THE DESIGN AND DEVELOPMENT OF AN AUTOMATED LIBRARY APPLICATION SOFTWARE FOR SAMARU PUBLIC LIBRARY, AHMADU BELLO UNIVERSITY ZARIA

BY

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DECLARATION

I, Usman Muhammad Kazaure do hereby declare that this thesis has been written by me and that it is a record of my own research work. It has not been presented in any previous application for higher degree. All sources of information used in the study have been properly acknowledged by means of references.

Usman Muhammad Kazaure
August, 2001.

CERTIFICATION

This thesis entitled **"The Design and Development of An Automated Library Application Software for Samaru Public Library, Ahmadu Bello University, Zaria."** Meets the regulations governing the award of the degree of master of Library and Information Science of Ahmadu Bello University, and is approved for its contribution to knowledge and literary presentation.

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[illegible] LIBRARY

DEDICATION

This piece of work is dedicated to my late beloved wife Lami AbdulKadir Sale. May your sole rest in perfect peace ameen.

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A.B.U. IMAM IBRAHIM LIBRARY

ABSTRACT

Public libraries are local centers of information, learning, and recreation. Their roles include helping to promote reading habits among the community they serve and also facilitate easy access to information. Therefore, they are usually stocked with variety of information resources, which are accordingly arranged for easy retrieval and access. Their services are regardless of age, religion, nationality or social status. However, the present age of information and publication explosion in different forms and format has made it difficult for public libraries and indeed other types of libraries to perform their roles of facilitating easy retrieval and access to information resources and services without automation.

This research project adopted two research methods, case study and operational research methods. The case study was adopted so as to study the operations and analyze the problems of the samaru public library. The findings from this are that the information resources in the samaru public library are over fifteen thousands titles of books, maps, pictures, journals, newspapers, video cassettes and a television set. The samaru public library has over five thousand users from Ahmadu Bello University Community, Bassawa, Palladan, Samaru, and Bomo villages. The samaru public library has six members of staff, one professional, two Para-professionals, one library assistant, one typist and one messenger/cleaner. The Library uses Author/Title catalogue and subject catalogue as retrieval devices. It uses the Dewey Decimal Classification Scheme and Anglo American Cataloguing rule II for classification of information materials and for catalogue respectively.

The second research method used was the operational research methods. Based on the findings of the case study the operational research method was adopted to develop a computer-based library application system for samaru public library using dBase iv software. The developed software (SPLAS) has four modules for library acquisition, cataloguing, circulation and reports/inquiry. Each module has menus and sub-menus.

In order to ensure utilization of the developed software by both the library staff and users, simple and direct interactive language was adopted. The software developed (SPLAS) has 45 program tiles, 6 database files, containing more than seventy five (75) fields.

The SPLAS was tested and found to be adaptable to the library under the study. The experience gained from the demonstration shows that the software can be adaptable to other public libraries and indeed other libraries too. Its application is found to be easy because it is user friendly and cost less when compared to other library software in the market. In the light of the above it can be concluded that our public libraries in Nigeria can go for automation within their limited resources. They need not wait till they have millions of Naira to buy a turnkey systems.

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CHAPTER ONE

1.0 BACKGROUND OF THE STUDY

A public library is an information centre where all kinds of knowledge and information resources are for public use. The services of the library are provided on the basis of equality of access for all regardless of age, religion, nationality or social status. All age groups must find materials relevant to their needs. Collections and services have to include all types of appropriate media and modern technology as well as traditional materials. Its basic function according to Compton's Interactive Encyclopaedia (1997) is "to serve all ages and groups as an information centre." It is supposed to be a free library for all the populace living in the area it is serving.

A public library has a wide coverage of users of different educational backgrounds, which it has to cater for. All these groups have their information needs which they expect their public library to provide. Hence, a public library can be considered as a public University. Among its functions is the communication of information and ideas, whatever the form in which these may be expressed. Nnaji (1986:66) identified the functions of a public library in Nigeria as a place enabling the public to understand the culture of other lands in depth. From this it could be deduce that materials of all kinds should be available in the library. That is, the library should have collections of books magazines, pamphlets, newspapers, films and all other necessary and relevant information resources on various occupations, trades, and skills such as farming, carpentry, mechanics, etc. Ajibero (1985:4) sees a public library as "the traditional and basic community

information centre whose purpose for existence is to fulfil societal needs by accumulating information and steering knowledge, and by disseminating that information and knowledge". In addition to books, a public library selects and provides pamphlets documents and other non-book sources in printed form, films, tapes, discs and other non-print recording of knowledge and opinion. The materials are provided to Facilitate informal self-education of all people in the Community, enrich and further develop the subjects which individuals are undertaking formal education and meet the information needs of all.

The Samaru public library (SPL) was opened on 5th May, 1963, Grey-Theriot(1971:1). It is financed and administered by Ahmadu Bello University, Zaria through the Department of Library and Information Science. The objectives of setting up the library is to cater for the Ahmadu Bello University community, the general public in Samaru and the surrounding villages. It is also to serve as a training ground or laboratory for the students of the library and information science department of the University. It is opened to all staff members of the University and any one from Samaru Township as well as children, young people and adults from around Zaria. The library is divided into two sections, adults and children sections. Most of the users are students from Ahmadu Bello University Demonstration secondary school and other secondary school leavers from Samaru and the surrounding villages. Since there are many school leavers that use the Samaru public library, emphasis is placed on supplying the kinds of materials that students need for

independent study and for SSCE and 'A' Levels examinations. Books for technical students are also stocked. There are also books on library and information systems and services. The collection of the library is however, similar in every respect to that of a typical public library collection. The children section is stocked with books from British Ladybird books, American children books and some children's books from other countries.

Database is an invaluable facility in the library whether manually or computerised. No library can operate without a database. It has to keep records of its materials, users, staff, etc., which are all in the form of database. A manual database system such as the one in use in samaru public library cannot be as effective as computer-based system, because the latter simplifies the ways of retrieving materials, up-dating records and easy ways of making references. Rowley (1990:59) emphasizes this when she said "Traditional file-based systems were found to be inadequate, particularly for generating high-level planning and control information which relates to the whole organisation. The generation of this kind of information requires organisation's data to be viewed as a single unit and not as a set of independent units stored in separates files".

Mohammed (1999:21) also stressed the need for automation of library when he stated that. "Automation of library and information systems and services has today become an accepted norm being the most realistic way and means of providing timely, accurate and

efficient information services as well as effective means of information management".

1.1. An overview of computer-based Library systems

Development of computer-based systems in libraries started in the early 1960s. In 1961, H.P. Luhn of IBM developed programs for producing keyword indexes to titles of articles appearing in Chemical Abstracts, the Douglas Air-craft Corporation started to produce catalogue cards by Computer Tedd(1993:2). In 1965, the metropolitan Boroughs of London were reorganised and the Chief Librarians were faced with the problems of producing a unified catalogue of their socks. The four (Barnet, Camden, Greenwich and Southwark) decided to use computer system to achieve this. These first cataloguing systems were based on 80-column punch cards with the resulting catalogue being printed by the computer's line printer. During the same period, Newcastle University developed the Newcastle File Handling system which was used for an acquisition system. Similarly, Southampton developed a computer-based circulation control system. In the mid-1960s the Library of Congress (LC) in the U.S. began to experiment with the production of MARC (Machine Readable Catalogue) records Tedd(1993:3).

During the early 1970s many libraries began using their parent body's computer system to develop local systems, usually designed and implemented by the Staff of the Computer Centres. Most of the systems in operation during this 'local' phase were designed to deal with single application. However, there were a few examples of integrated systems, Tedd(1993:4). The same period also saw a

growth in the development of Co-operative systems, for example in the United Kingdom; the Birmingham Libraries Co-operative Mechanisation Project (BLCMP) was introduced. It was the first Co-operative cataloguing service in the UK. Originally, it consisted of the libraries of Aston, Birmingham Universities and Birmingham Public Library. The system was supported by British library Research and Development Department. In 1977 it became an Independent Organisation known as BLCMP (Library Services) Ltd. The Western Academic Libraries Co-operative Automation Project (SWALCAP) was also developed in the 1970s.

The trend for libraries to acquire their own computing facilities accelerated during the 1980s with the drop in the cost of computers and increase in processing power of microcomputer. Micro-computers may be used on their own or networked together to provide a range of services from local word processing, 'intelligent' access to remote systems, access to CD-ROM databases and possibly library management. Another development in the 1980s was the availability of Online Public Access Catalogues or OPACs, Tedd (1987:160). Therefore, with this development many libraries world wide started developing their own in-house computer-based systems using Borland's dBase software, Oracle, LOTUS 123 and other programmable packages, Hayman (1990:5).

In Nigeria, the National Library of Nigeria developed text management software for Decrees promulgated by the Military Administrations using Borland's dBase IV. The software was displayed during the 1999 National Library Day, organised by

Department of Library and Information Science, Ahmadu Bello University, Zaria on 9th June, 1999 in the University Assembly hall. The system has title of the decree as the main entry to be used to display the content and the date it was signed into law. The National Research Institute for Chemical Technology (NRICT) also developed it NLAS using dBase IV software. The software is still in operation in the library. Apart from these, there are many library database management systems in the Country. They include such systems as the X-lib, which was advertised by BERAM Limited in Information Technology Newsletter (1999:5), TINLIB (The Information Navigator of libraries), etc. As at 1990 there are over 30,000 different computer-based library systems installed in libraries all over the globe, Mathew(1991:9)

In automating Library, there are three options.

1..The library could use an integrated/turnkey system already developed by specialized commercial software companies.

2.. Share a system installed in the parent institution's computer, or

3.. Develop an in-house system.

Developed systems from commercialised software companies (integrated/turn-key) are usually very expensive which some public libraries may not easily afford. Tedd (1993:33) gave the cost of developed library software as #10,000 - #73,000, which is equivalent to ₦1.5m to ₦10.93m at ₦150 per Pound Sterling. This high cost and other associated costs of maintaining the system often lead to

libraries developing in-house software for the operation of their systems and services.

1.2 Reasons for favouring Computer-based Library systems over manual-systems

The reasons for favouring computer -Based systems over manual systems are :-

1.-- Storage : The computer storage capacity is very vast and relatively cheap. For instance, the 3.5" floppy disk can store up to 600 pages of text and could be less than =N=100.00. depending on the make. It can be put inside a shirt's breast pocket.

2.-- Speed : Computers are capable of executing millions of instructions per second. Calculations and comparisons that would normally take several days of human labour hours could be done within seconds by a computer. In the scheme of information delivery and services, it is considered that an information that is not timely delivered is as good as no information at all.

3.-- Accuracy : Computers act strictly on instructions and data. Therefore, it follows that so long as the instructions issued to the computer are correct and the data are valid, the results of processing will ever be accurate. Errors associated with human processing due to boredom, lack of interest in the job, anger, excitement, hunger and all other forms of human emotions are not associated with computers.

4.-- Security: Computer software has facilities for password and other controls, to reduce or eliminate cases of insecurity to the computer system and databases.

5.--Flexibility: Computer has a lot of flexibility in how it executes tasks or performs jobs to satisfy the user's needs; depending upon the software in use.

6.-- Economy: In case of staff retirement or resignation a new staff who takes over only needs to be trained on the use of computer, and he can use the computer to generate the reports the former expert was generating.

1.3 STATEMENT OF PROBLEM

The advances in Science and Technology especially since in the 1960s and more particularly in the 1970s and 80s, which has dramatically affected the world information system is no longer a surprise. What is surprising is the fact that Nigerian libraries have made very little or no progress in the automation of their systems and services. This assertion has been supported by Ajibero(2000:11) where he remarked that Nigerian libraries have made so little progress in the development of automated systems for libraries.

The increase in the population of the Ahmadu Bello University community, Samaru and the villages surrounding it, resulted in increase in the number of users of the Samaru public library. As at 20th April, 2001 the register of users in the library indicated that it has over five thousand registered users and their number is increasing daily.

Because of increased use of the library and the resulting increased number of loans to barrowers without a corresponding increase in personnel, the circulation staff spend almost his entire time charging and discharging materials. As a result of the problem, long queues

form at the charging desk, long delays in discharging materials occur, backlogs of records waiting merging into circulation file are frequent and users are complaining of slow service. On 12th September, 2000 the librarian wrote to the Ahmadu Bello University, authority for additional staff, but up to the time of this report there is no reply.

Another reason that tends to necessitate the automation of Samaru Public Library is the current information explosion and the end-user revolution in information dissemination. Since Samaru Public Library is a laboratory for the students of library and information science department, it beholds that its system needs to be automated. Libraries world- wide are replacing manual systems of operations with automated ones. Tedd(1993:55) reported a study on Portuguese libraries in 1986 and 1990. In 1986 only 6% of Portuguese libraries were automated while in 1990 about 46% of the Portuguese libraries were automated. This is a dramatic increase in only four years. And in the near future only automated libraries will be able to survive the current information trend. Expectedly therefore, the products of the library schools should be seen to be relevant in the scheme of these new developments. Consequently therefore, there is a need to automate this laboratory (SPL) so that the students of library and information science department of Ahmadu Bello University will have practical with computer based library systems. This practical will train the students so that they can be up-date and capable of facing the exigencies of the present information age. Due to inadequate funding on the other hand, the Samaru public library may not be able to purchase a commercialised

computer-based system which averagely cost about =N=1.5m (one million five hundred thousand Naira). It is in the light of this that the research was aimed at designing and developing in-house computer-based library application software to replace the manual-based system in the library.

1.4 PURPOSE OF THE STUDY

The purpose of this study is to examine the manual systems of acquisitions, catalogue, circulation, inquiry/report in the Samaru public library with a view to identify their problems. And to develop a proposed computer-based library application software to replace the manual systems in the library, using dBaseiv application package. The proposed developed computer based library application software will be tested in the library for two weeks, so as to test its suitability for the library. The observation made during the two weeks test will be incorporated and a final one will be produce for possible adoption and implementation by the library authority.

1.5 RESEARCH QUESTIONS

1. What is organisational structure of Samaru public library?
2. What is the nature/type of the Samaru public library information resources, and their organisational arrangement?
3. What services do the Samaru public library provides?
4. What retrieval device/systems is adopted by the Samaru public library?
5. Who are the users of the Samaru public library?
6. What is the strength and functions/duties of the library(SPL) staff ?

7. Why should Samaru public library systems be automated?
8. What will be the configuration, capacity and operations of the proposed Samaru public library automated System(SPLAS) as well as its compatibility with other existing Library applications software?

1.6 SIGNIFICANCE OF THE STUDY

This study is significant because, the system so designed will facilitate the development and management of database for the library (SPL). It will facilitate the retrieval of document in the library as well as easy access to information. Similarly it will enhance the capacity and ability of the staff to meeting the information needs of the users more effectively and efficiently at the least time. The system will also assist in equipping the students in preparing them to be relevant and face the challenges of the information age.

1.7 SCOPE OF THE STUDY

This study is restricted to the design of automated library application software for the operations of the Samaru public library using the dBase IV software. The system configuration is aimed at developing an integrated database for the four major functional areas of the library. They are Acquisition, Cataloguing, Circulation and Inquiry/Reports.

1.8 LIMITATION OF THE STUDY

Due to time constrains, limited resources and logic involve in developing software, other areas like staff administration, and control were not covered by SPLAS.

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1.9 BASIC ASSUMPTIONS

This study is based on the following assumptions; that:

(1). The Samaru public library will meet the information needs of its users more effectively and efficiently if it is automated

(2) Computer-based library systems enhance the efficiency and productivity of the library staff.

(3) The information needs of library users are met more easily in an automated environment

DEFINITIONS OF TERMS

dBase: database products sold by Borland Company.

Network: Connecting two or more computers together to share their resources.

Programme: A set of instructions directing computer on how to perform a task or tasks.

System: A collection of related components working together for the achievement of goals and objectives.

Turnkey system: A computer system where the hardware and software are supplied as a package.

Network capable This is the ability of the software to be downloaded at a remote location. It can be LAN that's Local Area Network, WAN Wide Area Network or GAN Global Area Network

Abbreviations:

ABU : Ahmadu Bello University

GLAS : Graphic Library Automation System

MS-DOS: Micro Soft Disk Operating System

SPL : Samaru Public Library

SPLAS: Samaru Public Library Automation System

SSCE: SENIOR SECONDARY CERTIFICATE OF EDUCATION

UNESCO: UNITED NATIONS EDUCATIONAL SCIENTIFICAL AND CULTURAL ORGANISATION.

VTLS : VIRGINIA TECH LIBRARY SYSTEM

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CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 INTRODUCTION

The purpose of this chapter is to review the related literature to the area of study. It was presented and discussed along the following sub-topics:

2.2. Purpose and functions of public libraries

2.3. Library automation

2. 4. Software development.

2. 5. Application of automation in libraries

2. 6. The state of the art of automation in Nigerian libraries

2. 7. Problems militating against large scale automation of public libraries in Nigeria

2.2. PURPOSE AND FUNCTIONS OF PUBLIC LIBRARIES

Public libraries are institutions where books and other types of printed and non-printed information resources are housed in organised manner for the use of the general public. Their basic function according to Compton's Interactive Encyclopaedia (1997) is "to serve all ages and groups as an information centre." This is because they are run by money collected from the public as taxes or other public finance source. They are free libraries for all the populace living within their areas of operations. Therefore, it could be said that public libraries have wide coverage of users of different educational backgrounds, which they have to cater for. All these groups have their information needs which they expect their public

libraries to provide. Hence, public libraries can be considered as public universities. UNESCO (1972:130) in its library manifesto on the purpose of public library stated that:

"Public libraries are concerned with the communication of information and ideas, whatever the form in which these may be expressed". The services offered by public libraries are expected to be free (Annual report of the regional library division 1961). Therefore, public libraries should perform their functions without asking any fee from users because that will deprive many users of their services. This is important especially in Nigeria where the current economic situation in the country has reduced people to be only looking for what to eat, wear and where to stay. Ajibero (1985:4) sees a public library as "the traditional and basic community information centre whose purpose for existence is to fulfil societal needs by accumulating information and steering knowledge, and by disseminating that information and knowledge".

Nnaji (1986:66) identified the functions of a public library in Nigeria as a place enabling the public to understand the culture of other lands in depth. From this, it could be deduced that materials of all kinds should be available in the library. That is, the library should have collections of books, magazines, pamphlets, newspapers, films and all other necessary and relevant information resources on various occupations, trades, and skills such as farming, carpentry, mechanics, etc. It is generally accepted that public library should increase the size of its collection so as to increase the number of individuals who could use them. Wheeler and Goldhor (1962:8) stated that the

function of the public library is to "Collect the printed and audio-visual materials needed to conduct the individual and group life of its constituency. It organizes and makes them convenient and easy to use." In addition to books, the public library selects and provides pamphlets documents and other non-book sources in printed form, films, tapes, discs and other non-print recording of knowledge and opinion. The materials are provided to:-

- Facilitate informal self-education of all people in the Community.
- To enrich and further develop the subjects on which individuals are undertaking formal education.
- To meet the information needs of all.

2.3. LIBRARY AUTOMATION

Compton's Interactive Encyclopaedia (1997) defines automation as a process in which mechanical or electronic devices are employed to carry out tasks without human intervention. Salmon (1975:1) however, defined library automation as the use of automatic and semi automatic data processing machines to perform such traditional library activities as acquisitions, cataloguing and circulation.

The rise of computer development can be traced to Herman Hollireth who invented the punch card. An idea he borrowed from Dr. John Shaw Billings, the Director of the Surgeon-General Library (now the National Library of Medicine), Dictionary of American Biography (1944:415).

Automating a library can be divided into 3 different types:

2.3.1. Word processing automation

2.3.2. Spreadsheet automation

2.3.3. Data management automation

2.3.1. WORD PROCESSING AUTOMATION

Word processing is the process of moving text or information from the originator to paper through an electronic device. The word processor store text, sort them, print them and even process the text. There are stand-alone word processors that perform the word processing tasks alone. In recent times, most of word processing in libraries are done with the help of computer word processing software like Microsoft words, Word perfect, Word star, Page Maker, Print Master, etc. According to Mandelbaum (1992:71), when a library starts using computer as word processor to type, store, retrieve and print documents that library is considered to be partially automated.

Mandelbaum(1992:72) further classified the word processing tasks in libraries into the following groups.

-- Production of common library documents, such as library newsletters, library management reports, new book list, special bibliographies, etc.;

-- Production of overdue book notices;

-- Production of statistical reports;

-- Use of optical scanner to read data from sources, this is especially if you find your self re-keying from documents and Use of an optical scanner to scan pictures, groups, images, etc;

-- Managing text and hyper text;

-- Compilation of Indexes; and

-- Using CD-ROM and printing information from them.

2.3.2. SPREADSHEETS AUTOMATION

Spreadsheets are typically used to automate functions in libraries requiring manipulation of numbers. For many tasks, the spreadsheet table formats serves a useful purpose. The information is formatted as one goes along entering data to be processed for easy manipulation. The row and column format is usually an enough structure to give one a place to start. A spreadsheet can function as a small database with the advantage of easy calculations. Spreadsheet products have taken advantage of the popularity of spreadsheet programmes by adding word processing, printing and report writing functions. Data-management options are relatively sophisticated including selection and sorting. Some of the software uses in theses operations are Lotus123, excel etc.

2.3.3. DATABASE MANAGEMENT SYSTEM (DBMS) AUTOMATION

A database is a collection of logical related files with minimum redundancy, organised in a manner to satisfy the information needs of an organisation. In another dimension, Mandelbaum (1992:128) defined a database as "group of records or a file of information in library, either automated or manual". The Software developed specifically for management of database are called database management system (DBMS).

Library management database management software like NLAS, X-LIB, TINLIB, etc and the one developed for Samaru Public Library are used in libraries in the following areas:

1. Catalogue for general/special collections of printed information resources videos, music, serial

   holdings, reference materials, computer software, etc.
2. Inventory of equipments.
3. A list of people or organisation, such as mailing list.
4. Vertical filers or pamphlet index.

The dBase

The "dBase" is a trademark used for products sold by Borland such as the dBase II, dBase III, dBase III+ and dBase IV. Each new product has significant changes upon the previous Mandelbaum (1992:139). It is a software having programming facilities using the fourth generation languages. With dBase IV a programmer can write menu driven programs related to library operations, such as cataloguing, circulation, acquisition, etc. It has an easy access facility and less memory requirement. The software (dBase iv) can run in both MS-DOS and Windows operating systems it is because of these SPLAS is developed in dBase iv environment. Because it can run on 286 systems and above. Unlike many library software like X-lib, Alice for windows, GLAS etc which required a windows environment. The data entry screen of dbase is also direct and simple to key-in unlike other programming languages like BASIC, COBOL, FORTRAN etc. So when developing a software that is required to operate in both windows and MS-DOS environments then the most

suitable is dBase. Also dBase developed software are easy to modify. This is supported by Fatuyi (1998:95) "The Database management system has evolved over the years of advanced information technological development from one software to the other. Among these software, are the dBase III, dBase III+, dBase IV, Foxbase, Oracle and Microsoft Access. The most stable of these ones and most adoptable one is the dBase IV. This has been successfully used in many libraries and information centres across the globe to develop an application software that will facilitate information dissemination to the patrons at a fast and efficient way." An example of this in Nigeria is the (NLAS), which was developed using the dBase IV at National Research Institute for Chemical Technology, Zaria. Hayman (1990) wrote a whole book on the uses of the dBase IV in Libraries. In the book the uses of dBase iv in libraries was highlighted to include the ways in which programs can be written for library operations such as circulation, cataloguing and acquisition. Which is related to this study.

Software acquisition

There are basically two options for software acquisitions:

1.. Either the library should purchase a pre-written one (turn-key)

2.. To create by- self (in house). Nwalo (1992:92) opines that it is better for a library to purchase a pre-written software when he says that:

"There is little to gain from dissipation of energy, time wastage and lavish of scarce library funds in trying to write a program in-house,

while better and more cost effective alternatives are available in the market". Fair enough as this opinion might be, it is in most cases better for a library to create its own system than to purchase one because of the following reasons:

i. Cost: most pre-written systems are very expensive, which a public library like SPL and their likes may not afford;

ii. Maintenance: an in-house developed software is easy to maintain and up-date in case of policy changes, to meet pressing needs or circumstances of the day and time at a little or no cost.

iii. Training: an in-house developed system may be very simple to use and easily adoptable such that Librarians and other supporting staff can easily be trained to use; unlike a pre-written software which could be very complicated; and

iv. Needs of the library - an in-house developed system will be more dedicated to the operations of the library because, it is a specific software developed to meet the peculiarities of the library .

v. Cost of systems maintenance and support is in local currencies.

In the light of the above, it will therefore, be more advantageous for a library to develop its own automated system than purchase a pre-written one by foreigners or outsiders. Librarians should learn to write programs themselves. Where feasible, they should develop their software to meet the local/peculiar needs of their library instead of depending on turnkey systems which, more often do not satisfy the localised needs of the libraries.

Matthews (1980:13) draw the attention of libraries on turnkey systems when remarked that it is particularly dangerous to blindly

copy the decision of another library system by reasoning that if a particular library system was good enough for library X, then it should be good enough for your library. One may not know that library X might have been in desperate need of a system; or that the management of library X might have made an uninformed choice which is regrettable. It could be an excellent and informed choice for library X, but such reasons may not apply to your library Y."

2.4 SOFTWARE DEVELOPMENT

Computer software is a set of step-by-step instructions or programs that command the machine (computer) to perform operations on information, Corbin (1985:26).

There are two types of software:

1. System software and
2. Application software.

System software is the one dedicated for operating and maintaining the computer system. This is usually supplied/provided by the computer manufacturers in the computer system. However, application software refers to the sets of computer instructions or programs required for specific applications such as library acquisition, cataloguing, circulation and an online catalogue. This sort of software is not usually supplied by the hardware manufacturers. They are usually purchased or leased from a software vendor, shared with other libraries, or locally developed locally, Corbin (1985:28).

This is the type of software developed for the SPL operations.

The application software can be written in variety of programming languages such as FORTRAN, COBOL, BASIC, PASCAL, dBASE, ORACLE, FoxPro, etc.

The initial stage of software development started with writing programs in machine language or binary digits ('0' and '1'), which Computers better understand easily, but this language is very difficult for humans to understand. To alleviate this problem, the use of mnemonic for operation was introduced. These are known as assembly language instructions and are converted to machine code by special programs known as assemblers.

During the 1960s, high-level languages began to be developed. These enabled programs to be written in a way, which, theoretically is independent of the processor on which it is run. Examples of such languages are BASIC, COBOL, ALGOL and dBase IV. However, Special programs, known as compilers, are needed to translate them from the high-level language to the machine code that the processor understands Tedd (1993:18).

2.4.2. AUTOMATED LIBRARY APPLICATION SOFTWARE

The development of Computer-based library systems started in the early 1960s when the British Company Automated Library Systems (ALS) developed a special device based on punched paper-tape to automatically record details of books and borrowers at the issue desk. The Company also developed system V online circulation control system in 1970s for Derbyshire Country Library, Tedd (1993:220). During the 1980s this endeavour evolved into the system 88, which include cataloguing and acquisitions features. In

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1992 Automated Library Systems (ALS) supplied several systems to Germany.

Other developed Computer - based systems are Computer Assisted Information Retrieval system (CAIRS) developed by the Leather Head Food Research Association in Britain, library management system (LMS), TINLIB, (the information Navigator for libraries) etc. Currently there are over 30,000 library software world wide, Tedd (1993:211).

In Nigeria what greatly stimulated the interests of library administrators towards automating library systems was the 1971 Nigerian library Association (NLA) Conference at which a theoretical demonstration of the application of computer technology in library was fully discussed, Abubakar (1971:101).

The 1971 Conference was followed by a seminar held in 1974 at Ahmadu Bello University (ABU) Zaria, on national planning for Machine Readable Catalogue (MARC) in Nigeria. Since some the Universities already had computers while others were about to acquire one, the seminar felt that MARC may soon be introduced into Nigeria, Mohammed (1991:65).

Several factors necessitated the automation of the Nigerian libraries. These include increase in the number of users, increase in the size of collection, high rate of filing errors associated with manual systems, Mohammed (1991:66).

Library automation in Nigeria is felt more in the academic and special libraries than in the public libraries where there has been no evidence of any attempt to automate them. The University of Ibadan

Library was the first University library in Nigeria to attempt automating some of its systems. With the assistance of the computer centre at the university, the library started computerising its serials catalogue in 1973, Abimbola(1979:145).

In July, 1976 Ahmadu Bello University library started a on-line automation of its circulation control systems with the assistance of the computer centre of the university. By 1979, a computer-generated union list of serials held by the A.B.U. library complex was produced, Ahmadu Bello University (1980:6).

Other university libraries such as the university of Ilorin library, Bayero university library, university of Jos library, University of Nigeria Nsuka, University of Lagos Library have achieved some appreciable results in the automation of their systems. Mohammed (1991:69) explained some the problems hindering the success of the libraries in automating some their systems. Among the reasons are the break down of communication between the libraries and the computer centres, and inadequate funds to install and maintain the system. Bye and large, the libraries depend on their University computer centres to develop their systems for them. The centres control both the hardware and the software. However, the proposed automated system for the Samaru public library (SPLAS) is not as it were with the earlier attempts based on a mainframe computer. The proposed library application software will run on a microcomputer, which is inexpensive. The systems maintenance is similarly going to be at no cost since the department of library and information science will manage it, which is the parent body of the SPL and who also

encouraged the undertaking of the project. The end result will be deposited with the Department.

2.4.3. Comparison of Some library software in Nigeria with the SPLAS

1. CDS/ISIS

CDS/ISIS is a text management software developed by UNESCO to assist libraries and other information centres to develop their own non numerical databases UNESCO (1997:3). The CDS/ISIS has two broad categories of services. The user services and the system services.

The user services provide the following functions:

ISISENT	data entry and record editing
ISISRET	information retrieval
ISISPRT	production of printed outputs such as catalogue And indexes
ISISINV	inverted file maintenance and utility functions.

The system service provide the following functions:

ISISDEF	definition of new data bases and/or modification of existing data base definitions
ISISUTL	miscellaneous system utility functions
ISISXCH	facilities for interchanging data with other Systems and Master file utility function.
ISISPAS	advance programming facilities, which Allow you to develop your own application Programs and integrate them with CDS/ISIS.

The advantages of this software is that it is free and if you know PASCAL programming language you can use it to develop your application software. But its dis-advantages are that: (a) it is not a turnkey system that will cover all the library operations like acquisitions, circulation. It addresses only some areas of library operations such catalogue, indexing and abstract, (b) The software is not user friendly; (c) it needs an expert and sometimes needs programming capability; (d) its base engine is PASCAL which is a third generation language, hence can not be compared with fourth generation languages like dBase iv. In effect therefore, it could be said that it is more advantageous to use the SPLAS whose base engine is a fourth generation language and it address virtually all the library operations.

2. X-LIB

This software (X-LIB) is a product of the Raw Materials Research and development council (RMRD) and the BERAM ltd., a private company. What leads to its development is the failure of Mini Micro (CDS/ISIS) from UNESCO and TINLIB integrated library software to address the scope of computerizations of the RMRD library (Raw Materials Research Development Council 2000:1). The first version was completed in late 1996. When the

X-LIB was demonstrated at the 1997 conference of the Association of Government Libraries (AGOL) and later at the annual conference of the Nigerian Library Association, it was widely accepted and observation made by the practicing librarians were incorporated. It

was commercialised in 1997 with BERAM serving as the sole distributor. The X-LIB is fully indigenous integrated library software having all the four modules of acquisition, catalogue, circulation and inquiries. It is a user friendly software. It incorporated both audio and visual materials services. The problems with this software is that many public libraries including Samaru public library may not afford to buy , because it cost about half a million Naira (=N=500,000.00). The other problem is with its circulation module in which when charging or discharging books the librarian has to browse the list of users so as to locate a user. This can be suitable for libraries with few registered users like that of the Raw Materials Research and Development Councils at Abuja. But with public libraries like the Samaru public library with over five thousand registered users searching of an entry for a patron in that manner could be tedious. In addition the X-LIB software also has high system requirements (486DX or higher) because it runs only in Windows environment. It cannot run in DOS environment.

On the other hand, the SPLAS software can operate both in DOS and Windows environments. Also, no matter the size of the registered users in the database, mere typing his user number can easily search a particular entry on a user.

A.B.U. LIBRARY

3. OPACs

Online Public Access Catalogues (OPACs) allow any member of the library to search the catalogue database in order to see if the

library holds a particular work The access points in OPACs are titles, subject headings and authors. This software is limited to only catalogue; it is not a turnkey system. It is also not developed locally hence it might be costly. Its maintenance cost is also high. The advantage of SPLAS over OPACs is that The SPLAS has address all the four basics of library operations. The SPLAS has also provision of OPACs via its catalogue module.

4. TINLIB

Information Made Easy (IME) developed the Information Navigator for Libraries (TINLIB) in the 1980s. TINLIB is an integrated system with both bibliographic data elements distributed around the database and shared by all modules. This is an integrated system, which has been successful in libraries over the world. It is sold in over 30 countries including Nigeria. The disadvantages of this software are that it is costly and its maintenance cost is also high. Apart from that, if there is any problem it has to be referred to the developers of the software at overseas. And reaching them most of the times is difficult. With the coming of Windows operating System TINLIB is replaced by GLAS Software. It is an enhanced version of the TINLIB. The GLAS (Graphic Library Automation System) is Windows based. It cannot operate in MS-DOS environment. This software is expensive. It cost four million Naira (=N=4,000,000,00). Hence most public libraries cannot afford. On the contrary, the SPLAS is cheap, costing just one hundred and eighty thousand Naira only (=N=180,000.00). The SPLAS can also operate in both MS-

DOS and Windows environments. The SPLAS maintenance and update is also easy because it is indigenously developed.

5. VISUAL LIBRARY

This is indigenous library software developed by Sunny Intersoft Limited and distributed by SunnyTronic Systems Limited, Kaduna. It is an integrated library software with graphic capabilities. It is a windows based software. Therefore, it cannot operate in MS-DOS environment. It's acquisition and catalogue modules are good. The problem with the software is its circulation module, which limits user registration to one year. Also, when charging or discharging information materials to the clientele, the systems operator has to browse through the entire list of the users in the database. For a small library this may be all right. But when the number of the registered users is high, like that of Samaru Public Library, browsing the users' database all through could be tedious. The software is also costly when compared to SPLAS. However as for the SPLAS, the browsing of users' record is made easy by typing his user number.

6. VTLS (Virginia Technology Library System)

This is an integrated system developed at the Virginia Polytechnic Institute and State University in the United States of America. It addresses all the four basics library operations. It was originally designed to run on Hewlett Packard 3000 series computers. But now, the software runs under Unix operating system. Therefore, the VTLS can be used with variety of hardware. Tedd(1993:213). In a network environment the VTLS has maximum number of 32 users. It is an

expensive system costing over eleven million Naira (=N=11,000,000.00). On the other hand SPLAS has unlimited number of users and costs less. Hence, it would be better to use SPLAS than VTLS.

7. Alice For Windows

"Alice For Windows" (AfW) Library automation software was started in 1983 by softlink, an Australian company with corporate haedquaters in Brisbane. It has branches in Europe (Oxford), the American (Salt Lake City), India (Delhi) and Hong Kong. 'LISS', the company's sole representative in West Africa, is based in Lagos. The AfW has three core modules of :

i. The **Management Module** which handles basic library operations like cataloguing, housekeeping functions, library map set up, and import and export data;

ii. The **Circulation Module** which controls the issue, return, renewal and reservation of library materials; administration of fines; and the maintenance of the user database; and

iii. The **Inquiry Module,** which permits an online, real-time search of the library's catalogue and speedy determination of the availability status of materials.

In addition to the three modules, there are other sub-modules for: Acquisition, Multimedia, Periodicals, Union Catalogue, Web Inquiry and Rapid Retrospective modules. The Alice for Windows runs only in Windows environment. The software (Alice for Windows) has large user base of some 10,000 libraries distributed all over the world

including West Africa, Kumasi University in Ghana. Softlink Austrialia Pty Ltd, (1999:5). The Afw is an expensive Library application software costing over one million Naira (=N=1,000,000.00) and runs only in Windows operating system. The minimum hardware requirement for the AfW is Pentium 466 Mhz (Celeron) or higher. On the other hand the SLAS is cheap and require a lower hardware requirements. As already stated the SPLAS can run on 286 Computer or higher. The Afw has also annual support/maintenance fee to be paid to the developers. The amount is not fixed and it varies annually. The SPLAS has no such fees. Hence support/maintenance is free.

9.. Alexandria for Windows:

Alexandria for Windows (AfW) is a library-automated software developed by Schjelderup LTD. Schjelderup (1999: 6). The Alexandria for Windows is an integrated library application software with hardware requirements of 486DX with 16MB of RAM. In order to install AfW the Computer system must have a CD-ROM drive and a minimum of 55MB free hard disk space. The Alexandria for Windows runs in Windows operating system. It cannot run in MS-DOS operating system. This Library application software is user friendly and has high graphic user-friendly interferes (GUI) capabilities. The Alexandria for Windows has the modules for Acquisition, Circulation, Cataloguing and inquiry. When compared to the SPLAS, the Alexandria for Windows is an expensive Library application software costing over one million Naira. The hardware

requirement of the SPLAS is minimum. And unlike the SPLAS, AfW can only operate in Windows environment.

2.5. Application of automation in libraries

Library automation is the application of information technologies to library operations and services, Ajibero (2000:4). Rowley (1993: 239) identifies the application of automation in libraries in the following areas:

i. Ordering and acquisitions
ii. Cataloguing
iii. Circulation control
iv. Serials control

2.5.1.. Ordering and acquisitions

The ordering process is particular suited to computerization, as it is a relatively simple clerical process, where similar operations are applicable to all categories of library Rowley (1993:241). The functions of an ordering or acquisitions system are:

(i) To receive records of information materials to be acquired
(ii) To establish whether information materials requested are already in stock or on order.
(iii) To print orders
(iv) To check when orders are overdue and fallow up over due orders
(v) To note the arrival of ordered information materials and prepare for payment.

Some ordering systems also notify individuals the receipt of information materials, and produce a list of recently acquired information materials which will be placed on notice board. The details of the information material to be acquired need to be stated. That is the title of the information material, ISBN/ISSN, name of author(s), number of copies ordered, publishers, vendors, etc.

2.5.2. Catalogue systems

Computers are aids in producing catalogues most effectively and efficiently. This remains the reasons for computers being part of the cataloguing process, InterSoft limited (2000:3). The objective of any cataloguing system is to create appropriate catalogues that can be access easily. To this end records can be drawn from any of the following sources:

- MARC records
- A union file of the stock of several libraries or other shared database.
- The library's ordering or acquisition system
- A file of records held by the library.

The advantage of Computer based catalogue systems are:

i. The records in the catalogue database can be used not only in the catalogue subsystem, but also in other systems such as circulation control and acquisitions.

ii. Easy and effective interchange of catalogue records.

iii. More effective interlibrary lending, cooperative acquisitions policies and cooperative storage ventures.

iv. No filing or other routine catalogue maintenance is required of cataloguers, except where it is necessary to alter stock records as the stock itself changes.

v. Different catalogue forms can be chosen for different catalogue locations.

vi. Extract from the main catalogue database may be printed or consulted online.

2.5.3. OPACs and other catalogue forms

All library automated application systems offer online access to the catalogue or bibliographic database in some form or the other, Rowley (1993:247). Most systems offer both phrase and keyword searching. With the phrase searching there is usually implicit right-hand truncation; for keyword searching, a truncation symbol is normally input if required.

After searching, once records are identified, there are number of ways in which they can be displayed. Some systems display the index or a listing of brief records before a full record is displayed; others, if there is only one match, will show the record directly. In addition to the online access to catalogue databases, most systems still support the generation of hard copy catalogues which can be used as a backup for security or at busy times, and which are useful in locations such as small branches. Hard copy can typically be produced in the form of cards, printed catalogues, indexes and COM (Computer output on microform).

In Nigeria, British Council is using OPACs in its libraries. While some special libraries like Raw materials research and development council library is using an integrated system (X-lib) which include OPACs in it.

2.5.4. Circulation control systems

The application of computer-based library systems in circulation is in registration of library users, keeping track of movement of publications including charging, discharging, renewal, and reservations of information materials. In addition, automated library circulation systems generates reports of transactions by the user such as list of publications at his/her possession, the date he/she is suppose to return them, and in the case of commercial libraries, any outstanding payment Raw materials research and development council (2000:19).

The main purpose of computer based circulation system is to make library materials, including books and non-book materials to all customers immediately or as soon after the demand arises as is practicable. In order to achieve this, all libraries must control circulation, by keeping records to specify :

i. What information material is in the library stock

ii. Which information material is on loan, and from whom or where it can be retrieved?

iii. When material on loan will be available in the library for other customers?

In addition to these basic functions, most libraries also like their circulation control system to:

i. Recognize and possibly trap reserved books;
ii. Prepare overdue and recall notices;
iii. Facilitate renewals
iv. Be reliable
v. Be economical

2.5.5.. Serials Control

A serial, as defined by the International Serials Data System (ISDS), Paris is 'a publication issued in successive parts and intended to be continued indefinitely' Rowley (1993:255). Serials are distinguished from monographs by their ongoing nature. Serials control computer based systems usually have fewer titles to handle, but must record a greater number of transactions per title. Development of computerised serials control systems lagged behind similar systems for monographs. This slower progress was in part due to the essential complexity of a complete serials-control system, but also derived from the lower priority associated with serials control as compared with monographs control. More development of serials-control systems has been undertaken in academic and special libraries, where serials represent a larger proportion of the stock, than say in public libraries Rowley (1993: 260).

In Nigeria there are some indigenous computer based library systems like the X-lib, Visual library which have the capabilities of handling both monograph and serials.

2.6.. The state of the art of automation in Nigerian libraries

The only success story of Nigerian library automation programmes is in the research institutes. Ajibero (2000:6) highlighted that most of the well-established research institutes libraries in Nigeria have been fully or at least partially automated. Chief among these are the libraries of International Institute of Tropical Agriculture (IITA), Ibadan. Institute of International Affairs, Lagos. Mathematical Centre, Abuja. Raw materials research development council, Abuja, etc.

In academic libraries the University of Ibadan library was the first university library in Nigeria to attempt automating some of its systems. With the assistance of the computer centre at the university, the library started computerizing its serials catalogue in 1973 Abimbola (1979:143). The computerised catalogue provides information on the title, subject holding, location, frequency, call mark, place of publication, how the publication is acquired, price and the agent from the publication is acquired. In July 1976, Ahmadu Bello University library started automating its circulation control systems with assistance of the computer centre of the university. By 1979, a computer generated union list of serials held by the ABU library complex was produced, Ahmadu Bello University (1980:6).

The University of Ilorin had the first test of its computerized circulation control system in 1984. Like its predecessors, it is also a joint exercise between the library and the computer centre of the

university, Ogunrombi (1985:39). The Bayero University Library, Kano had also automated its serials collection with the assistance of the computer centre of the university Agha (1986:410). Other university libraries such as the University of Nigeria Nsukka and the University of Lagos have achieved some appreciable results in the automation of the systems in their libraries. Mohammed (1991:69) reported that most of these computerized systems failed because of administrative bottleneck from the university authorities, inefficient coordination and breakdown of communication between the libraries and computer centres, and insufficient funds to sustain the project.

The Federal Government took a bold step in 1991, when it took a $120 million World Bank credit facility for the twenty (20) Federal Universities. The library was a major beneficiary of this facility, especially in the areas of current materials and automation. According to Gwarzo (2000) in 1993 each university library was given one microcomputer, one CD-ROM drive, one UPS and Tinlib software to enable the universities start automation programmes. The National University Commission, also organised workshops on the application of CD-ROM and Tinlib software for the University Librarians and system managers.

In 1999 Gwarzo (2000) carried out a research to find out the adoption and utilization of CD-ROM technology by Nigerian Universities. His findings showed that all the six Universities studied had CD-ROM but only three offered CD-ROM services. None of them have budget for CD-ROM services.

The situation in our public libraries is sympathetic. According to Ajibero (2000:8), Mohammed (1999:22), Oyegade (2000:64) there is little progress towards the automation of public libraries in Nigeria. Unlike in United States of America and United Kingdom where most of their public libraries are automated using OPACs cooperative system, Ovid Technologies (2001:1).

2.7.. Problems militating against large scale automation of public libraries in Nigeria

Nigerian public libraries are lacking behind in library automation as a result of certain factors, which are both internal and external. Ajibero (2000:7), Mohammed (1999:22), Oyegade (2000:60), identify the factors as: psychological, technical, economical, sociological, educational and political changes that have taken place in Nigeria. The first and most important according to them is finance. The inadequate financial resource and the severe economic recession have made it prohibitive to purchase, operate, and maintain new technologies needed for automation. Government funds most of the public libraries in the Nigeria. These public libraries were neglected during military regimes. According to Oyegade (2000:65) from 1995 to 1999 twenty two million and five hundred thousand Naira was allocated for library services in Oyo state, but only one hundred thousand Naira (=N=100,000.00) was released within the years. The amount was released for the purpose of participating in Book-gift from Book Aid International.

The devaluation of Naira is also another factor. The devaluation has resulted to escalating cost of information technologies without a corresponding revenue allocation to public libraries. Most of the equipment needed for automation have to be imported.

Lack of qualified computer personnel in public libraries is another problem. Most of the public libraries lack adequate qualified computer personnel who most prefer to go to banks or oil companies. There is also electricity failure. National Electric Power Authority (NEPA) contributed to the poor state of automation in our public libraries. Another reason is incapacitation of the clientele. Majority of the users in many public libraries are not computer literate. Therefore, planning for automation of public libraries in Nigeria has to include training of both staff and users of the libraries.

Summary of the reviews

Public libraries are institutions, where books and other types of printed and non-printed information resources are housed in organised manner for the use of the general public. Their functions are to serve all ages and groups, as information centres. Public libraries have wide coverage of users, of different ages and educational backgrounds, which they have to cater for.

Automation is the process of employing mechanical or electronic devices to carry out tasks without human intervention. The applications of automation in libraries are in the area of acquisition, cataloguing, circulation, and serials control. The state of art of automation in Nigerian public libraries is sympathetic. According to

Ajibero (2000:8), Mohammed (1999:22), Oyegade (2000:64), there is little progress towards the automation of public libraries. But other libraries, like research institutes libraries recorded a success in automating some of their systems. Like the Raw materials research development council library have developed its own computer based library application system. In academic libraries, the University of Ibadan library was the first to attempt automating its serials catalogue in 1973. Ahmadu Bello University library also started automating its circulation control in 1976. the University of Ilorin library in 1984. Others like Bayero University, Kano and University of Nigeria, Nsukka, have achieved some appreciable results in the automation of the systems in their libraries.

According to Mohammed (1999:69) most of these computerised systems failed because of administrative bottleneck from the university authorities, insufficient coordination, and breakdown of communication between the libraries and computer centres.

The problems militating against large-scale automation of public libraries in Nigeria are: Psychological, technical, economical, sociological, educational, and political changes that have taken place in Nigeria. The first and most important factor according to Ajibero (2000:7), Mohammed (1999:22), Oyegade (2000:60) is finance. The inadequate financial resources and the severe economic recession have made it prohibitive to purchase, operate, and maintain new technologies needed for automation. Another factor is the devaluation of Naira, which resulted to escalating cost of information technologies. Lack of qualified computer staff in public libraries, and

inconsistent power supply by the National Electric Power Authority (NEPA) are also factors that contributed to the poor state of automation in Nigerian public libraries.

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CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction.

The purpose of this chapter is to discuss the methodology adopted for carrying out the research.

3.2 Research Method adopted

The research method adopted for this research is the case study. Case study denotes a detailed study of one person, a family, a company, a single organisation, or an 'event' such as a political demonstration Rose (1982:305).

A case study method also provides practices in analysing problems set in a realistic context and arriving at practical solution Noragh(1988:1). The second research method adopted is the Operational research method. In general terms, operational research is the application of scientific ideas and methods to improve the efficiency of an Industrial process, an organisation, or in the most general of senses, the workings of any part of society, French et al (1986:1). An important factor in the rapid spread and sustained success of the operational research approach to problem solving was the concurrent development of electronic computers. The computer was from the beginning an invaluable tool to the operational research analyst, it enable him to perform otherwise impracticable calculations. Indeed, many of the problem-solving methods now regarded as standard would be unthinkably impractical to implement without modern Computers.

3.3 Population and Sample of the study.

The population of this study are the six members of staff working in the library, five thousand six hundred and fifty two registered users of the Samaru public library and the information resources in the library. There are over fifteen thousand collections of books and non-books materials in the library. Out of the six members of staff, four (4) were interviewed. While out of the five thousand six hundred and fifty two registered users of the Samaru public library, fifty users were sampled and interviewed.

3.4 Sampling procedure.

The sampling procedure employed was purposive. Because out of the six members of staff working in the library, only four are library staff, the rest two are supporting staff. One is a typist and the other is messenger/cleaner. These two were not consulted during the study. However, simple random sampling technique was employed in selecting the fifty users interviewed. Similarly simple random sampling technique was employed for selection of the information resources used as data in testing the operation of the proposed library application software for the Samaru public library.

3.6 Instrument of the study

The basic instrument used to collect data/information from the users and library staff of the Samaru public library is the interview. Appendix ii, iii, iv, and v are the interview guides used in collecting data before and after the development of the proposed library

application software for the Samaru public library. Personal observation was employed to determine the relevant information/data required for this study.

The queuing theory was used to determine the number of servers in the library. The queuing theory is a technique under operational research that deals with construction of mathematical models of various types of queuing systems, so that predictions may be made about how the system will cope with demands made upon it, Lucey(1992:209). In general queues form when the rate of items requiring service is greater than the rate of service. Typical of such circumstance in which queuing theory might be applied are shop counters, telephone exchanges, libraries, Airport runways etc. Based on the observation made on the mode of operations, and the financial position of the library, the circulation, cataloguing and acquisitions systems were based on $M_1/M_2/C$ queue. Where M_1 means arrivals are a Poisson process. That's one can arrive at a second or two or three or more than that. At the same time it may take an hour no one comes. The second M_2 is service time, which is negative exponential that is random services time and the C is number of servers which one (1) was found to be adequate.

In writing the computer-based library software the study used Data-and-process-oriented technique. This is a technique were a system is decomposed in to modules depending on the type of data in each module. Thus, the system was decomposed into four modules. The division is based on the types of data elements in each of the modules.

The four modules created, were:

(i) Acquisition

(ii) Cataloguing

(iii) Circulation

(iv) Utilities/Reports.

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CHAPTER FOUR

PRESENTATION AND ANALYSIS OF DATA

4.1 INTRODUCTION

This chapter presents and analyses the data that has been collected from the study.

It is presented under the following sub-headings:

4.2. Analysis of data collected

4.3. SPLAS configurations, capacity and operations

4.4. SPLAS applications

4.5. SPLAS compatibility with other existing library systems

4.2 ANALYSIS OF DATA

4. 2. 1. Response rate for the first interview conducted, before developing the proposed library application software.
Table 4.1

	Number consulted	Number interviewed	Percentage (%) Interviewed
Library Staff	4	4	100
Users	50	48	96

From the response rate, all the four members of staff in the library consulted were interviewed. While out of the 50 users

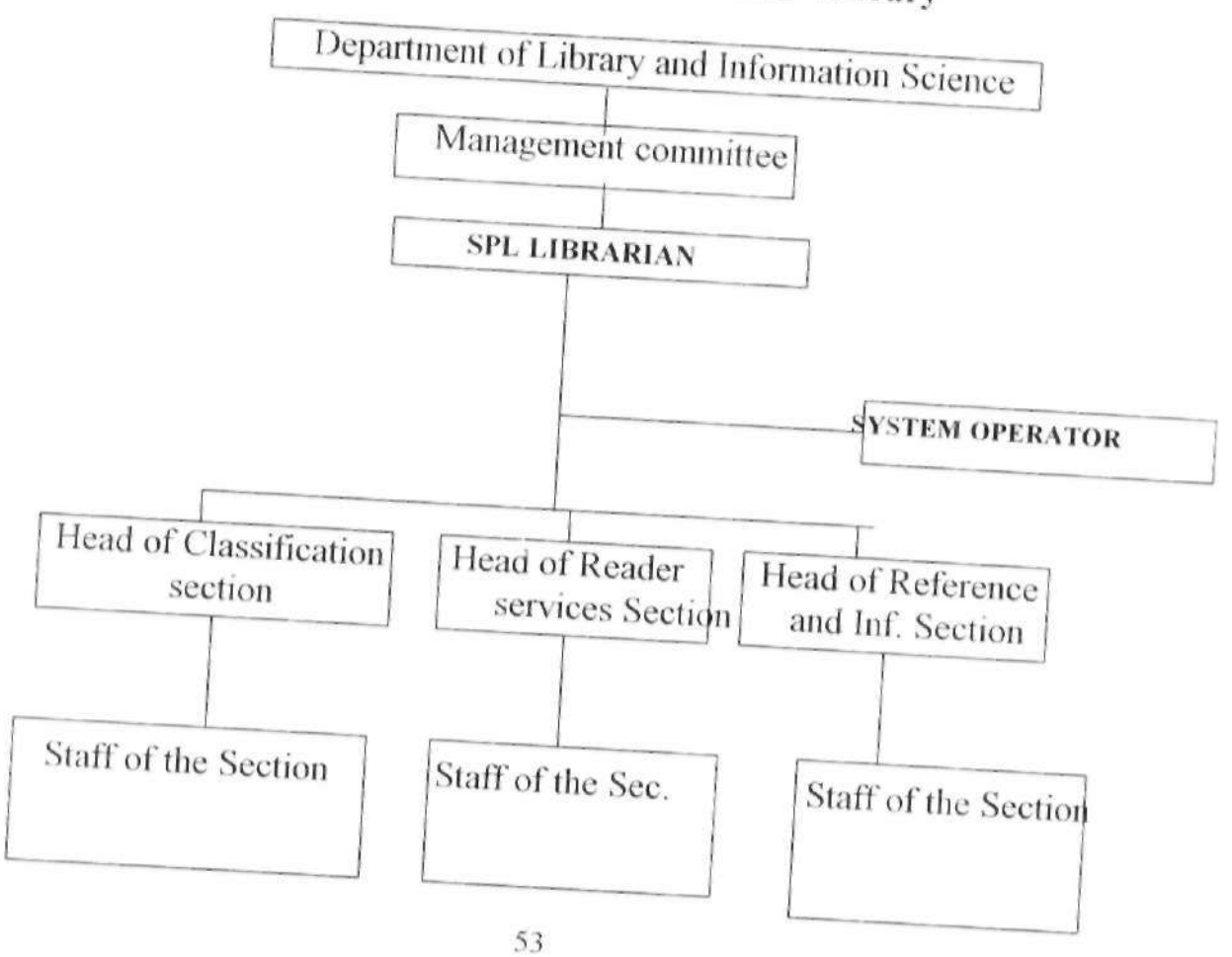
consulted, forty-eight (48) were interviewed. The other two complained that they have test, so they cannot honour my request for the interview and after the test they did not come back.

4.2.2. Analysis of staff data

4.2.2. I. Organisational structure of Samaru Public Library

All the four library staff interviewed in the Samaru public library agreed that the library is under the department of Library and Information Science, Ahmadu Bello University, Zaria. Its organisation structure is:

Administrative structure of Samaru Public Library



The department of Library and Information Science is the apex in the structure. A management committee constituted by the Department of Library and Information Science fallows it. It is made up of selected academic staff of the department and the Samaru public library, librarian. Next to the Samaru public library committee is the Librarian of Samaru Public library. Under the librarian, there are three sectional heads for Classification, Reader services, Reference and Information services sections. Under each of the sections there are members of staff responsible for the day-to-day activities of the sections. There is proposal for the provision of computer operator, which will be directly under the librarian.

4.2.2.2.. The resources of the library:

From the responses of the staff interviewed and the observations made during the study. The resources of the Samaru Public library include books, maps, pictures, journals and newspapers. The Library has about fifteen thousands (15,000) titles of books, Magazines and Newspapers. The total number of books in the library cannot be ascertain because the accession number mode is annual i.e. 99-235 indicating that the book is acquired in 1999 and its number is 235. The Library also has one video -cassette and one audio -cassette on medical sciences. It has maps and pictures fixed on the wall especially in the children section. The Samaru public

library also has a television set. The arrangement of the books in the library is according to the Dewey Decimal classification Scheme.

4.2.2.3.. The Staff strength of Samaru Public Library

Table 4.2 Staff strength professional status of Samaru Public Library.

Professional status	Frequency	Percentage (%)
Professionals	1	16.67
Para professionals	2	33.33
Non-professionals	3	50
Total	6	100

Table 4.2 above indicates that the Library has six members of staff, one professional which represents 16.67%, two para-professionals which represents 33.33% and 3 non-professionals representing 50%. The professional has a Bachelors degree in Library science. The two para-professionals have a Diploma in Library Science. Three out of four staff interviewed are computer literate. But all the four staff interviewed responded positively to the proposed automation for the Samaru public library. And they did not see it as a threat but as

challenge to them. They are also of the view, that the automation will assist them in the provision of information materials to users.

4.2.2.4... Reasons for automating Samaru public library

From the interviews conducted, both staff and the users of the Samaru public library stated the following reasons for the automation of Samaru public library:

i. For quick and easy access to information resources in the library.

ii. To equip the students of the department of Library and information Science.

iii. To increase the safety of the library materials.

iv. to reduce the number of paper records in the library.

4.2.2.5 . **Some of the problems of the existing manual system in Samaru public library.**

Some of the problems of the existing manual system in Samaru public library from the interviews conducted with the staff of the Samaru public library and the observations made during the study are:

a). The acquisition department keeps no records of materials requested by the users, neither the date of request nor the address of the person requesting the information material.

b). The accession number system also need to be corrected, because it is annual based i.e. 99341 indicating that the book arrived in 1999

and it is number 341. This needs to be corrected so to have the actual number of information materials in Samaru public Library because of weeding. To do this change manually will be very difficult and it will take along period.

c). The catalogues are in-order but the only problem is that it is manual system and at the present information age where libraries are replacing manual system with automatic ones it will be unwise for this Laboratory to remain with manual system.

d). In circulation the registration of members is for life. In normal library operations users registration is periodical so as to have update of users lists. .

4.2.3. Analysis of users data

4.2.3.1. **The services the Library provides**

From the response of users interviewed and the observations made. The Samaru public library provides library services to the public in form of reference services, provision of books, especially secondary school textbooks, Newspapers for current affairs and relaxation, and a Television viewing centre.

4.2.3.2..The users of Samaru public library

It was observed from the register of users in the Samaru public library it has over five thousand (5,000) registered users. The user registration fee is =N=20.00. The registration is valid for life. But if one losses his/her identity card he/she will have to re-register again.

The users of the Samaru public library comprised of both students and people from Ahmadu Bello University Community, Samaru Village, Jama'a, Bassawa, Palladan and Bomo areas. Most of the users are secondary school students especially from the day secondary schools and Ahmadu Bello University demonstration secondary school. Both undergraduate and postgraduate students of Ahmadu Bello University and the staff also utilize the services of the library especially those in the Department of Library and Information Science, faculty of Pharmaceutical Science, and those residents in Suleiman Hall.

All the forty-eight users interviewed said that they have seen computer, but only twenty of them are computer literate, and most of them are the students of Ahmadu Bello University demonstration secondary school, Zaria. This is due to their exposure at home. They indicate that most of their parents who are lectures have a computer system in their houses. Forty-five users recommend for the automation of the Samaru public library, while three are indifferent.

4.2.3.3. Retrieval devices/systems at Samaru public library

It was observed that the Samaru public library retrieval devices are the Author/Title and subject Catalogue. The Dewey Decimal Classification Scheme is used in classifying the library materials. Some users however, use browsing system of locating materials.

4.2.10 **Response rate for the interview conducted during a two week test of the proposed library application software.**

Table 4.3

Category	Number Interviewed	No. Recommend for adoption	%
Library staff	4	4	100
Users	48	45	94

All the four staff interviewed before developing the proposed computer based library system were also interviewed during the trials period. All the four recommend for the adoption and implementation of the proposed computer based library system. They also made observations on the circulation and acquisition systems, which were

incorporated at the final proposed computer based system. Among the users interviewed, forty-five recommend for the implementation of the system, while three proposed for a computer training for the users before its implementation. These three users are of the view that not many of the users are computer literate.

4.3.1. **SPLAS Configuration**

The SPLAS consists of forty-five (45) written programs and six (6) database files containing seventy-five fields (75) of different types and size. It has about 2.5MB capacity, with a limitless capacity of storing records. That is, the limit of the number of records that each database file will contain is limited to the capacity of the computer but not the database files. The software is configured to operate both in Micro Soft Disk Operating System (MS-DOS) and Microsoft Windows operating systems.

4.4. SYSTEM APPLICATIONS

4.4.1 How to start the system

SPLAS can be start in two ways. If it is from MS-DOS mode, the user needs to type SPLAS and press Enter key. But if it is from Windows95 or Windows98 operating systems there is an icon SPLAS on the desktop. It should be highlighted by a mouse and then activated by double clicking the left button of the mouse to start the SPLAS.

4.5.2. **Access points of SPLAS**

SPLAS has a Main Menu, four Modules and forty seven sub-menus. The main menu has three options, A, B, and E. Option A is fro users, B is for the Librarian or any of the library staff assign to do the job. The screen is like this:

WELCOME TO SAMARU PUBLIC LIBRARY AUTOMATION SYSTEM
DEVELOPED AND TESTED BY USMAN MUHAMMAD KAZAURE
DEPT. OF LIBRARY AND INFORMATION SCIENCE
AHMADU BELLO UNIVERSITY
ZARIA

A - Users

B - Librarian

C - Exit

ENTER YOU CHOICE:

Then a user opted for **A** it shows that he/she is just an ordinary user not a librarian. The system will lead the user directly to the first Sub Menu of Reports/Inquires. The sub-menu has two options for inquiry or reports. For instance if a user opted for inquiry option, he/she can search for documents using any of the four options provided below:

INQUIRY SCREEN:

A- Searching by author

B- Searching by accession number

C- Searching by title

D- Searching by subject

E- Exit

PRESS YOUR CHOICE AND PRESS ENTER TO CONTINUE

—

The second option **B** is for reports. This allows users to see the list of vendors, list of materials in the library arranged in alphabetical order, according to title or surname of author. This screen also allow user to see the materials with him/her but without the privilege for its modification. This option will also list the names of the users arranged alphabetically. The screen is as below:

REPORTS SCREEN

PRESS A TO DISPLAY LIST MATERIALS BY TITLE

PRESS B TO DISPLAY LIST OF MATERIALS BY AUTHOR

PRESS C TO DISPLAY LIST OF USERS

PRESS D TO DISPLAY LIST OF MATERIALS BY SUBJECT

PRESS F TO DISPLAY LIST OF VENDORS

PRESS E TO EXIT

PRESS YOUR CHOICE OR PRESS ENTER TO QUIT: ---

LIBRARIAN SCREEN

The Librarian screen or menu 'B' can only be accessed by typing the required password. When the password is typed correctly it will lead the librarian/the library staff to the four modules shown below:

A- Acquisition Module

B—Cataloguing Module

C—Circulation Module

D-- Inquiries/reports Module

i) A- Acquisition Module: 473820

This has five options

A - Source

B - Request

C - Order

D - Arrivals

E - Exit

(a) Source sub-menu:

This is to register the vendors registered with the library. It has three options for appending records, modifying them and deleting unwanted ones. The Screen has Vendor Code, Vendor Name,

Vendor Address Vendor Net line, Vendor phone number, and the Vendor Postal Address as fields.

(b) Request sub-menu

This is to record all library resources requested by the users. It also records the documents.

requested for by the user with the name of author of the document, the publishers, number of copies requested, and the name and address of the person/organisation making the request. The **request sub-menu** has three options for appending new request, modifying the recorded requests and deleting unwanted ones. The screen has the title of the material requested, Author(s) of the materials, Number of copies requested, Publishers, Edition, and the Name and address of the person/organisation making the request as fields.

(C) Order sub-menu

This records all documents on order. It provides the number of copies ordered, date of order, price of the materials, name and address of vendors supplying the material. The screen has Title of material, Date ordered, Publishers, Unit price, Author(s), ISBN, Year of publication, Edition, Number of copies ordered as fields.

(d) Arrivals sub-menu:

This records all the information resources that arrived into the library. Accession number is assigned to each of the material. The option records the title of the material, its author(s), number of copies

acquired and date of arrival of the material. This screen has three options for appending records, modifying them and deleting unwanted records. The screen has Title of the information resource, Author(s), Accession number,

Publishers, Edition, ISBN/ISSN, Date of arrival, and the Number of copies as fields.

II – (B) -CATALOGUE MODULE:

This allows the librarian/the library staff to assign class mark to the new arrivals. It has three options for adding records, modifying them and deleting unwanted ones. The screen has Title of information resource, Author(s), Publishers, Publishers address, Class Mark, subject heading, Accession number, Number of pages, Edition, Series, and Type as fields.

III- (C) CIRCULATION MODULE:

The circulation module has these sub-menus:

A-. Users registration

B-. Charging

C-. Discharging

(a) User registration sub-menu:

This sub-menu allows library staff to register new users. The screen has User code, User name, User address, Registration date, and Expiry date, as fields.

(b) Charging sub-menu

The charging sub-menu deals with issuing materials to users. A maximum of four books are allowed to be barrowed by a user. The system records the dates of charging and discharging of information resources.

(C) Discharging sub-menu

The discharging sub menu allows a library staff to collect information resources barrowed by users. In charging and discharging the system takes cognisance of the expiry date of registration of users. In the case of over due of information resources barrowed t the programme will calculate the amount to be paid by the user and display it on the screen

4.4.3. THE SYSTEM'S USERS AND OPERATORS

The software is divided into two sections. Library Users and librarians/Library staff. A user is any person who has access to only inquiries/reports Module/Menu on the information materials in the library he/she cannot modify any record in the database. The Librarian/Library staff is any staff of the library who is assigned the task of working with the computer system and knows the password that will lead him/her to the desired section of the SPLAS. Both library users and library staff can use and operate **SPLAS**.

4.5.1 **SPLAS Compatibility with some of the existing library software**

The SPLAS software is compatible with some of the existing library application software like the X-LIB, TINLIB and ALICE FOR WINDOWS (Afw). It has provision for data import and export to and from SPLAS to any of the above library software. The base engine of SPLAS allow the importation and exportation of data to and from different database software.

TABLE 4.4

SPLAS SOFTWARE FUNCTIONAL COMPARISON

MODULE	GLAS	Q-SERIES	VTLS-32 USER	X-LIB Ver.3	SPLAS
Windows Graphical User (GUI)	Yes	Yes	Yes	Yes	Yes
Access Security	Yes	Yes	Yes	Yes	Yes
Maximum Number of volumes	500,000	Un-limited	Un-limited	Un-limited	Un-limited
Maximum number of users	Limited	Un-limited	Un-limited	Un-limited	Un-limited
Data base engine	X-Base	Orale	Oracle	FoxPro	Dbase iv
Windows Compliant	Yes	Yes	Yes	Yes	Yes
Y2k Compliant	Yes	Yes	Yes	Yes	Yes
Background Processing	Yes	Yes	Yes	Yes	Yes
Logic Searching	Yes	Yes	Yes	Yes	Yes
On-line help	Yes	Yes	Yes	Yes	Yes
Network Capable	Yes but Limited To LAN	Yes	Yes	Yes	Yes

Access Security means there is a password protecting the system from unauthorised persons. Only people who know the password can have access to certain part of the software.

Maximum number of volumes No system is truly "un-limited". "Un-limited" implies that the capacity of the hardware is the limiting factor. Thus as the hardware is expanded the software will increase its storage and access capability proportionally.

Database engine This the main software which the developed software is based upon.

Windows Compliant This is the ability of the software to work in Windows either NT, windows95, windows98 or windows2000 environment.

Y2k Compliant This means that it will not be affected by the millennium time bomb.

Integrated System: This is a library software having the all the four modules of library operations.

Online help This is the help facility in developed software or assistance telling a user what to or directing him/her to perform certain task in order to achieve the desired objective.

4.6.1. IMPROVEMENT OVER EXISTING LIBRARY SOFTWARE

The improvement of SPLAS over existing library software are:

(1) The SPLAS has a minimum system requirement. It can run on 286 computer and higher systems, unlike other integrated library software in the market like X-LIB, TINLIB, Visual Library that needs higher systems capability. Minimum of 486DX or higher.

(2). The SPLAS has capacity of running in both MS-DOS and Windows operating systems environments.

(3). The software (SPLAS) is cheap (=N=180.000) when compared to existing library software in market.

(4). The user registration module of the existing library software allow users to register for a period of one year, while in SPLAS the period is left for the librarian to determine so as to cater for different type of users.

(5) When charging materials the librarian has to browse the list of users, so as to locate a user. While in SPLAS when a user's number is typed the software(SPLAS) will locate the name of user.

(6). Most library software like OPACs, Catalogue, MARC, BLCMP are dedicated to only catalogue. While others like Mini-Micro CDS/ISIS are only text management software that cannot to be used as fully turnkey systems. Unlike SPLAS which is a fully integrated system not limited to only one operation.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1. -- INTRODUCTION

The purpose of this chapter is to provide a summary of the findings of the study, draw conclusions, and make recommendations.

The study set out to develop a computer based system for Samaru Public Library, Ahmadu Bello University, Zaria. The specific aspects of the work are:

1. To study the manual operations in Samaru public library through interview and observations.
2. To identify the problems associated with the manual system in the library.
3. To write programs that will assist Samaru public library to automate its acquisition, cataloguing and circulation systems.
4. To test the proposed library application software in the library and if found suitable by staff and users, to recommend for its implementation in the library.

5.2.-- SUMMARY OF FINDINGS

The findings were based on the research questions and the developed software as the end result of the study.

The information resources in Samaru public library includes over fifteen thousands titles of books, non-book materials. It is providing library services in the form of reference service, provision of books, newspapers and television viewing centre for current affairs and relaxation. It has over five thousand registered users mostly from Ahmadu Bello University community, Bassawa,

Palladan and Bomo villages. The library has six members of staff, one professional, two para-professionals, one library assistant, one typist and one messenger/cleaner. The library uses Author/title catalogue and subject catalogue as retrieval devices. It uses the Dewey Decimal Classification Scheme. And Anglo American Cataloguing rule II (ACCRII) for the catalogues.

The proposed SPLAS developed has 45 programs files, 6 databases files containing 75 different fields. It occupied about 2.5 megabytes (2.5MB) memory space. The system has limitless capacity of storing records and can operate both in Windows and MS-DOS environments. It is compatible with the library application software like the X-LIB, TINLIB. It is also MARC compatible.

5.3.-- CONCLUSION

This researcher concludes that:

1.Our public libraries can locally develop their own in-house systems software, which could still be compatible with other application software around. This means that they may not need to buy a turnkey system which could be costly. That is, they can go for library automation within their limited resources.

2.The dBase IV is a suitable database engine for developing computer -based application software for Public libraries.

5.4. RECOMMENDATIONS

The findings in this work call for recommendations, which, if implemented will bring about improvement in the services of Samaru public library and other public libraries. The recommendations are:

1. The Ahmadu Bello University authority to purchase a micro Computer for Samaru Public Library so that the developed software can start operation as life project. This will assist the users as well as the library staff.

2. The National Library and states library boards to encourage the development of local computer based library systems so as to assist in proper and efficient dissemination of information in the current information age. This may also lead to other on-line services like CD-ROM and Internet browsing.

5.5.-- SUGGESTIONS FOR FURTHER STUDIES

A comparative study between indigenous library application software, and foreign ones.

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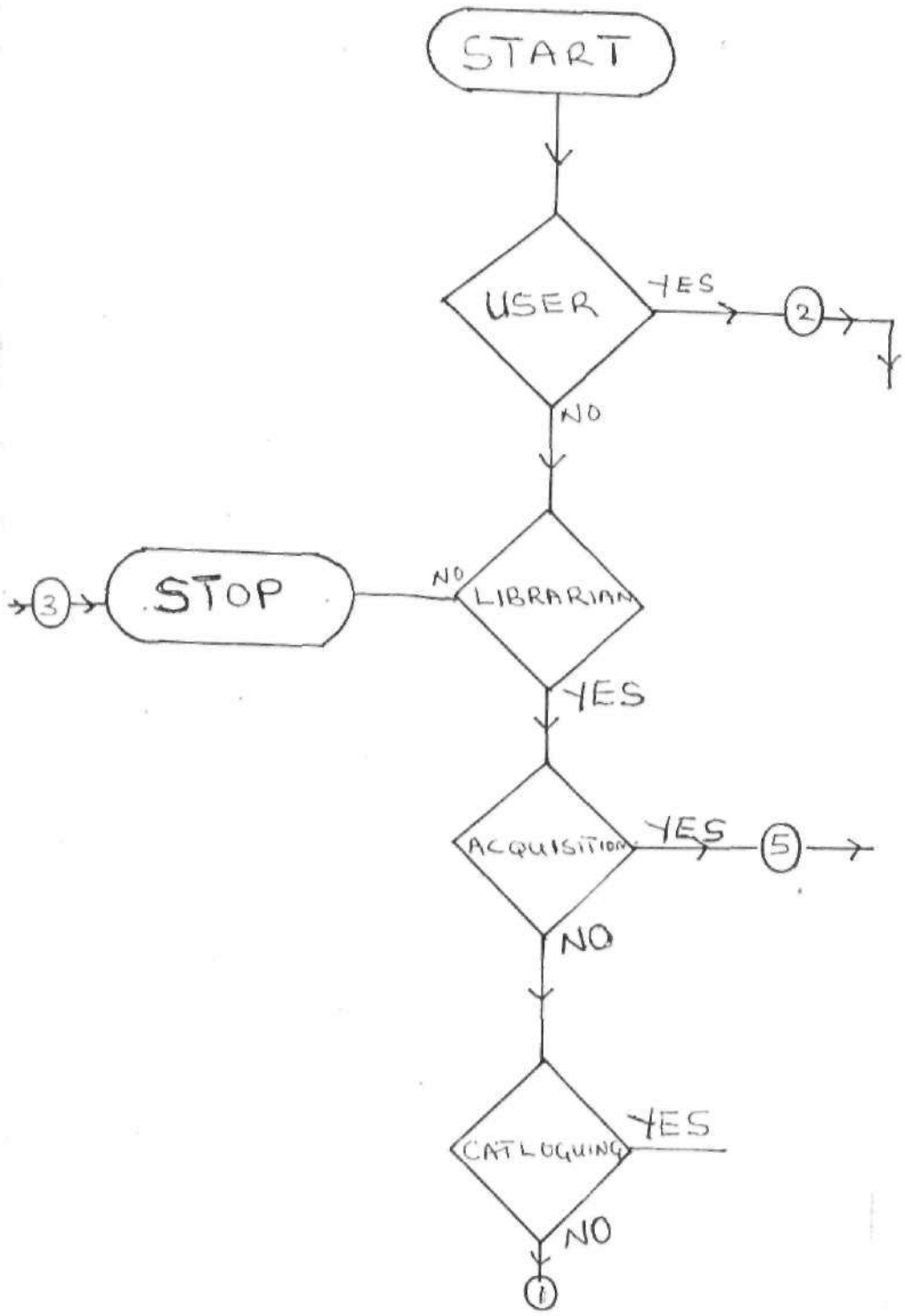
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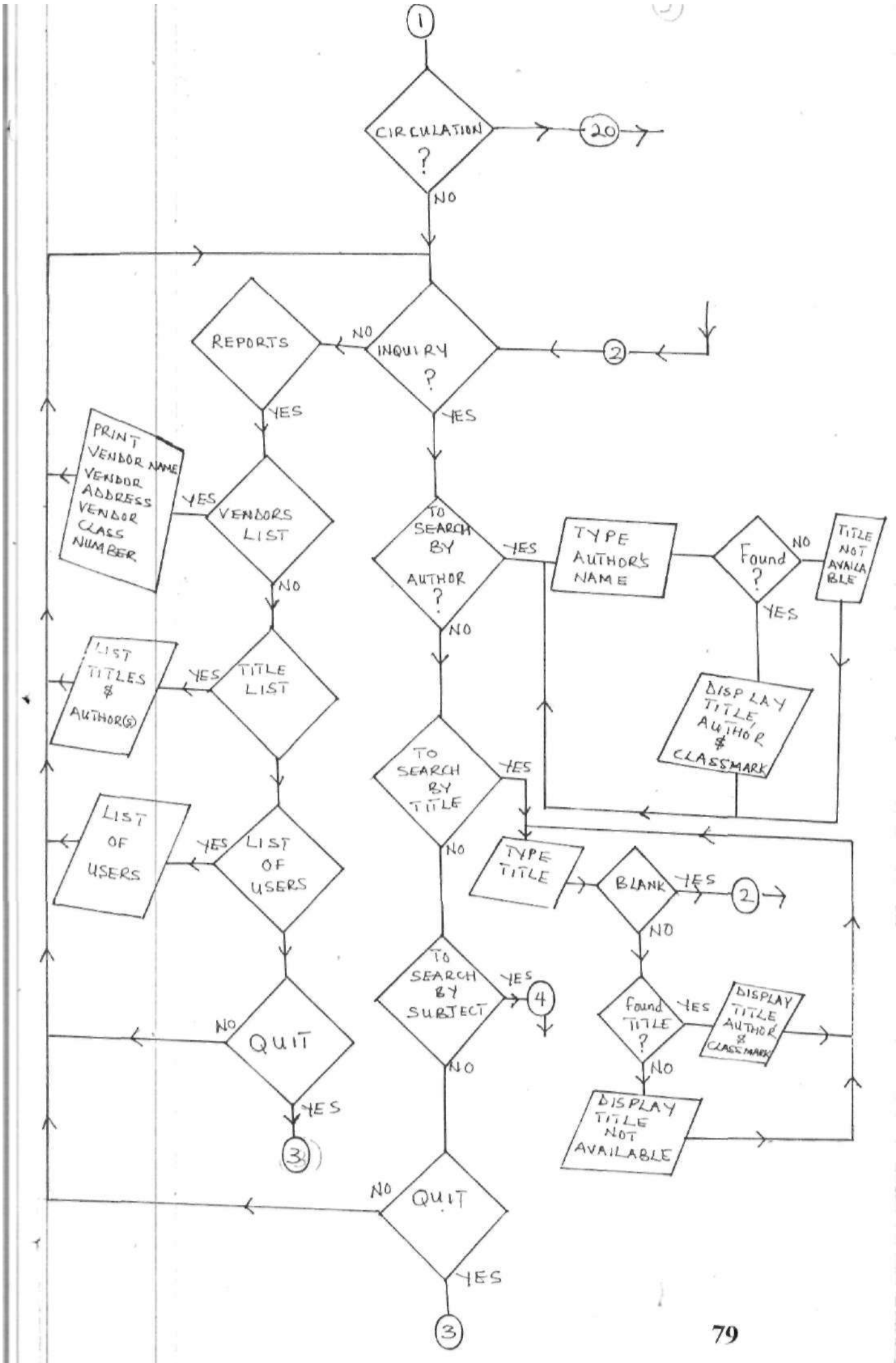
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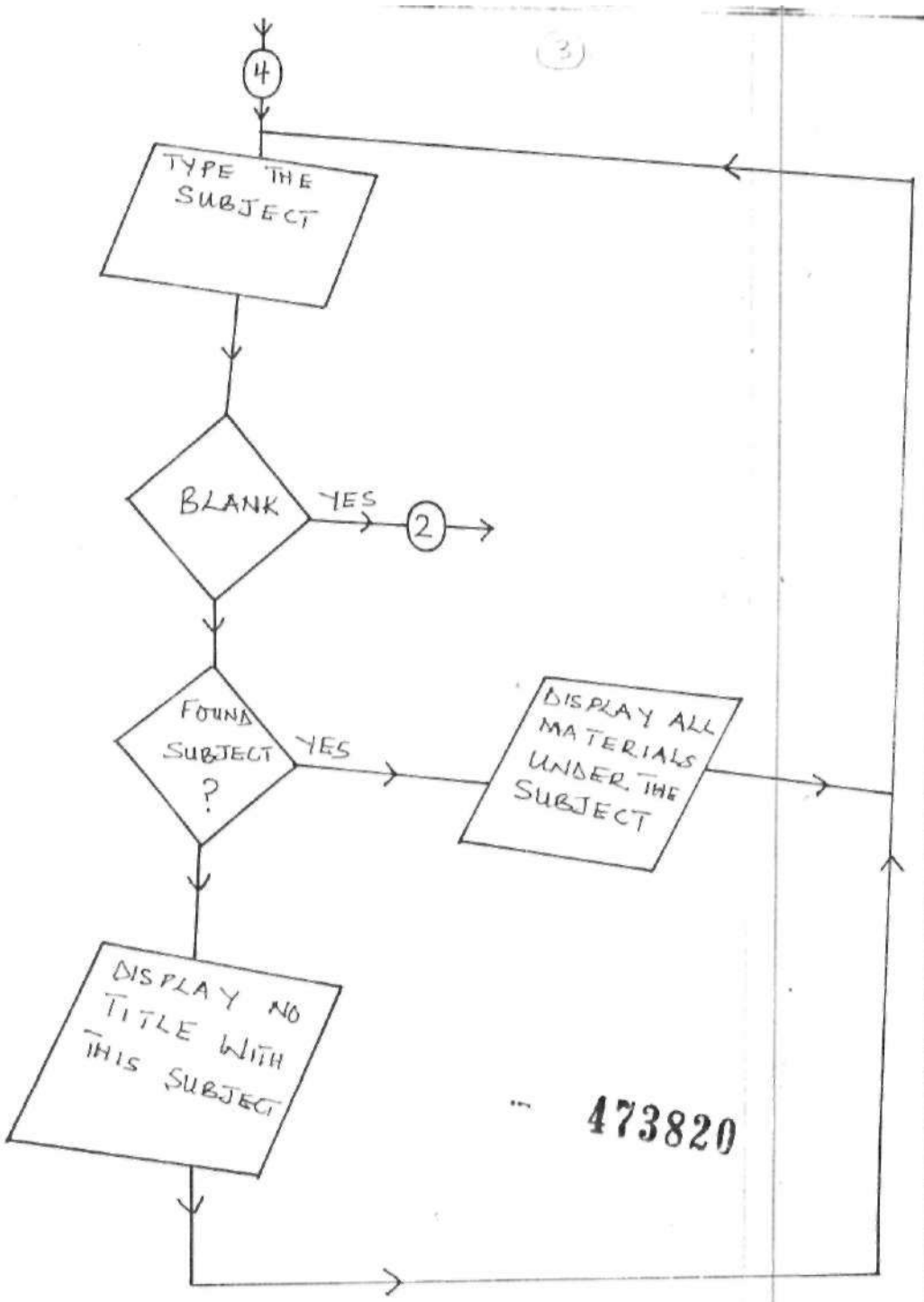
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APPENDIX I

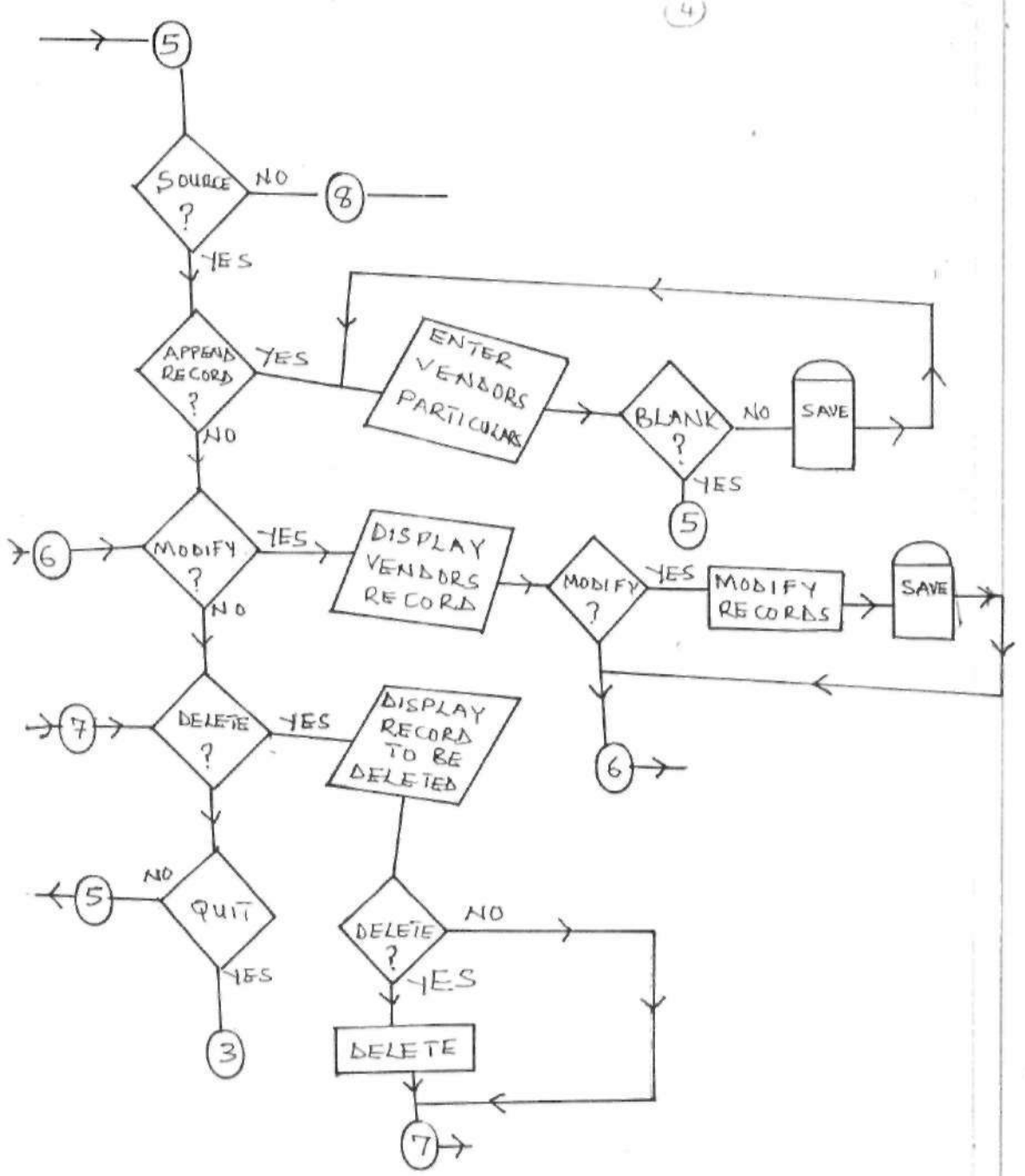
SPLAS FLOWCHART



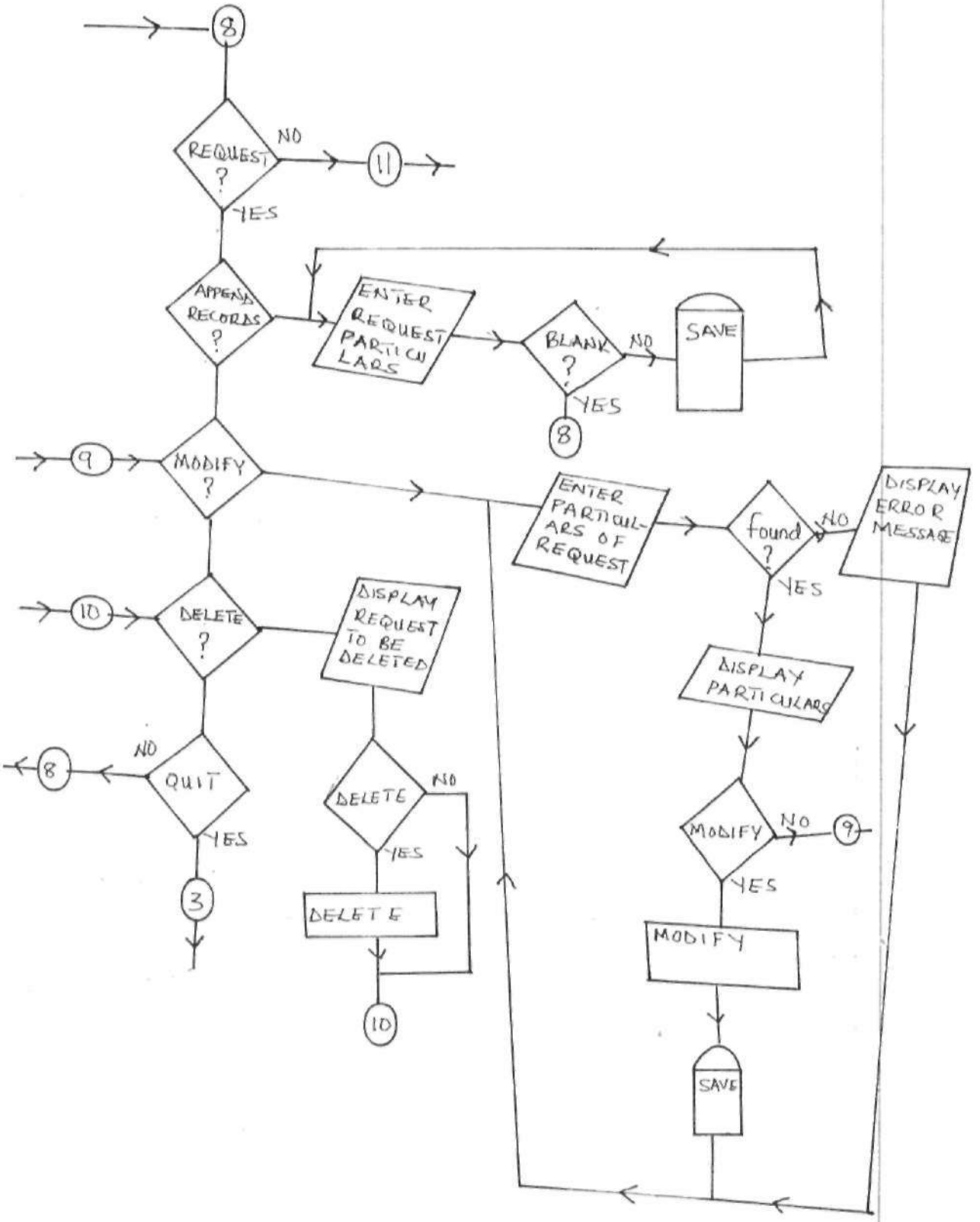

1
CIRCULATION ?
20
NO
INQUIRY ?
NO
REPORTS
2
YES
YES
PRINT VENDOR NAME VENDOR ADDRESS VENDOR CLASS NUMBER
YES
VENDORS LIST
NO
TO SEARCH BY AUTHOR ?
YES
TYPE AUTHOR'S NAME
Found ?
NO
TITLE NOT AVAILABLE
YES
LIST TITLES & AUTHOR(S)
YES
TITLE LIST
DISPLAY TITLE, AUTHOR & CLASSMARK
LIST OF USERS
YES
LIST OF USERS
TO SEARCH BY TITLE
YES
NO
TYPE TITLE
BLANK
YES
2
NO
TO SEARCH BY SUBJECT
YES
4
NO
Found TITLE ?
YES
DISPLAY TITLE AUTHOR & CLASSMARK
NO
DISPLAY TITLE NOT AVAILABLE
NO
QUIT
YES
3
NO
QUIT
YES
3

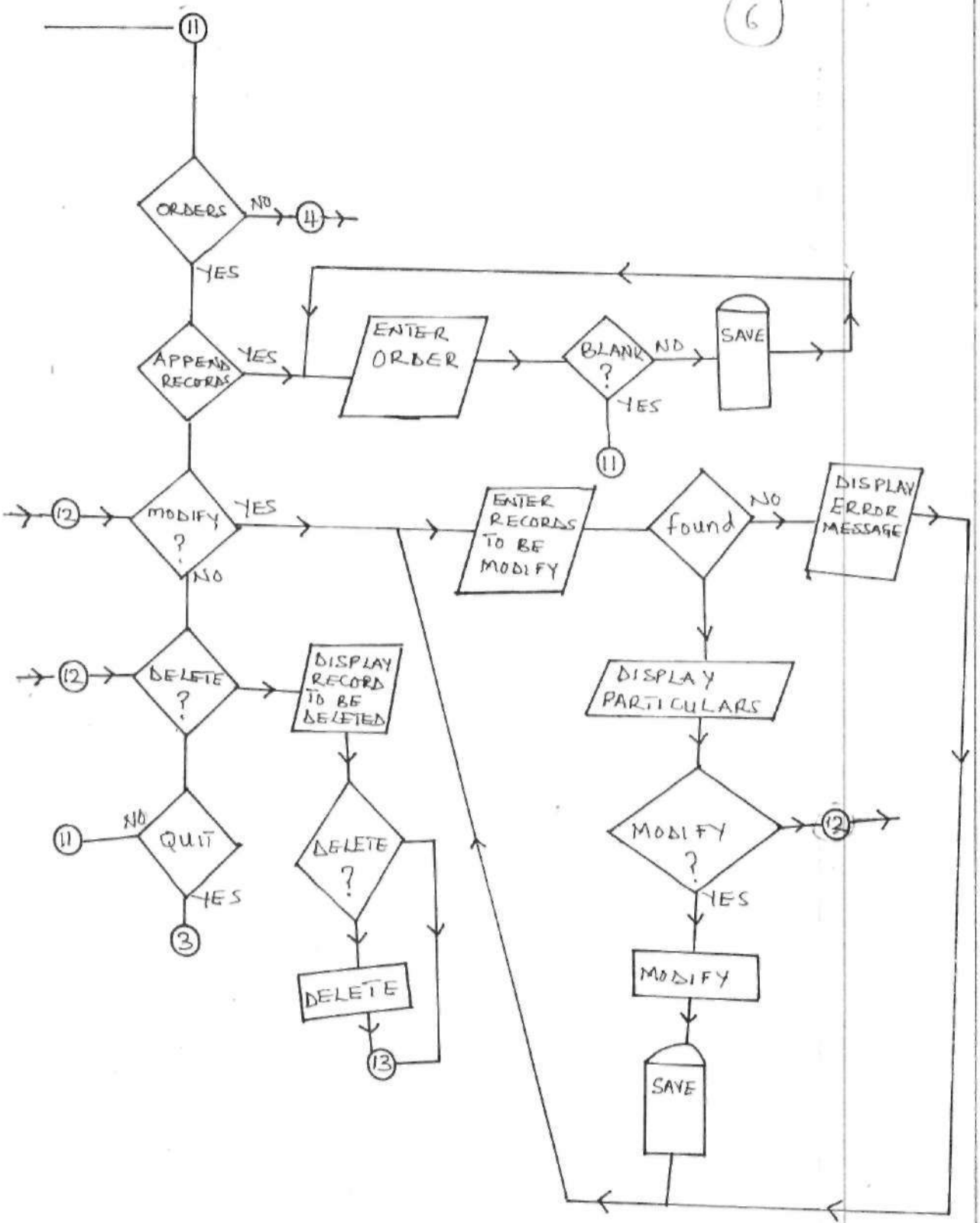

4
TYPE THE SUBJECT
BLANK
YES
2
FOUND SUBJECT ?
YES
DISPLAY ALL MATERIALS UNDER THE SUBJECT
DISPLAY NO TITLE WITH THIS SUBJECT

473820

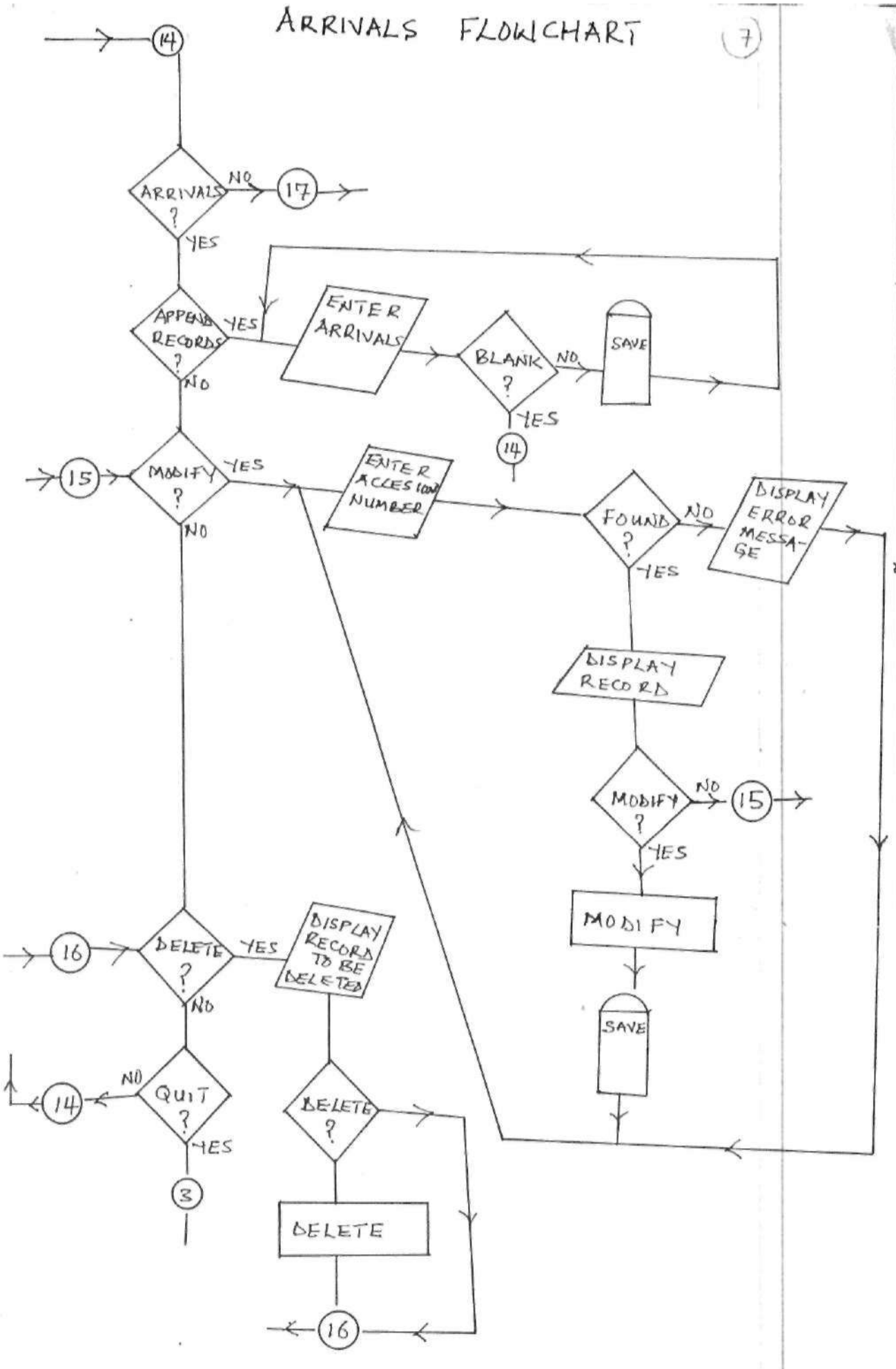

5
DOUBLE ?
NO
8
YES
APPEND RECORD ?
YES
ENTER VENDORS PARTICULARS
BLANK ?
NO
SAVE
YES
5
NO
6
MODIFY ?
YES
DISPLAY VENDORS RECORD
MODIFY ?
YES
MODIFY RECORDS
SAVE
NO
7
DELETE ?
YES
DISPLAY RECORD TO BE DELETED
6
5
NO
QUIT
YES
3
DELETE ?
NO
YES
DELETE
7

REQUEST FLOW CHART

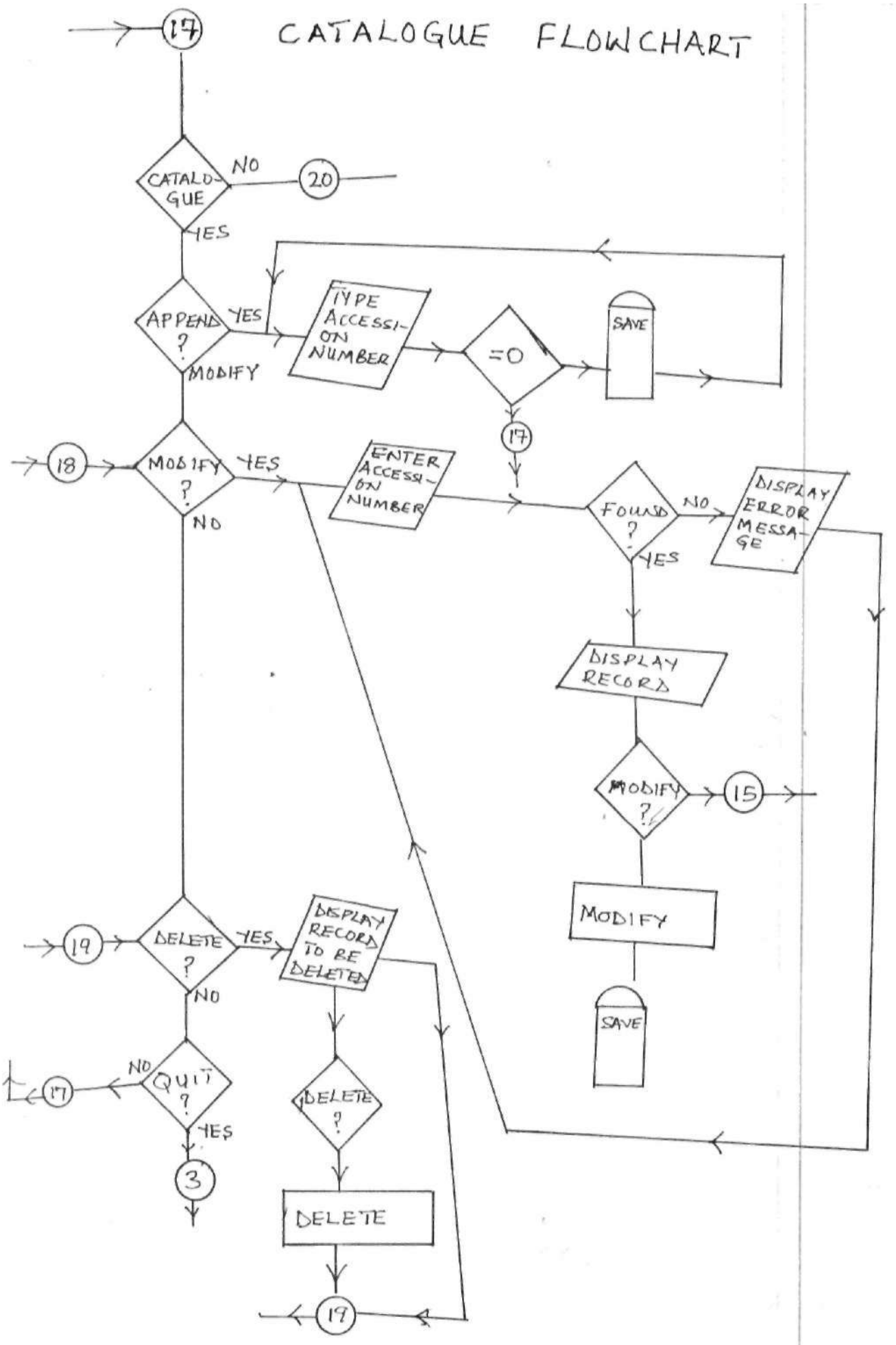



11
ORDERS
NO
14
YES
APPEND RECORDS
YES
ENTER ORDER
BLANK ?
NO
SAVE
YES
11
12
MODIFY ?
YES
ENTER RECORDS TO BE MODIFY
found
NO
DISPLAY ERROR MESSAGE
NO
12
DELETE ?
DISPLAY RECORD TO BE DELETED
DISPLAY PARTICULARS
11
NO
QUIT
YES
3
DELETE ?
MODIFY ?
12
YES
DELETE
MODIFY
13
SAVE

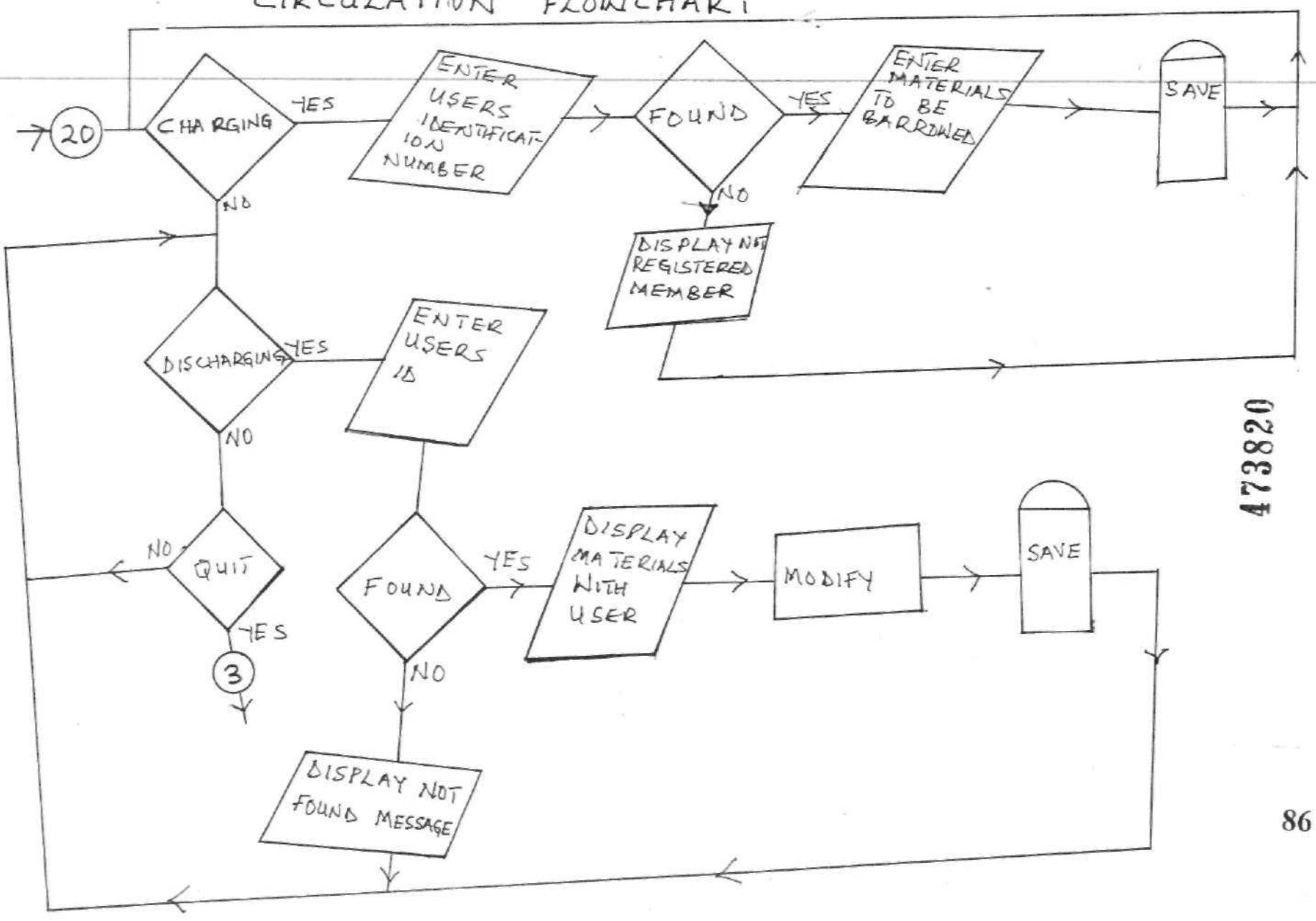
ARRIVALS FLOWCHART



CATALOGUE FLOWCHART



CIRCULATION FLOWCHART



4738 73820

APPENDIX 'II'

Questions asked during interview with users of Samaru public library before the development of the proposed automated library software

I am currently working on an M.L.I.S. thesis title:

" The design and development of an automated library software for Samaru public library, Ahmadu Bello University, Zaria."

You, the users of Samaru public library are in position to provide the needed information for this research. I will be grateful if you will find time to have an interview with me..

The research has been designed so that the information provided by you can be used to develop a computer-based system for Samaru public library, so as to improve library services to all users. Your answers will be used strictly for research purpose. Please respond honestly to my questions during this interview.

1. Age: _____
2. School: _____
3. Department _____
4. For how long have you been a user of this library ? _____
5. How often do you use Samaru public library ? _____
6. Which services of this library do you enjoy most ? _____
   (i.e book loan, reading notes or handouts, reading newspapers, television viewing).
7. How do you search for information materials in this library ?
   _____ (i.e

through title/author catalogue, subject catalogue, browsing, or asking library staff)

8. Which problems do you encounter when retrievinginformation resources from the library?

_____

_____

_____

_____

9. Are you computer literate ? _____
10. Would you like the acquisition, catalogue, and circulation systems to be automated ? _____(i.e to replace the present catalogue card with a computer system) Yes/No
11. State your reasons for liking or disliking the proposal of automation for this library._____
12. Have you ever visited a library using a computer-based system ?

_____

13. If yes how are its services when compared to the Samaru public library manual systems?

_____

_____

_____

14. Please provide comments/suggestions

_____

_____

_____

Thank You

APPENDIX 'III'

Questions asked during interview with staff of Samaru public library before the development of the proposed automated library software

I am currently working on an M.L.I.S. thesis title:

" The design and development of an automated library software for Samaru public library, Ahmadu Bello University, Zaria."

You, the staff of Samaru public library are in position to provide the needed information for this research. I will be grateful if you will find time to have an interview with me..

The research has been designed so that the information provided by you can be used to develop a computer-based system for Samaru public library, so as to improve library services to all users. Your answers will be used strictly for research purpose. Please respond honestly to my questions during this interview.

1. Department _____
2. Rank _____
3. Qualifications: _____
4. For how long have you been a staff of this library? _____
5. How many members of staff are there in this library? _____
6. What is the organizational structure of this library? _____
7. What are the objectives of establishing this library?

_____

_____

_____

8. What are your problems as a staff of this library?

9. In which ways do you think these problems can be solved?

10. Who are the main users of this library?

11. How many users are registered with the library? _____

12. What is the duration for registration? _____

13. What is the size of your collections? _____

14. How do you record users' request for information materials?

15. How do you keep the records of information materials on order?

16. How do you keep the records of information materials that have arrived into the library? _____

17. How many days does it take to classify and catalogue a new information material from the date of arrival to shelving?

_____

18. Do you have register for vendors? _____

19. Are you computer literate? _____

20. Would you like the acquisition, catalogue, circulation and the inquiry systems to be automated? _____

21. What are your reasons for liking or disliking the proposal of automation for this library?

_____

_____

_____

22. Would you able to manage a computer based library system?

_____

23. Have you ever visited a library using a computer based system?

_____

24. If yes, how are its services when compared to the Samaru public library manual system?

_____

_____

25. Please provide comments/suggestions:

_____

_____

_____

_____

Thank you.

APPENDIX 'IV'

Questions asked during interview with staff of Samaru public library during a two weeks pilot-test of the proposed automated library software.

I am currently working on an M.L.I.S. thesis title:

" The design and development of an automated library software for Samaru public library, Ahmadu Bello University, Zaria." The proposed computer based is developed using dBaseIV. You the staff of this library are in position to study the proposed computer based application software and to advice how it can be improved. I will be grateful if you will have time to go through the four modules.

The pilot test is conducted so that the information provided by you can be used to improve the performance of the proposed computer based library application software for Samaru public library, so as to improve library services to staff and users. Your answers will be used strictly for research purpose. Please respond honestly.

1. Department _____
2. Rank
3. Qualifications _____
4. Is the proposed computer based software friendly? _____
5. What is your view about the acquisition module?(i.e very good, good, fair, poor, very poor) _____
6. Do you think it can replace your manual acquisition system? _____
7. If no, which sub-module do you think need modifications?

_____

8. Please comment on the acquisition module

_____

_____

9. What is your view about the catalogue module? (i.e. very good, good, fair, poor, very poor) _____

10. Can this module replace the catalogue card? _____

11. Which one do you think will be faster in retrieving information materials in Samaru public library?

_____

12. Between the manual and the automated catalogue, which one do you prefer to use and why?

_____

_____

_____

13. Please comment/suggest on the catalogue module

_____

_____

_____

14. What is your view about the circulation module? (i.e. very good, good, fair, poor, very poor) _____

15. Do you think this module can replace your date over due tray? _____

16. Between the circulation module and date over due tray, which one will be faster in charging and discharging information materials to users?

_____

_____

17. Between the computerized circulation module and the manual one in operation in this library, which one do you prefer to use and why?

_____

18. Please comment/suggest on the circulation module

_____

_____

_____

19. How do you find the inquiry module? (i.e. very good, good, fair, poor, very poor) _____

20. Between the computerized inquiry module and the manual one in this library, which one do you prefer to use and why?

_____

_____

_____

21. On the overall, do you think this proposed computer based system can be adopted in this library? _____

22. Do you think it will improve the services of this library? _____

23. How can it improve the services of this library?

_____

_____

24. What is your general view about the proposed system?

_____

_____

25. Please comment/suggest

_____

_____

Thank you.

APPENDIX 'V'

Questions asked during interview with users of Samaru public library during a two weeks pilot-test of the proposed automated library software.

I am currently working on an M.L.I.S. thesis title:

" The design and development of an automated library software for Samaru public library, Ahmadu Bello University, Zaria." The proposed computer based is developed using dBaseIV. You the user of this library are in position to study the proposed computer based application software and to advice how it can be improved. I will be grateful if you will have time to go through inquiry.

The pilot test is conducted so that the information provided by you can be used to improve the performance of the proposed computer based library application software for Samaru public library, so as to improve library services to staff and users. Your answers will be used strictly for research purpose. Please respond honestly.

1.Age: _____

2.School:_____

3.Department _____

4.How do you find the inquiry module? (i.e. very good, good, fair, poor, very poor) _____

5. Between the computerized inquiry module and the manual one in this library, which one do you prefer to use and why?

_____

_____

_____

6. On the overall, do you think this proposed computer based system can be adopted in this library? _____

7. Do you think it will improve the services of this library? _____

8. How can it improve the services of this library?

_____

_____

9. What is your general view about the proposed system?

_____

_____

10. Please comment/suggest

_____

_____

Thank you.