

Design and Implementation of Online Clearance System: A Case Study of Imo State University

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Abstract: Online clearance system is a research work that will help build an effective information management for schools. It is aimed at developing a system for making clearance after graduation. The designed software will serve as a more reliable and effective means of undertaking students clearance, remove all forms of delay and stress as well as enable you understand the procedures involved as well as how to do your clearance online. This project work made use of data collected from the University, materials and journals from various authors and software was developed to effectively achieve the aims of this project. In this project, the implementation of the computer-based system was carried out using PHP, JAVASCRIPT, CSS, APACHE and MYSQL for the database. In conclusion, the work met all the objectives intended. It is, however, recommended for use by all tertiary institutions.

Key words: Implementation • Clearance • Software • Design • Information • Procedure

INTRODUCTION

Clearance is a status granted individuals, typically members of the military, university graduates and employees of governments and their contractors, allowing them access to classified information [1]. The term "clearance" is also sometimes used in private organizations that have a formal process to vet employees for access to sensitive information [2]. A clearance by itself is normally not sufficient to gain access; the organization must determine that the cleared individual has a "need to know" the information. No one is supposed to be granted access to classified information solely because of rank or position, but once a clearance is obtained, access to certain information or gain of freedom will be granted [3].

As many universities have choosing to pursue the dynamic educational options available online. The advantages of e-learning are many. As people of all ages and backgrounds become increasingly reliant on the internet for information, online learning becomes more convenient and efficient here the need for an online clearance system [4]. 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 [5-9].

The changing online college landscape now includes online clearance system, traditional undergraduate and general studies programmes. However, career learning is still the most popular online training option.

Objectives of the Study: The objectives of this project include:

- To effectively and efficiently process students clearance
- To provide a reliable and transparent system devoid of personal inclinations and interest
- To provide borderless access
- To ensure prompt clearance
- To alleviate the problems and stress of travelling and queuing up of students during clearance.

When a student is about to graduate, he/she will take his/her degree exam after which he obtains a clearance letter from various departments and unions. The Registrar's Office carefully reviews each degree candidate's academic record and certifies to the faculty that the candidate has completed requirements for the degree. Also the bursary has to certify that the student has completed all payments.

The current clearance system of the university is a manual one. This makes the system so tedious and time consuming. Here, students have to visit all the clearance offices with a form for them to sign. Once these forms are signed, it proves that the student has been cleared. This process takes some months to be completed and poses a lot of stress to both staff and students involved.

In the manual system, the clearance forms are documented in a file cabinet. Each time the clearance form is needed, a search operation is conducted on the file cabinets to locate a particular student's clearance form.

Scope of the Study: This research work is limited to clearance system for graduating students from Imo State University. The software developed will be carried out using HTML, Visual Basic and Ms Access to manage both the database and at the same time make the software online.

Method of Data Collection: During the research work, data needed for the project was gathered from various sources. In gathering and collecting necessary data and information needed for system analysis, two major fact-finding techniques were used in this work and they are:

Primary Source: This refers to the sources of collecting original data in which the researcher made use of empirical approach such as personal interview and questionnaires.

Secondary Source: The secondary data were obtained by the researcher from magazines, Journal, Newspapers, Library source and Internet downloads. The data collected from this means have been covered in literature review in the chapter two of the project.

Oral Interview: This was done between the researcher and the management staff of Caritas University. Also various departmental heads were interviewed. Reliable facts were got based on the questions posed to the staff by the researcher.

Study of Manuals: Manuals and report based on clearance were studied and a lot of information concerning the system in question was obtained. The clearance forms were gathered and information relating to clearance fee and other requirements were also obtained.

Evaluation of Forms: Some forms that are necessary and available were assed. These include clearance form, fee receipts, etc. These forms help in the design of the new system.

Objectives of the Existing System: The objective of the existing system is to enable student pay all their fees before leaving the school. Some levies are charged for processing student's files and others for departmental dues or otherwise. The clearance system is designed to help students pay all the dues and obtain a clearance certificate.

Organizational Structure

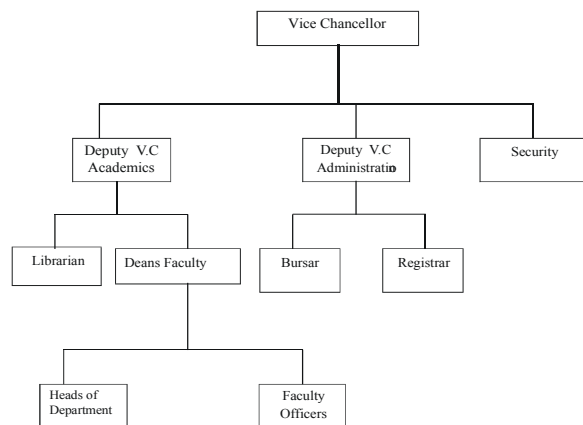


Fig. 1: Organisational structure of Imo State University

Input Analysis: The input to the system is the payment forms for paying dues or levies. These forms are filled by students and submitted to the various offices for issuing of receipts.

Process Analysis: The payments made by the students are collected and analysed to certify that the student have completed all the necessary fees due. Hence a certificate issued to show that the student have completed all the fees.

Output Analysis: The output from the system is the certificate of clearance issued to the student stating that the student have fulfilled all financial obligation and is now free to pass out from the school.

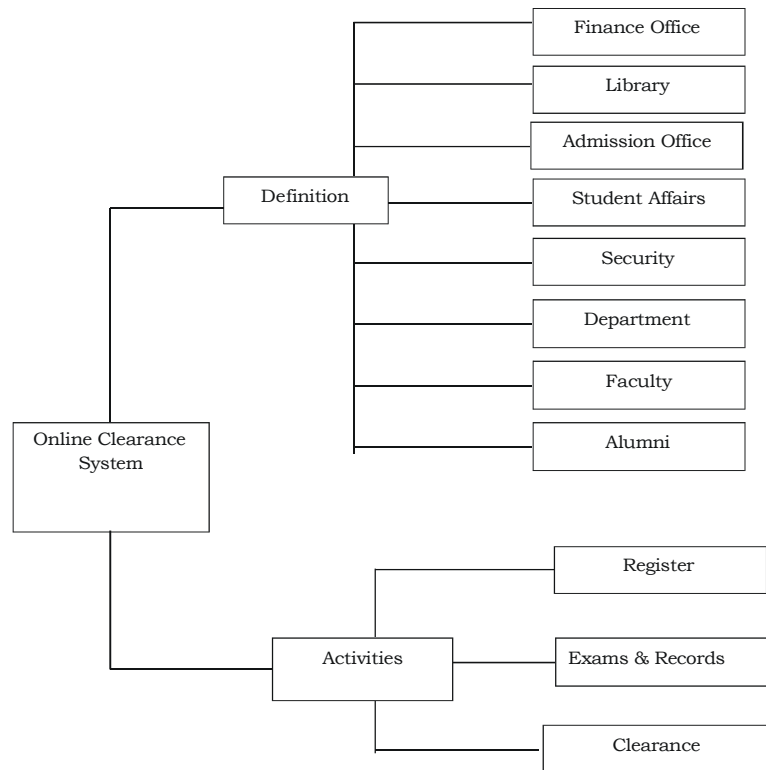


Fig. 2: Information Flow Diagram

Problems of the Existing System: Due to the manual means being used by the University, in keeping information about student’s clearance, a lot of problems are encountered which includes:

- Delay in processing clearance form
- Unavailability of some key staff while processing clearance form, which leads to students repeatedly visiting a particular office in order to sign his/her clearance form.
- Loss of vital documents as the filing system is manual
- Damage of documents due to fire incident.

- Illegal removal of forms by fraudulent staff leading to insecurity.
- Takes a lot of time to retrieve a particular clearance form.

Justification for the New System: The new system is designed to solve problems affecting the manual system in use. It is design to be used online thereby relieving both the students and staff from much stress as experienced in the manual system.

This system will do the analysing and storing of information either automatically or interactively. It will make use of online access to Internet.

The proposed system will also have some other feature like:

- Accuracy in the handling of data.
- Fast rate of operation and excellent responses tim
- Flexibility (i.e.) it can be accessed at any time.
- Easy way of back up or duplicating data in diskettes in case of data loss.
- Better storage and faster retrieval system.
- Accessibility from any part of the world

System Design: In order to achieve effective online clearance system, Structured System Analysis and Design Methodology (SSADM) were used. This is because; SSADM is an internationally accepted software engineering model mainly used in most result oriented analysis and design

Output Specification and Design: The sequence of the report is one of the important features that should be concluded. This is emphasized because it forms the basis

of the school management decision. It aims at providing the management with adequate, effective, well documented up-to- date and formatted output to help as a tool in planning and decision making / based on the student clearance form.

There are methods of generating reports in the new package.

Hardcopy: This is a process of printing from the printer to paper and

Softcopy: It is the process of displaying an output on the computer screen.

The reports generated by the system include:

- Student Clearance Status
- Student clearance certificate

Input Specification and Design: It is also necessary to denote that data inputted in the computer for processing determines what the output will be. Screen designs are generally or basically made for data entry or capture. Since data are captured from a hardcopy form, the sequence of data capture should be identical to the hardcopy form made for data collection.

The new system is composed mainly of two forms of input form, they are:

- Student Register
- Clearance Form

File Design: The file used in the design is stored in a database file. The database is created using Microsoft Access database. The database Structure is as follows:

Fig. 3: Student Register

Fig. 4: Students clearance form

Table 1: Student Register Database Structure

Field Name	Data Type	Field Size
Surname	Text	20
First Name	Text	20
Other Names	Text	50
Reg No	Text	30
State of origin	Text	20
Home Town	Text	20
Marital Status	Text	15
Nationality	Text	30
Gender	Text	10
Session	Text	20
Level	Text	20
Birth	Date\time	8
Dept	Text	50
Religion	Text	30
Address	Text	50
Kin	Text	30
Kin Address	Text	50
Entry Mode	Text	20
Sponsor	Text	50
Sponsor Address	Text	50
Type	Text	20
Qualification	Text	50
Institution	Text	50
Subject	Text	50
Award	Text	50
School	Text	50
Study	Text	30
Year	Text	10
Duration	Integer	2
Activities	Text	50

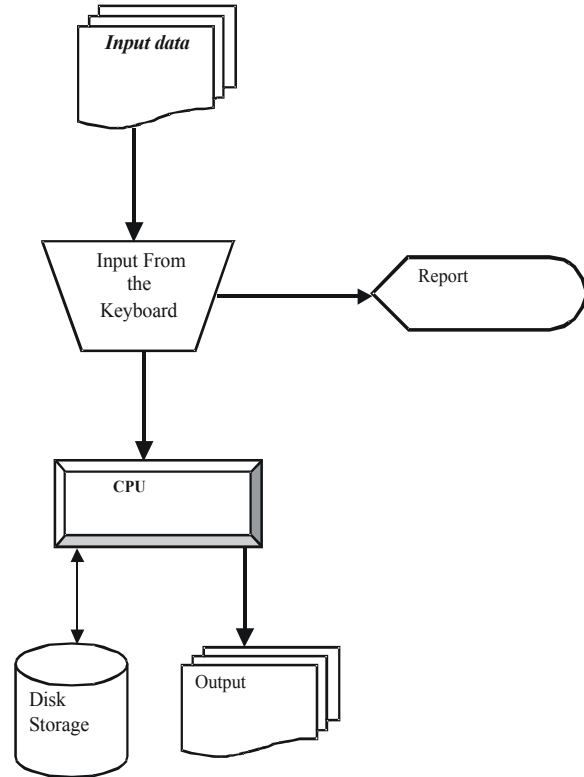
Table 2: Student Clearance Database Structure

Field Name	Data Type	Field Size
Surname	Text	20
First Name	Text	20
Other Names	Text	50
Reg No	Text	30
Finance	Single	4
Library	Single	4
Student Affairs	Single	4
Security	Single	4
Department	Single	4
Exams and Records	Single	4
Clearance	Single	4
Date	Date\time	8
Receipt	Text	20
Remark	Text	30

System Specification: The specification needed to implement this system is as follows.

Hardware Specification: For the effective operation of the newly designed system, the following minimum hardware specifications are recommended.

System Flowcharts



- The computer system in used should be IBM compatible since they are considered clone systems.
- The Random access memory (RAM) should be at least 128KB.
- The system should have a hard disk of at least 50GB and at least a diskette drive of high density of 1.44MB (3.5 inches)
- The system should be equipped with an E.G.A/V.G.A, a coloured monitor.
- An uninterruptible power supply (UPS) units
- It should be internet ready.

These listed configurations are the minimum requirements but if the configurations are higher the reports derived will definitely be better and the program will run much faster.

Software Specification: The software specifications required on the computer system are:-

- A window 98 or higher version for faster processing
- HTML
- Text Editor
- Font Page
- Visual Basic 6.0

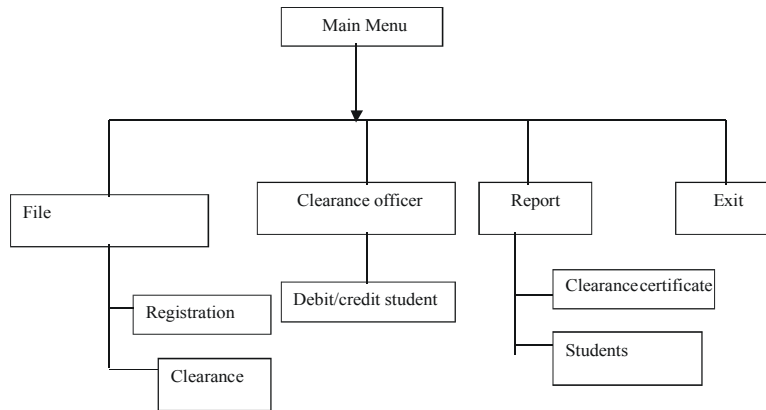


Fig. 5: Procedure Chart

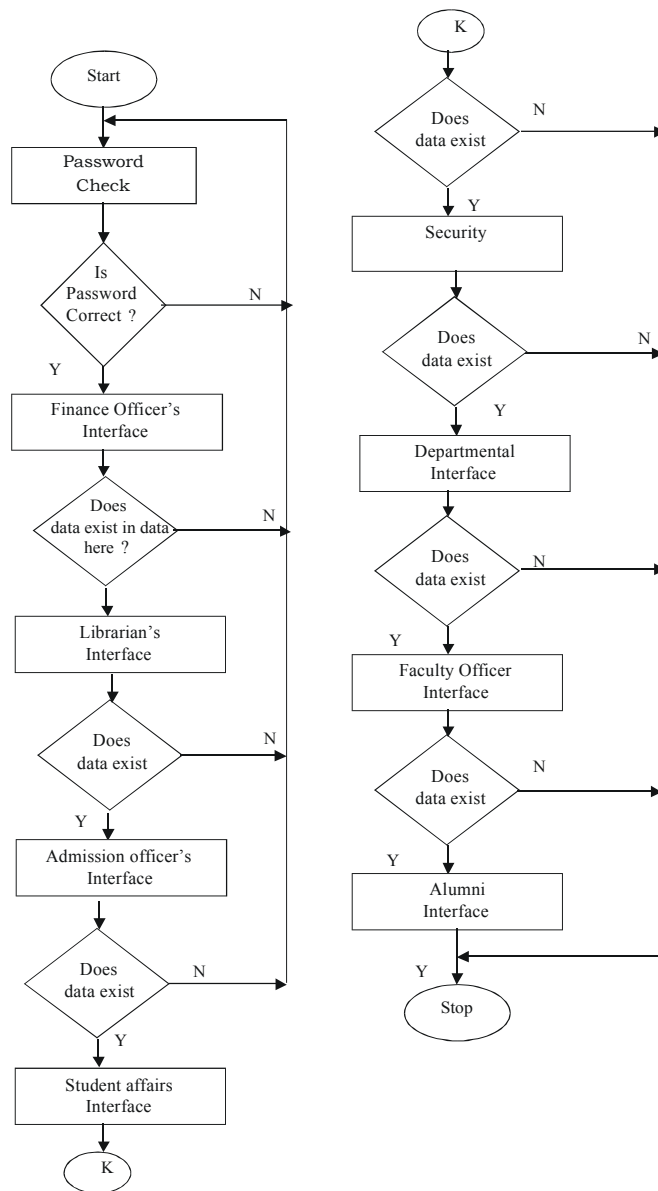


Fig. 6: Program Flowchart

Operational Requirement: A conducive computer office is required. The office has to be equipped with air conditioners, stabilizers and ups.

Personnel Requirement: A total of 2 computer operators are needed to manage the computer centre. They will oversee the entry of data into the system.

Conclusion and Recommendations: The researcher have been able to achieve the following at the completion of this work

- The researcher was able to replace the error prone manual system with the new automated online clearance system.
- Data can now be processed with great speed and efficiency
- The application has the ability to update records in various files automatically thereby relieving the University staff the stress of working from file to file.
- Security of data is ensured.

CONCLUSION

Research and development are continuous processes; this is same in computer and software development. However, the effectiveness and efficiency of this new system provides room for further improvements. As earlier mentioned, some of the objectives of this project were not actualised due to some limitations. So these objectives could be improved upon. Nevertheless, the online clearance system developed will offer greater opportunities in school management. All transactions or payments with regards to student clearance can be carried out online.

Recommendations: The research work carried out is limited to online clearance only. It will be better if a full portal is developed for an effective and wholesome implementation of information management technology in our universities. When this is done the following modules are recommended to be included in the portal.

- Developing an online student admission system to enable full tracking of students records.
- Automation of student's academic record to enable the management has access to student academic performance.
- Maintaining a central database for accessing all information relating to students.

REFERENCES

1. Anigbogu, G., 2000. Systematic Planning for Educational Change. California: Mayfield publishing Company, pp: 2.
2. Chimezie, F., 2000. "Use of local area networks in schools. ERIC Digest." Syracuse, NY: ERIC Clearinghouse on Information Resources, pp: 5.
3. Clifton, E.B., 1983. Management of records in Nigerian Universities: Problems and prospects. The Electronic Library, 23(30): 1-4.
4. Enwere, J.C., 1992. Records Management in Nigeria: To be or not to be? Nigeria Library and Information Science Review. Lagos, Nigeria: Akin publishing Ltd., pp: 5.
5. Iwiwhu, E.B., 2005. The Feature of Records Management in Nigeria. The Nigerian Archivist. Journal of the Society of Nigerian Archivists, 1: 2-3.
6. Obilikwu, N., 1995. Records Management Programme. Ibadan, Nigeria: Adeyomi Printing Press.
7. Taylor, M., 1980. Education and Training Achieves and Records. Manager in Africa. Ibadan, Nigeria: Odun Publishing Company.
8. Uju, J.O., 1997. 'Research Methods' Application of Scientific Research Methodology and Documentation. Trans-Ekulu Enugu: Joen Publishers.
9. Vossen, G., 1991. Data Models, Database Languages And Database Management Systems. Adison-Wesley Publishing Computer.