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The Development of Student Award Record System (CertifyMe) Using Agile Methodology

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ABSTRACT: The Student Award Record System, known as CertifyMe, was developed as a web-based platform to improve the process of managing student achievement records in educational institutions. Traditionally, certificates and student awards are stored manually, which may lead to misplaced documents, limited access, and inefficient record management. Therefore, this system was introduced to provide a more systematic and digital approach. It allows students to upload and keep their certificates online in a secure and organized manner. Through this feature, students can maintain a proper record of their achievements and access them whenever needed. Lecturers are able to review and verify the submitted certificates for students under their supervision, helping them monitor student involvement and accomplishments beyond academic results. In addition, administrators are responsible for managing user accounts and ensuring the accuracy and security of the stored information. The system was developed using the Agile methodology and implemented with PHP, HTML, CSS, and MySQL. It is equipped with a user-friendly interface to ensure smooth interaction for all users. By replacing manual filing methods, the system helps reduce the risk of document loss, improves accessibility, and increases transparency in managing student certificates. Overall, CertifyMe provides a practical solution for digital record keeping while contributing to a more efficient and organized academic management process.

INTRODUCTION

1.1 Introduction

Educational institutions often recognize students for their achievements in academics, co-curricular activities, leadership, and community service. These recognitions matter because they show students' efforts and contributions during their studies. Awards and certificates can also support future opportunities such as scholarship applications, further studies, internships, and employment. For this reason, managing student award records well is important in every institution. However, many institutions struggle to manage these records effectively. In some cases, certificates are kept manually in files or stored separately by various departments. This traditional method can lead to several problems. Documents may be misplaced, damaged, or difficult to retrieve when needed. Verification of certificates may also take more time, especially when records are not centralized. As a result, both staff and students may experience inconvenience during the process. Students themselves can also have trouble tracking their achievements. Many receive certificates from different events, competitions, or organizations while studying. Without a proper system, these documents may not be organized well. This can create problems when students need to provide proof of achievements for scholarships, internships, or job applications. In recent years, the use of digital technology in education has grown quickly. Many administrative tasks are now managed through online systems to improve efficiency and accessibility. This change became more apparent during the remote and hybrid learning, where digital solutions became necessary. Therefore, using an online platform to manage student award records is a practical step that matches current technological trends. A Student Award Record System can address the shortcomings of manual record management. Through such a system, , students can upload and store their certificates online, while lecturers and administrators can review records more easily. The system can also offer quicker

access to information, simpler verification processes, and better reporting features. Additionally, all records can be kept in one centralized database for improved organization. To develop an effective system, careful planning and development methods are necessary. In this project, Agile seems appropriate because it allows ongoing improvement based on user feedback and changing needs. Compared to traditional development methods, Agile provides greater flexibility and promotes collaboration among stakeholders during the development process. Thus, it is suitable for building a system that serves the needs of students, lecturers, and administrators.

1.2 Problem statement

Most students still manage records of their extracurricular activities and certificates manually. Usually, certificates are kept in physical files or stored separately without a proper arrangement. This traditional method creates several difficulties in managing student achievements effectively. One of the common problems is the risk of losing or damaging certificates. Physical documents can be misplaced, torn, or faded over time. When this happens, students may face problems in providing proof of participation or achievement when required for scholarships, competitions, internships, or job applications. Besides that, searching for specific certificates can be time-consuming. Students often need to check multiple files or folders to find certain documents. This process becomes inconvenient, especially when certificates are needed urgently for academic or administrative matters. Lecturers and administrative staff also experience challenges in verifying student records manually. Checking certificates one by one requires more time and effort. In some cases, manual verification may lead to delays, missing information, or inconsistencies in records.

In addition, the absence of a centralized system makes it difficult to monitor students' overall involvement in extracurricular activities and achievements. Important information may be scattered across different departments or kept individually by students. Therefore, there is a need to develop a web-based system that can record, organize, and verify student achievements more efficiently. A centralized platform would help students store their certificates securely while enabling lecturers and administrators to manage records in a faster, more systematic, and more reliable manner.

1.3 Objectives

The objective of developing CertifyMe: Student Award Record System are as follows:

To develop a web based platform for recording student's extracurricular activities, awards, and achievement in a more organized and systematic manner.

To implement a digital verification feature that enables authorized personnel to validate the authenticity of submitted certificates efficiently and accurately.

. To automate the verification process and provide dedicated user roles for lecturers to manage, review, verify, and approve students' submissions effectively.

1.4 Literature Review

Student record management has changed significantly over the years. In the past, most institutions relied on paper-based systems to store student information. Records such as academic results, attendance, and student achievements were usually kept in files and managed manually. Although this method was common, it often caused problems such as slow retrieval of records, misplaced documents, and limited accessibility. With the advancement of technology, many educational institutions began using computerized systems to manage student data. Early student information systems were mainly designed to handle student registration, course enrollment, and examination results. Over time, these systems became more advanced and started to support wider administrative functions. Today, Student Information Systems (SIS) are widely used as centralized platforms for storing and managing student records more efficiently.

According to Ngoma and Igira (2018), effective digital record management systems can improve institutional efficiency, increase data accuracy, and provide better services to students. Their study found that digital systems significantly reduced the time required to retrieve records compared to manual filing methods. This shows that technology can help institutions manage information in a faster and more reliable way. The management of student awards and achievements has also become an important area of attention. Besides academic performance, institutions now recognize the value of extracurricular involvement, leadership, competitions, and community service. These achievements reflect the overall development of students and can contribute to future opportunities such as scholarships or employment.

Garcia and Martinez (2019) reported that many universities still do not have dedicated systems for managing student awards. Instead, some institutions depend on spreadsheets or general databases to store such records. However, these tools may not fully support the specific needs of certificate storage, verification, and achievement tracking. Their findings highlighted the need for a specialized system that can manage student awards more effectively.

Chen et al. (2020) suggested that student achievement management systems should include several important features. These include secure data storage, accessibility for different users, multiple user roles, certificate verification, and compatibility with other institutional systems. Such features are important in ensuring that the system is practical, secure, and easy to use. These recommendations are relevant to the development of CertifyMe.

In terms of system development methodology, Agile has become a popular approach for educational technology projects. Agile

emphasizes step-by-step development, regular feedback, and continuous improvement throughout the project process. This approach is suitable when system requirements may change according to user needs or institutional policies.

Krehbiel et al. (2017) found that Agile practices helped improve project success rates and user satisfaction in higher education IT projects. Similarly, Santos et al. (2020) identified several effective Agile practices, including active stakeholder involvement, regular software demonstrations, and review sessions for improvement. Based on these studies, Agile is considered a suitable methodology for developing CertifyMe because it supports flexibility, collaboration, and continuous enhancement of the system.

1.5 System Scope

The scope of the CertifyMe system covers several important modules to support effective management of student achievement records.

User Management: Registration, authentication, and role-based access control for students, faculty, and administrators.

Award Management: Creation, editing, deletion, and categorization of award records including academic awards, extracurricular achievements, leadership recognitions, and community service acknowledgments.

Search and Retrieval: Advanced search functionality enabling users to locate award records based on various criteria.

Verification Module: Secure verification mechanism allowing external parties to authenticate award records.

Reporting: Generation of various reports including individual student award summaries and departmental statistics.

Notification System: Automated email notifications for award issuance, updates, and system announcements.

METHODOLOGY

This study applies a developmental research design, focusing on the systematic creation of a software product through established development methodologies. Developmental research involves the creation, testing, and evaluation of products or processes that are designed to address specific problems or needs. This approach is appropriate for the current study as it emphasizes the development of a functional system while documenting the process and evaluating outcomes. Agile methodology is a project management and development approach that emphasizes flexibility, collaboration, and user satisfaction. It is widely used because user feedback can be collected regularly, and system changes can be made quickly when necessary. For the Certify Me project, the Agile–Scrum framework is selected, as it allows development to be carried out iteratively through sprints. Each sprint delivers an increment (new feature or improvement) that can be tested and refined immediately.

Table 1: The Agile process six main steps

Plan	• The team discusses and sets the goals, requirements, and main features to be developed. • Priorities are set so that the most important features are developed first.
Design	• The team creates the system flow, UI/UX design, and database structure based on requirements. • Prototypes are built to visualize how the system will look and work. • Designs can be adjusted according to user feedback.
Develop	• Coding begins according to the design. • Team collaboration is important to ensure the system follows the planned requirements
Test	• Each completed module is tested. • Testing can include unit testing (checking small functions), system testing (whole system), and user testing (real users). • The goal is to find bugs and ensure the system runs smoothly.
Deploy	• The tested features or modules are released on a server or live platform. • Deployment is usually done incrementally, so users can try the system and give feedback. • The first release may only include core functions (MVP – Minimum Viable Product).
Review	• The team reviews the sprint outcome: what went well and what needs improvement. • Feedback from users/clients is collected. • Improvements are added back into the backlog for the next sprint. • This cycle repeats until the full project is completed.

2.1 Logical Design

The ERD represents the database structure of your CertifyMe system by showing all main entities and how they are connected. It includes tables such as User, Lecturer, Class, Certificate_Submission, and Profile_Picture. Each entity contains attributes that store important data — for example, the User table stores user details, while Certificate_Submission stores the certificates uploaded by students. The relationships between these entities show how the system functions: one user can upload many certificates, each certificate is assigned to one lecturer for review, and each user has one profile picture. This diagram proves that your system is logically organized and all data flows are properly linked and connected.

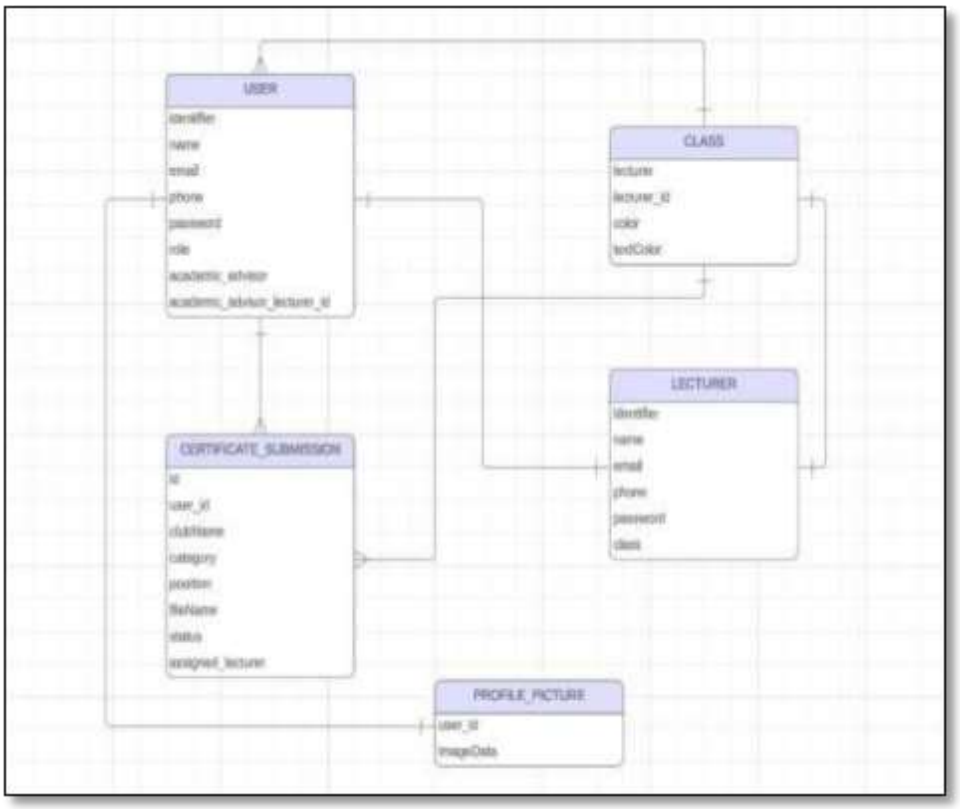

Figure 1: ERD DIAGRAM

3.2 Physical Design

Figure 2: Homepage Interface

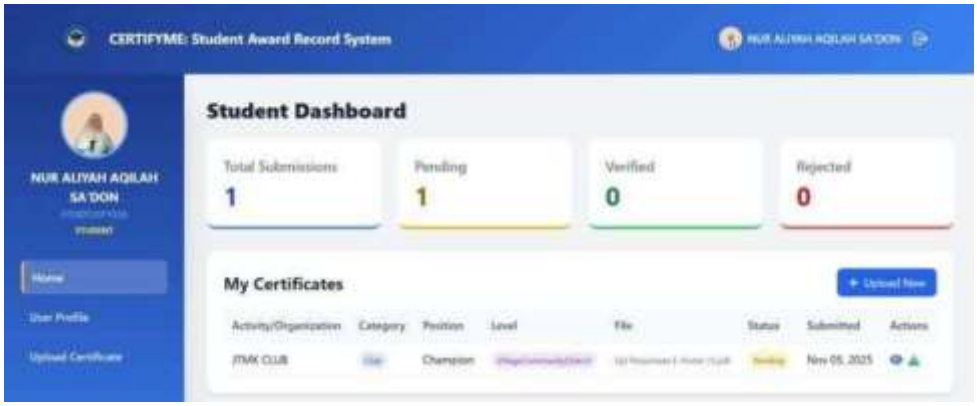

Figure 3: Student Dashboard

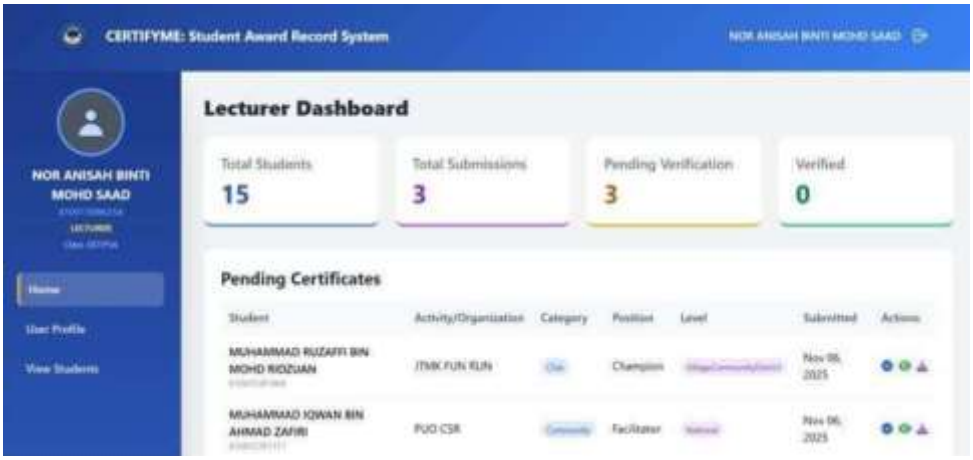

Figure 4: Lecturer Dashboard

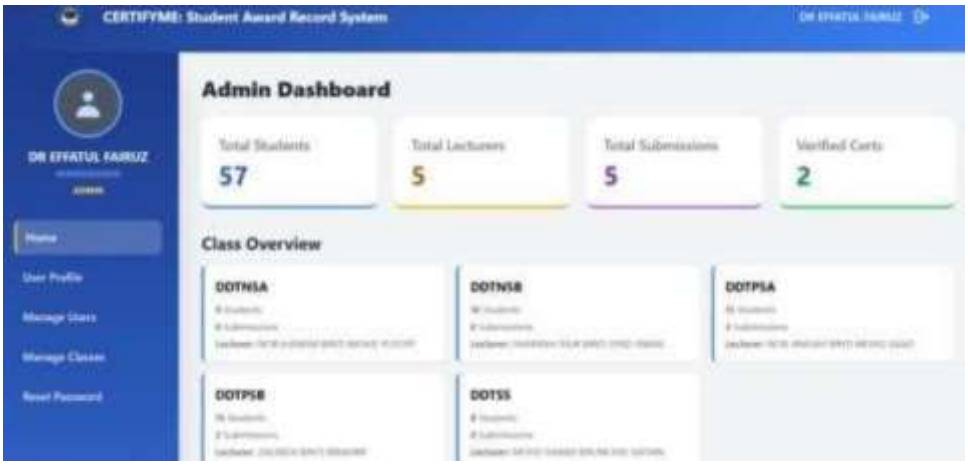

Figure 5: Admin Dashboard

RESULTS

Usability testing involved 45 participants completing five predefined tasks:

Table 2: Usability Testing results

Task	Description	Success Rate	Avg. Time
T1	Register and complete profile	100%	3:24
T2	Add new award record	93.3%	4:12
T3	Search and filter awards	86.7%	3:36
T4	Verify certificate using notification	100%	1:54
T5	Generate and export report	93.3%	4:42

Overall task completion rate was 95.5%, indicating high system usability. The search and filter task (T3) presented the most challenges, primarily due to users overlooking the advanced filter options.
The user acceptance survey assessed five dimensions on a 5-point scale:

Table 3: User Acceptance Testing results

Dimension	Items	Mean	SD	Interpretation
Perceived Usefulness	5	4.31	0.58	High
Perceived Ease of Use	5	4.18	0.64	High
Intention to Use	3	4.22	0.71	High
Feature Satisfaction	4	4.07	0.69	High
Overall Acceptance	**20**	**4.20**	**0.65**	**High**

All dimensions received mean scores above 4.0, indicating high acceptance across all measured aspects.

DISCUSSION

The CertifyMe: Student Award Record System was was developed to address the need for a more organized, reliable, and digital method of managing student achievements, co-curricular activities, and certificates within educational institutions. Furthermore, the increasing demand for verifiable and tamper-proof certification for academic and extracurricular achievements highlights the importance of transitioning to digital solutions. Through this project, a centralized system was designed to not only streamline the process of tracking student participation but also automate the generation of digital certificates, awards, and activity logs. The system allows students to maintain a comprehensive portfolio of their involvement and accomplishments throughout their studies. For administrators and lecturers, CertifyMe provides an efficient tool for recording attendance, monitoring involvement in campus events, and issuing digital recognitions with minimal effort. During the development process, several challenges were identified. These included ensuring that data entered into the system was accurate, managing access permissions for different user roles, and creating a secure process for certificate verification and storage. Each of these issues was addressed through careful planning, system testing, and continuous improvement during development.
Data privacy and ethical considerations were also important throughout the project. The system was subjected to several phases of testing to ensure functional reliability, user acceptance, and performance efficiency. Overall, the development of CertifyMe demonstrates how digital technology can improve student record management. The system offers a practical solution for institutions that wish to modernize their administrative processes while providing better support for students and staff.

CONCLUSION

In conclusion, CertifyMe can be considered a sensible and progressive step in ensuring the modernization of student activity tracking and awarding process management. Completion of the project can help to meet the existing needs in addition to paving the way for future development. With proper refinement and implementation, the tool could be used across various organizations in the coming future as part of the ongoing efforts towards educational technology advancement.

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