

DUTY ALLOCATION

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Abstract

The successful administration of exams and the general operation of educational institutions depend on the effective distribution of responsibilities among staff members during exam times. This abstract outlines a system designed to maximize the distribution of responsibilities among staff members who administer exams. Efficiency, justice, responsiveness, quality control, communication, and documentation are the framework's main goals. By allocating staff resources to tasks based on their qualifications, availability, and capacity for work, efficiency is guaranteed and overwork or underutilization is avoided. Fairness is preserved by taking into account elements like workload balance, seniority, and skill. The architecture has a strong emphasis on reactivity, allowing for modifications in response to unanticipated events to guarantee exam administration continuity. The assignment of seasoned employees to vital positions like exam proctoring and result supervision prioritizes quality assurance. To promote openness and clarity, clear channels of communication are set up to communicate expectations, instructions, and duty assignments. Thorough record-keeping of duty assignments makes it easier to monitor employee contributions and supports post-examination assessments aimed at streamlining procedures. When properly implemented, this framework makes it easier to assign tasks fairly and efficiently, which improves the general efficacy and dependability of exam administration at educational institutions.

INTRODUCTION

The proper operation of educational institutions, especially during exam seasons, depends on the effective distribution of responsibilities among staff members. Duty allocation is the process of allocating staff members to jobs such as exam proctoring, invigilation, grading, and result supervision according to their qualifications, availability, and workload capability. In addition to ensuring that exams are successfully administered, a well-designed task distribution system enhances the institution's overall efficacy and repute. The educational landscape has changed dramatically in recent years, and institutions now face a wide range of difficulties, including growing student population, advancing technology, and shifting pedagogical approaches. In light of these modifications, it is now more crucial than ever to allocate staff members' duties as efficiently as possible. In order to maintain norms of justice, efficiency, and quality control while responding to the demands of a changing educational environment, institutions must modify their approaches. The framework for examining the ideas and procedures around staff assignment in educational institutions is established by this introduction. It draws attention to how important this procedure is to guaranteeing the efficient administration of exam periods as well as the wider effects it has on the performance and standing of the institution. By conducting a thorough analysis of job allocation procedures, organizations may pinpoint areas for development and put plans into place to boost productivity and employee happiness. Further exploration of the main elements of responsibility allocation, such as its objectives, difficulties, frameworks, and best practices, will take place in the sections that follow. Through

the provision of insights and assistance on duty allocation process optimization, the goal of this investigation is to enable educational institutions to improve outcomes, streamline operations, and foster an environment that is favorable to learning.

The major aim of the paper can be summarized as following:

- In order to maintain norms of justice, efficiency, and quality control while responding to the demands of a changing educational environment, institutions must modify their approaches. Processing and classification of information gathered about the patient.
- The framework for examining the ideas and procedures around staff assignment in educational institutions is established by this introduction.
- By conducting a thorough analysis of job allocation procedures, organizations may pinpoint areas for development and put plans into place to boost productivity and employee happiness.

LITERATURE SURVEY

Automatic Exam Seating & Teacher Duty Allocation System [1] by Apurva Inamdar, AnandGangar, Arun Gupta, Varsha Shrivastava . 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. 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.

Nadia Tabassum, Md. Shahnauze Ahsan, IshitaChowdhury, Uzzal Basu, "IoT based Automated Examination Management System with Biometric Portal". This system mostly focused avoiding seat overlapping and finally full seating arrangement centralized examination system by offering a series of algorithms. Full seating arrangement and measurres to avoid overlapping.

SYSTEM ARCHITECTURE

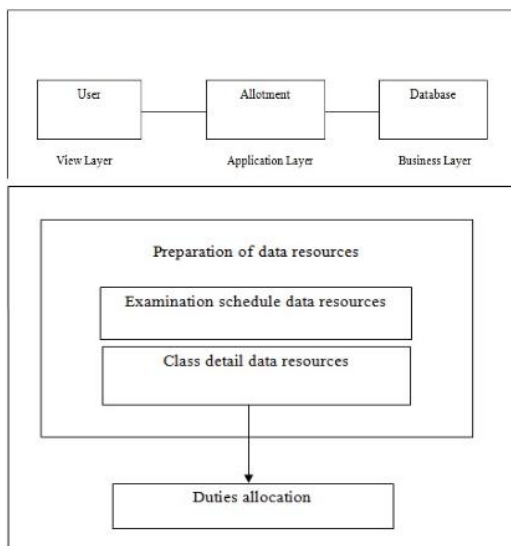


Figure 1. System Architecture

PROPOSED METHODOLOGY

In this paper, we propose an automatic system to monitor patient's body temperature, heart rate, body movements and blood pressure. Further we extend the existing system to predict if the patient is suffering from any chronic

disorder or disease using the various health parameter and various other symptoms that are obtained by the system.

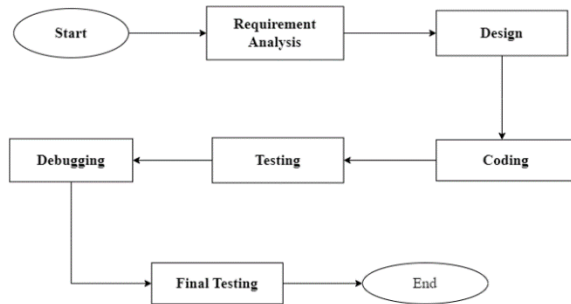


Figure 2. Proposed Methodology

Implementing a user management system to handle staff and student profiles, allowing them to access and update their information. Developing a module to automate the allocation of exam duties for staff members based on their availability and preferences. Creating a system to generate seating arrangements for students, considering factors such as exam schedule, room capacity, and special requirements. Integrating a notification system to inform staff and students about their allocated duties and seating arrangements, ensuring timely and accurate communication. Implementing a reporting feature to generate statistical data and analytics on duty allocation, seating arrangements, and overall exam management, providing insights for future improvements.

SYSTEM MODULES

1. Duty Allocation Service Provider Web pp
2. Duty allocation Interface
3. End User Interface
4. Venue Allocator
 - 4.1. Venue
 - 4.2. Subject
 - 4.3. Date & Time
 - 4.4. Valuable No of Invigilators/Student
5. Invigilator List/Student List
6. Indoor Mapping
7. Allocation Process
8. Specification: Date & Time
9. Notification
10. Reports

A. Duty Allocation Service Provider Web

These service providers understand the complexities involved in allocating tasks and responsibilities, whether it's for exams, work shifts, or any other type of duty. They have developed web applications or software systems that automate the process, taking into account various factors such as availability, qualifications, preferences, and any special requirements. By utilizing their services, businesses and institutions can save time, reduce errors, and ensure that duties are allocated in a fair and balanced manner. Duty allocation service providers play a crucial role in streamlining operations and improving overall efficiency in organizations of all sizes.

B. Duty allocation Interface

This interface serves as a central hub where all the necessary information for duty allocation is inputted and managed. It provides a visual representation of available duties. Administrators can easily view and select the appropriate individuals for each duty based on criteria such as skills, availability, workload, or any other relevant factors. The duty allocation interface also allows for real-time updates and adjustments, ensuring that any changes in schedules or personnel can be easily accommodated.

C. End User Interface

The duty allocation web application's end user interface provides a user-friendly and intuitive platform for individuals to manage their assigned duties. The interface displays all relevant information, such as duty details and dates, in a clear and organized manner. Users can easily view their upcoming duties, mark their availability, and request changes or swaps. The interface may also include features like notifications and reminders to keep users informed.

D. Venue Allocator

This feature allows users to search for venues based on specific criteria such as capacity, location and availability. The venue finder feature streamlines the venue selection process, eliminating the need for manual research and saving valuable time. By providing an efficient and user-friendly interface, the duty allocation web application's venue finder enhances the overall duty allocation experience and ensures that the right venue is selected for each task.

E. Invigilator List

This feature provides a comprehensive and easily accessible database of invigilators and students, allowing administrators to efficiently assign them to specific duties. The invigilator list feature enables administrators to view detailed profiles, including qualifications and availability, making it easier to select the most suitable invigilators for each duty.

F. Indoor Mapping

This innovative tool provides a detailed and interactive map of indoor spaces, allowing administrators to easily navigate and allocate duties within a specific venue. The indoor mapping feature provides a bird's-eye view of the venue, highlighting key areas and facilities. This enables administrators to strategically assign duties based on proximity, accessibility, and specific requirements. With the indoor mapping feature, administrators can optimize the allocation process, ensuring that each duty is assigned to the most suitable location within the venue. This enhances efficiency, reduces confusion, and promotes a seamless execution of duties within the allocated space.

G. Allocation Process

Administrators can easily input the necessary details such as subject, date, time, number of invigilators, and students. The application then matches these requirements with the available resources, such as venues, invigilators, and students. Through automated algorithms, the allocation process ensures a fair distribution of duties, taking into account factors like availability, qualifications, and proximity. This eliminates manual errors

and saves valuable time that can be allocated to other important tasks. The duty allocation web application's allocation process ensures a smooth and well-organized distribution of duties, resulting in a successful execution of tasks.

H. Specification: Date & Time

This system allows administrators to input specific dates and times for each duty, ensuring a precise and organized allocation. The application then cross-references this information with the availability of invigilators, students, and venues to create a seamless schedule. By aligning duties with the appropriate date and time, the allocation process minimizes conflicts and maximizes efficiency. This feature eliminates the need for manual coordination and reduces the risk of errors, resulting in a well-planned and synchronized execution of duties. The duty allocation web application's allocation process based on date and time enhances productivity and ensures a smooth workflow.

I. Notification

The application allows administrators to customize notification preferences, choosing between email, SMS, or in-app notifications. This ensures that everyone receives timely and relevant information about their duties, including dates, times, and any changes or updates. The notification process enhances communication and eliminates confusion, enabling all parties to be well-prepared and organized for their allocated duties.

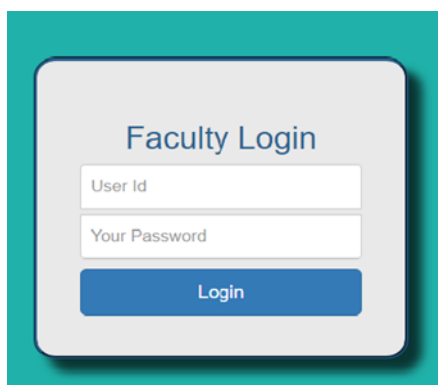
IMPLEMENTATION

In this paper, Implementing an efficient duty allocation system for staff during examinations is crucial for educational institutions. Here's a summarized implementation plan. Assess institutional needs and define clear objectives for duty allocation. Develop a comprehensive framework considering factors like staff preferences and expertise. Utilize technology to automate duty allocation processes where possible. Communicate duty allocation procedures and expectations clearly to staff. Gather staff preferences and availability data to inform task assignments. Allocate duties fairly based on factors such as seniority and workload balance. Monitor implementation and be prepared to make adjustments as needed. Evaluate performance regularly using key metrics like staff satisfaction and efficiency. Iterate and improve the duty allocation system based on evaluation findings and best practices..

A. User Authentication and Access Control

User authentication and access control are fundamental aspects of the Exam Duty Allocation System. This module manages user accounts, ensuring secure access through login functionalities. It includes role-based access controls to restrict features based on user roles, maintaining the integrity and confidentiality of the system.

Figure 4. Login Page



B. Exam Schedule Management

Efficient scheduling is crucial in the exam duty allocation process. This module facilitates the creation, modification, and deletion of exam schedules. It assigns specific details such as date, time, venue, and exam type to each schedule, providing a centralized repository for comprehensive exam planning.

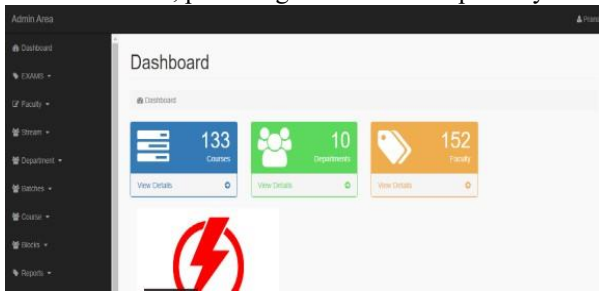


Figure 5. Dashboard

C. Staff Database

The Staff database module is the backbone of the system, storing essential information about staff, invigilators, and administrators. It allows the addition, updating, and deletion of personnel records, including qualifications, availability, and historical data. This database ensures accurate and up-to-date information for duty assignments.

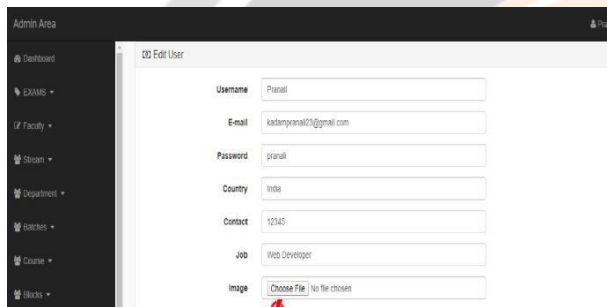


Figure 6. Heartbeat Sensor

D. Duty Assignment Algorithm

Automation is key to the efficiency of duty allocation. The duty assignment algorithm module automates the process of assigning duties based on predefined criteria. It allows administrators to set rules and preferences, with the system making automatic assignments. Manual override capabilities are also provided for flexibility and control.

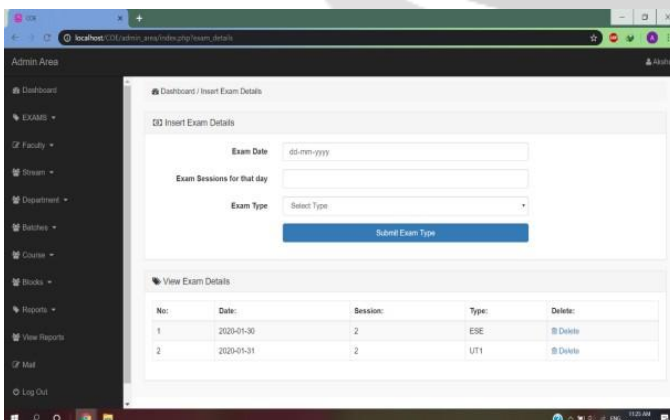


Figure 7. Insert Deatils

E. Reporting and Monitoring

The reporting and monitoring module provides tools for administrators to track and monitor the duty allocation process. It offers reporting features for analyzing duty allocations, generating insights, and receiving alerts for conflicts or issues that require attention.

RESULT

This feature allows administrators to generate comprehensive reports that provide insights into various aspects of duty allocation, such as the number of duties assigned, invigilator and student performance, and overall scheduling efficiency. These reports can be customized based on specific criteria and timeframes, providing a clear overview of duty allocation trends and patterns. By analyzing these reports, administrators can make data-driven decisions to improve the allocation process, optimize resources, and enhance overall productivity.

The reporting process of the duty allocation web application empowers administrators with valuable information, leading to continuous improvement and success.

No.	Type	Date	Session	Course	Location	Students	Total	Delete
1	UT1	2020-01-31	1	Engineering Mathematics I - First Year	Electrical	(0111, 0212, 0313, 0414, 0515, 0616, 0717, 0818, 0919, 1010, 1111, 1212, 1313, 1414, 1515, 1616, 1717, 1818, 1919, 2020, 2121, 2222, 2323, 2424, 2525, 2626, 2727, 2828, 2929, 3030, 3131, 3232, 3333)	33	Delete
2	UT1	2020-01-31	1	Engineering Mathematics I - First Year	Electrical	(01134, 02135, 03136, 04137, 05138, 06139, 07140, 08141, 09142, 10143, 11144, 12145, 13146, 14147, 15148, 16149, 17150, 18151, 19152, 20153, 21154, 22155, 23156, 24157, 25158, 26159, 27160, 28161, 29162, 30163, 31164, 32165, 33166)	33	Delete
3	UT1	2020-01-31	1	Engineering Mathematics I - First Year	Electrical	(01167, 02168, 03169, 04170, 05171, 06172, 07173, 08174, 09175, 10176, 11177, 12178, 13179, 14180, 15181, 16182, 17183, 18184, 19185, 20186, 21187, 22188, 23189, 24190, 25191, 26192, 27193, 28194, 29195, 30196, 31197, 32198, 33199, 34100)	34	Delete

Figure 8. Screenshot: Allotment

Dashboard / Student Block Allocation

Student Block Allocation

Exam Type:

Exam Date:

Exam Sessions for that day:

View Exam Block Allocation

No.	Type	Date	Session	Course	Location	Students	Total	Delete
1	UT1	2020-01-31	1	Engineering Mathematics I - First Year	Electrical	(011, 0212, 0313, 0414, 0515, 0616, 0717, 0818, 0919, 1010, 1111, 1212, 1313, 1414, 1515, 1616, 1717, 1818, 1919, 2020, 2121, 2222, 2323, 2424, 2525, 2626, 2727, 2828, 2929, 3030, 3131, 3232, 3333)	33	Delete

Figure 9. Screenshot: Allotment

The system heavily relies on accurate and up-to-date information in the personnel database. Inaccuracies in staff qualifications, availability, or historical data may lead to suboptimal duty assignments. Implementation may face resistance from staff accustomed to manual allocation processes. A sample screen shot of the web interface can be seen in Fig. 9&8.

CONCLUSION AND FUTURE WORK

In this paper, In conclusion, the implementation of an Exam Duty Allocation System presents a transformative solution for streamlining the complex process of assigning duties within an educational institution. The system's efficiency, conflict resolution capabilities, improved communication, and historical data analysis contribute significantly to enhancing overall operational effectiveness. However, it's crucial to acknowledge the system's limitations, such as its dependency on accurate data and potential resistance to change. Despite these challenges, the benefits of time savings, accountability, and transparency make the Exam Duty Allocation System a valuable tool for optimizing exam-related processes. With careful consideration of these factors, institutions can leverage this system to improve efficiency, ensure fair duty allocations, and ultimately enhance the overall examination management workflow.

REFERENCES

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