COMPUTERISED PERSONNEL MANAGEMENT INFORMATION SYSTEM A CASE STUDY OF INDUSTRIAL DEVELOPMENT CENTRE

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APPROVAL SHEET

This project has been examined and found acceptable in partial fulfilment of the requirements for the Post Graduate Diploma in Computer Science of the Federal University of Technology, Minna.

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DEDICATION

This project is dedicated to God, the Father Almighty and to my wife, Mrs.

Chinwe Akanya for her support and understanding during the period of this study.

My love, your material contributions are appreciated by me.

ACKNOWLEDGEMENT

With great reverence and humility, I give thanks to God, the Father Almighty whose grace and provisions led to the good finishing of this project work. Lord God, by your faithfulness and steadfast love, you provided me with all the things, finances, courage, wisdom and understanding that I needed to enable me finish this programme. In summary, this course to me is a divinely granted benevolence.

I wish to place on record my sincere gratitude and appreciation to my supervisor, the Head of Department of Mathematics/Computer Science, Prof. K. R. Adeboye. As a matter of sincerity, he took me on as an elementary scholar hence he put in lots of efforts to see to it that this project has a good finish. Thank you sir, for all the efforts.

I also wish to appreciate the unrelenting efforts and the assistance of the Course Coordinator, Prince R. Badmus and all my lecturers in the department. Gentlemen, your advices contributed in no small measure to make this project a success. I pray that the Almighty God would reward you all; (Amen).

Finally, I would not want to forget to mention the co-operation and the moral support I received from Mr. A. O. Adetayo, the state co-ordinator of Industrial Development Centre, Minna who was my Head of Department at the time of this programme. To my colleagues in the office, I say thank you for all your support. May God from whom all blessings come, bless you all; (Amen).

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ABSTRACT

This project focusses on the computerisation of personnel records of the Industrial Development Centres in Nigeria. Its main thrust is to compare the present manual system with the computerised system of staff records in large organisation like the Industrial Development Centres (IDCs).

The new design demonstrates adequate advantages in collecting, storing, analysing and disseminating of informations on prospective serving, dismissed and retired employees of the IDCs.

The system is viable, reliable and adequate to the IDCs situation for good personnel records which is important for management decisions.

CHAPTER ONE

1.0   GENERAL PREAMBLE

1.1   INTRODUCTION

Various administrations in Nigeria recognized the need for a virile and dynamic industrial sector as a solid foundation for the country's economic growth and development. Towards this end, the country adopted a policy which was directed at import substitution and in the bid, large scale industries were developed which were later found to be capital intensive. The capital equipment and the technical manpower needs of the large scale industrial sector have continued to be largely imported and this constitutes a drain on the country's foreign exchange.

The large scale industries arrangement also gave rise to increased unemployment. Because the sector was capital intensive, less labour was used and this created a social problem for the government. In a bold attempt to redress the weaknesses of the large scale industries in the industrial development of the country, government sought to promote and develop the small and medium scale enterprises strategy for self-reliance. SMEs have the potential to take Nigeria to the desired heights in industrial development. This is because it requires low capital utilization and is adaptable to local technology. It is also known to be labour intensive hence it is capable of creating more employment opportunities for a large segment of the population. Its mode of operations are simple and it can be established in the remote

areas of the country to utilize the abundant raw material resources available in the country.

Consequently, policy trusts and operational modalities were enunciated to promote SMEs; these include institutional frame works to encourage the developments and promotions of these strategies. In Nigeria, as a part of the strategy for fostering the enabling environment for the development and growth of SMEs, the government established Industrial Development Centres (IDCs) under the direct supervision of the Fed of the Federal Ministry of Industry (FMI) with the guiding philosophy of primarily providing grass root support for the successful development of SMEs in the country.

The Industrial Development Centre (IDC) set up is regarded as a unique institution which combines the features and roles of a consultancy outfit with Extension Services Schedule, a Training Schedule and a Technology Development/Adaptation Centre. Therefore, the establishment of the IDCs was in the height of the recognition by government of the need to have institutions with exclusive responsibility for promoting the rapid development of the small and medium scale industrial sub-sector and providing the much needed back-up support to foster their growth and survival.

1.2   INDUSTRIAL DEVELOPMENT CENTRES (IDCs)

IDC is an institutional framework established by government to actively support by way of promotion, research and development of the Small and Medium

Enterprises (SMEs) in Nigeria. The IDCs were created to ensure that SMEs not ordinarily in a position to employ highly skilled manpower such as managers, engineers and technical staff are assisted to solve their operational problems. These services are rendered to the sector free of charge in a deliberate effort to promote and develop the small and medium scale industrial sector for all its benefits.

The staff of the IDCs are civil servants and they are directly under the supervision of the Federal Ministry of Industry. The IDCs are established and owned by the Federal Government.

The picture of the IDCs could be clearer under the objectives of IDCs which is a sub-title under this study. The concept of IDC is quiet different from Industrial Estate which is discussed below.

INDUSTRIAL ESTATES

An Industrial Estate is a deliberate localization of industries in a defined area. It is a system whereby the authority i.e. the Local, State, or Federal Government provided the defined area with the necessary infrastructural facilities like buildings, electricity, roads, water, communication facilities, etc.

In the above circumstance, the entrepreneurs and operators of the businesses are allocated spaces for their operations and they pay rents to the authorities for the facilities. They are mere tenants on the Estate. The spaces could be land spaces or office accommodations.

The types of estates differ from place to place. The issue is that it makes for the concentration of numerous enterprises within a defined area. In Minna for

instance, the Industrial Estate is along the Lagos/Bida road. The Ikeja Industrial Estate falls under this category.

1.3 HISTORICAL BACKGROUND OF INDUSTRIAL DEVELOPMENT CENTRE (IDC)

The foremost Industrial Development Centre (IDC) to be established in Nigeria is the Industrial Development Centre at Owerri. The Centre was set up in 1962 by the defunct Eastern Nigeria Regional Government. The main aim of the government was to promote industrial activities in Owerri and its environs in particular and in the Eastern Nigeria in general. Its establishment was facilitated by the Technical assistance provided by the United States Agency for International Development (USAID), the government of Netherlands, and the Ford Foundation.

The second Industrial Development Centre established in Nigeria is the IDC, Zaria which was established in close succession to that of Owerri. Established in 1963 by the defunct Northern Regional Government with technical assistance from the Chinese government. It was expected that the IDC, Zaria would use the work force to collect and analyse all data from near and wide to promote the industrial development of the defunct Northern Region.

The IDCs at Owerri and Zaria therefore constitute the first generation of IDCs in Nigeria. However, in 1975, the two IDCs which were originally established by the various regional governments were taken over by the Federal Government of Nigeria. In the following year 1976, the Federal government established the Industrial

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Development Centre (IDC) Oshogbo as the first wholly Federal government institute, though with Technical Assistance from the United Nations Industrial Development Organization (UNIDO) and the United Nations Development Programme (UNDP).

After the establishments of the first generation IDCs, there arose the need to equip and expand them to enable them to cope with the objectives for which they were established. The equipment and expansion of the IDCs began in the Third National Development Plan Period apparently in recognition of the concrete achievements of the first generation IDCs. It was also a deliberate policy by the government in recognising the need to have an institution with exclusive responsibility of facilitating the rapid development of the small and medium scale industries sub-sector. It was also to serve as the much needed back-up to government plans for the encouragement of entrepreneurs to go into the manufacturing and service industries sub-sector.

During the Third National Development Plan Period, six more Industrial Development Centres were established at Uyo, Benin City, Sokoto, Maiduguri, Kano and Abeokuta. The European Economic Commission (EEC) assisted with the establishment of the IDCs of Sokoto and Maiduguri. It should however, be noted, that during this plan period, only the first four were made operational and only in a very perfunctory manner. Later, during the Fourth Development Plan Period, six additional IDCs were established namely: Akure, Bauchi, Port Harcourt, Jos, Minna and Ikorodu. By the end of 1987, three more IDCs have been established at Eungu, Yola and Makurdi.

Today, there are twenty-one (21) functional IDCs, made up of four zonal and 17 satellite centres. In addition, there are 10 IDC Liaison Offices in states that do not have either a zonal or a satellite centre. The zonal centres are located at Bauchi, Oshogbo, Owerri and Zaria and are designed to have seven (7) numbers training and adaptation workshops each. The satellite centres have three-in-one workshops each, and are located at Abeokuta, Akure, Benin City, Enugu, Ilorin, Ikorodu, Jos, Kano, Kastina, Maiduguri, Makurdi, Minna, Ogoja, Port Harcourt, Sokoto, Uyo and Yola.

1.4 OBJECTIVES OF THE INDUSTRIAL DEVELOPMENT CENTRES (IDCs)

The vision and dream of the Federal Government regarding the responsibilities and functions of the Industrial Development Centres (IDCs) at the inception of the IDC system are stated as follows:

To improve the efficiency and productivity of the Small Scale Industries (SSIs) in the country by providing continuous training programmes to up-grade entrepreneurs' knowledge and skills as well as investigating and solving problems of the sub-sector.

To foster the development of new SSIs according to priority requirements and maintaining individual State Sectors at their optimum size by assisting the states of the country in implementing the Small Scale Industries Credit Scheme.

To develop a cadre of fully trained government officers for IDCs and other bodies capable of carrying out consultancy and extension activities, surveys and market studies, loan appraisals and feasibility studies.

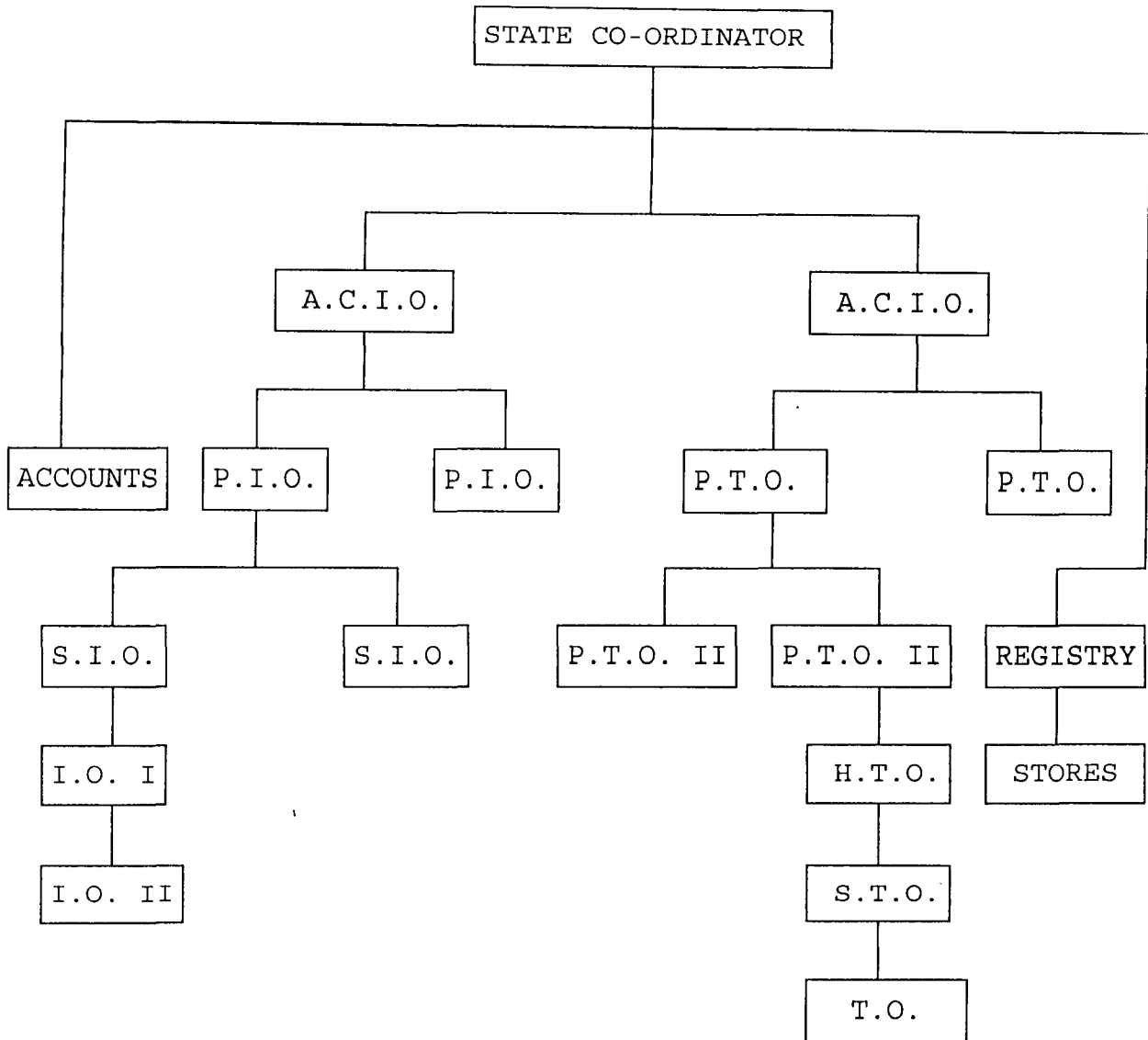To act as a catalyst in creating linkages between large, medium and small scale industries in order to establish supply contracts to large enterprises for SSIs.

To provide a comprehensive service to the SSI industrial estates to be established.

To assist where required in the establishment of other IDCs in the country.

To develop a register of small and medium scale enterprises in the country.

1.5 ORGANISATIONAL STRUCTURE OF INDUSTRIAL DEVELOPMENT CENTRES

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A.C.I.O.	Assistant Chief Industrial Officer
P.I.O.	Principal Industries Officer
A.C.T.O.	Assistant Chief Technical Officer
P.T.O.	Principal Technical Officer
S.I.O.	Senior Industrial Officer
H.T.O.	Higher Technical Officer
I.O.	Industrial Officer
S.T.O.	Senior Technical Officer
T.O.	Technical Officer.

1.6   OBJECTIVES OF THE STUDY

The main objectives of this study is to provide an indepth analysis and the

a computerised personnel management in Industrial Development Centres. Specifically

its main objectives are as follows:-

To study and analyse the activities of the personnel department of the

organisation

To identify the problems associated with the existing personnel procedure

in IDC and provide the need for a computerised operation in the

organisation.

To provide a logical and physical design of a computerised personnel

system that will suit the organisation

To describe the various operations of the proposed computerised system and

its mode of operations.

To eliminate delays and time wastage on inquiry about personnel records

of the organisation.

Most importantly, the study is inspired by the strong conviction that the

achievement of a good computerised personnel system in IDC will lead to the success of

the organisation.

1.7   METHODOLOGY OF THE STUDY

The tools that would be used in gathering information are: Observation, Record

Sampling and Interviews.

The observation method is to study the current procedures in order to know what is presently happening. The record sampling method involves inspecting the records on ground. While the interviews have to do with interviewing the potential users of the proposed system on area of improvement.

CHAPTER TWO

2.0   REVIEWING THE CONCEPT OF PERSONNEL MANAGEMENT

2.1   DEFINITION OF PERSONNEL MANAGEMENT

In any organisation, people are the most important resource among all the resources used in it. This is because they are needed to activate the other resources. People are the main instruments for the attainment of the objectives of the organisation. In this regard, all activities of any enterprise are initiated and determined by the persons that make up that institution. Plants, offices, computers, automated equipment and others are unproductive except for human effort and direction. Every aspect of a firms activities is determined by the competence, motivation, and general effectiveness of the human organisation. Of all the tasks of management, managing the human component is the central and most important task, because all others depend upon how well it is done.

A researcher, Frederick Harbison in his 'Human Resources as the Wealth of Nation' states that "Human Resources, not capital, constitute the ultimate basis for the wealth of nation. Capital and material resources are factors of production. Human beings are the active agents who accumulate capital, exploits natural resources, build social, economic and political organisations and carry forward national development. Clearly, a country which is unable to develop skills and knowledge of its people and utilize them effectively in the national economy will be unable to develop anything else".

The implication of the above assertions is that all the other resources are passive and need to be employed by human beings to become productive.

Personnel management takes place within the framework of an organisation purposefully designed to achieve certain goals. One can assert that for Personnel Management to be effective, the manager has to enunciates a programme which ensures the election and training of employees for the jobs that best suit their abilities and motivating them to exert their maximum efforts for the attainment of corporate objectives.

Various definitions of Personnel Management have been advanced by different scholars. For instance, Bench D. S. sees it as the activities of recruitment and employment, manpower planning, employee training and management, organisation planning, organisation development, wage and salary administration, health and safety (at work) benefits and services, union - management relations and personnel research.

Another scholar, Armstrong M. sees it as concerned with obtaining, organising and motivating the human resources required by the enterprise with the aim of developing an organisation climate and management style which will promote effective effort and co-operation and trust between all the people working in it, and with helping the enterprise to meet its legal obligations and its social responsibilities towards its employees with regard to the conditions of work and quality of life provided for them.

However, the Institute of Personnel Management of Nigeria sees Personnel Management as a responsibility of all those who manage people as well as being a description of the work of those who are employed as specialists. It is part of management which is concerned with people at work and with their relationships within

an enterprise. It applies not only to industry and commerce, but to all fields of human endeavour.

From the above views, it could be seen that Personnel Management is simply the management of people at work and covering all areas of employer-employee relationships. It aims to achieve both efficiency and justice neither of which can be pursued successfully without the other.

It seeks to provide fair terms and conditions of employment and work satisfaction for those employed.

The Personnel Management functions can be described as follows:

i)   Setting general and specific management policy for employment relationships and establishing and maintaining a suitable organisation for leadership and co-operation.

ii)   Staffing and organisation funding, getting and holding prescribed types and numbers of workers.

iii) Aiding the self development of employees at all levels, providing opportunities for personnel development and growth as well as requisite skills and experience.

iv)   Developing and maintaining the motivation in work.

v)   Reviewing and auditing manpower and management in the organisation.

vi)   Carrying out studies designed to explain employees behaviours and thereby improve manpower management.

However, all the above functions are of prime importance in all organisation, but the larger and more complex an organisation becomes, the more complicated are problems and responsibilities of management.

2.2 FUNCTIONS OF PERSONNEL DEPARTMENT

The main functions of the personnel department are stated as follows:-

MANPOWER PLANNING

This is the process by which an organisation ensures that it has the right number of qualified people available at the right time, performing jobs that are useful to the organization. Personnel Management as a system performs this vital role which cuts across other departments of the organisation. In performing this role, the department adopts a system whereby it evaluates the existing manpower resources of the organisation and then forecasts the labour requirements. It then plans how this will help to achieve the objectives of the organisation.

TRAINING AND DEVELOPMENT

The fundamental purpose of training is to provide for the organisations manpower needs. Immediately after the recruitment and selection procedures, personnel department would focus its attention on training and development of the employees. This is always done by collecting information in the area of training through discussions with other heads of department and through other documents in the organisation. For training to be effective, we must identify the training needs. Successful training depends on the

training officer's ability to work closely with line managers in developing a programme which is relevant to the need of the employees.

RECRUITMENT AND SELECTION

This involves the selection of employees for the organisation. It is a task to be performed by the Personnel Department based on the requirement of the organisation. The personnel manager invites applications and does the screening. He also assists in interviewing candidates and issues letters of appointment after obtaining the agreement of the line manager in whose department the employee would work.

APPRAISAL SCHEMES

Appraisal schemes are means of rewarding, criticizing, encouraging and counselling within an organisation. The superior of the person appraised is meant to be both a judge and counsellor. It is therefore the task of the personnel department to device a system whereby all functionaries within an organisation could be appraised to find out if they are performing the tasks allocated to them satisfactorily.

COMPENSATION SYSTEM

How an organisation compensates its employees for work done is largely determined by the personnel department, although legislation have been passed requiring consistent treatment. Many organisations have introduced some form of job evaluation, merit or rating scales. Basic wages and salaries are now augmented by incentives

payments; profit sharing, productivity rewards, bonuses and other related schemes. Therefore, the work of personnel department is frequently to provide in negotiation with trade unions, an equitable pay and grading structure which is accepted as fair by all employees in the organisation.

WELFARE SERVICE

An organisation may provide a welfare service to its employees and departments. This could be in form of having organisation pension scheme, possibly, as a supplement to the state pension scheme. The organisation may have it as a welfare policy to pay for employees medical treatment given by a clinic. Another form is having a welfare officer who would help employees with private individual problems and worries. The purpose of a welfare service is to provide personal advice and assistance to individuals as well as encouraging a positive relationship between the individual and the organisation by providing extra security and comforts. The welfare services of an organisation will probably be administered by the personnel department.

CAREER PLANNING

Career planning is an important personnel function in which a career structure is mapped out for all officers in the organisation. Career development is a process which enables an organization to meet its current and projected manpower requirements. It promotes the growth and development of individuals in an orderly and systematic manner, taking into account the organisation's needs as well as the individual interests and

aspirations. It implies a planned system of development and career progressions of employees, which may not be within a single functional group; but may stretch across functional and organisational lines when it is felt that an employee can be developed and utilized more effectively by doing so.

INDUSTRIAL RELATIONS

In many organisations, the single time consuming task of the personnel department is industrial relations. This would involve setting up a good communication system between management and the representatives of organized labour. The personnel department should be in a position to give help and advice in negotiations. Summarily, it is the personnel manager's responsibility to recommend, and create good communication system between management and representatives of organized labour.

CONTROL AND AUDIT FUNCTIONS

Nothing is more likely to create personnel problems within an organisation than inconsistency in the treatment of employees. Personnel policies and procedures governing personnel decisions must be followed consistently by all departments. Transfers, promotion, pay rises and other personnel actions involving employees should be made on a fair, equitable, and uniform basis throughout the organisation. The department therefore has the responsibility to actively assist in the development and enforcement of policies and procedures that will help achieve these objectives. Aside from that of developing and enforcing personnel policy, the personnel department has a responsibility

to audit the performance of the various personnel functions to ensure that their intended objectives are being accomplished. The audit should determine also whether or not the benefits being achieved in the performance of the various functions are commensurate with the cost involved.

PERSONNEL RECORDS MANAGEMENT

This is regarded as the traditional function of the personnel department. It involves keeping of personnel records for effective management and prompt retrieval. This function is considered very important because a lot of data generated by the various organs could remain unco-ordinated, unprocessed, and therefore unavailable for decision making. As a result, there could be case of ghost workers who take pay or workers who continued to receive their pay long after they had left the service of the organisation. In addition, there could be some officers who have remained in the office beyond the compulsory age of retirement because of the inadequacies of personnel records management and its lack of co-ordination.

2.3 FACTORS AFFECTING PERSONNEL MANAGEMENT IN NIGERIA

One major factor affecting the personnel management in the country is the difficulties in effective management of employees and of finding adequately qualified personnel. This is in the context that over-staffing at lower levels tends to be accompanied by inefficient use of professionals and technical staff at the top.

Another organisational problem is the tendency of the personnel system itself to limit the options available to it through rules governing aspects of personnel management as they passively play the role of administering these rules rather than actively pursuing positive policies for management improvement. Feasible personnel management however, has to take both its organisational and environmental sets into consideration.

The economic state of the nation also affects personnel management. A healthy economy is a pre-requisite to a high quality of work life which embraces the satisfaction of higher order needs at work such as accomplishments, independence and growth. But these also depend on more compelling needs for physical survival and economic security as concretised in a well paid job, freedom from health and safety hazards and having some guarantee against arbitrary (economic) sanctions by the service. A healthy national economy, helps to ensure these minimal requirements.

If economic situation actually deteriorates (as is presently the case in Nigeria), there tends to occur an emigration of high level professional and technical manpower. The phenomenon is euphemistically named brain drain. The flow pattern can be internal, from the public to the private sector, or external representing a reverse flow of technological know-how abroad. The later is often referred to as the export of human capital. However, it is not clear whether remittances are substantial enough to offset the investment cost of creating and recreating such manpower. In either of its forms, brain drain has adverse effects on available personnel managers in an organisation.

The social factor also has effect on personnel management in Nigeria. With up to about 400 language groups, varying cultures, modes of production, perception of reality

and political participation, the historical and cultural heterogeneity of Nigeria is beyond debate. This underlines the importance of social factors in organisations, for example the phenomenon of correlated inter-group which defines the tendency of age, sex, ethnic group affiliation etc, to be often associated with individuals' position in the division of labour and hierarchy of authority.

2.4   THE NEED FOR COMPUTER APPLICATION

A computer is defined as any machine which can accept data in a prescribed form, process the data and supply the results of the processing in a specified format as information or as signals to control automatically some further machine or process. It has further a capability of storing data as may be required. Before computer processing can commence, it is necessary to have an input device for the purpose of transferring data into the computer's internal memory. A computer is automatic in operation in the sense that when the program and data for processing have been inputted into it, the required output is produced without manual intervention as all the program instructions are executed automatically.

Today's computer has very wide application. It is so wide that the term 'computer' is probably misleading as it suggests a machine used for computing mathematical calculations. The fact is that computer can be programmed to perform a variety of tasks that involve little or no mathematics. Just as it provides information to management for decision making, the computer gives the politicians the facts on which to base policy decision, the research worker, the details of results obtained by other in

specific fields, the architect, up-to-date information on available materials and designs,

the doctors, case histories of patients with specific symptoms, the lawyers, ｐ

the airline pilot, flight plans, and the personnel manager, all information required for:-

a)   Planing for human resources needs of an organisation.

b)   Find and hiring employees.

c)   Training and compensating staff.

d)   Retiring employees.

All these are made possible by computer application to personnel record

management.

CHAPTER THREE

3.0   SYSTEMS ANALYSIS AND DESIGN

3.1   INTRODUCTION

The systems analysis and design stage involves analysing the existing system in order to aid the designing of the proposed system. The analysis is considered important because the design of the new system is dependent on the information gathered at the analysis stage.

In recognition of the above, this chapter shall begin with the description of the existing system and its associated problems as well as the logical and physical designs of the proposed system. The logical design is considered in terms of the output format, the input format, the choice of language to be used and the description of database files needed by the system. The physical design on the other hand specifies the source programs for the achievement of the set objectives.

3.2   THE EXISTING SYSTEM

As indicated in the last chapter, IDC has an administrative unit which is vested with the responsibilities of handling staff matters in the organisation. One prominent function of the department is the creation and maintenance of staff records and information. These are contained in the file for individual employees and stored in a cabinet located in the Registry unit of the department. For any entries required or

modification necessary, the relevant file would be located and the processing performed. The employees files also serve as reference in case a vital information is re staff.

However, on several occasions, the above task is associated with problems some of which hinder the successful operation of the department. A case in point is when locating files in the cabinet or even when they are located some important records may not be found. This and some other problems make it difficult for a reliable and workable decision to be made at any point in time. It is therefore in appreciation of these problems, that a computerised mode of personnel record keeping is recommended.

3.3 THE DESIGN OF THE PROPOSED SYSTEM

The design of the proposed system is done to suit the analysis specified above. The design takes cognisance of the required input in order to generate the necessary reports as well as the relevant software which will help in carrying out the job satisfactorily.

3.4 INPUT SPECIFICATION

For computer to perform the task of data processing, data needs to be entered into the system. The input specification states the source and type of data that needs to be supplied into a system. This is considered important because if the information supplied is correct, it usually follows that the result of processing would also be right. This is in consonance with the popular saying in computer parlance that 'Garbage In Garbage Out'

(GIGO). It is in line with this that the data input of the proposed system is designed to produce a cost effective method, aimed at achieving the highest level of ac... ensuring that the input is acceptable and easily understandable to the user.

For the proposed system the data required include, name of staff, date of birth, marital status, home address, qualifications, next of kin, date of appointment, department annual salary and host of other information. All these are expected to be designed as input form in the proposed system. The computer will accept and store these information for each employee in a database for easy access, retrieval and analysis.

The basic benefit of this database arrangement is that whenever there are changes on an employee records, all that would be required is to request the computer to retrieve the relevant record for proper update.

It is note worthy that the above objectives were considered in designing the input for the proposed system which is mainly in an interactive mode. This is done with dialoguing with an online system in which the computer system prompt the user for entry. In data entry, information is coded in such a way that words, ideas or relationships are expressed by codes. This is developed in order to reduce input task, control errors, and increase speed. Therefore, with code fewer details are necessary in input without loss of information.

3.5   OUTPUT SPECIFICATION

Output refers to the results and information that are generated by a system. The output from a computer system are required primarily to communicate the result of

processing to users or other system or more importantly, to provide a permanent (hard) copy of this result for consultation. The design process of the output begins by the identification of the output the system must produce. It is as a result of this that in designing the output for the proposed system, the needs of the users were fully considered.

3.6   CHOICE OF LANGUAGE

The proposed system is designed using Database Management System (DBMS). A database can be defined as a mechanised shared and centrally controlled collection of useful information organized in a systematic and consistent manner. A database requires DBMS for its maintenance. A DBMS is a software package that helps establishments or institutions manager to:-

i)   Create and populate a database.

ii)   Retrieve data from the database

iii)   Generate report from the database

iv)   Update information in the database

v)   Organise the data in the database

vi)   Maintain integrity and consistency of data

vii)   Provide shareability of data to users.

There are various packages that are categorised under DBMS. They include dBASE, Foxbase, Informix, Paradox, Oracle and so on.

Specifically, the new system is developed in dBASE. dBASE is of different

versions such as dBASE II, dBASE III, dBASE IV and the latest version, dBASE V.

Because of accessibility, the proposed system is developed using the programming aspect

of dBASE IV.

3.7   FEATURES OF DBMS

The introduction of the fourth generation language in which DBMS falls into,

replace the development of program in a file processing environment. In this

environment, users requirements are in isolation with various application program

operating almost independently. Files and records and designed in such a way as to

satisfy individual operational needs, thus imposing organisational barriers with regard to

the data. However, in most information systems, it is desirable to have the ability to

jump over these imposed barriers and access data right across the organisation.

This led to the introduction of database environment. In database processing

environment, data are viewed as a whole irrespective of type. Furthermore, the

integration of data of different types are linked by logical relationships through a DBMS.

The prominent features of database package are as follows:-

<u>DATA INTEGRATION</u>

In a database processing environment, information from several files is co-

ordinated, accessed and operated upon as though it is in a single file. Logically the

information is centralized, while physically, the data may be located in different files

In addition, it is possible for two or more applications to share compatible data.

DATA INDEPENDENCY

One important feature of the DBMS is that it ensures data independency because application programs are isolated from the physical storage of data. This feature seeks to allow for changes in the content and organisation of physical data without re-programming the application program using it, and also to allow for modification of application program without re-organising the physical data.

ELIMINATION OF DATA REDUNDANCY

Data redundancy occurs when the same data appears in one or more files. This leads to wastage of storage space and application of efforts during data entry. One basic feature of DBMS is that it eliminates data redundancy since data are not duplicated in different files.

In addition to the above features, the security measures provided by most DBMS packages makes it relevant in the design of the proposed system. The security measures range from the application of passwords to controlling access level to files as well as a particular set of data.

3.8 DATABASE FILES DESIGN

DBMS programs keep information in files and within each file is a collection of related information. All these are contained in file known as database file. This file is organized into rows and columns with each making up a record.

The design of data file defines the descriptions of all the database files that are required for the efficient running of the system. It included the description of ... contents of files used and their structures.

The proposed computerised system in the Industrial Development Centres consists of three database files namely - MAIN.DBF, RANK.DBF, and DEPT.DBF. The content and the description of the structure of each of the files are considered below:

MAIN.DBF

This is the master file of the proposed system. It is a file that contain details of all the employees in the organisation. The structure of the file is as follows:

S/NO	FIELD NAME	FIELD DESCRIPTION	FIELD TYPE	WIDTH
1.	FN	FILE NUMBER	CHARACTER	6
2.	SNAME	SURNAME	CHARACTER	15
3.	FNAME	FIRST NAME	CHARACTER	15
4.	ONAME	OTHER NAME	CHARACTER	15
5.	DOB	DATE OF BIRTH	DATE	8
6.	POB	PLACE OF BIRTH	CHARACTER	15
7.	SEX	SEX	CHARACTER	1
8.	MSTAT	MARITAL STATUS	CHARACTER	8
9.	REL	RELIGION	CHARACTER	10
10.	NATION	NATIONALITY	CHARACTER	15
11.	STATE	STATE OF ORIGIN	CHARACTER	12

12.	LGA	LOCAL GOVT AREA	CHARACTER	15
13.	TOWN	TOWN	CHARACTER	15
14.	HADDR	HOME ADDRESS	CHARACTER	40
15.	PADDR	POSTAL ADDRESS	CHARACTER	40
16.	RADDR	RESIDENTIAL ADDRESS	CHARACTER	40
17.	DCODE	DEPARTMENTAL CODE	CHARACTER	1
18.	RCODE	RANK CODE	CHARACTER	2
19.	GL	GRADE LEVEL	CHARACTER	2
20.	DOFA	DATE OF FIRST APPT.	DATE	8
21.	TOA	TYPE OF APPOINTMENT	CHARACTER	12
22.	PWE	PREVIOUS EXPERIENCE	CHARACTER	20
23.	QUAL	QUALIFICATION	CHARACTER	25

RANK.DBF

This is a table file which contains all the available rank in Industrial Development Centre and their associated rank codes. The structure of the file is as follows:

S/NO	FIELD NAME	FIELD DESCRIPTION	FIELD TYPE	WIDTH
1.	RCODE	RANK CODE	CHARACTER	2
2.	RNAME	RANK NAMR	CHARACTER	20

DEPT.DBF

This is another table file which contains all the available departments in Indu??? Development Centre and their associated departmental codes. The structure of the file is as follows:

S/NO	FIELD NAME	FIELD DESCRIPTION	FIELD TYPE	WIDTH
1.	DCODE	DEPARTMENT CODE	CHARACTER	2
2.	DNAME	DEPARTMENT NAME	CHARACTER	20

3.9   PROGRAM SUITE SPECIFICATION

The program specification constitutes the physical construction of the proposed system. It contains the actual program instructions for the necessary processing and manipulation. The physical design of the new system is important in order to ensure that the source program produced performs all task as intended and allows modifications to be performed in an efficient manner and with a minimum destruction to the design of the system. The documentation of suit of programs is specified in Appendix II.

CHAPTER FOUR

4.0 SYSTEM IMPLEMENTATION AND APPLICATION

4.1 INTRODUCTION

This stage is the next sequel to last chapter. The system is such that after the physical system has been designed as contained in the last chapter, the stage is set to turn the design into a working system and then monitor the operation of the system in order to ensure that it is working efficiently. System implementation, therefore, is the stage of system development when the conceptual requirement of the new system and the overall objectives are to be transformed into physical reality. This is an important stage because it is the most crucial in achieving a successful new system and giving the users the confidence that the new system will work and be effective.

It is for proper analysis of the task of implementation and application that this chapter attempts to describe the hardware configuration and software required for the proper application of the newly designed system. The mode of testing used in order to ascertain that the system is working correctly is also described. In addition, for easy implementation of the newly designed system, the mode of conversion in terms of changeover method is recommended.

4.2   HARDWARE REQUIREMENT

The hardware requirement has to do with the computer configuration needed for the new system. Computer configuration is a collection of hardware which forms a complete computer system. The selection of the computer configuration is done to suit both the current and the foreseeable future needs of the organisation with respect to the volume and types of data to be processed.

However, with the newly developed system a computer with higher speed and larger storage space is required. This is expected to take care of the future need of the Industrial Development Centre. It is also necessary for the organisation to procure an Uninterrupted Power Supply (UPS), a facility to ensure consistent power supply to the computer and its environment. This is needed mainly to avoid interruption especially when the computer user is using the system.

In summary, a computer with a hard disk of a minimum of 850 MB and having a floppy drive unit is recommended. The floppy unit will provide for the transfer of the software from diskettes into the hard disk as well as making back up on floppy disk. The computer should have a speed of about 100 MHz to allow for fast processing of records and a UPS which can store power for about 45 minutes in case of power failure would also be required.

For the production of hard copy reports, a dot matrix printer of near letter quality, is required. Epson 2170 is recommended and it is expected to be used to generate reports from the newly designed system. In addition, LaserJet 6L model should also be procured for printing good quality reports.

4.3   SOFTWARE REQUIREMENT

Software can be defined as a program that directs and controls the activities of a computer. It serves as intermediary between the computer hardware and the computer users. This account for why it is believed that software enables the users to fully exploit the capabilities of a computer. The ability of this newly designed system to work on a computer is due to the requirement and ability of the software.

However, the proposed system requires the availability of some forms of software which will enhance the working of the system and other task that would be placed on the system. Specifically, it requires the installation of dBASE IV, a word-processing package and a spreadsheet package.

The dBASE is to allow for modification of the proposed system. This is possible because the system is developed using dBASE IV. Also required is a spreadsheet package. In this case, Lotus 1-2-3 can be installed because of its wide usage. It will enable the user to carry out some form of calculation and analysis.

Finally, the installation of word-processing package, WordPerfect version 6.0 specifically is to enable the computer user to create, modify and print text of documents such as a report, proposals and other forms of official letters. The use of WordPerfect for this purpose enhances the output of the reports and allow for flexibility on the contents of the documents.

4.4   SYSTEM TESTING

System testing is the stage of implementation which is aimed at ensuring that the system works accurately and efficiently before life operation of the system commences. At this stage, the logical and the physical design should be thoroughly and continually examined on paper to ensure that they will work when implemented. Therefore the system test in implementation should be a confirmation that the system is correct and an opportunity to show the user that the system works.

However, this proposed system is fully tested to confirm its reliability. Specifically a user acceptance testing is performed. This type of testing involves the users of the system in testing to confirm that the system is doing what is required to be done. The testing is done using a set of carefully selected test data which are entered into the system. The result is compared with the result obtained from the previous run and is found to be the same.

In view of this it is then concluded that the newly developed system is working accordingly.

4.5   SYSTEM CONVERSION

This has to do with file conversion, file set-up and changeover. File conversion requires changing the old (existing) system files to the format and content required by the new system. File set-up is the process of setting up the new files that would be required to work with the new system. Changeover is the full replacement of all the old procedures by the new ones.

In the proposed system, the file set-up and changeover are required while the file conversion is not needed because the old system is a manual procedure. The file set-up is required to create the database files needed for the successful operation of the system.

Changeover could be in any of these three forms:

i)   Direct changeover

ii)   Parallel changeover

iii)   Pilot changeover.

In direct changeover, the old system is completely replaced by the new system in one move. While in a parallel changeover, the process combines the new and the old systems to cross-check the result. It allows the result of the new system to be compared with the old system before acceptance by the user, thereby promoting users' confidence. And in the case of Pilot changeover, data from one or more previous periods for the whole or part of the system is run on the new system after result have been obtained from the old system and the new results are compared with the old.

Given the various forms of changeover, parallel changeover is chosen for this system. This would imply the processing of current data by both the old and the new systems. The main attraction is that the old system is kept alive and operational until the new system has been used for at least one system cycle using life data in the real operational environment of place, people, equipment and time. In addition, it gives an opportunity of comparing the results of the new system with the existing.

CHAPTER FIVE

5.0   SYSTEM DOCUMENTATION

5.1   DESCRIPTION OF THE NEW SYSTEM

The proposed system is made up of a main menu which consists of three (3) options viz: Personnel Information, Report Production and Quit. For the main menu, the system will prompt you to enter the task code of any task of interest to pick choice. The screen format of this menu is shown in figure 1 in Appendix I. Each of the three menu is described as follows:

PESONNEL INFORMATION

This option allows the users to maintain the personnel details of the organisation in terms of entering new personnel details, modifying the existing personnel details, viewing personnel details as well as erasing personnel information. At this menu another level of option appears on the screen as shown in figure 2 in the appendix.

ADD RECORDS: This is a sub-menu which will afford the users an opportunity to add new personnel data into the system. It is made up of two screens which appear on the screen one after the other. The screen formats of this are represented by figures 3 and 4 in the appendix.

MODIFY RECORDS: This procedure allows for change to be performed on the personnel details of an employee. In order to locate the record to modify, the Employee's File Number is entered and the personnel details of the employee are displayed on a

screen for changes. The screen formats for these are shown in figures 5 and 6 in the appendix.

VIEW RECORDS: This allows the user to view an existing personnel record and it is done by first entering the file number of the employee. The system then goes further to show the details of the employees which are displayed in two screens as shown on figures 7 and 8 in the appendix.

DELETE RECORD: This is similar to modify record above except that it is used to get rid of a particular record. The format is on figure 9.

EXIT: This takes the user back to the main menu.

REPORTS PRODUCTION

This option offers an opportunity to the user to print out any of the reports that is to be generated by this system. If this option is selected, the next level of options appears on the screen as shown on figure 10. There are two types of reports that can be generated viz: reports by department which shows the list of staff in a department and the report by rank which shows the list of staff by rank. These reports could be soft or hard copy.

QUIT

This menu serves as the only way of exiting from the system. Once it is selected, it takes the user back to the operating system prompt.

5.2 BENEFIT OF THE NEW SYSTEM

The continued substitution of computer-based systems for manual procedures has in modern days become a world wide affair. This is because it is relevant in all aspects of human endeavour. In addition to speedy retrieval of information and security of data, computer operation allows for retrieval of reliable data due to the accuracy of computers.

The specific benefits that the Industrial Development Centres will derive from the use of the newly designed system are as follows:

i)   It will enhance the efficient operation of the organisation in order to achieve the desired objectives.

ii)   It will create speedy procedures for retrieving personnel information.

iii)   It will eradicate the loss of personnel information due to the use of obsolete equipment in storing data.

iv)   It will reduce complications that might arise as a result of increase personnel records.

v)   It would avoid data manipulation due to access to data as data stored in computer are more secured than manual storage.

vi)   It would make for savings on clerical cost and stationery that would have been incurred to meet the rapid growth of the organisation.

5.3   SUMMARY ANALYSIS OF THE PROJECT

This project was conceived based on the need to computerised the personnel management information system of the Industrial Development Centres. It was observed

that the organisation for sometimes now have been facing problems ranging from loss of personnel data to inaccurate retrieval of information. The problems identified have been highlighted in the earlier part of this project. In the study, it is stated that all the existing problems will be controlled if and when a computerised procedure is installed for the organisation.

However, a computerised procedure cannot just be put in place without going through some stages of its development. The analysis of these procedures were examined and the result was considered in the design of the proposed system. The considerations of the design is both logical and physical for the necessary requirements. The installation of a computerised operation is undertaking because of the expected benefits. Most organisations that are fully computerised enjoy all these benefits. Added to this is the fact that the world is in the computer age and any organisation that wants to be relevant in the future need to be computerised. Similarly, a professional without a computer touch will not be considered relevant in the future world.

It is necessary to state that an organisation does not only require to be computerised, it, in addition, demands an efficient operation of the computerised procedures and this is expected to be pursued with the necessary vigour. This is important so that the expected benefit of a computerised system will be fully maximised.

Finally it is believed that the proposed system when introduced would improved on the operations of the organisation and the day to day activities of the Centres would be greatly enhanced based on the benefits acruable to a computerised system.

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APPENDIX I

INDUSTRIAL DEVELOPMENT CENTRE, ABUJA

M A I N - M E N U

TASK CODE	TASK
A	PERSONNEL INFORMATION
B	REPORT PRODUCTION
Q	QUIT

Press a TASK CODE:

FIGURE 1

INDUSTRIAL DEVELOPMENT CENTRE, ABUJA

PERSONNEL INFORMATION MENU

TASK CODE	TASK
A	ADD RECORD
B	MODIFY RECORD
C	VIEW RECORD
D	DELETE RECORD
E	EXIT

Press a TASK CODE:

FIGURE 2

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INDUSTRIAL DEVELOPMENT CENTRE, ABUJA

COMPUTERISED PERSONNEL RECORDS SYSTEM

OPERATION: ADD RECORD

:er EMPLOYEE'S FILE NUMBER (or XXXXXX to EXIT): FN/104

JKWU   VITALIS   CLEMENT
 SURNAME   FIRST NAME   OTHER NAMES

?/03/59   AWKA   M   MARRIED   CHRISTIAN
:E OF BIRTH   PLACE OF BIRTH SEX   MARITAL STATUS   RELIGION

GERIAN   ANAMBRA   AWKA   AWKA
JATIONALITY   STATE OF ORIGIN   LOCAL GOVT AREA   TOWN

RMANET HOME ADDRESS: NO 20, ONISHA ROAD, AWKA

5TAL ADDRESS: P.O. BOX 205, AWKA

FIGURE 3

INDUSTRIAL DEVELOPMENT CENTRE, ABUJA

COMPUTERISED PERSONNEL RECORDS SYSTEM

OPERATION: ADD RECORD

'LOYEE'S FILE NUMBER: FN/104

IKWU   VITALIS   CLEMENT
 SURNAME   FIRST NAME   OTHER NAMES

.IDENTIAL ADDRESS: NO 205, ONITSHA ROAD, AWKA

'AILS OF QUALIFICATION: B.SC. ECONOMICS

ARTMENTAL CODE: 2   RANK CODE: 02   GRADE LEVEL: 13

'E OF FIRST APPOINTMENT: 03/01/83   TYPE OF APPOINTMENT : TENURE

:VIOUS WORKING EXPERIENCE: NONE

Press "S" to SAVE or "A" to ABANDON:

FIGURE 4

INDUSTRIAL DEVELOPMENT CENTRE, ABUJA

COMPUTERISED PERSONNEL RECORDS SYSTEM

OPERATION: EDIT RECORD

:er EMPLOYEE'S FILE NUMBER (or XXXXXX to EXIT): FN/104

JKWU   VITALIS   CLEMENT
 SURNAME   FIRST NAME   OTHER NAMES

:/03/59   AWKA   M   MARRIED   CHRISTIAN
:E OF BIRTH   PLACE OF BIRTH SEX   MARITAL STATUS   RELIGION

;ERIAN   ANAMBRA   AWKA   AWKA
IATIONALITY   STATE OF ORIGIN   LOCAL GOVT AREA   TOWN

:MANET HOME ADDRESS: NO 20, ONISHA ROAD, AWKA

;TAL ADDRESS: P.O. BOX 205, AWKA

―――

                 press any key to continue
―――

                    FIGURE 5

―――
INDUSTRIAL DEVELOPMENT CENTRE, ABUJA

COMPUTERISED PERSONNEL RECORDS SYSTEM

OPERATION: EDIT RECORD

'LOYEE'S FILE NUMBER: FN/104

'KWU   VITALIS   CLEMENT
 SURNAME   FIRST NAME   OTHER NAMES
―――
IDENTIAL ADDRESS: NO 205, ONITSHA ROAD, AWKA

'AILS OF QUALIFICATION: B.SC. ECONOMICS

ARTMENTAL CODE: 2   RANK CODE: 02   GRADE LEVEL: 13

:E OF FIRST APPOINTMENT: 03/01/83   TYPE OF APPOINTMENT : TENURE

:VIOUS WORKING EXPERIENCE: NONE
―――
              Press "S" to SAVE or "A" to ABANDON:
―――

                    FIGURE 6

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INDUSTRIAL DEVELOPMENT CENTRE, ABUJA

COMPUTERISED PERSONNEL RECORDS SYSTEM

OPERATION: VIEW RECORD

ter EMPLOYEE'S FILE NUMBER (or XXXXXX to EXIT): FN/104

JKWU   VITALIS   CLEMENT
 SURNAME   FIRST NAME   OTHER NAMES

2/03/59   AWKA   M   MARRIED   CHRISTIAN
TE OF BIRTH   PLACE OF BIRTH   SEX   MARITAL STATUS   RELIGION

GERIAN   ANAMBRA   AWKA   AWKA
NATIONALITY   STATE OF ORIGIN   LOCAL GOVT AREA   TOWN

RMANET HOME ADDRESS: NO 20, ONISHA ROAD, AWKA

STAL ADDRESS: P.O. BOX 205, AWKA

press any key to continue

FIGURE 7

INDUSTRIAL DEVELOPMENT CENTRE, ABUJA

COMPUTERISED PERSONNEL RECORDS SYSTEM

OPERATION: VIEW RECORD

PLOYEE'S FILE NUMBER: FN/104

JKWU   VITALIS   CLEMENT
 SURNAME   FIRST NAME   OTHER NAMES

SIDENTIAL ADDRESS: NO 205, ONITSHA ROAD, AWKA

TAILS OF QUALIFICATION: B.SC. ECONOMICS

PARTMENTAL CODE: 2   RANK CODE: 02   GRADE LEVEL: 13

E OF FIRST APPOINTMENT: 03/01/83   TYPE OF APPOINTMENT : TENURE

EVIOUS WORKING EXPERIENCE: NONE

Press any key to continue

FIGURE 8

INDUSTRIAL DEVELOPMENT CENTRE, ABUJA

COMPUTERISED PERSONNEL RECORDS SYSTEM

OPERATION: EDIT RECORD

ter EMPLOYEE'S FILE NUMBER (or XXXXXX to EXIT): FN/104

UKWU   VITALIS   CLEMENT
  SURNAME   FIRST NAME   OTHER NAMES

2/03/59   AWKA   M   MARRIED   CHRISTIAN
TE OF BIRTH   PLACE OF BIRTH   SEX   MARITAL STATUS   RELIGION

GERIAN   ANAMBRA   AWKA   AWKA
NATIONALITY   STATE OF ORIGIN   LOCAL GOVT AREA   TOWN

RMANET HOME ADDRESS: NO 20, ONISHA ROAD, AWKA

STAL ADDRESS: P.O. BOX 205, AWKA

Press "D" to DELETE or "A" to ABANDON:

FIGURE 9

```
┌─────────────────────────────────────────────────┐
│  ┌───────────────────────────────────────────┐  │
│  │ INDUSTRIAL DEVELOPMENT CENTRE, ABUJA       │  │
│  └───────────────────────────────────────────┘  │
│                                                  │
│     ┌─────────────────────────────────┐          │
│     │ REPORTS PRODUCTION MENU          │          │
│     └─────────────────────────────────┘          │
│                                                  │
│     TASK CODE              TASK                  │
│     ─────────              ────                  │
│        A           DEPARTMENTAL LIST             │
│                                                  │
│        B           RANK LIST                     │
│                                                  │
│        C           EXIT                          │
│  ──────────────────────────────────────────      │
│                                                  │
│          Press a TASK CODE:                      │
│                                                  │
└─────────────────────────────────────────────────┘
```

FIGURE 10

APPENDIX II

PERS.PRG

```
set talk off
set stat off
set safe off
set scor off
do while .t.
clea
@1,17 to 23,62
@3,20 to 5,59 double
@7,29 to 9,49 double
@19,18 to 19,61
@4,22 say "INDUSTRIAL DEVELOPMENT CENTRE, ABUJA"
@8,31 say "M A I N - M E N U"
@11,22 say 'TASK CODE' + space(11) + 'TASK'
@12,22 to 12,30
@12,42 to 12,45
@13,26 say 'A' + space(10) + 'PERSONNEL INFORMATION'
@15,26 say 'B' + space(10) + 'REPORT PRODUCTION'
@17,26 say 'Q' + space(10) + 'QUIT'
@21,30 say 'Press a TASK CODE:'
do while .t.
  code = ' '
  @21,49 get code pict '!'
  read
  if code ='A' .or. code ='B' .or. code ='Q'
    exit
  endif
enddo
do case
case code ='A'
  do Psmenu
case code ='B'
  do Rsmenu
otherwise
  exit
endcase
enddo
clear
return
```

PSMENU.PRG

```
do while .t.
clea
@0,17 to 24,62
@1,20 to 3,59 double
@4,24 to 6,53 double
@20,18 to 20,61
@2,22 say "INDUSTRIAL DEVELOPMENT CENTRE, ABUJA"
@5,26 say "PERSONNEL INFORMATION MENU"
@8,22 say 'TASK CODE' + space(13) + 'TASK'
@9,22 to 9,30
@9,44 to 9,47
@10,26 say 'A' + space(14) + 'ADD RECORD'
@12,26 say 'B' + space(14) + 'MODIFY RECORD'
@14,26 say 'C' + space(14) + 'VIEW RECORD'
@16,26 say 'D' + space(14) + 'DELETE RECORD'
@18,26 say 'E' + space(14) + 'EXIT'
@22,30 say 'Press a TASK CODE:'
do while .t.
code = ' '
@22,49 get code pict '!'
read
if code = 'A' .or. code = 'B' .or. code = 'C' .or. code = 'D' .or. code = 'E'
exit
endif
enddo
do case
case code ='A'
  do add
case code ='B'
  do edit
case code='C'
  do view
case code='D'
  do delete
otherwise
  exit
endcase
enddo
clear
return
```

RSMENU.PRG

```
do while .t.
clea
@1,17 to 23,62
@3,20 to 5,59 double
@7,26 to 9,52 double
@19,18 to 19,61
@4,22 say "INDUSTRIAL DEVELOPMENT CENTRE, ABUJA"
@8,28 say "REPORTS PRODUCTION MENU"
@11,22 say 'TASK CODE' + space(15) + 'TASK'
@12,22 to 12,30
@12,46 to 12,49
@13,26 say 'A' + space(14) + 'DEPARTMENTAL LIST'
@15,26 say 'B' + space(14) + 'RANK LIST'
@17,26 say 'C' + space(14) + 'EXIT'
@21,30 say 'Press a TASK CODE:'
do while .t.
  code = ' '
  @21,49 get code pict '!'
  read
  if code ='A' .or. code ='B' .or. code ='C'
    exit
  endif
enddo
do case
case code ='A'
  do dlist
case code ='B'
  do rlist
otherwise
  exit
endcase
enddo
clear
return
```


ADD.PRG

```
use main
do while .t.
clea
@ 0,0 to 24,79
```

```
@ 22,1 to 22,78
@ 1,22 say 'INDUSTRIAL DEVELOPMENT CENTRE, ABUJA'
@ 2,22 to 2,57 doub
@ 3,21 say 'COMPUTERISED PERSONNEL RECORDS SYSTEM'
@ 4,21 to 4,58 doub
@ 5,29 say 'OPERATION: ADD RECORD'
@ 6,29 to 6,49 doub
go top
vfn=spac(6)
@ 8,3 say "Enter EMPLOYEE'S FILE NUMBER (or XXXXXX to EXIT):" get vfn
pict '@!'
  read
  if vfn='XXXXX'
    exit
  endi
  loca for vfn=fn
  if found()
    @ 23,14 say 'FILE NUMBER ALREADY EXIST, Press any key to continue'
    set cons off
    wait
    set cons on
    loop
  endi
  stor spac(15) to vsname,vfname,voname,vnation,vlga,vpob,vtown
  stor spac(40) to vhaddr,vpaddr,vraddr
  stor spac(12) to vstate,vtoa
  stor ctod(' / / ') to vdob,vdofa
  stor spac(2) to vrcode,vgl
  stor spac(1) to vsex,vdcode
  vqual=spac(25)
  vpwe=spac(20)
  vrel=spac(10)
  vmstat=spac(8)
  @ 11,6 say 'SURNAME'
  @ 11,32 say 'FIRST NAME'
  @ 11,59 say 'OTHER NAMES'
  @ 10,3 get vsname pict '@!'
  @ 10,30 get vfname pict '@!'
  @ 10,57 get voname pict '@!'
  @ 14,3 say 'DATE OF BIRTH'
  @ 14,21 say 'PLACE OF BIRTH'
  @ 14,39 say 'SEX'
  @ 14,46 say 'MARITAL STATUS'
  @ 14,65 say 'RELIGION'
```

```
@ 13,4 get vdob
@ 13,20 get vpob pict '@!'
@ 13,40 get vsex pict '!'
@ 13,49 get vmstat pict '@!'
@ 13,64 get vrel pict '@!'
@ 17,5 say 'NATIONALITY'
@ 17,22 say 'STATE OF ORIGIN'
@ 17,41 say 'LOCAL GOVT AREA'
@ 17,64 say 'TOWN'
@ 16,3 get vnation pict '@!'
@ 16,23 get vstate pict '@!'
@ 16,41 get vlga pict '@!'
@ 16,60 get vtown pict '@!'
@ 19,3 say "PERMANET HOME ADDRESS:" get vhaddr pict '@!'
@ 21,3 say "POSTAL ADDRESS:" get vpaddr pict '@!'
* @ 21,3 say "RESIDENTIAL ADDRESS:" get vraddr pict '@!'
read
@ 23,27 say "press any key to continue"
set cons off
wait
set cons on
@ 23,25 say space (30)
@ 8,3 clear to 21,77
@ 8,3 say "EMPLOYEE'S FILE NUMBER:" get vfn
@ 11,6 say 'SURNAME'
@ 11,32 say 'FIRST NAME'
@ 11,59 say 'OTHER NAMES'
@ 10,3 get vsname
@ 10,30 get vfname
@ 10,57 get voname
@ 12,1 to 12,78
clear gets
@ 13,3 say 'RESIDENTIAL ADDRESS:' get vraddr pict '@!'
@ 15,3 say "DETAILS OF QUALIFICATION:" get vqual pict '@!'
@ 17,3 say "DEPARTMENTAL CODE:" get vdcode
@ 17,32 say "RANK CODE:" get vrcode
@ 17,55 say "GRADE LEVEL:" get vgl
@ 19,3 say "DATE OF FIRST APPOINTMENT:" get vdofa
@ 19,45 say "TYPE OF APPOINTMENT :" get vtoa pict '@!'
@ 21,3 say "PREVIOUS WORKING EXPERIENCE:" get vpwe pict '@!'
read
@ 23,21 say 'Press "S" to SAVE or "A" to ABANDON:'
do while .t.
response =' '
```

```
@ 23,58 get  response pict '!'
read
if response ='S' .or. response = 'A'
exit
endif
enddo
if response = 'S'
 append blank
 repl fn with vfn, sname with vsname
 repl fname with vfname, oname with voname
 repl dob with vdob, pob with vpob
 repl sex with vsex, mstat with vmstat
 repl rel with vrel, nation with vnation
 repl state with vstate, lga with vlga
 repl town with vtown, haddr with vhaddr
 repl paddr with vpaddr,raddr with vraddr
 repl dcode with vdcode, rcode with vrcode
 repl gl with vgl, dofa with vdofa, toa with vtoa
 repl pwe with vpwe, qual with vqual
endif
enddo
clear
close all
return
```

EDIT.PRG

```
use main
do while .t.
 clea
 @ 0,0 to 24,79
 @ 22,1 to 22,78
 @ 1,22 say 'INDUSTRIAL DEVELOPMENT CENTRE, ABUJA'
 @ 2,22 to 2,57 doub
 @ 3,21 say 'COMPUTERISED PERSONNEL RECORDS SYSTEM'
 @ 4,21 to 4,58 doub
 @ 5,29 say 'OPERATION: EDIT RECORD'
 @ 6,29 to 6,50 doub
 go top
 vfn=spac(6)
 @ 8,3 say "Enter EMPLOYEE'S FILE NUMBER (or XXXXXX to EXIT):" get vfn
pict '@!'
 read
```

```
if vfn='XXXXX'
  exit
endi
loca for vfn=fn
if .not. found()
  @ 23,13 say 'FILE NUMBER DOES NOT EXIST, Press any key to continue'
  set cons off
  wait
  set cons on
  loop
endi
vsname=sname
vfname=fname
voname=oname
vnation=nation
vlga=lga
vpob=pob
vtown=town
vhaddr=haddr
vpaddr=paddr
vraddr=raddr
vstate=state
vtoa=toa
vdob=dob
vdofa=dofa
vrcode=rcode
vgl=gl
vsex=sex
vdcode=dcode
vqual=qual
vpwe=pwe
vrel=rel
vmstat=mstat
@ 11,6 say 'SURNAME'
@ 11,32 say 'FIRST NAME'
@ 11,59 say 'OTHER NAMES'
@ 10,3 get vsname pict '@!'
@ 10,30 get vfname pict '@!'
@ 10,57 get voname pict '@!'
@ 14,3 say 'DATE OF BIRTH'
@ 14,21 say 'PLACE OF BIRTH'
@ 14,39 say 'SEX'
@ 14,46 say 'MARITAL STATUS'
@ 14,65 say 'RELIGION'
```

```
@ 13,4 get vdob
@ 13,20 get vpob pict '@!'
@ 13,40 get vsex pict '!'
@ 13,49 get vmstat pict '@!'
@ 13,64 get vrel pict '@!'
@ 17,5 say 'NATIONALITY'
@ 17,22 say 'STATE OF ORIGIN'
@ 17,41 say 'LOCAL GOVT AREA'
@ 17,64 say 'TOWN'
@ 16,3 get vnation pict '@!'
@ 16,23 get vstate pict '@!'
@ 16,41 get vlga pict '@!'
@ 16,60 get vtown pict '@!'
@ 19,3 say "PERMANET HOME ADDRESS:" get vhaddr pict '@!'
@ 21,3 say "POSTAL ADDRESS:" get vpaddr pict '@!'
* @ 21,3 say "RESIDENTIAL ADDRESS:" get vraddr pict '@!'
read
@ 23,27 say "press any key to continue"
set cons off
wait
set cons on
@ 23,25 say space (30)
@ 8,3 clear to 21,77
@ 8,3 say "EMPLOYEE'S FILE NUMBER:" get vfn
@ 11,6 say 'SURNAME'
@ 11,32 say 'FIRST NAME'
@ 11,59 say 'OTHER NAMES'
@ 10,3 get vsname
@ 10,30 get vfname
@ 10,57 get voname
@ 12,1 to 12,78
clear gets
@ 13,3 say 'RESIDENTIAL ADDRESS:' get vraddr pict '@!'
@ 15,3 say "DETAILS OF QUALIFICATION:" get vqual pict '@!'
@ 17,3 say "DEPARTMENTAL CODE:" get vdcode
@ 17,32 say "RANK CODE:" get vrcode
@ 17,55 say "GRADE LEVEL:" get vgl
@ 19,3 say "DATE OF FIRST APPOINTMENT:" get vdofa
@ 19,45 say "TYPE OF APPOINTMENT :" get vtoa pict '@!'
@ 21,3 say "PREVIOUS WORKING EXPERIENCE:" get vpwe pict '@!'
read
@ 23,21 say 'Press "S" to SAVE or "A" to ABANDON:'
do while .t.
response =' '
```

```
@ 23,58 get  response pict '!'
read
if response ='S' .or. response = 'A'
exit
endif
enddo
if response = 'S'
 repl fn with vfn, sname with vsname
 repl fname with vfname, oname with voname
 repl dob with vdob, pob with vpob
 repl sex with vsex, mstat with vmstat
 repl rel with vrel, nation with vnation
 repl state with vstate, lga with vlga
 repl town with vtown, haddr with vhaddr
 repl dcode with vdcode, rcode with vrcode
 repl gl with vgl, dofa with vdofa, toa with vtoa
 repl pwe with vpwe, qual with vqual
endif
enddo
clear
close all
return
```

VIEW.PRG

```
use main
do while .t.
 clea
 @ 0,0 to 24,79
 @ 22,1 to 22,78
 @ 1,22 say 'INDUSTRIAL DEVELOPMENT CENTRE, ABUJA'
 @ 2,22 to 2,57 doub
 @ 3,21 say 'COMPUTERISED PERSONNEL RECORDS SYSTEM'
 @ 4,21 to 4,58 doub
 @ 5,29 say 'OPERATION: VIEW RECORD'
 @ 6,29 to 6,50 doub
 go top
 vfn=spac(6)
 @ 8,3 say "Enter EMPLOYEE'S FILE NUMBER (or XXXXXX to EXIT):" get vfn
pict '@!'
 read
 if vfn='XXXXX'
  exit
```

```
endi
loca for vfn=fn
if .not. found()
   @ 23,13 say 'FILE NUMBER DOES NOT EXIST, Press any key to continue'
   set cons off
   wait
   set cons on
   loop
endi
vsname=sname
vfname=fname
voname=oname
vnation=nation
vlga=lga
vpob=pob
vtown=town
vhaddr=haddr
vpaddr=paddr
vraddr=raddr
vstate=state
vtoa=toa
vdob=dob
vdofa=dofa
vrcode=rcode
vgl=gl
vsex=sex
vdcode=dcode
vqual=qual
vpwe=pwe
vrel=rel
vmstat=mstat
@ 11,6 say 'SURNAME'
@ 11,32 say 'FIRST NAME'
@ 11,59 say 'OTHER NAMES'
@ 10,3 get vsname pict '@!'
@ 10,30 get vfname pict '@!'
@ 10,57 get voname pict '@!'
@ 14,3 say 'DATE OF BIRTH'
@ 14,21 say 'PLACE OF BIRTH'
@ 14,39 say 'SEX'
@ 14,46 say 'MARITAL STATUS'
@ 14,65 say 'RELIGION'
@ 13,4 get vdob
@ 13,20 get vpob pict '@!'
```

```
@ 13,40 get vsex pict '!'
@ 13,49 get vmstat pict '@!'
@ 13,64 get vrel pict '@!'
@ 17,5 say 'NATIONALITY'
@ 17,22 say 'STATE OF ORIGIN'
@ 17,41 say 'LOCAL GOVT AREA'
@ 17,64 say 'TOWN'
@ 16,3 get vnation pict '@!'
@ 16,23 get vstate pict '@!'
@ 16,41 get vlga pict '@!'
@ 16,60 get vtown pict '@!'
@ 19,3 say "PERMANET HOME ADDRESS:" get vhaddr pict '@!'
@ 21,3 say "POSTAL ADDRESS:" get vpaddr pict '@!'
clea gets
@ 23,27 say "press any key to continue"
set cons off
wait
set cons on
@ 23,25 say space (30)
@ 8,3 clear to 21,77
@ 8,3 say "EMPLOYEE'S FILE NUMBER:" get vfn
@ 11,6 say 'SURNAME'
@ 11,32 say 'FIRST NAME'
@ 11,59 say 'OTHER NAMES'
@ 10,3 get vsname
@ 10,30 get vfname
@ 10,57 get voname
@ 12,1 to 12,78
@ 13,3 say 'RESIDENTIAL ADDRESS:' get vraddr pict '@!'
@ 15,3 say "DETAILS OF QUALIFICATION:" get vqual pict '@!'
@ 17,3 say "DEPARTMENTAL CODE:" get vdcode
@ 17,32 say "RANK CODE:" get vrcode
@ 17,55 say "GRADE LEVEL:" get vgl
@ 19,3 say "DATE OF FIRST APPOINTMENT:" get vdofa
@ 19,45 say "TYPE OF APPOINTMENT :" get vtoa pict '@!'
@ 21,3 say "PREVIOUS WORKING EXPERIENCE:" get vpwe pict '@!'
clea gets
@ 23,27 say 'Press any key to continue'
set cons off
wait
set cons on
enddo
clear
```

```
close all
return


DELETE.PRG

use main
do while .t.
  clea
  @ 0,0 to 24,79
  @ 22,1 to 22,78
  @ 1,22 say 'INDUSTRIAL DEVELOPMENT CENTRE, ABUJA'
  @ 2,22 to 2,57 doub
  @ 3,21 say 'COMPUTERISED PERSONNEL RECORDS SYSTEM'
  @ 4,21 to 4,58 doub
  @ 5,29 say 'OPERATION: EDIT RECORD'
  @ 6,29 to 6,50 doub
  go top
  vfn=spac(6)
  @ 8,3 say "Enter EMPLOYEE'S FILE NUMBER (or XXXXXX to EXIT):" get vfn
pict '@!'
  read
  if vfn='XXXXX'
    exit
  endi
  loca for vfn=fn
  if .not. found()
    @ 23,13 say 'FILE NUMBER DOES NOT EXIST, Press any key to continue'
    set cons off
    wait
    set cons on
    loop
  endi
  vsname=sname
  vfname=fname
  voname=oname
  vnation=nation
  vlga=lga
  vpob=pob
  vtown=town
  vhaddr=haddr
  vpaddr=paddr
  vraddr=raddr
  vstate=state
```

```
vtoa=toa
vdob=dob
vdofa=dofa
vrcode=rcode
vgl=gl
vsex=sex
vdcode=dcode
vqual=qual
vpwe=pwe
vrel=rel
vmstat=mstat
@ 11,6 say 'SURNAME'
@ 11,32 say 'FIRST NAME'
@ 11,59 say 'OTHER NAMES'
@ 10,3 get vsname pict '@!'
@ 10,30 get vfname pict '@!'
@ 10,57 get voname pict '@!'
@ 14,3 say 'DATE OF BIRTH'
@ 14,21 say 'PLACE OF BIRTH'
@ 14,39 say 'SEX'
@ 14,46 say 'MARITAL STATUS'
@ 14,65 say 'RELIGION'
@ 13,4 get vdob
@ 13,20 get vpob pict '@!'
@ 13,40 get vsex pict '!'
@ 13,49 get vmstat pict '@!'
@ 13,64 get vrel pict '@!'
@ 17,5 say 'NATIONALITY'
@ 17,22 say 'STATE OF ORIGIN'
@ 17,41 say 'LOCAL GOVT AREA'
@ 17,64 say 'TOWN'
@ 16,3 get vnation pict '@!'
@ 16,23 get vstate pict '@!'
@ 16,41 get vlga pict '@!'
@ 16,60 get vtown pict '@!'
@ 19,3 say "PERMANET HOME ADDRESS:" get vhaddr pict '@!'
@ 21,3 say "POSTAL ADDRESS:" get vpaddr pict '@!'
clea gets
@ 23,20 say 'Press "D" to DELETE or "A" to ABANDON:'
do while .t.
response =' '
@ 23,59 get  response pict '!'
read
if response ='D' .or. response = 'A'
```

```
    exit
    endif
   enddo
   if response = 'D'
    delete
    pack
   endif
  enddo
  clear
  close all
  return
```

DLIST.PRG

```
clea
@ 12,26 say "TO SCREEN OR PRINTER (S/P):"
do while .t.
   d=' '
   @ 12,54 get d pict '!'
   read
   if d='P' .or. d='S'
     exit
   endif
enddo
use main
sort on dcode to print.dbf
use
select 1
  use print
select 2
  use dept
select 3
  use rank
clear
if d ='P'
  @ 12,30 say 'PRINTING IN PROGRESS ...'
  set device to print
endif
@ 0,22 say "INDUSTRIAL DEVELOPMENT CENTRE ABUJA"
@ 1,22 say repl('=',36)
@ 2,31 say "DEPARTMENTAL LIST"
@ 3,31 say repl('=',17)
sele 1
```

```
vdcode = dcode
sele 2
locate for vdcode = dcode
vdname = dname
@ 4,0 say "DEPARTMENT: " + vdname
@ 5,0 say repl('-',80)
@ 6,1 say 'S/NO | FILE NUMBER |'
@ 6,25 say 'NAME'
@ 6,43 say '|'
@ 6,47 say 'RANK'
@ 6,66 say '|  GRADE LEVEL'
@ 7,0 say repl('-',6)+'|'+repl('-',13)+'|'
@ 7,21 say repl('-',22)+'|'+repl('-',22)+'|'+repl('-',13)
row = 7
sno = 0
select 1
do while .not. eof()
  row = row + 1
  sno = sno + 1
  vfn = fn
  vsname = sname
  vfname = fname
  voname = oname
  vrcode = rcode
  vdcode = dcode
  vgl = gl
  vname = rtrim(vsname) +', '+ left(vfname,1) +'. '
  if voname < > space(15)
    vname = vname + left(voname,1) +'.'
  endif
  select 3
  go top
  locate for vrcode = rcode
  vrname = rname
  @ row,1 say sno pict '9999'
  @ row,6 say '|'
  @ row,10 say vfn
  @ row,20 say '|'
  @ row,22 say vname
  @ row,43 say '|'
  @ row,45 say vrname
  @ row,66 say '|'
  @ row,72 say vgl
  select 1
```

```
skip
if eof()
  exit
endif
if row>20 .and. d='S'
  wait
  if vdcode < > dcode
    vdcode = dcode
    sele 2
    go top
    locate for vdcode = dcode
    vdname = dname
    sele 1
  endi
  row=0
  clea
  @ 0,26 say 'DEPARTMENTAL LIST Continued'
  @ 1,26 say repl('-',27)
  @ 2,0 say "DEPARTMENT: " + vdname
  @ 3,0 say repl('-',80)
  @ 4,1 say 'S/NO | FILE NUMBER |'
  @ 4,25 say 'NAME'
  @ 4,43 say '|'
  @ 4,47 say 'RANK'
  @ 4,66 say '|  GRADE LEVEL'
  @ 5,0 say repl('-',6)+'|'+repl('-',13)+'|'
  @ 5,21 say repl('-',22)+'|'+repl('-',22)+'|'+repl('-',13)
  row = 5
  loop
endif
if vdcode < > dcode
  vdcode = dcode
  sele 2
  go top
  locate for vdcode = dcode
  vdname = dname
  row=row+3
  @ row,0 say "DEPARTMENT: " + vdname
  row=row+1
  @ row,0 say repl('-',80)
  row=row+1
  @ row,1 say 'S/NO | FILE NUMBER |'
  @ row,25 say 'NAME'
  @ row,43 say '|'
```

```
        @ row,47 say 'RANK'
        @ row,66 say '|  GRADE LEVEL'
        row=row+1
        @ row,0 say repl('-',6)+'|'+repl('-',13)+'|'
        @ row,21 say repl('-',22)+'|'+repl('-',22)+'|'+repl('-',13)
        sno = 0
        select 1
      endif
    enddo
    if d='P'
      set device to screen
      @ 14,30 say 'PRINTING IS COMPLETED'
    endif
    ?
    wait
    clear
    close all
    return
```

RLIST.PRG

```
clea
@ 12,26 say "TO SCREEN OR PRINTER (S/P):"
do while .t.
  d=' '
  @ 12,54 get d pict '!'
  read
  if d='P' .or. d='S'
    exit
  endif
enddo
use main
sort on rcode to print.dbf
use
select 1
  use print
select 2
  use dept
select 3
  use rank
clear
if d ='P'
  @ 12,30 say 'PRINTING IN PROGRESS ...'
```

```
    set device to print
endif
@ 0,22 say "INDUSTRIAL DEVELOPMENT CENTRE ABUJA"
@ 1,22 say repl('=',36)
@ 2,35 say "RANK LIST"
@ 3,35 say repl('=',9)
sele 1
vrcode = rcode
sele 3
locate for vrcode = rcode
vrname = rname
@ 4,0 say "RANK: " + vrname
@ 5,0 say repl('-',80)
@ 6,1 say 'S/NO | FILE NUMBER |'
@ 6,25 say 'NAME'
@ 6,43 say '|'
@ 6,46 say 'DEPARTMENT'
@ 6,66 say '|  GRADE LEVEL'
@ 7,0 say repl('-',6)+'|'+repl('-',13)+'|'
@ 7,21 say repl('-',22)+'|'+repl('-',22)+'|'+repl('-',13)
row = 7
sno = 0
select 1
do while .not. eof()
  row = row + 1
  sno = sno + 1
  vfn = fn
  vsname = sname
  vfname = fname
  voname = oname
  vrcode = rcode
  vdcode = dcode
  vgl = gl
  vname = rtrim(vsname) +', '+ left(vfname,1) +'. '
  if voname < > space(15)
    vname = vname + left(voname,1) +'.'
  endif
  select 2
  go top
  locate for vdcode = dcode
  vdname = dname
  @ row,1 say sno pict '9999'
  @ row,6 say '|'
  @ row,10 say vfn
```

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```
@ row,20 say '|'
@ row,22 say vname
@ row,43 say '|'
@ row,45 say vdname
@ row,66 say '|'
@ row,72 say vgl
select 1
skip
if eof()
  exit
endif
if row > 20 .and. d = 'S'
  wait
  if vrcode < > rcode
    vrcode = rcode
    sele 2
    go top
    locate for vrcode = rcode
    vrname = rname
    sele 1
  endi
  row = 0
  clea
  @ 0,30 say 'RANK LIST Continued'
  @ 1,30 say repl('-',19)
  @ 2,0 say "RANK: " + vrname
  @ 3,0 say repl('-',80)
  @ 4,1 say 'S/NO | FILE NUMBER |'
  @ 4,25 say 'NAME'
  @ 4,43 say '|'
  @ 4,46 say 'DEPARTMENT'
  @ 4,66 say '|  GRADE LEVEL'
  @ 5,0 say repl('-',6)+'|'+repl('-',13)+'|'
  @ 5,21 say repl('-',22)+'|'+repl('-',22)+'|'+repl('-',13)
  row = 5
  loop
endif
if vrcode < > rcode
  vrcode = rcode
  sele 3
  go top
  locate for vrcode = rcode
  vrname = rname
  row = row + 3
```

```
      @ row,0 say "RANK: " + vrname
      row=row+1
      @ row,0 say repl('-',80)
      row=row+1
      @ row,1 say 'S/NO | FILE NUMBER |'
      @ row,25 say 'NAME'
      @ row,43 say '|'
      @ row,46 say 'DEPARTMENT'
      @ row,66 say '|  GRADE LEVEL'
      row=row+1
      @ row,0 say repl('-',6)+'|'+repl('-',13)+'|'
      @ row,21 say repl('-',22)+'|'+repl('-',22)+'|'+repl('-',13)
      sno = 0
      select 1
   endif
enddo
if d='P'
   set device to screen
   @ 14,30 say 'PRINTING IS COMPLETED'
endif
?
wait
clear
close all
return
```