Intelligent Examination Staff Allotment System

Sheikh Ramzan
Dept of Computer Science and Engineering
Yenepoya Institute of technology
Thodar, Moodabidri

Sanjay K P
Dept of Computer Science and Engineering
Yenepoya Institute of technology
Thodar, Moodabidri

Al Tajiba
Dept of Computer Science and Engineering
Yenepoya Institute of technology
Thodar, Moodabidri

Saudha Shoeb
Dept of Computer Science and Engineering
Yenepoya Institute of technology
Thodar, Moodabidri

Kevin Joy D'Souza
Dept of Computer Science and Engineering
Yenepoya Institute of technology
Thodar, Moodabidri

Abstract— with the advancement of Computer and Information Technology, there is also an increase in the consumer demands, which has indeed also increased the competition between different organizations, which is resulted in the improvements of the business processes with proper utilization of the available digital resources. This project is useful for the teaching staff members and staff admin to facilitate the online allotment of invigilation duties and classrooms during the examination. An invigilator is a person who supervises students during examinations in the organization. Assigning invigilators to exams is an important phase in the exam scheduling process. The problem has its own constraints and a multi-objective structure. The proposed scheme will automate the manual exam management process by introducing a web based application which uses the efficient algorithm for scheduling the exam duties. Comprehensive testing and validation process is carried out to make application to handle the event which may result in the invalid data or invalid actions by the user. Overall the results obtained justify the suitability and quality of application for organizational needs.

Keywords—exam; staff allocation; FIFO technique; random allocation.

I. INTRODUCTION

Staff Duty allocation is a term which is basically concerned with the allocation of the class rooms. Class room scheduling based number students appearing for and appointing the faculties for invigilation duty happens to be a tedious job for the exam coordinator. The proposed scheme aims to automate the process of assigning the duties to achieve efficient coordination of examination management process in an educational organization. It will reduce the time consumption and manual work involved. The proposed scheme allows the admin to manually allocate invigilation duties. The application shows that the modules are highly efficient, low-cost, and can be widely used in various colleges and universities. This project will provide them with the facility to allot classrooms and maintaining the record of all the staff members. Moreover provides a better and user-friendly platform for the administrator and staff members to interact with each other more efficiently and interactively.

A. Scope
This system provides functionalities such as addition, deletion and views various types of analytics. This decreases time overhead for admin and manual allotment of invigilation duties that could take hours, can be done in just a few seconds or minutes. There is no fear of manipulation of records by unauthorized personnel. All records stored in the system are protected. Files in storage may catch fire or be spoilt in water. But data storage in repositories reduces those risks. The system takes input for four entities namely classroom, subjects, faculties and exam timetable. Faculty entity includes the faculty name, years of experience, seniority, availability. Exam Time Table entity includes semester, branch, year, subject name, date, start time and end time of examination. All the details need to be entered only once.

B. Objectives
- Offers the solution for exam invigilator and classroom arrangement problems that can be achieved through the proposed system.
- The proposed system gathers data and methods from a university those are being used for their exam class arrangement.
- Provides an effective login portal to hold staff members details, allotment of classrooms and use the same to offer better and improved services.
- Provides a user-friendly interface for the staff members and the administrator to work more efficiently.
- Proper utilization of the available resources and maintaining all sort of information for future references.

Special Issue - 2019

International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181
RTESIT - 2019 Conference Proceedings

- The monitoring of the selecting activity and the overall work becomes easy and includes the least of paperwork.
- It increases the efficiency of the management while offering quality services to staff members.
- Saves a lot of time and labor.

II. LITERATURE SURVEY

The paper on "Automatic Exam Seating & Teacher Duty Allocation System [1]" by Apurva Inamdar, AnandGangar, Arun Gupta, Varsha Shrivastava describes a system where the Students Seating Arrangement (SSA) and the Supervision Duties Allocation (SDA) algorithms discussed in this paper are used to allocate the seating arrangement and the duties during an exam. This software helps the Exam Coordinators to allocate the duties to the respective teachers and also to develop a student seating allocation plan for examinations. The project aims at allocating the duties with much greater effectiveness. The software serves the purpose of saving the manual work and time put into the allocation. Optimum use of the resources available will be done without wasting extra classrooms and the allocation of the duties to the teacher will be done by checking their availability. The paper on "A distributed algorithm [2] for least containing slot allocation in MPLS optical TDM networks" by Hassan Zeineddine and Gregor V. Bochmann proposed a distributed approach for the least constraining slot allocation scheme. Basically, it reduces the rate of resource status updates from once per call to once per few calls, and measure the impact on network performance. After specifying the node database, the proposed system defines new parameters that need to be added. The paper on "Exam Scheduling [3] mathematical modeling and parameter estimation with the analytic network process approach" by Mujgan Sagir and Zehra Kamisli Ozturk describes a system where an invigilator is a person who supervises students during examinations in educational systems. In this paper, an ANP model is used to prioritize the objectives of the invigilator-exam assignment problem. The quality of the solution of such a model depends strongly on the estimated values of the parameters of the problem. Another paper on "Examining the examination [4]" by Stephen Minot describes the situation calls for a hard look at three reassuring myths we have built around this thing called an examination. The poor student would not be convinced of his intellectual poverty. His grade could be excused on the basis of professorial prejudice and the blame in this way conveniently externalized.It is "good" because it was designed to give the student a fuller awareness of the intellectual process. The paper on "Algorithm for Efficient Seating Plan for Centralized Exam System [5]" by Prosanta Kumar Chaki and Shikha Anirban, this research offers a system to generate an exam seat plan for a large number of students from different subjects. This system mostly focused on optimum uses of seats, having a distance of students getting the same query set to prevent cheating (copying from others) in the exam, avoiding seat overlapping and finally full seating arrangement that is comfortable both for the students and invigilators. This research solves one of the big issues of centralized examination system by offering a series of algorithms. Three algorithms are written for room specification, column distribution, and room and column assigning.

III. PROBLEM STATEMENT AND SOLUTION STRATERGY

With the increasing number of students, subjects, departments and rooms, exam seat management and allocation of invigilators becomes complex. Maintaining a decent exam environment with the proper classroom arrangement is one of the difficult jobs for authority. Traditionally, assigning of classrooms and invigilators is done manually by administrator's knowledge and experience. Admin needs to spend a lot of time and energy in allotting invigilators and keeping the track of it. It becomes difficult to do this task manually because the admin has to allot invigilators to each class everyday, in such a way that the faculties should not have any problem. It's a trouble to the faculties as well, if the classroom allotted to them is not satisfactory.

A. FEATURES

a) It provides the functionalities such as adding the information of available classrooms and requirements of invigilators during the examination to be conducted.
b) It helps the examination coordinator to assign exam invigilation duties online.
c) It enables teaching staff members to opt for invigilation duty through this web application.
d) It maintains faculty information.
e) It manages the allotment by automating.
f) It provides the functionalities to the admin such as add faculty details, delete faculty details, edit faculty details.
g) One teacher should invigilate only one classroom at a time.
h) A teacher can only undertake one type of Supervision duty.

IV. PROPOSED SYSTEM

The proposed system presents a solution for exam staff allocation which can be achieved through the execution of an algorithm. This is an era of information technology where automation of each and every activity is gaining importance. The site will lead to the automation of the examination system.
The automated process of examination is much better than the manual system.

A. Advantages

a) Time-saving
b) Increased efficiency
c) Allows neat handling of data

Special Issue - 2019

International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181
RTESIT - 2019 Conference Proceedings

d) Decreases overhead
e) Accurate

This system provides an advantage to the faculties as they have an opportunity to select the classrooms for invigilation. The allocation of classrooms to the faculties is based on the FIFO technique and random allocation.

V. SYSTEM REQUIREMENTS ANALYSIS AND SPECIFICATION

The two main roles are as follows:

Admin Roles:

Initially, admin has to login using user id and password. Admin has to upload the timetable and accordingly set the slots for faculty. Admin can allot the classes for the examination to be held on respective date and time. Admin should be able to view the selected classrooms by the staff members. He should also be provided with the option to allot the classrooms which weren't selected by any of the staff members. The admin can delete the faculty information by entering his/her user id. Admin can also view the details of all the staff members, the admin should be able to do the analysis and produce the detailed report. Admin has to select the reliever based on their experience. Pending duties are allocated by the admin manually.

a) *Add Faculty :*
The admin adds the Faculty details manually and gives the login detail to the particular Faculty.
b) *Delete Faculty :*
If the faculty is no more a part of the institution then the faculty details can be deleted.
c) *View Faculty :*
Admin can view the classrooms selected by the faculties.
d) *Modify :*
Admin can also assign different classrooms to different faculties in case unavailability of faculties.
e) *Add room:*
Admin adds room for various examinations based on different criteria.

Faculty Roles:

Initially, faculty has to login using employee id and password. If the account is not available then the admin has to register. After faculty logs in he/she can view the dates and classrooms available. Once the faculty has selected the classroom then other faculties cannot select the same classroom.

a) *Signup:*
The faculty has to register by giving their details.

b) *Login:*
The faculty has to login using their employee id and password.
c) *Select room:*

Faculties are able to select the room for examination based on different criteria.
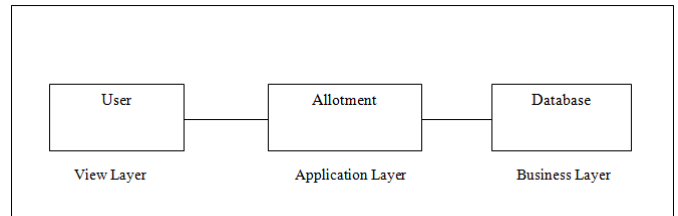
VI. SYSTEM DESIGN

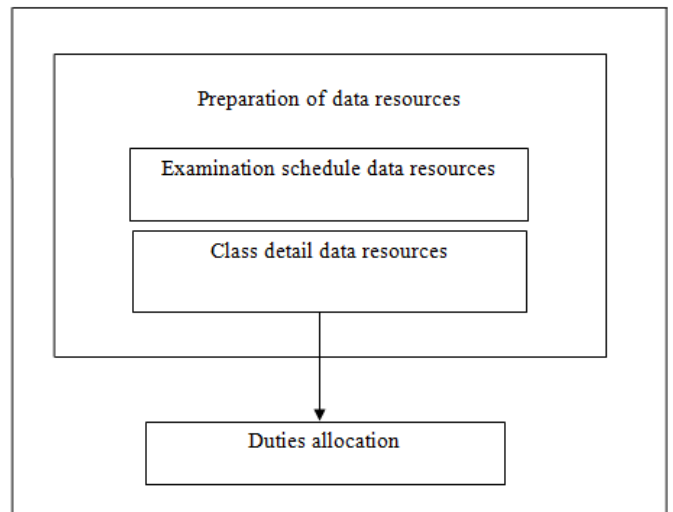Figure1: Block Diagram for Intelligence Examination Staff Allotment

Figure2: Flowchart for Intelligence Examination Staff Allotment
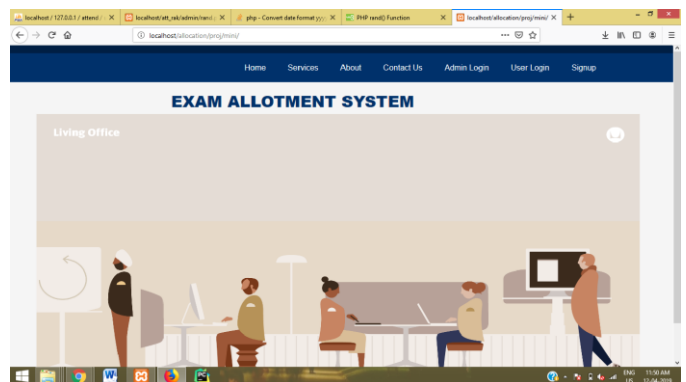
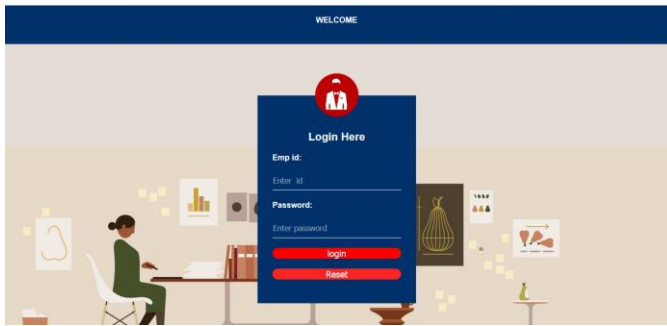## VII. SYSTEM VALIDATION

Fig1. Index page

Special Issue - 2019

International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181
RTESIT - 2019 Conference Proceedings

Fig2. Login page
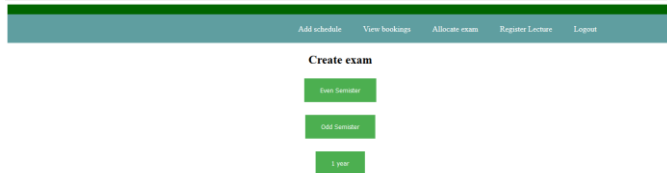
Fig3. Internal examination allocation

Fig4. External examination selection

VIII. CONCLUSION

Ultimately the proposed scheme reduces the manpower, workload on staff. It benefits all the educational institutes by reducing the complexity involved while allocating the exam duty for the staff and examination class rooms for the students. All these data is stored in a centralized database which can be accessed whenever needed. Further the proposed methodology used the efficient algorithm which is highly scalable. This can automate the manual work involved in assigning the invigilation duty and class room arrangement during university examination.

REFERENCES

[1] ApurvaInamdar, AnandGangar, Arun Gupta, VarshaShrivastava. "Automatic Exam Seating & Teacher Duty Allocation System"

[2] Hassan Zeineddine and Gregor V. Bochmann. "A distributed algorithm for least containing slot allocation in MPLS optical TDM networks"

[3] MujganSagir and ZehraKamisliOzturk. "Exam Scheduling: mathematical modeling and parameter estimation with the analytic network process approach"

[4] STEPHEN MINOT. "Examining the examination"

[5] Prosanta Kumar Chaki and ShikhaAnirban. "Algorithm For Efficient Seating Plan For Centralized Exam System"

[6] Xuecheng, S. (2015). A Hybrid Genetic Algorithm for Make-Up

[7] "Examination Arrangement", Seventh International Conference on Measuring Technology and Mechatronics Automation., 2015.

[8] P. Kumar Chaki and S. Anirban, "Algorithm for Efficient Seating Plan".