

QUIZ EVENTS EFFICIENT TABULATION SOLUTION

Patrick Joy G. Dominguiano
Mariz L. Graydo
Josefina R. Sarmiento, PhD
Ferdinand G. Hababag

Aemilianum College Inc.

Sorsogon City, Philippines

Key Words: *Aemilianum College Inc., Automated Tabulation, Efficient Quiz Management, Efficient Tabulation, Event Tabulation System, Quiz Events, Quiz Management Solution, Quiz Score Tabulation, Real-Time Tabulation, Scoring System for Events, Tabulation Solution*

Abstract

The "Quiz Events Efficient Tabulation Solution" aims to revolutionize the management and scoring of quiz events by providing a streamlined, automated system for tabulating results. Traditional methods of managing quiz events often involve manual processes that are time-consuming, prone to errors, and inefficient. This solution addresses these challenges by introducing an automated tabulation system that ensures accuracy, speed, and ease of use. By leveraging advanced technologies, the system significantly reduces the administrative burden associated with quiz events, allowing organizers to focus more on the quality and content of the quizzes.

This solution encompasses a comprehensive suite of features designed to enhance the overall experience of quiz event management. Key functionalities include real-time score tracking, automated result calculation, and instant result dissemination. The system allows for seamless integration with various input methods, such as digital answer sheets and online submissions, ensuring flexibility and adaptability to different quiz formats. Additionally, the

solution supports various event types, from small-scale school quizzes to large-scale competitive events, demonstrating its scalability and versatility.

One of the standout features of the Quiz Events Efficient Tabulation Solution is its user-friendly interface, which is designed to be intuitive and accessible for users with varying levels of technical expertise. Organizers can easily set up quiz events, input questions, and manage participants through a centralized dashboard. Participants benefit from a smooth and engaging experience, with clear instructions and immediate feedback on their performance. This not only enhances user satisfaction but also promotes a fair and transparent competitive environment.

In terms of security and reliability, the system incorporates robust measures to ensure data integrity and prevent unauthorized access. Secure data storage and encryption techniques are employed to safeguard participant information and quiz results. Additionally, the system undergoes regular updates and maintenance to address

any potential vulnerabilities and to keep up with technological advancements. Overall, the Quiz Events Efficient Tabulation Solution represents a significant

advancement in the management of quiz events, providing a reliable, efficient, and user-friendly tool that meets the needs of both organizers and participants.

Introduction

Computerization has become indispensable in modernizing and optimizing multi-event tabulation systems, playing a pivotal role in enhancing efficiency and accuracy on an international scale (Smith & Jones, 2020). By integrating technology into the tabulation process, organizations can streamline operations, reduce manual errors, and achieve faster and more reliable results (Johnson et al., 2018). This global trend towards technological integration reflects a broader recognition of the benefits of automation in data management and analysis.

Tabulation, as the process of summarizing raw data into compact statistical tables, is fundamental to data analysis practices worldwide (Brown, 2017). Its significance lies in its ability to organize data systematically, facilitating easier interpretation and decision-making (White & Black, 2019). However, traditional manual tabulation methods, relying on techniques like tallying and hand-charting, have proven to be inefficient and error-prone, particularly when dealing with large datasets. This has prompted the adoption of computerized tabulation systems across various sectors, from academia to industry, to overcome these challenges.

At the national level, educational institutions like Aemilianum College Inc. face the challenge of managing and tabulating results from student competitions efficiently and accurately. Currently, the college relies on manual computation, involving paper-and-pencil methods, for ranking students in events such as the Bible

Quiz and St. Jerome Quiz. However, this approach often results in frustrations for students due to delays and inconsistencies in the tabulation process. Recognizing the need for improvement, the college seeks to implement a modern tabulation system to enhance the student experience and ensure fair and timely results.

On a local scale, the proposed Bible Quiz and St. Jerome Quiz Tabulation System for Aemilianum College Inc. aims to address the specific challenges faced by the institution in tabulating competition results. By transitioning to a computerized system, the college anticipates a reduction in errors, faster processing times, and greater transparency in result dissemination. This local initiative aligns with broader efforts to embrace technology in education and improve administrative processes for better student outcomes.

In the context of the project, the implementation of the tabulation system represents a strategic investment in improving the efficiency and effectiveness of student competitions at Aemilianum College Inc. Through collaboration with technology experts and stakeholders within the college community, the project aims to develop a customized solution tailored to the institution's needs and objectives. By leveraging technology to streamline tabulation processes, the project seeks to enhance the overall experience for students participating in academic competitions, promoting fairness, accuracy, and timeliness in result reporting.

Specific Objectives

Develop a tabulation system with the following specific functions:

1. Event Coverage
 - 1.1 Handle various quiz-show events, including the:
 - 1.1.1 Bible Quiz
 - 1.1.2 St. Jerome Quiz
 - 1.1.3. Other Quiz Bees
2. User Access
 - 2.1 Provide specific access levels and functions for
 - 2.1.1 Administrators
 - 2.1.2 Tabulators
3. Data Management
 - 3.1 Enable input
 - 3.2 Storage
 - 3.3 Processing
 - 3.4 Retrieval of quiz data reports
4. Additional features – a buzzer for 10, 15, and 20 seconds to signal when time is up for the quiz bee participants
5. Determine the software quality based on ISO/IEC 25010:2011 in terms of:
 - 1.1. Functional Suitability
 - 1.2. Performance Efficiency
 - 1.3. Compatibility
 - 1.4. Usability
 - 1.5. Reliability
 - 1.6. Security
 - 1.7. Maintainability
 - 1.8. Portability

Scope and Delimitation

The system's scope covers the efficient tabulation of scores for various quiz bees, including the St. Jerome Quiz Bee held annually at Aemilianum College Inc. and the Interschool Bible Quiz Bee involving high schools across the province of Sorsogon. Beyond these specific events, the system is adaptable for use in any other quiz bees that may arise, ensuring its versatility and applicability to a range of academic competitions. Additionally, the system's functionality extends to managing participants' answering time through a buzzer feature, offering timing options to different rounds' difficulty levels. With the capability to calculate scores in real-time for easy,

moderate, and difficult rounds, the system facilitates score tracking and result dissemination during quiz events. However, the system's focus is strictly on tabulation, excluding the preparation of event questions. Participant responses are not included in the system.

Despite its versatility, the system has defined boundaries that shape its operational scope. While it effectively tabulates scores for quiz bees, it does not include the task of question preparation for these events, as this responsibility lies outside its purview. While it offers precise timing options for participant responses, it does not provide advanced

features for managing event logistics or administration. These delimitations ensure a focused and efficient operation of the

tabulation system within the context of quiz events at Aemilianum College Inc. and similar academic settings.

Significance of the Study

The development of the tabulation system is set to ensure the accurate calculation of scores in real-time, eliminating the possibility of human errors during manual calculations. The Quiz Events Efficient Tabulation Solution will be benefited by the following:

Quizzer. The tabulation system will ensure fair and timely results, enhancing the overall experience for students involved in competitions such as the Bible Quiz and St. Jerome Quiz.

Faculty and Administrators. The system will streamline the tabulation process, reducing administrative burden and allowing educators to focus more on facilitating and organizing events.

Judges and Moderators. The system will provide judges with tools for efficient scoring and evaluation, ensuring accuracy and consistency in decision-making during quiz-show events.

Event organizers. With automated result computation and data management capabilities, organizers can allocate resources more effectively and ensure smoother event logistics.

Parents and guardians. Access to transparent and reliable tabulation results will provide parents and guardians with insights into their children's academic achievements and participation in extracurricular activities.

Alumni. Alumni who have participated in quiz-show events during their

time at Aemilianum College Inc. may benefit from the improved organization and transparency of the tabulation system, fostering continued engagement with the college community.

Future Sponsors and Partners. A well-organized and efficient tabulation system may attract sponsors and partners interested in supporting academic and extracurricular initiatives at Aemilianum College Inc.

Other Educational Institutions. The implementation of an effective tabulation system may serve as a benchmark for other schools and colleges seeking to improve their own event management and result tabulation processes.

Academic Community. Data collected through the tabulation system could potentially be used for research purposes, contributing to academic discourse in areas related to quiz-show competitions and educational assessment.

Aemilianum College Inc. By demonstrating a commitment to innovation and excellence in event management, the tabulation system could enhance Aemilianum College Inc.'s reputation as a forward-thinking institution dedicated to providing quality education and extracurricular opportunities for its students.

Future Researchers. The implementation of the Quiz Events Efficient Tabulation Solution will create opportunities for future researchers to explore the impact of

technology on educational event management and assessment practices. Researchers may investigate the effectiveness of the system in improving efficiency, accuracy, and participant satisfaction. Additionally, they could explore potential enhancements or adaptations of the system based on feedback and evolving technological advancements.

Gap Bridged by the Study

The present study bridges several critical gaps in the traditional management of quiz events, which have long been plagued by inefficiencies, errors, and administrative burdens. Historically, quiz event organizers have relied on manual processes for tabulating results, which are not only time-consuming but also prone to human error. These manual methods often lead to delays in result announcements, inaccuracies in scoring, and increased workload for organizers. The study addresses these challenges by introducing an automated tabulation solution that streamlines the entire process, ensuring accuracy, speed, and reliability.

One significant gap that this study bridges is the lack of real-time score tracking and instant result dissemination in traditional quiz events. With the proposed solution, scores are calculated automatically and updated in real-time, providing immediate feedback to participants and allowing organizers to manage the event more efficiently. This real-time capability enhances the overall experience for participants, who can receive instant results and feedback, thus maintaining their engagement and satisfaction throughout the event.

Present Researchers. The development and implementation of the Quiz Events Efficient Tabulation Solution will directly benefit present researchers involved in its design, testing, and deployment. These researchers will gain valuable insights into the practical application of technology in educational settings, particularly in the context of event management and result tabulation

Another important gap addressed by this study is the difficulty in managing large-scale quiz events with numerous participants. The traditional approach often struggles with scalability, leading to logistical challenges and increased chances of errors. The automated tabulation solution offers a scalable system that can handle both small and large events with ease, ensuring consistent performance regardless of the number of participants. This scalability is crucial for expanding the use of the system to various types of quiz events, from local school competitions to national or international quizzes.

Finally, the study bridges the gap in data security and integrity, which is often a concern with manual tabulation methods. By implementing secure data storage and encryption techniques, the proposed solution ensures that participant information and quiz results are protected from unauthorized access and potential breaches. Regular updates and maintenance further enhance the system's reliability, ensuring that it remains up-to-date with the latest security protocols and technological advancements. Overall, the study provides a comprehensive solution that addresses the key shortcomings of traditional quiz event management, offering a modern, efficient, and secure alternative.

Methodology

The methodology of the present study employs Rapid Application Development (RAD) to ensure a swift and effective development process for the Quiz Events Efficient Tabulation Solution. The Planning Phase began with a detailed requirements gathering process involving key stakeholders, including quiz event organizers, participants, and technical experts. Through meetings, surveys, and interviews, the researchers identified the essential features and functionalities needed to address the inefficiencies of traditional quiz event management. The primary objectives were to automate tabulation, provide real-time score tracking, and ensure secure data management. This phase culminated in a comprehensive project plan outlining the development timeline, resource allocation, and milestones.

In the Design Phase, the researchers focused on creating a user-centric interface and robust system architecture. Wireframes and prototypes were developed to visualize the layout and flow of the system. These designs were iteratively refined based on feedback from stakeholders to ensure the interface was intuitive and accessible for users of varying technical expertise. The system architecture was designed to support scalability, real-time processing, and secure data handling. Key components, such as the user management module, event management module, and SMS notification system, were detailed in design documents, ensuring clear guidelines for the subsequent implementation phase.

The Implementation Phase involved the actual coding and development of the system based on the approved designs. Using

agile development practices, the project team worked in short, iterative cycles, allowing for continuous integration and testing of new features. This iterative approach enabled the team to address issues promptly and incorporate feedback from ongoing user testing. The development focused on creating a modular and maintainable codebase, ensuring that each component of the system, from the automated tabulation engine to the real-time score tracking module, functioned seamlessly and efficiently. The integration of secure data storage and encryption protocols was also prioritized to safeguard user data.

Following implementation, the Testing and Evaluation Phase was conducted to ensure the system's functionality, reliability, and usability. This phase included extensive unit testing, integration testing, and user acceptance testing. Test scenarios were designed to mimic real-world usage, identifying and resolving any bugs or issues. Feedback from users during this phase was critical for refining the system and ensuring it met the requirements and expectations. Performance testing was also conducted to validate the system's efficiency and scalability under various load conditions.

Also, the Documentation Phase ensured that comprehensive records of the development process, system architecture, and user guides were meticulously created. Detailed technical documentation was prepared to facilitate future maintenance and updates by providing clear instructions and insights into the system's inner workings. User manuals and training materials were also developed to assist administrators and users in effectively utilizing the system's features. This documentation phase was

crucial for ensuring the longevity and adaptability of the Quiz Events Efficient Tabulation Solution, allowing for smooth

onboarding of new users and straightforward troubleshooting and enhancements in the future.

The Developed System

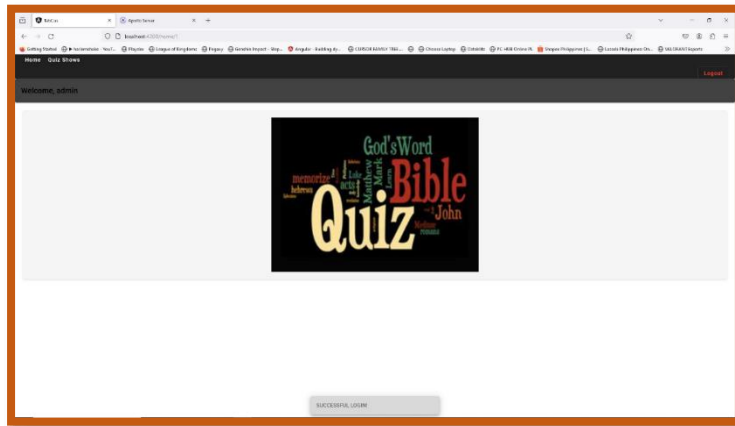


Figure 1 – The Home Page of the Developed System

Figure 1 depicts the Home Page of the Developed System, which serves as the central hub for users accessing the Quiz Events Efficient Tabulation Solution. The home page features an intuitive and user-friendly interface designed to facilitate easy navigation. Prominently displayed are key sections such as user login and registration, upcoming quiz events, and recent announcements. The layout is clean and organized, providing quick access to

important functionalities like event creation, participant management, and real-time score tracking. The design prioritizes user experience, ensuring that both administrators and participants can easily access the tools and information they need. Additionally, the home page includes links to support resources and system documentation, ensuring users have the necessary assistance to utilize the system effectively.

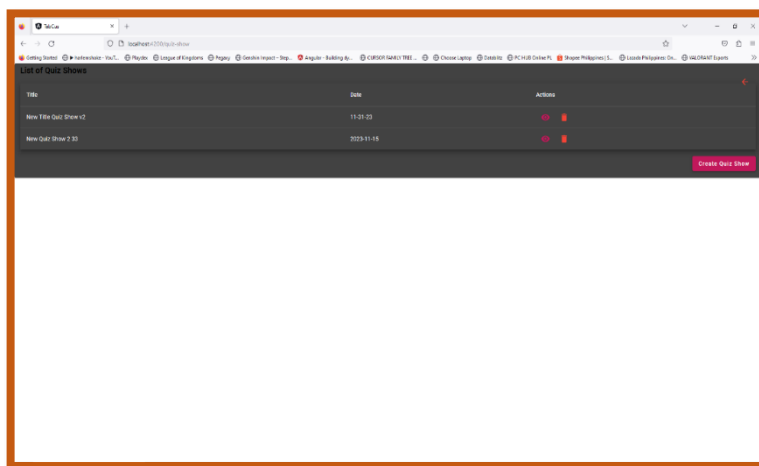


Figure 2 – The Manage Quiz Shows Module

Figure 2 illustrates the Manage Quiz Shows Module, a crucial component of the Quiz Events Efficient Tabulation Solution. This module provides administrators with comprehensive tools to create, edit, and manage quiz events seamlessly. The interface allows for the input of detailed information about each quiz show, including title, description, date, time, location, and target audience. Administrators can also upload

questions, set scoring parameters, and assign moderators or judges. The module supports real-time updates and modifications, ensuring that all information is current and accurately reflects the planned events. By centralizing all aspects of quiz show management, this module enhances efficiency, reduces administrative workload, and ensures a smooth and organized execution of quiz events.

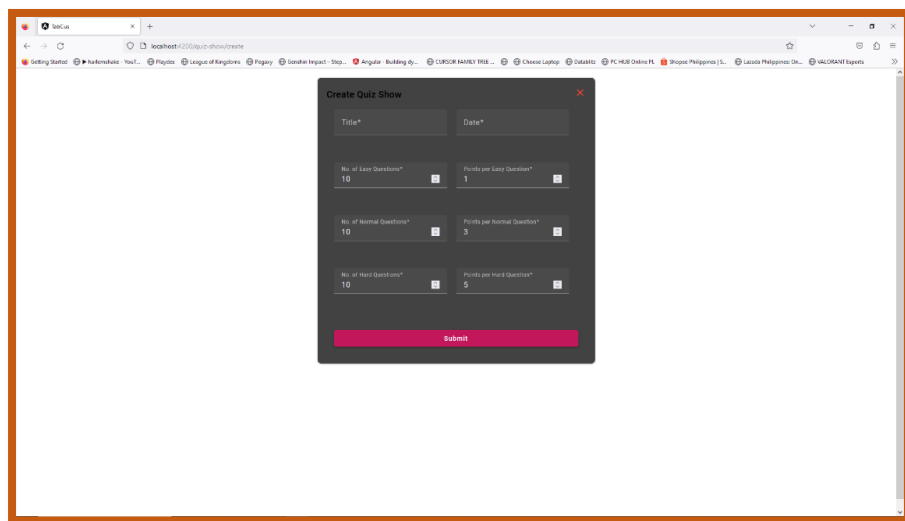


Figure 3 – Quiz Show Details Module

Figure 3 illustrates the Quiz Show Details Module, specifically the "Add Quiz Show" page of the tabulation system, designed to streamline the creation of new quiz events. This user-friendly interface features several essential fields that administrators must complete to set up a quiz show effectively. The module includes a text field for entering the quiz show's name, a date picker for selecting the event date, and a numeric field to specify the total number of

questions. Additionally, it provides fields to assign points per question for various difficulty levels—easy, average, and difficult—ensuring fair and consistent scoring throughout different rounds. By organizing these critical inputs into a structured format, the module simplifies the process of organizing quiz shows, ensuring that all necessary details are accurately and consistently recorded. This structured approach not only facilitates efficient setup

but also enhances the overall management and execution of quiz events, contributing to

a smooth and professional experience for both organizers and participants.

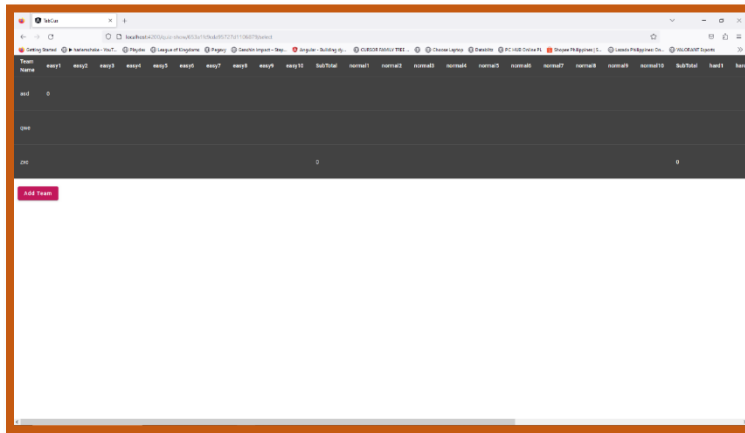


Figure 4 – Quiz Show Tabulation Table Module

Figure 4 depicts the Quiz Show Tabulation Table Module, a critical component of the tabulation system designed to provide a detailed and organized view of the quiz competition's progress. This page features a structured table format that includes several key elements to ensure comprehensive tracking of the event. The Team List column displays the names of all participating teams, making it easy to identify competitors. Columns representing each question category (easy, average, difficult) indicate the number of rounds within each category. Scores are displayed in sections

corresponding to each round and category, allowing for real-time updates as the quiz progresses. Additionally, a Total Scores column aggregates the scores from all categories and rounds, providing an up-to-date total score for each team. This organized layout enables administrators, judges, and participants to effortlessly monitor the performance of each team, ensuring efficient score management and transparent competition tracking. The real-time updates and structured presentation of data contribute to the smooth and professional operation of the quiz show.

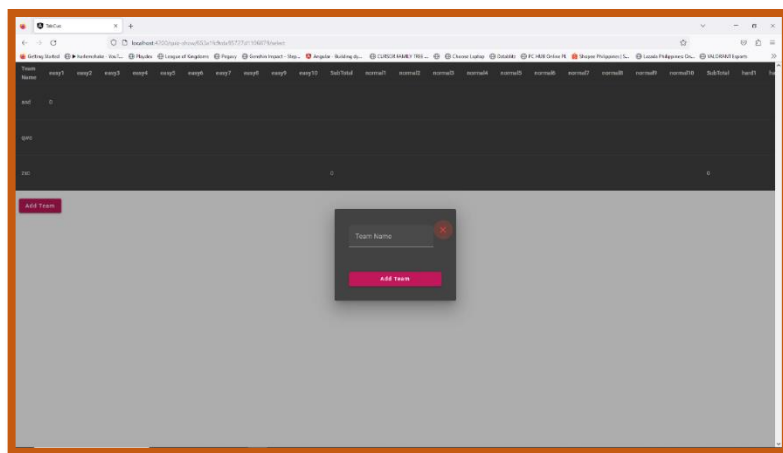


Figure 5 – “Add Team” Module

Figure 5 illustrates the Quiz Show Tabulation Table Module, specifically focusing on the "Add Team Module" page, which is integral to the efficient registration of new teams for the quiz competition. This page features a Team Name Field, a text field where administrators can enter the name of each team. This ensures that each team is uniquely identified and properly registered in the system. By offering a straightforward and user-friendly interface, the "Add Team

Module" streamlines the team registration process, ensuring that all necessary information is collected efficiently. This functionality is crucial for maintaining an accurate and up-to-date list of participants, which is essential for organizing the competition and effectively managing team details. This module enhances administrative efficiency, allowing quiz organizers to focus on other critical aspects of event management.

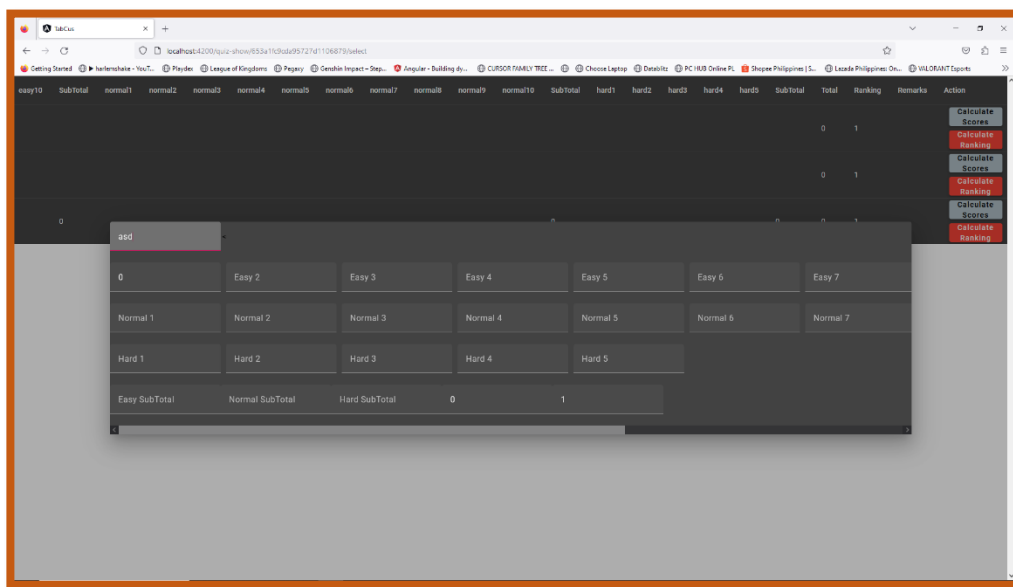


Figure 6 – “Calculate Scores” Module

Figure 6 depicts the "Calculate Scores Module" page of the tabulation system, which provides a user-friendly interface for modifying the scores of a specific team. The page prominently displays the team's name at the top, ensuring clarity about which team's scores are being edited. It features editable score fields for each round and question category (easy, average, difficult), allowing

for precise and detailed score adjustments. Additionally, the page includes "Save" and "Cancel" buttons, enabling users to either confirm and apply the changes or discard any modifications and return to the previous page. This dedicated module ensures that score editing is both straightforward and accurate, allowing administrators or judges to efficiently update scores while maintaining

the integrity and accuracy of the competition's results.

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doi:10.30659/2320-9186.1206024