General Problem

- **Daehan College of Business and Technology manually enroll students and using multiple third-party applications as an alternative to establish their learning environment**

Daehan College of Business and Technology (DCBT) is currently relying on a manual process of enrollment. Enrolling students manually with only one registrar will prolong the enrollment process, prone to errors and take too much time to complete. The registrar takes too much time to handle all the students, resulting in a longer enrollment process. DCBT is currently using different type of application which is Google Drive, Google classroom and Messenger to meet students activity and school related works, given the fact that using this existing application is beneficial however relying upon this kind of setup can cause working unorganized way of sending data from the student because they need to open different window of an application to submit the activity on time. That's why DCBT aims to have a centralized system that can accommodate teacher and student activities and minimize the use of different applications just to complete activities, submit and view grades in every period.

Specific Problem

- **Daehan College of Business and Technology's teachers are not adequately monitoring the academic progress and performance of their students.**

The current system of the client cannot efficiently track the student's progress in an asynchronous session. Based on the interview, teachers of Daehan College of Business and Technology are still using traditional ways of tracking students' progress in asynchronous sessions going students' output that is submitted online.

The teacher has said that it would be beneficial if they can keep track of the student's progress from time to time, which includes if the student opened their respective modules given by the teachers. Another important aspect of tracking progress is having a constant overview of overall progress such as showing overall grades in every period on their ELMS and showing scores of each checked task/activity which currently can only be viewed at the end of the period.

- **Registrar manually inputting student's record**

The registrar manually inputting enrollment information into an Excel sheet can also cause delays in the scheduling process. This is due to the time-consuming nature of manual data entry, which can result in longer processing times and delays in scheduling. In addition, the possibility of duplicate data entry is a concern as it can cause inconsistencies and errors in the final schedule. Duplicate data entry occurs when the same student information is entered multiple times by mistake.

- **The students are required to enroll manually on every end of semester**

Students of Daehan College of Business and Technology (DCBT) are required to enroll manually and fill out form every end of semester, even if they are regular or enrolled in previous enrollment, this results in time-consuming for both registrar and students, also with this manual process the school experiences data loss.

Overview of the current state of the technology

Daehan College of Business and Technology (DCBT) has their own implementation for organizing their school-related work to complete their day-to-day work. Some of them have been using a modernized approach where they used technologies as their primary tool to have another level of conveniently organizing their school-related work to make it more efficient and faster than the manual process. Daehan College of Business and Technology currently using Google Classroom, Google Drive and Messenger as an alternative tool to organize their school-related works which serve as their learning environment to fill in the gaps of their needs in online learning where school teachers are willing to share their knowledge with students who are hardworking and willing to learn. The platform's functions that they have commonly used to organize their school-related works include student task dissemination that is automatically populated into the students' calendar, and accessing/grading student assignments where they are dependent on the platform not having an opportunity to modify the behavior according to their wants. Considering the hardship and challenges of online class learning, this ensures they`re tracking students' performance progress and allows students to prioritize their school workload to ensure that the learning is effectively absorbed.

DCBT currently uses alternatives applications that serve as their primary tool to such as Google Classroom where Teacher allows to disseminate students' tasks, access student`s submissions and mark student assignments on the other hand, it grants the students to view their respective tasks, submit their requirements for activities and homework, accessing their module and planning their homework and assignment as they can see all of their tasks for the week. Messenger on the other hand is also used by some teachers to disseminate learning modules and means of communication regarding the subject matter where the teacher created a group chat for his/her teaching subject and all the sections that have the same subject were included in the group. Lastly, Google Drive where students can submit their works and activities.

The proposed Learning Management System for DCBT aims to centralize a systematic approach to managing, accessing, and organizing school-related works more effectively. Most of the time in online learning that DCBT users (Teachers, Student) are dependently relies on the usage of multiple alternative platforms to perform the above actions where teachers experience the inconvenience of frequently navigating the platform just to access the specified file since this is the only way to access/retrieve the submitted data and due to navigating back-and-forth to access multiple application as their center of attention for a learning environment which ended up to students diversified attention that may lead to performance issues resulting to inconveniences during online learning. The team proposal will serve as their main instrument for their learning environment which has features that the users have commonly used on the platform such as organizing learning contents in one location, student task dissemination, improves tracking of the student's progress and displaying modules that are accessible for both students and teachers.

Objectives of the study

General Objective

- **To develop an Enrollment System with Web-Based Learning Management System for Daehan College of Business and Technology.**

The proposed system would help the Daehan College of Business and Technology (DCBT) to organize handling of students records and lessen the time students spend in enrolling, this online enrollment will contain recording and managing enrollment information, creating class schedules, sections and organize the school related-works implementation in a centralized access point by developing a Learning Management System which has features that the school has often used from

different platforms such as dissemination of student tasks, accessing student task submission, grading student assignments and automatically sync student grades, this will serve as their primary tool for organizing school-related works which supports the efficient distribution of class materials where it helps the students to plan their homework and assignment ahead of time as they can see all of their tasks for the week/month and conveniently managing student data that helps users (Teachers and Student) to improve their learning environment and to limit them as possible for their usage of the different platforms.

Specific Objectives

1. **To develop a tracking module that will be able to monitor students school progress**

   The system can track every activity a student has completed which includes submission activity and tasks and opening learning materials given by the teachers which all contribute to the overall progress. An overview of the current progress which includes a showing of overall grades, an indication of viewed modules, and a showing of each graded task/activity will be provided by the system.

2. **To develop a module that will improve the handling of student's record**

   The developers will develop a module that will reduce paper works and manage the students' records, monitor and update information of the student like address, contact number etc. It secures the stored records and information which is accessible for future purpose.

3. **To develop a student registration module that will refine the enrollment system**

This module will help students to enroll them online and it will lessen the time where students spend time enrolling. This will make enrollment hassle-free for students, even if it occurs at the end of every semester. For the enrollment payment, student will only be required to go to school.

RESULTS AND DISCUSSIONS

This chapter discussed the project technical description, testing results from the testing cases executed by the developer and evaluation results conducted by IT experts and the beneficiaries of the system. Project boundaries and extents are also discussed in this chapter.

Project Technical Description

The DCBT Enrollment System with ELMS is a web-based platform developed using Javascript, CSS, and HTML for the front-end, providing a user-friendly interface tailored to different modules of the system. The back-end is powered by PHP, ensuring efficient data processing and system functionality. For the database management, MySQL is utilized, offering robust and secure data storage capabilities. This web-based system was developed following the Iterative Waterfall Model, a design approach that combines the disciplined phases of the waterfall model with iterative development to accommodate changes and refinements effectively. The DCBT Enrollment System is optimized for desktop browsers, while the ELMS (Educational Learning Management System) is designed to function seamlessly across both mobile and desktop browsers.

To ensure the system's optimal performance in its intended environment, the developers have carefully specified the hardware and software requirements for its implementation.

Figure 3. Pre-enrollment Registration

Pre-enrollment registration module will enable the user particularly students to simplify the process of registering for courses before the official enrollment period. This will let the user input basic information needed and will be verified through the registered email address.

Figure 4. Login of Student Enrollment

Login module will enable the user of the developed web-based system to ensure that only authorized users can access the personal information of the student. This will

serve as the first layer of security of the system from unauthorized and illegal access and use of personal information.

Figure 5. Student Information and Registration

Student information and registration module will enable users to choose their preferred course or strand and input personal information. The user will select the desired admission type and availability of the course or strand.

Figure 6. Enrollment Page

Enrollment page module allows users to update and store their submitted forms in the system's database. Students can view and edit their forms within this module.

Figure 7. Registrar Module

The registrar module of the developed web-based system enables the registrar to evaluate students for official enrollment.

Figure 8. ELMS Login

ELMS login module allows users to access their modules such as activities, handouts, and user profile.

Figure 9. Student Dashboard

The student dashboard contains the number of enrolled subjects, completed subjects, assignments, announcement, calendar, notification, and user profile.

Figure 10. Student Subject Module

The student subject module enables users to view essential lessons provided by the teacher. It serves as a central hub for accessing course materials, lecture notes, and other instructional content, fostering a seamless learning experience for students.

Figure 11. Student Assignment/Activity Module

The student assignment/activity module allows user to view and submit assignments or activities, supporting various file formats such as images, PDFs, Word

documents, and text files. The module also provides features for tracking submission deadlines.

Figure 12. Student Calendar Module

The student calendar module allows users to view due dates for current tasks and announcements, providing a comprehensive overview of important dates. This can be viewed both by students and teachers.

Figure 13. Student Graded Assignment/Activity Module

The submitted assignment/activity allows the user to view the graded assignment or activity given by the teacher. The submitted assignment/ activity can be viewed and downloaded by both the student and teacher.

Figure 14. Teacher Dashboard

The teacher dashboard includes the number of teaching subjects, completed subjects, a calendar, notifications, announcements, user profile, and a grading module.

Figure 15. Teacher Subject Module

The subject module allows the user to view, add, remove, edit or modify various essential lessons to students.

Figure 16. Teacher Upload Handout

Teachers will be able to upload and share informative handouts specific to a particular subject, enhancing the learning experience by providing students with supplementary materials, references, and additional resources pertinent to the course

curriculum. The uploaded files can be viewed and downloaded by both teachers and students.

Figure 17. Teacher Upload Activity/Assignment

The activity/assignment module allows the teacher to upload activities or assignments and set a due date for submission.

Figure 18. Teacher Notification Module

The notification module allows the teacher to receive notifications, including submission of activities or assignments by the students.

Figure 19. Teacher Grading Module

The grading module allows the teacher to give grades to their students that are related to the tasks they have given and students will be able to view their grades given by their teacher.

Figure 20. Teacher Announcement Module

The announcement module allows the teachers to create, read, update, and delete announcements where students can view these posted announcements.

Testing Result

In the development of the DCBT Enrollment System with ELMS, a comprehensive testing process was undertaken, involving three different alpha testers. Each tester meticulously evaluated various modules of the system, including student registration, course enrollment, faculty management, class scheduling, and the ELMS (E-Learning Management System) integration. This rigorous testing was crucial to ensure the system's functionality and reliability in a real-world educational setting.

Throughout the testing phases, each tester independently navigated through the system's modules, checking for user-friendliness, data accuracy, and system response times. The focus was on ensuring that each module not only performed its intended

function but also interacted seamlessly with other parts of the system. This included verifying the correctness of student data in the registration module, the accuracy and flexibility of course enrollment processes, the effectiveness of faculty management in handling instructor details, the efficiency of class scheduling, and the integration capabilities of the ELMS. The results from the testing were highly encouraging. Each tester reported positive outcomes, highlighting the system's efficiency and effectiveness in handling the complex needs of a college enrollment process. The system demonstrated robust performance, with quick response times and accurate data handling across all modules.

However, the testing also revealed some areas for improvement. Common issues identified included minor glitches in the user interface, occasional delays in data synchronization between the enrollment system and the ELMS, and a few instances of incorrect data validations in the student registration module. These issues were promptly addressed by the development team, ensuring that the system was refined and optimized for actual deployment.

In conclusion, the manual test case scenario proved to be an invaluable tool in the development of the DCBT Enrollment System with ELMS. It not only affirmed the system's readiness for implementation but also highlighted areas for further enhancement, ultimately contributing to the creation of a more robust and user-friendly system for the Daehan College of Business and Technology.

Evaluation Result

In measuring the level of acceptability and efficiency, the developed Daehan College of Business and Technology (DCBT) Enrollment System with ELMS will be evaluated by various groups of evaluators:

For the web development and database management aspects, one (1) IT expert specializing in web development and database management will conduct the evaluation. For the ELMS (Enrollment and Learning Management System) evaluation, the assessment will be carried out by two (2) senior high school (SHS) teachers, two (2) college teachers, forty (40) SHS students, and twenty (20) college students. For the Enrollment System assessment, a panel of evaluators consisting of one (1) administrator, one (1) registrar, one (1) cashier, and one (1) school head will evaluate the system.

To assess the level of acceptability and efficiency, the developer used the following five (5) criteria indicators: security, maturity, accuracy, attractiveness and adaptability.. Each group of evaluators assessed the system based on their respective areas of expertise and roles.

The summary of acceptability and efficiency of the system shows that the overall mean score is 3.50. As perceived by the evaluators, the Daehan College of Business and Technology (DCBT) Enrollment System with ELMS is functional, reliable, usable, efficient, and maintainable. This system is expected to benefit the users and stakeholders involved in the enrollment and learning management processes at DCBT.

Table 6. Summary Table for Acceptability and Efficiency of the System

Acceptability and Efficiency	Weighted Mean	Verbal Interpretation
Security	4	Highly Accepted
Maturity	3.39	Accepted
Accuracy	3.64	Highly Accepted
Attractiveness	3.75	Highly Accepted
Adaptability	3.43	Accepted
OVERALL MEAN	3.64	Highly Accepted

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Project Limitation and Capabilities

The successful achievement of the stated objectives, based on the identified challenges in the existing system, will serve as the primary indicator of the effectiveness of the developed "Daehan College of Business and Technology Enrollment System with ELMS." It is essential to recognize both the limitations and capabilities of the project to address potential issues related to time, scope, and cost.

The estimated project duration for this initiative spans from August 2022 to November 2023. Despite the constraints imposed by this timeline, the development team is committed to meeting all deliverables required for project completion. It is essential to acknowledge that the project's scope is dynamic and subject to changes as the project progresses and unforeseen needs or challenges arise. Expanding the scope of the project may lead to extended timelines, increased costs, and the emergence of revisions, bugs, and errors. Project costs are subject to fluctuations over time, potentially affecting the project's budget and, consequently, its successful completion.

The "Daehan College of Business and Technology Enrollment System with ELMS" is a web-based system that relies on internet connectivity. Therefore, any issues related to internet connectivity may impact the system's ability to function as intended. To address

this limitation, consideration has been given to the development of an offline version of the system as a potential future enhancement.

The capabilities of the developed system encompass a login module that ensures access is restricted to authorized users. Additionally, the system offers the functionality for the registration of new students and includes email verification as a prerequisite for user access. Once logged in, students can efficiently access various services within the system. The system further facilitates the monitoring of academic records and enables students and faculty members to access and update this information as needed.

SUMMARY OF FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

This chapter presents the summary of findings of the study in relation to the objectives of the study, the conclusion based on the findings of the study, and lastly the recommendation of the study.

Summary of Findings

The "Daehan College of Business and Technology Enrollment System with ELMS" was developed with the overarching goal of creating a comprehensive web-based solution to streamline enrollment processes and enhance the learning management experience at Daehan College of Business and Technology (DCBT). This system aimed to address several key objectives, including the efficient handling of student records, reducing the time students spend on enrollment, and centralizing school-related tasks through a Learning Management System (LMS). Specifically, the system was designed to enable efficient enrollment by recording and managing enrollment information, creating class schedules, and organizing school-related tasks. It also introduced a tracking module to monitor student school progress comprehensively, including task submissions and interactions with learning materials. Furthermore, the system sought to improve the management of student records by reducing paperwork, ensuring data accuracy, and enhancing accessibility for future reference. Additionally, the implementation of an online student registration module aimed to simplify the enrollment process, allowing students to complete most steps online and visit the school solely for hard copy requirements and payment.

In terms of scope, the system encompassed various modules, including the Online Enrollment System and the Learning Management System (ELMS). The former included essential components like login, dashboard, enrollment, and scheduling pages, while the latter comprised a wide range of features such as user profiles, grading, task/activity distribution, lesson management, student activity tracking, calendar, due date tracking, grades history, system settings, authentication, notification, and announcement management. The system incorporated three distinct user roles: Admin, Teachers, and Students, each endowed with specific capabilities and access levels.

The evaluation of the system resulted in the following ratings:

- Security: The system received a commendable rating of 4, signifying its robust security measures and high acceptance in this regard.
- Maturity: With a rating of 3.39, the system was deemed acceptable in terms of maturity.
- Accuracy: The system scored 3.64, indicating its high level of accuracy and acceptance.
- Attractiveness: It achieved a rating of 3.75, reflecting its high attractiveness to users.
- Adaptability: Scoring 3.43, the system demonstrated satisfactory adaptability to various user needs and circumstances.
- Overall Mean: The system garnered an impressive overall mean rating of 3.64, reinforcing its high overall acceptance and effectiveness.

In summary, the "Daehan College of Business and Technology Enrollment System with ELMS" effectively achieved its objectives, greatly improving enrollment processes and

enhancing the learning management experience at DCBT. It received strong ratings in terms of security, accuracy, attractiveness, and overall acceptance, highlighting its value as a vital tool for both students and teachers. Nonetheless, there is room for enhancement in terms of maturity and adaptability to further optimize its functionality and user experience.

Conclusion

In conclusion, the project was undertaken with the primary aim of enhancing the existing system and optimizing the flow of transactions within the institution. Through the development and implementation of this comprehensive web-based system, significant improvements were achieved, resulting in a more efficient and manageable environment for both students and teachers.

The "Daehan College of Business and Technology Enrollment System with ELMS" effectively enabled the institution to accomplish the following key objectives:

1. Streamlined Enrollment Processes: The system's Online Enrollment System, built using PHP, MySQL, Javascript, HTML, and CSS, contributed to the efficient recording and management of student enrollment information. This module provided centralized access to critical data, enhancing data privacy and protection through cloud storage. The module underwent rigorous testing using use-case manual test scenarios and evaluation by IT experts using the ISO-25010 evaluation tool.
2. Enhanced Security and Data Integrity: The system ensured the security and integrity of student records and sensitive information. User authentication

mechanisms were implemented to restrict access to authorized users only. This security feature, developed using PHP, Javascript, and SQL Server Management Studio, was thoroughly tested and evaluated, aligning with ISO-25010 standards.

3. Improved Accessibility: The system facilitated easy access and retrieval of student records through efficient searching capabilities and cloud storage, making information available at any time and place. This module, developed with PHP, Javascript, and SQL Server Management Studio, underwent comprehensive testing and evaluation in accordance with use-case manual test scenarios and ISO-25010 standards.
4. Enhanced Learning Management: Within the ELMS (Learning Management System), the project aimed to improve the learning experience by providing a comprehensive platform for students and teachers. This included user profiles, grading, task/activity distribution, lesson management, student activity tracking, calendar, due date tracking, grades history, system settings, authentication, notification, and announcement management. These features were developed using PHP, Javascript, and SQL Server Management Studio and were evaluated against use-case manual test scenarios and ISO-25010 standards.
5. Continuous Improvement: The project allowed for the evaluation of system features and functionalities, enabling the identification of areas for improvement. This assessment was conducted through use-case manual test scenarios by developers and IT experts, with evaluation by stakeholders, including teachers and students, using the ISO-25010 evaluation tool.

The "Daehan College of Business and Technology Enrollment System with ELMS" underwent thorough testing and evaluation by IT experts and the institution's stakeholders. The results revealed an excellent rating of 3.64, indicating a high level of acceptance and effectiveness. This rating underscores the significant positive impact of the system on enrollment processes, learning management, and overall operations at Daehan College of Business and Technology.

In summary, the project's outcomes demonstrate that the "Daehan College of Business and Technology Enrollment System with ELMS" is an effective and efficient solution that has the potential to enhance the quality of service and streamline operations within the institution. c