

**AUTOMATION OF STATISTICS OF NATIONAL
OPEN APPRENTICESHIP GRADUATES IN
NIGER STATE**

BY

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DEDICATION

This work is dedicated to Nafisat and AbdulHafiz.

CERTIFICATION

This is to certify that this project was carried out by SHITTU, TAJUDEEN ADEKUNLE DEPARTMENT OF MATHEMATICS/STATISTICS/COMPUTER SCIENCE, Federal University of Technology, Minna, Nigeria.

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ABSTRACT

This project is aimed at the automation of statistics of the National Open Apprenticeship graduates and how the records are managed in terms of data security, quick access and retrieval of data and also reliability and protection of data to ensure accuracy.

The advantages derivable from the use of computer system in terms of quick retrieval of data and information and storage facility for storing large amount of data using diskette which is very portable and durable for storing data and information.

Furthermore, computer system can easily be used to process any data provided adequate instructions on how the processing is to be carried out is given to the computer system.

It is in view of the deficiencies of the old system and aforementioned qualities of an automated system that gears me toward considering a new system for carrying out the data processing of National Open Apprenticeship Graduates in Niger State.

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND OF THE STUDY

The Worldwide economic depression of the early 1980's caused a rapid deterioration in Nigeria's economy. By December 1995 Urban Unemployment rate was about 10%, a situation that was worrisome to the government and people of Nigeria. In the rural areas, it was no less severe. The youths and graduates were the hardest hit of all unemployed Nigerians (ranging upward of 3 millions), three quarters of them were less than 25 years of age.

On 26th March 1986, the President (Gen. Ibrahim Babangida) appointed a committee to deliberate on strategies for dealing with mass unemployment under the auspices of the Federal Ministry of Employment, Labour and Productivity. The Federal Government approved the report of the Chukwuma committee in October 1986. Based on its recommendations, the National Directorate of Employment (NDE) was established on 22nd December 1986.

In pursuit of its mandate, the NDE is made up of four core Programmes each operating as a separate department in each State of the federation and the Federal Capital Territory. These are:

- Vocational Skills Development Programme

Small Scale Enterprises Programme

ural Employment Promotion Programme and

1.3 OBJECTIVES OF THE STUDY

The problems associated with the need for the study should be adequately taken care-of through the automation of the statistics of the (NOAS) graduates. In order to arrive at this aforementioned reason the following are the objectives to be pursued:

1. To have a single collection of all the data on all the graduates of the National Open Apprenticeship Scheme in Niger State.
2. To organise and structure the files of the National Open Apprenticeship (NOAS) graduates in –other than ordinary multiple file form. This organisation is to permit access to any or all data quantities on the graduated trainees by all applications with equal ease.
3. Duplication of record on the NOAS graduates is to be minimized if not eliminated completely.
4. The automation is to provide the definition of logical relationships, which exist between the various records in the database.
5. To increase the speed of implementing system (i.e. make data processing faster) and for the ease of file access by the users (programmers).
6. To increase data independence i.e. the ability to change the format of the data or the medium on which the data is held.
7. To increase data integrity by ensuring that there is absolute control over the creation, deletion and update of data on the National Open

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- Special Public works Programme.

These programmes are backed by the necessary administrative, monitoring and support services departments.

For the purpose of this project we are only interested in the vocational skill development programme (VSD).

The vocational skills development programme is made up of the following scheme:

- National open Apprenticeship Schemes (NOAS)
- Waste to Wealth scheme (W-T-W)
- School on wheels scheme (SOW) and
- Disable work scheme.

1.2 STATEMENT OF THE PROBLEM

The problems associated with the use of manual record keeping on the profiles of the graduates of the National Open Apprenticeship Scheme in Niger State are so numerous, hence the need for this study.

As at 31st December 1998, twenty thousand, nine hundred and forty-two (20,942) graduated trainees have been turned out through the National Open Apprenticeship Scheme in Niger State. The process of updating records of each graduated trainees becomes more and more cumbersome as each

year more graduated trainees are being turned out of the scheme in the state to add – up to the existing figure.

There is equally the problem of bulky file keeping which now occupies a lot of space in the office; hence it is now becoming increasingly difficult to get available space for keeping all these files.

Since 1998, the State Directorate of Employment (NDE) have been passing out graduates in various trades (professions), and each year more graduates are being produced, the problem that now arises is the problem of deterioration in the record kept in files hence the need to get another method of maintaining a non-depreciating record keeping.

There is the difficulty of searching through all the files to compare data and make useful information available with ease; hence a better way of keeping data needs to be adopted.

The problem of having many copies of file, as backup is very difficult as it is very difficult in writing copies of all the files on the graduated trainees. In other word accidental or wilful destruction/misplacement of file will result into complete lost of database. The files are not potable, hence, if there is the need to transfer the files to Abuja when first hand information is required, becomes very difficult. In view of the above, the securities of files are not adequately guaranteed.

Apprenticeship graduates, to ensure its correctness.

8. To provide a management view of the data/information from this automation. This is to ensure that the Directorate gets a lot of benefits from the computing computer resources.
9. To get a method by which tabulation will be made more elaborate with ease.

1.4 METHOD OF STUDY

The data collation stage (enumeration phase) generally involves many different activities such as organisation of the field structures, recruitment and training of staff among others.

For the purpose of this study random selection of files through searching of graduates' records of the National Open Apprenticeship Scheme is to be adopted. The selection will ensure that all the necessary parameters that will give an unbiased sample are employed. The staffs that are to partake in this random selection are to be adequately trained.

1.5 SCOPE AND LIMITATION OF STUDY

This project is aimed at automating the statistics of the graduates of the National Open Apprenticeship graduates. In view of the fact that it is not possible to enter all the records of the past graduates into the computer due to time constraint, this statistics will form the basis for the automation of the National Open Apprenticeship graduates in Niger State.

Finally, the method employed for the automation of NOAS graduates could be used for effecting similar change over in other states of the federation.

1.6 RELEVANCE OF THE STUDY

The rising wave of unemployment in Nigeria leads to the introduction of the National Directorate of Employment to tackle the problem of massive unemployment. The Directorate on its part employed many ways of tackling the unemployment problems. The most unique scheme employed in tackling the unemployment problem is the National Open Apprenticeship Scheme.

It is unique in the sense that it put as its main focus the imparting of relevant skills on the unemployed able-bodied men and women. The graduates of this scheme come from all the various Local Government Areas in Niger State.

The graduates of this scheme may either set up on their own by way of

setting up on their own (self employed) or considered valuable by potential employer of labour.

The problems associated with unemployment such as youth restiveness, robbery and other social vices will be checked as government will now have correct data/information on NOAS graduates; hence a basis for tackling this problem head-on.

The statistics of graduates of the National Open Apprenticeship Scheme in Niger State is an important tool for National Planning.

The outcome of this study could be used to embark on the automation of records of the graduates of the National Open Apprenticeship Scheme nation-wide.

CHAPTER TWO

CONCEPTS OF NATIONAL OPEN APPRENTICESHIP SCHEME

2.1 INHERITED METHOD OF SOLVING UNEMPLOYMENT PROBLEMS AND ITS WEAKNESSES.

Prior to the establishment of the National Directorate of Employment in November 1986, there was no agency meant for solving the unemployment problem in the country. All the arrangements made for solving the unemployment problem are the kind of made-shift arrangement which are either mainly focused on white collar jobs or on the alternative ad-hoc arrangements which are not of continuous nature.

The establishment of farm centres in all the state of the federation during the colonial era were established to create employment in the Agricultural sector. This agricultural programme work for some time but was later abandoned during the oil boom period during which time people took up white-collar jobs, which were available in the cities with better earnings than what was obtainable in any farming venture.

The lack of sincerity on the part of the implementers and the lack of continuity of programmes by each successive administration lead to the complete collapse of this farm settlement scheme.

Beside the farm settlement scheme there was no concrete plan by the government in tackling the unemployment problem through multidimensional

approach that will involve skill acquisition in other fields of human endeavour.

Besides establishing the National Directorate of Employment (NDE) in 1986, the Federal Government directed some institutions, particularly financial institutions to beef-up their staff employment level. The banks were asked to raise their work force by 5% and insurance companies by 3%. The registrar of co-operatives was also directed to register more producer co-operatives as a way of generating more jobs in the business sectors.

2.2 CHARACTERISTICS OF NATIONAL OPEN APPRENTICESHIP SCHEME IN RELATION TO TACKLING UNEMPLOYMENT PROBLEMS.

The National Open Apprenticeship Scheme (NOAS) is a scheme under the vocational skills Development Programme of the National Directorate of employment. This scheme is aimed at providing unemployed youths with basic skills that are needed in the economy. This is achieved by attaching them as apprentices to companies, ministries and professional craftsmen and women with adequate training facilities. Some of them are given admission into vocational training institutions or centres to learn a trade.

All participants in this scheme are required to register with the Federal Ministry of Employment, Labour and Productivity's local exchanges prior to being accepted as trainees. This formal registration enables accurate tracking of employment trends and labour statistics, which is required for realistic

ational planning.

Upon completion of their apprenticeships, these participants will possess the necessary skills that are considered valuable by potential employers or enable those with entrepreneurial skill go into self-employment.

With the creation of the National Directorate of Employment (NDE) with branches in all the states of the federation, the government has succeeded in creating a lot of national awareness and consciousness on the unemployment problem and the need to fight it. As a result, various organizations in the country are now playing important and complementary roles in the national effort to create employment opportunities for as many Nigerians as possible.

Examples are:

- The Nigerian Bank of Commerce and Industries runs an Entrepreneurship Development Programme, which is aimed at helping young Nigerians with business ideas to translate them into profit-making enterprises. This is achieved by giving them training in entrepreneurship and providing them with loans and other support in the early stages of the business.
- The Society Generale Bank Nigeria Limited has a self-employment programme for those University and Polytechnic graduates who have innovative ideas that could be commercialised. The programme started in 1986 with 20 final year students of the Kwara State College of Technology, each of whom received a N50, 000.00 loans after the feasibility studies of

their projects were approved for viability by the bank.

- The Federal Ministry of Industries runs the work-For-Yourself Programme targeted at graduates of higher institutions wishing to go into self-employment, and civil servants wishing to commercialise their technological break-through.
- The States are not left out in the fight against unemployment. In almost all the States, one or two different schemes, mainly in agriculture, vocational training and small-scale industries are being implemented to increase the level of employment. Furthermore, under this scheme (NOAS), the various artisans in our cities and villages are being organized into co-operative societies to facilitate the provision of financial and other assistance from the government and the organized private sector.

It is in view of the above characteristics of the National Open Apprenticeship Scheme that make it very important in bringing about employment for all in the nearest possible future.

The proposed system is to appraise the graduate of the National Open Apprenticeship Scheme for realistic National Planning.

CHAPTER THREE

SYSTEM ANALYSES AND DESIGN

3.1 PROBLEM DEFINITION

The problem associated with the manual record keeping of the graduates of the National Open Apprenticeship Scheme (NOAS) are expected to be resolved through the use of computers. This will allow for determining the nature and scope of the problems to find out whether it is real or imaginary major or minor and how urgent to alleviate the problems.

Considering the manual data processing of graduated participants of NOAS in the state, misplacement of records and files are common feature of the old system of record keeping which is highly inefficient when compared with the new system. In the course of defining the problem in Chapter One, Automation of records of the graduated trainees was found to be absolutely efficient, reliable and consistent.

3.2 FEASIBILITY STUDY

A thorough feasibility study was carried out before embarking on this project. This is to determine the desirability of the proposed system by studying the existing method of record keeping and management of the graduated trainees. Hence to find out whether it will be feasible to

changeover from the manual record keeping to an automated data processing system.

During the preliminary investigation, some of the problems associated with the manual system were identified and these include depreciation of the paper quality over time, inadequate security and non-confidentiality of files. Very often files are misplaced after it has been retrieved for processing assignments. At times there is delay in accessing graduates records. Furthermore, processing of records manually are error-prone due to large volume of data involved.

Finally, reports involving complex statistical calculation are difficult to be generated and at times not generated at all. All these anomalies are easily taken care of using computer to input, process, store and produce useful information.

3.3 COST/BENEFIT OF THE PROPOSED SYSTEM

3.3.1 COST OF THE NEW SYSTEM IMPLEMENTATION

Item(s)	Quantity	Unit Price (N)	Total Cost (N)
Hardware			
Intel Pentium 120MHz			
Computer	1	140,000.00	140,000.00
Wyse 60 Colour terminal	4	100.00	400.00
Coxal Cable	170m	80.00	11,200.00
Maxpeed Digiboard	1	75,000.00	75,000.00
LQ 2270 Epson Printer	2	65,000.00	130,000.00
APC Smart UPS	2	35,000.00	70,000.00
Software			
Customized Program	1	80,000.00	80,000.00
Dr. Solomon Anti-Virus	1	38,000.00	38,000.00
Multi-User/Multi-Tasking			
Operating System	1	24,000.00	24,000.00
Consumable Per Annum			
1" X 14 1/2" Line flow paper	10pkts	2,800.00	28,000.00
3 1/2" Diskette	5pkts	600.00	3,000.00
5 1/4" Diskette	5pkts	580.00	2,900.00
4 Pin Ribbons	10	350.00	3,500.00
TOTAL			<u><u>₦606, 000.00</u></u>

3.3.2 BENEFITS OF THE PROPOSED SYSTEM

The need for the use of computer for data management cannot be over-emphasized as there are lots of advantages, derivable from the automation of the records of the (NOAS) graduates. Hence there is the dire need for the National Directorate of Employment, Minna to embark on the automation of the records of all the former graduates of this scheme for the purpose of enhanced efficiency, maintenance of data integrity and for accurate and reliable records. The advantages of this new system is as highlighted below:

- (a) **EFFICIENCY:** The high speed of execution of data to produce useful information, which is error-proof, once the right command is given to the computer no matter how large the volume of data involved might be.
- (b) **SECURITY:** The computer system provide easy to use security measures that will protect both the integrity of the source data and also to de-bar unauthorized user from gaining access to the records in the hard disk through this protective device. Furthermore, the ease of producing back-ups file is another form of security that is peculiar to the use of automation.

- (c) **COMPARISON:** The computer system will provide the best relational data Processing method for the NOAS graduates' records. Thereby the difficulties associated with manual comparison of data when many fields and attributes are involved as it is with the records of the NOAS graduates will be adequately and efficiently taken care of.
- (d) **PLACEMENT:** The package to be used in the new system has an in-built decision-making processes there-by placement based on a particular key-field are easily done.
- (e) **REPITITIVE ROUTINE:** The automation of NOAS graduates records will minimize time wasted on performing repetitive tasks, thereby increasing productivity and reduction of task.
- (f) **STANDARD LAY-OUT:** The results generated by this package will be readable, attractive and at the same time a turn around document for easy and accurate storage of information on the database management system, with facilities to generate the report in a pictorial format graphs, such as pie chart, bar chart and histogram among others.
- (g) **ADAPTABILITY:** The automated system is so flexible and thus, will easily accommodate any required changes at any point in time.

(h) **CHANGES IN ENTRIES:** In a manual system of graduate record keeping, changes made on paper work will require the re-calculation of the affected data or the entire worksheet. With the application of the computer system, entries or changes made on numeric data will trigger automatic recalculation of the affected data and present the result instantaneously.

(i) **INSERTION/DELETION OF RECORDS:** In manual record keeping, addition or deletion of records will call for cutting and pasting which will require the rewriting of the entire record. The automation of graduate record will eradicate this problem as new records could be added and amended easily. At the same time unwanted record could be deleted, as system will re-adjust itself automatically. Finally, the benefits of the new system far outweigh the cost.

3.4 SPECIFICATION OF THE PROPOSED SYSTEM

The specification of any system provides a detailed documentation of that system. The specification of National Open Apprenticeship Scheme (NOAS) graduates is expected to serve the following purposes: -

- i. To serve as communication medium to management, programmers, operating staff and users.

- ii. Provide complete record of the system used for evaluation, modification and training purposes.

In view of the above, this system is well documented so that any other analyst can take over the design and manage it efficiently without any problem.

The objective of the change-over has earlier been discussed extensively which include among others; fast data processing, easy information retrieval system, versatile and prompt report generation outfit for attaining the objectives of the new system. In order to realize these goals the following hardware are required: -

1. **COMPUTER**

Pentium Processor

100MHz Speed

3 1/2" Floppy Disk Drive

5 1/2" Floppy Disk Drive

SVGA Monitor.

2. **TERMINALS**

Wyse 60 Colour Terminals

3. **MULTI-SERIAL PORT**

4Nos User Max-peed Serial Board

4. UNINTERRUPTIBLE POWER SUPPLY

APC 600VA Power Back – Up

5. PRINTER

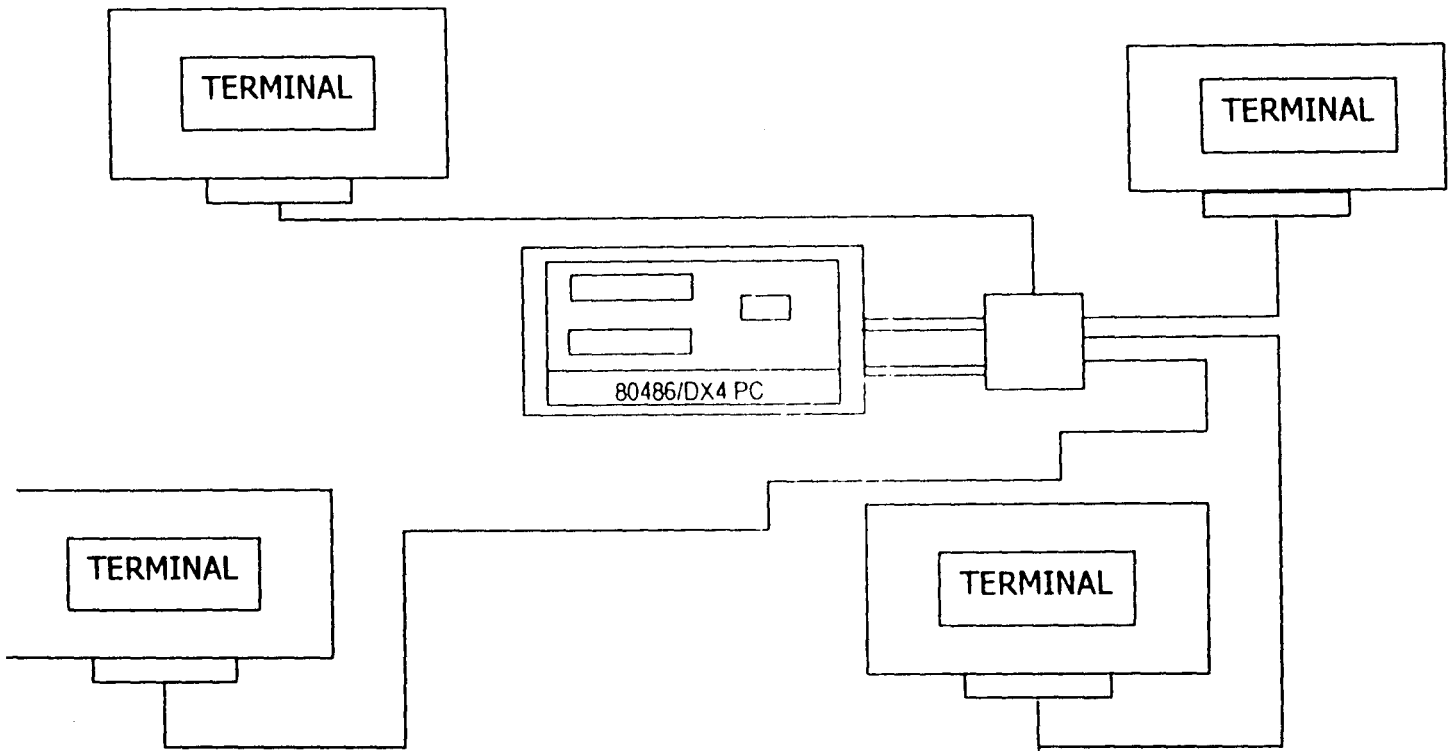
Heavy Duty Epson Dx 500

3.5 HARDWARE CONFIGURATION

As at December 1998 twenty thousand, nine hundred and forty-two (20, 942) trainees have graduated from the National Open Apprenticeship Scheme in Niger State.

In view of the fact that all these backlog of data are to be processed, a multi-user configuration will be installed for implementing this project. This configuration will be in the form of Local Area Network (LAN), such that it will enable four additional users to share the resources of one computer and perform their duties simultaneously in their different locations. This method will reduce cost, as there will be no need-purchasing computer to individual users and at the same time speed-up the task of data entries, processing, editing and updating.

A TYPICAL FIVE MULTIUSER SYSTEM



3.6 JUSTIFICATION OF THE PROPOSED AUTOMATION.

The change-over from the old system of manual record keeping to the new system which entailed the use of computer system for carrying out the database management are considered under the three broad headings viz.

(a) Technical feasibility: - the viability of the proposed system was considered bearing the following retirements in mind:

(i) The specified computer systems to be used are readily available in the country.

(ii) The infrastructure facilities such as power and building required for the change over are already available.

(iii) The Technical supports required are readily available, as many institutions such as Universities, Companies, Hospitals and Banks have already embarked on similar changeover hence have acquired the technical know-how. In view of the above considerations the project is technically viable

(a) **OPERATIONAL FEASIBILITY:** - The proposed system fit perfectly well into the existing method of combating the unemployment problems in the country of which the graduated trainees are the agents of this change. The right information required from the database of the (NOAS) graduates will be readily available. The information that will be generated from this database will be more readily available than the previous manual data processing procedure.

(b) **ECONOMIC FEASIBILITY**

The automation of the records of the (NOAS) graduates is economically viable due to the following reasons:

(i) There is a planning, Research and Statistics Department in the Niger State office of the directorate with computer room, which are yet to be put into use.

(ii) The cost of implementing the change-over from manual processing of data to computerized systems is not too much for the Directorate to shoulder bearing in mind the importance attached to Poverty Alleviation via the National Directorate of Employment.

(iii) Facilities are already put in place for the automation to be feasible. These facilities include twin lights, split Air-conditioners and burglary-proofed windows.

3.7 MAN POWER REQUIREMENT

A computer system is made up of three parts namely, human ware, software and hardware. The importance of human ware in any system cannot be overemphasized. In view of this, the management of the National Directorate of Employment, Niger state will have to conduct, in-house training for the implementers of this new system .The following categories of staff need to be trained:

- (i) Operators
- (ii) Technical staff
- (iii) End users of the report.

Due to the fact that the numbers of staffers in the department are not enough to take care of this new system. The Directorate will have to recruit more staff or draft staff from other departments for the implementation of this new system.

3.8 ELEMENT OF DESIGN

The element of design of the new system can be conveniently divided into the following:

(a) **INPUT:** This is the process of converting an external user oriented input system into a machine format. Consideration of the input will be influenced greatly by the need of output e.g. the necessity for quick response from the system would determine the need for an on – line type of input and the following factors are borne in mind during the course of producing this new system. These are: -

- (i) Data collection method and validation
- (ii) Type of input media available
- (iii) Volumes of input documents
- (iv) Design of input layouts

For this project the input data are generated from the records of the NOAS graduates in Niger State. See Appendix A for Input data

(b) **OUTPUTS:** - Like any other system, consideration was given to what is required of this new system before deciding on how to set about producing it. The design of the output depends on the information required hence; serious considerations were given to the following criteria before producing the output. These are: -

(i) Form (ii) Types (iii) Volumes and frequency of reports and documents. (iv) Choice of output media.

See Appendix B for sample output.

CHAPTER FOUR

PROGRAM DEVELOPMENT, IMPLEMENTATION AND DOCUMENTATION.

4.1 INTRODUCTION

This new system is based on the result of the investigation conducted on the manual data processing of National Open Apprenticeship graduates data, which are based on the batches.

The program is written in Dbase IV and may not run on earlier versions of Database management application such as Dbase I, Dbase II and Dbase III plus.

The program is menu-driven, which is designed to provide error messages and also provide solutions to all the problems that might arise during the course of executing program.

4.2 CHOICE AND FEATURES OF LANGUAGE

In view of the fact that many fields and attributes are involved in the records of the (NOAS) graduates in Niger State. A Database Management System (DBMS) that construct, expand and maintain data contained in database make it suitable for executing this new system. Software refers to the programs, which are used in a particular computer installation. More

specifically, it refers to those programs supplied by manufacturer or specialised software houses and application programs.

The software used for the procedures and programming of this project is Database Management System (DBMS). The DBMS maintains the data in base by adding new records, deleting and amending records.

Dbase IV is used for this project being an advanced version of Dbase that provide a full relational database environment to the users. Contrary to Dbase III plus whereby the assist mode is too restrictive to the users a significant improvement is available at the control centre of Dbase IV. The control centre of Dbase IV, can manipulate and edit records and files; generate reports, perform database query, design labels and browse database without the use of command language.

Data filed can be verified automatically as they are entered in to the fields. Up to 255 fields can be specified per records, and a database can be related to more than two other databases. Programs and procedures can be compiled and saved as project code for faster execution. Pop-up menus and widows can be designed. Other improvement of Dbase IV includes a larger number of memory variables, users-defined functions, up to 99files can be opened at a time. There is also an improved indexing, a larger command line buffer, an improved command line editor, improved printer handling capabilities and faster execution.

4.3 PROGRAM DOCUMENTATION

The main program is called "NOASGRAD.PRG". This program is made up of six Options, and each of these options called on the associated program. In the course of execution, the programs display the options on the screen and the first in the menu is highlighted. At the bottom of the screen is the information to guide the user on how to use the highlighted bar to select an option. The NOASGRAD.PRG has sub-programs linked to it, and returned control to the master program after execution. Other programs linked to the master program are: -

- 1) Data in. Prg
- 2) Modify. Prg
- 3) Del . Prg
- 4) Index. Prg
- 5) Report. Prg
- 6) Quidos. Prg

4.3.1 DATAIN

On selecting Data in option from the master program, the displayed menu is de – activated and the screen is cleared, an empty data entry form is displayed in an rectangular box consisting of the fields that constitute a record.

To maintain database integrity, variables are declared to represent each field in the database file. Databases are entered directly to these variables. At the bottom of these variable fields is displayed a message " ARE THESE ENTRIES OK (Y/N)?" this is to examine the entered record if there is data entry error. If the user chose (N) denoting "No" to this question, the programs will transfer the cursor back to the first field of the record to enable the user move the cursor to the fields where the error occurs.

On the other hand, if the user chose (Y) denoting "Yes", that the entries are correct, the database file is opened and program searches the existing records using the key field I.D card-no. If a match is found an error is displayed at the bottom of the screen reminding the user that such I.D card – no record is already in the file.

The program will then present the user with an option if one wants to insert another record or terminate the program running. If the user choose (Y) to insert a new record, the program cleared the screen and follow the above steps, else if the user chose (N), the program terminate execution and passes control to the master program. If the program passes through these data validations procedures, the programs entered are replaced with their associated fields in the database file.

After being satisfied that the record is error free, the record held in the variables are replaced with their corresponding fields in the database file. The

program then present the user with a message "Add more Records Y/N? This is to enable the user to terminate the process of data entry or continue depending on his choice. If the user chooses (Y) to this question, the program control is transferred to the beginning of the program to follow the described process of data entry else the program control is passed to the master program and reactivate the menu to enable the user make another choice. Until the user choose quit to DOS before the program terminate.

4.3.2 MODIFY. PRG

The modify program enable the user to effect changes to the existing records held in the database file. On selecting this option the program cleared the screen and displayed a test. " Modify NOASGRAD I. D card No". This is to enable the search to specify the entered NOAS graduate I.D card Number.

The program performed the search starting from the first record in the database file using the entered I.D card–No till a match is found or end of file is encountered. If a match is found, the record is displayed on the screen with the cursor to the desired field (s) to effect change. At the bottom of the fields is a message " MODIFY MORE RECORDS (y/n)"? If the user chose (y) the program transfer control to the beginning and perform the above

process, else if the user choose (N) the program is returned to the master program file and re-activate the menu.

During the modification process, if the user attempts to change or wipe off the key field I.D card – No, an error message is displayed at the bottom of the screen that there is an attempt to wipe off the key field and allowed the user to modify another record. If the search fails and end of file is encountered the program displayed an error at the bottom of the screen to inform the user that such record does not exist in the database file. It will provide an option if the user wants to search for more records or not depending on the users choice, if “Y” the program give room to enable more or other search, else return the program control to the master program to re-activate the menu plus the options.

4.3.3 DELETE. PRG

The delete program allows the user to permanently remove unwanted records from the database file. The program present the user to enter the I.D card – no to search. A search is then performed on the records in the database. If a match is found the colour of the fields are displayed on a red background. The program does not provide a means of changing anything in the record. At the bottom of the fields is a text “Delete this record (Y/N)?” if the user choose ‘Y’ the screen is cleared and the text “Delete more record

(Y/N)”? Is displayed to enable the user delete more record or terminate the program execution. On the other hand if a match is not found in the database file, error messages as in the modify program are displayed on the screen.

4.3.4 INDEXING OF RECORDS

The indexing of record, which must be run before generating the reports is an option that allowed record held in the database to be arranged following each other chronologically or serially.

4.3.5 REPORT GENERATOR

The report generator option when selected deactivates the main menu and the options and the program cleared the screen. All database files opened are closed. The colours of previously run program are set to their defaults.

The program enters a while loop, which is to determine the status of the printer. The while command iterates until the printer is on-line or connected or terminates prematurely, and the control is passed to the highest level, NOASGRAD. Prg.

4.3.6 END OF PROGRAM RUNNING

This option and the program running close all database files used. Before passing control to the Disk Operating System (DOS), it displayed a message reminding the user to backup all files used in the process of the application running and allow the user to press return key before leaving database.

4.4 WORKSTATION REQUIREMENTS

The new system is designed to run on a multi-user operating system and require IMB, PC 80486DX/280MHz, 8MB Random Access Memory (RAM) 3 1/2", 5 1/4" Floppy Drive 540MB, SVGA Monitor and Multi-user Operating System.

4.5 FEATURE OF OPERATING SYSTEM

Personal Computer Multi-User Operating System (PC-MOS) is an advanced Operating System designed to provide multi task and Multi-User Capability to Personal Computers (PC).

4.5.1 MULTITASKING CONCEPT

The multitasking capability of PC-MOS allows the user to maximise computer to its fullest processing capability. This is done by dividing the

computer memory into partitions. These partitions will thus allow the user to run more than one program simultaneously.

In a single tasking environment, while a user is working with the computer there is no access for other user; as they have to wait until the single-user might have finished his/her job. Where as, in a multi-tasking environment while a user is occupying a partition, other users can make use of other idle partitions to process other application.

4.5.2 MULTI-USER CONCEPT

The multi-user version of PC-MOS, enable the user to either connect the terminals or the workstations to the host computer so that more than one user can share the resources of a single computer. While a user is entering data from the graduate record another user may be running a PowerPoint program, another user may be making use of the word processing program for typing documents.

The NOAS graduates program is written in such a way as to facilitate the sharing of record and file in a multi-user processing environment.

4.5.3 REBOOTING TASKS

The multi-user partitions allows users to reboot independently of the host computer by pressing the Ctrl-Alt-Del keys at the same time on their terminal keyboard. Pressing Ctrl-Alt-Del key at the same time by a user will have no effect on the rebooting task unless the user is the host computer. To reboot a task one should switch back to his/her own task.

4.5.4 REMOVING TASK

It is possible for a user to remove any task except for the host partition (0). These features will enable one to make available some memory, if one is trying to run an application that requires large memory.

4.5.5 ADDING TASK

It is possible to add a task to the existing ones; these features will enable one to create another partition at any time to run any desired application.

4.6 SYSTEM CONVERSION/CHANGE OVER PROCEDURE.

The ultimate aim of this project is to arrive at a change-over from the manual data processing of the National Open Apprenticeship graduates

record to computer operated system otherwise call automation. This is arrived at after the new system has been fully tested. The various methods of changeover that could be adopted for this project are as discussed below:

4.6.1 PARALLEL RUNNING

This involves the processing of the current life data on both the old and the new system to check the accuracy of the new system in the real life situation.

The main advantage of a parallel changeover is that the old system is kept alive until the new system has been sufficiently proved for at least one life cycle using full data in the real environment. The choice of parallel change over should never be used as an excuse for bad undergone testing. The new system should still undergo total testing before the change over period begins.

4.6.2 PILOT OPERATION

Pilot operations are of two types. The first can be described as introducing the new system in a piece meal fashion. It may be difficult to do this with an integrated system as a separate entity.

The other system can be described as phase out parallel running, this is due to the fact that it is not as parallel as consecutive. The new period and

the result checked from the previous period result checked against the known original system. This is easier to control than parallel running.

In view of the above point, parallel change over will be adopted. Using this method, the manual process will continue while the computer generated output of the same data will be used to compare with the manual report to check and eradicate discrepancies before discarding the manual system completely.

4.7 STARTING THE SYSTEM

First of all, switch on the wall mains to which the UPS is connected. Switch on the UPS, and the printer, if attached to the computer. Switch on the computer and the Monitor. Then allow the computer to boot up and present one with the drive C:\ > prompt.

4.8 INSTALLATION OF NOAS GRADUATE SOFTWARE

Insert the diskette containing the software into Drive A: or B: and change to either of the drive. At the prompt type "INSTALL" and press the enter key, wait for the software to install itself to drive C: After the installation the system will log on to drive C: in a sub-directory called C:/NOASGRAD>.

To execute the program, one should ensure that DBASE IV is already installed on the Hard Disk. If the DOS path is set to Dbase IV directory, then one should type DBASE and Press enter. Then wait for few seconds to allow DBASE IV to load itself.

After loading, DBASE IV will present one with the dot prompt. At the dot prompt one should type DO ASSESS and press enter. The program will compile itself and display main menu.

On the other hand, if DOS PATH is not set to DBASE IV directory, the path should be set by typing PATH=C:/DBASE and enter, then followed by the above steps to run the program.

4.9 RUNNING THE NOAS GRADUATE PROGRAM ON FLOPPY DISKETTE

It is possible to run the (NOAS) graduate program in the floppy disk. Log on the directory where Dbase reside, if the DOS PATH is not set at the directory one should type DBASE and press enter, then wait for few seconds to allow DBASE to load and present the dot prompt. Inserting the floppy diskette into drive A follows this: or B. At DBASE dot prompt one should type SET DEFAULT TO A: or B: enter (Depending on the drive the disk is). This command will direct DBASE to enter drive A: or B: you then type DO ASSESS and press enter. The program will compile and then display the main menu. For best result this program is designed to run on High-Density floppy disk.

4.10 MENU STRUCTURE

The main menu is a table of options that can be available to be used on request. All that one need to do is to move the highlight cursor to the desired option and press the enter key. The menu program will call on the desired option for execution.

5.2 RECOMMENDATION

In view of the aforementioned points on the possibility of generating both the individual reports and summary report for all the graduates due to changeover to an automation system. It is therefore possible to generate report for all the 36 states of the federation and the Federal Capital Territory on the graduates of the National Open Apprenticeship Scheme (NOAS). Hence a realistic National Planning Parameter could be derived easily from this automation.

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```

DEFINE BAR 3 OF MAINMENU PROMPT "    MODIFY RECORD(S)    ";
    MESSAGE "Make changes to existing record(s)"
DEFINE BAR 4 OF MAINMENU PROMPT "    DELETE RECORD(S)    ";
    MESSAGE "Remove existing record(s)"
DEFINE BAR 5 OF MAINMENU PROMPT "    INDEXING OF RECORDS    ";
    MESSAGE "Sorts records"
DEFINE BAR 6 OF MAINMENU PROMPT "    REPORT    ";
    MESSAGE "Output report to screen,printer or file"
DEFINE BAR 7 OF MAINMENU PROMPT "    EXIT TO DOS    ";
    MESSAGE "Leave the program"
ON SELECTION POPUP MAINMENU DO MAIN
RETURN

```

PROCEDURE MAIN

```

DO CASE
    CASE BAR() = 2
        DO ADDREC
    CASE BAR() = 3
        DO MODIFREC
    CASE BAR() = 4
        DO DELREC
    CASE BAR() = 5
        DO SORTREC
    CASE BAR() = 6
        DO REPREC
    CASE BAR() = 7
        CLEA
        QUIT

```

ENDCASE

RETURN

PROCEDURE TITLE

CLEAR

SET CLOCK TO 1,63

@1,12 SAY DATE()

@2,24 TO 5,69 DOUBLE COLOR R+

@2,23 FILL TO 5,70 COLOR W+/B+

SET COLOR TO R+/B+

@3,25 SAY " AUTOMATION OF STATISTICS OF NATIONAL"

@4,25 SAY "OPEN APPRENTICESHIP GRADUATES IN NIGER STATE"

SET COLOR TO

@17,10 TO 20,70

@18,20 SAY "Use the UP and DOWN ARROW keys to make selection"

@19,20 SAY " and press ENTER key "

SET COLOR TO

RETURN

* THIS IS FOR THE HEADING *

PROCEDURE HEAD

SET COLOR TO W+/B+,R+
CLEA

@1,8 SAY DATE()
SET CLOCK TO 1,67
@2,0 TO 2,19 DOUBLE
@2,65 TO 2,79 DOUBLE
@0,20 TO 5,65 PANEL
@2,22 SAY "AUTOMATION OF STATISTICS NATIONAL OPEN"
@3,22 SAY "APPRIENTICESHIP GRADUATES IN NIGER STATE"
RETURN

* THIS FOR DATA FORMAT*

PROCEDURE DATA

@10,6 SAY "SERIAL NUMBER: " GET MSNO PICT "9999"
@10,28 SAY "NAME : " GET MNAME PICT "@!"
@10,61 SAY "BATCH: " GET MBATCH PICT "@!"
@12,38 SAY "DATE OF INFORMATION: " GET MDINT
@14,6 SAY "TRADE : " GET MTRADE PICT "@!"
@14,33 SAY "PERMANENT HOME ADDRESS:" GET MPERHAD PICT "@!"
@16,6 SAY "COMMENCEMENT DATE:" GET MCOMDATE
@16,37 SAY "SEX:" GET MSEX PICT "!" VALID MSEX \$ "MF"
@16,45 SAY "FINISHING DATE: " GET MFINDATE
@18,6 SAY "TRAINER'S ADDRESS : " GET MTADD PICT "@!"
@18,50 SAY "STATE: " GET MSTATE PICT "@!"
RETURN

*****:*****> : : * * * * *
* THIS IS FOR ADDING RECORD NEW ENTRY*
*****:*****:*****:*****

PROCEDURE ADDREC

ANS = "Y"
DO WHILE ANS = "Y"
DO HEAD
USE TRADE
@7,30 SAY "NEW ENTRY"
@8,0 TO 8,79 DOUBLE
@9,5 TO 19,78

STORE 0 TO MSNO
STORE SPACE(25) TO MNAME
STORE SPACE(1) TO MSEX
STORE SPACE(10) TO MIDNO

```

STORE SPACE(15) TO MTRADE
STORE SPACE(20) TO MPERHAD
STORE CTOD(" / / ") TO MCOMDATE
STORE CTOD(" / / ") TO MFINDATE
STORE CTOD(" / / ") TO MDINF
STORE SPACE(20) TO MTADD
STORE SPACE(15) TO MSTATE
STORE SPACE(8) TO MBATCH

@12,6 SAY "I.D. CARD NO.:" GET MIDNO PICT "9999999999"
READ
IF MIDNO=SPACE(10)
  @15,15 SAY "Null Record NOT Allowed, Press
"+Chr(17)+Chr(196)+Chr(217)+" To Continue..." COLOR W+*/B+
  SET COLOR TO W+/B+,,R+
  WAIT ""
  @15,15 CLEAR TO 15,74
ELSE
  LOCATE ALL FOR IDNO=MIDNO
  IF FOUND()
    @15,20 SAY "This Record Already Exist, O.K"
    @16,20 SAY "Press "+Chr(17)+Chr(196)+Chr(217)+" To Continue..."
" COLOR W+*/B+
    SET COLOR TO W+/B+,,R+
    WAIT ""
    @16,20 CLEAR TO 16,74
  ELSE
    DO DATA
    READ
    APPEND BLANK
    REPLACE SNO WITH MSNO,NAME WITH MNAME,SEX WITH MSEX
    REPLACE IDNO WITH MIDNO,TRADE WITH MTRADE,PERHAD WITH
MPERHAD
    REPLACE COMDATE WITH MCOMDATE,FINDATE WITH
MFINDATE,TADD WITH MTADD
    REPLACE DINF WITH MDINF,STATE WITH MSTATE,BATCH WITH
MBATCH
  ENDIF
ENDIF
@20,20 TO 22,50
@21,22 SAY "More Entry? (Y/N)" GET ANS PICT "!"
READ
ENDDO
CLOSE DATABASE
SET COLOR TO
DO TITLE
RETURN

```

```
*****
* THIS IS FOR MODIFICATION OF RECORD(S) *
*****
```

```
PROCEDURE MODIFREC
```

```
ANS2="Y"
```

```
DO WHILE ANS2="Y"
```

```
DO HEAD
```

```
USE TRADE
```

```
@7,30 SAY "MODIFY RECORD(S)"
```

```
@8,0 TO 8,79 DOUBLE
```

```
@9,5 TO 19,78
```

```
STORE SPACE(10) TO MIDNO
```

```
@12,6 SAY "I.D. CARD NO.:" GET MIDNO PICT "9999999999"
```

```
READ
```

```
IF MIDNO=SPACE(10)
```

```
  @15,15 SAY "Null Record NOT Allowed, Press  
"+Chr(17)+Chr(196)+Chr(217)+" To Continue..." COLOR W+*/B+  
  SET COLOR TO W+/B+,,R+  
  WAIT ""
```

```
  @15,15 CLEAR TO 15,74
```

```
ELSE
```

```
  LOCATE ALL.FOR IDNO=MIDNO
```

```
  IF .NOT. FOUND()
```

```
    @15,20 SAY "This Record does NOT Exist, O.K"
```

```
    @16,20 SAY "Press "+Chr(17)+Chr(196)+Chr(217)+" To Continue..."
```

```
" COLOR W+*/B+
```

```
  SET COLOR TO W+/B+,,R+
```

```
  WAIT ""
```

```
  @16,20 CLEAR TO 16,74
```

```
ELSE
```

```
  STORE NAME TO MNAME
```

```
  STORE SEX TO MSEX
```

```
  STORE SNO TO MSNO
```

```
  STORE TRADE TO MTRADE
```

```
  STORE PERHAD TO MPERHAD
```

```
  STORE COMDATE TO MCOMDATE
```

```
  STORE FINDATE TO MFINDATE
```

```
  STORE TADD TO MTADD
```

```
  STORE DINF TO MDINF
```

```
  STORE STATE TO MSTATE
```

```
  STORE BATCH TO MBATCH
```

```
DO DATA
```

```
READ
```

```
REPLACE SNO WITH MSNO,NAME WITH MNAME,SEX WITH MSEX
```

```

REPLACE IDNO WITH MIDNO,TRADE WITH MTRADE,PERHAD WITH
MPERHAD
REPLACE COMDATE WITH MCOMDATE,FINDATE WITH
MFINDATE,TADD WITH MTADD
REPLACE DINF WITH MDINF,STATE WITH MSTATE,BATCH WITH
MBATCH
ENDIF
ENDIF
@20,20 TO 22,50
@21,22 SAY "Modify More? (Y/N)" GET ANS2 PICT "!"
READ
ENDDO
CLOSE DATABASE
SET COLOR TO
DO TITLE
RETURN

```

```

*****
* THIS FOR DELETION OF RECORD(S) *
*****

```

```

PROCEDURE DELREC

```

```

ANS3="Y"

```

```

DO WHILE ANS3="Y"

```

```

DO HEAD

```

```

USE TRADE

```

```

@7,30 SAY "DELETE RECORD(S)"

```

```

@8,0 TO 8,79 DOUBLE

```

```

@9,5 TO 19,78

```

```

STORE SPACE(10) TO MIDNO

```

```

@12,6 SAY "I.D. CARD NO.:" GET MIDNO PICT "9999999999"

```

```

READ

```

```

IF MIDNO=SPACE(10)

```

```

@15,15 SAY "Null Record NOT Allowed, Press

```

```

"+Chr(17)+Chr(196)+Chr(217)+" To Continue..." COLOR W+*/B+

```

```

SET COLOR TO W+/B+,,R+

```

```

WAIT ""

```

```

@15,15 CLEAR TO 15,74

```

```

ELSE

```

```

LOCATE ALL FOR IDNO=MIDNO

```

```

IF .NOT. FOUND()

```

```

@15,20 SAY "This Record does NOT Exist, O.K"

```

```

@16,20 SAY "Press "+Chr(17)+Chr(196)+Chr(217)+" To Continue...

```

```

" COLOR W+*/B+

```

```

SET COLOR TO W+/B+,,R+

```

```

WAIT ""

```

```

@16,20 CLEAR TO 16,74

```

```

ELSE

```

```

STORE NAME TO MNAME
STORE SEX TO MSEX
STORE SNO TO MSNO
STORE TRADE TO MTRADE
STORE PERHAD TO MPERHAD
STORE COMDATE TO MCOMDATE
STORE FINDATE TO MFINDATE
STORE TADD TO MTADD
STORE DINF TO MDINF
STORE STATE TO MSTATE
STORE BATCH TO MBATCH

```

```

DO DATA
CLEAR GETS
STORE "N" TO ANNS
@20,20 TO 22,65
@21,22 SAY "Do you want to DELETE this record? (Y/N)" GET ANNS
PICT "!"
  READ
  IF ANNS = "Y"
    DELETE
    PACK
    @23,15 SAY "Record Successfully Dleted Press
"+Chr(17)+Chr(196)+Chr(217)+" To Continue... " COLOR W+*/B+
    SET COLOR TO W+/B+,,R+
    WAIT ""
    @20,10 CLEAR TO 23,74
  ELSE
    @23,15 SAY "Press "+Chr(17)+Chr(196)+Chr(217)+" To Continue...
" COLOR W+*/B+
    SET COLOR TO W+/B+,,R+
    WAIT ""
    @20,10 CLEAR TO 23,74
  ENDIF
ENDIF
ENDIF
@20,20 TO 22,50
@21,22 SAY "Delete More? (Y/N)" GET ANS3 PICT "!"
READ
ENDDO
CLOSE DATABASE
SET COLOR TO
DO TITLE
RETURN

```

```

*****
*THIS IS THE SUBMENU FOR INDEXING*
*****
PROCEDURE SORTREC
ANS3 = "Y"
DO WHILE ANS3 = "Y"
DO HEAD
USE TRADE
@7,30 SAY "INDEXING OF RECORD(S)"
@8,0 TO 8,79 DOUBLE
@9,5 TO 19,78
  @13,15 SAY "You are about to INDEX Records with SERIAL NUMBERS"
  @15,15 SAY "Press "+Chr(17)+Chr(196)+Chr(217)+" To Continue..."
COLOR W+*/B+
  SET COLOR TO W+/B+,,R+
  WAIT ""
  INDEX ON SNO TAG SNO
  @15,15 CLEAR TO 15,74
  @17,15 SAY "Records Successfully Indexed Press
"+Chr(17)+Chr(196)+Chr(217)+" To Continue..." COLOR W+*/B+
  SET COLOR TO W+/B+,,R+
  WAIT ""
  @15,10 CLEAR TO 18,74
ANS3 = "N"
ENDDO
CLOSE DATABASE
SET COLOR TO
DO TITLE
RETURN

```

```

*****
*THIS IS FOR REPORT*
*****
PROCEDURE SELECTOUT
SET ALTERNATE ON
STORE 0 TO CCHOICE
STORE SPACE(12) TO MFILE
CLEA
@5,16 TO 20,68 PANEL
@7,35 SAY "OUTPUT MENU"
@8,17 TO 8,63 DOUB
@12,25 SAY "[1]...SEND OUTPUT TO SCREEN"
@14,25 SAY "[2]...SEND OUTPUT TO PRINTER"
@16,25 SAY "[3]...SEND OUTPUT TO FILE"
@18,30 SAY "Enter choice (1-3): " GET CCHOICE PICT "9" RANGE 1,3
READ
DO CASE
CASE CCHOICE = 1

```

```

    SET DEVICE TO SCREEN
CASE CCHOICE = 2
    SET DEVICE TO PRINTER
CASE CCHOICE = 3
    @ 19,25 SAY "ENTER FILENAME: "GET MFILE PICT "@!"
    READ
    SET DEVICE TO FILE MFILE
ENDCASE
RETURN

```

```

PROCEDURE REPREC
OK = "Y"
DO WHILE OK = "Y"
STORE 0 TO CCHOICE2
CLEA
SET DEVICE TO SCREEN
@5,16 TO 16,73 DOUB
@6,35 SAY "REPORT MENU"
@7,17 TO 7,72 PANE
@8,25 SAY "[1]...INDIVIDUAL REPORT"
@10,25 SAY "[2]...SUMMARY "
@12,25 SAY "[3]...EXIT TO MAIN MENU"
@14,30 SAY "Enter choice (1-3): " GET CCHOICE2 PICT "9" RANGE 1,3
READ
DO CASE
    CASE CCHOICE2 = 1
        DO SELECTOUT
        DO REPORT1
    CASE CCHOICE2 = 2
        DO SELECTOUT
        DO REPORT2
    CASE CCHOICE2 = 3
        DO TITLE
        RETURN
ENDCASE
OK = "N"
ENDDO
RETURN

```

```

PROCEDURE REPORT1
ANS10 = "Y"
DO WHILE ANS10 = "Y"
DO HEAD
USE TRADE
@7,30 SAY "INDIVIDUAL REPORT"
@8,0 TO 8,79 DOUBLE

```


@9,5 TO 19,78

STORE SPACE(10) TO MIDNO

@12,6 SAY "I.D. CARD NO.:" GET MIDNO PICT "9999999999"

READ

IF MIDNO=SPACE(10)

 @15,15 SAY "Null Record NOT Allowed, Press

 "+Chr(17)+Chr(196)+Chr(217)+" To Continue..." COLOR W+*/B+

 SET COLOR TO W+/B+,,R+

 WAIT ""

 @15,15 CLEAR TO 15,74

ELSE

 LOCATE ALL FOR IDNO=MIDNO

 IF .NOT. FOUND()

 @15,20 SAY "This Record does NOT Exist, O.K"

 @16,20 SAY "Press "+Chr(17)+Chr(196)+Chr(217)+" To Continue..."

 " COLOR W+*/B+

 SET COLOR TO W+/B+,,R+

 WAIT ""

 @16,20 CLEAR TO 16,74

ELSE

 STORE NAME TO MNAME

 STORE SEX TO MSEX

 STORE SNO TO MSNO

 STORE TRADE TO MTRADE

 STORE PERHAD TO MPERHAD

 STORE COMDATE TO MCOMDATE

 STORE FINDATE TO MFINDATE

 STORE TADD TO MTADD

 STORE DINF TO MDINF

 STORE STATE TO MSTATE

 STORE BATCH TO MBATCH

 DO DATA

 CLEAR GETS

ENDIF

ENDIF

@20,20 TO 22,59

@21,32 SAY "More Report (Y/N)" GET ANS10 PICT "!"

READ

ENDDO

CLOSE DATABASE

SET COLOR TO

DO REPREC

RETURN

PROCEDURE REPORT2

USUAL="Y"

```

DO WHILE USUAL="Y"
DO HEAD
USE TRADE
@5,30 SAY "SUMMARY REPORT"
@7,5 SAY STATE
@9,5 SAY BATCH
@9,90 SAY DINF
@8,0 TO 8,79 DOUBLE
@11,1 SAY " S/N   NAME       SEX I.D.NO.  TRADE   PERMANENT
ADDRESS  COMMENCEMENT DATE FINISHING DATE  TRAINER'S
ADDRESS"
@12,0 TO 12,79
GO TOP
K=13
P=K-12
DO WHILE .NOT. EOF()
    @K,1 SAY SNO
    @K,8 SAY NAME
    @K,24 SAY SEX
    @K,29 SAY IDNO
    @K,37 SAY TRADE
    @K,50 SAY PERHAD
    @K,70 SAY COMDATE
    @K,88 SAY FINDATE
    @K,104 SAY TADD
    SKIP
    P = P + 1
    K = K + 2
    IF K >= 30
        WAIT
    K= 13
    ENDF
LOOP
ENDDO
WAIT
SET COLOR TO
DO REPREC
USUAL="N"
ENDDO
□

```

APPENDIX B

SAMPLE OUT FROM THE PROGRAM