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A Web-Based Database-Driven Students' Clearance System

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Abstract: ***A clearance is a certificate giving permission to disengage from an institution. Final year students who have satisfied the academic requirements to graduate must undergo a clearance process before they disengage from the University. The process of clearing involves the Student's academic department, Faculty, Bursary, Students Affairs, Library, Hostel, Sport department, Health Centre and Registry (Exams and Records). A student is allowed to collect his/her graduation certificate only after he/she has been cleared for something to be done. Currently, the student's clearance process is done manually in Institutions. The aim of this project is to design and develop an online student's clearance system using PHP and MySQL that will eliminate the delays in the manual process and create a central repository for students to be cleared. It will be implemented as a web-based application which will be a central repository for clearing students. The main modules of clearance system are Main Module, Clearance Registration, Cleared/ Not Cleared and Administer. The user is created and managed by the Systems Administrator using the Administer module.***

Keywords— Clearance, Academic, Requirements, Administrator, Module.

I. INTRODUCTION

In many institutions in Nigeria, when a person is about to disengage from an institution, the person undergoes through a clearance process to determine the persons status, whether he/she will be permitted to disengage. If the person is free to disengage, then he/she will be issued a clearance. Clearance is a certificate giving permission for something to be done.
In higher institution of learning, final year students that have satisfied the academic requirements to graduate must undergo a clearance process before they disengage from the university. The process of clearing involves the Student's academic department, Faculty, Bursary, Students Affairs, Library, Hostel, Sport department, Health Centre and Registry (Exams and Records). A student is allowed to collect his/her graduation certificate only after he/she has been cleared.

II. LITERATURE REVIEW

The essence of this review is to make known of some other research made in relevance to the project topic. Many researchers have made some findings on how this problem can be solved and achieve the objective of the subject.
As many tertiary institutions as have chosen to pursue the dynamic educational options available online, the advantages of e-learning are now many. As people of this generation become more dependent on the internet for information, the need for an online clearance system becomes more apparent. The skills needed to access and comprehend information online are becoming commonplace, and the flexibility of wireless computing means that any coffee shop, airport or bedroom can become a classroom. Online courses, registrations, clearance have few, if any scheduling restrictions, well-integrated learning resources and competitive degree options, with an online clearance system. [14].
Online system has become a central element of the discourse on higher education [2]. There seems to be an overall derive towards online system given the mountain need for flexibility in scheduling and the daily emergency of communication technology and capabilities [10].
Online system is presented as a means of conveying instruction to an extensive learning community any place at any time [2]. Indicate that adequate designate online learning as the driving force and model for transformation in teaching, learning and formal schooling online course has the potential to provide learner individualized attention by the instructor, otherwise impossible in a large classroom environment (environmental education and training partnership 2006). With the continued development of online system applications, many colleges and Universities have begun to offer online courses as an alternative to traditional face-to-face instructions. 67% of colleges and universities agreed that online education is the most logical long term strategies for their institutions [10]. However, there are considerable hesitation rising predominantly related quality and student respectively to online system, [22]. Just as their advantages there are also disadvantages to the online system instruction delivery method. There is evidence through previous research that student fill isolated or disconnected when not engaged in traditional face-to-face instruction [6], while other report indicate large success. There remains a lack of clarity whether online courses are as affective as traditional courses [19].
While there has been vast amount of research conducted on the advantages and the disadvantages of online system institution, little is known on how assessment is used in online classroom to monitor performance and progress [13] and [9] describe the evaluation of current online education system at three levels; the macro level, the meso level and micro level. The macro level is an online evaluation that access an entire online program, the meso level evaluation access individual online courses, and the micro level access the learning of the online student.

Online clearance system presents educational experience very different from standard face-to-face environment [9]. When conducting a micro level courses evaluation, interest commonly lies in learner perception of the course experience pertaining to the level of comfort, ability to communicate with class mate and the instructor, as well as comparison to traditional face-to-face lecture. Many times the only means of evaluating learner perception is in the form of a questionnaire or survey. Although perception of online system can be extremely useful information, it is usually not sufficient to conclude the evaluation without expanding to learners understanding.

III. SYSTEM ANALYSIS

A. System Analysis

The systems analysis methodology for developing and implementing the students clearance system is presented below. It is adopted from the software engineering project models adopted from the traditional System Development Life Cycle (SDLC). It is broken down into the following stages: Requirement Gathering, Design, Programming, Implementation and testing, and Maintenance.

I) The Existing System: The current system is associated with the following problem:

- Lack of database management
- Lack of good user interface
- Slow in processing information
- Information is subject to mutilation and dampness
- Characterized by the use of pen and paper
- It increases stress and work rate for administration staff.

II) The Proposed System: The proposed system in this write-up is expected to be better than the succeeding ones in terms of speed, features etc. All the criticized points (limitations) in the existing systems will be handled. The need for the new system is to work and solve the limitations discovered in the previous systems.

The new proposed Student clearance System was implemented in order to solve the challenges faced in the manual way of Final year clearance in our higher institution of learning.

The system has a highly User-Friendly Interface. This guides Graduating students on how to get their clearance done online

- The system will provide result instantly to the Student.
- The system secures all the activities that take place by storing them in form of logs/record in the database, serving as a means of back-up for future use.
- In comparison to the other previously implemented systems, this new system will be more accurate, efficient and less time consuming.

B. Requirements

I) Functional Requirement: The functional requirements for the student clearance system are:

- Administration of Users: The system shall record a database of user accounts. There are three types of users. The unit clearance officer (users) use the student clearance system for either posting the students status or making the enquiries/printing reports. The other user is the student users who register in the system to be cleared, are able to create and edit some information in their clearance record. The third classes of users are technical users like the system administrator who will be able to creating new, editing, and deleting a user.
- User Authorization: The student clearance system shall allow the user administrator to approve the registration of a new user by authorizing his user account.

II) Non-Functional Requirements: These kinds of requirements are sometimes called constraints of the system. Non-functional requirements denote limits of the system and its expected behavior. They do not impact the system directly in terms of functionality:

- Usability: The system must be errorless in the most common web browsers such as Chrome, IE ^{8} and ^{9}, Firefox, Opera, and Safari. The system shall inform the user about its current state (loading, item created, item updated, etc.)
- Reliability**:** The system must not contain errors making some system functionalities unavailable or errors disturbing the user while working with the system.

III) Design Requirements:

The system must work in a form of online web application. Records deleted in the system shall be kept in the database.

IV) Implementation Requirements: The system must be implemented in PHP 5.0. The presentation layer of the system has to be implemented in HTML Framework. The database for the system shall be MySQL (Version 5.0).

C. System Architecture

The system architecture can be captured from different perspectives as well. There are many concepts providing guidelines to design and model system architecture. For example, UML allows capturing system architecture by package,

class, component, or deployment diagrams. Another concept, a 4+1architectural view model, describes architecture of a software system using multiple concurrent views such as a logical view, a development view, a process view, a physical view, and scenarios where each view can be captured by corresponding structural or behavioral diagrams.

I) Logical Architecture of the Clearance System: The logical architecture of the designed system in Figure 1 captures the logical organization of designed classes. As depicted in the diagram, the classes are organized into packages where each package belongs to the corresponding layer of implementation structure of PHP applications. The core package of the application is determined by namespace. In this package, there are two packages logically belonging to the three-layer model. The first one, the entities package, includes all entity classes of the application that are further logically divided into sub-packages. The service package contains interfaces and implementations of services that store and retrieve entities from a database. Business logic classes of the application are organized in the business package. Manager classes that can be found in this package can perform complex operations with the entities.

II) Physical Architecture of the System and Flowchart: On the deployment diagram in Fig 1, there is a design of the deployment of the developed system. According the UML specification, the deployment diagram allows use of two types of node elements having \device" and \execution environment" stereotypes and an artifact elements. As it can be seen, the source code of the implemented web application will be deployed in an instance of the Apache application server. The application server is accessed on the Internet via URL of fourth-level domain. The communication between depicted devices is ensured by TCP/IP whereas the data transfer between the web browser and the application or between the application and database is guaranteed by HTTP or SSL, respectively.

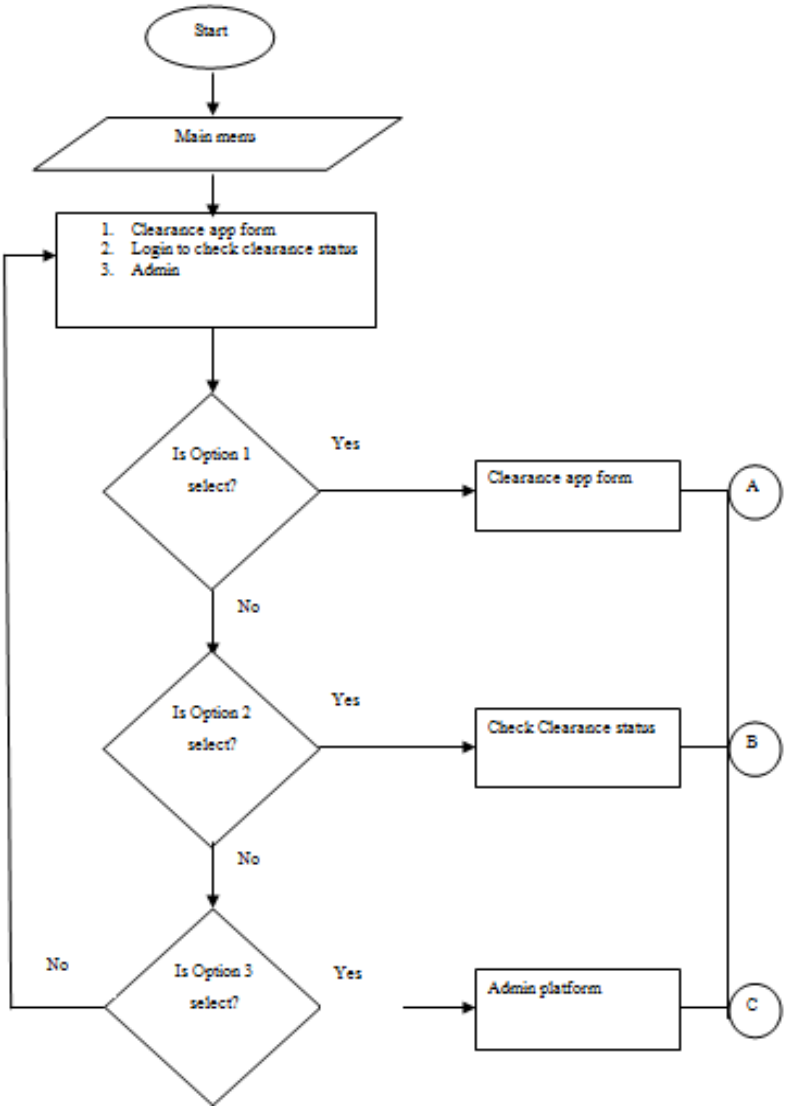

Fig 1 System Flowchart

IV. SYSTEM IMPLEMENTATION

A. System Requirement

I) Software Requirement: The Student Clearance System was developed on a HP laptop running a WAMP server 4.2 on Windows 8, MySQL 5.00 and the PHP 5 interpreted scripting language.

II) Hardware Requirement: The minimum hardware requirement is a Pentium 4 computer system with processor speed of 233 MHz, RAM 256MB and hard disk of 1GB running either Windows 7 (and above) or Linux Operating systems.

B. Installation Procedure

The Student Clearance application can be installed in a WAMP server following these steps:

I) Create a folder in the www folder in WAMP and copy the General Ledger folder into it.
II) Use the php My admin in the WAMP dashboard to create a MySQL database for student clearance system, as well as the user who has all privileges for accessing and modifying it.
III) Run the student clearance system from your browser through the WAMP server dashboard
IV) Setup the users and the database connection links
V) Then the student clearance system is now installed and you can start running it.

C. System Documentation – Systems Modules

The Student Clearance system is a web-based application with the following modules:

I) Login Module
II) Main module.
III) Clearance Registration Module
IV) Cleared/Not cleared Module
V) Administer Module

D. System Implementation

This involves installing all the necessary equipment, the directions and principles to be followed in order to achieve the design goals and objectives effectively.

I) *File Conversion:* The system cannot be used fully for operation in the organization until file conversion is carried out.
II) *Program Testing:* After coding, program testing is needed to ensure that the program is working in accordance with the set objectives. Top down testing is to be used here.
III) *Evaluation:* Once the system come into action, it is necessary to be monitored in order to ensure that set objectives are being achieved. Therefore, this stage involves to review of the general areas such as The performance of the new system evaluated in terms of the objectives stated in the survey and analysis stage. The system development life cycle is reviewed accordingly.
IV) *Maintenance:* The life span of an application can be significantly extended through proper maintenance. Periodic maintenance should be scheduled because preventive maintenance is better than corrective type. Preventive maintenance is a daily maintenance which:

- Improved system reliability.
- Decreased cost of replacement

V. CONCLUSION

The Student Clearance System was developed using PHP and MySQL, and it was implemented using data collected. It was able to manage student's clearance process across all the departments and units and it eliminated the weakness of the manual process which mainly lack centralize repository for the clearance process. Others are the process is slow, clumsy and stressful.

Therefore, the clearance application can be used for recording and certifying that a student is cleared to disengage or not. The clearance applications are recorded and the status can be determined at any point in time.

REFERENCES

[1] Clifton E.B. (1983). *Management of records in Nigerian Universities*. Problems and prospect. The flectional library 23 (30).
[2] Cox, D M. (2005). Experiencing Online System. Prentice-Hall, Upper Saddle River, NJ
[3] Dimorji, I (*2003*)"Information System and Database" publisher: World concept press England.
[4] Donald, L and Newland, Dan (2000). *Online Clearance* (3rd ed.). Pearson Publishing. Pages ??? & Glossary p. 416
[5] Enwerem, U. M. (1992), Contemporary Issue Information Technology, Application E-Learning Abuja Vol. 14.
[6] Graham, T.A. (2001). Teaching child development via the Internet: Opportunities and pitfalls. Teaching of Psychology, 28, 67-71.
[7] Guha, S. (2001). An effective way of teaching early childhood education online. Childhood Education, 77(4), 226-229.
[8] Hew, K.F., Liu, S., Martinez, R., Bonk, C., and Lee, J. (2004). Online education evaluation: What should we evaluate? Published proceedings of the Association for Educational Communications and Technology Conference, Chicago, IL.
[9] Hew, K.F., Liu, S., Martinez, R., Bonk, C., and Lee, J. (2004). Online education evaluation: What should we evaluate? Published proceedings of the Association for Educational Communications and Technology Conference, Chicago, IL.
[10] Hillstock, L.G. (2005, August). A few common misconceptions about distance learning. Published proceedings of the ASCUE Conference, Myrtle Beach, SC.

[11] Hoffman, R (2002), Information and Communication Technology in Policy, Winfred Publishers, Abuja.
[12] Kaczynski, D. and Kelly, M. (2004). Curriculum development for teaching qualitative data analysis online. Published proceedings of the International Conference on Qualitative Research in IT & IT, Brisbane, Australia.
[13] Liang, X. and Creasy, K. (2004). Classroom assessment in web-based instructional environment: Instructors' experience. Practical Assessment, Research & Evaluation, 9(7).
[14] Lisa Donald and Dan Newland, 2000. Publisher wiley 2000 ISBN 0782127495, 9780782127492
[15] Lucey I. (1991). *Managing record in the Moden office*. Training the wild frontier. Archivaria 39 (spring).
[16] Mbam, B.C.E. (2002), *Information System Development*. Pam unique publishing coy. Ltd, Port Harcourt, Nigeria.
[17] Oketunji, B. (2002), Information Technology and Application. Macson Publishers, Kwara.
[18] Omenyi A.S.(1997). *Effective record management*: a tool for effective counselling in the school system. Journal of councelling and communication.
[19] Peirier, W. and Feldman, P. (2004) "*Strategic Planning for Information System*." 3rd Ed. West Sussex. John wiley & Sons Ltd
[20] Russell, M. (2005), Building the Information Technology Work Oxford Publishers, London.
[21] Vossen, W. S. (2002), Comtemporary issue in Information Technology, Welly and Son's Publishers, Lagos.
[22] Yang, Y. and Cornelius, L.F. (2004). Students' perceptions towards the quality of online education: A qualitative approach. Published proceedings of the Association for Educational Communications and Technology Conference, Chicago, IL.

