

Student Assessment System with Hypertext Preprocessor Technology

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Abstract - Students and lecturers interact on academic matters such as passing information on assignments, courseware, research supervision, tests and examinations Based on the challenges of students not been aware of information disseminated at the right time using hardcopy papers pasted on the notice board or through other communication channels, there is therefore need to develop a web interactive assessment application that proffer solutions to both lecturers and students with the use of internet. In this application, the lecturer not only post requests including assignments, courseware and tests andbut also access student's submissions online. The students can also check the assignments, attempt, submit and recieved results at a later time. user interface is designed using Bootstrap framework, Hypertext Preprocessor (PHP) and Hypertext Markup Languages. Computer system or any mobile platform can be utilied to accessed the application via internet browser. E-assessment played a significant role in promoting student learning. Educational software targeting school learners should comprise a set of features to increase motivation and improve learning.

Keywords: Internet, education, hypertext markup language, hypertext pre-processor.

I. INTRODUCTION

There are many terminologies related with the usage of Information and Communications

Technology (ICT) in managing the assessment process in tertiary educational institutions. Examples include e-examination, web-based assessment, e-testing, online assessment, computer-aided assessment and e-assessment.

Traditional mode of assessment for a lot of students in crowded classrooms has been a serious workload on the instructors especially in the developing countries [1]. Currently, most educational institutions recognized the academic excellence of the wireless campus using E-learning and E-governance. This is a massive opportunity for students to obtain information easily at any time or anywhere in the campus with the use of laptops or mobile phones. Furthermore, with the invention of personal computers, mobile phones, palm and tablets as learning media, the practices of integrating these gadgets for instruction and learning prosesess had improved appreciably [2]. Therefore, students can check their course grades, assignments and take Computer Based Tests (CBT) using mobile phones and Personal Digital Assistants (PDA) devices whenever and wherever they are. The students however, are facing the challenges of achieving successful strategies of ineffectiveness, delivery and acceptance of their courses [3]. Assessment constitutes series of activities of project testing, performances, ratings and observations. According to [4], Assessment in relation to education also includes all the methods and strategies used to obtain information about student understanding. The result of this assessment is an important judgment on what the student being assessed on. The result rating

could be excellent, pass, fail, fairly good, good, very good.

According to The Joint Information Systems Committee (JISC) [3], Computer-based assessment (CBA) [2] refers to assessments distributed and marked by computer, while Computer-assisted assessment (CAA) [5, 6] refers to practice that does not fully relies on computers. Both methods use computerized testing to assess student's knowledge level thereby, reducing scoring workload. More specifically, instead of receiving a test with a fixed set of items (e.g. questions), students receive a set of items randomly selected from an Item Bank. To ensure that a different test is provided for each student, the Item Bank should contain an adequate number of items. The benefits of Computer-based Test over Paper-and-Pencil Tests include accurate and immediate scoring, unbiasedness, discouraging plagiarism and attracting students' interest [7]. Difference in computer skills among individual students may also have effect the equivalence of traditional Paper-and-Pencil tests with CBA [8]. Presently, students' acquaintance with computer technology has been increased dramatically in Nigeria especially for entrance examination into tertiary institutions by the Joint Admission and Matriculation Board (JAMB) and CBT adopted in most of the tertiary institutions. [9] developed a specific personalized examination system for students based on their special needs. For example, students that have problems in reading can use audio material. Students with dyslexia can use personalized software to reduce the typing procedure, while student with intellectual problems can use video material to increase comprehension [9]. Nowadays, the increasing platforms of Internet facilities have enhanced the interest of educational institutions in developing Web-based assessment system to support distance learning and improved education in the traditional class. Self-assessment which provides feedback, enables students to improve their knowledge progressively on each course which invariable enhanced their learning process. A Web-based self-assessment tool also assists students to access self-assessment tests with the use of a web browser installed on their computers [10]. The predominant mode of student's assessment in Nigeria tertiary institutions is mainly the traditional method where students are assessed using paper and pen on cognitive abilities, and this imposed serious limitations to the effectiveness of the method [11].

In a study conducted by [12] to consider the impact of paper based and web-based delivery of quizzes based on students' performance and their comments. It was discovered that students who studied on paper and took paper based quiz were larger than students that studied through web-based documents and undertook web-based quiz. Even though most students preferred the written paper, they valued of the online course. [13] reported that the use of mobile and internet solutions will give room for open learning which can be useful for teaching in academic institutions. The use of Wireless Application Protocol (WAP) based examination through computer systems or mobile phones in academic

institutions has been encouraged since it promotes teaching and learning processes required by students and the lecturers. The application offers media such as pictures, and videos. It also provides the avenue to examine the expected level of learning accomplished by the students [14-16]. [17] also compared students views and level of satisfactions with the use of mobile based technology examinations and conventional paper in the traditional classrooms. The authors noticed that the students preferred the wireless examination, and there was non significant difference between the achievement levels of the examinations. Furthermore, [17] recommended that the cost of such services should be reduced to allow wider usage and coverage of the learning media. [18] reported an assessment system that uses Semantic Web and Wireless technology. This permits students through their mobile phones to download course modules, past examination questions and their respective answers, quizzes, web-based tutorials.

Learning-oriented assessment is defined as a method that brings about those aspects of assessment which encourage and improve students' learning [19]. Learning-oriented assessment is centered on three (3) principles: active student participation, 'feedback as feed-forward' and assessment tasks. Specifically, the first principle proposes students to participate in evaluating their work.

The second principle proposes the use of feedback to improve learning, while the third principle proposes students in processes which lead to assessment tasks as learning tasks. Based on the aforementioned, this studies therefore focused on a different methods of assessment using the emerging technology which reduces the problems of the old-fashioned method, ranging from delayed submission of results, examination malpractice to missing results due to human error. The objective of this study was to design a web-based student assessment system using hypertext preprocessor web technology with the aim of reducing examination challenges in the tertiary institutions.

II. METHODOLOGY

The application utilized 2-tier techniques of server/client architecture software. The client is described as the network application which applied the services of the server. The server proffers services to another host upon a network. In web system technology, web interface will be demanded by the client before necessary interaction can occur. Through the the system logic the servers administers the clients requests. Web server offers the services such as authentications, web pages generation on request and database operations.

The server/ client interaction occurs through Hyper – text – transfer protocol (HTTP), a protocols on the Transmission Control Protocol/ Internet Protocol (IP/TCP) suite.. The programming language employed were the Hypertext Markup Language (HTML), Javascript and Bootstrap Cascading Style Sheet (CSS) with Hypertext Preprocessor (PHP).

A. System Architecture

The computer system has a web-based applications that are widely use by the people through the internet. The system comprises of three divisions – administrator, lecturer and student. The administrator can activate or in activate the system and manage the basic information of the system such as adding, updating, deleting and/ or displaying. The student inputs the required details (username and password) and thereafter log in onto the web application to gain access. The student can download any materials (course assignments and courseware) uploaded for the student by the lecturer on each course the student registered for. The student can attempt the downloaded assignments upload them into the database. The student can then log in later to check for marked assignments and the course grades. The lecturer will also register inputting username and password whenever gaining access to the application. The lecturer then uploaded materials to be given to the students.

B. System Access

Fig. 1 indicates the procedures of gaining access to the system. The user registers either as a student or a lecturer, thereby inputting the username and password needed by the system. Also the system administrator will log in with username and password too..

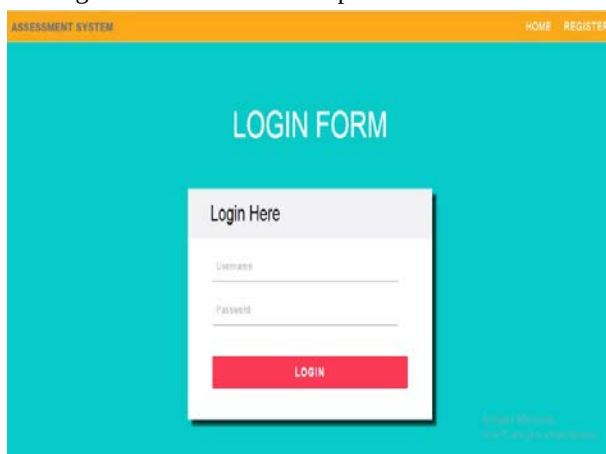


Fig. 1. E-Assessment Login Interface.

Fig. 2 shows the registration page in which the user uses to obtain username and password before assessing the system.

Fig. 3 shows the interface of a registered student before any materials (assignments and tests) for the lecturer can be uploaded.

Fig. 4 shows the e-Assessment Student Assignment Interface of a registered student where where attempted materials are uploaded.

C. System Architecture

Fig. 5 depicts the system framework consisting three essential modules of administrator, lecturers and students.

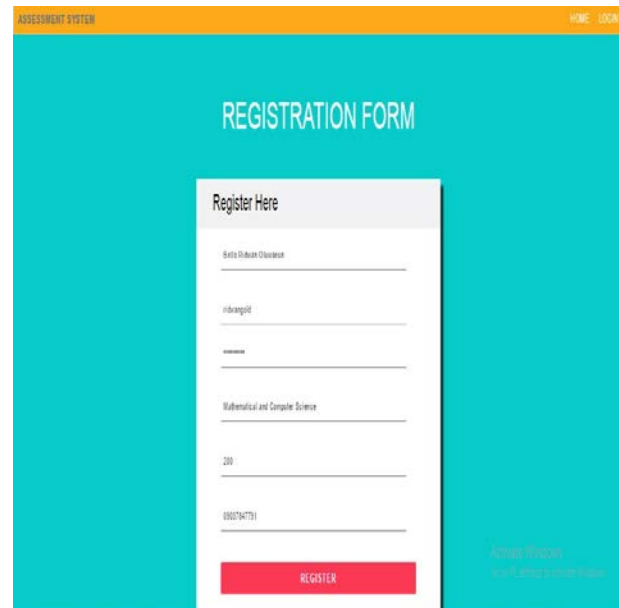


Fig. 2. E-Assessment Registration Interface.

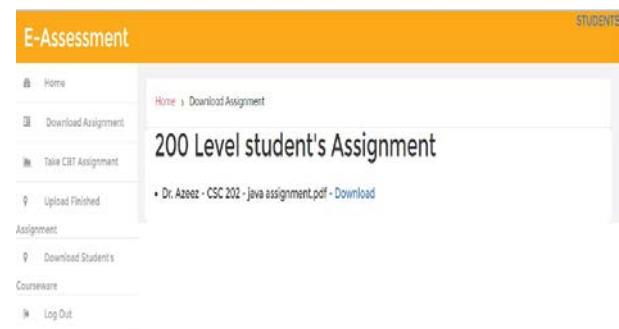


Fig. 3. e-Assessment Student Check Interface.



Fig. 4. e-Assessment Student Assignment Interface.

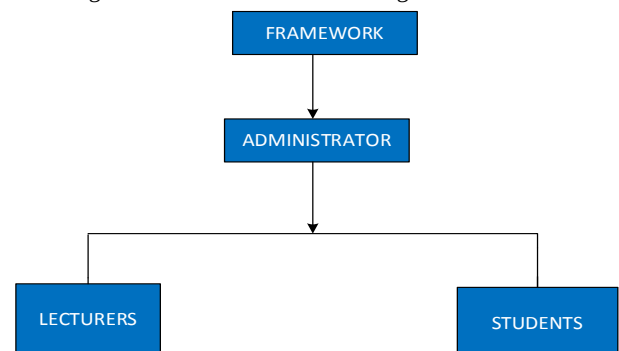


Fig. 5. System framework.

Fig. 6 reveals the Flow Chart of the system representing the lecturers and student modules.

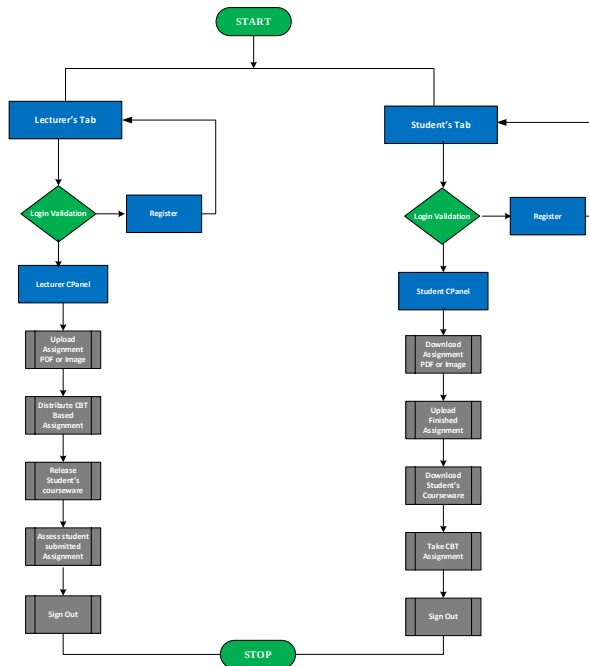


Fig. 6. System Flow Chart.

D. Use Case Diagrams

Fig. 7 to 9 demonstrates the administrator, lecturers and students use case diagrams.

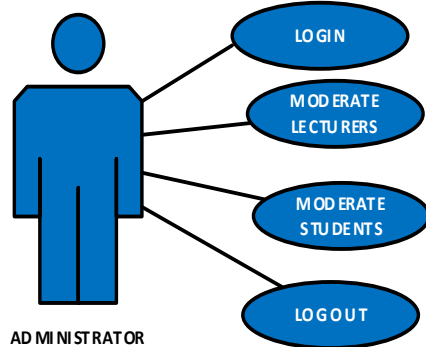


Fig. 7. Administrator Use Case.

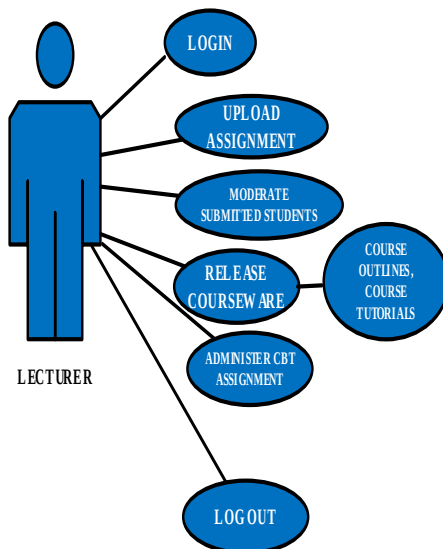


Fig. 8. Lecturer Use Case.

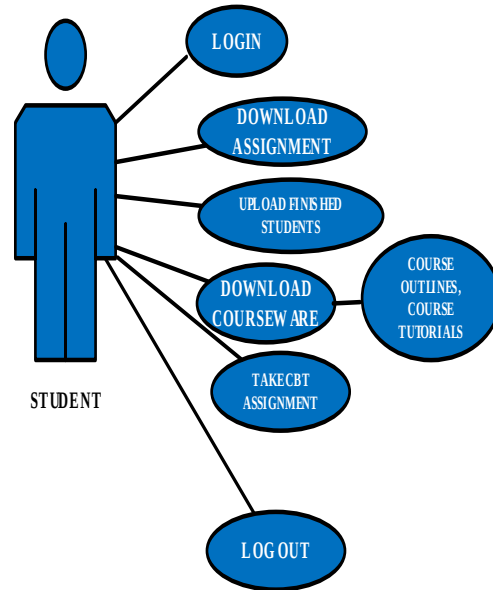


Fig. 9. Student Use Case.

III. IMPLEMENTATION

This system contains both web and database servers. The web server offers interactive interface to users that gains access to the system through the web. The database manages and stockpiles all data and other information requires by the system. The application is carried out on mobile and windows platform. MySQL server functions as the database.

MySQL database is considered as an essential component in the system of this study. It is note worthy that this application can function offline. This technology is also a database management system (DBMS) needed for applying all requirements of any web-based system. The DBMS stores all data needed for the web-based assessment system such as course materials, assignments, tutorials, quizzes, courseware and basic information of the administrator, teachers, and students.

IV CONCLUSION

This paper presented an application that can be used as a platform for assessing student in uploading assignments, courseware and CBT. The students can also check and download results of their assignments online. This developed educational software targeting school learners, a set of features that will increase motivation and improve learning can be incorporated. E-assessment plays an important role in promoting student learning.

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