

TITLE PAGE

**COMPUTERIZATION OF THE FEDERAL CHARACTER
PRINCIPLE**

(A CASE STUDY OF SOME FEDERAL PARASTATALS)

BY

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CERTIFICATION

I certify that this project entitled "computerization of the federal character principle, A case study of some federal parastatals" meets the regulations governing the award of post graduate Diploma in computer Science of Federal University of Technology, Minna, Niger State.

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DEDICATION

This work is dedicated to the Almighty God who gave me my bone of my bone as wife.

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ABSTRACT

This project is being conducted to examine the computerization of Federal Character Principle in some Federal Parastatals.

The existing manual system seems to be cumbersome for it demands a lot from the department of Planning Research and Statistics of the Commission. A typical example in this situation is when vital information is required, they have to trace such information to different records manually which takes the officer in charge a lot of time, but if computerized it will reduce the work load encountered by the statistician, this is because efficiency, effectiveness accuracy and reliability will be achieved and problem of loss of valuable information will also be minimized, for all these information can be kept in a database files of the computer.

This project will study the existing manual system from which a new system will be developed. At the end of this project, some recommendations and suggestions will be given as future guidelines to other people who will want to undertake research in this area.

CHAPTER ONE

1.0 INTRODUCTION

This write up is to make the work of the Federal Character Commission easily accessible to the Public when the need arises and easy access to information.

1.0.1 Aims and Objectives

The objective of this study is to develop a computerized system on Federal Character Principles, which will store data on staff distribution by area of origin and by grade levels, percentage per state/geopolitical zone, range of percentages, remark grade. The storage of data is designed to be for a long period and this is aimed towards effective management and assessment of these records, when required.

The study attempt to reduce workload, minimize loss of vital records through manual system. The new system will keep track of these records for the purpose of generating any needed information with ease and accuracy. Also this will ensure data integrity of the records. This new system will enable us to know any part of the country that is under represented or over represented for the purpose of planning.

2 COMPUTER CLASSIFICATION

Computers come in a wide variety of sizes, ranging from tiny hand held devices to some that are several feet in height and diameter. Over the years computer have became smaller and smaller but they have also become increasingly powerful, computers can be classified by the way they process data and by their size. Here we classify computer by size, type of logic they use and by purpose.

In terms of size, computers can be divided into four categories; super computers, mainframes, minicomputers, microcomputers. These four types differ in price, amount of memory speed and processing capabilities.

2.1 Supercomputers

Super computers are the most powerful machines available in the mid-1980s. They are faster and the most expensive computers. For a machine to be considered a super computer, it must be capable of performing at least 10 million arithmetic operations per second.

Super computers are also known as maxi computers or sometimes-master computers. Super computers have the capability to process seismic data gathered during crude oil-seeking explorations.

Super computers also enable the simulation of airflow around an airplane at different speeds and attitudes. Auto manufacturers use super computer to simulate auto accidents on video screens. Metrologies employ super computer to study the formation of tornadoes. Physicists used super computers to study the results of explosion of nuclear weapons.

2.2 Mainframes

A mainframes is a large computer commonly used in business and industry, a mainframe is very expensive and it is usually costing over N25 million in the present market value.

Mainframe are used to solve highly soplustedicated problems they have large memory capacity and are the most powerful. They operate at very high speed and create a fair amount of heat requiring cooling systems. Mainframes computers often serve more than one user at a time because they are able to support large networks of individual terminals and remote job-entry locations. Banks, large Commercial and Industrial Companies and government agencies all use mainframes computers because they can support multiple user and multiple functions.

3 Micro Computers

The Micro Computer is the lowest and least expensive computer currently available. This is the type of computer often found in small business and in homes and classroom. The primary storage unit of a microcomputers usually smaller than that of the other types of computers.

Microcomputers are generally less complex and execute program at slower speeds. Because of the low cost and the flexibility of available software packages (commercial written programs that perform specific tasks such as Word Processing). It has popularly risen tremendously in the past few years in the mid – 1970s when microcomputers were first introduced, they were used primarily for playing games. Since that time, an extremely large number of software packages have been developed for a wide variety of application, not only in business but also in medicine education.

2.4 Mini Computers

A mini-computer is a computer with many of the capabilities of mainframe but generally lower priced and with a smaller primary storage unit. Mini computer, in general, are lower priced have smaller memory and process data more slowly than mainframes. They are also generally easier to install than main frames. They can support a network of user terminals but not as many as mainframes can. They can store and retrieve data from the same types of input and output devices as mainframes.

Mini computers are often used in business, which do not require the capabilities of mainframe.

3 COMPUTER PROGRAMMING LANGUAGE

Programming languages have a number of different attributes that can be used for classification purpose. Each of the attributes represents two extremes, with most languages somewhere between these extremes. For example some languages can only be run in the batch mode, while other program are developed to be run on a terminal in real line.

Procedure – oriented languages stress the actual manipulations performed while problem-oriented languages are concerned with solving particular types of problems. If a programming language can handle large data files and business type applications, the language is a business-oriented programming language. Language excellent at performing sophisticated computations but not adopt at handling large data files are scientific oriented programming language can be classified as general.

4 A SEQUENCE STRUCTURE

A sequence structure is a series of statements extend one after another. Most programming languages cause the computer to execute statement in sequence unless a decision or loop statement is encountered.

1.4.1 A Decision Structure

The Computer goes to another statement only if certain condition are met. The IF statement 50. IF X is equal to 6, otherwise the computer goes to statement 20.

1.4.2 A Loop Structure

A loop structure causes the computer to go into a loop that executes a series of statements a given number of times. The loop starts with FOR statement in line 10 because line 10 has 1 going from 1 to 4 statement 10 cause the computer to execute the read statements in LOOP Four times. These statement includes the READ Statement in line 20, the LET statement in line 30, and the PRINT statement in 40.

1.5 ASSEMBLY – LANGUAGE PROGRAMMING

Programming in pure machine code has many disadvantages; the main one is the need to learn the numeric code for each instruction and keep track of the absolute address used for variables and constants as the program grows and changes are made. For example, the insertion of an instruction part – way through a program will change the addresses associated with all branch instructions in later sections of the code. Such constraints can only be accommodated in very small-dedicated microcomputer applications where the amount of code is minimal.

The way out of this difficulty is to use symbols to represent the operation codes, addresses and control bits in the instruction formation a similar way to that already done for the operation codes. The language that results is called assembly language and instructions written in this symbolic form are both easier to follow and, as absolute addresses are not allocated at this stage, easier to modify. Apart from pseudo – operations, or directives, each line of assembly code generates one machines-code instruction. The speed at which a program will run is thus known to programmer, which is important in many control applications, unlike the same program written in a high-level language where the compilation process generates many lines of machine code program is complex to follow. A set of instructions written in symbolic form is known as a source program and this can be translated or assembled into machine code from (the object program) by a computer program called the assembler.

Source program translation and the allocation of storage locations that is the replacement of symbolic addresses by absolute addresses, is usually performed in two phases. First the source program is scanned and the symbolic addresses (labels and variable names) are extracted, assigned absolute addresses and a symbol address table constructed. Secondly the source instructions are again examined one by one and the mnemonic codes are used as arguments to search through a stored operation-code table or obtain the actual binary code for the instruction, which is then inserted in the first part of the object instruction. The

symbolic address portion of the source instruction is examined next: this is used to search the symbol table to find the appropriate absolute address, which is then inserted into the second part of the object instruction.

As well as allowing symbolic notation to be used for the machine-code instructions, assembly languages also include splendor-operations, or directive statements, which are there to assist the assembly process.

.6 PROCEDURE-ORIENTATED LANGUAGES

Though the use of symbolic assembly programs makes machine code programming very much easier, it is still necessary to specify the majority of program steps in considerable detail. In some cases, for example in non-numerical problems, this is essential if maximum efficiency (in terms of program running time and storage space) is desired. However, for a large number of mathematical and commercial problems the program running time may not be as important as the program preparation time. Moreover, programming mathematical problems in machine code, particularly if fixed-point arithmetic is used, can give rise to some nasty scaling problems. Many of these difficulties can be overcome, however by using floating-point arithmetic, either in hardware or software form. Another area which often causes trouble is the organisation of input and output routines and the general control of peripheral equipment other problems which arise, particularly in large software

systems, are concerned with keeping track of store allocation, updating of loop counts, subroutine organisation, and so on: that is, problems involving general house keeping procedures.

In order to overcome many of these difficulties, and to make programming easier, high-level computer languages have been developed. These computer languages, called generally procedure-oriented languages such as (FORTRAN [16], ALGOL [17,18], PASCAL [19], ADA, C [20] and MODULA - 2 [21]) allow the program operations to be written in a more easily understood form. The computer itself, or rather the software compiler, assembles together the necessary machine-code instructions required to perform a particular operation. In this way mathematical problems, for example, may be expressed using standard mathematical formulae including both real and integer numbers. Complete input/output routines may be initiated (called up) by simple writing 'read' or 'print' in the program statement, and all the necessary 'house keeping' requirements are organized automatically by the compiler.

It is worthwhile mentioning one other important aspect of high-level languages: the advantages they offer for transporting programs between different machines. Unlike assembly languages which are governed by the machine structure, high level languages are basically machine independent (except for details of input/output procedures). This means that programs written in

FORTRAN, for example may be run on any machine with an appropriate FORTRAN compiler. Moreover, the languages themselves form an admirable means of communicating computing algorithms from one person to another particularly in scientific journals.

7 REGISTER TRANSFER LANGUAGES

Programs written in a high-level language are basically machine independent and have the programmer does not need a knowledge of the hardware on which the program runs, other than perhaps a concern with the performance of the resulting code in terms of the time it takes for a program to run. However, the programmer who uses a lower level language such as assembler must understand the computer in terms of its register structure. This structure relates to the accessible parts of the computer, and in programming terms forms the boundary between hardware and the user. A register transfer language is a formal language, which aims to adjust this, in doing so it does not attempt to account for the time delays inherent in the hardware design, but it can be used to describe the logical execution of the hardware accurately.

A computer description can be split into three sections:

- i) The memory state, which describes the memory associated with data and instructions.

- ii) The processor state, or set of registers which maintain the processor state during an instruction cycle;
- iii) The instruction cycle, which is the main procedure and which includes both the fetch and execute phases.

Instruction set processor specifications (ISPS) is used, then to describe both the interface and behaviour of the hardware units; the interface comprises the memory and register structures, and the behaviour comprises the procedures which specify the sequence of control and data operations.

1.8 **SCOPE AND LIMITATION FOR THE STUDY**

The scopes of computerized federal character principles are very vast, but the coverage of this study is limited to the computerization of federal character principles. The scope covers the analysis of staff nominal rolls of the federal government establishment. This exposes the compliance level and a way out to correct the in- balancing in the recruitment, promotion in the federal civil service. The scope does not go beyond the recruitment and promotion exercises because other mandate given to the Commission based on this principle for the distribution of social amenities within the country are yet to take off.

CHAPTER TWO

0 LITERATURE REVIEW

The establishment of the Federal Character Commission by Decree No. 34 of 1996 is unavoidably linked to the social, political and economic development of the country. The diverse cultural and ethnic groups that make up Nigeria of today are held together by past political compromises and present hope for out continuous unity.

Nigeria is made up of about one hundred and twenty million people, thirty-six states and a Federal Capital Territory and having two hundred and fifty ethnic groups that speak over four hundred different languages. Since after the 1914 amalgamation it has become very clear of the dominant position of the three largest ethnic groups – the Igbo, the Hausa and the Yoruba.

Before 1960 all manner of deliberations leading to the attainment of independence focused on the cultural and ethnic mix of Nigeria and this justified the choice of a federal system of governance. It became clear that within such a structure words such as “equity” and “fairness” would reign supreme. Hence, the allocation of seats both at the parliament and House of Representatives were executed with the sole objective of assuring that indigenes of particular regions were fairly and equitably represented at the

legislature. Even the military adopted a kind of quota system in their recruitment exercises.

The cries from all groups and sections of Nigeria against perceived injustices in all aspects of the public private, political and economic activities in the country heralded the unflinching quest for a lasting constitutional guard. The acceptance of this fact led to discussions of such ideals in the consequent constitutional conferences beginning in 1975.

Accordingly, the Constitution Drafting Committee (CDC) thus defined the phrase "Federal Character" as:

The desire of the people of Nigeria to promote national unity, foster national loyalty and give every citizen of Nigerian a sense of belonging, notwithstanding the diversities of ethnic origin, culture, language, state of origin or religion which may exist.

Further, the Head of State charged the CDA to ensure the inclusion in the proposed constitution of:

"An executive system of government in which –

[a] The President and the Vice President are elected with clearly defined powers and are accountable to the people with a legal provision

to ensure that they are brought into office in such a manner as to reflect the Federal Character of the Country;

[b] The choice of members of the cabinet should also be such as would reflect Federal character of the Country.

The CDC on its own and in line with the philosophical justifications for this constitutional guard recommended for inclusion the following:

[a] The composition of the Federal Government or any of its agencies and the conduct of their affairs shall be carried out in such a manner as to reflect the Federal Character of Nigeria and the need to promote national unity and command national loyalty. Accordingly, the predominance in that Government or any of its agencies of persons from a few states or from a few ethnic or other sectional groups shall be avoided.

[b] The composition of the Government of a state, a Local Government Council or any of the agencies of such Government or Council and the conduct of the affairs of the Government or council of such agencies shall be carried out in such a manner as to recognize the diversity of the people within its area of authority and the need to promote a sense of belonging and loyalty among all the people of the federation.

FUNCTIONS AND POWERS OF THE COMMISSION

The Federal Character Commission Establishment Decree No. 34 of 1996 provides for its functions and powers in part 1, sections 4 and 5 respectively.

1.1 Functions

Section 4 [1] the functions of the Commission shall be

(a) To work out an equitable formula, subject to approval of the Head of State, commander-in-Chief of the Armed forces, for the distribution of all cadres of posts in the civil and the public services of the Federation and of the states, bodies corporate owned by the federal or state Government and extral Ministerial Department and parastatals of the Federation and states;

[b] To promote, monitor and enforce compliance with the principles of proportional sharing of all bureaucratic, economic, media and political posts at all levels of government;

[c] To take such legal measures including the prosecution of the heads or staff of any ministry, Extra-Ministerial Department or agency which fails to comply with any Federal Character Principle or formulae prescribed or adopted by the Commission.

[d] To ensure that all ministries and other bodies affected by this Decree have a clear criteria indicating conditions to be fulfilled and comprehensive guidelines on the procedure for:-

- i) Determining, eligibility and the procedure for employment in the public sectors of the economy.
- ii) The provision of social services, goods and socio economic amenities in Nigeria.

2.1.2 Powers

The Commission shall have power to:-

- (a) Formulate and provide guidelines for Government agencies and other employers'
- (b) Monitor compliance with the guidelines and formulae
- (c) Enforce compliance with the guidelines and formulae in areas of the provision of employment opportunities
- (d) Demand and receive returns on employment and socio-economic indices from any enterprise or body corporate and penalize any enterprise which does not comply with the request from the Commission.

- (e) Undertake the recruitment and training of staff of government agencies or departments where desirable.
- (f) Institute investigation into any matter relating to any institution or organisation which is subject to the provisions of this Decree.
- (g) The Commission shall have power to take such legal action including the prosecution of any person whether corporate or unincorporated who being obliged to comply with provisions of this Decree, fails to do so.

GUIDING PRINCIPLES AND FORMULAE FOR EMPLOYMENT IN THE PUBLIC SERVICES

- i) Each State of the Federation and the Federal Capital territory shall be equitably represented in all national institutions and in Public enterprises and organizations.
- ii) The best and most competent persons are recruited from each state of the Federation to fill positions reserved for the indigenes of that state or the federal capital territory.
- iii) Once a candidate has attained the necessary minimum requirement for appointment to a position, he shall qualify to fill a relevant vacancy reserved for indigenes of his state or the Federal Capital Territory.

- iv) Where the number of positions available cannot go round the states of the Federation or the Federal Capital Territory, the distribution shall be on Zonal basis but in the case where two positions are available, the positions shall be shared between the northern zones and the southern zones.
- v) As far as practicable the appointment to the various categories of political offices shall be done on the basis of equitable representation of the states of the Federation and the Federal Capital Territory or zones as appropriate using the relevant formula while the distribution of offices to the states and the Federal Capital Territory within a zone shall comply with the formula applicable to the zone

The political offices concerned include:-

- a) Ministers of Cabinet rank;
- b) Ministers of State
- c) Special Advisers to the Head of State, Commander-in-Chief of the Armed forces of Government.
- d) Non-Career heads of Nigeria diplomatic missions
- e) Chairmen and members of statutory federal agencies

THE FORMULAE

EQUALITY OF STATE should apply in the distribution of national positions of responsibility and amenities. However, in human terms, what is equal is not necessarily equitable and vice versa. In any case, it would be impracticable to apply the principle of equality in every case because most things are simply not reducible to figures or other forms of qualification. Therefore, the emphasis of the Federal Character Commission should be on equity and fairness.

2.3.1 **The Percentage Range**

The commission has decided to adopt the lower and upper limit which shall apply in the cases listed hereunder:-

a) *36 states and Abuja.*

The lower limit is 2.5% and the upper limit is 3%. The indigenes of any state shall not constitute less than 2.5% or more than 3% of the total positions available including junior staff as Head Offices.

b) *The Six Geo-political Zones.*

Where the number of positions is smaller than the number of states, Zonal distribution shall apply using a range with the lower limit of 15% and upper limit of 18%. The indigenes of any zone shall not constitute less than 15% or more than 18% of the total positions in respect of the same categories of staff. In (a) above.

The component of six geopolitical zones:-

S/n	Zones	Component States
1)	North Central	Benue, Kwara, Kogi, Nassarawa, Niger, Plateau and the Federal Capital Territory.
2)	North East	Adamawa, Bauchi, Borno, Gombe, Taraba and Yobe.
3)	North West	Jigawa, Kaduna, Kano, Kastina, Kebbi, Sokoto and Zamfara.
4)	South East	Abia, Anambra, Ebonyi, Enugu and Imo
5)	South South	Akwa Ibom, Bayelsa, Cross-River, Delta, Edo and Rivers.
6)	South West	Ekiti, Lagos, Ogun, Ondo, Osun and Oyo.

The Federal Character Commission requires returns for distribution of post on employment as at 1st July each year giving the following indices:-

At Federal Level –

a. Name in Full

- b. State of Origin
- c. Local Government Area
- d. Sex
- e. Date of Birth
- f. Station of Deployment
- g. Date of first appointment
- h. Date of present appointment
- i. Grade/Rank
- j. Salary grade level/scale

All these indices are required to enable the Commission to analyse and have the staff disposition of any establishment for the purpose of implementing, enforcing and monitoring Federal character Principles.

The officer's in-charge of data collection would write letters demanding for the submission of these returns at least two months before the reference date, i.e., 1st July each year. Submission are always forwarded to Commissions' office either by mail or in persons.

It is the duty of the receiving officer to quickly go through to ensure that there is no missing information.

An officer who does this aspect of data processing should have basic knowledge of mathematics, statistics and related subjects to avoid wrong computation. There is a sheet called summary sheet which contains the staff distribution by area of origin and by grade level. The sheet required to show the staff distribution against the area of origin and grade level. The row total is the summation of all the grade levels (01 – consolidated) against each area of origin while the column total is the summation of all those on that grade level for all the areas of origin including non indigenes of the area. The row and column total must for all the areas be the same. The percentage of each area of origin is the total number of staff of that area divided by the overall number of staff of the establishment multiplied by hundred, this indicates what each area of origin constitutes in terms of percentage.

The ideal group, approved by the Commission based on its prescribed formulae that indigene of an area should not be less than or more than the lower and upper limits of the percentages. The idea here is to show the over-represented areas above the critical group and the under-represented areas below it. If the principles of Federal Character are implemented adequately over a period of

time these group will all be shrinking so that the critical group will be expanding until the anomalies are redressed.

At Federal level, the lower/upper limit is 2.5% - 3%, in order to respond adequately and in line with principles of Federal Character, the total number to be recruited is multiplied by the lower/upper limit prescribed by the Commission. This is to determine (a limit) range beyond which the indigenes of a particular area should not be lesser or greater than. For instance, if the number to be employed is more than the numerical number of the area) the indigenes to be employed to the Federal level should not be less than 2.5% multiplied by the total number and not more than 3% multiplied by total number for lower/upper limits respectively. Whereas, if the number is not up to the total number of states in the Federation then the Zonal range is used which is 15% - 18%. These are multiplied by the number to be employed to get the range beyond which an indigene of a particular zone should not be less than or greater than.

2.4 DEFINITION OF TERMS

Annual Returns: In the Federal Character Commission nomenclature, the term "annual returns" is also used to mean the staff nominal roll of any federal government establishment. It is the raw data with which the Commission

begins the very first step of executing its constitutional function of redressing imbalances, especially with regard to all cadres of posts in the public service. From these annual returns, the Commission extracts needed data used to analyse the degree of imbalance that exist in the manpower strength of a federal government establishment. Therefore, an annual return that contains some wrong data will eventually lead to a wrong analysis and conclusion about such an organisation.

Missing Information: - This phrase is used to show that some of the basic indices required to be contained in an annual returns are missing. Such “missing information” are so crucial that the affected annual returns cannot be used for any further analysis which could yield a result that can be termed reliable from the perspective of the Commission. Thus, an annual returns found to contain a high degree of “missing information” is rejected and the concerned organisation requested to re-submit.

Summary Sheet:- A summary sheet is an official format used to collate data extracted from annual returns or staff nominal rolls. The summary sheet vertically contains the names of the thirty-six (36) states and the FCT, plus a column for “non-Nigerians” at the Federal level and “non-indigenes” at both the state and Local Government levels. Horizontally, it shows salary grade levels 01 – 17 and consolidated salary grades, also shows the percentage

representation of each state vis-à-vis the total staff strength of the organisation being analysed.

Consolidated Statistics: This terminology is used to denote the cumulative totals of several organizations. Generally, the Federal Character Commission deals with two broad categories of federal establishments, i.e. Federal State Civil Service and the Parastatals – Agencies, Commissions, boards, etc. of the Federal/State governments at the federal and state levels respectively. For instance, at the Federal level and with the Federal Civil Service, Consolidated Statistics denotes vertically the total number of all the staff from all Federal Ministries on a particular salary grade level.

Consolidated Salary Grade: This is a term used to refer to public servants whose salaries extends beyond the public service structure. These usually include the political office holders and permanent secretaries or its equivalent.

Indigenes: As indigene of a state shall be a person who is an indigene of one of the local governments in that state. Provided that no person shall lay claim to more than one state or to a state and the Federal Capital Territory. A married woman shall continue to lay claim to her state of origin for the purpose of implementation of the Federal Character Formulae rather than state of origin of their spouses.

2.5 MANUAL CALCULATION PROCEDURE FOR FEDERAL CHARACTER PRINCIPLE

Percentage Range for Indigenes of any State

% Range	Remarks
4.0% - above	Grossly over represented
3.1% - 3.9%	Over represented
2.5% - 3%	Normal represented
1.5% - 2.4%	Under represented
Less than 1.5%	Grossly under represented

Percentage Range for Indigenes of any Zones

% Range	Remarks
20.0% - above	Grossly over represented
18.1% - 19.9%	Over represented
15.0% - 18.0%	Normal represented
13.0% - 14.9%	Under represented
Less than 13.0%	Grossly under represented

The manual computation of the federal character principal, require the following entering:- the name of the state, the name of the geopolitical zone, establishment, total workforce for each state on different grade level.

FOR STATES.

Example

Establishment:- Federal Civil Service

ABIA STATE:

Total work force in the establishment = 189,751 work force from Abia State – 6,127. Percentage = $\frac{6127}{189751} \times 100 = 3.2\%$

189751

% Range	Remarks
4.0% - above	Grossly over represented
3.1% - 3.9%	Over represented
2.5% - 3%	Normal represented
1.5% - 2.4%	Under represented
Less than 1.5%	Grossly under represented

Since the indigenes from Abia State are 3.2% which is above the critical group, the remark is over represented. The same way, all other state for the same establishment will be computed.

Example - Establishment:- Federal Civil Service

NIGER STATE:

NORTH CENTRAL

Total work force in the zone – 25,812

Work force from Niger State = 3,324

$$\text{Percentage} = \frac{3327}{25,812} \times 100 = 12.9\%$$

Since the indigenes from Niger State in North Central are 12.9% which is below the critical group, the remark is under represented.

So therefore, within the zone (North Central) should be given a preference in case of future employment. The same way, all other state from the same zone in the same establishment will be computed.

CHAPTER THREE

3.0 COMPUTER SOFTWARE

There are two parts to an electronic digital computer system Hardware and Software. The hardware are the physical component and devices which makes up the computer system. When one enters a computer room all that is seen is hardware.

Software are basically programs. Programs simply put consist of sequence of instructions needed to be performed to accomplish a task. It is the software that enables the hardware to be put into effective use. It has been sometimes said that computer without a program is an "Electronic Idiot" because it can do nothing constructive or profitable".

Three types of software are used in computer systems software, utility software and application software.

3.1 SYSTEM SOFTWARE

These are programs written usually by computer manufactures. They contribute to the effective control and performance of the computer system.

They provide several advantages and conveniences for programming and computer users in general. Examples of system software (PROGRAMS) include operating system, and language translators.

Operating System: At this level, it has become worthwhile to give a brief definition of an operating system. An operating system is a set of programs that introduces program(s) to a computer initiates and controls the execution of the program(s) and schedules all the resources and services they require, such as printer, disk storage space and memory. It acts as an interface between the user of the computer and the computer hardware. The operating system is made up of a general library of programs that can be tailored to accommodate a variety of applications on a wide range of hardware configurations, each installation selects the portions that it needs through a system generating process (SYSGEW) adds its own procedures and update its procedures as the needs change. System programmers perform all these tasks. Rightly operating system can be defined as a suit of programs that takes over the operation of the computer learning the operator with minimum intervention of the operation of the computer. This means that the operating system serve as an interface between the computer and the user so that the user can tell the system what he wants it to do. Establishing communication between computer and user is not enough. It has to grow with building an additional interface by which the system can interact with the user. This entails provision of a language for communication. The nature of the language depends largely on the type of operating system concerned.

2 LANGUAGE TRANSLATORS:

Computers only have the ability to understand machine language, and all early programs were written in machine language consisting of usually numbers only, machine language was different for each machine or computer, next assembler language was developed. A translating program is needed to convert a program in assembler to machine language so it can be executed on a particular computer system.

This system software program is called an ASSEMBLER in a likewise fashion, all high-level languages and fourth generation languages need to be converted into machine language as well. The language translator program for high-level language is called a COMPILER.

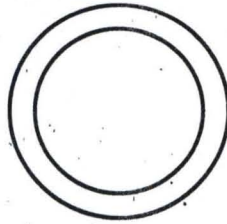
Language translators can usually be purchased. Today these language translators are available for most high-level languages for most personal computers as well. The same assembler language program, and machine language for a cyber computer.

3 APPLICATION SOFTWARE

Application software programs may be provided by the computer manufacturer or supplier but in many cases the user produces his own applications programs called USER PROGRAMS (e. g. payroll programs, stock control program

e.t.c.) A single application programs is often called a JOB. sometimes a job may be divided into smaller units called tasks. A job may comprise program + data. Most application programs can only work if used in conjunction with the appropriate systems programs'.

PROGRAM DEVELOPMENT CYCLE



It should be noted that one step does not have to be completely finished before the next step is started. For example during design materials are developed that are used in documentation.

Furthermore, many programmers develop test data during the initial steps that is used during the testing and debugging phase. In other cases, programmers perform all of these steps for one part of one program, and then this process is repeated until the entire program is written. Application and program development is a continuous process. This is called the programming life cycle (see the diagram above).

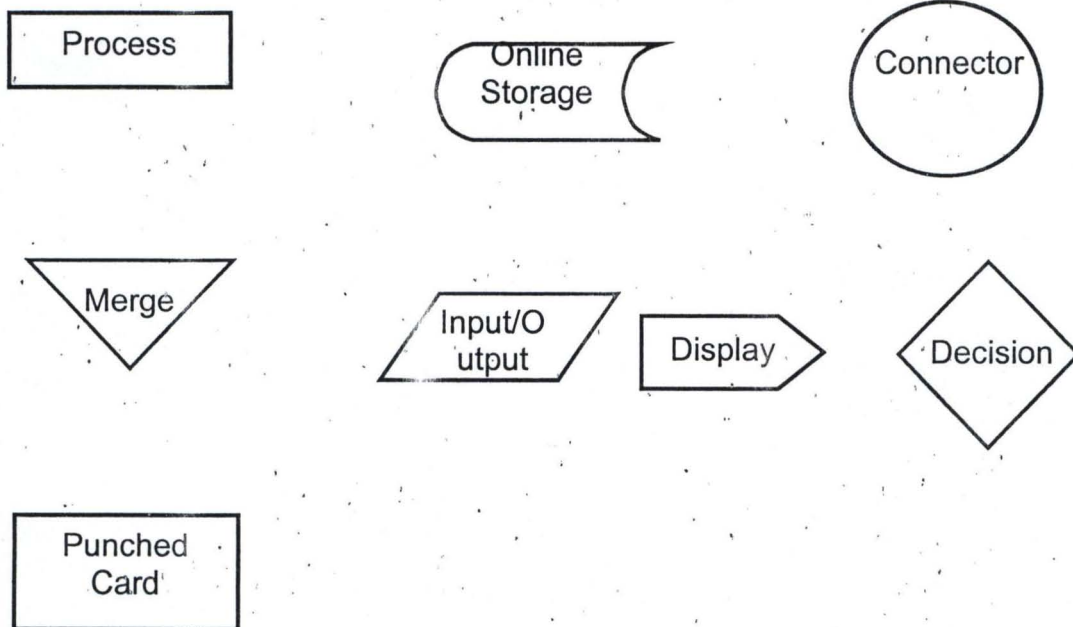
3.4 DESIGNING (FLOW CHARTING)

Like a road map, flow charts are used to reveal how to go from a starting point to the final destination and can be used to display any amount of detail. In

developing application software, a general chart to reveal the overall purpose and structure of the application is needed. This is usually called the system flow chart or application flow charts. More detailed flowcharts are also needed that reveal how each program is to be developed. This type of flowchart is called a program flowchart. Both system and program flowcharts are drawn using a special flowcharting template, which contains a set of symbols needed in developing flowcharts.

SYSTEM FLOWCHARTS

Some symbols are used for both system and program flowcharts, while other symbols, are fairly specialized. Some of the commonly used system flowcharting symbols are below:-



These system flowcharts symbols are used to reveal in a general fashion, the relationships among the input data, the programs and the desired output. For example most realistic payroll applications require multiple computer programs interacting with multiple data files. Most payroll applications are more complex and involved. For example, federal and state income tax withholding statements must be prepared for each employee.

PROGRAM FLOWCHARTS

Once the system flowcharts have been developed the next step is to design and structure the computer programs like blue prints of a building, program flowcharts reveal in detail how the program is to be built. Program flowchart symbols are used to show activities to be performed. The flowcharting that shows less detail is a Macro flowchart, while a flowchart with more detail is a micro flowchart or detailed flowchart.

Data conversion is also necessary to convert all the data files from manual computation of the guiding formula to computer files. It is hard to believe that after a computer program is written it will usually require maintenance. Yet several studies have shown that, on the average, application programmers and systems analysis personnel spend over half their time on program maintenance. A major cause of program maintenance is due to user requests, normally for program enhancements.

As a manpower uses a computer program, there is a tendency to demand additional reports and outputs from the program. In addition, organizations are always changing causing programs to change as well. Changes in data storage and organisation, program bugs and emergency program repairs are other important causes for maintenance.

The remaining program maintenance is spent on hardware changes, system software changes, enhancing program documentation, and scheduled and routine, debugging when programs are modified, it is important to make sure that program documentation is changed. Not changing documentation to be consistent with the programs invites problems and mistakes in the future.

The maintenance issue has even ignores by the data processing managers who are directly affected by it and by the users who pay dearly for it.

.6. CODING

Is the process of writing the necessary instructions in the language selected to solve the problem. Like a contractor building a house, the computer programmer follows the plan and documents developed in the previous stage.

This ensures that the software actually accomplishes the desired result. For most large applications, several programs will be required. Some data

processing departments have a library of programs and subroutines that have already been written and tested that can be used in writing the new programs.

The subroutines and programs on program coding forms before entering them into the computer system. The way the programs are actually written is very important. In general, programs should be as simple as possible without a large number of loops and branches. The programs should be modular, enabling easy implementation and modification. Another important factor is efficiency. Programs should be as fast as possible and should not require a large amount of memory.

3.7 IMPLEMENTATION AND MAINTENANCE

Implementation is the process of taking the program and placing it into operation. One of the best ways to implement a new program is called running in parallel. Under this system, the new program is run with the existing system. If there are problems with the new programs, they can be corrected while the existing is still being used. After the bugs are out, the new programs are slowly phased out. If there are several new programs to be implemented this phase in and phase out method is used for each program, one at a time.

Training as another important aspect of implementation. Both system training and users training are needed. The overall purpose of system training is to train

members of the data processing department on various technical aspect of the new programs.

8 COST AND BENEFIT ANALYSIS

The computerization of federal character principle entails purchase of computer system and other Hardware facilities, and soon.

Therefore, it require full analysis, and this guides the management on the cost implications of the proposed system, which calls for proper handling.

9 COST ANALYSIS

DEVELOPMENT COST

System Analysis and Design	350,000.00
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Software Development, Implementation	250,000.00
--------------------------------------	------------

Equipment Purchase (hardware) such as	
---------------------------------------	--

(personal computer, printer, stabilizer UPS)	200,000.00
--	------------

Installation	20,000.00
--------------	-----------

Personnel Training (4 weeks)	80,000.00
------------------------------	-----------

Cost of change over to new system	<u>100,000.00</u>
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1,000,000.00

SYSTEM OPERATING COST (FOR ONE YEAR)

Equipment Maintenance (Per Year) 50,000.00

Program Maintenance 40,000.00

Labour cost 20 operators @ 10,000.00 per month 240,000.00

Miscellaneous expenses 60,000.00

390,000.00

Total cost = Development cost + system operating cost

= 1,000,000 + 390,000.00

1,390,000.00

BENEFIT

Although the cost of implementing the new system is over one million naira, but the benefit which federal character commission will be enormous compare to it costs.

Savings from overtime (per month) = 30,000.00, for a year (360,000.00)

Operating system

- i) Reduce spending on stationeries 5,000.00 per month for a year (60,000)

Total visible benefit 420,000.00

OTHER BENEFITS

- Better planning of information
- Records not lost again
- Have efficient non compliance monitoring and management information system.
- Work flows satisfactory
- Increase the speed in implementing systems
- Increase the integrity of the data
- It makes it possible to access the compliance level of federal character principle.

Visible benefit is estimated at ~~N~~420,000.00 while the system development cost is once, which will be carried out at the first year of the project. At the proceeding years, the cost will be reducing and on the long run, it will be more benefit to be computer oriented in this type of project rather than manual. It is

difficult to place the Naira value on other benefits expected from the system, however, the value is going to be tremendous.

CHAPTER FOUR

SYSTEM DESIGN AND DEVELOPMENT

Often when information is discussed in the distract, result can be academic in the extreme (i.e. too technical). in practice however, different systems vary enormously and problems of design are dominated by practical problems, be they political, financial or psychological. i is necessary to develop a strategy that take care of all these problems on actual system is designed.

(MANAGEMENT INFORMATION SYSTEM (MIS))

Management information system is an organized collection of people, procedures, database, and devices used to provide routine information to managers and decision makers that focus of an MIS is an operational efficiency marketing, production, finance, and other functional areas are typically supported by management information systems and linked through a common database. Management information system (MIS) typically provides preplanned reports generated with data and information from the transaction processing system.

Management information system should aim and fulfill the followings;-

- * Information provided should be relevant to the individual decision maker house, the information described as data should be relevant.

- * Data that enters into the system must be validated to ensure that decisions are based with information obtained from accurate data. Accuracy also implies that the information reflects the current situation and therefore not from data that is out dated.
 - * The information must reach the man at the time it is most needed and useful.
 - * The system should be capable of being redesigned conveniently so that it responds to changes in the needs of the customer.
- The design of the MIS is very critical and should not be left to the technologists alone.
 - To managers, the MIS is the very computer-based information system that supports all of their decisions. Within the MIS, there are four subsystems that carry out specialized information roles.
 - The management support system
 - The decision support system
 - Office information system
 - Functional information systems

DATABASE

This system is database approach .A database is an organized and integrated collection of data. While Database management system is a software packages,which manage large, and complex file structures. It makes database available to a large number of users and the sharing of data can reduce the average cost of data access as well as avoiding duplicate and therefore prevent inconsistent, irreconcilable data.

THE REASONS FOR DATABASE SYSTEM

- *Improve the standards of the systems developers*
- *Increase the integrity of the data*
- *Reduce data duplication*
- *Increase speed of implementing systems*
- *Ease file access by programmers*
- *Provide a management view*
- *Increase data independence.*

ACCESS ROUTINES

are collections of programmed routines with which information are mapped to physical storage. They also enable the access to those stored information for

retrieval to the outside world for use. They are binary files which are constantly
led upon to appropriately perform either data storage or data retrieval activities.

DATABASE ADMINISTRATOR (DBA)

*An important human intermediary will be the database administrator who will
possible for the design of the overall data structure (schema) and for ensuring that
required levels of privacy, security and integrity of the database are maintained.
A could be said to be the manager of the database and, because the design of the
abase involves trade-offs, he will have to balance these conflicting requirements
d make decisions on behalf of the whole organization, rather than on behalf of any
rticular user or departmental objective.*

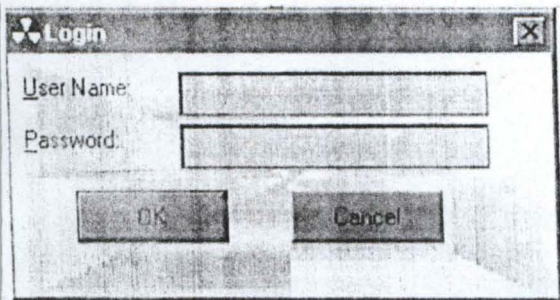
INPUT OF DATA

*Data input is the require data to be seen in the form of table and the
ormation related to the principle in study. This can be found in appendix.....*

*ustom-built federal character principle software. This software was designed using
ormation gathered during the system analysis and design phase. It is a customized
ftware because it was designed after an extensive study of federal Government
ablishment and tailored to amend abnormality associated with this system.*

s it is with all software design, it is characterized by :

- *The reflection of the manual operation in a more effective and efficient format*
- *User friendliness-it is easy to operate and manipulate the system to meet the design objective*
- *Reliability-designed to meet the design objectives because this system require the storage.*

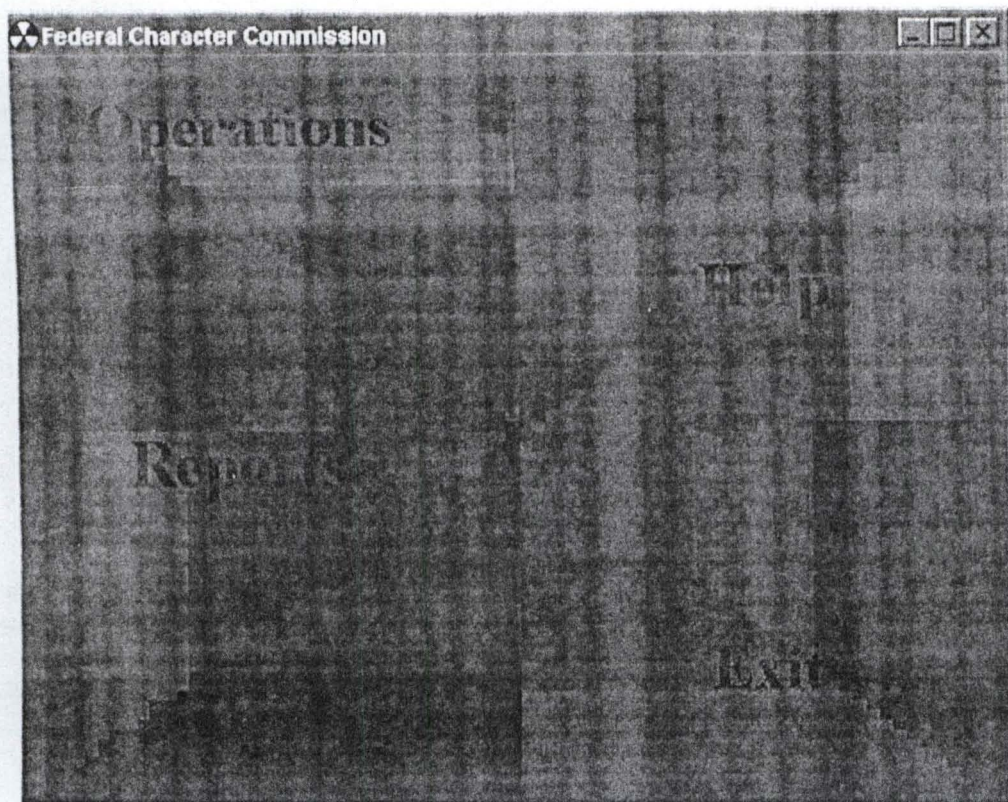


Login

User Name:

Password:


OK Cancel



Calculation for Zones

Establishment:

State


Zones 

Total Work force in zone

Work force in State

Percentage

Remark



Calculation for Zones

Establishment:

MINISTRY OF WORKS

State

NIGER

Zones

North Central

Total Work force in
zone

12000

Work force in State

1000

Percentage

8.33333333333333

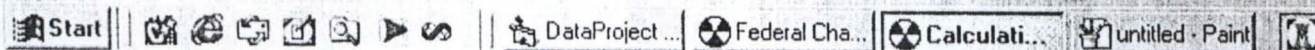
Remark

Grossly Underrepresented

New

Save

Cancel



CHAPTER FIVE

CONCLUSION

Federal Character Commission is mandated to carry out the federal character principle. Though the mandate is in two phases, one is on employment and promotion of the federal government establishment, while the second one is the distribution of social amenities within the six geo-political zones in the Country. The implementation of the second mandate i.e. distribution of social amenities is yet to take off.

The Federal Character Commission is very popular among the people of federal Republic of Nigeria because of so many problems, which I will enumerate here.

The first of all is the slow working pace in the Commission due to the manual ways of extracting data from the submitted nominal rolls by the Federal Government establishment. The work is cumbersome and it takes up to two years to extract and analyze a year nominal roll. So this is unable the Commission to monitor the compliance level effectively and ability to correct the anomalies in the recruitment and promotion in civil service.

With the problem enumerated here, there is no doubt that application of computerize system should be embraced and live up to the challenged of

technological advancement. It is user friendly that selects the task to be carried out such as

- Data Entry
- Viewing
- Search
- Compliance level
- State of representation

The software enables the user to view or screen the States that are over-represented, under-represented and over the years the organization that shows high level of compliance or low level of compliance.

The System is designed to provide information at request without going through any manual files without any delaying of lost of files.

The implementation of the proposed system is expected to assist the Commission to:

- know the state of operation of the principle in each organization at a glance

- Have efficient monitoring and management information system, incorporated in to the system.
- Publish the consolidated report annually
- Identify the geo-political zones that are lacking behind for future planning.

This is the age of information technology. The tools used in this study is a well designed and reliable system fashioned after extensive study of an existing manual system to remove all bottlenecks associated with it as illustrated in this project work. The relevant of Federal Character Commission in Nigeria is not over emphasized but need a boost and a right step in the right direction.

5.1 RECOMMENDATION

The work design of this project is tested and seems effective and efficient. The recommendations are as follows:

- Maintenance of the hardware system should be institutionalized in order to guide against system failure
- Training of operational staff should be done adequately as this will dictate the success or failure of the system.
- Networking the system will enhance the efficient

All this can be achieved through dedication and commitment to really address the misbalancing or lopsidedness in the employment and promotion in the Federal Government Establishment.

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Option Explicit

Public LoginSucceeded As Boolean

Private Sub cmdCancel_Click()

'set the global var to false

'to denote a failed login

LoginSucceeded = False

End

End Sub

Private Sub cmdOK_Click()

'check for correct password

If txtPassword = "password" And txtUserName = "admin" Then

'place code to here to pass the

'success to the calling sub

'setting a global var is the easiest

LoginSucceeded = True

Me.Hide

frmDataEnv.Show

Else

MsgBox "Invalid Password, try again!", , "Login"

txtPassword.SetFocus

SendKeys "{Home}+{End}"

End If

End Sub

Private Sub Label1_Click()

Form1.Show

End Sub

Private Sub Label3_Click()

DataReport1.Show

End Sub

Private Sub Label4_Click()

End

End Sub

Private Sub Command1_Click()

Text1.Text = ""

Text2.Text = ""

Text3.Text = ""

Text4.Text = ""

Label7.Caption = ""

Label8.Caption = ""

End Sub

```
Private Sub Command2_Click()  
Label7.Caption = (Val(Text4.Text) / Val(Text3.Text)) * 100  
If Label7.Caption >= 20# Then  
Label8.Caption = "Grossly Overrepresented"  
ElseIf Label7.Caption < 19.9 And Label7.Caption > 18.1 Then  
Label8.Caption = "Overrepresented"  
ElseIf Label7.Caption < 18# And Label7.Caption > 15# Then  
Label8.Caption = "Normal Represented"  
ElseIf Label7.Caption < 14.9 And Label7.Caption > 13# Then  
Label8.Caption = "Under Represented"  
ElseIf Label7.Caption < 13# Then  
Label8.Caption = "Grossly Underrepresented"  
End If  
With Data1.Recordset  
.AddNew  
!estab = Text1.Text  
!State = Text2.Text  
!zone = Combo1.Text  
!tot = Text3.Text  
!work = Text4.Text  
!Percent = Label7.Caption  
.Update  
End With  
End Sub
```

```
Private Sub Command3_Click()  
Me.Hide  
End Sub
```

```
Private Sub Form_Load()  
With Data1  
.DatabaseName = App.Path & "\Fedchar"  
.RecordSource = "compute"  
End With  
Combo1.AddItem "North Central"  
Combo1.AddItem "North East"  
Combo1.AddItem "North West"  
Combo1.AddItem "South South"  
Combo1.AddItem "South East"  
Combo1.AddItem "South West"  
End Sub
```