DESIGN AND IMPLEMENTATION OF A COMPUTERIZED LIBRARY SYSTEM FOR THE NATIONAL INSTITUTE OF POLICY AND STRATEGIC STUDIES, KURU NIGERIA.

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ABSTRACT

Most educational institutions in Nigeria, such as the Universities, Polytechnics and Colleges of Education still operate on the manual method of library functions of acquisition, cataloging and circulation. This paper examines the inadequacies involved in the manual method of acquisition, cataloging and circulation functions of a library and proposes a solution by developing a software application to facilitate the automated processing of these library functions. The software was developed using Visual Basic 6.0 and employing MS-ACCESS Relational Database Management System in designing the database. The developed software was tested and found to perform well and produced expected results on completion. With this program, it was possible to record books that were acquired by the National Institute for Policy and Strategic Studies, (NIPSS) as well as the cataloging and the circulation section of the library. The new system has some qualities such as reduction in the cost of processing of information, reduction in time spent in the acquisition, cataloging and circulation of books, increase in accuracy and efficiency, and elimination of duplication of effort which makes it superior to the manual system of information processing. This new system is flexible and can be modified to suit any kind of library and data processing need.

Keywords: *Library functions, Automated Library, Computerized Library, Acquisition, Cataloging, Circulation*

INTRODUCTION

The idea of easy, finger-tip access to information is what we conceptualize as digital libraries today began with Vannenar Bush's Memex machine (Bush, 1945) and has continued to evolve with each advancement in information technology. With the arrival of computers, the concept centered on large bibliographic databases, the now familiar online retrieval and public access systems that are part of any contemporary library. Phrases like "virtual library," "electronic library," "library without walls" and, most recently, "digital library," all have been used interchangeably to describe this broad concept.The problem is that due to the fast growing sector of library; the ancient methods of maintaining it are no longer effective and efficient for retrieval and dissemination of information and better services for the users. Applications of cutting edge-technology have become paramount. A perfect/ correctly computerized library will help its users with quick and prompt services. It is often stated that libraries are born when people began to organize information and provide access to that information.

Library automation/computerization refers to mechanization of library operations predominantly by computerization Kochar and Sudarshan (2008). The most commonly known operations of a library are acquisition control, serials control, cataloguing and classification and circulation control. The implementation of the program written by the researcher and the deployment of the e-Granary that the ICT Department just acquired for the Library will fully automate the library operations of the National Institute. e-Granary is a collection of numerous and diverse databases of information on different fields, while the Visual Basic program integrated with Microsoft Access will enable the automation of a database for the existing books in the library.

Organizations all over the world have problems which vary depending on management and financial buoyancy. In the case of the National Institute for Policy and Strategic Studies (NIPSS), Kuru, the library is faced with series of issues from lack of funding which has been going on for a number of years and has led to inadequate collection of books, journals, and working tools. Materials in the library are obsolete and outdated; all library activities are still being done manually, the only electronic service being rendered is the searching of materials on the internet; the internet facility was donated to the institute by Nigeria Communications Commission (NCC) and is being managed by the ICT department. The Packages used for designing the Library Software is Visual Basic 6.0 and is employing MSACCESS Relational Database Management System in designing the database.

MATERIALS AND METHODS

Generally System development is all about the transition from one mode of data processing to another or modification of an old existing one. The design of a computerized library software partly evolved from the need for a user friendlier package that will facilitate the functions of a library. Changes of system are necessitated by a number of factors ranging from growth of business to change in national law. For instance, there could be, changes in business policies and regulations, change in government policies and regulations and new innovations/development of better methods of system operations. For any of these reasons or more, a system can be forced to change.

The library software is designed to overcome the limitations as exist in the system. To achieve this, the software has to be structured to include the following:

a. A relational database support and dependency this feature promotes the efficient use and storage of data. It equally optimizes data organization by the use of tables in the database.

b. Efficient System Resource Usage: database are normally saved as compressed database before and after their use by the system, thus reducing the disk storage space they might take.

c. Customizable data structure: The Library software can be readily adopted to serve within different corporate setting.

d. Ergonomically Designed User Input Forms: The software input forms are such that information inputs or displays are handled by same form formats. Besides, the modules are such that they facilitate easy user input or modifications to the database at points where they are needed to be updated.

e. Backup feature: The user has the options of backing data in the database to removable drivers, disk or to the system. This is a strong maintenance culture that can facilitate data recovery and smooth system running in times of system crash or any other system errors.

The National Institute for Policy and Strategic Studies, Kuru, Jos is an organization with a population of four hundred and twenty six (426) staff. The organization is set up to carry the functions of Strategic/Policy Formulation for the Country. The organization as its functions dictates has its main office in Kuru, Plateau State and a liaison office in Abuja.

In this study, information was acquired through two sources namely: Primary source and Secondary source. The reason for this is to gather information and necessary data about the existing system so as to adopt a way of designing the new system. Information from the primary source was given priority because itis first-hand information.Primary data are those

got form questionnaires, personal interviews, observations, etc. (Chukwuemeka and Oji 1999; 56). Secondary Source information is second hand information and according to Chukwuemeka and Oji (1999; 56), "Secondary data are those gathered from pamphlets, journals, newspapers, books and records available at the organization under study".

An interview involving a face to face discussion with library staff was conducted. Questions were asked and responses received and this determined how library functions are carried out based on the responses to the questions asked by the researcher. It was obvious that the library Department of the National Institute was manually operated and records manually handled in files (paper work).

The researcher also had the advantage of being a staff of The National Institute and it was relevant to observe critically and participate where necessary in the activities of the library Department to arrive or draw some conclusions.

The System inputs are manually provided through various input forms. Therefore a computer operator trained on this package is needed. The content of these forms are save to files on the local system. Each forms format differs depending on the section of the package being accessed.

The system output from the system is provided on demand from the printout whenever it is needed and will necessitate the running of the program. The interface (form) desired are then generated and printed out.

Files and Records at NIPSS library are maintained by thetraditional computer filing system using Microsoft excel and Word programs. This implies that several data have to be manipulated based on fixed system metadata i.e. structure which defines how data is to be accepted and stored in the file. Upon these structures, the accepted data are then organized in the files as records.

In the course of the development of the library software, visual Basic (VB) is the choice programming language. The Visual Basic has powerful features that are extended by Microsoft within the enterprise edition that makes Visual Basic the choice language for this project or work. Some of these features includes:

1. The rich set of development and system tools such as the code profile that are shipped with visual Basic (VB)

2. The Rapid Application Development (RAD) environment offered by visual Basic and targeted at 32 bit windows development.

3. The ease with which Graphical user interface is developed in Visual Basic (VB).

4. It interface easily well with relational data base system like Microsoft Access and it supports structural query languages like oracle (SQL)

5. Visual Basic has very efficient and easy to use debugging tools.

6. It comes with a customizable set up and software packaging tools for easy product distribution and installation.

RESULTS AND DISCUSSION

The developed software application was run on the system and found to operate as expected. The login screen is as shown below. Once the user is able to log in, the main window appears. If the password entered is valid, the software will then open the main page. The main page/window has five tabs; the Acquisition, Catlog list, Circulation and the exit tab. The Acquisition automates the book ordering process, keeps track of items on order and allows for tight control of budgets. Acquisitions is usually linked to the cataloguing module providing an easy means of checking for items before ordering to ensure against duplication , and enabling library users to see (and Often reserve) items on order.

The Cataloguing is usually the core module of an automated library system, without which no other modules will function. It allows bibliographic records to be created into the system and parameters relating to them to be set. The catalogue can usually be searched via a menu or a command driven system. Systems are usually flexible enough to give a choice in how the information is displayed in a record. Such records can also be edited and deleted.

The circulation module is used for issuing, returning books or other items of stock, renewals, reservations, overdue and the calculation of fines. It also enables the production of notices to library members. Lending periods and types of membership can be defined.

CONCLUSION AND RECOMMENDATIONS

In order to introduce the use of computers into the manual operation of the library, careful investigation and analyses were carried out on the existing method. This work has presented a software application meant to ease the operation of the library in The National Institute for Policy and Strategic Studies (NIPSS), Kuru. The application was successfully developed, tested, and found to be working as expected. The Application software is flexible and can be modified to suite any kind of library and data processing. It is easy to use due to the use of a GUI (Graphical user interface) rather than command-line approach, reasonably secure, and enforces data integrity resulting from the use of a relational database management system. With this application, library functions can be automated to a large extent, thereby reducing processing time and increasing accuracy.

The efficiency of the software can be further enhanced based on the following recommendations: Effort should be made to validate the input data to ensure the integrity of the system. The primary users should be given an initial orientation on how to interact with the system for optimal utilization of the facilities of the system.

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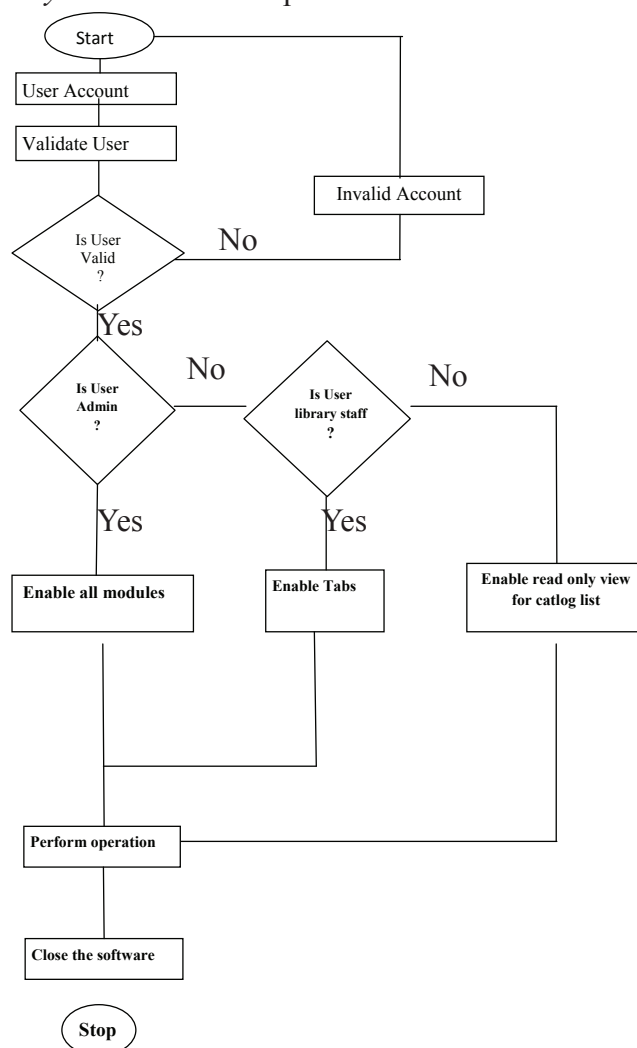Sukhdev, S. (2003). *Digital Library*: Definition to Implementation. M Pub.

Figure 1: The program's flow chart

Figure 2: Log in Page (Validates user account before access is granted)
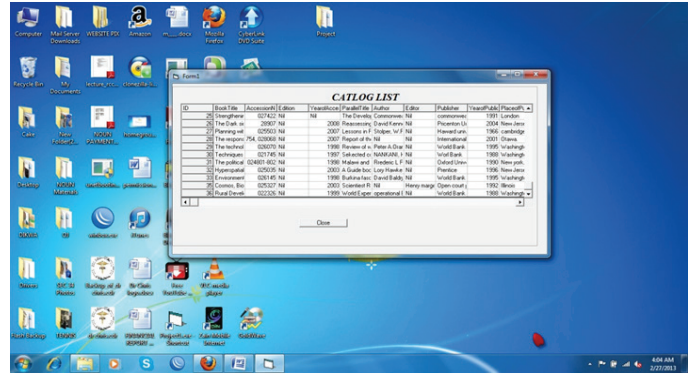

Figure 4: Catlog List

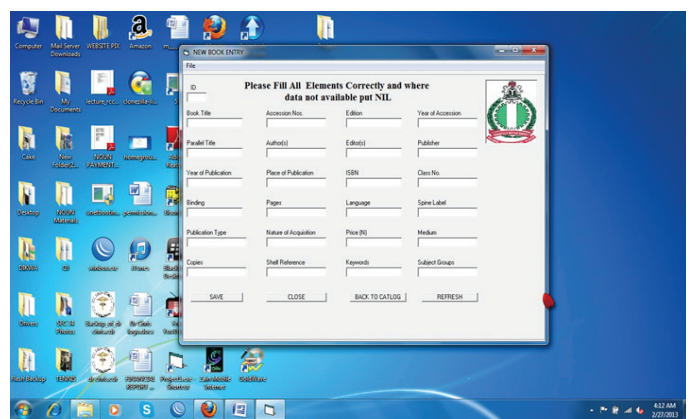
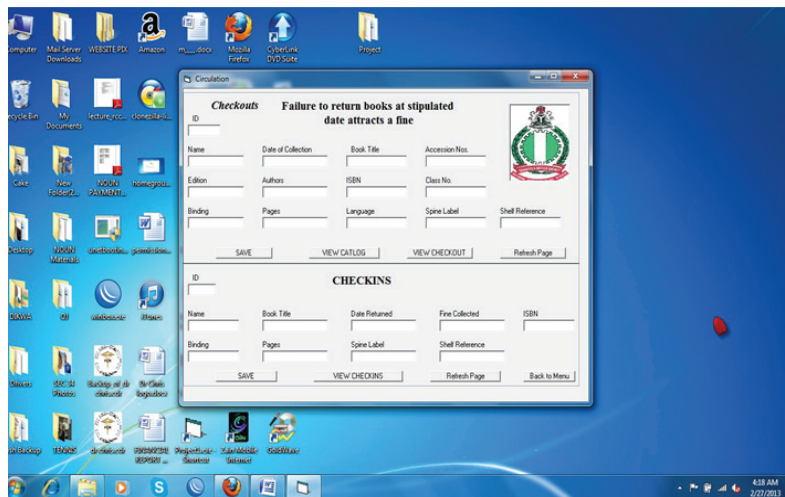Figure 3: TheMain Page/window showing the main menu and the side menu

Figure 5: Acquisition Control

Figure 6: Circulation Control