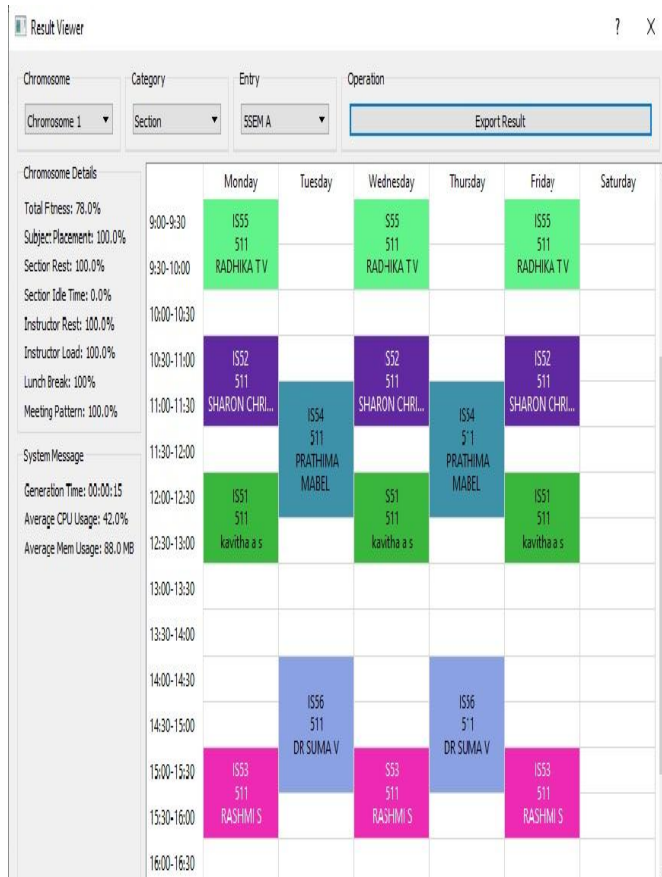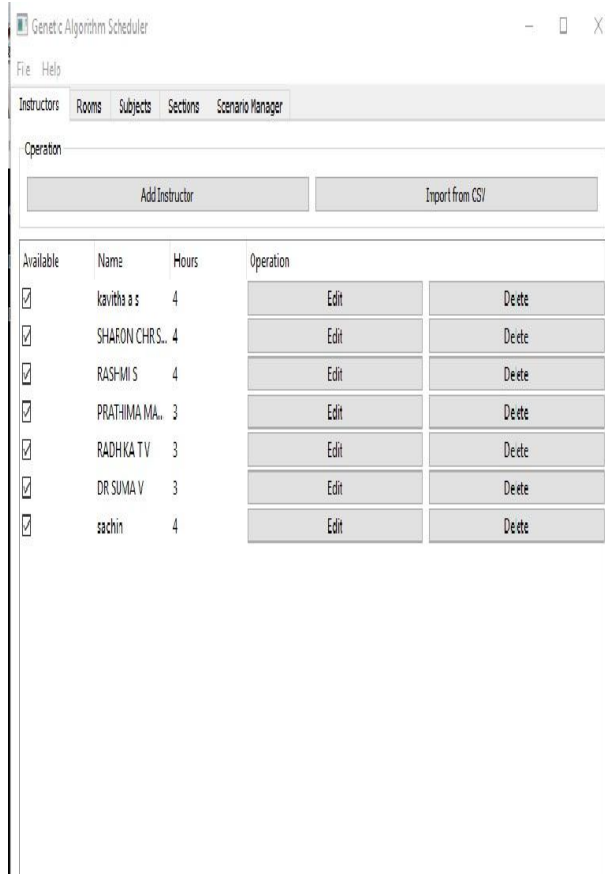
Fig-3: Section results

Fig-4: Application result

VII.   CONCLUSION

The outcomes have indicated that the framework can give legitimate arrangements that can be utilized. However, It doesn't give total robotization. There are still situations that would require the administrator to modify a few sections to make an ideal solution. The framework was likewise intended to be basic and direct. This dispenses with any turmoil brought about by dissipated UI controls and makes utilization of the product completely used.

The simplicity of the system and introduction of configurable algorithm's goal and performance reduced the need for so many constraints as solutions are made dynamically. This enables users to easily use and experiment with the application until they find the perfect fit for their scenario. A large number of combinations for testing in order to find an accurate evaluation for the application has proven to be far from possibility. However, it can be concluded that from the models provided, the system was able to generate results that despite being imperfect still remains valid and acceptable given the number of constraints imposed on it.

The solutions that the system will provide will heavily depend on the running configuration and evaluation matrix. One may find a perfect solution if the application was given enough time and computing power. The complete evaluation for the system will remain hard to solve as the freedom for the configuration of the algorithm has provided a large number of combinations. It can also be inferred that evaluation using other methodologies will yield the same amount of results.

VIII.   REFERENCES

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[3]   1Saritha M, 2Pranav Kiran Vaze, 3Pradeep, 4Mahesh N R 1Assistant Professor, 2, 3, 4 UG Scholar 1, 2, 3, 4 Department of CSE, SDMIT Ujire, Karnataka, India

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