

**DESIGN AND IMPLEMENTATION OF AN ONLINE COURSE EVALUATION SYSTEM
(CASE STUDY OF FEDERAL UNIVERSITY, DUTSE. JIGAWA STATE.)**

BY

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SUBMITTED TO

**THE DEPARTMENT OF COMPUTER SCIENCE, FACULTY OF COMPUTING,
FEDERAL UNIVERSITY DUTSE, JIGAWA STATE, NIGERIA**

**IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF
BACHELOR OF SCIENCE (B.SC) DEGREE IN COMPUTER SCIENCE.**

JANUARY 2024

CERTIFICATION

This is to certify that the project entitled: DESIGN AND IMPLEMENTATION OF AN ONLINE COURSE EVALUATION SYSTEM is an effort of UMAR HAMZA ADAM FCP/CSC/18/1022 in partial fulfillment of the requirements for the award of the degree of science BSc. Computer science, and has been carried out under our supervision and is approved as meeting the required standard for the said degree.

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DEDICATION

I dedicated this project to my parents I person of and
for the die-hard spirit of love

ACKNOWLEDGEMENT

I want to express my sincere gratitude to everyone who helped to make this endeavor a success. Their enthusiasm and support have been crucial in making this project happen. I would like to thank my supervisor, Assoc. Prof. SURAJ ALIYU, from the bottom of my heart for all of his help and advice during the course of this study. Their insightful advice and helpful criticism have greatly raised the caliber of my work. I express my gratitude to the faculty members for their invaluable efforts and support in guiding the course of this research. Their advice and ideas have been very helpful in raising the overall standard of the study.

I would want to express my gratitude to my friends and family for their consistent encouragement, understanding, and support during this academic journey. Their endurance and confidence in me have served as a continual source of motivation. Finally, I would want to thank everyone who has contributed to this effort, whether directly or indirectly. Your assistance has been priceless, and I sincerely appreciate the cooperative attitude that has characterized this project.

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ABSTRACT

For Federal University, Dutse (FUD), this project introduces an effective Online Course Evaluation System (OCES). OCES uses contemporary technologies to improve old evaluation problems and expedite procedures. Through the usage of elements like real-time feedback, the design guarantees a user-friendly experience. Data security and scalability are the main implementation priorities. The FUD case study assesses the impact of OCES and offers guidance to organizations thinking about making comparable developments. OCES is in line with FUD's dedication to quality by providing a customized solution for improved lecturer evaluation.

CHAPTER ONE: INTRODUCTION TO THE STUDY

1.1 BACKGROUND OF THE STUDY

One of the top priorities for higher education institutions is the ongoing enhancement of educational quality. Getting student input on the caliber of instruction and courses is a critical component of this initiative. The dynamic sector of education is always changing in tandem with technological improvements (Smith, 2018). The proposal suggests creating an Online Course Evaluation System (OCES) that is customized to Federal University Dutse's unique requirements. Through OCES, students will be able to offer input on classes and instruction, which will assist the university in making data-driven decisions that will improve the quality of education as a whole.

Online learning platforms are progressively replacing traditional teaching methods, necessitating the development of effective tools to evaluate and raise educational quality (Jones et al., 2020). Course evaluations are useful tools that provide information on the efficacy of teaching strategies and the course material as a whole for both teachers and students (Brown, 2017). Federal University Dutse understands how critical it is to adjust to these developments and improve the learning environment by putting in place an online course evaluation system.

1.2 STATEMENT OF THE PROBLEM

Federal University, Dutse hopes to address these issues by developing and implementing an Online Course Evaluation System tailored to its specific needs. Conventional paper-based course evaluation systems often face challenges like delayed feedback, data redundancy, and the laborious process of data analysis (Johnson & White, 2019). These limitations hinder the timely identification of areas for improvement and the implementation of necessary changes in course delivery.

1.3 OBJECTIVES OF THE STUDY

The primary objectives of this project are as follows:

- ✓ **System Development:** Develop a user-friendly and efficient Online Course Evaluation System tailored to the needs of Federal University Dutse, including course evaluation forms and feedback mechanisms.
- ✓ **User Authentication and Access Control:** Implement secure user authentication and authorization mechanisms to ensure that only registered students can access and submit course evaluations.
- ✓ **Course Evaluation Forms:** Create customizable course evaluation forms that include questions about course content, teaching methods, and overall satisfaction.
- ✓ **Feedback Submission:** Develop a user-friendly interface for students to submit course evaluations securely and anonymously, encouraging honest feedback.
- ✓ **Data Management:** Implement a secure database system to store evaluation data, ensuring data integrity and privacy.
- ✓ **Data Analysis and Reporting:** Develop analytics and reporting capabilities to help university administrators and faculty members analyze the course evaluation data and identify areas for improvement.
- ✓ **Accessibility and Mobile Compatibility:** Ensure the system is accessible and compatible with various devices, including smartphones, to maximize participation.
- ✓ **User Training and Documentation:** Provide user documentation and training materials to facilitate the onboarding process for students and administrators.

1.4 SIGNIFICANCE OF THE STUDY

The Federal University of Dutse's introduction of an online course evaluation system will improve the quality of education generally. The following factors make the study noteworthy:

- ✓ **Enhancing Teaching Quality:** The system will give teachers insightful feedback on how they are teaching, allowing for ongoing course delivery improvement (Smith, 2018).

- ✓ Increasing Student Engagement: According to Jones et al. (2020), students will be given the chance to offer feedback promptly, which will encourage a sense of engagement in the enhancement of their educational experience.
- ✓ Effectiveness in Data Management: By moving away from paper-based assessments and toward an online platform, data storage, analysis, and gathering will be more efficiently done, cutting down on mistakes and redundancies (Brown, 2017).

1.5 SCOPE OF THE STUDY

The design and implementation of an online course evaluation system created especially for Federal University Dutse's Faculty of Computing will be the main focus of this project. The scope will include creating a web-based platform that instructors and students may use.

1.6 TECHNIQUES

A mixed-methods approach will be used in the research, combining one or two techniques with system testing to get pertinent data for the Online Course Evaluation System's design, implementation, and assessment. This is followed by the steps' reflection.

- ✓ Gather comprehensive requirements for the OCES by conducting seminars, surveys, and interviews with students, professors, and university officials.
- ✓ Develop a thorough system architecture, user interfaces, and database design to make sure the system meets the unique requirements of the university.
- ✓ Development: Utilizing appropriate technologies and programming languages, create the Online Course Evaluation System while following industry best practices for software development.
- ✓ Testing and Quality Assurance: To guarantee the system's dependability and functionality, carry out extensive testing, including unit, integration, and user acceptability testing.
- ✓ Install the system on the university's servers to guarantee scalability and high availability.
- ✓ User Training: To guarantee efficient system usage, provide user training materials and hold training sessions for administrators and students.
- ✓ Provide thorough documentation, such as user manuals, technical documentation, and troubleshooting guides, for system administrators and users.

- ✓ Maintenance and Support: Throughout the project's length and after, give the system regular maintenance and support.

1.7 STUDY LIMITATIONS

It is important to recognize some limitations even if the goal of this study is to greatly enhance the educational experience by using an online course evaluation system:

- ✓ Generalizability: The conclusions and suggestions could be unique to Federal University Dutse and might not be readily transferable to other educational establishments.
- ✓ Technical Restrictions: The effective execution of the system could rely on technical resources, infrastructure, and assistance, which might differ throughout establishments.
- ✓ Response Bias: The system's efficacy depends on students' and teachers' active engagement in the assessment procedure, and any bias in replies might compromise the reliability of the input.

1.8 STRUCTURE OF THE STUDY

The study will be divided into many chapters, each of which will focus on a different project component. The pertinent research on online course assessment methods and their effects on education will be reviewed in Chapter 2. Chapter Four will concentrate on the system's design and execution, while Chapter Three will go into depth about the methods used in the research. The evaluation results will be presented in Chapter Five, which will also serve as the study's conclusion with a review of the findings, implications, and suggestions for more research.

1.9 SUMMARY

The development of an Online Course Evaluation System is essential for Federal University Dutse to collect valuable feedback from students and improve the quality of education. With the proposed methodology and deliverables, in view on the aforementioned paragraphs, I wish to contribute to the enhancement of the university's educational experience.

CHAPTER TWO: LITERATURE REVIEW

2.1 INTRODUCTION

Teachers are the bedrock of society. Without teachers the society will be clueless and meaningless and as such, the effectiveness of teachers directly or indirectly translates into an effective society. The rating of teachers' effectiveness is one of the cardinal areas that require urgent attention by the education regulatory authorities across the globe Dalhatu U.A (2022). Students' rating of teachers' effectiveness is not a recent phenomenon in the world of education. The initiative to evaluate the effectiveness of teachers started as early as 1915 and that ushered in the first teacher rating scale Dalhatu U.A (2022). The first study of students' evaluation of teachers' effectiveness was in 1920, and the evaluation serves as an important tool for measuring the teaching quality of a teacher. It portrays a true reflection of qualities associated with good teaching, such as subject knowledge, effective communication skills, classroom management, effective use of teaching aids, good lecturer-students relationship, punctuality and coverage of the curriculum Luying Zhao et al., (2022).

Besides being a measurement tool, the feedback obtained from the evaluation helps the lecturers to grow and develop professionally through self-reflection on their practices. This also helps an academic institution identify specific areas for improving the effectiveness of the lecturers and as such organizing relevant in-service professional development trainings for them Furthermore, the outcome of teacher evaluation helps to formulate a key performance index for the lecturers during staff appraisal for both promotion and tenure decisions. Luying Zhao et al., (2022). Different works of literature support the view that students can provide valuable information about their lecturers' teaching effectiveness given that the evaluation is properly designed and as such, the study considered four primary uses of teaching evaluations which are premised under formative and summative evaluation.

The formative uses include improving the lecturer's teaching and improving the course contents and formats. The summative uses are influencing the lecturer's tenure, promotion and salary increment; and making the evaluation reports available for heads of department to use during course allocation.

2.2 EVOLUTION OF ONLINE COURSE EVALUATION SYSTEMS

As lecturers are rated and promoted based on academic qualifications, number of years in service and the number of publications (journals, conferences, books, etc.), their attention has been shifted to acquiring higher qualifications and publishing more articles and paying less attention to curriculum activities. Consequently, most of them put up a perfect front with good qualifications and a good number of publications but are most times unable to impart knowledge as required. Dalhatu U.A (2022). As students have clear pictures of the lecturers since they do have first-hand interaction with them regularly, there is a need to craft a system that enables them to rate their lecturers' teaching effectiveness in Federal university, Dutse. Jigawa state and the rating results published and used along with other parameters to effect decisions concerning their promotion, appointment, retrenchment, tenure extension, etc.

Evaluation of Lecturers in higher institutions of learning cannot be over emphasized for more accountability and productivity towards the development of our economy and producing a global standard of graduates that can compete internationally. The creativity of students can only be fully harnessed if lecturers are dedicated to their duties and different strategies of learning are used in strengthening of lecturers and equipping them in areas where they are lacking. Higher institutions of learning including Federal University of Technology Minna can use LES for effective evaluation of lecturers, strengthening lecturer-student relationship, maximizing student potential, improving learning skills and enhancing creative thinking and innovation Sulaimon et al., (2019)

Online Course Evaluation Systems have evolved as a crucial component of educational institutions' efforts to enhance teaching and learning (Johnson & Smith, 2016). The transition from paper-based to online evaluations offers advantages such as real-time feedback, improved data management, and increased accessibility for both students and faculty (Brown & Jones, 2018).

2.3 BENEFITS OF ONLINE COURSE EVALUATION SYSTEMS

Online course evaluations provide numerous benefits for students, teachers, and staff administrators. Regardless of when a professor administers course evaluations – usually mid-semester or the end of term – they can receive valuable feedback from their students to help improve their instruction style. Students also have the opportunity to communicate concerns or appreciation for their professors, giving them a voice and making them active participants in the classroom. Watermark insight (2023). Administration can collect information from student course evaluations to evaluate a professor in conjunction with other information.

1. Maintain Anonymity

Students highly value anonymity when they give their professors feedback, especially when they criticize aspects of their teaching. Watermark insight (2023). Anonymity ensures students that their comments cannot be attributed to them in particular, which allows them to feel more comfortable expanding on their honest insights on their course or teacher.

In one study demonstrating the benefits of course evaluations, the researchers distributed different kinds of surveys to determine which factors most heavily contributed to responses and how to optimize student participation. Watermark insight (2023). They selected each online platform to manipulate different variables, but every platform allowed students to anonymously report their feedback. This demonstrates the inherent importance of allowing students to offer insights without attaching their contributions to their identity.

Administrators should prioritize anonymity in all aspects of the evaluation collection. This includes maintaining the privacy of students and their thoughts throughout data collection. A course evaluation survey solution should allow you to reopen or reset responses while maintaining the anonymity of the response and allow role-based permissions that you can customize to limit who has access to results and information.

2. Offer Greater Accessibility

Most course evaluations are administered online, and with good reason. Electronic survey collection platforms offer greater flexibility for students to complete the evaluations outside of the classroom. They also allow a respondent to take all the time they need – they can take breaks,

spend time thinking about their answers, and dedicate a longer period for writing their responses. Additionally, they avoid the stress of completing their evaluation first or last and making their response easier to identify. Watermark insight (2023).

3. Encourage Self-Reflection

Students and teachers alike benefit from course evaluations because of the necessary self-reflection. In order to provide meaningful feedback, students must consider both their instructor's performance and the demonstrated commitment they had to the course. Respondents reflect on their performance throughout the term to determine which aspects of the course they enjoyed and disliked, while factoring in how their attitude and performance impacted those experiences. (Smith and Johnson, 2020). This allows them to provide constructive feedback for their professors and brainstorm how they can perform better as a student in the next term.

Constructive feedback allows professors to reflect on their performance throughout the term. Newer instructors with limited teaching experience especially benefit from the evaluations. Instructors can compare their own assessment of their performance with the feedback provided by their students to more accurately determine the effectiveness of their efforts throughout the term. Well-made evaluations create actionable goals for instructors to help them develop and grow over time.

4. Reduce Cost and Environmental Impact

Online course evaluations are much more environmentally friendly than their paper counterparts. Printing hundreds of evaluations uses significant amounts of paper, and students are becoming increasingly environmentally conscious. Many schools also have a commitment to environmentally sustainable practices, so you can uphold this statement by opting for online course evaluations. (Smith and Johnson, 2020). Paper evaluations also cost much more than an online survey platform. Save money by implementing efficient virtual course evaluations.

Loose paper also gets misplaced or lost easily, which means that students must either complete the evaluation during valuable class time or keep careful track of the paper. When the sheets get lost, either the school uses more funds to replace them or forfeits the feedback. Many students likely

avoid requesting a new copy of the evaluation sheet, which means that they opt out of submitting an evaluation altogether.

2.4 CHALLENGES AND LIMITATIONS

The system suffered from so many challenges that gives rise to these two arguments or worries about the reliability of student evaluation scheme. First, students would witch haunt lecturers for failing them. Second, the system would lead to corruption, with students and lecturers pandering mutually to each other's sensitivities and obfuscating objectivity. Let me address these worries.

2.4.1 Argument/assumption One: students would witch haunt lecturers in student evaluations for failing them in academic examinations.

11 out of 18 lecturers (or 61%) answered "Yes, I think so" to my question, "Do you think that students would witch hunt lecturers in evaluations for failing them in exams?" When I asked for their reasons, some of the answers are worth looking at, including, "Some of them can be vindictive", "Students may not appreciate lecturers that are strict", "Students would want any opportunity to revenge their examination failures", "Some are myopic and so not interested in academic excellence. E. Ani (2020). Their main preoccupation is success even if it is devoid of integrity", "Some of them lack sincerity and will want to get back at lecturers instead of going through their ills and correcting them", among others. 18 out of 41 students (or 43.90%) answered "Yes, I think so" to my question, "Do you think that students would witch hunt lecturers in evaluations for failing them in exams?" When I asked for their reasons, some of the answers showed that even students fear their colleagues could witch haunt lecturers. Some of these answers are, "Anything is possible when a student is upset by a poor grade", "Unserious ones can be dangerous", "Students who are not serious will see it as an opportunity to victimize hard-working lecturers with integrity", "They see it as an opportunity to pay back", "Some students are just naturally mean", "Some students aren't fair", "No student wants to fail", "for a student to attend classes submit assignments and still fail would make the student do such", "Pay back", and "because students are mostly emotional when it comes to issues concerning their courses". E. Ani (2020).

Some of the students who did not believe students would witch haunt lecturers provided answers that I also find weak, such as "When the lecturers teaches well, students cannot witch hunt them", and "It's wrong", among many others. I will not argue that students will not witch haunt lecturers

because students will not try to, will not have the intention, or will find it wrong. I will argue that witch haunting can be prevented from arising because of the chronological arrangements of the student evaluation of teaching and the lecturer marking of scripts. E. Ani (2020). The problem of the correlation of grading students and student rating of lecturers can be fixed through precisely timing the student rating and lecturer grading processes to be completely unaware and uninfluenced by each other. So, to address this argument or assumption, I would begin by referring to the chronological arrangements for the student evaluation and academic examinations at the University of Ghana. Here, these things have been timed in such a way that none of the parties would have any idea of the results of the evaluation of the other party until it is too late to do anything about it. Let me examine when students are required to evaluate their courses/lecturers, in relation to when lecturers grade students' scripts.

For the same course, students are required to evaluate their courses/lecturers before the end of teaching. This is several weeks before taking their examinations, and therefore several months before they are graded. E. Ani (2020). Lecturers are not made privy to the results of their evaluation by students until the end of the entire academic year, or at least a semester after they must have graded their students and submitted their students' grades.

2.4.2 Argument/assumption Two: student evaluation of courses/lecturers would lead to corruption, with the student and lecturer pandering mutually to each other's sensitivities

More than half of the lecturers I interviewed (10 out of 18, or approximately 56%) said "Yes, I think so" in answer to my question, "Do you think that students' evaluation of teaching could lead to corruption, with the lecturer and student pandering to each other's sensitivities?" When I asked them to explain their worry, some of their answers were interesting, such as, "Lecturers and students will surely indulge in dirty symbiotic interest protection games", "Lecturers may resort to impress the students even at the price of compromising the academic standard", "Both parties are likely to mortgage their conscience and sense of judgement", and "Students evaluation, if made necessary for lecturer overall assessment of his job can influence pandering sensitivities. E. Ani (2020). Lecturers may pass students unduly just to have favorable assessment." In contrast to the lecturers, only 7 out of 41 students (or 17%) answered "Yes, I think so" to my question, "Do you think that students' evaluation of teaching could lead to corruption, with the lecturer and student pandering to each other's sensitivities?" The reasons most of them gave were not very technical,

such as “Possible in Nigeria”, and “because students are mostly emotional when it comes to issues concerning their courses” among others.

The worry about corruption is understandable given the wider problem of corruption. As with any system, SET sets up a dual duty on the part of lecturers and students to evaluate one another, the lecturer in terms of examination scripts, and the student in terms of SET forms. It is understandable to worry that the two duties could be done in such a manner as to confer mutual benefits on the duty bearers in a way that undermines the objective of the exercises E. Ani (2020). The good news, however, is that this worry is addressed by the timing arrangement for the student evaluation exercise in relation to their examinations, on which I have dwelt. In the course of a semester in question, the lecturer would have no idea how students have graded his or her teaching. Neither would students have taken their examinations by the time of evaluating the course. Let us imagine that the lecturer wants to extract high grading from students in return for giving them higher marks. How does he/she execute this plan? Since she is aware that she cannot see the SET scores until another semester, and hence to know if the students acceded to her demands, she cannot, technically speaking, make demands. E. Ani (2020). At best, she can only make a plea during her class for favorable grading from students. But there is something belittling about begging marks from students who can be much inferior to one in age and status. Why would a male lecturer who would want to impress his female students consider this? Why would he be comfortable with the idea that they would jest about him after class? What about a female lecturer facing male students in class? Even if the lecturer is confronting the same gender, is it any better? The answer to these questions cannot be positive. E. Ani (2020). This is because any lecturer who has some shame would find such an idea gruesome and counter-intuitive. As such, we have our results from analysis: on the grounds of both timing of evaluations in relation to exams, and the desire in humans for respect from others especially those who are subordinate, argument/assumption number two is incorrect.

2.5 ONLINE COURSE EVALUATION SYSTEM IN NIGERIAN UNIVERSITY

Lecturer evaluation is a periodic exercise of measuring lecturers' performance by students Aminu M.A et al., (2016). It is a systematic collection and analysis of information from which certain decisions related to effectiveness, efficiency and/or competence of a lecturer in realizing set professional goals are made. In addition, Cross mentioned that "lecturers' anxiety about students' evaluations seems alleviated if lecturers are convinced that the evaluation results are meant to help them assess their own teaching and identify areas to improve". Among the early studies of teaching evaluation in Nigeria is the work of Watkins & Akande (2019). They reported an investigation which tested the applicability of two American instruments (the Students' Evaluation of Educational Quality and the Endeavor Instruments) designed to assess tertiary students' evaluations of teaching effectiveness with 158 Nigerian undergraduates. This research findings indicated that teaching effectiveness can be measured in a Nigerian setting, that evaluation instruments developed at American universities may well be reliable in Nigeria Aminu M.A et al., (2016).

Blair & Inniss (2014). conducted a pilot study to determine whether an online student evaluation questionnaire (SEQ) offered a pragmatic alternative to the hard copy version and whether the students in this developing nation (Trinidad and Tobago) were ready for the change to the online modality. The pilot study was analyzed against three success indicators:

- 1) that the average student response rate should be maintained.
- 2) That the turn-around-time should be improved.
- 3) That student satisfaction should be increased.

However, specific limitations were also acknowledged as this pilot study was specific to one case, and therefore, not easily generalizable. Furthermore, the research also suggested that results from the pilot study expressed positive student perception of online SEQ as they were likely to use online SEQs just as they would with their hard copy equivalents, and that future students were more likely to favor the online format. Aminu M.A et al., (2016).

2.6 RELEVANCY TO FEDERAL UNIVERSITY, DUTSE

Implementing an online course evaluation system within Federal University, Dutse necessitates a nuanced understanding of the institution's specific characteristics, goals, and challenges. The literature underscores the critical importance of tailoring the design and implementation process to align seamlessly with the unique context of Federal University, Dutse.

Structural Dynamics and Administrative Practices:

Considerations must be given to the organizational structure of Federal University, Dutse, and its administrative practices. Literature emphasizes the need to align the online course evaluation system with existing administrative workflows to ensure efficiency and minimal disruption.

Cultural and Regional Factors:

The cultural and regional context of Jigawa State and its influence on the university community play a pivotal role. Studies suggest that cultural nuances can impact the reception and adoption of technological solutions, underscoring the importance of culturally sensitive design and implementation.

Technological Infrastructure:

The existing technological infrastructure at Federal University, Dutse, is a crucial determinant in the success of an online course evaluation system. The literature suggests that an assessment of the university's technological capabilities is essential for designing a system that is compatible and sustainable.

Student Demographics and Needs:

The diverse demographics of students at Federal University, Dutse, necessitate an understanding of their unique needs and preferences. Studies highlight the significance of tailoring the online course evaluation system to accommodate various student demographics, ensuring inclusivity and comprehensive feedback.

Faculty Involvement and Concerns:

Engaging faculty members in the design and implementation process is crucial for the success of the online course evaluation system. Literature indicates that addressing faculty concerns, providing adequate training, and demonstrating the system's benefits can foster a positive faculty attitude towards the new evaluation approach.

Strategic Alignment with Institutional Goals:

The online course evaluation system should be intricately linked to the overarching goals and strategic initiatives of Federal University, Dutse. Aligning the system with the university's vision ensures that the evaluation process contributes meaningfully to institutional improvement and advancement.

Ethical Considerations and Data Privacy:

In the context of Federal University, Dutse, adherence to ethical standards and data privacy regulations is paramount. Literature emphasizes the need for robust measures to safeguard student and faculty data, ensuring compliance with relevant policies and regulations.

Feedback Integration into Decision-Making Processes:

The literature suggests that for the online course evaluation system to be effective at Federal University, Dutse, there must be a clear plan for integrating feedback into decision-making processes. This involves establishing mechanisms for using evaluation data to drive continuous improvement in teaching and learning.

2.7 SUMMARY

This chapter has provided an overview of literature related to Online Course Evaluation Systems, emphasizing their evolution, benefits, challenges, and limited exploration within the Nigerian university context. The subsequent chapters will delve into the methodology, design, and implementation of an OCES at Federal University Dutse, considering the unique factors that shape the academic environment.

CHAPTER THREE: SYSTEM ANALYSIS AND DESIGN

3.1 INTRODUCTION

3.2 Related system

3.2.1 SEVADO (Sistem Evaluasi Perkuliahan Dosen/Evaluation System of the Lecturer's learning) at Institute Agama Islam Negeri (IAIN) Salatiga

The purpose of this work was to develop an online lecture assessment system for IAIN Salatiga's post-graduate program. The system that was created was named SEVADO, or the Evaluation System of the Lecturer's Learning (Sistem Evaluasi Perkuliahan Dosen). This study used research and development (R&D) as its methodology. Questionnaires, interviews, focus group discussions (FGD), and documentation were the methods used to collect the data. In the full research, 46 students served as the research subjects, compared to 10 students in the pilot study. Tested were the following aspects: performance, reliability, usability, functionality, and supportability. Web Application Performance Testing (WAP) technologies were used to examine the aspects of performance and dependability.

The researcher comes to the conclusion that the Post-Graduate Program of IAIN Salatiga's web-based lecture evaluation system was workable. A university that meets high standards of quality will be better than others. Conversely, if standards are not monitored and upheld, higher education will eventually lose credibility and develop a bad reputation among the general population. Currently, the Post-graduate Program of IAIN uses a paper-based structure for its lecture evaluation method, where students rate their professor using the given tools. The use of that evaluation method may use computer technology based on online development, given the current state of technological progress (Henderson, Selwyn, & Aston, 2015; Imai et al., 2017; Koehler, Correia, Alpay, & LeVally, 2017).

Information technology offers speedy result viewing, precision in grading, and efficiency (Negi, Negi, & Pandey, 2011). The quality of lecture assessment, which is now paper-based, can be improved with the use of the web-based system (Hwang, 2011). Because the outcomes of data evaluations are saved in soft files, which are considerably simpler to save and retrieve than printed or paper files, this system is designed to make the storage of data evaluation results easier.

According to the justification provided, in order to make the job of the lecture evaluation system easier, this research is required for the design and implementation of a web-based system.

Strengths of the system

- ✓ This system is able to perform data processing (save, edit, delete, perform data) appropriately.
- ✓ The design of information system is simple and easy to understand
- ✓ The design of information system has attractive looks on each page
- ✓ The layout of the information system design is orderly set up
- ✓ The design of information system has provided username and password as the account security feature

Weaknesses of the system

- ✓ Less anonymity as admin, lecturers and supervisors can log into individual users accounts
- ✓ The system is based on the specific need of a particular institute

3.2.2 web-based lecturer evaluation system for Isa Mustapha Agwai I Polytechnic, Lafia (IMAP)

The design and implementation of a web-based lecturer assessment system was the main focus of the project. The structured system analysis and design methodology (SSDAM) was used to achieve this. The tools utilized for software development were PHP, CSS5, HTML, and MySQL. The Lecturer, Student, and Admin modules are included in the application. The administrator oversees the students, classes, evaluation standards, and questions. While the lecturer module oversees lecturers and allows them to examine their mean rating report at the conclusion of the semester, the student module tracks students' evaluations of their instructors.

Because academic credentials, years of service, and publications (books, conferences, journals, etc.) are taken into consideration when rating and promoting lecturers in IMAP, the focus has shifted away from curriculum activities and toward earning higher qualifications. As a result, the majority of them present a flawless image with respectable credentials and a substantial number of publications, but they frequently lack the ability to transfer knowledge as needed. As students have clear pictures of the lecturers since they do have first-hand interaction with them regularly, there is a need to craft a system that enables them to rate their lecturers' teaching effectiveness in

Isa Mustapha Agwai I Polytechnic, Lafia and the rating results published and used along with other parameters to effect decisions concerning their promotion, appointment, retrenchment, tenure extension, etc.

Strengths of the system

The application was implemented in the Computer Science Department for two semesters during the 2020–2021 academic year in order to assess its robustness and proper functioning. Both department lecturers and students were asked to fill out a questionnaire in order to determine the software's educational worth. Fifteen students and seven professors were chosen at random to reply to the following criteria. This component is used to quantify the system's strengths.

- i) User Interface:
- ii) User Friendliness
- iii) Robustness
- iv) Functionality

Parameters	Poor (%)	Fair (%)	Good (%)	Very good (%)	Excellent (%)
User Interface	0 (0%)	0 (0%)	10(45.5%)	12(54.5%)	
User Friendliness	0 (0%)	0 (0%)	2(9.1%)	9(40.9%)	11(50%)
Robustness	0 (0%)	0 (0%)	0 (0%)	6(27.3%)	16(72.7%)
Functionality	0 (0%)	0 (0%)	0 (0%)	15(68.2%)	7(31.8%)

Table 1.0 system's strengths

Weakness of the system

- ✓ Less anonymity as admin, lecturers and supervisors can log into individual user's accounts
- ✓ The system is based on the specific need of a particular institute

3.3 METHODOLOGY

The study adopted the structural system analysis and design methodology (SSADM). It is a systems approach to the analysis and design of information systems. Feasibility study, investigation of the current environment, definition of requirements, system design, logical design, and physical design were various stages undertaken in building the application.

3.3.1 SELECTED METHODOLOGY

The term "software development life cycle" refers to the time interval that begins with the conception of software or computing systems and ends when those products are rendered obsolete. The systems development life cycle (SDLC), sometimes known as the application development life-cycle, is a procedure for organizing, developing, testing, and implementing an information system in the fields of information systems, software engineering, and systems engineering. Since a system can be made up of software alone, hardware alone, or both, the concept of the systems development lifecycle applies to a variety of hardware and software configurations. This cycle typically consists of the following six stages: documentation, evaluation, implementation, analysis, design, development, and testing.

The incremental development methodology was chosen for this project due of its flexibility in accommodating modifications. A combination of an iterative and linear prototyping model is an incremental model. It involves combining many waterfall models; using an incremental model, the entire need is broken down into different builds. This is where multiple development cycles occur, resulting in a "multi-waterfall" life cycle. Cycles are separated into more manageable, smaller segments. Every module in this paradigm goes through the phases of requirements, design, implementation, and testing. You have functional software early in the software life cycle since the first module generates a working version of the program. Each subsequent release of the module adds function to the previous release. The process continues till the complete system is achieved.

3.3.2 SDLC of The Waterfall Model Structure

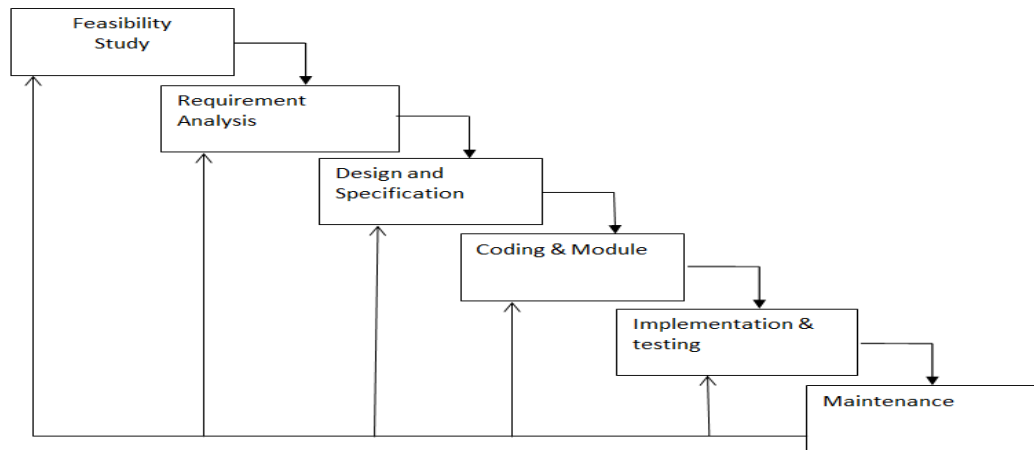


Fig 1.0 Waterfall Model

3.3.2.1 Feasibility Study

A feasibility study was carried out to assess the design and implementation of an online course evaluation system into the current university portal in response to the growing need for enhanced involvement and communication within Federal University Dutse. In order to improve the overall user experience for staff and students, this thorough study set out to evaluate the operational, budgetary, and technical considerations of putting such a system into place.

Objectives:

- ✓ System Development: Develop a user-friendly and efficient Online Course Evaluation System tailored to the needs of Federal University Dutse, including course evaluation forms and feedback mechanisms.
- ✓ User Authentication and Access Control: Implement secure user authentication and authorization mechanisms to ensure that only registered students can access and submit course evaluations.
- ✓ Course Evaluation Forms: Create customizable course evaluation forms that include questions about course content, teaching methods, and overall satisfaction.
- ✓ Feedback Submission: Develop a user-friendly interface for students to submit course evaluations securely and anonymously, encouraging honest feedback.
- ✓ Data Management: Implement a secure database system to store evaluation data, ensuring data integrity and privacy.

- ✓ **Data Analysis and Reporting:** Develop analytics and reporting capabilities to help university administrators and faculty members analyze the course evaluation data and identify areas for improvement.
- ✓ **Accessibility and Mobile Compatibility:** Ensure the system is accessible and compatible with various devices, including smartphones, to maximize participation.
- ✓ **User Training and Documentation:** Provide user documentation and training materials to facilitate the onboarding process for students and administrators.

3.3.2.1.1 Technical Feasibility:

System Compatibility: The Federal University Dutse community infrastructure was found to be capable of supporting the suggested system after analysis. The chosen solution was developed to seamlessly integrate with the current technological stack in order to enhance the university's feedback mechanism and overall university experience.

Data Security: A robust security framework was implemented to ensure compliance with data protection regulations and safeguard user information. To lessen potential security risks, encryption techniques and access restrictions were put in place.

Scalability: The new evaluation system that was selected needed to be scalable in order to accommodate the growing needs of the university community. This implied that system performance wouldn't be compromised while handling larger data loads and user interactions.

3.3.2.1.2 Economic Feasibility:

Cost Analysis: A detailed analysis of the costs related to the purchases and outlays, paperwork, and labor would also lower the costs of software installation and ongoing maintenance. A positive return on investment (ROI) was anticipated because of the advantages of enhanced engagement and communication that the Federal University Dutse would obtain from the assessment system.

Budget Allocation: No funds were set aside for staffs training, development resources, and software licensing. The financial plan was designed to optimize the value derived from the implementation while complying with the university's budgetary limits.

3.3.2.1.3 Operational Feasibility:

User Training: A comprehensive training program was developed to familiarize users with the most recent features and functionalities of the Federal University Dutse assessment System. Instructors, staff, and students took part in training sessions to ensure a smooth handover.

Content Management: Content managers could create, choose, and distribute content with ease thanks to the system's user-friendly features. This ensured the prompt delivery of relevant data and reduced the administrative load.

3.3.2.1.4 Scheduling Feasibility:

Timeline: A practical schedule for the project's execution was developed, taking into account several stages including planning, development, testing, and deployment. The length of the project was carefully planned out to guarantee a seamless and effective transition from one phase to the next.

Resource Allocation: Enough thought was taken to guarantee that the necessary financial and human resources would be accessible for the life of the project. Thorough planning and supervision were implemented to distribute resources sensibly, guaranteeing that the project had the backing it needed to achieve its goals. To maintain maximum efficiency, regular evaluations of resource consumption and necessary adjustments were carried out.

3.3.3 Functional Requirement

3.3.3.1 User Functional Requirements

- User Dashboard: Upon login, users should have access to a personalized dashboard displaying a list of functionalities for that user.
- Send messages: Users should be able to send messages to admin
- Fill forms: Users should have the ability to fill evaluation forms on with text and optional multimedia content.

3.3.3.2 Admin Functional Requirements

- Admin Login: Administrators should have a separate login mechanism to access the admin panel.
- Admin Dashboard: Admins should have access to a dashboard displaying an overview of pending actions.

- Add forms: Admins should be able to create and publish new evaluation forms, including the ability to add text, multimedia content, and categorize them.
- Edit forms: Admins should have the ability to edit and update existing forms, including the text, multimedia content, and categories.
- Trash form: Admins should be able to move form to a trash or archive section and potentially restore or permanently delete them.
- Create and Manage Categories and Subcategories: Admins should be able to create, edit, or delete form categories and subcategories, helping to organize the content.
- Notification System: The system should notify admins of pending actions and forms awaiting review.

3.3.4 Non-Functional Requirements

- It is a web application, so its run on any browser.
- Usability of application is very easy.
- Application is built in such a way that classification of errors and maintenance of mechanism become easy.
- The system is flexible so that it can easily accept all changes at low cost, time and experience.
- The system is very secured.
- Reliability specifies the capability of the application to maintain its performance over time.

3.4 System Design

Any system's design phase is critical, vital, and very important since the requirements of any design determine its success. An previous level of planning and analysis informs the design of the system. The process of locating and analyzing a new system, evaluating potential fixes for an issue, and selecting the best and most appropriate solution to the issue is known as system design.

The process of creating a system design consists of two (2) steps: analysis and formal specifications.

The analysis step converts the model into a proposed system design.

The proposed information database system design for the new system is the second.

UML diagrams and an architectural sketch are included in the system design. Use case, activity, and class diagrams are the UML diagrams that are involved. HTML, CSS, PHP, and MySQL were the programming languages utilized to code the instructions for this study project.

The Whole Project Is Divided in Two Parts

- ✓ front end.
- ✓ back end.

Front End

The front end is designed using of HTML, CSS, and Java script.

- **HTML**

Hyper Text Markup, or HTML The primary mark-up language used to create web pages and other content that is viewable in a web browser is called language. HTML is expressed on a web page as HTML elements, which are made up of tags enclosed in angle brackets (like `<html>`). Reading HTML files and combining them into aesthetically or aurally pleasing web pages is the responsibility of a web browser. It provides a means of creating structured documents by defining structural semantics for text elements such as headers, paragraphs, lists, links, quotations, and other objects. It can contain scripts written in languages like JavaScript that change how HTML web pages behave.

- **CSS**

CSS stands for style sheet. A document created in a mark-up language is formatted and visually represented using a language known as Cascading Style Sheets (CSS). Styles for SVG, XUL, and plain XML documents can all be applied with this language. But the most common use case for it is in styling HTML and XHTML-written web pages and user interfaces.

Since CSS is a foundational web technology, the majority of web pages use CSS style sheets to define their presentation. Separating page information from presentational elements like layout, color, and font is the primary goal of CSS. This separation can make the material more readable, allow for more flexibility and control when defining presentation elements, and allow several pages. to reduce the complexity and duplication of the structural material, to share formatting, and to enable table-less web design. Additionally, CSS enables the presentation of the same markup page in several styles for various rendering techniques, including on-screen, in print, via voice (when read aloud by a screen reader or speech-based browser), and on Braille-based, tactile devices. It can also be used to make the web page display differently based on the screen size or device being used to view it.

- **JAVASCRIPT**

JavaScript (JS) is a dynamic programming language for computers. It is most commonly used as part of web browsers, whose implementations allow client-side scripts to modify the content of documents displayed, interact with users, and control browser settings and asynchronous communication. It's also used in server-side programming, video game production, and desktop and mobile application development. JavaScript is a prototype-based programming language with first-class functions that is dynamically typed. Its syntax was influenced by C. JavaScript takes many names and naming conventions from Java, despite the fact that the two languages are completely unrelated and have quite different semantics. The self and Scheme programming languages are the main design inspirations for JavaScript. It supports imperative, functional, and object-oriented programming paradigms, making it multi paradigm.

Back End

Back End: The back end is designed using PHP and MySQL which is used to design the databases.

- **PHP**

PHP is a server-side scripting language that may be used for general-purpose programming as well as web development. Currently, 2.1 million web servers and over 244 million websites use PHP. The PHP Group, which Rasmus Lerdorf formed in 1995, currently creates the reference implementation of PHP. PHP, a recursive backronym that originally stood for Personal Home Page, is now known as PHP: Hypertext Pre-processor. PHP code is interpreted by a web server that has a PHP processor module, which creates the final web page: PHP commands can be added straight into an HTML source document to perform data handling, as opposed to contacting an external file. It may be utilized in standalone graphical applications and has also built a command-line interface. Free software known as PHP is distributed under the PHP License. Most web servers support the free deployment of PHP, which is also available as a standalone shell on practically all platforms and operating systems.

- **MYSQL**

MYSQL: Also called "My Sequel," but officially known as "My S-Q-L," As of July 2013, MySQL is the second most used open-source relational database management system in the world. (RDBMS). My Widenius, the daughter of co-founder Michael Widenius, is honored by the name. The acronym stands for Structured Query Language, or SQL. The source code for MySQL has been made available under several private contracts and the GNU General Public License. License.

MySQL was owned and sponsored by a single for-profit company, MySQL AB, based in Sweden. Currently, Oracle Corporation is the owner of MySQL. MySQL is a popular database for use in web applications and is an essential component of the popular LAMP open-source web application software stack (and other "AMP" stacks). LAMP stands for "Linux, Apache, MySQL, and Perl/PHP/Python". When free and open-source software projects require a reliable database management system, MySQL is often employed. There are several commercially available premium editions with additional features. Databases from MySQL are used by TYPO3, MODx, Joomla, WordPress, phpBB, MyBB, Drupal, and other programs. Furthermore, numerous popular and enormous websites such as Wikipedia, Google (not for searches), Facebook, Twitter, Flickr and YouTube use MySQL

3.4.1 Use-case illustration of the system

In the unified modeling language (UML), a use case diagram can summarize the detail of your systems users (also known as actors) and their interactions with their interactions with the system. To build one, you will use a set of specialized symbols' & connectors.

For user

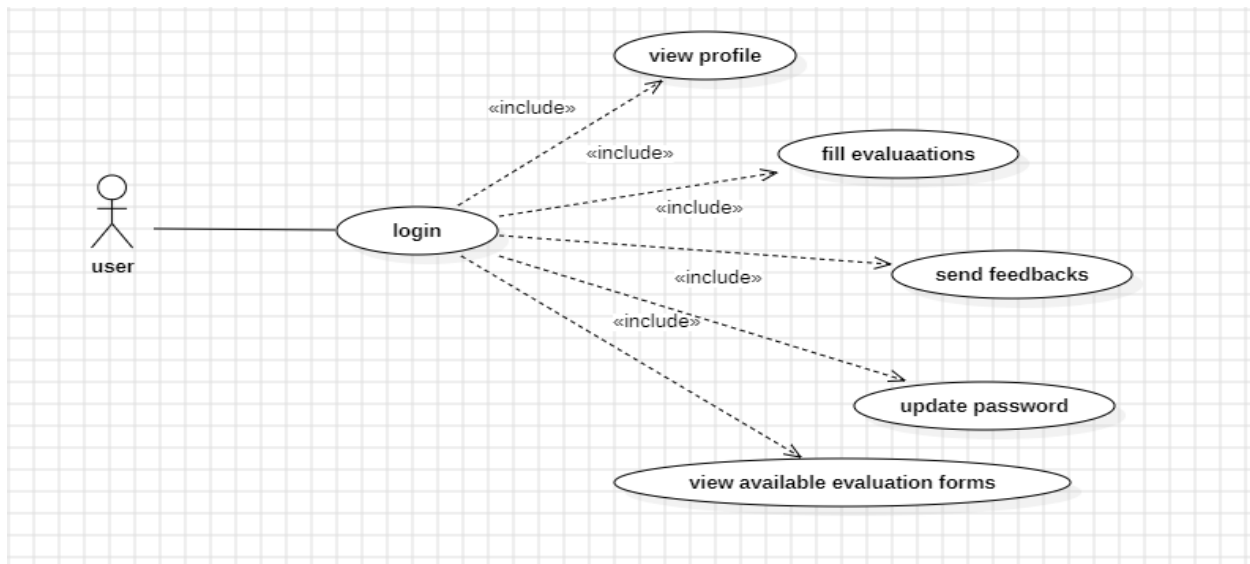


Fig 2.0 Use-case illustrator for user

For admins

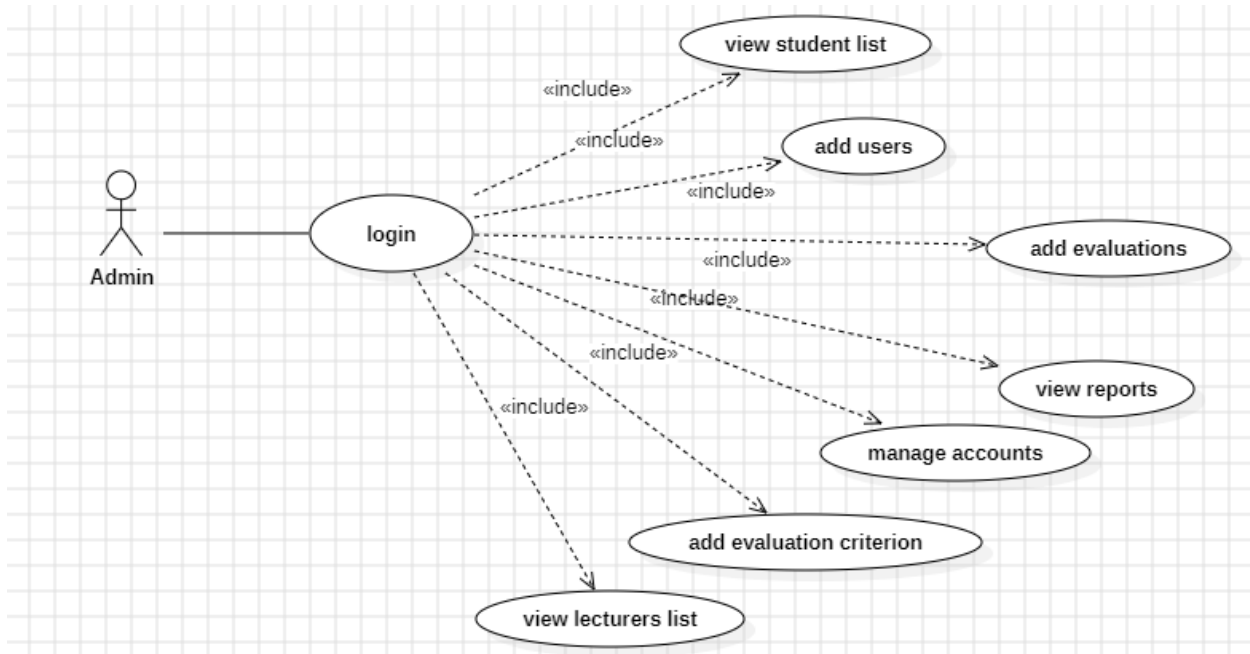


Fig 3.0 use-case illustration for admin

3.4.2 Database Format:

The relational Database Management System (DBMS) was used and it contained the following tables:

Table: Login

Name	Data-type	length
email	varchar	100
password	varchar	30

Table 2.0 login table description

Table evaluation criteria

#	Name	type	collation	Null	Default	extra
1	Id	Int (30)		No	None	AUTO INCREMENT
2	Criteria	Text	Utf8mb4_General_C	No	None	

3	Order_By	Int (30)		No	None	
---	----------	----------	--	----	------	--

Table 3.0 evaluation criteria table description

Table question answers

#	Name	Type	Null	Default
1	Evaluation_id	Int (30)	No	<i>None</i>
2	Question_id	Int (30)	No	<i>None</i>
3	Rate	Int (20)	No	<i>None</i>

Table 4.0 answers table description

Table lecturer

#	Name	Type	Collation	Null	Default	Extra
1	Id	Int (30)	utf8mb4_general_ci	No	<i>None</i>	AUTO INCREMENT
2	Lecturer_id	Varchar (200)	utf8mb4_general_ci	No	<i>None</i>	
3	First name	Varchar (200)	utf8mb4_general_ci	No	<i>None</i>	
4	Last name	Varchar (200)	utf8mb4_general_ci	No	<i>None</i>	
5	email	Varchar (200)	utf8mb4_general_ci	No	<i>None</i>	
6	Password	text		No	<i>None</i>	
7	Date_created	datetime			<i>CURRENT_TIMESTAMP</i> <i>ED</i>	

Table 5.0 lecturers list table description

Table students

#	Name	Type	Collation	Null	Default
1	Id	Int (30)		No	<i>None</i>
2	Std_id	Varchar (100)	utf8mb4_general_ci	No	<i>None</i>
3	First_name	Varchar (200)	utf8mb4_general_ci	No	<i>None</i>
4	Last_name	Varchar (200)	utf8mb4_general_ci	No	<i>None</i>
5	email	Varchar (200)	utf8mb4_general_ci	No	<i>None</i>

6	password	Text	utf8mb4_general_ci	No	<i>None</i>
7	Class_id	Int (30)		No	<i>None</i>
8	Date_created	datetime		No	CURRENT_TIMESTAMP

Table 6.0 students list table description

Table question

#	Name	Type	Collation	Null	Default	Extra
1	Id	Int (30)		No	<i>None</i>	AUTO_INCREMENT
2	Academic_Id	Int (30)		No	<i>None</i>	
3	Question	Int (30)	Utf8mb4_General_Ci	No	<i>None</i>	
4	Order_By	Int (30)		No	<i>None</i>	
5	Criteria_id	Int (30)		No	<i>None</i>	

Table 9.0 question table description

3.5 SUMMARY

This chapter has helped us understand how important it is to choose the right IDE, programming language, database, and operating system for the proposed system. The new system must be available and have some new features in order to solve all of the problems with the old and comparable systems. With the right software, however, developers can create a system that meets all user requirements. While managing their system to save, share, or conduct course evaluations for it to be very effective and efficient system helps target users and makes it simpler for them, developers have quickly discussed all the software that an online course evaluation system needs to gain target fulfillment.

CHAPTER FOUR: SYSTEM IMPLEMENTATION AND TESTING

4.1 Introduction

The project's implementation and testing phase is covered in this chapter. It includes a few significant project components. It is therefore organized as follows: system requirements, system implementation, environment and tools for implementation, system description, system testing.

4.2 System Implementation

Any project's implementation begins with the completion of as much detailed project planning as possible. During this phase, the project manager applies all necessary tools and steps to ensure that the data in the system changes in accordance with the plan, thereby keeping us in control of the project and tracking all that could jeopardize it or a portion of it. In other words, the theory is being tested through implementation.

The actualization of a technical specification or algorithm into a program or software component through computer programming and deployment is explicitly characterized as implementation (Ernest et al., 2016). The process of turning a software design into a functional system based on the requirements gathered during the project's analysis phase is known as software implementation. The first step in software implementation is creating the program, which may involve programming, source code editing, or pragmatic design. Software methods, routines, modules, objects, and graphical models are created through a succession of technical tasks called implementation (Schmidt, 2010). Because of this, system installation is a crucial phase whose outcome greatly influences the new system's success. In this case, when everything is said and done, the system is duly ready to be implemented

4.3 Implementation Tools and Environments

This phase comprises of various tools and technologies used in developing and implementing the system. The tools and technologies include:

4.3.1 Technology Used

- ✓ HTML
- ✓ CSS
- ✓ JAVASCRIPT

- ✓ BOOTSTRAP
- ✓ PHP
- ✓ MYSQL

4.3.2 Tools Used

- ✓ SUBLIME TEXT EDITOR
- ✓ VS STUDIO
- ✓ XAMPP SERVER.

4.3.3 MySQL Database

A popular open-source relational database management system (RDBMS) for handling and storing structured data is MySQL. It is a well-liked option for a variety of applications, from tiny personal projects to large-scale, enterprise-level systems, because to its reputation for speed, dependability, and ease of use.

4.3.4 Coding

The goal of the coding phase for a particular design is to carry out the design as effectively as feasible.

The system's design is converted into computer code during this step. The system development life cycle process's testing and maintenance phases are impacted by the coding phase. A well-written code minimizes the effort required for testing and maintenance. Coding should aim to minimize testing and maintenance effort because software testing and maintenance are far more expensive than coding. Therefore, the focus during coding has to be on creating programs that are simple to write. At the coding stage, simplicity and clarity should be attained.

This project makes use of PHP, HTML, CSS, and JavaScript scripts.

PHP allows the user to:

- Reduces the time to create large websites.
- Creates a customized user experience for visitors based on the information gathered from them.
- Open up possibilities for online tools.

4.4 Description of The Implemented System

After going through all the phases of the System Development Life Cycle of this project, the Federal University Dutse online course evaluation system was design successfully. The screenshots of some webpages are shown below

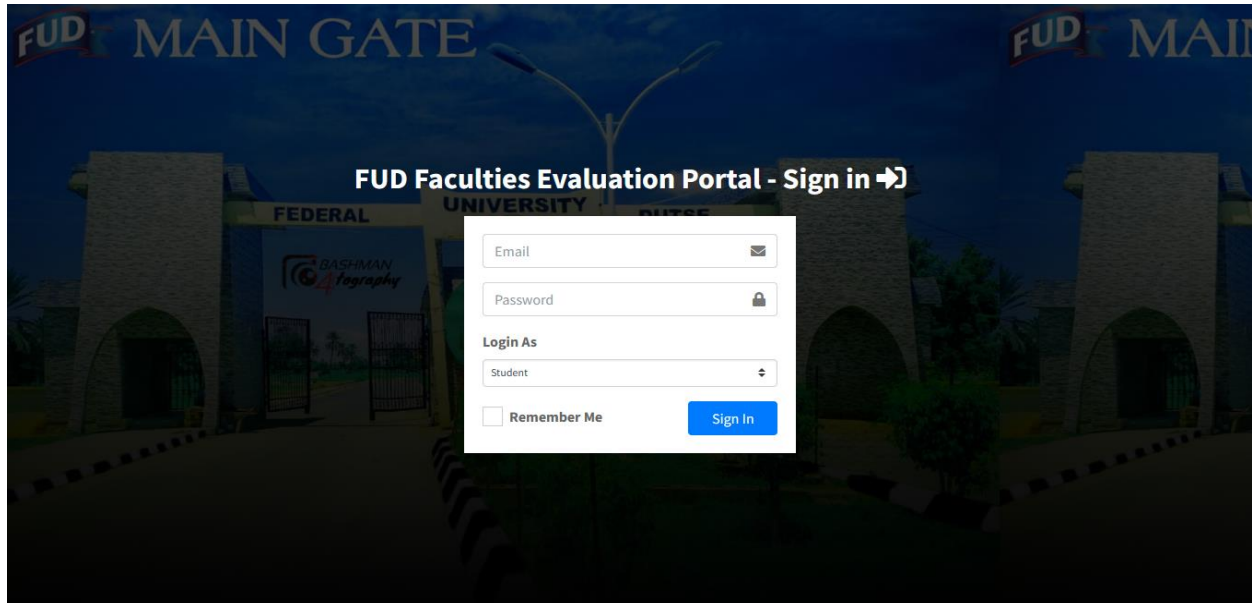


Fig 4.0 login page

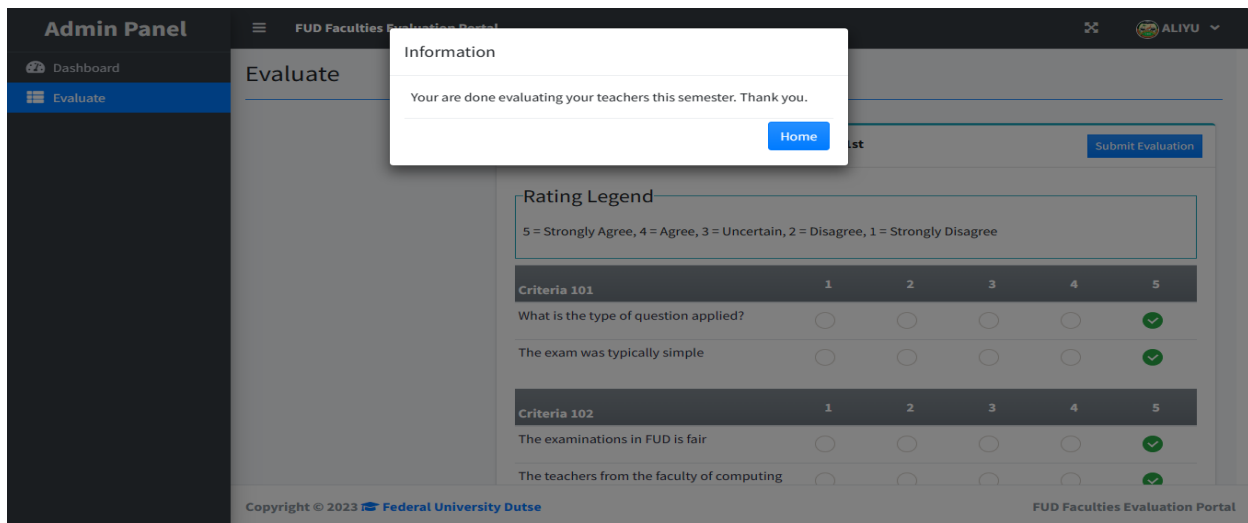


Fig 5.0 evaluation page

Admin Panel

- Dashboard
- Courses
- Classes
- Academic Year
- Questionnaires
- Evaluation Criteria
- Faculties
- Students
- Evaluation Report**
- Users

FUD Faculties Evaluation Portal

Pharouq

Report

Select Faculty

Please select here

Evaluation Report

Faculty:

Academic Year: 2022/2023 1st Semester

Class:

Subject:

Total Student Evaluated:

Rating Legend

5 = Strongly Agree, 4 = Agree, 3 = Uncertain, 2 = Disagree, 1 = Strongly Disagree

Criteria 101	1	2	3	4	5
What is the type of question applied?					
The exam was typically simple					

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FUD Faculties Evaluation Portal

Fig 6.0 Evaluation report page

Admin Panel

- Dashboard
- Courses
- Classes
- Academic Year
- Questionnaires
- Evaluation Criteria
- Faculties
- Students**
- Add New
- List
- Evaluation Report
- Users

FUD Faculties Evaluation Portal

Pharouq

Student List

+ Add New Student

Show 10 entries

Search:

#	School ID	Name	Email	Current Class	Action
1	1	ALIYU MUHAMMD	Aliyu@gmail.com	Level 300 - A	Action
2	1	Mahmoud Muhammad Sani	sanimahmoud10@gmail.com	Level 400 - A	Action
3	1	Suleiman Hammanyaji	hammanyaji@gmail.com	Level 400 - A	Action

Showing 1 to 3 of 3 entries

Previous 1 Next

Fig 7.0 Students list

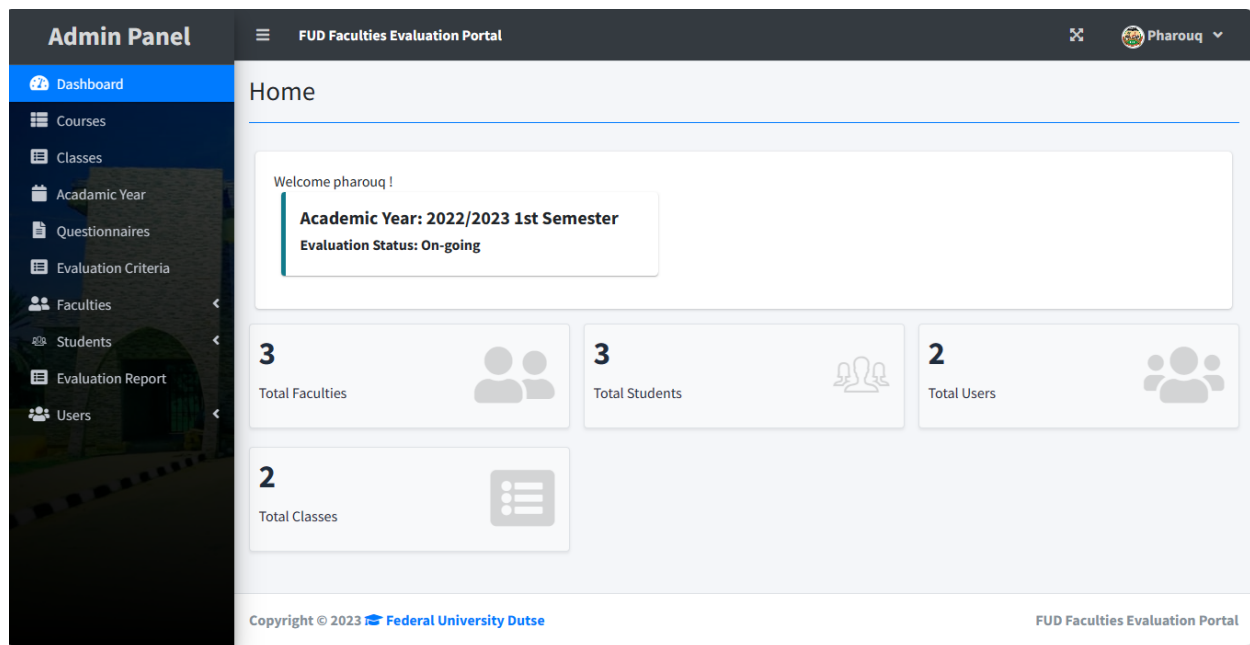


Fig 8.0 Admin panel

4.5 TEST PLAN

The current development phase includes a comprehensive test strategy for the course assessment website's installation. This document, which is still in draft form, outlines the objectives, approach, and testing methodology with an emphasis on ongoing validation of communication protocols, data flow, and user authentication. The current method combines incremental and regression testing with automated and human testing to guarantee continuous system reliability.

The detailed description of test cases, scripts, and logs in the plan makes the test environment and resource requirements clear. It also covers ongoing risk management and explicit sign-off procedures for stakeholder approval. This comprehensive methodology guarantees the continual completeness of the testing process and fosters fruitful collaboration throughout the integration testing lifecycle.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 SUMMARY

The present study, entitled "Design and Implementation of an Online course evaluation System: A Case Study of Federal University, Dutse," aims to overcome the drawbacks of conventional lecturer assessment techniques by presenting an Online course evaluation System (OCES) that is optimized for Federal University, Dutse. The project starts with a thorough examination of the current evaluation techniques, which is followed by a review of the literature to lay the theoretical groundwork. The goal of the design phase is to provide an intuitive system with functions like automated reminders and real-time feedback. Modern web technologies are used throughout the implementation phase to guarantee data security and scalability.

The project assesses OCES's influence on the lecturer assessment procedure at FUD through a case study, examining indicators such as response rates and user satisfaction. The results offer insightful information to organizations thinking about making comparable advancements. In the end, OCES is in line with FUD's dedication to scholarly achievement by providing a customized solution for improved lecturer evaluation in higher education.

5.2 CONCLUSION

In conclusion, Federal University, Dutse (FUD) has made a substantial advancement in the efficacy and efficiency of lecturer assessment procedures with the successful design and implementation of the Online Course Evaluation System (OCES). Through the application of contemporary technology, OCES addresses the drawbacks of conventional approaches and offers a user-friendly platform with solid data security, automated processes, and real-time feedback. OCES has a favorable impact on response rates and user happiness, as demonstrated by the case study at FUD. The project's findings provide insightful information for educational institutions looking to improve the efficiency of their professor evaluation processes.

OCES is a model for comparable developments in higher education and complements FUD's dedication to academic quality. In the future, OCES's ongoing development and application will support a culture of ongoing enhancement in lecturer evaluation, creating a setting that supports high-quality instruction and learning. This project serves as evidence of the revolutionary potential

of technology to improve academic procedures and emphasizes the significance of modifying creative solutions to satisfy the changing requirements of higher education establishments.

5.3 RECOMMENDATION

It is advised that Federal University, Dutse embrace the Online Course Evaluation System (OCES) and include it into the institution's regular assessment processes, given the system's effective deployment and favorable effects. Because of its real-time feedback, enhanced efficiency, and user-friendly features, OCES is a useful tool for improving lecturer assessment. It is important to promote user feedback and constant monitoring to guarantee continued optimization and alignment with the changing requirements of the academic community.

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