WEB-BASED UNIT AND INSTRUCTOR EVALUATION SYSTEM
(UIES)

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I have gained immeasurable amount of knowledge, skills and techniques by interacting closely with people mentioned above. I realized that, the project would not be able to achieve its intended target if it is being analyzed, designed, developed and implemented in isolation.

ABSTRACT

The aim of this project is to develop performance evaluation system to achieve TARC business strategy which is to provide quality education and training and maintain high academic standards in all education programs offered in the college. This ***Web-Based Unit & Instructor Evaluation System (UIES)*** is an automated system designed to replace the current paper-based evaluation system. By using this web-based system, TARC can conduct unit evaluation via an online system that can lower costs, increase timelines of feedback, and make the record keeping and analysis easier. Literature review was conducted to understand the current state of knowledge and practice within the project topic - Web-based Unit and Instructor Evaluation System. The UIES system was developed based on Object Oriented System Analysis and Design (OOSAD). The framework of the system is based on Apache Web Server + PHP + MySQL.

ABSTRAK

Tujuan project ini adalah untuk membangunkan sistem penilaian bagi mencapai strategi perniagaan yang diinginkan oleh TARC. Iaitu mamberi pendidikan dan latihan yang berkualiti untuk semua program pendidikan yang ditawarkan. ***Web-Based Unit And Instructor Evaluation System (UIES)*** adalah sistem rekaan yang dicipta untuk menggantikan soal selidik yang menggunakan kertas. Dengan mengunakan UIES, pihak kolej akan dapat menggunakan soal selidik ini bagi mangurangkan kos, mempercepatkan proses tindakbalas dan menolong pihak kolej menyimpan rekod dan analisis dengan mudah. Kajian Literatur adalah berfungsi untuk memahami ilmu tentang masa terkini dan berlatih dengan projek tajuk ini , iaitu "Web-based Unit and Insturtor Evaluation System ". Sistem ini mengunakan metodologi 'Object Oriented System Analysis and Design (OOSAD). 'Web Server + PHP + MySQL' digunakan untuk membina system ini.

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CHAPTER 1

PROJECT OVERVIEW

1.1 Introduction

One of the Tunku Abdul Rahman College (TARC) goals is to provide quality education and training, and maintain high academic standards in all education programs offered in the college. In order to achieve this purpose, the linkage of performance evaluation reporting with college strategic planning and objectives is necessary to ensure that the college and evaluation system performance improves in the chosen target areas to move the organization strategically in the desired direction.

An education industry provides quality education is central to its ability to gain competitive advantage. High quality education will attract more students' study in TARC. Critical mass of students is needed for a college to survive. Unit and instructor evaluation should be a small but significant part of the larger strategy for college improvement.

The aim of this project is to develop performance evaluation system to achieve the above goal and overcome traditional performance evaluation weaknesses. Student evaluation data is a valuable source for the evaluation and improvement of

instructor, also a source of data for faculty performance evaluation. In order to provide comprehensive and trustworthy evidence for employee development and organizational improvement, appropriate data collection method need to be taken to ensure that useful data are gathered and thoughtful student feedback is facilitated.

With the current Information Technology (IT) trends, college can implement course evaluation via an online format for courses in order to lower costs, increase timeliness of feedback, and assist with ease of record-keeping and analysis. This ***Web-Based Unit and Instructor Evaluation System (UIES)*** is an automated system to replace the traditional paper evaluation system. This web-based system collects teaching evaluation data for summative and formative purposes.

1.2   Background Of Problem

Tunku Abdul Rahman College (TARC) was established on 1969 under the leadership of Malaysian Chinese Association. The college is one of the country's major institutions of higher learning and has established an international reputation for the high quality and wide range of courses offered.

In order to develop a powerful work team and improve the quality of education, unit and instructor performance evaluation are implemented in TARC every semester. Current evaluation system creates a lot of administrative workload and the results are kept within individual campus. The administrators are using the same evaluation forms for all faculties.

The current manual system requires an administrator to attend to every class during lecture or tutorial hours to carry out the evaluation process. Before

administering an evaluation, administrator needs to print large quantity of evaluation forms and schedule time for evaluation. Before the start of evaluation of a particular subject, the administrator will inform the instructor for that particular unit that fifteen minutes of class time will be used for the evaluation. Students will fill out the evaluation form for the unit and instructor performance evaluation within that short period of time. The administrator collects all the returned forms and later enters all data into the current system for further processing. A simple summary information can be shown in Microsoft Excel format.

The administrator will print out the unit review for unit leader to help in planning for the next year's delivery of the unit and produce instructor's performance report for the Human Resource Department. The purpose is to assist academic administrators in counseling instructors about their teaching and they are carefully weighed as a factor in judging the teaching component for promotion and salary determinations.

Through observation, I found that current evaluation system has a lot of limitations and does not achieve the goals for which it was supposed to. I am going to develop Web Based Unit and Instructor Evaluation System (UIES) because it provides the best solution to the problematic situation in which the power of the web comes through hyperlinking information posting, authoring and interactively. The UIES is a flexible, anonymous, secure, efficient and adaptable means for students to provide their feedback on their units and instructors.

With UIES, administrator can reduce the administrative burden by eliminating the need to physically collect evaluation forms. Data processing is more reliable and confidential. The administrator is able to obtain regular feedback on instructor's performance and faculty teaching much faster with an online system.

1.3 Statement of the Problem

Current system requires more human effort and time to produce simple evaluation report. The users are divided into four groups which are students, system administrator, academic and administrative staff. The time taken by the users to perform their tasks is time consuming because of the following reasons:

- An administrator is required to go to every class during lecture or tutorial hours to carry out the evaluation process. The tedious process of distributing and collecting the evaluation forms consumes valuable class hours. In addition, it requires three weeks to complete the evaluation for all the units and instructors.

- Summarizing the evaluation data takes another three weeks because it is being performed manually and the administrator also needs to summarize the comments given by students. The summarized results therefore are subjected to human errors.

- It takes one and a half month to complete the evaluation process, which is inefficient and time consuming. Evaluation reports produced lack the ability to compare the performance of an instructor over the past and present semesters.

- The results of the current evaluation system are kept within individual campuses. Therefore, the performance of two instructors from different campuses teaching the same unit cannot be compared.

- Students have only 5 to 10 minutes to fill out the evaluation form during class hours. Many students would simply fill up the forms without having sufficient time to make an accurate evaluation. Furthermore, due to the poor command in English, some students do not understand certain words in the evaluation forms. The results of the evaluation is therefore inaccurate and do not reflect the ability of an instructor.

- The existing evaluation system involves printing a large quantity of evaluation form which may not be cost effective.

1.4 Project Objective

The objectives for implementing a web-based evaluation system are:

- To study how to implement the evaluation system in an on-line environment that would make the evaluation process easier and more efficient.

- To identify the problem and weaknesses of current evaluation system.

- To provide semester-end report for management to evaluate the performance of instructors and schools.

- To standardize and integrate the evaluation system among all the college branches. Presently this project will be localized and upon completion and testing, integration with other branches will be considered.

- To formulate strategy by implementing web-based system into academic system.

1.5 Project Scope

Project scope is define as the boundary of the project in term of the functionality of system, input data, software and hardware platform, features of the system, users and type of testing implement in system development. This project will focus on performance management -- performance evaluation. This project will be tested and implemented in TARC Johor branches campus.

1.5.1. The Functionality Of System

The system to be developed will be a web-based system. The system will allow administrator to add, remove and edit questions that will appear on all evaluation forms used at the school level. Question editing is provided through a straightforward web interface that allows two question types: Likert -style question and open-end questions. Administrator needs to set the survey parameters such as instructor name, course and access dates to complete the survey for each unit.

With a web-based system, students will receive an email when a unit opens for evaluation. The email will include instructions regarding the unit(s) to evaluate, how to evaluate and when the evaluation terminates. Email also consists of a unique username and password to access to the UIES. If the student is found in the enrollment data table, a list of the units offered by the school in which they are enrolled will be shown on the screen. Those units that have not yet been evaluated can be selected using a button, but those units that have been evaluated are simply listed and cannot be selected (thus preventing multiple entries from the same student).

During evaluation, student completes the electronic form by clicking on guided answers for Likert-style question and type in responses to open-ended questions. Once completed, student submits the anonymous evaluation form. The responses are added to the appropriate table in the database. The system summarizes all the evaluation scores automatically and a statistical report will be generated automatically which the user can view on the web or print out.

1.5.2. Data

UIES is developed for collecting teaching evaluation data from students. Students need to fill out electronic survey form. TARC used *Student Rating of Instruction* (SRI). The SRI form formats include Likert-style questions (strongly agree, agree, neutral, disagree and strongly disagree) and optional open-end questions to capture student's opinion or suggestion for improving particular unit or instructor's performance.

Similar with the current paper survey form, the electronic survey form is divided into two parts. The first part is unit review section, which evaluates the unit/subject. Second part is evaluation of lecturer section used for evaluation of the instructor. The sample form and summary report for current evaluation system are attached, Appendix A of this document.

1.5.3. Software/ Hardware/ Platform

Software and hardware requirements should be provided to ensure the continuous, robust, straightforward execution of web-based system. These requirements might be classified as below:

1.5.3.1.Three Tier Client Server Architecture

UIES is support three (3) tier architecture (Browser + Apache web server / PHP + MySQL). This architecture is appropriate for more complicated web interaction which requiring services of database program. The basic structure of a three-tier application: -

a) *Client tier*

Users interact with application through user interface. Client need interacts with middle tier to make requests and to retrieve data from information tier. The client then displays data retrieved from middle tier to the user. Examples are Internet Explorer & Netscape browser.

b) *Middle tier*

This Tier is a business logic and data processing layer. It acts as intermediary between data in information tier and application client. A web server is a middle-tier application. UIES used Apache as the Web server. PHP is scripting language supported by Apache. PHP is needed to generate web pages dynamically.

c) *Information tier*

This tier is the back end for data item storage and management. UIES use MySQL as the database.
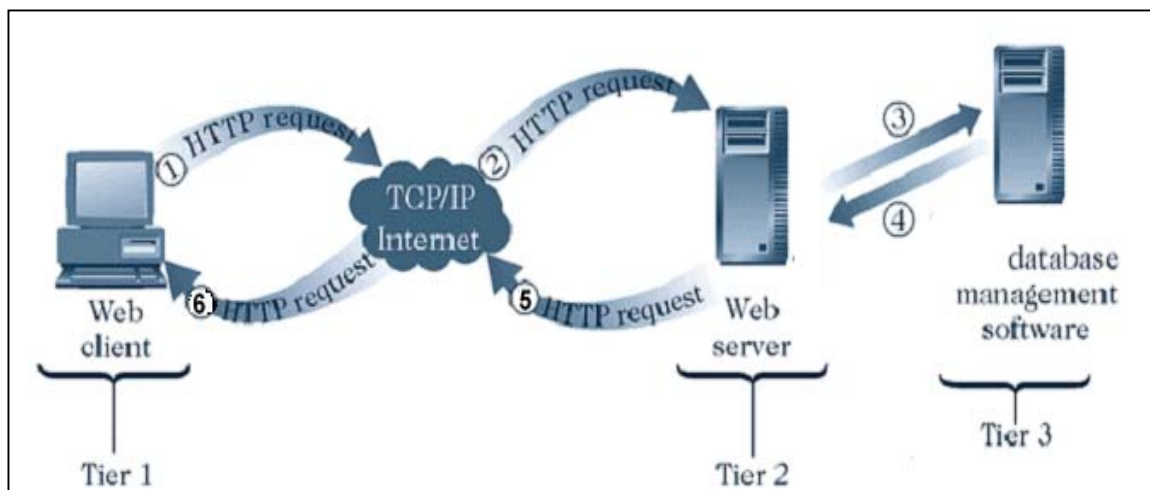
Figure 1.1. Message flow in the three-tier client/ server architecture

1.5.3.2.Software Requirement

PHP **(hypertext preprocessor)**

PHP is a server-side scripting language designed specifically for the web. The goal of the language is to allow web developers to write dynamically generated pages quickly. Strengths for PHP when compare with main competitors such as PERL, ASP, JSP is that it can interface to many different database system that provides an *open database connectivity standard* (ODBC) such as MySQL, Oracle, Microsoft products and others. Other advantages are low cost and availability of source code. PHP is portable across multiple platforms. PHP was created as an open-source technology based on C, Perl, and Java that can run on multiple operating systems and multiple web servers. PHP performs very well and is nearly as fast as ASP, but it's still held back by its lack of good development tools.

MySQL

Is very fast, robust and scalable relational database management system. My SQL is a true multi-user, multi-threaded SQL (structured programming language)

database server. As with PHP, web developer can obtain and modify the source code for MySQL.

Apache web server

The apache web server is the software that responds to client requests by providing resources, such as XHTML documents. Based on the following diagram, Apache is a popular web server and holds under 60% of the web server market.

Microsoft Visio professional 2003 is a software for creating the UML diagram, organization chart and project schedule.

Microsoft office 2000 is a software package for preparing the documentation software to assist us in project planning, estimating, scheduling, monitoring and reporting.

1.5.3.3.Hardware Requirement

- **Servers**
  - Pentium-based server or equivalent
  - Network interface card
  - Hub/ switch

- **Client**
  - Pentium-based pc or equivalent
  - Network interface card

1.5.4. Features

The UIES supports access control. Users need to use their username and password to login. In order to protect student confidentiality, his/ her identity is separated from the evaluation he/ she submits. The content of the evaluation is saved into a separate table that does not include the student's identity. The student identity will be saved in another table. This table can be used to tell the system whether the student has completed the evaluation for a particular unit. Both tables cannot be linked.

UIES also provide email services. Email will be sent to students when a unit opens for evaluation. Students also will receive reminder email every week follow this initial email until the unit (s) have either been evaluated or the evaluation period has ended.

The system provide online help guide to users who need to obtain detail information about the system and guideline to using the system.

System administrator needs to set the survey parameters such as instructor name, course and access dates in order to complete the evaluation form for each unit. Administrator can modify evaluation questions when requested by top management. Web-based evaluation form can be designed to include a wide variety of response options (e.g. check boxes, Likert scales, pull-down menus).

UIES reporting system can produce statistic report based on unit, instructor, course or campus.

1.5.5. User

The school offices, human resource department and the management level staffs will use this system. Users are divided into several groups. Each group can access specific functions of the system depending on their needs and responsibilities:

- *Student* can logging into system by entering their user name and password. Student needs to complete all the unit he/she has enrolled.

- *Instructor* can view their own teaching evaluation statistic report.

- The *human resource department and management level staffs* such as the head of department, head of branch or head of school have access to the web-based evaluation system, where they can view the summary of evaluation results and do some analysis of the instructors performance based on some reports that compare the evaluation score over several semester and different campuses.

- *System administrator* will take full control over the system, manages system resources such as user accounts, assigns permissions, create evaluation forms and access reports for specific unit or instructor and define setting for the system.

1.5.6. Type Of Testing

The UIES uses Unified Software Development Process as the system development methodology. This unified process proposes an iterative approach, which means that test is conducted throughout the project. This allows defect be detected as early as possible.

The purpose of system testing is to verify that the system satisfies user requirements. Thus, testing activities must be planned. Test plan guide us go through

the test lifecycle of planning, analysis, design, implementation and operation. During analysis, an overall test plan is developed. Unit test plan, an integration test plan and a system test plan are developed during design phase. During implementation, these various plans are put into effect and the actual testing is performed.

1.6 Importance of Project

The primary goal of a performance evaluation system is to provide an equitable measurement of an employee's contribution to the workforce, produce accurate evaluation documentation to protect both the employee and employer, and obtain a high level of quality and quantity in the work produced.

Education evaluation is a vital part of the process in maintaining and improving the instructor performance and faculty teaching quality. With the unit evaluation report, unit leader can plan better unit content for next time delivery of the unit.

With the instructor performance evaluation report, academic administrators will be able to counsel instructors about their teaching when they fail to meet the performance expectation. The evaluation report is important in judging the teaching component in promotion and salary determinations.

Instructors can improve their teaching skill with student feedback. This information can assist instructor to organize, plan, implement, and assess this teaching that will be beneficial to both students and them selves.

1.7 Chapter Summary

As a conclusion, this chapter describes the background of the project and the background of problem faced by students and academic administrators in TARC. This chapter also illustrates the importance of having a web based evaluation system to address the problems and constraint faced as mentioned above. By developing this system, the problems will be eliminated and the daily task can be carried out smoothly.

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