Flexi: A Comprehensive Event Tabulation System for Pangasinan State University Alaminos City Campus

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ABSTRACT

This paper evaluates the implementation and effectiveness of an event tabulator during festival activities at Pangasinan State University – Alaminos City Campus. Previously, event scoring relied on traditional pen-and-paper methods, which were slow, error-prone, and often led to dissatisfaction among participants. The manual process required extensive time for result computation and verification, frequently causing delays in announcing winners. These challenges were addressed through the integration of an event tabulator, a digital system designed to collate and process scores on the field. With this innovation, event outcomes were reported in real-time, ensuring faster and more accurate result dissemination. The event tabulator introduced key features, including real-time scoring, customizable interfaces, and automated data analysis, which contributed to a more transparent and efficient scoring process. Its implementation significantly enhanced the atmosphere of events by reducing delays and improving participant engagement. Participants and organizers alike noted the system's ability to provide immediate and accurate information, fostering trust in the results and promoting a positive event experience. Moreover, the integration of this digital solution demonstrated the potential for wider adoption of automated systems in event management. By streamlining workflows and minimizing human errors, the event tabulator highlighted the importance of leveraging technology for operational efficiency. The findings of this study suggest that similar technological solutions can be adopted to enhance educational and community events, contributing to more dynamic and well-organized experiences. Overall, the successful use of the event tabulator at Pangasinan State University – Alaminos City Campus underscores the role of technology in modernizing administrative processes, ensuring fairness, and elevating the quality of events.

Keywords: Automated tabulation, instantaneous data processing, event score analytics, precision scoring, participant engagement, real-time result dissemination, digital event management.

INTRODUCTION

Accurate and efficient score tabulation is essential in competitions and events to ensure fairness, transparency, and participant satisfaction. Pangasinan State University - Alaminos City Campus has long relied on traditional manual tabulation methods, which are time-consuming, prone to errors, and cause delays in announcing results. These inefficiencies disrupt event proceedings and contribute to participant dissatisfaction [1].

To address these limitations, digital solutions for event tabulation have been developed. Existing systems, such as the Harvard Tab Program, attempted to offer automated alternatives but were criticized for their complexity and unreliability [2]. As event management continues to evolve, there is a pressing demand for systems that provide efficient, secure, and real-time data processing [3]. Studies have demonstrated the benefits of systematic tabulation systems. Capstoneguide highlighted the value of online repositories for score tabulation to improve monitoring capabilities and result accessibility [4]. Lee and Kim demonstrated how automated event systems enhance participant experiences while ensuring transparency [5]. Ontua, Garcia, and Patel emphasized how digital tabulation solutions foster efficiency and participant engagement [6]. Naeem underscored the importance of secure data processing in ensuring accurate outcomes [7].

This study introduces Flexi, a web and mobile-based event tabulation system specifically designed to modernize

event scoring at Pangasinan State University - Alaminos City Campus. By leveraging advanced digital technologies, the system addresses the inefficiencies of manual tabulation, enhances result accuracy, and improves participant engagement.

By automating manual processes, the Flexi system seeks to modernize event tabulation, promoting fairness, transparency, and efficiency at Pangasinan State University – Alaminos City Campus. The study aims to assess the system's functionality, user-friendliness, and impact on the event management process.

METHODOLOGY

This study utilized a developmental descriptive type of research in order to understand the difficulties of manual tabulation, create a digital solution, and assess the outcome. The respondents in this study included sixty surveys from event organizers, judges and participants taken from Pangasinan State University – Alaminos City Campus using random sampling to cover different sides of the issue at hand. Data collection was approached using survey questionnaires together with quantitative and qualitative data with user experience of manual and digital tabulation systems, real-time observation of system performance, and document study of historical records for patterns needing a change.

The developmental aspect of this research involved iterative refinements of the system's features and functionalities. These refinements were guided by user feedback and evolving technological requirements. This adaptive approach ensured that the system remained relevant, secure, and user-friendly. The system was developed using the Agile Software Development Life Cycle (SDLC), which promotes iterative progress and continuous collaboration. The following phases were undertaken: requirements gathering through interviews with event coordinators, judges, and participants to identify tabulation challenges; design through the creation of prototypes and wireframes; development of features such as score input, data analysis, and report generation; comprehensive testing to ensure system reliability; and deployment with post-deployment monitoring to address any issues

Fig. 1 Agile Methodology

Weighted mean calculations were interpreted based on trends extracted from user satisfaction and system effectiveness. This specific method was chosen because it provides a more accurate analysis by taking into account different priorities in the set of survey. Also, a comparative analysis was done to consider the use of both manual tabulation and automated tabulation systems.

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ROLE	FREQUENCY	PERCENT
Event Coordinator	10	20
Judge	10	20
Participant	15	30
Audience	10	20
IT Expert	5	10
TOTAL	50	100

Table 1. Respondents of the Study

Statistical method was utilized to analyze the respondents' validation of the system during the usability test. This study employed a 5-point Likert Scale, where 5 indicated Excellent and 1 indicated Poor, as illustrated in Table 2. Responses were tabulated and analyzed using a weighted mean. This method ensured a thorough assessment of the system's usability and acceptance.

Scale	Statistical Limits	Rating	Descriptive Interpretation
4	3.26 - 4.00	Excellent	Condition is highly comprehensive and operating efficiently.
3	2.51 - 3.25	Very Good	Condition is functioning properly.
2	1.76 - 2.50	Good	Condition is limited but working properly.
1	1.00 – 1.75	Poor	Condition does not meet the necessary requirements.

Table 2. The Scale of Measurement for Acceptability Test

RESULTS AND DISCUSSION

The existing event tabulation process at Pangasinan State University - Alaminos City Campus, its challenges, and the improvements introduced by the Flexi: Dynamic Event Tabulation System. The discussion also evaluates user satisfaction based on the system's functionality, reliability, usability, efficiency, maintainability, and portability.

The investigation revealed that the existing event tabulation process relied heavily on traditional pen-and-paper methods. Event judges manually recorded participant scores on individual sheets, which were then physically collected by the tabulation team. These scores were manually consolidated, calculated, and ranked using calculators, followed by verification and validation to ensure accuracy. The final results were subsequently prepared for announcement. While this process has been long-standing, it presents significant challenges, particularly in terms of speed, accuracy, and overall efficiency. Human errors, including scoring inconsistencies due to fatigue and potential biases, were common. Additionally, the manual nature of the process was time-consuming, requiring multiple steps of cross-checking and verification. The environment also lacked secure data storage, increasing the risk of score tampering or loss. The absence of a streamlined system made data entry and retrieval cumbersome and prone to errors, undermining the overall fairness and accuracy of the event tabulation process.

In response to these challenges, the Flexi: Dynamic Event Tabulation System was developed to address the identified inefficiencies. The system's features significantly simplified and enhanced the event tabulation process.

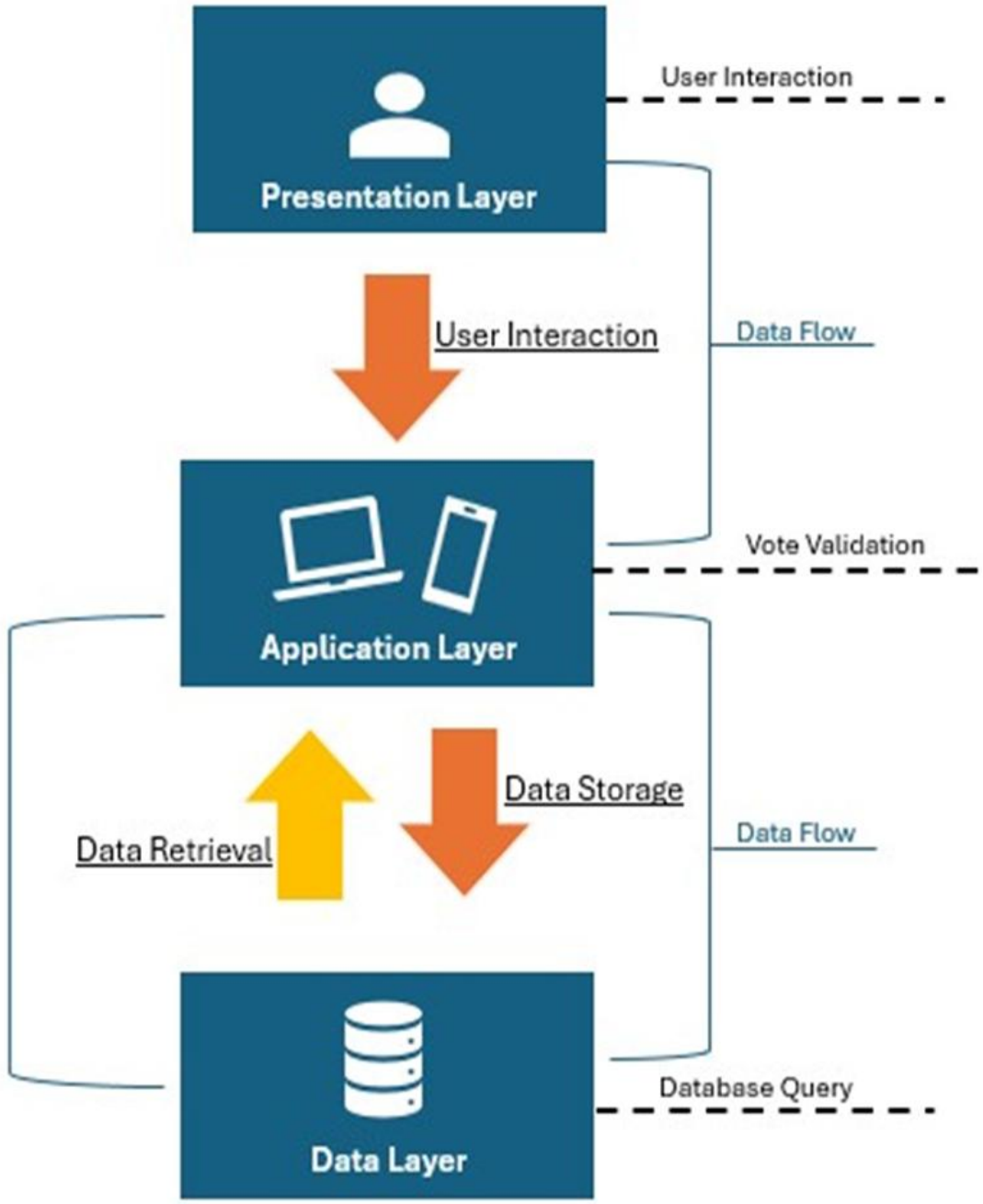

Fig. 2 System Three-Tier Architecture

It allowed for the creation of new events with essential details such as the number of judges and event dates. Judges could directly input scores through a digital platform, eliminating the need for physical score sheets. This feature ensured real-time score entry and reduced errors associated with manual data handling. The system also incorporated secure user accounts, role-based access control, and the capability to generate comprehensive event reports, including participant rankings and final results. A print option facilitated easy distribution and documentation of the reports. The dashboard allowed administrators to efficiently manage judges and participants, streamlining event personnel adjustments.

To evaluate the system's acceptability, a diverse group of respondents, including event coordinators, IT experts, judges, and participants, assessed the system based on key factors such as functionality, reliability, usability, efficiency, maintainability, and portability. In terms of functionality, the system received an overall mean of 3.56, interpreted as excellent. The system effectively met user requirements, ensuring accuracy in score calculations and adherence to compliance standards. Its security features also prevented unauthorized access.

The system's reliability was rated with a mean of 3.50, interpreted as excellent. Respondents highlighted the system's stability and fault tolerance, noting its capability to recover from errors without significant impact on performance. The usability of the system received an overall mean of 3.53, also interpreted as excellent. Users found the system intuitive and user-friendly, requiring minimal effort to learn and operate.

In terms of efficiency, the system achieved an overall mean of 3.56, interpreted as excellent. It demonstrated fast response times and efficient resource usage, enabling smooth and real-time event tabulation processes. Maintainability was another strong point, with a mean of 3.60, interpreted as excellent. The system was easy to update and modify, ensuring continued smooth operation over time. Finally, the system's portability was rated with an overall mean of 3.49, interpreted as excellent. The system proved adaptable to different environments and easy to install, ensuring seamless integration.

The overall weighted mean of 3.54 across all evaluation categories reflects the system's readiness for deployment. The results underscore the significant improvements brought about by the Flexi: Dynamic Event Tabulation System in addressing the challenges of the traditional tabulation process. By enhancing efficiency, accuracy, and user experience, the system offers a robust solution for event scoring at Pangasinan State University - Alaminos City Campus.

CONCLUSION

Introducing the event tabulator at Pangasinan State University - Alaminos City Campus represents a significant advancement in event management. The system improved accuracy, timeliness, and transparency by addressing the inefficiencies of manual scoring. User feedback highlighted its positive impact on event experiences, reinforcing the value of digital solutions in campus operations.

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