



Development and Usability Evaluation of an Event Judging and Voting Management System

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Abstract: This study aimed to develop and evaluate an Developmental Usability Evaluation of an Event Judging and Voting Management System in school/barangay specifically in Madridejos Community College (MCC). The traditional method of judging events may cause errors in the computation of scores, delay the announcement of results, and may even cause bias among the judges; therefore, the researchers proposed a digital approached to the judging system by providing a computerized system for the tabulation of scores, generation of results, voting polls, and determination of the winners. This study utilized a Developmental Research Design through the application of the Rapid Application development (RAD) model. The evaluation of the system was done through the application of the ISO/IEC 25010 Software Quality Model and the criteria for the evaluation of the system's usability: usefulness, satisfaction, ease of use and ease of learning. The evaluation results were very satisfactory for the system's effectiveness (M =4.58), software quality (M = 4.56), and usability (M = 4.48); therefore, the researchers concluded that the Event Judging Management System is an effective tool for modernizing the traditional method of judging events held in school/barangays. The study concludes that the Event Judging Management System is an effective and reliable solution for judging the events.

Keywords: Event Judging Management System, event management, score tabulation, vote polling, report generation, ISO/IEC 25010, usability evaluation.

I. INTRODUCTION

Technology has become widely integrated into daily life, where access to vast amounts of information is now easily available. Technology implementation was developed to address the rising needs of society. Today's generation of students has grown up surrounded by technology in an ever-increasing manner. Automated evaluation systems improve grading accuracy, reduce human bias, and efficiently process large numbers of submissions, demonstrating the effectiveness of digital judging platforms in assessment environments (Kavita et al., 2025) [1].

Despite the rapid rate of technology integration in education and in various community activities, many barangays and educational institutions still practice manual judging in various events and competitions. Such practices are often marred by computation mistakes, tabulation mistakes, delays in announcing results, inconsistent rating scales, and human bias. Calculations are labor-intensive and require a lot of work from judges and organizers, which may impact the accuracy and transparency of the judging process. As events become more intricate and the number of participants increase, various inefficiencies are being experienced in the management of events.

In response to these challenges, this study proposes an Event Judging Management System for barangays or schools to ensure a smoother and more efficient judging process while reducing the time required to calculate results. The system provides a structured judging procedure that allows judges to process online submissions and submit evaluations in a convenient digital format. This study will be implemented at Madridejos Community College and within the Municipality of Madridejos, where events and competitions are commonly conducted using manual judging procedures.

The most common issues associated with manual judging processes include errors in score computation, tabulation mistakes, time consumption, rating scale inconsistencies, and susceptibility to bias. As automated assessment systems have been shown to enhance evaluation accuracy and reduce human subjectivity in decision-making processes (Zhang et al., 2025) [6].

This topic is relevant because technology plays a vital role in ensuring accuracy, efficiency, and accessibility in a system. Automated grading systems enhance consistency, scalability, and efficiency compared to traditional manual evaluation methods (Tan et al., 2025) [5]. Similarly, automated essay scoring systems improve grading reliability and reduce the time required for manual evaluation by utilizing artificial intelligence techniques (Ramesh & Sanampudi, 2022) [4]. For the schools and barangays, using an automated judging system would greatly enhance their credibility and professionalism in conducting events.

Additionally, the system is beneficial for the digital transformation of local communities through the introduction of accessible technology that makes administrative tasks more manageable. Through the real-time scoring and data organization process, the proposed system is useful for enhancing decision-making and providing better experiences for judges, contestants, and audiences.

II. OBJECTIVES OF THE STUDY

GENERAL OBJECTIVES:

This study aims to develop an Event Judging Management System.

Specifically, it aims to:

1. Develop a system that can:
 - 1.1 Show Ongoing and Upcoming Event
 - 1.2 Show the effectiveness of the system in creating the scores of Contestants, Events, Criteria for Judging, Contestants Profile and Deleting the Events
 - 1.3 Show the effectiveness of the system in tabulating scores, generating results, declaring and list of winners
 - 1.4 Show the effectiveness of the system in displaying dual events
2. Determined the quality of the developed System based on ISO/IEC 25010;2011 System and Software Quality Requirements and Evaluation (SQuaRE) Quality Model.
3. Determine the usability of the developed system based on the following criteria: Usefulness; Satisfaction; Ease of Use and Learning. (Lund, A. M., 2001) [2];

Conceptual Framework

The conceptual Framework of the Event Judging Management System illustrates the input, processes, output, outcomes in the system. It shows below

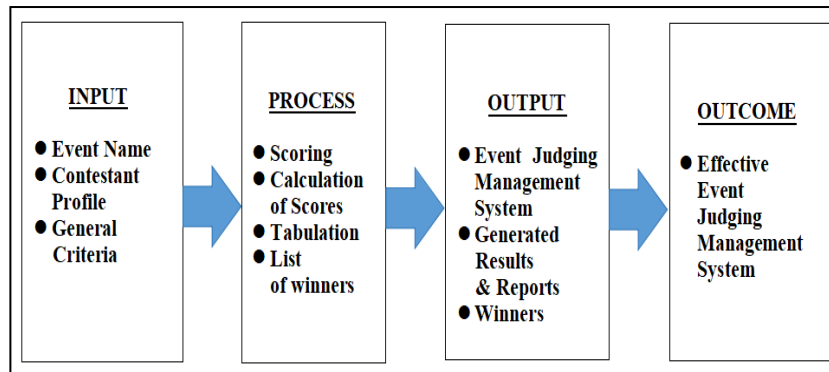


Figure 1. Conceptual Framework of Event Judging Management System

Figure 1 data shows the inputted to the system. First, in the input part are the Event Name, Contestant’s Profile, and General criteria, in the event in Barangay/School. Second, in the process, there are Scoring, Calculation of scores, Tabulation, and List of winners. In the output part are the Event Judging Management System, generated results and reports, and the winners. The outcome is the Effective Event judging Management System. The system will accept the inputted information and process it into important information. The system produce an effective Event Judging Management System, Generated Result and Reports. The outcome of this study will improve the overall performance provided by the event in the Barangay/School.

III. METHODOLOGY

In this study, the researcher used the Developmental Research Design model in developing the software, which is useful in making its framework for software, and it is alone a method of rad application development that emphasizes quick prototyping over expensive planning (Richey & Klein, 2007) [3].

Software Development Life Cycle Model

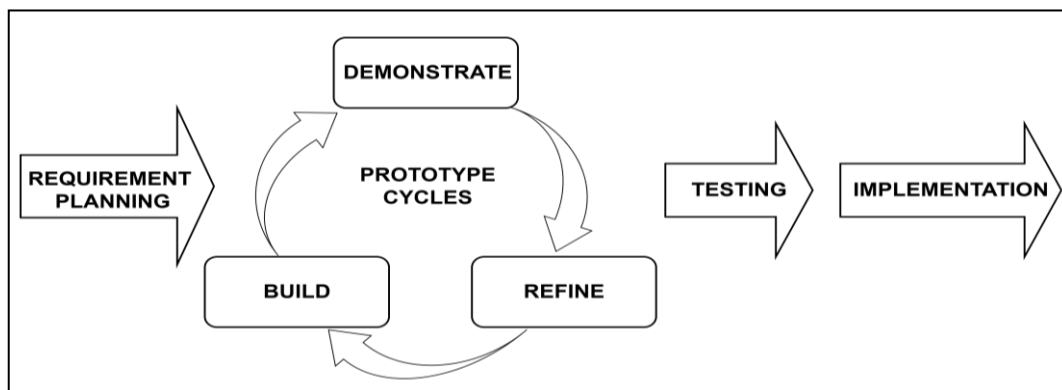


Figure 2. Rapid Application Development Model

Phases of Rapid Application Development

Step 1. Requirement Planning

In this phase, the researchers conducted a meeting with the group, discussed the proposed system, and gathered information through the development process of the system. Moreover, we finalize the project requirements of the Event Judging Management System that are carefully discussed and performed clearly.

Step 2. Prototype Cycle (Demonstration, Refine, Build)

In the second phase, the researchers demonstrate the system to the group and develop the model of the system (prototyping), then we present it to the client to observe the possible outcome. This type of process iterates until the system has scope is achieved.

Step 3. Design, Construct, and Testing

In this phase, the system is being set to test and ensure that its function is smooth and ready for use. During this phase, there will be the possibility that changes, updates, and or additional functionalities may be added to the system as per the client’s request and demands.

Step 4. Design Implementation and Release

This phase is the final step before the finished product goes to launch, and it also involves data conversion and training of the users on how to use the system.. The system is usable and ready to perform its purpose accordingly.

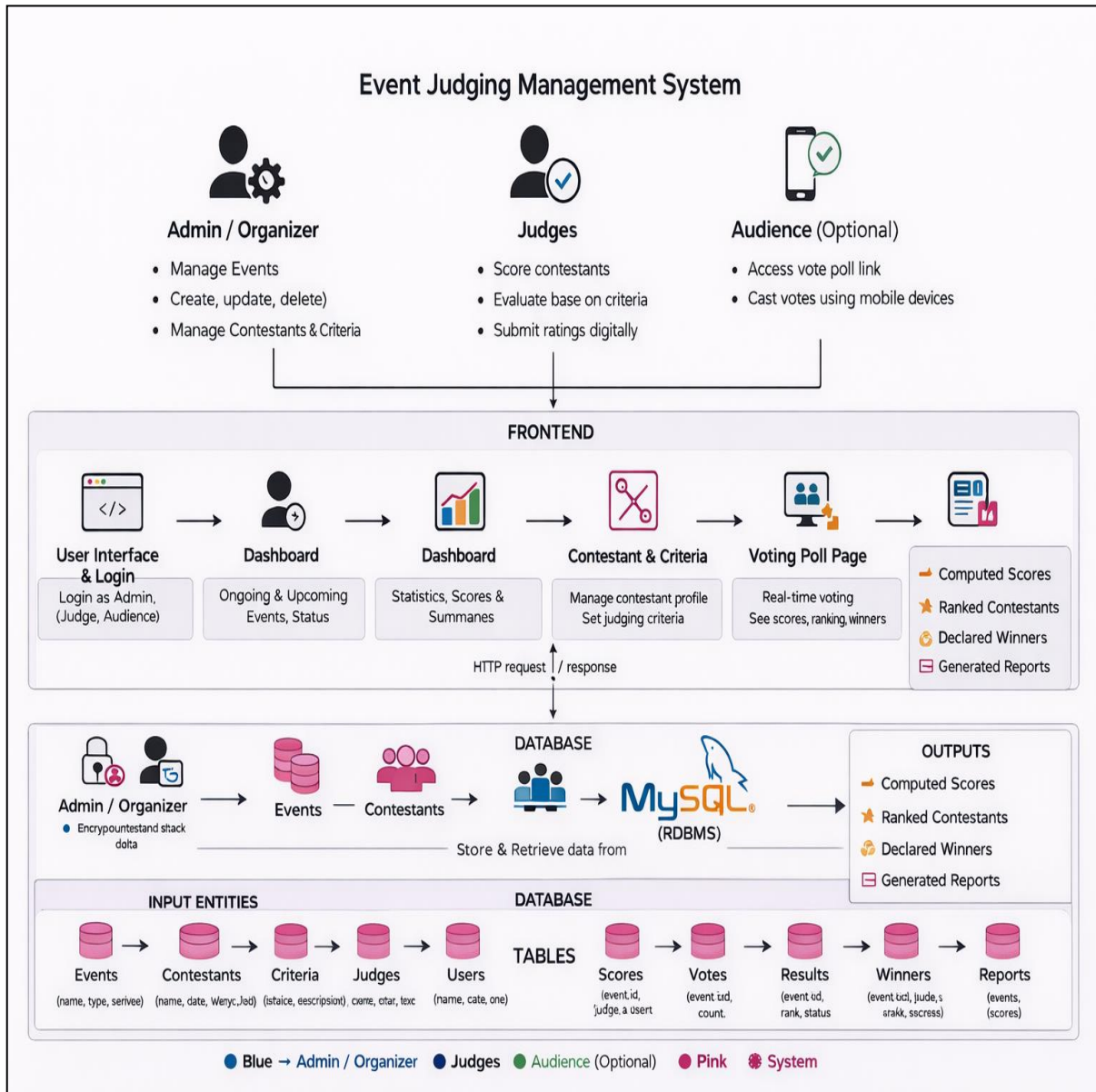


Figure 3. System Architecture

The Event Judging Management System increases the technique of judging the event, especially the beauty pageant. This technology will be used both by the judges and the contestants too. It ensures that all of the users, especially the judges will have an easy time judging the event and will not feel hassle. The diagram shows how the proposed Event Judging Management System is set up. The Admin, Judge, and Organizer all use the frontend interface to manage the event, enter the scores, and get the results. The backend processes their actions and stores all the important information, such as the events, judges, contestants, scores, and results, in a central database. The Event Judging Management System improves the way the event is judged, especially the beauty

pageant. The judges and the contestants will both use this technology. This technology will make it easier for all users, especially the judges, to judge the event without any problems.

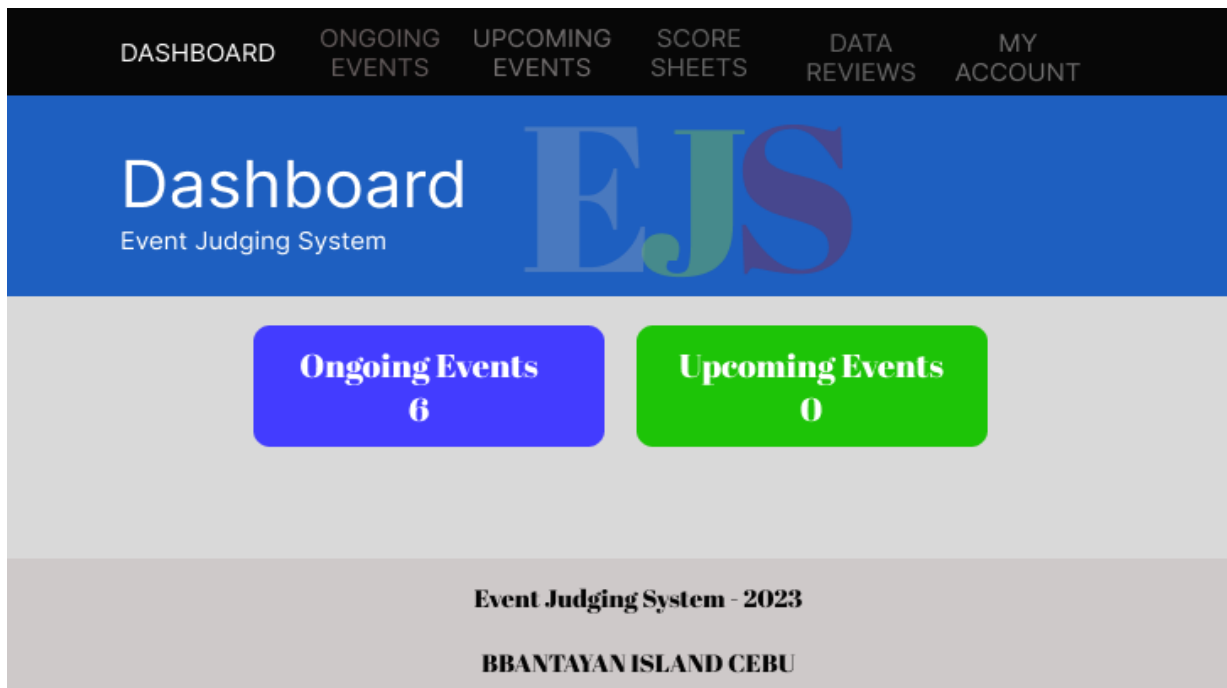


Figure 4. Event Judging Management System dashboard display ongoing upcoming events

Figure 4 shows the dashboard displaying ongoing and upcoming events where the admin only can view the number of ongoing events and also for setting the date for upcoming events.

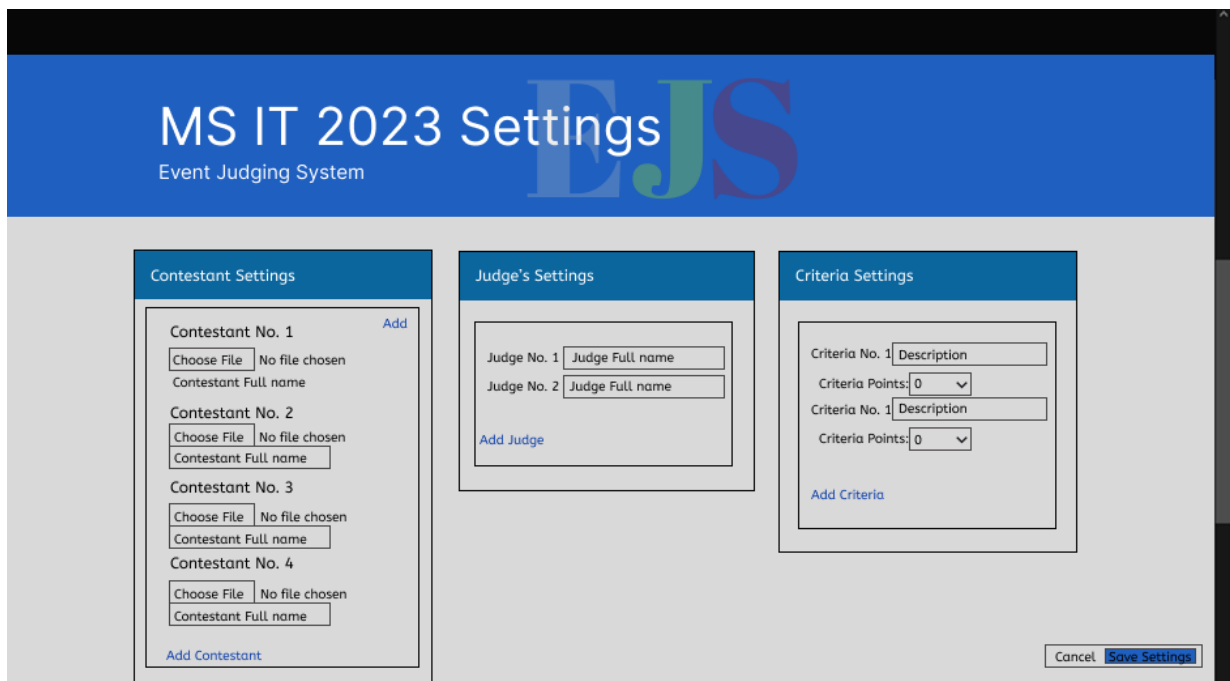


Figure 5. Create a contestants profile and criteria for judging

Figure 5 shows how to create a contestants profile so that judges can familiarize and the faces background of every contestants.

Moreover, it shows the criteria for judging that contain as an evaluation of judges for all the contestants before the events started. In this image also the admin can delete or add the contestants name, and name of the judges, and set the criteria setting.

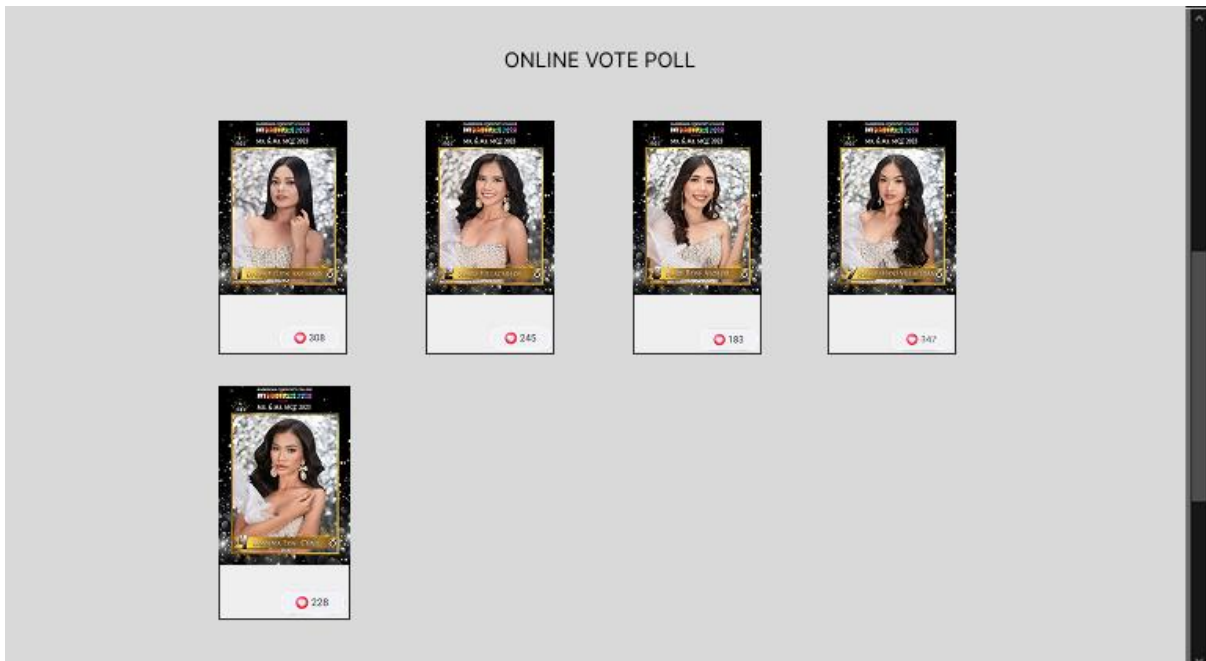


Figure 6. Voting Poll

Figure 6 shows vote poll for the judges and audience can vote by visiting the link using mobile phone and any device so that they can vote their favorite contestant. The advantages of a digital voting system in ensuring ease of access and participation in the selection process.

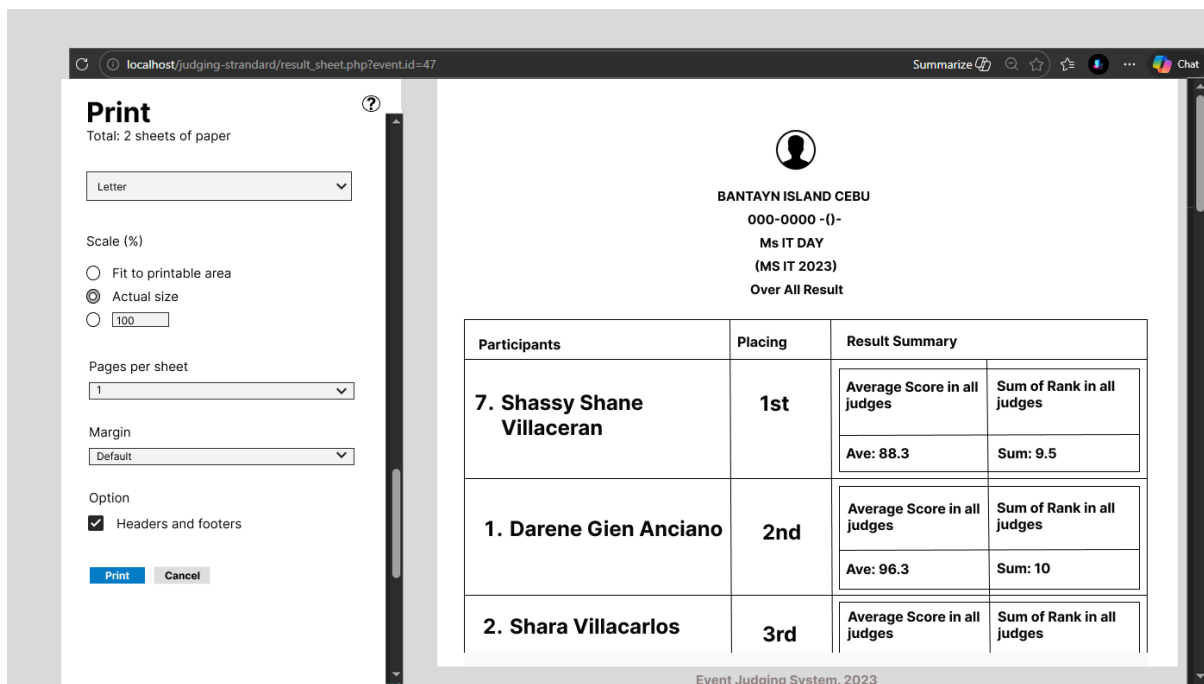


Figure 7. Declare Winners

Figure 7 shows above the part of the Event Judging Management System were the judges and contestants knows who will be the winner for the contest, in this image can see the name of the participants, their placements, and lastly the results of their performances or the summary of the contest.

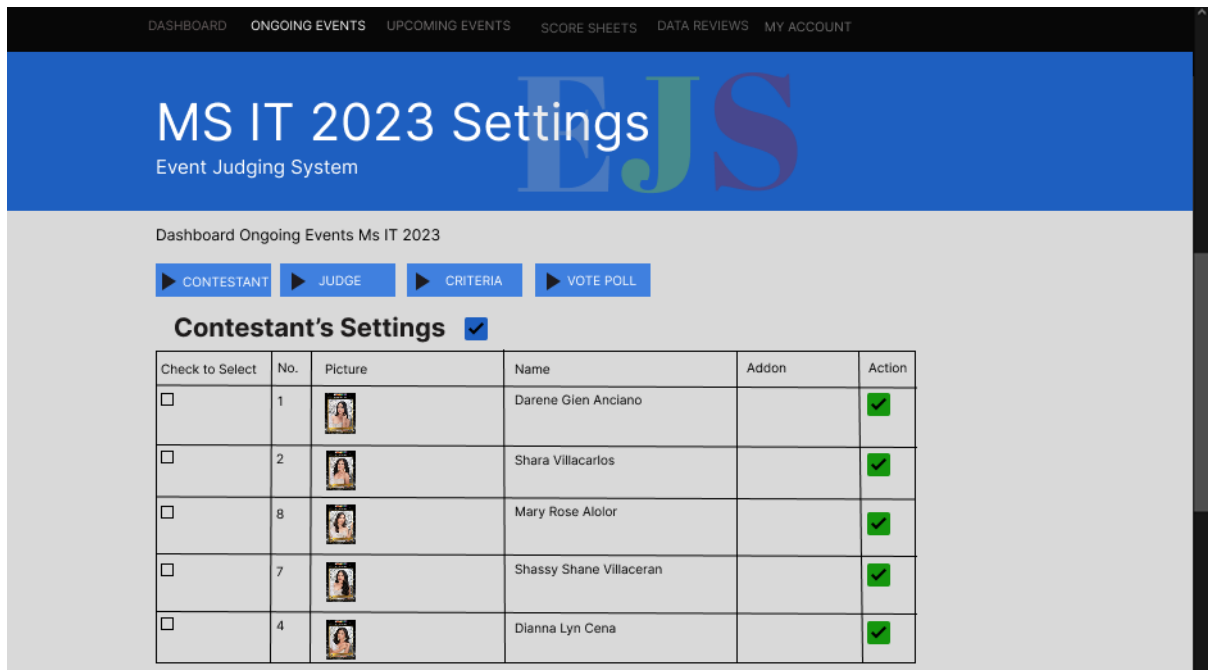


Figure 8. Dual Events

Figure 8 shows Dual Events that both male and female candidates presenting in the events. In the system, it is possible to see a section called contestant’s setting, which contains a structured table of contestants with check boxes, contestant’s number, profiles, contestant’s names, and the green color of the action is represents if the contestants is active or not.

IV. RESULTS AND DISCUSSION

The Developmental and Usability Evaluation of an Event Judging and Voting Management System was evaluated by students, instructors, IT experts using objective questionnaires, McCall’s Software Quality Model, and the USE Usability Questionnaire.

Table 1. Likert Scale interpretation

Scale Range	Verbal Interpretation
4.50 - 5.00	Excellent
3.50 - 4.49	Very Satisfactory
2.50 - 3.49	Satisfactory
1.50 - 2.49	Fair
1.00 - 1.49	Poor

The Likert scale shows the higher numerical ratings indicate better performance, with scores from 4.50-5.00 interpreted as excellent and 1.00-1.49 as poor.

Table 2. In terms of effectiveness and accessible of Events Judging Management System

	Mean	Verbal Interpretation
The effectiveness of the system in showing ongoing events and upcoming events.	4.66	Very Satisfactory
The effectiveness of the system in creating the scores of contestants, creating events, creating a criteria for judging, creating contestant profiles and deleting the events.	5	Excellent
The effectiveness of the system in tabulating the scores, generating the results, and declaring the winners and list of winners.	4.33	Very Satisfactory
The effectiveness of the system in displaying dual events.	4.33	Very Satisfactory
Total	4.58	Very Satisfactory

Table 2 shows the results of the computed rating of the three experts in using the Event Judging Management System in terms of viewing events Judging Ongoing and Upcoming events, creating the scores of every contestants, creating events, creating criteria for judging and creating contestants profile and deleting events that organizer provide by managing the system. The mean value in the table above is 4.58, which is interpreted as very satisfactory.

Table 3. In terms of the characteristics set in ISO 25010 Software Quality Model

Criteria	Mean	Verbal Interpretation
Functional Suitability	4.44	Very Satisfactory
Performance Efficiency	4.44	Very Satisfactory
Compatibility	4.50	Very Satisfactory
Reliability	4.50	Very Satisfactory
Security	4.86	Very Satisfactory
Total	4.56	Very Satisfactory

Table 3 shows the results of the IT Experts' feedback in determining the quality of the Event Judging Management System based on the characteristics set in the ISO 25010 Software Quality Model.

In terms of Functional Suitability it was rated a mean value of 4.44 which is interpreted as very satisfactory. Performance Efficiency, it was rated with a mean value of 4.44 which is interpreted as very satisfactory. As Compatibility, it was rated with a mean value of 4.50 which is interpreted as very satisfactory.

Concerning Reliability, it was rated with a mean value of 4.50 which is interpreted as very satisfactory. As to security, it was interpreted as very satisfactory.

Table 4. In terms of Usefulness, Satisfaction, and Ease of Use and Learning

Criteria	Mean	Verbal Interpretation
Usefulness	4.66	Very Satisfactory
Satisfaction	4.48	Very Satisfactory
Ease of Use	4.33	Very Satisfactory
Ease of Learning	4.47	Very Satisfactory
Total	4.48	Very Satisfactory

Table 4 shows the result of the user's with a mean value of 4.66 which is interpreted as very satisfactory, with regards to satisfaction, it was rated with a mean value of 4.48 which is interpreted as very satisfactory. As to Ease of Use, it was rated with a mean value of 4.33 which is interpreted as very satisfactory. As Ease of learning, it was rated with a mean value of 4.47 which is interpreted as very satisfactory.

V. RECOMMENDATION

Based on the findings and conclusions drawn, the following recommendations are proposed:

1. The researchers proposed the usability of the Event Judging Management System, in terms of using the functionality of creating events, This allows the organizer to manage the system.
2. Furthermore, the researchers proposed the usability of the Event Judging Management System, in terms of using the functionality of generating reports and an effective way of judging process.
3. It can be deployed online for better accessibility for the user.
4. The researcher recommends that future developers of this system enhance the performance efficiency, compatibility, and reliability of the system.

VI. CONCLUSIONS

Based on the summary and findings, the researchers further conclude that the Event Judging Management System in terms of showing ongoing and upcoming events, generating reports regarding the events, and providing options such as creating criteria for judging and creating contestant's profile, and declaring the winners for the results. In addition, Event Judging Management System is an effective tool and efficient and it provides a quick and easy way to make the work easier and less hassle and it can help users lessen time in calculating results by using a manual judging process. Therefore;

1. The Event Judging Management System that has been developed has proven to be effective in improving the efficiency, accuracy, and usability of the system.
2. The system is now ready for the pageant in the school/barangay, especially in Madridejos Community College.
3. The automated features of the system have reduced computation errors, facilitated determination of winners, and promoted transparency during the event.
4. The system promotes professional and credibility in conducting school and barangay events and is an effective technology for transforming traditional judging methods.

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