International Journal of Engineering &Technology, 7 (1.6) (2018) 17-19

International Journal of Engineering & Technology

Website: www.sciencepubco.com/index.php/IJET

Research paper

Information Management and PSM Evaluation System

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Abstract

Information Management and PSM Evaluation System is a system developed to replace the existing system at the Faculty of Computing. The existing system at the Faculty of Computing is a manual system in which all the evaluation process still utilises paper forms. PSM is divided into two phases; PSM1 and PSM2 and each phase has a different form for evaluation. This process is seen to be less systematic and imposes much time on the evaluator, coordinator and supervisor who are also lecturers. Information Management and PSM Evaluation System is designed to automate information management and evaluation of PSM to keep the information in the database. The scope of these systems focuses on admin, supervisor, evaluator and coordinator bound to PSM1 and PSM2. Some of the functions that can be operated on the system are evaluation, updating PSM students' information and generating reports. The chosen methodology is an Evolutionary Prototype which needs are taken care of the system during modifications. Requirements established during the interview is employed to form a common structure with the essential basic functions of the system. Therefore, Information Management and PSM Evaluation System was developed to automate the manual system to increase efficiency. The system was developed using ASP.net technology and Microsoft Visual Studio 2010 and has been successfully completed within the specified time.

Keywords: *Information Management, PSM Evaluation.*

1. Introduction

The Bachelor Project (PSM) evaluation system is still being implemented manually where assessors, administrators and supervisors will need to fill out some forms before the overall score can be calculated. PSM is divided into two phases; PSM1 and PSM2 with each phase having different forms for evaluation. This process is seen less systematic and imposes much time on the appraisers and supervisors who are also lecturers. Additionally, excessive use of papers may lead to undesired possibilities such as missing or misplaced forms. This causes the assessor, coordinator and supervisor to fill out the form several times because the form does not have a copy instead of a system with a database [1]-[3]. Due to the problems faced by the manual system, the PSM assessment cannot be implemented effectively. The web-based PSM Information Management and Evaluation System needs to be developed to improve vulnerabilities in the existing systems and thus provide a systematic, efficient and time-saving system [4].

Comparison is made to identify the features of several existing system that serves the same function as the proposed system. TEAMMATES is an online system for feedback and peer assessment tools for student projects. This system can be accessed through the website address http://teammatesv4.appspot.com/. This system was designed by a team of teachers and students for use by teachers and students, aiming to provide all the benefits of feedback and peer assessment without having to learn the unnecessary functions. The TEAMMATES system is used on Google App Engine, using state-of-the-art cloud technology and benefiting from the same system and infrastructure Google brings [5].

The system has two users: students and teachers. Teachers will create a group according to the course they are teaching and will list students in the group. During registration, the teacher will enter the student's email and the system will automatically send an email to the student to accept or reject the registration. To sign in to the system, students only need to use a Google account. If the students do not have a Google account, they need to create a Google account each.

PBL Online is an online system as a valuation system for student projects. This system can be accessed through the website address http://akad.medic.ukm.my/pbl/. The lecturer serves as a student facilitator to ensure that students do not deviate from the problem, to motivate and guide students to find solutions and provide conclusion after the solution is presented by the student. This system is designed to facilitate lecturers to manage 12 student information, evaluate and generate overall reports by group of students [6].

The system has two users: staff and students. To sign in to the system, users need to enter "ukmper" and password like the "ewarga". To update student information, the facilitator should include the year and the current session and the list of groups under his supervision will be displayed. After the group number is clicked on, all student information in the group is displayed.

The facilitator will only evaluate if the student is present at a discussion session with his group.

2. System Implementation

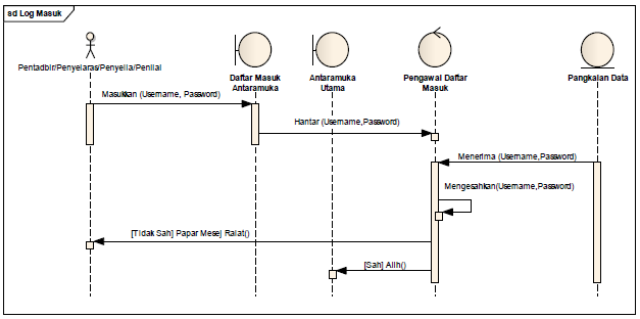

Fig. 1: Sequence Diagram For Login

Figure 1 shows how the user will input the username and password to use PSM's Information Management System and Assessment. The system will verify that the username and password are matched before the user can use the system. If there is an error in the username or password, the system will display an error message that will prompt the user to re-enter the username and password [7]-[10].

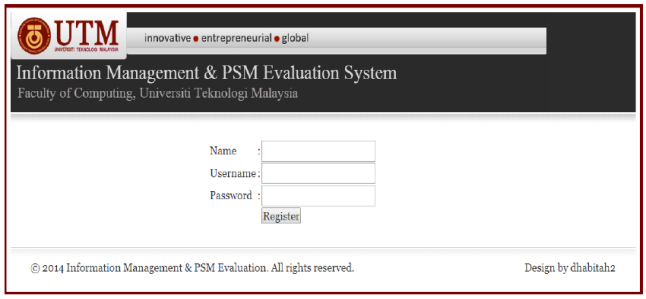

Fig. 2: Login Interface

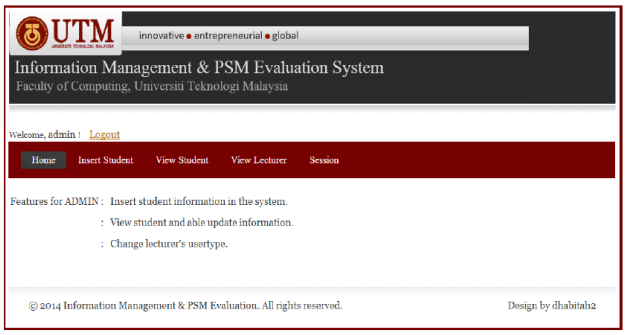

Fig. 3: Admin Interface

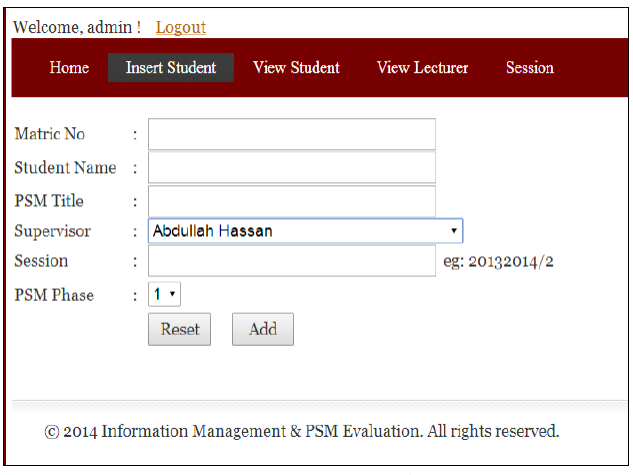

Fig. 4: Add Student Interface

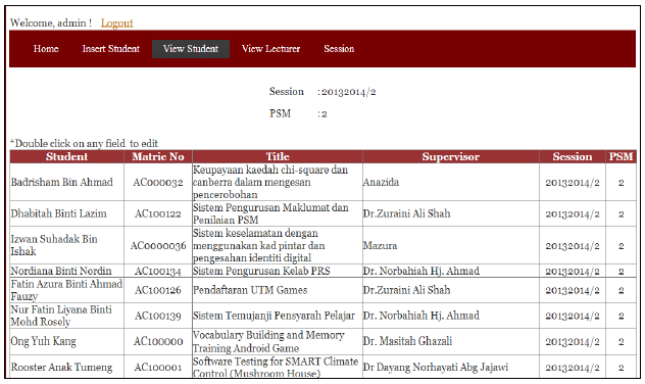

Fig. 5: Student List for PSM 2 Interface

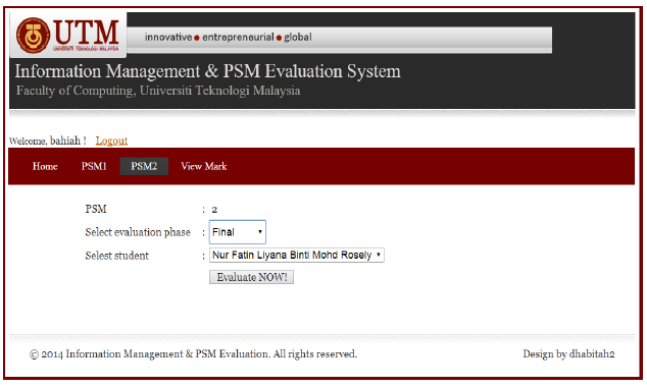

Fig. 6: Student's Final Evaluation, PSM2 Interface

3. System Testing

The functionality of Information Management and PSM Evaluation System will be tested to make sure that the developed system meets the requirements stated by the client. The testing is carried out on different aspects of the system, including administrative panel functionality. The types of testing are functional testing and non-functional testing. Functional testing ensures that the function of developed system meets client's requirement while non-functional testing is used to test the performance of the system. The non-functional testing techniques used are load testing, compatibility testing, security testing, and usability testing. Load testing is performed to test the system's response under normal and stress load condition. Usability testing is done to show that user can produce high productivity by using the developed system. The purpose of this test is to determine whether the system interface and function is apparent enough for user to understand. On the other hand, security testing ensures data integrity and safety. All testing results are recorded in a table. There will be three parts of processes in the testing phase, which are test case, expected result and actual result. The word "success" and "fail" indicate whether the tested field can function properly or not.

Login Case Test

Table 1: Result of Testing on a Module Login

Input	Path Tested	Expected Result	Actual Result
Input for user ID and valid password	a-b-c	Login successful	Login successful. The main menu displayed.
Sign in unsuccessful and error message is displayed.	a-d-e	Sign in unsuccessful and error message is displayed.	Sign in unsuccessful and error message notifying user to enter correct user ID and password displayed.

Input	Path Tested	Expected Result	Actual Result
The input for user ID is invalid and the password is valid	a-d-e	Login fails and error message is displayed.	Sign in unsuccessful and error message notifying user to enter the correct user ID and password displayed.

4. Conclusion

The development of PSM's Information Management and Evaluation System has succeeded in meeting the first objective set out in Chapter 1 to examine and analyze the problems faced by the PSM evaluation system during the FK as a system of study. The interview session was conducted with a lecturer who held the position of assessor, supervisor and coordinator to determine the scope of the task. A questionnaire was also distributed to obtain information on the problems faced by lecturers in managing the information of PSM1 and PSM2 students. The second objective was also achieved through the design and development of a web-based PSM Information Management and Evaluation System. The objectives were achieved with the creation of systems designs such as architectural design, component design and database design.

The third objective of testing the systems developed to solve existing problems was achieved with the system undergoing several tests such as White Box Testing, Black Box Testing, and Boundary Value Analysis (BVA). While User Acceptance Testing (UAT) is done with end users to ensure that the system is developed to meet the needs of users. The tests that have been done prove that the system manages to meet the needs of the user without any error.

Overall, this system solves problems in the process of updating student information and makes PSM assessments comprising PSM1 and PSM2 more efficient and effective.

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