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IMPLEMENTING AN ONLINE EXAMINATION SYSTEM

Nicholas A. Omoregbe, Ambrose A. Azeta, Adewole Adewumi, Ajayi O. Oluwafunmilola

Department of Computer and Information Sciences, Covenant University (NIGERIA)

Abstract

Technology has supported online examinations successfully for a number of years, and has progressively enhanced the online examination process over the years. However, some schools particularly public tertiary institutions in developing countries are still involved in the conventional manual system of writing examination. This manual system of writing examination has a lot of demerits. The manual process of taking examinations is not only time-consuming and tedious, but cumbersome, hence the need for a better, faster and more reliable means of examining students. The objective of this paper is to provide a report on the implementation of a web-based examination system. The implemented system was modeled using Unified Modeling Language (UML) diagrams such as Use Case diagram, Sequence diagram and Activity diagrams. The system was developed using ASP.Net and Hypertext Markup Language (HTML), ASP.Net and C-sharp as front end, Internet Information Services (IIS) as middle ware and Microsoft SQL Server as database. With the online examination system, the process of conducting examinations and processing results is made ease. More so, there is a reasonable level of security and integrity on the conduct of examination.

Keywords: Examination, Results, Online, Student and Lecturer.

1 INTRODUCTION

As a result of the development of Internet technology, online examination has become an effective complement to traditional examination. It is a common knowledge that students are extremely prone to cheating under the traditional method, which could affect the fairness of examination. The pen and paper method of writing examination, which has been ongoing for decades, may not be pleasing for use because of the problems usually associated including examination venue capacity constraints, lack of comfort for examination candidates, delay in the release of results, examination malpractices, cost implication of printing examination materials and human fault [1]. The shift of examination as well as examination administration procedures from paper-based to information technology based processes necessitates substantial reorganization processes at universities. Administrative staff, IT support staff, lecturers and examiners as well as students have to adapt to and familiarize themselves with new examination practices known as online examination [2].

An online examination system is an application that allows an institution conduct examination via the Internet (or intranet). Various companies, institutions and organizations have opted for this method of conducting examinations, because it is quicker, easier and convenient. This system makes it easier for examiners to conduct exams and collate results. The application provides facility to conduct online examination anywhere and at any time. Today, most institutions are conducting their exams online to eliminate the bottlenecks associated with pen and paper type of examination. Technology has supported online examinations successfully for a number of years, and has progressively enhanced the process over the years to have room for more students and ensure a smoother online examination. However, one of the biggest challenges to online examination is cheating using technology.

Several researches exist that are related to the work reported in this paper. The study in [3] developed an online examination system that allows for creating a test from the question bank of the system and conducting Academic and Non-Academic examinations in English as well as Bangla. Similarly, [1] developed a web-based online examination system to address some drawbacks associated with pen and paper method of writing examinations. The study in [4] explored the development of Multiple Choice Examination System and Online Quizzes for General Chemistry. The paper presents the main aspects and implementation of an online multiple choice examination system with general chemistry issues for student evaluation. Security issues were also examined by some studies. For instance, in a paper reported in [5], the impacts, associated challenges and security lapses of the existing electronic-examination system with the aim of ameliorating and developing a new acceptable e-Exam system

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was reported. The remaining part of this paper is arranged as follows. Section two comprises of system design and implementation. Section three concludes the paper.

2 SYSTEM DESIGN AND IMPLEMENTATION

The system was designed using Unified Modeling Language (UML) diagrams. The diagram in Figure 1 shows the flow of control from one activity to the other. The (dot).Net framework was used in the implementation of the report in this paper. ASP (Active server Pages) and HTML (Hypertext Markup Language) pages were used for the design interface of the system while C-sharp (C#) was used for the server-side programming. ADO (ActiveX Data Objects).Net and Microsoft SQL server was used in implementing the back end of the application.

The case study for the project was Covenant University and this system is just for university wide courses which ranges from TMC (Total Man Concept), EDS (Entrepreneurial Development Studies) and GST. The implemented system is intranet-based i.e. only students; faculty and staff of a university can access the system.

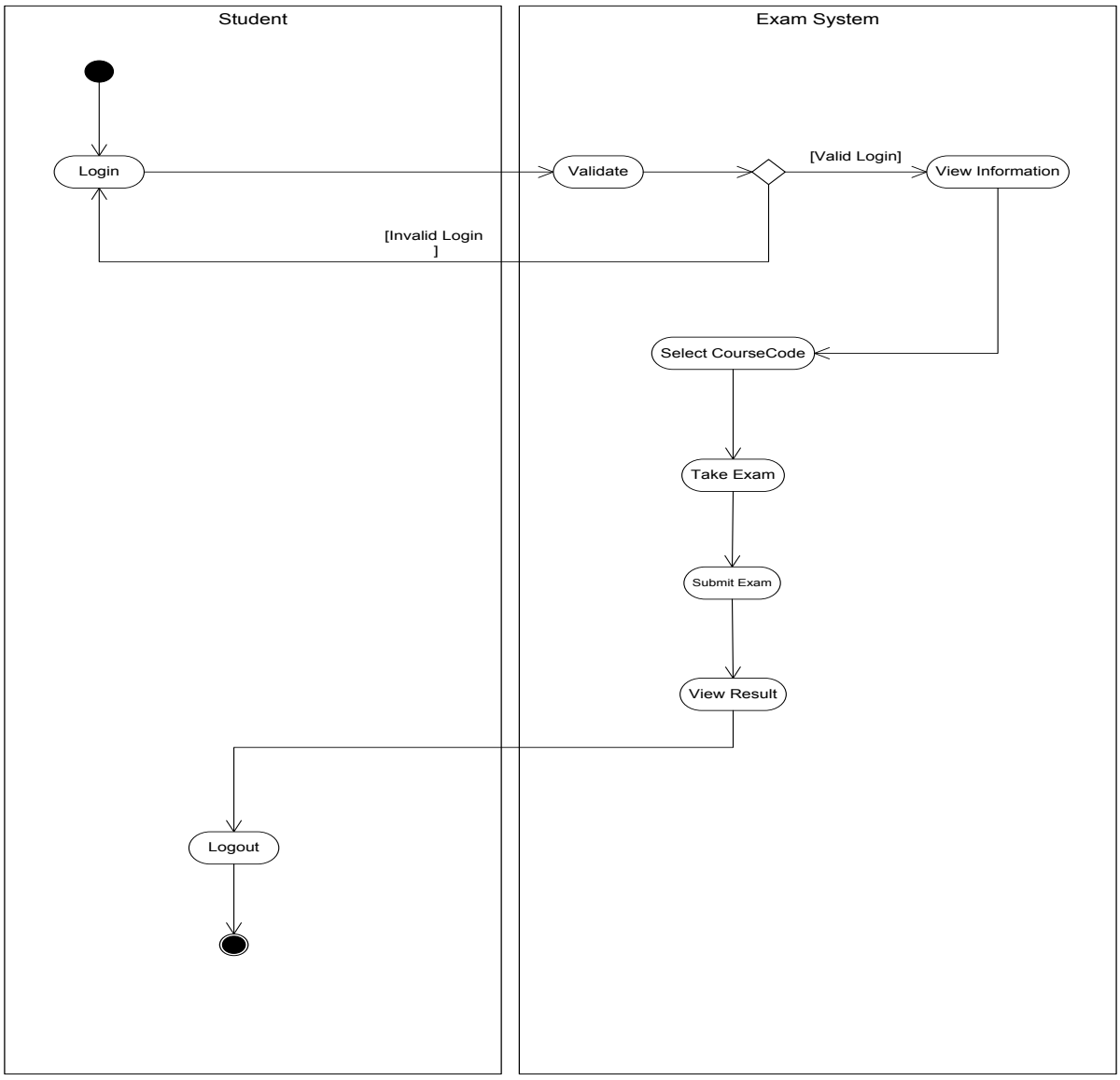


Figure 1: Activity diagram of the online examination system.

The modules that make up the implemented system are shown in this section. Students can only access the Student Module. It contains a display page where students can select the courses they wish to write before they are redirected to the examination page (see Figure 2).

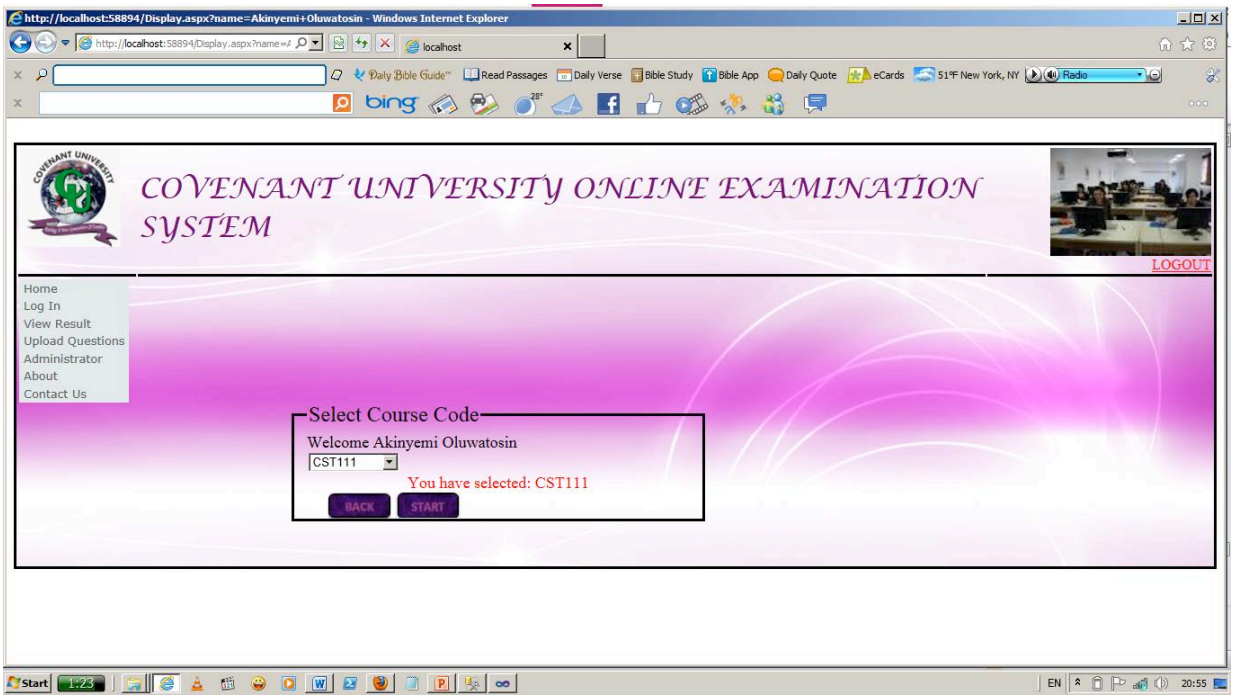


Figure 2: The select course page.

The Exam page retrieves questions from the database. Each exam has a timer on top of the page and when the time is up, the exam is automatically submitted and the result of the student is shown on the screen. The Exam page and Results page are shown in Figures 3 and 4 respectively.

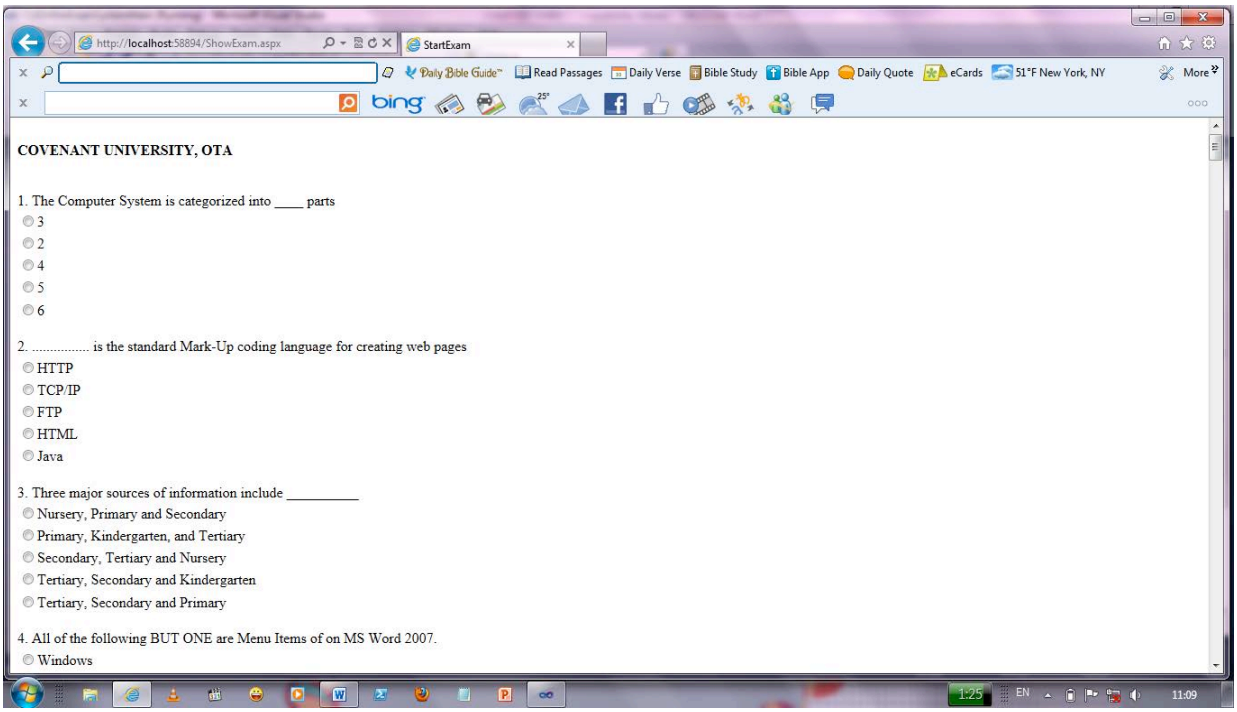


Figure 3: The Exam page.

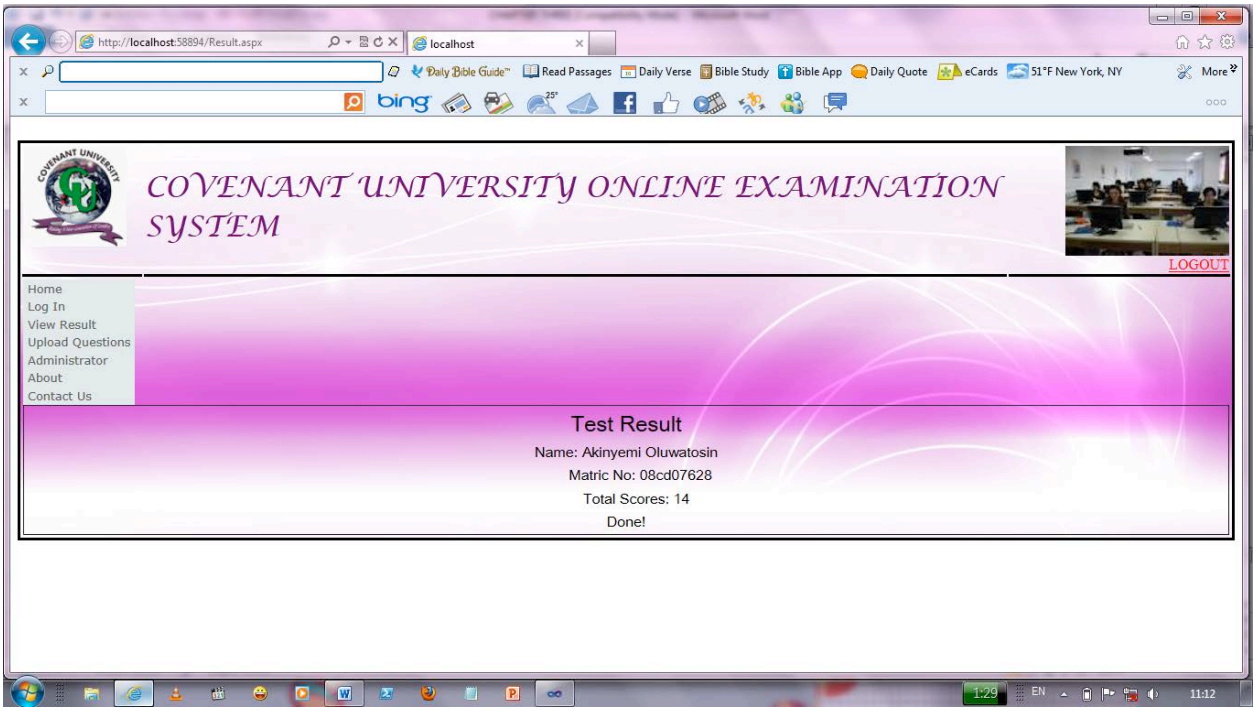


Figure 4: The Results Page.

The lecturer page is part of the lecturer module. Here, only lecturers and administrators are allowed to access this page, any student that attempts to access this page is automatically redirected to the log in page. Lecturers and administrators upload questions to the database using this page (see Figure 5).

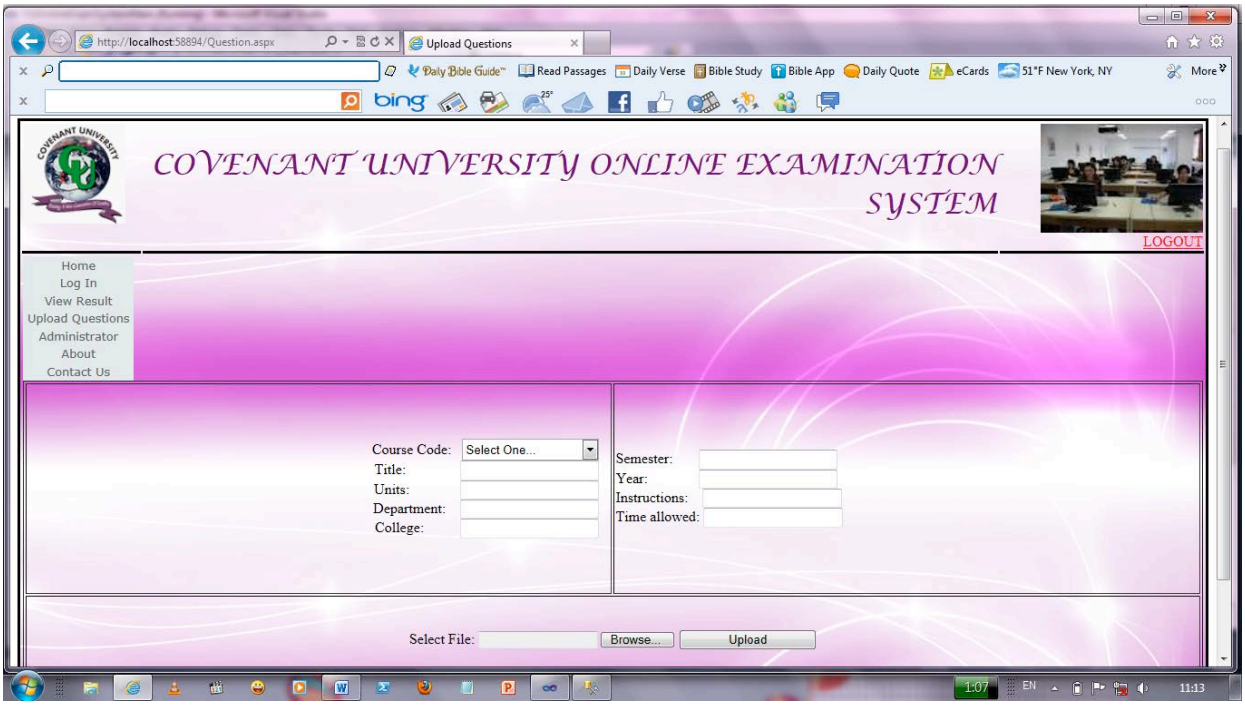
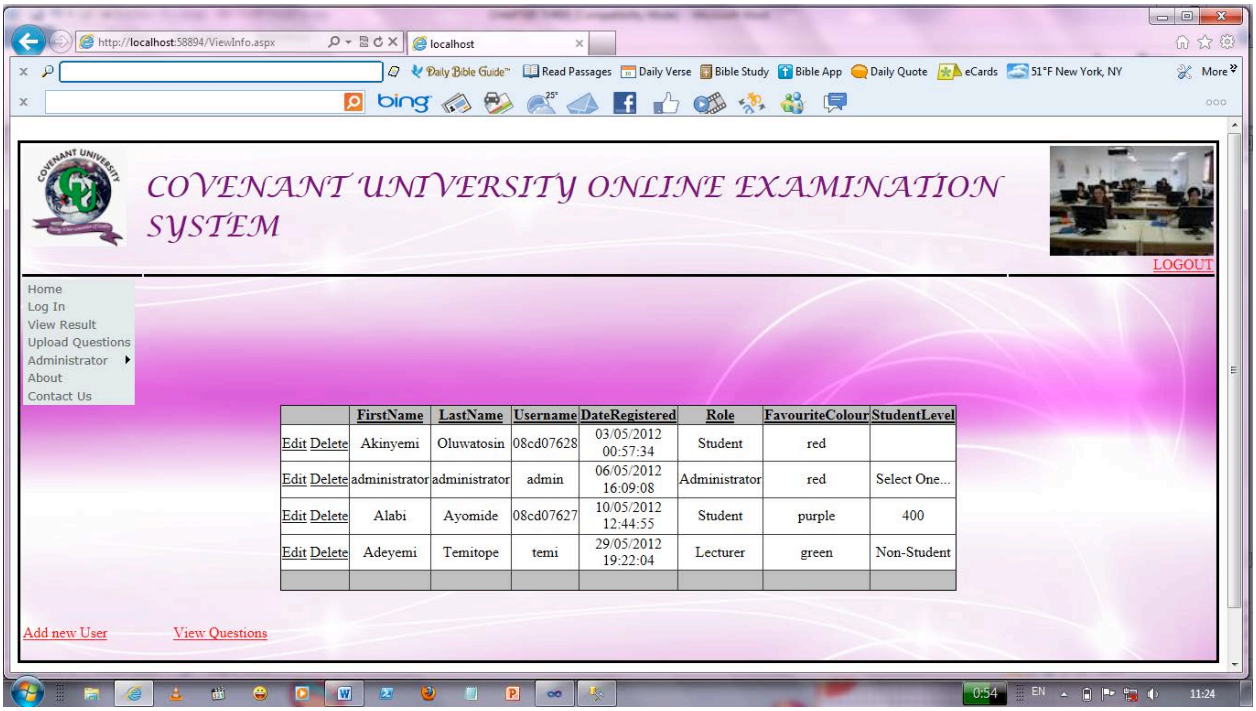


Figure 5: The upload page where the lecturers upload questions.

The Administrator page is part of the administrator's module. Here, administrators are able to view, add and delete users of the system. They are also able to view and manage results of all the students. The administrator can manage questions uploaded by the lecturer (see Figure 6).



	FirstName	LastName	Username	DateRegistered	Role	FavouriteColour	StudentLevel
Edit Delete	Akinyemi	Oluwatosin	08cd07628	03/05/2012 00:57:34	Student	red	
Edit Delete	administrator	administrator	admin	06/05/2012 16:09:08	Administrator	red	Select One...
Edit Delete	Alabi	Ayomide	08cd07627	10/05/2012 12:44:55	Student	purple	400
Edit Delete	Adeyemi	Temitope	temi	29/05/2012 19:22:04	Lecturer	green	Non-Student

Figure 6: The Administrator.

3 CONCLUSION

In this paper, the development of an online examination web application was reported. Covenant University was used as a case study. The application was tested on the university intranet and students were able to test run the application using some sample multiple choice examination questions of some general courses. When fully deployed, students and faculty would be able to access the application online and outside the university environment.

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