Student Exam Seating Management Platform

[1]Nikita Vairagad, [2]Priya Chahuan, [3]Rakhi Dhanfule, [4]Nikita Shrungare, [5]Dnyaneshwar Sadhal, [6]Sachin Rathod

[1,2,3,4,5,6]Computer Science of Engineering, Agnihotri School of Technology, Wardha, Maharashtra, India

[1]nikitavairagade1998@gmail.com, [2]pchahuan885126@gmail.com, [3]dhanfulerakhi@gmail.com, [4]nikitashrungare9@gmail.com, [5]danyanshwaresadhal4@gmail.com, [6]sachinrathod23@gmail.com

ABSTRACT

The paper entitled "Exam Centre Seating Arrangement" is used to integrate complete operation of exam hall management. Here the project is developed in Java Servlet as front end. The and Sql Server as back end. Exam hall arrangement for students during examination hall numbers while they are wits end. An innovation which could aid the students is finding their exam halls would be welcoming and very rewarding. This project presents a modernized method of examination hall management. It is possible for a student to identify the exam hall from anywhere. Examinations are conducted periodically in all educational institutions which are to be conducted systematically and properly. By automating the examination system, the coordinators of the examination can conduct the examination system, the examinations are conducted smoothly, error free and systematically. This system will shed the present issues, while also propelling a paperless area meanwhile.

1. INTRODUCTION

Examination Hall Management System is developed for the college to simplify the allocation of halls and issuing hall tickets to students during exams. It facilitates to access the examination information of a particular student in a particular department. The information is sorted information alphabetically, which will be provided by the teacher for a respective department. This system is also help in finding the examination eligibility criteria of a student of the particular department. 1. PURPOSE The purpose of developing exam hall seating arrangement system is to computerize the traditional way of conducting the exams. Another purpose for developing this software is to generate the seating arrangement report automatically during exams at the end of the session or in between the session. 2. SCOPE The scope of the

project is the designing a web interface and it will be given to a college for future use.

A. Existing System

Existing system is very slow and inefficient. Report generation is also not an easy task in the current situation. Also, if the report is generated then calculations are done manually that leads to more errors. There is a lot of manual work involved in current system and mistake in one detail can lead to wrong generation of page. No proper collection of requirements leads a huge problem for this system. This system is to enhance manual work and also more energy is wasted to allocate the seating arrangement.

B. Disadvantages Of Existing System

Current system is manual so all the records are maintained manually. So, the seating arrangement of students cannot be determined if updating is not done.
• Time Consuming
• Less Efficient
• More manual Work Required
• Less Accurate
• Not User Friendly
• Difficult in hall ticket generation

C. Software Environment

HTML: HTML is an application Standard Generalized Markup Language (SGML). It approved in 1986.HTML and SGML is to define WWW hyper document and inter connectivity. When we compare HTML, it is quite better than SGML.

MYSQL: MySQL server is powerful database and it requires limited programs and used has back end. It supports GUI and more application is developed by help this server. Collection of tables which holds the data is called database. A beginner can create their own database by click home page. 3. TABLES Collection of similar data is called tables in MySQL. These tables are stored in the same database file because they often have some changes if require. And it can be fill out easily.

2. LITERATURE REVIEW

Shikha Anirban and Prosanta Kumar Chaki created "An Algorithm for Effective Seating Plan for Exam System." We will present a model and some algorithms in this study to address the exam seating issue. The I-shape seat allocation method can use our suggested system. Room information and exam information are the two forms of data that the system requires as input. The overall student body must be fewer than or equal to the total number of seats. We took some actions to provide the best possible seating arrangement. [2]

A. H. Nandhu Kishore, A. Sasireka, K. Vijay, Developed and Designed Impoved Exam Center Seating Arrangement Automation System on 2021.The classifier algorithm is employed or effective generation of seating arrangement and advance encryption system(AES) algorithm is employed for password authentication of registered users for providing high level respective exam center through their email id. Therefore, it minimizes the time of searching the examination center by both the students and the staff member.[3]

Dayanand G Savakar, Ravi Hosur, D Z Automation of examination System D Z, International Journal of Science and Research, Volume 4 issue 11 November 2015.This is an automated examination system for the whole institute for candidate seat allotment and faculty room allocation during exams at university level to regulate the semester examination process through the cloud computing technology. Here the computerized system assigns the given set of students to a specific block and supervisor to their block and also enables the supervisor to swap their responsibilities, create report cards to a given date, session, block and create the report for the students who were absent for specific examination.[4]

Priya D Selharshini, M. Selva Sudha of the Department of computer science engineering have suggested the system as D z Exam Cell Automation System. The main idea of the project is to reduce the complexity involved in the assignment of center of the institute and also provides an opportunity for student to view their respective department examination details. The data are kept in an alphabetical manner provided by the exam coordinator and the faculty of the respective department. The admin replenishes the information regarding student detail, exam schedule, hall information and vacant seats in the hall. Now, the automated system will prepare the seating order to the students thus are supplied by department staff as spreadsheet. The admin will

directly input the data of the students marks into their spreadsheets by GUI or by database entry [5].

3. MATERIAL AND METHODS

ADMIN: The admin is the super user whose responsibility is to control the entire system. The admin can create, update, delete, and rename the users of the system. In the exam hall seating arrangement system, the role of the admin is to manage the students, database, and post the seating arrangements.

STUDENT: The student is the user who registers into the website with an authorized college email by verification process after the authorized college email is verified then the student registers to the website successfully and can log in to his/her account to view his/her seating arrangements for the respective examinations.

LOGIN: The login module is responsible for login into the website to view the user interface. The login module verifies whether the student's email is verified or not whether the user enters the current password or not. the login module renders to the user interface if the user satisfies all the conditions specified in the user module if not it redirects to the login page.

LOGOUT: The logout module logout the student from the website and returns to the home page.

This study employs a comprehensive mixed-method approach, combining qualitative and quantitative methodologies to assess the design, implementation, and effectiveness of AI-driven voice assistants in Smart Campus environments. The following phases outline the methodological framework in detail
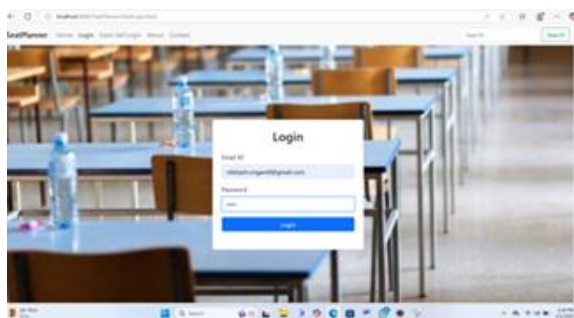

Figure 1: Login Page

Login are given access only by entering predefined credentials by us. Login is required to enter username and password. After logging in, administrators are granted additional permissions and access to administrative functions. You can manage student profiles and get a name Get student list, subject list, seat allocation and faculty list. administration menu provides a complete overview of the various management aspects, facilitating efficiency Management of an educational institution. Administrators can monitor logging and enrolment process including class capacity management and course tracking availability, resolving enrolment disputes, managing faculty appointments, and faculty assignments Classes shown in the image above.

Figure 2: Dash Board

Dash Board is the student Dash Board, students can see their exam hall seating arrangement details. The Exam name, subject, time, seating arrangement number, and Room name details will be displayed
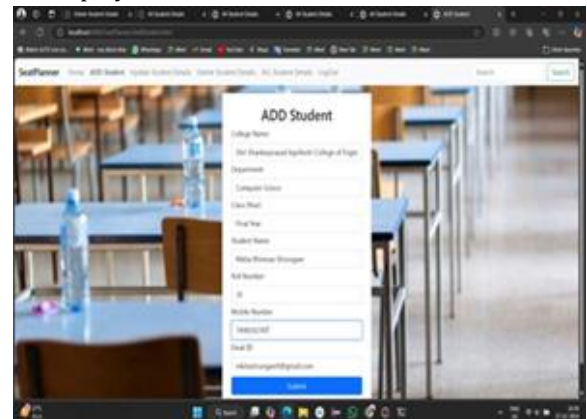

Figure 3: Add Student

Student should require add their college name and department name, academic year and their name with roll number and mobile number with email id. And submit the credential required for the student registration so this is how student can be efficiently added to the system.
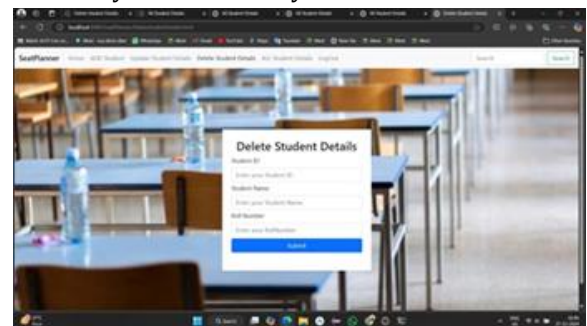

Figure 4: Delete Student Details

The "Delete Student" page is part of an admin portal that allows authorized personnel to remove a student's record from the system, whether due to withdrawal, error, or other reasons.
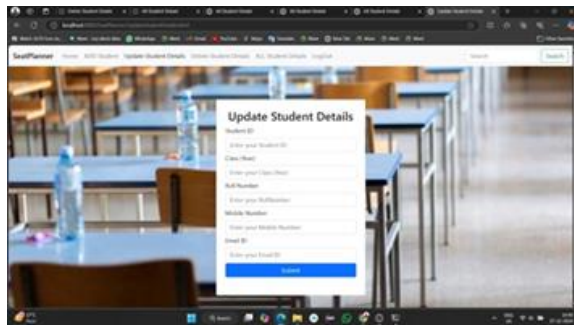

Figure 5: Update Student Details

It looks like you're asking about a page to update student details in an automatic exam center seating arrangement system. This would typically allow admins to modify a student's information (e.g., name, roll number, subjects, exam schedule, or seat assignments) after the initial seating plan has been generated.
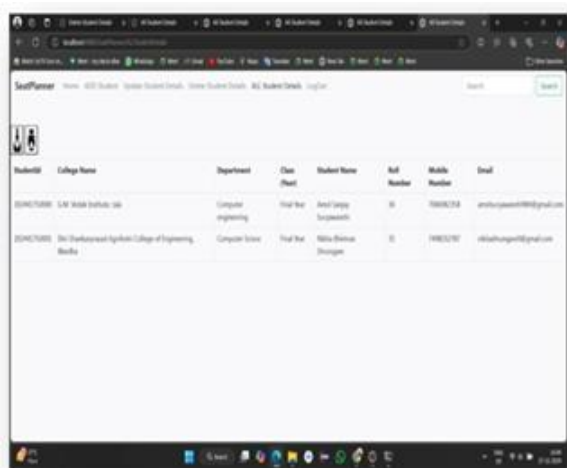

Figure 6: Seat Planner

The Seat Planner is containing by student id, college name, department, class(year), student name, roll number, mobile number and email. overall information store in seat planner.
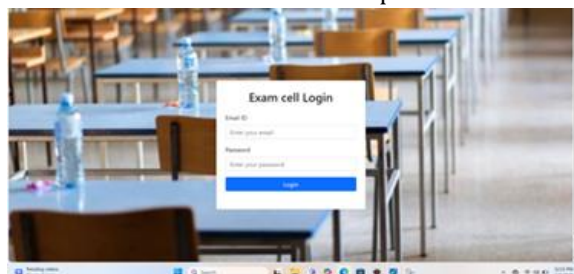

Figure 7: Exam cell Login

The exam sell contain by the email id and password.
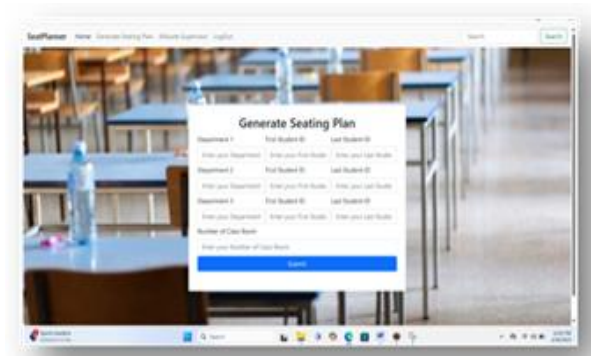

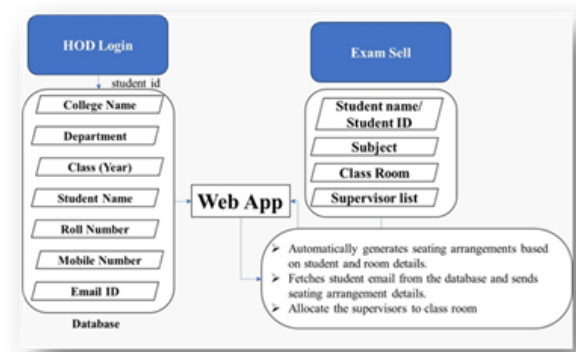Figure 8: Generate Seating Plan

Figure 9: Flowchart

Student ID (college name, department, class(year), student name, roll name, mobile number, email ID) this database will add by HOD. HOD login and Exam sell connected by web app.

Automatically generates seating arrangement based on student and room details.

Fetches student email from the database and sends seating arrangement details.

Allocate the supervisors to class room

RESULT AND DISCUSSION

A. Results

With the proposed solution, here are possible outcomes we can have whenever an automatic seating arrangement system is enlisted to carry out its function:

First and foremost is Randomized Distribution: here, seats would be allotted randomly to deter any element of bias or favoritism to help ensure that fairness prevails concerning seating positions. Regulatory Checks: Checks would be done against seating regulations concerning number of students seated in a row, distance between students, and other logistical constraints (e.g. allowances for special needs).

Space Optimization: The algorithm can optimize the utilization of space within the exam hall. In this way, students are properly seated in a manner that is maximally effective considering the room layout and overall capacity.

Ability to accommodate for Special Needs: The system allows students with special needs (e.g. the seat near the door, large space for wheelchair access) to be accommodated through predefined conditions.

No Duplication: Kickstart Allocation of seats with zero chances of duplication means that no one becomes confused about their seating.

Time Efficiency: Seating students can be automated in seconds, thereby saving the time that could have been wasted in manual arrangements for the exam coordinators.

B. Discussion

Various advantages rest with the automatic seating arrangement system: it reduces human error, it is fair with seat allocations, and therefore it maintains discipline in examinations. However, several factors need consideration when implementing such a system:

Exceptions Handling: Students with special needs may be accommodated automatically by the system, but exceptions may arise. The rare case must allow for a manual override of the system.

Student Preference: Some students may have seating preferences (e.g., wanting to sit with a friend or in a specific part of the hall). Unless coded specifically for some preferences, a completely random system will not be able to satisfy such preferences.

Dependence on Technology: Since the system is automatic, it is likely to rely heavily on technology, thus requiring reliable hardware, software, and network infrastructure. Any failure of these would adversely affect the seat allocation process.

Security: An automated system ought to defend against hacking and tampering. There must be no loopholes for cheating such that students can manipulate seat assignments to sit beside a particular student.

Complex Algorithms: Given sufficiently large exam halls with a lot of students, the algorithms have to be complex and designed in a way to optimize the seating arrangement in a computationally heavy manner.

The Cost of Implementation: This program may take hours but may come with some financial cost in terms of developing or buying the software, training people, etc., before viewing it operational.

Student Anxiety: Random seating assignments may induce some anxiety among students who, for instance, do not know the layout of the hall. A way of calming the anxiety is to inform them before the exam day.

Constraints of Room Capacity: The seating arrangement must consider the size and layout of the room to avoid overcrowding and ensure comfortable seating. This implies that aisles should be clear and each student should have sufficient space to place their examination

CHALLENGES AND FUTURE SCOPE

A. Challenges

Tampering with the Seating Arrangement: The automatic system

Handling Diversity Needs and Preferences: Special Accommodations: Special needs students may require specific arrangements such as extra space or close proximity to an exit. Though automatic systems can easily accommodate some student needs, managing a wide variety of disabilities and requirements can become complex and might suggest human input.

Seating Preferences: Some students might prefer to sit with a friend, in a specific area, or near a certain part of the room. For instance, if they find their preferences ignored, totally random seating could make students paranoid or unhappy about their seating arrangements.

Room Layouts and Constraints: Space Utilization: Often, exam centers have irregular room shapes or seat configuration. Hence, the challenge would be a model that can optimally use space, considering social distancing, fire safety, and room capacity.

Physical Constraints: There are physical elements like walls, windows, doors, or columns, which might influence the manner in which arrangements can be made. The system should account for these factors to ensure clear aisles and appropriate spacing.

Security Issues: should be secure from tampering with or otherwise manipulating seat assignments, for instance, when a student may try to change their seat or arrange to sit closer to someone. Such measures must include strong authentication, logging, and monitoring to guarantee integrity.

Cheating Prevention: A randomized seating system should also rigidly allow for any underlying reason not to develop unnatural patterns or clusters that enable cheating (e.g., clustering students from the same class near each other). The

system must be designed to annihilate any predictable patterns in seating.

System Reliability: Technical Failures: Like any automated system, this one is also subjected to risks involving system crashes, network failures, or data corruption. In case of any such failure, the administrators would have to rely on contingency plans such as manual seating arrangements or backup systems.

Dependence on infrastructure: If the systems resort to certain technologies like cloud computing, network access, or hardware, the entire functioning of the seating process would be affected by a single failure in the infrastructure.

Complexity in Algorithm Design: Dynamic Allocation: An algorithm needs to be developed which can include all dynamic variables such as special request, room capacity, and types of questionnaires, for large exam centers where potentially hundreds or thousands of students attend. Writing such an algorithm to ensure a hassle-free, efficient, and scalable without bugs is quite the task.

Real-time adjustments: Last-minute considerations such as a student missing an exam or having to switch dates or rooms complicate the seating arrangement process.

Cost of Implementation: Initial Setup: Setting up such a system is likely to be expensive-to-develop, High in costs associated with developing and implementing an automated seating system, especially when it involves custom software development and integration with existing exam management systems or hardware infrastructure.

Training and Adoption: Training on the operation and management of the system will be required for exam administrators and staff. This would add yet another element of cost and time to the process of implementation.

Student Nervousness: Randomized Assignment: Some students could feel a bit anxious when assigned randomly to a seat in a big room where they don't know anyone else. This can be something made better by communication and preparation leading up to the exam; still, it remains a potential sore point. Future Scope

B. Future Scope

Integration with Other Systems: Real-Time Data Synchronization: Future systems could do integration of student database, examination schedule, and even biometric verification system. This would enable real-time changes in seating when a student is absent or when there are chances of a revised schedule.

Mobile Applications: Students could be informed of their seating assignment via mobile application in real time so that they can be aware of his or her seat in advance. The mobile app could also provide real-time notifications about any last-minute changes or concerns with their assigned seat.

Customization Options: Adaptive Algorithms: Future systems could use machine learning algorithms to adapt to changing student needs over time. For example, these algorithms could learn to give greater weight to specific seating patterns based on the history of assignments and consideration of student preferences while still abiding by fairness and regulatory constraints.

A confluence of AI: Artificial Intelligence (AI) could be employed to dynamically adjust seating in accordance with student information, such as performance in prior exams, to construct an optimal exam domain that minimizes each student's stress.

Blockchain for Security: Tamper Proofing: Blockchain technology can guarantee that seating arrangements remain secure and transparent, where the management can never alter them once generated. Based on the idea of trustless exchange, blockchain technology can also maintain an immutable log concerning seat assignments for the sake of accountability and prevention of fraud.

Augmented Reality (AR) Integration: Interactive Room Layouts: Future systems may embed AR technology for students to visualize their examination room in advance; this will be beneficial in becoming familiar with their seating location. This may ease anxiety and enhance the examination experience by giving students a better idea where to walk into.

Support for Hybrid or Remote Exam Centers: Virtual & Hybrid Exam: With the recent growth and expansion into remote and hybrid learning, the future of seating arrangements might even extend to virtual exam centers, in which the system is to assign students to an online exam space or virtual

rooms besides physical seats. AI can help administrating this virtual space in a way that minimizes distractions and so prevents cheating.

Analytics & Feedback: After Exam Data: After the exam, the seating system might analyze the data for patterns that may benefit seating arrangements on subsequent occasions (for example student focus optimization or stress reduction). Other ways of utilizing such data would present a continuous improvement approach toward the seating system.

Sustainability Issues: Aimed at Reducing Paper and Resources: With automated systems, there are minimal needs for paper seating charts and physical seat assignments, thus contributing to environmentally friendly practices. Conversely, as exam centers become digitalized, integrating digital seating tools will further help in reducing waste.

Institutional Collaboration: Standardization of Seating Systems: A standardized automatic seating arrangement system could be evolved for future developments in collaboration among institutions, which, in turn, would allow collaboration in the conduct of multi-institution exams or standardized testing (e.g., university entrance and professional certification tests) relatively easier.

CONCLUSION

This Software will be very useful because not only is it efficient but a great method to reduce work. It eases our work load and gives us an accurate measure to resolve seating arrangements. Most institutes should install this software and it can be a great help to them. Apart from that, it can be extended to creating android application for filling data of absent and present student by invigilator from their room. It gives us an organized graphical structure of our work. Some of the few benefits of this model is that it is very fast, reliable and robust. The importance of this software is to make our tasks faster and more reliable. In today's day and age work-reducing applications are much required because of the increasing demands of new trends.

CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

FUNDING SUPPORT

The author declare that they have no funding support for this study.

REFERENCES

[1] Raghavi, K. S., et al. "Enhanced Mobile Based Attendance Management System Using Android Application." 2018 International Conference on Soft-computing and Network Security (ICSNS). IEEE, 2018.

[2] Kishore, AH Nandhu, A. Sasireka, and K. Vijay. "Design and Development of Enhanced Exam Hall Seating Arrangement Automation System." INFORMATION TECHNOLOGY IN INDUSTRY 9.2 (2021): 814-820.

[3] Chaki, Prosanta Kumar, and Shikha Anirban. "Algorithm for efficient seating plan for centralized exam system." 2016 International Conference on Computational Techniques in Information and Communication Technologies (ICCTICT). IEEE, 2016.

[4] Jan, Gene Eu, et al. "Fast automatic seat assignment for large-scale passengers reservation systems." 2016 IEEE International Conference on Automation Science and Engineering (CASE). IEEE, 2016.

[5] Jan, Gene Eu, et al. "Fast automatic seat assignment for large-scale passengers reservation systems." 2016 IEEE International Conference on Automation Science and Engineering (CASE). IEEE, 2016.

[6] Johri, Antriksh. IT security framework for computer based examinations–A blueprint. Diss. UPES, Dehradun, 2017.

[7] Alam, Ashti Fatima. "Seating arrangement Tools for examinations." International Journal of Engineering Applied Science and Technology 1 (2016).

[8] PriyaDharshini, S., M. SelvaSudha, and V. Anithalakshmi. "Exam cell automation system." Int. J. Eng. Sci. Comput 7.3 (2017).

[9] Dhotre, D. R., Sakshi Makwane, and Priyanka Lahase. "Automatic Exam Seating Arrangement System." (2019).

[10] Chandewar, Dinesh, et al. "Automatic seating arrangement of university exam." International Journal of Science Technology & Engineering 3.9 (2017): 145-149.

[11] Nikam, N., et al. "Algorithm for efficient seat allocation process in college exam system." Int Res J Eng Technol (IRJET) 4.03 (2017).

[12] Ahmad, Aftab. "Online examination system." Microbiology 17 (2020): 7.

[13] Heinich, Robert. "The proper study of instructional technology." Ectj 32.2 (1984): 67-88.

[14] Ayob, Masri, and Ariff Malik. "A new model for an examination-room assignment problem." International Journal of Computer Science and Network Security 11.10 (2011): 187-190.

[15] Alam, Ashti Fatima. "Seating arrangement Tools for examinations." International Journal of Engineering Applied Science and Technology 1 (2016).

[16] Chaki, Prosanta Kumar, and Shikha Anirban. "Algorithm for efficient seating plan for centralized exam system." 2016 International Conference on Computational Techniques in Information and Communication Technologies (ICCTICT). IEEE, 2016.