COMPUTERISATION OF THE FILING SYSTEM (A CASE STUDY OF NATIONAL BOARD FOR EDUCATIONAL MEASUREMENT) MINNA, NIGER SATE

BY

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APPROVAL PAGE

This project has been read and approved as meeting the requirements of the Department of Mathematics and Computer Science, Federal Univeristy of Technology, (FUT), Minna Niger State.

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DEDICATION

THIS PROJECT WORK IS DEDICATED TO MY LOVING HUSBAND
MR. DAVID A. IREGBEYEN

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I wish to give the Almighty God all glory and honour in giving me the initiation of attending this wonderful course.

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ABSTRACT

The terminology describing the storage of information is similar regardless of which storage device is used and in most cases it is referred to as a FILE.

A file can be defined as a collection of meaningful information to which the user can attach a name or a collection of related data records, usually grouped together for purposes of access, control, retrieval and modification.

Since information is the life-wire of any organisation, an effective and efficient way of accessing, controlling, retrieving and modification of information would make or otherwise mar the existence of the organisation. Hence this study work took into consideration how information can be stored in the various departments of National Board for Educational Measurement (N.B.E.M), and how it can be accessed, retrieved, controlled and modified as at when required with considerable reduction or elimination of the tediousness inherent in the existing filing system.

The data used for this study were obtained through observation and record inspection, as the researcher was directly involved in the present system used by the organisation.
The programming language used was Dbase III plus. This was chosen due to its versatility and user's friendliness.

The new system designed although meant for NBEM can be used by other organisations in computerising their filing system.

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CHAPTER ONE

1.0 INTRODUCTION

1.1 BACKGROUND OF THE STUDY

Since information is the life-wire of any organisation, the importance of having an efficient storage device and effective channel of information dissemination both within and outside the organisation cannot be over-stressed. Apart from the fact that the storage device allows for easy access of the information by the user, it should be an effective and efficient way of controlling, retrieving and modifying information.

One of the most commonly used storage device is the file. Longman dictionary defined File as a box, folder etc for storing papers in an ordered way or collection of papers concerning one subject. In general term, a file can be defined as a collection of meaningful information to which the user can attach a name or a collection of related data records,usually grouped together for purpose of access, control, retrieval and modification.

Manually, filing involves both arrangement of loose papers containing related record in a serial or sequential manner in a folder and the arrangements of the folders in the filing cabinet or drawer.

There are various systems of manual filing. Among these are:

(a) Alphabetical Filing System;

(b) Numerical Filing System;

(c) Alpha-numeric Filing System;

(d) Subject Filing system; and

(e) Geographical Filing System.

Alphabetical Filing System

This system is the one most commonly used in offices. It takes as the filing word, the surname of the correspondent. As many people share the same surname, it will be necessary to look also at forenames to decide the final order. Rules must be followed to ensure correct filing and easy location of more complicated names. A filing label shows the filing word first. For James Crowe & Co. Ltd., the label would read CROWE & CO. LTD., JAMES

Two kinds of folders are opened. Individual ones, like the one above, containing original letters received, and carbon copies of letters sort out, to one particular correspondent.

Numerical Filing System

This is filing by numbers. In some cases the numbers already exist and are used. An example is "Insurance policy numbers". In other instances a number has to be allocated to the file. The main reasons why a firm may choose to use this system instead of the more common alphabetical system are as follows:

(i) A number is already being used and so it is convenient to keep filing in order this way, for example Insurance policy numbers, Mortgage roll numbers.

(ii) Since many people have the same surname and sometimes even identical forenames, hospitals cannot risk any confusion as patients might be given the wrong treatment. Therefore, every patient is allowed an individual number which is used throughout all departments.

(iii) It is economical when a firm is starting up a filling department because there is no need to allow for expansion throughout the files. Drawers in a filling are filled up one at a time and it is only when the last drawer is full that a new cabinet is purchased. An alphabetical index is required when numerical filing is in use.

Alpha-numeric Filing System

This gives the advantages of both systems. There is a broad division into sections by the alphabet and then more detailed division according to the number allocated.

Geographical Filing System

Sometimes where a firm is situated is important, particularly for overseas customers, and it is easier to classify by place name than by the name of the customer. This system is usually chosen when territories are divided up amongst representatives, or where an agent is appointed for a specific area. This keeps all the contacts for each area together in the files.

If only home files are kept in this system, the first division could be by state. After that the city\town would be considered. Usually, however, it is necessary to file first by country, then, if required, by state and finally by city\town. Within each section, the files are maintained in alphabetical order.

Subject Filing System

The order would still be alphabetical, but by subject not surname. If needed an alphabetical index could also be kept to show the names of people involved in the various subjects.

Today, the reasons for filing goes beyond the need to provide a record of transactions for future reference, keeping the office tidy and protecting of documents but also the need to provide easy and quick retrieval of information, protect the information from unauthorised user, centralise filing, reduce space being occupied by storage devices, achieve data integration, reduce or eliminate data redundance and maintain data integrity.

Unfortunately, neither one nor combination of the manual filing systems described above could achieve all these reason indeed. Majority of the organisations in this country including National Board for Educational Measurement (NBEM) are still using manual system of filing. It is on this note that the researcher chose to write on this topic with the understanding that the output of the work will be very useful to N.B.E.M.

1.2 OBJECTIVES OF THE STUDY

The main objectives of this study are:

(i) To investigate the various problems associated with the present system of filing documents in National Board for Educational Measurement.

(ii) Draw up the analysis and design that will be used to computerize the system.

(iii) Write all necessary programs that will be required for the computerization.

(iv) Suggest change over method, maintenance and training of personnel that will man the section.

1.3 SIGNIFICANCE OF THE STUDY

This project will be a great assistance not only to National Board for Educational Measurement, but also to every other organisation that is operating similar organisational structure.

In particular, the main signifance of the study include:

(i) Proper co-ordination of file which will consequently lead to data integration;

(ii) Reduction or elimination of data redundancy;

(iii) Elimination of data duplication;

(iv) Better management of data by enforcing standard for all the database users. This can only be possible if data are centrally controlled;

(iv) Better data security.

1.4 LIMITATIONS AND SCOPE OF THE STUDY

This project is on computerisation of filing system in National Board for Educational Measurement (N.B.E.M), Minna. It therefore follows that the data collection and findings of the research will be limited to the Board.

National Board for Educational Measurement is structured into four departments. These are:-

(i) Registrar's Office;

(ii) Finance and Administration department;

(iii) Planning, Research and Statistics department; and

(iv) Examinations department.

Presently, the Board adopts decentralised system of filing. That is to say, each department keeps its own working files. And from the data at the researcher's disposal none of the departments has less than twenty files. However, due to time factor, the researcher cannot extend the work to cover the four departments. The project work is therefore limited to two departments. These are Registrar's Office and Finance and Administration department.

However, it is pertinent to mention at this juncture that although the program and recommendations provided in this project will be more useful to the two departments, other departments within the organisation could have advantage of it. Also with little modification of the programs, any other organisation with similar organisational structure and filing system could benefit from the works.

1.5 METHODOLOGY

There are many fact findings technique. Some of which are questionnaire, interviewing, observation and record inspection. However, for the purpose of this project, interviewing, observation and record inspection were employed. These three methods were found suitable based on the following reasons:-

(i) The number of interviewees are very few and are in the same organisation and easily accessible.

(ii) Being a staff of the organisation, the researcher has the opportunity to participate in the present filing system and also has easy access to some of the records that were required for the project work.

1.6 DEFINITION OF TERMS

In the opening chapter of study of this nature, it may be essential to define some words and phrases used in the study. Such words and phrases include:-

Computer: Is an electronic device that is capable of accepting data (input), storing, processing the data and producing information (output) fastly, accurately and thus more efficiently than human efforts.

Sytem: This can be defined as a collection of components either physical or non physical in nature which interact with one another towards achieving a common objective.

Computer System: This is made up of the user, the hardware, and the software and has a goal of solving problems for the user.

Data: This is a term used to describe basic facts about the activities of a business, or new facts that are fed into the computer for processing.

Information: Is data that have been processed into a form that is useful to the user.

File: Is a collection of meaningful information to which the user can attach a name.

CHAPTER TWO

2.0 LITERATURE REVIEW

CASE STUDY

2.1 BRIEF HISTORY OF NATIONAL BOARD FOR EDUCATIONAL MEASUREMENT, MINNA

The National Board for Educational Measurement (N.B.E.M) came into existence in May 1992, following the scrapping of the Center for Educational Measurement (C.E.M), Kaduna. The Board commenced operation in Kaduna immediately.

In August, 1992, the Board on directive from the Federal Ministry of Education commenced a phased movement to Minna, Niger State. This movement was concluded in December, 1992. Eventhough, the Board became functional in May, 1992, it became a corporate entity following the promulgation of Decree No. 69 of 3rd August, 1993. By the provisions of the Decree No. 69, the Board is vested with powers to carry out various educational activities.

2.2 THE OBJECTIVES AND FUNCTIONS OF THE BOARD

The objectives of the board as contained in the Decree, among others include the following:-

(a) Establishing and maintaining standards at Junior Secondary School (JSS) level in the areas of measurement and evaluation particularly in Federal Government Colleges and allied institutions;

(b) Providing professional leadership for State Ministry of Education in matters relating to Test Measurement and Administration at Junior Secondary School (JSS) levels;

(c) Monitoring Continuous Assessment practice in schools and ensuring continuity with set standards; and

(d) Working towards overall improvement of educational standard at the Junior Secondary School (JSS) level nationwide.

The functions of the Board as stipulated in the decree are:-

(a) The general control of the conduct of the Junior School Certificate Examinations in all Federal Government Colleges and allied institutions;

(b) The general control and conduct of the National Common Entrance Examination (NCEE) for admission into all Federal Government Colleges.

(d) The development and administration of selection examination into Suleja Academy (Gifted Examination) in accordance with such guidelines as may be approved from time to time;

(d) The development, administration and conduct of Aptitude Tests for all candidates in Federal Government Colleges and other allied institutions under its jurisdiction;

(e) Monitoring, collecting and keeping records of Continuous Assessment (CA) in all Federal Government Colleges and allied institutions towards the award of Junior School Certificate (JSC);

(f) The conduct of a standard national assessment of education performance at the Junior School level;

(g) The conduct of active researches leading to national improvement of testing and examination procedures at Junior Secondary School level;

(h) The collection and dissemination of information on all matters relating to admission into Federal Government Colleges and other allied institutions or any other matter relevant to the discharge of the functions of the Board under this decree;

(i) The preparation and submission to the Secretary (Minister), the annual report on standards of examinations and other related matters;

(j) Carry out such other activities as are expedient for the discharge of all or any of the functions conferred on the Board under or pursuant to the decree.

2.3 THE ORGANISATION OF THE BOARD

The National Board for Educational Measurement (N.B.E.M) is structured into four departments, namely:-

(a) Registrar's office;

(b) Examinations department;

(c) Planning, Research and Statistics department; and

(d) Finance and Administration department.

Below is the organisational chart of the Board. The chart shows the four major departments and the sub-departments under them. See appendix 'A'.

2.3.1 FUNCTIONS OF THE DEPARTMENTS

In discussing the functions of the various departments, effort will be made to pick the departments one after the other.

(a) **Registrar's Office**

This department is headed by the Registrar who is also the Chief Executive. The Registrar has the responsibility not only for policy direction but also policy execution. Infact, he ensures day to day administration of the Board. Other heads of departments report directly to him.

Apart from the Registrar's office, other sections under it are:-

(i) Internal Audit Unit

(ii) Public Relations

(iii) Tenders Committee

(iv) Computer Unit

(v) Security

Briefly, the functions of the Units are enumerated below:-

(i) Internal Audit Unit

This Unit is headed by Auditor (Financial Officer). This is the Unit that checks and audits the Board's accounts to ensure prudent spending. It also carries out periodic stock verification, prepare and submit monthly report on financial transactions of the Board to the Registrar.

(ii) Public Relations Unit

This division is headed by a senior administrative staff who is answerable to the Registrar. It is the image maker for the Board. It's main responsibility is to liaise with other organsiation and the general public.

(iii) Tenders Committee

This Committee comprises of the Registrar, three heads of department and a secretary who is the Personal Assistant to the Registrar. The Committee is charged with the responsibility of awarding contracts above the Registrar's approval limit.

(iv) Computer Unit

The computer unit is one of the specialised units under the Registrar. It is headed by a Computer Expert who is responsible to the Registrar. Apart from processing the results of the various examinations conducted by the Board, the unit also process data concerning the following:-

(1) National Assessment of Educational Performance (NAEP)

(2) Educational Researches conducted by the Board

(v) Security

Security is headed by the Chief Security, who is responsible for the security of the office premises, staff quarters and the guest houses. He is responsible to the Registrar.

2 **Examinations Department**

This department is headed by a senior staff designated Head of Department (HOD) who is directly answerable to the Registrar. For efficient and effective functioning the department is divided into two divisions. These are:-

(a) Test Development; and

(b) Test Administration.

(a) The Test Development division is a specialised and indeed a professional section, it has responsibility for the following:-

(i) generation of test items for all the examinations conducted by the Board;

(ii) editing of test items so generated;

(iii) final testing of test items;

(iv) analysis and selection of test items;

(v) validation\moderation of items

(vi) typesetting of selected items;

(vii) development of item bank;

(viii) preparation of marking schemes for the various examinations;

(ix) orientation of new staff on item writing and treatment;

(x) organisation of item writing, workshops for State Ministry Officials and teachers;

(xi) participation in the Board's consultancy programmes;

(xii) monitoring of school standards and continuous assessment practice; and

(xiii) undertaking other responsibilities as may be assigned from time to time by the Registrar.

(b) The Test Administration is also a specialised section and it is charged with the following responsibilities.

(i) planning the administration and ensuring smooth conduct of all the examinations conducted by the Board;

(ii) investigation of examination malpractices when alleged;

(iii) organising the marking of all examinations conducted by the Board;

(iv) treatment of complaints arising from the released results;

(v) preparation of National Junior School Certificates for the attention of the Registrar and Federal Ministry of Education;

(vi) co-ordination of all activities of the zonal offices as they concern listed examinations;

(vii) registration of qualified private schools for participation in the JSCE; and

(viii) carrying out any other functions as may be assigned by the Registrar from time to time.

3. **Planning, Research and Statistics department**

This department is headed by a Senior Officer designated Head of Department (HOD). The HOD is answerable to the Registrar of the Board. The department is structured into three divisions, these are:-

(a) Planning Division;

(b) Research, Statistics and Consultancy Division; and

(c) Information and Documentation.

The main functions of the department are as stated below:-

(i) preparation of capital\rolling plans;

(ii) preparation of annual reports;

(iii) researching into areas where the Board has jurisdiction;

(iv) collection, documentation and dissemination of information concerning the activities of the Board;

(v) co-ordinating NBEM's consultancy services;

(vi) organisation and development of NBEM's library;

(vii) handling all sanitation matters and ensuring strict compliance with set sanitation standard;

(viii) maintenance of housing, vehicles and equipment;

(ix) compiling and updating statistics;

(x) custody of NBEM's classified records; and

(xi) organisation and provision of security for the Board.

4. **Finance and Administration department**

Finance and Administration department is headed by a Senior Officer designated Head of Department (HOD) who is directly responsible to the Registrar.

In order to carry out the department's functions effectively, the department is divided into four units namely:-

(a) Appointment, Promotion and Discipline;

(b) Staff Welfare and Training;

(c) Accounts\Cash office, Personnel enrolment; and

(d) Stores.

The main functions of the department is outlined as follows:-

(i) provision of secretarial service to the Management Committee during meeting;

(ii) documentation of new employee;

(iii) processing and collating of papers for appointments and promotions;

(iv) internal deployment of staff;

(v) handling of welfare and training matters concerning the Board's staff;

(vi) handling of disciplinary problems;

(vii) control of Board's open and secret registries;

(viii) custody of the Board's material and financial resources and disbursement thereof as approved;

(ix) provision and maintenance of financial records;

(x) advising the Board on all matters relating to finance;

(xi) collection of grants and revenue on behalf of the Board;

(xii) providing the necessary guides for the Budget Committee;

(xiii) assisting in the preparation of rolling plans; and

(xiv) carrying out other duties as may be assigned from time to time by the appropriate authority.

2.4 THE PRESENT FILING SYSTEM

Presently, the organisation operates decentralised manual system of filing, using folders, drawers and cabinets as its storage devices. By decentralisation, we mean that all the files for the organisation are not centrally kept rather each department takes care of its own files. The filing system adopted also varies from one department to another. However, the departments use either subject, numerical or alphabetical filing system.

The subject filing system involves subject and identification of files by subject names. Numerical involves filing by numbers. In National Board for Educational Measurement, the personnel identification numbers are used, while alphabetical filing system takes as the filing words the surnames and forenames of the correspondent.

2.4.1 FILES KEPT BY DEPARTMENTS

(1) Finance and Administration department

(a) Finance Purpose files: Three different files make up the finance purpose files, these are:

(i) Letter of Appointment

(ii) Assumption file

(iii) Variation file

(b) Staff Matter files: Here, there are four different files namely:

(i) Promotion file

(ii) Discipline file

(iii) Suspension file

(iv) Recruitment file

(c) Examination files:

(i) National Common Entrance Examination (N.C.E.E.) file

(ii) Junior School Certificate Examination (J.S.C.E.) file

(iii) Gifted Examination file

(iv) Aptitude Examination file

(d) Departmental files: Here, there are four files one for each department in the Board. These are:-

(i) Registrar's Office file

(ii) Planning Research and Statistics (PRS) department file

(iii) Examinations department file

(iv) Finance and Administration file

(e) Subject Matter files

(f) Staff Personal files: These are files on every staff of the Board

(2) Registrar's Office

The Registrar's office has the following files in its custody. These are:-

(a) Staff Personal files: Here every staff have a personal file

(b) Parastatal files: Parastatal files comprises of:

(i) Joint Admissions and Matriculation Board (JAMB) file

(ii) National Primary Education Commission (NPEC) file

(iii) National Business and Technical Education Board (NABTEB) file

(iv) National Teachers' Institute (NTI) file

(v) National Educational Technology Center (NETC) file

(vi) National Mathematical Center (NMC) file

(c) Circular file

(d) Association files: Association files comprises of

(i) Association for Educational Assessment in Africa (AEAA) file;

(ii) International Association for Educational Assessment (IAEA) file;

(iii) National Conference on Educational Assessment (NCEA) file;

(iv) National Mathematical Association of Nigeria (NMAN)

(e) Examination files: The examination files are made up of

(i) National Common Entrance Examination (NCEE) file;

(ii) Junior Secondary School Examination (JSCE) file;

(iii) Gifted Examination file; and

(iv) Aptitude Examination file.

(f) External Correspondence file

(g) Company file: These are:-

(i) Data and Research Services plc;

(ii) Datasciences Nigeria Limited file;

(iii) Industrial and General Insurance Company Limited file;

(iv) Hamlet Computers file;

(v) TINEX International file.

(h) Memorandum file

3. Audit Office

Although the audit section is a Unit under the Registrar, it takes care of its own files. The files in the custody of Audit Unit are as follows:-

(a) Monthly Audit file;

(b) Audit Query file;

(c) Zonal Office Inspection file;

(d) Outgoing Memo file; and

(e) Incoming Memo file

CHAPTER THREE

3.0 SYSTEM ANALYSIS AND DESIGN

3.1 INTRODUCTION

System Analysis is defined as the method of determining how best to use computers with other resources to perform task which meet the information needs of an organisation. It was developed initially as a specialised branch of organisation and method (O & M) which is general approach to solving procedural problem.

Organisation and Method can be defined as the systematic analysis of selected procedural problems in order to produce alternatives which will be more suitable technically and economically.

System analysis consists of series of stages, these are often called system life cycle. These stages are:-

(1) Problem Definition

(2) Feasibility Study

(3) Investigation and Fact Finding

(4) Analysis

(5) System Design

The design stage of the project will be based on the full description of the new system. Here efforts will be made to discuss the system requirements and system specification.

3.2 PROBLEM IDENTIFICATION AND DEFINITION

National Board for Educational Measurement (NBEM) is one of the Examination Bodies in Nigeria charged with the responsibility of conducting:-

- Junior School Certificate Examination (JSCE) in all Federal Government Colleges and allied institutions;
- National Common Entrance Examination (NCEE);
- Development and Administration of Selection Examination for the gifted in Suleja Academy; and
- Aptitude tests for all candidates in Federal Government Colleges and allied institutions.

For the organisation to be able to perform these numerous functions efficiently, there is need for efficient storage device and effective channel of information dissemination both within and outside the organisation. For this reason, the filing system in such an organisation should be the type that will allow for easy access to information by the user and protect the information from unauthorised user. This means that the filing system should be effective and efficient for controlling, retrieving and modifying of information. However, the present system has not been meeting these conditions due to the following problems associated with it.

(a) Problems of Data Disintegration

Apart from the fact that the present system is manual, it is discentralised. Therefore, an information that is supposed to be in one file is duplicated in many files. Also because of the discentralisation, there is no linking of data across the

organisation.

(b) Problem of Data Redundancy

Another major problem associated with present system is data redundancy. The main cause of this problem is the same as the first one. But in this case also, you find the same data appearing in more than one file.

(c) Problem of Data Security

With the present system, it is very easy for unauthorised user to have access to information.

(d) Large Quantity of Stationeries are required

Being a manual and decentralised system, coupled with large volume of work in the organisation, a lot of stationeries are used for record keeping. Duplication of data is experienced due to the decentralisation which also leads to wastage of stationeries.

(e) Delay in the Retrieval of Record

Due to large number of files being used, there are delays during the retrieval of record. Sometimes, it takes the personnel assistant some hours to locate a file in the cabinets.

(f) Large Space Requirement

The present system of filing makes use of large number folders and cabinets. These cabinets occupy quite a large space in each of the offices where they are being kept. Therefore, leaving very small space for office use.

3.3 FEASIBILITY STUDY

The main purpose of the feasibility study is to carry out a preliminary investigation on the problem and look for all possible alternative solutions.

During the feasibility study, the cost benefit analysis for each alternative solution was done before recommendation was made to the Establishment on best alternative solution. In carrying out the feasibility study, the Principles of Procedures was used to determine the strengths and weaknesses of the current system. These Principles are:-

(a) Purposes

(i) easy and fast retrieval of records by users

(ii) protect documents or information form unauthorised persons

(iii) reduce or eliminate data redundancy

(iv) allow for tidy office environment

(v) occupies little space

Unfortunately, the present system is short of these purposes.

(b) Economically

Economically, the present system is not in anyway economy. Apart from human resources that are required, there is need for regular supply of large quantity of stationeries. Also required are storage equipments such as cabinets and file jackets.

(c) Workflow

The workflow with the current system are not satisfactory. It is always difficult to locate files. Sometimes it takes the Personnel Assistant one hour or thereabout to locate a file. This not only delay the retrieval of information but also affect the processing of the data.

(d) Flexibility

The result of the researcher's feasibility study clearly indicated that the current system was not flexible, since with the present number of files, there is always problems in locating of files.

(e) Reliability

The researcher's investigation also confirmed that the current system is not reliable. The security condition can only be described as fair. It can also create loop-holes for fraudulent practices in the organisation, since there is possibility of unauthorised user having access to the files.

For instance, the movement of files from one officer to the other is through the office messenger or personal assistant. These categories of workers can easily be convinced and used to leak vital and confidential information.

(f) Time

With regard to time, the current system is far from being satisfactory. Infact, sometimes it takes the personnel assistant an hour to locate a file. Therefore, in most cases this do affect the information produced for meaningful action to be taken on it.

3.4 TESTING PROJECT FEASIBILITY

For testing project feasibility, the following were undertaken.

(a) Operational feasibility

This relates with the workability of the new proposed computerised system of filing in National Board for Educational Measurement, Minna. From the feasibility study carried out through interview and observation, it can be found out that this study receives the support of not only the Chief Executive of the organisation but also the majority of all senior members of staff of the organisation. This proposed system will also enhance efficiency and effectiveness of the staff.

(b) Technical feasibility

This test seeks to clarify if the new proposed system can be done with current equipment, existing software technology and available personnel. The result of the feasibility carried out indicates that the current equipment and existing software technology in the market are very adequate to convert the new proposed system. However, there is need to train some of the present available personnel of the organisation who will handle these equipments.

(c) Economical feasibility

The test for financial feasibility is undertaken to access cost of implementing the new proposed computerised system of filing in the organisation. From the cost-benefit analysis carried out of which the result is given under 3.7, it can be seen

that apart from the initial cost of equipment which many seem to be high, the organisation will derive a lot of financial benefit from the implementation of the new system.

3.5 OBJECTIVES GUIDING THE INVESTIGATION

The main objectives of the investigation are:-

(a) To carry out a more detailed and comprehensive study in order to fully understand the existing system of filing.

(b) To identify the basic information requirements. In this case, the following have to be considered:-

(i) the range of data type;

(ii) the volumes of data that are to be processed and exceptional conditions; and

(iii) problems associated with the present filing system.

3.6 THE CURRENT FILING SYSTEM

A detailed description of various manual methods of filing have been discussed in chapter one. However, for a thorough investigation to be carried out on the current filing system. This will not only enable us to determine the strengths and weaknesses of the system, but will give confirmation to the feasibility and sensibility to proceed with the computerisation of the filing system.

Apart from the fact that the current system is manual, it is decentralised. That is each department takes custody of its working files.

Although the organisation has four department, the researcher's work will cover only two. These are the Finance and Administration department and the Registrar's Office. While the Finance and Administration operates alphabetical filing system, the Registrar's Office adopts both alphabetical and subject filing systems.

The alphabetical filing involves the use of surnames and forenames of the correspondent as the filing word. The forenames are used to decide the final order of arrangement of the files where two people share the same surname. These rules must be followed to ensure current filing and easy location of more complicated names. The office file cabinets are used as storage equipment. Each cabinet has four compartments (drawers) and the files are arranged in alphabetical order.

Some of the major files that are being kept by the departments are mentioned below:-

(a) Finance and Administration Department

(i) Finance Purpose files

(ii) Subject matter files

(iii) Staff Matter files

(iv) Department files - PRS dept., Exams dept., Registrar's office.

(b) Registrar's Office

(i) Staff Personal files

(ii) Parastatal files - JAMB, NPEC, NABTEB, NTI, NETC, etc.

(iii) Circular files

(iv) Association files - AEAA, IAEA, NCEA, etc.

(v) Examination files - NCEE, JSCE, Gifted and Aptitude Exams.

(vi) External Correspondence files

(vii) Company files - DRS, Datasciences, IGI, Hamlet Computers, etc.

(viii) Memorandum files

In addition to the above mentioned files under the Registrar's Office, the Audit Unit which is a unit attached to the Registrar's Office keeps the following files:-

(i) Monthly Audit files

(ii) Audit Query files

(iii) Zonal Offices Inspection files

(iv) Payment Voucher Summary Sheets file

(v) Outgoing Memo files

(vi) Incoming Memo files

Examination files and Staff Personal files are duplicate files of some other departments. Equally, some other departments duplicate some files kept by the Registrar's Office.

In the case of Subject filing system, the alphabetical arrangement is still involved, however, subject name is being used as the filing word and not the surname of

correspondent. The office file cabinets are also used as storage equipments.

The objectives of a good classification system include: simplicity, convenience, high efficiency, low cost, minimum space and equipment and low operating expense and labour requirements.

Unfortunately, the current filing system is far from meeting these objectives. For instance, as a decentralised system, each department will have its own personnel assistant and offices where the storage equipments are kept.

3.7 REQUIREMENT SPECIFICATION FOR THE PROPOSED NEW SYSTEM

An important aim of the analysis is to produce a requirement specification. Here description of what the system is required to do and how the system should be designed and implemented is discussed.

The requirements will be divided into two. These are:-

(a) Hardware

(i) PC IBM compatible

(ii) Memory

(iii) Disk drive: 120 MB one floppy disk drive 31/2 inches

(iv) Display: monochrome/colour

(v) Hard disk: 120MB

(vi) Printer

(vii) Stabilizer/UPS

(viii) Stabilizer: 250v

(ix) UPS: 500v

(b) Software

(i) Disk Operating System (DOS)

MS - DOS 6.0

(ii) DBMS Package: Dbase III plus

(iii) Word Processing: Word Perfect 5.0

3.8 COST AND BENEFIT ANALYSIS OF THE NEW SYSTEM

Cost Analysis of the New System

Although the initial cost of the proposed new system may be too costly, the system have lots of both short term and long term cost benefit. The estimated cost of the new system will be discussed under two headings. These are:-

(a) Developmental cost; and

(b) Operating cost

(a) Developmental cost concerns with the cost system analysis and design, software development and implementation, cost of computers, printers, stabilizers and installation.

(i)	System Analysis and Design (analyst for four weeks)	₦25,000.00
(ii)	Software Development and Implementation	₦20,000.00
(iii)	Six PC computers	₦900,000.00
(iv)	Local network accessories	₦30,000.00
(v)	Two Printers (one laserjet and one dot matrix)	₦100,000.00

(vi)	Four stabilizers	₦40,000.00
(vii)	Installation	₦60,000.00
(viii)	Training of six staff for four weeks at ₦2,500.00 per week	₦10,000.00
	Total	₦1,185,000.00

(b) Operating Cost

The operating cost has to do with running cost. It concerns with cost of stationeries, labour cost, equipment maintenance and miscellaneous expenses.

(i)	Supply of materials (diskettes, printing papers per month)	₦20,000.00
(ii)	Labour cost (one programmer, three operators per month)	₦35,500.00
(iii)	Equipment maintenance	₦10,000.00
(iv)	Miscellaneous expenses	₦5,000.00
	Total	₦70,500.00
	GRAND TOTAL	**₦1,255,500.00**

Benefit Analysis of the New System

The proposed new system have both short term and long term cost benefits. These cost benefits and advantages will be discussed under the following headings.

(1) Reduction in filing cost

With the introduction of computer system. there will be:-

(i) Less number of personnel in the open and secret registry and also there will be no need for Personnel Assistants in the departments.

(ii) The volume of stationeries such as file folder, file tags and writing materials will be reduced.

(iii) Storage equipment such as office file cabinets will be eliminated. This will also save the organisation a huge sum of money.

(2) Data Security

The new proposed system guarantee data security. Since with the introduction of computer, the movement of files from office to another by personnel assistants and messengers will be reduced. Therefore, preventing unauthorised user access to information.

(3) Easy Retrieval of Data

One major advantage of the new proposed system is that it allows easy retrieval of data or information by user.

(4) Reliability

Since the new system proposed will not allow unauthorised user to have access to information, therefore, the fear of distortion of information either by act of deletion, removal or addition for one malpractice or the other will not arise.

(5) Flexibility

Data already stored in the computer could be analysed and manipulated easily. The new system can accommodate large volume of information

and allow easy and fast retrieval of information by the user.

(6) Data Redundancy

Data redundancy will be reduced or eliminated. Data redundancy occurs in file processing systems when the data cannot be arranged to suit all the application programs accessing these data. This results in the same data appearing in more than one file, which leads to wastage of storage space and duplication of efforts during data entry.

3.9 INPUT AND OUTPUT SPECIFICATION

Output Specification

It is necessary to consider what is required from the system before deciding how to set about producing it. For the purpose of determining the output requirements, consideration will need to be made on the form, types, volumes and frequency of reports and documents. Since the main concern of this work is on filing system, emphasis will be on the viewing of documents, updating of the files and producing of hard copies from any of the input files when necessary.

For instance, hard copies may be required when there is external correspondence. For effective internal correspondence, the organisation will need to have local network. Therefore, the only output file will be report file. Each department will have one report file.

Therefore, for the purpose of this project, there will be two report files namely:
REG.DBF for Registrar's Office and

FAD.DBF for Finance and Administration Department

Input Specification

Consideration of input will be influenced greatly by the needs of output. In determining the input, consideration would be given to:-

(a) Data collection methods and validation

(b) Volumes of input documents

(c) Design of input layouts

In designing the input layouts, for convenience and better understanding, the input files will be grouped under two major headings. Each of these groups will serve as sub-directory for all the files under it. These are:_

(1) Registrar's files

(2) Finance and Administration files

The Registrar's files will have the sub-directory

- REG(DIR)

and the Finance and Administration files will have the sub-directory

- FAD(DIR)

The Registrar's Office will have the following files under its sub-directory

(1)	Staff Personal Data file	-	SPD.DBF
(2)	Parastatal file	-	PST
(3)	Circular file	-	CIR
(4)	Association file	-	ASS

(5) Examination file - EXAM

(6) External Correspondence file - EXT

(7) Memo file - MEMO

(8) Company file - COMP

AUDIT

(1) Monthly Audit and Audit Query file - MAQ

(2) Zonal Offices Inspection file - ZONE

(3) Payment Voucher Summary Sheets - PVSS.DBF

(4) Outgoing and Incoming Memo file - AOIM

Finance and Administration files

(1) Finance Purpose file - FINP

(2) Departmental file - DEPT

(3) Subject Matter file - SUBM

Since the files will now be centralised, there is no need for examination files, staff matters files and staff personal files under Finance and Administration.

CHAPTER FOUR

4.0 SOFTWARE DEVELOPMENT AND IMPLEMENTATION

4.1 INTRODUCTION

This chapter will concentrate on Software Development and Implementation. Here discussion will be focused on the choice of software packages, the elements of the software packages, programming language and workstation requirement. Also included in the chapter is data structures for some of the input and output files and programs development. The implementation aspect deals on the operational manual, change-over procedures and documentation.

4.2 CHOICE OF PROGRAMMING LANGUAGE\FEATURES OF THE CHOSEN LANGUAGE

The choice of programming language used in this study is Dbase III plus .

Features of Programming Language Chosen

Dbase III plus is an organised, integrated, relational package.

A Dbase III plus database can be made up of many database files of which as many as ten can be activated at any one time. A database file can have up to one billion records or two billion characters. A record can have up to 128 fields and can contain up to 4,000 characters of information.

Users can use Dbase III plus in a very simple manner, using a menu facility called the (assistant) or use Dbase commands (called dot commands) directly without using the menu facilities provided by the assistant. Dbase III plus offers a large number

of commands for users to create, retrieve, restore, add and delete records. It also allow for searching, updating, sorting, printing and making some mathematical calculations.

Other important features of Dbase III plus offers a programming language that enable user to construct her own database application. A large number of built in functions, string manipulation functions. The programming language includes command to perform conditional branching, looping, calculations, sort records, format input screens, output reports and so on.

Considering all the above features, Dbase III plus and wordperfect 5.0, pre-written software packages are chosen to be suitable for this study.

4.3 CHOICE OF SOFTWARE PACKAGES AND PROGRAMMING LANGUAGE

Some of the criteria used for the choice of software packages and programming Language are:-

(i) the effectiveness and efficiency of the packages with regard to the functions of the programs;

(ii) the facilities for different types of file processing;

(iii) the security of the records in the file;

(iv) the facilities for maintaining of the files e.g. adding new records, adding, modifying and easy retrieval of records;

(v) the flexibility of the packages; and

(vi) users frindliness quality of the package.

Based on the above outlined criteria and the types of files that will be required for processing, two application software packages will be adopted for this project. These are wordperfect 5.0 and Dbase III plus packages.

4.4 WORKSTATIONS REQUIREMENT

A typical workstation has the following list of features:-

(i) 32-bit microprocessors

(ii) It is fully connected into a computer network as another computer on the network in its own rights and not just running a terminal emulator

(iii) It has High-resolution graphics on bit-mapped screens as a standard feature.

(iv) It has a more sophisticated operating system than a PC which enable it to carry out several different tasks at the same time.

However, the new proposed system, required more than a workstation, but full Local Area Network (LAN). The purpose of the LAN is to connect a variety of pieces of equipment by means of a shared link in order to allow their intercommunication. The following of the basic requirements of LAN.

(a) Workstations

(b) Terminals

(c) Host Computers

(d) File Server

(e) Print Server

(f) Concentrator

(g) External Communications Server

The terminals and workstations can be connected to the 'host' computers any time. The File Server is a special computer which provides a joint auxillary storage which can be used by any other computer on the network. While the Print Server is a special computer which can receive data from other computers on the network and print it.

4.5 SOFTWARE REQUIREMENT AND ITS FEATURES

In addition to the operating system, there are other two categories of softwares that are required for this project. These are:-

(a) Generalised Applications Packages; and

(b) User Application Programs.

Application packages are suites of programs with associated documentation used for particular type of problem or variety of similar problems.

A generalised applications packages, therefore, is one which provides a completely general set of facilities which are of use in dealing with similar types of task which arise in a wide variety of different application problems. The generalised application packages required for this project work are:-

(1) Database Management System Packages - Dbase III plus; and

(2) Wordprocessing Package - Wordperfect 5.0

The user application programs are applications specifically written by the user and

are aimed at providing all the facilities required for a particular class of application problem, such as payroll of the user's organisation. The user application programs are the main task of this project.

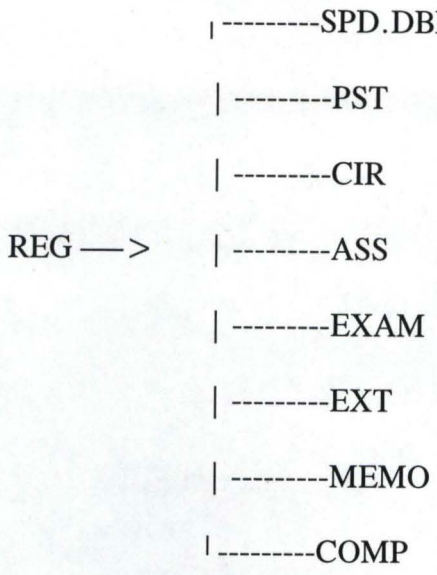
4.6 SOFTWARE DEVELOPMENT AND TESTING

When a new computer system is to be developed , it becomes necessary to express the requirements in a number of ways. The requirements must initially be expressed in terms that the user can understand and agree to. Ultimately, these requirements will be presented to the computer in the form of a set of instructions which the computer can obey, that is a program. Any associated manual procedure must also be specified. In this sub-heading therefore, effort will be made to discuss the data structure of the database files used during the testing of the programs, programming and program, and the operational manual.

4.6.1 GROUPING OF THE DATA

(1) Registrar's Files

All the files under the registrar are document files. They will therefore be better processed in wordprocesing environment. The root directory is REG(DIR), which all the files will have to be called through:-



STAFF PERSONAL DATA FILE	-	SPD.DBF
PARASTATAL FILE	-	PST
CIRCULAR FILE	-	CIR
ASSOCIATION FILE	-	ASS
EXAMINATION FILE	-	EXAM
EXTERNAL CORRESPONDENCE FILE	-	EXT
MEMORANDUM FILE	-	MEMO
COMPANY FILE	-	COMP

(2) All the Audit files with the exception of Payment Voucher Summary Sheets file (PVSS) are document files and they will be better processed in wordprocessing environment. Since Audit is a unit under the registrar's office, its files will also be under the registrar's directory.

```
                    |----------MAQ
REG ---->           |----------ZONE
                    |----------ADM
                    |----------PVSS.DBF
```

However, PVSS will be a DBF file.

(3) Finance and Administration files

All Finance and Administration files are more of document files. They will therefore be better processed in wordprocessing environment. However, the accounting work in the files can be processed in SPREADSHEET environment and imported into the wordprocessing files.

Their root directory is FAD(DIR). All the files must be called through this sub-directory.

```
                    |----------FINP
FAD ---->           |----------DEPT
                    |----------SUBM
```

4.6.2 For this project, there are two database files. These are SPD.DBF for Staff Personal Data and PVSS.DBF for Payment Voucher Summary Sheets. The database structures for files are given below.

DATABASE STRUCTURE FOR SPD.DBF

F/NO	FIELD NAME	TYPE	WIDTH
1	SNAME	C	14
2	OTHERNAME	C	14
3	SEX	C	1
4	MSTATUS	C	8
5	DBIRTH	D	8
6	PBIRTH	C	12
7	STATE	C	12
8	LGOVT	C	12
9	FILE_NO	C	8
10	QUAL	C	20
11	DEPT	C	14
12	DFAPP	D	8
13	DPAPP	D	8
14	TAPP	C	10
15	RANK	C	10
16	SGLEVEL	C	6

KEY

SNAME	-	SURNAME
OTHERNAME	-	OTHERNAME(S)
SEX	-	SEX

MSTATUS	-	MARITAL STATUS
DBIRTH	-	DATE OF BIRTH
PBIRTH	-	PLACE OF BIRTH
STATE	-	STATE OF ORIGIN
LGOVT	-	LOCAL GOVERNMENT
FILE_NO	-	PERSONAL FILE NUMBER
QUAL	-	QUALIFICATION
DEPT	-	DEPARTMENT
DFAPP	-	DATE OF FIRST APPOINTMENT
DPAPP	-	DATE OF PRESENT APPOINTMENT
TAPP	-	TYPE OF APPOINTMENT
RANK	-	RANK
SGLEVEL	-	SALARY GRADE LEVEL

DATABASE STRUCTURE FOR PVSS.DBF

F/NO	FIELDNAME	TYPE	WIDTH	DEC.
1	S_NO	N	3	
2	PAYEE	C	25	
3	PV_NO	C	6	
4	G_AMOUNT	N	10	2
5	N_AMOUNT	N	10	2
6	REMARK	C	20	

KEY

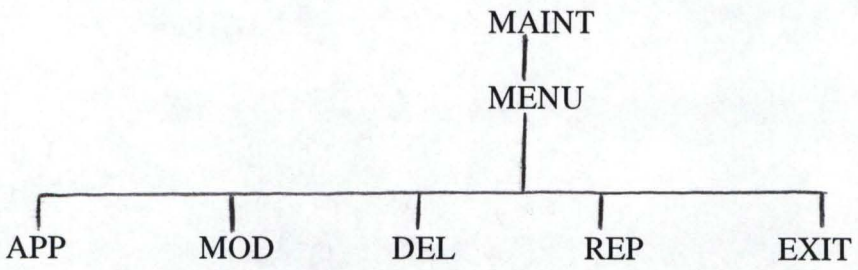
S_NO	-	SERIAL NUMBER
PAYEE	-	PAYEE
PV_NO	-	PAYMENT VOUCHER NUMBER
N_AMOUNT	-	NET AMOUNT
REMARK	-	REMARK

4.6.3 Programs and Programming

Programming can simply be defined as the art of writing programs. While in computer, programs are series or sequence of instructions can be executed by a computer. Programs enable computer (hardware) to accomplish a given task. In the development of the software for this project, the following modular programs were written.

Modular flow chart

Below is the flow chart for the modular programs



(1) Main Title Program (Maint.prg)

The execution of this program display the main title of the study on the screen. It also leads the user to the main menu, in case the user wants to run the programs in sequence. Both the title screen and the programs codes could be found at the appendices.

(2) Main Menu Program (Menu.Prg)

This program enable the computer to display the two database files in the screen and also the operations that can be programmed on the files. These operations are:-

(a) Data Entering;

(b) Data Amending;

(c) Record Deleting; and

(d) Generating of Report from the data in the files.

The programs for any of these operations could be run through the main menu.

(a) Data Entering Program (App.Prg)

The data entering program enables the user to enter new data into any of the two database files of his/her choice. The screens for the two files could be found in the appendix.

(b) Data Amending Program (Mod.Prg)

This program on execution enables the user to modify already entered data in any of the files of the user's choice.

(c) Record Deleting Program (Del.Prg)

This program enables the user to delete any record of his/her choice from either of the two database files without necessarily going through the control panel.

(d) Report Program (Rep.Prg)

This enables the user to generate report from either of the two files and produce the hard copy.

4.6.4 OPERATIONAL MANUAL

Software Development will be incomplete until the programs have been written, thoroughly field-tested for a substantial period of time and documented. The operational manual is an important part of the documentation. As already stated, Dbase III plus program environment is used for this project.

Step 1: Booting the system from the hard disk, a successful booting will lead the user to C: prompt.

Step 2: At the C: prompt, type CD Dbase III. This will lead the user to Control Panel.

Step 3: At Control Panel, press Esc. key and you are at the dot prompt.

Step 4: Now at this point, insert the floppy diskette that contains the project programs into A: drive of the system and type SET DEFAULT to A: and press ENTER key.

Step 5: For the user to run the programs sequentially, starting from the MAIN TITLE program, the following sub-steps will be followed:-

(a) Type DO MAINT and press ENTER key. The title of the project work will appear on the screen. Follow the instruction at the bottom part of the screen.

(b) Carrying out the instruction will display the main menu on the screen.

(c) At this point, the user will simply continue to carry out the instructions displayed on the screen based on whatever he/she wants to do.

4.7 QUIT/EXIT PROGRAM

This enables the user to leave the environment. The procedure for this is written down below:

Step 1:

Press the Exit in the main menu, it takes the user to the 'maint' screen.

Step 2:

Press any key to continue. The message to continue with the main program will appear on the screen (Y/N)

Step 3:

Press 'N' key to discontinue. The user quits the environment.

4.8 CHANGE-OVER PROCEDURE

There are three methods of changing over from old system to a new system. These are:-

(1) Parallel;

(2) Direct; and

(3) Pilot

(1) Parallel Change-over

Here the old and new systems are run concurrently, using the same inputs. Outputs from the old systems continue to be distributed until the new system has proved satisfactory. At this point, the old system is discontinued and the new system takes its place. Some of the features of the parallel method of change-over are:-

(i) It is a costly method because of the amount of duplication involved.

(ii) This method would need the employment of extra staff or overtime working for existing staff. This can create difficulties over the period of the change-over.

(iii) It is only possible where the outputs from old and new systems are easy to reconcile and where the system are similar.

(iv) Its use does give management the facility of fully testing the new system whilst still retaining the existing system.

(2) Direct Change-over

Here the old system is discontinued altogether and the new system becomes operational immediately. Some of the features are:-

(i) If the new system has no resemblance to the old, then a direct change-over is probably inevitable.

(ii) There must be complete confidence in the new system's reliability and accuracy before the method is use.

(3) Pilot Change-over

A Pilot change-over would involve the changing over of a part of the system either in parallel or directly.

Use of the variation of the first two methods is possible when part of the system can be treated as a separate entity.

Considering the financial implication of the parallel system of change-over and with financial position of the organisation at present, the direct system will be most suitable among the three system.

The problem of accuracy has been taken care of with the thorough testing of the new system during the developmental period, coupled with the fact that computer system is one of the most reliable and efficient system for data and information storage and processing.

CHAPTER FIVE

5.0 CONCLUSION/SUMMARY AND RECOMMENDATION

5.1 CONCLUSION/SUMMARY

The general objective of this project is to tackle the problems and shortcomings of the manual system of filing in an organisation by the use of computer system.

The result of the feasibility study that was carried out clearly established the fact that there are lots of benefits that will be derived from the use of computers by the organisation. Among the features and benefits are:-

(i) Easy and quick means of retrieving data and information;

(ii) Fast means of communication of information both within and outside the organisation;

(iii) Easy, fast and accurate means of processing data;

(iv) Professional, clean and good looking hard copies print out of reports, documents, and memorandum;

(v) Reduce filing and processing cost; and

(vi) Protect documents from unwanted users.

In summary, successful implementation of the new proposed system will aid the organisation in both processing and filing of information and thereby help the organisation to meet its goals. While great part of the work can be adapted to other private and public establishments the focus has been on National Board for Educational Measurement (NBEM).

Finally, it is pertinent to mention that although the design and testing of the new proposed system has been on IBM compatible computer, it is hoped that the system will work on other brand of PC computers of similar computer architecture.

5.2 RECOMMENDATIONS

Considering the numerous advantages that will be derived from the computerisation of the filing system in NBEM, the following suggestions are hereby recommended:-

(i) That the organisation should endeavour to implement the new proposed system, that is computerising the filing system in the organisation;

(ii) Expand its computer department to enable the department to carry out other computer functions in addition to the present function (the processing of NCEE, JSCE, GIFTED AND APTITUDE results).

(iii) Encourage staff from other departments to undergo computer training, particularly the administrative staff that will be involved in the operation of the new system. This will go a long way in improving the performance of the staff.

(iv) Among the benefit that the organisation will derive from the new system is the reduction in the quantity of stationeries that are required in filing and file cabinets. This will not only save the organisation huge amount of money but also space that these cabinets occupy in their various offices;

Discussing also on cost reduction, the number of staff will be reduced.

Therefore, amount being spent on salaries, and other fringe benefits could be converted into better uses.

(vi) With the use of computer, the workload, will be reduced. This will also enhance the efficiency and effectiveness of the staff and the organisation. The problem of delay in the retrieval of record will be a thing of the past;

(vii) The problem of overtime can be related to workload. Therefore, as long as workload is reduced, there will be no need for overtime. With the implementation of the new system, the issue of overtime due to delay in the retrieval of record will also be a thing of the past. This also save the organisation some amount of money.

(viii) One of the greatest benefit to be derived from the new proposed system if implemented is security of data and information. Provision for user to produce back-up diskette of his document at a reasonable price. In the conventional back-up system, apart from the working system called the "SON", the organisation can also produce two other ones called "FATHER" and "GRANDFATHER". The father is also kept within the organisation while the grandfather is kept outside the premises of the organisation. Therefore, with this system, the issue of loss of information will be reduced drastically if not eliminated.

BIBLIOGRAPHY

1. ADENIBA S. B. (1994): An Integrated Database Design for Educational Program. M.Sc. Project work, unpublished.
2. AGBOOLA Sule (1996): Computerisation of Junior School Certificate Examination Results. A case study of Test and Measurement Section, Ministry of Education Niger State.
3. BADAMOSI R. (1996): Introduction to Computer System. A course material prepared for PGD students, unpublished.
4. BADAMOSI R. (1996): System Analysis and Design. A course material prepared for PGD students, unpublished.
5. EDWARD A. T. (1979): Foundamentals of Computer in Business. A System Approach Holden-Day Link. San Francisco, U.S.A.
6. FRY T. F. (1975): Computer Appreciation. Clarke Dow Dobie and Brendon Ltd. England.
7. HAROLD Lucas (1976): Computer in Business Studies. Macdonald and Evans Ltd. England.
8. OLIVER E.C. and CHAPMAN R.S (1990): Data Processing and Information Technology. DP Publication Ltd.
9. RAHEEM K. (1996): Database Management System. A course material prepared for PGD students, unpublished.

10. MARGRET LEAFE and JOSHUA O. C. (1986): Introduction to Business Management. Longman Publishers Limited.

11. National Board for Educational Measurement (NBEM), Minna. Annual Report for 1994.

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PROJECT TITLE

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COMPUTERISATION OF FILING SYSTEM
IN NATIONAL BOARD FOR
EDUCATIONAL MEASUREMENT
(N.B.E.M) MINNA

BY

MISS NWACHUKWU CLARE A.
PGD/MSC/056/96

SUPERVISED

BY

PRINCE R. BADMUS

****

press any key to continue

```
=================================================================
=                      M A I N  M E N U                         =
=                      =================                        =
=    FILE NAME                          OPERATION              =
==================                  ============================  =
==CODE   NAME    =                  =                          =  =
==================                  = CODE      TASK           =  =
== S   SPD.DBF   =                  ============================  =
==               =                  =                          =  =
== P   PVSS.DBF  =                  =   A    Data Entering     =  =
==               =                  =                          =  =
== E   EXIT      =                  =   M    record amending   =  =
==               =                  =                          =  =
==Enter file code=                  =   D   Record Deleting    =  =
==               =                  =                          =  =
==     S         =                  =   R   Report             =  =
==               =                  =                          =  =
==================                  = Enter task code          =  =
=                                   =                          =  =
=                                   ============================  =
=================================================================
```

DATA ENTERING SCREEN FOR STAFF PERSONAL DATA

SURNAME: OKORONKWO

OTHERNAME(S): IJEOMA NKECHI

FILE NO.: 0009

SEX: F

MARITAL STATUS: SINGLE

DATE OF BIRTH: 12/01/70

PLACE OF BIRTH: MINNA

STATE OF ORIGIN: ENUGU

LOCAL GOVT.: ENUGU

QUALIFICATION: BSC, PGD, NIPR

DEPARTMENT: REG. OFFICE

TYPE OF APPT.: TEMPORARY

DATE OF 1ST APPT.: 05/03/93

DATE OF PRES. APPT.: 01/01/97

RANK: P.S.A.II

SALARY GD. LEVEL: EUSS9

DATA AMENDING SCREEN
==========

ENTER FILE NO 0001

SURNAME: YUSUF

OTHERNAME: SHEHU

FILE NO.: 0001

SEX: M

MARITAL STATUS: MARRIED

DATE OF BIRTH: 01/12/59

PLACE OF BIRTH: MINNA

STATE OF ORIGIN: NIGER

LOCAL GOVT.: CHANCHAGA

QUALIFICATION: BSC ECON.

DEPARTMENT: FIN. & ADM.

TYPE OF APPT.: PERMENANT

DATE OF 1ST APPT.: 01/15/94

DATE OF PRES. APPT.: 01/15/94

RANK: E.O VII

SALARY GD. LEVEL: USS 09

NATIONAL BOARD FOR EDUCATION MEASUREMENT

DEPARTMENT OF FINANCE AND SUPPLIES

DESPATCH FORM

PAYMENT VOUCHER SUMMARY SHEET

FORM: OTHER CHARGES TO: INTERNAL AUDITOR

SECTION: FINANCE AND SUPPLIES DEPT. NBEM, MINNA

Please sign to acknowledge the receipt of the following voucher.

S/NO.:	PAYEE:	PV/NO:	GROSS AMOUNT:	NET AMOUNT:	+ REMARK
1	Reg. NBEM MX	0001	13000.00	13000.00	Offical duty
2	Eglundoyin Nig. Ent.	0002	13170.00	12511.00	Contract wor
3	NITEL MX	0003	12034.00	12034.00	SETMNT. NITE
4	Rev. Fummilayo J.A	0004	5100.00	5100.00	Official dut
5	Shittu Nig. Ent. Mx	0005	3200.00	3040.00	contract wor
6	AJIAH MEMUNA	0045	20000.00	3456.00	CONTRACT WOR
7	ONYIBO ENTER. MINNA	0055	20500.00	20000.00	BUILD. RENOV

Press any key to continue

```
*                MAINT.PRG
*THE MAIN PROGRAM MODULE

Set talk off
Set Status off
Set Scoreboard off
DO WHILE .T.
     Set color to W/B+
     @ 2,10 to 21,60 double
     @ 3,28 say "PROJECT TITLE"
     @ 4,28 TO 4,41 double
     @ 6,21 say "COMPUTERISATION OF FILING SYSTEM"
     @ 7,26 say  "IN NATIONAL BOARD FOR"
     @ 8,25 say "EDUCATIONAL MEASUREMENT"
     @ 9,28 say "(N.B.E.M) MINNA"
     @ 11,34 say "BY"
     @ 13,24 say "MISS NWACHUKWU CLARE A."
     @ 14,27 say "PGD/MSC/056/96"
     @ 16,30 say "SUPERVISED"
     @ 18,34 say "BY"
     @ 20,26 say "PRINCE R. BADMUS"
      WAIT
      Clea
      ch = space(1)
     @ 10,5 say "TO CONTINUE WITH THE MAIN PROGRAM (Y/N)"
     @ 10,60 get ch pict "@!"
        read
         If ch = "Y"
             do menu
         Else
             Exit
         Endif
 ENDDO
RETURN
```

```
*            MENU.PRG
* A PROGRAM THAT GENERATES THE MENU

Set talk off
Set status off
Set scoreboard off
    DO WHILE .T.
        Clea
    Set color to W/N+
    @ 2,5 to 22,70 double
    @ 3,28 say "M A I N  M E N U"
    @ 4,28 to 4,44 double
    @ 5,10 say "FILE NAME"
    @ 6,6 to 19,22
    @ 7,7 say "CODE" + space(3) + "NAME"
    @ 8,7 to 8,21
    @ 9,8 say "S" + space(3) +  "SPD.DBF"
    @ 11,8 say "P" + space(3) +"PVSS.DBF"
    @ 13,8 say "E" + space(3) + "EXIT"
    CH = space(1)
    @ 15,7 say "Enter file code"
    @ 17,12 get CH pict "@!"
    read
      DO CASE
        case ch = "S"
           use SPD.DBF
        case ch = "P"
           use PVSS.DBF
        case ch = "E"
            Exit
      ENDCASE
     @ 5,48 say "OPERAATION"
     @ 6,40 to 21,65 double
     @ 8,42 say "CODE" + space(6) + "TASK"
     @ 9,41 to 9,64
     @ 11,44 say "A" + space(3) + " Data Entering"
     @ 13,44 say "M" + space(3) + " record amending"
     @ 15,44 say "D" + space(3) + "Record Deleting"
     @ 17,44 say "R" + space(3) + "Report"
     Ch = space(1)
     @ 19,42 say "Enter task code"
     @ 19,60 get ch pict "@!"
     read
       DO CASE
            Case ch = "A"
            do app
            Case ch = "M"
            do mod
            Case ch = "D"
            do del
            Case ch = "R"
            do rep
       ENDCASE
   ENDDO
    CLEA
    close database
RETURN
```

```
*          MOD.PRG
* PROGRAM THAT MODIFIES FILES

Set talk off
Set status off
Set scoreboard off
Store space(4) to file
     @ 2,5 say "File Name" get file
     read
     Clea
DO  WHILE .T.
   If file = "SPD"
      mfile_no = space(8)
      @ 2,5 say "Enter file no" get mfile_no
      read
      locate for file_no = mfile_no
        if found()
          @ 4,3 say "SURNAME:" get sname
          @ 6,3 say "OTHERNAME:" get othername
          @ 8,3 say "FILE NO.:" get file_no
          @ 10,3 say "SEX:" get sex
          @ 12,3 say "MARITAL STATUS:" get mstatus
          @ 14,3 say "DATE OF BIRTH:" get dbirth
          @ 16,3 say "PLACE OF BIRTH:" get pbirth
          @ 18,3 say "STATE OF ORIGIN:" get state
          @ 20,3 say "LOCAL GOVT.:" get lgovt
          @ 4,35 say "QUALIFICATION:" get qual
          @ 6,35 say "DEPARTMENT:" get dept
          @ 8,35 say "TYPE OF APPT.:" get tapp
          @ 10,35 say "DATE OF 1ST APPT.:" get dfapp
          @ 12,35 say "DATE OF PRES. APPT.:" get dpapp
          @ 14,35 say "RANK:" get rank
          @ 16,35 say "SALARY GD. LEVEL:" get sglevel
          read
        Else
          @ 15,3 say "Record not found"
        Endif
   Endif
   If file = "PVSS"
      mpv_no = space(6)
      @ 2,5 say "Enter PV_NO." get mpv_no
      read
      Locate for Pv_no = mpv_no
      if found()
        @ 4,3 say "SERIAL NO.:" get s_no
        @ 6,3 say "PAYEE:" get payee
        @ 8,3 say "PV/NO.:" get pv_no
        @ 10,3 say "GROSS AMOUNT:" get g_amount
        @ 12,3 say "NET AMOUNT:" get n_amount
        @ 14,3 say "REMARK:" get remark
        read
      else
        @ 15,10 say "Record not found"
      endif
   Endif
   ch = space(1)
   @ 22,3 say " Any other record to be modified?(Y/N)"
   @ 22,50 get ch pict "@!"
   read
   If ch = "Y"
     loop
   Else
     Exit
   Endif
```

```
ENDDO
close database
clea
RETURN
```

```
*           DEL.PRG
*PROGRAM THAT DELETES FILES

 Set talk off
 Set status off
 Store space(4) to file
 @ 2,5 say "File Name" get file
 read
 clea
 DO WHILE .T.
    If file = "SPD"
      mfile_no = space(8)
      @ 2,5 say "Enter file_no.:" get mfile_no
      read
      Locate for file_no = mfile_no
       If found()
         @ 4,3 say "surmane:" get sname
         @ 6,3 say "othername:" get othername
         @ 8,3 say "file_no:" get file_no
         @ 10,3 say "sex:" get sex
         @ 12,3 say "marital status:" get mstatus
         @ 14,3 say "date of birth:" get dbirth
         @ 16,3 say "place of birth:" get pbirth
         @ 18,3 say "state of origin:" get state
         @ 20,3 say "local govt.:" get lgovt
         @ 4,35 say "qualification:" get qual
         @ 6,35 say "department:" get dept
         @ 8,35 say "type of appt.:" get tapp
         @ 10,35 say "date of 1st appt.:" get dfapp
         @ 12,35 say "date of pres. appt.:" get dpapp
         @ 14,35 say "rank:" get rank
         @ 16,35 say "salary gd level:" get sglevel
         clear
         delete
         pack
         @ 18,35 say "One record has been deleted"
        Else
         @ 15,3 say "Record not found"
        Endif
    Endif
If file = "PVSS"
 mpv_no = space(6)
 @ 2,5 say "Enter PV/NO." get mpv_no
 read
 locate for pv_no = mpv_no
 if found()
 @ 4,3 say "Serial No.:" get s_no
 @ 6,3 say "Payee:" get payee
 @ 8,3 say "PV/NO.:" get pv_no
 @ 10,3 say "Gross Amount:" get g_amount
 @ 12,3 say "Net Amount:" get n_amount
 @ 14,3 say "Remark:" get remark
 clear
 delete
 pack
 @ 16,3 say "One record has been deleted"
 Else
 @ 15,3 say "Record not found"
 Endif
Endif
 ch = space(1)
 @ 22,3 say "Any other set of record to be deleted?(Y/N)"
 @ 22,50 get ch pict "@!"
 read
```

```
    DO CASE
        Case ch = "Y"
            loop
        Case ch = "N"
            Exit
    ENDCASE
ENDDO
    CLOSE DATABASE
    CLEA
RETURN
```

```
   *           REP.PRG
   * PROGRAM THAT GENERATES REPORT
   Set status off
   Set talk off
   Set scoreboard off
   Store space(4) to file
   @ 2,3 say "Enter file name" get file
   read
   clea
@ 2,18 say "NATIONAL BOARD FOR EDUCATION MEASUREMENT"
@ 3,18 TO 3,57
IF File = "PVSS"
   @ 4,22 say "DEPARTMENT OF FINANCE AND SUPPLIES"
   @ 5,22 to 5,56
   @ 6,28 say "DESPATCH FORM"
   @ 7,28 to 7,41
   @ 8,25 say "PAYMENT VOUCHER SUMMARY SHEET"
   Store space (20) to form
   @ 10,5 say "FORM:" get form
   read
   @ 10,50 say "TO: INTERNAL AUDITOR"
   @ 12,5 say "SECTION: FINANCE AND SUPPLIES DEPT."
   @ 12,52 say "NBEM, MINNA"
   @ 14,5 say "Please sign to acknowledge the receipt "
   @ 15,5 say "  of the following voucher."
   @ 16,3 say "S/NO.:   PAYEE:              PV/NO:"
   @ 16,43 say "GROSS AMOUNT:  NET AMOUNT: + REMARK"
   @ 17,5 to 17,72
   r = 17
    DO WHILE .NOT. EOF()
       r = r + 1
       @ r,3 say S_NO
       @ r,8 say PAYEE
       @ r,32 say PV_NO
       @ r,40 say G_AMOUNT
       @ r,54 say N_AMOUNT
       @ r,66 say REMARK
       Skip
    ENDDO
ENDIF
IF File = "SPD"
    @ 5,34 say "STAFF LIST"
    @ 6,34 to 6,43 double
    @ 7,2 say "FILE NO:SURNAME: OTHERNAME: SEX: QUALIF.:"
    @ 7,46 say "DEPART: DATE OF PRES. APP.: RANK"
    r = 7
    DO WHILE .NOT. EOF()
       r = r + 1
       @ r,2 say file_no
       @ r,10 say sname
       @ r,21 say othername
       @ r,31 say sex
       @ r,35 say qual
       @ r,48 say dept
       @ r,62 say dpapp
       @ r,72 say rank
       Skip
    ENDDO
ENDIF
   wait
   set device to screen
   close database
   clea
 RETURN
```

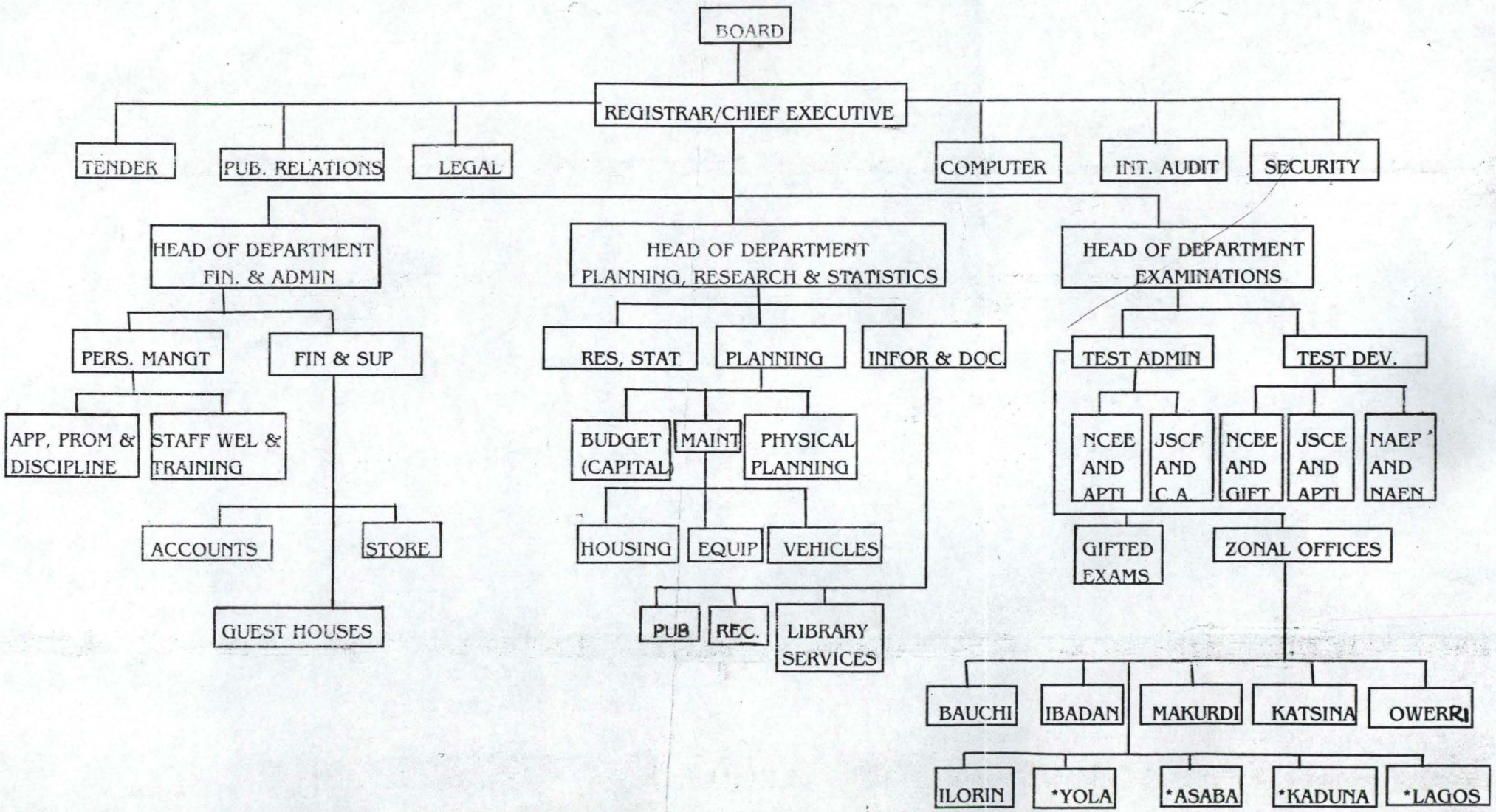
```
*         APP.PRG
*PROGRAM THAT ADDS NEW RECORDS
Set status off
Set scoreboard off
Set talk off
Store space(4) to file
@ 2,5 say "File name" get file
read
clea
DO WHILE .T.
 If file = "SPD"
   @ 2,16 say "DATA ENTERING SCREEN FOR STAFF PERSONAL DATA"
   @ 3,16 TO 3,60 double
   Append blank
   @ 4,3 say "SURNAME:" get sname
   @ 6,3 say "OTHERNAME(S):" get othername
   @ 8,3 say "FILE NO.:" get file_no
   @ 10,3 say "SEX:" get sex
   @ 12,3 say "MARITAL STATUS:" get mstatus
   @ 14,3 say "DATE OF BIRTH:" get dbirth
   @ 16,3 say "PLACE OF BIRTH:" get pbirth
   @ 18,3 say "STATE OF ORIGIN:" get state
   @ 20,3 say "LOCAL GOVT.:" get lgovt
   @ 4,35 say "QUALIFICATION:" get qual
   @ 6,35 say "DEPARTMENT:" get dept
   @ 8,35 say "TYPE OF APPT.:" get tapp
   @ 10,35 say "DATE OF 1ST APPT.:" get dfapp
   @ 12,35 say "DATE OF PRES. APPT.:" get dpapp
   @ 14,35 say "RANK:" get rank
   @ 16,35 say "SALARY GD. LEVEL:" get sglevel
   read
 endif
 If file = "PVSS"
    @ 2,6 say " PAYMENT VOUCHER SUMMARY"
    @ 3,6 to 3,29 double
    Append blank
    @ 4,3 say "SERIAL NO.:" get s_no
    @ 6,3 say "PAYEE:" get payee
    @ 8,3 say "PV/NO.:" get pv_no
    @ 10,3 say "GROSS AMOUNT:" get g_amount
    @ 12,3 say "NET AMOUNT:" get n_amount
    @ 14,3 say "REMARK:" get remark
    read
 endif
 ch = space(1)
 @ 22,3 say "Any other set data to be entered? (Y/N)"
 @ 22,50 get ch pict "@!"
 read
 DO WHILE .T.
 DO CASE
    case ch = "Y"
    loop
    case ch = "N"
    Exit
 ENDCASE
 ENDDO
 CLOSE DATABASE
 CLEA
RETURN
    @ 5,25 say "OTHER NAME(S: " get othername
    @ 5,53 say "EMPLOYEE'S NO.: " get empl_no
    @ 7,2 say "DATE OF BIRTH: " get dbirth
    @ 7,30 say "PLACE OF BIRTH: " get pbirth
    @ 9,2 say "STATE OF ORIGIN: " get state
```

```
    @ 9,30 say "LOCAL GOVERNMENT: " get local
    @ 11,2 say "SEX: " get sex
    @ 11,30 say "MARITAL STATUS: " get mstatus
    @ 13,2 say "QUALIFICATION(S): " get qual
    @ 15,2 say "TYPE OF APPOINTMENT: " get tapp
    @ 13,3 say "DEPARTMENT: " get dept
    @ 15,30 say "RANK: " get rank
    @ 17,2 say "DATE OF 1ST APPT: " get dfapp
    @ 17,30 say "DATE OF PRES. APPT: " get dpapp
    @ 19,2 say "SALARY GRADE LEVEL: " get sgrade
    read
ch = space(1)
@ 21,12 say "Enter another set of data (Y/N)"
@ 21,60 get ch pict "@!"
read
   DO WHILE .T.
     DO CASE
        case ch = "Y"
        loop
        case ch = "N"
        exit
    ENDCASE
ENDDO
    CLOSE DATABASE
    CLEA
RETURN
```

APPENDIX 'A'

NATIONAL BOARD FOR EDUCATIONAL MEANSUREMENT (NBEM) MINNA

ORGANOGRAM



NEAP = NATIONAL ASSESSMENT OF EDUCATIONAL PERFORMANCE
NCEE = NATIONAL COMMON ENTRANCE EXAMINATION
JSCE = JUNIOR SCHOOL CERTIFICATE EXAMINATION
NAEA = NIGERIA ASSOCIATION FOR EDUCATIONAL ASSESSMENT
C.A. = CONTINOUS ASSESSMENT
* = NOT OPERATIONAL YET