

DESIGN AND IMPLEMENTATION OF AN ONLINE RESULT CHECKING SYSTEM: A CASE STUDY OF WESTERN DELTA UNIVERSITY, OGHARA, DELTA STATE, NIGERIA.

I. O. EJINKONYE¹. and H. OSHOMOH²

^{1,2}Department of Mathematics and Computer Science, Western Delta University,
Oghara, Delta State, Nigeria.

E-mail: ejinkonye.ifeoma@yahoo.com GSM: +2348060297345

Abstract

The conventional method of result checking by students is by human inspection. Manual result checking is tedious and cumbersome especially when there is a large population of student per department. Inaccurate computations of student semester result, loss of raw scores are possible problems associated with the manual process of computing and checking result.

An Online Result Checking System became an issue of utmost importance as a result of difficulties encounter while obtaining a student's result. This study therefore aims to address the challenges facing Western Delta University in the area of student result checking by using Online Result Checking System. The system implementation is achieved using MySQL as the backend database, and object oriented PHP as the application programming interface.

The performance of the Online Result Checking System was evaluated in terms of accessibility, speed, cost and capacity; and the result confirmed that the proposed Online Result Checking System will be able to assist staff and students in terms of having a globally accessible system, speeding up process involve in preparing student's result, and capable of keeping registration details for future use.

Keywords: University, Results, Students, Online

INTRODUCTION

In Nigerian Universities a lot of time is spent by students, college and lecturers in effecting result processes, also it seems okay to assert that the internet and mobile communication have had a major influence on the way the world relates today. Result processing can be seen as a continuous process of converting data (scores, grade points, credit units etc) into a definite and meaningful information such as statement of result, transcripts (Ezenma et. al, 2014). These results are used to check the performance of each student in various courses. Dada et. al (2017) opined that a result is an official school report on the academic record of student, listing courses offered and grade received. Beka and Beka

(2015) designed an automated result processing system that will increase through put and reduce the response time involved in processing students result immediately after they graduate from the institution. Emmanuel and Choji (2012) examined the inadequacies involved in the manual method of calculating Students CGPA (cumulative grade point average) and proposes a solution by developing a software Application to facilitate the automated processing of the results. In the University, there has been need for automated method of keeping data using computer and the right Software. The only method available to the school presently is the use of different forms of spreadsheet applications to collate and process academic results which also are still evident in other Nigeria universities. This method could not meet their demand for result

generation, automated course registration and result storage.

Hence a web-based computer application was developed to facilitate an online processing of results. The software was developed using HTML5, CSS3, PHP (Hypertext Pre-Processor) as server side programming language and MySQLi (My Structured Query Language improved). This language was chosen because of its flexibility and features for developing online based applications.

RELATED WORKS

There have been several studies on computerized online result checking system some of which are reviewed. Beka and Beka (2015) designed an automated result processing system that will increase through put and reduce the response time involved in processing students results immediately after they graduate from the institution. The system enables students register courses and in turn, enable lecturers upload students results every system. Emmanuel and Choji (2012) examined the inadequacies involved in the manual method of calculating Students CGPA (cumulative grade point average) and proposes a solution by developing a software application to facilitate the automated processing of results.

Different Programming Languages, Programming Packages and Database management systems can be used to develop an online result checking software (Dada et al., 2017). Hypertext Pre-Processor is used to communicate with and manipulate the database. Adobe Dreamweaver, an Integrated Development Environment, is used to create the Graphic User Interface and to write codes. MySQL Server, a Relational Database Management

System, is used to create the database tables and date. There is, however, always room for improvement. This new application is intended to have reduced complexity and greater ease of use in order to enhance maintainability while still retaining good speed and accuracy.

RESEARCH METHODOLOGY

In this paper a web-based computer application was developed to facilitate an online processing of the results. The software was developed using HTML5, CSS3, PHP (Hypertext Pre-Processor) as server side programming language and MySQLi (My Structural Query Language improved). This language was chosen because of its flexibility and features for developing online based applications. XAMP (Cross-platform Apache MySQL PHP and Perl) server was used for local testing. the data used for testing was obtained from the Department of Mathematics and Computer Science. The software was tested and found to perform well and produced expected results. The aim of the proposed system is to design and implement online students' results processing system using PHP and MySQLi as database. The objectives of the research are to:

DATA COLLECTION METHOD

Primary Source: This involves oral interview conducted with some group of students in Western Delta University, Oghara, Delta State, reviewing and sharing their experience about the difficulties they undergo in checking and retrieval of student results and records. Oral interview is used because:

- i). It gives a quick result investigation

ii). It helps to influence the interview because there are facts which those interviewed may not want to disclose but due to the non-presence of the interviewer, he or she will be forced to open up.

THE EXISTING SYSTEM

From the investigation and data obtained from the present system, it has been observed that the present system made use of manual processes and MS Excel to compute student result. After student write exams at the end of every semester, students result are collated and computed using the Microsoft office suit software; Microsoft Excel sheet, using formulas and function. After computation, these results are printed and sent to the department for approval or correction, when this process is done. It is sent to the College Board for approval, correction and acceptance. This process then leads to the accepted and collated result sheet to be sent to the Senate of the University for Approval. Once this is done, approved result is now pasted on the departmental notice board for the viewing of students.

DESIGN TOOLS OF THE EXISTING SYSTEM

The present system is design with Microsoft Office Suit; Microsoft Excel. Microsoft Excel is a spreadsheet application that lets you create, view, edit, and share your files with others quickly and easily; it is developed by Microsoft for Windows, MacOS, Android and iOS. It features calculation, graphing tools, pivot tables, and a macro programming language called Visual Basic for Applications. Excel forms part of the Microsoft Office suite of software.

Microsoft Excel has the basic features of all spreadsheets, using a grid of cells arranged in numbered rows and letter-named columns to organize data manipulations like arithmetic operations. Furthermore, Microsoft excel is used as the backend to store all the data inputted manual and each student Grade Point Average (GPA) is calculated for at the end of every semester and session.

PROBLEMS OF THE EXISTING SYSTEM

Based on the information gathered from the existing system, it showed that the manual process of result computation and checking is faced with a number of problems:

- i. The system is prone to errors: This is due to the fact that no human is above mistake. When wrong information is entered, it is bound to affect the overall resulting checking process.
- ii. Time consuming: Getting the require information from the available data takes a lot of time. Changing, editing and updating the information contained in several files is a slow and time consuming process.
- iii. Data Security: There is no security in the manual registration process as anyone who lays hands on the system can easily change the information provided on the printed Excel sheet. Data can be damaged or lost and unauthorized persons can access it easily.

THE PROPOSED SYSTEM

This work seeks to address this critical issue by implementing an online database system for storing, processing, retrieving, and

printing semester or sessional results. This method has a significant data entry cost, especially if multiple years of data are to be entered into the system for statistical purposes. However, it provides the most flexibility in terms of total document processing. Copies of the record can be easily prepared, corrected, and mailed; complete indexing parameters are available for record matching and retrieval; data updating is fully automated; information is easily accessible to multiple users and for multiple purposes; and statistical processing and analysis are easily accommodated.

SIGNIFICANCE OF THE PROPOSED SYSTEM

The Proposed system is simple to implement and use. The system requires very low system resource and the system will work well in Microsoft window XP, Window 7 platform, Window 8 and Window 10 platforms etc. The system will be able to avoid user transferring data into pen drive or flash drive and sending the pen drive down to several departments. The rate at which the data could be accessed would be maximal, collection of data that used to be tedious will now be easy task, it will eliminate transportation problem, estimate delay in delivery of data, eliminate stolen or misplacing of pen drives etc.

The University is made up of different departments and as such is faced with different tasks or activities. Result processing is one category out of so many categories of tasks of the University.

ARCHITECTURAL DESIGN

The architectural design is concerned with the architecture of the system. The online result checking system will make use of the client-server architecture in which the work

of the system is divided between client and servers. The Online Result Checking System is divided into the three tiers: the client tier, middle tier and the backend tier.

The client tier is responsible for presenting the data to the user, interacting with the user and communicating with the backend tier of the system. Client tier is the only part of the system visible to the user.

The middle tier is responsible for processing. The XAMPP server (Cross-Platform Apache MySQL PHP and Perl) provides control to the traffic within the system. It acts as the interface between the client tier and backend tier.

The backend tier is the system information infrastructure. This tier includes relational database management system. In such case, the Online Result Checking System makes use of MySQL as the Database Management System (DBMS).

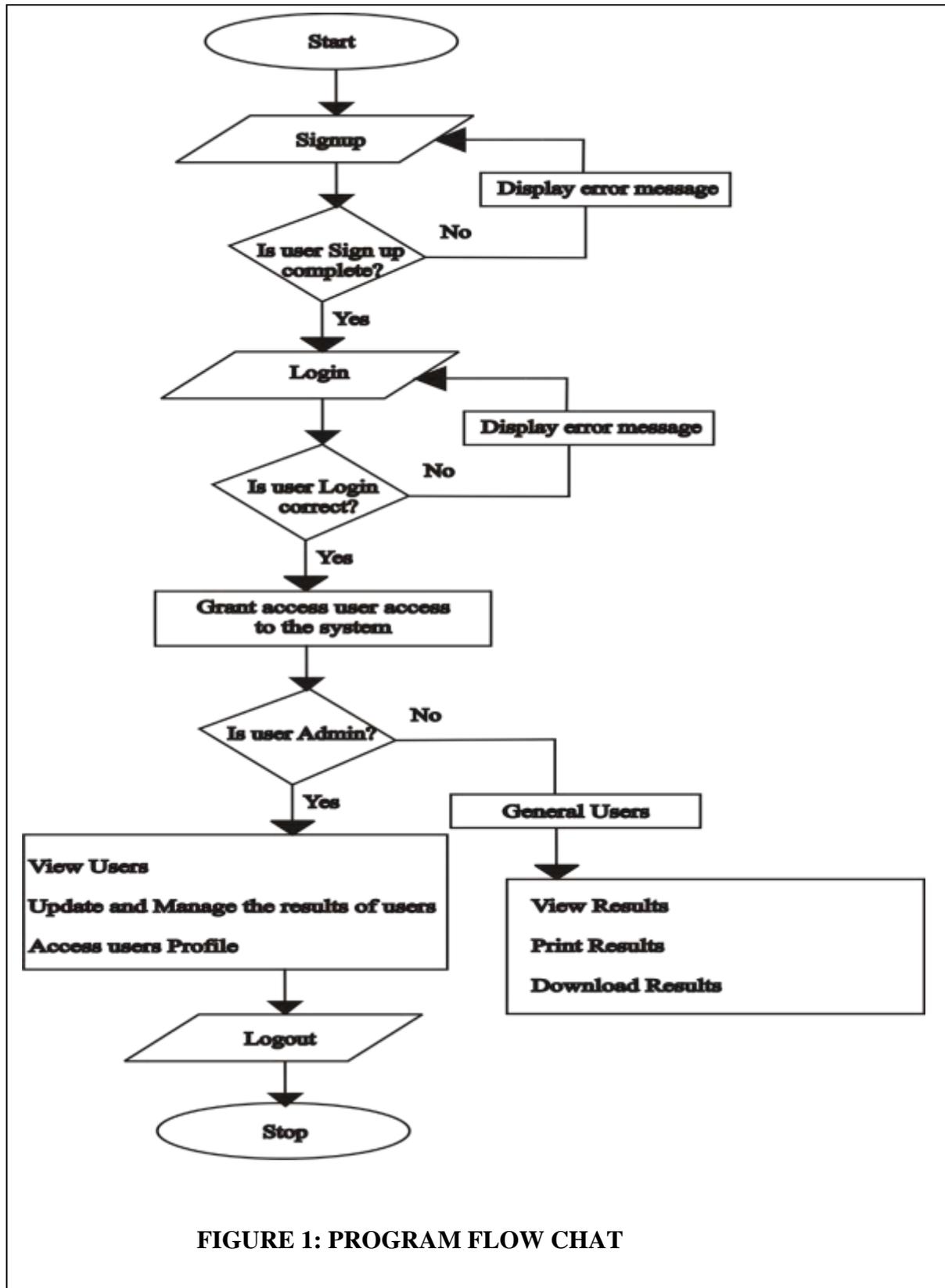


FIGURE 1: PROGRAM FLOW CHAT

IMPLEMENTATION

DESIGN SPECIFICATION FOR THE PROPOSED SYSTEM

Specification is the detailed documentation of the system behavior and constraints.

The model of system's desired output can be developed by the formation of set of input processes/specifications and output specifications.

DATABASE SPECIFICATION

The name of the Database created during the implementation is "schoolpro" and the names of the tables created are "lecturers", "results_table" and "users".

Table 1: Shows the table "lecturers" from the database named "schoolpro"

FIELD NAME	DATA TYPE	FIELD SIZE
ID	INT	12
USERNAME	VARCHAR	40
PASSWORD	VARCHAR	20

Table 2: Shows the table "results_table" from the database named "schoolpro"

FIELD NAME	DATA TYPE	FIELD SIZE
ID	INT	12
USERID	INT	12
SESSION	VARCHAR	20
COURSECODE	VARCHAR	20
COURSETITLE	VARCHAR	20
LEVEL	INT	5
UNITS	INT	10
TOTAL	INT	20
GRADE	VARCHAR	10
GRADEPOINTS	INT	10
REMARKS	VARCHAR	10
STATUS	VARCHAR	20
SEMESTER	INT	20

Table 3: Shows the table “users” from the database named schoolpro”

FIELD NAME	DATA TYPE	FIELD SIZE
ID	INT	12
FULL_NAME	VARCHAR	40
CURRENT_LEVEL	VARCHAR	12
EMAIL	VARCHAR	20
MATRIC_NO	VARCHAR	20
DEPARTMENT	VARCHAR	20
COLLEGE	VARCHAR	20
USERNAME	VARCHAR	20
PASSWORD	VARCHAR	200
IMAGE	VARCHAR	200

- c. It is fast, stable and relatively easy to deploy
- d. It has a strong relationship with PHP language

INPUT SPECIFICATION

The input design specifies how data/inputs are entered by the user and converted to a computer based format that would be accepted by the system for processing. The design specifies how the user interacts with the system to direct the action to be taken.

- i. Login screen: the student or lecturer provides a valid username and password that enables user to access the online result checking portal, view or print results for each semester or session.
- ii. Registration form: this page enable user register to gain access to their respective pages for input of result by lecturer or viewing and printing of result by students.

MySQL SERVER: This is a robust database management system that can handle large sums of data. This server is used for business management like query, update and maintain a MySQL database of the system.

MySQL Server was chosen as the main database tool because of the following reasons:

- a. It is highly secure
- b. It is neither free nor open source

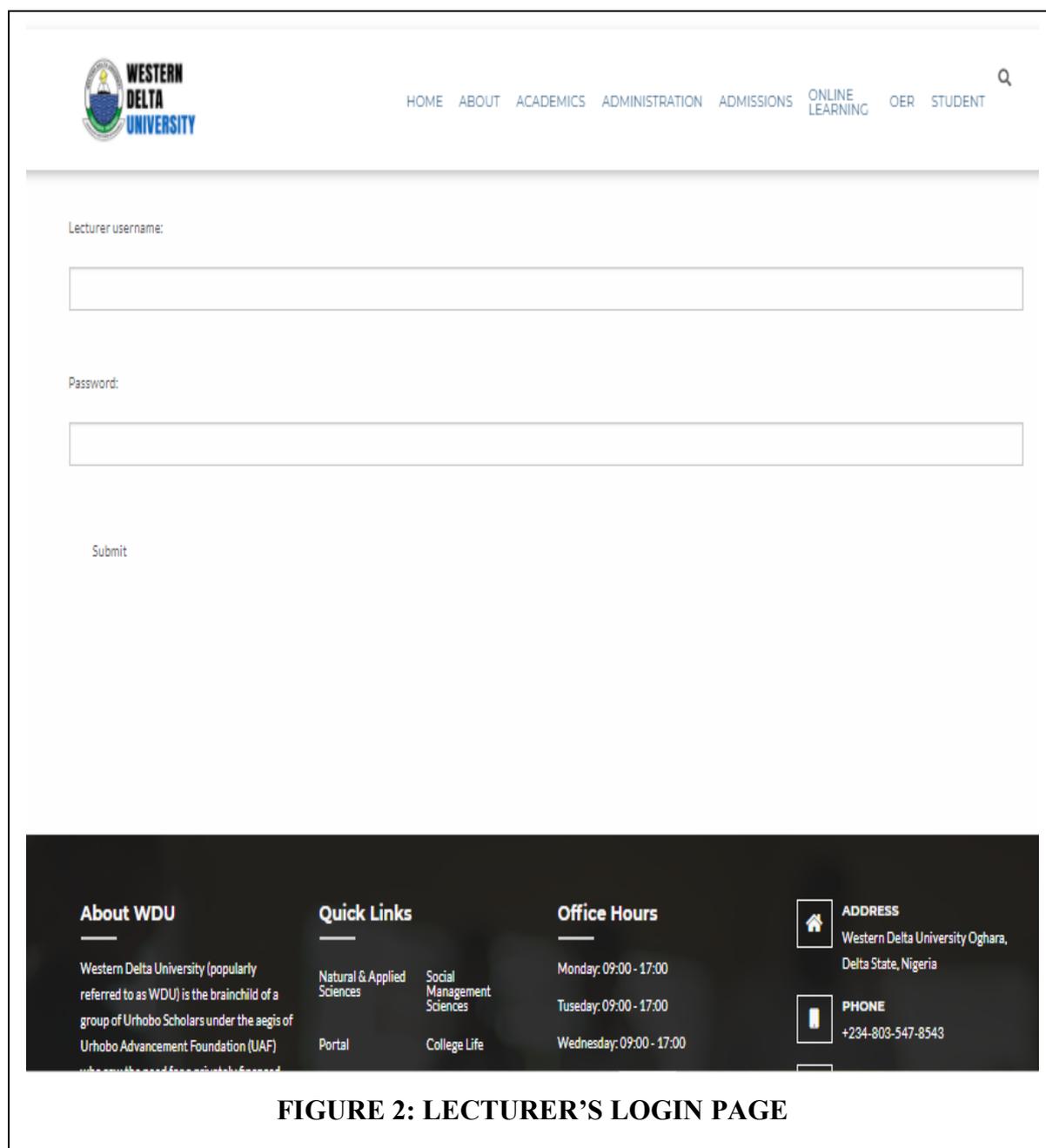


FIGURE 2: LECTURER’S LOGIN PAGE

OUTPUT SPECIFICATION

This specifies the results that are generated by the system. The output design involves specifying how production of on-screen reports and paper-based reports will occur. The following is the major output screen used for the online result checking system:

- i. Semester/Sessional Result Printout: This is generated automatically after the user

information have been filled in by the lecturer at the end of every semester and submitted to the portal, while the sessional result contains result computed from both first and second semester respectively, these could be downloaded and printed.

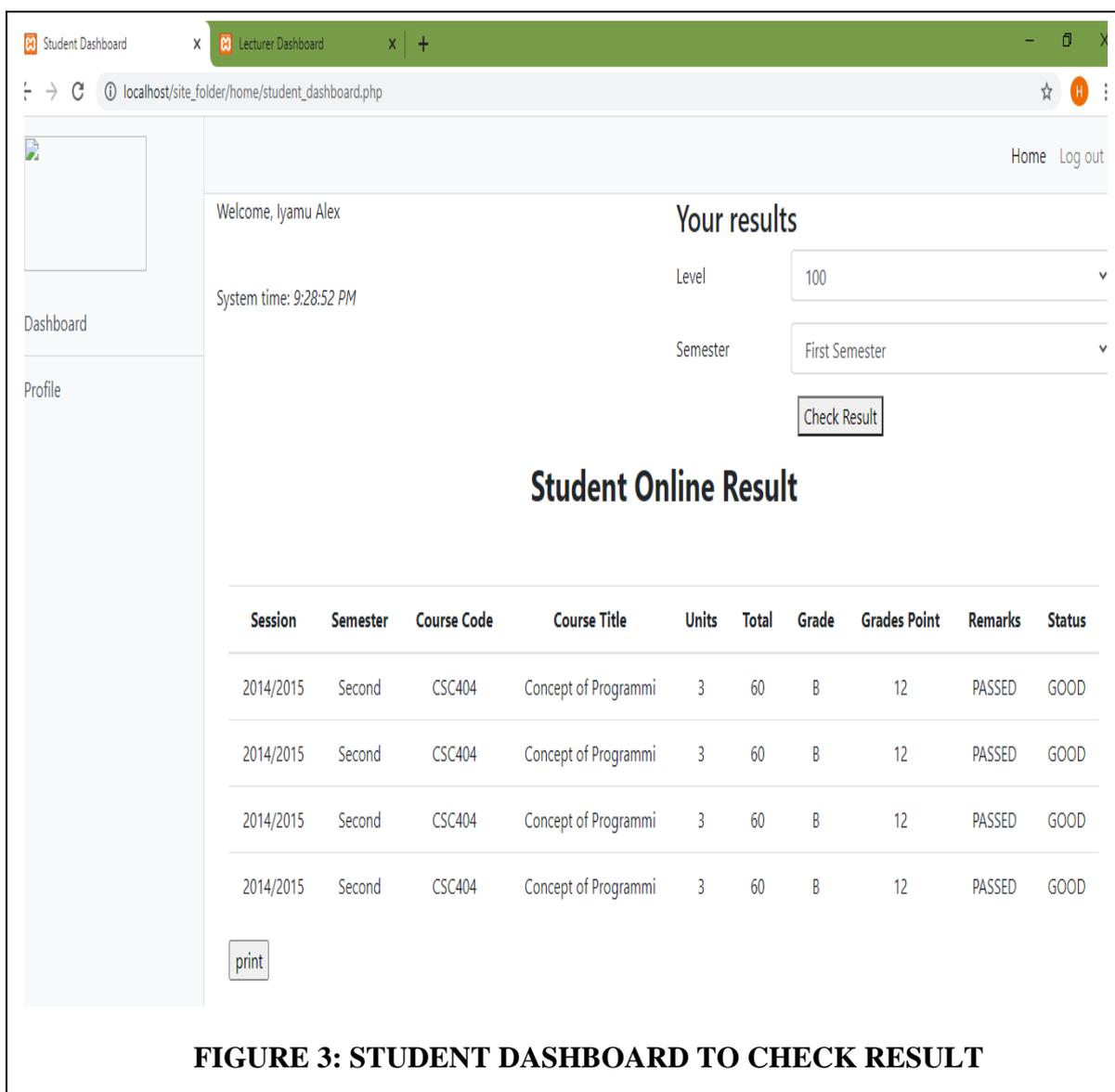


FIGURE 3: STUDENT DASHBOARD TO CHECK RESULT

HOW TO RUN AND OPERATE THE SOFTWARE

Before this online result checking system can be implemented for its intended use, the entire system will have to be uploaded to a remote server on the internet which will act as a host server.

First the account on the remote server must be created with the domain name that will be used to access the online result checking system homepage. Then the files are then uploaded to the server via HTTP (Hyper Text Transfer Protocol) file upload. When

the system has been uploaded to the remote server, the document can now be accessed using the domain name assigned to it in the server. A user intending to make use of this model has to type in the domain name into his/her web browser's address bar.

If a user wishes to use this system, he/she must have an account with this online result checking system site. Any of the user has a particular way of acquiring account. Once a students' registers with the system, a username and a password is created by the student. Only then a student can either check result for session or semester.

When a user account is created, it is stored in the database and with it a user can then access the database. When the user provides the correct login details (username and password), he/she is authenticated by the database which has that account and after then, the user is redirected to his/her own session. This is the same for all the users of this system.

SYSTEM TESTING

XAMP (Cross-Platform Apache MySQL PHP and Perl) server was used for local testing. The data used for testing was obtained from the Department of Mathematics and Computer Science. The software was tested and found to perform well and produced the desired results.

SYSTEM MAINTENANCE

It is a routine activity, which is to say that the maintenance of the system is very essential to the smooth running of the system.

The following practices and measure must be taken to ensure that the new system does not breakdown and achieve its proposed aims and objectives:

- i. Password Management: Each user (student/lecturer) is required to enter an individual username and password when accessing the software; this keeps the data in the database secured. For maximum security, each user must protect their password.
- ii. Regular Database Backup: This involves the creating duplicates of data which acts as an insurance copy should in case the active copy is damaged or destroyed. The backup is usually stored in an

external storage device. Recovery involves the use of specialized utility programs to rebuild or replace damaged files. The best way to recover a file or program is to restore it from a backup copy.

- iii. Virus Protection: This requires the use of a program that protects a system from malicious software called a virus. A virus is a program that infects a computer and could damage a system depending on its nature. Because new viruses must be analyzed as they appear, the antivirus must be updated regularly to be effective.
- iv. Training End Users: In order for the new system to work properly, proper training has to be provided for the staff, student and data entry clerk of the University on the use of the new system. Training this category of users is necessary so as to acquaint them with the working of the system, before it is fully developed.
- v. Regular servicing of the computer hardware and peripherals when due to prevent unforeseen breakdown.

5. CONCLUSION

In conclusion, to achieve success in the computerization of any organization; it needs the maturity, honesty and dedication of staff involved in the old system of operation. Thus, the computerization of the various course advisers or the design of an Online-result checking system is relevant and will bring about more benefit to the staff and students.

The manual method of checking results led to some problems like inaccuracy,

inefficient, tedious to handle and time consuming. This problem has been corrected through computerizing the normal way of result checking.

Indeed, computerization has helped in the improvement of services as a whole and in the provision of information for all level of management and the entire human race. The study examined acceptance and use of Online-result checker system at Western Delta University Oghara, Delta State, Nigeria. The results obtained show that the use of Online-result checker system by students have made more time available for them to do things other than spend time on checking their results.

Education students results processing", *Journal of Information Engineering and Applications*, Vol. 2, No 11.

Ezenma A. A., Emmanuel B., Choji D. N. (2014) "Design and Implementation of result processing system for public secondary schools in Nigeria." *International Journal of Computer and Information Technology*, Vol. 3, Issue 1

REFERENCES

- Beka A. P. and Beka F. T., (2015)** "Automated result processing system: A Case study of Nigerian University," *International Journal for Research in Emerging Science and Technology*, Vol 2, Issue 9.
- Dada O. M., Raji A. K., Oyedepo F. S. (2017).** An Online Result Processing and Transcript Generation System: A Case Study of Kwara State Polytechnic. *Tetfund Sponspored Kwara State Polytechnic Journal of Research and Development Studies. Vol 5. No. 1*
- Ekane, B. (2005).** Data processing, concept of an electronic world. Essinet Printing and Publisher. Uyo, Nigeria.
- Emmanuel B. and Choji N., (2012)** "A Software application for Colleges of