Online Examination System for English Grammar

Thandar Htwe[1], Myintzu Phyo Aung[2]

[1]Faculty of Information Technology Support and Maintenance,
University of Computer Studies, Myitkyina, Myanamar
[2]Faculty of Information Science, Myanmar Institute of Information Technology, Mandalay, Myanamar

ABSTRACT

This paper presents the Online Examination System (OES) for testing English Grammar. The OES is an online test system that allows user to take online tests. The OES is to be used for only English Grammar Multiple Choice Question online test by schools, colleges, other universities. The system is designed currently for three English Grammar levels. They are basic level and advance level. The administrator is to add new question into the system with three options and one right answer. User can login with by using registered user email and password to take exam and view result. On choosing a level test, user can answer all the questions and tick the answers within the time limit. After the online English Grammar examination finished, the system goes to the result page and show user's scores to the student.

KEYWORDS: *Web Application, Online Examination System, Java, MySQL, Web Server*

INTRODUCTION

Today Online Examination system is considered a fast developing examination method because of its accuracy and speed. Almost all organizations today are managing their exams by online examination system, since it reduces student's time in examinations [1]. It not only reduces the workload of teachers but also achieves the objectivity and impartiality of examination.

Online examination system is the one which allow students or trainers to do exercise or tests through computer.

Student can enter to give exam only with their valid username and password. The online Examination contains multiple choice questions and appropriate number of options. It can be randomized so same set of question will not come to all student so it forbid manipulation. More than one option can be right but the user can select only one option.

The system provides time limitation. The user can see their results (certificate) after completing the paper. Online examination system helps students to offer a quick as well as easy way to available for the paper. It gives the results quickly after the. With the computer and network technologies widely used, many computer applications based on Internet have been developed.

RELATED WORK

D. D. Sarkar et.al, presented the architectural procedural approach to design a Web Application using Java framework [2]. Their framework is for the development of MVC to separate business logic and presentation logic. J2EE provides the environment to develop enterprise applications or services using multitier architecture.

In [3] Online Examination System using Embedded Device was presented. As the number of students are increasing more computer are needed, this will increase the cost. To avoid this a keypad based embedded device has been designed. The objective is to provide automated system that not only saves lot of time but also gives accurate and fast result with a higher security.

The researchers of [4] presented design and implementation of online examination administration system for universities. Online examination or web-based examination system which is conducted via internet using computer system. In their system, Browser/Server framework using Microsoft Visual Studio 2000, C#3.5, and Microsoft SQL Server are used for interface, coding and data store respectively.

BEHAVIOURAL MODEL OF ONLINE EXAMINATION SYSTEM

The behavior model of Online Examination System is described by using use case diagrams Figure 1 and Figure 2. The behaviors of the system are depicted in two categories according to user roles, students who want to take the test of the system and the admin of the web site of online examination system.
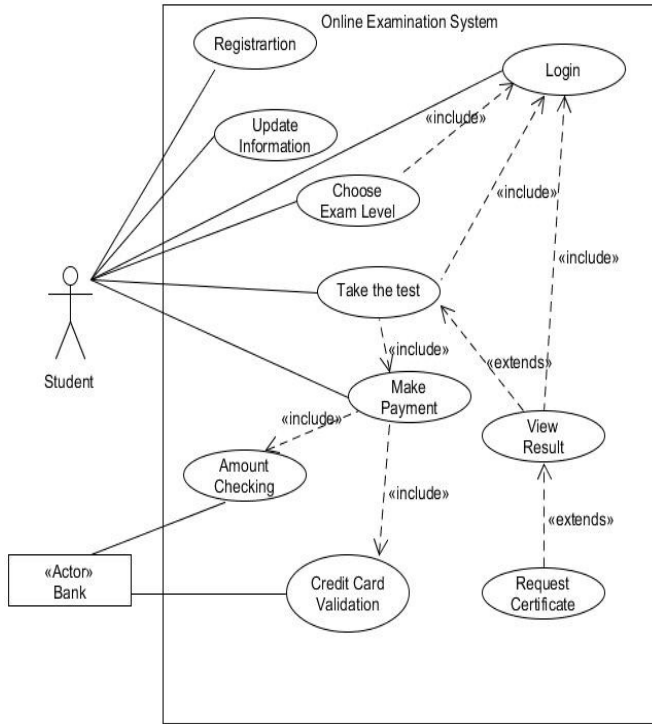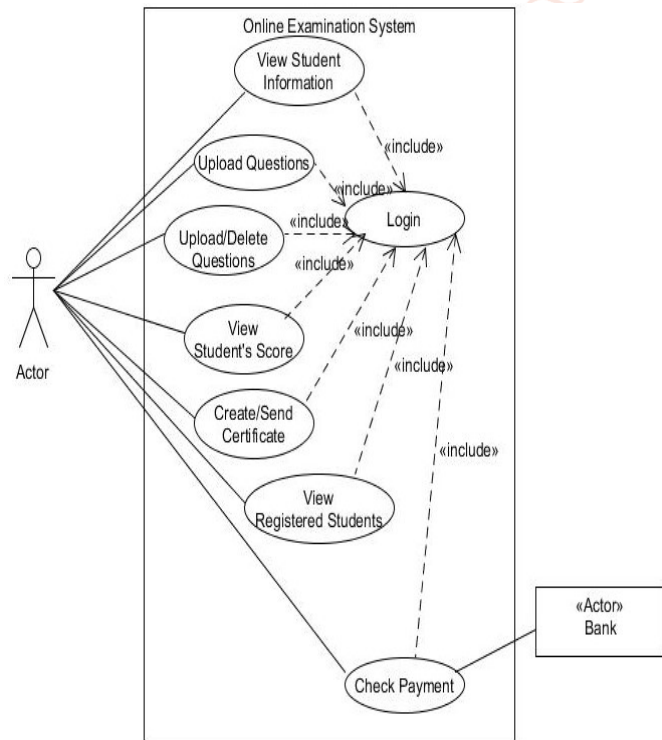
Figure1. Client Side of Online Examination System

Figure2. Server Side of Online Examination System

ARCHITECTURE OF THE ONLINE EXAMINATION SYSTEM

J2EE (Java 2 Enterprise Edition) is Sun's preferred Java platform for multi-tier enterprise applications. It simplifies enterprise applications by providing a complete set of services to those components and by handling many details of application behavior [5].

J2EE is an architecture which utilizes Java platform simplification and enterprise solution to develop, deploy and manage related complex problems. By providing a unified development platform, J2EE reduces the cost and complexity of the development in multi-layer application and strongly supports the integration of existing applications. It completely supports the Enterprise JavaBeans, Servlet and JSP. With the good guidance, it also supports the package and deployment of applications and adds the directory support in order to enhance the security system and improve the performance. [6]
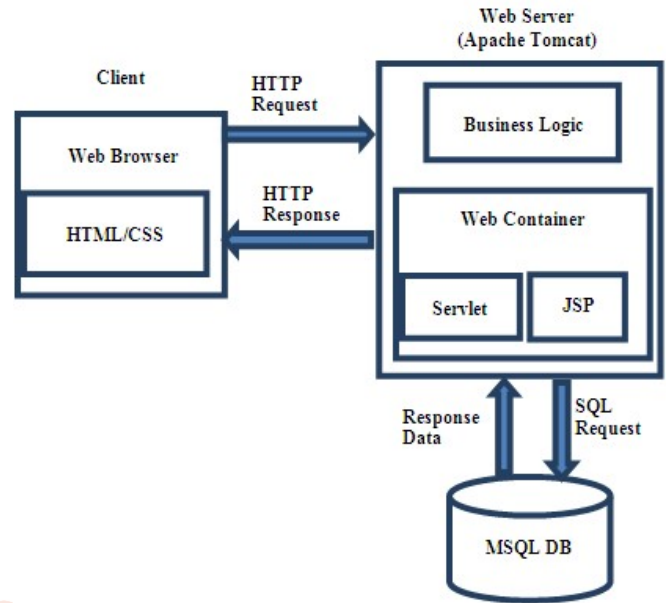

Figure3. Architecture of Online Examination System

This system uses the multi-tier J2EE Web Application Architecture: Client tier, Presentation Tier, Business Logic Tier and the Data Persistence Tier. Each Tier has its specific function. Figure 3 depicts the Architecture of Online Examination System.

Client Tier

The major function of the client tier is to enable the users to carry on the communication smoothly with the server through the user interface. The users from client side can access via the Web Browser, i.e. there is no need for development of client side programs. That is the main important attracting feature of Web Applications. The browser at the client side sends a HTTP request to the server. The server also responses the HTTP response to the client. The HTML technology is used. [7]

Presentation Tier

The presentation tier is also called the Web tier and its function is to deal with the HTTP request sent from the client side and produce dynamic HTTP response according to the Servlet and JSP in the Web server.

JSP

JSP technology is a new dynamic web application technology standard. JSP web page is composed of the traditional HTML web page files (*.html, *.htm), which are inserted Java program files (Scriptlet) and JSP tags. Consequently, it comes into being a dynamic page on the server according to the client request.

Servlet

Servlet is a small Java program on the server side and it must realize HttpServlet interface. It can respond and deal with client request through Servlet API, and even it can bring a dynamic HTML page.

Business Logic Tier

This tier is to realize the application domain business logic in the enterprise application programs.
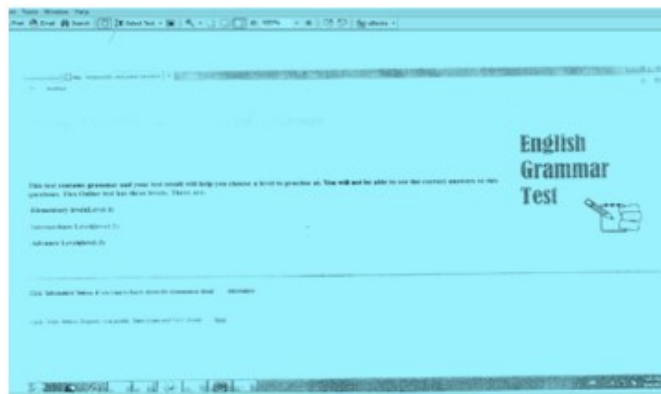
Persistence Tier

The persistence layer describes the business data of the application program, and simulates the real entity and the business flow of the organizations, so it is the foundation of the enterprise application. The business object is the simple software abstract of the real world entity, it represents some concrete object in the domain

IMPLEMENTATION OF ONLINE EXAMINATION SYSTEM

A web application framework is a software framework that is designed to support the development of dynamic websites, Web applications and Web services. The framework aims to alleviate the overhead associated with common activities used in Web development [2].
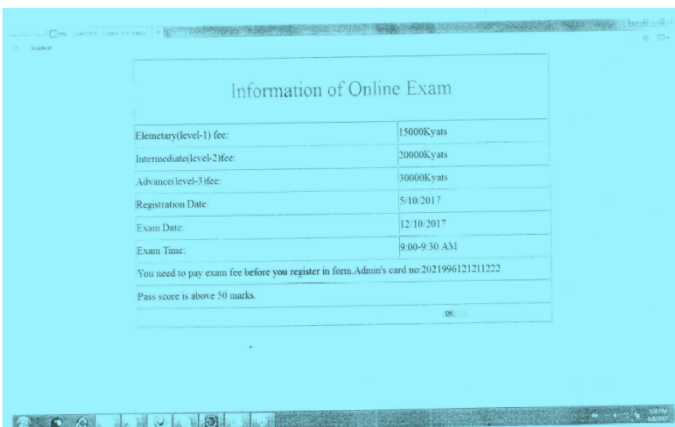
Client Side

Home Page describes the detail information about the online examination system for English Grammar. The system provides three levels for testing English Grammar and the user can choose their appropriate levels. The system will provide the detail information about examination date, time, registration date and then exam fees.

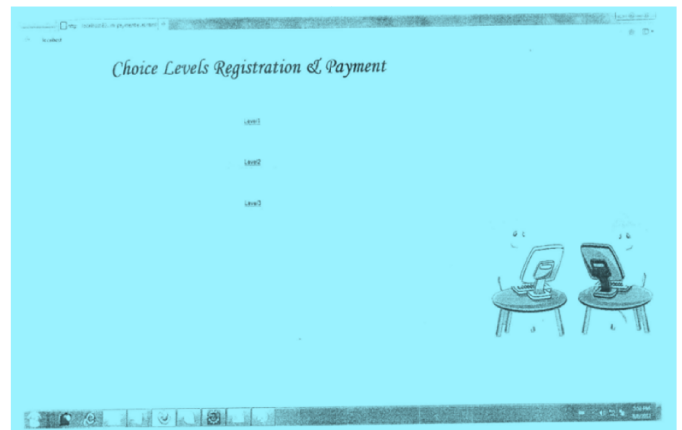**Figure 4. Home Page**

Information Page

The information page shows the information about exam fees, registration dates, and exam date and exam time. Users can make the online payment by using credit card. If user's scores are greater than 50 marks, they will pass their exam. Otherwise, users fail the exam when user did not get less than 50 marks.

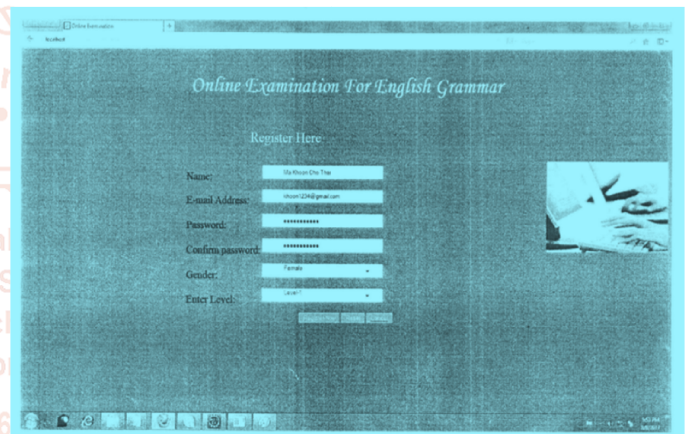**Figure5. Information Page**

Exam Level Page

On this page, users should choose exam level to answer the online examination. The Online Examination System presented in this paper provides there levels: the elementary, the intermediate levels.
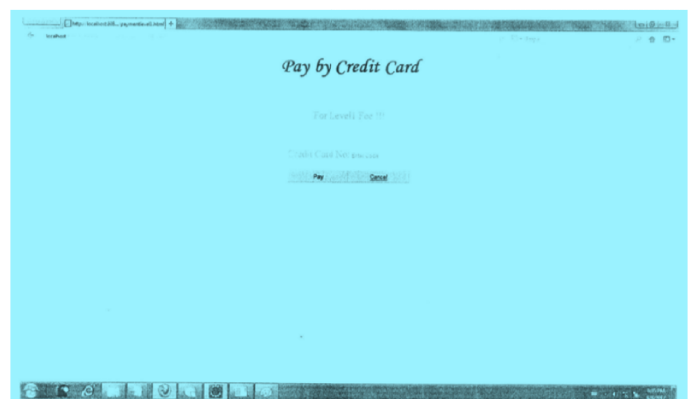

Figure6.Exam Level Page

Registration Page

It is compulsory to register to take the examination. In the registration page, users should register their profiles exactly to take online exam. Users should give his or her basic detail such as Name, E-mail, Address, Password, Gender, etc. Also users can choose the levels that they want to test their proficiency in English grammar.

Figure7. Registration Page

Payment Page

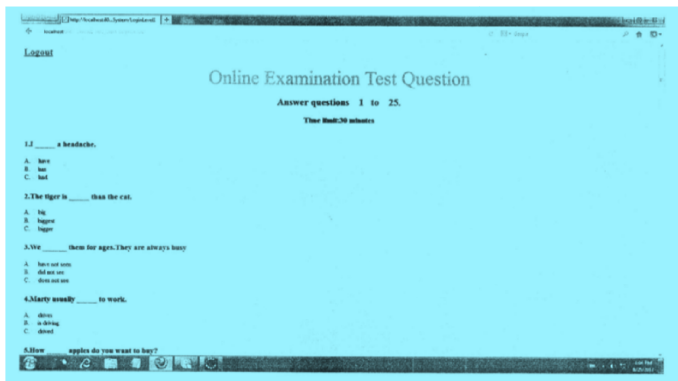In this Online Examination System, users have to pay fee by credit card to answer the online examination.

Figure8. Payment Page

Exam Page

The registered users must enter the online examination web page and choose their levels and take their exam. There are three types of exam, they are elementary, the intermediate and the advanced levels. Users can answer the level that they registered at the registration time. And the users can view their exam result after examination. If user pass the exam, apply for the certificate. Otherwise, they can only see their marks.

Figure9. Payment Page

Server Side

Administrator of Online Examination System can view the information of students who are registered to take the exam, can upload the exam questions and update or delete the exam questions. Furthermore, the admin can view the scores of the students and can issue the certificates for the students who pass the exam.

CONCLUSIONS

This paper, Online Examination System (OES) which have been developed in J2EE, Servlet, Eclipse and MySQL database was presented. In this OES, the user can easily find out their levels of English Grammar to take the exam. By using this system, users can reduce their time. It can also use to know the details information about exam. This system is intended to be useful application for education environment. The proposed OES can be easily adopted by universities and institutions in order to make the exam secure and more flexible.

REFERENCES

[1] M.R. Hameed, "Online Examination System" International Advanced Research Journal in Science, Engineering and Technology, Volume 4, Issue 3, March 2017.

[2] D. D. Sakar et. al, "Understanding Architecture and Framework of J2EE using Web Application", International Journal of Computer Science and Information Technologies, Volume 6, 2015. Pp 1253-1257.

[3] K.SudarshanKalike, M.Vargantwar, "Online Examination System using Embedded Device", IOSR Journal of Engineering Volume 6, Issue 11, pp 14-19.

[4] P. ANA, P.T. Bukie, "Design and Implementation of Online Examination Administration System for Uuniversities", Global Journal of Mathematical Sciences, Volume 12, 2013.

[5] A. Saxena, "Web Based Custom Validation Using Framework in Java", International Journal of Computer Science and Technology (IJCST), Volume 3, Issue 1, 2015, pp 90-96.

[6] Y. Fu, "Design and Implementation of J2EE-based Online Examination System", International Conference on Intelligent Systems Research and Mechatronics Engineering, 2015, pp 1193-1198.

[7] M. Bhatt, "J2EE and MVC Architecture", Journal of Global Research Computer Science & Technology, Volume 1, Issue 2, July 2014.