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Competition 2023

Reconnoitering Innovative Ideas in Postnormal Times

iTAC

2023

iTAC 2023
INTERNATIONAL TEACHING AID COMPETITION
E-PROCEEDINGS

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PREFACE

iTAC or International Teaching Aid Competition 2023 was a venue for academicians, researchers, industries, junior and young inventors to showcase their innovative ideas not only in the teaching and learning sphere but also in other numerous disciplines of study. This competition was organised by the Special Interest Group, Public Interest Centre of Excellence (SIG PICE) UiTM Kedah Branch, Malaysia. Its main aim was to promote the production of innovative ideas among academicians, students and also the public at large.

In accordance with the theme "Reconnoitering Innovative Ideas in Post-normal Times", the development of novel ideas from the perspectives of interdisciplinary innovations is more compelling today, especially in the post-covid 19 times. Post-pandemic initiatives are the most relevant in the current world to adapt to new ways of doing things and all these surely require networking and collaboration. Rising to the occasion, iTAC 2023 has managed to attract more than 267 participations for all categories. The staggering number of submissions has proven the relevance of this competition to the academic world and beyond in urging the culture of innovating ideas.

iTAC 2023 committee would like to thank all creative participants for showcasing their innovative ideas with us. As expected in any competition, there will be those who win and those who lose. Congratulations to all the award recipients (Diamond, Gold, Silver and Bronze) for their winning entries. Those who did not make the cut this year can always improve and join us again later.

It is hoped that iTAC 2023 has been a worthy platform for all participating innovators who have shown ingenious efforts in their products and ideas. This compilation of extended abstracts published as iTAC 2023 E-Proceedings contains insights into what current researchers, both experienced and novice, find important and relevant in the post-normal times.

Best regards,

iTAC 2023 Committee
Special Interest Group, Public Interest Centre of Excellence (SIG PICE)
UiTM Kedah Branch
Malaysia

LOWER FORM GRADE SYSTEM (LF-GRADE SYS)

Norhanisha Yusof

Department of Information Technology and Communication, Politeknik Balik Pulau
norhanishayusof.education@gmail.com

Logineey A. Sanggar

Department of Information Technology and Communication, Politeknik Balik Pulau
logineey@gmail.com

Tiivashkkar Kalidason

Department of Information Technology and Communication, Politeknik Balik Pulau
kalidasontiivashkkar@gmail.com

Puvithra Saravanan

Department of Information Technology and Communication, Politeknik Balik Pulau
puvithrasaravanan1410@gmail.com

ABSTRACT

After the demise of the Primary School Achievement Test (Ujian Pencapaian Sekolah Rendah), classroom assessment has been the primary tool for determining students' levels of accomplishment in schools. Classroom Assessment (Pentaksiran Bilik Darjah (PBD)) was utilized as a means of assessment for Level 1 pupils, replacing the formal test (Form 1 to Form 3). SMK Convent Green Lane has its own system to record pupil grades; however, their results are manually entered into a spreadsheet file for each student. In addition, record keeping is not systematic, and parents of pupils are unable to monitor their children's academic achievements. Therefore, the objective of this study is to develop a Lower Form Grade System (LF-Grade Sys), which is a web-based application grading system that is designed to help teachers systematically record and store pupil grades. The algorithms of the system will automatically calculate and conclude the assessment based on the grading. Moreover, parents can monitor their children's progress through this developed system. Therefore, the novelty of this system is that it generates a student's academic summary according to the subjects taken. The contribution of this study is that teachers can complete grading tasks quickly and effectively, while parents can track their children's academic progress for improvement. In addition, the management of recording student grades at school has become more efficient.

Keywords: lower form, grade system, school system

INTRODUCTION

Classroom Assessment (Pentaksiran Bilik Darjah (PBD)) is expressed as a pupil's level of

mastery. For each subject, there are six levels of mastery. The levels of mastery range from Form 1 to 6, indicating mastery of knowledge, skills, and values. PBD will also be utilized as a means of assessment for Level 1 pupils, replacing the formal test (Form 1 to Form 3). Most schools use a manual for this method because they do not have a good webpage for it. The current issue in this study is that the results must be manually entered by teachers into the spreadsheet files for each student. This situation causes the teacher to take a long time to key in the students' marks. Therefore, the Lower Form Grade System (LF-Grade Sys) was developed to solve this problem and is one of the essential solutions. The LF-Grade Sys is a web-based application grading system that is designed to assist teachers in noting students' (Form 1 to Form 3) grades, and saving their academic information. The development of this system is very important to make it easier for teachers, including parents, to monitor their children's academic progress.

Problem Statement

The problem in this study was that the teachers manually entered the results into the spreadsheet files for each student. The information that teachers keep in spreadsheet files may require additional time to search for lost or outdated information. Moreover, parents will not be kept up to date on their children's academic achievement through an online platform. Besides, teachers will be assigned additional work to write in spreadsheets. A teacher also finds it challenging to accurately maintain hundreds of records without the use of automation.

Objectives

The primary goal of this project is to provide an advanced system for the school to use for:

- a) To improve the efficiency of completing the grading tasks.
- b) To provide computerized record keeping of grades for teachers.
- c) To provide an automated system for parents to easily access their children's grades.

Project Significance

- a) Teachers: This method spares teachers the time-consuming task of manually entering the results for each student into spreadsheet files. Teachers are relieved of the responsibility of manually recording student information because this system is organized, secure, and displays records in a database system.
- b) Parents: Parents can access this system and view their children's grade in current and previous assessments. Parents will also receive notifications through email from teacher about their kids results or grades after teacher approved to publish students results. Parents will be informed of their children's academic achievement in this way.

- c) Future researchers: This developed system may serve as a reference for the future researchers for the improvement of the system in the near future.

LITERATURE REVIEW

According to Hendra et al. (2018), the application system is a web-based information system that assists in the process of making student reports every semester. One factor in measuring the quality of an information system is usability. Usability level refers to the ease of use of such information systems or software. It is beneficial to schools if there is an online database of student records rather than preserving them manually in a book, and it also saves teachers time. Meanwhile, Hashim et al. (2022) mentioned that important dimensions for a system are satisfaction, security, transparency, efficiency, and reliability. Therefore, the developed system considers these dimensions in order to provide a better user experience. User experience can be defined as all forms users' engagement with the services and products of the organization (Yusof et al., 2022). On the other hand, Dhakal and Bhurtel (2022) work discussed that there is a mismatch between the evaluation technique's practices and teachers' perceptions for tracking students' progress. Thus, there is a need for an online system for the school to manage the students results in a systematic way. In addition, the school's assessment system has improved with a systematic online record of student results.

METHODOLOGY

Agile is a project management methodology that was developed to be more adaptive and successful in launching innovations. Agile refers to the ability to move quickly and easily. Agile combines client feedback into team projects and heavily involves clients. As a result, the planning and implementation of the project are done quickly. Iterative project management is required to deliver useful things to the client or customer in an incremental, frequent, and consistent manner. Therefore, using this unique method, the project consistently produces positive results. This study used the Agile methodology for system development, which involves six phases: requirements, design, development, testing, deployment, and review of the system. Figure 1 below shows the Agile methodology of the study.



Figure 1. Agile Methodology

RESULT AND DISCUSSION

The LF-Grade Sys is a comprehensive web-based application designed to address the challenges faced in manual grade recording and record-keeping processes. It offers a user-friendly interface for teachers, parents, and administrators to improve efficiency, accuracy, and communication in the grading process. The system's functionality allows teachers to easily enter and save students' grades while providing flexibility in managing grade information for specific subjects. Real-time data storage on this system ensures secure and accessible records, eliminating the risk of data loss and enabling efficient record-keeping. The administrator role plays a crucial role in managing the system, with capabilities to create, edit, and delete departments, forms, classes, subjects, teachers, and students. The system ensures data security through robust authentication mechanisms, data encryption during transmission, role-based access control, and secure session management. This system makes it easy for teachers to systematically enter academic results for each student. For parents, the system provides convenient access to their children's grades, along with timely notifications about their academic achievements. This empowers parents to track their children's development, identify areas for improvement, and stay involved in their education.

To enhance usability, the system features an intuitive interface, compatibility with various web browsers and devices, and comprehensive documentation for installation, configuration, and maintenance. It is designed for optimal performance, scalability, and reliability, ensuring minimal downtime and efficient handling of concurrent user interactions. In terms of security, the system incorporates measures such as data protection, protection against common vulnerabilities, secure session management, regular updates, and compliance with data privacy regulations. User awareness and training are emphasized to promote security best practices and

mitigate potential risks. To conclude, the LF-Grade Sys has the ability to streamline the grading process, improve record-keeping, facilitate parent engagement, and ensure data security. Its user-friendly interface, performance, scalability, and adherence to security requirements make it a valuable tool for schools seeking an efficient and reliable grading system. The LF-Grade Sys effectively addressed the identified challenges, meets the stated objectives, and provides a valuable solution for teachers, parents, and administrators involved in the grading process. Figure 2 below shows the login and homepage of the system, while Figure 3 shows an example of student's marks view.

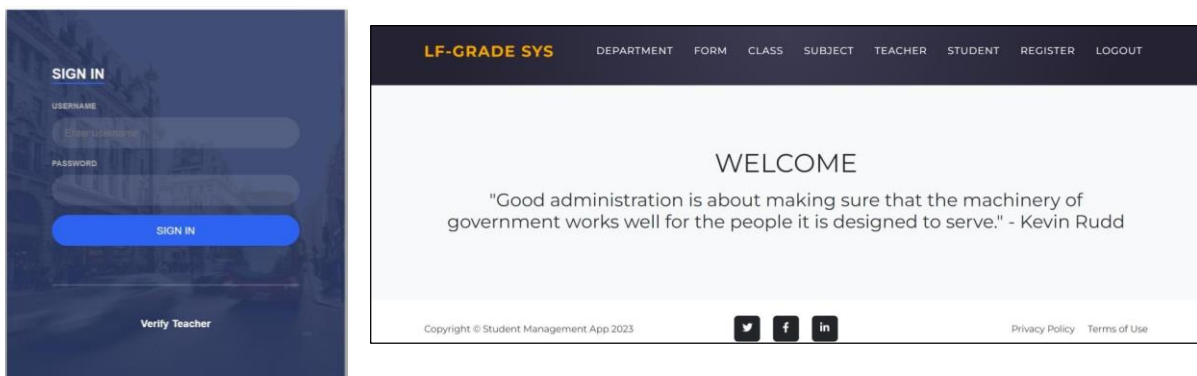


Figure 2. Login Page and Homepage of the LF-Grade Sys

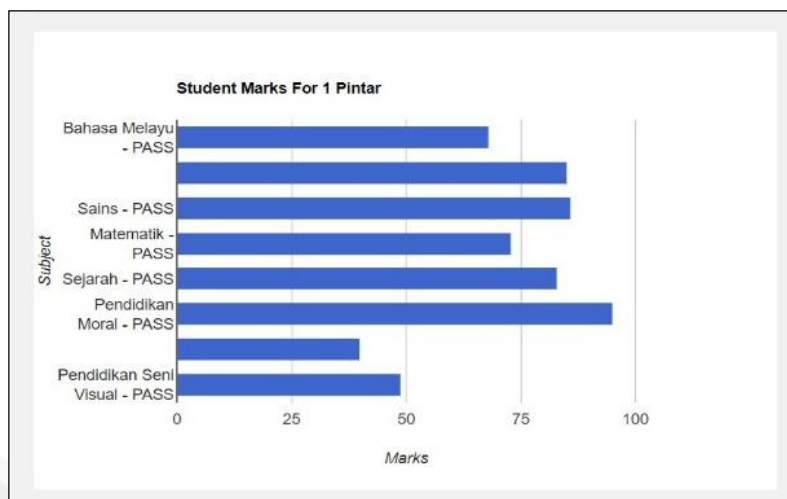


Figure 3. Example of Student Marks View

CONCLUSION

As a conclusion, the web-based application grading system, known as the Lower Form Grade System (LF-Grade Sys), has successfully addressed the challenges associated with manual grade recording and record-keeping processes in SMK Convent Green Lane, Pulau Pinang. By

incorporating advanced technology and automation, this system has significantly improved the efficiency and accuracy of grading tasks for teachers while providing streamlined record-keeping capabilities. The system's user-friendly interface allows teachers to easily enter and save student grades, saving valuable time and reducing the risk of data loss. Furthermore, parents are now able to access their children's grades in real-time, fostering better communication and involvement in their academic progress. The system's robust security measures ensure the confidentiality, integrity, and privacy of user data, protecting sensitive information from unauthorized access. The benefit of using the developed system is that teachers can complete grading tasks quickly and effectively, while parents can track their children's academic progress for improvement. Furthermore, the developed system has proven to be a valuable tool for SMK Convent Green Lane, empowering teachers, parents, and administrators to effectively manage and monitor student progress.

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