

# Online Examination Management System Using Genetic Algorithm

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## ABSTRACT

This paper gives the idea about the working of Examination management System. This online examination management system project is developed for the Engineering student in order to view the timetable for exam and give the exam online, and This project can also focus on Generating time table for Examination and Hall Ticket generation of student who are register for examination. In this Project student can give the online exam and based on their performance the report of each student is generated. This project is a Web- based application. The developed project or the software application allows the student to select their exam timetable online and view the seating arrangement for the exam. In this project student can also generate there Hall Ticket by giving input such as Branch, year, semester, and Roll No of student. The developed system is evaluated using real data by prospective users of the system. In this project different verities of questions are supported including multiple-choice questions, and the system generate random number of questions to each individual resister student.

**Keywords:-** Online exam, Web-based application , Greedy Algorithm, Genetic algorithm, Online Engineering Education. <sup>[1]</sup>

## I. INTRODUCTION

### *About Online Examination System(OES)*

Online Examination Management System(OEMS) is a term to manage the exam system in terms of student registered for exam, Student can view their Timetable for exam is online, Student can view their seating arrangement online with the help of our Online Examination Management System project. Student can give the online exam in term of Multiple Choice Questions(MCQ) where random number of question are generated by the system and by using this quality of education is improved.

### *Purpose :*

This Web Application Provides facility to submit Online Examination Form and Generate the Academic Results as well as display news related to Exams.

- It saves Time as it allows number of Departmental students to login and fill the exam form at a time and submit it.
- After submitting the exam form, Exam Fees challan will be automatically generated, Student can take print out of that Challan.
- Administrator has a privilege to Create, Generate, modify, delete, Exam Form, Hall Ticket, Result, any Exam related news or any Content on this Web Application.
- Teacher or supervisor can Generate a patterns (Block Creation) of a Sitting Arrangement as well as Report ([Roll Number], [ Exam Seat Number], name, [Internal Exam Marks], Signature) and take a printout of it.
- and the lists of the students which can appear in the exam. Students can give exam without the need of going to any physical destination. They can view the result at the same time.

## II. EXAMINATION MANAGEMENT PROCESS

Online Examination Management System(OEMS) is project or web-based application which is used to control the tasks which occur during every examinations period. This project is developed in PHP. This php project can save a lot of time for examination department by providing Functionalities to their manual tasks like Exam Time Table Generation.

It can also help the Staff or Teacher to put the marks for the every student. by using this system we can keep the record of marks of student, attendance during the examination period. Examination Management System has many key features or modules which are as follows:

- We can generate time table for examination.
- We can register student for examination.
- We can make the seating arrangement for student.
- We can take the attendance during examination period.
- We can keep the record the mark of students.
- We can add new exam or test for new subjects
- We can generate Report of the student.
- We can generate Hall Ticket of student for exam

## III. ARCHITECTURE DESIGN AND ALGORITHM

To complete the project, these projects are assigned to the three students of 2015-2016 academic year. Both students must work together in designing the database but each student works separately to complete a different module. The first student must complete the room assignment and the seating layout while the second student must complete the proctor assignment module. Each module and the database design are explained in the next sections.<sup>[5]</sup>

There are three modules of Examination Management system.

A. Student module.

B. Administrator module:

C. Teacher / Supervisor module.

The functionality of each module is as follows :

### A. Student module:

The student will login to this web Application and can fill examination form, Can take printout of Bank Challan after generating it.

Examination form will be automatically generate following things : Roll Number, Name of Student, Examination Name or Semester , Subject Code, Subject Name, Number of Backlogs (if any), Exam fees, etc.

Student will have facility to select the subject, where he will appear in exam. <sup>[5]</sup>

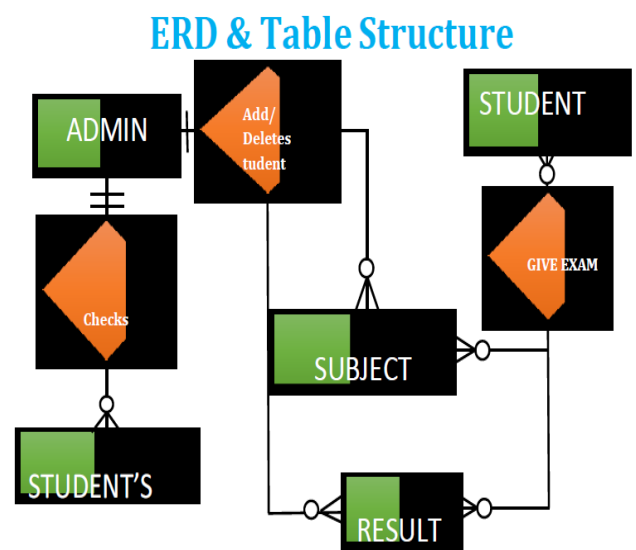


FIG 1. Architecture of Examination Management System <sup>[2]</sup>

### B. Administrator module:

The administrator can create, modify, insert, update, and delete any stuff on this web application. He should be approving Exam form to generate an Exam hall tickets for students. He can manage other Accounts related to this web application (add user, delete use.. Etc.).

He can upload any exam related document on this web application.

Exam Hall Ticket will contain information like:

Student information (Name, Roll No/Exam Seat Number, Mothers Name, PRN, Exam Center Code, etc.). Subject Code, Subject Name, Exam Date, etc. [5]

**C. Teacher module:**

Teacher will login to this web Application and can generate report for that exam and also generate Exam sitting arrangement (Block creation) and take a printout. In block creation teacher can generate some exam sitting arrangement patterns by just giving total number of students appearing for exam, Total number of rooms will use to conduct exam, total number of benches in room, examination name and date of examination.

Teacher will enter marks (Internal + External). Depending upon Internal or External or both marks, System will generate Report as well as ledger and Result if student cleared all subjects then result will contain percentage, overall grade.

In report generation following things will auto generate: Name of the Exam, Date, [Exam seat No.] or [Roll No.], name of student, [internal examination marks], Signature, etc.

Blank space for total number of student, Total number of student present, total number of student absent, name of the supervisor, signature of supervisor etc. [5]

**IV. ADDITIONAL FUNCTIONALITY OF EMS**

**A. Examination Room Assignment and Seating layout**

The examination room assignment and seating layout project is developed by following goal is to choose the room for each subject according to the examination style, the room capacity, the relationship among subjects in the same room and the availability of the room. The room capacity is the maximum number of students per subject that can be filled in the room such that the students from the same subject should not be seated next to each other.. The room availability must be considered because each room may be scheduled for other events during the examination period. [1]

The algorithm to be used in this module is the greedy algorithm with a simple priority function. The priority function is based on . That is, all subjects are sorted

according to the number of students in the subject from large class size to small class size. The algorithm will assign rooms for each day by separating morning section and afternoon section. At each section of each day, all subjects of that time are sorted according to their class size from large to small size

The algorithm will search and assign the next subject to the room until the room is filled. Then, the algorithm moves to the next room and performs the same steps. The algorithm stops when there is no subject left to be assigned or there is no seat available. Either case, the algorithm will report to the user. Once, the room assignment is done the seating layout of each room must be produced. All results are stored in the database so that they can be edited or retrieved later by the authorized users.

Date	Start time	End time	ID	Subject	Sec	num Students	Room	Sign
01-03-2012	09:00	12:00	236-210	PRINCIPLES OF ENG GEOLOGY	01	57	S817	X
01-03-2012	09:00	12:00	230-342	CHEMICAL ENGINEERING LAB I	01	43	S817	O

~	~	~	~	~	X	O	X	O	X
~	~	~	~	~	X	O	X	O	X
~	~	~	~	~	X	O	X	O	X
~	~	~	~	~	X	O	X	O	X
~	~	~	~	~	X	O	X	O	X
~	~	~	~	~	X	O	X	O	X
~	~	~	~	~	X	O	X	O	X
~	~	~	~	~	X	O	X	O	X
~	~	~	~	~	X	O	X	O	X
~	~	~	~	~	X	O	X	O	X
X	O	X	O	X	O	X	O	X	O
X	O	X	O	X	O	X	O	X	O
X	O	X	O	X	O	X	O	X	O
X	O	X	O	X	O	X	O	X	O
X	O	X	O	X	O	X	O	X	O

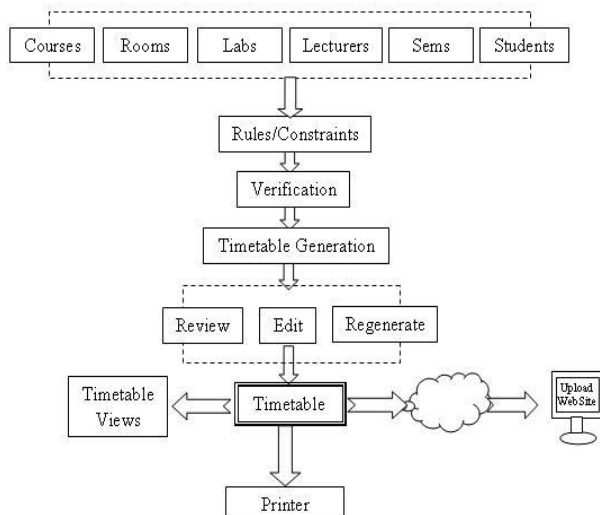
Fig. 2 Result of S817 room

**B. Genetic Algorithm for time table generation system**

Our Timetabling Genetic Algorithm is the major component of our application or project which produces the timetable for even / odd semester as the output. The Timetable generation system takes various inputs from the end-user such as department, studying year, semester, roll no etc. This all are as a input for timetable generation, we designed the timetabling generating genetic algorithm [3].

The proposed system is used to generate time table automatically. This ensures the following features

- Easier slot assigning
- Less time consumption
- NO slot clashes
- Always considers the other department slots first



**Figure 3 : General View of Time Table Generation System**

## V. CONCLUSION

Thus online examination management system project is developed for the Engineering student in order to view the timetable for exam and give the exam online. and This project can also focus on Generating time table for Examination and Hall Ticket generation of student who are register for examination. In this Project student can give the online exam and based on their performance the report of each student is generated. This project is a Web- based application.

In this project we can generate hall ticket of student for examination in this hall ticket we can generate unique exam seat no. By using this student can give the online exam. And in this project we can also generate timetable for the individual department of individual classes without overlapping the date and time and this time table is generated automatically by this system. And we can also generate the seating arrangement of the student for exam Various slot combinations can be acquired so that another timetable is generated as of need. The project

reduces time consumption and he pain in framing the timetable manually.

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