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Smart Seminar Hall Allotment System for Efficient Resource Management in Educational Institutions

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Abstract

Educational institutions hold many events/workshops/seminars/lectures/meetings each year, all requiring the scheduling of seminar halls. This often leads to scheduling conflicts as many institutions still use the traditional process of reserving a seminar hall by filling out a booking request form; using a physical book to write in and verify that an existing seminar hall reservation does not conflict with another; and waiting for confirmation from the administrative office of the total number of seminar halls reserved for an academic activity. This method creates many problems such as scheduling confusion, lack of record keeping, and problems with obtaining timely communications from other departments.

In order to better manage the above problems, the authors of this study present the Smart Seminar Hall Allotment System (SSHAS), a web-based application that provides a quick and easy way to reserve a seminar hall by an authorized user. Using the SSHAS an authorized user can search for available seminar halls, create a new booking request, cancel/modify an existing booking request, and manage their reservations through one web-based application. This application has been developed with HTML/CSS/Bootstrap/PHP/MySQL and provides an easy way to manage the booking and scheduling of a seminar hall but lacks the overhead of managing many different systems from multiple vendors.

The Smart Seminar Hall Allotment System has been designed so that all booking records and details may be easily managed within a single database and not scattered across multiple databases therefore allowing the administrative user to have an easy time managing all the reservations of seminar halls and conducting the necessary booking verification to ensure no double bookings will occur.

By replacing the manual way of reserving a seminar hall with a web-based application and database, the Smart Seminar Hall Allotment System will reduce paper usage; reduce time needed to manage the reservations; and increase the communication capabilities between departments and faculty. By implementing the Smart Seminar Hall Allotment System, educational institutions will have the ability to more effectively manage their seminar hall resources and, as a result, will be able to more efficiently plan their academic programs.

Keywords

Artificial Intelligence, Resume Screening, Resume Ranking, Natural Language Processing, Machine Learning, Recruitment Automation, Job Matching.

INTRODUCTION

Seminar halls are a key facility of educational institutions for conducting different types of academic activities like seminars, workshops, training programs, meetings, and guest lectures. Thus, the correct scheduling and management of these facilities are crucial to effectively organizing events and eliminating conflicts.

A majority of institutions are currently using manual processes (through registers managed by the Admin Department) to record seminar hall reservations. Faculty members or event organizers must visit the Admin Department to check for the availability of the seminar hall and submit a reservation request. This manual process is both time-consuming and prone to numerous errors resulting in scheduling conflicts.

At the same time, keeping accurate records using a manual system can prove to be very difficult. When three or four departments request the same seminar hall at approximately the same time, the Admin Department finds it difficult to keep track of all bookings and manage the schedule. In addition, retrieving past booking records from a physical register can also prove challenging.

To eliminate these challenges, the proposed Web-based Smart Seminar Hall Allotment System will provide a digital platform for users to quickly check seminar hall availability as well as easily make reservation requests. The development of this system will also create an automated booking process and improve overall operational efficiency.

LITERATURE REVIEW

In light of the increasing number of academic events, seminars, and workshops being held in education institutions, the effective management of institutional seminar halls, auditoriums, and meeting rooms is becoming more important than ever before. Traditionally, the allocation of seminar halls has been a manual process handled by administrative offices resulting in a number of scheduling conflicts, poorly utilized resources, and increased workloads for administration. Therefore, many researchers have created automated and web-based systems to eliminate the need for administrative processes when managing resources and streamlining the event reservation process. As an example of this type of technology, Wei Xuan [1] developed an online system that allowed staff and students to reserve library study rooms. The online room reservation system minimizes scheduling conflicts through the use of real-time availability and provides an easy-to-use authentication method. Similarly, Lalitha M and Magesh P [2] proposed an online event hall reservation system that enables users to reserve venues after checking the availability of a hall via a website. Their applications showed how the use of automation in the education sector can dramatically streamline the event management process.

As the use of web-based technologies continues to grow, researchers are developing various web-based systems that facilitate the centralized management of venue reservation systems. An example of such a system is the Online Seminar Hall Booking System [3], which provides a fully automated method of allowing users to view available time slots and efficiently reserve seminar halls. This system also included an administrative function that allowed administrators to approve or deny requests for reserved seminar halls, thereby providing improved scheduling management for the administrator and users alike. In addition, the Web-Based Venue Booking System [4] introduced a centralized, database-driven system to allow users to reserve venues online and monitor their booking status in real time. Research findings suggest that these types of online booking systems provide greater transparency, reduce paperwork, and provide greater accessibility for users.

Facilities Management is being improved further by recent studies that investigate the integration of advanced technology like the Internet of Things (IoT) and cloud computing into Facilities Management systems. The Sports and Conference Hall Booking System with IoT-Enabled Real-Time Display [5] uses IoT sensors to monitor the occupancy of the halls and provide real-time information about their current status, which helps eliminate double bookings and increase use of the resources. Another example of integration of new technology is the Campus Venue Booking System [6], which proposed an online reservation platform for campus venues so that both faculty and students can see what is available and reserve venues throughout campus, thus increasing coordination between departments.

Additionally, recent research indicates that new technologies (for example: cloud computing and intelligent management systems) can improve campus resources. Anderson [7] explained that a cloud-based system can increase the ability to scale and access information and can effectively manage data for resources on campus, allowing for all institutions to manage their bookings from one central location and provide the ability to access bookings from virtually anywhere. Williams [8] also researched using web-based systems to improve resources within universities and found that using automated scheduling systems are

much more efficient at managing resources than non-automated scheduling and thereby significantly reduced administrative overhead. The above studies illustrate that intelligent and automated systems for booking are critical to improving overall effectiveness of resource management at modern day educational institutions.

.METHODOLOGY

In order to create an automated and simplified process for educational institutions to book seminar rooms, Smart Seminar Hall Allotment System (the System) has been devised. The methodology for developing the system was based upon a series of events including requirements analysis, system design, development, and implementation. By following these phases through the development process, this ensures that the first phase (requirements analysis) was completed satisfactorily prior to moving onto phase two (system design) and so forth until the final stage of implementation.

During phase one, we investigated the problems that currently exist with the manual system and collected information on the problems that faculty and administration faced in relation to booking seminar rooms. Analysed the collected data allowed us to determine what the requirements for the System would need to be. This included items like checking available halls online, booking seminar halls, recording bookings, and preventing double bookings.

In phase two, the structure of the System was designed. The design planned that the System would be implemented as a web-based application where users will have the ability to access the System via a web browser. A database will be created to maintain all information regarding seminar halls, scheduling bookings, user information, and reservation records. Input and output interfaces have also been developed to make the use of the System as simple as possible and to create a logical flow of information throughout all aspects of the System's operation.

During phase three (development), the System was created using web technologies such as HTML, CSS, and Bootstrap for the development of the webpages and database through relational database structure as defined by SQL.

WORKFLOW

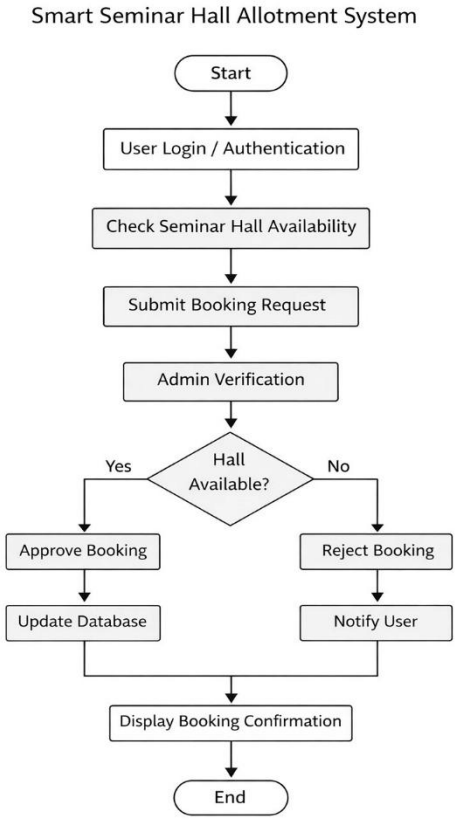

Figure1: Workflow of Proposed Methodology

CONCLUSION

The Smart Auditorium Allocation System provides an efficient, automated method for managing auditorium bookings at educational institutions. Traditional means of manually scheduling a booking sometimes create double-booked events and poorly utilize available resources. Establishing a digital system of managing auditoria allows an educational institution to streamline the booking process while enabling better communication between faculty and staff.

The system provides users with an avenue to check the availability of auditoria, submit requests for reservations and receive confirmation via a centralized system. The administrator can check all requests to ensure the appropriate management of all reservations. Consequently, this minimizes the likelihood of double-booking and allows for accurate record-keeping

regarding the use of auditoria, thereby maximizing the use of educational resources and minimizing the time and effort needed to manage auditoria manually.

Additionally, the system provides improved inter-departmental communication and provides a structured approach to organizing academic activities, such as seminars, workshops, meetings, and guest speakers. Furthermore, the use of Web Technology (e.g., HTML, CSS, Bootstrap, PHP, MySQL) to implement this system allows for a reliable, user-friendly, and easily maintainable system.

In conclusion, the Smart Auditorium Allocation System provides educational institutions with the opportunity to manage their resources effectively by increasing the accuracy of scheduling, reducing administrative burden, and providing an efficient platform for managing auditoria.

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