

# Automated Timetable Generation Based On Genetic Algorithm

Sarang Sankhe<sup>1</sup>, Siddhesh Darade<sup>2</sup>, Shubham Desai<sup>3</sup>,\*Anas Dange

Department of Computer  
St. John College of Engineering and Management

**Abstract:** The timetable generating always has been arduous and creation of timetable always has been filled with errors which leads to consumption of time and man power. In this paper we have proposed system to find solution to the timetable problems, Understanding Genetic algorithm and its operations on timetable issue is main objective we are able to reduce difficulties and time required to generate timetable, and expansion of automation system by making it more user friendly System have improvised productivity to well human interaction.

**Keywords:** Genetic Algorithm, Mutation, Crossover

## 1. INTRODUCTION

The class timetabling problem non polynomial complete problem Np complete can be solve by heuristic search problem but only in simple. Timetabling is one of most complex and error prone job in every educational year. In order to find solution genetic algorithm is chosen In genetic algorithm gene characterized by fitness function Analysis is done to get higher fitness function in order to find better solution fittest parent will be select to produce new population. Authorized user able to give input as various courses halls of lectures, department, lecturer, some constraints from which timetable is constructed. The sequence of checking of constraints is also dynamic in nature. The main features of the algorithm are as generation of intermediate level as well distributing workload of lectures equally among all the specified time slots. The system generates precise timetable using principal of genetic algorithm which is free form human errors.

## 2 .RELATED WORK

### **[1] Use of Active Rules and Genetic Algorithm to Generate the Automatic Timetable.**

This document proposes an optimized technique to automate timetable generation system. The aim is here to develop a simple, easily understandable, efficient and portable application which could automatically generate good quality timetable with in a second.

### **[2] Automating class schedule generation in the context of university time tabling for information system.**

The thesis examines the university timetable generation problem. The general area of scheduling has been the subject of intense research for a number of decades. Scheduling and timetabling are typically viewed as two separate activities, with the term scheduling used as a

generic term to cover specific types of problems in this area. Consequently, timetable construction can be considered as a special case of generic scheduling activity.

### 3.PROPOSED SYSTEM

- To deal with manual timetable generating issue we design a software that generates timetable mechanically for the school colleges and different institutes. For this all the possible constraints will be given to the software as a input and it gives scheduled lectures and courses with all possible inputs.

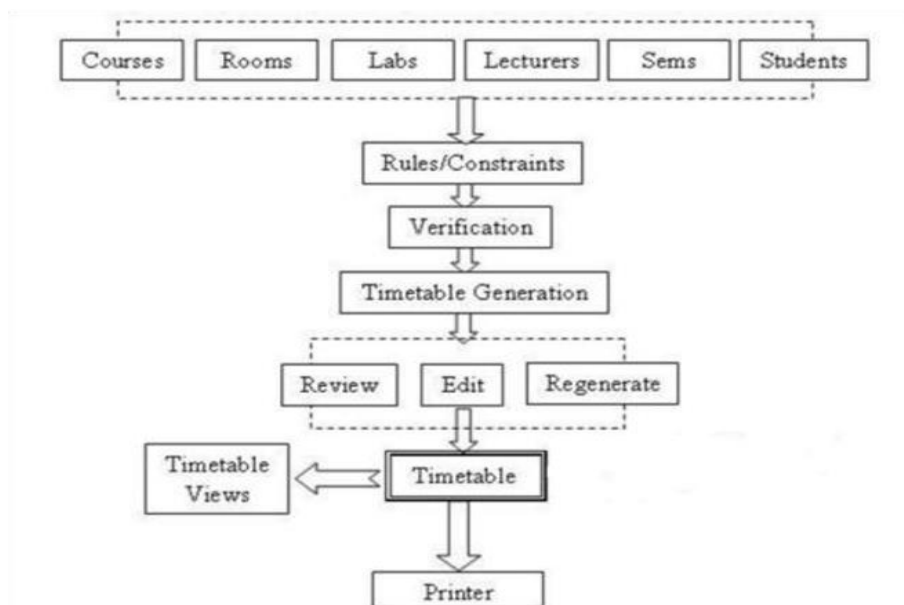


Fig 3.1:The proposed system

- Courses, lectures, programs, departments, Rooms these are the constraint for the systems to create a new time table.
- The timetable generated by the system with minimum errors using the genetic algorithm principles like selection ,mutation and crossover

#### Advantages of Proposed System

- The system offers flexibility, unlike the manual timetabling system.
- It uses minimum processing/computing power.
- It will be less time consuming.
- It eliminates the paperwork.
- It increases efficiency.
- It simplifies the process.
- Entry of data in the is easy

## 4. APPLICATION

- Any School/College Timetable Management.
- Any organization timetable management
- Any University Timetable Management

## 5. EXPERIMENTAL RESULTS

The system is based on artificial intelligence. It used genetic algorithm to solve timetabling issue. In the first image system will asked to register yourself first. If you registered already then you can log in directly by putting username and password.

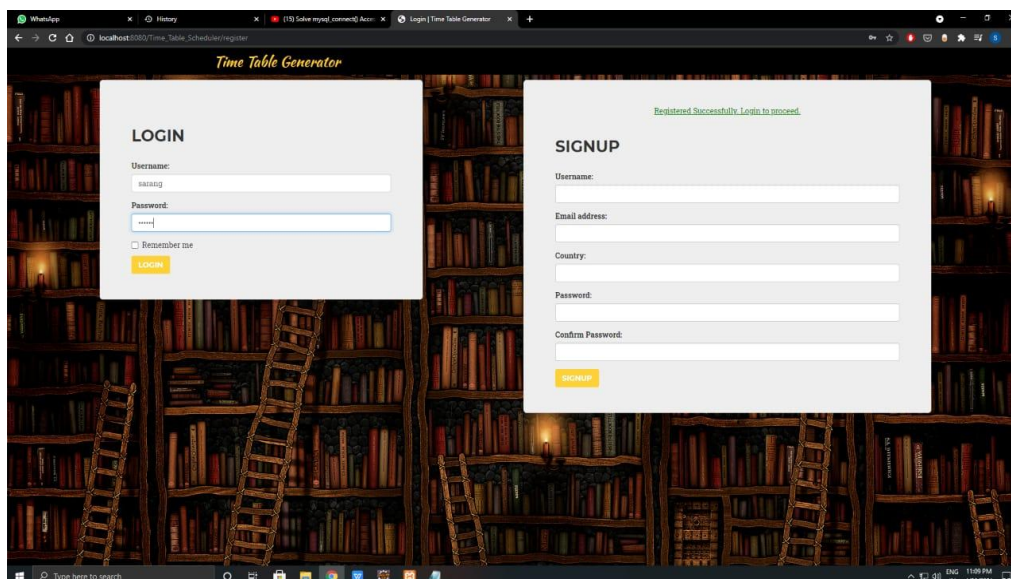


Fig 5.1:- Front page

Then system asked to upload document in which user should provide inputs in form of subject, time, lecturer's data.

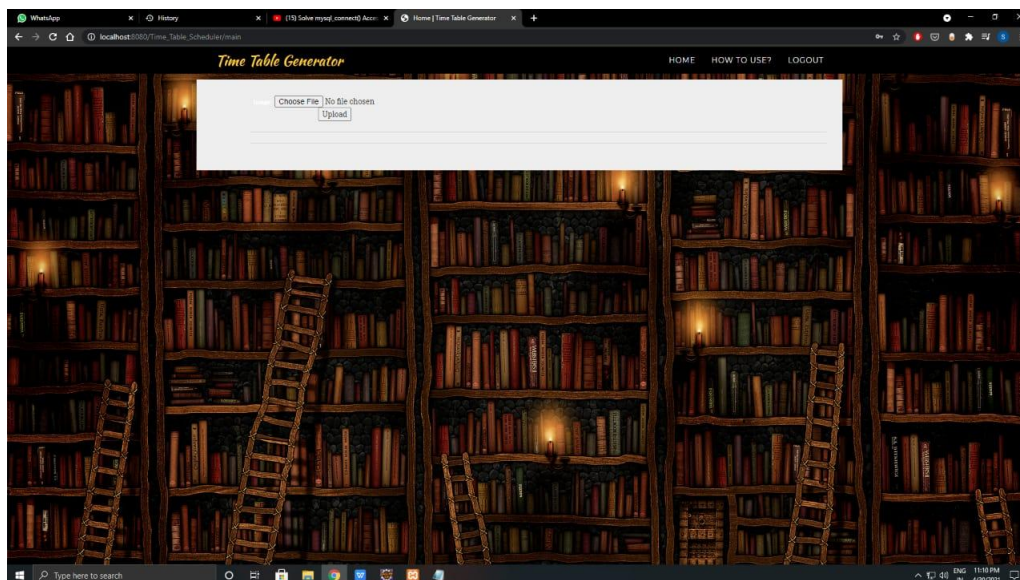


Fig 5.2:- Second page

After uploading system will give you timetable at the end and u can also download it.

## 6.CONCLUSION AND FUTURE WORK

The system is trying to avail all the functionalities more simply and efficiently so as to be used by increased number of colleges. The different types of conditions make it more flexible to be used in different situations and tackle them effectively. The initial scheduling problem with large number of binary variables has been reduced to the acceptable size by eliminating certain dimensions of the problem and incorporating those dimensions into constraints. The grouping of several binary variables into one gene value significantly reduced the individual size. Significant improvements have been achieved by using intelligent operators. The intelligent algorithm converges much faster than the basic algorithm and represents a good starting point for complete solving of the full-scale problem. This system can be used in the future by refurbishing and maybe using the same logic with a better optimization algorithm so that the best scheduled time-table will be available quickly with instant error and clash avoidance mechanism.

## 7..REFERENCES:

- [1] Leon Bambrick, "Lecture Timetabling Using Genetic Algorithms" Available: <http://secretgeek.net/content/bambrilg.pdf>
- [2] Anirudha Nanda, Manisha P. Pai, and Abhijeet Gole, "An Algorithm to Automatically Generate Schedule for School Lectures Using a Heuristic Approach", *International Journal of Machine Learning and Computing*, Vol. 2, No. 4, August 2012
- [3] Bhaduri, A., 2009, October. University timetable scheduling using genetic artificial immune network. In *Advances in Recent Technologies in Communication and Computing*, 2009. ARTCom'09. International Conference on (pp. 289Y292). IEEE.
- [4] Sandeep Singh Rawat, Lakshmi Rajamani, "A Time table Prediction for Technical Educational System using Genetic Algorithm", *Journal of Theoretical and Applied Information Technology*, 2005-2010 JATIT