International Journal of Engineering Research and Reviews ISSN 2348-697X (Online)
Vol. 9, Issue 3, pp: (1-5), Month: July - September 2021, Available at: www.researchpublish.com

Developing Online Integrative Performance Evaluation System in Universities: Students and Lecturers Perspectives

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Abstract: **In the traditional evaluation system, which is based on paper, is consumed time to find out the result and to make a decision in such a specific sector of the education , however, online evaluation system does not need time to find out the good result since it show up by finishing the evaluation.**

Online evaluation system is the best solution to develop an integrative student and lecturer's performance system. This system is related to exams, lectures, instructors and administration. This evaluation system will assist the administration to make decisions or to guide decisions makers in the organizations or universities to take the right decisions and to improve the work .Also it is possible to calculate the student attendance and Grade Point Average (GPA) in the same system.

Research Method and system requirement was mentioned in details a research that could help to design the perfect system for online evaluation beside the data and information to be used in this system.

Keywords: ***e*****valuation system, developing online performance evaluation, engineering education, online integrative performance evaluation system, universities evaluation system, grade point average (GPA).**

1. INTRODUCTION

Research Background

Engineering education is playing more and more important role in university education program (Mahmoud.et.al, 2009). In order to greatly inspire innovation spirit and cultivate research creativity, and greatly improve the students' engagement (Rachelle.et.al, 2010) in the course, we need to enhance the process evaluation as well as the result one. Performance evaluation is essential for all types of organizations and institutions. Performance evaluation refer to assessments which serve a vital role in providing information that is geared to help students, lecturers, administrators, and policy makers in order to make decisions as revealed by (Council N, 2001). Traditional course evaluations, especially in universities demand students to fill out at least one paper form to rate an instructor or course. Such forms are usually known as "Individual Development and Educational Assessment" and mostly filled out by hand and a pencil at the end of each academic semester. This evaluation procedure is often very tedious to complete, forcing students to fill in bubbles to rate an instructor on a numeric scale. Nowadays, many universities started to adopt online evaluation systems to assess both student and lecturer performance. This research work is confined to performance evaluation of students and lecturers in universities. Most universities use the conventional (manual) system for computing the GPA of students with limited attention paid to evaluating lecturers' performance. Academic institutions and universities pay attention to evaluating students' performance by relying on calculating Grade point Average (GPA) for each student. It can be argued that this traditional method of assessing student performance is incomplete, tedious and time consuming. On the other hand, many universities allow students to evaluate their lecturers' performance. This research seeks to develop an integrative student and lecturer's performance system by designing online system which convert traditional manual systems to an automated performance evaluation system. The current research employs a C# programming language due to its powerful features.

Problem Statement

This research address the following problems:

1. Lack of a comprehensive and efficient performance evaluation of students and lecturers in higher education institutions
2. Manual computation of Grade point average
3. Time consuming, efficient and tedious computation of assessing students' performance.
4. Lack of communicating students' performance to students' parent.

Accordingly, this research tends to develop an integrative online system for evaluating students and lecturers performance. The proposed system will be fully automated and controlled by a faculty admin. Lecturers will assess students' performance based on a set of predetermined criteria. Similarly, students will evaluate their lecturers based on a set of characteristics. The proposed evaluation system will generate reports for each student and send it to students' parents.

Research Objectives

The objective of this study is to develop an automated student and lecturer performance evaluation system that will be able to eliminate the problems associated with the traditional conventional systems. The specific research objectives are:

1. To develop online student and lecturer performance evaluation system for higher education institutions
2. To assess the effectiveness of the proposed online student and lecturer performance evaluation system.

Research Significance

The proposed student and lecturer evaluation system provides a comprehensive tool for evaluating student performance in higher education institutions, which is not confined to students' GPA but involve other academic performance measures such as participation, attendance and extra activities. On the other hand, the proposed evaluation system allow students to evaluate their lecturers and provide recommendations on how to improve the subject teaching process. This will provide universities and institutions management with valuable information for improving the academic environment. Further, the proposed system will send a regular reports to students' parents to inform them about the performance and academic progress of their sons or daughters. Finally, the proposed system can save time and increase efficiency through automating the measurement of students and lecturers performance.

Research Scope

This study focus on developing online performance evaluation system for students and lecturers in the department, Faculty or in the University. The selection of this department as the research scope take into consideration the time and financial resources as well as the fact that this research work is done alongside with academic work.

2. RELATED WORK

Saleem.et.al (2008) deigned a Web-based evaluation management system for students who take their final project as a project paper in order to fulfill the requirements of their programs and be able to graduate. Authors employed a design research methodology by which evaluators and supervisors can fill in the evaluation forms through the Internet. Their proposed system has contributed to saving time and resources over traditional paper and pencil scan sheet method. According to (Jeromie, 2005) online performance evaluation has some remarkable advantages but entail some challenges as well. Online performance evaluation system provide instant and flexible feedback by which lecturers and student could view real-time results presented in various formats. Additionally, online systems are much easier and convenient to use than paper-based evaluations. For instance, students and instructors could click radio buttons and type in textboxes instead of filling in bubbles and writing by hand. Further, digital evaluations are cost effective and can be sent to other interested parties easily. On the other hand, online performance evaluation has some challenges. Some students might provide biased evaluation and event refuse to evaluate the lecturer or a given course especially if they didn't attend the course. In addition, students might influence each other to rate a course or instructor a particular way. Finally, students might show a low response rate in responding to online evaluation. Emmanuel (2007) developed an integrative method to predict

student performance after graduation based on deploying a simple student performance assessment and monitoring system within a teaching and learning environment. This method focused on performance monitoring of students' continuous assessment (tests) and examination scores in order to predict their final achievement status upon graduation. Author used data mining techniques and the application of machine learning processes, rules are derived that enable the classification of students in their predicted classes. Jeromie (2005) developed online evaluation system allowing students to evaluate instructors, allowing instructors to evaluate teaching assistants, supervisors to evaluate employees, and so on. Author made the system openly available on the Internet by which many users can access it. In designing this online evaluation system, new programming tools such as NET and SQL Server were used to make web-based and database development easier. *Yanpin Ren (2011) developed a* web-based information system for engineering education. Their proposed system provided a comprehensive student performance evaluation. For instance, recording and investigating the process of doing experiments and students can be more engaged in the laboratory activities. Imed.et.al (2011) developed an integrated and collaborative online supervision system for final year and dissertation projects. Their proposed online-supervision system intended to federate the communication and the process between all involved parties in a final year and thesis project.

3. RESEARCH METHOD

It is essential to present the initial concept of student and lecturer's performance evaluation before designing the proposed system. Table 1 illustrates the cornerstones of assessing both student and lecture's performance.

Table 1: Student and Lecturer Performance evaluation Dimensions

Student	Lecturer
1. Attendance (%) 2. GPA (%) 3. Class Participation (low, moderate and high) 4. Activities: social, sports and events (number and type)	1. On-time class delivery 2. Effective and updated teaching 3. Advocate participation 4. Helpful and Fair Evaluation based on 5 point Likert scale

As shown in table 1, there are four dimensions to assess the performance of students and lecturers. The proposed online evaluation system will automatically calculate student attendance and GPA based on the information inserted by lecturers. Many universities provide a strict rules for managing and controlling student's attendance. In this regard, low rates of attendance may cause students to fail a specific course or either enroll another school or university. Accordingly, it was indicated that universities should provide a system that helps students to improve attendance (Miran, 2014). Similarly, class participation and student's involvement in non-academic activities are assessed by lecturers. On the other hand, students will rate their lecturers based on 5 point Likert scale (1: strongly disagree, 2: disagree, 3: neutral, 4 agree and 5: strongly agree). The four dimensions of assessing lecturer's performance are related to the teaching procedure and environment. It begins by identifying whether or not the lecturer arrive class on scheduled time, his/her education style in terms of effectiveness and coping with up to date advancement in the specific field of science, encouraging students' participation and being helpful as well as being fair with all students.

It was argued that web based system development is an ongoing activity continues to evolve and grow without specific releases as with conventional software (Powell, 1998). In this regard, online evaluations can influence professional and academic advancement, tenure and promotion.

Generally, online management evaluation is presented in the form of a database of multiple choice items posted on the Internet with secured access (Bocij, 1999). However, several software programs also have the capability of using fillin-the-blank and essay items and some are even capable of producing evaluation forms that employ various multimedia tools (Dommeyer.et.al, 2004). It was contended that online evaluations are less subject to faculty influence, allow students to take as much time as they wish to complete the evaluation and also enable students to select the time they want to complete the evaluation (Anderson.et.al, 2005).

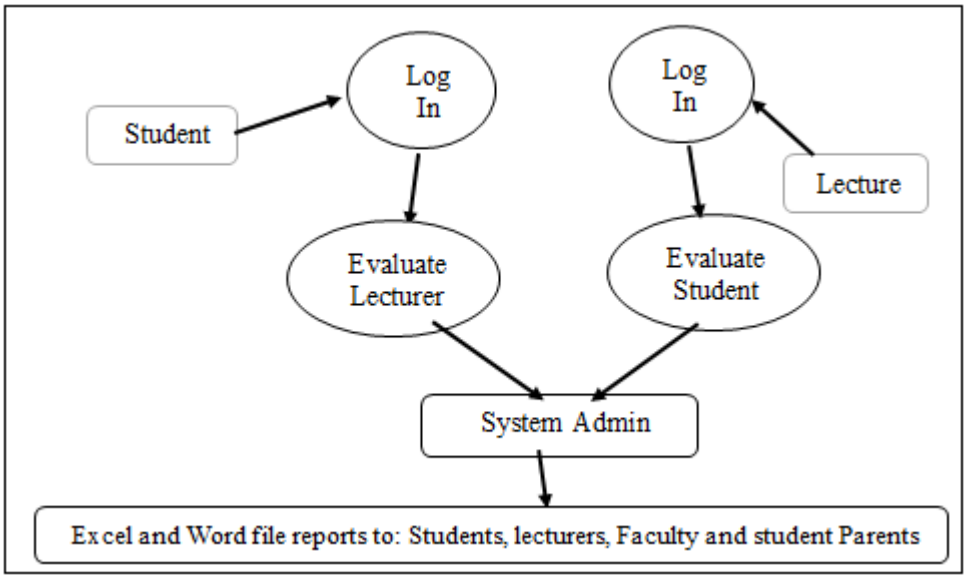

Figure 1: Case Diagram

4. SYSTEM REQUIREMENTS

The proposed online evaluation performance system will employ modern development technologies such as .NET and web services. More specifically, the proposed evaluation system will be developed with Microsoft's new Visual Studio .NET development environment which will be written with the C# programming language. Hence, the proposed system can be considered as an ASP.NET web application to be used on the Internet. The user code is written in HTML and JavaScript, with potentially embedded server-side script written in C#. Additionally, C# will be used in writing code which that executes on the server to process event handlers for events such as button clicks. Finally, a trial download of Microsoft's SQL Server 2005 will be used for database operations, including the storage and retrieval of login information, as well as evaluation form display and submission data. Figure 2 explain the proposed system architecture.

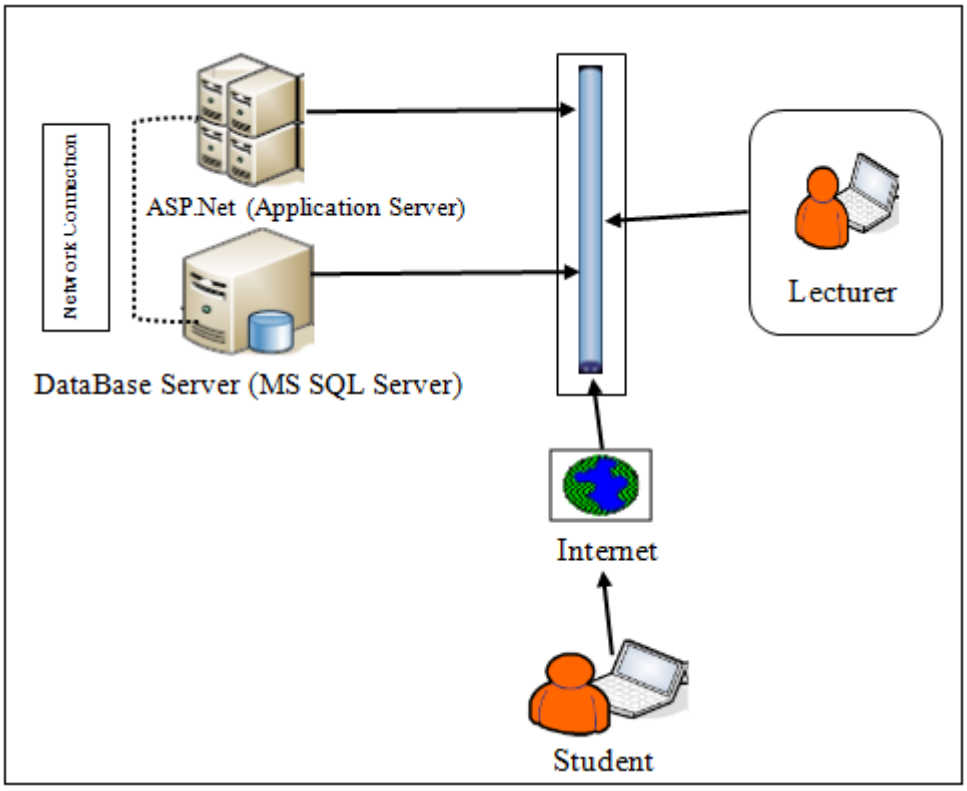

Figure 2: System Architecture

Web services required for designing the proposed online performance evaluation system are "XML web services" due to their distinctive functions use XML (eXtensible Markup Language) as their underlying layer for transferring data. XML web services possess their own language, Web Service Definition Language (WSDL), which is used to describe the functions and parameters implemented by them. Proposed system's web services will be executed implemented in C# to perform the data storage and retrieval operations.

5. RESEARCH LIMITATIONS

In order to conduct this research, I would face some limiting constrains. Designing the proposed online performance evaluation system for students and lecturers would be a complex task due to the huge effort and skills needed in the programming language stage in addition to effective allocation of time between the academic work and research project. This justify confining the research scope to designing online performance evaluation to students and lecturers in the department at the university. Finally, getting sufficient data and information about the number of students, their IDs, number of lecturers and grading system would represent a great challenge.

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