

Chapter one

1. Introduction

Niger state polytechnic, Zungeru is a tertiary institution with 2 colleges (college of Science and Technology (CST) and College of Administrative and Business Studies (CABS) each college has 3 schools (Environmental studies (SES), Engineering Technology (SET), Administrative Studies (SAS), General Studies (SGS), Business Studies (SBS), and Natural and Applied Sciences (SNAS)), each school has various departments and about 35 programmes form 17 departments in total. Result computation starts from departmental level, the department collect the approved list of students and courses from the Academic Planning Unit, all exams scores are submitted to the departmental coordinators by various course lecturers, then the scores are computed against each student and the responding courses they offered. After computation, the result is submitted to the exams and records unit in broad sheet format ready to be presented to the academic board, the broad sheet comprises of analysis showing all courses offered, course code, unit, grades, total, mean, standard deviation and percentage pass, it also include the result summary, showing total number of students in class, number of students that passed, number of students with Carry Over, number of students absent with Excuse, and number of students advise to withdraw^[1].

In view of the above, the new (automated) system will comprise of five user access role as:

- System manager: This user controls all user accounts, manage personal records of students and courses (add, update and view)
- Department Coordinator: This user manage student scores (import/input/add student exam scores, consider/edit/update) score and allocate courses to a staff in a specific department
- Student: This user will only have access to view their individual result as a whole or on semester basis.
- Teaching staff: this user can import and view student exam scores of only course allocated to them by the departmental coordinator.
- Exams and Records: This user can only view student personal information, courses, and broad sheet result of all departments

All of the users listed above will have different view when given access to the system through a login page process.

1.1 Aim and Objectives

The aim of the project is to develop a web-based system as an automation to the existing manual process of computing students' examination scores in Niger State Polytechnic, as the existing system is prone to errors and waste of time and resources like paper. The objectives are as follows:

- Gather information about user needs of a Result Computation System
- Design a wireframe / prototype
- Develop and design a web application in PHP, using MySQL, HTML, CSS and JavaScript, with five (5) user role each with different user view as describe above.
- To Keep track of up-to-date records of the entire students in polytechnic
- Support Registration, data upload, queries to the system, generate broad sheet report and visual and graphical result analysis for academic board decisions making with user-friendly interfaces for easy interaction
- Test the application for any dysfunctionality

1.2. Organisation of the Report

This reports start by introducing the online result computation system in chapter 1, a brief review of relevant literature and products to establish the context of the project in chapter 2. A specification of the problem and an explanation of how the student arrived at this specification. An initial work schedule including an overall project plan with time-scales, deliverables and resources in chapter 3. Next is the Design, include the design method, design process & outcome and Design decisions are described in

¹ Niger State Polytechnic, Zungeru, Student and Staff Handbook (2018/2019)

chapter 4. Implementation, testing, final evaluation and description of the functionality and interfaces of the completed system comprising; the description of production, testing and debugging and demonstration that the specification has been satisfied using formal user evaluations and reports in chapter 5. Finally summary, conclusion and recommendation in chapter 6.

Chapter two

2. Background

Nigerian tertiary institutions follows the trend in Information and Communication Technologies in transforming their record keeping and information management operations. RMS is currently an information systems that readily attracts the attention of many tertiary institutions in Nigeria.

The review of relevant and related web applications (result computation system) is an important process to achieve a successful design and implementation of an exclusive result computation system.

Base on the research it is obvious that majority of the product didn't have the combination of student profile, graphical and visual result analysis, and broad sheet generation as a whole. However, some of the system have the combination of two out of these functionalities. Though, many only generate broad sheets, which is one of the major component of the system required by tertiary institutions. More also, only a few of them allow importation of scores from file e.g. excel (.csv) format. Finally, only few has more than two user access roles. Some related literatures are reviewed below.

2.1 Review of relevant and related literatures

Creating and organizing information in a useful manner is known as data processing. (Udeze, 2017) Explain how the manual method of computing students result prompt to lots of errors in most tertiary institutions in Nigeria, therefore, the use of computer systems to process information is imperative and desirable as it would enable computation of students' progress, better access to students' records (personal, and courses), updating student records, keeping track of passed and failed courses (performance). The traditional method suffers lots of setbacks; it takes a lot of time and prone to errors, leading to late publishing of examination result, sometimes with inaccurate grades and GPAs generated from scores computed, these errors could lead to wrong decision in awarding students ^[2]. (Akpasam, 2017) says that Most of the Students' RMS are traditional and standalone with few or basic elements of a standard Result Management System (RMS). Most of the students RMS are not web based and others do not integrate well with other information system in their institutions. Therefore, the support for RMS with an automated platform to managing result for all categories of students in a friendly and interactive manner required ^[3].

Ashwin (2017) describe student result analysis as an online application used to analyse, store and keep track of student data and compute the mark analysis process in an educational institution, it enable the view of individual student's result, automated computation of results from various departments. The use of computation systems that has it capabilities beyond result computation is not so much in use. Tertiary institutions today compute student result analysis manually which consume lots of time and effort. System that does analysis of student result is required as it will aid decision-making and taking in tertiary institutions ^[4].

Eludire (2011) observed that some problems related to student academic information management comprise of inappropriate course registration, behindhand release of student results, erroneous due to manual, cumbersome or tedious calculations and retrieval inefficiency. To him the development of database system is the solution to these problems, it will reduce the amount of redundancies in data and the possibility of inaccuracy in data contained in file due to lack of updates^[5]. Amar, (2009) indicated

² UDEZE, C. L., UMOREN, P. U., OHERI, H. E., & ATTAH H. H. (2017) *Automated Students' Results Management Information System (SRMIS)*, *Journal of Multidisciplinary Engineering Science and Technology (JMEST)* Vol. 4, ISSN: 2458-9403,

³ Akpasam J. E., Simeon O., Afolayan J. J. (2017). *Development of Students Result Management System: A case study of University of Uyo. Mathematical and Software Engineering*, Vol. 3, No. 1, 26-42

⁴ Ashwin M., Jugal P., Aditya M. (2018). *Student Result Analysis System. International Research Journal of Engineering and Technology (IRJET)*, vol.5, e-ISSN: 2895 -0056

⁵ Obasa, A.I., Eludire, A.A. and Isaac, M. (2011) *The Architectural Design of an Integrated Virtual Classroom System. Research Journal of Information Technology*, 3, 43-48.

that the publishing of students' results in the old or manual system takes a lot of time, keeping the students in idle state for too long. The delay in releasing of result causes heavy losses to the students as it denies them the ability to join further studies, due to late and unavailability of certificates on time ^[6].

According to Ukem (2012), backup policies can be used to improve on result systems. Though his solution was developed using java and MySQL database, no established evidence that shows the processing of results batched in files to increase data integrity and mitigate fraud. Issues of student on suspensions, medical treatment, and deferments of studies, supplementary exams or related cases are not addressed. We have analysed these scenarios and developed user logs for reference purposes ^[7].

Just like the solution by Akinmosin (2014) in his study titled "The Architectural Design of an Integrated Virtual Classroom System" the software encompassed forms like; login form for authentication of users and Registration forms for registering students semester basis after payment of dues, before results are uploaded on the internet browser. His solution was developed using Oracle Procedural Language/Structured Query Language (PL/SQL) and its implementation uses forms and reports. However, the interface largely uses "Grades form for inputting student grade and Grades Edit form for editing erroneously entered grades." This will result in possible security threat and vulnerability in the design that could give easy access to intruders in accessing the system database. "It's a weakness that may not properly check the mutilation of grades by users who find a way to access those forms" ^[8].

Bhatt et al (2016) proposed a "Credit-based Grading Scheme (CBGS)" in India. It is simply a solution built from PHP & MYSQL to compile student results. The system has reports generated in formats like excel or PDF depending on how it is used. Though the grading system is different from that of the grading systems used in Nigerian, the Grade Point Average (GPA) is calculated in a similar way: "the summation of the product of the credit units and grade points divided by the summation of the credit units". The simplicity in searching and generating lists is a major advantage of such automated systems over the manual system ^[9].

In view of the above related work it is clear that the requirement to have an online Result computation system in Niger state Polytechnic, Zungeru, Nigeria is important. In the institution, Students result are computed every semester from the summation of CA and Exam score of each course taken by students, given each student grades, GP, CGPA and remark. This is presented as broadsheet with analysis. The computation of result is completely manual.



This project is to create a web-based Result Computation System that would allow teachers submit/input/import students examination scores, the system compute the scores, generate a broadsheet and provide a graphical/visual analysis of the results on a semester basis. The students would be able to view their result through their profiles. Hence, in this project, we considered issues of security breaches as utmost priority and have incorporated a log file to help monitor activities that go on in the database. This will make the system more credible and enable the management account for changes made at any time by a particular user. It also keeps backups of record in case of loss.

⁶ Amar, E. and Mohini (2009). Single portal for integrated examination system, emerging technologies in e-governance, E-Governance, pages 287-293

⁷ Ukem, E. O.-I. (2011). A Software Application For The Processing Of Students Results. Global Journal of Pure and Applied Sciences, Volume 17 No. 4

⁸ Akinmosin, J. (2014). Automated Student Result Management System using Oracle Database, Forms and Reports, Journal of information Engineering and Application Vol.4, ISSN 2225-0506(online)

⁹ Bhatt J., Jain R., Kadge S. and Parate P. (2016). Result Generation System for CBGS Scheme in Educational Organization. International Journal of Research in Engineering and Technology (IJRET), Vol. 5, Issue 2 from <http://www.ijret.org>