

TIME TABLE MANAGEMENT SOFTWARE

PROJECT REPORT- STAGE I

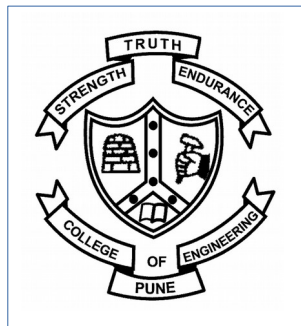
by

1. Sourabh Limbore (111203031)

2. Aadesh Magare (111203032)

in

COMPUTER ENGINEERING



(Department of Computer Engineering and IT)

COLLEGE OF ENGINEERING, PUNE – 411005

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CERTIFICATE

Certified that this project report “**TIME-TABLE MANAGEMENT SOFTWARE.**”

is the bona-fide work of

SOURABH LIMBORE (111203031)

AADESH MAGARE (111203032)

who carried out the project work under my supervision.

Place : Pune

Date : 05/12/2015

SIGNATURE

Prof. Abhijit A.M.

PROJECT GUIDE

Department of Computer Eng and IT
College of Engineering, Pune

SIGNATURE

Dr. Vandana Inamdar

HEAD OF THE DEPARTMENT

Department of Computer Eng and IT
College of Engineering, Pune

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CHAPTER 1

INTRODUCTION

1.1 Background:

All organizations need Time table for their smooth working. It is an efficient mapping of resources to the uses. Educational institutes regularly face problem of timetable generation / maintenance , which is very time consuming and repetitive work.

1.2 Properties of good Time - Table :

1) No Clashes :

A good timetable ensures that there are no clashes.

2) Efficient Use :

Gives Optimal output for the available resources.

3) Easy to Modify :

Time table should be easy to modify in case some changes occur.

4) Specific to organization :

Generic timetable does not work well with different types of organizations, It should be customized for each organization.

ABSTRACT

Timetable generation is a time consuming problem faced by many educational institutes. It belongs to the class of combinatorial optimization problems. We propose a semi automated approach for solving this heavily constrained problem for educational institutes like College of Engineering Pune (CoEP). It will allow the users to make time table as per his/her choice while ensuring all constraints are satisfied and there are no conflicts. The existing solutions for this problem are fully automated, difficult to use and provide no freedom to user for customization.

We propose a much simpler approach for solving it. We aim to develop a desktop application using Object Oriented Programming paradigm with a user friendly interface.

CHAPTER 2

LITERATURE REVIEW

General :

We studied existing solutions to the problem like FET (Free timetabling software) , ASC Timetable, Timetable Pro and Mimosa Scheduling Software.

Identified different constraints for proper timetable generation. All the existing solutions have some common problems regarding usage.

Existing Solutions :

FET :

FET is open source software used for automatic scheduling of timetable.

FET supports :

- Fully automated timetable generation
- Import/export from CSV format
- Runs on Linux, Windows, Mac and other OS.

It is very hard to use for new users. Since its fully automated it needs a large data initially. Which is not convenient for users.

ASC Timetable :

ASC is Shareware software, it supports automatic scheduling of timetable.

ASC provides :

- Automatic Generation
- Manual Adjustments
- Easy to use (nice UI)

It's not Free (only trail version available). Not available for Linux based systems.

Timetable Pro and Mimosa Scheduling Software have similar features and issues.

OBJECTIVES OF PROJECT

We propose a much simpler approach for timetable generation.

1. Easy to use GUI.
2. Freedom to define constraints.
3. Cross – Platform
4. Open – Source
5. Semi-automated approach
6. Dynamic Checking.

Problem Statement

To solve heavily constrained problem of Time Table Generation for educational institutes like College of Engineering Pune (CoEP) using Semi-Automated approach.

CHAPTER 3

SYSTEM DESIGN

Overview :

We aim to develop a timetable management software which gives lots of scope for customization to the user. Its broadly divided into two components Front end and Back end.

1. Front End:

We propose a Sheet-based User Interface (similar to spreadsheet) where users can easily enter the schedule. Multi-tabbed view where user can see the timetable in different contexts. A constraints section which will contain global constraints used throughout the time table.

2. Back End :

At the back end it maintains list of all teachers, venues and Classes. Each one has its own timetable and all of them together constitute whole timetable for the institute. Every change in timetable is first verified to be consistent with existing entries before actually modifying the timetable. There is a list of constraints which must be satisfied by the timetable, where a user can change these constraints. We rely on a UI where user can easily understand and change the constraints.

CHAPTER 4

SYSTEM REQUIREMENT

4.1 Hardware Requirements :

The minimum Hardware Requirements are :

- Memory (RAM) : 512 MB of RAM required.
- Hard Disk Space : minimum 1GB free space required.
- Processor : Intel Pentium 4 or later

4.2 Software Requirements :

The minimum Software Requirements are :

- Operating System : Windows / Linux
- Text Editor : VIM / Sublime Text 2
- PyCharm
- Python 2.7
- Python Library : wx (Other GUI Library in future)
- PDF Reader / Word processors

IMPLEMENTATION

- **Current Status :**

The implementation phase is in initial stage. We are working on the Back end. Taking input from user through minimal Graphical User Interface and preparing a time table with minimal constraints.

Current implementation supports default constraints i.e.

- No Clashes of Lectures / venues / teachers.
- Support for Batches.
- Support for combined lectures.
- Maximum allowed load for faculty.
- Compulsory Lunch break for all classes.

Schedule for Remaining Implementation

[31 st Dec 2015]	Complete Implementation of Back end and Front end.
[15 th Jan 2016]	Testing / Debugging of all features.
[31 st Jan 2016]	Final version with complete Report.
[Feb 2016]	Paper Publication / Marketing of software.
[April 2016]	Report Submission.

References :

- [1] ASC timetable website: <http://www.asctimetables.com/>
- [2] FET timetable: <http://lalescu.ro/liviu/fet/>
- [3] Mimosa timetable: <http://www.mimosasoftware.com/>
- [4] An Algorithm to Automatically Generate Schedule for School Lectures Using a Heuristic Approach by Anirudha Nanda, Manisha P. Pai, and Abhijeet Gole.