

DESIGN AND IMPLEMENTATION OF AN ENHANCED STUDENTS' ASSESSMENT PROCESSING SYSTEM

Engr. Nwaoha Stephen O.¹, Nwankwo Chekwube G.²

¹Multimedia/Publicity Unit, Metallurgical Training Institute, Onitsha, Anambra, Nigeria.
Email: esolutionafrica@gmail.com, Phone: 08037476009

²Department of Computer Science, Chukwuemeka Odumegwu Ojukwu University, Uli.
Email: dabby.cheks88@yahoo.com Phone: 08039095014

ABSTRACT

The Enhanced Students' Assessment Processing System is a computer application software that facilitates the automation of Tertiary Institutions' students' academic performance evaluation. This study stems out of the desire to eliminate the challenges associated with processing of large number of students' assessment report inherent in Tertiary Institutions. The methodology we adopted in this study is the Object-Oriented Analysis and Design Methodology (OOADM) which combines data and processes (methods) into single entities called objects while Microsoft Visual Basic is our language of implementation. In this study, we examined the inadequacies involved in the manual method of processing students' assessment reports which we found to be time-consuming and error prone. The system we propose will be used in generation of reports such as students' in-course performance, composite sheets, students' transcript etc. With the new system, the time and cost of assessing students' performance is found to be considerably reduced and less prone to error.

KEY WORDS: Assessment, performance evaluation, Processing, Object-Oriented,

INTRODUCTION

Students' academic performance evaluation and assessment is the criteria for the measurement of his/her capability in terms of academic work in the school. It is also used to measure a student's capability in a given course. Continuous Assessment is an educational policy in which students are examined continuously over the duration of their education, the results of which are taken into account after leaving school (Mwebaza, 2010). This study was carried out to verify the existing process involved in generating and processing students assessment report by lecturers and Instructors of Tertiary Institutions and to seek a way of enhancing the system for effective operations. The effort expended by Instructors and Lecturers of tertiary institutions in the process of registration of students and computation of their assessment results reports are enormous. There is need to evolve an enhanced process that will effectively and efficiently handle processes like attendance marks, inputting assessment, quizzes and examination scores, storing results, automatically calculating grade points, and interpreting the student's overall assessment result. The manual process has reached a level where it is difficult for lecturers to cope with the magnitude of work, in the given time. The imbalance between the ratio of numbers of lecturers and the numbers of students leads to delay in the declaration of semester results. Again, the task of implementation of continuous assessment weighs lecturers down as the number of students enrolled into various departments of Tertiary Institutions have been increasing at a

progressive rate. Thus the current methods of students' academic assessment processing imposes a lot of challenges, such challenges include:

- **Delay in generation of results:** Lecturers and Instructors work round the clock to ensure that assessment results reports are prepared, but most of the times they find it difficult to cope with the large number of students as a result of this, results submission are delayed.
- **Errors in manual computation:** Sometimes mistakes are made by lecturers during the computation of scores and grades of students in a particular subject, this leads to the production of inaccurate results.
- **Poor Security of document due to unauthorized access:** Printed documents are usually accessed by unauthorized personnel. More often these documents get easily misplaced by those in charge of it. Students also may have access to the result sheet and alter their scores.

An effective measure, which can improve the efficiency of the assessment processing is therefore the adoption of an Enhanced Students' Assessment Processing System.

The aim of this paper therefore, is to:

- i. To design an Enhanced Students' Assessment Processing System for Lecturers and Instructors of Tertiary Institutions that will facilitate student's assessment processing activities with the aid of a program for fast and effective production of student's results.
- ii. To generate students' attendance marks using biometric finger print scanner.
- iii. To generate students' attendance sheet, semester course sheet, Semester Broadsheet Report, Cumulative grade point average and transcript report with ease.

Literature Review

According to Mwebaza (2010), assessment is a process through which the quality of an individual's work or performance is judged in relation to school setting. Greaney (2001) in his opinion defines assessment as any procedure or activity that is designed to collect information about the knowledge, attitude, or skills of the learner or group of learners. Thus, in the context of education, he defined assessment as a predetermined process through which the quality of a student's performance in the three domains of educational objectives (cognitive, affective, and psychomotor) is judged. This is because results from such assessment not only provide feedbacks regarding the educational progress of students but remain the authentic yardstick for measuring the effectiveness of the teacher, the quality of instruction, and in part the functionality of any curriculum reform. Osadebe (2015) opined that continuous assessment was introduced because of the problems associated with single assessment called examination. In his assertion, the single assessment only focused on the cognitive behaviour of students that is the students' intellectual ability (ability to think and reason). The other aspects of behaviour such as affective and psychomotor were not considered. The need to consider all the domains of behaviour brought in the lecturing of continuous in the university.

Classroom assessment is integral part of the teaching–learning process, facilitating student learning and improving instruction can take a variety of forms. Burns (2005) argued that making assessment an integral part of daily course work is a challenge. It requires planning specific ways to use assignments and discussions to discover what students do and do not understand. It also requires teachers to be prepared to deal with students' responses. Merely

spotting when students are incorrect is relatively easy compared with understanding the reasons behind their errors. The insights we gain by making assessment a regular part of instruction enable us to meet the needs of the students who are eager for more challenges and to provide intervention for those who are struggling. A more comprehensive definition of Continuous Assessment (CA) is given by Ezewu and Okoye (1986). They see continuous assessment within the educational context as a systematic and objective process of determining the extent of a students' performances and all the expected changes in his behaviour from the day he enters into a course of study in a continuous and progressive manner to the end of such a course of study and a judicious accumulation of all pieces of information derived from this purpose, with a view to using them to guide and shape the student in his learning from time to time and to serve as bases for important decision about the student.

The Federal Ministry of Education Science, and Technology defined continuous assessment as a mechanism where the final grading of a student in the cognitive, affective and psychomotor domains of behaviour takes account of all his performance during a given period of schooling. It is a technique of determining the learner's achievement in cognitive, affective and psychomotor domains taking into account all their scores in class attendance, tests, quizzes, assignments, projects, interviews, sociogram, etc during a school term session or programme (Terhemba, Mustapha & Mohammad, 2015).

Educational assessment is the process of documenting, usually in measurable terms, knowledge, skill, attitudes, and beliefs. It is a tool or method of obtaining information from tests or other sources about the achievement or abilities of individuals. Ekpo (2005) in his work, observed that continuous assessment has not been effectively practice in most tertiary institutions. Yoloye (2011) itemized some of the following as the problems of implementing continuous assessment in schools:

- i. **Large Class Size:** Most tertiary institutions classrooms are oversized as a result of many streams. Cases abound where a department has 15 streams or over fifty (50) students each. In many cases, one teacher is assigned to teach all the streams under such condition it will be impracticable for the teacher to undertake a thorough assessment and evaluation of the students in each stream.
- ii. **Computational Skill on the Part of the lecturers:** Some of the lecturers in tertiary institutions exhibit a low level of competence in the use of the statistical models, which are necessary in presenting performance in a neat and logical manner.

Abubakar, Magaji, and Sa'adatu (2015) developed an Excel Template for Processing Examination Results for Higher Institutions in Nigeria. The system explored the usage of the logical "IF" and "OR" statement contained in the function library of MS Excel. The function was used to develop and implement an operational package for the computation of the Postgraduate examinations results. The designed template when fed in with data computes and grades students appropriately. It was deployed and tested for the performance in terms of accuracy and speed, and as attested by the end users, however its usage requires proficient knowledge of spreadsheet software (e.g. Microsoft Excel). The input data storage uses file system and not dataset, this can lead to data redundancy, data repetition and finally lost of data integrity and security.

According to the study carried out by Osadebe (2015) to evaluate the extent of continuous assessment practice by university lecturers in line with the National Policy on Education, and Handbook on continuous assessment by Federal Government of Nigeria. It was evaluated that the extent of continuous assessment practice by university lecturers was low. More so a study conducted by Papanastasiou and Angeli (2008) revealed a very low frequency with which software programs were actually used in various school subjects by teachers. The university lecturers should be encouraged to practice continuous assessment in line with the educational policy for university education. Therefore, there should be efficient system that will enhanced improvement on the practice of continuous assessment in the university. This would help to improve the practice of continuous assessment by university lecturers.

Challenges in Implementing Continuous Assessment Effectively:

The result of the study by Teklebrhan and Samuel (2015) on Problems and Prospects of Implementing Continuous Assessment at Adigrat University indicated that, instructors were not continuously collecting information about student progress, small number of assessment is used in courses and few instructors give feedback at all. Significant number of instructors and students had poor knowledge and negative attitude towards CA. Most instructors and students had good knowledge of and positive attitude towards continuous assessment implementation in institution of higher education but the challenges itemized below have prevented effective implementation.

- i. Large class size (up to 80-120 students in a class).
- ii. Some instructors show CA results after exam.
- iii. Shortage of time particularly to follow up every individual student progress and give feedback accordingly.
- iv. Course over load (Teaching different courses in a semester).
- v. There are no documentation and formal reporting systems.
- vi. Poor awareness about CA on side of both students, instructors and exam center staff.
- vii. Most teachers use tests and quizzes as the only techniques.

The imbalance between number of students and the magnitude of work to be done in processing their assessment leads to the delay in the declaration of semester results reports. Amar and Mohini (2011) observed that problems associated with student academic record management include improper course registration, late release of students' results, inaccuracy due to manual and tedious calculation and retrieval difficulties/inefficiency, According to him, the development of database concept is the answer to these problems where the amount of redundant data is reduced and the possibility that data contained in a file might be inaccurate because of update anomaly and data inconsistency. Hence an Enhanced Students' Assessment Processing System which has Biometric Attendance Module would be an excellent way of managing students' academic performance evaluation processing. It enhances productivity by enabling staff and students to share information and documentation in an efficient and cost effective way.

Class Attendance

Class attendance is a major issue that most of the academics should take care of because it affects the students' performance in the class and the relation between the instructor and the student. The results of study by Suleiman, Adnan, Wisam, and Jadayil (2012) indicates that students' level of attendance has a significant influence on the grade attained and the overall

performance of students. Suleiman et al. (2012) further stated that consistent class attendance is effective in increasing the retention of information and overlearning of material. They are of the view that regular attendance and academic achievement are closely linked. Students who regularly attend classes are more likely to enjoy a rewarding experience in which core skills and abilities, such as team-working, are developed. Tertiary Institutions expect all the students to attend all scheduled learning sessions; time tabled lectures, seminars, tutorials, workshops and laboratory sessions. The Lecturers and Instructors ask students to sign an attendance register for every class work. Despite all these efforts, investigators still report that students skip classes due to no just reasons.

Fingerprint Biometric

Nowadays, fingerprint recognition is one of the most important biometric technologies based on fingerprint distinctiveness, persistence and ease of acquisition. According to Terhemba, Mustapha and Mohammad (2015) Fingerprint biometric is the commonly used oldest and solely method internationally accepted as legal method to identify a person. They maintain that Biometric identification of a person is fast, easy-to-use, precise, trustworthy and economical over traditional knowledge-based and token-based methods. A biometric system contains mainly an image capturing module, a feature extraction module and a pattern matching module as shown in Fig. 1.

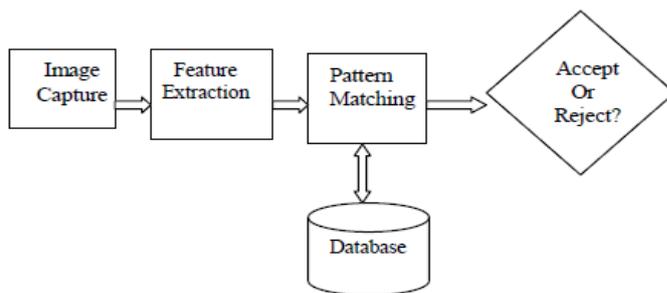


Figure 1 A biometric system (Terhemba et al., 2015) p. 48

An image capturing module acquires the raw biometric data of a person using a sensor. Utilizing suitable algorithm/s feature extraction module improves the quality of the captured image. Database module stores the biometric template information of enrolled Persons. Pattern matching module compares the extracted features with the stored templates, which in-turn generates match score.

Fingerprint Attendance System for classroom needs

Fingerprint attendance system aims to automate the attendance procedure of an educational institution using biometric technology. This will save time wasted on calling out names and it gives a fool-proof method of attendance marking (Terhemba et al., 2015). A hand-held device is used to mark the attendance without the intervention of teacher during the lecture time. Students would be made to place their finger over the sensor so as to mark their presence in the class. It can communicate with a host computer using its USB interface.



Figure 2 Portable fingerprint attendance system

Graphical User Interface application in host computer helps the teacher to manage the device and attendance. Conventional attendance system followed in an educational system where the teacher call out the name of each and every student and mark the attendance causes time wastage during lecture time. This becomes more and more severe especially in the current scenario where number of students in a class is very large. Managing the attendance data of such a large group is also very difficult. Another disadvantage of present system is the chance for the student to mark fake attendance. Fingerprint based devices are being used in corporate environments. These devices use computer to store and verify fingerprints. It can be ported to academic environment with modifications.

The Proposed System

The Enhanced Students' Assessment Processing System automates all operations and administrative activities related to students' course registration, assessment scores computations, result processing and all students' reports generations. Thus the basic activities carried out in a manual system are performed by the system. The system has four actors, the students, Lecturers/Instructors, Exams Officers and the Exams/Records Unit. During course works the lecturers/Instructors signed in to the system and call up the biometric attendance module. At this stage students use their registration numbers and fingers to mark attendance with a portable fingerprint scanner. The Lecturers/Instructors also used the manage students module to input the continuous assessment and examination scores of each student in a particular course. After this the system automatically calculates the grade, GPA, CGPA for each student in a particular course, semester and academic year respectively. With this, the lectures can print the student course sheet while the student is able to view all his results together with the scores, grade and GPA for a particular course or semester result. More so, the managed student module is designed in such a way lecturer could use it offline or online. During offline operations, data inputted are saved in local database which automatically synchronized with the network server database when it's connected online. This gives the lecturers the feasibility of working with or without network connection.

Exams Officer has access to exams officers' module. In this module he access all the courses under his control. He uses this module to generate and prints his reports such as composite sheets, Semester broadsheet report, and students' semester result and students' carryover courses in a semester.

Exams/Records Unit. Use the system to generate the Students statement of result and transcript. This unit only has access to print reports module, after all the necessary conditions are met and approvals given. The software is designed by articulating the manual processes and automating the processes. The emphasis in the operation of the system is assessment and examination scores/marks inputs or edit can only be carried out by the lecturers/Instructors, this will guaranteed security and integrity of students' data and records.

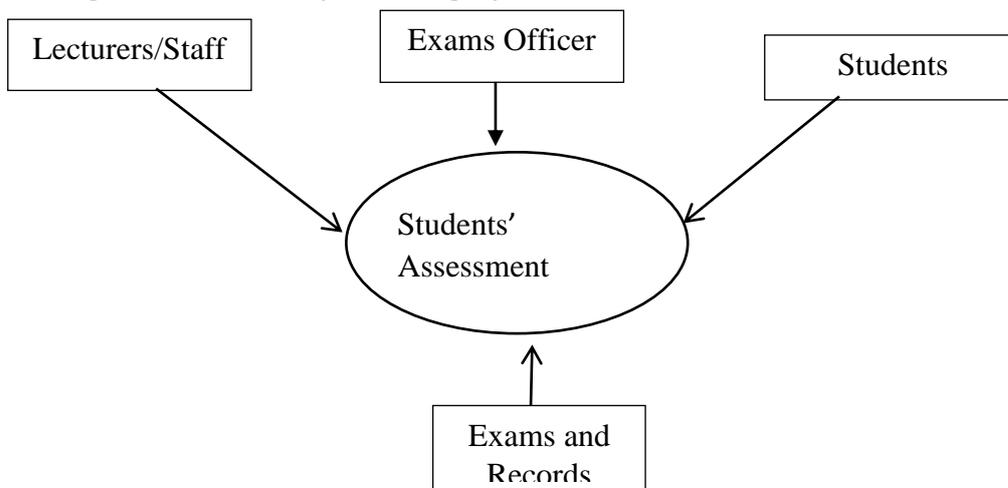


Figure 3 Typical Layout of the Proposed System

The proposed system will be deployed on a Network; the media will be wired and wireless. The Users which includes students, lecturers, exams/records unit will use their id and password to login and access their panel to perform activities.

The automation is carried out by presenting each manual data process as data objects. The data objects represent real-world entities e.g. course registration. It has a set of attributes or properties and operations that can be carried out on it. The object-oriented software captures the various data objects of the system and establishes relationships and interaction among the objects. In the result processing system, data objects are represented as a class object. The classes are: student class; course class; registration class; result class and administration class. Each class is an entity of its own with a known set of characteristics and operations that can be performed on it.

Data Flow Diagram of the Proposed System

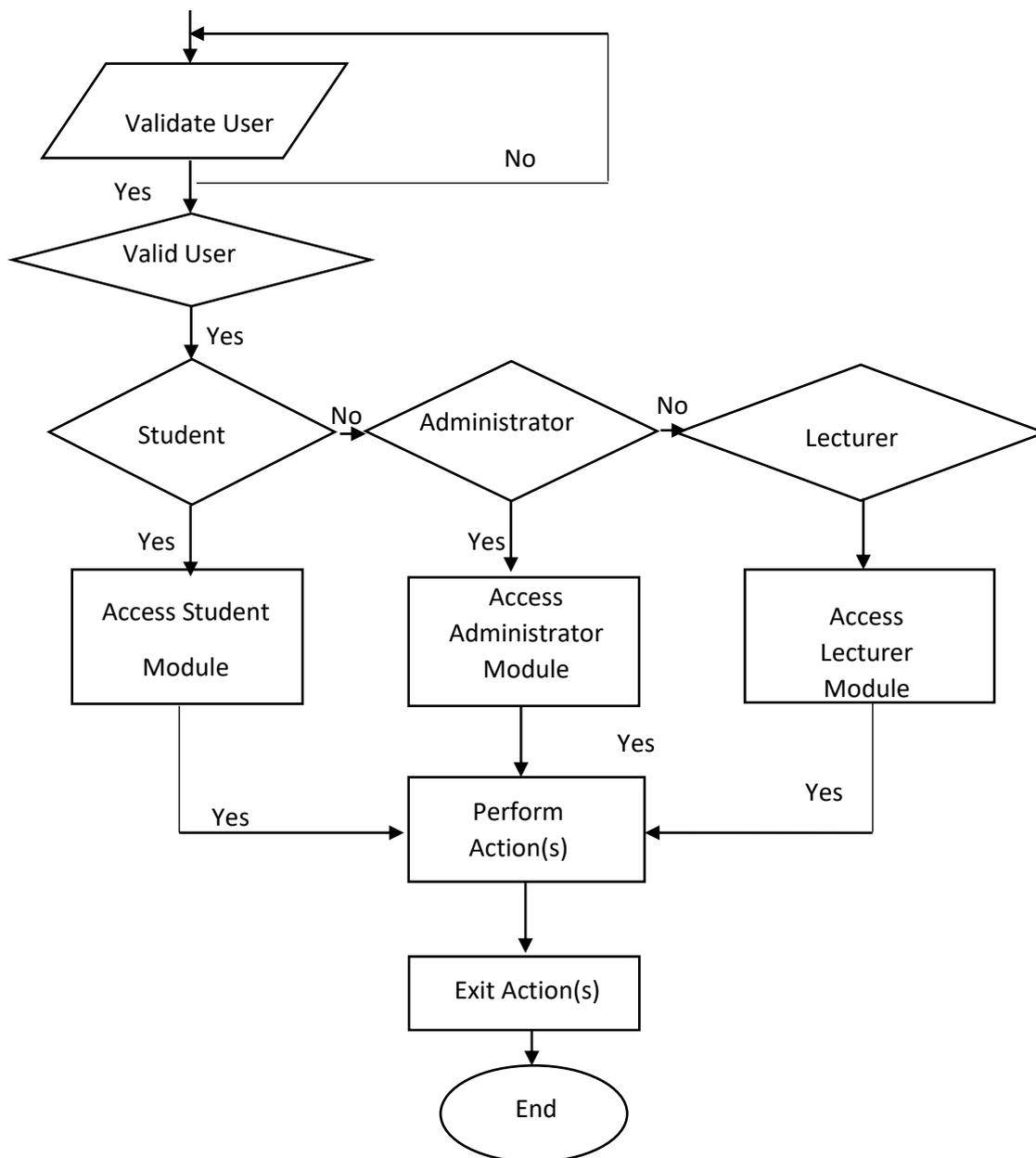


Fig 4 Data flow diagram of the new system

Some advantages of the proposed system:

- i. Accuracy: It is capable of storing and processing students’ results with high speed and accuracy,
- ii. Efficiency: Because of the ever increasing number of students enrolling in tertiary institutions, it is becoming progressively harder to cope with the paper worked involved in the existing system of students’ assessment processing. A computerized system will make the job a lot more efficient and students will obtain their results soon after the marking of the scripts is completed.

- iii. Retrieve ability:- In the existing systems, information are stored in files, these information can be retrieved by searching for the file that contains it, but with the use of computers one need to do is to punch a few keys on the key board or simply click the mouse and the information is retrieved.
- iv. Safety and security: information stored in the computer is safe from animals, insects and intruders. Also a password can be used to make program assessable to only authorized persons.

Use Case diagram

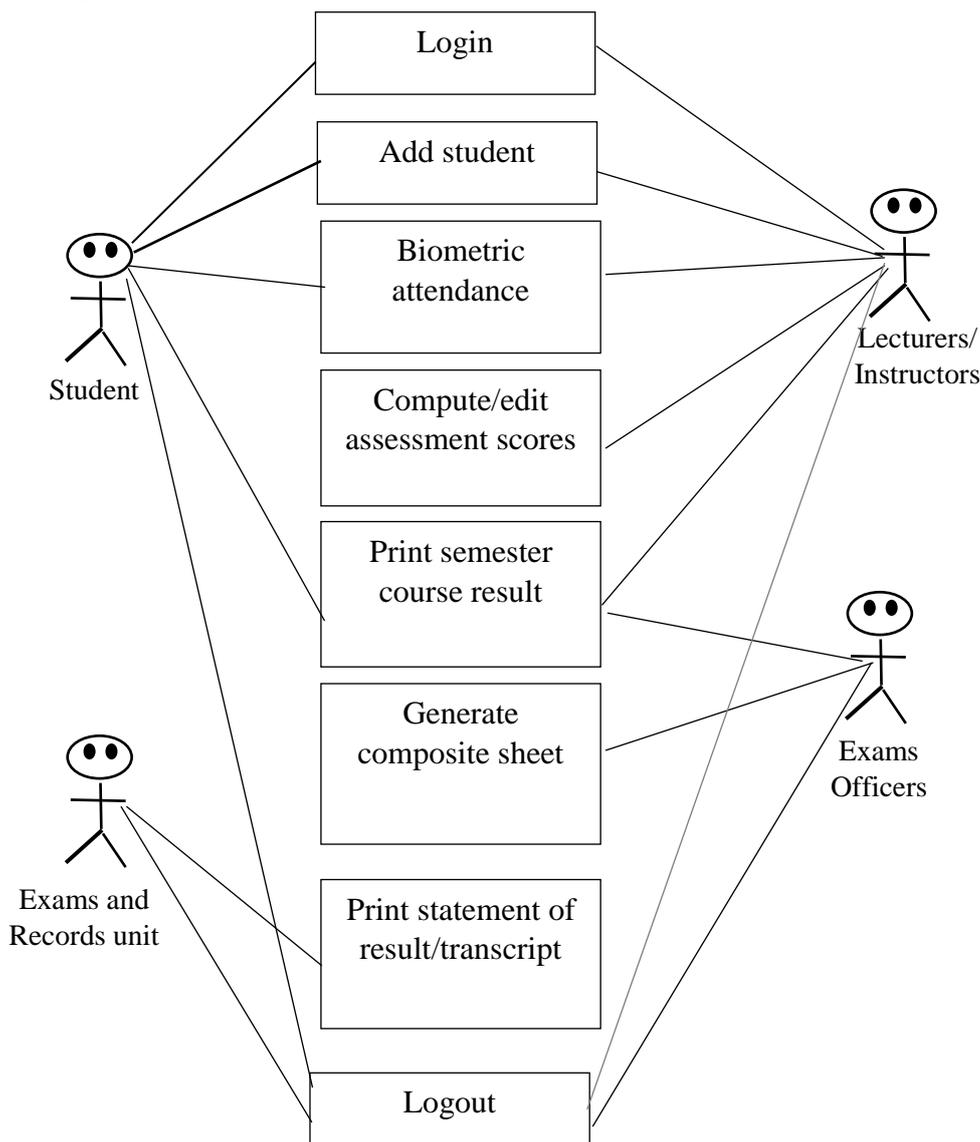


Figure 5 Use Case diagram

The Proposed Enhanced Student Assessment Processing System Architecture

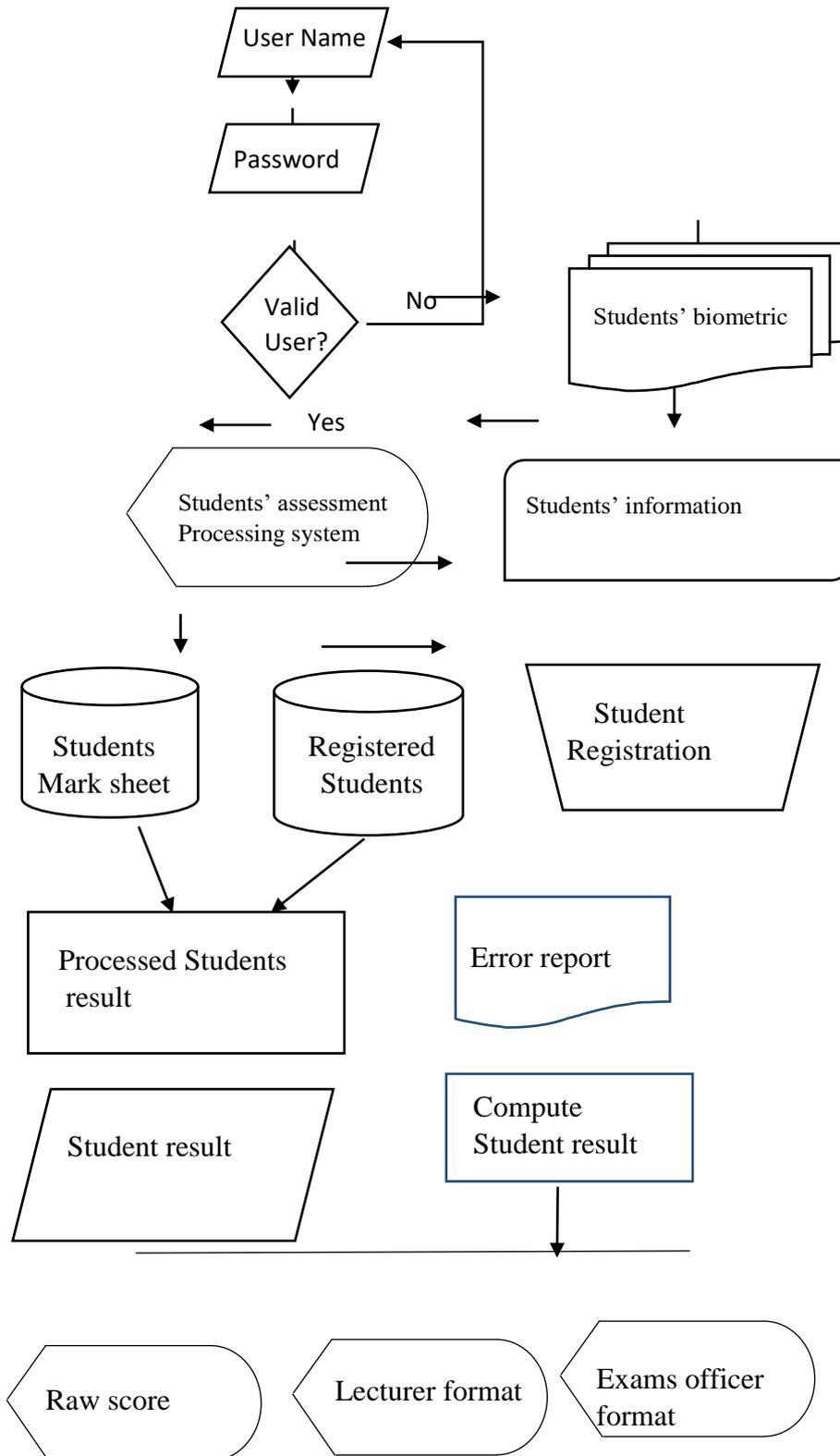


Fig 6 The Proposed Student Result Processing System Architecture Control Center/Main Menu

The system is designed to have three main sections, namely: the login window, the main menu and sub menu. The login window requests a valid user name and password from the user to be able to gain access into the software.

(a)The Login: The login form/window enables the user to enter his \ her password. If the password entered is valid, the software will then display the main menu. But if the password is not valid the user will be denied access to the program. (b)The Main menu: The main menu contains dashboard and panel, on the dashboard sub menu which serves as a link to all other modules in the program

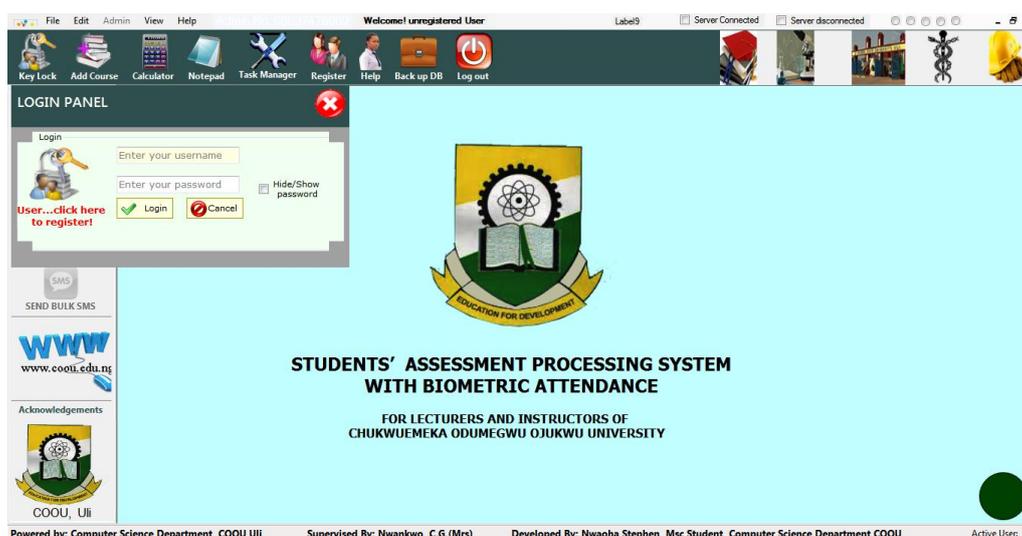


Figure 7 Screen Shoot of Control Center/Main Menu

The Submenu/Subsystems

The sub menu are; Biometric Attendance, Assessment Module, Reports, Register. While the panel holds the forms for capturing data and display query result. (c) Biometric Attendance Sub Menu: This sub-menu is use for enrollment of students' data or record into the database such as students fingerprint, surname, first name, other name and registration number. The student' personal information are all captured in this menu.



Figure 8 Screen Shoot of Biometric Submenus/Subsystems

(d) The Assessment Sub Menu: This sub menu contains modules such as student’s biometric attendance, view subject, view students, compute results, and view results. Clicking on any of these modules, operation takes place.

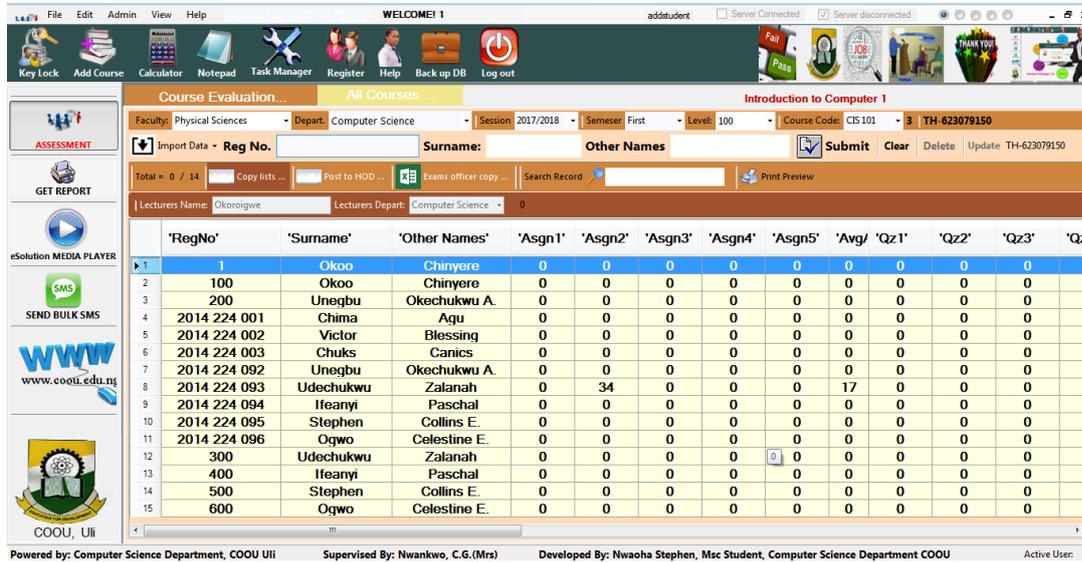


Figure 9 Screen Shoot of Assessment Sub Menu

(e) Get report module: All subjects registered into the data base can be viewed in this module. Lecturers and Instructors can generate students course sheet report, Exam officers used this to generate the result composite sheets without doing any other data entering, Exams/Records unit use t to generate transcripts while students can view their course scores from this module.

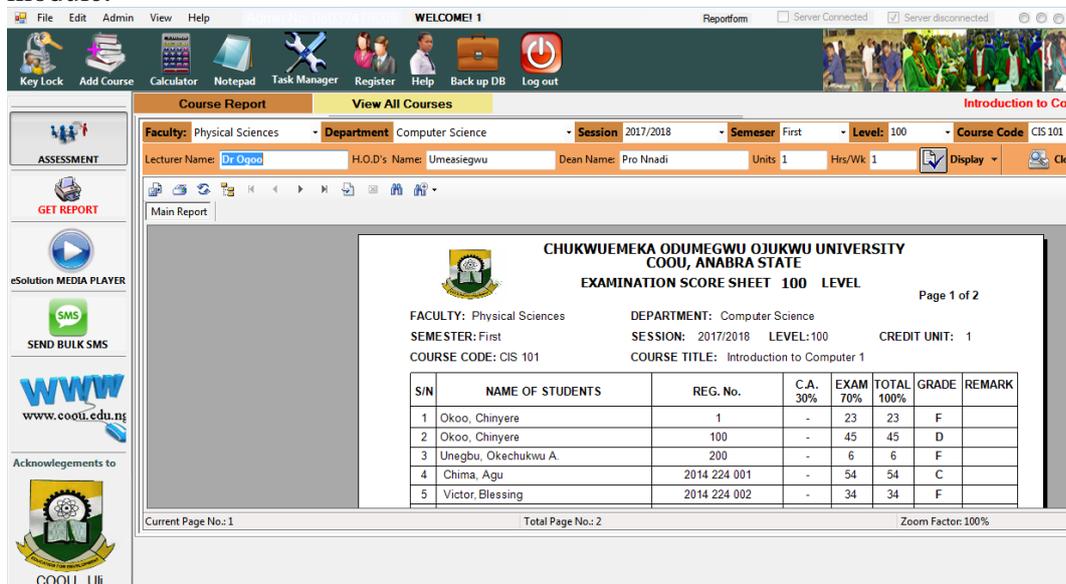


Figure 10 Screen Shoot of Get report module

(k) Exit module: This module allows the application/system to be terminated

System Specifications: The most important conclusion to be drawn from the specification of new Enhanced Students’ Assessment Processing system is the potential cost savings it offers over the existing system. Also, it will ease the tracking of the result at any given time and

reduce considerable the time for submission of students' course sheet. It also aims at benefitting the "Going Green" effort by eliminating the need of paper at various points. It will reduce the usage of the paper in quantifiable amount.

Math Specification.

Attendance percentage is defined as the percentage of the total attendance of a student in a given academic semester for a particular course. It is calculated in schools and colleges to estimate the students' attendance for the class at the end of every semester to grade them. In COOU Uli, a 75% attendance is required. This is aimed at encouraging Students to attend classes, lectures and workshops to listen to the teachers for effective learning. Average Student semester course work Attendance is defined as the total days of student attendance divided by the total days of instruction.

$$\text{Average Student semester course work Attendance (ASSCWA)} = \frac{D}{T}$$

Where D = the aggregate number **attendance** of a students during a semester course work
T = the number of days of lectures or contacts for the course during that semester

Internal mark & Attendance % in COOU, Uli

Continuous assessment could be used to predict future students' performance in the final examinations and the possible success of individuals at the work place or on a particular job. CA is a formative evaluation procedure concerned with finding out, in a systematic manner, the over-all gains that a student has made in terms of knowledge. The students' attendance details and assessment marks are generated by using the system biometric attendance module. Consider the course with code CSC 301.

Number of attendance of a students during a semester course work D= 30

Number of days of lectures or contacts for the course during that semester T= 45

$$\begin{aligned} \text{Convert attendance it into Percentage} &= (D / T) * 100 \\ &= (30/45)*100 \\ &= 66.7\% \end{aligned}$$

The mathematical models for Internal Mark for Attendance % :

< 75% -0 mark

75-80%-1 mark

80-85%-2 mark

85-90%-3 mark

90-95%-4 mark

95-100%-5mark

ie., 100% means 5 marks

Maximum Marks Allocation:

Students' biometric attendance (SA) =5%-mark

Assessment (A) = 10% - mark

Test/quizzes (Q) = 15% -mark

Continuous Assessment (CA) = SA+A+Q = 5+10+15 = 30 % -mark

Examination (E) = 70% - mark.

Total = CA+E = 30+70= 100% - mark

The Nigerian Universities Commission (NUC) Grade System

The NUC is the regulatory agency for University education in Nigeria. The grading system as highlighted in the Benchmark Minimum Academic Standards (BMAS) for Undergraduate programmes in Nigeria (NUC, 2011) is as stated below.

- i. The minimum pass mark in any course shall be 45%.
- ii. Grading of courses shall be done by a combination of percentage marks and letter grades translated into a graduated system of Grade Point Equivalents (GPE). For the purpose of determining a student’s standing at the end of every semester, the Grade Point Average (GPA) system shall be used. The GPA is computed by dividing the total number of credit points (TCP) by the total number of units (TNU) for all the courses taken in the semester. The credit point for a course is computed by multiplying the number of units for the course by the Grade Point Equivalent of the marks scored in the course.
- iii. Each course shall be graded out of a maximum of 100 marks and assigned appropriate Grade Point. Equivalent as in the following table 3:

Table 1 Grade Placement for Examination Raw Scores

Credit Units	% Scores	Letter Grades	Grade (GP)	Points
Vary according to contact hours assigned to each course per week per semester, and according to load carried by students.	70 – 100	A	5	
	60 – 69	B	4	
	50 – 59	C	3	
	0 – 49	F	0	

In Chukwuemeka Odumegwu Ojukwu University(COOU), Uli, the grade is by letters, A, B, C, D, E, and F. where A stands for 5.0, B = 4.0, C =3.0, D = 2.0, E=1.0 and F =0.0 i.e. anything below 1.0 which E (pass) is F (fail). Below are the illustrations:

Table 2 COOU Uli Marks – grade equivalent.

Mark	Grade point
70 - 100	A
60 -69	B
50 - 59	C
45 - 49	D
40 - 44	E
0 - 39	F

Table 3 COOU Uli grading system.

Grade	Grade point
A	5.0
B	4.0
C	3.0
D	2.0
E	1.0
F	0.0

GPA= sum of quality points / total credit for all courses registered in the semester

Table 4 COOU Uli degree classification

CGPA	Class of degree
4.50-5.00	First Class
3.50-4.49	Second Class (Upper Division)
2.40-3.49	Second Class (Lower Division)
1.50-3.2.39	Third Class
Less than 1.5	Fail

The courses offered in a degree programme are allocated a number of credit units which vary from one course to another, because the courses vary in their needs and scope. Hence some courses are allocated greater credit units than others. The measure of performance of a student in any course is given by the grade-points obtained in that course. The grade-points (GP) obtained by a student in any course are determined by multiplying the value of the grade (numeric grade) by the credit units of the course. The total grade-points are obtained by summing up the grade-points of all the courses offered. The Grade-Point Average (GPA) is computed by dividing total grade-points by the sum of credit units of all the courses offered in that period. Thus;

$$\text{GPA} = \frac{\text{Total Grade-Points of the courses offered in the year}}{\text{Summation of the credit units of the courses in that year}}$$

The GPA is manually computed as illustrated above. The Cumulative Grade-Point Average (CGPA) for a period is obtained by dividing the cumulative sum of the total grade-points over the years by the cumulative sum of the credit units over the same period. Thus,

$$\text{CGPA} = \frac{\text{Cumulative sum of the credit units of the courses up to the present year}}{\text{Cumulative sum of Total Grade-Points of the courses from year one up to the present year}}$$

When the result of student A is keyed in into the system, the system searches through the record to locate the result of a particular student and fills in the course grade in the corresponding column of the student's work sheet. The same process is repeated until all the results for all courses registered by the student are processed. Then the grade is computed. Table 3.1 is an example of a result computation sheet for a particular student. Overall Student's GPA and the attendance percentage are the most significant factors in determining the grade attained in a specific class.

TABLE 5 Calculation of GPA

Course code	Credit unit	Scores	Grade	Grade-point
CSC 301	2	64	B	2*4=08
CSC 371	1	71	A	1*5=05
CSC 322	3	80	A	3*5=15
Total	6			28

Total Grade-Points = 28
 Total Credit-Units = 6
 Grade Point Average = 28/5
 GPA = 4.67

Table 6 COOU Uli Sample Students Course Score Sheet

CHUKWUEMEKA ODUMEGWU OJUKWU UNIVERSITY, IGBARIAM CAMPUS
 EXAMINATION SCORE SHEET

SEMESTER:..... SESSION:.....
 COURSE CODE/TITLE:.....LEVEL:100
 DEPARTMENT: COMPUTER SCIENCE FACULTY: PHYSICAL SCIENCES

S/N	Name of Student	Registration Number	Quiz/Assig 30%	Exam 70%	Total 100%	Grade
1	Nwaoha Stephen O	2017074001	20	60	80	A
2	John Paul	2017074002	10	30	40	C

Name of Examiner:.....Sign:Date:

Name of HOD:.....Sign:Date:.....

Name of Dean:Sign:Date:.....

TABLE 7 Calculation of GPA



CHUKWUEMEKA ODUMEGWU OJUKWU UNIVERSITY
 COMPOSITE/STUDENTS RECORDS CARD

FACULTY: Physical Sciences DEPARTMENT: Computer Science
 SESSION: 2017/2018 SEMESTER: First LEVEL: 100

S/N	NAME	REG No	CIS 101	MTH 131	MTH 111	CHM 101	PHY 101	PHY 191	GSS 101	GSS 103	GSS 107	STA 111	REF.	REMARKS
1	Okoo, Chinyere	1	- F -	- F -	- F -	- F -	- F -	- F -	- F -	- F -	- F -	- F -	10	
2	Okoo, Chinyere	100	- F -	- F -	- F -	- F -	- F -	- F -	- F -	- F -	- F -	- F -	10	
3	Unegbu, Okechukwu A.	200	- F -	- F -	- F -	- F -	- F -	- F -	- F -	- F -	- F -	- F -	10	
4	Chima, Agu	2014 224 001	- F -	- F -	- F -	- F -	- F -	- F -	- F -	- F -	- F -	- F -	10	
5	Victor, Blessing	2014 224 002	- F -	- F -	- F -	- F -	- F -	- F -	- F -	- F -	- F -	- F -	10	
6	Chuks, Canics	2014 224 003	- F -	- F -	- F -	- F -	- F -	- F -	- F -	- F -	- F -	- F -	10	
7	Unegbu, Okechukwu A.	2014 224 092	- F -	- F -	- F -	- F -	- F -	- F -	- F -	- F -	- F -	- F -	10	
8	Udechukwu, Zalanah	2014 224 093	- F -	- F -	- F -	- F -	- F -	- F -	- F -	- F -	- F -	- F -	10	
9	Ifeanyi, Paschal	2014 224 094	- F -	- F -	- F -	- F -	- F -	- F -	- F -	- F -	- F -	- F -	10	
10	Stephen, Collins E.	2014 224 095	- F -	- F -	- F -	- F -	- F -	- F -	- F -	- F -	- F -	- F -	10	
11	Ogwo, Celestine E.	2014 224 096	- F -	- F -	- F -	- F -	- F -	- F -	- F -	- F -	- F -	- F -	10	
12	Udechukwu, Zalanah	300	- F -	- F -	- F -	- F -	- F -	- F -	- F -	- F -	- F -	- F -	10	
13	Ifeanyi, Paschal	400	- F -	- F -	- F -	- F -	- F -	- F -	- F -	- F -	- F -	- F -	10	
14	Stephen, Collins E.	500	- F -	- F -	- F -	- F -	- F -	- F -	- F -	- F -	- F -	- F -	10	
15	Ogwo, Celestine E.	600	- F -	- F -	- F -	- F -	- F -	- F -	- F -	- F -	- F -	- F -	10	

Program Development

website:www.coou.edu.ng

The development environment used in this project work “Enhanced Students’ Assessment Processing System” is VB.net, MYSQL server and MS-Access databases. VB.net is a multi-paradigm, managed, type-safe, object oriented computer programming language implemented on the Microsoft .NET Framework. And it was used to create the interfaces, the forms and the logins. MYSQL server is a web-based database software that allows a multi-user access while the MS-Access database is used to for storing data during students’ assessment computations. The minimum attributes of a system required to run the package on a localhost are: Pentium 4 system, windows XP operating system, 100GB dataspace and 1GB memory space.

Conclusion

The research paper culminated in the design and implementation of a software application, meant to ease the processing of students ‘results in tertiary institutions. The application when successfully implemented, will be capable of storing and processing students’ results with high speed and accuracy, and presenting output in certain required forms. The system is flexible and can be modified to suite any kind of report format. It uses graphical user interface (GUI) rather than command-line approach, hence it is user friendly, reasonably secure, and enforces data integrity resulting from the use of a relational database management system. With this application, the processing of students’ results can be automated to a large extent, thereby reducing processing time and increasing accuracy.

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