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Automatic Time Table Generator and Notification

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ABSTRACT: To Change the traditional system of generating timetable. With the help of Genetic Algorithm will be created Automatic Time Table Generator Using Notification Specification so that teachers will be able togenerate timetable easily. It will create timetable for each class and section. The administrator will assign the staff their subject to a particular time slot. Also, if a faculty is absent it notifies to the HOD as well as Principal about the absent faculty. And check whether another faculty is there to swap the lecture with the absent faculty. Genetic algorithm is a popular meta-heuristic that has been applies to many hard combinatorial optimization problems which includes scheduling lectures/classes.

KEYWORDS: Genetic Algorithm, Timetable, Absent, Teachers, HODs, Principal.

I. INTRODUCTION

As time table is essential part of education system, the traditional way of generating a time table is to assign a teacher to create a timetable. As new technologies have become an important part of education system, we have created automatic timetable generator using notification specification which will help teachers to be able to generate time table. It will create time table for each class and section department the process of generating automatic timetable is that administrator will assign the staff,their particular subject at a particular time slot also the important specification of this system is that if the faculty is absent it will send a notification to the HOD as well as the principal and check whether another faculty is there to swap the lectures with the absent faculty.

II. LITERATURE SURVEY

Akshay putt swamy, H M Arshad Ali Khan, Chandan S.V, Parkavi.A "A STUDY ON TIMETABLE GENERATOR". Department of Computer Science and Engineering, M S Ramaiah Institute of Technology, Bangalore. In the Year 2018. The key pointsincludethe significant aim of this paper is to produce timetable for any number of courses and multiple semesters. This system will help to create dynamic pages so that for implementing such a system we can make use of the different tools that are widely applicable and free to use.

International Journal of Interdisciplinary Innovative Research & Development (IJIIRD) ISSN: 2456-236X Vol. 02 Special Issue 03 | 2017 Y Ravi Raju, Mayank Mangal "Web-Based Application for Automatic Timetable Generation" ARMIET Engineering College,sapgaon, Thane, India ravi.raju@armiet.com, mayank.mangal@armiet.com . In the Year 2017. The key pointsincludeTimetable generation application will simplify the process of time tablegeneration which may otherwise needed to done using spread sheet manually possibly leading to constraints problem that are difficult to determine when time table is generated manually. The intention of the system is to generate the time table automatically

International Journal of Advanced Research in Computer and Communication Engineering ISO 3297:2007 Certified Vol. 5, Issue 9, September 2016 Copyright to IJARCCE DOI 10.17148/IJARCCE.2016.59113 505 Solving of Lectures Timetabling Problem and Automatic Timetable Generation using Genetic Algorithm Nashwan Ahmed Al-Majmar, Talal Hamid Al-Shafiq Department of Math's and Computers, Faculty of Science, IBB University, IBB, Yemen1

Department of Computers and Information Techniques, UST, IBB Branch, IBB, Yemen 2. In the Year 2016. The key pointsincludeThis paper has concentrated on solving of lectures timetabling problem using genetic algorithm. The research has tried to show that genetic algorithm is a powerful method for solving timetabling problem especially with some suggested improvements. This model has used real datasets to test the effectiveness and functionality of the method. This software model is very useful, because it can produce varied types of timetables and inside it can be found a good combination between artificial intelligence and software engineering. The future work of this research will be trying to improve genetic approach techniques for solving real-world university teaching timetabling problems.

Prototype Development of Class Relief Management System for Primary School in Malaysia Conference Paper · December 2015 Prototype Development of Class Relief Management System for Primary School in Malaysia NurshazanaShafiea , Amalia @ Amelia Mukhlasb A University

International Journal of Advanced Research in Computer and Communication Engineering Vol. 4, Issue 2, February 2015 Copyright to IJARCCE DOI 10.17148/IJARCCE.2015.4254 245 Automatic Timetable Generation using GeneticAlgorithm Dipesh Mittal, Hiral Doshi, Mohammed Sunasra, Renuka Nagpure Bachelors of Engineering, Dept., of Information Tech, Atharva college of Engineering, University of Mumbai, India Assistant Professor, Dept., of Information Technology, Atharva college of Engineering, University of Mumbai, India4 In the Year 2015. The key points include the intention of the algorithm to generate a time-table schedule automatically is satisfied. The algorithm incorporates a number of techniques, aimed to improve the efficiency of the search operation. By automating this process with the help of computer assistance timetable generator can save a lot of precious time of administrators who are involved in creating and managing various timetables of the institutes.

III. PROBLEM STATEMENT

Togeneratean automatic timetable generator. With scheduling absent teachers' specifications, and notifying teachers, HOD and principal with scheduling teacher specifications. Every institution has its own method of generating Timetable and usually the generating of Timetable is manually. But as the smart classroom concept is accepted on a large scale the Timetable is an important aspect of the classroom.With help of Automatic Time Table Generator Using NotificationSpecificationLecture scheduling is made easy.

IV. METHODOLOGY

This algorithm reflects the process of natural selection where the fittest individuals are selected for reproduction in order to produce better and healthy offspring of the next generation.
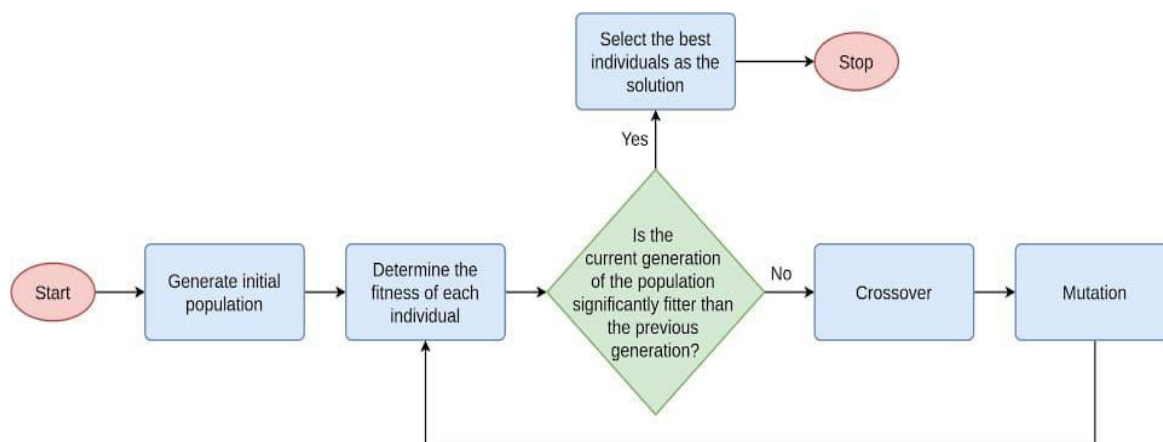

Figure: Genetic Algorithm flow Diagram

Five phases are considered in a genetic algorithm.

1. Initial population

2. Fitness function

3. Selection

4. Crossover

5. Mutation

V. ALGORITHM

Initialize population

Calculate fitness of all solution

Sort Population by Fitness

While Termination condition not reached do

Select two parents from population by tournament selection with size 2

Create child solution using crossover with a Probability P_c

Apply mutation with a probability P_m to child solution

Apply Local Search to child solution

Replace child solution with the worst member of the population

Sort population by fitness

The best solution achived as output

pseudo code of Algorithm

The Algorithm used in this Automatic Time Table Generator Using Notification Specification is Genetic Algorithm. This algorithm is based on Charles Darwin Theory"*Survival of the fittest"*. In this algorithm the population is initialized and then the fitness of individuals is calculated then the fittest individuals are sorted out of the population while the weak or not selected individuals will be terminated/killed and then from the selected individuals two individuals/parents will selected to createa child (solution).If the child is fit then the best solution is achieved and if not then again from the selectedindividuals two individuals/parents will selected to create a child (solution) using Crossover and mutation then the best solution is achieved as output .
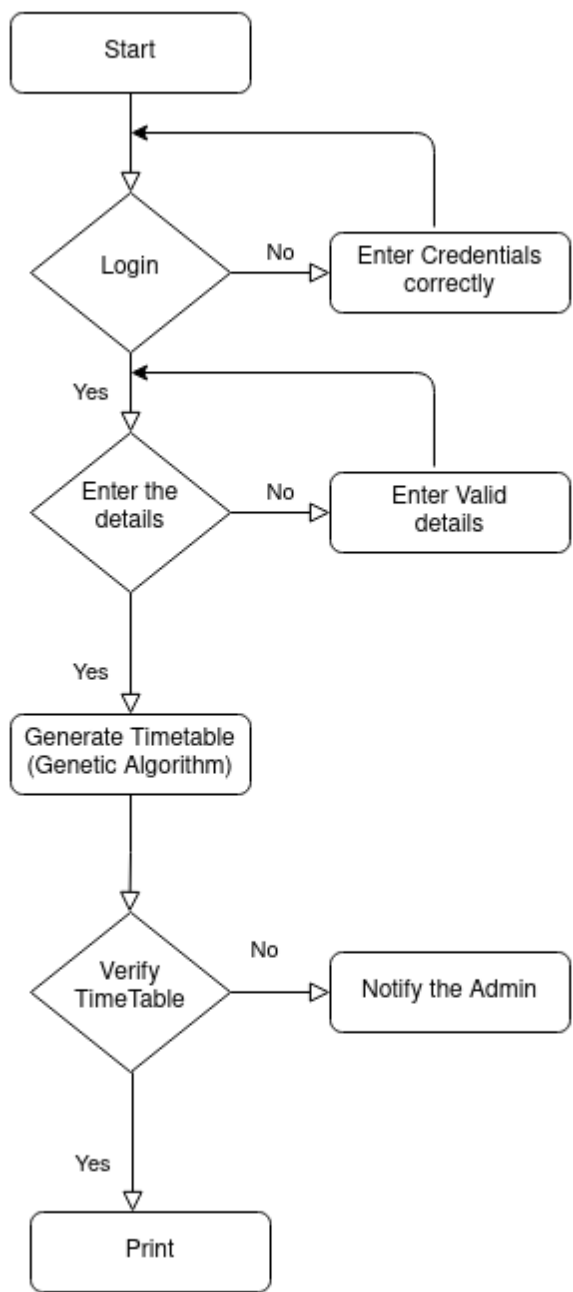
VI. SYSTEM ARCHITECTURE

Figure: System Architecture

In the System Architecture of Automatic Time Table Generator Using Notification Specification, the Admin will login with the help of User_id and password and then the admin will allocate the faculty's name, subject and room and the admin will fill the time slot field and then apply active rules such as 45 minutes break should be occurred after first two lectures and then 15 minutes after the first four lectures. Then the system will apply the Genetic Algorithm and the algorithm will give the best solution as output. Then admin can print the output i.e., Timetable.

VII. CONCLUSION

An evolutionary algorithm, genetics algorithm for time tabling has been proposed. The intention of the algorithm to generate a time-table schedule automatically is satisfied. The algorithm incorporates a number of techniques, aimed to improve the efficiency. By automating this process with the help of computer assistance timetable generator can save a lot of precious time of administrators who are involved in creating and managing various timetables of the institutes. With the reschedulingthe absent teachers and notifying teachers and HOD andprincipal.

Also, the timetables generated are much more accurate, precise than the ones created manually. We have used python to develop our application. The project reduces time consumption and the pain in framing the timetable manually. The benefits of this approach are simplified design and reduced development time.

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